

WCRIBMA
THE WORKERS' COMPENSATION RATING
AND INSPECTION BUREAU OF MASSACHUSETTS

December 23, 2015

The Honorable Daniel R. Judson
Commissioner of Insurance
Massachusetts Division of Insurance
1000 Washington Street, Suite 810
Boston MA 02118-6200

Dear Commissioner Judson:

In accordance with General Laws, Chapter 152, Sections 52 and 53A, as amended by St. 1985, c. 572, I submit, on behalf of all members and subscribers of The Workers' Compensation Rating and Inspection Bureau of Massachusetts (WCRIBMA), a General Revision of Workers' Compensation Insurance Rates and Rating Values.

With this letter, I am submitting the technical support for the analysis underlying the proposed statewide increase in average rates of 6.4%. Our Cost Containment filing is attached as Volume 3 of the filing.

We propose the manual rates to be effective 12:01 A.M., July 1, 2016, and to apply to each risk as of the first normal anniversary rating date following that effective date.

Sincerely,



Paul F. Meagher
President

**COMMONWEALTH OF MASSACHUSETTS
DIVISION OF INSURANCE**

Docket No. 15-

In re:

**APPLICATION OF THE WORKERS'
COMPENSATION RATING AND INSPECTION
BUREAU OF MASSACHUSETTS FOR APPROVAL
OF A GENERAL RATE REVISION TO BE
EFFECTIVE ON AND AFTER July 1, 2016**

PRE-FILED DIRECT TESTIMONY OF DAVID APPEL

The Workers' Compensation Rating and Inspection Bureau of Massachusetts ("WCRIBMA") submits the following direct testimony of David Appel in support of its application for a general rate revision to be effective on and after July 1, 2016.

Q. Please state your full name.

A. David Appel.

Q. What are your professional qualifications?

A. I am a Principal and Director of Economics Consulting with the firm of Milliman, Inc. Milliman is one of the nation's largest independently owned consulting firms specializing in the areas of risk and insurance. The company operates offices in more than 60 cities in the U.S., Europe, Latin America, Asia and Australia. Our employees number over 2,600, and our clients number in the thousands. They include insurers, self-insured entities, Federal and State Governments, private corporations, non-profit organizations, unions, and many others. A complete description of my academic and professional credentials can be found in my curriculum vitae, which is attached to this testimony.

Q. What was your role in the preparation of the current WCRIBMA filing for a general rate revision?

A. I was responsible for and sponsor the materials in Section VII of the WCRIBMA's filing dealing with the estimation of the cost of capital and the use of discounted cash flow models to derive the underwriting profit provision proposed by the WCRIBMA this year. I have relied upon the WCRIBMA to provide the underwriting cash flows (for losses, expenses and premiums) that are used in the discounted cash flow models. To the best of my knowledge, information and belief, the data and calculations underlying Section VII of the filing are complete and accurate, and the narrative statements offered in support of Section VII are also accurate and correct.

Q. Are you familiar with the underwriting profit provision used by the WCRIBMA in calculating the proposed rates?

A. Yes.

Q. Are you familiar with the statutory standard that must be applied by the Commissioner in reviewing the rates proposed in the WCRIBMA's current filing – that they “are not excessive, inadequate or unfairly discriminatory” and that they “fall within a range of reasonableness”?

A. Yes. That is the standard typically applied by regulators in assessing insurance rates.

Q. Do you have an opinion as to whether the rates proposed in the WCRIBMA's current filing satisfy the statutory standard?

A. Yes.

Q. What is your opinion?

A. For the reasons offered in Section VII, it is my professional opinion that if the actuarial projections of losses, expenses and premiums in the filing are reasonable, then the proposed rates satisfy the statutory standard because the underwriting profit provision has been calculated so that the rates will yield a fair return to the insurers who have invested their capital in the Massachusetts workers' compensation market.

Q. Do you have anything to add to the text of Section VII of the filing at this time?

A. Yes. While I have concluded that the rates as filed by the WCRIBMA are reasonable and not excessive, I must also note that I believe that the calculations used to derive the indicated profit provision are extremely conservative in the sense that they overstate the income insurers would reasonably expect to earn from the sale of workers' compensation insurance in Massachusetts. To the extent that income is overstated, of course, the required rate change will be set too low. There are three principal reasons for this.

First, the discounted cash flow modes used to derive the underwriting profit provision in the filing do not reflect the true cost of policyholder dividends. Policyholder dividends are refunds of premium paid at the end of the policy period (and are frequently tied to the loss experience of the insured). Dividend payments definitively reduce insurer income, and should be reflected in the derivation of underwriting profit provisions. However, in her Decision on 2003 Rates, the Commissioner rejected consideration of dividends in any fashion, and hence in this year's model the WCRIBMA has not considered policyholder dividends in any form. (I understand that previous practice in Massachusetts had been to simply reflect the reduction in investible funds due to the

payment of policyholder dividends, but not to reflect the dividend expense itself. In this filing neither the dividend expense nor the reduction in investible funds has been reflected.)

Second, the WCRIBMA has included a provision for the cost of reinsurance in the current filing, but its provision is restricted solely to the reinsurer's expense costs. That is, it does not consider the true net cost of reinsurance, which includes not only the reinsurer's expenses, but also the reinsurer's required profit. Had the reinsurer's required profit been reflected, the required rate change would have been higher.

Third, the WCRIBMA has assumed that all special revenue bonds are tax-exempt, an assumption known to be untrue. A portion of such bonds – approximately half based on recent research – are subject to Federal tax, which, if recognized, would reduce the after tax yield on the investment portfolio. Had a lower after tax portfolio yield been used in the model, the required rate change would have been higher.

It is evident that each of these assumptions provides a degree of conservatism in the filing, in that each works to lower the profit provision estimated by the WCRIBMA.

I would add that I have not adjusted the target rate of return to reflect the arguably greater risk of workers' compensation relative to the average line of property/casualty insurance. I note that had I set the target return higher, a higher underwriting profit would have been indicated as well.

Signed this 14th day of December 2015 under the pains and penalties of perjury.

A handwritten signature in black ink, appearing to read "David Appel", written over a horizontal line.

David Appel

DAVID APPEL

One Pennsylvania Plaza
New York, NY 10119
(646) 473-3000

PROFESSIONAL EXPERIENCE:

1989 to present	MILLIMAN, INC. Principal & Director - Economics Consulting Responsible for the formation, development and management of a national consulting practice in insurance economics.
1980 to 1989	NATIONAL COUNCIL ON COMPENSATION INSURANCE Economic and Social Research Division
1985 to 1989	Vice President
1983	Assistant Vice President Responsible for all economic and social research of NCCI
1982	Director of Economic and Social Research
1981	Senior Research Economist
1980	Associate Research Economist
1976 to 1997	RUTGERS UNIVERSITY
1981-97	Associate of the Graduate Faculty, Department of Economics, Newark, New Jersey
1981-93	Teach variety of graduate courses including: Microeconomic Theory, Industrial Organization, Public Finance
1978-80	Instructor, Department of Economics, New Brunswick, New Jersey
1976-78	Adjunct Instructor, Department of Economics, Newark, New Jersey
EDUCATION:	
1980	Ph.D., Economics, Rutgers University
1976	M.A., Economics, Rutgers University
1972	B.A., Economics, Brooklyn College, CUNY Fellow: National Academy of Social Insurance

PAPERS AND PUBLICATIONS

“Comment on Jaffee and Russell” in Deregulating Property-Liability Insurance, J. David Cummins, Editor, Brookings Institution Press, Washington, DC, 2002

"Dynamic Financial Analysis of a Workers Compensation Insurer", CAS Call Papers Program, 1997 (with Susan Witcraft and Mark Mulvaney)

"The Impact of Managed Care on Workers Compensation Claim Costs," in a volume of conference proceedings published by the Workers' Compensation Research Institute, September 1994, (with Philip Borba).

"Health Care Costs in Workers' Compensation", Benefits Quarterly, Vol. 9, No. 4, Fourth Quarter, 1993

"The Transition From Temporary to Permanent Disability: A Longitudinal Analysis" in Workers' Compensation Insurance: Claims Costs, Prices and Regulation, David Durbin and Philip Borba, Editors, Kluwer Academic Publishers, Boston, 1992, (with Richard Butler, David Durbin and John Worrall)

"Leverage, Interest Rates and Workers' Compensation Survival" in Workers' Compensation Insurance: Claims Costs, Prices and Regulation, David Durbin and Philip Borba, Editors, Kluwer Academic Publishers, Boston, 1992, (with Richard Butler, David Durbin and John Worrall)

Benefits, Costs and Cycles in Workers' Compensation, Kluwer Academic Publishers, Boston, 1990, (co-editor with Philip Borba)

"Benefit Increases in Workers' Compensation", Southern Economics Journal, January 1990, (with Richard J. Butler)

"Internal Rate of Return Criteria in Ratemaking", NCCI Digest, Vol. IV, Issue III, September 1990, (with Richard J. Butler).

"Social Inflation in Workers' Compensation: The Phenomenon of Benefit Utilization", Proceedings of the Casualty Loss Reserve Seminar, 1988. Also in Contingencies, Nov./Dec., 1989.

Workers' Compensation Insurance Pricing: Current Programs and Proposed Reforms, Kluwer Academic Publishers, Boston, 1988,(co-editor with Philip Borba)

"Prices and Costs of Workers' Compensation" in Workers' Compensation Insurance Pricing: Current Programs and Proposed Reforms, Kluwer Academic Publishers, Boston, 1988, (with Philip Borba)

“1986 Tax Reform Act: Effects on Workers' Compensation Profitability”, NCCI Digest, Vol. II, Issue II, July 1987 (with James Gerofsky)

"The Propensity for Permanently Disabled Workers' to Hire Legal Services" , Industrial and Labor Relations Review, April 1987, (with Philip Borba)

"Sex, Marital Status, and Medical Utilization by Injured Workers'", Journal of Risk and Insurance, Vol. LIV, No. 1, March 1987, (with John Worrall and Richard Butler)

"The Impact of Workers' Compensation Benefits on Low Back Claims" in Clinical Concepts in Regional Musculoskeletal Illness, Nortin M. Hadler, ed. (Boston: 1986, Grune and Stratton), (with John Worrall)

"Workers' Compensation and Employment: An Industry Analysis" in Disability and the Labor Market: Economic Problems, Policies and Programs, M. Anne Hill and Monroe Berkowitz, eds., (Ithaca: 1986 ILR Press), (with James Lambrinos)

"Some Benefit Issues in Workers' Compensation", in Workers' Compensation Benefits: Adequacy, Equity, Efficiency, (Ithaca:1985 ILR Press), (with John Worrall)

Workers' Compensation Benefits: Adequacy, Equity, Efficiency, (co-editor with John Worrall), (Ithaca:1985 ILR Press)

"Survivorship and the Size Distribution of the Property-Liability Insurance Industry", Journal of Risk and Insurance, October 1985, (with John Worrall and Richard Butler).

"Regulating Competition-The Case of Workers' Compensation Insurance", Journal of Insurance Regulation, (with James Gerofsky), June 1985.

"The Wage Replacement Rate and Benefit Utilization in Workers' Compensation Insurance", Journal of Risk and Insurance, September 1982 (with John Worrall)

"Property Damages", in Joseph Seneca and Peter Asch, The Benefits of Air Pollution Control in New Jersey, Center for Coastal and Environmental Studies, Rutgers University, 1979

WORKING PAPERS

"Workers' Compensation Pricing: The Role of Policyholder Dividends" (with David Durbin)

"The Impact of Lifetime Work on Mortality: Do Unisex Pensions Matter?" (with Richard J. Butler)

"Regulatory Survival: Rate Changes in Workers' Compensation" (with Richard J. Butler and John D. Worrall)

"Framing, Firm Size and Financial Incentives in Workers' Compensation Insurance" (with Richard J. Butler and John D. Worrall)

"Application of NAIC Profitability Models to Long Tailed Lines of Insurance" (with James Gerofsky)

INVITED PRESENTATIONS

Huntington Beach, California, March 11, 2013

CAS RPM Seminar

“Risk Loads for Property Catastrophe Covers: Primary and Reinsurer Perspectives”

Huntington Beach, California, March 11, 2013

CAS RPM Seminar

“The Actuary as Expert Witness”

Philadelphia, Pennsylvania, March 20, 2012

CAS Ratemaking Seminar

“How Reinsurers Consider Risk Loads and Cost of Capital for Property Cat Covers”

Chicago, IL , March 17, 2010

CAS Ratemaking Seminar

“Logic, Fallacies and Paradoxes in Risk/Profit Loading in Ratemaking: A Socratic Dialogue”

Chicago, IL , March 16, 2010

CAS Ratemaking Seminar

“Quantifying Risk Loads for Property Catastrophe Exposure”

Las Vegas, NV, March 10, 2009

CAS Ratemaking Seminar

“Using Catastrophe Bonds to Infer Risk Loads/Profit Margins/Reinsurance Costs”

Boston, MA, March 17, 2008

CAS Ratemaking Seminar

“Using Catastrophe Bonds to Infer Risk Loads/Profit Margins/Reinsurance Costs”

Pinehurst, North Carolina, May 21, 2007

Workers Compensation Insurance Organizations Annual Meeting

“Enterprise Risk Management: What Is It and Why Is It Important?”

Salt Lake City, Utah, March 13, 2006

CAS Ratemaking Seminar

“Including Reinsurance Costs in Primary Insurance Rates”

New Orleans, Louisiana, March 11, 2005

CAS Ratemaking Seminar

“Including Reinsurance Costs in Primary Insurance Rates”

Philadelphia, Pennsylvania, March 11, 2004

CAS Ratemaking Seminar

“The Consideration of Risk Loads and Reinsurance Costs in Primary Insurance Ratemaking”

New York, New York, December 12, 2003

Goldman Sachs Insurance Conference

“Interest Rate Changes and Insurance Underwriting”

San Antonio, Texas, March 28, 2003

CAS Ratemaking Seminar

"The Consideration of Risk Loads and Reinsurance Costs in Primary Insurance Ratemaking"

San Antonio, Texas, March 27, 2003

CAS Ratemaking Seminar

"Rate of Return Models in Insurance Ratemaking"

San Diego, California, May 20, 2002

CAS Annual Meeting

"The Actuary as an Expert Witness"

Tampa, Florida, March 7, 2002

CAS Ratemaking Seminar

"Parameterizing Rate of Return Models in Insurance Ratemaking"

Chicago, Illinois, December 10, 2001

NAIC Meeting

"The Impact of Proposition 103 in California"

Kansas City, Missouri, April 30, 2001

NAIC Meeting

"Personal Lines Regulation"

Las Vegas, Nevada, March 12, 2001

CAS Ratemaking Seminar

"Parameterizing Rate of Return Models in Insurance Ratemaking"

Washington DC, January 18, 2001

Brookings Institution Conference on Insurance Regulation

"Auto Insurance Experience in California"

Bermuda, September 14, 2000

Ace Insurance Worldwide Actuarial Conference

"Rate of Return Models In Property Casualty Insurance Ratemaking"

Orlando, Florida, June 9, 1998

Florida Managed Care Institute Annual Conference

"Issues in Integrated Health Care"

Seattle, Washington, July 21, 1997

CAS Dynamic Financial Analysis Seminar

"Dynamic Financial Analysis of a Workers Compensation Insurer"

Boston, Massachusetts, March 14, 1997

CAS Ratemaking Seminar

"Discounted Cash Flow Models in Insurance Ratemaking"

East Lansing, Michigan, July 15, 1996

National Symposium on Workers Compensation

"Managed Care in Workers Compensation"

New Orleans, Louisiana, March 20, 1996

Global Business Research Seminar: Partnerships Between Insurers and Providers

"Integrating the Data Systems"

Orlando, Florida, November 15, 1995

Global Business Research Seminar: Documenting Savings From Managed Care

"Evaluating Savings From Managed Care"

Orlando, Florida, October 27, 1995

Self Insurance Association of America Annual Meeting

"Managed Care in Workers Compensation: A Magic Act or Humbug?"

San Diego, California, October 16, 1995
Global Business Research Seminar: Documenting Savings From Managed Care
"Technical Issues in Measuring Savings From Managed Care"

Durham, North Carolina, September 6, 1995
North Carolina HMO Association Annual Meeting
"Workers Compensation in North Carolina: Risks and Opportunities for HMO's"

Washington, DC, May 22, 1995
Global Business Research Seminar: Outcomes for Workers' Compensation Managed Care
"Measuring and Reporting the Savings"

Orlando, Florida, April 13, 1995
NCCI Annual Meeting
"Managed Care in Workers Compensation"

Phoenix, Arizona, April 3, 1995
Casualty Actuarial Society Seminar on Profitability
"Rate of Return Models - Selecting the Parameters"

New Orleans, Louisiana, March 16, 1995
Casualty Actuarial Society Ratemaking Seminar
"Discounted Cash Flow Models for Insurance Ratemaking"

Orlando, Florida, March 14, 1995
Standard & Poor's Rating Conference
"Consolidation in the Property/Casualty Insurance Industry"

Minneapolis, Minnesota, October 11, 1994
Casualty Actuarial Society Seminar on Medical Cost Containment
"Managed Care and Workers' Compensation"

Toronto, Ontario, August 22, 1994
American Risk and Insurance Association Annual Meeting
"Current Issues in Workers' Compensation"

Boston, Massachusetts, May 17, 1994
Casualty Actuarial Society Annual Meeting
"Standard Of Practice on Profit and Contingency"

Hartford, Connecticut, April 20, 1994
University of Connecticut Blue Cross/Blue Shield Symposium
"24 Hour Coverage - What Will It Involve"

Atlanta, Georgia, March 10, 1994
Casualty Actuarial Society Ratemaking Seminar
"Cash Flow Models for Insurance Ratemaking"

Cambridge, Massachusetts, March 2, 1994
Workers' Compensation Research Institute Health Care Reform Conference
"Early Results of the Florida Pilot Project"

Phoenix, Arizona, November 15, 1993
Casualty Actuarial Society Annual Meeting
"The Use Of Managed Care in Workers' Compensation"

New York, New York, October 20, 1993
Insurance Information Institute/Reinsurance Association of America Research Conference
"The Impact of Health Care Reform on Casualty Insurance"

Somerset, New Jersey, July 13, 1993
National Symposium on Workers' Compensation
"Economic Analysis of Workers' Compensation Issues"

Boston, Massachusetts, June 30, 1993
Institute of Actuaries of Japan Special Meeting
"Health Care Costs in Workers' Compensation"

Dallas, Texas, June 15, 1993
Stirling-Cooke Workers' Compensation Seminar
"Workers' Compensation Medical Costs: Trends, Causes and Solutions"

New York, New York, June 3, 1993
New York Business Group On Health
"The Crisis in Workers' Compensation Health Care"

Mauna Lani Bay, Hawaii, May 3, 1993
Western Association of Insurance Brokers Annual Meeting
"Trends in Insurance Insolvency"

Kingston, Ontario, April 28, 1993
Queen's University Workers' Compensation Conference
"Exposure Bases for Workers' Compensation: Equity vs. Practicality"

Sanibel Island, Florida, March 29, 1993
Workers' Compensation Reinsurance Bureau Annual Meeting
"The Use of Managed Care in Workers' Compensation"

Baltimore, Maryland, March 23, 1993
CAMAR Annual Meeting
"Estimating the Cost of Capital in Insurance Ratemaking"

Philadelphia, Pennsylvania, December 1, 1992
Economic Issues in Workers' Compensation Seminar,
"Rate of Return Regulation in Workers' Compensation"

Seattle, Washington, October 16, 1992
Casualty Actuarial Society Seminar on Profitability
"Risk Based Capital Standards for Property Casualty Insurers"

Washington, DC, August 18, 1992
American Risk and Insurance Association Annual Meeting
"The Crisis in Workers' Compensation"

New York, New York, May 19, 1992
Executive Enterprises Institute Seminar: Winning Approval of Rate and Form Filings
"Determining a Fair Rate of Return for Property/Casualty Insurers"

Palm Beach, Florida, April 23, 1992
NCCI Annual Meeting
"Is the Workers' Compensation Industry Competitive?"

Philadelphia, Pennsylvania, March 20, 1992
University of Pennsylvania/Duncanson & Holt Special Seminar
"Current Issues in Workers' Compensation"

Dallas, Texas, March 12, 1992
Casualty Actuarial Society Ratemaking Seminar
"Profitability Models in Insurance Ratemaking: Estimating the Parameters"

Houston, Texas, December 11, 1991
NCCI/NAIC Commissioners Symposium
"Rate Adequacy: Solvency and Safety Implications"

New York, New York, November 17, 1991
Executive Enterprises Institute Seminar: Winning Approval of Rate and Form Filings
"Determining a Fair Rate of Return for Property/Casualty Insurers"

Philadelphia, Pennsylvania, November 12, 1991
Casualty Actuarial Society Annual Meeting
"The Impact of Medical Costs on Casualty Coverages"

New York, New York, May 17, 1991
Executive Enterprises Institute Seminar: Winning Approval of Rate and Form Filings
"Determining a Fair Rate of Return for Property/Casualty Insurers"

Kiawah Island, South Carolina, April 15 & 16, 1991
Casualty Actuarial Society Seminar on Profitability
"Cost of Capital Estimation: Lessons From Public Utilities"

Chicago, Illinois, March 14, 1991
Casualty Actuarial Society Ratemaking Seminar
"The Use of Profitability Models in Insurance Ratemaking"

Orlando, Florida, October 24, 1990,
Financial Management Association Annual Meeting,
"Current Issues in Insurance Rate Regulation: California Prop. 103 and Pennsylvania Act 6"

New Brunswick, New Jersey, May 18, 1990,
Joint Conference on Workers' Compensation,
"Current State Issues and Benefit Reforms"

Orlando, Florida, May 8, 1990,
National Association of Insurance Commissioners Southeast Zone Raters Conference,
"Loss Cost Rating for Workers' Compensation"

Orlando, Florida, April 3, 1990,
Workers' Compensation Reinsurance Bureau Annual Meeting,
"Medical Costs in Workers' Compensation: Recent Trends in Cost Containment"

Philadelphia, Pennsylvania, March 15, 1990,
CAS Ratemaking Seminar,
"Rate of Return Models in Insurance Regulation: Return on Sales vs. Return on Equity"

Chicago, Illinois, November 10, 1989,
Alliance of American Insurers Research Committee,
"Recent Developments in Rate Regulation: California Proposition 103"

New York, New York, October 5, 1989,
NCCI Legal Trends Seminar,
"Medical Cost Containment in Workers' Compensation"

Philadelphia, Pennsylvania, September 7, 1989,
Workers' Compensation Congress,
"Medical Cost Containment in Workers' Compensation"

Denver, Colorado, August 21, 1989,
American Risk and Insurance Association Annual Meeting,
"Regulatory Survival: Rate Changes in Workers' Compensation" (with Richard J. Butler)

Hilton Head, South Carolina, April 4, 1989,
Workers' Compensation Reinsurance Bureau Annual Meeting,
"Prospects for Workers' Compensation in the 1990's"

Mountain Lakes, New Jersey, March 29, 1989,
St. Clares-Riverside Medical Center,
"Stress in the Workplace"

Dallas, Texas, March 16, 1989,
Casualty Actuarial Society Ratemaking Seminar,
"The Impact of Tax Reform on Insurance Profitability"

New Orleans, Louisiana, December 15, 1988,
NAIC-NCCI Commissioners School,
"A Forecast for Workers' Compensation"

Philadelphia, Pennsylvania, November 17, 1988,
Economic Issues in Workers' Compensation Seminar,
"The Impact of Regulation on the Probability of Insolvency" (with John D. Worrall and David Durbin)

Boston, Massachusetts, November 14, 1988,
American Public Health Association Annual Meeting,
"Stress in the Workplace"

Atlanta, Georgia, September 14, 1988,
Casualty Loss Reserve Seminar,
"Estimating the Cost of Social Inflation in Workers' Compensation"

Reno, Nevada, August 15, 1988,
American Risk and Insurance Association Annual Meeting,
"Benefit Increases in Workers' Compensation"

New York, New York, June 13, 1988,
National Association Of Insurance Commissioners Annual Meeting,
"Alternative Rate of Return Models for Insurance Regulation"

Syracuse, New York, May 5, 1988,
Current Issues in Workers' Compensation Symposium,
"Workers' Compensation Stress Claims"

Hilton Head, South Carolina, April 22, 1988,
Workers' Compensation Reinsurance Bureau Annual Meeting,
"A Forecast for Workers' Compensation Insurers"

Absecon, New Jersey, April 19, 1988,
Pennsylvania Coal Mine Rating Bureau Annual Meeting,
"The Use of Rate of Return Models in Insurance Rate Regulation"

Philadelphia, Pennsylvania, November 17, 1987,
Economic Issues in Workers' Compensation Seminar,
"The Transition to Permanent Disability Status" (with John D. Worrall and David Durbin)

Charlotte, North Carolina, October 20, 1987,
American Insurance Association Government Affairs Conference,
"Prospects for Workers' Compensation in 1988"

Minneapolis, Minnesota, September 29, 1987,
Minnesota Workers' Compensation Reinsurance Association Annual Meeting,
"Economic and Demographic Characteristics of Workers' Compensation Claims"

Airlie, Virginia, July 7, 1987,
National Symposium on Workers' Compensation,
"Forecasting Workers' Compensation Experience"

Santa Clara, California, June 30, 1987,
Symposium on Recent Advances in Ratemaking,
"Econometric Models of Workers' Compensation Losses"

Storrs, Connecticut, May 1, 1987,
University of Connecticut Symposium on Current Issues in Workers' Compensation,
"Current Research in Workers' Compensation"

Philadelphia, Pennsylvania, April 16, 1987,
Wharton School Graduate Seminar Series,
"Impact of Tax Reform on Workers' Compensation Profitability"

Boca Raton, Florida, December 4, 1986,
National Association of Insurance Commissioners/NCCI Commissioners School,
Panel Discussion on Current Issues in Workers' Compensation

Philadelphia, Pennsylvania, November 7, 1985,
Wharton School, University of Pennsylvania, Graduate Seminar Series,
"Litigation in Workers' Compensation"

Vancouver, British Columbia, August 19, 1985,
American Risk and Insurance Association Annual Meeting,
"Earnings Loss and Permanent Disability"

Washington, D.C., April 23, 1985,
Washington Conference on the Economics of Disability,
"Employment Effects of Workers' Compensation Insurance"

Schenectady, New York, January 18, 1985,
Union University Graduate Business Seminar Series,
"The Use of Modern Portfolio Theory in Insurance Regulation"

EXPERT TESTIMONY

San Francisco, California, November 19, 2015
State Farm General Homeowners Insurance Rate Hearing

Tallahassee, Florida, October 21, 2015
NCCI Workers Compensation Insurance Rate Hearing

Raleigh, North Carolina, October 27, 2014
Homeowners Insurance Rate Hearing

Tallahassee, Florida, October 14, 2014
NCCI Workers Compensation Insurance Rate Hearing

New York, NY, June 24, 2014
Omar Tigbao and Dorothy Tigbao, et. al., v. QBE Financial Institutions Risk Services, Deposition

New York, NY, March 7, 2014
Thrift Development Corporation v. American International Group, et. al., Deposition

New York, New York, January 28, 2014
Cheryl Hall, et. al. v. Bank of America, N.A., et. al., Deposition

Santa Fe, New Mexico, November 7, 2013
Biennial Title Insurance Rate Hearing

Tallahassee, Florida, October 1, 2013
NCCI Workers Compensation Insurance Rate Hearing

New York, New York, July 10, 2013
Larry Arnett and Ronda Arnett, et. al. v. Bank of America, N.A., et. al., Deposition

Austin, Texas, April 25, 2013
State Farm Lloyds Homeowners Rate Hearing

Tallahassee, Florida, October 4, 2012
NCCI Workers Compensation Insurance Rate Hearing

Boston, Massachusetts, May 14, 2012
Massachusetts Workers Compensation Rate Hearing

New York, New York, February 17, 2012
Temporary Services, Inc. et. al. v. American International Group, et. al., Deposition

San Francisco, California, January 19, 2012
Mercury Insurance Company Homeowners Insurance Rate Hearing

Santa Fe, New Mexico, November 16, 2011
Biennial Title Insurance Rate Hearing

Tallahassee, Florida, October 11, 2011
NCCI Workers Compensation Insurance Rate Hearing

Tampa, Florida, September 13, 2011
Citizens Property Insurance Corporation Homeowners Insurance Hearing

Raleigh, North Carolina, July 25, 2011
Dwelling Fire and Extended Coverage Insurance Rate Hearing

Tallahassee, Florida, October 6, 2010
NCCI Workers Compensation Insurance Rate Hearing

Irvine, CA, April 21, 2010
Eastwood Insurance Services, Inc. et. al., vs. Titan Auto Insurance of NM, et. al. Deposition

San Francisco, California, March 9, 2010
Century National Insurance Company Proposition 103 Rollback Hearing

Santa Fe, New Mexico, November 18, 2009
Annual Title Insurance Rate Hearing

Tallahassee, Florida, October 29, 2009
NCCI Workers Compensation Insurance Rate Hearing

Austin, Texas, September 14, 2009
Biennial Title Insurance Rate Hearing

Austin, Texas, April 1, 2009
State Farm Lloyds Homeowners Rate Hearing

Santa Fe, New Mexico, November 19, 2008
Annual Title Insurance Rate Hearing

New York, New York, November 13, 2008
Georgia Hensley, et. al., vs. Computer Sciences Corp. et. al., Deposition

Tallahassee, Florida, October 29, 2008
State Farm Florida Homeowners Insurance Hearing

Raleigh, North Carolina, July 1, 2008
Auto Insurance Rate Hearing

San Francisco, California, May 5, 2008
GeoVera Insurance Company Earthquake Rate Hearing

Tallahassee, Florida, January 23, 2008
Hartford Insurance Group Homeowners Insurance Rate Hearing

Boston, Massachusetts, January 9, 2008
Commerce Insurance Group Auto Insurance Rate Hearing

San Francisco, California, November 29, 2007
Explorer Insurance Company Automobile Rate Hearing

Santa Fe, New Mexico, November 19, 2007
Annual Title Insurance Rate Hearing

Reno, Nevada, June 14, 2007
Public Hearing Regarding Merger Between UnitedHealth Group and Sierra Health Systems

Austin, Texas, May 31, 2007
State Farm Lloyds Homeowners Rate Hearing

Reno, Nevada, October 26, 2006
Public Hearing Regarding Demutualization of Employers Insurance Group

San Francisco, California, August 30, 2006
Hearing on Proposed Title Insurance Rate Regulations

Austin, Texas, August 14, 2006
Biennial Title Insurance Rate Hearing

Raleigh, North Carolina, September 28, 2005
Auto Insurance Rate Hearing

Providence, Rhode Island, September 27, 2005
Norcal Medical Malpractice Insurance Rate Hearing

San Francisco, California, August 23, 2005
Safeco Insurance Company Earthquake Rate Hearing

Boston, Massachusetts, April 15, 2005
Massachusetts Workers Compensation Rate Hearing

Lawrence, Massachusetts, February 14, 2005
Highground, Inc. v. Mazonson

New York, NY, January 21, 2005
NFHA v. Prudential Deposition

Austin, Texas, July 13, 2004
Medical Protective Insurance Company Medical Malpractice Insurance Rate Hearing

Austin, Texas, December 16, 2003
Biennial Title Insurance Rate Hearing

Providence, Rhode Island, November 17, 2003
Norcal Medical Malpractice Insurance Rate Hearing

San Francisco, California, September 16, 2003
Century National Proposition 103 Rollback Hearing

Austin, Texas, September 11, 2003
Farmers Insurance Exchange Homeowner Rate Rollback Hearing

Austin, Texas, September 2, 2003
State Farm Lloyds Homeowners Rate Rollback Hearing

Austin, Texas, May 21, 2003
Farmers Insurance Group Settlement Hearing

Boston, Massachusetts, April 29, 2003
Massachusetts Workers Compensation Rate Hearing

Los Angeles, California, March 12, 2003
SCPIE Medical Malpractice Rate Hearing

Raleigh, North Carolina, July 17, 2002
Auto Insurance Rate Hearing

Tallahassee, Florida, February 25, 2002
NCCI Workers Compensation Insurance Rate Hearing

Austin, Texas, February 5, 2002
Biennial Title Insurance Rate Hearing

Raleigh, North Carolina, September 24, 2001
Auto Insurance Rate Hearing

Boston, Massachusetts, August 14, 2001
Massachusetts Auto Insurance Bureau Rate Hearing

Austin, Texas, March 6, 2001
Texas Auto Benchmark Rate Hearing

Boston, Massachusetts, August 23, 2000
Massachusetts Auto Insurance Bureau Rate Hearing

Austin, Texas, December 7, 1999
Texas Auto Insurance Plan Association Rate Hearing

Raleigh, North Carolina, December 3, 1999
Auto Insurance Rate Hearing

Austin, Texas, November 3, 1999
Biennial Title Insurance Rate Hearing

Austin, Texas, September 8, 1999
Texas Auto Benchmark Rate Hearing

Boston, Massachusetts, August 13, 1999
Massachusetts Auto Insurance Bureau Rate Hearing

Austin, Texas, June 22, 1999
Texas Property Benchmark Rate Hearing

Honolulu, Hawaii, December 16, 1998
NCCI Workers Compensation Insurance Rate Hearing

Richmond, Virginia, November 15, 1998
NCCI Workers Compensation Insurance Rate Hearing

Boston, Massachusetts, October 9, 1998
Massachusetts Auto Insurance Bureau Rate Hearing

Austin, Texas, May 19, 1998
Texas Auto Insurance Plan Association Rate Hearing

Austin, Texas, April 7, 1998
Auto Insurance Benchmark Rate Hearing

Austin, Texas, February 17, 1998
Property Insurance Benchmark Rate Hearing

Austin, Texas, November 18, 1997
Biennial Title Insurance Rate Hearing

Tallahassee, Florida, September 8, 1997
NCCI Workers Compensation Insurance Rate Hearing

Austin, Texas, April 8, 1997
Texas Auto Insurance Plan Association Rate Hearing

Austin, Texas, March 10, 1997
Auto Insurance Benchmark Rate Hearing

San Francisco, California, March 4, 1997
Insurance Department Hearing on Rating Factors

Raleigh, North Carolina, July 16, 1996
Auto Insurance Rate Hearing

San Francisco, California, March 11, 1996
Century National Proposition 103 Rollback Hearing

Sacramento, California, January 30, 1996
Hartford Steam Boiler Proposition 103 Rollback Hearing

San Francisco, California, January 8, 1996
SAFECO Insurance Company Earthquake Rate Hearing

Austin, Texas, December 21, 1995
Residential Property Insurance Benchmark Rate Hearing

Clearwater, Florida, December 8, 1995
Florida Windstorm Underwriting Association Rate Hearing

Austin, Texas, November 28, 1995
Private Passenger Auto Insurance Benchmark Rate Hearing

Austin, Texas, October 31, 1995
Texas Automobile Insurance Plan Association Rate Hearing

Sacramento, California, April 18, 1995
California Insurance Department Hearing on Auto Insurance Rating Factors

Portland, Maine, April 13, 1995
Workers Compensation Assigned Risk Pool Fresh Start Hearing

San Francisco, California, February 6, 1995
Farmers Insurance Group Earthquake Insurance Rate Hearing

Austin, Texas, January 6, 1995
Special Hearing on Classification Rules for Automobile Insurance

Austin, Texas, December 15, 1994
Residential Property Insurance Benchmark Rate Hearing

Austin, Texas, October 4, 1994
Texas Automobile Insurance Plan Association Rate Hearing

Austin, Texas, September 27, 1994
Private Passenger Auto Insurance Benchmark Rate Hearing

Raleigh, North Carolina, July 19, 1994
Private Passenger Auto Insurance Rate Hearing

San Francisco, California, December 22, 1993
Century National Homeowner's Insurance Rate Hearing

Raleigh, North Carolina, October 13, 1993
Homeowners/Farmowners Insurance Rate Hearing

Tallahassee, Florida, October 4, 1993
Workers' Compensation Insurance Rate Hearing

Boston, Massachusetts, September 9, 1993
Automobile Insurance Rate Hearing

Austin, Texas, March 4, 1993
Residential Property Insurance Benchmark Rate Hearing

Austin, Texas, February 10, 1993
Automobile Insurance Benchmark Rate Hearing

Honolulu, Hawaii, November 18, 1992
Liberty Mutual Insurance Automobile Rate Hearing

Raleigh, North Carolina, November 13, 1992
Workers' Compensation Insurance Rate Hearing

Tallahassee, Florida, October 29, 1992
Workers' Compensation Insurance Rate Hearing

San Francisco, California, October 14, 1992
Workers' Compensation Insurance Rate Hearing

Atlanta, Georgia, September 24, 1992
Workers' Compensation Insurance Rate Hearing

Nashville, Tennessee, May 27, 1992
Workers' Compensation Insurance Rate Hearing

San Francisco, California, May 13, 1992
Workers' Compensation Insurance Rate Hearing

Los Angeles, California, April 10, 1992
Mercury General Proposition 103 Rollback Proceedings

Austin, Texas, January 27, 1992
Texas Automobile Insurance Plan Rate Hearing

Austin, Texas, December 17, 1991
Automobile Insurance Rate Hearing

Raleigh, North Carolina, December 16, 1991
Workers' Compensation Insurance Rate Hearing

San Francisco, California, October 22, 1991
Workers' Compensation Rate Hearing

Los Angeles, California, May 23, 1991,
Proposition 103 RCD-2 Proceedings

San Francisco, California, April 9, 1991
California Workers' Compensation Rate Study Commission

Nashville, Tennessee, March 20, 1991
Workers' Compensation Insurance Rate Hearing

Los Angeles, California, March 12, 1991,
California Workers' Compensation Rate Study Commission

Olympia, Washington, February 26, 1991,
House Financial Institutions/Insurance Committee Hearing on Rules for Insurance Regulatory Legislation

Olympia, Washington, November 27, 1990,
Insurance Department Public Hearing on Proposed Rules for Ratemaking

Harrisburg, Pennsylvania, November 12, 1990,
Allstate Insurance Company Automobile Insurance Rate Hearing

Tallahassee, Florida, November 1, 1990,
Scanlan v. Martinez, et.al., Superior Court of Leon County

San Bruno, California, October 1, 1990,
SAFECO Insurance Group Proposition 103 Rate Rollback Hearing

Austin, Texas, July 23, 1990,
Texas State Board of Insurance Special Hearing on Investment Income in Ratemaking

Harrisburg, Pennsylvania, July 18, 1990,
Pennsylvania National Mutual Insurance Company Automobile Insurance Rate Hearing

Harrisburg, Pennsylvania, June 28, 1990,
Harleysville Mutual Insurance Company Automobile Insurance Rate Hearing

Columbia, South Carolina, March 30, 1990,
Workers' Compensation Insurance Rate Hearing

San Bruno, California, March 19, 1990,
California Proposition 103 Generic Hearing

Denver, Colorado, December 12, 1989,
Workers' Compensation Insurance Rate Hearing

Tampa, Florida, October 23, 1989,
Workers' Compensation Insurance Rate Hearing

Austin, Texas, October 17, 1989,
Workers' Compensation Insurance Rate Hearing

Los Angeles, California, September 25, 1989,
SAFECO Insurance Company of America Proposition 103 Rate Hearing

Austin, Texas, August 29, 1989,
Texas Insurance Advisory Association Property Insurance Rate Hearing

Providence, Rhode Island, April 13, 1989,
Workers' Compensation Insurance Rate Hearing

Augusta, Maine, January 24, 1989,
Workers' Compensation Insurance Rate Hearing

Hartford, Connecticut, November 14, 1988,
Workers' Compensation Insurance Rate Hearing

Tallahassee, Florida, November 3, 1988,
Workers' Compensation Insurance Rate Hearing

Austin, Texas, November 2, 1988,
Workers' Compensation Insurance Rate Hearing

Montgomery, Alabama, June 30, 1988,
Workers' Compensation Insurance Rate Hearing

Augusta, Maine, March 24, 1988,
Workers' Compensation Insurance Rate Hearing

Austin, Texas, October 27, 1987,
Workers' Compensation Insurance Rate Hearing

Tallahassee, Florida, October 9, 1987,
Workers' Compensation Insurance Rate Hearing

Atlanta, Georgia, August 6, 1987,
Workers' Compensation Insurance Rate Hearing

Augusta, Maine, February 24, 1987,
Workers' Compensation Insurance Rate Hearing

Tallahassee, Florida, November 14, 1986,
Workers' Compensation Insurance Rate Hearing

Austin, Texas, November 18, 1986,
Workers' Compensation Insurance Rate Hearing

Augusta, Maine, May 28, 1986,
Workers' Compensation Insurance Rate Hearing

Tallahassee, Florida, December 6, 1985,
Workers' Compensation Insurance Rate Hearing

Oklahoma City, Oklahoma, October 10, 1985,
Workers' Compensation Insurance Rate Hearing

Austin, Texas, July 23, 1985,
Workers' Compensation Insurance Rate Hearing

Austin Texas, June 14, 1985,
Workers' Compensation Insurance Rate Hearing

Tallahassee, Florida, November 18, 1984,
Workers' Compensation Insurance Rate Hearing

Austin, Texas, August 29, 1984,
Workers' Compensation Insurance Rate Hearing

Portland, Oregon, March 6, 1984,
NA IC Public Hearing on Investment Income and Insurance Profitability

Tallahassee, Florida, February 25, 1984,
Workers' Compensation Insurance Rate Hearing

Tallahassee, Florida, August 18, 1983,
Workers' Compensation Insurance Rate Hearing

Austin Texas, July 13, 1983,
Workers' Compensation Insurance Rate Hearing

Oklahoma City, Oklahoma, March 6, 1983,
Workers' Compensation Insurance Rate Hearing

Baton Rouge, Louisiana, March 16, 1982,
Louisiana Insurance Commission Public Hearing on Investment Income

Providence, Rhode Island, February 3, 1982,
Workers' Compensation Insurance Rate Hearing

Augusta, Maine, October 1, 1981,
Workers' Compensation Insurance Rate Hearing

COMMONWEALTH OF MASSACHUSETTS
DIVISION OF INSURANCE

Docket No. 15-

In re:

APPLICATION OF THE WORKERS'
COMPENSATION RATING AND INSPECTION
BUREAU OF MASSACHUSETTS FOR APPROVAL
OF A GENERAL RATE REVISION TO BE
EFFECTIVE ON AND AFTER JULY 1, 2016

PRE-FILED DIRECT TESTIMONY OF CLAUDIA B. CUNNIFF

The Workers' Compensation Rating and Inspection Bureau of Massachusetts ("WCRIBMA") submits the following direct testimony of Claudia B. Cunniff in support of its application for a general rate revision to be effective on and after July 1, 2016.

Q. Please state your full name.

A. Claudia B. Cunniff.

Q. Ms. Cunniff, please describe your current employment and your educational and professional experience.

A. I am presently employed as Assistant Vice President and Actuary at the WCRIBMA. I hold a bachelors degree in biology from the College of the Holy Cross. I am a Fellow of the Casualty Actuarial Society and a member of the American Academy of Actuaries. Before joining the WCRIBMA in February 2000, I worked for ten years as an actuary in Massachusetts. My actuarial career began in 1990 at Liberty Mutual Insurance Company where I focused on ratemaking issues on both personal and commercial lines. In 1994, I moved to Trust Insurance Group, Inc., where I became a manager and actuary

and worked on a broad range of actuarial and financial matters. A copy of my curriculum vitae is attached to this testimony.

Q. What was your role in the preparation of the current WCRIBMA filing for a general rate revision?

A. I had principal responsibility for the preparation of the following sections of the filing, which I am sponsoring: Sections II (Loss Development) and III (Premium).

Q. Have you explained the basis of your derivation of each of the ratemaking factors that you are sponsoring in the text and accompanying exhibits found in the WCRIBMA's filing?

A. Yes.

Q. Are the data, calculations and narrative statements in the sections you are sponsoring complete and accurate?

A. To the best of my knowledge, information and belief, the data and calculations underlying Sections II (Loss Development) and III (Premium) of the filing are complete and accurate, and the narrative statements offered in support of those sections are also complete and accurate.

Signed this 23rd day of December 2015 under the pains and penalties of perjury.


Claudia B. Cunniff, FCAS, MAAA

Claudia B. Cunniff, FCAS, MAAA

101 Arch Street, 5th floor
Boston, MA 02110
(617) 646-7589

PROFESSIONAL EXPERIENCE:

WORKERS' COMPENSATION RATING & INSPECTION BUREAU OF MA, Boston, MA

2/00 – present

Assistant Vice President and Actuary

Directs development of rate indication and strategy of filing and approval process
Directs preparation of main rate filing and other filings
Supports filings with hearing testimony
Prepares and directs preparation of informational reports
Processes information requests, etc. from members, regulators, etc.

TRUST GROUP, INC., Taunton, MA

8/94-1/00

Manager - Actuary

Financial Modeling - Developed pro-forma income statement model and assisted with the preparation of projected balance sheet and cash flow items
Merger & Acquisition analysis - Performed due diligence analysis associated with various company investment opportunities
Corporate Reporting & Reserving - Responsible for coordinating the quarterly/annual loss reserve analysis, financial booking of company results by component, and Schedule P preparation for all lines of business
Reinsurance Treaty evaluation - Analyzed company reinsurance needs, prepared data for reinsurance pricing negotiations and provided recommendations to senior management regarding reinsurance purchases
Pricing - Responsible for monitoring the regulatory environment and tracking marketplace activity including preparation of competitor analyses, rate-setting, and pricing proposals
Cession strategy - Developed a sophisticated Massachusetts Involuntary Market cession strategy model incorporating the dynamics of the company and industry
Manager - Led a team of 12 professional and technical staff responsible for profitability studies, statistical reporting, statutory reporting, price setting/monitoring, data compilation and analysis

LIBERTY MUTUAL INSURANCE GROUP, Boston MA

6/90-8/94

Senior Actuarial Analyst - Personal Lines ratemaking

Presented actuarial recommendations to Sales, Marketing, and Underwriting
Evaluated loss ratios, retention, growth, competition, and legislation by state to be incorporated in pricing decisions
Completed rate indications and provided actuarial support to the field in over 20 states
Prepared rate filings consistent with state regulatory requirements
Organized training seminars for Actuarial Student Program

Actuarial Assistant/Analyst - Commercial Lines ratemaking

Implemented Loss Costs and rate filings: Commercial Lines Task Force
Prepared actuarial proposals for senior management to aid in rate adequacy decisions
Analyzed Involuntary Market mechanisms and results

EDUCATION:

F.C.A.S. 1999, M.A.A.A. 2000

College of the Holy Cross, Worcester, Massachusetts, B.A. Biology 1990

COMMONWEALTH OF MASSACHUSETTS
DIVISION OF INSURANCE

Docket No. 15-

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PRE-FILED DIRECT TESTIMONY OF ROBERT McCARTHY

The Workers' Compensation Rating and Inspection Bureau of Massachusetts ("WCRIBMA") submits the following direct testimony of Rob McCarthy in support of its application for a general rate revision to be effective on and after July 1, 2016.

Q. Please state your full name.

A. Robert McCarthy.

Q. What are your professional qualifications?

A. I am presently employed as Senior Vice President and Actuary at the WCRIBMA. I joined the WCRIBMA in this capacity in March of 2004. I am a Fellow of the Casualty Actuarial Society. I have been an actuary in the workers' compensation line since 1989, when I graduated from the University of Florida with bachelors degrees in mathematics, business management, and industrial and systems engineering. From 1989 until 2003, I worked in a variety of capacities for the FCCI Insurance Group in Florida. My responsibilities at FCCI included reserving, pricing and product development, reinsurance, data management, decision and accounting support, and investments and cash management. My curriculum vitae is attached to this testimony.

Q. What was your role in the preparation of the current WCRIBMA filing for a general rate revision?

A. I was ultimately responsible for the preparation of the entire filing. I worked closely with the WCRIBMA's actuarial staff and our outside consulting experts in preparing the filing. I am testifying in support of the reasonableness of the WCRIBMA's overall rate indication and sponsor Sections I (Rate Recommendation), IV (Benefit Change Adjustments), V (Trend), VI (Expenses), XI (Small Deductible Credits), XII (Retrospective Rating), XIII (Data), XIV (Cost Containment) and the underwriting cash flows (for losses, expenses and premiums) that are used in the discounted cash flow models in Section VII (Profit). To the best of my knowledge, information and belief, the data and calculations underlying the sections of the filing I am sponsoring are complete and accurate, and the narrative statements offered in support of these sections are also accurate and correct.

Q. Mr. McCarthy, what general rate level change is the WCRIBMA recommending this year?

A. As shown in Section I of the filing, the WCRIBMA is recommending an increase in average rates of 6.4% for workers' compensation, effective July 1, 2016.

Q. Are you familiar with the statutory standard that must be applied by the Commissioner in reviewing the rates proposed in the WCRIBMA's current filing – that they “are not excessive, inadequate or unfairly discriminatory” and that they “fall within a range of reasonableness”?

A. Yes.

Q. Do you have an opinion as to whether the rates proposed in the WCRIBMA's current filing satisfy the statutory standard?

A. Yes.

Q. What is your opinion?

A. It is my professional opinion that the rates proposed in the WCRIBMA's current filing are not excessive, inadequate or unfairly discriminatory for the classifications to which they apply, and that they fall within a range of reasonableness. Accordingly, I recommend that the Commissioner approve the WCRIBMA's filing.

Q. Have you explained in the text and accompanying exhibits found in the WCRIBMA's filing the basis of your derivation of the factors contributing to the overall rate increase that you are sponsoring?

A. Yes.

Q. What was your role in the preparation of the cost containment section of the current WCRIBMA filing?

A. I was responsible for preparing the cost containment section of the filing. I reviewed the cost containment surveys for the ten participating companies and contacted those companies about any outstanding questions the WCRIBMA had regarding the survey responses.

In addition to compiling these ten survey responses, I also obtained updated data and information from the Fraud Bureau of Massachusetts. That information can be found in the cost containment filing. To the best of my knowledge, the information and exhibits in this section of the filing are complete and accurate.

Q. Are you familiar with the statutory provisions that require the WCRIBMA to make a cost containment filing?

A. Yes. It is my understanding that the legislature has mandated that the Commissioner make a finding, based on the information WCRIBMA submits in its filing, as to whether insurers employ acceptable “cost control programs and techniques ... which have had or are expected to have a substantial impact on fraudulent claim costs, unnecessary health care costs, and any other unreasonable costs and expenses, as well as the collection of appropriate premium charges owed” to the insurers the WCRIBMA represents.

Q. Does this filing provide the information the Commissioner would need to make a finding that the industry’s cost control programs and techniques satisfy the statutory standard?

A. Yes.

Q. Do you have an opinion on what his finding should be this year?

A. Yes.

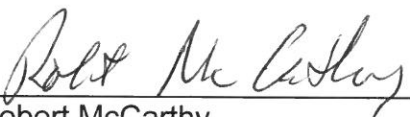
Q. What is your opinion?

A. In my professional opinion, the information the WCRIBMA has submitted this year should lead the Commissioner to make the finding that there are acceptable cost control programs and techniques’ presently in place which satisfy the statutory requirements.

Q. Do you have anything to add at this time?

A. No.

Signed this 23 day of December 2015 under the pains and penalties of perjury.



Robert McCarthy
FCAS, CFA, MAAA, CPCU,
ARe, AIC, APA, AU, AIAF, ARM

Robert McCarthy, FCAS, CFA

101 Arch St ♦ Boston, MA 02110

E-mail: rmccarthy@wcribma.org

PROFESSIONAL EXPERIENCE

[WCRIBMA](#), Boston, MA

(Mar 2004 – Current)

Senior Vice President & Actuary Jan 2012 - Current

Vice President & Actuary Mar 2004 – Dec 2011

Responsible for the management of the Actuarial and Data Operations departments. Oversee the collection of data and manage the preparation of workers' compensation rate filings for the state of Massachusetts.

[FCCI Insurance Group](#), Sarasota, FL

(Dec 1989 – Jan 2003)

Senior Vice President of Decision Support & Chief Actuary Jan 2002 – Jan 2003

Senior Vice President of Investments & Chief Actuary July 2001 – Dec 2001

Vice President of Investments & Chief Actuary July 2000 – Jun 2001

Assistant Vice President of Investments & Chief Actuary Jan 1999 – Jun 2000

Chief Actuary May 1995 – Dec 1998

Early Positions at FCCI Included: Actuary (May 1993 – May 1995), **Assistant Actuary** (Jan 1991 – May 1993), and **Actuarial Trainee** (Dec 1989 – Jan 1991)

Reserving

- Responsible for internally generated reserve estimates and quarterly presentation to board.
- Collaborated with opining actuary on reserves carried in the annual statement.
- Contact for insurance department examiners and independent auditors.

Pricing / Product Development

- Provided product development with the supporting materials needed for rate filings.
- Developed and monitored all workers compensation sliding scale dividend plans.
- Developed the workers comp large deductible product and the rating mechanism used by underwriting.

Reinsurance

- Reviewed quotes and independently developed experience and exposure based pricing.
- Provided data to reinsurers and reinsurance brokers and served as their technical contact.
- Developed an automated system for the calculation of reinsurance recoverables.

Data Warehouse / Decision Support

- Identify and analyze data warehouse software options that facilitated data mining and reporting.
- Developed data warehouse architecture and championed consistent definitions for terms.
- Responsible for ISO CSP statistical reporting and NCCI Aggregate Financial calls
- Responsible for the conversion of many Excel and Access based reports to SAS.

EDUCATION

Bachelor of Science ♦ Industrial and Systems Engineering ♦ [University of Florida](#) ♦ 1989

Bachelor of Arts ♦ Mathematics ♦ [University of Florida](#) ♦ 1989

Bachelor of Science ♦ Business Management ♦ [University of Florida](#) ♦ 1989

Fellow of the Casualty Actuarial Society ♦ 1995

Chartered Financial Analyst ♦ 2007

Masters of Science ♦ Insurance Management ♦ [Boston University](#) ♦ 2008

**COMMONWEALTH OF MASSACHUSETTS
DIVISION OF INSURANCE**

Docket No. 15-

In re:

**APPLICATION OF THE WORKERS'
COMPENSATION RATING AND INSPECTION
BUREAU OF MASSACHUSETTS FOR APPROVAL
OF A GENERAL RATE REVISION TO BE
EFFECTIVE ON AND AFTER JULY 1, 2016**

PRE-FILED DIRECT TESTIMONY OF ANTHONY SALIDO

The Workers' Compensation Rating and Inspection Bureau of Massachusetts ("WCRIBMA") submits the following direct testimony of Anthony Salido in support of Sections VIII, IX and X of its filing for a general rate revision to be effective on and after July 1, 2016.

Q. Please state your full name.

A. Anthony Salido.

Q. Mr. Salido, please describe your current employment and your educational and professional experience.

A. I am presently employed as Data Operations Director / Actuary at the Workers' Compensation Rating and Inspection Bureau of Massachusetts, 101 Arch Street, Boston, Massachusetts. My educational background includes a Bachelors degree in Mathematics and Economics from Boston College. I joined the WCRIBMA in June 1998. I am a Fellow of the Casualty Actuarial Society. A copy of my resume is attached to this testimony.

Q. What was your role in the preparation of the current WCRIBMA filing?

A. I had principal responsibility for the preparation of the following sections of the filing, which I am sponsoring: Sections VIII (F-Class), IX (Classification) and X (Experience Rating).


Q. Have you explained the basis of your derivation of each of the ratemaking factors in the text and accompanying exhibits found in Sections VIII (F-Class), IX (Classification) and X (Experience Rating)?

A. Yes.

Q. Are the data, calculations and narrative statements in the sections you are sponsoring complete and accurate?

A. To the best of my knowledge, information and belief, the data and calculations underlying Sections VIII (F-Class), IX (Classification), and X (Experience Rating) are complete and accurate, and the narrative statements are also accurate and correct.

Signed this 18 day of December, 2015 under the pains and penalties of perjury.



Anthony Salido, FCAS, MAAA

Anthony D. Salido, FCAS, MAAA
Workers' Compensation Rating and Inspection Bureau of MA
101 Arch St. 5th Floor
Boston, MA 02110

Work experience

**The Workers' Compensation Rating and Inspection Bureau of MA
Boston, MA**

June 1998 - Present

Senior Actuarial Analyst

January 2004 - August 2010

Data Operations Director / Actuary

September 2010 - Present

- Directs the collection, editing, and correction of all Unit Statistical, Policy and Aggregate Financial Call data submitted to the WCRIBMA by its member carriers.
- Responsible for the preparation of various sections contained in the WCRIBMA's rate filings over the last 12 years, including loss development, premiums, benefit level adjustments, trend, expenses, experience rating, retrospective rating, class rates, and F-Class rates.
- Maintains the data structures and associated metadata for the Actuarial Department's Financial Call and Unit Stat plan databases.
- Responsible for the maintenance of the nightly batch process that populates the Actuarial Department's databases, runs the Actuarial Department's data edits, and creates content for the WCRIBMA's intranet and web site.
- Formalized and directed the process employed by the WCRIBMA for the data reconciliations mandated by the Massachusetts Workers Compensation Statistical Plan. Worked with other WCRIBMA departments and data reporters to explain and/or correct anomalies identified by the reconciliation process.
- Developed and maintains Actuarial Department's intranet site which includes a history of Massachusetts workers' compensation rate filing activity, reconciliation reports, edit reports, and other content to support the WCRIBMA's rate filing efforts.
- Prepares Circular Letters and Special Bulletins.
- Responds to information requests from members, regulators, etc.

Education

F.C.A.S. 2010, M.A.A.A. 2008

Boston College, Chestnut Hill MA

B.A. in Mathematics and Economics 1998

COMMONWEALTH OF MASSACHUSETTS
DIVISION OF INSURANCE

Docket No. 15-

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PRE-FILED DIRECT TESTIMONY OF SHARON TENNYSON

The Workers' Compensation Rating and Inspection Bureau of Massachusetts ("WCRIBMA") submits the following direct testimony of Sharon Tennyson in support of its application for a general rate revision to be effective on and after July 1, 2016.

Q. Please state your full name.

A. Sharon Tennyson.

Q. What are your professional qualifications?

A. I am an economist and Associate Professor of Policy Analysis and Management at Cornell University. Before moving to Cornell, I was on the faculty of the Department of Insurance and Risk Management at the Wharton School of the University of Pennsylvania. I have over 20 years' experience in research related to insurance markets. I serve on the editorial boards of the *Journal of Risk and Insurance* and the *Journal of Insurance Regulation*. I am a former president of the Risk Theory Society. My particular area of expertise is in the industrial organization and regulation of insurance markets, and I have published extensively on these topics. My curriculum vitae is attached to this testimony.

Q. What was your role in the preparation of the current WCRIBMA filing for a general rate revision?

A. I was retained by Anderson & Kreiger LLP, counsel for the WCRIBMA, to provide an analysis based on well-accepted economic theory that uses available insurance market data to determine whether the commission allowance recommended by the WCRIBMA is reasonable and reflects the actual cost to agents or brokers of the services they provide. I have completed such an analysis for the WCRIBMA and it is summarized in my report, reproduced in Section XIV of the WCRIBMA's rate filing. To the best of my knowledge, information and belief, the data and calculations underlying my report are complete and accurate, and the narrative statements offered in my report are also accurate and correct.

Q. Professor Tennyson, what conclusions did you reach as a result of your analysis?

A. It is my professional opinion that the commission allowance recommended by the WCRIBMA is reasonable and reflects the actual cost to agents and brokers of the services they provide as producers of workers' compensation insurance policies in Massachusetts.

Q. Have you explained in your report how you came to these conclusions?

A. Yes.

Q. Does your report contain all the data that you relied upon in reaching these conclusions?

A. Yes.

Signed this 15th day of December 2015 under the pains and penalties of perjury.



Sharon Tennyson

SHARON TENNYSON, Ph.D.

Department of Policy Analysis and Management, and
Cornell Institute for Public Affairs
Cornell University
292 Caldwell Hall
Ithaca, NY 14853
(607) 255-2619

Email: sharon.tennyson@cornell.edu

Website: <http://www.human.cornell.edu/bio.cfm?netid=st96>

AREAS OF INTEREST

Insurance Law and Economics, Consumer Policy, Regulatory Economics, Household Finance

EDUCATION

Ph.D., Economics, Northwestern University (Fields: Industrial Organization, Public Finance)
B.A., Economics, University of California at Los Angeles

PRIMARY ACADEMIC APPOINTMENTS

2013 - *Professor*, Department of Policy Analysis and Management, Cornell University
1998-2012 *Associate Professor*, Department of Policy Analysis and Management, Cornell University
1990-1998 *Assistant Professor*, Department of Insurance and Risk Management, University of Pennsylvania

SECONDARY APPOINTMENTS

2014 - Director, Cornell Institute for Public Affairs
2014- Faculty Affiliate, Cornell Institute for Behavioral and Household Finance
2013 - Core Faculty member, Cornell Institute for Public Affairs
2012 - Faculty Affiliate, Bronfenbrenner Center for Translational Research, Cornell University
2012 - Senior Research Fellow, Networks Financial Institute, Indiana State University
2006-2011 Research Fellow, Networks Financial Institute, Indiana State University
2003-2008 Faculty Fellow, Program on Pharmaceutical Policy Issues, Department of Policy Analysis and Management, Cornell University
2003-2004 Project Coordinator, Program on Pharmaceutical Policy Issues, Department of Policy Analysis and Management, Cornell University
2002-2003 Director of Undergraduate Studies, Department of Policy Analysis and Management, Cornell University
1996-1998 Senior Research Fellow, Financial Institutions Center, Wharton School, University of Pennsylvania

EXTERNAL LEADERSHIP POSITIONS

2011 - Editor, *Journal of Consumer Affairs*
2011 - International Board of Advisors, SKKU Graduate School of Insurance, SKKU School of Business, Seoul, Korea

- 2010 - Editorial Board member, *Insurance Markets and Companies: Analyses and Actuarial Computations*
- 2005 - Editorial Review Board member, *Journal of Insurance Regulation*
- 2004 - Associate Editor, *Journal of Risk and Insurance*
- 2003-2004 President, Risk Theory Society (Officer 2002-2005)

VISITING APPOINTMENTS

- July 2011 Munich Risk and Insurance Center, Ludwig Maximilians-Universitat, Munich
- Feb 2011 Center for Insurance Research, Florida State University
- April 2000 Department of Insurance and Risk Management, Wharton School, University of Pennsylvania
- July 1999 Centre for Market and Public Organisation (CMPO), University of Bristol, U.K.

RECENT HONORS AND AWARDS

- 2014 Winner, 2013 Spencer L. Kimball Writing Award, *Journal of Insurance Regulation* Best Article award; “The Effects of Regulatory Reforms in the South Carolina Auto Insurance Market”
- 2013 Keynote Speaker, 13th Annual Regulatory Affairs Symposium, Insurance Bureau of Canada, Toronto; “Ontario Auto Insurance: Great Expectations”
- 2012 Winner, 2011 Casualty Actuarial Society Award for Best Article published by the American Risk and Insurance Association; “The Impact of Rate Regulation on Claims: Evidence from Massachusetts Automobile Insurance”
- 2012 Winner, 2011 Best Feature Article, *Risk Management and Insurance Review*; “The Impact of Rate Regulation on Claims: Evidence from Massachusetts Automobile Insurance”
- 2011 Winner, 2010 Best Article, *Geneva Risk and Insurance Review*; “Incentive Effects of Community Rating in Insurance Markets: Evidence from Massachusetts Automobile Insurance”
- 2011 Keynote Speaker, American Council on Consumer Interests; “Perspectives on Consumer Protection Regulation”
- 2010 Winner, 2009 Best Feature Article, *Risk Management and Insurance Review*; “Do State Cost Control Policies Reduce Medicaid Prescription Drug Spending?”
- 2010 Keynote Speaker, Louisiana Conference on Insurance Fraud and Vehicle Theft; “The Many Faces of Fraud: Moral, Social and Economic Catalysts”
- 2010 Keynote Speaker, China International Conference on Insurance and Risk Management, Xi Ning China; “Issues and Challenges in Consumer Protection Regulation”

REFEREED PUBLICATIONS

“Effects of Informational Nudges on Consumer Debt Repayment Behaviors,” with Lauren Jones and Caecilia Loibl, *Journal of Economic Psychology* 51 December 2015: 16-33.

“Directors’ and Officers’ Liability Insurance, Corporate Risk and Risk Taking: New Panel Data Evidence on the Role of Directors’ and Officers’ Liability Insurance,” with M. Martin Boyer, *Journal of Risk and Insurance* 82(4) December 2015: 753-791.

“The Law and Economics of Insurance Bad Faith Liability,” with Danial Asmat, Chapter 12 in *Handbook of Insurance Law and Economics*, Daniel Schwartz and Peter Siegelman, eds. 2015.

“Product Ratings as a Market Reaction to Deregulation: Evidence from the German Insurance Market”, with Stephanie Meyr, *Risk Management and Insurance Review* 18(1) Spring 2015: 77-100.

“The Influence of FDA Advisory Information and Black Box Warnings on Individual Use of Prescription Antidepressants,” with Kristy Parkinson, Joseph Price and Kosali Simon, *Review of Economics of the Household* 12(4) December 2014: 771-790.

“The Development and Regulation of China’s Insurance Market: History and Perspectives,” with Bingzheng Chen, Maoqi Wang and Haizhen Zhou, *Risk Management and Insurance Review* 17(2) Fall 2014: 241-263.

“The Role of Life Experience in Long Term Care Insurance Decisions,” with HaeKyung Yang, *Journal of Economic Psychology* 42 June 2014: 175-188.

“Does the Threat of Insurer Liability for “Bad Faith” Affect Insurance Settlements?” with Danial P. Asmat, *Journal of Risk and Insurance* 81(1) March 2014: 1-23.

“The Effects of Regulatory Reforms in the South Carolina Auto Insurance Market,” with Robert W. Klein and Martin Grace, *Journal of Insurance Regulation* 32 2013: 1-30.

Winner, 2013 Spencer L. Kimball Writing Award, *Journal of Insurance Regulation* Best Article award

“Insurance Distribution,” with James I. Hilliard and Laureen Regan, chapter 23 in *Handbook of Insurance* 2nd edition, Georges Dionne, editor. Springer, 2013.

“The Effect of Prescription Drug Withdrawals on the Use of Competitor Drugs: The Case of Vioxx,” with J. Michael Collins and Kosali Simon, *Journal of Economic Behavior and Organization* 86(1) February 2013: 148-168.

“Determination of the Dates of Passage of the Married Women’s Property Acts and Earnings Acts,” with R. Richard Geddes, *Research in Economic History* Vol. 29 2013: 145-189.

“The Effects of Expanding Property Rights on Women’s Economic Activity,” with R. Richard Geddes and Dean Lueck, *Journal of Law and Economics* 55(4) November 2012: 839-867.

“Consumers’ Insurance Literacy: Evidence from Survey Data,” *Financial Services Review* 20(3) Fall 2011: 165-179.

“The Impact of Rate Regulation on Claims: Evidence from Massachusetts Automobile Insurance,” with Richard A. Derrig, *Risk Management and Insurance Review* 14(2) Fall 2011: 173-200.

Winner, 2011 American Risk and Insurance Association Award for Best Feature

Article published in *RMIR*

Winner, 2011 Casualty Actuarial Society Award for Best Article Published by the American Risk and Insurance Association

“Challenges and Approaches to Consumer Protection in the Insurance Industry,” in *The Fundamentals of Future Insurance Regulation and Supervision: A Global Perspective*, Patrick M. Liedtke and Jan Monkiewicz, editors. Palgrave MacMillan, 2011.

“The Effects of Regulated Premium Subsidies on Insurance Costs: An Empirical Analysis of Automobile Insurance,” with Laureen Regan and Mary A. Weiss, *Journal of Risk and Insurance* 77(3) September 2010: 597-624.

“Incentive Effects of Community Rating in Insurance Markets: Evidence from Massachusetts Automobile Insurance,” *Geneva Risk and Insurance Review* 35(1) June 2010: 19-46 .

Winner, 2010 European Group of Risk and Insurance Economists Award for Best Article published in *GRIR*

“The Law and Economics of First Party Insurance Bad Faith Liability,” with William J. Warfel, *Connecticut Insurance Law Journal* 16(1) 2009-2010: 203-242.

“State Prescription Drug Policies, Cost Barriers and the Use of Acute Care Services by Medicaid Beneficiaries,” with Hae Kyung Yang, *Journal of Consumer Affairs* 43(1) Spring 2009: 4-25.

“Do State Cost Control Policies Reduce Medicaid Prescription Drug Spending?” with Kosali I. Simon and Julie Hudman, *Risk Management and Insurance Review* 12(1) Winter 2009: 37-64.

Winner, 2009 American Risk and Insurance Association (ARIA) Award for Best Feature Article, *RMIR*

“The Emergence and Potential Consequences of First Party Insurance Bad Faith Liability,” with William J. Warfel, *Journal of Insurance Regulation* 28(2) Winter 2008: 3-20.

“The Relationship between Auto Insurance Rate Regulation and Insured Loss Costs: An Empirical Analysis,” with Laureen Regan and Mary A. Weiss, *Journal of Insurance Regulation* 27(1) Fall 2008: 23-46.

“Insurance Fraud and Optimal Claims Settlement Strategies,” with Keith J. Crocker, *Journal of Law and Economics* 45(2) October 2002: 469-508.

“Claims Auditing in Automobile Insurance: Fraud Detection and Deterrence Objectives,” with Pau Salsas-Forn, *Journal of Risk and Insurance* 69(3) September 2002: 289-308.

“Automobile Insurance Regulation: The Massachusetts Experience,” with Laureen Regan and Mary A. Weiss, in J. David Cummins, ed., *Deregulating Property-Liability Insurance: Restoring Competition and Increasing Market Efficiency*. Washington, DC: American Enterprise Institute-Brookings Institution Joint Center for Regulatory Studies, 2002: 25-80.

“Insurance Experience and Consumers’ Attitudes toward Insurance Fraud,” *Journal of Insurance*

Regulation 21(2) Winter 2002: 35-56.

“State Curriculum Mandates and Student Knowledge of Personal Finance,” with Chau Nguyen, *Journal of Consumer Affairs* 25(2) Winter 2001: 241-262.

“Regulation, Political Influence and the Price of Automobile Insurance,” with J. David Cummins and Richard D. Phillips, *Journal of Insurance Regulation* 20(1) Fall 2001: 9-50.

“Insurance Distribution Systems,” with Laureen Regan, in Georges Dionne, ed., *Handbook of Insurance*, Kluwer Academic Publishers, 2000: 709-745.

“Efficiency, Scale Economies and Consolidation in the U.S. Life Insurance Industry,” with J. David Cummins and Mary A. Weiss, *Journal of Banking and Finance* 23(2-4) February 1999: 325-357.

“Life Insurance Mergers and Acquisitions,” with J. David Cummins and Mary A. Weiss, in J. David Cummins and Anthony Santomero, eds., *Changes in the Life Insurance Industry: Efficiency, Technology and Risk Management*, Kluwer Academic Publishers, 1999: 159-186.

“Costly State Falsification or Verification? Theory and Evidence from Bodily Injury Liability Claims,” with Keith J. Crocker, in Georges Dionne and Claire Laberge-Nadeau, eds., *Automobile Insurance: Road Safety, New Drivers, Risks, Insurance Fraud and Regulation*, Kluwer Academic Publishers, 1999: 120-130.

“Capital Shocks and Merger Activity in the Property-Liability Insurance Industry,” with Sandra L. Chamberlain, *Journal of Risk and Insurance* 65(4) December 1998: 563-595.

“The Coexistence of Distribution Systems under Price Search: Theory and some Evidence from Insurance,” with Lisa L. Posey, *Journal of Economic Behavior and Organization* 35(1) January 1998: 95-115.

“Rate Regulation and the Industrial Organization of Automobile Insurance,” with Susan J. Suponcic, in David Bradford, ed., *The Economics of Property-Casualty Insurance*, University of Chicago Press, 1998: 113-138.

“Moral Hazard, Adverse Selection and Community Monitored Insurance Programs,” with Neil A. Doherty, in Robert Klein, ed., *Alternative Approaches to Insurance Regulation*, National Association of Insurance Commissioners, 1998: 97-110.

“The Impact of Rate Regulation on State Automobile Insurance Markets,” *Journal of Insurance Regulation* 15(4) Summer 1997: 502-523.

“Economic Institutions and Individual Ethics: A Study of Consumer Attitudes Toward Insurance Fraud,” *Journal of Economic Behavior and Organization* 30(2) February 1997: 247-266.

“Agent Discretion and the Choice of Insurance Marketing System,” with Laureen Regan, *Journal of Law and Economics* 39(2) October 1996: 637-666.

“Moral Hazard in Insurance Claiming: Evidence from Automobile Insurance,” with J. David Cummins, *Journal of Risk and Uncertainty* 12(1) January 1996: 29-50.

“Regulatory Lag in Automobile Insurance,” *Journal of Risk and Insurance* 60(1) March 1993: 36-58.

“Reinsurance and the Liability Insurance Crisis,” with Lawrence A. Berger and J. David Cummins, *Journal of Risk and Uncertainty* 5(3) July 1992: 253-272.

“Labor Market Discrimination, Imperfect Information and Self-Employment,” with Stephen Coate, *Oxford Economic Papers* 44(2) April 1992: 272-288.

“Controlling Automobile Insurance Costs,” with J. David Cummins, *Journal of Economic Perspectives* 6(2) Spring 1992: 95-115.

PUBLISHED ESSAYS AND POLICY BRIEFS

How Risk and Insurance Experts View the Effectiveness of Prior Approval and Market-Oriented Rate Regulatory Policies in Auto Insurance, Insurance Research Council, August 2013.

Does Ontario Need a New Auto Insurance System? with Mary Kelly and Anne Kleffner, Insurance Bureau of Canada policy brief, September 2012.

Long Term Effects of Rate Regulatory Reforms in Automobile Insurance Markets, Insurance Research Council (monograph, 65 pages), March 2012.

Consumers’ Insurance Literacy, Policy Brief 2011-PB-06 Networks Financial Institute (www.networksfinancialinstitute.org), July 2011.

Rethinking Consumer Protection Regulation in Insurance Markets, Policy Brief 2010-PB-07 Networks Financial Institute (www.networksfinancialinstitute.org), September 2010.

Analyzing the Role for a Consumer Financial Protection Agency, Policy Brief 2009-PB-13 Networks Financial Institute (www.networksfinancialinstitute.org), December 2009.

State Regulation and Consumer Protection in the Insurance Industry, Policy Brief 2008-PB-03 Networks Financial Institute (www.networksfinancialinstitute.org), February 2008.

Reprinted in *Consumer Protection: Diverging Perspectives*, G. Radhika, ed., Hyderabad: Icfai University Press, 2008-09

First-Party Insurance Bad Faith Liability: Law, Theory, and Economic Consequences, with William J. Warfel, National Association of Mutual Insurance Companies Issue Brief (www.namic.org), 2008.

Efficiency Consequences of Insurance Rate Regulation, Policy Brief 2007-PB-03 Networks Financial Institute (www.networksfinancialinstitute.org), March 2007.

Reprinted in *The Icfai University Journal of Insurance Law* 6(3) 2008: 41-54

NON-REFEREED PUBLICATIONS

“Consumer Protection in Insurance Markets,” *Journal of Financial Consumers* 1(1) June 2011: 1-10 (invited article).

“Insurer Anti-Fraud Programs: Contracts and Detection versus Norms and Prevention,” *Journal of Financial Transformation*, Spring 2011.

“Bad-Faith Liability for Unfair Claims Settlement Practices in First-Party Insurance,” with William J. Warfel, *Pravartak: Journal of Insurance and Risk Management*, May 2009.

“Moral, Social and Economic Dimensions of Insurance Claims Fraud,” *Social Research*, 75(4) Winter 2008: 1181-1204 (invited article).

“Financial Literacy: A Public Policy Issue -- The Effect of Curriculum Mandates on Student Financial Knowledge,” with Chau Nguyen and B.J. Bristow, *Proceedings of the 2000 Annual Conference of the Association for Financial Planning and Counseling*, November 2000.

“Government Regulation of Insurer Sales Practice,” *Market and Public Organisation*, University of Bristol, Issue 2, December 1999: 7-10.

“The Effect of Rate Regulation on Underwriting Cycles,” *CPCU Journal* 44(1) Mar 1991:33-45.

SHORT ARTICLES IN TRADE PRESS

“Bad Faith Lawsuits: Raise Standard of Proof”, with William J. Warfel, *Fraud Focus* (newsletter published by The Coalition Against Insurance Fraud), Winter 2009.

“Curriculum Mandates: A Policy to Increase Financial Literacy?” with B.J. Bristow and Chau Nguyen, *Jumpstart Coalition Newsletter*, October 2000.

BOOK REVIEWS

The Liability Maze: The Impact of Liability Law on Safety and Innovation, Peter Huber and Robert Litan, eds., *Journal of Policy Analysis and Management*, V11, No.4 (Fall 1992): 728-731

WORKING PAPERS IN PROGRESS (drafts available)

“Ontario Auto Insurance Reform: A Game of “Whack-A-Mole,” with Mary Kelly and Anne E. Kleffner, provisionally accepted, *Assurances*.

“The Impact of Expanded Insurer Liability for Bad Faith: Evidence from the *Royal Globe* Doctrine,” with Brian Richman, invited to revise and resubmit to *Journal of Legal Studies*.

“Implementation of EU Intermediary Regulation: Intentions and Unintended Side Effects,” with Christoph Lex and Andreas Richter, invited to revise and resubmit to *Journal of Law and Economics*.

“Credible or Biased? An Analysis of Insurance Product Ratings,” with Stephanie Meyr and Patricia Born, in preparation for submission.

“The Airline Passenger Protection Rule: Airline Response for On-Time Performance”, with Sra Chuenchoksan and Andrew M. McClintock, in preparation for submission.

“State Regulations, Uninsured Driving and the Cost of Automobile Insurance,” with Mary A. Weiss, in preparation for submission.

“Tort Liability and Settlement Failure: Evidence on Litigated Auto Insurance Claims”, with Danial P. Asmat, in preparation for submission.

UNPUBLISHED WORKING PAPERS

“My Wife is my Long Term Care Insurance: Household Bargaining and the Purchase of Long Term Care Insurance,” with H. Elizabeth Peters and Frances Woolley, presented at the American Economic Association meetings, January 2008.

“Trends in State Medicaid Prescription Drug Policies 1990-2004: What are the main policies the states are using?” with Kosali Simon and Julie Hudman, 2005.

“Medicaid Crowd-out Of Private Insurance: The Case of Long Term Care,” with Hyojin Kang and Alan Mathios, 2004.

CONFERENCE PARTICIPATION

Organizational Activities:

2015	Local organizer (host institution), Risk Theory Society
2013	Organizer, Editors’ Roundtable, ACCI annual meeting
2012	Plenary session co-organizer and moderator, panel on Consumer Protection Regulation, Asia-Pacific Risk and Insurance Association annual meeting
2009	Co-organizer, NAIC-Temple Symposium on Insurance Solvency Regulation
2008	Session organizer, American Economic Association meeting
2002	Program Chair, Risk Theory Society Seminar
1999	Session organizer, CSWEP session, Western Economic Association meeting

Research Presentations:

2015	IAFCO First Annual Congress (plenary session speaker), Jeju Korea World Risk and Insurance Economics Congress (discussant), Munich Public Choice Society annual meeting (presenter and discussant)
2014	Public Choice Society annual meeting (presenter and discussant)
2013	Casualty Actuarial Society national meeting (presenter), Vancouver, BC American Risk and Insurance Association meeting (discussant)
2012	National Insurance Council of Canada annual meeting (panelist), Quebec City Risk Theory Society seminar (presenter) American Council on Consumer Interests meeting (presenter) Webinar, National Association of Mutual Insurance Companies (presenter) Asia-Pacific Risk and Insurance Association meeting (presenter)
2011	Allied Social Science Association meeting, session sponsored by American Risk and Insurance Association (presenter)

- 2010 American Risk and Insurance Association meeting (presenter)
World Risk and Insurance Economics Congress, Singapore (presenter and discussant)
Conference on Insurance Regulatory Reform Issues: A Regional Perspective, Networks Financial Institute, Indianapolis (panelist)
C.D. Howe Institute Conference on Price Regulation and Social Welfare: The Case of Automobile Insurance in Canada, Toronto (discussant)
- 2009 National Association of Mutual Insurance Companies Public Policy Summit
- 2008 American Society of Health Economists meeting (presenter)
American Economic Association meeting (presenter)
Searle Center Conference on Insurance Markets and Regulation, Northwestern University (presenter)
American Risk and Insurance Association meeting, (presenter and discussant)
Insurance Bureau of Canada Regulatory Affairs Symposium, Toronto (presenter)
Fifth Insurance Reform Summit, Networks Financial Institute, Washington, D.C.
Conference on Empirical Legal Studies (discussant)
- 2007 American Risk and Insurance Association meeting (presenter and discussant)
Casualty Actuary Society Northeast Regional Meeting (presenter)
Fourth Insurance Reform Summit, Networks Financial Institute, Washington, D.C. (presenter)
- 2006 International Society for New Institutional Economics meeting (presenter)
American Risk and Insurance Association meeting (discussant)
- 2002 Casualty Actuarial Society national meeting (presenter)
Insurance Research Council/Massachusetts Automobile Insurers' Bureau Conference on Insurance Fraud (presenter)
- 2001 American Enterprise Institute-Brookings Joint Center for Regulatory Studies Conference on Property-Liability Insurance Price Deregulation (presenter)
American Council on Consumer Interests meeting (presenter)
Risk Theory Society Seminar (presenter)
Casualty Actuarial Society national meeting (presenter)
- 2000 Seminar of the European Group of Risk and Insurance Economists (presenter, discussant)
Insurance: Mathematics and Economics meeting (presenter)
- 1998 Economic Policy Institute Conference on Automobile Insurance (discussant)
- 1997 Fifth International Conference on Insurance Solvency and Finance (presenter)
International Conference on Automobile Insurance, University of Montreal (presenter)
- 1996 American Risk and Insurance Association meeting (presenter)
- 1995 American Risk and Insurance Association meeting (presenter)
- 1994 American Risk and Insurance Association meeting (presenter)
Econometric Society North American Summer Meeting (presenter)
Franco-American Economics Seminar (presenter)
National Bureau of Economic Research Conferences on Property-Casualty Insurance (presenter)
- 1993 American Economic Association meeting (presenter)
- 1992 American Risk and Insurance Association meeting (presenter)
Risk Theory Society Seminar (presenter)

1991 American Risk and Insurance Association meeting (presenter)

Educational Presentations:

2015 Huebner Foundation Faculty-PhD Seminar, Faculty Panelist
 2012 Cornell Cooperative Extension, Family and Economic Resource Management In-Service, Panelist; “Improving Consumers’ Use of Credit Cards: The Role of Policy”
 2012 Casualty Actuarial Society Northeast Regional meeting (CANE), General Session Speaker; “Lessons for Actuaries from Behavioral Economics” (with James Guszca)
 2012 Bad Faith and Beyond Conference, Rutgers-Camden Law School, Panelist; “Empirical Perspectives on Bad Faith Liability”
 2012 American Council of Consumer Interests Webinar for Emerging Academics; “Publishing: Perspectives of an Editor”
 2011 General Session Speaker, Casualty Actuarial Society InFocus Seminar; “Lessons for Insurance Actuaries from Behavioral Economics” (with James Guszca)
 2010 Cornell University, Johnson Graduate School of Management, Faculty Panel “Financial Protections in the U.S. and Globally” (Andrew Ross Sorkin visit)
 2010 Singapore College of Insurance, Distinguished Visiting Professor Lecture; “Understanding Consumer Behavior in Insurance Transactions”
 2010 Cornell Human Ecology Alumni Association, annual meeting; “Financial Regulatory Reforms”
 2010 National Conference of Insurance Legislators, Institute for Insurance Policy; “The Cost of Claims Fraud: Who Ultimately Pays?”
 2008 National Association of Mutual Insurance Companies, annual meeting; “Consequences of First-Party Insurance Bad Faith Liability”
 2001 Cooperative Extension Conference (ACCEE); “Life is a Risky Business: Making Insurance Choices Wisely”
 2000 Cornell Cooperative Extension Inservice; “Improving Insurance Knowledge of New York State Consumers”
 1996 Minnesota Independent Insurance Agents Association; “The Future of Insurance Marketing Systems”

Other Conference Participation:

Moderator, Plenary Session of Best Paper Finalists, ACCI annual meeting, 2014, 2015; Session chair, Public Choice Society annual meeting, 2014; Faculty participant, Insurance Economics Colloquium, Wildbad Kreuth Germany, 2013; Panelist, Editors’ Round Table, Marketing and Public Policy meeting, 2013; Moderator, CAS Spring Meeting General Session, 2013; Panelist, Progrés International Insurance Seminar of the Geneva Association, Geneva Switzerland, Panel on Consumer Protection Regulation, 2012; Panelist, University of Wisconsin Center for Financial Security, Financial Literacy Workshop, 2011; Cornell Cooperative Extension FERM Project Working Team lunch, faculty speaker, 2011; Invited participant, Enterprise Risk Management Institute International (ERM-II), Symposium on Systemic Risk in the Insurance Industry, 2010; Resident academic, annual CEO Conference of Canadian property-casualty insurance companies 2007; Session moderator, American Risk and Insurance Association meetings 2000, 2004, 2006, 2007, 2008, 2015 (WRIEC); Session moderator, American Council on Consumer Interests meetings 2001, 2012, 2013

PUBLIC POLICY CONSULTING

- 2013 White Paper: *Commission Allowances in Workers' Compensation Rates* (consultant to Workers Compensation Rating and Inspection Bureau of Massachusetts)
- 2012 White Paper: *Reforming Ontario's Auto Insurance System: Research and Recommendations*, with Mary Kelly and Anne Kleffner (consultant to Insurance Bureau of Canada)
- 2011 Expert witness, Michigan Senate hearings on No-fault Insurance; White paper: *Excess Costs in Michigan Auto Insurance: Causes and Implications for Reform* (consultant to several insurance companies)
- 2011 White paper: *Long Term Consequences of Auto Insurance Rate Deregulation*; (consultant to Insurance Research Council)
- 2008 Expert witness, Massachusetts Special Commission on Auto Body Rates (consultant to the Massachusetts Insurance Federation)
- 2008 White Paper: *First-Party Insurance Bad Faith Liability: Law, Theory, and Economic Consequences*, with William J. Warfel (consultant to National Association of Mutual Insurance Companies)
- 2007 Expert witness, Massachusetts Automobile Insurance Competition hearing; White paper: *Evaluating Competition in Automobile Insurance Markets* (consultant to The Fairness for Good Drivers Coalition)
- 2007 White paper: *Unintended Consequences of Insurance Price Suppression* (consultant to Insurance Bureau of Canada)
- 2006 Expert witness, Alberta Automobile Insurance hearing (consultant to the Insurance Bureau of Canada)
- 1995 Expert witness, Maryland State Governor's Commission on Reforming Baltimore City Automobile Insurance

GRANT FUNDING

- 2014-2015 Principal Investigator, *Cornell Institute for Social Science* Director's Discretionary Grant, "Supplemental Funding for RTS Conference"
- 2011-2012 Principal Investigator, *Cornell Institute for Social Science* Small Grant, "Credit Card Reforms: Helping or Hurting Consumers?"
- 2006-2008 Principal Investigator, *Program on Consumers, Pharmaceutical Policy and Health* Grant, "Drug Choice, Negative Information and Consumer Behavior"
- 2003-2007 Co-Principal Investigator (with Kosali Simon), *Program on Consumers, Pharmaceutical Policy and Health* Grant, "State Regulation of Medicaid Pharmacy Benefits"
- 2003-2005 Initiative Team Member (with PAM Dept. colleagues), *Merck Company Foundation* Program on Pharmaceutical Policy Issues Grant, "Program on Consumers, Pharmaceutical Policy and Health", John Rizzo, Principal Investigator
- 2000-2003 Principal Investigator, *College of Human Ecology* Grant, Cornell University: "Regulatory Issues in Insurance Markets"
- 1999-2001 Principal Investigator (collaborative research with B.J. Bristow), *CSREES Research-Extension Integration* Grant: "Insurance Choices: Knowledge, Confidence and Competence of New York State Consumers"

- 1998-2003 Principal Investigator, *Hatch Grant, USDA*: “Issues in the Regulation of Insurance Marketing and Distribution”
- 1995-1997 Principal Investigator (collaborative research with Keith J. Crocker), *National Science Foundation*, Economics Division Grant #SBR95-07768: “Contracting with Costly State Falsification: Theory and Empirical Results from Automobile Insurance”
- 1995-1996 Principal Investigator, *National Association of Insurance Commissioners Journal of Insurance Regulation* Grant: “The Effects of Rate Regulation on the Structure of Automobile Insurance Markets”
- 1994-1995 Principal Investigator, *University of Pennsylvania Research Foundation* Grant: “Regulation and Industrial Organization in Structurally Competitive Industries: The Case of Automobile Insurance”
- 1994-1995 Principal Investigator, *University of Pennsylvania Research Foundation* Grant: “Social Norms in Economic Settings: Consumer Attitudes Toward Insurance Fraud”
- 1993-1995 Co-Principal Investigator (collaborative research with J.D. Cummins), *Financial Institutions Center* Grant, The Wharton School: “The Management and Control of Fraud in Insurance Firms”
- 1993-1994 Co-Principal Investigator (collaborative research with S. Chamberlain), *Fishman-Davidson Center* Grant, The Wharton School: “The Risk and Efficiency Effects of Insurance Company Mergers”
- 1992-1993 Principal Investigator, *University of Pennsylvania Research Foundation* Grant: “The Tort System and Insurance ‘Lotteries’”
- 1989-1990 Principal Investigator, *Society of CPCU* Grant: “The Effects of Rate Regulation on Underwriting Cycles”
- 1988-1989 Doctoral Dissertation Fellowship, *State Farm Companies Foundation*: “Supply Dynamics and Underwriting Cycles in Property Liability Insurance”
- 1987-1988 Graduate Research Fellowship, *Center for Urban Affairs and Public Policy*, Northwestern University

PH.D. DISSERTATION COMMITTEES

- In progress Peter Wissoker (CRP)
- In progress Sra Chuenchoksan (Economics)
- In progress Liyuan Cui (Economics)
- 2014 Lauren E. Jones (PAM) (chair)
- 2014 José Balmori di la Miyar (PAM) (chair)
- 2008 J. Michael Collins (PAM) (chair)
- 2007 Sara Hoda (PAM)
- 2007 Hae Kyung Yang (PAM)
- 2007 Ajay Aseem Palvia (Economics)
- 2005 Sonja Afroz (Economics)
- 2003 Hyojin Kang (PAM)
- 1998 M. Martin Boyer (RMI) (chair)
- 1998 Susan J. Saponic (Public Policy)
- 1997 David M. Russell (RMI)
- 1996 Jweeping Er (RMI)

1995	Sung Hun Seog (RMI)
1995	Tracy Shepard Allotey (RMI)
1994	Jeong D. Kim (Healthcare Systems)
1994	Richard A. Phillips (RMI)
1993	Laureen A. Regan (RMI)
1993	Anne E. Kleffner (RMI)
1993	David W. Sommer (RMI)
1992	Lisa L. Posey (RMI)

Mentor, Cristoph Lex, visiting Ph.D. student, Ludwig Maximillion University, Spring 2013
Mentor, Maoqi Wang, visiting Ph.D. student, Tsinghua University, Fall 2011

MASTERS' THESIS COMMITTEES CHAIRED

2014-15	Xiaodi Li, CIPA (thesis)
2014-15	Rafael Morales, CIPA (thesis)
2013	Samir Kiuhan, CIPA (thesis)
2013	Cheng Chen, CIPA (professional report)
2011	Andrew McClintock, PAM (thesis)
2011	Scott Talaga, CIPA (thesis)

PROFESSIONAL SERVICE

Service to Government and Industry:

Member, Consumer Financial Education Committee, The Actuarial Foundation, 2012-2013;
Member, Board of Trustees, Elizabeth Ann Clune Montessori School of Ithaca, 2004-2007;
Economic Reviewer, Institute for Defense Analysis, 2003-2006; Cornell representative to Board of Directors, Ithaca Community Childcare Center, 2000-2004 (Vice President, 2002-2003; Secretary 2001-2002); Advisor, Consumer Information Task Force of the Coalition Against Insurance Fraud, 1996-1997

Service to American Risk and Insurance Association:

Program Committee 1993, 1996, 1997, 2000, 2006, 2007, 2008, 2010, 2013, 2014, 2015;
Nominations Committee 1996, 2015; Best JRI Feature Article Awards Committee 1995, 1996, 1998, 2006, 2007, 2008, 2012, 2014; Best RMIR Feature Article Awards Committee 2013, 2014;
Best RMIR Perspectives Article Awards Committee 2010 (Chair), 2011; Book Awards Committee, 1992, 1999 (Chair), 2003, 2004

Ad Hoc Reviewing:

Journal of Risk and Insurance (assistant editor award, 1996 and 1997), Journal of Economic Psychology, Journal of Financial Stability, Journal of Public Policy and Marketing, Natural Hazards, Review of Economics of the Household, Risk Management and Insurance Review, Geneva Risk and Insurance Review, Management Science, Asia-Pacific Journal of Risk and Insurance, Journal of Consumer Affairs, Journal of Policy Analysis and Management, Astin Bulletin, Journal of Law, Economics and Organization, Journal of Banking and Finance, Journal of Political Economy, American Economic Review, Journal of Law and Economics, Journal of Business Ethics, National Science Foundation, Geneva Papers on Risk and Insurance: Issues and Practice, Journal of Legal Studies, Journal of Insurance Regulation, European Economic Review,

Journal of Consumer Policy, International Review of Economics and Finance, Industrial and Labor Relations Review, Journal of Insurance Issues, Economic Journal, Journal of Financial Intermediation, Journal of Risk and Uncertainty, Review of Industrial Organization, MIT Press, Elsevier Press, Social Sciences and Humanities Research Council of Canada

CORNELL UNIVERSITY SERVICE

College and University Committees:

Faculty Committee on Program Review, 2013-present; Committee on Academic Freedom and Professional Status of the Faculty, 2012-2015; External Member, AEM Hiring Committee for Nonprofit Management, 2014; Mann Library Committee, 2005-2009 (chair 2008-2009); Member, Hotel School Ad-hoc Tenure Review Committee, 2011; CAS Ad-hoc Tenure Review Committee, 2008, 2010; University Benefits Committee, 2002-2006; Grant Review Team, Hatfield Fund for the Enhancement of Economics Education, 2002-2005; College of Human Ecology Nominations Committee, 2001-2004, 2010-2013; College of Human Ecology Educational Policies Committee, 2002-2003; PAM Graduate Field Committee, 2001-2002; Review Team, Pre-proposals for Cornell Cooperative Extension Learning Centers, 2001; PAM Graduate Field Governance Committee, 2000-2001

PAM Department Committees:

Liaison to Mann Library, 2005-2014; Executive Committee, 2002-2003; Undergraduate Committee, 1998-2003 (Chair, 2002-2003); Sloan MHA Program Committee, 1998-2001; Faculty Search Committee, 1998-2002, 2002-2004 (Chair), 2005-2006, 2006-2007 (co-Chair), 2008-2009, 2009-2010, 2010-2011, 2012-2013, 2014-2015 (co-Chair); Search Committee for Sloan Program Associate Director, 1999-2000 (Chair)

CORNELL GRADUATE FIELD MEMBERSHIP

Public Affairs; Policy Analysis and Management; Economics

COURSES TAUGHT

Cornell: Economics of Consumer Law and Protection, Economics of Consumer Policy, Risk Management and Policy, Regulating Financial Institutions, PAM Honors Thesis Seminar, Economics of the Public Sector, Consumers, Information and Regulatory Policy (PhD), Seminar on Pharmaceutical Policy Issues (MHA), Microeconomics for Management and Policy (MHA)

Wharton: Principles of Risk and Insurance, Risk Management, Risk Management and Treatment (MBA), Industrial Organization of Insurance Markets (PhD)

MASSACHUSETTS WORKERS' COMPENSATION

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Introduction

On behalf of our more than three hundred member carriers, the Workers' Compensation Rating and Inspection Bureau of Massachusetts ("WCRIBMA") recommends that average rates for workers' compensation insurance be increased by 6.4% for policies effective on and after July 1, 2016.

Filing Summary

This filing is divided into three parts. The first is the main rate level filing, with explanatory text and actuarial exhibits underlying the calculation of the average rate indication. The second part contains the rate level indication for F-Classes, revised Experience and Retrospective Rating Plan parameters, miscellaneous rating values, and classification rate displays. The third part addresses cost containment. The pre-filed testimony of the three WCRIBMA actuaries supporting this filing, Robert McCarthy, Claudia Cunniff, and Anthony Salido and of the WCRIBMA's outside expert witnesses, Dr. David Appel of Milliman, Inc. and Dr. Sharon Tennyson of Cornell University is included with the filing.

This filing presents the required testimony, data, and calculations supporting the WCRIBMA's recommended rate revisions. The rates the WCRIBMA recommends are neither excessive nor inadequate; they are not unfairly discriminatory; and they fall within a range of reasonableness. The Commissioner should, therefore, approve the WCRIBMA's filing.

In this introduction the WCRIBMA presents a summary of the principal ratemaking issues and methods considered in the filing. Consistent with past practice, the WCRIBMA uses a loss ratio methodology to derive two separate rate indications that are then averaged to produce the final recommendation. This year, the WCRIBMA derived one indication from policy year 2012 data and the other from policy year 2013 data.¹ Policy year 2012 data consist of premium and loss experience generated by policies written during 2012. Policy year 2013 data consist of premium and loss experience generated by policies written during 2013. The WCRIBMA averages these two years of experience to get its filed indication.

Using a standard loss ratio method, the WCRIBMA calculates a permissible loss, Loss Adjustment Expense (“LAE”) and fixed expense ratio (“Target Cost Ratio”) and compares it to an adjusted loss, LAE and fixed expense ratio reflecting the past experience that supports this filing (“Actual Cost Ratio”). The WCRIBMA adjusts Aggregate Financial premium and loss data from the experience period so that the data reflect as accurately as possible the conditions that are expected to prevail during the period when the rates are expected to be in effect, here 7/1/16-6/30/17. The recommended rate change is designed to bring the Actual Cost Ratio into alignment with the Target Cost Ratio.

It is important to understand that the ratemaking methodology used in this filing is not a series of unrelated calculations, but rather an integrated series of adjustments to

¹ Policy year data is used by NCCI for determining indicated loss cost (or rate) changes in all 37 states and the District of Columbia where NCCI files loss costs (or rates).

the reported experience that taken together yield a reasonable rate level. Each of these adjustments is summarized below and further detailed in the body of the filing.²

Losses

Losses require three separate adjustments to rate period levels. The first, described in Section II of the filing, is loss development. Since the claims associated with policy year 2012 and policy year 2013 losses have not yet all been settled, the WCRIBMA looks at past settlement patterns to estimate ultimate values. As in the prior filing, the data for American International Group (AIG) have been developed separately from the remainder of industry due to historical differences in loss development coupled with material shifts in market share. The resulting estimates of developed losses for AIG and the remainder of industry are then summed to arrive at an industry total.³ The differences in estimated ultimate losses for the industry in total, as compared to the sum of separate estimates of ultimate losses for AIG and the remainder of the industry are less pronounced than in the prior filing.⁴

² In this filing the WCRIBMA has relocated certain exhibits from their location in past filings. The calculation of the loading for recoupment of insolvency fund assessments has been moved from Section I – Rate Recommendation to Section IX – Classification Pricing because the guaranty fund recoupment does not impact the recommended change in average rates contained in Section I – Rate Recommendation, but, does impact the conversion of average rates to manual rates which is performed in Section IX – Classification Pricing. Additionally, the summary exhibits contained in each of Sections II, III, IV, V, and VI have been reproduced in Section I – D for ease of review of the rate recommendation.

³ The separate development of AIG data was performed in accordance with the Commissioner's guidance in the 2012 Rate Decision to treat that data consistently between the different sections of the filing. Except for the estimation of tail factors, because of the limited claims activity beyond 252 months of development, the losses for AIG and the remainder of industry have been developed separately in Section II – Loss Development and Section V- Trend.

⁴ The estimated ultimate losses for the industry in total are approximately 0.5% higher when the industry losses are developed in total, which is offset by a decline in trend. The resulting indicated rate change is virtually the same under either scenario.

Workers' compensation payments may reflect claims for either (or both) indemnity (wage loss and survivor benefits) and medical benefits, and these are developed separately. The WCRIBMA calculates two different estimates of ultimate medical and indemnity losses, the first based on the development of paid losses, and the second based on the development of the sum of paid losses and case reserves. These are averaged when the WCRIBMA calculates the experience period loss ratios.

Next, losses are adjusted to current benefit levels. These calculations are displayed in Section IV of the filing. In this filing, these adjustments are made to reflect the impact of recent changes in the Statewide Average Weekly Wage, Massachusetts workers' compensation law regarding funeral benefits,⁵ and the medical fee schedule. The WCRIBMA estimates the wage-based benefit effects with a version of the simulation model used by NCCI.

Finally, losses are adjusted for trend to account for expected changes in loss costs from the experience period to the time the recommended rates will be in effect. In this filing, regression techniques are used to analyze separately the distinct underlying components of observed loss trends: changes in claim frequency, claim severity and wages (used as a proxy for exposure because payroll is the predominant exposure base). Details of the loss trend calculations are found in Section V.

⁵ M.G.L.A. 152 § 33 was revised effective March 24, 2015 such that the insurers "shall pay the reasonable expenses of burials, not exceeding 8 times the average weekly wage in the commonwealth as determined pursuant to subsection (a) of section 29 of chapter 151A."

Premiums

For most workers' compensation policies, the final premium is not known until after the policy expires. Insurers base initial premiums on estimated payroll, subject to a post-expiration audit. As a result, policy year premium is developed using a technique much like loss development. The WCRIBMA also adjusts reported premiums to current rate level. These adjustments are found in Section III.

Expenses

Section VI contains the calculations underlying the expense provisions in the rates. As in past years, these calculations are based on the methods specified by the Commissioner in the 1987 rate decision. Expenses are divided into fixed and variable categories. Variable expenses are proportional to either premium (premium taxes, commissions, and other acquisition expenses) or losses (loss adjustment expenses). Fixed expenses are divided into expense categories (salaries, postage, utilities, etc.). As was done in the last filing, the WCRIBMA uses a composite external index to estimate expense trends. The WCRIBMA also continues to include a provision to reflect the estimated net cost to insurers for the purchase of reinsurance.

Underwriting Profit

Discounted cash flow models are used to estimate the underwriting profit provision in Section VII. WCRIBMA uses, namely, the internal rate of return ("IRR") model and the insurer capital cost ("ICC") model. The IRR model is widely used in

insurance ratemaking and in 2003 was approved by the Commissioner for use in workers' compensation ratemaking in Massachusetts.⁶ The ICC model is mathematically equivalent to the IRR model and is used to explicitly quantify the capital costs in dollar terms.⁷

To implement the IRR and ICC models, the WCRIBMA first determines the various inputs needed by the models, such as the cost of capital (or target rate of return), the expected return on insurers' invested assets, the leverage ratio, and the cash flows associated with underwriting. Using the IRR and ICC models and their associated inputs, the WCRIBMA derives the premium level required to achieve the target return on capital.

Longshore and Harbor Workers

Section VIII describes the derivation of rate recommendations for the risks that have exposure to the benefits and risks that apply under the United States Longshore and Harbor Workers Act, known as the F-Classes.

⁶ Actuarial Standard of Practice No. 30 (ASOP #30) - Treatment of Profit and Contingency Provisions and the Cost of Capital in Property/Casualty Insurance Ratemaking, published by the Actuarial Standards Board, lists three examples of models that may be used to directly develop an underwriting profit provision, including the Net Present Value (NPV) Model. ASOP #30 states that the "internal rate of return (IRR) model, a specific application of the general NPV model, uses an iteration technique to calculate the rate(s) of return that will set the net present value of a risk transfer's cash inflows and outflows equal to zero."

⁷ The list of models that may be used to directly develop an underwriting profit provision which are described in ASOP #30 also includes the total financial needs model. "Total financial needs models are used to develop the underwriting profit provision such that the sum of underwriting profit, miscellaneous (non-investment) income, investment income from insurance operations, and investment income on capital, after income taxes, will equal the cost of capital. Each of these components is explicitly quantified." The ICC model is an example of a total financial needs model.

Classifications and Rating Plan Parameters

Section IX describes how the overall rate change is distributed among the more than four hundred classifications for which workers' compensation policies are written in Massachusetts. Section X presents D-Ratio and expected loss rate calculations for use in experience rating. Section XI details the derivation of miscellaneous rating values, including credit factors for both the Massachusetts Benefits Deductible Program and the Massachusetts Benefits Claim and Aggregate Deductible Program. Section XI also contains a recommendation to introduce a method for indexing payroll caps associated with three class codes: Class 9178 (Athletic Team or Park: Non-Contact Sports), 9179 (Athletic Team or Park: Contact Sports), Class 9186 (Amusement Device Operator Carnival or Circus Traveling – All Employees & Drivers)⁸. Additionally within Section XI, the WCRIBMA recommends indexing the payroll limitations applicable to executive officers⁹. Section XII contains the calculation of various retrospective rating parameters, including hazard group relativities and excess loss factors.

Data

Section XIII describes the process the WCRIBMA uses to validate and edit the data used in its rate filings. Section XIII also provides details about certain adjustments to the reported data, including the exclusion of certain data, deemed necessary this year for purposes of this rate filing.

⁸ Policy year 2013 manual premiums for class codes 9178, 9179, and 9186 were \$567,601, \$928,792, and \$103,239, respectively, compared to \$1,078,489,554 for the industry as a whole.

⁹ The executive officer payroll cap of \$1,000 per week applies to all class codes. The executive officer payroll cap is currently less than 80% of the statewide average weekly wage.

Cost Containment

The WCRIBMA's cost containment filing once again includes the responses of ten representative carriers to a survey of cost containment practices. In 2013, the WCRIBMA revised its survey instrument to provide an expanded array of information.¹⁰ The WCRIBMA recommends that, as in the past, the Commissioner accept this filing as evidence of the industry's compliance with its statutory cost containment obligations.

¹⁰ In the 2012 Rate Decision, the Commissioner stated that the scope of the WCRIBMA's 2012 Cost Containment Survey "focuses on loss costs and premium collection and does not address other expenses that workers' compensation insurers incur, such as general expenses, overhead, and commissions." In response, the current survey has a broader scope and does address general expenses, such as salaries, travel, advertising, and rent. The current survey also addresses commissions.

I 000009

Section I - Rate Recommendation
 Subsection A - Introduction
 7/1/2016

Section I - A
 Exhibit 1

RATE INDICATION SUMMARY

Statewide Rate Change Summary		
<i>Indication Effective Date: 7/1/2016</i>		
(1)	Indicated Rate Change Based on Policy Year 2012 Data (Section I-B, Exhibit 1)	4.6%
(2)	Indicated Rate Change Based on Policy Year 2013 Data (Section I-B, Exhibit 1)	8.3%
(3)	Average Indicated Rate Change = [(1) + (2)] / 2.0	6.4%

Expense Constants			
	Current	Recommended	
(4)	For Risks developing at least \$1,000 in Standard Premium (Section VI-D, Exhibit 1)	\$338	\$338
(5)	For Risks developing at least \$200 and less than \$1,000 in Standard Premium (Section VI-D, Exhibit 1)	\$250	\$250
(6)	For Risks developing less than \$200 in Standard Premium (Section VI-D, Exhibit 1)	\$159	\$159
(7)	Per Capita Risks (for each exposure, up to a maximum of 4)	\$64	\$64

I 000010

Section I - Rate Recommendation
 Subsection B - Calculation of Indicated Rate Change
 7/1/2016

Section I - B
 Exhibit 1

Calculation of Indicated Rate Change		Policy Year <u>2012</u>	Policy Year <u>2013</u>
(1)	Standard Earned Premium plus Adjusted ARAP Premium (Section I-D, Exhibit 2)	986,076,718	1,026,831,743
(2)	Composite Adjustment Factor (Section I-D, Exhibit 2)	1.002	1.014
(3)	Adjusted Standard Earned Premium plus Adjusted ARAP = [(1) x (2)]	987,813,075	1,041,537,390
(4)	Cumulative Premium Development Factor to Ultimate (Section I-D, Exhibit 2)	0.999	1.003
(5)	Rate On-Level Factor (Section I-D, Exhibit 2)	1.000	1.000
(6)	Factor to Remove Expense Constant (Section I-D, Exhibit 2)	0.956	0.957
(7)	Adjusted On-Level Standard Earned Premium plus Adjusted ARAP at Ultimate = [(3) x (4) x (5) x (6)]	943,321,497	999,808,461
(8)	Annual Wage Trend (Section I-D, Exhibit 4)	0.024	0.024
(9)	Wage Trend Factor to 7/1/2017 (based on Section I-D, Exhibit 4)	1.110	1.085
(10)	Standard Earned Premium plus ARAP Projected to Prospective Effective Period = [(7) x (9)]	1,047,342,772	1,084,544,770
(11)	Average On-Level Incurred Losses Projected to Prospective Effective Period (Section I-C Exhibit I, Page 1 Item (26), Page 2 Item (26))	670,317,247	720,313,956
(12)	Loss Ratio Projected to Prospective Effective Period = [(11) / (10)]	0.640	0.664
(13)	Factor to Remove the Large Deductible Contribution to the Residual Market Subsidy (Section I-E)	1.000	1.000
(14)	Loss Adjustment Expense Factor (Section I-D, Exhibit 5)	1.200	1.200
(15)	Fixed Expense Ratio (Section I-D, Exhibit 5)	0.050	0.050
(16)	Indicated Policy Year Loss, LAE, and Fixed Expense Ratio = { [(12) x (14)] + (15) } x (13)	0.818	0.847
(17)	Commission and Other Acquisition Expense Ratio (Section I-D, Exhibit 5)	0.126	0.126
(18)	Premium Tax Ratio (Section I-D, Exhibit 5)	0.022	0.022
(19)	Premium Discount Ratio (Section I-D, Exhibit 5)	0.050	0.050
(20)	Variable Expense Ratio = [(17) + (18) + (19)]	0.198	0.198
(21)	Underwriting Profit Provision (Section VII-A)	0.020	0.020
(22)	Permissible Loss, LAE, and Fixed Expense Ratio = [1.0 - (20) - (21)]	0.782	0.782
(23)	Indicated Rate Change = [(16) / (22)] - 1.0	4.6%	8.3%
(24)	Overall Indicated Rate Change = [(23) PY2012 + (23) PY2013] / 2.0		6.4%

I 000011

Section I - Rate Recommendation
 Subsection C - Indicated Rate Change Detail
 7/1/2016

Section I - C
 Exhibit 1
 Page 1

Incurred Losses Projected to the Prospective Effective Period Policy Year 2012

	<u>Paid Method</u>	<u>Paid + Case Method</u>
Indemnity Losses		
(1) Indemnity Losses at Latest Month - Industry Total (Section I-D, Exhibit 1)	211,503,088	298,541,375
(2) Indemnity Loss Development Factor to 252 Months (Section I-D, Exhibit 1)	1.932	1.335
(3) Tail Factor 252 Months to Ultimate (Section I-D, Exhibit 1)	1.041	1.016
(4) Factor to Adjust for Escalated Benefits (Section I-D, Exhibit 1)	1.042	1.008
(5) Estimated Ultimate Indemnity Loss = [(1) x (2) x (3) x (4)]	443,319,571	407,891,894
(6) Annual Indemnity Loss Trend (Section I-D, Exhibit 4)	0.004	0.004
(7) Indemnity Loss Trend Factor to 7/1/2017	1.017	1.017
(8) Estimated Indemnity Losses Trended = [(5) x (7)]	450,935,003	414,898,742
(9) Estimated Benefit Change Factor Prior to 1/1/2016 (Section I-D, Exhibit 3)	1.021	1.021
(10) On Level Losses = [(8) x (9)]	460,193,116	423,416,998
(11) Estimated Benefit Change Factor Subsequent to 1/1/2016 (Section I-D, Exhibit 3)	1.007	1.007
(12) On-Level Incurred Losses Projected to Prospective Effective Period = [(10) x (11)]	463,436,445	426,401,137
Medical Losses		
(13) Medical Losses at Latest Month - Industry Total (Section I-D, Exhibit 1)	149,553,450	211,833,812
(14) Medical Loss Development Factor to 252 Months (Section I-D, Exhibit 1)	1.312	1.061
(15) Tail Factor 252 Months to Ultimate (Section I-D, Exhibit 1)	1.060	1.031
(16) Factor to Adjust for Escalated Benefits (1.000 for Medical Losses)	1.000	1.000
(17) Estimated Ultimate Medical Loss = [(13) x (14) x (15) x (16)]	208,023,641	231,806,051
(18) Annual Medical Loss Trend (Section I-D, Exhibit 4)	0.005	0.005
(19) Medical Loss Trend Factor to 7/1/2017	1.025	1.025
(20) Estimated Medical Losses Trended = [(17) x (19)]	213,210,742	237,586,170
(21) Estimated Benefit Change Factor Prior to 1/1/2016 (Section I-D, Exhibit 3)	1.000	1.000
(22) On Level Losses = [(20) x (21)]	213,210,742	237,586,170
(23) Estimated Benefit Change Factor Subsequent to 1/1/2016 (Section I-D, Exhibit 3)	1.000	1.000
(24) On-Level Incurred Losses Projected to Prospective Effective Period = [(22) x (23)]	213,210,742	237,586,170
Total Combined Medical and Indemnity Losses		
(25) Total Estimated Ultimate Losses Trended and On Level = [(12) + (24)]	676,647,187	663,987,307
(26) Average On-Level Incurred Losses Projected to Prospective Effective Period	670,317,247	

I 000012

Section I - Rate Recommendation
 Subsection C - Indicated Rate Change Detail
 7/1/2016

Section I - C
 Exhibit 1
 Page 2

Incurred Losses Projected to the Prospective Effective Period
 Policy Year 2013

	<u>Paid Method</u>	<u>Paid + Case Method</u>
Indemnity Losses		
(1) Indemnity Losses at Latest Month - Industry Total (Section I-D, Exhibit 1)	121,090,186	233,858,456
(2) Indemnity Loss Development Factor to 252 Months (Section I-D, Exhibit 1)	3.695	1.884
(3) Tail Factor 252 Months to Ultimate (Section I-D, Exhibit 1)	1.041	1.016
(4) Factor to Adjust for Escalated Benefits (Section I-D, Exhibit 1)	1.042	1.008
(5) Estimated Ultimate Indemnity Loss = [(1) x (2) x (3) x (4)]	485,279,028	451,051,902
(6) Annual Indemnity Loss Trend (Section I-D, Exhibit 4)	0.004	0.004
(7) Indemnity Loss Trend Factor to 7/1/2017	1.013	1.013
(8) Estimated Indemnity Losses Trended = [(5) x (7)]	491,749,897	457,066,376
(9) Estimated Benefit Change Factor Prior to 1/1/2016 (Section I-D, Exhibit 3)	1.016	1.016
(10) On Level Losses = [(8) x (9)]	499,764,538	464,515,738
(11) Estimated Benefit Change Factor Subsequent to 1/1/2016 (Section I-D, Exhibit 3)	1.007	1.007
(12) On-Level Incurred Losses Projected to Prospective Effective Period = [(10) x (11)]	503,286,756	467,789,531
Medical Losses		
(13) Medical Losses at Latest Month - Industry Total (Section I-D, Exhibit 1)	119,079,317	209,823,828
(14) Medical Loss Development Factor to 252 Months (Section I-D, Exhibit 1)	1.675	1.152
(15) Tail Factor 252 Months to Ultimate (Section I-D, Exhibit 1)	1.060	1.031
(16) Factor to Adjust for Escalated Benefits (1.000 for Medical Losses)	1.000	1.000
(17) Estimated Ultimate Medical Loss = [(13) x (14) x (15) x (16)]	211,381,562	249,261,632
(18) Annual Medical Loss Trend (Section I-D, Exhibit 4)	0.005	0.005
(19) Medical Loss Trend Factor to 7/1/2017	1.019	1.019
(20) Estimated Medical Losses Trended = [(17) x (19)]	215,469,494	254,082,131
(21) Estimated Benefit Change Factor Prior to 1/1/2016 (Section I-D, Exhibit 3)	1.000	1.000
(22) On Level Losses = [(20) x (21)]	215,469,494	254,082,131
(23) Estimated Benefit Change Factor Subsequent to 1/1/2016 (Section I-D, Exhibit 3)	1.000	1.000
(24) On-Level Incurred Losses Projected to Prospective Effective Period = [(22) x (23)]	215,469,494	254,082,131
Total Combined Medical and Indemnity Losses		
(25) Total Estimated Ultimate Losses Trended and On Level = [(12) + (24)]	718,756,251	721,871,662
(26) Average On-Level Incurred Losses Projected to Prospective Effective Period	720,313,956	

I 000013

Summary of Estimated Ultimate Losses

Paid Loss Development Method

Policy Year (1)	Benefit Type (2)	Paid Losses at 12/31/14 (3)	Cumulative Factors from Latest Month to 252 Months (4)	Losses Developed to 252 Months (5)	Tail Factor from 252 Months to Ultimate (6)	Factor to Adjust for Escalated Benefits (7)	Estimated Ultimate Losses (8)
2012	Indemnity	211,503,088	1.932	408,709,259	1.041	1.042	443,319,571
2012	Medical	149,553,450	1.312	196,273,741	1.060	1.000	208,023,641
2012	Total	361,056,538		604,983,000			651,343,213
2013	Indemnity	121,090,186	3.695	447,392,908	1.041	1.042	485,279,028
2013	Medical	119,079,317	1.675	199,441,995	1.060	1.000	211,381,562
2013	Total	240,169,503		646,834,902			696,660,590

Paid Plus Case Loss Development Method

Policy Year (9)	Benefit Type (10)	Paid Plus Case Losses at 12/31/14 (11)	Cumulative Factors from Latest Month to 252 Months (12)	Losses Developed to 252 Months (13)	Tail Factor from 252 Months to Ultimate (14)	Factor to Adjust for Escalated Benefits (15)	Estimated Ultimate Losses (16)
2012	Indemnity	298,541,375	1.335	398,529,044	1.016	1.008	407,891,894
2012	Medical	211,833,812	1.061	224,739,417	1.031	1.000	231,806,051
2012	Total	510,375,187		623,268,461			639,697,946
2013	Indemnity	233,858,456	1.884	440,698,347	1.016	1.008	451,051,902
2013	Medical	209,823,828	1.152	241,662,861	1.031	1.000	249,261,632
2013	Total	443,682,284		682,361,208			700,313,534

Notes:

(3), (11): Aggregate Financial Data.

(4) = (5) / (3)

(5) Section II: Exhibit 1, Page 2, Column (5) + Exhibit 1, Page 3, Column (5).

(6): Section II - C, Exhibit 1, Page 1.

(7): Section II - D, Exhibit 1, Page 1.

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

(12) = (13) / (11)

(13) Section II: Exhibit 1, Page 2, Column (10) + Exhibit 1, Page 3, Column (10).

(14): Section II - C, Exhibit 2, Page 1.

(15): Section II - D, Exhibit 2, Page 1.

(16) = (13) x (14) x (15)

I 000014

Section I - Rate Recommendation
Subsection D - Loss Development Summary
7/1/2016

Section I - D
Exhibit 1
Page 2

Summary of Estimated Ultimate Losses Remainder of Industry

Paid Loss Development Method

Policy Year (1)	Benefit Type (2)	Paid Losses at 12/31/14 (3)	Cumulative Factors from Latest Month to 252 Months (4)	Losses Developed to 252 Months (5)
2012	Indemnity	185,741,467	1.910	354,849,348
2012	Medical	133,329,827	1.304	173,903,511
2012	Total	319,071,294		528,752,859
2013	Indemnity	105,957,011	3.632	384,840,923
2013	Medical	106,634,364	1.654	176,352,491
2013	Total	212,591,375		561,193,413

Paid Plus Case Loss Development Method

Policy Year (6)	Benefit Type (7)	Paid Plus Case Losses at 12/31/14 (8)	Cumulative Factors from Latest Month to 252 Months (9)	Losses Developed to 252 Months (10)
2012	Indemnity	262,232,357	1.333	349,548,817
2012	Medical	191,033,204	1.070	204,469,268
2012	Total	453,265,561		554,018,086
2013	Indemnity	206,491,681	1.861	384,370,188
2013	Medical	189,332,014	1.156	218,798,368
2013	Total	395,823,695		603,168,556

Notes:

(3), (8): Aggregate Financial Data.

(4), (9): Section II - B, Exhibit 1, Page 1.

(5) = (3) x (4)

(10) = (8) x (9)

I 000015

Section I - Rate Recommendation
Subsection D - Loss Development Summary
7/1/2016

Section I - D
Exhibit 1
Page 3

Summary of Estimated Ultimate Losses AIG

Paid Loss Development Method

Policy Year (1)	Benefit Type (2)	Paid Losses at 12/31/14 (3)	Cumulative Factors from Latest Month to 252 Months (4)	Losses Developed to 252 Months (5)
2012	Indemnity	25,761,621	2.091	53,859,911
2012	Medical	16,223,623	1.379	22,370,230
2012	Total	41,985,244		76,230,141
2013	Indemnity	15,133,175	4.133	62,551,985
2013	Medical	12,444,953	1.855	23,089,504
2013	Total	27,578,128		85,641,489

Paid Plus Case Loss Development Method

Policy Year (6)	Benefit Type (7)	Paid Plus Case Losses at 12/31/14 (8)	Cumulative Factors from Latest Month to 252 Months (9)	Losses Developed to 252 Months (10)
2012	Indemnity	36,309,018	1.349	48,980,227
2012	Medical	20,800,608	0.974	20,270,148
2012	Total	57,109,626		69,250,375
2013	Indemnity	27,366,775	2.058	56,328,158
2013	Medical	20,491,814	1.116	22,864,493
2013	Total	47,858,589		79,192,651

Notes:

(3), (8): Aggregate Financial Data.

(4), (9): Section II - B, Exhibit 1, Page 2.

(5) = (3) x (4)

(10) = (8) x (9)

I 000016

Section I - Rate Recommendation
 Subsection D - Premium Summary
 7/1/2016

Section I - D
 Exhibit 2

Policy Year Aggregate Financial Data
 Calculation of Standard Premium plus Adjusted ARAP Premium Development Factors
 Industrywide

Summary Exhibit

	Policy Year as of 12/31/2014	
	2012	2013
(1) Standard Earned Premium plus Adjusted ARAP Premium	986,076,718	1,026,831,743
(2) Adjustment for Experience and Merit Rating, ARAP, and Construction Credit Off-balance	1.002	1.015
(3) Adjustment Factor to Remove the Impact of Loading for Recoupment of Insolvency Fund Assessments	1.000	1.000
(4) Composite Adjustment Factor = (2) x (3)	1.002	1.014
(5) Adjusted Standard Earned Premium plus ARAP = (1) x (4)	987,813,075	1,041,537,390
(6) Cumulative Premium Development Factor to Ultimate (see Section III, Exhibit 1, Page 2)	0.999	1.003
(7) Rate On-Level Factor	1.000	1.000
(8) Factor to Remove Expense Constant	0.956	0.957
(9) Adjusted On-Level Earned Premium at Ultimate = (5) x (6) x (7) x (8)	943,321,497	999,808,461

Notes:

- (1): Section III-B, Exhibit 2
- (2): Section III-B, Exhibit 1
- (3): Section III-C, Exhibit 1
- (6): Premiums are deemed to be fully developed at 252 months.
- (7): Section III-D, Exhibit 1
- (8): Section VI-F, Exhibit 2.

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Section I - Rate Recommendation
 Subsection D - Benefit Change Adjustments Summary
 7/1/2016

Section I - D
 Exhibit 3

Benefit Level Adjustment Factors

All Injury Types

Time Period		Indemnity				Medical	Total	
Beginning Period	Ending Period	Death	Permanent Total	Permanent Partial	Temporary Total	All Injury Types	All Injury Types	
1/1/2016	Prosp. Eff. Period					1.007	1.000	
PY 2012	1/1/2016					1.021	1.000	
PY 2013	1/1/2016					1.016	1.000	
PY 2004	Prosp. Eff. Period					1.093	1.036	
PY 2005	Prosp. Eff. Period	1.052	1.059	1.106	1.032	1.082	1.032	
PY 2006	Prosp. Eff. Period	1.047	1.051	1.090	1.028	1.070	1.032	
PY 2007	Prosp. Eff. Period	1.041	1.042	1.074	1.023	1.059	1.032	
PY 2008	Prosp. Eff. Period	1.035	1.034	1.059	1.018	1.047	1.024	
PY 2009	Prosp. Eff. Period	1.033	1.031	1.054	1.016	1.043	1.002	
PY 2010	Prosp. Eff. Period	1.033	1.032	1.055	1.017	1.044	1.000	
PY 2011	Prosp. Eff. Period	1.030	1.027	1.046	1.015	1.037	1.000	
PY 2012	Prosp. Eff. Period	1.025	1.020	1.035	1.011	1.028	1.000	
PY 2013	Prosp. Eff. Period	1.023	1.017	1.030	1.010	1.023	1.000	
PY 2011	CPY 2012_07	1.006	1.009	1.015	1.004		1.000	
PY 2012	CPY 2013_07	1.004	1.004	1.008	1.003		1.000	
PY 2013	CPY 2014_07	1.012	1.007	1.012	1.004		1.000	
CPY 2012_07	Prosp. Eff. Period						1.016	
CPY 2013_07	Prosp. Eff. Period						1.014	
CPY 2014_07	Prosp. Eff. Period						1.009	
CPY 2008_09	Prosp. Eff. Period						1.029	
Prior Eff. Period (using benefit level projections from prior filing)	Prosp. Eff. Period					1.017	1.000	1.012

Notes:

1/1/2016 refers to a point in time. All other time periods refer to Policy Years.

Example: PY 2005 to Prosp. Eff. Period for Permanent Partial = $1.106 = 1.131 / 1.023$

where 1.131 is the Index Factor for Prosp. Eff. Period and 1.023 is the Index Factor for PY 2005 for Indemnity Permanent Partial, from Exhibit 2.

Trend Summary

		Indemnity		Medical				SAWW
		Severity		Lost Time Medical		Medical Only		
				Severity	Frequency	Severity	Frequency	
(1)	Massachusetts Trend	3.3%	-1.5%	4.5%	-1.5%	2.2%	-4.3%	2.4%
	5 Year	3.5%	-1.4%	4.9%	-1.4%	3.2%	-4.6%	2.4%
	6 Year	3.2%	-1.0%	5.7%	-1.0%	2.1%	-4.2%	2.7%
	7 Year	3.4%	-1.4%	4.8%	-1.4%	1.6%	-4.4%	2.4%
	8 Year	3.2%	-1.5%	4.0%	-1.5%	1.7%	-4.3%	2.1%
	9 Year	3.3%	-1.7%	4.1%	-1.7%	2.0%	-4.2%	2.2%
	10 Year	3.0%	-1.9%	3.7%	-1.9%	2.5%	-4.2%	2.3%
(2)	Complement of Credibility	-0.7%	-3.2%	1.7%	-3.2%	4.9%	-4.7%	2.7%
(3)	Credibility Weighted Trend	2.6%	-2.1%	3.1%	-2.1%	2.9%	-4.4%	2.4%
	5 Year	1.3%	-2.5%	2.8%	-2.5%	3.5%	-4.7%	2.4%
	6 Year	1.9%	-2.0%	3.7%	-2.0%	3.3%	-4.4%	2.7%
	7 Year	2.8%	-2.1%	3.3%	-2.1%	2.8%	-4.5%	2.4%
	8 Year	3.2%	-1.9%	2.8%	-1.9%	2.3%	-4.4%	2.1%
	9 Year	3.3%	-2.1%	3.1%	-2.1%	2.4%	-4.3%	2.2%
	10 Year	3.0%	-2.2%	3.0%	-2.2%	3.1%	-4.2%	2.3%
(4)	Selected Trend	2.6%	-2.1%	3.1%	-2.1%	2.9%	-4.4%	2.4%

		Lost Time Medical	Medical Only
(5)	Medical Loss Trend	0.9%	-1.7%
(6)	Fraction of Total Medical	86.5%	13.5%
(7)	Total Medical Loss Trend	0.5%	

		Indemnity	Medical
(8)	Total Loss Trend	0.4%	0.5%
(9)	SAWW Trend	2.4%	2.4%
(10)	Total Net Trend	-1.9%	-1.8%

Notes:

(1),(2),(3): Section V, Exhibit 2 Severity; Exhibit 3 Frequency and SAWW.

(4) = Selected Trend

(5) = [(1.0 + Credibility Weighted Severity Trend) x (1.0 + Credibility Weighted Frequency Trend)] - 1.0

(6) Medical Only = Medical Only Fraction of Total Medical from Section IV-E, Exhibit 2

Lost Time Medical = 1.0 - Medical Only

(7) = Weighted Average of (5) using (6) as weights

(8): Indemnity = (1.0 + Credibility Weighted Severity Trend) x (1.0 + Credibility Weighted Frequency Trend) - 1.0

Medical = Row (7)

(9): (4) for SAWW.

(10) = { [1.0 + (8)] / [1.0 + (9)] } - 1.0

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Section I - Rate Recommendation
Subsection D - Expenses Summary
7/1/2016

Section I - D
Exhibit 5

Summary of Expense Ratios

(1)	Commission and Other Acquisition Expense Ratio	12.6%
(2)	Average Premium Discount as a % of Standard Premium + ARAP	5.0%
(3)	Premium Tax Ratio = 2.28% x [1.0 - (2)]	2.2%
(4)	Variable Expense Ratio = (1) + (2) + (3)	19.8%
(5)	Fixed Expense Ratio	5.0%
(6)	Total Loss Adjustment Expense Ratio (LAE / Loss)	20.0%

Notes:

(1): Section VI-G, Exhibit 1.

(2): Section VI-E, Exhibit 1.

(3): 2.28% from Section VI-B, Exhibit 3.

(5): Section VI-B, Exhibit 1.

(6): Section VI-H, Exhibit 1.

Derivation of Large Deductible Factor Applied to Remove the Benefit of the Residual Market Subsidy Paid by Large Deductible Insureds

The WCRIBMA makes rates based on the experience of both residual markets risks and voluntary market risks, excluding risks subject to large deductibles. Large deductible policies subsidize the residual market¹. Consequently, for the purposes of the rate filing, the WCRIBMA must estimate the residual market subsidy attributable to large deductible policies, and then make an offset for this subsidy in the calculation of the indicated average rate change.

Derivation of Factor:

Definitions

w_{vol}	- Proportion of Voluntary Non-Large Deductible Exposure to the sum of Voluntary Non-Large Deductible Exposure plus Residual Market Exposure
w_{rm}	- $1 - w_{vol}$ - Proportion of Residual Market Exposure to the sum of Voluntary Non-Large Deductible Exposure plus Residual Market Exposure
Q_{vol}	- Average Voluntary Market Rate equivalent
Q_{rm}	- Average Residual Market Rate equivalent
Q_{oa-0}	- Average Rate equivalent for Voluntary and Residual Market in total assuming no subsidy paid for by large deductibles.
Q_{oa-1}	- Average Rate equivalent for Voluntary and Residual Market in total assuming a subsidy paid for by large deductibles
u	- Ratio of Non-Large Deductible Voluntary Assessable Premium to

¹ The voluntary market subsidizes the residual market. The subsidy associated with non-large deductible voluntary policies is implicitly reflected in the rate indication.

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the Total Voluntary Assessable Premium

$$d = Q_{rm} / Q_{vol}$$

First, assume no residual market subsidy paid by anyone other than W_{vol} :

$$(1) W_{vol}Q_{vol} + W_{rm}Q_{rm} = Q_{oa-0}$$

This is a weighted average of the voluntary rate and the residual market rate.

Now assume that large deductibles subsidize the residual market. The residual market subsidy would be:

$$(2) \text{Residual Market Subsidy} = W_{rm} (Q_{rm} - Q_{oa-0})$$

The large deductible share of the residual market subsidy would be:

$$(3) (1 - u) W_{rm} (Q_{rm} - Q_{oa-1})$$

The formula for the overall rate that reflects the subsidy paid by the large deductibles would be:

$$(4) W_{vol}Q_{vol} + W_{rm}Q_{rm} - (1 - u) W_{rm} (Q_{rm} - Q_{oa-1}) = Q_{oa-1}$$

Therefore Q_{oa-1} :

$$(5) Q_{oa-1} = W_{vol}Q_{vol} - (1 - u) W_{rm} (Q_{rm} - Q_{oa-1}) + W_{rm}Q_{rm}$$

$$(6) Q_{oa-1} / Q_{oa-0} = [W_{vol}Q_{vol} - (1 - u) W_{rm} (Q_{rm} - Q_{oa-1}) + W_{rm}Q_{rm}] / [W_{vol}Q_{vol} + W_{rm}Q_{rm}]$$

If we assume that the average rate equivalent for the total market is 1.00, such that:

$$(7) W_{vol}Q_{vol} + W_{rm}Q_{rm} = Q_{oa-0} = 1.00,$$

Then the factor Q_{oa-1} / Q_{oa-0} reduces to Q_{oa-1} . Also solving (7) for Q_{vol} and Q_{rm} and introducing the variable d , results in the following:

$$(8) d = Q_{rm} / Q_{vol}$$

$$(9) Q_{vol}(w_{vol} + w_{rm}d) = 1.00$$

$$(10) Q_{vol} = 1 / (w_{vol} + w_{rm}d)$$

Similarly:

$$(11) Q_{rm} = d / (w_{vol} + w_{rm}d)$$

Given (5) and (7):

(12) $Q_{oa-1} = 1.0 - (1 - u) w_{rm} (Q_{rm} - Q_{oa-1})$, producing the following adjustment factor:

$$(13) \text{ Adjustment Factor} = Q_{oa-1} = [1.0 - w_{rm}Q_{rm}(1 - u)] / [1.0 - w_{rm}(1 - u)]$$

Calculation of the “d”

“d” is defined as: $d = Q_{rm} / Q_{vol}$

Define Q_{vol} and Q_{rm} as follows, based on the WCRIBMA’s formula for a rate:

$$(14) Q_{vol} = (L_{vol} + F) / (1 - V_{vol} - P)$$

$$(15) Q_{rm} = (L_{rm} + F) / (1 - V_{rm} - P)$$

$$(16) w_{vol}L_{vol} + w_{rm}L_{rm} = L_f$$

- where
- L_{vol} - Voluntary Loss & LAE Ratio to the sum of Standard Premium plus ARAP
 - L_{rm} - Residual Market Loss & LAE Ratio to the sum of Standard Premium plus ARAP
 - L_f - Voluntary plus Residual Market Loss & LAE Ratio to the sum of Standard Premium plus ARAP
 - F - Fixed Expense Ratio relative to the sum of Standard Premium plus ARAP
 - V_{vol} - Voluntary Variable Expenses Ratio

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- V_{rm} - Residual Market Variable Expenses Ratio
- P - Profit provision relative to the sum of Standard Premium plus ARAP
- w_{vol} - Proportion of Voluntary Non-Large Deductible Exposure to the sum of Voluntary Non-Large Deductible Exposure plus Residual Market Exposure
- w_{rm} - $1 - w_{vol}$
- r - L_{rm} / L_{vol}

$$(17) w_{vol}L_{vol} + w_{rm}rL_{vol} = L_f$$

$$(18) L_{vol} = L_f / (w_{vol} + w_{rm}r)$$

$$(19) w_{vol}L_{rm} / r + w_{rm}L_{rm} = L_f$$

$$(20) L_{rm} = L_f r / (w_{vol} + w_{rm}r)$$

Consequently, if a loss ratio differential, r , is selected, the values of L_{vol} and L_{rm} can be derived.

Taking formulas (14) and (15) we can derive a formula for d :

$$(21) d = Q_{rm} / Q_{vol} = [(L_{rm} + F) / (1 - V_{rm} - P)] / [(L_{vol} + F) / (1 - V_{vol} - P)]$$

$$(22) d = Q_{rm} / Q_{vol} = [(L_{rm} + F) / (L_{vol} + F)] \times [(1 - V_{vol} - P) / (1 - V_{rm} - P)]$$

We can solve the first term given a loss ratio differential and formulas (18) and (20). This leaves the second term.

The V_{vol} and V_{rm} can be thought of as the following:

$$(23) V_{vol} = C_{vol} + A + T + D_{vol}$$

$$(24) V_{rm} = C_{rm} + A + T$$

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where	C_{vol}	- Commission Ratio relative to the sum of Standard Premium plus ARAP for the Voluntary Market
	C_{rm}	- Commission Ratio relative to the sum of Standard Premium plus ARAP for the Residual Market
	A	- Other Acquisition Expense Ratio relative to the sum of Standard Premium plus ARAP
	T	- Premium Tax Ratio relative to the sum of Standard Premium plus ARAP
	D_{vol}	- Premium Discount relative to the sum of Standard Premium plus ARAP for the voluntary market

Then the second term in (22) becomes:

$$(25) [1 - (C_{vol} + A + T + D_{vol})] / [1 - (C_{rm} + A + T)]$$

and the remaining unknowns are C_{vol} and C_{rm} .

$$(26) w_{vol}C_{vol} + w_{rm}C_{rm} = C_f$$

Introducing a new variable k , the commission ratio differential between the Residual Market and the Voluntary Market, such that:

$$(27) k = C_{rm} / C_{vol},$$

Then equations can be derived for C_{vol} and C_{rm} as follows:

$$(28) C_{vol} = C_f / (w_{vol} + w_{rm}k)$$

$$(29) C_{rm} = C_f k / (w_{vol} + w_{rm}k)$$

“ k ” is the estimated commission differential. Given we have C_f as a known and we can solve for C_{vol} and C_{rm} , we now have all the variables needed to solve equation (13).

The detailed calculations for solving equation (13), the Factor to Remove the Large Deductible Contribution to the Residual Market Subsidy, are located in Section I-D, Exhibit 1, Page 1. As demonstrated in that section, the resulting adjustment factor is **1.000**.

I 000025

Section I - Rate Recommendation
 Subsection E - Reflecting the Impact of Large Deductibles
 7/1/2016

Section I - E
 Exhibit 1
 Page 1

Factor to Remove the Large Deductible Contribution to the Residual Market Subsidy

	Total Market	Residual Market ("rm")	Voluntary Market ("vol")
(1) Permissible Loss, LAE, and Fixed Expense Ratio	78.2%		
(2) Fixed Expense Ratio	5.0%		
(3) Permissible Loss and LAE Ratio = [(1) - (2)]	73.2%		
(4) Loss Ratio Differential, r	1.161		
(5) Market Weight - w_x		22%	78%
(6) Implied Permissible Loss and LAE Ratio		0.821	0.707
(7) Implied Permissible Loss, LAE, and Fixed Expense Ratio		0.871	0.757
(8) Implied Permissible Loss, LAE, and Fixed Expense Ratio Differential	1.150		
(9) Variable Expense Ratio	19.8%	11.2%	22.2%
(10) Underwriting Profit Provision	2.00%		
(11) Implied Rate Factor Equivalent		1.004	0.999
(12) Implied Rate Differential, d	1.005		
(13) Residual Market Rate equivalent, Q_{rm}	1.004		
(14) Proportion of Total Voluntary Assessable Premium Not from Large Deductibles, u	0.792		
(15) Factor to Remove the Large Deductible Contribution to the Residual Market Subsidy	1.000		

Notes

(1): from Section VI-A, Exhibit 1 and Section VII-A, Exhibit 1

(2): Section VI-B, Exhibit 1, average of column (18).

(4): Loss Ratio Differential from Page 2, assumes LAE as % of loss is the same for Residual and Voluntary Market.

(5): Residual Market weight, w_{rm} , from Section I-D, Exhibit 2, Voluntary Market weight, $w_{vol} = 1.0 - w_{rm}$

(6): Voluntary Market Implied Permissible Loss and LAE Ratio = (3) / [(5 w_{rm}) x (4) + (5 w_{vol})]

Residual Market Permissible Implied Loss and LAE Ratio = (4) x (6)_{vol}

(7) = (2) + (6)

(8) = (7)_{rm} / (7)_{vol}

(9): Section VI-A, Exhibit 1, Total Market; Residual Market commission calculated based on the Residual Market - Pool Procedures - Producer Fee Schedule.

Premium discounts were discontinued in the Residual Market effective 1/1/1991.

(10): Section VII-A, Exhibit 1.

(11) = (7) / [1.0 - (9) - (10)]

(12) = (11)_{rm} / (11)_{vol}

(13) = d / [$w_{vol} + (w_{rm} \times d)$]

(14): Exhibit 2.

(15) = [1.0 - $w_{rm} \times Q_{rm} \times (1.0 - u)$] / [1.0 - $w_{rm} \times (1.0 - u)$]

Calculation of Residual Market to Voluntary Loss Ratio Differential
 (\$ amounts in millions)

Policy Year	Total Market			Residual Market			Voluntary Market			Loss Ratio Differential LR _{rm} / LR _{vol} = (7) / (10)
	Standard Earned Premium plus ARAP	Paid Losses and Case Reserves	Paid + Case Loss Ratio = (3) / (2)	Standard Earned Premium Plus ARAP	Paid Losses and Case Reserves	Paid + Case Loss Ratio = (6) / (5)	Standard Earned Premium Plus ARAP	Paid Losses and Case Reserves	Paid + Case Loss Ratio = (9) / (8)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2007	1,042	551	52.9%	169	93	55.2%	874	458	52.4%	1.054
2008	857	515	60.1%	125	77	61.3%	732	439	59.9%	1.024
2009	822	519	63.2%	110	77	70.4%	712	442	62.1%	1.135
2010	893	541	60.6%	108	71	65.9%	785	470	59.9%	1.101
2011	959	558	58.2%	133	101	75.9%	825	457	55.3%	1.371
2012	984	510	51.9%	176	114	64.7%	808	397	49.1%	1.317
2013	1,025	444	43.3%	210	97	46.3%	815	347	42.5%	1.088
(12) Average Last 2 Years				193	105	54.7%	811	372	45.8%	1.194
(13) Average All Years				147	90	61.2%	793	430	54.2%	1.129
(14) Selected Loss Ratio Differential										1.161

Notes:
 Data as of 12/31/2014 from Aggregate Financial Database, excluding large deductible policies.

I 000026

Residual Market Weight "w_m"
 Proportion of Voluntary Assessable Premium Not from Large Deductibles "u"
 (\$ amounts in millions)

Calendar Year	Voluntary Assessable Premium Basis Used to Determine Shares of the Residual Market	Take-Out Program Written Premium	Take-Out Credits	Residual Market Direct Written Premium	Large Deductible Standard + ARAP Written Premium	Voluntary Non-Large Deductible Not in Take-Out Program Written Premium = (2) - (3) - (6) + (4)	Residual Market Weight "w _m " = (5) / [(3) + (5) + (7)]	"u" -- Proportion of Assessable Premium Not from Large Deductibles = (7) / [(7) + (6)]
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2013	941	26	28	205	197	746	0.210	0.791
2014	965	26	27	234	200	766	0.228	0.793
Selected	953	26	27	220	198	756	0.219	0.792

Note:

Refers to the prospective effective period from 7/1/2016 through 7/1/2017.

(2),(3),(4),(5),(6): Massachusetts Workers' Compensation Assigned Risk Pool Special Bulletin No. 11-14 for Calendar Year 2013 and Special Bulletin No. 11-15 for Calendar Year 2014

(2),(3),(4),(5),(6),(7): Selected based on two-year average of Calendar Year 2013 and 2014.

LOSS DEVELOPMENT

As explained in the Commissioner's 2003 decision, "[t]he ultimate value of losses cannot be determined from reported losses alone, because losses are not always reported immediately and loss values change over time as payments are made and reserves adjusted." Decision on 2003 Rates, p. 5. Loss development thus requires an actuarial method of estimating the ultimate settlement value of losses based on "reported losses"¹ and historical patterns of development, i.e. the change in the observed value of a loss between valuation dates. Loss development factors are derived mathematically by analyzing the development of losses from initial reporting and reserving to the ultimate value at the time of the final settlement. The assumption is that losses develop in a consistent pattern over time so that historical experience can be used to predict future development.

Reported losses are developed to their estimated "ultimate" level based on historical loss development patterns. The pattern of change in reported losses over time is observed at regular intervals and converted into age-to-age link ratios, each of which reflects the ratio of the loss valued as of time (T+1) to the loss valued as of time T. When applied successively, age-to-age link ratios yield cumulative loss development factors. Cumulative loss development factors are then applied to current reported losses to estimate what the ultimate value of losses will be when all associated claims are settled.

¹ In this filing, the term "reported losses" refers to either paid losses or paid losses plus case reserves.

II 000002

In this section of the Filing, reported losses for policy years 2012 and 2013 are developed to their estimated ultimate levels. Consistent with the Statement of Actuarial Principles of the Casualty Actuarial Society, the WCRIBMA has examined the results of more than one method of estimating ultimate losses in an effort to derive a reasonable estimate of losses. The selected estimate of ultimate losses is the average of the estimates derived by developing paid losses and by developing the sum of paid losses and case reserves. The paid loss data used in this filing are the actual inception to date paid losses net of subrogation and second injury fund recoveries. The case reserve data used in this filing are the claim-specific amounts held as reserves for anticipated future claims payments.

The 2012 policy year and 2013 policy year ultimate loss estimates used in our rate indication are calculated by multiplying the reported losses by the applicable loss development factor to ultimate, which is the product of all age-to-age development factors (including the tail factor discussed below) from a given month (“age”) of development forward to the point at which we expect no further development.

One of the goals when using historical data as the basis for the ultimate loss predictions is to balance stability with responsiveness. Stability is desired to avoid large fluctuations that are not representative of the future. Here, the more years that are considered, the more stable the result will be. We must, however, also consider responsiveness: we only want to include data that we believe represent current and ongoing conditions, which weighs in favor of using the most recent data.

II 000003

Analysis of the development patterns of AIG revealed that the company's experience is materially different from the remainder of the industry. This, in combination with AIG's fluctuating market share over the 21 year period considered, would result in distorted estimates of ultimate losses if AIG's experience were combined with the remainder of the industry in calculating development factors. To avoid this problem, the AIG data are analyzed independently from the remainder of the industry data for purposes of estimating the development of losses to 252 months. The resulting estimates of losses at 252 months for AIG and the remainder of the industry are then summed together to produce the estimate of the total industrywide developed losses at 252 months.²

Our selected age-to-age development factors for the remainder of the industry are the unweighted averages of the latest two indicated age-to-age link ratios. Because the AIG data are, compared to the rest of the industry, materially smaller, the selected age-to-age development factors for AIG are based on the unweighted averages of the latest five indicated age-to-age link ratios.

As in past filings, medical and indemnity losses are developed separately because of their differing development patterns. The use of separate medical and indemnity loss development factors avoids potential distortions that could arise from changes in the relative proportions of medical and indemnity losses over time. Section II-A, Exhibit 1 summarizes the results. The underlying details of the methodology are displayed in Section II-B.

² In response to the Decision on 9/1/2012 rates, we have treated AIG and the remainder of the industry the same way in developing losses in Section II – Loss Development and Section V - Trend.

II 000004

Consistent with past filings, the historical experience of companies that have stopped writing new business in Massachusetts and that did not report policy experience valued as of the end of the latest calendar year has been excluded from our financial aggregate database in order to avoid distortions to the rate indication.

The WCRIBMA uses historical data and the resultant loss development factors to develop the policy year paid and the paid plus case losses to 252 months for AIG and the remainder of the industry, separately. The developed losses are then combined and an industry based "tail factor" accounts for development beyond 252 months to ultimate.

Indicated ultimate indemnity losses are then adjusted for escalation. We make this adjustment for escalated benefits because some of the losses in the loss development triangle do not reflect the change in the law that introduced inflation-based increases in indemnity benefits or lost wages. See St. 1986, c. 572. The development pattern of indemnity losses that are subject to escalation will differ from that of indemnity losses not subject to escalation (unless escalation is zero). See Section II-D for the details of the calculation.

TAIL FACTORS

Workers' compensation carriers in Massachusetts report aggregated financial policy year loss experience to the WCRIBMA at year-end valuation points for twenty-one consecutive years (252 months). As a result, the WCRIBMA can develop losses to 252 months using the age-to-age link ratios described previously. However, workers' compensation losses may continue to develop well beyond 252 months. For instance, a young person could suffer a severe work-related injury and collect workers' compensation benefits for the balance of his/her lifetime, in some cases forty years or more. The "tail factor" accounts for such instances by considering loss development from 252 months of development to ultimate.

Beyond 252 months of development, policy year loss experience is aggregated for statistical reporting purposes and reported in total as a single value. This loss experience is summarized and reported each year as an aggregate number "prior to" a given policy year. This experience does not lend itself to the calculation and application of age-to-age link ratios. However, these data can be used to develop a tail factor, which is essentially a loss development factor to ultimate intended to account for all remaining loss development beyond a given point. In this filing, we derive tail factor estimates for loss development from 252 months of development to ultimate (the point at which there is no further payment activity).

This filing uses the same method to develop the tail factor employed by the Commissioner in the 2003 Rate Decision and by the WCRIBMA in all subsequent rate

filings. The WCRIBMA's estimation of tail factors involves calculating the calendar year change in losses for all policy years included in the most recent "prior to" line and comparing that result to the reported losses for the oldest policy year not included in the "prior to" line.

Growth Factor Adjustment

Changes in the level of ultimate losses over time can distort the calculation of the tail factor. Without a growth factor adjustment, the tail factor would aggregate all years beyond 252 months and calculate the factor based on the assumption that policy years prior to 1994 had the same level of ultimate losses as policy year 1994 – an assumption known to be false. Stated mathematically, if the ratios used to calculate the tail factor reflect losses in the numerator that relate to a different level of ultimate losses than do the losses used in the denominator³, the tail factor will be distorted. This is not a problem for the age-to-age link ratios used through 252 months of development that only use the data for a given policy year in the calculation. However, the growth factor is intended to adjust for differences in the ultimate value of losses across policy years, thereby creating a more accurate estimate of development in the tail (see Section II-C, Exhibit 1, Page 2 and Exhibit 2, Page 2). The growth factor decomposes the numerator, the calendar year development for policy years prior to 1994, into individual policy year components, and then adjusts each policy year individually based on its

³ See Formula in Section II-C: [(Inception-to-date losses for PYs Prior to Policy Year 1994 at 12/31/[Y] - Inception-to-date losses for PYs Prior to Policy Year 1994 at 12/31/[Y] - 1 yr) / (Losses for policy year 1994 at 12/31/[Y])

II 000007

estimated contribution to the aggregate development. The data underlying the calculation of the growth factor are the historical policy year losses from the Aggregate Financial data, evaluated as of the latest common development point, 108 months⁴.

We calculate separate tail factors directly for medical and indemnity losses in order to reflect their differing development patterns. Medical losses tend to develop differently than do indemnity losses (Section II-B). Application of separate tail factors captures the different development patterns and prevents the estimate of ultimate losses from being unduly distorted by shifts in the proportions of medical and indemnity losses over time. Separate tail factors are also estimated for paid and paid-plus-case reported losses.

As in previous filings, the selected tail factor is based on the average of five observations in order to reduce volatility. In this filing, we use the link factor method (i.e., stating each factor as of the same month (age) of development) to bring each of the five valuations to a common report level, 252 months, so that the calculated tail factor is consistent with the losses to which it is applied. We then calculate a tail factor to project losses from 252 months to ultimate values. The tail factor calculation is detailed on Exhibit 1, Page 1 and Exhibit 2, Page 1 of Section II-C.

⁴ The Aggregate Financial data has been used in lieu of Annual Statement data to eliminate potential distortions in the growth factor calculation due to the Annual Statement's inclusion of large deductible experience in the workers' compensation line of business. Aggregate Financial data valued as of 108 months was used because data for policy years 1969 through 1977 were only reported through 108 months of development. Additionally, the exhibit was simplified to remove extraneous columns that do not change the methodology or impact the result. The indicated growth factor is exactly the same using the new presentation as it would have been had we utilized the format presented in the last filing.

ADJUSTMENT FOR ESCALATED BENEFITS

This section calculates factors that reflect the impact of the introduction of escalation (inflation-indexed wage loss benefit increases) on loss development. This adjustment for differences in development patterns is necessary because some of WCRIBMA's loss data predate the change in law introducing escalation of indemnity benefits. These older, unescalated losses exhibit a development pattern that will differ from the expected development of indemnity losses that are subject to escalation.

The statutory escalation of benefits became effective on October 1, 1986, following the passage of St. 1986, c. 582. Data collected for policy year 1987 and later years reflect the impact of escalation. In this Filing, age-to-age link ratios are derived from experience for policy years 1994 and later to develop losses to 252 months. Beyond 252 months of development, loss development factors, including age-to-age link ratios and tail factors, are derived from experience for policy years 1993 and prior. Reported losses for policy years prior to 1987 do not reflect the impact of escalation and therefore must be adjusted.

We have used the same simulation model to quantify the adjustment for escalated benefits the WCRIBMA since our 2003 rate filing. The simulation model assumes that permanent total claimants experience impaired mortality.

Exhibits 1 and 2 estimate the differentials between the escalated and non-escalated benefit levels for both the paid and paid-plus-case loss development methods, respectively. The resulting factors are the basis for the selected escalation factor used in the estimation of ultimate losses.

ACCIDENT YEAR PAID LOSS DEVELOPMENT FACTORS**Used in Section VII - Profit**

Accident year loss flows are needed for purposes of estimating a profit provision in Section VII. Using the most recent available financial aggregate data, the WCRIBMA has updated the medical and the indemnity accident year paid losses used to derive an accident year payment pattern. The combined loss flow is a weighted average of the medical and indemnity paid loss flows.

Medical Paid Loss Flow

As with the policy year loss development, we develop accident year losses to 252 months for AIG and the remainder of the industry separately. We compute accident year medical paid loss development factors for AIG from the averages of the five latest link ratios and for the remainder of the industry from the averages of the two latest link ratios. Medical paid losses for AIG and the remainder of the industry are developed separately through a 252 months using their respective link ratios. The resulting values for AIG and the remainder of the industry are then summed, and the sum is multiplied by a medical paid loss tail factor. For purposes of modeling cash flows in Section VII, a policy year medical paid loss tail factor is used, in lieu of developing a separate accident year tail factor.

Indemnity Paid Loss Flow

The flow for indemnity paid losses has been derived from the financial aggregate data using a method identical to the method used for medical paid losses except that the indemnity paid losses have been adjusted for escalation of benefits.

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Summary of Estimated Ultimate Losses

Paid Loss Development Method

Policy Year (1)	Benefit Type (2)	Paid Losses at 12/31/14 (3)	Cumulative Factors from Latest Month to 252 Months (4)	Losses Developed to 252 Months (5)	Tail Factor from 252 Months to Ultimate (6)	Factor to Adjust for Escalated Benefits (7)	Estimated Ultimate Losses (8)
2012	Indemnity	211,503,088	1.932	408,709,259	1.041	1.042	443,319,571
2012	Medical	149,553,450	1.312	196,273,741	1.060	1.000	208,023,641
2012	Total	361,056,538		604,983,000			651,343,213

2013	Indemnity	121,090,186	3.695	447,392,908	1.041	1.042	485,279,028
2013	Medical	119,079,317	1.675	199,441,995	1.060	1.000	211,381,562
2013	Total	240,169,503		646,834,902			696,660,590

Paid Plus Case Loss Development Method

Policy Year (9)	Benefit Type (10)	Paid Plus Case Losses at 12/31/14 (11)	Cumulative Factors from Latest Month to 252 Months (12)	Losses Developed to 252 Months (13)	Tail Factor from 252 Months to Ultimate (14)	Factor to Adjust for Escalated Benefits (15)	Estimated Ultimate Losses (16)
2012	Indemnity	298,541,375	1.335	398,529,044	1.016	1.008	407,891,894
2012	Medical	211,833,812	1.061	224,739,417	1.031	1.000	231,806,051
2012	Total	510,375,187		623,268,461			639,697,946

2013	Indemnity	233,858,456	1.884	440,698,347	1.016	1.008	451,051,902
2013	Medical	209,823,828	1.152	241,662,861	1.031	1.000	249,261,632
2013	Total	443,682,284		682,361,208			700,313,534

Notes:

(3), (11): Aggregate Financial Data.

(4) = (5) / (3)

(5) Section II: Exhibit 1, Page 2, Column (5) + Exhibit 1, Page 3, Column (5).

(6): Section II - C, Exhibit 1, Page 1.

(7): Section II - D, Exhibit 1, Page 1.

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

(12) = (13) / (11)

(13) Section II: Exhibit 1, Page 2, Column (10) + Exhibit 1, Page 3, Column (10).

(14): Section II - C, Exhibit 2, Page 1.

(15): Section II - D, Exhibit 2, Page 1.

(16) = (13) x (14) x (15)

II 000012

Section II - Loss Development
 Subsection A - Loss Development Summary
 7/1/2016

Section II - A
 Exhibit 1
 Page 2

Summary of Estimated Ultimate Losses Remainder of Industry

Paid Loss Development Method

Policy Year (1)	Benefit Type (2)	Paid Losses at 12/31/14 (3)	Cumulative Factors from Latest Month to 252 Months (4)	Losses Developed to 252 Months (5)
2012	Indemnity	185,741,467	1.910	354,849,348
2012	Medical	133,329,827	1.304	173,903,511
2012	Total	319,071,294		528,752,859

2013	Indemnity	105,957,011	3.632	384,840,923
2013	Medical	106,634,364	1.654	176,352,491
2013	Total	212,591,375		561,193,413

Paid Plus Case Loss Development Method

Policy Year (6)	Benefit Type (7)	Paid Plus Case Losses at 12/31/14 (8)	Cumulative Factors from Latest Month to 252 Months (9)	Losses Developed to 252 Months (10)
2012	Indemnity	262,232,357	1.333	349,548,817
2012	Medical	191,033,204	1.070	204,469,268
2012	Total	453,265,561		554,018,086

2013	Indemnity	206,491,681	1.861	384,370,188
2013	Medical	189,332,014	1.156	218,798,368
2013	Total	395,823,695		603,168,556

Notes:

(3), (8): Aggregate Financial Data.

(4), (9): Section II - B, Exhibit 1, Page 1.

(5) = (3) x (4)

(10) = (8) x (9)

II 000013

Section II - Loss Development
 Subsection A - Loss Development Summary
 7/1/2016

Section II - A
 Exhibit 1
 Page 3

Summary of Estimated Ultimate Losses AIG

Paid Loss Development Method

Policy Year (1)	Benefit Type (2)	Paid Losses at 12/31/14 (3)	Cumulative Factors from Latest Month to 252 Months (4)	Losses Developed to 252 Months (5)
2012	Indemnity	25,761,621	2.091	53,859,911
2012	Medical	16,223,623	1.379	22,370,230
2012	Total	41,985,244		76,230,141

2013	Indemnity	15,133,175	4.133	62,551,985
2013	Medical	12,444,953	1.855	23,089,504
2013	Total	27,578,128		85,641,489

Paid Plus Case Loss Development Method

Policy Year (6)	Benefit Type (7)	Paid Plus Case Losses at 12/31/14 (8)	Cumulative Factors from Latest Month to 252 Months (9)	Losses Developed to 252 Months (10)
2012	Indemnity	36,309,018	1.349	48,980,227
2012	Medical	20,800,608	0.974	20,270,148
2012	Total	57,109,626		69,250,375

2013	Indemnity	27,366,775	2.058	56,328,158
2013	Medical	20,491,814	1.116	22,864,493
2013	Total	47,858,589		79,192,651

Notes:

(3), (8): Aggregate Financial Data.

(4), (9): Section II - B, Exhibit 1, Page 2.

(5) = (3) x (4)

(10) = (8) x (9)

Policy Year Aggregate Financial Data
 Summary of Loss Development Factors
 Remainder of Industry

Loss Development Factors From																			
Months of Development	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-228	228-240	240-252
(1) Indemnity Paid Losses																			
2 Year Average	1.901	1.354	1.158	1.073	1.026	1.025	1.013	1.006	1.010	1.006	1.014	1.007	1.003	1.003	1.003	1.002	1.006	1.002	1.003
Cumulative Factor to 252	3.632	1.910	1.411	1.218	1.136	1.107	1.080	1.066	1.059	1.049	1.043	1.029	1.022	1.018	1.016	1.012	1.011	1.005	1.003
(2) Medical Paid Losses																			
2 Year Average	1.268	1.086	1.037	1.014	1.010	1.014	1.010	1.007	1.010	1.011	1.009	1.008	1.009	1.010	1.007	1.007	1.009	1.006	1.006
Cumulative Factor to 252	1.654	1.304	1.201	1.158	1.143	1.131	1.116	1.105	1.097	1.085	1.074	1.064	1.056	1.046	1.036	1.028	1.021	1.012	1.006
(3) Indemnity Paid Plus Case Losses																			
2 Year Average	1.396	1.147	1.072	1.021	1.011	1.007	1.004	1.003	1.006	1.000	1.012	1.005	1.000	1.001	1.002	1.002	1.004	1.001	1.001
Cumulative Factor to 252	1.861	1.333	1.163	1.085	1.062	1.050	1.043	1.039	1.036	1.029	1.029	1.016	1.011	1.011	1.010	1.008	1.006	1.002	1.001
(4) Medical Paid Plus Case Losses																			
2 Year Average	1.080	1.032	1.011	0.995	0.997	1.018	0.992	0.999	1.003	1.004	0.996	1.001	1.014	0.992	1.012	0.999	1.002	1.000	1.002
Cumulative Factor to 252	1.156	1.070	1.037	1.026	1.031	1.034	1.016	1.024	1.025	1.022	1.017	1.021	1.021	1.007	1.015	1.003	1.004	1.002	1.002

Notes:
 (1): Exhibit 2, Page 1.
 (2): Exhibit 2, Page 2.
 (3): Exhibit 3, Page 1.
 (4): Exhibit 3, Page 2.

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Policy Year Aggregate Financial Data
 Summary of Loss Development Factors
 AIG

Loss Development Factors From																			
Months of Development	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-228	228-240	240-252
(1) Indemnity Paid Losses																			
5 Year Average	1.977	1.386	1.188	1.081	1.046	1.025	1.016	1.005	1.009	1.005	1.006	1.010	1.010	1.006	1.005	1.021	1.000	1.000	1.000
Cumulative Factor to 252	4.133	2.091	1.509	1.270	1.175	1.123	1.096	1.079	1.073	1.064	1.059	1.052	1.042	1.032	1.026	1.021	1.000	1.000	1.000
(2) Medical Paid Losses																			
5 Year Average	1.346	1.107	1.044	1.024	1.018	1.016	1.017	1.014	1.011	1.010	1.012	1.012	1.012	1.010	1.006	1.007	1.003	1.003	1.001
Cumulative Factor to 252	1.855	1.379	1.245	1.193	1.164	1.143	1.125	1.106	1.091	1.079	1.068	1.056	1.043	1.031	1.020	1.014	1.007	1.004	1.001
(3) Indemnity Paid Plus Case Losses																			
5 Year Average	1.526	1.192	1.070	1.032	1.001	0.998	1.005	1.002	1.004	0.999	1.002	1.006	1.007	1.006	0.996	1.007	1.008	0.995	0.989
Cumulative Factor to 252	2.058	1.349	1.131	1.058	1.025	1.024	1.026	1.021	1.020	1.015	1.016	1.014	1.008	1.001	0.994	0.999	0.991	0.984	0.989
(4) Medical Paid Plus Case Losses																			
5 Year Average	1.145	1.036	0.994	0.988	0.976	0.978	0.988	0.996	0.997	0.997	1.007	1.018	1.002	0.988	1.012	0.992	0.999	1.013	0.995
Cumulative Factor to 252	1.116	0.974	0.940	0.946	0.958	0.981	1.003	1.016	1.020	1.023	1.026	1.019	1.001	0.999	1.012	0.999	1.007	1.008	0.995

Notes:

- (1): Exhibit 2, Page 3.
- (2): Exhibit 2, Page 4.
- (3): Exhibit 3, Page 3.
- (4): Exhibit 3, Page 4.

II 000015

II 000016

Section II - Loss Development
 Subsection B - Policy Year Data
 7/1/2016

Section II - B
 Exhibit 2
 Page 1

Policy Year Aggregate Financial Data Calculation of Indemnity Paid Loss Development Factors Remainder of Industry

Policy Year	Losses (in 000's) Evaluated at Month		Loss Development Factor	Policy Year	Losses (in 000's) Evaluated at Month		Loss Development Factor
	24	36			144	156	
2011	90,852	170,449	1.876	2001	244,080	250,658	1.027
2012	96,292	185,476	1.926	2002	243,734	244,128	1.002
Average			1.901	Average			1.014
	36	48			156	168	
2010	151,889	203,846	1.342	2000	250,563	253,072	1.010
2011	170,449	232,854	1.366	2001	250,658	251,455	1.003
Average			1.354	Average			1.007
	48	60			168	180	
2009	191,546	222,832	1.163	1999	231,654	232,411	1.003
2010	203,846	234,942	1.153	2000	253,072	254,005	1.004
Average			1.158	Average			1.003
	60	72			180	192	
2008	210,983	225,598	1.069	1998	215,713	216,504	1.004
2009	222,832	239,782	1.076	1999	232,411	232,814	1.002
Average			1.073	Average			1.003
	72	84			192	204	
2007	216,439	221,592	1.024	1997	187,491	188,137	1.003
2008	225,598	231,913	1.028	1998	216,504	217,125	1.003
Average			1.026	Average			1.003
	84	96			204	216	
2006	211,688	217,148	1.026	1996	189,480	189,365	0.999
2007	221,592	227,123	1.025	1997	188,137	188,839	1.004
Average			1.025	Average			1.002
	96	108			216	228	
2005	209,695	211,941	1.011	1995	206,250	207,559	1.006
2006	217,148	220,552	1.016	1996	189,365	190,349	1.005
Average			1.013	Average			1.006
	108	120			228	240	
2004	227,119	228,656	1.007	1994	214,039	214,580	1.003
2005	211,941	213,060	1.005	1995	207,559	207,891	1.002
Average			1.006	Average			1.002
	120	132			240	252	
2003	224,447	227,498	1.014	1994	214,580	215,214	1.003
2004	228,656	230,041	1.006	Average			1.003
Average			1.010				
	132	144					
2002	242,916	243,734	1.003				
2003	227,498	229,236	1.008				
Average			1.006				

Notes:
 Losses from Aggregate Financial Data.

II 000017

Section II - Loss Development
 Subsection B - Policy Year Data
 7/1/2016

Section II - B
 Exhibit 2
 Page 2

Policy Year Aggregate Financial Data Calculation of Medical Paid Loss Development Factors Remainder of Industry

Policy Year	Losses (in 000's) Evaluated at Month		Loss Development Factor	Policy Year	Losses (in 000's) Evaluated at Month		Loss Development Factor
	24	36			144	156	
2011	97,411	122,145	1.254	2001	121,093	122,224	1.009
2012	103,883	133,177	1.282	2002	128,349	129,502	1.009
Average			1.268	Average			1.009
	36	48			156	168	
2010	116,208	125,444	1.079	2000	119,846	120,782	1.008
2011	122,145	133,521	1.093	2001	122,224	123,221	1.008
Average			1.086	Average			1.008
	48	60			168	180	
2009	120,487	124,884	1.036	1999	119,577	120,775	1.010
2010	125,444	130,026	1.037	2000	120,782	121,841	1.009
Average			1.037	Average			1.009
	60	72			180	192	
2008	118,707	120,016	1.011	1998	109,110	109,952	1.008
2009	124,884	126,933	1.016	1999	120,775	122,242	1.012
Average			1.014	Average			1.010
	72	84			192	204	
2007	127,500	129,263	1.014	1997	92,834	93,405	1.006
2008	120,016	120,804	1.007	1998	109,952	110,831	1.008
Average			1.010	Average			1.007
	84	96			204	216	
2006	114,623	116,183	1.014	1996	94,354	95,191	1.009
2007	129,263	131,085	1.014	1997	93,405	93,877	1.005
Average			1.014	Average			1.007
	96	108			216	228	
2005	112,633	113,762	1.010	1995	95,782	96,641	1.009
2006	116,183	117,356	1.010	1996	95,191	96,015	1.009
Average			1.010	Average			1.009
	108	120			228	240	
2004	120,304	121,291	1.008	1994	108,050	108,658	1.006
2005	113,762	114,506	1.007	1995	96,641	97,248	1.006
Average			1.007	Average			1.006
	120	132			240	252	
2003	123,568	125,238	1.014	1994	108,658	109,361	1.006
2004	121,291	122,133	1.007	Average			1.006
Average			1.010				
	132	144					
2002	127,249	128,349	1.009				
2003	125,238	126,805	1.013				
Average			1.011				

Notes:
 Losses from Aggregate Financial Data.

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Policy Year Aggregate Financial Data
 Calculation of Indemnity Paid Loss Development Factors
 AIG

Policy Year	Losses (in 000's) Evaluated at Month		Loss Development Factor	Policy Year	Losses (in 000's) Evaluated at Month		Loss Development Factor
	24	36			132	144	
2008	24,525	49,038	1.999	1999	30,637	30,682	1.001
2009	18,001	34,477	1.915	2000	40,291	40,686	1.010
2010	20,443	42,929	2.100	2001	46,089	46,520	1.009
2011	20,863	40,920	1.961	2002	63,207	63,356	1.002
2012	13,493	25,762	1.909	2003	90,559	90,699	1.002
Average			1.977	Average			1.005
	36	48			144	156	
2007	56,376	75,936	1.347	1998	30,364	30,547	1.006
2008	49,038	68,669	1.400	1999	30,682	30,788	1.003
2009	34,477	48,407	1.404	2000	40,686	41,279	1.015
2010	42,929	60,274	1.404	2001	46,520	46,547	1.001
2011	40,920	56,176	1.373	2002	63,356	63,721	1.006
Average			1.386	Average			1.006
	48	60			156	168	
2006	77,801	92,112	1.184	1997	39,207	39,948	1.019
2007	75,936	92,581	1.219	1998	30,547	30,719	1.006
2008	68,669	79,105	1.152	1999	30,788	31,180	1.013
2009	48,407	58,408	1.207	2000	41,279	41,685	1.010
2010	60,274	71,166	1.181	2001	46,547	46,680	1.003
Average			1.188	Average			1.010
	60	72			168	180	
2005	102,225	114,048	1.116	1996	22,593	22,635	1.002
2006	92,112	99,664	1.082	1997	39,948	40,431	1.012
2007	92,581	98,923	1.069	1998	30,719	30,860	1.005
2008	79,105	84,736	1.071	1999	31,180	32,084	1.029
2009	58,408	62,216	1.065	2000	41,685	41,699	1.000
Average			1.081	Average			1.010
	72	84			180	192	
2004	98,143	106,141	1.082	1995	23,812	24,013	1.008
2005	114,048	120,371	1.055	1996	22,635	22,659	1.001
2006	99,664	101,288	1.016	1997	40,431	40,874	1.011
2007	98,923	102,517	1.036	1998	30,860	31,065	1.007
2008	84,736	88,242	1.041	1999	32,084	32,160	1.002
Average			1.046	Average			1.006
	84	96			192	204	
2003	85,595	88,161	1.030	1994	11,146	11,185	1.004
2004	106,141	109,696	1.033	1995	24,013	24,307	1.012
2005	120,371	121,563	1.010	1996	22,659	22,695	1.002
2006	101,288	104,367	1.030	1997	40,874	41,004	1.003
2007	102,517	104,718	1.021	1998	31,065	31,221	1.005
Average			1.025	Average			1.005
	96	108			204	216	
2002	60,074	61,567	1.025	1994	11,185	11,555	1.033
2003	88,161	90,174	1.023	1995	24,307	24,891	1.024
2004	109,696	111,668	1.018	1996	22,695	23,105	1.018
2005	121,563	122,949	1.011	1997	41,004	41,300	1.007
2006	104,367	104,609	1.002	Average			1.021
Average			1.016				
	108	120			216	228	
2001	45,474	45,562	1.002	1994	11,555	11,547	0.999
2002	61,567	62,120	1.009	1995	24,891	24,845	0.998
2003	90,174	90,537	1.004	1996	23,105	23,178	1.003
2004	111,668	112,776	1.010	Average			1.000
2005	122,949	123,006	1.000				
Average			1.005				
	120	132			228	240	
2000	39,903	40,291	1.010	1994	11,547	11,548	1.000
2001	45,562	46,089	1.012	1995	24,845	24,840	1.000
2002	62,120	63,207	1.018	Average			1.000
2003	90,537	90,559	1.000				
2004	112,776	113,224	1.004				
Average			1.009				

Notes:
 Losses from Aggregate Financial Data.

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Section II - Loss Development
 Subsection B - Policy Year Data
 7/1/2016

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 Exhibit 2
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Policy Year Aggregate Financial Data
 Calculation of Medical Paid Loss Development Factors
 AIG

Policy Year	Losses (in 000's) Evaluated at Month		Loss Development Factor	Policy Year	Losses (in 000's) Evaluated at Month		Loss Development Factor
	24	36			132	144	
2008	24,384	31,646	1.298	1999	10,053	10,192	1.014
2009	19,414	25,594	1.318	2000	13,520	13,587	1.005
2010	18,885	26,015	1.378	2001	16,759	16,964	1.012
2011	18,868	25,703	1.362	2002	26,682	26,937	1.010
2012	11,828	16,224	1.372	2003	36,458	36,802	1.009
Average			1.346	Average			1.010
	36	48			144	156	
2007	37,812	41,504	1.098	1998	12,241	12,456	1.018
2008	31,646	34,948	1.104	1999	10,192	10,313	1.012
2009	25,594	28,325	1.107	2000	13,587	13,627	1.003
2010	26,015	29,197	1.122	2001	16,964	17,251	1.017
2011	25,703	28,397	1.105	2002	26,937	27,217	1.010
Average			1.107	Average			1.012
	48	60			156	168	
2006	43,737	46,508	1.063	1997	15,450	15,740	1.019
2007	41,504	42,801	1.031	1998	12,456	12,612	1.013
2008	34,948	36,256	1.037	1999	10,313	10,430	1.011
2009	28,325	29,433	1.039	2000	13,627	13,668	1.003
2010	29,197	30,673	1.051	2001	17,251	17,503	1.015
Average			1.044	Average			1.012
	60	72			168	180	
2005	51,042	52,729	1.033	1996	9,932	10,031	1.010
2006	46,508	48,004	1.032	1997	15,740	15,967	1.014
2007	42,801	43,548	1.017	1998	12,612	12,841	1.018
2008	36,256	36,744	1.013	1999	10,430	10,574	1.014
2009	29,433	30,195	1.026	2000	13,668	13,722	1.004
Average			1.024	Average			1.012
	72	84			180	192	
2004	47,049	48,666	1.034	1995	8,657	8,758	1.012
2005	52,729	53,286	1.011	1996	10,031	10,091	1.006
2006	48,004	49,404	1.029	1997	15,967	16,058	1.006
2007	43,548	43,908	1.008	1998	12,841	13,030	1.015
2008	36,744	37,076	1.009	1999	10,574	10,706	1.013
Average			1.018	Average			1.010
	84	96			192	204	
2003	35,096	35,534	1.012	1994	5,533	5,541	1.001
2004	48,666	49,587	1.019	1995	8,758	8,801	1.005
2005	53,286	54,091	1.015	1996	10,091	10,124	1.003
2006	49,404	50,649	1.025	1997	16,058	16,184	1.008
2007	43,908	44,238	1.008	1998	13,030	13,222	1.015
Average			1.016	Average			1.006
	96	108			204	216	
2002	25,411	25,928	1.020	1994	5,541	5,546	1.001
2003	35,534	35,864	1.009	1995	8,801	8,855	1.006
2004	49,587	50,754	1.024	1996	10,124	10,187	1.006
2005	54,091	54,965	1.016	1997	16,184	16,395	1.013
2006	50,649	51,556	1.018	Average			1.007
Average			1.017				
	108	120			216	228	
2001	16,264	16,479	1.013	1994	5,546	5,552	1.001
2002	25,928	26,421	1.019	1995	8,855	8,889	1.004
2003	35,864	36,184	1.009	1996	10,187	10,226	1.004
2004	50,754	51,690	1.018	Average			1.003
2005	54,965	55,600	1.012				
Average			1.014				
	120	132			228	240	
2000	13,423	13,520	1.007	1994	5,552	5,559	1.001
2001	16,479	16,759	1.017	1995	8,889	8,933	1.005
2002	26,421	26,682	1.010	Average			1.003
2003	36,184	36,458	1.008				
2004	51,690	52,324	1.012	1994	5,559	5,565	1.001
Average			1.011	Average			1.001

Notes:
 Losses from Aggregate Financial Data.

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Section II - Loss Development
 Subsection B - Policy Year Data
 7/1/2016

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 Exhibit 3
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Policy Year Aggregate Financial Data
 Calculation of Indemnity Paid Plus Case Loss Development Factors
 Remainder of Industry

Policy Year	Losses (in 000's) Evaluated at Month		Loss Development Factor	Policy Year	Losses (in 000's) Evaluated at Month		Loss Development Factor
	24	36			144	156	
2011	172,803	238,517	1.380	2001	249,324	255,819	1.026
2012	185,444	261,961	1.413	2002	249,160	248,852	0.999
Average			1.396	Average			1.012
	36	48			156	168	
2010	214,995	245,722	1.143	2000	256,777	258,767	1.008
2011	238,517	274,332	1.150	2001	255,819	256,636	1.003
Average			1.147	Average			1.005
	48	60			168	180	
2009	238,042	257,106	1.080	1999	236,524	236,895	1.002
2010	245,722	261,327	1.064	2000	258,767	258,370	0.998
Average			1.072	Average			1.000
	60	72			180	192	
2008	236,849	242,504	1.024	1998	220,344	220,445	1.000
2009	257,106	261,984	1.019	1999	236,895	237,288	1.002
Average			1.021	Average			1.001
	72	84			192	204	
2007	233,070	235,897	1.012	1997	190,284	191,015	1.004
2008	242,504	244,955	1.010	1998	220,445	220,350	1.000
Average			1.011	Average			1.002
	84	96			204	216	
2006	222,729	223,083	1.002	1996	193,124	192,903	0.999
2007	235,897	238,816	1.012	1997	191,015	191,915	1.005
Average			1.007	Average			1.002
	96	108			216	228	
2005	219,481	218,422	0.995	1995	211,136	211,944	1.004
2006	223,083	225,933	1.013	1996	192,903	193,640	1.004
Average			1.004	Average			1.004
	108	120			228	240	
2004	235,054	236,283	1.005	1994	219,820	220,193	1.002
2005	218,422	218,678	1.001	1995	211,944	211,949	1.000
Average			1.003	Average			1.001
	120	132			240	252	
2003	231,248	234,131	1.012	1994	220,193	220,523	1.001
2004	236,283	236,233	1.000	Average			1.001
Average			1.006				
	132	144					
2002	249,770	249,160	0.998				
2003	234,131	234,854	1.003				
Average			1.000				

Notes:
 Losses from Aggregate Financial Data.

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Section II - Loss Development
 Subsection B - Policy Year Data
 7/1/2016

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 Exhibit 3
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Policy Year Aggregate Financial Data
 Calculation of Medical Paid Plus Case Loss Development Factors
 Remainder of Industry

Policy Year	Losses (in 000's) Evaluated at Month		Loss Development Factor	Policy Year	Losses (in 000's) Evaluated at Month		Loss Development Factor
	<u>24</u>	<u>36</u>			<u>144</u>	<u>156</u>	
2011	151,860	166,146	1.094	2001	148,409	148,390	1.000
2012	179,158	190,861	1.065	2002	151,882	150,678	0.992
Average			1.080	Average			0.996
	<u>36</u>	<u>48</u>			<u>156</u>	<u>168</u>	
2010	159,940	164,373	1.028	2000	152,306	152,948	1.004
2011	166,146	172,291	1.037	2001	148,390	148,034	0.998
Average			1.032	Average			1.001
	<u>48</u>	<u>60</u>			<u>168</u>	<u>180</u>	
2009	154,369	155,978	1.010	1999	142,716	144,458	1.012
2010	164,373	166,193	1.011	2000	152,948	155,241	1.015
Average			1.011	Average			1.014
	<u>60</u>	<u>72</u>			<u>180</u>	<u>192</u>	
2008	141,136	138,632	0.982	1998	136,471	133,473	0.978
2009	155,978	157,080	1.007	1999	144,458	145,381	1.006
Average			0.995	Average			0.992
	<u>72</u>	<u>84</u>			<u>192</u>	<u>204</u>	
2007	151,105	152,436	1.009	1997	102,803	103,620	1.008
2008	138,632	136,588	0.985	1998	133,473	135,526	1.015
Average			0.997	Average			1.012
	<u>84</u>	<u>96</u>			<u>204</u>	<u>216</u>	
2006	135,005	135,715	1.005	1996	108,670	108,520	0.999
2007	152,436	157,215	1.031	1997	103,620	103,630	1.000
Average			1.018	Average			0.999
	<u>96</u>	<u>108</u>			<u>216</u>	<u>228</u>	
2005	135,486	133,412	0.985	1995	105,612	105,985	1.004
2006	135,715	135,595	0.999	1996	108,520	108,511	1.000
Average			0.992	Average			1.002
	<u>108</u>	<u>120</u>			<u>228</u>	<u>240</u>	
2004	142,275	141,958	0.998	1994	122,132	121,595	0.996
2005	133,412	133,495	1.001	1995	105,985	106,480	1.005
Average			0.999	Average			1.000
	<u>120</u>	<u>132</u>			<u>240</u>	<u>252</u>	
2003	143,786	144,346	1.004	1994	121,595	121,814	1.002
2004	141,958	142,299	1.002	Average			1.002
Average			1.003				
	<u>132</u>	<u>144</u>					
2002	152,198	151,882	0.998				
2003	144,346	145,872	1.011				
Average			1.004				

Notes:
 Losses from Aggregate Financial Data.

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Policy Year Aggregate Financial Data
 Calculation of Indemnity Paid Plus Case Loss Development Factors
 AIG

Policy Year	Losses (in 000's) Evaluated at Month		Loss Development Factor	Policy Year	Losses (in 000's) Evaluated at Month		Loss Development Factor
	24	36			132	144	
2008	50,012	71,058	1.421	1999	31,667	31,427	0.992
2009	34,184	51,605	1.510	2000	41,927	41,785	0.997
2010	39,114	61,321	1.568	2001	46,896	47,083	1.004
2011	36,914	57,265	1.551	2002	65,395	65,784	1.006
2012	22,989	36,309	1.579	2003	91,939	91,649	0.997
Average			1.526	Average			0.999
	36	48			144	156	
2007	79,731	92,695	1.163	1998	32,457	32,654	1.006
2008	71,058	83,194	1.171	1999	31,427	31,778	1.011
2009	51,605	62,423	1.210	2000	41,785	41,580	0.995
2010	61,321	74,805	1.220	2001	47,083	47,072	1.000
2011	57,265	68,632	1.198	2002	65,784	65,698	0.999
Average			1.192	Average			1.002
	48	60			156	168	
2006	95,354	102,836	1.078	1997	41,242	42,169	1.022
2007	92,695	103,421	1.116	1998	32,654	32,656	1.000
2008	83,194	89,378	1.074	1999	31,778	31,698	0.997
2009	62,423	64,504	1.033	2000	41,580	42,025	1.011
2010	74,805	78,268	1.046	2001	47,072	46,979	0.998
Average			1.070	Average			1.006
	60	72			168	180	
2005	121,696	127,787	1.050	1996	23,244	23,228	0.999
2006	102,836	107,483	1.045	1997	42,169	43,045	1.021
2007	103,421	106,949	1.034	1998	32,656	32,898	1.007
2008	89,378	92,249	1.032	1999	31,698	32,090	1.012
2009	64,504	64,498	1.000	2000	42,025	41,892	0.997
Average			1.032	Average			1.007
	72	84			180	192	
2004	113,143	115,227	1.018	1995	25,690	25,773	1.003
2005	127,787	126,477	0.990	1996	23,228	23,669	1.019
2006	107,483	107,730	1.002	1997	43,045	42,924	0.997
2007	106,949	106,890	0.999	1998	32,898	33,211	1.010
2008	92,249	91,793	0.995	1999	32,090	32,160	1.002
Average			1.001	Average			1.006
	84	96			192	204	
2003	91,988	92,290	1.003	1994	11,696	11,510	0.984
2004	115,227	115,359	1.001	1995	25,773	25,561	0.992
2005	126,477	124,525	0.985	1996	23,669	23,357	0.987
2006	107,730	107,499	0.998	1997	42,924	43,358	1.010
2007	106,890	107,007	1.001	1998	33,211	33,401	1.006
Average			0.998	Average			0.996
	96	108			204	216	
2002	64,489	65,056	1.009	1994	11,510	11,588	1.007
2003	92,290	92,030	0.997	1995	25,561	25,610	1.002
2004	115,359	116,557	1.010	1996	23,357	23,818	1.020
2005	124,525	125,603	1.009	1997	43,358	43,387	1.001
2006	107,499	107,453	1.000	Average			1.007
Average			1.005				
	108	120			216	228	
2001	46,860	46,856	1.000	1994	11,588	11,752	1.014
2002	65,056	65,679	1.010	1995	25,610	25,544	0.997
2003	92,030	91,705	0.996	1996	23,818	24,092	1.012
2004	116,557	116,749	1.002	Average			1.008
2005	125,603	125,609	1.000				
Average			1.002				
	120	132			228	240	
2000	41,175	41,927	1.018	1994	11,752	11,715	0.997
2001	46,856	46,896	1.001	1995	25,544	25,381	0.994
2002	65,679	65,395	0.996	Average			0.995
2003	91,705	91,939	1.003				
2004	116,749	117,321	1.005	1994	11,715	11,581	0.989
Average			1.004	Average			0.989

Notes:
 Losses from Aggregate Financial Data.

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Policy Year Aggregate Financial Data
 Calculation of Medical Paid Plus Case Loss Development Factors
 AIG

Policy Year	Losses (in 000's) Evaluated at Month		Loss Development Factor	Policy Year	Losses (in 000's) Evaluated at Month		Loss Development Factor
	24	36			132	144	
2008	38,859	44,461	1.144	1999	12,396	12,464	1.006
2009	30,842	34,957	1.133	2000	14,924	14,556	0.975
2010	30,932	34,008	1.099	2001	19,212	19,141	0.996
2011	30,782	38,174	1.240	2002	29,416	29,215	0.993
2012	18,778	20,801	1.108	2003	39,568	40,110	1.014
Average			1.145	Average			0.997
	36	48			144	156	
2007	50,195	51,040	1.017	1998	14,731	15,522	1.054
2008	44,461	43,082	0.969	1999	12,464	12,365	0.992
2009	34,957	35,830	1.025	2000	14,556	14,236	0.978
2010	34,008	35,733	1.051	2001	19,141	18,803	0.982
2011	38,174	42,785	1.121	2002	29,215	30,122	1.031
Average			1.036	Average			1.007
	48	60			156	168	
2006	59,177	61,527	1.040	1997	16,612	17,376	1.046
2007	51,040	49,561	0.971	1998	15,522	15,376	0.991
2008	43,082	42,771	0.993	1999	12,365	12,422	1.005
2009	35,830	35,102	0.980	2000	14,236	14,554	1.022
2010	35,733	35,225	0.986	2001	18,803	19,266	1.025
Average			0.994	Average			1.018
	60	72			168	180	
2005	71,413	69,408	0.972	1996	10,528	11,162	1.060
2006	61,527	60,322	0.980	1997	17,376	17,509	1.008
2007	49,561	48,876	0.986	1998	15,376	15,364	0.999
2008	42,771	42,425	0.992	1999	12,422	12,030	0.968
2009	35,102	35,414	1.009	2000	14,554	14,175	0.974
Average			0.988	Average			1.002
	72	84			180	192	
2004	64,793	62,969	0.972	1995	10,309	9,658	0.937
2005	69,408	65,583	0.945	1996	11,162	10,893	0.976
2006	60,322	59,721	0.990	1997	17,509	17,346	0.991
2007	48,876	48,290	0.988	1998	15,364	15,755	1.025
2008	42,425	41,855	0.987	1999	12,030	12,138	1.009
Average			0.976	Average			0.988
	84	96			192	204	
2003	45,624	42,601	0.934	1994	5,971	5,815	0.974
2004	62,969	61,150	0.971	1995	9,658	9,630	0.997
2005	65,583	63,990	0.976	1996	10,893	10,819	0.993
2006	59,721	61,524	1.030	1997	17,346	17,488	1.008
2007	48,290	47,263	0.979	1998	15,755	17,143	1.088
Average			0.978	Average			1.012
	96	108			204	216	
2002	31,598	30,661	0.970	1994	5,815	5,590	0.961
2003	42,601	39,803	0.934	1995	9,630	9,703	1.008
2004	61,150	59,904	0.980	1996	10,819	10,809	0.999
2005	63,990	63,901	0.999	1997	17,488	17,505	1.001
2006	61,524	64,968	1.056	Average			0.992
Average			0.988				
	108	120			216	228	
2001	18,307	18,828	1.028	1994	5,590	5,675	1.015
2002	30,661	29,528	0.963	1995	9,703	9,516	0.981
2003	39,803	39,321	0.988	1996	10,809	10,825	1.001
2004	59,904	59,932	1.000	Average			0.999
2005	63,901	63,773	0.998				
Average			0.996				
	120	132			228	240	
2000	15,414	14,924	0.968	1994	5,675	5,710	1.006
2001	18,828	19,212	1.020	1995	9,516	9,712	1.021
2002	29,528	29,416	0.996	Average			1.013
2003	39,321	39,568	1.006				
2004	59,932	59,671	0.996	1994	5,710	5,681	0.995
Average			0.997	Average			0.995

Notes:
 Losses from Aggregate Financial Data.

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Paid Loss Tail Factors

Indemnity 252nd Month to Ultimate Loss Tail Development Factor

(1) Valuation Date [Y]	12/31/2010	12/31/2011	12/31/2012	12/31/2013	12/31/2014
(2) Prior to Policy Year 1994 at [Y]	9,320,159,948	9,332,981,116	9,347,695,913	9,367,395,552	9,386,010,494
(3) Prior to Policy Year 1994 at [Y] - 1 yr	9,297,626,746	9,320,159,948	9,332,981,116	9,347,695,913	9,367,395,552
(4) Difference = (2) - (3)	22,533,202	12,821,168	14,714,797	19,699,639	18,614,942
(5) Policy Year 1994 at [Y]	223,524,193	225,227,100	225,586,479	226,128,171	226,761,861
(6) Ratio = (4) / (5)	0.101	0.057	0.065	0.087	0.082
(7) Growth Factor	0.600	0.600	0.600	0.600	0.600
(8) Product = (6) x (7)	0.060	0.034	0.039	0.052	0.049
(9) Factor to Ultimate = 1.000 + (8)	1.060	1.034	1.039	1.052	1.049
(10) Month [M]	204	216	228	240	252
(11) Factor to Ultimate = (9)	1.060	1.034	1.039	1.052	1.049
(12) Factor from [252] to [M]	0.987	0.991	0.996	0.997	1.000
(13) Indicated [252] to Ultimate Tail Factor = (11) x (12)	1.046	1.025	1.035	1.050	1.049
(14) Five Year Average					1.041

Medical 252nd Month to Ultimate Loss Tail Development Factor

(15) Valuation Date [Y]	12/31/2010	12/31/2011	12/31/2012	12/31/2013	12/31/2014
(16) Prior to Policy Year 1994 at [Y]	2,879,010,747	2,891,163,868	2,906,163,786	2,922,013,906	2,935,484,626
(17) Prior to Policy Year 1994 at [Y] - 1 yr	2,866,065,010	2,879,010,747	2,891,163,868	2,906,163,786	2,922,013,906
(18) Difference = (16) - (17)	12,945,737	12,153,121	14,999,918	15,850,120	13,470,720
(19) Policy Year 1994 at [Y]	112,442,844	113,011,699	113,602,008	114,216,593	114,926,352
(20) Ratio = (18) / (19)	0.115	0.108	0.132	0.139	0.117
(21) Growth Factor	0.600	0.600	0.600	0.600	0.600
(22) Product = (20) x (21)	0.069	0.065	0.079	0.083	0.070
(23) Factor to Ultimate = 1.000 + (22)	1.069	1.065	1.079	1.083	1.070
(24) Month [M]	204	216	228	240	252
(25) Factor to Ultimate = (23)	1.069	1.065	1.079	1.083	1.070
(26) Factor from [252] to [M]	0.974	0.981	0.989	0.994	1.000
(27) Indicated [252] to Ultimate Tail Factor = (25) x (26)	1.041	1.044	1.067	1.077	1.070
(28) Five Year Average					1.060

Notes:

- (2), (3), (5): Indemnity Paid Losses from Aggregate Financial Data.
 (16), (17), (19): Medical Paid Losses from Aggregate Financial Data.
 (7), (21): Exhibit 1, Page 2.
 (12), (26): 1.0 / Cumulative LDF from Section II - B, Exhibit 1.

II 000025

Section II - Loss Development
 Subsection C - Tail Factor Calculation
 7/1/2016

Section II - C
 Exhibit 1
 Page 2

Growth Factor Adjustment Paid Losses

Policy Year (1)	Incurred Losses (2)	Relative Development for Report Interval (3)	Prior to 1994 Dollar Development (4)	On-Level Prior to 1994 Dollar Development (5)
1969	88,882,878	0.016%	14,455	54,506
1970	91,578,561	0.033%	29,786	109,012
1971	94,976,425	0.049%	46,337	163,518
1972	101,973,366	0.065%	66,334	218,024
1973	122,533,804	0.081%	99,636	272,530
1974	125,138,370	0.098%	122,105	327,036
1975	129,523,874	0.114%	147,448	381,542
1976	151,014,836	0.130%	196,472	436,048
1977	172,707,061	0.146%	252,781	490,554
1978	232,880,158	0.163%	378,725	545,060
1979	268,279,182	0.179%	479,922	599,566
1980	297,480,525	0.195%	580,539	654,072
1981	355,741,107	0.211%	752,088	708,578
1982	375,851,395	0.228%	855,727	763,084
1983	425,499,290	0.244%	1,037,962	817,589
1984	498,831,008	0.260%	1,297,970	872,095
1985	609,891,252	0.276%	1,686,136	926,601
1986	753,590,368	0.293%	2,205,968	981,107
1987	931,691,350	0.309%	2,878,836	1,035,613
1988	1,016,576,810	0.325%	3,306,446	1,090,119
1989	1,086,504,061	0.342%	3,710,581	1,144,625
1990	999,727,924	0.358%	3,576,809	1,199,131
1991	710,908,977	0.374%	2,659,090	1,253,637
1992	474,146,514	0.390%	1,850,611	1,308,143
1993	392,682,840	0.407%	1,596,516	1,362,649
1994	335,160,453			
	10,843,772,389		29,829,280	17,714,439
(6) Indicated Growth Factor:				0.59
(7) Selected Growth Factor:				0.6

Notes:

- A growth factor of 0.600 has been selected.
- (2): Losses from Aggregate Financial Data evaluated as of 108 months.
- (3): Estimated % paid loss emergence for the report interval.
- (4) = (2) x (3)
- (5) = (3) x (4) 1994
- (6) = [Sum of (5)] / [Sum of (4)]
- (7): Rounded to the nearest tenth

II 000026

Paid Plus Case Loss Tail Factors

Indemnity 252nd Month to Ultimate Loss Tail Development Factor

(1) Valuation Date [Y]	12/31/2010	12/31/2011	12/31/2012	12/31/2013	12/31/2014
(2) Prior to Policy Year 1994 at [Y]	9,462,825,316	9,467,494,142	9,475,767,809	9,488,646,235	9,496,459,458
(3) Prior to Policy Year 1994 at [Y] - 1 yr	9,455,020,703	9,462,825,316	9,467,494,142	9,475,767,809	9,488,646,235
(4) Difference = (2) - (3)	7,804,613	4,668,826	8,273,667	12,878,426	7,813,223
(5) Policy Year 1994 at [Y]	230,650,870	231,218,824	231,572,062	231,907,643	232,104,368
(6) Ratio = (4) / (5)	0.034	0.020	0.036	0.056	0.034
(7) Growth Factor	0.500	0.500	0.500	0.500	0.500
(8) Product = (6) x (7)	0.017	0.010	0.018	0.028	0.017
(9) Factor to Ultimate = 1.000 + (8)	1.017	1.010	1.018	1.028	1.017
(10) Month [M]	204	216	228	240	252
(11) Factor to Ultimate = (9)	1.017	1.010	1.018	1.028	1.017
(12) Factor from [252] to [M]	0.993	0.996	1.000	1.000	1.000
(13) Indicated [252] to Ultimate Tail Factor = (11) x (12)	1.010	1.006	1.018	1.028	1.017
(14) Five Year Average					1.016

Medical 252nd Month to Ultimate Loss Tail Development Factor

(15) Valuation Date [Y]	12/31/2010	12/31/2011	12/31/2012	12/31/2013	12/31/2014
(16) Prior to Policy Year 1994 at [Y]	3,064,709,175	3,076,999,446	3,080,215,140	3,084,735,612	3,094,167,718
(17) Prior to Policy Year 1994 at [Y] - 1 yr	3,051,287,085	3,064,709,175	3,076,999,446	3,080,215,140	3,084,735,612
(18) Difference = (16) - (17)	13,422,090	12,290,271	3,215,694	4,520,472	9,432,106
(19) Policy Year 1994 at [Y]	127,774,256	127,808,173	127,807,493	127,304,717	127,494,781
(20) Ratio = (18) / (19)	0.105	0.096	0.025	0.036	0.074
(21) Growth Factor	0.500	0.500	0.500	0.500	0.500
(22) Product = (20) x (21)	0.053	0.048	0.013	0.018	0.037
(23) Factor to Ultimate = 1.000 + (22)	1.053	1.048	1.013	1.018	1.037
(24) Month [M]	204	216	228	240	252
(25) Factor to Ultimate = (23)	1.053	1.048	1.013	1.018	1.037
(26) Factor from [252] to [M]	0.997	0.996	0.998	0.999	1.000
(27) Indicated [252] to Ultimate Tail Factor = (25) x (26)	1.050	1.044	1.010	1.017	1.037
(28) Five Year Average					1.031

Notes:

- (2), (3), (5): Indemnity Paid Plus Case Losses from Aggregate Financial Data.
 (16), (17), (19): Medical Paid Plus Case Losses from Aggregate Financial Data.
 (7), (21): Exhibit 2, Page 2.
 (12), (26): 1.0 / Cumulative LDF from Section II - B, Exhibit 1.

II 000027

Section II - Loss Development
 Subsection C - Tail Factor Calculation
 7/1/2016

Section II - C
 Exhibit 2
 Page 2

Growth Factor Adjustment Paid Plus Case Losses

Policy Year (1)	Incurred Losses (2)	Percent Development for Report Interval (3)	Prior to 1994 Dollar Development (4)	On-Level Prior to 1994 Dollar Development (5)
1974	125,138,370	0.012%	14,638	39,205
1975	129,523,874	0.023%	30,302	78,410
1976	151,014,836	0.035%	52,995	117,616
1977	172,707,061	0.047%	80,809	156,821
1978	232,880,158	0.058%	136,205	196,026
1979	268,279,182	0.070%	188,291	235,231
1980	297,480,525	0.082%	243,584	274,437
1981	355,741,107	0.094%	332,901	313,642
1982	375,851,395	0.105%	395,685	352,847
1983	425,499,290	0.117%	497,726	392,052
1984	498,831,008	0.129%	641,856	431,258
1985	609,891,252	0.140%	856,101	470,463
1986	753,590,368	0.152%	1,145,962	509,668
1987	931,691,350	0.164%	1,525,778	548,873
1988	1,016,576,810	0.175%	1,783,704	588,079
1989	1,086,504,061	0.187%	2,033,493	627,284
1990	999,727,924	0.199%	1,988,026	666,489
1991	710,908,977	0.211%	1,496,849	705,694
1992	474,146,514	0.222%	1,053,798	744,900
1993	392,682,840	0.234%	918,678	784,105
1994	335,160,453		-	-
	10,343,827,355		15,417,381	8,233,100
(6) Indicated Growth Factor:				0.53
(7) Selected Growth Factor:				0.5

Notes:

A growth factor of 0.500 has been selected.

(2): Losses from Aggregate Financial Data evaluated as of 108 months.

(3): Estimated % paid plus case loss emergence for the report interval.

(4) = (2) x (3)

(5) = (3) x (4) 1994

(6) = [Sum of (5)] / [Sum of (4)]

(7): Rounded to the nearest tenth

II 000028

Section II - Loss Development
 Subsection D - Adjustment for Escalation of Benefits
 7/1/2016

Section II - D
 Exhibit 1
 Page 1

Differential in Indemnity Loss Development

Paid Loss Development Method Calculation of Adjustment for Differential in Loss Development

Escalated or Unescalated (1)	Injury Type (2)	Implicit LDF to Ultimate From Month				
		168	180	192 (3)	204	216
Escalated	Fatal	3.036	2.859	2.703	2.562	2.433
Escalated	Permanent Total	4.073	3.719	3.417	3.157	2.929
Escalated	Other Indemnity	1.000	1.000	1.000	1.000	1.000
Escalated	Total Indemnity	1.098	1.095	1.092	1.088	1.085
Unescalated	Fatal	1.942	1.861	1.789	1.725	1.668
Unescalated	Permanent Total	2.452	2.295	2.160	2.043	1.941
Unescalated	Other Indemnity	1.000	1.000	1.000	1.000	1.000
Unescalated	Total Indemnity	1.038	1.036	1.035	1.033	1.031

Escalated or Unescalated (4)	Injury Type (5)	Differential in Loss Development at Month				
		168	180	192 (6)	204	216
Escalated	Fatal	1.563	1.536	1.511	1.485	1.459
Escalated	Permanent Total	1.661	1.620	1.582	1.545	1.509
Escalated	Other Indemnity	1.000	1.000	1.000	1.000	1.000
Escalated	Total Indemnity	1.058	1.057	1.055	1.054	1.052

Selected Differential in Indemnity Loss Development at Month 336 1.042

Notes:

(3) = [(8) Exhibit 1, Page 2] / [(9) Exhibit 1, Page 2]

(6) = [(3) for Escalated] / [(3) for Unescalated]

II 000029

Differential in Indemnity Loss Development

Paid Loss Development Method Calculation of Adjustment for Differential in Loss Development

Escalated or Unescalated (1)	Injury Type (2)	Losses at Month						Injury Type Weights @ Ultimate (5)
		Ultimate (3)	168	180	192 (4)	204	216	
Escalated	Fatal	874,958	288,217	306,023	323,680	341,550	359,626	1.79%
Escalated	Permanent Total	1,668,738	409,709	448,697	488,350	528,641	569,759	6.09%
Escalated	Other Indemnity							56.85%
Escalated	Total Indemnity							64.74%
Unescalated	Fatal	465,615	239,708	250,218	260,195	269,862	279,221	0.95%
Unescalated	Permanent Total	824,906	336,400	359,427	381,858	403,713	424,987	3.01%
Unescalated	Other Indemnity							56.85%
Unescalated	Total Indemnity							60.82%

Escalated or Unescalated (6)	Injury Type (7)	Estimated Losses at Month					
		Ultimate (8)	168	180	192 (9)	204	216
Escalated	Fatal	1,791	590	626	663	699	736
Escalated	Permanent Total	6,094	1,496	1,639	1,784	1,931	2,081
Escalated	Other Indemnity	56,852	56,852	56,852	56,852	56,852	56,852
Escalated	Total Indemnity	64,737	58,938	59,117	59,298	59,481	59,669
Unescalated	Fatal	953	491	512	533	552	572
Unescalated	Permanent Total	3,013	1,229	1,313	1,395	1,474	1,552
Unescalated	Other Indemnity	56,852	56,852	56,852	56,852	56,852	56,852
Unescalated	Total Indemnity	60,817	58,571	58,676	58,779	58,878	58,975

Notes:

Escalation calculation applied only to Fatal and Permanent Total Injury Types.

(3),(4): Average discounted losses are calculated from Simulation Model loss flows using a 3.5% discount rate.

(5): Escalated: From Section IV-E, Exhibit 2. As a % of total losses, Indemnity and Medical.

Unescalated: [(5) for Escalated] x { [(3) for Unescalated] / [(3) for Escalated] }.

(8) = (5) x 100,000

(9) = (8) x [(4) / (3)]

II 000030

Differential in Indemnity Loss Development

Paid Plus Case Loss Development Method Calculation of Adjustment for Differential in Loss Development

Escalated or Unescalated (1)	Injury Type (2)	Implicit LDF to Ultimate From Month				
		168	180	192 (3)	204	216
Escalated	Fatal	1.364	1.340	1.317	1.295	1.274
Escalated	Permanent Total	1.398	1.368	1.340	1.313	1.288
Escalated	Other Indemnity	1.000	1.000	1.000	1.000	1.000
Escalated	Total Indemnity	1.035	1.033	1.031	1.030	1.028
Unescalated	Fatal	1.212	1.198	1.184	1.171	1.159
Unescalated	Permanent Total	1.253	1.234	1.215	1.198	1.183
Unescalated	Other Indemnity	1.000	1.000	1.000	1.000	1.000
Unescalated	Total Indemnity	1.013	1.012	1.011	1.011	1.010

Escalated or Unescalated (4)	Injury Type (5)	Differential in Loss Development at Month				
		168	180	192 (6)	204	216
Escalated	Fatal	1.125	1.119	1.112	1.105	1.099
Escalated	Permanent Total	1.115	1.109	1.102	1.096	1.089
Escalated	Other Indemnity	1.000	1.000	1.000	1.000	1.000
Escalated	Total Indemnity	1.022	1.021	1.020	1.019	1.018

Selected Differential in Indemnity Loss Development at Month 336 1.008

Notes:

(3) = [(8) Exhibit 2, Page 2] / [(9) Exhibit 2, Page 2]

(6) = [(3) for Escalated] / [(3) for Unescalated]

II 000031

Differential in Indemnity Loss Development

Paid Plus Case Loss Development Method Calculation of Adjustment for Differential in Loss Development

Escalated or Unescalated (1)	Injury Type (2)	Losses at Month						Injury Type Weights @ Ultimate (5)
		Ultimate (3)	168	180	192 (4)	204	216	
Escalated	Fatal	874,958	641,246	652,979	664,504	675,808	686,874	1.79%
Escalated	Permanent Total	1,668,738	1,193,905	1,219,988	1,245,595	1,270,688	1,295,221	6.09%
Escalated	Other Indemnity							56.85%
Escalated	Total Indemnity							64.74%
Unescalated	Fatal	465,615	384,035	388,719	393,217	397,535	401,676	0.95%
Unescalated	Permanent Total	824,906	658,201	668,658	678,696	688,321	697,538	3.01%
Unescalated	Other Indemnity							56.85%
Unescalated	Total Indemnity							60.82%

Escalated or Unescalated (6)	Injury Type (7)	Estimated Losses at Month					
		Ultimate (8)	168	180	192 (9)	204	216
Escalated	Fatal	1,791	1,313	1,337	1,360	1,383	1,406
Escalated	Permanent Total	6,094	4,360	4,456	4,549	4,641	4,730
Escalated	Other Indemnity	56,852	56,852	56,852	56,852	56,852	56,852
Escalated	Total Indemnity	64,737	62,524	62,644	62,761	62,876	62,988
Unescalated	Fatal	953	786	796	805	814	822
Unescalated	Permanent Total	3,013	2,404	2,442	2,479	2,514	2,548
Unescalated	Other Indemnity	56,852	56,852	56,852	56,852	56,852	56,852
Unescalated	Total Indemnity	60,817	60,042	60,089	60,135	60,179	60,221

Notes:

Escalation calculation applied only to Fatal and Permanent Total Injury Types.

(3),(4): Average discounted losses are calculated from Simulation Model loss flows using a 3.5% discount rate.

(5): Escalated: From Section IV-E, Exhibit 2. As a % of total losses, Indemnity and Medical.

Unescalated: [(5) for Escalated] x [(3) for Unescalated] / [(3) for Escalated] }

(8) = (5) x 100,000

(9) = (8) x [(4) / (3)]

Accident Year Aggregate Financial Data
 Summary of Loss Development Factors
 Remainder of Industry

Months of Development	Loss Development Factors From																			Tail Factor	Escalation Factor	
	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-228	228-240			240-252
(1) Indemnity Paid Losses																						
2 Year Average	2.971	1.598	1.246	1.122	1.036	1.024	1.021	1.008	1.009	1.007	1.005	1.019	1.003	1.004	1.002	1.002	1.005	1.004	1.002	1.003	1.041	1.042
Cumulative	8.370	2.817	1.763	1.415	1.262	1.218	1.189	1.165	1.156	1.146	1.138	1.132	1.111	1.108	1.105	1.102	1.100	1.094	1.090	1.088	1.085	1.042
(2) Medical Paid Losses																						
2 Yr Average	1.931	1.141	1.053	1.027	1.008	1.013	1.012	1.010	1.009	1.010	1.011	1.008	1.007	1.010	1.008	1.007	1.008	1.008	1.006	1.005	1.060	1.000
Cumulative	2.903	1.504	1.318	1.252	1.219	1.209	1.194	1.180	1.168	1.158	1.147	1.134	1.125	1.116	1.105	1.096	1.089	1.080	1.071	1.065	1.060	1.000

Notes:
 Tail Factors from Section II-C, Exhibit 1, page 1 (accident year tail factors, were approximated using policy year tail factors).
 Escalation Factor from Section II-D, Exhibit 1, page 1.

II 000032

II 000033

Section II - Loss Development
 Subsection E - Accident Year Data
 7/1/2016

Section II - E
 Exhibit 1
 Page 2

Accident Year Aggregate Financial Data Calculation of Indemnity Paid Loss Development Factors Remainder of Industry

Accident Year	Losses (in 000's) Evaluated at Month		Loss Development Factor	Accident Year	Losses (in 000's) Evaluated at Month		Loss Development Factor
	12	24			132	144	
2012	43,327	125,363	2.893	2002	237,129	237,895	1.003
2013	49,019	149,451	3.049	2003	240,014	241,672	1.007
Average			2.971	Average			1.005
	24	36			144	156	
2011	125,268	198,778	1.587	2001	242,055	250,626	1.035
2012	125,363	201,745	1.609	2002	237,895	238,275	1.002
Average			1.598	Average			1.019
	36	48			156	168	
2010	166,934	208,079	1.246	2000	249,337	250,169	1.003
2011	198,778	247,400	1.245	2001	250,626	251,048	1.002
Average			1.246	Average			1.003
	48	60			168	180	
2009	199,742	224,334	1.123	1999	218,033	218,443	1.002
2010	208,079	233,183	1.121	2000	250,169	251,462	1.005
Average			1.122	Average			1.004
	60	72			180	192	
2008	225,363	232,448	1.031	1998	209,533	210,055	1.002
2009	224,334	233,410	1.040	1999	218,443	218,728	1.001
Average			1.036	Average			1.002
	72	84			192	204	
2007	216,598	221,799	1.024	1997	183,146	183,422	1.002
2008	232,448	238,061	1.024	1998	210,055	210,743	1.003
Average			1.024	Average			1.002
	84	96			204	216	
2006	200,848	205,120	1.021	1996	195,617	196,102	1.002
2007	221,799	226,281	1.020	1997	183,422	184,859	1.008
Average			1.021	Average			1.005
	96	108			216	228	
2005	213,757	214,590	1.004	1995	204,135	205,428	1.006
2006	205,120	207,673	1.012	1996	196,102	196,382	1.001
Average			1.008	Average			1.004
	108	120			228	240	
2004	236,654	239,068	1.010	1994	239,408	239,741	1.001
2005	214,590	216,091	1.007	1995	205,428	205,821	1.002
Average			1.009	Average			1.002
	120	132			240	252	
2003	237,671	240,014	1.010	1994	239,741	240,506	1.003
2004	239,068	240,149	1.005	Average			1.003
Average			1.007				

Notes:
 Losses from Aggregate Financial Data.

II 000034

Section II - Loss Development
 Subsection E - Accident Year Data
 7/1/2016

Section II - E
 Exhibit 1
 Page 3

Accident Year Aggregate Financial Data Calculation of Medical Paid Loss Development Factors Remainder of Industry

Accident Year	Losses (in 000's) Evaluated at Month		Loss Development Factor	Accident Year	Losses (in 000's) Evaluated at Month		Loss Development Factor
	12	24			132	144	
2012	58,230	112,074	1.925	2002	123,306	124,696	1.011
2013	66,386	128,612	1.937	2003	131,695	133,194	1.011
Average			1.931	Average			1.011
	24	36			144	156	
2011	113,017	128,280	1.135	2001	115,859	116,600	1.006
2012	112,074	128,547	1.147	2002	124,696	125,968	1.010
Average			1.141	Average			1.008
	36	48			156	168	
2010	118,772	124,735	1.050	2000	121,082	122,235	1.010
2011	128,280	135,322	1.055	2001	116,600	117,228	1.005
Average			1.053	Average			1.007
	48	60			168	180	
2009	116,620	119,699	1.026	1999	115,542	116,477	1.008
2010	124,735	128,147	1.027	2000	122,235	123,770	1.013
Average			1.027	Average			1.010
	60	72			180	192	
2008	126,244	127,281	1.008	1998	102,615	103,476	1.008
2009	119,699	120,714	1.008	1999	116,477	117,448	1.008
Average			1.008	Average			1.008
	72	84			192	204	
2007	123,874	125,942	1.017	1997	90,573	91,131	1.006
2008	127,281	128,374	1.009	1998	103,476	104,187	1.007
Average			1.013	Average			1.007
	84	96			204	216	
2006	109,942	111,092	1.010	1996	95,995	96,842	1.009
2007	125,942	127,656	1.014	1997	91,131	91,807	1.007
Average			1.012	Average			1.008
	96	108			216	228	
2005	114,276	115,361	1.009	1995	99,160	99,976	1.008
2006	111,092	112,245	1.010	1996	96,842	97,684	1.009
Average			1.010	Average			1.008
	108	120			228	240	
2004	126,949	128,506	1.012	1994	111,548	112,106	1.005
2005	115,361	116,030	1.006	1995	99,976	100,606	1.006
Average			1.009	Average			1.006
	120	132			240	252	
2003	130,506	131,695	1.009	1994	112,106	112,627	1.005
2004	128,506	129,781	1.010	Average			1.005
Average			1.010				

Notes:
 Losses from Aggregate Financial Data.

Accident Year Aggregate Financial Data
 Summary of Loss Development Factors
 AIG

Months of Development	Loss Development Factors From																				Tail Factor	Escalation Factor	
	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-228	228-240	240-252			
(1) Indemnity Paid Losses																							
5 Yr Average	3.157	1.627	1.270	1.127	1.058	1.033	1.018	1.010	1.007	1.006	1.004	1.010	1.007	1.013	1.005	1.012	1.004	1.000	1.001	1.000	1.041	1.042	
Cumulative	9.604	3.042	1.869	1.472	1.305	1.233	1.194	1.173	1.161	1.152	1.145	1.141	1.130	1.122	1.108	1.103	1.090	1.086	1.086	1.085	1.085	1.042	
(2) Medical Paid Losses																							
5 Yr Average	2.061	1.171	1.072	1.030	1.022	1.014	1.016	1.015	1.014	1.011	1.010	1.010	1.013	1.013	1.007	1.004	1.007	1.003	1.003	1.000	1.060	1.000	
Cumulative	3.319	1.610	1.375	1.283	1.246	1.219	1.202	1.183	1.166	1.150	1.137	1.126	1.115	1.100	1.086	1.078	1.074	1.067	1.064	1.060	1.060	1.000	

Notes:
 Tail Factors from Section II-C, Exhibit 1, page 1 (accident year tail factors, were approximated using policy year tail factors).
 Escalation Factor from Section II-D, Exhibit 1, page 1.

II 000035

II 000037

Section II - Loss Development
 Subsection E - Accident Year Data
 7/1/2016

Section II - E
 Exhibit 1
 Page 6

Accident Year Aggregate Financial Data
 Calculation of Medical Paid Loss Development Factors
 AIG

Accident Year	Losses (in 000's) Evaluated at Month		Loss Development Factor	Accident Year	Losses (in 000's) Evaluated at Month		Loss Development Factor
	12	24			132	144	
2009	13,643	25,731	1.886	1999	11,516	11,639	1.011
2010	10,752	21,828	2.030	2000	11,318	11,433	1.010
2011	11,903	25,019	2.102	2001	16,162	16,235	1.005
2012	8,623	18,275	2.119	2002	23,721	24,077	1.015
2013	6,706	14,539	2.168	2003	31,086	31,365	1.009
Average			2.061	Average			1.010
2008	30,440	35,598	1.169	1998	12,583	12,596	1.001
2009	25,731	29,505	1.147	1999	11,639	11,798	1.014
2010	21,828	26,218	1.201	2000	11,433	11,537	1.009
2011	25,019	29,299	1.171	2001	16,235	16,387	1.009
2012	18,275	21,359	1.169	2002	24,077	24,467	1.016
Average			1.171	Average			1.010
2007	42,836	46,578	1.087	1997	12,529	12,766	1.019
2008	35,598	38,259	1.075	1998	12,596	12,745	1.012
2009	29,505	30,953	1.049	1999	11,798	12,027	1.019
2010	26,218	28,339	1.081	2000	11,537	11,647	1.010
2011	29,299	31,251	1.067	2001	16,387	16,495	1.007
Average			1.072	Average			1.013
2006	46,722	48,129	1.030	1996	9,506	9,684	1.019
2007	46,578	48,167	1.034	1997	12,766	12,917	1.012
2008	38,259	39,060	1.021	1998	12,745	12,843	1.008
2009	30,953	31,461	1.016	1999	12,027	12,243	1.018
2010	28,339	29,681	1.047	2000	11,647	11,767	1.010
Average			1.030	Average			1.013
2005	52,476	54,353	1.036	1995	6,683	6,712	1.004
2006	48,129	48,915	1.016	1996	9,684	9,738	1.006
2007	48,167	49,742	1.033	1997	12,917	12,968	1.004
2008	39,060	39,429	1.009	1998	12,843	12,941	1.008
2009	31,461	31,912	1.014	1999	12,243	12,423	1.015
Average			1.022	Average			1.007
2004	40,024	40,799	1.019	1994	4,246	4,249	1.001
2005	54,353	54,937	1.011	1995	6,712	6,734	1.003
2006	48,915	49,485	1.012	1996	9,738	9,754	1.002
2007	49,742	50,919	1.024	1997	12,968	13,050	1.006
2008	39,429	39,601	1.004	1998	12,941	13,032	1.007
Average			1.014	Average			1.004
2003	29,858	30,293	1.015	1994	4,249	4,256	1.002
2004	40,799	41,467	1.016	1995	6,734	6,786	1.008
2005	54,937	55,993	1.019	1996	9,754	9,792	1.004
2006	49,485	50,148	1.013	1997	13,050	13,228	1.014
2007	50,919	51,782	1.017	Average			1.007
Average			1.016				
2002	22,264	22,783	1.023	1994	4,256	4,258	1.000
2003	30,293	30,595	1.010	1995	6,786	6,818	1.005
2004	41,467	42,223	1.018	1996	9,792	9,823	1.003
2005	55,993	56,889	1.016	Average			1.003
2006	50,148	50,553	1.008				
Average			1.015				
2001	15,948	16,070	1.008	1994	4,258	4,265	1.002
2002	22,783	23,379	1.026	1995	6,818	6,854	1.005
2003	30,595	30,864	1.009	Average			1.003
2004	42,223	42,851	1.015				
2005	56,889	57,583	1.012	1994	4,265	4,267	1.000
Average			1.014	Average			1.000
2000	11,139	11,318	1.016				
2001	16,070	16,162	1.006				
2002	23,379	23,721	1.015				
2003	30,864	31,086	1.007				
2004	42,851	43,340	1.011				
Average			1.011				

Notes:
 Losses from Aggregate Financial Data.

PREMIUMS

Background

To derive a rate indication, this filing evaluates the adequacy of the current rate level by comparing an historical loss, LAE, and fixed expense ratio to a permissible loss, LAE, and fixed expense ratio. The historical loss ratio is the ratio of losses and loss adjustment expenses to earned premium. In the current ratemaking methodology, "earned premium" includes policy year earned standard premium and All Risk Adjustment Program ("ARAP") premium. Policy year premiums are defined as the premiums associated with all policies taking effect in a given year. Policy Year earned premiums are the premiums related to the portion of the policy year that has already expired. Standard premium is defined as the premium resulting from standard rating procedures, using WCRIBMA rates, after the application of experience rating adjustments, Merit Rating Plan adjustments, Construction Classification Premium Adjustment Program ("CCPAP") Credits, expense constants, and loss constants. Since the ARAP premium reported on the Aggregate Financial Policy Year Call is impacted by deviations and schedule rating credits, a factor is applied to the reported ARAP premium to adjust the premium from Company Level to Bureau Designated Statistical Reporting (DSR) Level. Adjustment factors applicable to policy year 2012 and policy year 2013 are calculated in Section III-A.

Policy years 2012 and 2013 earned standard and adjusted ARAP premiums are used in the indication and are brought to the current rate level in Section III.

III 000002

Summary

Initial workers' compensation insurance premiums are by necessity estimates. They are typically a function of the employer's payroll during the time the policy is in effect and consequently are not known definitively at policy inception. In addition to payroll audit adjustments, other adjustments may occur to the premium as a result of changes to the policy. For example, experience modification factors may change during the term of a policy or CCPAP credit applications may be filed up to six months after the termination date of a policy.

Insurance carriers typically try to estimate the impact of such premium adjustments. However, industry-wide policy year earned standard and ARAP premium historically develops until such time as all audits have been finalized and no further premium modifications can be made. Therefore, premiums must be developed to ultimate so that the premiums used in the indication properly reflect the actual exposure level which gave rise to the ultimate losses.

The currently-effective rates were derived using "estimated values" for the average experience modification, the average merit rating credit, the average ARAP surcharge, and the average CCPAP credit. However, the "actual values" for the policy years under review differ from the "estimated values" loaded into the current rates. The WCRIBMA applies factors to premiums to adjust the "actual values" of the experience modification, merit rating credit, ARAP surcharge, and Construction Classification Premium Adjustment Program credit to the "estimated values" loaded in the current rates. These offsets are necessary to ensure that the change in the current manual

III 000003

rates (which contain the same “estimated values”) is consistent with the overall average indicated rate level change. Additionally, the loading for prior Insolvency Fund assessments is removed.

Premium Development

The WCRIBMA developed premium to 252 months utilizing historical premium development factors based on the average of the latest five age-to-age development factors, also known as link ratios.¹ For a given policy year, a premium development link ratio is the ratio of the premium valued as of time (T+1) to the premium valued as of time T. As in recent filings, annual age-to-age link ratios are calculated using the sum of earned standard premium and adjusted ARAP premium. The calculation of standard premium plus adjusted ARAP premium development factors is completed in Section III-A.

Impact of Experience and Merit Rating, ARAP and Construction Credit

The currently-effective rates contain an assumed load to reflect an estimated average experience modification and merit rating impact, ARAP impact, and Construction Credit impact. The actual experience modifications, merit rating debits or credits, ARAP surcharges, and Construction Credits for the policy years under review differ from the estimated values used in deriving the current rates. A factor is applied to premiums to

¹ Although the WCRIBMA still believes that the method used in developing premiums in its 2012 Rate Filing is sound and reasonable as a matter of actuarial judgment, in response to the decision on 9/1/2012 rates, it has reflected development of premiums to 252 months and the use of 5-year average premium development factors in this filing.

III 000004

adjust the impact of these programs to the level anticipated in the current rates. Adjustment factors applicable to policy year 2012 and policy year 2013 are calculated in Section III-B.

Consistent with past practice, the WCRIBMA uses the historical experience modification anticipated in the rates in the derivation of the adjustment factor. This is appropriate as the intention of the adjustment factor is to bring premium to the current rate level. The experience modification reflected in the rates for non-merit-rated risks is 1.00 and the average merit rating for merit-rated risks is -2.0%.

ARAP was introduced in Massachusetts for policies effective 1/1/1990 and after. The premium used to develop the rate indication is standard premium plus ARAP premium. An adjustment for the ARAP offset is included to reflect the fact that the ARAP surcharges during policy year 2012 and policy year 2013 were not precisely in balance with the ARAP surcharge anticipated by the offset in the rates.

An adjustment for the Construction Credit offset is included because the extent to which Construction Credits were actually applied to policy year 2012 and policy year 2013 differed from that anticipated in the rates.

Loading for Recoupment of Insolvency Fund Assessments

In Section III-C, factors are calculated to adjust the policy year 2012 and policy year 2013 premiums so that the one-time loadings for recoupment of Insolvency Fund assessments are excluded.

On-Level Adjustment

As part of the ratemaking, WCRIBMA tests the adequacy of the overall rate level to determine whether there is a need for change in the indicated rates. In doing so, historical reported premium data is utilized to estimate the amount of future premium needed in the prospective effective period. The historical premium is adjusted to the level of the current rates to account for rate changes that occurred since the historical experience period. Otherwise the projected premium would not be useful for calculating the current rate need. Further, workers' compensation premium is not written evenly throughout the year, and a disproportionate number of policies are effective on January 1 and July 1. To take this into account, the on-level factors derived in this filing use rate level weights based on USR data for the historical period. Premium on-level factors are calculated in Section III-D.

Premium Adjustment Factor

Premium adjustment factors are intended to bring historical standard premium data to the level applicable for a different policy period. They are used to estimate the percentage of premium eligible for experience rating, adjust the layers of standard premium for premium discount and expense constant calculations, and determine weights used in calculating the weighted average premium collection pattern used to estimate the profit provision. Premium adjustment factors are composite factors that meld adjustments related to exposure growth and trend, premium on-leveling, changes in rating programs and the proposed rate change. These adjustments are calculated in Section III-E.

III 000006

Section III - Premiums
 Subsection A - Summary
 7/1/2016

Section III - A
 Exhibit 1
 Page 1

Policy Year Aggregate Financial Data
 Calculation of Standard Premium plus Adjusted ARAP Premium Development Factors
 Industrywide

Summary Exhibit

	Policy Year as of 12/31/2014	
	2012	2013
(1) Standard Earned Premium plus Adjusted ARAP Premium	986,076,718	1,026,831,743
(2) Adjustment for Experience and Merit Rating, ARAP, and Construction Credit Off-balance	1.002	1.015
(3) Adjustment Factor to Remove the Impact of Loading for Recoupment of Insolvency Fund Assessments	1.000	1.000
(4) Composite Adjustment Factor = (2) x (3)	1.002	1.014
(5) Adjusted Standard Earned Premium plus ARAP = (1) x (4)	987,813,075	1,041,537,390
(6) Cumulative Premium Development Factor to Ultimate (see Page 2)	0.999	1.003
(7) Rate On-Level Factor	1.000	1.000
(8) Factor to Remove Expense Constant	0.956	0.957
(9) Adjusted On-Level Earned Premium at Ultimate = (5) x (6) x (7) x (8)	943,321,497	999,808,461

Notes:

- (1): Section III-B, Exhibit 2
- (2): Section III-B, Exhibit 1
- (3): Section III-C, Exhibit 1
- (6): Premiums are deemed to be fully developed at 252 months.
- (7): Section III-D, Exhibit 1
- (8): Section VI-F, Exhibit 2.

Policy Year Aggregate Financial Data
 Calculation of Standard Premium plus Adjusted ARAP Premium Development Factors
 Industrywide

Months of Development	Premium Development Factors From:																			
	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-228	228-240	240-252	
2 Year Average	1.009	0.998	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Cumulative Factor to 252	1.007	0.998	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5 Year Average	1.005	0.999	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Cumulative Factor to 252	1.003	0.999	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Notes:
 From Page 3

III 000007

Adjustment for Experience and Merit Rating, ARAP and Construction Credit Off-Balance

Rate Level Effective Date (1)	Experience Mod for Non-Merit Rated Risks		Merit Rating Impact		Average Experience Mod and Merit Rating Factor (6)	ARAP Charge in Rates (7)	Construction Credit in Construction Rates (8)	Policy Year Written Weights		Calendar Year Earned Weights		
	Anticipated in Rates (2)	Percentage of Premium (3)	Anticipated in Rates (4)	Percentage of Premium (5)				2012	2013	2012	2013	2014
								(9)	(10)	(11)	(12)	(13)
9/1/2008	1.000	0.880	-0.027	0.120	0.997	0.045	-0.036					
9/1/2010	1.000	0.860	-0.020	0.140	0.997	0.049	-0.053	100.0%	100.0%	100.0%	100.0%	70.2%
4/1/2014	1.000	0.841	-0.019	0.159	0.997	0.052	-0.032					29.8%

	Policy Year		Calendar Year Earned		
	2012	2013	2012	2013	2014
(14) Weighted Average Experience and Merit Rating factor anticipated in rates	0.997	0.997	0.997	0.997	0.997
(15) Weighted ARAP Charge anticipated in rates	0.049	0.049	0.049	0.049	0.050
(16) Percentage of Premium for CCPAP Eligible Classes	0.333	0.341	0.325	0.337	0.337
(17) Weighted Average Construction Credit anticipated in rates	-0.018	-0.018	-0.017	-0.018	-0.016
(18) Combined Weighted Average impact anticipated in rates = (14) x [1.0 + (15)] x [1.0 + (17)]	1.027	1.027	1.028	1.027	1.030
(19) Manual Premium	926,808,771	983,846,095	911,484,742	955,327,433	
(20) Standard Earned Premium at DSR Level, excluding Expense Constants	900,160,250	944,824,430	890,086,731	922,492,340	
(21) ARAP Premium	47,699,238	48,772,769	47,739,904	48,236,004	
(22) Adjustment Factor to Adjust from Company Level to DSR Level Premium	1.052	1.047	1.055	1.050	
(23) Standard Earned Premium plus Adjusted ARAP = (20) + [(21) x (22)]	950,353,055	995,910,457	940,441,286	973,126,295	
(24) Combined Actual impact = (23) / (19)	1.025	1.012	1.032	1.019	1.019
(25) Adjustment for Experience and Merit Rating, ARAP, and Construction Credit Off-balance = (18) / (24)	1.002	1.015	0.996	1.008	1.011

Notes:
 (3) = 1.0 - (5)
 (2), (4), (5), (7), (8): Previous filings.
 (6) = [(2) x (3)] + [1.0 + (4)] x (5)
 (9),(10): Section III-D, Exhibit 2.
 (11),(12): Section III-D, Exhibit 3.
 (13): Section III-D, Exhibit 4.
 (14) = Sum [(6) x (9) through (13)]
 (15) = Sum [(7) x (9) through (13)]
 (17) = Sum [(8) x (9) through (13)] x (16)
 (16), (19), (20), (21): Unit Statistical Plan Data, Excluding Large Deductible Policies. CY 2014 uses CY 2013 values.
 (22): from Section III-B, Exhibit 2.

III 000009

Policy Year Aggregate Financial Data
 Calculation of Standard Premium plus ARAP Premium
 Industrywide

	Policy Year valued as of 12/31/2014		Calendar Years		
	2012	2013	2012	2013	2014
(1) Aggregate Financial: Standard Earned Premium at DSR Level	935,969,043	977,090,701	927,830,332	956,828,487	1,008,427,899
(2) Aggregate Financial: Standard Earned Premium at Company Level	889,470,324	932,846,450	879,652,900	911,514,465	963,051,632
(3) Aggregate Financial: ARAP Premium	47,618,338	47,488,687	46,945,684	48,501,174	48,122,308
(4) Adjustment Factor to Adjust from Company Level to DSR Level Premium = (1) / (2)	1.052	1.047	1.055	1.050	1.047
(5) Adjusted ARAP Premium = (3) x (4)	50,107,675	49,741,042	49,516,837	50,912,308	50,389,695
(6) Standard Earned Premium plus adjusted ARAP Premium = (1) + (5)	986,076,718	1,026,831,743	977,347,169	1,007,740,795	1,058,817,594

Notes:

(1),(2),(3): Aggregate Financial Policy Year Calls

III 000010

Factor to Remove the Impact of Loading for Recoupment of Insolvency Fund Assessments

Rate Level Effective Date (1)	Loading for Recoupment of Insolvency Fund Assessments (2)	Policy Year Weights		Calendar Year Earned Weights		
		2012 (3)	2013 (4)	2012 (5)	2013 (6)	2014 (7)
9/1/2008	-0.06%					
9/1/2010	0.02%	100.0%	100.0%	100.0%	100.0%	70.2%
4/1/2014	0.19%					29.8%

Policy Year		Calendar Year Earned		
2012	2013	2012	2013	2014

(8) Weighted Average Loading for Recoupment of Insolvency Fund Assessment in the Rates = Sum [(2) x (3) through (7)]	0.0002	0.0002	0.0002	0.0002	0.0007
(9) Adjustment Factor to Remove the Impact of Loading for Recoupment of Insolvency Fund Assessments = [1.0 - (8)]	1.000	1.000	1.000	1.000	0.999

Notes:

- (2): Previous filings.
- (3),(4): Section III-D, Exhibit 2.
- (5),(6): Section III-D, Exhibit 3.
- (7): Section III-D, Exhibit 4.

III 000012

Section III - Premiums
 Subsection D - Rate On-Level Factors
 7/1/2016

Section III - D
 Exhibit 1

Rate On-Level Factors

Rate Level Effective Date (1)	Rate Change (2)	Cumulative Rate Level Change (3)	Factor to Current Rate Level (4)	Policy Year Weights	
				2012 (5)	2013 (6)
9/1/2008		1.000	0.976		
9/1/2010	0.976	0.976	1.000	100.0%	100.0%
4/1/2014	1.000	0.976	1.000		

(7) Rate On-Level Factor
 = Sum [(4) x (5) through (6)]

Policy Year	
2012	2013
1.000	1.000

Notes:

(4): (3)_{latest rate level effective date} / (3).

(5),(6): From Exhibit 2.

III 000013

Section III - Premiums
 Subsection D - Premium On-Level Factors
 7/1/2016

Section III - D
 Exhibit 2

Policy Year Weights for On-Leveling Earned Premium

Policy Year (1)	Policy Month (2)	Standard Earned Premium at Rate Level Effective			Earned Premiums (6)
		9/1/2008 (3)	9/1/2010 (4)	4/1/2014 (5)	
2012	1		164,440,160		164,440,160
2012	2		64,288,695		64,288,695
2012	3		71,629,426		71,629,426
2012	4		89,192,284		89,192,284
2012	5		66,547,848		66,547,848
2012	6		83,279,390		83,279,390
2012	7		104,283,442		104,283,442
2012	8		57,968,740		57,968,740
2012	9		77,167,533		77,167,533
2012	10		79,119,476		79,119,476
2012	11		54,362,185		54,362,185
2012	12		77,444,884		77,444,884
2012	Total		989,724,066		989,724,066

2013	1		168,301,056		168,301,056
2013	2		63,520,658		63,520,658
2013	3		75,778,635		75,778,635
2013	4		93,902,958		93,902,958
2013	5		73,201,179		73,201,179
2013	6		95,847,338		95,847,338
2013	7		106,691,061		106,691,061
2013	8		65,132,887		65,132,887
2013	9		76,739,381		76,739,381
2013	10		76,988,303		76,988,303
2013	11		58,021,733		58,021,733
2013	12		82,534,489		82,534,489
2013	Total		1,036,659,680		1,036,659,680

2014	1		173,549,402		173,549,402
2014	2		65,511,758		65,511,758
2014	3		78,142,020		78,142,020
2014	4			96,831,470	96,831,470
2014	5			75,484,114	75,484,114
2014	6			98,836,375	98,836,375
2014	7			110,018,380	110,018,380
2014	8			67,164,200	67,164,200
2014	9			79,132,746	79,132,746
2014	10			79,389,386	79,389,386
2014	11			59,831,241	59,831,241
2014	12			85,108,236	85,108,236
2014	Total		317,203,179	751,796,148	1,068,999,327

Rate Level Effective Date (7)	Policy Year Weights		
	2012 (8)	2013 (9)	2014 (10)
9/1/2008			
9/1/2010	100.0%	100.0%	29.7%
4/1/2014			70.3%

Notes:

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

(3),(4),(5): From Unit Statistical Plan Data. PY 2014 estimated from PY 2013 data.

(8),(9),(10) = [PY Total of (3), (4) or (5)] / [PY Total of (6)]

III 000014

Section III - Premiums
 Subsection D - Premium On-Level Factors
 7/1/2016

Section III - D
 Exhibit 3

Calendar Year ("CY") Weights for On-Leveling Earned Premium

Policy Year (1)	Policy Month (2)	CY in which Premium is Earned (3)	Standard Earned Premium at Rate Level Effective			Earned Premiums (7)
			9/1/2008 (4)	9/1/2010 (5)	4/1/2014 (6)	
2010	12	2012		4,843		4,843
2011	1	2012		1,536,632		1,536,632
2011	2	2012		6,191,818		6,191,818
2011	3	2012		13,671,223		13,671,223
2011	4	2012		22,266,232		22,266,232
2011	5	2012		22,747,343		22,747,343
2011	6	2012		35,909,154		35,909,154
2011	7	2012		51,974,609		51,974,609
2011	8	2012		33,388,857		33,388,857
2011	9	2012		50,041,919		50,041,919
2011	10	2012		56,147,552		56,147,552
2011	11	2012		46,338,470		46,338,470
2011	12	2012		76,136,766		76,136,766
2012	1	2012		162,815,898		162,815,898
2012	2	2012		57,936,357		57,936,357
2012	3	2012		58,075,117		58,075,117
2012	4	2012		65,907,048		65,907,048
2012	5	2012		43,703,303		43,703,303
2012	6	2012		46,624,690		46,624,690
2012	7	2012		51,905,029		51,905,029
2012	8	2012		23,446,269		23,446,269
2012	9	2012		23,664,508		23,664,508
2012	10	2012		18,520,380		18,520,380
2012	11	2012		7,986,280		7,986,280
2012	12	2012		2,965,698		2,965,698
Total		2012		979,905,994		979,905,994

2011	12	2013		258		258
2012	1	2013		1,645,600		1,645,600
2012	2	2013		6,358,647		6,358,647
2012	3	2013		13,558,279		13,558,279
2012	4	2013		23,289,734		23,289,734
2012	5	2013		22,846,693		22,846,693
2012	6	2013		36,655,731		36,655,731
2012	7	2013		52,378,096		52,378,096
2012	8	2013		34,521,107		34,521,107
2012	9	2013		53,498,383		53,498,383
2012	10	2013		60,593,511		60,593,511
2012	11	2013		46,371,667		46,371,667
2012	12	2013		74,471,473		74,471,473
2013	1	2013		166,602,204		166,602,204
2013	2	2013		57,248,744		57,248,744
2013	3	2013		61,405,792		61,405,792
2013	4	2013		69,465,777		69,465,777
2013	5	2013		48,328,101		48,328,101
2013	6	2013		53,682,351		53,682,351
2013	7	2013		53,464,983		53,464,983
2013	8	2013		26,445,642		26,445,642
2013	9	2013		23,516,380		23,516,380
2013	10	2013		18,222,532		18,222,532
2013	11	2013		8,644,615		8,644,615
2013	12	2013		3,048,218		3,048,218
Total		2013		1,016,264,518		1,016,264,518

Rate Level Effective Date (8)	Calendar Year Earned Weights	
	2012 (9)	2013 (10)
9/1/2008		
9/1/2010	100.0%	100.0%
4/1/2014		

Notes:

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

(4),(5),(6): From Unit Statistical Plan Data.

(9),(10) = [CY Total of (4), (5) or (6)] / [CY Total of (7)]

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Section III - Premiums
 Subsection D - Premium On-Level Factors
 7/1/2016

Section III - D
 Exhibit 4

Calendar Year ("CY") Weights for On-Leveling Earned Premium

Policy Year (1)	Policy Month (2)	CY in which Premium is Earned (3)	Standard Earned Premium at Rate Level Effective			PY Premiums Earned During CY (7)
			9/1/2008 (4)	9/1/2010 (5)	4/1/2014 (6)	
2012	12	2014				0
2013	1	2014		1,720,032		1,720,032
2013	2	2014		6,277,175		6,277,175
2013	3	2014		14,378,215		14,378,215
2013	4	2014		24,443,876		24,443,876
2013	5	2014		24,877,026		24,877,026
2013	6	2014		42,169,778		42,169,778
2013	7	2014		53,231,846		53,231,846
2013	8	2014		38,689,323		38,689,323
2013	9	2014		53,224,937		53,224,937
2013	10	2014		58,766,856		58,766,856
2013	11	2014		49,377,332		49,377,332
2013	12	2014		79,483,643		79,483,643
2014	1	2014		171,772,717		171,772,717
2014	2	2014		59,037,175		59,037,175
2014	3	2014		63,314,428		63,314,428
2014	4	2014			71,623,956	71,623,956
2014	5	2014			49,830,385	49,830,385
2014	6	2014			55,350,211	55,350,211
2014	7	2014			55,124,602	55,124,602
2014	8	2014			27,267,426	27,267,426
2014	9	2014			24,246,540	24,246,540
2014	10	2014			18,788,597	18,788,597
2014	11	2014			8,913,254	8,913,254
2014	12	2014			3,142,913	3,142,913
	Total	2014		740,764,360	314,287,884	1,055,052,244

Rate Level Effective Date (8)	Calendar Year Earned Weights
	2014 (9)
9/1/2008	
9/1/2010	70.2%
4/1/2014	29.8%

Notes:

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

(4),(5),(6): From Unit Statistical Plan Data. PY 2014 based on PY 2013 data subject to adjustments for rate level, exposure growth, and wage changes.

(9) = [CY Total of (4), (5) or (6)] / [CY Total of (7)]

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Section III - Premiums
Subsection E - Premium Adjustment Factors
7/1/2016

Section III - E
Exhibit 1

Calculation of Premium Adjustment Factor PY 2013 to Prospective Effective Period 7/1/2016 - 6/30/2017

(1)	Wage Trend from PY 2013 to Prospective Effective Period 7/1/2016 - 6/30/2017	1.093		
(2)	Exposure Growth	1.093		
(3)	Rate On-Level Factor	1.000		
(4)	Overall Indicated Rate Change for Policies Effective 7/1/2016	1.064		
(5)	Adjustment Factor to Balance Experience Rating, ARAP, and Construction Credits	1.015		
(6)	Impact of Change in Indicated Loading for Recoupment of Insolvency Fund Assessments	0.998		
(7)	Adjustment Factor = (1) x (2) x (3) x (4) x (5) x (6)	1.286		
(8)	<table border="1"><tr><td>Selected Factor</td><td>1.29</td></tr></table>	Selected Factor	1.29	1.29
Selected Factor	1.29			

Notes:

(1): Statewide Average Weekly Wage for PY 2013 (Section V-G, Exhibit 2)	1,225.60
Statewide Average Weekly Wage for 10/1/2015, based on data period 4/1/14 to 4/1/15 (Section V-G, Exhibit 2)	1,256.47
Statewide Average Weekly Wage at 7/1/2017 (using wage trend of 2.4%, Section V-A, Exhibit 3)	1,339.50
(2): Exposure growth from PY 2013 to Prospective Effective Period 7/1/2016 - 6/30/2017 (Section VI-G, Exhibit 1)	
(3): Section III-D Exhibit 1.	
(5): Exhibit 2.	
(6): PY 2013 factor to load for Recoupment of Insolvency Fund (Section III-C, Exhibit 1: [1.0 + (8)]).	1.000
Policy Effective factor to load for Recoupment of Insolvency Fund Assessments (Section I-E, Exhibit 1, Page 1).	0.998

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Section III - Premiums
Subsection E - Premium Adjustment Factors
7/1/2016

Section III - E
Exhibit 2

Factor to Balance Experience Rating, ARAP, and Construction Credit

Beginning Period - PY 2013

(1)	Anticipated Impact on Manual Rates of Experience Rating, ARAP, and Construction Credits	1.027
(2)	Actual Impact on Manual Rates of Experience Rating, ARAP, and Construction Credits	1.012
(3)	Ratio of Anticipated to Actual = (1) / (2)	1.015

Ending Period - Prospective Effective Period 7/1/2016 - 6/30/2017

(4)	Anticipated Impact on Manual Rates of Experience Rating, ARAP, and Construction Credits	1.004
(5)	Actual is Assumed to be equal to the Anticipated, Since the Actual Impact has yet to be Determined	1.004
(6)	Ratio of Anticipated to Actual is Assumed to be 1.000	1.000
(7)	Adjustment Factor to Balance Experience Rating, ARAP, and Construction Credits = (3) / (6)	1.015

Notes:

(1),(2): PY 2013, Section III-B, Exhibit 1.

(4),(5): Prospective Effective Period, Section IX-K, Exhibit 1.

BENEFIT CHANGE ADJUSTMENTS

In Section IV we calculate benefit change adjustment factors that are used in Sections I, II, V, VIII, IX, X, XI, and XII of the rate filing. Benefit change adjustment factors are used to adjust loss experience to the benefit level as of a given period or point in time.

Benefit Change Adjustments

The benefit change adjustments are summarized in Section IV-A, Exhibit 1. We calculate separate adjustments to bring indemnity and medical losses for policy years 2012 and 2013 to the July 1, 2016 benefit level, and additional adjustments to bring losses from the July 1, 2016 benefit level to the projected benefit level for the period the rates will be in effect. These benefit change adjustments are used in Section I of the filing. In the same exhibit we also present additional benefit level adjustments used in other sections of the filing.

Benefit changes considered in this section are the result of the reevaluations of the Statewide Average Weekly Wage (“SAWW”) made every October 1st by the Commonwealth’s Division of Unemployment Assistance.

In Section IV-B, we display in detail the derivation of our estimates of the effects of the changes in the SAWW announced in 2015 and projected for 2016 and 2017. Section IV-C summarizes the provisions of Chapter 398, showing benefits that are tied to the SAWW. Section IV-D contains backup data used in the evaluations. The model

underlying the estimates is described below. Section IV-E includes injury type weights, and Section IV-F details the USL&HW benefit level changes.

Section IV-B - Determination of the Effect of Announced SAWW Changes

Introduction

We use a version of the NCCI's "Automatics Model" to evaluate the effects of changes in the SAWW. The Automatics Model, a traditional approach, looks at benefits paid to average claimants.

Description of the Model

NCCI's "Automatics Model" is used to evaluate benefit changes that are dependent on changes in the SAWW. In Massachusetts, SAWW changes are announced every October. Indemnity benefits are generally determined as a percentage of the SAWW, subject to maximum and minimum amounts.

For each injury type, the indemnity benefits payable to an average claimant are determined before and after each announced SAWW change. The estimated impact of the change in the SAWW is calculated by comparing the "before" and "after" costs.

Section IV-B details the estimation of changes in the costs of benefits arising from changes in the SAWW effective October 1, 2015, and the projected SAWW changes of October 1, 2016 and October 1, 2017. Exhibit 1, pages 1 and 2, estimate the effect on fatal benefits. Exhibit 2 evaluates the effect on permanent total benefits. Exhibit 3 evaluates the effect on permanent partial benefits. Exhibit 4 looks at temporary total benefits.

Section IV-B, Exhibit 1 – Benefits for Fatal Claims

Fatal benefits are the sum of dependent survivor benefits plus burial payments, both of which are functions of the SAWW.¹ Expected dependent survivor payments are valued on page 1. The NCCI provided the WCRIBMA with the distribution of dependents by category - none, widow alone, widow with children, etc. For each category of dependents, the cost is estimated as the product of a contingent annuity value and an average weekly benefit.

The contingent annuity values represent the present value of a stream of payments of \$1 discounted to reflect not only the time value of money, but also the possible occurrence of a contingent event that would cause the payment stream to cease. Examples of contingent events that would affect dependent survivor benefits for workers' compensation include death or remarriage of the dependent survivor. The WCRIBMA estimated annuity values using the model that underlies the currently approved pension tables in the Massachusetts' Workers' Compensation Statistical Plan which assume an interest rate of 3.5% and COLA adjustments of 2.9%. The annuities reflect the appropriate U.S. life tables in all cases except for the category of "three orphans" and "widow with child(ren)," where an annuity certain was used to approximate joint survivorship.

Average weekly benefits before and after the SAWW revision are evaluated on page 2. The estimated average weekly benefit depends on the proportions of workers whose wages result in either the application of the statutory minimum benefit, the

¹ According to the National Funeral Directors Association, the "national median cost of a funeral for calendar year 2014 was \$7,181. If a vault is included, something that is typically required by a cemetery, the median cost is \$8,508. The cost does not take into account cemetery, monument or marker costs or miscellaneous cash-advance charges, such as for flowers or an obituary."

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application of the statutory maximum benefit, or a benefit that falls somewhere between the minimum and the maximum. As in the last filing these proportions come from the Massachusetts Wage Table (“Wage Table”). As shown in Section IV-D Exhibit 1, the Wage Table is based on Massachusetts workers’ compensation data from accident years 1987 to 1994.

Section IV-B, Exhibit 2 – Benefits for Permanent Total Cases

To evaluate the effect of announced SAWW changes on permanent total losses, we consider weekly wage loss benefits and specific injury payments separately, and then we weigh those benefits and payments together. Most permanent total payments are associated with weekly wage loss benefits. The statutory weekly wage loss benefit is two thirds of the pre-injury wage subject to a minimum and maximum. The minimum and maximum are a function of the promulgated SAWW. Therefore changes to the SAWW affect the average benefit paid. The second component we consider is specific injury payments. These benefits vary directly with the SAWW. Specific injury payments are made for the loss of use of body parts and determined as various multiples of the SAWW as listed in Section 36 of M.G.L. Chapter 152.

Section IV-B, Exhibit 3 – Benefits for Permanent Partial Cases

Permanent partial disability cases typically include a temporary period of total disability, referred to as the “healing period,” followed by a period of partial disability during which the worker has a wage earning capacity at a level below his pre-injury wage. Different benefit structures apply to the two periods. In addition, under Section 36 specific

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injury payments are made for the loss of use of various body parts. In this exhibit, we weight together the effect of the SAWW on wage loss, specific injury payments, and healing period payments, using weights provided by the NCCI.

Section IV-B, Exhibit 4 – Benefits for Temporary Total Cases

We evaluate the effect on temporary total benefits in Exhibit 4. Temporary total wage loss benefits under Section 34 of M.G.L. Chapter 152 provide an injured worker sixty percent of their pre-injury average weekly wage subject to a cap, the statutory maximum compensation rate, and a floor, the statutory minimum compensation rate. However, if the average weekly wage of the employee is less than the minimum compensation rate, his wage compensation rate is set equal to his average weekly wage.

Section IV-C – Provisions of the Law

Section IV-C summarizes the benefit changes due to the increase in the maximum and minimum weekly benefits. It includes both historical changes and projected changes.

Section IV-D – Massachusetts Data

Historical data used in the estimation of benefit change adjustments are shown in Section IV-D, along with the derivation of projected SAWW values. The WCRIBMA utilizes both historical DCI data and NCCI data.

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Section IV-E – Injury Type Weights

Unit Statistical Plan Data are used in Section IV-E to calculate the relative weights for indemnity and medical benefits for the various injury types. Injury type weights are estimated at two valuation points, ultimate and at fifth-report.

Section IV-F – Effects of USL&HW Benefit Changes

Section IV-F contains the derivation of benefit change adjustment factors related to claims paid or payable under the USL&HW Act. The calculations are analogous to those for state workers' compensation benefits in Section IV-A. The assumed changes in benefit levels used in Section IV-F are provided by NCCI.

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Section IV - Benefit Change Adjustments
 Subsection A - Summary
 7/1/2016

Section IV - A
 Exhibit 1

Benefit Level Adjustment Factors

All Injury Types

Time Period		Indemnity				Medical	Total
Beginning Period	Ending Period	Death	Permanent Total	Permanent Partial	Temporary Total	All Injury Types	All Injury Types
1/1/2016	Prosp. Eff. Period					1.007	1.000
PY 2012	1/1/2016					1.021	1.000
PY 2013	1/1/2016					1.016	1.000
PY 2004	Prosp. Eff. Period					1.093	1.036
PY 2005	Prosp. Eff. Period	1.052	1.059	1.106	1.032	1.082	1.032
PY 2006	Prosp. Eff. Period	1.047	1.051	1.090	1.028	1.070	1.032
PY 2007	Prosp. Eff. Period	1.041	1.042	1.074	1.023	1.059	1.032
PY 2008	Prosp. Eff. Period	1.035	1.034	1.059	1.018	1.047	1.024
PY 2009	Prosp. Eff. Period	1.033	1.031	1.054	1.016	1.043	1.002
PY 2010	Prosp. Eff. Period	1.033	1.032	1.055	1.017	1.044	1.000
PY 2011	Prosp. Eff. Period	1.030	1.027	1.046	1.015	1.037	1.000
PY 2012	Prosp. Eff. Period	1.025	1.020	1.035	1.011	1.028	1.000
PY 2013	Prosp. Eff. Period	1.023	1.017	1.030	1.010	1.023	1.000
PY 2011	CPY 2012_07	1.006	1.009	1.015	1.004		1.000
PY 2012	CPY 2013_07	1.004	1.004	1.008	1.003		1.000
PY 2013	CPY 2014_07	1.012	1.007	1.012	1.004		1.000
CPY 2012_07	Prosp. Eff. Period						1.016
CPY 2013_07	Prosp. Eff. Period						1.014
CPY 2014_07	Prosp. Eff. Period						1.009
CPY 2008_09	Prosp. Eff. Period						1.029
Prior Eff. Period (using benefit level projections from prior filing)	Prosp. Eff. Period					1.017	1.000
							1.012

Notes:

1/1/2016 refers to a point in time. All other time periods refer to Policy Years.

Example: PY 2005 to Prosp. Eff. Period for Permanent Partial = $1.106 = 1.131 / 1.023$

where 1.131 is the Index Factor for Prosp. Eff. Period and 1.023 is the Index Factor for PY 2005 for Indemnity Permanent Partial, from Exhibit 2.

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Section IV - Benefit Change Adjustments
 Subsection A - Summary
 7/1/2016

Section IV - A
 Exhibit 3

Historical and Estimated Benefit Level Changes

Effective Date (1)	Indemnity					Medical	Total
	Death (2)	Permanent Total (3)	Permanent Partial (4)	Temporary Total (5)	All Injury Types (6)	All Injury Types (7)	All Injury Types (8)
12/1/2002	0.0%	0.0%	0.0%	0.0%	0.0%	5.2%	2.0%
10/1/2003	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
9/1/2004	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%	0.5%
10/1/2004	0.5%	0.7%	1.2%	0.4%	0.9%	0.0%	0.6%
10/1/2005	0.5%	0.8%	1.5%	0.4%	1.1%	0.0%	0.7%
10/1/2006	0.5%	0.7%	1.5%	0.4%	1.1%	0.0%	0.7%
10/1/2007	0.6%	0.9%	1.4%	0.5%	1.1%	0.0%	0.7%
10/1/2008	0.6%	0.8%	1.5%	0.5%	1.2%	0.0%	0.7%
4/1/2009	0.0%	0.0%	0.0%	0.0%	0.0%	3.2%	1.3%
10/1/2009	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
10/1/2010	-0.1%	-0.1%	-0.2%	-0.1%	-0.2%	0.0%	-0.1%
10/1/2011	0.6%	0.8%	1.4%	0.4%	1.1%	0.0%	0.7%
10/1/2012	0.4%	0.6%	1.0%	0.3%	0.8%	0.0%	0.5%
10/1/2013	0.1%	0.1%	0.2%	0.1%	0.2%	0.0%	0.1%
10/1/2014	0.4%	0.5%	0.9%	0.3%	0.7%	0.0%	0.5%
3/24/2015	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
10/1/2015	0.5%	0.6%	1.1%	0.3%	0.8%	0.0%	0.5%
10/1/2016	0.3%	0.4%	0.7%	0.2%	0.6%	0.0%	0.4%
10/1/2017	0.4%	0.4%	0.7%	0.2%	0.6%	0.0%	0.4%

Notes:

Estimated changes for 10/1/2016 and 10/1/2017 use projected SAWW values for 10/1/2016 and 10/1/2017 .

Effects of SAWW Change

Person(s) Receiving Benefits (1)	Number of Cases (2)	Average Number of Dependents (3)	Average Arithmetic Age (4)	Annuity Symbol (5)	Annuity Value (6)	Effects of SAWW Change of 10/1/2014		Effects of SAWW Change of 3/24/2015		Effects of SAWW Change of 10/1/2015		Effects of SAWW Change of 10/1/2016		Effects of SAWW Change of 10/1/2017	
						10/1/2013 Cost (7)	10/1/2014 Cost (8)	10/1/2014 Cost (9)	3/24/2015 Cost (10)	10/1/2014 Cost (9)	10/1/2015 Cost (10)	10/1/2015 Cost (11)	10/1/2016 Cost (12)	10/1/2016 Cost (13)	10/1/2017 Cost (14)
None	204	0	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx
Spouse, No Children	212	1	40	$a_{40:\overline{Life}}$	26.24	196,482,397	197,274,363	201,248,094	201,248,094	201,248,094	202,181,180	206,295,490	206,937,650	206,513,768	207,322,334
Spouse with Children	407	1	38	$a_{38:\overline{Life}}$	26.26	377,582,961	379,104,892	386,741,268	386,741,268	386,741,268	388,534,390	396,440,917	397,674,967	396,860,387	398,414,217
Child(ren)		1.9	10	$a_{\overline{g}}$	7.45										
Orphan, No Sibling	21	1	13	$a_{13:\overline{5}}$	4.73	3,508,289	3,522,430	3,593,383	3,593,383	3,593,383	3,610,043	3,683,506	3,694,972	3,687,404	3,701,841
Orphan with Sibling(s)	15	2.5	12	$a_{\overline{g}}$	5.65	2,994,493	3,006,563	3,067,125	3,067,125	3,067,125	3,081,345	3,144,049	3,153,836	3,147,376	3,159,699
Other Dependents (No Spouse)	141	1.7	58	$a_{58:\overline{Life}}$	20.14	19,589,396	19,589,396	19,589,740	19,589,740	19,589,740	19,589,740	19,590,092	19,590,092	19,590,133	19,590,133
(15) Total Survivor Benefits	1,000					600,157,536	602,497,643	614,239,609	614,239,609	614,239,609	616,996,698	629,154,054	631,051,517	629,799,068	632,188,225
(16) Cost of Burial (1,000 cases)						4,000,000	4,000,000	4,000,000	9,719,920	9,719,920	10,051,760	10,051,760	10,288,391	10,288,391	10,530,592
(17) Total Monetary Cost [= (15) + (16)]						604,157,536	606,497,643	618,239,609	623,959,529	623,959,529	627,048,458	639,205,814	641,339,908	640,087,459	642,718,817
(18) Fatal Benefit Change Factors							1.004		1.009		1.005		1.003		1.004

Notes:

- (2), (3): Section IV-D, Exhibit 2.
- (4): Section IV-D, Exhibit 2, Column(4) rounded to nearest whole number.
- (5): For two or more dependents, benefits are last-survivor contingent. An annuity certain is used to approximate the joint-survivor annuity for "Child(ren)" and "Orphan with Sibling(s)".
- (6): Life annuity values from *Massachusetts Workers' Compensation Statistical Plan*, Part I, Section IX (Effective 4/1/2015).
- Annuity certain values assume the same discount rate and elevation rate used in the derivation of the Pension Tables contained in the *Massachusetts Workers' Compensation Statistical Plan*.
- (7), (9), (11), (13) = $52 \times (2) \times (6) \times [\text{Page 2, (14)}]$ for Spouses and Orphans and = $52 \times (2) \times (3) \times (6) \times [\text{Page 2, (30)}]$ for All Others Dependents
- (8), (10), (12), (14) = $52 \times (2) \times (6) \times [\text{Page 2, (15)}]$ for Spouses and Orphans and = $52 \times (2) \times (3) \times (6) \times [\text{Page 2, (31)}]$ for All Others Dependents
- (16): Since average cost of a funeral in 2011 was approximately \$6,500, well above the statutory maximum, we assume funeral benefit equal to statutory maximum.
- (18): Ratio of (17) for later date to (17) for earlier date.

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Determination of the Average Weekly Survivor Benefit for Fatalities

Fatal: Spouse and Orphans - Effective 10/1/2014

(1)	Nominal Rate of Compensation Based on Gross Wages ("Comp. Rate")	66.67%
(2)	Min Weekly Compensation	110.00
(3)	Max Weekly Compensation	1,214.99
(4)	Average Injured Worker Weekly Wage ("AIWWW") for 12 months starting 10/1/2014	1,051.33

Wage Intervals (5)	Benefit (6)	Wage Distribution Entry Ratios = (5) / (4) (7)		Percentage in Interval		Average Wage in Interval = (9) / (8) x (4) (10)	Average Benefit in Interval (11)
				Workers (8)	Wages (9)		
0.00 165.00	Statutory Minimum	0.00	0.15	0.42%	0.04%	102.01	110.00
165.00 1,822.49	Actual Wage x Comp. Rate	0.15	1.75	92.44%	84.88%	965.31	643.54
1,822.49 over	Statutory Maximum	1.75	over	7.14%	15.08%	2,220.89	1,214.99

(12) Average Weekly Benefit **682.10**

	Effects of SAWW Change			
	10/1/2014	10/1/2015	10/1/2016	10/1/2017
(13) Starting date of 12 month period for AIWWW				
(14) Benefits Effective	10/1/2013	10/1/2014	10/1/2015	10/1/2016
Average Weekly Benefits	679.37	695.84	713.30	714.05
(15) Benefits Effective	10/1/2014	10/1/2015	10/1/2016	10/1/2017
Average Weekly Benefits	682.10	699.07	715.52	716.85
(16) Fatal: Spouse and Orphans Benefit Change Factors	1.004	1.005	1.003	1.004

Fatal: All Others - Effective 10/1/2014

(17)	Nominal Rate of Compensation Based on Gross Wages ("Comp. Rate")	66.67%
(18)	Min Weekly Compensation	0.00
(19)	Max Weekly Compensation	80.00
(20)	Average Injured Worker Weekly Wage ("AIWWW") for 12 months starting 10/1/2014	1,051.33

Wage Intervals (21)	Benefit (22)	Wage Distribution Entry Ratios = (21) / (20) (23)		Percentage in Interval		Average Wage in Interval = (25) / (24) x (20) (26)	Average Benefit in Interval (27)
				Workers (24)	Wages (25)		
0.00 0.00	Statutory Minimum	0.00	0.00	0.00%	0.00%	0.00	0.00
0.00 120.00	Actual Wage x Comp. Rate	0.00	0.10	0.18%	0.01%	50.60	33.73
120.00 over	Statutory Maximum	0.10	over	99.82%	99.99%	1,053.10	80.00

(28) Average Weekly Benefit **79.92**

	Effects of SAWW Change			
	10/1/2014	10/1/2015	10/1/2016	10/1/2017
(29) Starting date of 12 month period for AIWWW				
(30) Benefits Effective	10/1/2013	10/1/2014	10/1/2015	10/1/2016
Average Weekly Benefits	79.92	79.92	79.92	79.92
(31) Benefits Effective	10/1/2014	10/1/2015	10/1/2016	10/1/2017
Average Weekly Benefits	79.92	79.92	79.92	79.92
(32) Fatal: All Others Benefit Change Factors	1.000	1.000	1.000	1.000

Notes:

- (1)-(3), (17)-(19): Section IV-C, Exhibit 1.
- (4), (20): Section IV-D, Exhibit 3.
- (5), (21): Wage Intervals follow Massachusetts General Law = (2) / (1)
- (7), (23): Rounded to nearest 0.05.
- (8), (24): Section IV-D, Exhibit 1, column (2).
- (9), (25): Section IV-D, Exhibit 1, column (3).
- (11), (27): Comp Rate x Average Wage in Interval, subject to a statutory maximum and statutory minimum.
- (12) = Sum [(8) x (11)]
- (28) = Sum [(24) x (27)]
- (14), (15): Average Weekly Benefits results from an Excel Data Table that repeats the calculation of (12) for different dates.
- (16) = (15) / (14)
- (30), (31): Average Weekly Benefits results from an Excel Data Table that repeats the calculation of (28) for different dates.
- (32) = (31) / (30)

IV 000012

Section IV - Benefit Change Adjustments
 Subsection B - Effects of SAWW Change
 7/1/2016

Section IV-B
 Exhibit 2

Determination of the Average Weekly Benefit for Permanent Totals

Permanent Total - Effective 10/1/2014

(1)	Nominal Rate of Compensation Based on Gross Wages ("Comp. Rate")	66.67%
(2)	Min Weekly Compensation	243.00
(3)	Max Weekly Compensation	1,214.99
(4)	Average Injured Worker Weekly Wage ("AIWWW") for 12 months starting 10/1/2014	1051.33

Wage Intervals (5)		Benefit (6)	Wage Distribution Entry Ratios = (5) / (4) (7)		Percentage in Interval		Average Wage in Interval = (9) / (8) x (4) (10)	Average Benefit in Interval (11)
					Workers (8)	Wages (9)		
0.00	364.50	Statutory Minimum	0.00	0.35	5.07%	1.29%	267.30	243.00
364.50	1,822.49	Actual Wage x Comp. Rate	0.35	1.75	87.79%	83.63%	1,001.49	667.66
1,822.49	over	Statutory Maximum	1.75	over	7.14%	15.08%	2,220.89	1,214.99

(12) Average Weekly Benefit **685.21**

	Effects of SAWW Change			
	10/1/2014	10/1/2015	10/1/2016	10/1/2017
(13) Starting date of 12 month period for AIWWW	10/1/2014	10/1/2015	10/1/2016	10/1/2017
(14) Benefits Effective	10/1/2013	10/1/2014	10/1/2015	10/1/2016
Average Weekly Wage Loss Benefit	682.13	698.75	716.41	733.27
(15) Benefits Effective	10/1/2014	10/1/2015	10/1/2016	10/1/2017
Average Weekly Wage Loss Benefit	685.21	702.39	718.93	735.85
(16) Permanent Total Wage Loss Benefit Change Factors	1.005	1.005	1.004	1.004
(17) Specific Injury Benefits				
SAWW Effect on Specific Injury Benefits	1.029	1.034	1.024	1.024
(18) Benefit Proportions Associated with Permanent Total Claims				
(a) Permanent Total Wage Loss Benefits	96.50%	96.50%	96.50%	96.50%
(b) Specific Injury Benefits	3.50%	3.50%	3.50%	3.50%
(19) Permanent Total Benefit Change Factors				
= [(16) x (18a)] + [(17) x (18b)]	1.005	1.006	1.004	1.004

Notes:

- (1), (2), (3): Section IV-C, Exhibit 1.
- (4): Section IV-D, Exhibit 3.
- (5): Wage Intervals follow Massachusetts General Law = (2) / (1)
- (7): Rounded to nearest 0.05.
- (8): Section IV-D, Exhibit 1, column (2).
- (9): Section IV-D, Exhibit 1, column (3).
- (11): Comp Rate x Average Wage in Interval, subject to a statutory maximum and statutory minimum.
- (12) = Sum [(8) x (11)]
- (14), (15): Average Weekly Benefits results from an Excel Data Table that repeats the calculation of (12) for different dates.
- (16) = (15) / (14)
- (17): Ratio of SAWW from Section IV-D, Exhibit 3.
 Example: Effect of SAWW Change of 10/1/2015 = SAWW 10/1/2015 / SAWW 10/1/2014 = 1.034 = 1,256.47 / 1,214.99
- (18): Estimated Average Schedule Benefit compared to Average Indemnity Cost per Claim.
 DCI data for Permanent Total Claims in Massachusetts.

IV 000013

Section IV - Benefit Change Adjustments
 Subsection B - Effects of SAWW Change
 7/1/2016

Section IV-B
 Exhibit 3

Determination of the Average Weekly Benefit for Permanent Partials

Permanent Partial - Effective 10/1/2014

(1)	Nominal Rate of Compensation Based on Gross Wages ("Comp. Rate")	37.20%
(2)	Min Weekly Compensation	0.00
(3)	Max Weekly Compensation	911.24
(4)	Average Injured Worker Weekly Wage ("AIWWW") for 12 months starting 10/1/2014	1,051.33
(5)	SAWW effective 10/1/2014	1,214.99

Wage Intervals (6)	Benefit (7)	Wage Distribution Entry Ratios = (6) / (4) (8)		Percentage in Interval		Average Wage in Interval =(10) / (9) x (4) (11)	Average Benefit in Interval (12)	
		Workers (9)	Wages (10)	Workers (9)	Wages (10)			
0.00	2,449.58	Actual Wage x Comp. Rate	0.00	2.35	99.02%	96.95%	1,029.45	382.96
2,449.58	3,996.68	Statutory Maximum	2.35	3.80	0.83%	2.30%	2,894.17	911.24
3,996.68	6,394.68	Statutorily Reduced	3.80	6.10	0.11%	0.52%	4,821.16	597.94
6,394.68	over	Exceeds Statutory Limit	6.10	over	0.04%	0.23%	6,488.80	0.00

(13) Average Weekly Benefit 387.46

	Effects of SAWW Change			
	10/1/2014	10/1/2015	10/1/2016	10/1/2017
(14) Starting date of 12 month period for AIWWW	10/1/2014	10/1/2015	10/1/2016	10/1/2017
(15) Benefits Effective	10/1/2013	10/1/2014	10/1/2015	10/1/2016
Average Weekly Wage Loss Benefit	387.13	396.31	405.76	415.32
(16) Benefits Effective	10/1/2014	10/1/2015	10/1/2016	10/1/2017
Average Weekly Wage Loss Benefit	387.46	396.69	406.03	415.59
(17) Permanent Partial Wage Loss Benefit Change Factors	1.001	1.001	1.001	1.001
(18) Specific Injury Benefits				
SAWW Effect on Specific Injury Benefits	1.029	1.034	1.024	1.024
(19) Permanent Partial Healing Period				
Effect on Healing Period Benefits	1.003	1.003	1.002	1.002
(20) Benefit Proportions Associated with Permanent Partial Claims				
(a) Permanent Partial Wage Loss Benefits	27%	27%	27%	27%
(b) Specific Injury Benefits	26%	26%	26%	26%
(c) Healing Period - Temporary Total Benefits	47%	47%	47%	47%
(21) Permanent Partial Benefit Change Factors	1.009	1.011	1.007	1.007
= [(17) x (20a)] + [(18) x (20b)] + [(19) x (20c)]				

Notes:

- (1), (2), (3): Section IV-C, Exhibit 1.
- (4), (5): Section IV-D, Exhibit 3.
- (6): Wage Intervals follow Massachusetts General Law = (2) / (1)
- (7): Statutory Maximum: Insurer may reduce benefit to level at which benefits + earnings = 2 x SAWW.
- (8): Rounded to nearest 0.05.
- (9): Section IV-D, Exhibit 1, column (2).
- (10): Section IV-D, Exhibit 1, column (3).
- (12): Comp Rate x Average Wage in Interval, subject to a statutory maximum and a statutory limitation.
- (13) = Sum [(9) x (12)]
- (15), (16): Average Weekly Benefits results from an Excel Data Table that repeats the calculation of (13) for different dates.
- (17) = (16) / (15)
- (18): Ratio of SAWW from Section IV-D, Exhibit 3.
 Example: Effect of SAWW Change of 10/1/2015 = 1.034 = 1,256.47 / 1,214.99
- (19): Temporary Total Benefit Change Factors, Exhibit 4.
- (20): DCI data for Permanent Partial Claims in Massachusetts.

IV 000014

Section IV - Benefit Change Adjustments
 Subsection B - Effects of SAWW Change
 7/1/2016

Section IV-B
 Exhibit 4

Determination of the Average Weekly Benefit for Temporary Totals

Temporary Total - Effective 10/1/2014

(1)	Nominal Rate of Compensation Based on Gross Wages ("Comp. Rate")	60.00%
(2)	Min Weekly Compensation	243.00
(3)	Max Weekly Compensation	1,214.99
(4)	Average Injured Worker Weekly Wage ("AIWWW") for 12 months starting 10/1/2014	1,051.33

Wage Intervals (5)	Benefit (6)	Wage Distribution Entry Ratios = (5) / (4) (7)		Percentage in Interval		Average Wage in Interval = (9) / (8) x (4) (10)	Average Benefit in Interval (11)
				Workers (8)	Wages (9)		
0.00 243.00	Actual Wage	0.00	0.25	2.23%	0.43%	203.68	203.68
243.00 405.00	Statutory Minimum	0.25	0.40	4.62%	1.53%	347.42	243.00
405.00 2,024.98	Actual Wage x Comp. Rate	0.40	1.95	89.39%	89.19%	1,048.97	629.38
2,024.98 over	Statutory Maximum	1.95	over	3.76%	8.85%	2,474.28	1,214.99

(12) Average Weekly Benefit **624.07**

	Effects of SAWW Change			
	10/1/2014	10/1/2015	10/1/2016	10/1/2017
(13) Starting date of 12 month period for AIWW	10/1/2014	10/1/2015	10/1/2016	10/1/2017
(14) Benefits Effective Average Weekly Benefits	10/1/2013 622.18	10/1/2014 637.21	10/1/2015 652.91	10/1/2016 668.28
(15) Benefits Effective Average Weekly Benefits	10/1/2014 624.07	10/1/2015 639.37	10/1/2016 654.42	10/1/2017 669.82
(16) Temporary Total Benefit Change Factors	1.003	1.003	1.002	1.002

Notes:

- (1), (2), (3): Section IV-C, Exhibit 1.
- (4): Section IV-D, Exhibit 3.
- (5): Wage Intervals follow Massachusetts General Law = (2) / (1)
- (7): Rounded to nearest 0.05.
- (8): Section IV-D, Exhibit 1, column (2).
- (9): Section IV-D, Exhibit 1, column (3).
- (11): Comp Rate x Average Wage in Interval, subject to a statutory maximum and statutory minimum, unless the actual wage is less than the statutory minimum.
- (12) = Sum [(8) x (11)]
- (14), (15): Average Weekly Benefits results from an Excel Data Table that repeats the calculation of (12) for different dates.
- (16) = (15) / (14)

Summary of Principal Benefit Changes Due to the Increase in the Maximum and Minimum Weekly Benefits

	10/1/2013	10/1/2014	3/24/2015	10/1/2015	10/1/2016	10/1/2017
(1) Fatal						
% Rate of Compensation	66.67%	66.67%	66.67%	66.67%	66.67%	66.67%
Minimum Weekly Benefit						
Widow/Orphan	\$110.00	\$110.00	\$110.00	\$110.00	\$110.00	\$110.00
Others	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Maximum Weekly Benefit						
Widow/Orphan	\$1,181.28	\$1,214.99	\$1,214.99	\$1,256.47	\$1,286.05	\$1,316.32
Others	\$80.00	\$80.00	\$80.00	\$80.00	\$80.00	\$80.00
Each Additional Child	\$6.00, if benefit under \$150.00	\$6.00, if benefit under \$150.00	\$6.00, if benefit under \$150.00	\$6.00, if benefit under \$150.00	\$6.00, if benefit under \$150.00	\$6.00, if benefit under \$150.00
Maximum Aggregate Payable	250 x SAWW	250 x SAWW	250 x SAWW	250 x SAWW	250 x SAWW	250 x SAWW
Burial Allowance	\$4,000	\$4,000	8 x SAWW	8 x SAWW	8 x SAWW	8 x SAWW
Cost of Living Adjustment - benefits increase annually by:	Each October 1 after 2 years after injury. Based on the lesser of 5%, N.E. region urban area CPI, and the % change in the SAWW	Each October 1 after 2 years after injury. Based on the lesser of 5%, N.E. region urban area CPI, and the % change in the SAWW	Each October 1 after 2 years after injury. Based on the lesser of 5%, N.E. region urban area CPI, and the % change in the SAWW	Each October 1 after 2 years after injury. Based on the lesser of 5%, N.E. region urban area CPI, and the % change in the SAWW	Each October 1 after 2 years after injury. Based on the lesser of 5%, N.E. region urban area CPI, and the % change in the SAWW	Each October 1 after 2 years after injury. Based on the lesser of 5%, N.E. region urban area CPI, and the % change in the SAWW
(2) Total Disability						
Permanent Total						
% Rate of Compensation	66.67%	66.67%	66.67%	66.67%	66.67%	66.67%
Minimum Weekly Benefit	\$236.26	\$243.00	\$243.00	\$251.29	\$257.21	\$263.26
Maximum Weekly Benefit	\$1,181.28	\$1,214.99	\$1,214.99	\$1,256.47	\$1,286.05	\$1,316.32
Duration	Lifetime	Lifetime	Lifetime	Lifetime	Lifetime	Lifetime
Cost of Living Adjustment - benefits increase annually by:	Same as Fatal	Same as Fatal	Same as Fatal	Same as Fatal	Same as Fatal	Same as Fatal
Temporary Total						
% Rate of Compensation	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%
Minimum Weekly Benefit	\$236.26	\$243.00	\$243.00	\$251.29	\$257.21	\$263.26
Maximum Weekly Benefit	\$1,181.28	\$1,214.99	\$1,214.99	\$1,256.47	\$1,286.05	\$1,316.32
Waiting Period/Retroactive After	5 days/21 days	5 days/21 days	5 days/21 days	5 days/21 days	5 days/21 days	5 days/21 days
(3) Permanent Partial Disability						
% Rate of Compensation	37.20%	37.20%	37.20%	37.20%	37.20%	37.20%
Minimum Weekly Benefit	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Maximum Weekly Benefit	\$885.96	\$911.24	\$911.24	\$942.35	\$964.54	\$987.24
(4) Specific Injury Payments						
Scheduled Injuries	According to the injury, a scheduled number multiplied by the SAWW	According to the injury, a scheduled number multiplied by the SAWW	According to the injury, a scheduled number multiplied by the SAWW	According to the injury, a scheduled number multiplied by the SAWW	According to the injury, a scheduled number multiplied by the SAWW	According to the injury, a scheduled number multiplied by the SAWW
Non-Scheduled Injuries	32 x SAWW	32 x SAWW	32 x SAWW	32 x SAWW	32 x SAWW	32 x SAWW
Disfigurement						
Maximum Benefit	\$15,000	\$15,000.00	\$15,000.00	\$15,000.00	\$15,000.00	\$15,000.00
Benefit	As determined by the reviewing board	As determined by the reviewing board	As determined by the reviewing board	As determined by the reviewing board	As determined by the reviewing board	As determined by the reviewing board

Notes:

Source: The General Laws of Massachusetts, Chapter 152, Sections 31-36.

(1), (2): Maximum Weekly Benefit for Fatalities and Total Disabilities is 100% of the SAWW.

(2): Minimum Weekly Benefit for Total Disability is 20% of the SAWW.

(3): Maximum Weekly Benefit for Permanent Partial is 75% of the SAWW. There is no Minimum Weekly Benefit for Permanent Partial Disability.

(3): Permanent Partial % Rate of Compensation is 60% of 62%, the lost wage-earning capacity, Section IV-D, Exhibit 4.

Values in Italics are Projected

IV 000015

IV 000016

Section IV - Benefit Change Adjustments
 Subsection D - Massachusetts Data
 7/1/2016

Section IV-D
 Exhibit 1

Massachusetts Standard Wage Distribution Table

R = Entry Ratio to Average Wage

A = Percentage of workers receiving not more than the percentage of the average wage indicated by column R

B = Percentage of wages received by the % of workers in column A

R (1)	A (2)	B (3)	R (1)	A (2)	B (3)	R (1)	A (2)	B (3)
0.05	0.0856	0.0013	2.40	99.1195	97.2019	4.75	99.9236	99.5618
0.10	0.1766	0.0085	2.45	99.2068	97.4138	4.80	99.9259	99.5728
0.15	0.4174	0.0405	2.50	99.2808	97.5971	4.85	99.9281	99.5834
0.20	0.9257	0.1319	2.55	99.3443	97.7576	4.90	99.9302	99.5937
0.25	2.2314	0.4323	2.60	99.3993	97.8994	4.95	99.9322	99.6035
0.30	3.5317	0.7887	2.65	99.4474	98.0258	5.00	99.9342	99.6135
0.35	5.0674	1.2884	2.70	99.4897	98.1390	5.05	99.9360	99.6226
0.40	6.8493	1.9583	2.75	99.5271	98.2411	5.10	99.9378	99.6317
0.45	8.8185	2.8024	2.80	99.5604	98.3335	5.15	99.9395	99.6404
0.50	11.3281	4.0021	2.85	99.5902	98.4178	5.20	99.9412	99.6492
0.55	14.4745	5.6622	2.90	99.6170	98.4949	5.25	99.9428	99.6576
0.60	18.4932	7.9785	2.95	99.6412	98.5658	5.30	99.9443	99.6655
0.65	23.0308	10.8200	3.00	99.6631	98.6310	5.35	99.9458	99.6735
0.70	28.5691	14.5564	3.05	99.6831	98.6915	5.40	99.9472	99.6810
0.75	35.0225	19.2288	3.10	99.7013	98.7475	5.45	99.9486	99.6886
0.80	40.0471	23.1320	3.15	99.7180	98.7998	5.50	99.9499	99.6957
0.85	44.3868	26.7137	3.20	99.7333	98.8484	5.55	99.9512	99.7029
0.90	48.9940	30.7458	3.25	99.7474	98.8939	5.60	99.9524	99.7096
0.95	53.5531	34.9727	3.30	99.7604	98.9365	5.65	99.9536	99.7164
1.00	57.4700	38.7995	3.35	99.7724	98.9764	5.70	99.9547	99.7226
1.05	61.0338	42.4490	3.40	99.7836	99.0143	5.75	99.9558	99.7289
1.10	64.9829	46.6881	3.45	99.7939	99.0496	5.80	99.9569	99.7353
1.15	68.2577	50.3695	3.50	99.8035	99.0829	5.85	99.9579	99.7411
1.20	71.1419	53.7606	3.55	99.8125	99.1147	5.90	99.9589	99.7470
1.25	73.9565	57.2095	3.60	99.8209	99.1447	5.95	99.9599	99.7529
1.30	76.3431	60.2534	3.65	99.8288	99.1734	6.00	99.9608	99.7583
1.35	78.8313	63.5465	3.70	99.8361	99.2002	6.05	99.9617	99.7637
1.40	80.9932	66.5149	3.75	99.8430	99.2260	6.10	99.9626	99.7692
1.45	83.1764	69.6230	3.80	99.8495	99.2505	6.15	99.9634	99.7741
1.50	85.3328	72.8012	3.85	99.8556	99.2739	6.20	99.9643	99.7796
1.55	87.3234	75.8346	3.90	99.8613	99.2960	6.25	99.9650	99.7840
1.60	89.0732	78.5889	3.95	99.8667	99.3172	6.30	99.9658	99.7890
1.65	90.4645	80.8478	4.00	99.8718	99.3375	6.35	99.9666	99.7941
1.70	91.5989	82.7450	4.05	99.8767	99.3572	6.40	99.9673	99.7985
1.75	92.8617	84.9207	4.10	99.8812	99.3755	6.45	99.9680	99.8030
1.80	93.8677	86.7057	4.15	99.8856	99.3937	6.50	99.9687	99.8076
1.85	94.6704	88.1702	4.20	99.8897	99.4108	6.55	99.9693	99.8115
1.90	95.4837	89.6937	4.25	99.8935	99.4269	6.60	99.9700	99.8161
1.95	96.2382	91.1467	4.30	99.8972	99.4427	6.65	99.9706	99.8201
2.00	96.9125	92.4774	4.35	99.9008	99.4583	6.70	99.9712	99.8241
2.05	97.4495	93.5662	4.40	99.9041	99.4727	6.75	99.9718	99.8281
2.10	97.9350	94.5748	4.45	99.9073	99.4869	6.80	99.9724	99.8322
2.15	98.2808	95.3105	4.50	99.9103	99.5003	6.85	99.9729	99.8356
2.20	98.5368	95.8679	4.55	99.9132	99.5135	6.90	99.9735	99.8397
2.25	98.7336	96.3063	4.60	99.9160	99.5263	6.95	99.9740	99.8432
2.30	98.8893	96.6609	4.65	99.9186	99.5383	7.00	99.9745	99.8467
2.35	99.0155	96.9546	4.70	99.9211	99.5500			

Notes:

Based on Massachusetts workers' compensation data from accident years 1987 to 1994.

For $R > 2.00$, $B_i = B_{i-1} + [(0.55 \times R_i) + (0.45 \times R_{i-1})] \times (A_i - A_{i-1})$

IV 000017

Section IV - Benefit Change Adjustments
 Subsection D - Massachusetts Data
 7/1/2016

Section IV-D
 Exhibit 2

Dependency Table

Dependency Class (1)	Number of Cases (2)	Average Number of Dependents (3)	Average Dependent Age (4)
No Dependents	204	0	N/A
Spouse, No Children	212	1	40
Spouse with Children	153	1	38
1 Child		1	11
Spouse with Children	166	1	38
2 Children		2	10
Spouse with Children	63	1	37
3 Children		3	10
Spouse with Children	18	1	37
4 Children		4	10
Spouse with Children	5	1	37
5 Children		5	10
Spouse with Children	2	1	38
More than 5 Children		7	10
Spouse with Children	407	1	38
Summary		1.9	10
Orphan, No Sibling	21	1	13
1 Child			
Orphans with Sibling(s)	10	2	12
2 Children		3	12
3 Children	3	3	12
4 Children	1	4	12
More than 4 Children	1	5	12
Orphans with Sibling(s)	15	2.5	12
Summary			
Other Dependents (No Spouse)	41	1	62
1 Parent			
2 Parents	91	2	58
Sibling	7	1	37
Other	2	2	31
Other Dependents	141	1.7	58
Summary			

Notes:

Source: NCCI, CPS data, 1989-1993, reweighted using DCI Data for Fatalities, 1984-1993.

(2): Dependent count includes working adult household members standardized to a total of 1,000 cases.

Derivation of Estimated SAWW (Statewide Average Weekly Wage) and AIWWW (Average Injured Worker Weekly Wage)

SAWW Effective Date (1)	SAWW Based on Data (2)	Midpoint of the SAWW Data (3)	Actual SAWW (4)	Estimated Annual SAWW Trend Factor (5)	Actual and Projected SAWW (6)	AIWWW Period (7)	Effective AIWWW (8)
10/1/2013	4/1/12 to 4/1/13	10/1/2012	1,181.28		1,181.28	10/1/13 to 10/1/14	1,021.95
10/1/2014	4/1/13 to 4/1/14	10/1/2013	1,214.99		1,214.99	10/1/14 to 10/1/15	1,051.33
10/1/2015	4/1/14 to 4/1/15	10/1/2014	1,256.47		1,256.47	10/1/15 to 10/1/16	1,076.08
10/1/2016	4/1/15 to 4/1/16	10/1/2015		1.024	1,286.05	10/1/16 to 10/1/17	1,101.41
10/1/2017	4/1/16 to 4/1/17	10/1/2016		1.024	1,316.32	10/1/17 to 10/1/18	1,127.34

Notes:

- (4): Section V-G, Exhibit 2.
- (5): 2.4% Estimated Annual Trend in SAWW, Section V-A, Exhibit 1.
- (6) For SAWW Effective Date 10/1/2014 & 10/1/2015, (6) = (4)
 For SAWW Effective Date 10/1/2016 & 10/1/2017, (6) = (5) x (6 from Prior Period)
- (8): For the AIWWW Period 10/1/15 to 10/1/16, (8) is the product of .827 and the average of the SAWWs effective 10/1/2016 and 10/1/2017, respectively.
 For the AIWWW Periods 10/1/16 to 10/1/17 and 10/1/17 to 10/1/18, (8) = (5) x (8 from Prior Period).
 Historical Relationship of .827 for the ratio of AIWWW to SAWW is selected based on DCI data.
 4/1/1996: SAWW = 648, AIWWW = 536
 4/1/1994: SAWW = 595, AIWWW = 492

IV 000019

Section IV - Benefit Change Adjustments
 Subsection D - Massachusetts Data
 7/1/2016

Section IV-D
 Exhibit 4

Average Wage Loss for Permanent Partial Claimants

DCI Report Level	(Pre-Injury - Post-Injury) / Pre-Injury Wage					Average
	1979 (1)	1980 (2)	1981 (3)	1982 (4)	1983 (5)	
Average Wage Loss for Major Permanent Partial Claimants						
1	0.61	0.62	0.60	0.62	0.60	0.61
2	0.62	0.62	0.59	0.63	0.62	0.62
3	0.64	0.60	0.65	0.60		0.62
4	0.60	0.64	0.62			0.62
(6) Selected Average Wage Loss for Major Permanent Partial Claimants						0.62

Average Wage Loss for Minor Permanent Partial Claimants						
1	0.58	0.58	0.58	0.60	0.59	0.59
2	0.62	0.60	0.59	0.58	0.64	0.61
3	0.66	0.64	0.65	0.56		0.63
4	0.62	0.70	0.66			0.66
(7) Selected Average Wage Loss for Minor Permanent Partial Claimants						0.62

Notes:

Source: Detail Claim Information ("DCI") Data, compiled as of 10/1/1985.

(6), (7): These data were compiled prior to Chapter 398. To be consistent with Chapter 398, 62% will be used as the wage loss as a percent of pre-injury wage. The percent of that that is paid is 60% subject to maximums.

Post-Chapter 398 Injury Type Weights at 5th Report

Injury Type (1)	Policy Year (2)	Indemnity - Likely to Develop			Indemnity - Not Likely to Develop			Indemnity On-level Losses at Fifth Report = (5) + (8) (9)	Weights at 5th report (10)
		Losses at Fifth Report (3)	Benefit On-Level Factor to Prosp. Eff. Period (4)	On-level Losses at Fifth Report = (3) x (4) (5)	Losses at Fifth Report (6)	Benefit On-Level Factor to Prosp. Eff. Period (7)	On-level Losses at Fifth Report = (6) x (7) (8)		
Death	2005	3,905,032	1.052	4,108,400	9,690,411	1.052	10,195,073	14,303,474	
Death	2006	2,577,437	1.047	2,698,187	5,588,091	1.047	5,849,886	8,548,073	
Death	2007	2,485,219	1.041	2,587,053	6,414,478	1.041	6,677,316	9,264,369	
Death	2008	4,211,056	1.035	4,358,325	5,006,389	1.035	5,181,472	9,539,797	
Death	2009	1,444,202	1.033	1,491,628	6,993,542	1.033	7,223,204	8,714,833	
Total Death		14,622,946		15,243,593	33,692,911		35,126,952	50,370,545	1.81%
Permanent Total	2005	22,554,473	1.059	23,878,395	0	1.059	0	23,878,395	
Permanent Total	2006	31,142,625	1.051	32,730,244	0	1.051	0	32,730,244	
Permanent Total	2007	31,406,926	1.042	32,737,392	0	1.042	0	32,737,392	
Permanent Total	2008	32,238,746	1.034	33,335,257	0	1.034	0	33,335,257	
Permanent Total	2009	36,154,020	1.031	37,280,869	0	1.031	0	37,280,869	
Total Permanent Total		153,496,790		159,962,156	0		0	159,962,156	5.73%
Permanent Partial	2005	120,391,311	1.106	133,160,809	113,154,329	1.106	125,156,225	258,317,035	
Permanent Partial	2006	108,344,407	1.090	118,079,590	101,438,695	1.090	110,553,372	228,632,962	
Permanent Partial	2007	96,948,054	1.074	104,167,309	114,278,721	1.074	122,788,508	226,955,817	
Permanent Partial	2008	85,792,220	1.059	90,893,914	119,609,771	1.059	126,722,449	217,616,363	
Permanent Partial	2009	77,912,092	1.054	82,122,688	116,126,732	1.054	122,402,558	204,525,246	
Total Permanent Partial		489,388,084		528,424,311	564,608,248		607,623,112	1,136,047,423	40.73%
Temporary Total	2005	25,645,228	1.032	26,463,948	57,397,849	1.032	59,230,266	85,694,214	
Temporary Total	2006	27,769,894	1.028	28,542,214	61,137,709	1.028	62,838,035	91,380,248	
Temporary Total	2007	26,414,237	1.023	27,023,344	61,349,294	1.023	62,763,995	89,787,339	
Temporary Total	2008	25,772,236	1.018	26,239,686	62,248,241	1.018	63,377,283	89,616,968	
Temporary Total	2009	27,990,293	1.016	28,449,109	57,888,559	1.016	58,837,467	87,286,577	
Total Temporary Total		133,591,888		136,718,300	300,021,652		307,047,046	443,765,346	15.91%
(11) Total Indemnity		791,099,708		840,348,360	898,322,811		949,797,110	1,790,145,471	64.18%

IV 000020

- (12) Aggregate Financial Policy Year Call, Indemnity Fifth to Ultimate Development Factor Paid + Case 1.082
 (13) Tail Development Attributed to Likely to Develop Claims 0.8
 (14) Percentage Likely to Develop 0.469
 (15) Indemnity Likely to Develop - Loss Development Factor from 5th Report to Ultimate = $1.0 + \{ [(12) - 1.0] \times (13) \} / (14)$ 1.140
 (16) Indemnity Not Likely to Develop - Loss Development Factor from 5th Report to Ultimate = $1.0 + \{ [(12) - 1.0] \times [1.0 - (13)] \} / [1.0 - (14)]$ 1.031

Post-Chapter 398 Injury Type Weights at 5th Report

Injury Type (1)	Policy Year (2)	Medical - Likely to Develop			Medical - Not Likely to Develop			Medical On-level Losses at Fifth Report = (5) + (8) (9)	Weights at 5th report (10)
		Losses at Fifth Report (3)	Benefit On-Level Factor to Prosp. Eff. Period (4)	On-level Losses at Fifth Report = (3) x (4) (5)	Losses at Fifth Report (6)	Benefit On-Level Factor to Prosp. Eff. Period (7)	On-level Losses at Fifth Report = (6) x (7) (8)		
Death	2005	319,781	1.032	330,014	550,716	1.032	568,339	898,353	
Death	2006	44,965	1.032	46,404	296,470	1.032	305,957	352,361	
Death	2007	3,931,530	1.032	4,057,339	714,126	1.032	736,978	4,794,317	
Death	2008	38,596	1.024	39,536	278,090	1.024	284,865	324,401	
Death	2009	834,291	1.002	835,729	378,555	1.002	379,207	1,214,936	
Total Death		5,169,163		5,309,022	2,217,957		2,275,346	7,584,368	0.27%
Permanent Total	2005	21,183,498	1.032	21,861,370	0	1.032	0	21,861,370	
Permanent Total	2006	25,095,926	1.032	25,898,996	0	1.032	0	25,898,996	
Permanent Total	2007	12,166,839	1.032	12,556,178	0	1.032	0	12,556,178	
Permanent Total	2008	14,171,386	1.024	14,516,623	0	1.024	0	14,516,623	
Permanent Total	2009	19,400,533	1.002	19,433,968	0	1.002	0	19,433,968	
Total Permanent Total		92,018,182		94,267,135	0		0	94,267,135	3.38%
Permanent Partial	2005	50,150,368	1.032	51,755,180	42,571,430	1.032	43,933,716	95,688,896	
Permanent Partial	2006	46,823,409	1.032	48,321,758	37,322,177	1.032	38,516,487	86,838,245	
Permanent Partial	2007	44,352,317	1.032	45,771,591	44,359,983	1.032	45,779,502	91,551,094	
Permanent Partial	2008	33,750,124	1.024	34,572,330	44,900,412	1.024	45,994,257	80,566,587	
Permanent Partial	2009	37,739,430	1.002	37,804,471	49,981,208	1.002	50,067,347	87,871,818	
Total Permanent Partial		212,815,648		218,225,330	219,135,210		224,291,308	442,516,639	15.86%
Temporary Total	2005	15,575,393	1.032	16,073,806	45,646,112	1.032	47,106,788	63,180,593	
Temporary Total	2006	13,300,446	1.032	13,726,060	48,157,136	1.032	49,698,164	63,424,225	
Temporary Total	2007	13,944,083	1.032	14,390,294	50,373,527	1.032	51,985,480	66,375,774	
Temporary Total	2008	14,431,246	1.024	14,782,814	46,287,610	1.024	47,415,249	62,198,063	
Temporary Total	2009	13,247,417	1.002	13,270,248	46,283,629	1.002	46,363,395	59,633,643	
Total Temporary Total		70,498,585		72,243,221	236,748,014		242,569,076	314,812,297	11.29%
Medical Only	2005	0	1.032	0	29,007,660	1.032	29,935,905	29,935,905	
Medical Only	2006	0	1.032	0	28,416,079	1.032	29,325,394	29,325,394	
Medical Only	2007	0	1.032	0	28,898,333	1.032	29,823,080	29,823,080	
Medical Only	2008	0	1.024	0	26,426,881	1.024	27,070,681	27,070,681	
Medical Only	2009	0	1.002	0	23,865,970	1.002	23,907,101	23,907,101	
Total Medical Only		0		0	136,614,923		140,062,161	140,062,161	5.02%
(11) Total Medical		380,501,578		390,044,708	594,716,104		609,197,891	999,242,600	35.82%
(12) Total Medical & Indemnity		1,171,601,286		1,230,393,069	1,493,038,915		1,558,995,002	2,789,388,071	
(13) Medical Only fraction of Total Medical									14.02%

- (14) Aggregate Financial Policy Year Call, Medical Fifth to Ultimate Development Factor Paid + Case 1.056
- (15) Tail Development Attributed to Likely to Develop Claims 0.8
- (16) Percentage Likely to Develop 0.390
- (17) Medical Likely to Develop - Loss Development Factor from 5th Report to Ultimate = $1.0 + \{ [(14) - 1.0] \times (15) \} / (16)$ 1.115
- (18) Medical Not Likely to Develop - Loss Development Factor from 5th Report to Ultimate = $1.0 + \{ [(14) - 1.0] \times [1.0 - (15)] \} / [1.0 - (16)]$ 1.018
- (19) Indemnity Likely Weight at 5th Report 30.13%
- (20) Indemnity Not Likely Weight at 5th Report 34.05%
- (21) Medical Likely Weight at 5th Report 13.98%
- (22) Medical Not Likely Weight at 5th Report 21.84%

IV 000021

Post-Chapter 398 Injury Type Weights at Ultimate

Injury Type (1)	Policy Year (2)	Indemnity - Likely to Develop			Indemnity - Not Likely to Develop			Indemnity Ult. On-level Losses at Ultimate = (5) + (8) (9)	Weights at Ultimate (10)
		On-level Losses at Fifth Report (3)	Development Factors 5th to Ultimate (4)	Est. Ult On-level Losses = (3) x (4) (5)	On-level Losses at Fifth Report (6)	Development Factors 5th to Ultimate (7)	Est. Ult On-level Losses = (6) x (7) (8)		
Death	2005	4,108,400	1.140	4,684,677	10,195,073	1.031	10,511,386	15,196,063	
Death	2006	2,698,187	1.140	3,076,655	5,849,886	1.031	6,031,385	9,108,040	
Death	2007	2,587,053	1.140	2,949,933	6,677,316	1.031	6,884,487	9,834,421	
Death	2008	4,358,325	1.140	4,969,658	5,181,472	1.031	5,342,233	10,311,890	
Death	2009	1,491,628	1.140	1,700,856	7,223,204	1.031	7,447,312	9,148,168	
Total Death		15,243,593		17,381,779	35,126,952		36,216,803	53,598,582	1.79%
Permanent Total	2005	23,878,395	1.140	27,227,766	0	1.031	0	27,227,766	
Permanent Total	2006	32,730,244	1.140	37,321,245	0	1.031	0	37,321,245	
Permanent Total	2007	32,737,392	1.140	37,329,395	0	1.031	0	37,329,395	
Permanent Total	2008	33,335,257	1.140	38,011,121	0	1.031	0	38,011,121	
Permanent Total	2009	37,280,869	1.140	42,510,177	0	1.031	0	42,510,177	
Total Permanent Total		159,962,156		182,399,704	0		0	182,399,704	6.09%
Permanent Partial	2005	133,160,809	1.140	151,838,990	125,156,225	1.031	129,039,330	280,878,320	
Permanent Partial	2006	118,079,590	1.140	134,642,361	110,553,372	1.031	113,983,408	248,625,768	
Permanent Partial	2007	104,167,309	1.140	118,778,634	122,788,508	1.031	126,598,152	245,376,785	
Permanent Partial	2008	90,893,914	1.140	103,643,408	126,722,449	1.031	130,654,148	234,297,555	
Permanent Partial	2009	82,122,688	1.140	93,641,861	122,402,558	1.031	126,200,227	219,842,088	
Total Permanent Partial		528,424,311		602,545,253	607,623,112		626,475,265	1,229,020,517	41.07%
Temporary Total	2005	26,463,948	1.140	30,175,989	59,230,266	1.031	61,067,948	91,243,937	
Temporary Total	2006	28,542,214	1.140	32,545,769	62,838,035	1.031	64,787,651	97,333,420	
Temporary Total	2007	27,023,344	1.140	30,813,850	62,763,995	1.031	64,711,315	95,525,165	
Temporary Total	2008	26,239,686	1.140	29,920,270	63,377,283	1.031	65,343,630	95,263,900	
Temporary Total	2009	28,449,109	1.140	32,439,605	58,837,467	1.031	60,662,962	93,102,567	
Total Temporary Total		136,718,300		155,895,482	307,047,046		316,573,507	472,468,989	15.79%
(11) Total Indemnity		840,348,360		958,222,218	949,797,110		979,265,575	1,937,487,793	64.74%

IV 000022

Post-Chapter 398 Injury Type Weights at Ultimate

Injury Type (1)	Policy Year (2)	Medical - Likely to Develop			Medical - Not Likely to Develop			Medical On-level Losses at Ultimate = (5) + (8) (9)	Weights at Ultimate (10)
		On-level Losses at Fifth Report (3)	Development Factors 5th to Ultimate (4)	Est. Ult On-level Losses = (3) x (4) (5)	On-level Losses at Fifth Report (6)	Development Factors 5th to Ultimate (7)	Est. Ult On-level Losses = (6) x (7) (8)		
Death	2005	330,014	1.115	368,006	568,339	1.018	578,812	946,818	
Death	2006	46,404	1.115	51,746	305,957	1.018	311,595	363,341	
Death	2007	4,057,339	1.115	4,524,432	736,978	1.018	750,558	5,274,990	
Death	2008	39,536	1.115	44,088	284,865	1.018	290,114	334,202	
Death	2009	835,729	1.115	931,940	379,207	1.018	386,195	1,318,135	
Total Death		5,309,022		5,920,212	2,275,346		2,317,274	8,237,486	0.28%
Permanent Total	2005	21,861,370	1.115	24,378,114	0	1.018	0	24,378,114	
Permanent Total	2006	25,898,996	1.115	28,880,563	0	1.018	0	28,880,563	
Permanent Total	2007	12,556,178	1.115	14,001,681	0	1.018	0	14,001,681	
Permanent Total	2008	14,516,623	1.115	16,187,819	0	1.018	0	16,187,819	
Permanent Total	2009	19,433,968	1.115	21,671,263	0	1.018	0	21,671,263	
total Permanent Total		94,267,135		105,119,441	0		0	105,119,441	3.51%
Permanent Partial	2005	51,755,180	1.115	57,713,386	43,933,716	1.018	44,743,288	102,456,674	
Permanent Partial	2006	48,321,758	1.115	53,884,699	38,516,487	1.018	39,226,235	93,110,934	
Permanent Partial	2007	45,771,591	1.115	51,040,950	45,779,502	1.018	46,623,087	97,664,037	
Permanent Partial	2008	34,572,330	1.115	38,552,397	45,994,257	1.018	46,841,799	85,394,196	
Permanent Partial	2009	37,804,471	1.115	42,156,632	50,067,347	1.018	50,989,945	93,146,576	
total Permanent Partial		218,225,330		243,348,064	224,291,308		228,424,354	471,772,417	15.76%
Temporary Total	2005	16,073,806	1.115	17,924,269	47,106,788	1.018	47,974,831	65,899,099	
Temporary Total	2006	13,726,060	1.115	15,306,244	49,698,164	1.018	50,613,959	65,920,203	
Temporary Total	2007	14,390,294	1.115	16,046,946	51,985,480	1.018	52,943,423	68,990,369	
Temporary Total	2008	14,782,814	1.115	16,484,654	47,415,249	1.018	48,288,976	64,773,630	
Temporary Total	2009	13,270,248	1.115	14,797,957	46,363,395	1.018	47,217,740	62,015,697	
total Temporary Total		72,243,221		80,560,071	242,569,076		247,038,928	327,598,999	10.95%
Medical Only	2005	0	1.115	0	29,935,905	1.018	30,487,538	30,487,538	
Medical Only	2006	0	1.115	0	29,325,394	1.018	29,865,776	29,865,776	
Medical Only	2007	0	1.115	0	29,823,080	1.018	30,372,633	30,372,633	
Medical Only	2008	0	1.115	0	27,070,681	1.018	27,569,516	27,569,516	
Medical Only	2009	0	1.115	0	23,907,101	1.018	24,347,641	24,347,641	
Total Medical Only		0		0	140,062,161		142,643,105	142,643,105	4.77%
(11) Total Medical		390,044,708		434,947,787	609,197,891		620,423,661	1,055,371,449	35.26%
(12) Total Medical & Indemnity		1,230,393,069		1,393,170,006	1,558,995,002		1,599,689,236	2,992,859,242	
(13) Medical Only fraction of Total Medical									13.52%

Ind & Med N/L Weights at Ult	
Indemnity Likely	32.02%
Indemnity Not Likely	32.72%
Medical Likely	14.53%
Medical Not Likely	20.73%

IV 000023

USL&HW Benefit Level Factors

All Injury Types

Time Period		Indemnity					Medical	Total	
Beginning Period	Ending Period	Death	Permanent Total	Permanent Partial	Temporary Total	All Injury Types	All Injury Types	All Injury Types	
PY 2009	Prosp. Eff. Period	1.034	1.030	1.012	1.030		1.000		
PY 2010	Prosp. Eff. Period	1.030	1.027	1.012	1.027		1.000		
PY 2011	Prosp. Eff. Period	1.026	1.023	1.011	1.023		1.000		
PY 2012	Prosp. Eff. Period	1.019	1.019	1.009	1.019		1.000	1.009	
PY 2013	Prosp. Eff. Period	1.015	1.015	1.007	1.015		1.000	1.007	
PY 2014	Prosp. Eff. Period							1.006	
Prior Eff. Period (using benefit level projections from prior filing)							1.007	1.000	1.004

Notes:

All time periods refer to Policy Years.

Example: $PY\ 2013\ to\ Prosp.\ Eff.\ Period\ for\ Indemnity\ Permanent\ Partial = 1.007 = 1.013 / 1.006$

where 1.013 is the Index Factor of Prosp. Eff. Period and 1.006 is the Index Factor of PY 2013 for Indemnity Permanent Partial, from Exhibit 2.

IV 000024

USL&HW Benefit Level Changes and Weights

Death											
Benefit Level Change	10/1/2008	10/1/2009	10/1/2010	10/1/2011	10/1/2012	10/1/2013	10/1/2014	10/1/2015	10/1/2016	10/1/2017	Weighted Average Benefit Level
Cumulative Benefit Level Change	1.000	1.009	1.011	1.017	1.023	1.026	1.030	1.034	1.039	1.043	
Time Period											
PY 2009	0.276	0.711	0.012								1.007
PY 2010		0.310	0.679	0.012							1.010
PY 2011			0.386	0.606	0.008						1.015
PY 2012				0.336	0.651	0.013					1.021
PY 2013					0.363	0.623	0.014				1.025
PY 2014						0.301	0.682	0.017			1.029
Prior Eff. Period						0.225	0.697	0.077			1.030
Prosp. Eff. Period								0.010	0.460	0.530	1.041

Indemnity All Injury Types - Average Benefit Level for Current Policy Period, Estimated at 7/1/2014 (using benefit level projections from prior filing).

Date of Change	10/1/2008	10/1/2009	10/1/2010	10/1/2011	10/1/2012	10/1/2013	10/1/2014	10/1/2015	Weighted Average Benefit Level
Benefit Level Change	1.000	1.003	1.001	1.003	1.003	1.003	1.003	1.003	
Cumulative Level Change	1.000	1.003	1.004	1.007	1.010	1.013	1.016	1.019	1.016

Medical All Injury Types - Average Benefit Level for Current Policy Period, Estimated at 7/1/2014 (using benefit level projections from prior filing).

Date of Change	10/1/2008	10/1/2009	10/1/2010	10/1/2011	10/1/2012	10/1/2013	10/1/2014	10/1/2015	Weighted Average Benefit Level
Benefit Level Change	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Cumulative Level Change	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

All Injury Types - Average Benefit Level for Current Policy Period, Estimated at 7/1/2014 (using benefit level projections from prior filing).

Date of Change	10/1/2008	10/1/2009	10/1/2010	10/1/2011	10/1/2012	10/1/2013	10/1/2014	10/1/2015	Weighted Average Benefit Level
Benefit Level Change	1.000	1.001	1.000	1.001	1.002	1.002	1.002	1.002	
Cumulative Level Change	1.000	1.001	1.001	1.002	1.004	1.006	1.008	1.010	1.008

Index Factors for All Injury Types

Time Period	Indemnity					Medical	Total
	Death	Permanent Total	Permanent Partial	Temporary Total	All Injury Types	All Injury Types	All Injury Types
PY 2009	1.007	1.004	1.001	1.004	1.002	1.000	1.001
PY 2010	1.010	1.006	1.001	1.006	1.004	1.000	1.001
PY 2011	1.015	1.010	1.002	1.010	1.006	1.000	1.002
PY 2012	1.021	1.015	1.004	1.015	1.009	1.000	1.003
PY 2013	1.025	1.018	1.006	1.018	1.011	1.000	1.005
PY 2014	1.029	1.022	1.007	1.022	1.014	1.000	1.006
Prior Eff. Period	1.030	1.023	1.008	1.023	1.015	1.000	1.007
Prosp. Eff. Period	1.041	1.034	1.013	1.034	1.023	1.000	1.012
10/1/2013	1.026	1.019	1.006	1.019	1.012	1.000	1.005

Notes:

All time periods refer to Policy Years.

Index Factors for All Injury Types is an Excel Data Table that repeats the calculation of the Weighted Average Benefit Level for all Injury Types.

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Section IV - Benefit Change Adjustments
 Subsection F - Effects of USL&HW Benefit Changes
 7/1/2016

Section IV - F
 Exhibit 3

USL&HW Historical and Estimated Benefit Level Changes

Effective Date (1)	Indemnity					Medical	Total
	Death (2)	Permanent Total (3)	Permanent Partial (4)	Temporary Total (5)	All Injury Types (6)	All Injury Types (7)	All Injury Types (8)
10/1/2007	0.9%	0.5%	0.1%	0.5%	0.3%	0.0%	0.2%
10/1/2008	1.1%	0.6%	0.1%	0.6%	0.2%	0.0%	0.1%
10/1/2009	0.9%	0.5%	0.1%	0.5%	0.3%	0.0%	0.1%
10/1/2010	0.2%	0.2%	0.0%	0.2%	0.1%	0.0%	0.0%
10/1/2011	0.6%	0.5%	0.2%	0.5%	0.3%	0.0%	0.1%
10/1/2012	0.6%	0.4%	0.2%	0.4%	0.3%	0.0%	0.2%
10/1/2013	0.3%	0.3%	0.1%	0.3%	0.2%	0.0%	0.1%
10/1/2014	0.4%	0.4%	0.2%	0.4%	0.3%	0.0%	0.2%
10/1/2015	0.4%	0.4%	0.2%	0.4%	0.3%	0.0%	0.2%
10/1/2016	0.4%	0.4%	0.2%	0.4%	0.3%	0.0%	0.2%
10/1/2017	0.4%	0.4%	0.2%	0.4%	0.3%	0.0%	0.2%

Notes:

Values prior to 10/1/2014 are from NCCI's Annual Statistical Bulletin, 2015 Edition.

Values for 10/1/2014 are from NCCI CT-2013-04.

Changes for 10/1/2015 - 10/1/2017 are assumed to be the same as 10/1/2014.

NET TREND

The Role of Trend

The rate level indication in this filing is based on recent historical Massachusetts premium and loss data. Since the filing develops rates for a future period (beginning with policies issued July 1, 2016) basic principles of ratemaking require that historical losses and premiums be adjusted to the levels expected during the prospective rate period. The trend factors used represent the expected change from the experience period (in this filing, policy years 2012 and 2013) to July 1, 2017, the midpoint of the policy period for which we are setting rates. The trend factors reflect expected movements in the frequency of claims, the average cost of claims (also called “severity”), and payroll levels (which drive the amount of premium collected). Trend factors exclude certain other changes over time such as statutorily-mandated changes in benefits and on-level factors for historical rate changes, which are considered elsewhere in the filing.

WCRIBMA Recommendation

The composite trend factor developed in this section is expressed as a “net” trend, meaning that it incorporates the combined effects on loss ratios of claim frequency movements, claim cost movements, and wage inflation – which may offset one another. Net trends are developed in this section separately for

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indemnity losses and medical losses (including medical only claims and medical on lost time claims). Based on the methodology documented in this section, the WCRIBMA has used net trend factors of -1.9% per year for indemnity losses, and -1.8% per year for medical losses.¹ The indicated trend factors and their key components are summarized in Section V-A Exhibit 1.

Indemnity Net Trend	-1.9%
Medical Net Trend	-1.8%

We are projecting that average claim costs for workers' compensation will continue to rise, as they have in recent years in both Massachusetts and elsewhere, at annual rates of 2.6% and 3.1% for indemnity and medical benefits, respectively. We are projecting downward movement in claim frequency per worker week, at a pace of 2.1% annually for lost time claims and 2.5% for medical claims. Finally, we are projecting an increase of 2.4% annually in average wages.

Trend	Indemnity		Medical
Severity	2.6%		3.1%
Frequency	-2.1%		-2.5%
SAWW		2.4%	
Net	-1.9%		-1.8%

¹ Based on NCCI's latest approved filings as of December 4, 2015, NCCI's average net trends for indemnity losses and medical losses were -2.7% and -0.6%, respectively. With respect to medical net trend, thirty-four NCCI states filed higher medical trends than the WCRIBMA is proposing in this filing, while three NCCI states filed lower medical net trends. With respect to indemnity net trend, eleven NCCI states filed higher indemnity trends than the WCRIBMA is proposing in this filing, while twenty-six NCCI states filed lower indemnity net trends.

The annual net trends we use in this filing reflect our expectations about the extent to which growth in the average cost of claims will be offset by declining claim frequencies and by the growth of premium that results from wage inflation.

General Methodology

The WCRIBMA has separately calculated claim cost trends (for indemnity benefits, for medical on lost time claims, and for medical only claims); claim frequency trends (for lost time claims and for medical only claims); and average weekly wage trends.²

The WCRIBMA recommends that the calculation of trend factors be based on movements in the underlying factors of claim severity, claim frequency, and wages – rather than fitting time trends to loss ratios themselves. Given the differences in the behavior of claim severity, claim frequency and wage trends, we are confident that analyzing them separately provides better insights into the drivers of net trend.

For each component (claim severity, frequency, and wage trend), our primary method of measuring trends is an exponential least squares regression fit to the historical Massachusetts Unit Statistical Plan Data. Regressions were performed using data series of varying lengths, spanning from five to ten policy years, all ending with Policy Year 2013³. A summary of the results is shown in

² The Commissioner noted in her 2003 Decision that SRB's witness, Ms. Mays testified that it is appropriate to review historical changes in payroll, frequency and claim severity separately, rather than base a trend on the ratio of losses to premium.

³ In the 2012 rate filing, the WCRIBMA utilized a single regression for each component of net trend. In the 2014 rate filing, the WCRIBMA expanded the number of regressions from one to six

the attached exhibits. The results of each of these regressions indicate an annual rate of change. Next, we tested the credibility of each of these indicated trends on the basis of the consistency between the historical data and the fitted exponential curves. Using a methodology from the actuarial literature,⁴ we assigned higher credibility to the indicated trend if the trend line more closely fit the data, and a lower credibility if the data displayed wide departures from the fitted trend line. Third, to the extent that this credibility test suggested that the indicated trend from the historical data sets should be given less than 100% weight, we complemented the Massachusetts indication with an indicated trend from a larger database. In the case of claim cost trends, we looked to national trends in workers' compensation claim costs to provide the complementary trend indication. In the case of claim frequency trends and average weekly wage trends, we looked to longer term (15 year) Massachusetts trends to provide the complementary trend indications. For each of the components of claims cost trend detailed above, the process generates six trend estimates, one each for the 5, 6, 7, 8, 9, and 10 year data series underlying the Massachusetts indicated trends. We then selected the average of these six trend indications for each component of claim cost trend. The various results of our calculations and the

for each component of net trend to address concerns about distortions in the claim data resulting from the Great Recession and the ensuing recovery. By averaging results from six regressions using data series of varying lengths, the WCRIBMA reduces the risk of giving undue weight to uncharacteristic results.

⁴ Venter, Gary, "Classical Partial Credibility with Application to Trend," *PCAS LXXIII*, 1986, pp. 27-51.

selections we have made are summarized in Exhibits 1 through 3 of Section V-A for claim cost, claim frequency, and average weekly wage, respectively.

Section V-A – Net Trend Calculation

Section V-A documents the calculation of the separate trends for claim severity, claim frequency, and average weekly wage.

Exhibit 1 in this section summarizes and combines all of the trend components, beginning with the indicated trend based on the historical Massachusetts data (Row (1)), applying the credibility parameter to each based on how well the indicated trend fits the underlying data (Row (10), Exhibits 2 and 3), and applying the complement of the credibility to the trend indications that are based on broader or longer data series (Row (2)). The claim severity trend and the claim frequency trend are then combined to produce total loss trends (Row (8)). The medical trends for lost time claims and medical only claims are weighted together, based on the relative volume of claim dollars by type of claim, to produce an overall medical loss trend. Finally, the loss trends for indemnity and medical losses are offset by the credibility-weighted average weekly wage trend to produce the total net annual trend.

Exhibits 2 and 3 of Section V-A document the calculation of the severity trends, frequency trends, and average weekly wage trends. In each of these exhibits, the first step is to calculate the exponential fits to the historical Massachusetts data, using data series of varying lengths, spanning from five to

ten policy years, all ending with Policy Year 2013. The exponential method yields fitted values for each year in the data series and also an indicated annual rate of change in the data series. The exponential fits here and elsewhere in this section were calculated using a standard function within Microsoft Excel™.

Next, these exhibits document the calculation of the credibility associated with each of the fitted annual trends. This calculation uses a procedure described in the Venter paper, which requires that the parameters of a confidence interval be chosen. Based on Venter's paper, actuarial judgment, and sensitivity testing, we defined the confidence interval to achieve at least a 90% probability that the trend observed in the future will be within 6% of the projected trend in this filing. Selecting a higher required degree of confidence (probability) or a lower tolerance for error would reduce the amount of credibility assigned to the trend estimates derived from the historical Massachusetts data, while a lower required degree of confidence (probability) or higher tolerance for error would increase the credibility assigned to indications derived from the latest historical Massachusetts data.

The specific steps and calculations that implement Venter's procedure to calculate the credibility assigned to the historical Massachusetts trend (Row (1)) are detailed in Exhibits 2 and 3 of Section V-A, in Rows numbered (3) through (11). Row (2), denoted "n," is the number of years, data points, used in the exponential fitting of the historical data. Row (3), denoted "s," quantifies the goodness of fit of the exponential curve to the five years of Massachusetts data.

$S = \text{SQRT} (\text{SSR} / (n-2))$, where SSR is the sum of the squared differences between the observed and fitted points over the years of Massachusetts data analyzed, and $n-2$ is an adjustment for degrees of freedom. Row (4), denoted “t,” is the 95th percentile of the t-distribution with $n-2$ degrees of freedom. We use the 95th percentile one-sided distribution to correspond to the selected 90% probability of being within a specified tolerance in either direction. Row (6) implements the formula that Venter provides for a component element of the standard deviation of the projected point, given the distance into the future that we are projecting, and Row (7) then calculates the confidence interval for the projection. The confidence interval incorporates both the uncertainty about the parameters of the trend line and the potential variability of the actual future point from its expected value on the line. Row (9) expresses this confidence interval as a percentage of the projected value of frequency, severity, or average weekly wage, which is calculated in Row (8). If Row (9) is less than the selected error tolerance (i.e., 6% in this filing), then there is at least 90% probability that the actual value is within 6% of the fitted value, and the credibility procedure assigns 100% to the indicated historical Massachusetts trend. If the ratio in Row (9) is greater than the selected error tolerance, then the credibility assigned to the historical Massachusetts trend must be less than 100%. Specifically, the credibility is calculated in Row (10) as the ratio of the selected error tolerance divided by the calculated confidence interval.

To the extent that the credibility assigned to each of the fitted trends based on the historical Massachusetts data is less than 100%, the balance of the credibility is assigned to a longer-term Massachusetts trend (for frequency and average weekly wage) or countrywide trend (for claim severity). The calculations of the annual trend rates from these complementary data series are documented at the foot of Section V-A, Exhibit 2 (severity), Section V-B (frequency) and Section V-G, Exhibit 2 (average weekly wage), and use the same exponential fit function within Microsoft Excel™.

The complementary data set to be given weight when the historical Massachusetts indications are not fully credible provides a trend indication for a particular component (severity, frequency, average weekly wage) that would be reasonable to use if we had no recent local data. For severity, the WCRIBMA expects that trends will tend to vary more over time than across state lines. Thus, it is our expectation that severity trends recently observed in other states will provide useful information about severity trends to be expected in Massachusetts. The actual level of claim costs is likely to vary by state (depending on benefit levels, demographics, industry mix, and social factors), but we would expect that the average trend across a broad mix of states creates a reasonable basis for a baseline expectation of Massachusetts severity trends. Consequently, we have selected a multi-state severity trend as the complement of credibility for Massachusetts severity trends. The multi-state severities are

shown at the foot of Section V-A Exhibit 2 and supporting information is provided in Section V-G.

For claim frequency and average weekly wages, it is our expectation that Massachusetts trends observed in the short term will tend to revert to long term Massachusetts averages, and that these long-term Massachusetts averages would thus represent a reasonable expectation of future trends in the absence of recent observations. Consequently, we have selected a long-term Massachusetts trend as the complement of credibility for the historical Massachusetts frequency and average weekly wage trends. We then selected fifteen years of data to calculate the long-term Massachusetts trends.

Finally, Section V-A Exhibits 2 and 3 Row (12) calculate the credibility-weighted annual trend, which is:

Credibility-weighted annual trend =

$[Z] \times$ [indicated annual trend based on historical n-years of Massachusetts data]

$+ [1.0 \text{ minus } Z] \times$ [indicated annual trend based on complementary data],

Where $Z =$ credibility

These various components of the final net trend calculation are shown graphically on Exhibits 4 through 5 of Section V-A and are brought forward to Exhibit 1.

Data Used in the WCRIBMA Trend Analysis

For the trend analysis, the WCRIBMA has continued to use Unit Statistical Plan Data. The WCRIBMA selected this data source because it provides detailed, matching payroll, claim count, and claim dollar data that can be used to calculate historical claim frequencies and claim severities. Unit Statistical Plan Data are reported on a policy-by-policy basis and in individual claim detail (except for the smallest claims, which previously could be reported in a batch for an individual employer and policy period).

We have Unit Statistical Plan Data for policies written through December 2013. As in the 2010, 2011, 2012 and 2013 Filings, the Unit Statistical Plan Data used in this trend analysis have been compiled on a “policy year” basis. Policy year 2013, for example, includes all policies with inception dates between January 1, 2013 and December 31, 2013. For policy year 2013, the average policy inception date is assumed to be July 1, 2013 and the average accident date is assumed to be January 1, 2014.

Unit Statistical Plan Data include coding that designates the “injury type” of a claim (i.e., fatal, permanent total, permanent partial, temporary total, medical only). We have used separate data for lost time claims and medical only claims as the starting point for our analysis because the medical only claims are quite numerous but small in average severity, and thus could mask important trends if combined with the lost time claims. The Unit Statistical Plan Data also report

medical loss dollars separately from indemnity loss dollars, and we have preserved this separation in the data we used in our analysis.

The Unit Statistical Plan Data for a particular policy are first reported to the WCRIBMA eighteen months after policy inception (i.e., six months after a twelve month policy expires). Subsequent experience on each policy is reported at successive twelve month intervals, 30, 42, 54, 66, 78, 90, 102, 114, and 126 months after policy inception. (The Unit Statistical Plan Data reporting timeline thus differs from some other policy year data in which all policies are reported at a common calendar date, such as December 31.) These successive reports are compiled in order to evaluate each policy year at various maturities. This in turn enables us to aggregate loss development histories that allow us to develop the most recent, least mature policy years to the same tenth-report maturity as the older, more mature policy years.

Unit Statistical Plan Data have been compiled out to tenth-report for each of the years included in the analysis. For purposes of the trend analysis, we have used each of the policy years developed to tenth-report. While it is possible to use other data sources to derive development factors from tenth-report to ultimate, the same (or very similar) tenth-to-ultimate development factors would likely apply to all policy years, and thus would not produce a different trend indication. Consequently, in the interest of not adding unnecessary complexity to the filing, we opted to use the data for all policy years at tenth-report.

Overview of: Sections V-B – V-D

Section V-B documents the calculation of historical claim counts developed to tenth-report, which are used in the calculation of claim frequencies and average claim costs. Section V-C and Section V-D document the calculation of historical loss dollars for indemnity and medical, respectively, developed to tenth-report and adjusted to current benefit levels; the resulting on-level developed losses are used in the calculation of average claim costs.

These sections use standard loss development techniques to develop the claim counts and losses to a tenth-report basis. We have developed indemnity losses separately from medical, and medical only losses separately from lost time medical.

Consistent with the 2012 Rate Decision and the methodology used to calculate the loss development factors in Section II - Loss Development that are used to determine the overall indication, the AIG data are evaluated separately from the remainder of the industry data for purposes of estimating losses to tenth-report. The selected age-to-age development factors for the remainder of the industry are the unweighted averages of the latest two indicated age-to-age link ratios and the selected age-to-age development factors for AIG are the unweighted averages of the latest five indicated age-to-age link ratios. The resulting estimates of losses at tenth-report for AIG and the remainder of the industry are then summed; before on-leveling and calculating severities.

For purposes of the trend calculations, we have developed the claim counts and loss dollars to tenth-report, since the Unit Statistical Plan Data provides information as far as a tenth-report.

After the losses and claim counts are developed to tenth-report, as described above, Sections V-B, V-C and V-D of the filing calculate the historical year-by-year average claim costs and claim frequencies that are used in the calculation of the indicated Massachusetts loss trends in Section V-A.

Section V-B – Massachusetts Claim Frequency

The historical claim frequencies derived in Section V-B for each year are the ratio of:

- (a) the reported claim counts as of the most recent Unit Statistical Plan Data compilation, developed to tenth-report, and adjusted to the current mix of Massachusetts payrolls by employment classification, divided by
- (b) estimated worker weeks underlying the Unit Statistical Plan Data (described below in Section V-E).

For purposes of the trend calculations, we calculate claim frequencies separately for lost time claims and for medical only claims.

The adjustment to the current mix of Massachusetts payrolls by employment classification is intended to remove any trend in claim frequency that is attributable to historical shifts in the mix of employment in Massachusetts. We make this adjustment because our objective is to estimate the level of premiums

that would be adequate for the *current* mix of classes, not the historical mix of classes. Any future shifts in the mix of employment would be adjusted for automatically in the premium base because these shifts would move payroll to differently-rated classifications. Details of the class mix adjustment calculations are provided in Section V-F.

Section V-B also displays the indicated claim frequency trend based on the exponential fit to fifteen years of Massachusetts data, calculated using the claim frequencies as shown, and the standard function in Microsoft Excel™. This long term claim frequency trend is used as the complement of credibility in Section V-A.

Sections V-C and V-D – Massachusetts Average Claim Costs

The historical average claim costs derived in Section V-C and Section V-D for each year are simply the ratio of:

- (a) reported losses as of the most recent Unit Statistical Plan Data compilation, developed to tenth-report, and adjusted to current benefit levels, divided by
- (b) reported claim counts as of the most recent Unit Statistical Plan Data compilation, developed to tenth-report.

The reported Unit Statistical Plan Data reflect the statutory benefit provisions that applied to each individual claim. Thus, claims from the 2004 policy year were handled and reported based on the benefits in effect at that

time. Similarly, claims from the 2013 policy year were handled and reported based on the benefits in effect at that time. The changes in statutory benefits over time would contribute to a trend in the average claim cost data. However, the statutory benefit changes are specifically addressed in another section of the filing and their impact should not be reflected here. Therefore, before the Unit Statistical Plan Data are used in our trend analysis, the losses are all adjusted to a common benefit level. In Sections V-C and V-D the developed loss dollars are placed “on-level” to the current Massachusetts benefit levels. By placing all of the loss data on current benefit level, we avoid a distortion in the trend analysis.

The resulting Massachusetts historical average claim costs in the final columns of Sections V-C and V-D are carried forward to Section V-A for use in calculating the historical fitted Massachusetts trends.

Section V-E – Payroll Development and Worker-Weeks

Section V-E documents the estimation of worker weeks, which is used as the denominator of the claim frequency calculation in Section V-B, as described above.

In summary, worker weeks for a particular time period are estimated by dividing total covered payroll for that period by the statewide average weekly wage corresponding to that same period. More specifically, the historical worker weeks estimated in Section V-E for each policy year are derived as the ratio of:

- (a) the reported payroll as of the most recent Unit Statistical Plan Data compilation, developed to tenth-report, divided by
- (b) the state average weekly wage corresponding to the same period.⁵

As with claim counts and frequency, we have consistently developed the payrolls to tenth-report.

The state average weekly wage is based on Massachusetts wage data compiled by the Department of Unemployment Assistance (DUA). Although it is not compiled for workers' compensation purposes and is not defined in exactly the same way as payrolls used in workers' compensation calculations, the overall movement over time in this series is reasonably representative of the overall movement to be expected in the average wages used to calculate workers' compensation premiums. The underlying Massachusetts average wage series is documented in Section V-G, Exhibit 2.

Section V-F – Adjustment Factor for Class Mix

Section V-F documents the quantification of the estimated effect of a shifting mix of payrolls by classification over time. This effect is estimated by examining the proportion of payrolls that are in high-rated classifications versus low-rated classifications; specifically by calculating a weighted average of the current average rates, weighted by each year's payrolls by classification. For example, using the 2013 distribution of payrolls by classification, the weighted

⁵ In response to the decision on 9/1/2012 rates, we have used the actual values for the state average weekly wage in the corresponding periods, as opposed to utilizing a "smoothed" value.

average of the current rates is \$0.944, while using the 1999 distribution of payrolls by classification against the same current rates produces an average rate of \$1.112. Since the average rate in each classification is based on the workers' compensation claims experience within that classification, this movement in average rates indicates that the insured employment mix in Massachusetts has shifted towards less hazardous occupations. The claim trends caused by this shift should not be included in the trend factors because other sections of the filing (specifically the classification rate section) incorporate an explicit distribution of payrolls. Any further movement in the insured employment mix towards less hazardous occupations will automatically produce premium reductions by means of the lower rates that apply to those less hazardous occupations.

While the class mix change may affect the average cost of claims as well as the frequency of claims, we have made the assumption that all of the effect is related to claim frequency, and we have applied the class mix adjustment to the claim frequency series that is developed in Section V-B.

Section V-G – External Data

Section V-G Exhibit 1 displays some details underlying the countrywide severity data used to develop the complementary average claim cost trends.

Section V-G Exhibit 2 displays the Massachusetts average weekly wage data used in our analysis.

Section V-H – Expense Trends

Section V-H displays fixed expenses trended over two separate time periods. Fixed expenses are first trended from the historical periods for which they are reported to the periods on which the rate indication is based. Next, fixed expenses are trended forward to the period for which the rates are being set. For the first trend period, reported external index values (such as the CPI) are available that span the time period over which the WCRIBMA is trending. Consequently, the first trend factor is taken as a ratio of index values for the corresponding time periods, Section V-H, Exhibit 1. Index values are not available for the proposed effective period of the rates, however, so a projection is made. The WCRIBMA used an exponential least squares regression to project expense trends into the future.

The trends in the individual components of insurance company expenses have been estimated by using government indices that reflect changes in the prices of the goods and services used in operating an insurance company. Specifically, the selected indices are:

Expense	Index
Average Weekly Earnings ⁶	Average Weekly Earnings of Massachusetts Private Fire, Marine, and Casualty Insurance Employees. This series is provided on an annual basis.

⁶ The WCRIBMA believes using the Average Weekly Earnings of Massachusetts Private Fire, Marine, and Casualty Insurance Employees in estimating expense trends is preferable to using SAWW because it more accurately reflects insurers’ expenses, as opposed to payroll trends in the market as a whole. Had we utilized the SAWW instead of the Average Weekly Earnings of Massachusetts Private Fire, Marine, and Casualty Insurance Employees within our expense trend model, the indicated expense trend would be 1.9%, rather than 1.2% and the indicated rate change would be 6.6%, rather than 6.4%.

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Expense	Index
Food Away From Home	Consumer Price Index for Food Away from Home
Private Transportation	Consumer Price Index for Private Transportation
Telephone Services	Consumer Price Index for Telephone
Postage	Consumer Price Index for Postage
Office and Store Machines and Equipment	Producer Price Index for Office and Store Machines and Equipment
Paper	Producer Price Index for Paper

These indices are first normalized to a value of 100 with Calendar Year 2014 serving as the base. We then combine the indices using the weights shown in Section V-H, Exhibit 2, Page 2 for calendar year 2014 and weights from prior filings for all other years to derive the expense trend. The weights attributed to the various components of insurance company expenses for the workers' compensation line are based on the experience of the "Commercial Casualty" line as compiled in Best's Aggregates and Averages. Premium taxes, which are not incorporated in the expenses to which the expense trends and projection factors apply, are excluded from the determination of the component weights.

Trend Summary

		Indemnity		Medical				SAWW
		Severity	Frequency	Lost Time Medical		Medical Only		
				Severity	Frequency	Severity	Frequency	
(1)	Massachusetts Trend	3.3%	-1.5%	4.5%	-1.5%	2.2%	-4.3%	2.4%
	5 Year	3.5%	-1.4%	4.9%	-1.4%	3.2%	-4.6%	2.4%
	6 Year	3.2%	-1.0%	5.7%	-1.0%	2.1%	-4.2%	2.7%
	7 Year	3.4%	-1.4%	4.8%	-1.4%	1.6%	-4.4%	2.4%
	8 Year	3.2%	-1.5%	4.0%	-1.5%	1.7%	-4.3%	2.1%
	9 Year	3.3%	-1.7%	4.1%	-1.7%	2.0%	-4.2%	2.2%
	10 Year	3.0%	-1.9%	3.7%	-1.9%	2.5%	-4.2%	2.3%
(2)	Complement of Credibility	-0.7%	-3.2%	1.7%	-3.2%	4.9%	-4.7%	2.7%
(3)	Credibility Weighted Trend	2.6%	-2.1%	3.1%	-2.1%	2.9%	-4.4%	2.4%
	5 Year	1.3%	-2.5%	2.8%	-2.5%	3.5%	-4.7%	2.4%
	6 Year	1.9%	-2.0%	3.7%	-2.0%	3.3%	-4.4%	2.7%
	7 Year	2.8%	-2.1%	3.3%	-2.1%	2.8%	-4.5%	2.4%
	8 Year	3.2%	-1.9%	2.8%	-1.9%	2.3%	-4.4%	2.1%
	9 Year	3.3%	-2.1%	3.1%	-2.1%	2.4%	-4.3%	2.2%
	10 Year	3.0%	-2.2%	3.0%	-2.2%	3.1%	-4.2%	2.3%
(4)	Selected Trend	2.6%	-2.1%	3.1%	-2.1%	2.9%	-4.4%	2.4%

	Lost Time Medical	Medical Only
(5) Medical Loss Trend	0.9%	-1.7%
(6) Fraction of Total Medical	86.5%	13.5%
(7) Total Medical Loss Trend	0.5%	

	Indemnity	Medical
(8) Total Loss Trend	0.4%	0.5%
(9) SAWW Trend	2.4%	2.4%
(10) Total Net Trend	-1.9%	-1.8%

Notes:

- (1),(2),(3): Section V, Exhibit 2 Severity; Exhibit 3 Frequency and SAWW.
- (4) = Selected Trend
- (5) = $[(1.0 + \text{Credibility Weighted Severity Trend}) \times (1.0 + \text{Credibility Weighted Frequency Trend})] - 1.0$
- (6) Medical Only = Medical Only Fraction of Total Medical from Section IV-E, Exhibit 2
 Lost Time Medical = 1.0 - Medical Only
- (7) = Weighted Average of (5) using (6) as weights
- (8): Indemnity = $(1.0 + \text{Credibility Weighted Severity Trend}) \times (1.0 + \text{Credibility Weighted Frequency Trend}) - 1.0$
 Medical = Row (7)
- (9): (4) for SAWW.
- (10) = $\{ [1.0 + (8)] / [1.0 + (9)] \} - 1.0$

V 000020

Indemnity Severity Trend Calculation

Policy Year	Massachusetts Indemnity Severity	5 Year		6 Year		7 Year		8 Year		9 Year		10 Year	
		Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared
2004	22,608											22,043	318,438
2005	22,447											22,713	70,534
2006	23,381											23,402	422
2007	23,686					23,839	23,559					23,944	66,336
2008	25,000			24,748	63,735	24,642	128,736	24,726	75,252	24,722	77,311	24,844	24,410
2009	26,192	25,341	724,733	25,548	415,659	25,471	520,720	25,529	440,138	25,526	443,336	25,598	352,884
2010	25,262	26,240	955,069	26,373	1,233,819	26,328	1,135,048	26,358	1,199,984	26,357	1,197,809	26,375	1,238,674
2011	27,108	27,170	3,859	27,225	13,767	27,214	11,154	27,214	11,154	27,214	11,262	27,176	4,615
2012	27,750	28,134	147,052	28,105	125,978	28,129	143,754	28,097	120,463	28,099	121,938	28,001	62,861
2013	29,747	29,131	379,505	29,013	538,854	29,076	450,955	29,009	544,341	29,013	538,708	28,851	803,682
(1)	Massachusetts Trend		3.5%		3.2%		3.4%		3.2%		3.3%		3.0%
(2)	n		5		6		7		8		9		10
(3)	s		858.34		773.27		694.83		644.83		596.87		618.29
(4)	t		2.35		2.13		2.02		1.94		1.89		1.86
(5)	m		5.50		6.00		6.50		7.00		7.50		8.00
(6)	$[1 + 1/n + 12 \times m^2/(n^3-3n)]^{.5}$		2.05		1.80		1.63		1.51		1.43		1.37
(7)	Confidence Interval		4,150.72		2,960.31		2,279.37		1,896.95		1,618.15		1,574.66
(8)	Projected Value Prospective Period		32,906.96		32,434.44		32,642.78		32,446.76		32,448.70		32,037.37
(9)	CI/Projected Severity		0.13		0.09		0.07		0.06		0.05		0.05
(10)	Credibility - MA Trend (Z)		48%		66%		86%		100%		100%		100%
				NCCI	CW Indemnity Severity								
				Annual	CW Indemnity		On-Level						
				Statistical	Indemnity	On-Level	Indemnity						
				Bulletin	Severity	Factors	Severity						
				2011	21,259	1.016	21,597						
				2012	22,358	1.010	22,586						
				2013	21,645	1.008	21,811						
				2014	21,561	1.008	21,739						
				2015	21,185	1.002	21,227						
(11)	Complement of Credibility						-0.7%						
(12)	Credibility Weighted Severity Trend		1.3%		1.9%		2.8%		3.2%		3.3%		3.0%

- Notes:
- (1): Massachusetts Trend from exponential fit to Severities.
 - (2): Number of data points used in the exponential fitting of the severities.
 - (3): $\sqrt{SSR/(n - 2)}$ where SSR is the sum of squared residuals and n is the number of data points used in the exponential fitting of the data.
 - (4): T-value based on a two-tailed t-test with probability parameter, p, of 90% and a t-distribution with n - 2 degrees of freedom.
 - (5): Number of years between midpoint of data and projected point.
 - (7) = (3) x (4) x (6)
 - (8): Severity projected to policy effective period using exponential fit to data.
 - (9) = (7) / (8)
 - (10): The credibility is the ratio of the target value, k, to the quotient of the confidence interval and the projected frequency, capped at 100%. Numerically, (10) = the minimum of k / (9) and 100%.
 - (11): Complement of credibility is based on a countrywide data for severities.
 - (12) = [(1) x (10)] + [(11) x [1.0 - (10)]]

V 000021

Medical Only Severity Trend Calculation

Policy Year	Massachusetts Medical Only Severity	5 Year		6 Year		7 Year		8 Year		9 Year		10 Year		
		Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	
2004	663													
2005	721													
2006	764													
2007	800													
2008	816			785.54	914.70	783.67	267.56	796.43	374.45	794.64	447.25	788.09	767.12	
2009	790	777.78	142.30	801.64	142.47	809.41	388.16	808.19	341.64	804.02	204.90	798.65	79.98	
2010	797	802.77	31.31	818.08	436.95	822.60	646.30	821.98	615.20	820.28	533.81	818.91	472.24	
2011	816	828.57	150.10	834.85	343.58	836.00	387.55	836.00	387.55	836.87	422.37	839.67	545.73	
2012	847	855.19	73.93	851.96	28.88	849.62	9.18	850.26	13.47	853.79	51.78	860.97	206.76	
2013	898	882.67	222.99	869.43	793.59	863.46	1,165.34	864.77	1,078.17	871.05	704.96	882.81	218.91	
(1)	Massachusetts Trend		3.2%		2.1%		1.6%		1.7%		2.0%		2.5%	
(2)	n		5		6		7		8		9		10	
(3)	s		14.38		25.79		25.45		23.27		23.73		29.08	
(4)	t		2.35		2.13		2.02		1.94		1.89		1.86	
(5)	m		5.50		6.00		6.50		7.00		7.50		8.00	
(6)	$[1 + 1/n + 12 \times m^2 / (n^3 - n)]^{.5}$		2.05		1.80		1.63		1.51		1.43		1.37	
(7)	Confidence Interval		69.55		98.73		83.49		68.46		64.34		74.05	
(8)	Projected Value Prospective Period		985.91		933.50		913.67		917.55		934.20		963.76	
(9)	CI/Projected Severity		0.07		0.11		0.09		0.07		0.07		0.08	
(10)	Credibility - MA Trend (Z)		85%		57%		66%		80%		87%		78%	
			NCCI Annual Statistical Bulletin		CW Medical Only Severity									
					MO Medical Severity	CW MO Medical On-Level Factors	On-Level MO Medical Severity							
					2011	1,003	0.993	996						
					2012	1,072	0.989	1,060						
					2013	1,139	0.980	1,116						
					2014	1,176	0.993	1,168						
					2015	1,212	0.994	1,205						
(11)	Complement of Credibility						4.9%							
(12)	Credibility Weighted Severity Trend		3.5%		3.3%		2.8%		2.3%		2.4%		3.1%	

- Notes:
- (1): Massachusetts Trend from exponential fit to Severities.
 - (2): Number of data points used in the exponential fitting of the severities.
 - (3): $\sqrt{SSR / (n - 2)}$ where SSR is the sum of squared residuals and n is the number of data points used in the exponential fitting of the data.
 - (4): T-value based on a two-tailed t-test with probability parameter, p, of 90% and a t-distribution with n - 2 degrees of freedom.
 - (5): Number of years between midpoint of data and projected point.
 - (7) = (3) x (4) x (6)
 - (8): Severity projected to policy effective period using exponential fit to data.
 - (9) = (7) / (8)
 - (10): The credibility is the ratio of the target value, k, to the quotient of the confidence interval and the projected frequency, capped at 100%. Numerically, (10) = the minimum of k / (9) and 100%.
 - (11): Complement of credibility is based on a countrywide data for severities.
 - (12) = [(1) x (10)] + [(11) x [1.0 - (10)]]

V 000023

Lost Time Frequency Trend Calculation

Policy Year	Adjusted Claim Frequency	5 Year		6 Year		7 Year		8 Year		9 Year		10 Year	
		Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared
2004	211.00												
2005	204.82												
2006	195.51												
2007	194.84												
2008	183.79			186.01	4.90	188.41	21.34	188.81	25.19	190.04	39.03	190.89	50.36
2009	180.09	185.85	33.25	184.08	15.96	185.75	32.03	186.01	35.07	186.76	44.59	187.24	51.18
2010	189.89	183.27	43.88	182.18	59.56	183.12	45.95	183.24	44.21	183.54	40.35	183.66	38.87
2011	183.07	180.72	5.52	180.29	7.74	180.52	6.50	180.52	6.50	180.38	7.27	180.15	8.56
2012	177.10	178.21	1.25	178.42	1.77	177.97	0.76	177.84	0.56	177.27	0.03	176.70	0.16
2013	173.88	175.73	3.45	176.58	7.29	175.45	2.46	175.20	1.75	174.21	0.11	173.32	0.31
(1)	Massachusetts Trend		-1.4%		-1.0%		-1.4%		-1.5%		-1.7%		-1.9%
(2)	n		5		6		7		8		9		10
(3)	s		5.40		4.93		4.96		4.55		4.72		4.84
(4)	t		2.35		2.13		2.02		1.94		1.89		1.86
(5)	m		5.50		6.00		6.50		7.00		7.50		8.00
(6)	$[1 + 1/n + 12 \times m^2 / (n^3 - n)]^{.5}$		2.05		1.80		1.63		1.51		1.43		1.37
(7)	Confidence Interval		26.09		18.87		16.26		13.39		12.81		12.32
(8)	Projected Value Prospective Period		167.34		170.26		166.91		166.26		163.93		162.00
(9)	CI/Projected Frequency		0.16		0.11		0.10		0.08		0.08		0.08
(10)	Credibility - MA Trend (Z)		38%		54%		62%		74%		77%		79%
(11)	Complement of Credibility		-3.2%		-3.2%		-3.2%		-3.2%		-3.2%		-3.2%
(12)	Credibility Weighted Frequency Trend		-2.5%		-2.0%		-2.1%		-1.9%		-2.1%		-2.2%

Notes:

- (1): Massachusetts Trend from exponential fit to Adjusted Claim Frequencies
- (2): Number of data points used in the exponential fitting of the adjusted claim frequencies.
- (3): $\sqrt{SSR / (n - 2)}$ where SSR is the sum of squared residuals and n is the number of data points used in the exponential fitting of the data.
- (4): T-value based on a two-tailed t-test with probability parameter, p, of 90% and a t-distribution with n - 2 degrees of freedom.
- (5): Number of years between midpoint of data and projected point.
- (7) = (3) x (4) x (6)
- (8): Frequency projected to policy effective period using exponential fit to data.
- (9) = (7) / (8)
- (10): The credibility is the ratio of the target value, k, to the quotient of the confidence interval and the projected frequency, capped at 100%.
 Numerically, (10) = the minimum of k / (9) and 100%.
- (11): Complement of credibility is based on a fifteen-year exponential fit to Adjusted Claim Frequencies.
- (12) = [(1) x (10)] + [(11) x [1.0 - (10)]]

V 000024

Medical Only Frequency Trend Calculation

Policy Year	Adjusted MedOnly Claim Frequency	5 Year		6 Year		7 Year		8 Year		9 Year		10 Year	
		Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared
2004	507.57											512.12	20.63
2005	491.38									492.68	1.69	490.73	0.42
2006	467.89							472.38	20.18	471.76	14.97	470.25	5.54
2007	459.98					454.67	28.13	452.20	60.53	451.73	68.04	450.61	87.71
2008	424.50			431.30	46.33	434.65	103.12	432.87	70.19	432.55	64.83	431.80	53.34
2009	407.93	418.56	113.03	413.27	28.50	415.51	57.48	414.38	41.59	414.18	39.11	413.77	34.15
2010	410.14	399.15	120.84	395.98	200.36	397.21	167.14	396.67	181.44	396.59	183.46	396.50	186.13
2011	387.56	380.63	48.00	379.42	66.22	379.72	61.53	379.72	61.53	379.75	60.97	379.94	58.07
2012	357.69	362.98	27.93	363.56	34.37	363.00	28.10	363.49	33.60	363.63	35.21	364.08	40.75
2013	344.48	346.14	2.76	348.35	14.99	347.01	6.39	347.96	12.08	348.19	13.73	348.88	19.32
(1)	Massachusetts Trend		-4.6%		-4.2%		-4.4%		-4.3%		-4.2%		-4.2%
(2)	n		5		6		7		8		9		10
(3)	s		10.21		9.88		9.51		8.95		8.30		7.95
(4)	t		2.35		2.13		2.02		1.94		1.89		1.86
(5)	m		5.50		6.00		6.50		7.00		7.50		8.00
(6)	$[1 + 1/n + 12 \times m^2 / (n^3 - n)]^{.5}$		2.05		1.80		1.63		1.51		1.43		1.37
(7)	Confidence Interval		49.36		37.84		31.19		26.34		22.50		20.26
(8)	Projected Value Prospective Period		293.17		300.03		296.44		298.70		299.18		300.57
(9)	CI/Projected Frequency		0.17		0.13		0.11		0.09		0.08		0.07
(10)	Credibility - MA Trend (Z)		36%		48%		57%		68%		80%		89%
(11)	Complement of Credibility		-4.7%		-4.7%		-4.7%		-4.7%		-4.7%		-4.7%
(12)	Credibility Weighted Frequency Trend		-4.7%		-4.4%		-4.5%		-4.4%		-4.3%		-4.2%

Notes:

- (1): Massachusetts Trend from exponential fit to Adjusted Claim Frequencies
- (2): Number of data points used in the exponential fitting of the adjusted claim frequencies.
- (3): $\sqrt{SSR / (n - 2)}$ where SSR is the sum of squared residuals and n is the number of data points used in the exponential fitting of the data.
- (4): T-value based on a two-tailed t-test with probability parameter, p, of 90% and a t-distribution with n - 2 degrees of freedom.
- (5): Number of years between midpoint of data and projected point.
- (7) = (3) x (4) x (6)
- (8): Frequency projected to policy effective period using exponential fit to data.
- (9) = (7) / (8)
- (10): The credibility is the ratio of the target value, k, to the quotient of the confidence interval and the projected frequency, capped at 100%. Numerically, (10) = the minimum of k / (9) and 100%.
- (11): Complement of credibility is based on a fifteen-year exponential fit to Adjusted Claim Frequencies.
- (12) = [(1) x (10)] + [(11) x [1.0 - (10)]]

V 000025

Statewide Average Weekly Wage Trend Calculation

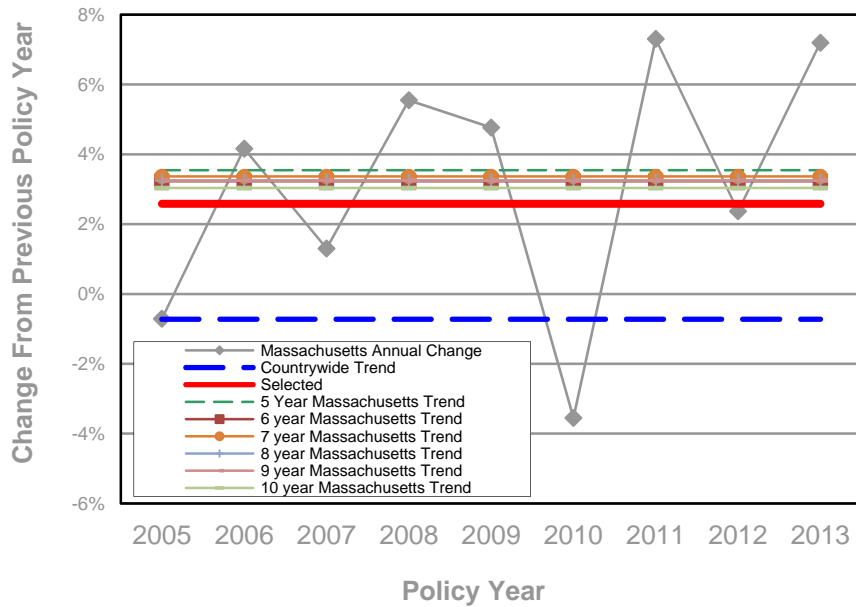
Data Period	Statewide Average Weekly Wage	5 Year		6 Year		7 Year		8 Year		9 Year		10 Year	
		Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared
4/1/05 to 4/1/06	1,000.43											1,016.14	246.80
4/1/06 to 4/1/07	1,043.54									1,046.74	10.25	1,039.52	16.17
4/1/07 to 4/1/08	1,093.27									1,069.44	568.09	1,063.44	890.12
4/1/08 to 4/1/09	1,094.70					1,081.19	182.51	1,093.94	0.58	1,092.62	4.32	1,087.90	46.21
4/1/09 to 4/1/10	1,088.06			1,098.38	106.45	1,107.51	378.23	1,117.29	854.17	1,116.31	797.98	1,112.93	618.60
4/1/10 to 4/1/11	1,135.82	1,136.46	0.41	1,127.91	62.55	1,134.47	1.83	1,141.13	28.24	1,140.51	22.00	1,138.54	7.38
4/1/11 to 4/1/12	1,173.06	1,163.72	87.27	1,158.24	219.65	1,162.08	120.53	1,165.49	57.29	1,165.24	61.21	1,164.73	69.36
4/1/12 to 4/1/13	1,181.28	1,191.63	107.13	1,189.38	65.66	1,190.37	82.59	1,190.37	82.59	1,190.50	84.98	1,191.53	105.05
4/1/13 to 4/1/14	1,214.99	1,220.21	27.27	1,221.36	40.63	1,219.34	18.95	1,215.78	0.62	1,216.31	1.74	1,218.94	15.63
4/1/14 to 4/1/15	1,256.47	1,249.48	48.87	1,254.20	5.13	1,249.02	55.44	1,241.73	217.38	1,242.68	190.23	1,246.99	89.91
(1)	Massachusetts Trend		2.4%		2.7%		2.4%		2.1%		2.2%		2.3%
(2)	n		5		6		7		8		9		10
(3)	s		9.50		11.18		12.96		17.00		15.77		16.22
(4)	t		2.35		2.13		2.02		1.94		1.89		1.86
(5)	m		4.75		5.25		5.75		6.25		6.75		7.25
(6)	$[1 + 1/n + 12 \times m^2/(n^3-n)]^{.5}$		1.86		1.66		1.52		1.43		1.37		1.32
(7)	Confidence Interval		41.58		39.47		39.82		47.35		40.86		39.76
(8)	Projected Value Prospective Period		1,333.63		1,349.26		1,334.42		1,316.05		1,318.18		1,327.57
(9)	CI/Projected Wage		0.03		0.03		0.03		0.04		0.03		0.03
(10)	Credibility - MA Trend (Z)		100%		100%		100%		100%		100%		100%
(11)	Complement of Credibility		2.7%		2.7%		2.7%		2.7%		2.7%		2.7%
(12)	Credibility Weighted Wage Trend		2.4%		2.7%		2.4%		2.1%		2.2%		2.3%

Notes:

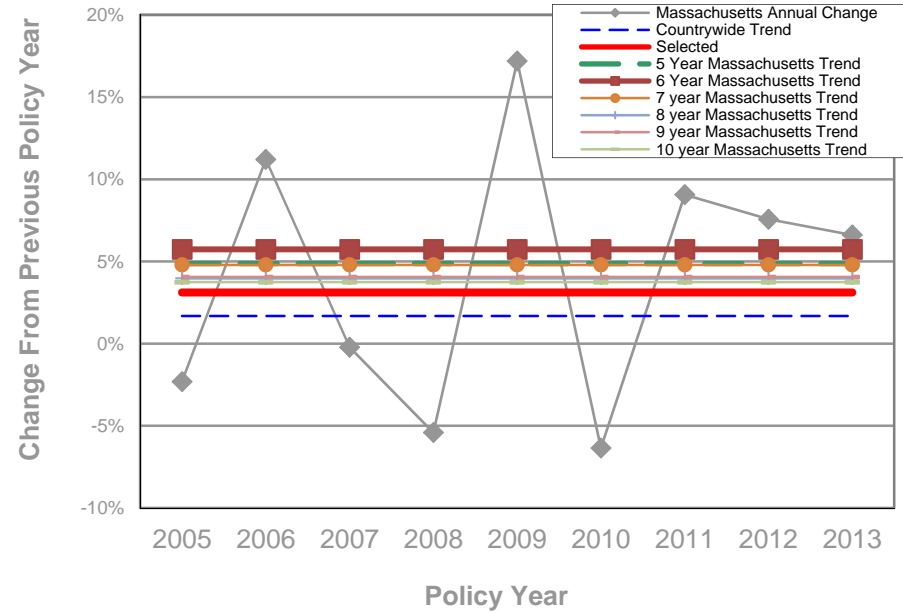
- (1): Massachusetts Trend from exponential fit to the SAWW.
- (2): Number of data points used in the exponential fitting of the statewide average weekly wages.
- (3): $\sqrt{SSR/(n - 2)}$ where SSR is the sum of squared residuals and n is the number of data points used in the exponential fitting of the data.
- (4): T-value based on a two-tailed t-test with probability parameter, p, of 90% and a t-distribution with n - 2 degrees of freedom.
- (5): Number of years between midpoint of data and projected point.
- (7) = (3) x (4) x (6)
- (8): SAWW projected to policy effective period using exponential fit to data.
- (9) = (7) / (8)
- (10): The credibility is the ratio of the target value, k, to the quotient of the confidence interval and the projected frequency, capped at 100%. Numerically, (10) = the minimum of k / (9) and 100%.
- (11): Complement of credibility is based on a fifteen-year exponential fit to the SAWWs.
- (12) = [(1) x (10)] + { (11) x [1.0 - (10)] }

V 000026

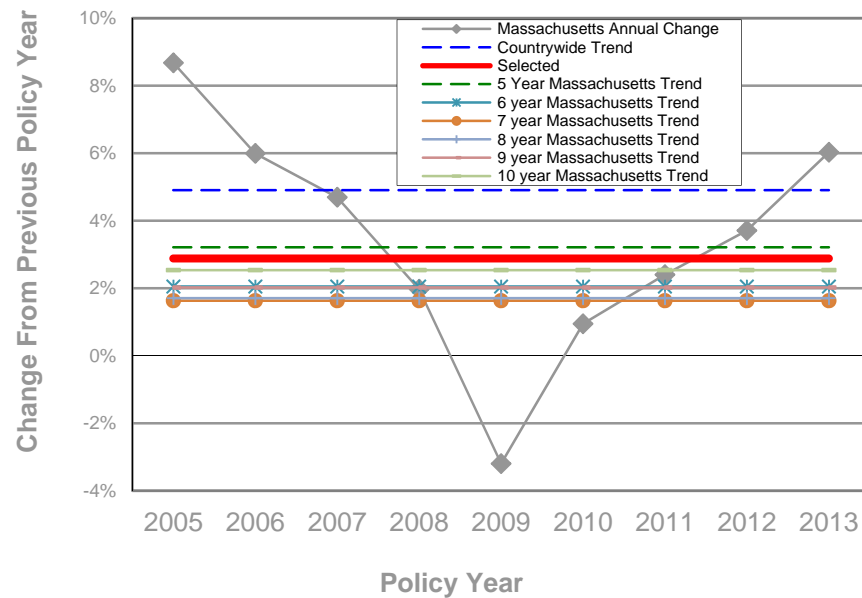
Indemnity Severity Trend



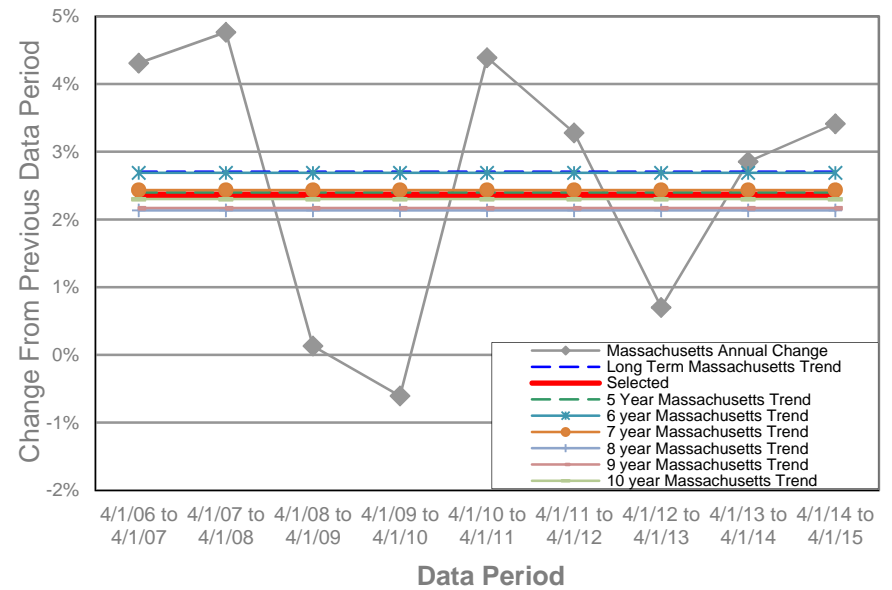
Lost Time Medical Severity Trend



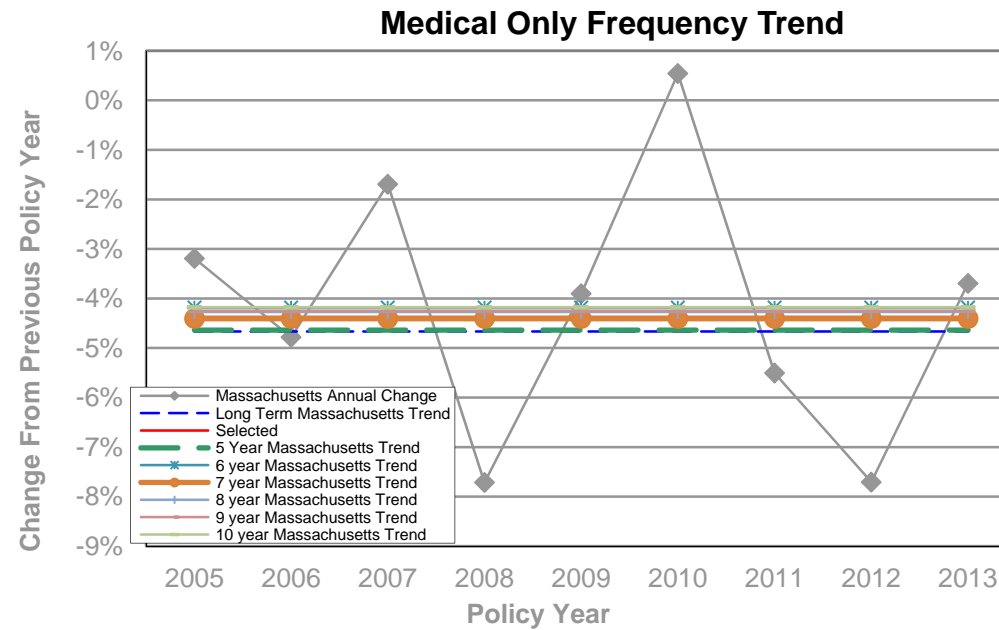
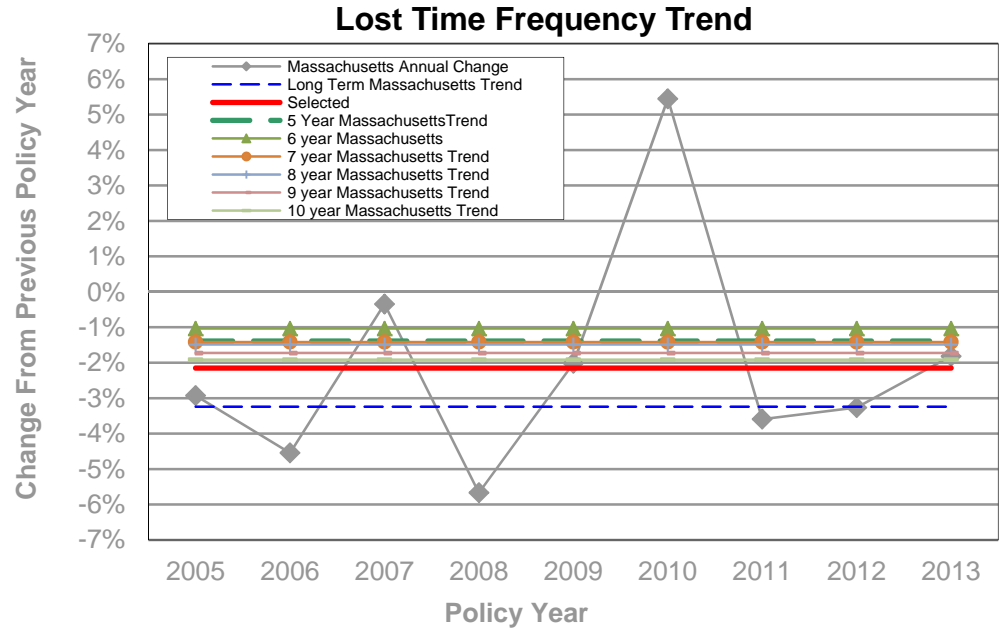
Medical Only Severity Trend



SAWW Trend



V 000027



Lost Time Reported Claim Counts - Industrywide

Policy Year (1)	Lost Time Reported Claim Counts Age of Development										Developed to Tenth Report (3)	Estimated Million Worker-Weeks (4)	Unadjusted Claim Frequency = (3) / (4) (5)	Class Mix Adjustment (6)	Adjusted Claim Frequency = (5) x (6) (7)
	18	30	42	54	66	78	90	102	114	126					
1999_01	24,621	24,931	25,065	25,113	25,106	25,104	25,110	25,113	25,099	25,100	25,100	73.04	343.66	0.849	291.63
2000_01	23,667	24,162	24,302	24,328	24,325	24,327	24,333	24,329	24,339	24,340	24,340	77.60	313.67	0.870	272.79
2001_01	20,823	21,129	21,287	21,307	21,322	21,322	21,330	21,336	21,343	21,349	21,348	77.06	277.02	0.868	240.51
2002_01	20,156	20,511	20,564	20,603	20,615	20,622	20,630	20,629	20,640	20,638	20,638	77.14	267.55	0.856	229.03
2003_01	18,948	19,162	19,234	19,274	19,304	19,319	19,328	19,336	19,345	19,344	19,344	74.30	260.36	0.838	218.08
2004_01	17,495	17,733	17,781	17,836	17,865	17,872	17,882	17,886	17,880	17,882	17,882	71.62	249.68	0.845	211.00
2005_01	16,774	17,059	17,138	17,175	17,200	17,209	17,216	17,219	17,230	17,230	17,230	73.56	234.22	0.874	204.82
2006_01	15,485	15,763	15,861	15,910	15,922	15,937	15,938	15,938			15,941	75.64	210.75	0.928	195.51
2007_01	15,210	15,545	15,652	15,696	15,718	15,724	15,730				15,734	78.29	200.97	0.970	194.84
2008_01	13,909	14,176	14,265	14,314	14,353	14,365					14,372	78.56	182.94	1.005	183.79
2009_01	12,975	13,209	13,268	13,304	13,315						13,329	75.28	177.07	1.017	180.09
2010_01	14,380	14,657	14,725	14,771							14,814	79.82	185.60	1.023	189.89
2011_01	14,443	14,678	14,770								14,856	83.01	178.96	1.023	183.07
2012_01	14,211	14,465									14,629	83.70	174.77	1.013	177.10
2013_01	14,409										14,821	85.24	173.88	1.000	173.88
Age-to-Age Development Factors												15 Year Lost Time Frequency Trend			-3.2%
	18 - 30	30 - 42	42 - 54	54 - 66	66 - 78	78 - 90	90 - 102	102 - 114	114 - 126						
2 Yr Weighted Average	1.017	1.005	1.003	1.002	1.001	1.000	1.000	1.000	1.000						
Selected	1.017	1.005	1.003	1.002	1.001	1.000	1.000	1.000	1.000						
Cumulative	1.029	1.011	1.006	1.003	1.001	1.000	1.000	1.000	1.000						

Notes:
 Development factors are claim count weighted averages from latest two years.
 (4): Section V-E, Exhibit 1.
 (6): Section V-F, Exhibit 1.

V 000029

Medical Only Reported Claim Counts - Industrywide

Policy Year (1)	Medical Only Reported Claim Counts Age of Development										Developed to Tenth Report (3)	Estimated Million Worker-Weeks (4)	Unadjusted Claim Frequency = (3) / (4) (5)	Class Mix Adjustment (6)	Adjusted Claim Frequency = (5) x (6) (7)	
	18	30	42	54	66	78	90	102	114	126						
1999_01	58,243	60,502	61,100	61,252	61,311	61,321	61,325	61,326	61,267	61,269	61,269	73.04	838.87	0.849	711.86	
2000_01	56,429	58,875	59,441	59,558	59,698	59,698	59,704	59,637	59,638	59,641	59,641	77.60	768.60	0.870	668.42	
2001_01	51,365	52,970	53,409	53,522	53,556	53,549	53,580	53,589	53,586	53,590	53,590	77.06	695.41	0.868	603.75	
2002_01	47,699	49,556	49,805	49,856	49,894	49,892	49,897	49,914	49,919	49,923	49,923	77.14	647.20	0.856	554.02	
2003_01	44,219	45,421	45,641	45,676	45,693	45,698	45,701	45,704	45,701	45,707	45,707	74.30	615.20	0.838	515.29	
2004_01	41,844	42,823	42,924	42,980	42,989	42,998	43,004	43,003	43,008	43,016	43,016	71.62	600.61	0.845	507.57	
2005_01	40,392	41,183	41,301	41,315	41,320	41,323	41,320	41,328	41,331		41,338	73.56	561.92	0.874	491.38	
2006_01	37,299	38,004	38,083	38,111	38,110	38,111	38,116	38,139			38,149	75.64	504.37	0.928	467.89	
2007_01	36,545	37,073	37,121	37,120	37,127	37,118	37,121				37,145	78.29	474.44	0.970	459.98	
2008_01	32,710	33,070	33,135	33,150	33,172	33,169					33,194	78.56	422.53	1.005	424.50	
2009_01	29,836	30,125	30,160	30,171	30,176						30,193	75.28	401.09	1.017	407.93	
2010_01	31,537	31,901	31,951	31,963							31,995	79.82	400.86	1.023	410.14	
2011_01	30,922	31,360	31,407								31,450	83.01	378.85	1.023	387.56	
2012_01	29,080	29,461									29,547	83.70	352.99	1.013	357.69	
2013_01	28,883										29,362	85.24	344.48	1.000	344.48	
Age-to-Age Development Factors											15 Year Medical Only Frequency Trend				-4.7%	
	18 - 30	30 - 42	42 - 54	54 - 66	66 - 78	78 - 90	90 - 102	102 - 114	114 - 126							
2 Yr Weighted Average	1.014	1.002	1.000	1.000	1.000	1.000	1.000	1.000	1.000							
Selected	1.014	1.002	1.000	1.000	1.000	1.000	1.000	1.000	1.000							
Cumulative	1.017	1.003	1.001	1.001	1.001	1.001	1.001	1.000	1.000							

Notes:
 Development factors are claim count weighted averages from latest two years.
 (4): Section V-E, Exhibit 1.
 (6): Section V-F, Exhibit 1.

V 000030

Indemnity Paid + Case Losses (in 000's)

Policy Year (1)	Developed to Tenth Report (2)	Indemnity On-Level Factor (3)	On-Level Indemnity Losses (in 000's) Developed to Tenth Report = (2) x (3) (4)	Developed Claim Counts (5)	Severity = 1,000 x (4) / (5) (6)
2004_01	369,815	1.093	404,272	17,882	22,608
2005_01	357,483	1.082	386,771	17,230	22,447
2006_01	348,257	1.070	372,716	15,941	23,381
2007_01	352,050	1.059	372,678	15,734	23,686
2008_01	343,238	1.047	359,304	14,372	25,000
2009_01	334,888	1.043	349,127	13,329	26,192
2010_01	358,611	1.044	374,229	14,814	25,262
2011_01	388,406	1.037	402,718	14,856	27,108
2012_01	394,996	1.028	405,947	14,629	27,750
2013_01	430,769	1.023	440,875	14,821	29,747

Notes:

(2): (3) Exhibit 1, Page 2 + (3) Exhibit 1, Page 3.

(3): Section IV-A, Exhibit 1.

(5): Section V-B, Exhibit 1.

V 000031

Indemnity Paid + Case Losses (in 000's)
 Remainder of Industry

Policy Year (1)	Age of Development										Developed to Tenth Report (3)
	18	30	42	54	66	78	90	102	114	126	
	(2)										
2002_01	183,641	228,802	244,865	260,043	266,047	269,933	269,969	269,599	270,931	272,197	
2003_01	160,660	203,367	220,068	228,785	235,681	236,923	239,716	240,886	242,019	243,264	
2004_01	152,544	201,434	219,967	230,840	235,133	238,539	240,804	241,677	243,255	242,610	242,610
2005_01	148,688	187,037	203,017	212,967	218,418	218,940	221,333	221,114	222,083		222,357
2006_01	137,018	187,001	207,360	217,599	221,852	224,057		228,294			229,834
2007_01	148,712	195,815	216,202	226,335	233,391	238,191	240,944				243,171
2008_01	149,500	199,765	218,825	234,434	242,801	243,651					248,914
2009_01	161,142	209,683	236,484	256,887	259,736						268,496
2010_01	157,509	211,925	245,726	261,175							276,146
2011_01	173,342	236,988	271,985								308,956
2012_01	187,122	263,270									344,888
2013_01	204,053										370,981
	Age-to-Age Development Factors										
	18 - 30	30 - 42	42 - 54	54 - 66	66 - 78	78 - 90	90 - 102	102 - 114	114 - 126		
2 Yr Weighted Average	1.388	1.153	1.074	1.023	1.012	1.012	1.002	1.006	1.001		
Selected	1.388	1.153	1.074	1.023	1.012	1.012	1.002	1.006	1.001		
Cumulative	1.818	1.310	1.136	1.057	1.034	1.022	1.009	1.007	1.001		

Notes:
 Development factors are loss weighted average from latest two years.

V 000032

Indemnity Paid + Case Losses (in 000's)
 AIG

Policy Year (1)	Age of Development										Developed to Tenth Report (3)
	18	30	42	54	66	78	90	102	114	126	
	(2)										
2000_01	20,821	30,560	36,186	38,866	41,379	40,894	41,736	42,176	42,242	43,136	
2001_01	26,380	37,098	46,227	47,788	48,755	51,547	51,113	51,742	51,217	51,316	
2002_01	36,409	53,190	60,642	66,299	72,227	72,372	74,476	75,524	76,138	75,931	
2003_01	43,821	68,420	80,731	90,837	99,150	100,087	100,705	101,411	100,735	100,931	
2004_01	47,919	76,133	95,459	108,333	118,675	122,375	123,017	125,191	125,918	127,205	127,205
2005_01	54,630	87,563	108,123	125,074	133,586	133,942	133,272	134,299	134,356		135,126
2006_01	53,959	82,322	100,522	113,525	115,961	117,431	117,045	117,701			118,423
2007_01	48,495	77,849	90,867	101,632	105,764	107,013	107,119				108,879
2008_01	46,247	71,040	83,407	89,517	91,994	92,749					94,323
2009_01	31,501	50,358	61,311	63,804	64,428						66,393
2010_01	38,187	61,411	73,990	77,181							82,465
2011_01	36,370	56,011	68,425								79,450
2012_01	23,412	36,153									50,108
2013_01	27,566										59,788
Age-to-Age Development Factors											
	18 - 30	30 - 42	42 - 54	54 - 66	66 - 78	78 - 90	90 - 102	102 - 114	114 - 126		
5 Yr Weighted Average	1.565	1.194	1.087	1.037	1.013	1.001	1.010	1.000	1.006		
Selected	1.565	1.194	1.087	1.037	1.013	1.001	1.010	1.000	1.006		
Cumulative	2.169	1.386	1.161	1.068	1.031	1.017	1.016	1.006	1.006		

Notes:
 Development factors are loss weighted average from latest five years.

V 000033

Lost Time Medical Paid + Case Losses (in 000's)

Policy Year (1)	Developed to Tenth Report (2)	Medical On-Level Factor (3)	On-Level Lost Time Medical Losses (in 000's) Developed to Tenth Report = (2) x (3) (4)	Developed Claim Counts (5)	Severity = 1,000 x (4) / (5) (6)
2004_01	185,181	1.036	191,850	17,882	10,729
2005_01	174,988	1.032	180,587	17,230	10,481
2006_01	180,029	1.032	185,790	15,941	11,655
2007_01	177,297	1.032	182,970	15,734	11,629
2008_01	154,321	1.024	158,081	14,372	10,999
2009_01	171,521	1.002	171,816	13,329	12,890
2010_01	178,826	1.000	178,826	14,814	12,072
2011_01	195,592	1.000	195,592	14,856	13,166
2012_01	207,176	1.000	207,176	14,629	14,162
2013_01	223,765	1.000	223,765	14,821	15,098

Notes:

- (2): (3) Exhibit 1, Page 2 + (3) Exhibit 1, Page 3.
- (3): Section IV-A, Exhibit 1.
- (5): Section V-B, Exhibit 1.

V 000034

Lost Time Medical Paid + Case Losses (in 000's)
 Remainder of Industry

Policy Year (1)	Age of Development										Developed to Tenth Report (3)
	18	30	42	54	66	78	90	102	114	126	
	(2)										
2002_01	108,794	115,108	120,369	130,814	131,726	135,743	138,612	140,416	140,096	141,803	
2003_01	103,828	108,632	114,867	121,143	124,259	124,048	124,163	126,252	124,572	125,166	
2004_01	106,767	112,777	121,463	121,354	122,571	123,857	124,388	125,967	125,461	125,910	125,910
2005_01	93,946	99,157	104,056	107,256	111,613	113,016	113,125	113,245	113,917		114,392
2006_01	95,731	104,151	109,459	111,575	113,646	115,842	117,241	116,675			117,242
2007_01	114,497	122,175	124,323	127,784	128,460	132,662	136,029				136,426
2008_01	104,010	111,866	115,702	118,249	117,812	115,744					118,308
2009_01	120,331	128,335	133,492	136,765	136,393						140,623
2010_01	126,400	136,557	144,025	144,260							148,263
2011_01	128,519	144,366	149,803								155,905
2012_01	155,435	172,272									187,526
2013_01	165,450										200,831

	Age-to-Age Development Factors									
	18 - 30	30 - 42	42 - 54	54 - 66	66 - 78	78 - 90	90 - 102	102 - 114	114 - 126	
2 Yr Weighted Average	1.115	1.046	1.013	0.997	1.009	1.019	0.998	1.001	1.004	
Selected	1.115	1.046	1.013	0.997	1.009	1.019	0.998	1.001	1.004	
Cumulative	1.214	1.089	1.041	1.028	1.031	1.022	1.003	1.005	1.004	

Notes:
 Development factors are loss weighted average from latest two years.

V 000035

Lost Time Medical Paid + Case Losses (in 000's)
 AIG

Policy Year (1)	Age of Development										Developed to Tenth Report (3)
	18	30	42	54	66	78	90	102	114	126	
	(2)										
2000_01	10,481	12,528	18,920	19,099	14,003	14,282	14,375	14,410	14,903	14,641	
2001_01	16,267	16,468	16,490	17,933	17,871	18,170	18,452	18,279	18,257	18,880	
2002_01	23,634	26,109	28,763	31,026	33,040	33,414	30,977	31,742	30,830	30,487	
2003_01	31,184	35,047	39,176	42,506	44,773	43,925	42,026	39,541	39,628	39,725	
2004_01	35,081	43,887	48,865	57,885	60,525	60,098	57,589	59,569	59,481	59,271	59,271
2005_01	42,149	48,430	54,890	60,024	64,154	62,306	62,116	62,730	60,631		60,596
2006_01	44,771	49,509	54,209	57,446	57,265	57,023	56,735	63,736			62,787
2007_01	34,661	39,301	41,471	41,402	41,278	41,205	40,219				40,871
2008_01	31,534	36,123	36,877	36,707	36,172	36,244					36,013
2009_01	24,550	29,858	30,298	30,966	31,400						30,898
2010_01	25,593	28,728	30,615	30,558							30,563
2011_01	27,004	33,417	38,953								39,687
2012_01	15,853	18,119									19,650
2013_01	18,008										22,934
Age-to-Age Development Factors											
	18 - 30	30 - 42	42 - 54	54 - 66	66 - 78	78 - 90	90 - 102	102 - 114	114 - 126		
5 Yr Weighted Average	1.174	1.064	1.019	1.016	0.990	0.978	1.032	0.986	0.999		
Selected	1.174	1.064	1.019	1.016	0.990	0.978	1.032	0.986	0.999		
Cumulative	1.274	1.084	1.019	1.000	0.984	0.994	1.016	0.985	0.999		

Notes:
 Development factors are loss weighted average from latest five years.

V 000036

Medical Only Paid + Case Losses (in 000's)

Policy Year (1)	Developed to Tenth Report (2)	Medical On-Level Factor (3)	On-Level Medical Only Losses (in 000's) Developed to Tenth Report = (2) x (3) (4)	Developed Claim Counts (5)	Severity = 1,000 x (4) / (5) (6)
2004_01	27,545	1.036	28,537	43,016	663
2005_01	28,879	1.032	29,803	41,338	721
2006_01	28,248	1.032	29,152	38,149	764
2007_01	28,795	1.032	29,717	37,145	800
2008_01	26,435	1.024	27,079	33,194	816
2009_01	23,803	1.002	23,844	30,193	790
2010_01	25,506	1.000	25,506	31,995	797
2011_01	25,673	1.000	25,673	31,450	816
2012_01	25,014	1.000	25,014	29,547	847
2013_01	26,356	1.000	26,356	29,362	898

Notes:

(2): (3) Exhibit 2, Page 2 + (3) Exhibit 2, Page 3.

(3): Section IV-A, Exhibit 1.

(5): Section V-B, Exhibit 2.

V 000037

Medical Only Paid + Case Losses (in 000's)
 Remainder of Industry

Policy Year (1)	Age of Development										Developed to Tenth Report (3)
	18	30	42	54	66	78	90	102	114	126	
	(2)										
2002_01	21,238	22,497	22,767	22,484	22,454	22,377	22,389	22,417	22,407	22,421	
2003_01	20,809	21,924	22,521	22,758	22,690	22,661	22,626	22,630	22,627	22,644	
2004_01	19,423	20,020	20,162	20,152	20,260	20,319	20,300	20,276	20,194	20,206	20,206
2005_01	20,013	20,432	20,488	20,602	20,507	20,532	20,433	20,442	20,472		20,486
2006_01	20,324	20,613	20,650	20,579	20,595	20,599	20,426	20,520			20,508
2007_01	21,211	21,696	21,756	21,881	21,884	21,784	21,785				21,828
2008_01	20,740	20,804	20,914	20,875	20,908	21,033					20,988
2009_01	19,856	19,845	19,793	19,825	19,841						19,811
2010_01	21,208	21,098	21,032	21,024							21,018
2011_01	21,746	21,707	21,651								21,657
2012_01	22,482	22,324									22,267
2013_01	23,718										23,551

	Age-to-Age Development Factors								
	18 - 30	30 - 42	42 - 54	54 - 66	66 - 78	78 - 90	90 - 102	102 - 114	114 - 126
2 Yr Weighted Average	0.996	0.997	1.001	1.001	1.001	0.996	1.003	0.999	1.001
Selected	0.996	0.997	1.001	1.001	1.001	0.996	1.003	0.999	1.001
Cumulative	0.993	0.997	1.000	1.000	0.998	0.998	1.002	0.999	1.001

Notes:
 Development factors are loss weighted average from latest two years.

V 000038

Medical Only Paid + Case Losses (in 000's)
 AIG

Policy Year (1)	Age of Development										Developed to Tenth Report (3)
	18	30	42	54	66	78	90	102	114	126	
	(2)										
2000_01	1,699	1,769	1,789	1,814	1,817	1,811	1,812	1,808	1,808	1,808	
2001_01	2,627	2,731	2,783	2,794	2,766	2,763	2,764	2,765	2,750	2,765	
2002_01	3,856	4,115	4,248	4,191	4,214	4,296	4,348	4,384	4,269	4,262	
2003_01	5,262	5,395	5,474	5,440	5,422	5,561	5,510	5,512	5,610	5,590	
2004_01	6,949	7,715	7,485	7,353	7,358	7,358	7,335	7,334	7,334	7,339	7,339
2005_01	8,176	8,428	8,421	8,483	8,487	8,462	8,403	8,397	8,395		8,392
2006_01	7,512	7,764	7,777	7,762	7,795	7,752	7,751	7,751			7,740
2007_01	6,845	6,920	6,945	6,946	6,946	6,940	6,971				6,967
2008_01	5,121	5,393	5,418	5,473	5,496	5,465					5,447
2009_01	3,752	3,942	3,956	3,999	4,018						3,992
2010_01	4,372	4,436	4,414	4,506							4,488
2011_01	3,804	3,932	4,007								4,016
2012_01	2,685	2,728									2,747
2013_01	2,690										2,804
	Age-to-Age Development Factors										
	18 - 30	30 - 42	42 - 54	54 - 66	66 - 78	78 - 90	90 - 102	102 - 114	114 - 126		
5 Yr Weighted Average	1.035	1.005	1.006	1.002	0.997	0.997	1.001	0.999	1.000		
Selected	1.035	1.005	1.006	1.002	0.997	0.997	1.001	0.999	1.000		
Cumulative	1.042	1.007	1.002	0.996	0.994	0.997	0.999	0.999	1.000		

Notes:
 Development factors are loss weighted average from latest five years.

V 000039

Worker Weeks by Policy Year

Policy Year (1)	Payroll (in millions of dollars)										Developed to Tenth Report (3)	State Average Weekly Wage (4)	Estimated Million Worker-Weeks = (3) / (4) (5)	
	Age of Development													
	18	30	42	54	66	78	90	102	114	126				
	(2)													
1999_01											61,734	61,734	845.24	73.04
2000_01											68,806	68,806	886.71	77.60
2001_01											68,074	68,074	883.36	77.06
2002_01									68,945		68,965	68,965	894.05	77.14
2003_01								68,995	69,014		69,014	69,014	928.90	74.30
2004_01								69,415	69,421	69,408	69,408	69,408	969.11	71.62
2005_01							74,392	74,392	74,392	74,392	74,392	74,392	1,011.25	73.56
2006_01					79,895	79,895	79,895	79,893	79,893		79,885	79,885	1,056.18	75.64
2007_01				85,518	85,517	85,512	85,512	85,512			85,504	85,504	1,092.12	78.29
2008_01			85,845	85,859	85,857	85,858					85,849	85,849	1,092.79	78.56
2009_01		82,929	82,925	82,945	82,946						82,935	82,935	1,101.70	75.28
2010_01	92,511	91,412	91,437	91,385							91,373	91,373	1,144.80	79.82
2011_01	97,573	97,533	97,506								97,476	97,476	1,174.21	83.01
2012_01	99,353	99,683									99,650	99,650	1,190.50	83.70
2013_01	104,347										104,466	104,466	1,225.60	85.24

Age-to-Age Development Factors

	18 - 30	30 - 42	42 - 54	54 - 66	66 - 78	78 - 90	90 - 102	102 - 114	114 - 126
2 Yr Weighted Average	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Selected	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Cumulative	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Notes:
 Development factors are payroll weighted average from latest two years.
 (4): Section V-G, Exhibit 2.
 For all policy years the following class codes are excluded from reported Schedule Z payrolls: 0059, 0065, 0066, 0067, 0088, 0770, 0773, 0774, 0775, 0776, 0779, 0799, 0908, 0909, 0912, 0913, 7445, 7453, and 9985.

V 000040

V 000041

Section V - Trend
Subsection F - Calculation of Class Mix Adjustment Factor
7/1/2016

Section V - F
Exhibit 1

Class Mix Adjustment Factors

Policy Year (1)	Average Manual Rates Based on Rates Effective 4/1/14 (2)	Class Mix Adjustment Factor = 0.944 / (2) (3)
1999	1.112	0.849
2000	1.085	0.870
2001	1.087	0.868
2002	1.103	0.856
2003	1.127	0.838
2004	1.117	0.845
2005	1.079	0.874
2006	1.018	0.928
2007	0.974	0.970
2008	0.940	1.005
2009	0.928	1.017
2010	0.923	1.023
2011	0.923	1.023
2012	0.932	1.013
2013	0.944	1.000

Notes:

(2): Current rates (Effective 4/1/14) averaged over class payrolls (excluding large deductibles) by Policy Year.

(3): Adjustment to 2013 Policy Year level.

Periods from which NCCI Data is Taken

State	Annual Statistical Bulletin - Weights					Annual Statistical Bulletin - Policy Period Beginning Dates					
	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015	
Alabama	1.7%	1.6%	1.9%	1.4%	1.7%	5/1/2007	5/1/2008	5/1/2009	5/1/2010	5/1/2011	
Alaska	0.7%	0.7%	0.8%	0.8%	0.8%	4/1/2007	4/1/2008	4/1/2009	4/1/2010	4/1/2011	
Arizona	2.6%	2.5%	2.2%	2.3%	2.3%	3/1/2007	3/1/2008	3/1/2009	3/1/2010	3/1/2011	
Arkansas	0.7%	0.8%	0.8%	0.8%	0.8%	2/1/2008	2/1/2009	2/1/2010	2/1/2011	2/1/2012	
Colorado	3.2%	3.3%	3.3%	3.6%	3.5%	3/1/2007	3/1/2008	3/1/2009	3/1/2010	3/1/2011	
Connecticut	3.2%	3.3%	3.5%	3.5%	3.3%	8/1/2007	8/1/2008	8/1/2009	8/1/2010	8/1/2011	
District Of Columbia	0.4%	0.3%	0.3%	0.3%	0.5%	2/1/2007	2/1/2008	2/1/2009	2/1/2010	2/1/2011	
Florida	9.5%	9.2%	8.9%	8.8%	8.6%	1/1/2007	1/1/2008	1/1/2009	1/1/2010	1/1/2011	
Georgia	5.4%	4.9%	4.7%	4.6%	4.9%	7/1/2007	7/1/2008	7/1/2009	7/1/2010	7/1/2011	
Hawaii	0.7%	0.7%	0.7%	0.7%	0.7%	6/1/2007	6/1/2008	6/1/2009	6/1/2010	6/1/2011	
Idaho	1.0%	1.1%	1.2%	1.1%	1.2%	7/1/2007	7/1/2008	7/1/2009	7/1/2010	7/1/2011	
Illinois	12.3%	12.3%	12.0%	12.2%	11.1%	4/1/2007	4/1/2008	4/1/2009	4/1/2010	4/1/2011	
Indiana	2.8%	2.8%	3.0%	3.1%	3.2%	7/1/2007	7/1/2008	7/1/2009	7/1/2010	7/1/2011	
Iowa	2.4%	2.5%	2.9%	2.8%	2.8%	3/1/2007	3/1/2008	3/1/2009	3/1/2010	3/1/2011	
Kansas	1.7%	1.7%	1.9%	2.0%	1.7%	7/1/2007	7/1/2008	7/1/2009	7/1/2010	7/1/2011	
Kentucky	2.3%	2.1%	2.2%	2.1%	1.7%	5/1/2007	5/1/2008	5/1/2009	5/1/2010	5/1/2011	
Louisiana	2.8%	2.7%	3.0%	3.0%	3.3%	9/1/2007	9/1/2008	9/1/2009	9/1/2010	9/1/2011	
Maine	0.9%	0.8%	0.8%	0.7%	0.9%	6/1/2007	6/1/2008	6/1/2009	6/1/2010	6/1/2011	
Maryland	2.8%	3.2%	3.2%	3.3%	3.4%	4/1/2007	4/1/2008	4/1/2009	4/1/2010	4/1/2011	
Mississippi	1.1%	1.2%	1.4%	1.3%	1.3%	9/1/2007	9/1/2008	9/1/2009	9/1/2010	9/1/2011	
Missouri	3.3%	2.9%	3.2%	3.5%	3.5%	7/1/2007	7/1/2008	7/1/2009	7/1/2010	7/1/2011	
Montana	1.3%	1.5%	1.2%	0.9%	0.8%	1/1/2008	1/1/2009	1/1/2010	1/1/2011	1/1/2012	
Nebraska	1.2%	1.1%	1.4%	1.2%	1.2%	8/1/2007	8/1/2008	8/1/2009	8/1/2010	8/1/2011	
Nevada	1.6%	1.5%	1.3%	1.2%	1.2%	1/1/2007	1/1/2008	1/1/2009	1/1/2010	1/1/2011	
New Hampshire	1.0%	1.1%	1.2%	1.0%	1.0%	4/1/2007	4/1/2008	4/1/2009	4/1/2010	4/1/2011	
New Mexico	1.1%	1.1%	1.1%	1.1%	1.2%	7/1/2007	7/1/2008	7/1/2009	7/1/2010	7/1/2011	
North Carolina	5.7%	6.0%	5.8%	5.6%	6.3%	1/1/2007	1/1/2008	1/1/2009	1/1/2010	1/1/2011	
Oklahoma	3.6%	3.6%	3.7%	3.5%	3.4%	6/1/2007	6/1/2008	6/1/2009	6/1/2010	6/1/2011	
Oregon	2.5%	2.5%	2.6%	2.5%	2.3%	1/1/2007	1/1/2008	1/1/2009	1/1/2010	1/1/2011	
Rhode Island	0.7%	0.6%	0.8%	0.7%	0.7%	1/1/2007	1/1/2008	1/1/2009	1/1/2010	1/1/2011	
South Carolina	2.8%	2.6%	2.7%	3.0%	2.8%	5/1/2007	5/1/2008	5/1/2009	5/1/2010	5/1/2011	
South Dakota	0.6%	0.4%	0.5%	0.6%	0.5%	1/1/2008	1/1/2009	1/1/2010	1/1/2011	1/1/2012	
Tennessee	3.8%	3.8%	3.6%	3.7%	3.6%	6/1/2007	6/1/2008	6/1/2009	6/1/2010	6/1/2011	
Texas	7.5%	7.6%	6.8%	7.1%	7.9%	1/1/2007	1/1/2008	1/1/2009	1/1/2010	1/1/2011	
Utah	1.5%	1.4%	1.2%	1.6%	1.5%	7/1/2007	7/1/2008	7/1/2009	7/1/2010	7/1/2011	
Vermont	0.5%	0.6%	0.6%	0.7%	0.6%	7/1/2007	7/1/2008	7/1/2009	7/1/2010	7/1/2011	
Virginia	3.4%	3.4%	3.5%	3.4%	3.7%	2/1/2007	2/1/2008	2/1/2009	2/1/2010	2/1/2011	
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%						
						Policy Period Start Date	4/13/2007	4/13/2008	4/15/2009	4/15/2010	4/13/2011
						Average Earned Date	4/13/2008	4/13/2009	4/15/2010	4/15/2011	4/13/2012
						Years	1.00	2.00	3.00	4.00	5.00

Notes:
 Weights are derived from data obtained from NCCI that underlies the NCCI Annual Statistical Bulletins.

V 000042

Summary of Statewide Average Weekly Wage (SAWW) Data

Date Promulgated by DUA (1)	Period of Data Used by DUA (2)	SAWW (3)
10/1/97	4/1/96 to 4/1/97	665.55
10/1/98	4/1/97 to 4/1/98	699.91
10/1/99	4/1/98 to 4/1/99	749.69
10/1/00	4/1/99 to 4/1/00	830.89
10/1/01	4/1/00 to 4/1/01	890.94
10/1/02	4/1/01 to 4/1/02	882.57
10/1/03	4/1/02 to 4/1/03	884.46
10/1/04	4/1/03 to 4/1/04	918.78
10/1/05	4/1/04 to 4/1/05	958.58
10/1/06	4/1/05 to 4/1/06	1,000.43
10/1/07	4/1/06 to 4/1/07	1,043.54
10/1/08	4/1/07 to 4/1/08	1,093.27
10/1/09	4/1/08 to 4/1/09	1,094.70
10/1/10	4/1/09 to 4/1/10	1,088.06
10/1/11	4/1/10 to 4/1/11	1,135.82
10/1/12	4/1/11 to 4/1/12	1,173.06
10/1/13	4/1/12 to 4/1/13	1,181.28
10/1/14	4/1/13 to 4/1/14	1,214.99
10/1/15	4/1/14 to 4/1/15	1,256.47
15 Year Exponential Fit, Trend =		2.7%

Policy Year (4)	SAWW (5)
1999_01	845.24
2000_01	886.71
2001_01	883.36
2002_01	894.05
2003_01	928.90
2004_01	969.11
2005_01	1,011.25
2006_01	1,056.18
2007_01	1,092.12
2008_01	1,092.79
2009_01	1,101.70
2010_01	1,144.80
2011_01	1,174.21
2012_01	1,190.50
2013_01	1,225.60

Notes:

(5): SAWW for Policy Year $i = [0.03125 \times \text{SAWW during period } 4/1/(i-1) \text{ to } 4/1/i] + [0.6875 \times \text{SAWW during period } 4/1/i \text{ to } 4/1/(i+1)] + [0.28125 \times \text{SAWW during period } 4/1/(i+1) \text{ to } 4/1/(i+2)]$

The DUA is the Department of Unemployment Assistance; previously this data was compiled by the DET (Division of Employment and Training).

V 000044

Section V - Trend
 Subsection H - Expense Trends
 7/1/2016

Section V - H
 Exhibit 1

Calculation of Expense Trend Index

Time Interval (1)	Time Index (2)	Expense Trend Index (3)	Expense Trend Factors		
			PY2012 (4)	PY2013 (5)	7/1/2016 (6)
CY2000	7/1/2000	60.81			
CY2001	7/1/2001	63.06			
CY2002	7/1/2002	64.04			
CY2003	7/1/2003	67.97			
CY2004	7/1/2004	73.97			
CY2005	7/1/2005	82.47			
CY2006	7/1/2006	80.58			
CY2007	7/1/2007	88.70			
CY2008	7/1/2008	94.45			
CY2009	7/1/2009	94.97			
CY2010	7/1/2010	97.47			
CY2011	7/1/2011	93.83			
CY2012	7/1/2012	94.07	1.029	1.061	1.101
CY2013	7/1/2013	99.60	0.972	1.002	1.040
CY2014	7/1/2014	100.00	0.968	0.998	1.036

15 Year Exponential Fit, Trend: 3.9%

PY2012	1/1/2013	96.83			1.070
PY2013	1/1/2014	99.80			1.038
7/1/2015	7/1/2016	102.39			1.012
7/1/2016	7/1/2017	103.61			

Notes:

- (1): 7/1/15 and 7/1/16 are time intervals comparable to the policy years.
- (2): Midpoint of the time interval used for determination of Expense Trend Index exponential trend rate of 1.2%.
- (3): Calendar Years: Exhibit 2, Page 2 - Average of (10) through (16) weighted by (18) through (24)
 PY2012 - Average of indices for CY2012 and CY2013.
 PY2013 - Average of indices for CY2013 and CY2014.
 The exponential trend rate derived from an exponential regression of the Expense Trend Index for CY2008 - CY2014 is applied to the CY2014 Expense Trend Index value to derive the Expense Trend Index values for 7/1/2015 and 7/1/2016
- (4) = [(3) for PY2012] / (3)
- (5) = [(3) for PY2013] / (3)
- (6) = [(3) for 7/1/2016] / (3)

Calculation of Credibility Weighted Expense Trend

Calendar Year (1)	Expense Index (2)	7 Year Exponential Fit (3)	Difference Squared (4)
2008	94.45	93.95	0.24
2009	94.97	94.73	0.06
2010	97.47	95.52	3.79
2011	93.83	96.31	6.14
2012	94.07	97.11	9.25
2013	99.60	97.91	2.85
2014	100.00	98.72	1.63

(5)	7 Year Expense Index Trend	0.8%
(6)	n	7
(7)	s	2.19
(8)	t	2.02
(9)	m	6.00
(10)	$[1 + 1/n + 12 \times m^2 / (n^3 - n)]^{.5}$	1.56
(11)	Confidence Interval	6.88
(12)	Projected Value Prospective Period	101.20
(13)	CI/Projected Expense Index	0.07
(14)	Credibility - 7 Year Expense Index Trend (Z)	88%
(15)	Complement of Credibility - 15 year	3.9%
(16)	Credibility Weighted Expense Trend	1.2%

Notes:

- (2): Exhibit 1.
- (5): 7 Year Massachusetts Trend from seven-year exponential fit to expense trend indices.
- (6): Number of data points used in the exponential fitting of the 7 Year Massachusetts Trend.
- (7): $\sqrt{SSR/(n-2)}$ where SSR is the sum of squared residuals and n is the number of data points used in the exponential fitting of the data.
- (8): T-value based on a two-tailed t-test with probability parameter, p, of 90% and a t-distribution with 5 (= n - 2) degrees of freedom.
- (9): Number of years between midpoint of data and projected point.
- (11) = (7) x (8) x (10)
- (12): Projected to prospective effective period using exponential fit to data.
- (13) = (11) / (12)
- (14): The credibility is the ratio of the target value, k, to the quotient of the confidence interval and the projected frequency, capped at 100%.
 Numerically, (14) = the minimum of k / (13) and 100%.
- (15): Complement of credibility is based on a 15-year exponential fit, Exhibit 1.
- (16) = [(5) x (14)] + { (15) x [1.0 - (14)] }

Calculation of Expense Trend Index

Economic Indices							
Calendar Year (1)	Average Weekly Earnings (2)	Food (3)	Private Transportation (4)	Phone (5)	Postage (6)	Machines & Equipment (7)	Paper (8)
2000	1,075.00	169.00	150.10	98.70	165.60	112.70	149.80
2001	1,133.00	173.80	150.80	99.40	172.10	112.70	150.60
2002	1,166.00	178.20	149.00	99.90	182.60	112.50	144.70
2003	1,265.00	182.00	153.50	98.50	191.70	112.30	146.10
2004	1,406.00	187.40	158.80	96.00	191.70	113.20	149.40
2005	1,609.00	193.30	170.30	95.00	191.70	115.10	159.60
2006	1,559.00	199.10	177.50	95.90	201.90	114.70	167.40
2007	1,752.00	206.41	181.50	98.37	206.88	114.60	169.30
2008	1,865.00	215.61	192.49	100.50	213.86	122.10	184.30
2009	1,873.00	223.38	173.49	102.34	224.22	123.50	179.60
2010	1,940.00	226.20	189.26	102.09	230.14	121.00	182.10
2011	1,842.00	231.50	209.94	100.63	239.40	122.20	191.20
2012	1,846.00	238.19	215.46	100.96	247.83	121.20	191.60
2013	1,985.00	243.13	214.71	100.64	263.37	117.60	190.80
2014	1,990.00	249.00	212.77	99.93	274.08	118.80	192.70

Economic Indices, Normalized to Calendar Year 2014 Index of 100							
Calendar Year (9)	Average Weekly Earnings (10)	Food (11)	Private Transportation (12)	Phone (13)	Postage (14)	Machines & Equipment (15)	Paper (16)
2000	54.02	67.87	70.55	98.77	60.42	94.87	77.74
2001	56.93	69.80	70.87	99.47	62.79	94.87	78.15
2002	58.59	71.57	70.03	99.97	66.62	94.70	75.09
2003	63.57	73.09	72.14	98.57	69.94	94.53	75.82
2004	70.65	75.26	74.63	96.07	69.94	95.29	77.53
2005	80.85	77.63	80.04	95.07	69.94	96.89	82.82
2006	78.34	79.96	83.42	95.97	73.67	96.55	86.87
2007	88.04	82.90	85.30	98.44	75.48	96.46	87.86
2008	93.72	86.59	90.47	100.57	78.03	102.78	95.64
2009	94.12	89.71	81.54	102.41	81.81	103.96	93.20
2010	97.49	90.85	88.95	102.16	83.97	101.85	94.50
2011	92.56	92.97	98.67	100.70	87.35	102.86	99.22
2012	92.76	95.66	101.26	101.03	90.42	102.02	99.43
2013	99.75	97.64	100.91	100.71	96.09	98.99	99.01
2014	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Weights							
Calendar Year (17)	Average Weekly Earnings (18)	Food (19)	Private Transportation (20)	Phone (21)	Postage (22)	Machines & Equipment (23)	Paper (24)
2000	77.1%	2.7%	2.7%	2.5%	2.5%	10.1%	2.4%
2001	78.0%	2.3%	2.3%	2.5%	2.5%	10.0%	2.3%
2002	79.5%	2.2%	2.2%	2.4%	2.4%	9.5%	1.9%
2003	80.2%	2.1%	2.1%	2.1%	2.1%	9.4%	1.9%
2004	79.9%	2.1%	2.1%	1.8%	1.8%	10.4%	1.8%
2005	79.8%	2.1%	2.1%	2.0%	2.0%	10.0%	2.0%
2006	80.9%	2.1%	2.1%	1.8%	1.8%	9.3%	1.8%
2007	79.9%	2.1%	2.1%	1.8%	1.8%	10.4%	1.8%
2008	78.3%	2.1%	2.1%	1.9%	1.9%	11.9%	1.8%
2009	79.5%	1.6%	1.6%	1.8%	1.8%	12.3%	1.4%
2010	80.3%	1.8%	1.8%	2.0%	2.0%	10.7%	1.4%
2011	81.8%	1.8%	1.8%	1.7%	1.7%	9.9%	1.1%
2012	82.0%	1.8%	1.8%	1.6%	1.6%	10.0%	1.1%
2013	81.2%	1.9%	1.9%	1.5%	1.5%	11.0%	0.9%
2014	80.9%	2.1%	2.1%	1.5%	1.5%	10.9%	0.9%

Notes:

- (2): Average Weekly Earnings, Covered Employment and Wages, Private Fire, Marine, and Casualty Insurers - Massachusetts
 Unadjusted for Seasonality
 Years CY2008 - CY2014: Bureau of Labor Statistics, Series ID ENU25000405524126 (Direct Property and Casualty Insurers Average Weekly Wage.)
- (3): Food Away From Home, Consumer Price Index, Urban Wage Earners and Clerical Workers - U.S.
 Unadjusted for Seasonality, Base: 1982 - 1984 = 100. Bureau of Labor Statistics, Series ID CWUR0000SEFV.
- (4): Private Transportation, Consumer Price Index, Urban Wage Earners and Clerical Workers - U.S.
 Unadjusted for Seasonality, Base: 1982 - 1984 = 100. Bureau of Labor Statistics, Series ID CWUR0000SAT1.
- (5): Telephone Services, Consumer Price Index, Urban Wage Earners and Clerical Workers - U.S.
 Unadjusted for Seasonality, Base: December 1997= 100. Bureau of Labor Statistics, Series ID CWUR0000SEED.
- (6): Postage, Consumer Price Index, Urban Wage Earners and Clerical Workers - U.S.
 Unadjusted for Seasonality, Base: 1982 - 1984 = 100. Bureau of Labor Statistics, Series ID CWUR0000SEEC01.
- (7): Office and Store Machines and Equipment, Producer Price Index
 Unadjusted for Seasonality, Base: 1982 = 100. Bureau of Labor Statistics, Series ID WPU1193.
- (8): Paper, Producer Price Index
 Unadjusted for Seasonality, Base: 1982 - 1984 = 100. Bureau of Labor Statistics, Series ID WPU0913.
- (18)-(24): Section V-H, Exhibit 2, for Calendar Year 2013-2014. Prior Filings for all other years.

Calendar Year 2013
 Weights for Expense Trends

Expense Component (1)	Percentage of Net Written Premium (2)	% of Total = (2) / Total (2) (3)	Corresponding Index (4)	Weights (5)
Salaries	7.32%	62.1%		
Payroll Taxes	0.51%	4.3%	Average Weekly Earnings Covered Employment and Wages; Private Fire, Marine, Casualty Massachusetts	81.2%
Employee Relations	1.74%	14.8%		
<hr/>				
Travel & Travel Items	0.45%	3.8%	Food Away From Home-CPI-US	1.9%
			Private Transportation-CPI-US	1.9%
<hr/>				
Postage & Telephone	0.35%	3.0%	Postage-CPI-US	1.5%
			Telephone-CPI-US	1.5%
<hr/>				
Equipment	1.30%	11.0%	Office & Stores Machines & Equipment-PPI	11.0%
<hr/>				
Printing & Stationery	0.11%	0.9%	Paper-PPI	0.9%
<hr/>				
Total	11.78%	100.0%		100.0%

Notes:

(2): 2015 Best's Aggregates and Averages, Property-Casualty, Totals for Predominately Commercial Casualty Companies with Written Premium Net of Reinsurance Ceded over \$15 million.

(5) = Based on (3)

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Section V - Trend
 Subsection H - Expense Trends
 7/1/2016

Section V - H
 Exhibit 2
 Page 4

Calendar Year 2014
 Weights for Expense Trends

Expense Component (1)	Percentage of Net Written Premium (2)	% of Total = (2) / Total (2) (3)	Corresponding Index (4)	Weights (5)
Salaries	7.38%	63.0%		
Payroll Taxes	0.53%	4.5%	Average Weekly Earnings Covered Employment and Wages; Private Fire, Marine, Casualty Massachusetts	80.9%
Employee Relations	1.56%	13.3%		
Travel & Travel Items	0.50%	4.3%	Food Away From Home-CPI-US Private Transportation-CPI-US	2.1% 2.1%
Postage & Telephone	0.36%	3.1%	Postage-CPI-US Telephone-CPI-US	1.5% 1.5%
Equipment	1.28%	10.9%	Office & Stores Machines & Equipment-PPI	10.9%
Printing & Stationery	0.10%	0.9%	Paper-PPI	0.9%
Total	11.71%	100.0%		100.0%

Notes:

(2): 2015 Best's Aggregates and Averages, Property-Casualty, Totals for Predominately Commercial Casualty Companies with Written Premium Net of Reinsurance Ceded over \$15 million.

(5) = Based on (3)

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Section V - Trend
 Subsection H - Expense Trends
 7/1/2016

Section V - H
 Exhibit 3

Exposure Growth Estimate Based on Trend in Million Worker-Weeks

Policy Year (1)	Estimated Million Worker-Weeks (2)	5 Year Exponential Fit (3)	Difference Squared (4)
1999	73.04		
2000	77.60		
2001	77.06		
2002	77.14		
2003	74.30		
2004	71.62		
2005	73.56		
2006	75.64		
2007	78.29		
2008	78.56		
2009	75.28	76.66	1.89
2010	79.82	78.96	0.73
2011	83.01	81.33	2.83
2012	83.70	83.77	0.00
2013	85.24	86.29	1.11

15 Year Million Worker-Weeks Trend

0.8%

(5)	5 Year MA Trend	3.0%
(6)	n	5
(7)	s	1.48
(8)	t	2.35
(9)	m	5.50
(10)	$[1 + 1/n + 12 \times m^2 / (n^3 - n)]^{.5}$	2.05
(11)	Confidence Interval	7.16
(12)	Projected	95.70
(13)	CI / Projected	0.07
(14)	Credibility - 5 Year MA Trend (Z)	80%
(15)	Complement of Credibility	0.8%
(16)	Credibility-Weighted Overall Exposure Growth	2.6%

Notes:

(2): Section V-E, Exhibit 1.

(5): 5 Year Massachusetts Trend from five-year exponential fit to estimated million worker-weeks.

(6): Number of data points used in the exponential fitting of the 5 Year Massachusetts Trend.

(7): $\sqrt{SSR / (n-2)}$ where SSR is the sum of squared residuals and n is the number of data points used in the exponential fitting of the data.

(8): T-value based on a two-tailed t-test with probability parameter, p, of 90% and a t-distribution with 3 (= n - 2) degrees of freedom.

(9): Number of years between midpoint of data and projected point.

(11) = (7) x (8) x (10)

(12): Million Worker-Weeks projected to prospective effective period using exponential fit to data.

(13) = (11) / (12)

(14): The credibility is the ratio of the target value, k, to the quotient of the confidence interval and the projected frequency, capped at 100%.

Numerically, (14) = the minimum of k / (13) and 100%.

(15): Complement of credibility is based on a 15-year exponential fit.

(16) = [(5) x (14)] + { (15) x [1.0 - (14)] }

EXPENSES

In this filing, the WCRIBMA has used the same methods to calculate expenses as it used in its 2011, 2012, and 2014 rate filings, except for Defense and Cost Containment Expenses (“DCCE”). These methods, and changes to them, are described below.

Fixed Expenses

The provision for fixed expenses has three components: general expenses, Pool expenses, and other taxes and was calculated using the same methods used to calculate these expenses in the 2011, 2012, and 2014 rate filings.

The determination of the general expense allowance involves estimating general expenses from the latest three available calendar years of Massachusetts data (Section VI-B, Exhibit 2, Page 2). For each of the three years, a general expense ratio calculated from industrywide data is applied to Massachusetts standard earned premium plus ARAP, excluding expense constant revenue, to obtain an estimate of Massachusetts general expenses for all companies (Section VI-B, Exhibit 2, Page 1). These estimated general expense dollars are trended and adjusted for exposure growth to be consistent with the data periods on which the rate indication in Section I is based. The three years of estimated general expenses are averaged to obtain an estimate of Massachusetts general expense requirements for all companies. As in all of the filings from 2003 forward, general expenses relating to Boards and Bureaus were estimated using the actual WCRIBMA expenses taken from WCRIBMA Financial Statements and

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Expense Analysis Report rather than the Incurred Boards and Bureaus expense item from the Expense Call.

The latest three available years of Massachusetts data, taken from the Massachusetts Workers' Compensation Assigned Risk Pool Annual Report and the WCRIBMA Financial Statements and Expense Analysis Report, are used to determine the Pool expense allowance (Section VI-B, Exhibit 1). The estimated Pool expense dollars are trended and adjusted for exposure growth to be consistent with the data periods on which the rate indication in Section I is based. The three years of estimated Pool expenses are averaged to obtain an estimate of Massachusetts Pool expense requirements for all companies.

The WCRIBMA used the “Other Tax” percentage for the “Commercial Casualty” line as compiled in Best's Aggregates and Averages (2015) to estimate the allowance for miscellaneous taxes in Massachusetts. The resulting allowance for other taxes is then trended and adjusted for exposure growth to be consistent with the experience periods on which the rate indication in Section I is based (Section VI-C).

Variable Expenses

As in the past, the variable expense ratio is comprised of the following components: commissions, other acquisition expenses, premium discounts and premium taxes. As in recent filings, the WCRIBMA has also considered two additional variable expenses which are described below: earned but uncollectible premium net of incidental income and the “frictional costs” of reinsurance.

Commissions

The provision for commission expenses is calculated in this filing using the same method as was used in the 2012 and 2014 rate filings.¹ The WCRIBMA calculated ratios of direct commission expenses to direct written premium for each of the latest three calendar years using data reported on carriers' Annual Statements.² A three-year average is used to derive the commission expense ratio (Section VI-G, Exhibit 3). The provision for commission expenses could also be evaluated using data that excludes large deductible policies, for which producers are often compensated directly by an insured resulting in no, or very small commissions paid by the insurer.³ Although the WCRIBMA does not currently have such data, a filing is currently pending that includes proposed changes to the Massachusetts Workers' Compensation Statistical Plan specifically requiring carriers to report commissions paid on large deductibles beginning with calendar year 2016. Such data would allow the WCRIBMA to remove the impact of large deductible commissions from the commission data collected from Annual Statements when estimating the provision for commission expenses in the future.⁴

¹ In the 2012 rate filing, the WCRIBMA made a change by using written premium as opposed to earned premiums when estimating the provision for commission expense. Although the 2003 filing used earned premiums, the 2003 and 2012 rate filings are substantively consistent on this point: both derived ratios of commission expense to premiums net of deductible credits. If the WCRIBMA were to use the method it employed in the 2003 rate filing in this rate filing, the provision for commission expense would be 0.3% higher and the rate indication would be 0.5% higher.

² This is consistent with the Commissioner's 1987 Decision (p. 78), in which the Commissioner outlined a simple method for determining expense which he would consider to be reasonable. "First, expenses should be divided into those which can properly be considered to vary directly with premiums and those which cannot. The 2.3 percent premium tax and commissions fall into the first category, general expenses and other taxes (generally related to payroll) fall into the latter group."

³ The Massachusetts Division of Insurance published a regulatory bulletin that addresses this trend on October 4, 2013. Bulletin 2013-09; Fees Charged by Insurance Producers Relative to the Sale of Insurance in the Commonwealth.

⁴ The Commissioner's 2012 Decision also asked the State Rating Bureau ("SRB") and the Office of the Attorney General ("OAG") to collaborate with the WCRIBMA on developing systems to provide data regarding payments on large deductible and retrospectively rated policies, and the allocation in such

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Based on language in the 2012 Decision, the WCRIBMA also revisited its analysis of retrospectively rated policies and determined that the methods used in the filing remain reasonable. Unlike rate deviations in Massachusetts which can only be used to reduce a WCRIBMA approved manual rate and an insured's resulting premium, retrospective rating exposes an insured to the risk of paying additional premiums if loss experience is poor or receiving return premiums if the loss experience is good. The retrospective rating plan is designed to balance the additional premiums paid by some insureds opting for retrospectively rated policies with the return premium received by other insureds, such that the expected average retrospective premium adjustment is zero. In other words, retrospectively rated policies, on average, should generate the same premium as guaranteed cost policies. Given a correctly calibrated retrospective rating plan and a workers' compensation market as large as Massachusetts, direct premiums associated with retrospectively rated policies will approximate guaranteed cost premiums and therefore not cause any material distortion in the premium base used by the WCRIBMA to estimate a provision for commission expense. The WCRIBMA surveyed a number of its larger member carriers about the commissions they pay as a consequence of retrospective premium adjustments. All carriers indicated, not surprisingly, that they do not pay commissions on retrospective premium adjustments. Retrospective premium adjustments that require an insured to pay additional premiums are a consequence of poor loss experience. Paying producers

policies of other expenses between insurers and policyholders. The WCRIBMA began to consider the best methods to provide this data following the 2012 decision, and agreed to work on these issues with the OAG and SRB as part of the stipulation governing the 2014 rate filing. The WCRIBMA also presented a proposal for collecting this data to the SRB and OAG for comment and feedback. That proposal included changing the Massachusetts Workers' Compensation Statistical Plan to require the reporting of large deductible commissions as described above.

commissions for the additional premiums generated by retrospective premium adjustments creates a perverse incentive: the producers' income increases as the loss experience (and workplace safety) deteriorates. An equally unlikely scenario exists if producers were asked to return previously paid commissions because an insured's loss experience was good and the insured's retrospectively rated policy called for a return of premium to the insured. In short, commissions associated with retrospective premium adjustments do not create any distortion in the WCRIBMA estimation of the provision for commission expense because commissions are not paid (or returned) in response to retrospective rating adjustments.

Other Acquisition Expense

The WCRIBMA calculates the other acquisition expense load by taking the ratios of reported other acquisition expenses to reported standard earned premium for each of the latest three calendar years. The WCRIBMA then averages these three ratios to determine the other acquisition expense ratio (Section VI-G, Exhibit 2).

Premium Discounts

The average premium discount is calculated from the Premium Discount Schedules using the methodology used in the Commissioner's Decision on September 1, 1999 Rates and used in each of the WCRIBMA's subsequent rate filings. For interstate-rated risks, the parameter estimate of Massachusetts premium relative to countywide premium is not assumed to be a constant 40% for all policies as was the case prior to the 2011 rate filing. As in the 2011, 2012 and 2014 rate filings, the Massachusetts portion of the interstate-rated premium is based on actual historical rating data which is considered more accurate and representative of the market.

VI 000006

Carriers in Massachusetts may elect to use either the Type A or the Type B premium discount table. Based on the projected distribution of policy size and the two available premium discount tables, the WCRIBMA estimated an average premium discount for the Type A and Type B tables, separately. These two averages are weighted using the percentages of voluntary market premium written by Type A insurers and Type B insurers (Section VI-E, Exhibit 1) as weights. The resulting average premium discount for the voluntary market is used, in turn, to obtain the premium discount used in the overall rate indication in Section I.

The premium tax rate is 2.28% of net premiums. To put this expense on a “standard premium plus ARAP” basis, the WCRIBMA multiplies the premium tax rate by one minus the “average premium discount for the total market” in Section VI-E, Exhibit 1.

Incidental Income and Earned but Uncollectible Premium

During the hearing on 2003 rates, questions were raised about whether the WCRIBMA should take various forms of “incidental income” (such as finance charges) into account and, if the WCRIBMA were to do so, whether it would also be appropriate to make off-setting adjustments for earned but uncollectible premium (“EBUP”). In response, the WCRIBMA instituted a call for data on both incidental income and EBUP. The WCRIBMA treats incidental income as a negative expense item which is applied as an offset to incidental income by EBUP. The calculation used by the WCRIBMA, which accounts for both incidental income and EBUP, is based upon a three-year average of the experience reported for calendar years 2012, 2013, and 2014. This year, the

selected net effect of including both incidental income and EBUP is zero (Section VI-G, Exhibit 5).

Frictional Costs of Reinsurance

Fundamental to the business of insurance is the concept of sharing underwriting risk among risk bearers. Examples include the sharing of large property risks across a syndicate of primary insurers; self-insureds participating in group self-insurance funds; and reinsurers assuming risks from primary carriers. In workers' compensation, primary insurers utilize reinsurance to reduce their overall underwriting risk, and reinsurers (not unlike primary insurers) must commit capital (surplus) to support the underwriting risk they assume from primary insurers. Reinsurance allows primary insurers to underwrite risks that, but for the existence of a risk-sharing business partner, they would not be able to insure.

Primary carriers must cover their costs of purchasing reinsurance and provide an opportunity for reinsurers to earn a fair rate of return on their invested capital. Prior to the 2005 filing, both the benefits of reinsurance and the costs of obtaining it were overlooked in making rates for workers' compensation in Massachusetts. In the 2005 filing, the WCRIBMA introduced an expense load intended to recognize only the "frictional costs" of reinsurance. Frictional costs, as that term is used in this filing, are the sum of the acquisition expenses (reduced for recognition of ceding commissions), general expenses and taxes associated with providing reinsurance coverage that must be borne by the primary carriers. The estimation of the load for frictional costs associated with the purchase of reinsurance is detailed in Section VI-G, Exhibit 4.

Expense Constants

Beginning with the September 1, 2008 rate filing, a new three tiered system of expense constants replaced the two tier system. The current expense constants are \$159 for risk sizes less than \$200, \$250 for risk sizes greater than or equal to \$200 but less than \$1,000, and \$338 for risk sizes greater than or equal to \$1,000. The WCRIBMA is seeking no change in the existing expense constants.

Loss Adjustment Expense

Loss adjustment expense is made up of two components, DCCE and Adjusting and Other Expense (“AO”). In this rate filing, the WCRIBMA utilizes a new method for the estimation of the DCCE load which is the ratio of DCCE to loss. Previously, the WCRIBMA relied on Annual Statement data to derive the DCCE load. In this filing, the WCRIBMA utilizes Aggregate Financial data, specifically the Policy Year Call (Call #2) which excludes data for large deductible policies and therefore is not subject to any distortion created by the various treatments of DCCE that exist in the large deductible market.⁵ Using the Policy Year Call, the WCRIBMA calculated calendar year paid loss and calendar year paid DCCE. Ratios of paid DCCE to paid loss were then calculated for the three most recent complete calendar years. The average of these three ratios was selected as the DCCE load (Section VI-H).⁶

⁵ The DOI has historically approved large deductible filings that allow for the allocation of DCCE expense between insurer and insured in a number of different ways. DCCE expense may be paid entirely by the insurer or the insured. Alternatively, the DCCE expense may be included with loss before the application of the deductible resulting in a pro rata sharing of DCCE expense based on the respective amounts for which the insured and the insurer are responsible in accordance with the deductible agreement.

⁶ The WCRIBMA looked at alternative approaches to this method, including (1) the development of policy year paid DCCE to paid loss ratios, (2) development of policy year paid plus case DCCE to paid plus

The Adjusting and Other Expense (“AO”) portion of the LAE ratio is adjusted for the effects of losses eliminated by large deductibles. The reported AO for large deductible policies is assumed to be less than it would have been had the policies been written on a full coverage basis, but more than it would have been as a percentage of net losses.⁷ In other words, AO is assumed to be partially variable and partially fixed with respect to large deductible losses. The selected adjustment factor is an average of that which would result from assuming all AO is fixed and from assuming all AO is variable (Section VI-I, Exhibit 1, Page 1).

The derivation of the AO load could also be accomplished using data excluding large deductible experience. However, as explained above such data are not readily available and the collection of such data would be cumbersome, data quality would be difficult to gauge without sources with which to reconcile the data, and the data’s use in ratemaking would likely have little impact on the overall rate indication. A lower bound for the AO expense ratio can be estimated by taking the ratio of direct AO expense to losses gross of deductible recoveries. In other words, we only gross up the

case loss ratios, and (3) calendar paid plus case DCCE to paid plus case loss. The resulting estimates, 10.4%, 10.4%, and 10.6% respectively, were higher than the method employed in this filing, which yielded as DCCE load of 10.1%. The WCRIBMA chose the most conservative method.

⁷ “*The Role of Large Deductible Policies for PEO’s in the Failures of Small Workers’ Compensation Insurers*,” a white paper available at www.NAIC.org, provides some insight as to why, for a certain insureds, AO expense incurred by the insurer is less when the insured is issued a large deductible policy instead of a guaranteed cost policy. The white paper, on page 6, states, “[t]he intention of insurance regulators and workers’ compensation administrators is that the large deductible workers’ compensation policies should provide employees with exactly the same coverage for accidents and injuries as policies that do not have deductibles. The reality is that side agreements made outside of the policy contract may make these policies perform more like self-insurance with an excess policy. The difference between large deductible policies and excess insurance is that with large deductibles the insurer is presumed to adjust the claims, report the loss data to statistical agents, and assume the risk of not being paid in a timely manner by the employer. With excess policies the insurer only steps in when the losses occur above the agreed-upon attachment point (losses in excess of preset amount).” www.naic.org/documents/committees_c_wctf_related_150819_lg_deduct_policy_role_in_failures.pdf

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denominator of the ratio to eliminate the impact of the large deductibles without making an analogous and logical adjustment to the numerator. The result of such an exercise for calendar years 2012 – 2014 yields only a slightly lower bound for the AO expense ratio of 9.3%.

VI 000011

Section VI - Expenses
Subsection A - Summary
7/1/2016

Section VI - A
Exhibit 1

Summary of Expense Ratios

(1)	Commission and Other Acquisition Expense Ratio	12.6%
(2)	Average Premium Discount as a % of Standard Premium + ARAP	5.0%
(3)	Premium Tax Ratio = 2.28% x [1.0 - (2)]	2.2%
(4)	Variable Expense Ratio = (1) + (2) + (3)	19.8%
(5)	Fixed Expense Ratio	5.0%
(6)	Total Loss Adjustment Expense Ratio (LAE / Loss)	20.0%

Notes:

(1): Section VI-G, Exhibit 1.

(2): Section VI-E, Exhibit 1.

(3): 2.28% from Section VI-B, Exhibit 3.

(5): Section VI-B, Exhibit 1.

(6): Section VI-H, Exhibit 1.

Calculation of Fixed Expenses

Calendar Year (1)	General Expense Exclusive of Expense Constant Premium (2)	Total Pool Expenses for non-Large Deductible (3)	Total General Expense = (2) + (3) (4)	Projected to PY 2012			Projected to PY 2013		
				Expense Trend Factor (5)	Exposure Growth Factor (6)	Projected General Expense = (4) x (5) x (6) (7)	Expense Trend Factor (8)	Exposure Growth Factor (9)	Projected General Expense = (4) x (8) x (9) (10)
2012	37,815,562	1,890,224	39,705,786	1.029	1.013	41,396,619	1.061	1.039	43,763,556
2013	37,841,777	1,671,880	39,513,656	0.972	0.987	37,930,705	1.002	1.013	40,099,472
2014	36,779,724	1,919,862	38,699,587	0.968	0.963	36,071,890	0.998	0.987	38,134,375
Average			39,306,343			38,466,404			40,665,801

Policy Year (11)	Three Year Average Projected General Expense (12)	Provision for Other Taxes (13)	Provision for Fixed Expenses = (12) + (13) (14)	Expense Trends from PYs to 7/1/2017 (15)	Trended Fixed Expenses = (14) x (15) (16)	Standard Earned Premium plus ARAP Projected to Prospective Effective Period (17)	Fixed Expense Ratio to Standard Earned Premium plus ARAP = (16) / (17) (18)
2012	38,466,404	3,329,959	41,796,363	1.070	44,719,637	888,644,399	5.0%
2013	40,665,801	3,520,356	44,186,157	1.038	45,871,069	909,362,563	5.0%
Average							5.0%

- Notes:
- (2): Exhibit 2, Page 1.
 - (3): Exhibit 2, Page 3.
 - (5): Section V-H, Exhibit 1.
 - (6): 2.6% annual growth in worker-weeks, from Section V-H, Exhibit 3; 0.5 years from CY 2012 to PY 2012, -0.5 years from CY 2013 to PY 2012, -1.5 years from CY 2014 to PY 2012.
 - (8): Section V-H, Exhibit 1.
 - (9): 2.6% annual growth in worker-weeks, from Section V-H, Exhibit 3; 1.5 years from CY 2012 to PY 2013, 0.5 years from CY 2013 to PY 2013, -0.5 years from CY 2014 to PY 2013.
 - (13): Section VI-C, Exhibit 1.
 - (15): Section V-H, Exhibit 1.
 - (17): These premium amounts do not match those displayed in Section I. This is due to the exclusion of data from a company group included in the Section I data. The premium amounts displayed have been adjusted by the same development, trend, and premium level factors shown in Section I and off-balance factors shown in Section III. The ARAP premium has been adjusted from company level to DSR level premium using the policy year adjustment factors from Section III-B, Exhibit 2.

VI 000012

VI 000013

Section VI - Expenses
 Subsection B - Fixed Expenses
 7/1/2016

Section VI - B
 Exhibit 2
 Page 1

General Expense Exclusive of Proposed Expense Constant

	Calendar Year		
	2012	2013	2014
(1) Standard Earned Premium Including Expense Constant Premium	787,399,736	810,872,845	851,918,220
(2) ARAP Premium at Company Level	39,961,985	40,629,436	39,360,485
(3) Adjustment Factor to Adjust from Company Level to DSR Level Premium	1.055	1.050	1.047
(4) Standard Earned Premium plus Adjusted ARAP = (1) + [(2) x (3)]	829,550,386	853,522,088	893,133,260
(5) Adjustment for Experience and Merit Rating, ARAP, and Construction Credit Off-balance	0.996	1.008	1.011
(6) Adjustment Factor to Remove the Impact of Loading for Recoupment of Insolvency Fund Assessments	1.000	1.000	0.999
(7) Adjusted Standard Earned Premium plus ARAP = (4) x (5) x (6)	826,200,860	860,515,727	902,587,547
(8) Ratio of Adjusted General Expense to Adjusted Standard Earned Premium plus ARAP	6.6%	6.5%	6.1%
(9) General Expenses = (7) x (8)	54,502,349	55,964,890	54,975,579
(10) Expense Constant Premium	34,377,855	35,215,830	35,380,091
(11) General Expense Portion of Expense Constant	51.0%	51.0%	51.0%
(12) Average Expense Constant in Effect	236.06	235.75	236.85
(13) Proposed Average Expense Constant	247.59	247.59	247.59
(14) Expense Trend Factor - Calendar Year XXXX to 7/1/17, the midpoint of the Prospective Effective Period	1.101	1.040	1.036
(15) Trend Factor to Adjust Proposed Average Expense Constant to Calendar Year XXXX = 1.0 / (14)	0.908	0.961	0.965
(16) Detrended Proposed Average Expense Constant = (13) x (15)	224.79	238.02	238.97
(17) Adjusted General Expenses Generated by the Expense Constant = [(10) x (11)] x [(16) / (12)]	16,686,787	18,123,113	18,195,855
(18) General Expenses Exclusive of Expense Constant Premium = (9) - (17)	37,815,562	37,841,777	36,779,724

Notes:

- (1),(2): Aggregate Financial Policy Year Call, excludes large deductible policies.
- (3): Section III-B, Exhibit 2.
- (5): Section III-B, Exhibit 1.
- (6): Section III-C, Exhibit 1.
- (8): Page 2.
- (10): Calculated expense constant premium based on historical Unit Statistical Plan Data.
- (11): Exhibit 3.
- (12): Calculated average expense constant in effect based on historical Unit Statistical Plan Data.
- (13): Section VI-D, Exhibit 1.
- (14): Section V-H, Exhibit 1.

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Section VI - Expenses
 Subsection B - Fixed Expenses
 7/1/2016

Section VI - B
 Exhibit 2
 Page 2

Calculation of General Expense

	Calendar Year		
	2012	2013	2014
(1) Standard Earned Premium Including Expense Constant Premium	914,877,733	942,139,873	971,746,716
(2) ARAP Premium at Company Level	43,796,098	45,776,607	43,631,199
(3) Adjustment Factor to Adjust from Company Level to DSR Level Premium	1.055	1.050	1.047
(4) Standard Earned Premium plus Adjusted ARAP = (1) + [(2) x (3)]	961,072,486	990,192,168	1,017,433,694
(5) Adjustment for Experience, Merit, ARAP and CCPAP Off-Balance	0.996	1.008	1.011
(6) Adjustment for Insolvency Fund Recoupment	1.000	1.000	0.999
(7) Adjusted Standard Earned Premium plus ARAP = (4) x (5) x (6)	957,191,904	998,305,662	1,028,203,766
(8) Actual WCRIBMA Expenses	11,224,379	10,816,994	10,431,118
(9) General Expenses (excluding Boards & Bureaus Expenses)	51,919,113	54,109,265	52,195,602
(10) Adjusted General Expense = (8) + (9)	63,143,492	64,926,259	62,626,720
(11) Ratio of Adjusted General Expense to Adjusted Standard Earned Premium plus ARAP (including expense constants) = (10) / (7)	6.6%	6.5%	6.1%

Notes:

- (1),(2): Aggregate Financial Reconciliation Report Calls, Calendar Years 2012 - 2014, including large deductible policies.
 (3): Section III-B, Exhibit 2.
 (5): Section III-B, Exhibit 1.
 (6): Section III-C, Exhibit 1.
 (8): WCRIBMA Financial Statements and Expense Analysis Report. Excludes Workers' Compensation Bureau Pool Expenses.
 (9): Aggregate Financial Expense Calls, Calendar Years 2012 - 2014.

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Section VI - Expenses
 Subsection B - Fixed Expenses
 7/1/2016

Section VI - B
 Exhibit 2
 Page 3

Calculation of Pool Expense

	Calendar Year		
	2012	2013	2014
(1) Administrative Expenses	549,347	457,463	498,571
(2) Other Expense Allowances	-	-	-
(3) Workers' Compensation Bureau Pool Expenses	2,084,963	2,080,405	2,306,965
(4) Total Pool Expenses = (1) + (2) + (3)	2,634,310	2,537,868	2,805,536
(5) Target Pool Expenses for Excluded Companies	248,259	427,435	382,073
(6) Total Pool Expenses, excluding 2 company(ies) = (4) - (5)	2,386,051	2,110,432	2,423,463
(7) Proportion of Voluntary Assessable Premium Not from Large Deductibles " u "	0.792	0.792	0.792
(8) Total Pool Expenses for Non-Large Deductibles = (6) x (7)	1,890,224	1,671,880	1,919,862

Notes:

- (1),(2): Massachusetts Workers' Compensation Assigned Risk Pool Annual Report and WCRIBMA Financial Statements and Expense Analysis Report, adjusted for non-large deductible policies.
- (3): From the WCRIB Financial Statements and Expense Analysis Report
- (7): Section I-D, Exhibit 2.

VI 000016

Section VI - Expenses
Subsection B - Fixed Expenses
7/1/2016

Section VI - B
Exhibit 3

Expense Constant Components

(1)	Portion of Expense Constant for General Expenses Loaded for Premium Taxes	52.16%
(2)	Current Premium Tax Rate	2.28%
(3)	General Expense Portion of Expense Constant = (1) x [1.0 - (2)]	51.0%
(4)	Other Acquisition Portion of Expense Constant = [1.0 - (1)] x [1.0 - (2)]	46.7%

Notes:

(1): NCCI 1991 Calendar Year Expense database.

(2): Massachusetts Department of Revenue, 2012 Form 63-23P.

2.28% is Premium Tax as % of Net Premium.

VI 000017

Section VI - Expenses
 Subsection C - Other Taxes
 7/1/2016

Section VI - C
 Exhibit 1

Calculation of Other Taxes

(1)	Calendar Year 2014 Standard Earned Premium Including Expense Constant Premium	851,918,220	
(2)	Calendar Year 2014 ARAP Premium at Company Level	39,360,485	
(3)	Adjustment Factor to Adjust from Company Level to DSR Level Premium	1.047	
(4)	Calendar Year 2014 Standard Earned Premium plus Adjusted ARAP = (1) + [(2) x (3)]	893,133,260	
(5)	Calendar Year 2014 Other Tax Allowance	0.40%	
(6)	Calendar Year 2014 Other Taxes = (4) x (5)	3,572,533	
		<u>PY2012</u>	<u>PY2013</u>
(7)	Other Tax Trend Factor from CY 2014 to PY XXXX	0.968	0.998
(8)	Annual Exposure Growth	2.6%	2.6%
(9)	Trend Length	-1.5	-0.5
(10)	Provision for Other Taxes = (6) x (7) x { [1.0 + (8)] ^ (9) }	3,329,959	3,520,356

Notes:

(1),(2): Based on from Aggregate Financial Policy Year Call.

(3): Section III-B, Exhibit 2.

(5): 2015 Best's Aggregates and Averages. Page 657.

(7): Section V-H, Exhibit 1.

(8): Section V-H, Exhibit 3.

(9): -1.5 years from CY 2014 to PY 2012, -0.5 years from CY 2014 to PY 2013.

VI 000018

Section VI - Expenses
 Subsection D - Expense Constant
 7/1/2016

Section VI - D
 Exhibit 1

Calculation of Expense Constant

Standard Premium Ranges		PY 2013 Adjusted Policy Count	Adjusted Policy Distribution	Current Expense Constant	Trend Factor from 7/1/16 to 7/1/17	Selected Trend Factor	Calculated Expense Constant = (5) x (7) (8)
Unadjusted	Adjusted						
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Less than \$200	Less Than \$155	60,879	40%	\$159.00	1.012	1.000	\$159.00
\$200 to \$1,000	\$155 to \$775	31,079	21%	\$250.00	1.012	1.000	\$250.00
\$1,000 or more	\$775 or more	58,824	39%	\$338.00	1.012	1.000	\$338.00
Total		150,782	100%	\$247.59			\$247.59

Notes:

Unit Statistical Plan Data PY 2013 (excluding Large Deductible policies).

Risk sizes in terms of Massachusetts Standard Premium.

(2): Instead of projecting the premiums for all policies forward to the prospective effective period, the end points of the Standard Premium

Ranges are adjusted. This is done by dividing the end points by the Premium Adjustment Factor, 1.29, from Section III-E, Exhibit 1.

(4) = (3) / Total (3)

TOTAL (5) = (5) weighted by (4)

(6): Section V-H, Exhibit 1.

Total (8) = (8) weighted by (4)

VI 000019

Section VI - Expenses
Subsection E - Expenses Net of Premium Discount
7/1/2016

Section VI - E
Exhibit 1

Calculation of Average Premium Discount

	<u>Elected Premium Discount Table</u>	
	<u>Type A</u>	<u>Type B</u>
(1) Average Premium Discount as a % of Standard Premium	7.6%	4.3%
(2) Percentage of Voluntary Written Premium by Discount Type	71.6%	28.4%
(3) Weighted Average Premium Discount as a % of Standard Premium in Voluntary Market = (1) weighted by (2)	<hr/>	
	6.6%	
(4) Voluntary Market Share	80.1%	
(5) Average Premium Discount in Total Market = (3) x (4)	5.3%	
(6) Average ARAP Surcharge for Prospective Effective Period as a % of Standard Premium	5.2%	
(7) Average Premium Discount as a % of Standard Premium + ARAP = (5) / [1.0 + (6)]	5.0%	

Notes:

(1): Type "A" - Exhibit 2, Total (10).

Type "B" - Exhibit 3, Total (10).

(2): Exhibit 4.

(4): Special Bulletin 10/21/15. Market Share is estimated using Standard Premium plus ARAP.

(6): Section IX-K, Exhibit 3.

VI 000020

Section VI - Expenses
 Subsection E - Expenses Net of Premium Discount
 7/1/2016

Section VI - E
 Exhibit 2

Average Premium Discount Voluntary Market Risks - Type "A" Discounts

Intrastate Intervals						
Layer of Standard Premium (1)	Standard Premium Ranges - PY 2013				Total = [Sum of (2)] (3)	
	0 - 10,000	10,000 - 200,000	200,000 - 1,750,000	1,750,000 & Over		
0 - 10,000	101,652,952	73,470,000	2,540,000	20,000	177,682,952	
10,000 - 200,000		171,601,300	48,260,000	380,000	220,241,300	
200,000 - 1,750,000			54,982,347	3,100,000	58,082,347	
1,750,000 - & Over				4,840,242	4,840,242	
Total	101,652,952	245,071,300	105,782,347	8,340,242	460,846,841	

Interstate Intervals					
Layer of Standard Premium (4)	Standard Premium Ranges - PY 2013				Total Premium in Layer (6)
	0 - 10,000	10,000 - 200,000	200,000 - 1,750,000	1,750,000 & Over	
0 - 10,000	65,197	2,817,517	1,409,227	227,245	4,519,186
10,000 - 200,000		19,565,436	26,775,316	4,317,645	50,658,397
200,000 - 1,750,000			49,951,815	35,222,894	85,174,709
1,750,000 - & Over				83,420,517	83,420,517
Total	65,197	22,382,953	78,136,358	123,188,301	223,772,809

Total		Proportion of Premium in Layer (9)	% Premium Discount Type A Company (10)
Layer of Standard Premium (7)	Total = (3) + (6) (8)		
0 - 10,000	182,202,138	26.6%	0.0%
10,000 - 200,000	270,899,697	39.6%	9.1%
200,000 - 1,750,000	143,257,056	20.9%	11.3%
1,750,000 - & Over	88,260,759	12.9%	12.3%
Total	684,619,650	100.0%	7.6%

Notes:

Unit Statistical Plan Data.

Layers correspond to the Premium Discount layers.

For interstate rated policies, the ratio of Massachusetts Standard Premium to Countrywide Standard Premium is assumed to equal the ratio of Massachusetts Expected Losses (used in an interstate experience modification) to Countrywide Expected Losses.

(9) = (8) / Total (8)

Total (10) = (10) weighted by (9)

VI 000021

Section VI - Expenses
 Subsection E - Expenses Net of Premium Discount
 7/1/2016

Section VI - E
 Exhibit 3

Average Premium Discount Voluntary Market Risks - Type "B" Discounts

Intrastate Intervals						
Layer of Standard Premium (1)	Standard Premium Ranges - PY 2013				Total = [Sum of (2)] (3)	
	0 - 10,000	10,000 - 200,000	200,000 - 1,750,000	1,750,000 & Over		
0 - 10,000	57,418,461	31,530,000	640,000	40,000	89,628,461	
10,000 - 200,000		55,399,489	12,160,000	760,000	68,319,489	
200,000 - 1,750,000			14,459,140	6,200,000	20,659,140	
1,750,000 - & Over				6,259,566	6,259,566	
Total	57,418,461	86,929,489	27,259,140	13,259,566	184,866,656	

Interstate Intervals					
Layer of Standard Premium (4)	Standard Premium Ranges - PY 2013				Total Premium in Layer (6)
	0 - 10,000	10,000 - 200,000	200,000 - 1,750,000	1,750,000 & Over	
0 - 10,000	48,134	1,192,908	469,368	94,157	1,804,567
10,000 - 200,000		7,463,517	8,917,990	1,788,974	18,170,481
200,000 - 1,750,000			15,913,008	14,594,264	30,507,272
1,750,000 - & Over				59,660,724	59,660,724
Total	48,134	8,656,425	25,300,366	76,138,119	110,143,044

Total		Proportion of Premium in Layer (9)	% Premium Discount Type B Company (10)
Layer of Standard Premium (7)	Total = (3) + (6) (8)		
0 - 10,000	91,433,028	31.0%	0.0%
10,000 - 200,000	86,489,970	29.3%	5.1%
200,000 - 1,750,000	51,166,412	17.3%	6.5%
1,750,000 - & Over	65,920,290	22.3%	7.5%
Total	295,009,700	100.0%	4.3%

Notes:

Unit Statistical Plan Data.

Layers correspond to the Premium Discount layers.

For interstate rated policies, the ratio of Massachusetts Standard Premium to Countrywide Standard Premium is assumed to equal the ratio of Massachusetts Expected Losses (used in an interstate experience modification) to Countrywide Expected Losses.

(9) = (8) / Total (8)

Total (10) = (10) weighted by (9)

VI 000022

Section VI - Expenses
 Subsection E - Expenses Net of Premium Discount
 7/1/2016

Section VI - E
 Exhibit 4

Calendar Year 2014 Direct Written Premiums by Premium Discount Election - Type "A" or Type "B"

NAIC Company Number (1)	Company Name (2)	Elected Discount Schedule (3)	Direct Written Premium (4)	Residual Market Written Premium (5)	Adjusted Voluntary Written Premium		
					Total Written Premium (6)	Type A Written Premium (7)	Type B Written Premium (8)
33758	ASSOCIATED INDUSTRIES OF MASS. MUTUAL INS. CO.	A	93,125,299	53,531,836	39,593,463	39,593,463	0
23841	NEW HAMPSHIRE INSURANCE COMPANY	B	58,017,161	0	58,017,161	0	58,017,161
22667	ACE AMERICAN INSURANCE COMPANY	A	40,123,466	15,973,030	24,150,436	24,150,436	0
25658	TRAVELERS INDEMNITY COMPANY	A	38,769,861	-247,175	39,017,036	39,017,036	0
25666	TRAVELERS INDEMNITY COMPANY OF AMERICA	A	37,273,566	32,077,524	5,196,042	5,196,042	0
44326	ATLANTIC CHARTER INSURANCE COMPANY	A	32,938,235	12,158,083	20,780,152	20,780,152	0
16535	ZURICH AMERICAN INSURANCE COMPANY	A	29,786,728	0	29,786,728	29,786,728	0
33600	LM INSURANCE CORPORATION	A	28,744,806	27,903,572	841,234	841,234	0
29459	TWIN CITY FIRE INSURANCE COMPANY	B	28,351,809	0	28,351,809	0	28,351,809
23035	LIBERTY MUTUAL FIRE INSURANCE COMPANY	A	27,873,035	-69,515	27,942,550	27,942,550	0
25682	TRAVELERS INDEMNITY COMPANY OF CONNECTICUT	A	27,208,282	0	27,208,282	27,208,282	0
25674	TRAVELERS PROPERTY CASUALTY COMPANY OF AMERICA	A	25,421,489	21,774,058	3,647,431	3,647,431	0
11104	ASSOCIATED EMPLOYERS INSURANCE COMPANY	B	24,952,707	0	24,952,707	0	24,952,707
30104	HARTFORD UNDERWRITERS INSURANCE COMPANY	A	24,108,514	17,088,523	7,019,991	7,019,991	0
42390	AMGUARD INSURANCE COMPANY	A	22,449,288	11,584,338	10,864,950	10,864,950	0
31325	ACADIA INSURANCE COMPANY	B	21,904,108	8,668,767	13,235,341	0	13,235,341
40142	AMERICAN ZURICH INSURANCE COMPANY	A	20,777,628	10,670,061	10,107,567	10,107,567	0
11984	INDEPENDENCE CASUALTY INSURANCE COMPANY	A	19,641,492	0	19,641,492	19,641,492	0
25011	WESCO INSURANCE COMPANY	A	18,809,947	0	18,809,947	18,809,947	0
31470	NORGUARD INSURANCE COMPANY	A	15,922,062	0	15,922,062	15,922,062	0
42404	LIBERTY INSURANCE CORPORATION	A	15,427,172	0	15,427,172	15,427,172	0
19445	NATIONAL UNION FIRE INS. CO. OF PITTSBURGH PA	B	15,049,328	0	15,049,328	0	15,049,328
19682	HARTFORD FIRE INSURANCE COMPANY	B	14,064,183	0	14,064,183	0	14,064,183
13083	NEW HAMPSHIRE EMPLOYERS INSURANCE COMPANY	A	13,917,043	0	13,917,043	13,917,043	0
19429	INSURANCE COMPANY OF THE STATE OF PENNSYLVANIA	A	13,890,355	0	13,890,355	13,890,355	0
19038	TRAVELERS CASUALTY AND SURETY COMPANY	A	13,276,414	0	13,276,414	13,276,414	0
12886	MASSACHUSETTS EMPLOYERS INSURANCE COMPANY	A	12,473,736	0	12,473,736	12,473,736	0
28258	CONTINENTAL INDEMNITY COMPANY	B	11,285,146	0	11,285,146	0	11,285,146
29424	HARTFORD CASUALTY INSURANCE COMPANY	B	11,026,833	0	11,026,833	0	11,026,833
20281	FEDERAL INSURANCE COMPANY	A	10,455,355	0	10,455,355	10,455,355	0
37478	HARTFORD INSURANCE COMPANY OF THE MIDWEST	B	10,132,861	0	10,132,861	0	10,132,861
42376	TECHNOLOGY INSURANCE COMPANY INC.	A	10,102,694	0	10,102,694	10,102,694	0
41360	ARBELLA PROTECTION INSURANCE COMPANY, INC.	A	10,062,242	0	10,062,242	10,062,242	0
23809	GRANITE STATE INSURANCE COMPANY	B	9,099,708	-55,119	9,154,827	0	9,154,827
24198	PEERLESS INSURANCE COMPANY	A	9,082,276	0	9,082,276	9,082,276	0
24139	OLD REPUBLIC GENERAL INSURANCE CORPORATION	A	8,967,304	0	8,967,304	8,967,304	0
18023	STAR INSURANCE COMPANY	A	8,901,526	0	8,901,526	8,901,526	0
12262	PENNSYLVANIA MANUFACTURERS' ASSOCIATION INS. CO.	A	8,383,334	0	8,383,334	8,383,334	0
22357	HARTFORD ACCIDENT AND INDEMNITY COMPANY	A	7,849,647	0	7,849,647	7,849,647	0
20443	CONTINENTAL CASUALTY COMPANY	B	6,531,635	3,510,853	3,020,782	0	3,020,782
23817	ILLINOIS NATIONAL INSURANCE COMPANY	B	6,212,691	0	6,212,691	0	6,212,691
21113	UNITED STATES FIRE INSURANCE COMPANY	A	5,805,883	0	5,805,883	5,805,883	0
21458	EMPLOYERS INSURANCE COMPANY OF WAUSAU	B	5,792,809	0	5,792,809	0	5,792,809
13803	FARM FAMILY CASUALTY INSURANCE COMPANY	A	5,677,073	0	5,677,073	5,677,073	0
13374	ARROW MUTUAL LIABILITY INSURANCE COMPANY	B	5,414,191	0	5,414,191	0	5,414,191
14788	NGM INSURANCE COMPANY	A	5,411,679	0	5,411,679	5,411,679	0
11150	ARCH INSURANCE COMPANY	A	5,364,001	0	5,364,001	5,364,001	0
23965	NORFOLK & DEDHAM MUTUAL FIRE INSURANCE COMPANY	A	5,348,869	0	5,348,869	5,348,869	0
11030	MEMIC INDEMNITY COMPANY	B	5,329,404	0	5,329,404	0	5,329,404
41343	HDI-GERLING AMERICA INSURANCE COMPANY	A	5,299,903	0	5,299,903	5,299,903	0
22292	HANOVER INSURANCE COMPANY (THE)	A	5,144,945	0	5,144,945	5,144,945	0
12777	CHUBB INDEMNITY INSURANCE COMPANY	A	4,956,442	0	4,956,442	4,956,442	0
25976	UTICA MUTUAL INSURANCE COMPANY	A	4,850,112	0	4,850,112	4,850,112	0
10664	ENDEAVOUR INSURANCE COMPANY	B	4,769,190	0	4,769,190	0	4,769,190
25623	PHOENIX INSURANCE COMPANY, (THE)	A	4,597,807	0	4,597,807	4,597,807	0
39926	SELECTIVE INSURANCE COMPANY OF THE SOUTHEAST	A	4,282,598	0	4,282,598	4,282,598	0

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Section VI - Expenses
 Subsection E - Expenses Net of Premium Discount
 7/1/2016

Section VI - E
 Exhibit 4

Calendar Year 2014 Direct Written Premiums by Premium Discount Election - Type "A" or Type "B"

NAIC Company Number (1)	Company Name (2)	Elected Discount Schedule (3)	Direct Written Premium (4)	Residual Market Written Premium (5)	Adjusted Voluntary Written Premium		
					Total Written Premium (6)	Type A Written Premium (7)	Type B Written Premium (8)
21784	FIREMEN'S INSURANCE COMPANY OF WASHINGTON, D.C.	B	4,217,394	0	4,217,394	0	4,217,394
25615	CHARTER OAK FIRE INSURANCE COMPANY, (THE)	A	3,904,457	0	3,904,457	3,904,457	0
21261	ELECTRIC INSURANCE COMPANY	A	3,850,026	0	3,850,026	3,850,026	0
24147	OLD REPUBLIC INSURANCE COMPANY	A	3,827,571	0	3,827,571	3,827,571	0
25224	GREAT DIVIDE INSURANCE COMPANY	A	3,522,629	0	3,522,629	3,522,629	0
24988	SENTRY INSURANCE A MUTUAL COMPANY	A	3,336,220	0	3,336,220	3,336,220	0
10017	ARBELLA INDEMNITY INSURANCE COMPANY, INC.	A	3,326,420	0	3,326,420	3,326,420	0
19801	ARGONAUT INSURANCE COMPANY	A	3,124,860	0	3,124,860	3,124,860	0
31534	CITIZENS INSURANCE COMPANY OF AMERICA	A	3,090,380	0	3,090,380	3,090,380	0
20303	GREAT NORTHERN INSURANCE COMPANY	A	3,027,112	0	3,027,112	3,027,112	0
15059	PUBLIC SERVICE INSURANCE COMPANY	A	2,962,011	0	2,962,011	2,962,011	0
38318	STARR INDEMNITY & LIABILITY COMPANY	A	2,914,101	0	2,914,101	2,914,101	0
19410	COMMERCE AND INDUSTRY INSURANCE COMPANY	B	2,901,607	0	2,901,607	0	2,901,607
13935	FEDERATED MUTUAL INSURANCE COMPANY	A	2,689,068	0	2,689,068	2,689,068	0
14702	EASTGUARD INSURANCE COMPANY	A	2,423,420	0	2,423,420	2,423,420	0
20494	TRANSPORTATION INSURANCE COMPANY	B	2,391,985	0	2,391,985	0	2,391,985
40177	PARAMOUNT INSURANCE COMPANY	A	2,390,043	0	2,390,043	2,390,043	0
20346	PACIFIC INDEMNITY COMPANY	A	2,304,080	0	2,304,080	2,304,080	0
37257	PRAETORIAN INSURANCE COMPANY	A	2,170,700	0	2,170,700	2,170,700	0
12416	PROTECTIVE INSURANCE COMPANY	A	2,074,305	0	2,074,305	2,074,305	0
15105	SAFETY NATIONAL CASUALTY CORPORATION	A	2,064,010	0	2,064,010	2,064,010	0
20508	VALLEY FORGE INSURANCE COMPANY	A	2,037,212	0	2,037,212	2,037,212	0
20427	AMERICAN CASUALTY COMPANY OF READING, PENNSYLVANIA	A	2,025,473	0	2,025,473	2,025,473	0
20478	NATIONAL FIRE INSURANCE COMPANY OF HARTFORD	A	2,001,947	0	2,001,947	2,001,947	0
13706	DORCHESTER MUTUAL INSURANCE COMPANY	A	1,974,250	0	1,974,250	1,974,250	0
20362	MITSUI SUMITOMO INSURANCE COMPANY OF AMERICA	A	1,628,073	0	1,628,073	1,628,073	0
26247	AMERICAN GUARANTEE AND LIABILITY INSURANCE COMPANY	A	1,584,670	0	1,584,670	1,584,670	0
12475	REPUBLIC FRANKLIN INSURANCE COMPANY	A	1,570,031	0	1,570,031	1,570,031	0
10804	CONTINENTAL WESTERN INSURANCE COMPANY	B	1,560,102	0	1,560,102	0	1,560,102
33588	FIRST LIBERTY INSURANCE CORPORATION (THE)	A	1,536,608	0	1,536,608	1,536,608	0
36064	HANOVER AMERICAN INSURANCE COMPANY (THE)	A	1,531,487	0	1,531,487	1,531,487	0
25984	GRAPHIC ARTS MUTUAL INSURANCE COMPANY	A	1,504,312	0	1,504,312	1,504,312	0
27855	ZURICH AMERICAN INSURANCE COMPANY OF ILLINOIS	A	1,477,384	0	1,477,384	1,477,384	0
23043	LIBERTY MUTUAL INSURANCE COMPANY	B	1,425,732	19,821,006	0	0	0
27154	ATLANTIC SPECIALTY INSURANCE COMPANY	A	1,414,886	0	1,414,886	1,414,886	0
26182	HARLEYSVILLE WORCESTER INSURANCE COMPANY	A	1,414,183	0	1,414,183	1,414,183	0
22306	MASSACHUSETTS BAY INSURANCE COMPANY	A	1,357,013	0	1,357,013	1,357,013	0
20222	ALL AMERICA INSURANCE COMPANY	A	1,349,447	0	1,349,447	1,349,447	0
21172	VANLINER INSURANCE COMPANY	A	1,333,217	0	1,333,217	1,333,217	0
23329	MERCHANTS MUTUAL INSURANCE COMPANY	A	1,281,293	0	1,281,293	1,281,293	0
24082	OHIO SECURITY INSURANCE COMPANY	A	1,218,598	0	1,218,598	1,218,598	0
32620	NATIONAL INTERSTATE INSURANCE COMPANY	A	1,213,319	0	1,213,319	1,213,319	0
11185	FOREMOST INSURANCE COMPANY GRAND RAPIDS, MICHIGAN	A	1,188,963	0	1,188,963	1,188,963	0
20397	VIGILANT INSURANCE COMPANY	A	1,151,879	0	1,151,879	1,151,879	0
11149	MAINE EMPLOYERS' MUTUAL INSURANCE COMPANY	B	1,140,369	0	1,140,369	0	1,140,369
11800	FOREMOST PROPERTY AND CASUALTY INSURANCE COMPANY	A	1,135,764	0	1,135,764	1,135,764	0
19879	SECURITY NATIONAL INSURANCE COMPANY	A	1,118,211	0	1,118,211	1,118,211	0
21105	NORTH RIVER INSURANCE COMPANY	A	1,102,678	0	1,102,678	1,102,678	0
28460	SENTRY CASUALTY COMPANY	A	1,095,212	0	1,095,212	1,095,212	0
21415	EMPLOYERS MUTUAL CASUALTY COMPANY	A	1,057,710	0	1,057,710	1,057,710	0
41840	ALLMERICA FINANCIAL BENEFIT INSURANCE COMPANY	A	1,025,797	0	1,025,797	1,025,797	0
28223	NATIONWIDE AGRIBUSINESS INSURANCE COMPANY	B	994,227	0	994,227	0	994,227
41513	FOREMOST SIGNATURE INSURANCE COMPANY	A	974,661	0	974,661	974,661	0
19259	SELECTIVE INSURANCE COMPANY OF SOUTH CAROLINA	A	942,695	0	942,695	942,695	0
25844	UNION INSURANCE COMPANY	B	932,230	0	932,230	0	932,230
18767	CHURCH MUTUAL INSURANCE COMPANY	B	924,961	0	924,961	0	924,961

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Section VI - Expenses
 Subsection E - Expenses Net of Premium Discount
 7/1/2016

Section VI - E
 Exhibit 4

Calendar Year 2014 Direct Written Premiums by Premium Discount Election - Type "A" or Type "B"

NAIC Company Number (1)	Company Name (2)	Elected Discount Schedule (3)	Direct Written Premium (4)	Residual Market Written Premium (5)	Adjusted Voluntary Written Premium		
					Total Written Premium (6)	Type A Written Premium (7)	Type B Written Premium (8)
37885	XL SPECIALTY INSURANCE COMPANY	A	918,340	0	918,340	918,340	0
13978	FLORISTS' MUTUAL INSURANCE COMPANY	A	897,680	0	897,680	897,680	0
16551	SAVERS PROPERTY AND CASUALTY INSURANCE COMPANY	A	885,886	-1,832	887,718	887,718	0
35289	CONTINENTAL INSURANCE COMPANY, (THE)	A	869,437	0	869,437	869,437	0
23108	LUMBERMEN'S UNDERWRITING ALLIANCE	A	836,075	0	836,075	836,075	0
10120	EVEREST NATIONAL INSURANCE COMPANY	B	798,994	0	798,994	0	798,994
11045	EXCELSIOR INSURANCE COMPANY	A	796,781	0	796,781	796,781	0
43478	UTICA NATIONAL INSURANCE COMPANY OF TEXAS	A	795,524	0	795,524	795,524	0
42552	NOVA CASUALTY COMPANY	A	795,174	0	795,174	795,174	0
19380	AMERICAN HOME ASSURANCE COMPANY	B	788,504	0	788,504	0	788,504
15067	QUINCY MUTUAL FIRE INSURANCE COMPANY	A	769,623	0	769,623	769,623	0
21180	SENTRY SELECT INSURANCE COMPANY	A	762,861	0	762,861	762,861	0
20044	BERKSHIRE HATHAWAY HOMESTATE INSURANCE COMPANY	A	749,063	0	749,063	749,063	0
16608	NEW YORK MARINE AND GENERAL INSURANCE COMPANY	A	729,689	0	729,689	729,689	0
31348	CRUM & FORSTER INDEMNITY COMPANY	B	670,029	0	670,029	0	670,029
38911	BERKLEY NATIONAL INSURANCE COMPANY	A	666,213	0	666,213	666,213	0
12901	MERCHANTS PREFERRED INSURANCE COMPANY	A	665,164	0	665,164	665,164	0
20230	CENTRAL MUTUAL INSURANCE COMPANY	B	656,812	0	656,812	0	656,812
19720	AMERICAN ALTERNATIVE INSURANCE CORPORATION	A	654,668	0	654,668	654,668	0
22136	GREAT AMERICAN INSURANCE COMPANY OF NEW YORK	A	623,173	0	623,173	623,173	0
15954	AMTRUST INSURANCE COMPANY OF KANSAS, INC.	A	616,786	0	616,786	616,786	0
11126	SOMPO JAPAN INSURANCE COMPANY OF AMERICA	A	578,849	0	578,849	578,849	0
23442	PATRIOT GENERAL INSURANCE COMPANY	A	550,080	0	550,080	550,080	0
23434	MIDDLESEX INSURANCE COMPANY	A	524,129	0	524,129	524,129	0
10687	UTICA NATIONAL ASSURANCE COMPANY	A	518,550	0	518,550	518,550	0
24414	GENERAL CASUALTY COMPANY OF WISCONSIN	A	504,794	0	504,794	504,794	0
10945	TOKIO MARINE AMERICA INSURANCE COMPANY	A	497,459	0	497,459	497,459	0
23582	HARLEYSVILLE INSURANCE COMPANY	A	462,584	0	462,584	462,584	0
20613	SPARTA INSURANCE COMPANY	A	447,816	0	447,816	447,816	0
24074	OHIO CASUALTY INSURANCE COMPANY (THE)	A	443,962	0	443,962	443,962	0
29939	MAIN STREET AMERICA ASSURANCE COMPANY	A	442,957	0	442,957	442,957	0
12831	STATE NATIONAL INSURANCE COMPANY INC.	A	427,848	0	427,848	427,848	0
13714	PHARMACISTS MUTUAL INSURANCE COMPANY	A	409,317	0	409,317	409,317	0
20052	NATIONAL LIABILITY & FIRE INSURANCE COMPANY	A	396,784	0	396,784	396,784	0
28304	FEDERATED SERVICE INSURANCE COMPANY	A	381,944	0	381,944	381,944	0
25879	FIDELITY & GUARANTY INSURANCE UNDERWRITERS, INC.	A	368,128	0	368,128	368,128	0
23396	AMERISURE MUTUAL INSURANCE COMPANY	B	345,893	0	345,893	0	345,893
28886	TRANSGUARD INSURANCE COMPANY OF AMERICA, INC.	A	334,897	0	334,897	334,897	0
24554	XL INSURANCE AMERICA, INC.	A	332,650	0	332,650	332,650	0
11991	NATIONAL CASUALTY COMPANY	B	327,922	0	327,922	0	327,922
10665	AMERITRUST INSURANCE CORPORATION	A	325,441	0	325,441	325,441	0
24171	NETHERLANDS INSURANCE COMPANY (THE)	A	322,897	0	322,897	322,897	0
10800	PREMIER GROUP INSURANCE COMPANY	B	317,306	0	317,306	0	317,306
10677	CINCINNATI INSURANCE COMPANY	A	313,070	0	313,070	313,070	0
10052	CHUBB NATIONAL INSURANCE COMPANY	A	294,270	0	294,270	294,270	0
26832	GREAT AMERICAN ALLIANCE INSURANCE COMPANY	A	288,963	0	288,963	288,963	0
13269	ZENITH INSURANCE COMPANY	A	229,891	0	229,891	229,891	0
26662	MILWAUKEE CASUALTY INSURANCE CO.	A	226,540	0	226,540	226,540	0
18333	PEERLESS INDEMNITY INSURANCE COMPANY	A	225,926	0	225,926	225,926	0
44300	TOWER INSURANCE COMPANY OF NEW YORK	A	225,885	0	225,885	225,885	0
14190	OBI NATIONAL INSURANCE COMPANY	A	217,065	0	217,065	217,065	0
21865	ASSOCIATED INDEMNITY CORPORATION	B	202,643	0	202,643	0	202,643
19488	AMERISURE INSURANCE COMPANY	B	199,675	0	199,675	0	199,675
10340	STONINGTON INSURANCE COMPANY	B	187,073	0	187,073	0	187,073
11371	GREAT WEST CASUALTY COMPANY	A	185,919	0	185,919	185,919	0
19704	AMERICAN STATES INSURANCE COMPANY	A	178,954	0	178,954	178,954	0

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Section VI - Expenses
 Subsection E - Expenses Net of Premium Discount
 7/1/2016

Section VI - E
 Exhibit 4

Calendar Year 2014 Direct Written Premiums by Premium Discount Election - Type "A" or Type "B"

NAIC Company Number (1)	Company Name (2)	Elected Discount Schedule (3)	Direct Written Premium (4)	Residual Market Written Premium (5)	Adjusted Voluntary Written Premium		
					Total Written Premium (6)	Type A Written Premium (7)	Type B Written Premium (8)
40045	STARNET INSURANCE COMPANY	A	165,237	0	165,237	165,237	0
43702	TOWER NATIONAL INSURANCE COMPANY	A	162,273	0	162,273	162,273	0
25135	STATE AUTOMOBILE MUTUAL INSURANCE COMPANY	A	154,330	0	154,330	154,330	0
36234	PREFERRED PROFESSIONALS INSURANCE COMPANY	A	151,500	0	151,500	151,500	0
21857	AMERICAN INSURANCE COMPANY, (THE)	A	146,003	0	146,003	146,003	0
27120	TRUMBULL INSURANCE COMPANY	A	144,419	0	144,419	144,419	0
25887	UNITED STATES FIDELITY AND GUARANTY COMPANY	A	123,620	0	123,620	123,620	0
25127	STATE AUTO PROPERTY & CASUALTY INSURANCE COMPANY	A	118,564	0	118,564	118,564	0
44393	WEST AMERICAN INSURANCE COMPANY	A	114,589	0	114,589	114,589	0
24678	ARROWOOD INDEMNITY COMPANY	A	108,898	0	108,898	108,898	0
12866	T.H.E INSURANCE COMPANY	B	108,726	0	108,726	0	108,726
41238	TRANS PACIFIC INSURANCE COMPANY	A	92,946	0	92,946	92,946	0
19690	AMERICAN ECONOMY INSURANCE COMPANY	A	91,855	0	91,855	91,855	0
20699	ACE PROPERTY AND CASUALTY INSURANCE COMPANY	A	84,497	0	84,497	84,497	0
10166	ACCIDENT FUND INSURANCE COMPANY OF AMERICA	A	81,956	0	81,956	81,956	0
10642	CHEROKEE INSURANCE COMPANY	A	78,288	0	78,288	78,288	0
27740	NORTH POINTE INSURANCE COMPANY	A	76,855	0	76,855	76,855	0
24767	ST. PAUL FIRE & MARINE INSURANCE COMPANY	A	76,260	0	76,260	76,260	0
19070	STANDARD FIRE INSURANCE COMPANY	A	74,259	0	74,259	74,259	0
26069	WAUSAU BUSINESS INSURANCE COMPANY	A	74,056	0	74,056	74,056	0
15911	AMERICAN MINING INSURANCE COMPANY	B	70,103	0	70,103	0	70,103
29580	BERKLEY REGIONAL INSURANCE COMPANY	A	65,830	0	65,830	65,830	0
35408	IMPERIUM INSURANCE COMPANY	B	61,832	0	61,832	0	61,832
15032	GUIDEONE MUTUAL INSURANCE COMPANY	A	58,947	0	58,947	58,947	0
21970	BEDIVERE INSURANCE COMPANY	A	53,932	0	53,932	53,932	0
21873	FIREMAN'S FUND INSURANCE COMPANY	A	51,895	0	51,895	51,895	0
24449	REGENT INSURANCE COMPANY	A	50,101	0	50,101	50,101	0
31895	AMERICAN INTERSTATE INSURANCE COMPANY	A	49,704	0	49,704	49,704	0
10510	CAROLINA CASUALTY INSURANCE COMPANY	B	48,914	0	48,914	0	48,914
14923	PATRONS MUTUAL INSURANCE COMPANY OF CONNECTICUT	A	47,694	0	47,694	47,694	0
13056	RLI INSURANCE COMPANY	A	45,298	0	45,298	45,298	0
23469	AMERICAN MODERN HOME INSURANCE COMPANY	A	42,876	0	42,876	42,876	0
21849	AMERICAN AUTOMOBILE INSURANCE COMPANY	A	40,520	0	40,520	40,520	0
21423	UNION INSURANCE COMPANY OF PROVIDENCE	A	37,689	0	37,689	37,689	0
11123	SAFETY FIRST INSURANCE COMPANY	A	31,254	0	31,254	31,254	0
31003	TRI-STATE INSURANCE COMPANY OF MINNESOTA	A	25,566	0	25,566	25,566	0
19402	AIG PROPERTY CASUALTY COMPANY	B	24,340	0	24,340	0	24,340
35696	HARLEYSVILLE PREFERRED INSURANCE COMPANY	A	23,080	0	23,080	23,080	0
16691	GREAT AMERICAN INSURANCE COMPANY	A	19,167	0	19,167	19,167	0
24066	AMERICAN FIRE AND CASUALTY COMPANY	A	18,958	0	18,958	18,958	0
25143	STATE FARM FIRE AND CASUALTY COMPANY	A	18,721	0	18,721	18,721	0
40517	ADVANTAGE WORKERS COMPENSATION INSURANCE COMPANY	A	18,425	0	18,425	18,425	0
38300	SAMSUNG FIRE & MARINE INSURANCE CO. LTD (U.S. BRANCH)	A	17,458	0	17,458	17,458	0
29157	UNITED WISCONSIN INSURANCE COMPANY	A	16,501	0	16,501	16,501	0
26344	GREAT AMERICAN ASSURANCE COMPANY	A	15,630	0	15,630	15,630	0
21881	NATIONAL SURETY CORPORATION	A	15,539	0	15,539	15,539	0
21709	TRUCK INSURANCE EXCHANGE	A	10,745	0	10,745	10,745	0
12305	ACCIDENT FUND NATIONAL INSURANCE COMPANY	A	9,872	0	9,872	9,872	0
36463	DISCOVER PROPERTY & CASUALTY INSURANCE COMPANY	A	9,047	0	9,047	9,047	0
14982	PENN MILLERS INSURANCE COMPANY	A	8,650	0	8,650	8,650	0
24732	GENERAL INSURANCE COMPANY OF AMERICA	A	8,636	0	8,636	8,636	0
20702	ACE FIRE UNDERWRITERS INSURANCE COMPANY	A	6,804	0	6,804	6,804	0
20648	EMPLOYERS' FIRE INSURANCE CO	A	6,675	0	6,675	6,675	0
18279	BANKERS STANDARD INSURANCE COMPANY	A	5,928	0	5,928	5,928	0
23612	MIDWEST EMPLOYERS CASUALTY COMPANY	A	5,746	0	5,746	5,746	0
11050	AMERISURE PARTNERS INSURANCE COMPANY	B	4,210	0	4,210	0	4,210

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Section VI - Expenses
 Subsection E - Expenses Net of Premium Discount
 7/1/2016

Section VI - E
 Exhibit 4

Calendar Year 2014 Direct Written Premiums by Premium Discount Election - Type "A" or Type "B"

NAIC Company Number (1)	Company Name (2)	Elected Discount Schedule (3)	Direct Written Premium (4)	Residual Market Written Premium (5)	Adjusted Voluntary Written Premium		
					Total Written Premium (6)	Type A Written Premium (7)	Type B Written Premium (8)
12297	PETROLEUM CASUALTY COMPANY	A	3,020	0	3,020	3,020	0
12304	ACCIDENT FUND GENERAL INSURANCE COMPANY	A	2,833	0	2,833	2,833	0
14990	PENNSYLVANIA NATIONAL MUTUAL CASUALTY INS. CO.	B	2,601	0	2,601	0	2,601
27847	INSURANCE COMPANY OF THE WEST	A	2,218	0	2,218	2,218	0
20095	BITCO GENERAL INSURANCE CORPORATION	A	1,921	0	1,921	1,921	0
11000	SENTINEL INSURANCE COMPANY, LTD.	A	1,543	0	1,543	1,543	0
19860	ARGONAUT GREAT CENTRAL INSURANCE COMPANY	A	1,188	0	1,188	1,188	0
13331	MOTORISTS COMMERCIAL MUTUAL INSURANCE COMPANY	A	91	0	91	91	0
26425	WAUSAU GENERAL INSURANCE COMPANY	A	13	0	13	13	0
34690	PROPERTY AND CASUALTY INSURANCE CO. OF HARTFORD	A	12	0	12	12	0

Total	1,081,648,280	234,388,010	865,655,544	619,967,829	245,687,715
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Percentage of Voluntary written premium electing Type A Discount:	71.6%
Percentage of Voluntary written premium electing Type B Discount:	28.4%

Notes:

- (4) = Annual Statement Exhibit of Premium and Losses
- (5) = consistent with the Annual Statement Exhibit of Premium and Losses
- (6) = (4) - (5), subject to a minimum of 0

VI 000027

Section VI - Expenses
Subsection F - Expense Constant Offset
7/1/2016

Section VI - F
Exhibit 1

Calculation of Expense Constant as Percent of Premium for Prospective Effective Period

(1) Expense Constant Offset for Policy Year 2013	0.957
(2) Expense Constant as Percent of Premium for Policy Year 2013 = 1.0 - (1)	4.3%
(3) Calculated Expense Constant for Policy Year 2013	\$235.80
(4) Factor to Bring Policy Year 2013 Premium to Premium Level of Prospective Effective Period	1.29
(5) Estimated Expense Constant for Prospective Effective Period	\$247.59
(6) Expense Constant as Percent of Premium for Prospective Effective Period = { (2) x [(5) / (3)] } / { [(1) x (4)] + [(2) x ((5) / (3))] }	3.5%

Notes:

- (1): Exhibit 2.
- (3): Based on Unit Statistical Plan Data
- (4): Section III-E, Exhibit 1.
- (5): Section D, Exhibit 1.

VI 000028

Section VI - Expenses
 Subsection F - Expense Constant Offset
 7/1/2016

Section VI - F
 Exhibit 2

Expense Constant Offsets

Used in Section I and Section III

Policy Year (1)	Standard Premium Excluding Expense Constant (2)	ARAP at Company Level (3)	Factor to Adjust ARAP from Company Level to DSR Level Premium (4)	Expense Constant (5)	Expense Constant Offset (6)
2012	894,488,930	47,699,238	1.052	43,088,206	0.956
2013	939,037,037	48,772,769	1.047	44,481,450	0.957

Used in the Calculation of Expense Constant as Percent of Premium for Prospective Effective Period

Policy Year (7)	Standard Premium Excluding Expense Constant (8)	ARAP at Company Level (9)	Factor to Adjust ARAP from Company Level to DSR Level Premium (10)	Expense Constant (11)	Expense Constant Offset (12)
2013	790,192,490	39,759,704	1.047	37,079,033	0.957

Notes:

Based on Unit Statistical Plan Data, excluding Large Deductible Policies.

(4) Section III-B, Exhibit 2.

(6) = { (2) + [(3) * (4)] } / [{ (2) + [(3) * (4)] } + (5)]

(10) Section III-B, Exhibit 2.

(12) = { (8) + [(9) * (10)] } / [{ (8) + [(9) * (10)] } + (11)]

The Standard Premium excluding Expense Constant values for Policy Year 2013 used in Section I and Section III differ from those used in the calculation of the Expense Constant because of a differing company mixes.

VI 000029

Section VI - Expenses
Subsection G - Acquisition Expenses
7/1/2016

Section VI - G
Exhibit 1

Provision for Commission and Other Acquisition Expense Including Frictional Reinsurance Expenses

(1)	Other Acquisition and Field Supervision Expense Ratio, Excluding Expense Constants	3.7%
(2)	Selected Average Commission Ratio, Excluding Expense Constants	7.9%
(3)	Selected Frictional Reinsurance Expenses Ratio (relative to Standard plus ARAP premiums, excluding expense constants)	1.0%
(4)	Selected Effect of Incidental Income and EBUP Expense, Excluding of Expense Constants	0.0%
(5)	Commission and Other Acquisition Expense Ratio = (1) + (2) + (3) + (4)	12.6%

Notes:

(1): Exhibit 2.

(2): Exhibit 3.

(3): Exhibit 4, Page 1.

(4): Exhibit 5.

VI 000030

Section VI - Expenses
 Subsection G - Acquisition Expenses
 7/1/2016

Section VI - G
 Exhibit 2

Calculation of Other Acquisition Expense

	Calendar Year		
	2012	2013	2014
(1) Standard Earned Premium Including Expense Constant Premium	914,877,733	942,139,873	971,746,716
(2) ARAP Premium at Company Level	43,796,098	45,776,607	43,631,199
(3) Adjustment Factor to Adjust from Company Level to DSR Level Premium	1.055	1.050	1.047
(4) Standard Earned Premium plus Adjusted ARAP = (1) + [(2) x (3)]	961,072,486	990,192,168	1,017,433,694
(5) Adjustment for Experience and Merit Rating, ARAP, and Construction Credit Off-balance	0.996	1.008	1.011
(6) Adjustment Factor to Remove the Impact of Loading for Recoupment of Insolvency Fund Assessments	1.000	1.000	0.999
(7) Adjusted Standard Earned Premium plus ARAP = (4) x (5) x (6)	957,191,904	998,305,662	1,028,203,766
(8) Other Acquisition, Field Supervision, Collection Expenses for Home Office and Branch Office, excluding Commissions	45,337,690	54,699,120	54,594,541
(9) Other Acquisition Expense Ratio = (8) / (7)	4.7%	5.5%	5.3%
(10) Three Year Average		5.2%	
(11) Expense Constant as Percent of Premium for Prospective Effective Period		3.5%	
(12) Other Acquisition Portion of Expense Constant		46.7%	
(13) Percent of Premium due to Portion of Expense Constant for Other Acquisition Expense = (11) x (12)		1.6%	
(14) Other Acquisition and Field Supervision Expense Ratio, Excluding Expense Constants = [(10) - (13)] / [1.0 - (11)]		3.7%	

Notes:

- (1), (2): Aggregate Financial Reconciliation Report Calls, Calendar Years 2012 - 2014.
 Reported Premium, plus ARAP, and including Large Deductible Policies at Standard Premium.
 (3): Section III-B, Exhibit 2.
 (5): Section III-B, Exhibit 1.
 (6): Section III-C, Exhibit 1.
 (8): Aggregate Financial Expense Calls, Calendar Years 2012 - 2014.
 (11): Section VI-F, Exhibit 1.
 (12): Section VI-B, Exhibit 3.

VI 000031

Section VI - Expenses
Subsection G - Acquisition Expenses
7/1/2016

Section VI - G
Exhibit 3

Calculation of Average Commission Rate

	Calendar Year		
	2012	2013	2014
(1) Direct Written Premium	810,381,461	849,968,386	890,017,216
(2) Total Commissions for Agents and Brokers	61,332,749	63,038,761	70,118,395
(3) Average Commission Rate = (2) / (1)	7.6%	7.4%	7.9%
(4) Three Year Average		7.6%	
(5) Expense Constant as Percent of Premium for Prospective Effective Period		3.5%	
(6) Average Commission Ratio, Excluding Expense Constants = (5) / [1.0 - (4)]		7.9%	
(7) Selected Average Commission Ratio, Excluding Expense Constants		7.9%	

Notes:

(1): Annual Statement Exhibit of Premium and Losses, Calendar Years 2012 - 2014.

(2): Aggregate Financial Expense Calls, Calendar Years 2012 - 2014.

(5): Section VI-F, Exhibit 1.

VI 000032

Frictional Reinsurance Expenses

Calendar Year	Reinsurer Underwriting Expenses as Percentage of Net Written Premium				
	Commission and Brokerage	Other Acquisition	General Expenses	Taxes	Total Underwriting Expenses = (2) + (3) + (4) + (5)
(1)	(2)	(3)	(4)	(5)	(6)
2000	19.3%	3.3%	2.4%	0.8%	25.8%
2001	18.2%	3.8%	2.5%	0.3%	24.8%
2002	20.3%	3.7%	2.7%	0.4%	27.0%
2003	18.7%	4.2%	2.7%	0.6%	26.2%
2004	18.0%	4.0%	2.9%	0.5%	25.4%
2005	26.2%	8.0%	6.4%	0.7%	41.3%
2006	13.3%	4.6%	4.4%	0.5%	22.8%
2007	14.0%	4.9%	4.2%	0.5%	23.6%
2008	18.4%	4.3%	3.9%	0.6%	27.2%
2009	19.8%	2.9%	3.4%	0.2%	26.3%
2010	17.7%	3.2%	3.8%	0.2%	24.9%
2011	19.2%	3.0%	2.8%	0.2%	25.2%
2012	19.1%	3.1%	2.7%	0.3%	25.2%
2013	17.4%	3.6%	3.5%	0.3%	24.8%
2014	18.1%	3.5%	5.3%	0.4%	27.3%
(7) Average	18.5%	4.0%	3.6%	0.4%	26.5%
(8) Estimated Ceding Commission & Brokerage Rate for Workers' Compensation Non-Proportional Reinsurance	16.3%				
(9) Adjusted Average = (7) - (8)	2.2%	4.0%	3.6%	0.4%	10.2%
(10) Estimated % of Direct Premium Ceded for Workers' Compensation Non-Proportional Reinsurance					13.6%
(11) Implied Frictional Reinsurance Expenses Relative to Direct Premiums (as a %) = Total (9) x (10)					1.39%
(12) Selected Frictional Reinsurance Expenses Ratio (relative to Standard plus ARAP premiums, excluding expense constants)					1.0%

Notes:

(2)-(5): Insurance Expense Exhibit database - By Line Underwriting Experience from Best's Aggregates & Averages for Reinsurance Editions 2001 - 2015.

(8): Page 2, (10).

(10): Page 2, (11).

VI 000033

Estimate of Ceding Commission & Brokerage Rate for Workers' Compensation Non-Proportional Reinsurance

Calendar Year	Written Premiums (000's)			Ratio of Commission & Brokerage Incurred to Written Premium		Commission & Brokerage Expenses Incurred (000's)		
	Direct	Net	Direct - Net = (2) - (3)	Direct	Net	Direct = (2) x (5)	Net = (3) x (6)	Direct - Net = (7) - (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2000	32,780,086	28,240,208	4,539,878	0.082	0.068	2,687,967	1,920,334	767,633
2001	37,333,721	31,520,736	5,812,985	0.084	0.066	3,136,033	2,080,369	1,055,664
2002	43,950,839	38,137,991	5,812,848	0.077	0.066	3,384,215	2,517,107	867,107
2003	50,031,977	43,333,685	6,698,292	0.072	0.063	3,602,302	2,730,022	872,280
2004	51,988,628	45,667,027	6,321,601	0.074	0.063	3,847,158	2,877,023	970,136
2005	53,139,231	46,633,441	6,505,790	0.068	0.056	3,613,468	2,611,473	1,001,995
2006	50,942,134	45,033,012	5,909,122	0.072	0.069	3,667,834	3,107,278	560,556
2007	50,367,861	44,207,021	6,160,840	0.071	0.061	3,576,118	2,696,628	879,490
2008	42,686,615	37,535,546	5,151,069	0.077	0.060	3,286,869	2,252,133	1,034,737
2009	37,879,014	32,642,883	5,236,131	0.079	0.060	2,992,442	1,958,573	1,033,869
2010	37,180,836	32,184,623	4,996,213	0.079	0.060	2,937,286	1,931,077	1,006,209
2011	41,651,380	35,751,070	5,900,310	0.084	0.068	3,498,716	2,431,073	1,067,643
2012	44,555,061	37,992,643	6,562,418	0.084	0.070	3,742,625	2,659,485	1,083,140
2013	49,384,867	41,250,232	8,134,635	0.084	0.068	4,148,329	2,805,016	1,343,313
2014	52,613,735	44,053,515	8,560,220	0.084	0.066	4,419,554	2,907,532	1,512,022
Total	676,485,985	584,183,633	92,302,352	0.078	0.064	52,540,916	37,485,122	15,055,793

- (10) Estimated Ceding Commission & Brokerage Rate for Workers' Compensation Non-Proportional Reinsurance
 = Total (9) / Total (4) 16.3%
- (11) Estimated % of Direct Premium Ceded for Workers' Compensation Non-Proportional Reinsurance
 = Total (4) / Total (2) 13.6%

Notes:

(2), (3), (5), (6): Insurance Expense Exhibit database - By Line Underwriting Experience from Best's Aggregates & Averages for Workers' Comp Editions 2001 - 2015.

VI 000034

Section VI - Expenses
 Subsection G - Acquisition Expenses
 7/1/2016

Section VI - G
 Exhibit 5

Effect of Incidental Income and Earned but Uncollected Premium

	Calendar Year		
	2012	2013	2014
(1) Standard Earned Premium Including Expense Constant Premium	914,877,733	942,139,873	971,746,716
(2) ARAP Premium at Company Level	43,796,098	45,776,607	43,631,199
(3) Adjustment Factor to Adjust from Company Level to DSR Level Premium	1.055	1.050	1.047
(4) Standard Earned Premium plus Adjusted ARAP = (1) + [(2) x (3)]	961,072,486	990,192,168	1,017,433,694
(5) Adjustment for Experience and Merit Rating, ARAP, and Construction Credit Off-balance	0.996	1.008	1.011
(6) Adjustment Factor to Remove the Impact of Loading for Recoupment of Insolvency Fund Assessments	1.000	1.000	0.999
(7) Adjusted Standard Earned Premium plus ARAP = (4) x (5) x (6)	957,191,904	998,305,662	1,028,203,766
(8) Earned But Uncollected Premium ("EBUP")	11,788,004	7,379,015	10,496,582
(9) Incidental Income	2,177,957	2,175,728	2,189,901
(10) Net Effect of Incidental Income and EBUP Expense = [(8) - (9)] / (7)	1.0%	0.5%	0.8%
(11) Three Year Average		0.8%	
(12) Expense Constant as Percent of Premium for Prospective Effective Period		3.5%	
(13) Effect of Incidental Income and EBUP Expense, Exclusive of Expense Constants = (11) / [1.0 - (12)]		0.8%	
(14) Selected Effect of Incidental Income and EBUP Expense, Excluding of Expense Constants		0.0%	

Notes:

- (1), (2): Aggregate Financial Reconciliation Report Calls, Calendar Years 2012 - 2014.
 Reported Premium and ARAP, including Large Deductible Policies at Standard Premium.
- (3): Section III-B, Exhibit 2.
- (5): Section III-B, Exhibit 1.
- (6): Section III-C, Exhibit 1.
- (8),(9): Aggregate Financial Expense Call.
- (12): Section VI-F, Exhibit 1.

VI 000035

Section VI - Expenses
Subsection H - Loss Adjustment Expense
7/1/2016

Section VI - H
Exhibit 1

Defense and Cost Containment Expense ("LAE") Ratio

		Calendar Year		
		2012	2013	2014
(1)	Ground Up Paid Losses	475,965,883	510,119,143	528,959,944
(2)	Ground Up Paid Defense and Cost Containment Expense	49,621,592	51,596,149	52,252,279
(3)	Defense and Cost Containment Expense Ratio = (2) / (1)	10.4%	10.1%	9.9%
(4)	Three Year Average Defense and Cost Containment Expense Ratio = Average of (3)		10.1%	
(5)	Selected Three Year Average Defense and Cost Containment Expense Ratio		10.1%	
(6)	Total Loss Adjustment Expense Ratio (LAE / Loss)		20.0%	

Notes:

(1),(2): Aggregate Financial Policy Year Calls.

(6): (5) + [(9) from Section VI-H, Exhibit 2]

VI 000036

Section VI - Expenses
 Subsection H - Loss Adjustment Expense
 7/1/2016

Section VI - H
 Exhibit 2

Adjusting and Other ("AO") Expense Ratio

	Calendar Year		
	2012	2013	2014
(1) Direct Incurred Losses	456,647,089	538,259,587	604,817,244
(2) Factor to Adjust the Direct Losses to Full Coverage Losses	1.140	1.135	1.126
(3) Estimated Full Coverage Incurred Losses = (1) x (2)	520,461,458	611,147,775	680,794,193
(4) Direct Incurred Adjusting and Other Expense	43,704,127	59,883,085	65,115,809
(5) Factor to Adjust the Direct Adjusting and Other Expense to Full Coverage AO Expense	1.065	1.063	1.059
(6) Estimated Full Coverage Adjusting and Other Expense = (4) x (5)	46,558,417	63,680,494	68,964,017
(7) Adjusted Adjusting and Other Expense Ratio = (6) / (3)	8.95%	10.42%	10.13%
(8) Three Year Average Adjusted Adjusting and Other Expense Ratio = Average of (7)		9.8%	
(9) Selected Three Year Average Adjusted Adjusting and Other Expense Ratio		9.8%	

Notes:

(1),(4): Aggregate Financial Calendar Year Expense Data Calls, 2012 - 2014.

(2),(5): Section VI-I, Exhibit 1, Page 1.

VI 000037

Section VI - Expenses
 Subsection I - Adjustment for Large Deductible Policies
 7/1/2016

Section VI - I
 Exhibit 1
 Page 1

Adjustment to the Adjusting and Other Expense Provision

	Calendar Year		
	2012	2013	2014
(1) Average Premium Reduction Factor for Large Deductible Policies	0.818	0.818	0.831
(2) Loss Elimination Ratio (LER) for Large Deductible Policies = (1) x 1.111	90.9%	90.8%	92.4%
(3) Market Share (Standard Premium Basis) of Large Deductible Policies	13.5%	13.1%	12.1%
(4) LER for Full Coverage plus Large Deductible Policies = [(2) x (3)] + { 0.0 x [1.0 - (3)] }	12.3%	11.9%	11.2%
(5) Factor to Adjust the Direct Losses to Full Coverage Losses = 1.0 / [1.0 - (4)]	1.140	1.135	1.126
(6) Factor to Adjust the Direct AO Expense to Full Coverage AO Expense = 1.0 / { 1.0 - [0.5 x (4)] }	1.065	1.063	1.059

Notes:

(1),(3): Exhibit 2.

(2): 1.111 from Exhibit 1, Page 2.

(6): Assumes 50% of Adjusting & Other expense varies directly with losses.

VI 000038

Section VI - Expenses
 Subsection I - Adjustment for Large Deductible Policies
 7/1/2016

Section VI - I
 Exhibit 1
 Page 2

Loss Elimination Ratio for Large Deductible Policies

		<u>As a % of Standard Premium plus ARAP</u>
(1)	Commission and Other Acquisition Expense Ratio	12.3%
(2)	Premium Discount Ratio	4.9%
(3)	Premium Tax Ratio = 2.28% x [1.0 - (2)]	2.2%
(4)	Profit Provision	0.0%
(5)	Insolvency Fund Assessment	0.2%
(6)	Residual Market Subsidy (Retrospectively-rated policies)	-0.2%
(7)	Variable Expense Ratio = (1) + (2) + (3) + (4) + (5) + (6)	19.4%
(8)	Expected Loss Ratio without LAE	63.3%
(9)	Defense and Cost Containment Expense ("DCC")	6.3%
(10)	Adjusting and Other Expenses ("AO")	5.8%
(11)	Variable Adjusting and Other Expenses = 0.5 x (10)	2.9%
(12)	Portion of Expected Loss + LAE Ratio that varies with deductible (ELARD) = (8) + (9) + (11)	72.6%
(13)	LER / D = [1.0 - (7)] / (12)	1.111

D = Average Premium Reduction Factor for Large Deductible Policies
 LER = Loss Elimination Ratio
 ELARD = Loss + DCC + (1/2 x AO)

$D = [LER \times ELARD] / [100\% - (\text{Variable Expense})]$
 $LER = D \times [1.0 - (\text{Variable Expense})] / LER \times (1.0 + DCC + 1/2 \times AO)$

Notes:

Values approved for rates effective 4/1/14.
 (9) = 10.0% x (8), ratio of DCC to Losses from the 4/1/14 filing.
 (10) = 9.2% x (8), ratio of AO to Losses from the 4/1/14 filing.

VI 000039

Section VI - Expenses
 Subsection I - Adjustment for Large Deductible Policies
 7/1/2016

Section VI - I
 Exhibit 2

Average Large Deductible Premium Reduction Factor and Large Deductible Market Share

		Policy Year												
		2011	2012	2013	2014*									
(1)	Standard Earned Premium Excluding Large Deductible Policies	776,211,969	794,363,914	820,373,080	479,535,529									
(2)	Earned Premium Net of Deductible Credit for Large Deductible Policies	20,928,477	23,710,372	20,822,734	10,090,386									
(3)	Standard Earned Premium for Large Deductible Policies	118,202,056	126,865,296	117,101,684	63,382,412									
(4)	Standard Earned Premium for All Policies = (1) + (3)	894,414,025	921,229,210	937,474,764	542,917,941									
(5)	Average Premium Reduction Factor for Large Deductible Policies = $1.0 - [(2) / (3)]$	0.823	0.813	0.822	0.841									
(6)	Market Share (Standard Premium Basis) of Large Deductible Policies = (3) / (4)	13.2%	13.8%	12.5%	11.7%									
		<table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th colspan="3" style="text-align: center;">Calendar Year</th> </tr> <tr> <th style="text-align: center;">2012</th> <th style="text-align: center;">2013</th> <th style="text-align: center;">2014</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">0.818</td> <td style="text-align: center;">0.818</td> <td style="text-align: center;">0.831</td> </tr> </tbody> </table>				Calendar Year			2012	2013	2014	0.818	0.818	0.831
Calendar Year														
2012	2013	2014												
0.818	0.818	0.831												
(7)	Average Premium Reduction Factor for Large Deductible Policies = Average of PY-1 and PY													
(8)	Market Share (Standard Premium Basis) of Large Deductible Policies = Average of PY-1 and PY		13.5%	13.1%	12.1%									

Notes:

- (1): Aggregate Financial Policy Year Call, Policy Year Accumulated Earned Premium – Standard at Bureau DSR Level.
- (2): Aggregate Financial Policy Year Large Deductible Call, Policy Year Accumulated Earned Premium – Net.
- (3): Aggregate Financial Policy Year Large Deductible Call, Policy Year Accumulated Earned Premium – Standard at Bureau DSR Level.
- * Policy Year 2014 is an incomplete Policy Year, valued as of 12/31/2014

VI 000040

Section VI - Expenses
Subsection J - Expected Loss Ratios Underlying the Proposed Rates & Rating Values
7/1/2016

Section VI - J
Exhibit 1

Expected Loss Ratios Underlying the Proposed Rates & Rating Values

	<u>As a % of Standard Premium plus Adjusted ARAP</u>
(1) Commission and Other Acquisition Expense Ratio	12.6%
(2) Average Premium Discount as a % of Standard Premium + ARAP	5.0%
(3) Premium Tax Ratio = 2.28% x [1.0 - (2)]	2.2%
(4) Variable Expense Ratio = (1) + (2) + (3)	19.8%
(5) Underwriting Profit Provision	2.0%
(6) Permissible Loss, LAE, and Fixed Expense Ratio = 1.0 - [(4) + (5)]	78.2%
(7) Fixed Expense Ratio	4.7%
(8) Expected Loss and Loss Adjustment Expense Ratio = (6) - (7)	73.5%
(9) Total Loss Adjustment Expense Ratio (LAE / Loss)	20.0%
(10) Expected Loss Ratio without Loss Adjustment Expense = (8) / [1.0 + (9)]	61.3%

Notes:

(1): Section VI-G, Exhibit 1.

(2): Section VI-E, Exhibit 1.

(3): 2.28% from Section VI-B, Exhibit 3.

(5): Section VII-A, Exhibit 3.

(7): Section VI-B, Exhibit 1. The Average Fixed Expense Ratio, 5%, is divided by [1.0 + indicated rate change], 6.4%, to give the Fixed Expense Ratio underlying the proposed rates.

(9): Section VI-H, Exhibit 1.

UNDERWRITING PROFIT PROVISION**Background**

The Commissioner approved the use of the IRR for purposes of estimating underwriting profit provisions in her decision on 2003 rates, and the WCRIBMA continues to rely on that model in this filing.¹ Additionally, consistent with 2014 filing, the WCRIBMA is using a secondary analysis, which we call the insurer capital cost (ICC) model, to augment the IRR that is used to set the profit provision in the filing. The ICC model is not a replacement for the IRR; rather, it provides an alternative view of the cash flows from the insurance transaction, taken from the perspective of the insurance company (as opposed to the investor).

Both the IRR and ICC models are variants of the more generic discounted cash flow (DCF) methodology that is the standard investment decision tool relied upon in corporate and managerial finance. Such models have several features that make them particularly appealing for use in rate regulation.

Fundamental principles of economics tell us that the price of insurance should be set to cover the expected value of future costs associated with the risk transfer under consideration.² In addition to losses and expenses, one of the costs of insurance is the cost of capital: there must be a provision in the rates that compensates investors for the

¹ See, 2003 Decision, page 40: “For the following reasons, we conclude that use of an IRR model for the underwriting profits provisions will be superior to the M-C model.”

² This is simply the insurance specific application of the general proposition that price should equal marginal cost. This is not only a principle of economics; basic precepts of actuarial science require the same thing. See, for example, the CAS Statement of Principles on Property Casualty Insurance Ratemaking or the Standard of Practice on Rate of Return in Ratemaking.

VII 000002

opportunity cost of the capital committed to the insurance activity. The underwriting profit provision is the component of the rates that, taken along with investment income, should provide insurers with a fair rate of return.

This suggests that to set an underwriting profit provision in insurance rates, one should first establish a fair and reasonable rate of return, and then select a profit provision that produces that fair return. Such an analysis is consistent with the traditional practice in other regulated industries, where rates include allowances for the expected costs of providing the regulated product or service, along with a provision for a fair rate of return on the capital required to produce the regulated product or service. This type of procedure comports with the legal standard under which fair regulation is applied, as articulated in the Hope Natural Gas decision of the U.S. Supreme Court.³ It is also consistent with the procedures relied upon in Massachusetts for the regulation of public utilities.

To that end, the WCRIBMA requested that David Appel and his colleagues at Milliman, Inc. assist the WCRIBMA's staff in developing a procedure for setting the profit factor in workers' compensation rates that will yield insurers a fair and reasonable return on the capital invested in support of the insurance transaction. Dr. Appel has performed the following work for the WCRIBMA:

1. He has assisted the WCRIBMA in developing a methodology to estimate the cost of capital, or fair rate of return, insurers should be allowed for bearing the risk of underwriting workers' compensation insurance in Massachusetts.

³ The Hope decision states, in part, that "...the return to the equity owner should be commensurate with the returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital." Federal Power Commission v. Hope Natural Gas Co., 320 U.S. 591, 603 (1944).

2. He has assisted the WCRIBMA in developing the two DCF models (IRR and ICC) used in this filing to estimate the underwriting profit factor required to yield the indicated fair rate of return.
3. He has used these models to derive an underwriting profit factor that is consistent with the current cost of capital. This is the underwriting profit provision proposed in this rate filing.

In this filing, the calculated underwriting profit provision is 2.00%.⁴ The DCF models and the cost of capital calculation are actuarially sound and produce a rate in the statutorily required range of reasonableness. We therefore recommend that the Commissioner approve their use.

Section VII-A – Summary

Table A1 summarizes the main parameters needed for the calculation of the profit provision.

⁴ WCRIBMA's proposed profit load is lower than the approved profit load in remaining six administered pricing states in the country. On 11/13/2015, the Florida Office of Insurance Regulation approved NCCI's rate filing that included a profit load of 2.75%. On 9/30/15, the Idaho Department of Insurance approved, as filed, NCCI's rate filing that included a profit load of 4.00%. On 9/22/15, the Iowa Insurance Division approved, as filed, NCCI's rate filing that included a profit load of 3.50%. On 10/7/2015, NCCI's rate filing for Arizona, which included a profit load of 4.00% was deemed approved. The NJCRB filed rates reflecting a 2.50% profit load that was approved by the New Jersey Division of Insurance effective 1/1/2016. The latest WCRB filing, effective 10/1/2015, was approved by the Wisconsin Office of the Commissioner of Insurance with a 2.50% profit load.

VII-B– Discounted Cash Flow Models

In Section VII-B we present the DCF models we have constructed and implemented with Dr. Appel's assistance. Exhibit 1 presents the IRR model and the relevant cash flows to investors. Exhibit 2 presents the ICC model and the relevant cash flows to insurers. This section also includes a detailed appendix that shows that the IRR and ICC models are mathematical equivalents and yield the same results.

VII-C – Underwriting Cash Flows

In Section VII-C we estimate the actual underwriting cash flows that accrue to the insurer in each time period. These cash flows include premium, losses and LAE, other expenses, taxes, investment income and surplus. Each one of these cash flows is estimated quarterly over a period of 36 years to calculate the final flow of funds related to the insurance transaction.

Tables C5_1 and C5_2 provide cash flow patterns and amounts for premium collection, payment of losses, LAE and expenses calculated by the WCRIBMA. Prior to the 2014 filing, the WCRIBMA relied on a study from 1977 for the flow patterns of general expenses, other acquisition expenses, premium taxes, and miscellaneous and other taxes. In this filing, consistent with the 2014 filing, the WCRIBMA made distinct assumptions (detailed below) for the payment pattern of each of these various types of expenses. The cash flow patterns for a single policy were converted to a policy year basis for use in DCF models.

General Expenses

We assume that the payment pattern for general expenses is equal to the average of the written premium flow and earned premium flow. This corresponds to an assumption that on average half of the general expense payments are made as premium is written and half are made as premium is earned.

Commission & Brokerage

We assume that the commission and brokerage flow pattern coincides with the collected premium flow.

Other Acquisition Expense

Other acquisition costs are assumed to be paid as follows: one sixth in the period preceding the writing of premium, and five sixths in the period the premium is written.

Premium Taxes

The distribution of premium taxes is assumed to be equal to the written premium pattern with a single period lag.

Miscellaneous and Other Taxes

We assume that the miscellaneous and other taxes flow pattern coincides with written premium flow.

Reinsurance Expenses

We assume that the reinsurance expense flow pattern coincides with the written premium flow.

Premium Discount

We assume that the premium discount flow pattern coincides with the collected premium flow.

VII-D – Capital Needed From Investors

Table D1 derives the amount of capital required to be supplied from investors.

VII-E – Cost of Capital

In Section VII-E we present the cost of capital analysis developed by Dr. Appel, including a detailed appendix describing the methods used. To estimate the cost of capital prior to the 2010 filing, the WCRIBMA relied on a sample of large, publicly traded property/casualty insurers, drawn exclusively from the Value Line Investment Survey, Part 3 (The Ratings and Reports). Since the 2010 filing, the WCRIBMA has expanded the sample to include data on all publicly traded property casualty insurers. These additional data are drawn from the Value Line Investment Survey, Small & Mid Cap Edition, and the Standard & Poor's Compustat database. The Compustat database includes the data from smaller companies not included in Value Line dataset, and is therefore more representative of the Massachusetts industry's carrier mix than a sample relying only on

the largest publicly traded insurers in the country. The addition of information on a broader range of insurers produces more reliable and robust estimates of the cost of capital, because these data more appropriately reflect the risk associated with smaller carriers.⁵

In this filing the WCRIBMA has requested Dr. Appel to implement a three-stage dividend growth model to reflect the assumption that in the long run the industry's dividend growth rate will revert to a level equal to the growth rate of the economy as a whole. The calculation of the three-stage dividend growth model is shown in Section VII-E, Exhibit 2, Page 1.

VII-F – Leverage Ratio

In this filing, the amount of surplus is estimated using a total reserve-to-surplus ratio, as approved in the Commissioner's decision on 2005 automobile insurance rates and used in workers' compensation rate filings since 2005.

In calculating the reserves-to-surplus ratio, we use data for the "Commercial Casualty Composite" group of companies as identified in Best's Aggregates and Averages, 2015 edition. We estimate this ratio by using an average of five years of data

⁵ The standard deviation of a sample mean derived from a random sample, is calculated as $\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{N}}$, where σ is the standard deviation of the population from which the random sample is drawn and N is the sample size. As N increases, the standard deviation of the sample mean decreases. Based on the sample sizes used by the SRB and the WCRIBMA in the 2012 rate proceeding, 22 and 98 respectively, the standard deviation of the WCRIBMA's estimated cost of capital would be less than half that of the SRB's estimate, meaning the WCRIBMA's calculated cost of capital is a statistically better estimate of the true population parameter. Additionally, a sample drawn strictly from Value Line is not a random sample because of the disproportionate representation of large insurers.

for loss and LAE reserves, plus unearned premium reserves. The calculation of the ratio is shown in Exhibit 1.

VII-G - Premium Flow

In the WCRIBMA’s 2008 filing, the WCRIBMA updated the data underlying the premium cash flow pattern in an effort to improve the accuracy of the profit model. In order to construct a new flow, a special premium payment call was made to a representative group of carriers. Each company group was asked to obtain a random sample of fifty complete-year guaranteed cost (non large deductible) policies with policy effective dates in 2004 that include premiums related to Massachusetts’ workers’ compensation exposures. The 50 randomly selected policies were stratified, based on the total premium for all states covered by the policy, as follows:

Policy Premium Range	Number of Policies in Sample
0 – 9,999	10
10,000 – 199,999	24
Over 200,000	16

If the population of policies in any of the premium ranges was not sufficient to allow for the recommended sample size, the size of the samples for the other premium layers was increased so that 50 policies were sampled in total. The premium flow used in the profit model is shown in Exhibit 1.

VII-H - Expense Weights

In the current filing, separate policy year 2012 and policy year 2013 weights are calculated for general expenses, miscellaneous and other taxes, and loss and loss adjustment expenses. The weights used to combine the various expense flow patterns into final expense flows are calculated using the expense provisions from Section VI. The average of the two policy year weights is used in the DCF models.

Acquisition expenses, premium taxes and premium discounts are treated as varying in proportion to standard premium plus ARAP. Loss adjustment expenses are treated as varying in proportion to losses. General expenses and other taxes are treated as fixed expenses.

Since the total premium amount will vary with the profit provision, and since losses, loss adjustment expenses and fixed expense amounts are all treated as not varying with premium levels, the proportion of premium attributable to losses, LAE and fixed expenses depends on the underwriting profit provision. Thus their weights relative to those items that vary in proportion to total premium will change as the profit provision does but their weight relative to each other will not.

VII-I - Loss and LAE Flow

The WCRIBMA has updated the data underlying both the medical and the indemnity loss flows used in determining the profit provision. The WCRIBMA has used the most recent available financial aggregate data to derive estimates of the patterns of loss payments. Consistent with other sections of the filing, the WCRIBMA has calculated loss development

factors separately for one large carrier. The development factors for AIG and the remainder of the industry are from Section II, Exhibit 1, Pages 1 and 4. These are used in Exhibit 2 for the calculation of the combined loss flow.

Exhibit 1 shows the calculation of loss and LAE payout pattern used in the DCF models. The Defense and Cost Containment Expense (DCC) flow is assumed to have the same pattern as the loss flow. This corresponds to an assumption that on average DCC payments occur at approximately the same time as claim payments.

The pattern of the Adjusting and Other Expense (AO) flow is assumed to be the same as the average of the loss flow and an earned premium flow. This corresponds to an assumption that on average half of the AO payments are made as accidents occur over the course of the policy effective period and that the other half of the AO payments are made as claims are paid.

The combined loss and LAE flow on a single policy basis used in the profit model, which reflects a weighted average of the medical and indemnity flows, is shown in Exhibit 1. This is then converted to a full policy year basis and appears in Table C5_1 (Section VII-C, Exhibit 5, Page 1).

VII-J - Portfolio Rate of Return

Portfolio Composition

The mix of securities in the insurance industry asset portfolio is based on data compiled in A.M Best's Aggregates & Averages. Best's is the single most widely recognized source of insurer financial data, and is the source that is routinely relied upon

for insurer asset information. These data are compiled directly from insurer annual statements, and they contain substantial detail on the mix and maturity of bonds. Hence this is a preferred source for estimating the mix of securities in the insurer asset portfolio.

In this filing, consistent with the 2014 filing and conforming to the 2012 Commissioner's Decision, WCRIBMA includes "other assets" as an additional category in the portfolio. We begin our calculation of the portfolio rate of return by assigning weights to each of nine categories of assets: cash and short-term investments; government securities and other taxable bonds including industrials; tax exempt bonds including bonds issued by states and territories and special revenue bonds; common stocks; real estate (the sum of real estate investments, offices and sales); preferred stocks; and other assets. We assign weights using data from Best's Aggregates and Averages Property Casualty, 2015 edition for total US Property and Casualty Industry (Exhibit 1, Page 2). The weights are shown in column (2) of Exhibit 1, Page 1.

Investment Yields

Prior to its 2005 filing the WCRIBMA relied on 12-month average yields to estimate expected future investment income. It is more appropriate, however, to rely on more recent data for this purpose, as it is more likely to be predictive of future investment earnings. In the DCF models used this year (and in the filings from 2005 to present), the WCRIBMA has relied on yields averaged over the last 3 months⁶.

⁶ Following the Commissioner's Decision in the 2012 rate case, the WCRIBMA studied the distribution of bonds held by insurers, to identify whether the bond maturities that impact the yield calculations were reasonably proxied by the Schedule D data used in the filing. Although there were small differences in the

We use the return on 3-month T-bills to estimate the pre-tax return for cash and short-term investments (3-month average from Exhibit 2, Page 3). The pre-tax returns on bonds shown in the next column are taken from Exhibit 2, Page 1. Using industrywide allocations of bonds by class and maturity from Best's Aggregates and Averages, we calculate (in Exhibit 3) the percentages of bonds in each class. Using yields developed from the data shown on Exhibit 2, Page 3 (calculated on Exhibit 2, Page 2), we calculate an average yield (based on a 3-month average of yields) for each of the bond categories included in the Best's data (Exhibit 2, Page 1). We derive the pre-tax return on common stocks using a three horizon CAPM calculation, assuming that these assets have a beta of 1.0. The pre-tax return on real estate is the sum of the 3-month treasury rate and the real estate differential of 3.94% taken from Ibbotson and Siegel, "Real Estate Returns: A Comparison with Other Investments". The pre-tax return on preferred stocks is taken from the yield data in Exhibit 2, Page 2. We assume that the pre-tax return and the tax rate on other assets coincide with the pre-tax return and tax rate on preferred stocks.⁷

Market Risk Premium

We use market returns from 1926-2014 to calculate the short term, intermediate term and long term market risk premiums used to calculate the yield on stocks. (As discussed in Section VII-E, these are the same risk premiums used to calculate the cost of capital, which

maturities of newly purchased compared to existing bonds, they did not appear to have a material impact on the yield calculation.

⁷ We were not able to find a consistent source of information for the types of securities or expected returns on the assets contained in the "other" class. However based on the data we did review, it appears that other invested assets are comprised on a mix of equity type and fixed income type investments. We assigned them a return equal to the preferred stock return.

is required for internal consistency in the rate filing.) The calculation, shown on Exhibit 4, uses data drawn from the 2015 Ibbotson & Associates *Classic Year Book*.

Investment Expenses

The WCRIBMA has relied on the same data source for this value as for the asset portfolio, A.M Best's Aggregates & Averages. This is appropriate. Since investment yields are estimated based on the actual portfolios held by insurers, it is consistent to estimate the reported investment expenses that are associated with those portfolios.

We subtract after-tax investment expenses from after-tax returns in Exhibit 1. In Exhibit 5 we calculate investment expenses using data from Best's Aggregates and Averages. In this filing, consistent with the 2014 filing, the WCRIBMA did not include interest expense and depreciation of real estate in the calculation of total invested expenses.⁸ The pre-tax average investment expense carried to Section VII-J, Exhibit 1, Page 1 is 0.24%.

Tax Rate on Common Stocks

We calculate the effective tax rate on common stock in Exhibit 6. The effective tax rate for capital gains on common stocks is shown in Exhibit 6, Page 2. That rate is based on a 36% turnover ratio, taken from an AIB study of Massachusetts auto insurers' portfolio

⁸ The State Rating Bureau contested the inclusion of depreciation, interest expense, and aggregate write-ins for investment expenses in the estimation of an investment expense allowance. With respect to depreciation and interest expense, we anticipate objections to their inclusion on the grounds that it would result in double counting. However, we know of no reason to believe including aggregate write-ins presents a double counting problem. For purposes of limiting the debate on investment expenses, the WCRIBMA has opted in this filing to exclude depreciation and interest expense.

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stock sales. The interest rate used in calculating the present value of the taxes is the weighted average cost of capital from Section VII-E, Exhibit 1. Prior to the 2010 filing the WCRIBMA relied on a 10 year average to calculate the capital gains and dividend weights shown in Exhibit 6, Page 1. In this filing, the WCRIBMA relied on data from 1926 – 2014. This change was made because of the extreme volatility in the financial markets in recent years. Combining a tax rate of 14.18% for common stock dividends and 26.07% on capital gains, we derive an overall average tax rate of 22.00% (Exhibit 6, Page 1).

Exhibit 6, Page 3 displays the calculation of common stock tax rate for different discount rates and turnover rates.

Overall Result

The after-tax portfolio rate of return used in this filing is 2.65%.

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Section VII - Profit
 Subsection A - Summary
 7/1/2016

Section VII-A
 Exhibit 1

TABLE A1: ASSUMPTIONS AND PROFIT PROVISION CALCULATION

Underwriting Assumptions:		
(1)	Written Premium	
(a)	Gross - Before Premium Discount	1,000.00
(b)	Net - After Premium Discount	949.56
(2)	Collected Premium Net - After Premium Discount	949.56
(3)	Loss & LAE Ratio	73.50%
(4)	Commission Ratio	7.90%
(5)	Premium Discount	5.04%
(6)	General Expense Ratio	4.36%
(7)	Other Acquisition Expense Ratio	3.67%
(8)	Premium Tax Rate	2.17%
(9)	Reinsurance Expense Ratio	1.00%
(10)	Miscellaneous and Other Taxes	0.38%
Cost of Capital:		
(11)	Weighted Average Cost of Capital	7.44%
Portfolio Rate of Return:		
(12)	After Tax Portfolio Rate of Return	2.65%
Leverage Ratio:		
(13)	Reserves to Surplus Ratio	1.79
Profit Provision:		
(14)	Profit Provision Calculation	2.00%

Notes:

(1b) = (1a) x [1.0 - (5)]

(2) = (1b), assumed that all premium is collectible.

(3) - (10): Section VII-H, Exhibit 1 (average of the two policy years).

(3), (6), (10) are divided by (1.0 + Rate Change).

(11): Section VII-E, Exhibit 1.

(12): Section VII-J, Exhibit 1, page 1.

(13): Section VII-F, Exhibit 1.

(14) = 1.0 - [(3) + (4) + (5) + (6) + (7) + (8) + (9) + (10)]

DISCOUNTED CASH FLOW (DCF) MODELS:**INTERNAL RATE OF RETURN (IRR) AND INSURER CAPITAL COST (ICC)****General Considerations**

For more than a decade the WCRIBMA has relied on an internal rate of return (IRR) model to estimate the profit provision that should be included in Massachusetts workers' compensation insurance rates. Once the fair rate of return has been established (based on the cost of capital analyses presented in the filing), the underwriting profit provision can be determined so that the total return on equity (including both underwriting and investment income) is equal to the fair return.

The WCRIBMA's IRR model projects the cash flows attributable to the sale of workers' compensation insurance coverage and calculates the implied rate of return on those cash flows. Virtually every textbook on modern corporate and managerial finance cites the IRR along with the net present value method as the most widely supported investment decision-making rules currently known. Many insurers rely on IRR models to estimate the expected rate of return associated with alternative insurance transactions.

In this filing, the WCRIBMA is introducing an additional analysis, which we call the Insurer Capital Cost (ICC) model, to augment the IRR model used to set the profit provision in the filing. The ICC model is not a replacement for the IRR model. Rather, while it produces exactly the same results as the IRR model, the ICC model provides an alternative view of the cash flows derived from the insurance transaction, taken from the perspective of the insurance company (as opposed to the investor). The purpose of the

ICC model is to clarify the sources and uses of funds related to the sale of workers' compensation policies; detail the capital contributions by investors that are required to finance the underwriting of insurance; and properly recognize the cost of that capital to the insurer.

The IRR and ICC Models

Both the IRR and ICC models are variants of the more generic discounted cash flow (DCF) methodology that is a standard investment decision tool relied upon in corporate and managerial finance. Such models have several features that make them particularly appealing for use in rate regulation.

1. DCF models are prospective and therefore consistent with both actuarial principles and regulatory standards.

Discounted cash flow models, such as the IRR and ICC, attempt to estimate the rate of return attributable to policies sold in the future. From a financial perspective, this is the essence of the rate approval process: to set a price that yields a fair rate of return on the insurance contracts sold under the proposed rates. Alternative approaches, such as accounting models, attempt to estimate the rate of return that will be earned by the insurance company next year, assuming a proposed set of rates is approved. These models may be useful for some purposes, but they are not appropriate for use in rate-setting, which should focus on the return on the cohort of policies sold under a set of proposed rates.

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2. DCF analyses account for all investment income on both policyholder and investor supplied funds.

Both the IRR and ICC model account for investment income in ratemaking and credit the investment income insurers expect to earn in the time period between the sale of policies and the payment of all losses and expenses against otherwise-indicated premium requirements.

Both DCF models account for all such income based on the investment yields insurers can expect to earn when the investible funds are received. However, the ICC model is designed so it explicitly identifies and tracks the investible funds derived from both investors and policyholders in order to avoid any confusion regarding the nature of the cash flows from the insurance transaction.

3. DCF analyses account for the time value of money.

The cash flows for some lines of insurance can extend for literally decades after the sale of the policy. In such a case the relative value of the income stream that occurs in future years should be discounted to obtain its present value. Only in this fashion can insurers make rational decisions regarding alternative investment opportunities.

Textbooks on modern financial theory typically recommend discounted cash flow techniques for evaluating investments that pay returns over a period of years into the future. This is because such techniques place all investments on a

common footing: that is, they evaluate the future cash flows in the context of the present. This is the only sound basis for comparing alternatives.

4. DCF analyses account for federal income taxes.

The impact of taxes on insurance rates of return can be substantial, particularly given the special provisions of the internal revenue code applied to insurers. These provisions generally affect the timing of taxable income, and the only way to correctly account for them is to look at the flow of taxes over time, which can be readily accomplished using a DCF model.

The IRR and ICC models focus solely on the policy or block of policies that will be sold when the approved rates are actually in effect. These are exactly the policies for which the rate of return should be calculated, as they are the ones to which the premium rates approved in this filing will apply. To calculate the rate of return, the models follow these policies through their lifetime, estimating in each time period the actual cash flows that accrue to the insurer. These cash flows include the following:

- Premiums
- Losses
- Loss Adjustment Expenses
- Other Expenses
- Taxes
- Investment Income
- Surplus

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In principle, when an insurer sells a policy it sets into motion a series of events, including the collection of premium; the payment of losses, expenses and taxes; the earning of investment income; and the commitment and later release of surplus. Each one of these cash flows is estimated quarterly over a period of 36 years, to calculate the final flow of funds related to the insurance transaction. In essence the models produce an estimate of the "cash in, cash out" attributable to the policies sold at a given rate.

When a DCF model is developed from the perspective of the investor, as in the IRR model, the relevant cash flows are the ones in and out of the investor's equity account. These include the commitment of equity to support insurance reserves, the provision of additional funds to support the pre-payment of expenses and taxes, the flows of after-tax income arising from both underwriting and investment activities, and the ultimate release of equity as losses are paid and reserves are run-off. Once the final cash flows are known, the internal rate of return is then calculated; it is simply the interest rate that discounts the stream of final investor cash flows to yield a net present value of zero. This can be interpreted as the compound annual rate of return, or the yield to maturity, of the investment.

When a DCF model is developed from the perspective of the insurance company, we call it the ICC model. The main difference between the ICC and the IRR models is that in the ICC model the final cash flows are those that accrue to the insurance company, as opposed to the insurance investor. From the vantage point of the insurance company, incoming cash flows arise from funds supplied by investors (initial capital to support reserves and additional capital to prepay expenses and taxes) along with premium

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revenues from the sale of insurance policies and income from the investment of policyholder and investor supplied funds. Cash then flows out of the company due to the payment of insurance-related losses and expenses, as well as the payments to investors for the cost of the capital they have advanced to the company. Those payments are the product of the amount of capital invested at the beginning of each quarter and the previously established cost of capital, or fair rate of return.

When the DCF model is configured as an IRR model (i.e., from the investor perspective), it solves for an underwriting profit factor that produces an internal rate of return equal to the cost of capital. This is appropriate, since an IRR equal to the cost of capital implies that investors earn a fair and reasonable return. However, when the model is configured as an ICC model (i.e., from the insurer perspective), the end result is different, because in the ICC one of the cash outflows is the periodic payment of the cost of capital to investors. Since that cost has already been considered explicitly, the residual cash flows accruing to the insurance company need not incorporate any additional provision for profit. Therefore, instead of solving for the underwriting profit that produces an IRR equal to the cost of capital, the ICC model solves for the underwriting profit factor that produces a net present value of future insurance company cash flows equal to zero. That profit factor is identical to the result obtained when solving for the underwriting profit that produces an IRR to the investor equal to the cost of capital.

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IRR and ICC Model Examples:

Although DCF models may appear complex, the underlying concepts are quite straightforward and are common to a wide range of financial analyses. A very simple example illustrates these concepts, beginning with the IRR model.

Consider an investor placing \$120 at risk in support of an insurance policy. This is the initial contribution of equity, from which a series of cash flows will develop. Let us assume that after all the events have taken place this set of policies will pay the investor the following amounts at the end of each indicated time period:

Year	Capital Flow	Income Flow	Total Cash Flow
0	-120.00		-120.00
1	50.00	5.00	55.00
2	40.00	8.40	48.40
3	30.00	9.93	39.93

As indicated in the table, the cash flows are the result of an initial contribution of capital, followed by the earning of income and return of capital in subsequent periods. After year 3 the transaction is over; that is, it produces no further cash flows to the investor. In this case the internal rate of return on the investment is 10%. This is calculated as follows:

IRR Model					
Year	Capital Flow	Income Flow	Total Cash Flow	Discount Factor @ 10%	Total Cash Flow (NPV)
0	-120.00		-120.00	1.0000	-120.00
1	50.00	5.00	55.00	0.9091	50.00
2	40.00	8.40	48.40	0.8264	40.00
3	30.00	9.93	39.93	0.7513	30.00
Total			23.33		0.00

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Ten percent is the interest rate that discounts the set of cash flows to a net present value of zero. Thus, for the investor who makes a \$120 investment today, with the expectation of future cash flows as indicated in the table above, the compound annual return on the equity investment is 10%. While the cash flows that derive from a real insurance transaction are substantially more complicated, the procedure for discounting them to present value is identical.

The same transaction can also be viewed from the perspective of the insurance company, as in the ICC model. In this case the cash flows from the insurance transaction are the same as in the IRR model, but the cost of capital is explicitly charged as an expense against earnings. Because the cost of capital is already recognized as an expense there is no additional return necessary, and therefore the net present value of the cash flows to the insurance company should be zero. That can be seen in the example below:

ICC Model							
Year	Capital Flow	Amount of Capital	Capital Charge	Income Flow	Net Flow To Insurer	Discount Factor @ 10%	Net Flow to Insurer (NPV)
0	-120.00	120.00				1.0000	0.00
1	50.00	70.00	12.00	5.00	-7.00	0.9091	-6.36
2	40.00	30.00	7.00	8.40	1.40	0.8264	1.16
3	30.00	0.00	3.00	9.93	6.93	0.7513	5.21
Total					1.33		0.00

In the ICC model, the 10% charge for the cost of the capital used during each period is explicitly counted as an expense, shown in the column entitled Capital Charge. That expense is charged against the income earned from the insurance transaction, resulting in the final cash flow to the insurer, shown as Net Flow to Insurer above. As can be seen, the net present value of the flow to the insurer is zero, under the identical circumstances (i.e., cash flows) that produced an IRR of exactly 10%. This demonstrates the equivalence of the IRR and ICC models – the cash flows that produce an IRR of 10% also produce an NPV of zero to the insurer, after compensating investors for the cost of their capital.

The IRR and ICC Models for Massachusetts Workers' Compensation Insurance

The IRR model is used in this filing to determine the underwriting profit provision that produces a return on equity equal to the current cost of capital. The ICC model views the insurance cash flows from a different perspective, and solves for the underwriting profit that produces a zero NPV for the insurer, after accounting for the cost of capital paid to the investor as an expense. Both of these DCF models use the cost of capital as the “target” rate of return. If the allowed rates produce an expected return at least equal to the cost of capital, insurers will “invest” by providing adequate capacity and offering coverage in the market. However, when the rate of return falls below the cost of capital, insurers have an incentive to restrict underwriting and withdraw capacity from the market. Thus, from the regulatory perspective, setting an underwriting profit that yields a rate of

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return equal to the cost of capital properly balances the interests of insurers and policyholders.

The section below briefly describes the Tables in the filing containing the detailed cash flows underlying the IRR and ICC models. The Tables present the assumptions and parameters underlying the models (Subsection A - Table A1); the development of the final cash flows associated with the alternative IRR/ICC perspectives (Subsection B - Tables B1 and B2); the detailed cash flow patterns and calculations that produce the flows in Tables B1 and B2 (Subsection C - Tables C1 through C5_2); and the flow of capital needed from investors (Subsection D - Table D1).

Table A1 identifies the flows used by the WCRIBMA for premiums, losses and expenses, and summarizes the main parameters needed for the calculation of the profit provision. These inputs apply equally to both the IRR and ICC models.

Table B1 presents the final IRR cash flows; i.e., the cash flows that are relevant when the model is viewed from the perspective of the investor. The cash flow to investors is the sum of the after tax cash flow from underwriting (net of the tax deduction for debt interest), the flow of surplus and the flow of income expected from the investment of reserves and surplus.

Table B2 presents the final ICC cash flows; i.e., the cash flows that are relevant when the model is viewed from the perspective of the insurer. The cash flow to insurers is the sum of the capital charge paid to investors net of the tax deduction for debt interest, the investment return on capital contributed by investors, the investment return on

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policyholder funded investable reserves and the after tax underwriting cash flow (net of policyholder funded investable reserves).

Table C1 calculates the policyholder supplied underwriting cash flows, derived as the difference between collected premium and the sum of losses, LAE and total pretax underwriting expenses paid. In addition, federal income taxes on underwriting (calculated in Tables C2_1 through C2_7) are deducted to obtain the post-tax cash flows from underwriting.

Tables C2_1 through C2_7 present the tax credits and liabilities arising from insurance operations, with special attention to the provisions of the Internal Revenue Code applicable to property casualty insurers. The details supporting the acceleration of income and discounting of each accident year's losses are provided in Tables C2_1 through C2_4. Table C2_5 calculates the total underwriting tax deductions used in Table C2_6 to calculate the federal income tax expense on underwriting. Table C2_7 then calculate the amount of admitted prepaid taxes (DTA's or Deferred Tax Assets. Admitted DTA's are non-cash assets that can be used to fund reserves, resulting in reduced investible balances attributable to reserves.)

Table C3 derives the amount of policyholder supplied funds available for investment, calculated as the sum of loss, LAE and unearned premium reserves less non-cash assets used to support reserves (admitted DTA's and admitted premium receivables). It also derives the additional funds required from investors to support the reserves (i.e., to the extent that the net revenues from underwriting fail to provide sufficient cash to fully fund required reserves, investors must contribute additional capital).

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Table C4 displays the derivation of admitted and non-admitted premium receivables. Statutory accounting rules permit premium balances less than 90 days past due to be carried as balance sheet assets, but balances more than 90 days past due are non-admitted. As with DTA's, admitted assets can be used to support reserves, while non-admitted assets cannot.

Tables C5_1 and C5_2 provide the underlying cash flow patterns from which all the calculations in the IRR and ICC models are derived. These include both cash flows (i.e., premiums collected, losses, LAE and all other expenses paid) as well as accounting flows (premium written and earned, and losses and LAE incurred). (These policy year patterns were developed by the WCRIBMA based on cash flow patterns for a single policy that were converted to a policy year basis.)

Finally, Table D1 derives the amount of capital required to be supplied from investors. Required capital includes the surplus that must stand behind total reserves along with any additional capital amounts required to fund cash shortfalls due to non-admitted DTA's and admitted premium receivables.

DCF Model Results

As shown in Table A1 of this Section, given the assumptions in the filing regarding losses, expenses, investment yields and cash flow patterns, if the underwriting profit provision is set to 2.00%, as proposed by the WCRIBMA, Massachusetts workers' compensation insurance would be expected to produce a rate of return on equity equal to the cost of capital of 7.44%. Since the underwriting profit provision is set specifically

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Section VII- B
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to yield this fair and reasonable return on equity, if the actuarial projections underlying the rates are reasonable, the rates as filed must be reasonable and satisfy the regulatory requirement that they be neither excessive nor inadequate.

APPENDIX – DCF MODELS

The purpose of this appendix is to demonstrate the equivalence between the two discounted cash flow models, the IRR model and the ICC model, which appear in Section VII – B, Exhibit 1 and Exhibit 2.

IRR MODEL (investor’s perspective)

The relevant cash flows in the IRR model are the following:

- Debt Financing Deduction (DFD)
- Investment Return on Surplus (IR_S)
- Investment Return on Reserves (IR_R)
- After-Tax Underwriting Cash Flow Net of Investable Reserves (UWCF)
- Change in Surplus Contributed by Investor (S)

Given these cash flows, we solve for the profit provision that results in a net present value of cash flows of zero.

$$\text{“IRR” NPV} = \text{PV(DFD)} + \text{PV(IR_S)} + \text{PV(IR_R)} + \text{PV(UWCF)} - \text{PV(S)} = 0$$

ICC MODEL (insurer’s perspective)

The relevant cash flows in the ICC model are the following:

- Debt Financing Deduction (DFD)
- Investment Return on Capital Contributed by Investors (IR_INV)

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- Investment Return on Policyholder Funded Investable Reserves (IR_PH)
- After-Tax Underwriting Cash Flow (Net of Policyholder Funded Investable Reserves) (UWCF)
- Capital Charge Paid to Investors (CC)

Given these cash flows, we solve for the profit provision that results in a net present value of cash flows of zero.

$$\text{“ICC” NPV} = \text{PV(DFD)} + \text{PV(IR_INV)} + \text{PV(IR_PH)} + \text{PV(UWCF)} - \text{PV(CC)}$$

Model Equivalence

To prove that the IRR model and the ICC model are equivalent, we need to demonstrate that:

$$\text{“IRR” NPV} = \text{“ICC” NPV} = 0 \quad \text{for a given profit provision}$$

Simplifying the Problem – Comparison of Relevant Cash Flows from the Two

Models

➤ **Debt Financing Deduction:**

Same for IRR and ICC:

$$\text{DFD}_{\text{IRR}} = \text{DFD}_{\text{ICC}}$$

➤ **Total Investable Funds:**

IRR:

- Investable Reserves = Unearned Premium Reserves + Loss & LAE Reserves
– Admitted Premium Receivables – Admitted Prepaid Taxes (DTA)
- Implied Surplus = $\frac{\text{Unearned Premium Reserves} + \text{Loss \& LAE Reserves}}{\text{Reserves to Surplus Ratio}}$

ICC:

- Policyholder Supplied Investable Funds = Investable Reserves - Reserves
Funded by Investors
- Capital Contributed by Investors = Implied Surplus + Reserves Funded by
Investors

Consequently, total investable funds are equal in the two models. Hence, total investment returns are equal as well.

$$IR_{SIRR} + IR_{RIRR} = IR_{INVICC} + IR_{PHICC}$$

➤ **After-Tax Underwriting Cash Flow Net of Investable Reserves:**

IRR:

$UWCF_{IRR} = \text{Collected Premium} - \text{Losses \& LAE Paid} - \text{Total Pretax Underwriting Expenses} - \text{Federal Income Tax Expense on Underwriting} - \text{Investable Reserves}$

ICC:

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$UWCF_{ICC} = \text{Collected Premium} - \text{Losses \& LAE Paid} - \text{Total Pretax Underwriting Expenses} - \text{Federal Income Tax Expense on Underwriting} - \text{Investor Supplied Reserves}$

Consequently,

$$UWCF_{IRR} = UWCF_{ICC} - \text{Change in Investor Supplied Reserves}$$

Note: The sign convention is from perspective of the investor. If the investor has to contribute capital to fund reserves, that would be a negative cash flow to the investor. Subtracting a negative value effectively results in an addition.

Given the results from above, the comparison of the “IRR” NPV and the “ICC” NPV can be simplified to a comparison of:

$$PV(S) + PV(\text{Change in Investor Supplied Reserves}) = PV(CC)$$

Moreover, the sum of the surplus contributions and the investor supplied reserves is precisely the capital needed from investors, leaving you with:

$$PV(C) = PV(CC)$$

where C is Change in Capital Provided by Investors and CC is Capital Charge Paid to Investors.

PV(C) = PV(CC)

The IRR model and ICC model are mathematically equivalent if $PV(C) = PV(CC)$, where the Capital Charge Paid to Investors for a given period is equal to the contributed capital from the prior period time the cost of capital. This is demonstrated below.

Given:

- C_i is the capital cash flow in period i
- r is the weighted average cost of capital

PROOF OF EQUIVALENCE OF NPV OF CAPITAL CHARGES AND CAPITAL CONTRIBUTIONS

$$\begin{aligned}
& \sum_{i=1}^n \frac{C_i}{(1+r)^{i-1}} = \sum_{i=1}^{n-1} \frac{(\sum_{j=1}^i C_j) \times r}{(1+r)^i} \\
& = r \times \left[\frac{C_1}{(1+r)} + \frac{C_1 + C_2}{(1+r)^2} + \frac{C_1 + C_2 + C_3}{(1+r)^3} + \dots + \frac{C_1 + C_2 + C_3 + \dots + C_{n-1}}{(1+r)^{n-1}} \right] \\
& = r \times \left[\left(\sum_{i=1}^{n-1} \frac{C_1}{(1+r)^i} \right) + \left(\sum_{i=2}^{n-1} \frac{C_2}{(1+r)^i} \right) + \dots + \left(\sum_{i=n-1}^{n-1} \frac{C_{n-1}}{(1+r)^i} \right) \right] \\
& = r \times \left[C_1 \left(\frac{1}{(1+r)} - \frac{1}{(1+r)^n} \right) + C_2 \left(\frac{1}{(1+r)^2} - \frac{1}{(1+r)^n} \right) + \dots \right. \\
& \quad \left. + C_{n-1} \left(\frac{1}{(1+r)^{n-1}} - \frac{1}{(1+r)^n} \right) \right] \\
& = r \times \left[C_1 \left(\frac{1}{r} - \frac{1}{r(1+r)^{n-1}} \right) + C_2 \left(\frac{1}{r(1+r)} - \frac{1}{r(1+r)^{n-1}} \right) + \dots + C_{n-1} \left(\frac{1}{r(1+r)^{n-2}} - \frac{1}{r(1+r)^{n-1}} \right) \right] \\
& = \left[C_1 \left(1 - \frac{1}{(1+r)^{n-1}} \right) + C_2 \left(\frac{1}{(1+r)} - \frac{1}{(1+r)^{n-1}} \right) + \dots + C_{n-1} \left(\frac{1}{(1+r)^{n-2}} - \frac{1}{(1+r)^{n-1}} \right) \right] \\
& = C_1 + \frac{C_2}{(1+r)} + \dots + \frac{C_{n-1}}{(1+r)^{n-2}} - \frac{C_1}{(1+r)^{n-1}} - \frac{C_2}{(1+r)^{n-1}} - \dots - \frac{C_{n-1}}{(1+r)^{n-1}} \\
& = \sum_{i=1}^{n-1} \frac{C_i}{(1+r)^{i-1}} - \frac{(\sum_{i=1}^{n-1} C_i)}{(1+r)^{n-1}} \quad \text{where } \sum_{i=1}^n C_i = 0 \rightarrow \sum_{i=1}^{n-1} C_i = -C_n \\
& = \sum_{i=1}^{n-1} \frac{C_i}{(1+r)^{i-1}} + \frac{C_n}{(1+r)^{n-1}} \\
& = \sum_{i=1}^n \frac{C_i}{(1+r)^{i-1}}
\end{aligned}$$

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Section VII-B
Exhibit 1

TABLE B1: INTERNAL RATE OF RETURN (IRR) MODEL - PRESENT VALUE (PV) NOMINAL CASH FLOWS TO INVESTORS

TIME INTERVAL		POST TAX CASH FROM UW MINUS INVESTABLE RESERVES	BOND INTEREST TAX DEDUCTION FOR INSURERS	NET CASH FLOW FROM UNDERWRITING	CASH POST-TAX INCOME	NET FLOW FROM SURPLUS ACCOUNT	SURPLUS POST-TAX INCOME	CASH FLOWS TO INVESTORS (NOMINAL)	CASH FLOWS TO INVESTORS (PV NOMINAL)
FROM (1)	TO (2)								
07/01/15	09/30/15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10/01/15	12/31/15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01/01/16	03/31/16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04/01/16	06/30/16	(6.32)	0.00	(6.32)	0.00	0.00	0.00	(6.32)	(5.98)
07/01/16	09/30/16	(3.00)	0.00	(2.99)	0.04	(120.17)	0.00	(123.13)	(114.60)
10/01/16	12/31/16	(12.83)	0.09	(12.74)	0.20	(94.07)	0.79	(105.82)	(96.75)
01/01/17	03/31/17	(16.10)	0.17	(15.93)	0.71	(125.48)	1.40	(139.30)	(125.09)
04/01/17	06/30/17	(3.06)	0.27	(2.79)	1.53	(85.60)	2.23	(84.63)	(74.65)
07/01/17	09/30/17	17.35	0.34	17.68	2.32	49.57	2.79	72.36	62.69
10/01/17	12/31/17	18.05	0.29	18.34	2.84	43.93	2.46	67.56	57.49
01/01/18	03/31/18	12.51	0.24	12.75	2.98	35.88	2.17	53.79	44.96
04/01/18	06/30/18	(13.32)	0.21	(13.11)	2.92	29.08	1.94	20.83	17.10
07/01/18	09/30/18	(9.94)	0.20	(9.74)	2.88	24.75	1.75	19.64	15.84
10/01/18	12/31/18	11.11	0.19	11.29	2.79	22.94	1.59	38.61	30.58
01/01/19	03/31/19	6.62	0.16	6.78	2.54	20.25	1.44	31.01	24.13
04/01/19	06/30/19	3.26	0.14	3.40	2.31	17.98	1.30	24.99	19.10
07/01/19	09/30/19	1.41	0.13	1.54	2.10	16.15	1.19	20.98	15.75
10/01/19	12/31/19	0.66	0.12	0.78	1.92	14.83	1.08	18.60	13.71
01/01/20	03/31/20	0.37	0.11	0.48	1.74	12.89	0.98	16.10	11.66
04/01/20	06/30/20	0.37	0.10	0.47	1.59	11.25	0.90	14.22	10.11
07/01/20	09/30/20	0.37	0.09	0.47	1.46	9.98	0.82	12.74	8.90
10/01/20	12/31/20	0.37	0.08	0.46	1.35	9.13	0.76	11.70	8.03
01/01/21	03/31/21	0.15	0.08	0.22	1.24	7.88	0.70	10.05	6.77
04/01/21	06/30/21	0.15	0.07	0.22	1.15	6.83	0.65	8.84	5.85
07/01/21	09/30/21	0.15	0.07	0.21	1.07	5.83	0.60	7.71	5.02
10/01/21	12/31/21	0.15	0.06	0.21	1.00	4.97	0.56	6.75	4.31
01/01/22	03/31/22	0.17	0.06	0.23	0.95	3.77	0.53	5.47	3.43
04/01/22	06/30/22	0.17	0.06	0.22	0.90	2.75	0.51	4.39	2.70
07/01/22	09/30/22	0.17	0.05	0.22	0.87	2.19	0.49	3.77	2.28
10/01/22	12/31/22	0.17	0.05	0.22	0.85	2.08	0.47	3.62	2.15
01/01/23	03/31/23	0.16	0.05	0.21	0.82	1.91	0.46	3.40	1.99
04/01/23	06/30/23	0.16	0.05	0.21	0.80	1.76	0.45	3.22	1.85
07/01/23	09/30/23	0.16	0.05	0.21	0.78	1.67	0.44	3.10	1.74
10/01/23	12/31/23	0.16	0.05	0.21	0.76	1.63	0.43	3.02	1.67
01/01/24	03/31/24	0.10	0.05	0.14	0.74	1.55	0.42	2.85	1.55
04/01/24	06/30/24	0.10	0.04	0.14	0.72	1.48	0.41	2.75	1.47
07/01/24	09/30/24	0.10	0.04	0.14	0.70	1.37	0.40	2.62	1.37
10/01/24	12/31/24	0.10	0.04	0.14	0.69	1.23	0.39	2.45	1.26
01/01/25	03/31/25	0.12	0.04	0.16	0.67	1.02	0.38	2.23	1.13
04/01/25	06/30/25	0.12	0.04	0.16	0.66	0.85	0.37	2.04	1.01
07/01/25	09/30/25	0.12	0.04	0.16	0.65	0.76	0.37	1.94	0.95
10/01/25	12/31/25	0.12	0.04	0.16	0.64	0.76	0.36	1.93	0.92
01/01/26	03/31/26	0.11	0.04	0.15	0.63	0.76	0.36	1.90	0.89
04/01/26	06/30/26	0.11	0.04	0.15	0.63	0.75	0.35	1.88	0.87
07/01/26	09/30/26	0.11	0.04	0.15	0.62	0.74	0.35	1.85	0.84
10/01/26	12/31/26	0.11	0.04	0.15	0.61	0.73	0.34	1.83	0.82
01/01/27	03/31/27	0.11	0.04	0.15	0.60	0.70	0.34	1.79	0.78
04/01/27	06/30/27	0.11	0.04	0.15	0.59	0.68	0.33	1.75	0.75
07/01/27	09/30/27	0.11	0.04	0.15	0.58	0.67	0.33	1.72	0.73
10/01/27	12/31/27	0.11	0.04	0.14	0.58	0.65	0.32	1.70	0.71
01/01/28	03/31/28	0.12	0.04	0.15	0.57	0.63	0.32	1.67	0.68
04/01/28	06/30/28	0.12	0.03	0.15	0.56	0.61	0.31	1.63	0.65
07/01/28	09/30/28	0.12	0.03	0.15	0.55	0.69	0.31	1.70	0.67
10/01/28	12/31/28	0.12	0.03	0.15	0.55	0.83	0.31	1.83	0.71
01/01/29	03/31/29	0.10	0.03	0.13	0.54	1.02	0.30	1.98	0.75
04/01/29	06/30/29	0.10	0.03	0.13	0.52	1.17	0.29	2.11	0.79
07/01/29	09/30/29	0.10	0.03	0.13	0.51	1.15	0.29	2.07	0.76
10/01/29	12/31/29	0.10	0.03	0.13	0.50	0.97	0.28	1.87	0.67
01/01/30	03/31/30	0.08	0.03	0.11	0.49	0.72	0.27	1.60	0.56
04/01/30	06/30/30	0.08	0.03	0.11	0.48	0.52	0.27	1.37	0.48
07/01/30	09/30/30	0.08	0.03	0.11	0.47	0.44	0.26	1.29	0.44
10/01/30	12/31/30	0.08	0.03	0.11	0.47	0.48	0.26	1.32	0.44
01/01/31	03/31/31	0.01	0.03	0.04	0.46	0.53	0.26	1.29	0.42
04/01/31	06/30/31	0.01	0.03	0.04	0.46	0.57	0.26	1.32	0.43
07/01/31	09/30/31	0.01	0.03	0.04	0.45	0.56	0.25	1.31	0.41
10/01/31	12/31/31	0.01	0.03	0.04	0.44	0.52	0.25	1.25	0.39
01/01/32	03/31/32	0.00	0.03	0.03	0.44	0.46	0.24	1.17	0.36
04/01/32	06/30/32	0.00	0.03	0.03	0.43	0.40	0.24	1.11	0.33
07/01/32	09/30/32	0.00	0.03	0.03	0.43	0.38	0.24	1.08	0.32
10/01/32	12/31/32	0.00	0.03	0.03	0.42	0.39	0.24	1.08	0.31
01/01/33	03/31/33	0.00	0.03	0.03	0.42	0.39	0.23	1.07	0.31
04/01/33	06/30/33	0.00	0.03	0.03	0.41	0.40	0.23	1.07	0.30
07/01/33	09/30/33	0.00	0.03	0.03	0.41	0.42	0.23	1.08	0.30
10/01/33	12/31/33	0.00	0.02	0.03	0.40	0.45	0.23	1.11	0.30
01/01/34	03/31/34	0.00	0.02	0.03	0.40	0.49	0.22	1.14	0.30
04/01/34	06/30/34	0.00	0.02	0.03	0.39	0.52	0.22	1.16	0.30
07/01/34	09/30/34	0.00	0.02	0.03	0.39	0.53	0.22	1.15	0.30
10/01/34	12/31/34	0.00	0.02	0.03	0.38	0.51	0.21	1.13	0.28
01/01/35	03/31/35	0.00	0.02	0.02	0.37	0.48	0.21	1.09	0.27
04/01/35	06/30/35	0.00	0.02	0.02	0.37	0.45	0.21	1.05	0.26
07/01/35	09/30/35	0.00	0.02	0.02	0.36	0.42	0.20	1.01	0.24
10/01/35	12/31/35	0.00	0.02	0.02	0.36	0.38	0.20	0.97	0.23
01/01/36	03/31/36	0.00	0.02	0.02	0.35	0.33	0.20	0.91	0.21
04/01/36	06/30/36	0.00	0.02	0.02	0.35	0.29	0.20	0.86	0.19

VII 000036

Section VII - Profit
Subsection B - DCF Models
7/1/2016

Section VII-B
Exhibit 1

TABLE B1: INTERNAL RATE OF RETURN (IRR) MODEL - PRESENT VALUE (PV) NOMINAL CASH FLOWS TO INVESTORS

TIME INTERVAL		POST TAX CASH FROM UW MINUS INVESTABLE RESERVES	BOND INTEREST TAX DEDUCTION FOR INSURERS	NET CASH FLOW FROM UNDERWRITING	CASH POST-TAX INCOME	NET FLOW FROM SURPLUS ACCOUNT	SURPLUS POST-TAX INCOME	CASH FLOWS TO INVESTORS (NOMINAL)	CASH FLOWS TO INVESTORS (PV NOMINAL)
FROM (1)	TO (2)								
07/01/36	09/30/36	0.00	0.02	0.02	0.35	0.27	0.19	0.83	0.18
10/01/36	12/31/36	0.00	0.02	0.02	0.34	0.28	0.19	0.84	0.18
01/01/37	03/31/37	0.00	0.02	0.02	0.34	0.29	0.19	0.84	0.18
04/01/37	06/30/37	0.00	0.02	0.02	0.34	0.29	0.19	0.84	0.18
07/01/37	09/30/37	0.00	0.02	0.02	0.33	0.32	0.19	0.87	0.18
10/01/37	12/31/37	0.00	0.02	0.02	0.33	0.37	0.18	0.91	0.18
01/01/38	03/31/38	0.00	0.02	0.02	0.33	0.42	0.18	0.95	0.19
04/01/38	06/30/38	0.00	0.02	0.02	0.32	0.47	0.18	0.99	0.19
07/01/38	09/30/38	0.00	0.02	0.02	0.32	0.50	0.18	1.01	0.19
10/01/38	12/31/38	0.00	0.02	0.02	0.31	0.50	0.17	1.00	0.19
01/01/39	03/31/39	0.00	0.02	0.02	0.30	0.50	0.17	0.99	0.18
04/01/39	06/30/39	0.00	0.02	0.02	0.30	0.50	0.17	0.98	0.18
07/01/39	09/30/39	0.00	0.02	0.02	0.29	0.50	0.16	0.97	0.17
10/01/39	12/31/39	0.00	0.02	0.02	0.29	0.50	0.16	0.97	0.17
01/01/40	03/31/40	0.00	0.02	0.02	0.28	0.50	0.16	0.95	0.16
04/01/40	06/30/40	0.00	0.02	0.02	0.27	0.50	0.15	0.94	0.16
07/01/40	09/30/40	0.00	0.02	0.02	0.27	0.50	0.15	0.94	0.16
10/01/40	12/31/40	0.00	0.02	0.02	0.26	0.50	0.15	0.93	0.15
01/01/41	03/31/41	0.00	0.02	0.02	0.26	0.50	0.14	0.92	0.15
04/01/41	06/30/41	0.00	0.02	0.02	0.25	0.50	0.14	0.90	0.14
07/01/41	09/30/41	0.00	0.02	0.02	0.25	0.50	0.14	0.90	0.14
10/01/41	12/31/41	0.00	0.01	0.02	0.24	0.50	0.13	0.89	0.14
01/01/42	03/31/42	0.00	0.01	0.02	0.23	0.50	0.13	0.88	0.13
04/01/42	06/30/42	0.00	0.01	0.02	0.23	0.50	0.13	0.87	0.13
07/01/42	09/30/42	0.00	0.01	0.02	0.22	0.50	0.12	0.86	0.12
10/01/42	12/31/42	0.00	0.01	0.02	0.22	0.50	0.12	0.85	0.12
01/01/43	03/31/43	0.00	0.01	0.02	0.21	0.50	0.12	0.84	0.12
04/01/43	06/30/43	0.00	0.01	0.02	0.20	0.50	0.11	0.83	0.11
07/01/43	09/30/43	0.00	0.01	0.01	0.20	0.50	0.11	0.82	0.11
10/01/43	12/31/43	0.00	0.01	0.01	0.19	0.50	0.11	0.82	0.11
01/01/44	03/31/44	0.00	0.01	0.01	0.19	0.50	0.10	0.80	0.10
04/01/44	06/30/44	0.00	0.01	0.01	0.18	0.50	0.10	0.79	0.10
07/01/44	09/30/44	0.00	0.01	0.01	0.18	0.50	0.10	0.78	0.10
10/01/44	12/31/44	0.00	0.01	0.01	0.17	0.50	0.09	0.78	0.10
01/01/45	03/31/45	0.00	0.01	0.01	0.16	0.50	0.09	0.77	0.09
04/01/45	06/30/45	0.00	0.01	0.01	0.16	0.50	0.09	0.75	0.09
07/01/45	09/30/45	0.00	0.01	0.01	0.15	0.50	0.08	0.75	0.09
10/01/45	12/31/45	0.00	0.01	0.01	0.15	0.50	0.08	0.74	0.08
01/01/46	03/31/46	0.00	0.01	0.01	0.14	0.50	0.08	0.73	0.08
04/01/46	06/30/46	0.00	0.01	0.01	0.13	0.50	0.08	0.72	0.08
07/01/46	09/30/46	0.00	0.01	0.01	0.13	0.50	0.07	0.71	0.08
10/01/46	12/31/46	0.00	0.01	0.01	0.12	0.50	0.07	0.70	0.07
01/01/47	03/31/47	0.00	0.01	0.01	0.12	0.50	0.07	0.69	0.07
04/01/47	06/30/47	0.00	0.01	0.01	0.11	0.50	0.06	0.68	0.07
07/01/47	09/30/47	0.00	0.01	0.01	0.11	0.50	0.06	0.67	0.07
10/01/47	12/31/47	0.00	0.01	0.01	0.10	0.50	0.06	0.66	0.07
01/01/48	03/31/48	0.00	0.01	0.01	0.09	0.50	0.05	0.65	0.06
04/01/48	06/30/48	0.00	0.01	0.01	0.09	0.50	0.05	0.64	0.06
07/01/48	09/30/48	0.00	0.01	0.01	0.08	0.50	0.05	0.63	0.06
10/01/48	12/31/48	0.00	0.00	0.01	0.08	0.50	0.04	0.63	0.06
01/01/49	03/31/49	0.00	0.00	0.01	0.07	0.50	0.04	0.61	0.06
04/01/49	06/30/49	0.00	0.00	0.01	0.06	0.50	0.04	0.60	0.05
07/01/49	09/30/49	0.00	0.00	0.01	0.06	0.50	0.03	0.60	0.05
10/01/49	12/31/49	0.00	0.00	0.01	0.05	0.50	0.03	0.59	0.05
01/01/50	03/31/50	0.00	0.00	0.01	0.05	0.50	0.03	0.58	0.05
04/01/50	06/30/50	0.00	0.00	0.00	0.04	0.50	0.02	0.56	0.05
07/01/50	09/30/50	0.00	0.00	0.00	0.04	0.50	0.02	0.56	0.05
10/01/50	12/31/50	0.00	0.00	0.00	0.03	0.50	0.02	0.55	0.04
01/01/51	03/31/51	0.00	0.00	0.00	0.02	0.50	0.01	0.54	0.04
04/01/51	06/30/51	0.00	0.00	0.00	0.02	0.50	0.01	0.52	0.04
07/01/51	09/30/51	0.00	0.00	0.00	0.01	0.43	0.01	0.45	0.03
10/01/51	12/31/51	0.00	0.00	0.00	0.01	0.33	0.00	0.34	0.03
01/01/52	03/31/52	0.00	0.00	0.00	0.00	0.18	0.00	0.19	0.01
04/01/52	06/30/52	0.00	0.00	0.00	0.00	0.06	0.00	0.06	0.00
TOTAL		12.98	5.88	18.86	82.20	0.00	52.47	153.52	0.00

Notes:

(3) = Table C1, (14) - [Table C3, (7), incremental]

(4) = Table B2, (5)

(5) = (3) + (4)

(6) = Table C3, (7)_{t-1} x { [1.0 + Table A1, (12)] ^ 0.25 - 1.0 }

(7) = -1.0 X Table D1, (7), incremental

(8) = Table D1, (7)_{t-1} x { [1.0 + Table A1, (12)] ^ 0.25 - 1.0 }

(9) = (5) + (6) + (7) + (8)

(10) = (9) x (1 + WACC)^time in years, based on the time interval with beginning date 07/01/15

WACC is the weighted average cost of capital from Section VII-E, Exhibit 1 which is equal to 7.44%.

The Total PV is equal to zero which implies that the profit provision derived from an investors prospective is equal to the profit provision derived from insurers prospective and is equal to 2% from Table A1, (14).

TABLE B2: INSURER CAPITAL COST (ICC) MODEL - PRESENT VALUE (PV) CASH FLOW TO INSURER

TIME INTERVAL		INVESTOR SUPPLIED	NET CAPITAL CHARGES			SOURCES TO PAY NET CAPITAL CHARGE				CASH FLOW TO INSURER (11)	PV CASH FLOW TO INSURER (12)
						INVESTOR SUPPLIED	POLICYHOLDER SUPPLIED				
							AFTER TAX INV INCOME ON INVESTOR SUPPLIED FUNDS (7)	POLICYHOLDER SUPPLIED INVESTABLE FUNDS (8)	AFTER TAX INV INCOME ON POLICYHOLDER SUPPLIED FUNDS (9)		
FROM (1)	TO (2)	CAPITAL NEEDED FROM INVESTORS (3)	INVESTOR REQUIRED RETURN CAPITAL CHARGE (4)	BOND INTEREST TAX DEDUCTION FOR INSURERS (5)	NET CAPITAL COST TO INSURERS (6)						
07/01/15	09/30/15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10/01/15	12/31/15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01/01/16	03/31/16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04/01/16	06/30/16	5.45	0.00	0.00	0.00	0.00	0.00	0.00	(0.86)	(0.86)	(0.82)
07/01/16	09/30/16	129.48	0.10	0.00	0.09	0.04	20.65	0.00	0.86	0.80	0.75
10/01/16	12/31/16	236.38	2.34	0.09	2.25	0.85	86.03	0.14	0.00	(1.27)	(1.16)
01/01/17	03/31/17	377.97	4.28	0.17	4.11	1.55	194.99	0.56	0.00	(2.00)	(1.79)
04/01/17	06/30/17	466.62	6.84	0.27	6.57	2.48	312.41	1.28	0.00	(2.81)	(2.48)
07/01/17	09/30/17	399.70	8.44	0.34	8.11	3.06	409.15	2.05	0.00	(3.01)	(2.60)
10/01/17	12/31/17	337.72	7.23	0.29	6.95	2.62	449.74	2.68	0.00	(1.65)	(1.40)
01/01/18	03/31/18	295.94	6.11	0.24	5.87	2.21	445.80	2.95	6.60	5.89	4.93
04/01/18	06/30/18	273.58	5.36	0.21	5.14	1.94	433.45	2.92	(6.60)	(6.89)	(5.65)
07/01/18	09/30/18	258.77	4.95	0.20	4.75	1.79	409.58	2.84	0.00	(0.12)	(0.10)
10/01/18	12/31/18	224.72	4.68	0.19	4.50	1.70	382.82	2.68	0.00	(0.12)	(0.09)
01/01/19	03/31/19	198.92	4.07	0.16	3.91	1.47	352.88	2.51	1.07	1.15	0.89
04/01/19	06/30/19	180.94	3.60	0.14	3.46	1.30	321.14	2.31	3.26	3.41	2.61
07/01/19	09/30/19	164.79	3.27	0.13	3.14	1.19	292.49	2.10	1.41	1.56	1.17
10/01/19	12/31/19	149.96	2.98	0.12	2.86	1.08	266.12	1.92	0.66	0.79	0.58
01/01/20	03/31/20	137.07	2.71	0.11	2.61	0.98	243.24	1.74	0.37	0.49	0.36
04/01/20	06/30/20	125.81	2.48	0.10	2.38	0.90	223.30	1.59	0.37	0.48	0.34
07/01/20	09/30/20	115.83	2.28	0.09	2.19	0.82	205.63	1.46	0.37	0.48	0.33
10/01/20	12/31/20	106.70	2.10	0.08	2.01	0.76	189.49	1.35	0.37	0.47	0.32
01/01/21	03/31/21	98.81	1.93	0.08	1.85	0.70	175.60	1.24	0.15	0.23	0.16
04/01/21	06/30/21	91.98	1.79	0.07	1.72	0.65	163.61	1.15	0.15	0.23	0.15
07/01/21	09/30/21	86.16	1.66	0.07	1.60	0.60	153.41	1.07	0.15	0.22	0.14
10/01/21	12/31/21	81.19	1.56	0.06	1.50	0.56	144.74	1.00	0.15	0.22	0.14
01/01/22	03/31/22	77.42	1.47	0.06	1.41	0.53	137.98	0.95	0.17	0.24	0.15
04/01/22	06/30/22	74.67	1.40	0.06	1.35	0.51	133.02	0.90	0.17	0.23	0.14
07/01/22	09/30/22	72.47	1.35	0.05	1.30	0.49	129.08	0.87	0.17	0.23	0.14
10/01/22	12/31/22	70.39	1.31	0.05	1.26	0.47	125.32	0.85	0.17	0.23	0.14
01/01/23	03/31/23	68.48	1.27	0.05	1.22	0.46	121.91	0.82	0.16	0.22	0.13
04/01/23	06/30/23	66.71	1.24	0.05	1.19	0.45	118.76	0.80	0.16	0.22	0.12
07/01/23	09/30/23	65.04	1.21	0.05	1.16	0.44	115.77	0.78	0.16	0.22	0.12
10/01/23	12/31/23	63.41	1.18	0.05	1.13	0.43	112.86	0.76	0.16	0.21	0.12
01/01/24	03/31/24	61.86	1.15	0.05	1.10	0.42	110.14	0.74	0.10	0.15	0.08
04/01/24	06/30/24	60.37	1.12	0.04	1.07	0.41	107.55	0.72	0.10	0.15	0.08
07/01/24	09/30/24	59.00	1.09	0.04	1.05	0.40	105.15	0.70	0.10	0.15	0.08
10/01/24	12/31/24	57.77	1.07	0.04	1.03	0.39	103.01	0.69	0.10	0.15	0.08
01/01/25	03/31/25	56.75	1.05	0.04	1.00	0.38	101.16	0.67	0.12	0.17	0.08
04/01/25	06/30/25	55.90	1.03	0.04	0.99	0.37	99.63	0.66	0.12	0.17	0.08
07/01/25	09/30/25	55.14	1.01	0.04	0.97	0.37	98.24	0.65	0.12	0.16	0.08
10/01/25	12/31/25	54.37	1.00	0.04	0.96	0.36	96.85	0.64	0.12	0.16	0.08
01/01/26	03/31/26	53.62	0.98	0.04	0.94	0.36	95.50	0.63	0.11	0.16	0.08
04/01/26	06/30/26	52.87	0.97	0.04	0.93	0.35	94.17	0.63	0.11	0.16	0.07
07/01/26	09/30/26	52.13	0.96	0.04	0.92	0.35	92.85	0.62	0.11	0.16	0.07
10/01/26	12/31/26	51.40	0.94	0.04	0.91	0.34	91.55	0.61	0.11	0.16	0.07
01/01/27	03/31/27	50.70	0.93	0.04	0.89	0.34	90.30	0.60	0.11	0.15	0.07
04/01/27	06/30/27	50.02	0.92	0.04	0.88	0.33	89.08	0.59	0.11	0.15	0.07
07/01/27	09/30/27	49.35	0.91	0.04	0.87	0.33	87.89	0.58	0.11	0.15	0.06
10/01/27	12/31/27	48.70	0.89	0.04	0.86	0.32	86.73	0.58	0.11	0.15	0.06
01/01/28	03/31/28	48.07	0.88	0.04	0.85	0.32	85.59	0.57	0.12	0.16	0.06
04/01/28	06/30/28	47.46	0.87	0.03	0.84	0.31	84.50	0.56	0.12	0.16	0.06
07/01/28	09/30/28	46.77	0.86	0.03	0.82	0.31	83.26	0.55	0.12	0.16	0.06
10/01/28	12/31/28	45.94	0.85	0.03	0.81	0.31	81.77	0.55	0.12	0.16	0.06
01/01/29	03/31/29	44.93	0.83	0.03	0.80	0.30	79.97	0.54	0.10	0.13	0.05
04/01/29	06/30/29	43.76	0.81	0.03	0.78	0.29	77.90	0.52	0.10	0.13	0.05
07/01/29	09/30/29	42.61	0.79	0.03	0.76	0.29	75.87	0.51	0.10	0.13	0.05
10/01/29	12/31/29	41.64	0.77	0.03	0.74	0.28	74.15	0.50	0.10	0.13	0.05
01/01/30	03/31/30	40.92	0.75	0.03	0.72	0.27	72.87	0.49	0.08	0.12	0.04
04/01/30	06/30/30	40.40	0.74	0.03	0.71	0.27	71.96	0.48	0.08	0.12	0.04
07/01/30	09/30/30	39.96	0.73	0.03	0.70	0.26	71.19	0.47	0.08	0.12	0.04
10/01/30	12/31/30	39.49	0.72	0.03	0.69	0.26	70.34	0.47	0.08	0.12	0.04
01/01/31	03/31/31	38.96	0.71	0.03	0.69	0.26	69.47	0.46	0.01	0.05	0.02
04/01/31	06/30/31	38.39	0.71	0.03	0.68	0.26	68.52	0.46	0.01	0.05	0.01
07/01/31	09/30/31	37.83	0.69	0.03	0.67	0.25	67.59	0.45	0.01	0.05	0.01
10/01/31	12/31/31	37.31	0.68	0.03	0.66	0.25	66.72	0.44	0.01	0.05	0.01
01/01/32	03/31/32	36.85	0.68	0.03	0.65	0.24	65.91	0.44	0.00	0.04	0.01
04/01/32	06/30/32	36.44	0.67	0.03	0.64	0.24	65.20	0.43	0.00	0.03	0.01
07/01/32	09/30/32	36.06	0.66	0.03	0.63	0.24	64.53	0.43	0.00	0.03	0.01
10/01/32	12/31/32	35.67	0.65	0.03	0.63	0.24	63.84	0.42	0.00	0.03	0.01
01/01/33	03/31/33	35.28	0.65	0.03	0.62	0.23	63.14	0.42	0.00	0.03	0.01
04/01/33	06/30/33	34.88	0.64	0.03	0.61	0.23	62.43	0.41	0.00	0.03	0.01
07/01/33	09/30/33	34.46	0.63	0.03	0.61	0.23	61.67	0.41	0.00	0.03	0.01
10/01/33	12/31/33	34.01	0.62	0.03	0.60	0.23	60.87	0.40	0.00	0.03	0.01
01/01/34	03/31/34	33.52	0.62	0.02	0.59	0.22	59.99	0.40	0.00	0.03	0.01
04/01/34	06/30/34	33.00	0.61	0.02	0.58	0.22	59.07	0.39	0.00	0.03	0.01
07/01/34	09/30/34	32.48	0.60	0.02	0.57	0.22	58.13	0.39	0.00	0.03	0.01
10/01/34	12/31/34	31.97	0.59	0.02	0.56	0.21	57.22	0.38	0.00	0.03	0.01
01/01/35	03/31/35	31.49	0.58	0.02	0.56	0.21	56.36	0.37	0.00	0.03	0.01
04/01/35	06/30/35	31.04	0.57	0.02	0.55	0.21	55.55	0.37	0.00	0.03	0.01

TABLE B2: INSURER CAPITAL COST (ICC) MODEL - PRESENT VALUE (PV) CASH FLOW TO INSURER

TIME INTERVAL		INVESTOR SUPPLIED	NET CAPITAL CHARGES			SOURCES TO PAY NET CAPITAL CHARGE				CASH FLOW TO INSURER (11)	PV CASH FLOW TO INSURER (12)
						INVESTOR SUPPLIED	POLICYHOLDER SUPPLIED				
							AFTER TAX INV INCOME ON INVESTOR SUPPLIED FUNDS (7)	POLICYHOLDER SUPPLIED INVESTABLE FUNDS (8)	AFTER TAX INV INCOME ON POLICYHOLDER SUPPLIED FUNDS (9)		
FROM (1)	TO (2)	CAPITAL NEEDED FROM INVESTORS (3)	INVESTOR REQUIRED RETURN CAPITAL CHARGE (4)	BOND INTEREST TAX DEDUCTION FOR INSURERS (5)	NET CAPITAL COST TO INSURERS (6)						
07/01/35	09/30/35	30.62	0.56	0.02	0.54	0.20	54.80	0.36	0.00	0.03	0.01
10/01/35	12/31/35	30.23	0.55	0.02	0.53	0.20	54.11	0.36	0.00	0.03	0.01
01/01/36	03/31/36	29.90	0.55	0.02	0.53	0.20	53.52	0.35	0.00	0.03	0.01
04/01/36	06/30/36	29.62	0.54	0.02	0.52	0.20	53.01	0.35	0.00	0.03	0.01
07/01/36	09/30/36	29.35	0.54	0.02	0.51	0.19	52.53	0.35	0.00	0.03	0.01
10/01/36	12/31/36	29.07	0.53	0.02	0.51	0.19	52.03	0.34	0.00	0.03	0.01
01/01/37	03/31/37	28.79	0.53	0.02	0.51	0.19	51.52	0.34	0.00	0.03	0.01
04/01/37	06/30/37	28.49	0.52	0.02	0.50	0.19	51.00	0.34	0.00	0.03	0.01
07/01/37	09/30/37	28.17	0.52	0.02	0.50	0.19	50.42	0.33	0.00	0.03	0.01
10/01/37	12/31/37	27.80	0.51	0.02	0.49	0.18	49.76	0.33	0.00	0.03	0.01
01/01/38	03/31/38	27.38	0.50	0.02	0.48	0.18	49.00	0.33	0.00	0.03	0.01
04/01/38	06/30/38	26.91	0.50	0.02	0.48	0.18	48.15	0.32	0.00	0.03	0.01
07/01/38	09/30/38	26.41	0.49	0.02	0.47	0.18	47.26	0.32	0.00	0.03	0.01
10/01/38	12/31/38	25.91	0.48	0.02	0.46	0.17	46.37	0.31	0.00	0.03	0.00
01/01/39	03/31/39	25.41	0.47	0.02	0.45	0.17	45.47	0.30	0.00	0.03	0.00
04/01/39	06/30/39	24.92	0.46	0.02	0.44	0.17	44.59	0.30	0.00	0.03	0.00
07/01/39	09/30/39	24.42	0.45	0.02	0.43	0.16	43.70	0.29	0.00	0.02	0.00
10/01/39	12/31/39	23.92	0.44	0.02	0.42	0.16	42.80	0.29	0.00	0.02	0.00
01/01/40	03/31/40	23.42	0.43	0.02	0.42	0.16	41.91	0.28	0.00	0.02	0.00
04/01/40	06/30/40	22.92	0.42	0.02	0.41	0.15	41.02	0.27	0.00	0.02	0.00
07/01/40	09/30/40	22.43	0.41	0.02	0.40	0.15	40.13	0.27	0.00	0.02	0.00
10/01/40	12/31/40	21.92	0.41	0.02	0.39	0.15	39.23	0.26	0.00	0.02	0.00
01/01/41	03/31/41	21.43	0.40	0.02	0.38	0.14	38.34	0.26	0.00	0.02	0.00
04/01/41	06/30/41	20.93	0.39	0.02	0.37	0.14	37.45	0.25	0.00	0.02	0.00
07/01/41	09/30/41	20.43	0.38	0.02	0.36	0.14	36.56	0.25	0.00	0.02	0.00
10/01/41	12/31/41	19.93	0.37	0.01	0.36	0.13	35.67	0.24	0.00	0.02	0.00
01/01/42	03/31/42	19.43	0.36	0.01	0.35	0.13	34.78	0.23	0.00	0.02	0.00
04/01/42	06/30/42	18.94	0.35	0.01	0.34	0.13	33.89	0.23	0.00	0.02	0.00
07/01/42	09/30/42	18.44	0.34	0.01	0.33	0.12	33.00	0.22	0.00	0.02	0.00
10/01/42	12/31/42	17.94	0.33	0.01	0.32	0.12	32.10	0.22	0.00	0.02	0.00
01/01/43	03/31/43	17.44	0.32	0.01	0.31	0.12	31.21	0.21	0.00	0.02	0.00
04/01/43	06/30/43	16.95	0.32	0.01	0.30	0.11	30.32	0.20	0.00	0.02	0.00
07/01/43	09/30/43	16.45	0.31	0.01	0.29	0.11	29.43	0.20	0.00	0.02	0.00
10/01/43	12/31/43	15.95	0.30	0.01	0.29	0.11	28.53	0.19	0.00	0.02	0.00
01/01/44	03/31/44	15.45	0.29	0.01	0.28	0.10	27.64	0.19	0.00	0.02	0.00
04/01/44	06/30/44	14.95	0.28	0.01	0.27	0.10	26.76	0.18	0.00	0.02	0.00
07/01/44	09/30/44	14.46	0.27	0.01	0.26	0.10	25.86	0.18	0.00	0.02	0.00
10/01/44	12/31/44	13.95	0.26	0.01	0.25	0.09	24.97	0.17	0.00	0.02	0.00
01/01/45	03/31/45	13.46	0.25	0.01	0.24	0.09	24.08	0.16	0.00	0.02	0.00
04/01/45	06/30/45	12.96	0.24	0.01	0.23	0.09	23.19	0.16	0.00	0.01	0.00
07/01/45	09/30/45	12.46	0.23	0.01	0.23	0.08	22.30	0.15	0.00	0.01	0.00
10/01/45	12/31/45	11.96	0.23	0.01	0.22	0.08	21.40	0.15	0.00	0.01	0.00
01/01/46	03/31/46	11.46	0.22	0.01	0.21	0.08	20.51	0.14	0.00	0.01	0.00
04/01/46	06/30/46	10.97	0.21	0.01	0.20	0.08	19.62	0.13	0.00	0.01	0.00
07/01/46	09/30/46	10.47	0.20	0.01	0.19	0.07	18.73	0.13	0.00	0.01	0.00
10/01/46	12/31/46	9.97	0.19	0.01	0.18	0.07	17.83	0.12	0.00	0.01	0.00
01/01/47	03/31/47	9.47	0.18	0.01	0.17	0.07	16.94	0.12	0.00	0.01	0.00
04/01/47	06/30/47	8.98	0.17	0.01	0.16	0.06	16.06	0.11	0.00	0.01	0.00
07/01/47	09/30/47	8.48	0.16	0.01	0.16	0.06	15.16	0.11	0.00	0.01	0.00
10/01/47	12/31/47	7.98	0.15	0.01	0.15	0.06	14.27	0.10	0.00	0.01	0.00
01/01/48	03/31/48	7.48	0.14	0.01	0.14	0.05	13.38	0.09	0.00	0.01	0.00
04/01/48	06/30/48	6.98	0.14	0.01	0.13	0.05	12.49	0.09	0.00	0.01	0.00
07/01/48	09/30/48	6.48	0.13	0.01	0.12	0.05	11.60	0.08	0.00	0.01	0.00
10/01/48	12/31/48	5.98	0.12	0.00	0.11	0.04	10.70	0.08	0.00	0.01	0.00
01/01/49	03/31/49	5.49	0.11	0.00	0.10	0.04	9.81	0.07	0.00	0.01	0.00
04/01/49	06/30/49	4.99	0.10	0.00	0.10	0.04	8.92	0.06	0.00	0.01	0.00
07/01/49	09/30/49	4.49	0.09	0.00	0.09	0.03	8.03	0.06	0.00	0.01	0.00
10/01/49	12/31/49	3.99	0.08	0.00	0.08	0.03	7.13	0.05	0.00	0.01	0.00
01/01/50	03/31/50	3.49	0.07	0.00	0.07	0.03	6.24	0.05	0.00	0.01	0.00
04/01/50	06/30/50	3.00	0.06	0.00	0.06	0.02	5.36	0.04	0.00	0.01	0.00
07/01/50	09/30/50	2.50	0.05	0.00	0.05	0.02	4.47	0.04	0.00	0.01	0.00
10/01/50	12/31/50	2.00	0.05	0.00	0.04	0.02	3.57	0.03	0.00	0.00	0.00
01/01/51	03/31/51	1.50	0.04	0.00	0.03	0.01	2.68	0.02	0.00	0.00	0.00
04/01/51	06/30/51	1.01	0.03	0.00	0.03	0.01	1.79	0.02	0.00	0.00	0.00
07/01/51	09/30/51	0.57	0.02	0.00	0.02	0.01	1.02	0.01	0.00	0.00	0.00
10/01/51	12/31/51	0.24	0.01	0.00	0.01	0.00	0.44	0.01	0.00	0.00	0.00
01/01/52	03/31/52	0.06	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00
04/01/52	06/30/52	(0.00)	0.00	0.00	0.00	0.00	(0.00)	0.00	0.00	0.00	0.00
TOTAL		8,184.60	148.11	5.88	142.23	53.61	12,373.01	81.05	12.98	5.41	0.00

Notes:

- (3) = Table D1, (9)
- (4) = $(3)_{t-1} \times [(1.0 + WACC)^{0.25} - 1.0]$, where WACC is the weighted average cost of capital from Section VII-E, Exhibit 1 which is equal to 7.44%
- (5) = $(3)_{t-1} \times [(1.0 + Debt Capital Cost)^{0.25} - 1.0] \times Debt Capital Share \times 0.35$, where Debt Capital Cost=4.16% and Debt Capital Share=20%, from Section VII-E, Exhibit 1.
- (6) = (4) - (5)
- (7) = $(3)_{t-1} \times [(1.0 + Table A1, (12))^{0.25} - 1.0]$
- (8) = Table C3, (10)
- (9) = $(8)_{t-1} \times [(1.0 + Table A1, (12))^{0.25} - 1.0]$
- (10) = Table C3, (9)
- (11) = $-1.0 \times [(6) - (7) - (9) - (10)]$
- (12) = $(11) \times (1 + WACC)^{time in years}$, based on the time interval with beginning date 07/01/15, where WACC is the weighted average cost of capital from Section VII-E, Exhibit 1 which is equal to 7.44%.

TABLE C1: POLICYHOLDER SUPPLIED - UNDERWRITING (UW) CASH FLOWS

TIME INTERVAL		COLLECTED PREMIUM NET	LOSS & LAE PAYOUT	UNDERWRITING EXPENSES							PRE TAX CASH FLOWS FROM UW	FEDERAL INCOME TAX EXPENSE ON UW	POST TAX CASH FLOWS FROM UW
				COMMIS. & BROKER.	GENERAL EXPENSES	OTHER ACQ. EXPENSES	PREMIUM TAXES	MISC. AND OTHER TAXES	REINS. EXPENSES	TOTAL PRETAX UW EXPENSES			
FROM (1)	TO (2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
07/01/15	09/30/15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10/01/15	12/31/15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01/01/16	03/31/16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04/01/16	06/30/16	5.45	0.00	0.45	0.00	1.46	0.00	0.00	0.00	1.92	3.54	4.40	(0.86)
07/01/16	09/30/16	53.52	5.34	4.45	5.92	8.61	0.00	0.90	2.39	22.28	25.91	4.40	21.51
10/01/16	12/31/16	116.77	14.36	9.71	6.51	8.31	5.18	0.80	2.12	32.64	69.78	4.40	65.38
01/01/17	03/31/17	182.37	26.18	15.17	9.98	10.68	4.59	1.13	3.00	44.55	111.65	2.68	108.96
04/01/17	06/30/17	200.55	36.09	16.68	10.17	7.60	6.49	0.94	2.49	44.36	120.10	2.68	117.42
07/01/17	09/30/17	165.30	42.01	13.75	4.74	0.00	5.38	0.00	0.00	23.87	99.42	2.68	96.73
10/01/17	12/31/17	98.36	43.32	8.18	3.58	0.00	0.00	0.00	0.00	11.77	43.27	2.68	40.59
01/01/18	03/31/18	52.36	44.52	4.35	2.00	0.00	0.00	0.00	0.00	6.35	1.49	(1.18)	2.66
04/01/18	06/30/18	28.40	45.49	2.36	0.67	0.00	0.00	0.00	0.00	3.03	(20.12)	(1.18)	(18.95)
07/01/18	09/30/18	20.98	44.29	1.75	0.00	0.00	0.00	0.00	0.00	1.75	(25.06)	(1.18)	(23.88)
10/01/18	12/31/18	14.32	41.06	1.19	0.00	0.00	0.00	0.00	0.00	1.19	(27.93)	(1.18)	(26.75)
01/01/19	03/31/19	7.15	36.25	0.59	0.00	0.00	0.00	0.00	0.00	0.59	(29.70)	(0.84)	(28.86)
04/01/19	06/30/19	3.12	32.18	0.26	0.00	0.00	0.00	0.00	0.00	0.26	(29.33)	(0.84)	(28.49)
07/01/19	09/30/19	0.91	28.90	0.08	0.00	0.00	0.00	0.00	0.00	0.08	(28.07)	(0.84)	(27.24)
10/01/19	12/31/19	0.00	26.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(26.55)	(0.84)	(25.71)
01/01/20	03/31/20	0.00	23.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(23.08)	(0.58)	(22.50)
04/01/20	06/30/20	0.00	20.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(20.15)	(0.58)	(19.57)
07/01/20	09/30/20	0.00	17.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(17.87)	(0.58)	(17.29)
10/01/20	12/31/20	0.00	16.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(16.35)	(0.58)	(15.77)
01/01/21	03/31/21	0.00	14.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(14.11)	(0.37)	(13.74)
04/01/21	06/30/21	0.00	12.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(12.22)	(0.37)	(11.85)
07/01/21	09/30/21	0.00	10.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(10.43)	(0.37)	(10.06)
10/01/21	12/31/21	0.00	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(8.90)	(0.37)	(8.52)
01/01/22	03/31/22	0.00	6.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(6.74)	(0.15)	(6.60)
04/01/22	06/30/22	0.00	4.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(4.93)	(0.15)	(4.78)
07/01/22	09/30/22	0.00	3.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(3.93)	(0.15)	(3.78)
10/01/22	12/31/22	0.00	3.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(3.73)	(0.15)	(3.58)
01/01/23	03/31/23	0.00	3.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(3.42)	(0.17)	(3.25)
04/01/23	06/30/23	0.00	3.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(3.16)	(0.17)	(2.99)
07/01/23	09/30/23	0.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(3.00)	(0.17)	(2.83)
10/01/23	12/31/23	0.00	2.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(2.92)	(0.17)	(2.75)
01/01/24	03/31/24	0.00	2.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(2.78)	(0.16)	(2.62)
04/01/24	06/30/24	0.00	2.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(2.66)	(0.16)	(2.50)
07/01/24	09/30/24	0.00	2.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(2.46)	(0.16)	(2.30)
10/01/24	12/31/24	0.00	2.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(2.20)	(0.16)	(2.04)
01/01/25	03/31/25	0.00	1.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(1.83)	(0.10)	(1.73)
04/01/25	06/30/25	0.00	1.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(1.52)	(0.10)	(1.42)
07/01/25	09/30/25	0.00	1.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(1.37)	(0.10)	(1.27)
10/01/25	12/31/25	0.00	1.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(1.37)	(0.10)	(1.27)
01/01/26	03/31/26	0.00	1.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(1.35)	(0.12)	(1.23)
04/01/26	06/30/26	0.00	1.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(1.34)	(0.12)	(1.22)
07/01/26	09/30/26	0.00	1.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(1.32)	(0.12)	(1.20)
10/01/26	12/31/26	0.00	1.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(1.30)	(0.12)	(1.18)
01/01/27	03/31/27	0.00	1.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(1.26)	(0.11)	(1.14)
04/01/27	06/30/27	0.00	1.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(1.22)	(0.11)	(1.11)
07/01/27	09/30/27	0.00	1.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(1.19)	(0.11)	(1.08)
10/01/27	12/31/27	0.00	1.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(1.17)	(0.11)	(1.06)
01/01/28	03/31/28	0.00	1.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(1.13)	(0.11)	(1.02)
04/01/28	06/30/28	0.00	1.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(1.09)	(0.11)	(0.98)
07/01/28	09/30/28	0.00	1.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(1.23)	(0.11)	(1.12)
10/01/28	12/31/28	0.00	1.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(1.49)	(0.11)	(1.38)
01/01/29	03/31/29	0.00	1.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(1.82)	(0.12)	(1.70)
04/01/29	06/30/29	0.00	2.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(2.09)	(0.12)	(1.97)
07/01/29	09/30/29	0.00	2.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(2.05)	(0.12)	(1.94)
10/01/29	12/31/29	0.00	1.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(1.74)	(0.12)	(1.62)
01/01/30	03/31/30	0.00	1.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(1.30)	(0.10)	(1.20)
04/01/30	06/30/30	0.00	0.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.92)	(0.10)	(0.83)
07/01/30	09/30/30	0.00	0.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.78)	(0.10)	(0.69)
10/01/30	12/31/30	0.00	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.86)	(0.10)	(0.76)
01/01/31	03/31/31	0.00	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.94)	(0.08)	(0.86)
04/01/31	06/30/31	0.00	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(1.02)	(0.08)	(0.93)
07/01/31	09/30/31	0.00	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(1.01)	(0.08)	(0.93)
10/01/31	12/31/31	0.00	0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.93)	(0.08)	(0.85)
01/01/32	03/31/32	0.00	0.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.82)	(0.01)	(0.81)
04/01/32	06/30/32	0.00	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.72)	(0.01)	(0.71)
07/01/32	09/30/32	0.00	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.68)	(0.01)	(0.67)
10/01/32	12/31/32	0.00	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.70)	(0.01)	(0.68)
01/01/33	03/31/33	0.00	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.70)	(0.00)	(0.70)
04/01/33	06/30/33	0.00	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.71)	(0.00)	(0.71)
07/01/33	09/30/33	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.75)	(0.00)	(0.75)
10/01/33	12/31/33	0.00	0.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.81)	(0.00)	(0.81)
01/01/34	03/31/34	0.00	0.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.87)	(0.00)	(0.87)
04/01/34	06/30/34	0.00	0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.93)	(0.00)	(0.93)
07/01/34	09/30/34	0.00	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.94)	(0.00)	(0.94)
10/01/34	12/31/34	0.00	0.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.91)	(0.00)	(0.91)
01/01/35	03/31/35	0.00	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.86)	(0.00)	(0.85)
04/01/35	06/30/35	0.00	0.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.81)	(0.00)	(0.81)
07/01/35	09/30/35	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.75)	(0.00)	(0.75)
10/01/35	12/31/35	0.00	0.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.69)	(0.00)	(0.69)
01/01/36	03/31/36	0.00	0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.59)	(0.00)	(0.59)
04/01/36	06/30/36	0.00	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.51)	(0.00)	(0.51)
07/01/36	09/30/36												

TABLE C1: POLICYHOLDER SUPPLIED - UNDERWRITING (UW) CASH FLOWS

TIME INTERVAL		COLLECTED PREMIUM NET (3)	LOSS & LAE PAYOUT (4)	UNDERWRITING EXPENSES							PRE TAX CASH FLOWS FROM UW (12)	FEDERAL INCOME TAX EXPENSE ON UW (13)	POST TAX CASH FLOWS FROM UW (14)
				COMMISS. & BROKER. (5)	GENERAL EXPENSES (6)	OTHER ACQ. EXPENSES (7)	PREMIUM TAXES (8)	MISC. AND OTHER TAXES (9)	REINS. EXPENSES (10)	TOTAL PRETAX UW EXPENSES (11)			
FROM (1)	TO (2)												
10/01/36	12/31/36	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.50)	(0.00)	(0.50)
01/01/37	03/31/37	0.00	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.51)	(0.00)	(0.51)
04/01/37	06/30/37	0.00	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.52)	(0.00)	(0.52)
07/01/37	09/30/37	0.00	0.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.58)	(0.00)	(0.58)
10/01/37	12/31/37	0.00	0.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.66)	(0.00)	(0.66)
01/01/38	03/31/38	0.00	0.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.76)	(0.00)	(0.76)
04/01/38	06/30/38	0.00	0.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.84)	(0.00)	(0.84)
07/01/38	09/30/38	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.89)
10/01/38	12/31/38	0.00	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.90)	(0.00)	(0.89)
01/01/39	03/31/39	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.89)
04/01/39	06/30/39	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.88)
07/01/39	09/30/39	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.89)
10/01/39	12/31/39	0.00	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.90)	(0.00)	(0.89)
01/01/40	03/31/40	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.89)
04/01/40	06/30/40	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.88)
07/01/40	09/30/40	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.89)
10/01/40	12/31/40	0.00	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.90)	(0.00)	(0.89)
01/01/41	03/31/41	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.89)
04/01/41	06/30/41	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.88)
07/01/41	09/30/41	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.89)
10/01/41	12/31/41	0.00	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.90)	(0.00)	(0.89)
01/01/42	03/31/42	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.89)
04/01/42	06/30/42	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.88)
07/01/42	09/30/42	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.89)
10/01/42	12/31/42	0.00	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.90)	(0.00)	(0.89)
01/01/43	03/31/43	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.89)
04/01/43	06/30/43	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.88)
07/01/43	09/30/43	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.89)
10/01/43	12/31/43	0.00	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.90)	(0.00)	(0.89)
01/01/44	03/31/44	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.89)
04/01/44	06/30/44	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.88)
07/01/44	09/30/44	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.89)
10/01/44	12/31/44	0.00	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.90)	(0.00)	(0.89)
01/01/45	03/31/45	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.89)
04/01/45	06/30/45	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.88)
07/01/45	09/30/45	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.89)
10/01/45	12/31/45	0.00	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.90)	(0.00)	(0.89)
01/01/46	03/31/46	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.89)
04/01/46	06/30/46	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.88)
07/01/46	09/30/46	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.89)
10/01/46	12/31/46	0.00	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.90)	(0.00)	(0.89)
01/01/47	03/31/47	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.89)
04/01/47	06/30/47	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.88)
07/01/47	09/30/47	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.89)
10/01/47	12/31/47	0.00	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.90)	(0.00)	(0.89)
01/01/48	03/31/48	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.89)
04/01/48	06/30/48	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.88)
07/01/48	09/30/48	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.89)
10/01/48	12/31/48	0.00	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.90)	(0.00)	(0.89)
01/01/49	03/31/49	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.89)
04/01/49	06/30/49	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.88)
07/01/49	09/30/49	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.89)
10/01/49	12/31/49	0.00	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.90)	(0.00)	(0.89)
01/01/50	03/31/50	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.89)
04/01/50	06/30/50	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.88)
07/01/50	09/30/50	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.89)
10/01/50	12/31/50	0.00	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.90)	(0.00)	(0.89)
01/01/51	03/31/51	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.89)
04/01/51	06/30/51	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.89)	(0.00)	(0.88)
07/01/51	09/30/51	0.00	0.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.78)	(0.00)	(0.77)
10/01/51	12/31/51	0.00	0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.59)	(0.00)	(0.58)
01/01/52	03/31/52	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.33)	(0.00)	(0.33)
04/01/52	06/30/52	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.11)	(0.00)	(0.11)
TOTAL		949.56	734.97	78.98	43.56	36.67	21.65	3.77	10.00	194.63	19.96	6.99	12.98

Notes:

- (3) = Table A1, (2) x Table C5_1, (3)
- (4) = Table A1, (3) x Table A1, (1a) x Table C5_1, (4)
- (5) = Table A1, (4) x Table A1, (1a) x Table C5_1, (5)
- (6) = Table A1, (6) x Table A1, (1a) x Table C5_1, (6)
- (7) = Table A1, (7) x Table A1, (1a) x Table C5_1, (7)
- (8) = Table A1, (8) x Table A1, (1a) x Table C5_1, (8)
- (9) = Table A1, (10) x Table A1, (1a) x Table C5_1, (9)
- (10) = Table A1, (9) x Table A1, (1a) x Table C5_1, (10)
- (11) = (5) + (6) + (7) + (8) + (9) + (10)
- (12) = (3) - (4) - (11)
- (13) = Table C2_6, (6), annual tax expense allocated to the model time periods.
- (14) = (12) - (13)

TABLE C2_1: FEDERAL INCOME TAXES - TAXABLE PREMIUM REVENUE

TIME INTERVAL		WRITTEN PREMIUM NET (3)	UNEARNED PREMIUM RESERVES (4)	CHANGE IN UNEARNED PREMIUM RESERVES (5)	TAX DEDUCTIBLE CHANGE IN UNEARNED PREMIUM RESERVES (6)	NON TAX DEDUCTIBLE CHANGE IN UNEARNED PREMIUM RESERVES (7)	TAXABLE PREMIUM REVENUE (8)
FROM (1)	TO (2)						
01/01/15	12/31/15	0.00	0.00	0.00	0.00	0.00	0.00
01/01/16	12/31/16	428.72	313.95	313.95	251.16	62.79	177.55
01/01/17	12/31/17	520.85	114.04	(199.92)	(159.93)	(39.98)	680.78
01/01/18	12/31/18	0.00	0.00	(114.04)	(91.23)	(22.81)	91.23
01/01/19	12/31/19	0.00	0.00	0.00	0.00	0.00	0.00
01/01/20	12/31/20	0.00	0.00	0.00	0.00	0.00	0.00
01/01/21	12/31/21	0.00	0.00	0.00	0.00	0.00	0.00
01/01/22	12/31/22	0.00	0.00	0.00	0.00	0.00	0.00
01/01/23	12/31/23	0.00	0.00	0.00	0.00	0.00	0.00
01/01/24	12/31/24	0.00	0.00	0.00	0.00	0.00	0.00
01/01/25	12/31/25	0.00	0.00	0.00	0.00	0.00	0.00
01/01/26	12/31/26	0.00	0.00	0.00	0.00	0.00	0.00
01/01/27	12/31/27	0.00	0.00	0.00	0.00	0.00	0.00
01/01/28	12/31/28	0.00	0.00	0.00	0.00	0.00	0.00
01/01/29	12/31/29	0.00	0.00	0.00	0.00	0.00	0.00
01/01/30	12/31/30	0.00	0.00	0.00	0.00	0.00	0.00
01/01/31	12/31/31	0.00	0.00	0.00	0.00	0.00	0.00
01/01/32	12/31/32	0.00	0.00	0.00	0.00	0.00	0.00
01/01/33	12/31/33	0.00	0.00	0.00	0.00	0.00	0.00
01/01/34	12/31/34	0.00	0.00	0.00	0.00	0.00	0.00
01/01/35	12/31/35	0.00	0.00	0.00	0.00	0.00	0.00
01/01/36	12/31/36	0.00	0.00	0.00	0.00	0.00	0.00
01/01/37	12/31/37	0.00	0.00	0.00	0.00	0.00	0.00
01/01/38	12/31/38	0.00	0.00	0.00	0.00	0.00	0.00
01/01/39	12/31/39	0.00	0.00	0.00	0.00	0.00	0.00
01/01/40	12/31/40	0.00	0.00	0.00	0.00	0.00	0.00
01/01/41	12/31/41	0.00	0.00	0.00	0.00	0.00	0.00
01/01/42	12/31/42	0.00	0.00	0.00	0.00	0.00	0.00
01/01/43	12/31/43	0.00	0.00	0.00	0.00	0.00	0.00
01/01/44	12/31/44	0.00	0.00	0.00	0.00	0.00	0.00
01/01/45	12/31/45	0.00	0.00	0.00	0.00	0.00	0.00
01/01/46	12/31/46	0.00	0.00	0.00	0.00	0.00	0.00
01/01/47	12/31/47	0.00	0.00	0.00	0.00	0.00	0.00
01/01/48	12/31/48	0.00	0.00	0.00	0.00	0.00	0.00
01/01/49	12/31/49	0.00	0.00	0.00	0.00	0.00	0.00
01/01/50	12/31/50	0.00	0.00	0.00	0.00	0.00	0.00
01/01/51	12/31/51	0.00	0.00	0.00	0.00	0.00	0.00
01/01/52	12/31/52	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		949.56	427.99	0.00	0.00	0.00	949.56

Notes:

- (3) = Table A1, (1b) x Percentage of Premium written in corresponding year
- (4) = Table A1, (1b) x Percentage of Unearned Premium in corresponding year
- (5) = (4), incremental
- (6) = 0.8 x (5)
- (7) = 0.2 x (5)
- (8) = (3) - (6)

TABLE C2_2: DERIVATION OF DISCOUNTED LOSS & LAE RESERVES

ACCIDENT YEAR 2016									
TIME INTERVAL FROM TO (1) (2)		IRS DISCOUNT FACTOR (3)	UNDISCOUNTED			DISCOUNTED			LOSS & LAE PAID DURING PERIOD (10)
			LOSS & LAE UNPAID BEG OF PERIOD (4)	LOSS & LAE UNPAID END OF PERIOD (5)	CHANGE IN UNDISCOUNTED LOSS & LAE RESERVES (6)	LOSS & LAE UNPAID BEG OF PERIOD (7)	LOSS & LAE UNPAID END OF PERIOD (8)	CHANGE IN DISCOUNTED LOSS & LAE RESERVES (9)	
01/01/15	12/31/15	0.9230	0.00						
01/01/16	12/31/16	0.9117	75.38	75.38	75.38	0.00	69.58	69.58	13.44
01/01/17	12/31/17	0.9039	53.77	53.77	(21.62)	69.58	49.02	(20.56)	21.62
01/01/18	12/31/18	0.9006	36.54	36.54	(17.22)	49.02	33.03	(15.99)	17.22
01/01/19	12/31/19	0.8995	25.61	25.61	(10.94)	33.03	23.06	(9.97)	10.94
01/01/20	12/31/20	0.8968	18.93	18.93	(6.68)	23.06	17.02	(6.04)	6.68
01/01/21	12/31/21	0.9034	15.81	15.81	(3.12)	17.02	14.17	(2.85)	3.12
01/01/22	12/31/22	0.9122	14.17	14.17	(1.63)	14.17	12.80	(1.37)	1.63
01/01/23	12/31/23	0.9174	12.84	12.84	(1.33)	12.80	11.71	(1.09)	1.33
01/01/24	12/31/24	0.9279	11.98	11.98	(0.86)	11.71	10.99	(0.72)	0.86
01/01/25	12/31/25	0.9389	11.32	11.32	(0.65)	10.99	10.51	(0.48)	0.65
01/01/26	12/31/26	0.9506	10.72	10.72	(0.61)	10.51	10.06	(0.44)	0.61
01/01/27	12/31/27	0.9632	10.17	10.17	(0.54)	10.06	9.67	(0.39)	0.54
01/01/28	12/31/28	0.9768	9.27	9.27	(0.90)	9.67	8.93	(0.74)	0.90
01/01/29	12/31/29	0.9917	8.68	8.68	(0.60)	8.93	8.48	(0.46)	0.60
01/01/30	12/31/30	0.9917	8.21	8.21	(0.46)	8.48	8.15	(0.33)	0.46
01/01/31	12/31/31	0.9917	7.83	7.83	(0.39)	8.15	7.76	(0.39)	0.39
01/01/32	12/31/32	0.9917	7.48	7.48	(0.34)	7.76	7.42	(0.34)	0.34
01/01/33	12/31/33	0.9917	7.06	7.06	(0.43)	7.42	7.00	(0.42)	0.43
01/01/34	12/31/34	0.9917	6.65	6.65	(0.41)	7.00	6.59	(0.41)	0.41
01/01/35	12/31/35	0.9917	6.37	6.37	(0.28)	6.59	6.31	(0.28)	0.28
01/01/36	12/31/36	0.9917	6.12	6.12	(0.25)	6.31	6.07	(0.25)	0.25
01/01/37	12/31/37	0.9917	5.74	5.74	(0.37)	6.07	5.70	(0.37)	0.37
01/01/38	12/31/38	0.9917	5.31	5.31	(0.43)	5.70	5.27	(0.43)	0.43
01/01/39	12/31/39	0.9917	4.88	4.88	(0.43)	5.27	4.84	(0.43)	0.43
01/01/40	12/31/40	0.9917	4.45	4.45	(0.43)	4.84	4.41	(0.43)	0.43
01/01/41	12/31/41	0.9917	4.02	4.02	(0.43)	4.41	3.99	(0.43)	0.43
01/01/42	12/31/42	0.9917	3.59	3.59	(0.43)	3.99	3.56	(0.43)	0.43
01/01/43	12/31/43	0.9917	3.16	3.16	(0.43)	3.56	3.13	(0.43)	0.43
01/01/44	12/31/44	0.9917	2.73	2.73	(0.43)	3.13	2.70	(0.43)	0.43
01/01/45	12/31/45	0.9917	2.30	2.30	(0.43)	2.70	2.28	(0.43)	0.43
01/01/46	12/31/46	0.9917	1.87	1.87	(0.43)	2.28	1.85	(0.43)	0.43
01/01/47	12/31/47	0.9917	1.43	1.43	(0.43)	1.85	1.42	(0.43)	0.43
01/01/48	12/31/48	0.9917	1.00	1.00	(0.43)	1.42	1.00	(0.43)	0.43
01/01/49	12/31/49	0.9917	0.57	0.57	(0.43)	1.00	0.57	(0.43)	0.43
01/01/50	12/31/50	0.9917	0.14	0.14	(0.43)	0.57	0.14	(0.43)	0.43
01/01/51	12/31/51	0.9917	0.00	0.00	(0.14)	0.14	0.00	(0.14)	0.14
01/01/52	12/31/52	0.9917	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL			406.09	406.09	0.00	379.20	379.20	0.00	88.83

- Notes:
- (3): Discount factors specified in IRS Internal Revenue Bulletin 2015-45.
 - (4) = (5)_{t-1}
 - (5) = (10), Total - (10), cumulative
 - (6) = (5) - (4)
 - (7) = (8)_{t-1}
 - (8) = (3) x (5)
 - (9) = (8) - (7)
 - (10) = Table A1, (3) x Table A1, (1a) x Loss & LAE Flow (from Section VII-I, Exhibit 1) for each accident year

TABLE C2_3: DERIVATION OF DISCOUNTED LOSS & LAE RESERVES

ACCIDENT YEAR									
2017									
TIME INTERVAL		IRS DISCOUNT FACTOR	UNDISCOUNTED			DISCOUNTED			LOSS & LAE PAID DURING PERIOD
			LOSS & LAE UNPAID BEG OF PERIOD	LOSS & LAE UNPAID END OF PERIOD	CHANGE IN UNDISCOUNTED LOSS & LAE RESERVES	LOSS & LAE UNPAID BEG OF PERIOD	LOSS & LAE UNPAID END OF PERIOD	CHANGE IN DISCOUNTED LOSS & LAE RESERVES	
FROM	TO		(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1)	(2)	(3)							
01/01/15	12/31/15		0.00	0.00	0.00	0.00	0.00	0.00	
01/01/16	12/31/16								
01/01/17	12/31/17	0.9230	0.00	433.03	433.03	0.00	399.67	399.67	124.85
01/01/18	12/31/18	0.9117	433.03	292.38	(140.65)	399.67	266.58	(133.09)	140.65
01/01/19	12/31/19	0.9039	292.38	199.81	(92.57)	266.58	180.61	(85.96)	92.57
01/01/20	12/31/20	0.9006	199.81	142.42	(57.39)	180.61	128.27	(52.35)	57.39
01/01/21	12/31/21	0.8995	142.42	107.75	(34.67)	128.27	96.93	(31.34)	34.67
01/01/22	12/31/22	0.8968	107.75	95.30	(12.45)	96.93	85.47	(11.46)	12.45
01/01/23	12/31/23	0.9034	95.30	86.02	(9.28)	85.47	77.71	(7.76)	9.28
01/01/24	12/31/24	0.9122	86.02	78.06	(7.96)	77.71	71.21	(6.50)	7.96
01/01/25	12/31/25	0.9174	78.06	73.87	(4.19)	71.21	67.77	(3.44)	4.19
01/01/26	12/31/26	0.9279	73.87	69.81	(4.06)	67.77	64.77	(3.00)	4.06
01/01/27	12/31/27	0.9389	69.81	66.12	(3.68)	64.77	62.09	(2.69)	3.68
01/01/28	12/31/28	0.9506	66.12	62.85	(3.27)	62.09	59.75	(2.34)	3.27
01/01/29	12/31/29	0.9632	62.85	56.05	(6.80)	59.75	53.99	(5.76)	6.80
01/01/30	12/31/30	0.9768	56.05	53.77	(2.29)	53.99	52.52	(1.47)	2.29
01/01/31	12/31/31	0.9917	53.77	50.56	(3.21)	52.52	50.14	(2.38)	3.21
01/01/32	12/31/32	0.9917	50.56	48.49	(2.07)	50.14	48.08	(2.05)	2.07
01/01/33	12/31/33	0.9917	48.49	46.30	(2.18)	48.08	45.92	(2.17)	2.18
01/01/34	12/31/34	0.9917	46.30	43.38	(2.92)	45.92	43.02	(2.89)	2.92
01/01/35	12/31/35	0.9917	43.38	40.97	(2.41)	43.02	40.63	(2.39)	2.41
01/01/36	12/31/36	0.9917	40.97	39.52	(1.45)	40.63	39.20	(1.43)	1.45
01/01/37	12/31/37	0.9917	39.52	37.91	(1.61)	39.20	37.60	(1.60)	1.61
01/01/38	12/31/38	0.9917	37.91	35.21	(2.70)	37.60	34.92	(2.68)	2.70
01/01/39	12/31/39	0.9917	35.21	32.50	(2.71)	34.92	32.23	(2.68)	2.71
01/01/40	12/31/40	0.9917	32.50	29.79	(2.71)	32.23	29.55	(2.68)	2.71
01/01/41	12/31/41	0.9917	29.79	27.09	(2.71)	29.55	26.86	(2.68)	2.71
01/01/42	12/31/42	0.9917	27.09	24.38	(2.71)	26.86	24.18	(2.68)	2.71
01/01/43	12/31/43	0.9917	24.38	21.67	(2.71)	24.18	21.49	(2.68)	2.71
01/01/44	12/31/44	0.9917	21.67	18.97	(2.71)	21.49	18.81	(2.68)	2.71
01/01/45	12/31/45	0.9917	18.97	16.26	(2.71)	18.81	16.12	(2.68)	2.71
01/01/46	12/31/46	0.9917	16.26	13.55	(2.71)	16.12	13.44	(2.68)	2.71
01/01/47	12/31/47	0.9917	13.55	10.84	(2.71)	13.44	10.75	(2.68)	2.71
01/01/48	12/31/48	0.9917	10.84	8.14	(2.71)	10.75	8.07	(2.68)	2.71
01/01/49	12/31/49	0.9917	8.14	5.43	(2.71)	8.07	5.39	(2.68)	2.71
01/01/50	12/31/50	0.9917	5.43	2.72	(2.71)	5.39	2.70	(2.68)	2.71
01/01/51	12/31/51	0.9917	2.72	0.02	(2.71)	2.70	0.02	(2.68)	2.71
01/01/52	12/31/52	0.9917	0.02	0.00	(0.02)	0.02	0.00	(0.02)	0.02
TOTAL			2,370.95	2,370.95	0.00	2,216.44	2,216.44	(0.00)	557.88

Notes:

(3): Discount factors specified in IRS Internal Revenue Bulletin 2015-45.

(4) = (5)_{t-1}

(5) = (10), Total - (10), cumulative

(6) = (5) - (4)

(7) = (8)_{t-1}

(8) = (3) x (5)

(9) = (8) - (7)

(10) = Table A1, (3) x Table A1, (1a) x Loss & LAE Flow (from Section VII-I, Exhibit 1) for each accident year

TABLE C2_4: DERIVATION OF DISCOUNTED LOSS & LAE RESERVES

ACCIDENT YEAR 2018									
TIME INTERVAL		IRS DISCOUNT FACTOR	UNDISCOUNTED			DISCOUNTED			LOSS & LAE PAID DURING PERIOD
			LOSS & LAE UNPAID BEG OF PERIOD	LOSS & LAE UNPAID END OF PERIOD	CHANGE IN UNDISCOUNTED LOSS & LAE RESERVES	LOSS & LAE UNPAID BEG OF PERIOD	LOSS & LAE UNPAID END OF PERIOD	CHANGE IN DISCOUNTED LOSS & LAE RESERVES	
FROM	TO		(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1)	(2)	(3)							
1/1/2015	12/31/2015								
1/1/2016	12/31/2016		0.00	0.00	0.00	0.00	0.00	0.00	
1/1/2017	12/31/2017		0.00	0.00	0.00	0.00	0.00	0.00	
1/1/2018	12/31/2018	0.9230	0.00	60.96	60.96	0.00	56.27	56.27	27.30
1/1/2019	12/31/2019	0.9117	60.96	41.25	(19.71)	56.27	37.61	(18.65)	19.71
1/1/2020	12/31/2020	0.9039	41.25	28.51	(12.75)	37.61	25.77	(11.85)	12.75
1/1/2021	12/31/2021	0.9006	28.51	20.66	(7.85)	25.77	18.60	(7.17)	7.85
1/1/2022	12/31/2022	0.8995	20.66	16.37	(4.29)	18.60	14.72	(3.88)	4.29
1/1/2023	12/31/2023	0.8968	16.37	14.58	(1.79)	14.72	13.07	(1.65)	1.79
1/1/2024	12/31/2024	0.9034	14.58	13.18	(1.40)	13.07	11.91	(1.17)	1.40
1/1/2025	12/31/2025	0.9122	13.18	12.12	(1.06)	11.91	11.06	(0.85)	1.06
1/1/2026	12/31/2026	0.9174	12.12	11.47	(0.65)	11.06	10.52	(0.54)	0.65
1/1/2027	12/31/2027	0.9279	11.47	10.85	(0.62)	10.52	10.06	(0.46)	0.62
1/1/2028	12/31/2028	0.9389	10.85	10.29	(0.56)	10.06	9.66	(0.41)	0.56
1/1/2029	12/31/2029	0.9506	10.29	9.58	(0.70)	9.66	9.11	(0.55)	0.70
1/1/2030	12/31/2030	0.9632	9.58	8.74	(0.84)	9.11	8.42	(0.69)	0.84
1/1/2031	12/31/2031	0.9768	8.74	8.33	(0.41)	8.42	8.14	(0.28)	0.41
1/1/2032	12/31/2032	0.9917	8.33	7.89	(0.45)	8.14	7.82	(0.32)	0.45
1/1/2033	12/31/2033	0.9917	7.89	7.55	(0.33)	7.82	7.49	(0.33)	0.33
1/1/2034	12/31/2034	0.9917	7.55	7.17	(0.38)	7.49	7.11	(0.38)	0.38
1/1/2035	12/31/2035	0.9917	7.17	6.73	(0.44)	7.11	6.68	(0.43)	0.44
1/1/2036	12/31/2036	0.9917	6.73	6.40	(0.33)	6.68	6.35	(0.33)	0.33
1/1/2037	12/31/2037	0.9917	6.40	6.17	(0.24)	6.35	6.12	(0.24)	0.24
1/1/2038	12/31/2038	0.9917	6.17	5.85	(0.31)	6.12	5.80	(0.31)	0.31
1/1/2039	12/31/2039	0.9917	5.85	5.43	(0.43)	5.80	5.38	(0.42)	0.43
1/1/2040	12/31/2040	0.9917	5.43	5.00	(0.43)	5.38	4.96	(0.42)	0.43
1/1/2041	12/31/2041	0.9917	5.00	4.57	(0.43)	4.96	4.53	(0.42)	0.43
1/1/2042	12/31/2042	0.9917	4.57	4.14	(0.43)	4.53	4.11	(0.42)	0.43
1/1/2043	12/31/2043	0.9917	4.14	3.71	(0.43)	4.11	3.68	(0.42)	0.43
1/1/2044	12/31/2044	0.9917	3.71	3.28	(0.43)	3.68	3.26	(0.42)	0.43
1/1/2045	12/31/2045	0.9917	3.28	2.86	(0.43)	3.26	2.83	(0.42)	0.43
1/1/2046	12/31/2046	0.9917	2.86	2.43	(0.43)	2.83	2.41	(0.42)	0.43
1/1/2047	12/31/2047	0.9917	2.43	2.00	(0.43)	2.41	1.98	(0.42)	0.43
1/1/2048	12/31/2048	0.9917	2.00	1.57	(0.43)	1.98	1.56	(0.42)	0.43
1/1/2049	12/31/2049	0.9917	1.57	1.14	(0.43)	1.56	1.13	(0.42)	0.43
1/1/2050	12/31/2050	0.9917	1.14	0.71	(0.43)	1.13	0.71	(0.42)	0.43
1/1/2051	12/31/2051	0.9917	0.71	0.29	(0.43)	0.71	0.28	(0.42)	0.43
1/1/2052	12/31/2052	0.9917	0.29	0.00	(0.29)	0.28	0.00	(0.28)	0.29
TOTAL			351.78	351.78	0.00	329.11	329.11	0.00	88.27

Notes:

(3): Discount factors specified in IRS Internal Revenue Bulletin 2015-45.

(4) = (5)_{t-1}

(5) = (10), Total - (10), cumulative

(6) = (5) - (4)

(7) = (8)_{t-1}

(8) = (3) x (5)

(9) = (8) - (7)

(10) = Table A1, (3) x Table A1, (1a) x Loss & LAE Flow (from Section VII-I, Exhibit 1) for each accident year

TABLE C2_5: FEDERAL INCOME TAXES - UNDERWRITING (UW) TAX DEDUCTIONS

TIME INTERVAL		LOSS & LAE PAID DURING PERIOD	CHANGE IN DISCOUNTED LOSS & LAE RESERVES	TAX DEDUCTIBLE LOSS & LAE	TAX DEDUCTIBLE UW EXPENSES	TOTAL UW TAX DEDUCTIONS
FROM (1)	TO (2)	(3)	(4)	(5)	(6)	(7)
01/01/15	12/31/15	0.00	0.00	0.00	0.00	0.00
01/01/16	12/31/16	13.44	69.58	83.02	56.83	139.85
01/01/17	12/31/17	146.46	379.11	525.58	124.55	650.13
01/01/18	12/31/18	185.17	(92.81)	92.36	12.32	104.68
01/01/19	12/31/19	123.22	(114.59)	8.63	0.93	9.56
01/01/20	12/31/20	76.82	(70.23)	6.59	0.00	6.59
01/01/21	12/31/21	45.64	(41.36)	4.28	0.00	4.28
01/01/22	12/31/22	18.37	(16.72)	1.66	0.00	1.66
01/01/23	12/31/23	12.40	(10.50)	1.91	0.00	1.91
01/01/24	12/31/24	10.21	(8.39)	1.83	0.00	1.83
01/01/25	12/31/25	5.90	(4.77)	1.14	0.00	1.14
01/01/26	12/31/26	5.32	(3.98)	1.34	0.00	1.34
01/01/27	12/31/27	4.85	(3.53)	1.31	0.00	1.31
01/01/28	12/31/28	4.73	(3.48)	1.25	0.00	1.25
01/01/29	12/31/29	8.10	(6.77)	1.33	0.00	1.33
01/01/30	12/31/30	3.59	(2.49)	1.10	0.00	1.10
01/01/31	12/31/31	4.01	(3.05)	0.96	0.00	0.96
01/01/32	12/31/32	2.86	(2.71)	0.15	0.00	0.15
01/01/33	12/31/33	2.94	(2.92)	0.02	0.00	0.02
01/01/34	12/31/34	3.71	(3.68)	0.03	0.00	0.03
01/01/35	12/31/35	3.13	(3.10)	0.03	0.00	0.03
01/01/36	12/31/36	2.02	(2.01)	0.02	0.00	0.02
01/01/37	12/31/37	2.22	(2.21)	0.02	0.00	0.02
01/01/38	12/31/38	3.44	(3.42)	0.03	0.00	0.03
01/01/39	12/31/39	3.57	(3.54)	0.03	0.00	0.03
01/01/40	12/31/40	3.57	(3.54)	0.03	0.00	0.03
01/01/41	12/31/41	3.57	(3.54)	0.03	0.00	0.03
01/01/42	12/31/42	3.57	(3.54)	0.03	0.00	0.03
01/01/43	12/31/43	3.57	(3.54)	0.03	0.00	0.03
01/01/44	12/31/44	3.57	(3.54)	0.03	0.00	0.03
01/01/45	12/31/45	3.57	(3.54)	0.03	0.00	0.03
01/01/46	12/31/46	3.57	(3.54)	0.03	0.00	0.03
01/01/47	12/31/47	3.57	(3.54)	0.03	0.00	0.03
01/01/48	12/31/48	3.57	(3.54)	0.03	0.00	0.03
01/01/49	12/31/49	3.57	(3.54)	0.03	0.00	0.03
01/01/50	12/31/50	3.57	(3.54)	0.03	0.00	0.03
01/01/51	12/31/51	3.28	(3.25)	0.03	0.00	0.03
01/01/52	12/31/52	0.30	(0.30)	0.00	0.00	0.00
TOTAL		734.97	(0.00)	734.97	194.63	929.60

Notes:

(3) = Table C2_2, (10) + Table C2_3, (10) + Table C2_4, (10)

(4) = Table C2_2, (9) + Table C2_3, (9) + Table C2_4, (9)

(5) = (3) + (4)

(6) = Table C1, (11) by tax year

(7) = (5) + (6)

TABLE C2_6: FEDERAL INCOME TAX EXPENSE ON UNDERWRITING

TIME INTERVAL		TAXABLE PREMIUM REVENUE	TOTAL UW TAX DEDUCTIONS	TAX BASIS NET UW GAIN	FEDERAL INCOME TAX EXPENSE ON UW
FROM (1)	TO (2)	(3)	(4)	(5)	(6)
01/01/15	12/31/15	0.00	0.00	0.00	0.00
01/01/16	12/31/16	177.55	139.85	37.70	13.20
01/01/17	12/31/17	680.78	650.13	30.65	10.73
01/01/18	12/31/18	91.23	104.68	(13.45)	(4.71)
01/01/19	12/31/19	0.00	9.56	(9.56)	(3.35)
01/01/20	12/31/20	0.00	6.59	(6.59)	(2.31)
01/01/21	12/31/21	0.00	4.28	(4.28)	(1.50)
01/01/22	12/31/22	0.00	1.66	(1.66)	(0.58)
01/01/23	12/31/23	0.00	1.91	(1.91)	(0.67)
01/01/24	12/31/24	0.00	1.83	(1.83)	(0.64)
01/01/25	12/31/25	0.00	1.14	(1.14)	(0.40)
01/01/26	12/31/26	0.00	1.34	(1.34)	(0.47)
01/01/27	12/31/27	0.00	1.31	(1.31)	(0.46)
01/01/28	12/31/28	0.00	1.25	(1.25)	(0.44)
01/01/29	12/31/29	0.00	1.33	(1.33)	(0.47)
01/01/30	12/31/30	0.00	1.10	(1.10)	(0.38)
01/01/31	12/31/31	0.00	0.96	(0.96)	(0.34)
01/01/32	12/31/32	0.00	0.15	(0.15)	(0.05)
01/01/33	12/31/33	0.00	0.02	(0.02)	(0.01)
01/01/34	12/31/34	0.00	0.03	(0.03)	(0.01)
01/01/35	12/31/35	0.00	0.03	(0.03)	(0.01)
01/01/36	12/31/36	0.00	0.02	(0.02)	(0.01)
01/01/37	12/31/37	0.00	0.02	(0.02)	(0.01)
01/01/38	12/31/38	0.00	0.03	(0.03)	(0.01)
01/01/39	12/31/39	0.00	0.03	(0.03)	(0.01)
01/01/40	12/31/40	0.00	0.03	(0.03)	(0.01)
01/01/41	12/31/41	0.00	0.03	(0.03)	(0.01)
01/01/42	12/31/42	0.00	0.03	(0.03)	(0.01)
01/01/43	12/31/43	0.00	0.03	(0.03)	(0.01)
01/01/44	12/31/44	0.00	0.03	(0.03)	(0.01)
01/01/45	12/31/45	0.00	0.03	(0.03)	(0.01)
01/01/46	12/31/46	0.00	0.03	(0.03)	(0.01)
01/01/47	12/31/47	0.00	0.03	(0.03)	(0.01)
01/01/48	12/31/48	0.00	0.03	(0.03)	(0.01)
01/01/49	12/31/49	0.00	0.03	(0.03)	(0.01)
01/01/50	12/31/50	0.00	0.03	(0.03)	(0.01)
01/01/51	12/31/51	0.00	0.03	(0.03)	(0.01)
01/01/52	12/31/52	0.00	0.00	(0.00)	(0.00)
TOTAL		949.56	929.60	19.96	6.99

Notes:

(3) = Table C2_1, (8)

(4) = Table C2_5, (7)

(5) = (3) - (4)

(6) = 0.35 x (5), where 0.35 is the Federal income tax rate.

TABLE C2_7: ADMITTED PREPAID TAX (DEFERRED TAX ASSET - DTA)

TIME INTERVAL		AY 2016		AY 2017		AY 2018		DISCOUNT UNWOUND DURING PERIOD (9)	DTA ASSOCIATED WITH LOSS & LAE RESERVE (10)	UNEARNED PREMIUM RESERVE (11)	DTA ASSOCIATED WITH UNEARNED PREMIUM RESERVE (12)	ADMITTED PREPAID TAX (DTA) (13)
		CHANGE IN DISCOUNTED LOSS & LAE (3)	LOSS & LAE PAID DURING PERIOD (4)	CHANGE IN DISCOUNTED LOSS & LAE (5)	LOSS & LAE PAID DURING PERIOD (6)	CHANGE IN DISCOUNTED LOSS & LAE (7)	LOSS & LAE PAID DURING PERIOD (8)					
FROM (1)	TO (2)											
01/01/15	12/31/15							0.00	0.00			0.00
01/01/16	12/31/16							0.00	0.37	313.95	21.98	22.35
01/01/17	12/31/17	(20.56)	21.62					1.06	3.08	114.04	7.98	11.06
01/01/18	12/31/18	(15.99)	17.22	(133.09)	140.65			8.79	3.02	0.00	0.00	3.02
01/01/19	12/31/19	(9.97)	10.94	(85.96)	92.57	(18.65)	19.71	8.63	2.31	0.00	0.00	2.31
01/01/20	12/31/20	(6.04)	6.68	(52.35)	57.39	(11.85)	12.75	6.59	1.50	0.00	0.00	1.50
01/01/21	12/31/21	(2.85)	3.12	(31.34)	34.67	(7.17)	7.85	4.28	0.58	0.00	0.00	0.58
01/01/22	12/31/22	(1.37)	1.63	(11.46)	12.45	(3.88)	4.29	1.66	0.67	0.00	0.00	0.67
01/01/23	12/31/23	(1.09)	1.33	(7.76)	9.28	(1.65)	1.79	1.91	0.64	0.00	0.00	0.64
01/01/24	12/31/24	(0.72)	0.86	(6.50)	7.96	(1.17)	1.40	1.83	0.40	0.00	0.00	0.40
01/01/25	12/31/25	(0.48)	0.65	(3.44)	4.19	(0.85)	1.06	1.14	0.47	0.00	0.00	0.47
01/01/26	12/31/26	(0.44)	0.61	(3.00)	4.06	(0.54)	0.65	1.34	0.46	0.00	0.00	0.46
01/01/27	12/31/27	(0.39)	0.54	(2.69)	3.68	(0.46)	0.62	1.31	0.44	0.00	0.00	0.44
01/01/28	12/31/28	(0.74)	0.90	(2.34)	3.27	(0.41)	0.56	1.25	0.47	0.00	0.00	0.47
01/01/29	12/31/29	(0.46)	0.60	(5.76)	6.80	(0.55)	0.70	1.33	0.38	0.00	0.00	0.38
01/01/30	12/31/30	(0.33)	0.46	(1.47)	2.29	(0.69)	0.84	1.10	0.34	0.00	0.00	0.34
01/01/31	12/31/31	(0.39)	0.39	(2.38)	3.21	(0.28)	0.41	0.96	0.05	0.00	0.00	0.05
01/01/32	12/31/32	(0.34)	0.34	(2.05)	2.07	(0.32)	0.45	0.15	0.01	0.00	0.00	0.01
01/01/33	12/31/33	(0.42)	0.43	(2.17)	2.18	(0.33)	0.33	0.02	0.01	0.00	0.00	0.01
01/01/34	12/31/34	(0.41)	0.41	(2.89)	2.92	(0.38)	0.38	0.03	0.01	0.00	0.00	0.01
01/01/35	12/31/35	(0.28)	0.28	(2.39)	2.41	(0.43)	0.44	0.03	0.01	0.00	0.00	0.01
01/01/36	12/31/36	(0.25)	0.25	(1.43)	1.45	(0.33)	0.33	0.02	0.01	0.00	0.00	0.01
01/01/37	12/31/37	(0.37)	0.37	(1.60)	1.61	(0.24)	0.24	0.02	0.01	0.00	0.00	0.01
01/01/38	12/31/38	(0.43)	0.43	(2.68)	2.70	(0.31)	0.31	0.03	0.01	0.00	0.00	0.01
01/01/39	12/31/39	(0.43)	0.43	(2.68)	2.71	(0.42)	0.43	0.03	0.01	0.00	0.00	0.01
01/01/40	12/31/40	(0.43)	0.43	(2.68)	2.71	(0.42)	0.43	0.03	0.01	0.00	0.00	0.01
01/01/41	12/31/41	(0.43)	0.43	(2.68)	2.71	(0.42)	0.43	0.03	0.01	0.00	0.00	0.01
01/01/42	12/31/42	(0.43)	0.43	(2.68)	2.71	(0.42)	0.43	0.03	0.01	0.00	0.00	0.01
01/01/43	12/31/43	(0.43)	0.43	(2.68)	2.71	(0.42)	0.43	0.03	0.01	0.00	0.00	0.01
01/01/44	12/31/44	(0.43)	0.43	(2.68)	2.71	(0.42)	0.43	0.03	0.01	0.00	0.00	0.01
01/01/45	12/31/45	(0.43)	0.43	(2.68)	2.71	(0.42)	0.43	0.03	0.01	0.00	0.00	0.01
01/01/46	12/31/46	(0.43)	0.43	(2.68)	2.71	(0.42)	0.43	0.03	0.01	0.00	0.00	0.01
01/01/47	12/31/47	(0.43)	0.43	(2.68)	2.71	(0.42)	0.43	0.03	0.01	0.00	0.00	0.01
01/01/48	12/31/48	(0.43)	0.43	(2.68)	2.71	(0.42)	0.43	0.03	0.01	0.00	0.00	0.01
01/01/49	12/31/49	(0.43)	0.43	(2.68)	2.71	(0.42)	0.43	0.03	0.01	0.00	0.00	0.01
01/01/50	12/31/50	(0.43)	0.43	(2.68)	2.71	(0.42)	0.43	0.03	0.01	0.00	0.00	0.01
01/01/51	12/31/51	(0.14)	0.14	(2.68)	2.71	(0.42)	0.43	0.03	0.00	0.00	0.00	0.00
01/01/52	12/31/52	0.00	0.00	(0.02)	0.02	(0.28)	0.29	0.00	0.00	0.00	0.00	0.00

Notes:
 (3) = Table C2_2, (9), the initial value is not relevant in calculating the discount unwound during period.
 (4) = Table C2_2, (10)
 (5) = Table C2_3, (9), the initial value is not relevant in calculating the discount unwound during period.
 (6) = Table C2_3, (10)
 (7) = Table C2_4, (9), the initial value is not relevant in calculating the discount unwound during period.
 (8) = Table C2_4, (10)
 (9) = (3) + (4) + (5) + (6) + (7) + (8)
 (10) = 0.35 x (9)_{t+1}, where 0.35 is the Federal income tax rate.
 (11) = Table C2_1, (4)
 (12) = 0.2 x 0.35 x (11), 0.35 is the Federal income tax rate and 20% of unearned premiums is taxable.
 (13) = (10) + (12)

TABLE C3: POLICYHOLDER SUPPLIED INVESTABLE FUNDS

TIME INTERVAL		UNEARNED PREMIUM RESERVES (3)	LOSS & LAE RESERVES (4)	ADMITTED PREMIUM RECEIVABLES (5)	ADMITTED PREPAID TAX (DTA) (6)	INVESTABLE RESERVES (7)	CUMULATIVE POST TAX CASH FLOW FROM UW (8)	POST TAX CASH FROM UW AVAILABLE TO INVESTORS (9)	POLICYHOLDER SUPPLIED INVESTABLE FUNDS (10)	RESERVES FUNDED BY INVESTORS (11)
FROM (1)	TO (2)									
07/01/15	09/30/15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10/01/15	12/31/15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01/01/16	03/31/16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04/01/16	06/30/16	0.00	0.00	(5.45)	0.00	5.45	(0.86)	(0.86)	0.00	5.45
07/01/16	09/30/16	196.74	18.37	168.39	16.76	29.96	20.65	0.86	20.65	9.31
10/01/16	12/31/16	315.71	67.78	252.97	22.35	108.17	86.03	0.00	86.03	22.14
01/01/17	03/31/17	450.21	157.89	355.34	19.53	233.23	194.99	0.00	194.99	38.24
04/01/17	06/30/17	479.21	282.10	390.89	16.70	353.72	312.41	0.00	312.41	41.30
07/01/17	09/30/17	272.44	400.14	225.59	13.88	433.10	409.15	0.00	409.15	23.95
10/01/17	12/31/17	116.16	477.78	127.24	11.06	455.64	449.74	0.00	449.74	5.90
01/01/18	03/31/18	29.01	500.71	74.87	9.05	445.80	452.40	6.60	445.80	0.00
04/01/18	06/30/18	0.00	477.67	30.46	7.04	440.17	433.45	(6.60)	433.45	6.72
07/01/18	09/30/18	0.00	433.38	2.12	5.03	426.23	409.58	0.00	409.58	16.65
10/01/18	12/31/18	0.00	392.31	0.93	3.02	388.36	382.82	0.00	382.82	5.54
01/01/19	03/31/19	0.00	356.06	0.33	2.84	352.88	353.96	1.07	352.88	0.00
04/01/19	06/30/19	0.00	323.88	0.08	2.66	321.14	325.47	3.26	321.14	0.00
07/01/19	09/30/19	0.00	294.97	0.00	2.49	292.49	298.23	1.41	292.49	0.00
10/01/19	12/31/19	0.00	268.43	0.00	2.31	266.12	272.52	0.66	266.12	0.00
01/01/20	03/31/20	0.00	245.35	0.00	2.10	243.24	250.02	0.37	243.24	0.00
04/01/20	06/30/20	0.00	225.20	0.00	1.90	223.30	230.45	0.37	223.30	0.00
07/01/20	09/30/20	0.00	207.33	0.00	1.70	205.63	213.15	0.37	205.63	0.00
10/01/20	12/31/20	0.00	190.98	0.00	1.50	189.49	197.38	0.37	189.49	0.00
01/01/21	03/31/21	0.00	176.87	0.00	1.27	175.60	183.65	0.15	175.60	0.00
04/01/21	06/30/21	0.00	164.65	0.00	1.04	163.61	171.80	0.15	163.61	0.00
07/01/21	09/30/21	0.00	154.22	0.00	0.81	153.41	161.74	0.15	153.41	0.00
10/01/21	12/31/21	0.00	145.32	0.00	0.58	144.74	153.22	0.15	144.74	0.00
01/01/22	03/31/22	0.00	138.58	0.00	0.60	137.98	146.62	0.17	137.98	0.00
04/01/22	06/30/22	0.00	133.65	0.00	0.62	133.02	141.84	0.17	133.02	0.00
07/01/22	09/30/22	0.00	129.72	0.00	0.65	129.08	138.06	0.17	129.08	0.00
10/01/22	12/31/22	0.00	125.99	0.00	0.67	125.32	134.47	0.17	125.32	0.00
01/01/23	03/31/23	0.00	122.57	0.00	0.66	121.91	131.22	0.16	121.91	0.00
04/01/23	06/30/23	0.00	119.41	0.00	0.65	118.76	128.23	0.16	118.76	0.00
07/01/23	09/30/23	0.00	116.42	0.00	0.65	115.77	125.40	0.16	115.77	0.00
10/01/23	12/31/23	0.00	113.50	0.00	0.64	112.86	122.65	0.16	112.86	0.00
01/01/24	03/31/24	0.00	110.72	0.00	0.58	110.14	120.03	0.10	110.14	0.00
04/01/24	06/30/24	0.00	108.07	0.00	0.52	107.55	117.53	0.10	107.55	0.00
07/01/24	09/30/24	0.00	105.61	0.00	0.46	105.15	115.24	0.10	105.15	0.00
10/01/24	12/31/24	0.00	103.41	0.00	0.40	103.01	113.20	0.10	103.01	0.00
01/01/25	03/31/25	0.00	101.58	0.00	0.42	101.16	111.46	0.12	101.16	0.00
04/01/25	06/30/25	0.00	100.06	0.00	0.43	99.63	110.05	0.12	99.63	0.00
07/01/25	09/30/25	0.00	98.69	0.00	0.45	98.24	108.78	0.12	98.24	0.00
10/01/25	12/31/25	0.00	97.32	0.00	0.47	96.85	107.51	0.12	96.85	0.00
01/01/26	03/31/26	0.00	95.97	0.00	0.47	95.50	106.27	0.11	95.50	0.00
04/01/26	06/30/26	0.00	94.64	0.00	0.46	94.17	105.05	0.11	94.17	0.00
07/01/26	09/30/26	0.00	93.31	0.00	0.46	92.85	103.85	0.11	92.85	0.00
10/01/26	12/31/26	0.00	92.01	0.00	0.46	91.55	102.67	0.11	91.55	0.00
01/01/27	03/31/27	0.00	90.75	0.00	0.45	90.30	101.52	0.11	90.30	0.00
04/01/27	06/30/27	0.00	89.53	0.00	0.45	89.08	100.42	0.11	89.08	0.00
07/01/27	09/30/27	0.00	88.34	0.00	0.44	87.89	99.34	0.11	87.89	0.00
10/01/27	12/31/27	0.00	87.17	0.00	0.44	86.73	98.28	0.11	86.73	0.00
01/01/28	03/31/28	0.00	86.04	0.00	0.45	85.59	97.26	0.12	85.59	0.00
04/01/28	06/30/28	0.00	84.95	0.00	0.45	84.50	96.28	0.12	84.50	0.00
07/01/28	09/30/28	0.00	83.72	0.00	0.46	83.26	95.17	0.12	83.26	0.00
10/01/28	12/31/28	0.00	82.24	0.00	0.47	81.77	93.79	0.12	81.77	0.00
01/01/29	03/31/29	0.00	80.42	0.00	0.45	79.97	92.09	0.10	79.97	0.00
04/01/29	06/30/29	0.00	78.33	0.00	0.43	77.90	90.11	0.10	77.90	0.00
07/01/29	09/30/29	0.00	76.27	0.00	0.41	75.87	88.18	0.10	75.87	0.00
10/01/29	12/31/29	0.00	74.54	0.00	0.38	74.15	86.56	0.10	74.15	0.00
01/01/30	03/31/30	0.00	73.24	0.00	0.37	72.87	85.36	0.08	72.87	0.00
04/01/30	06/30/30	0.00	72.32	0.00	0.36	71.96	84.53	0.08	71.96	0.00
07/01/30	09/30/30	0.00	71.53	0.00	0.35	71.19	83.84	0.08	71.19	0.00
10/01/30	12/31/30	0.00	70.68	0.00	0.34	70.34	83.08	0.08	70.34	0.00
01/01/31	03/31/31	0.00	69.73	0.00	0.27	69.47	82.22	0.01	69.47	0.00
04/01/31	06/30/31	0.00	68.72	0.00	0.19	68.52	81.29	0.01	68.52	0.00
07/01/31	09/30/31	0.00	67.71	0.00	0.12	67.59	80.36	0.01	67.59	0.00
10/01/31	12/31/31	0.00	66.77	0.00	0.05	66.72	79.51	0.01	66.72	0.00
01/01/32	03/31/32	0.00	65.96	0.00	0.04	65.91	78.71	0.00	65.91	0.00
04/01/32	06/30/32	0.00	65.23	0.00	0.03	65.20	78.00	0.00	65.20	0.00
07/01/32	09/30/32	0.00	64.55	0.00	0.02	64.53	77.33	0.00	64.53	0.00
10/01/32	12/31/32	0.00	63.85	0.00	0.01	63.84	76.64	0.00	63.84	0.00
01/01/33	03/31/33	0.00	63.15	0.00	0.01	63.14	75.94	0.00	63.14	0.00
04/01/33	06/30/33	0.00	62.44	0.00	0.01	62.43	75.23	0.00	62.43	0.00
07/01/33	09/30/33	0.00	61.68	0.00	0.01	61.67	74.48	0.00	61.67	0.00
10/01/33	12/31/33	0.00	60.88	0.00	0.01	60.87	73.68	0.00	60.87	0.00
01/01/34	03/31/34	0.00	60.00	0.00	0.01	59.99	72.81	0.00	59.99	0.00
04/01/34	06/30/34	0.00	59.08	0.00	0.01	59.07	71.88	0.00	59.07	0.00
07/01/34	09/30/34	0.00	58.14	0.00	0.01	58.13	70.94	0.00	58.13	0.00
10/01/34	12/31/34	0.00	57.23	0.00	0.01	57.22	70.04	0.00	57.22	0.00
01/01/35	03/31/35	0.00	56.37	0.00	0.01	56.36	69.18	0.00	56.36	0.00
04/01/35	06/30/35	0.00	55.56	0.00	0.01	55.55	68.37	0.00	55.55	0.00
07/01/35	09/30/35	0.00	54.81	0.00	0.01	54.80	67.62	0.00	54.80	0.00

TABLE C3: POLICYHOLDER SUPPLIED INVESTABLE FUNDS

TIME INTERVAL		UNEARNED PREMIUM RESERVES (3)	LOSS & LAE RESERVES (4)	ADMITTED PREMIUM RECEIVABLES (5)	ADMITTED PREPAID TAX (DTA) (6)	INVESTABLE RESERVES (7)	CUMULATIVE POST TAX CASH FLOW FROM UW (8)	POST TAX CASH FROM UW AVAILABLE TO INVESTORS (9)	POLICYHOLDER SUPPLIED INVESTABLE FUNDS (10)	RESERVES FUNDED BY INVESTORS (11)
FROM (1)	TO (2)									
10/01/35	12/31/35	0.00	54.12	0.00	0.01	54.11	66.94	0.00	54.11	0.00
01/01/36	03/31/36	0.00	53.53	0.00	0.01	53.52	66.35	0.00	53.52	0.00
04/01/36	06/30/36	0.00	53.02	0.00	0.01	53.01	65.84	0.00	53.01	0.00
07/01/36	09/30/36	0.00	52.53	0.00	0.01	52.53	65.36	0.00	52.53	0.00
10/01/36	12/31/36	0.00	52.04	0.00	0.01	52.03	64.86	0.00	52.03	0.00
01/01/37	03/31/37	0.00	51.53	0.00	0.01	51.52	64.35	0.00	51.52	0.00
04/01/37	06/30/37	0.00	51.00	0.00	0.01	51.00	63.83	0.00	51.00	0.00
07/01/37	09/30/37	0.00	50.43	0.00	0.01	50.42	63.26	0.00	50.42	0.00
10/01/37	12/31/37	0.00	49.77	0.00	0.01	49.76	62.60	0.00	49.76	0.00
01/01/38	03/31/38	0.00	49.01	0.00	0.01	49.00	61.84	0.00	49.00	0.00
04/01/38	06/30/38	0.00	48.16	0.00	0.01	48.15	61.00	0.00	48.15	0.00
07/01/38	09/30/38	0.00	47.27	0.00	0.01	47.26	60.11	0.00	47.26	0.00
10/01/38	12/31/38	0.00	46.38	0.00	0.01	46.37	59.22	0.00	46.37	0.00
01/01/39	03/31/39	0.00	45.48	0.00	0.01	45.47	58.33	0.00	45.47	0.00
04/01/39	06/30/39	0.00	44.60	0.00	0.01	44.59	57.45	0.00	44.59	0.00
07/01/39	09/30/39	0.00	43.71	0.00	0.01	43.70	56.56	0.00	43.70	0.00
10/01/39	12/31/39	0.00	42.81	0.00	0.01	42.80	55.66	0.00	42.80	0.00
01/01/40	03/31/40	0.00	41.92	0.00	0.01	41.91	54.77	0.00	41.91	0.00
04/01/40	06/30/40	0.00	41.03	0.00	0.01	41.02	53.89	0.00	41.02	0.00
07/01/40	09/30/40	0.00	40.14	0.00	0.01	40.13	53.00	0.00	40.13	0.00
10/01/40	12/31/40	0.00	39.24	0.00	0.01	39.23	52.11	0.00	39.23	0.00
01/01/41	03/31/41	0.00	38.35	0.00	0.01	38.34	51.22	0.00	38.34	0.00
04/01/41	06/30/41	0.00	37.47	0.00	0.01	37.45	50.33	0.00	37.45	0.00
07/01/41	09/30/41	0.00	36.57	0.00	0.01	36.56	49.44	0.00	36.56	0.00
10/01/41	12/31/41	0.00	35.68	0.00	0.01	35.67	48.55	0.00	35.67	0.00
01/01/42	03/31/42	0.00	34.79	0.00	0.01	34.78	47.66	0.00	34.78	0.00
04/01/42	06/30/42	0.00	33.90	0.00	0.01	33.89	46.78	0.00	33.89	0.00
07/01/42	09/30/42	0.00	33.01	0.00	0.01	33.00	45.89	0.00	33.00	0.00
10/01/42	12/31/42	0.00	32.11	0.00	0.01	32.10	44.99	0.00	32.10	0.00
01/01/43	03/31/43	0.00	31.22	0.00	0.01	31.21	44.10	0.00	31.21	0.00
04/01/43	06/30/43	0.00	30.33	0.00	0.01	30.32	43.22	0.00	30.32	0.00
07/01/43	09/30/43	0.00	29.44	0.00	0.01	29.43	42.33	0.00	29.43	0.00
10/01/43	12/31/43	0.00	28.54	0.00	0.01	28.53	41.44	0.00	28.53	0.00
01/01/44	03/31/44	0.00	27.65	0.00	0.01	27.64	40.55	0.00	27.64	0.00
04/01/44	06/30/44	0.00	26.77	0.00	0.01	26.76	39.66	0.00	26.76	0.00
07/01/44	09/30/44	0.00	25.87	0.00	0.01	25.86	38.78	0.00	25.86	0.00
10/01/44	12/31/44	0.00	24.98	0.00	0.01	24.97	37.88	0.00	24.97	0.00
01/01/45	03/31/45	0.00	24.09	0.00	0.01	24.08	36.99	0.00	24.08	0.00
04/01/45	06/30/45	0.00	23.20	0.00	0.01	23.19	36.11	0.00	23.19	0.00
07/01/45	09/30/45	0.00	22.31	0.00	0.01	22.30	35.22	0.00	22.30	0.00
10/01/45	12/31/45	0.00	21.41	0.00	0.01	21.40	34.33	0.00	21.40	0.00
01/01/46	03/31/46	0.00	20.52	0.00	0.01	20.51	33.44	0.00	20.51	0.00
04/01/46	06/30/46	0.00	19.63	0.00	0.01	19.62	32.55	0.00	19.62	0.00
07/01/46	09/30/46	0.00	18.74	0.00	0.01	18.73	31.66	0.00	18.73	0.00
10/01/46	12/31/46	0.00	17.84	0.00	0.01	17.83	30.77	0.00	17.83	0.00
01/01/47	03/31/47	0.00	16.95	0.00	0.01	16.94	29.88	0.00	16.94	0.00
04/01/47	06/30/47	0.00	16.07	0.00	0.01	16.06	29.00	0.00	16.06	0.00
07/01/47	09/30/47	0.00	15.17	0.00	0.01	15.16	28.11	0.00	15.16	0.00
10/01/47	12/31/47	0.00	14.28	0.00	0.01	14.27	27.21	0.00	14.27	0.00
01/01/48	03/31/48	0.00	13.39	0.00	0.01	13.38	26.32	0.00	13.38	0.00
04/01/48	06/30/48	0.00	12.50	0.00	0.01	12.49	25.44	0.00	12.49	0.00
07/01/48	09/30/48	0.00	11.61	0.00	0.01	11.60	24.55	0.00	11.60	0.00
10/01/48	12/31/48	0.00	10.71	0.00	0.01	10.70	23.66	0.00	10.70	0.00
01/01/49	03/31/49	0.00	9.82	0.00	0.01	9.81	22.77	0.00	9.81	0.00
04/01/49	06/30/49	0.00	8.93	0.00	0.01	8.92	21.88	0.00	8.92	0.00
07/01/49	09/30/49	0.00	8.04	0.00	0.01	8.03	20.99	0.00	8.03	0.00
10/01/49	12/31/49	0.00	7.14	0.00	0.01	7.13	20.10	0.00	7.13	0.00
01/01/50	03/31/50	0.00	6.25	0.00	0.01	6.24	19.21	0.00	6.24	0.00
04/01/50	06/30/50	0.00	5.37	0.00	0.01	5.36	18.33	0.00	5.36	0.00
07/01/50	09/30/50	0.00	4.47	0.00	0.01	4.47	17.44	0.00	4.47	0.00
10/01/50	12/31/50	0.00	3.58	0.00	0.01	3.57	16.54	0.00	3.57	0.00
01/01/51	03/31/51	0.00	2.69	0.00	0.01	2.68	15.66	0.00	2.68	0.00
04/01/51	06/30/51	0.00	1.80	0.00	0.01	1.79	14.77	0.00	1.79	0.00
07/01/51	09/30/51	0.00	1.02	0.00	0.00	1.02	14.00	0.00	1.02	0.00
10/01/51	12/31/51	0.00	0.44	0.00	0.00	0.44	13.41	0.00	0.44	0.00
01/01/52	03/31/52	0.00	0.11	0.00	0.00	0.11	13.08	0.00	0.11	0.00
04/01/52	06/30/52	0.00	(0.00)	0.00	0.00	(0.00)	12.98	0.00	(0.00)	0.00
TOTAL		1,859.47	12,477.00	1,623.75	164.49	12,548.23	13,958.62	12.98	12,373.01	175.22

Notes:

- (3) = Table A1, (1b) x [Table C5_2, (6) - Table C5_2, (7)]
- (4) = Table A1, (1a) x Table A1, (3) x [Table C5_2, (8) - Table C5_1, (13)]
- (5) = Table C4, (7)
- (6) = Table C2_7, (13), DTA allocated to the model time periods.
- (7) = (3) + (4) - (5) - (6)
- (8) = Table C1, (14), cumulative
- (9) = [(8) - (10)] - (9)_{t-1}, cumulative
- (10) = min [max (0, (8)), (7)]
- (11) = (7) - (10)

TABLE C4: ADMITTED PREMIUM RECEIVABLES

TIME INTERVAL		CUMULATIVE		COLLECTED PREMIUM MINUS PRIOR PERIOD EARNED PREMIUM (5)	NONADMITTED PREMIUM RECEIVABLES (6)	ADMITTED PREMIUM RECEIVABLES (7)
		EARNED PREMIUM NET (3)	COLLECTED PREMIUM NET (4)			
FROM (1)	TO (2)					
07/01/15	09/30/15	0.00	0.00	0.00	0.00	0.00
10/01/15	12/31/15	0.00	0.00	0.00	0.00	0.00
01/01/16	03/31/16	0.00	0.00	0.00	0.00	0.00
04/01/16	06/30/16	0.00	5.45	5.45	0.00	(5.45)
07/01/16	09/30/16	30.62	58.97	58.97	0.00	168.39
10/01/16	12/31/16	113.01	175.75	145.13	0.00	252.97
01/01/17	03/31/17	263.25	358.12	245.11	0.00	355.34
04/01/17	06/30/17	470.35	558.67	295.42	0.00	390.89
07/01/17	09/30/17	677.12	723.97	253.61	0.00	225.59
10/01/17	12/31/17	833.40	822.32	145.20	0.00	127.24
01/01/18	03/31/18	920.55	874.69	41.29	0.00	74.87
04/01/18	06/30/18	949.56	903.08	(17.47)	16.02	30.46
07/01/18	09/30/18	949.56	924.07	(25.49)	23.37	2.12
10/01/18	12/31/18	949.56	938.39	(11.17)	10.24	0.93
01/01/19	03/31/19	949.56	945.54	(4.02)	3.69	0.33
04/01/19	06/30/19	949.56	948.66	(0.91)	0.83	0.08
07/01/19	09/30/19	949.56	949.56	0.00	0.00	0.00
10/01/19	12/31/19	949.56	949.56	0.00	0.00	0.00
01/01/20	03/31/20	949.56	949.56	0.00	0.00	0.00
04/01/20	06/30/20	949.56	949.56	0.00	0.00	0.00
07/01/20	09/30/20	949.56	949.56	0.00	0.00	0.00
10/01/20	12/31/20	949.56	949.56	0.00	0.00	0.00
01/01/21	03/31/21	949.56	949.56	0.00	0.00	0.00
04/01/21	06/30/21	949.56	949.56	0.00	0.00	0.00
07/01/21	09/30/21	949.56	949.56	0.00	0.00	0.00
10/01/21	12/31/21	949.56	949.56	0.00	0.00	0.00
01/01/22	03/31/22	949.56	949.56	0.00	0.00	0.00
04/01/22	06/30/22	949.56	949.56	0.00	0.00	0.00
07/01/22	09/30/22	949.56	949.56	0.00	0.00	0.00
10/01/22	12/31/22	949.56	949.56	0.00	0.00	0.00
01/01/23	03/31/23	949.56	949.56	0.00	0.00	0.00
04/01/23	06/30/23	949.56	949.56	0.00	0.00	0.00
07/01/23	09/30/23	949.56	949.56	0.00	0.00	0.00
10/01/23	12/31/23	949.56	949.56	0.00	0.00	0.00
01/01/24	03/31/24	949.56	949.56	0.00	0.00	0.00
04/01/24	06/30/24	949.56	949.56	0.00	0.00	0.00
07/01/24	09/30/24	949.56	949.56	0.00	0.00	0.00
10/01/24	12/31/24	949.56	949.56	0.00	0.00	0.00
01/01/25	03/31/25	949.56	949.56	0.00	0.00	0.00
04/01/25	06/30/25	949.56	949.56	0.00	0.00	0.00
07/01/25	09/30/25	949.56	949.56	0.00	0.00	0.00
10/01/25	12/31/25	949.56	949.56	0.00	0.00	0.00
01/01/26	03/31/26	949.56	949.56	0.00	0.00	0.00
04/01/26	06/30/26	949.56	949.56	0.00	0.00	0.00
07/01/26	09/30/26	949.56	949.56	0.00	0.00	0.00
10/01/26	12/31/26	949.56	949.56	0.00	0.00	0.00
01/01/27	03/31/27	949.56	949.56	0.00	0.00	0.00
04/01/27	06/30/27	949.56	949.56	0.00	0.00	0.00
07/01/27	09/30/27	949.56	949.56	0.00	0.00	0.00
10/01/27	12/31/27	949.56	949.56	0.00	0.00	0.00
01/01/28	03/31/28	949.56	949.56	0.00	0.00	0.00
04/01/28	06/30/28	949.56	949.56	0.00	0.00	0.00
07/01/28	09/30/28	949.56	949.56	0.00	0.00	0.00
10/01/28	12/31/28	949.56	949.56	0.00	0.00	0.00
01/01/29	03/31/29	949.56	949.56	0.00	0.00	0.00
04/01/29	06/30/29	949.56	949.56	0.00	0.00	0.00
07/01/29	09/30/29	949.56	949.56	0.00	0.00	0.00
10/01/29	12/31/29	949.56	949.56	0.00	0.00	0.00
01/01/30	03/31/30	949.56	949.56	0.00	0.00	0.00
04/01/30	06/30/30	949.56	949.56	0.00	0.00	0.00
07/01/30	09/30/30	949.56	949.56	0.00	0.00	0.00
10/01/30	12/31/30	949.56	949.56	0.00	0.00	0.00
01/01/31	03/31/31	949.56	949.56	0.00	0.00	0.00
04/01/31	06/30/31	949.56	949.56	0.00	0.00	0.00
07/01/31	09/30/31	949.56	949.56	0.00	0.00	0.00
10/01/31	12/31/31	949.56	949.56	0.00	0.00	0.00
01/01/32	03/31/32	949.56	949.56	0.00	0.00	0.00
04/01/32	06/30/32	949.56	949.56	0.00	0.00	0.00
07/01/32	09/30/32	949.56	949.56	0.00	0.00	0.00
10/01/32	12/31/32	949.56	949.56	0.00	0.00	0.00
01/01/33	03/31/33	949.56	949.56	0.00	0.00	0.00
04/01/33	06/30/33	949.56	949.56	0.00	0.00	0.00
07/01/33	09/30/33	949.56	949.56	0.00	0.00	0.00
10/01/33	12/31/33	949.56	949.56	0.00	0.00	0.00
01/01/34	03/31/34	949.56	949.56	0.00	0.00	0.00
04/01/34	06/30/34	949.56	949.56	0.00	0.00	0.00
07/01/34	09/30/34	949.56	949.56	0.00	0.00	0.00
10/01/34	12/31/34	949.56	949.56	0.00	0.00	0.00
01/01/35	03/31/35	949.56	949.56	0.00	0.00	0.00
04/01/35	06/30/35	949.56	949.56	0.00	0.00	0.00
07/01/35	09/30/35	949.56	949.56	0.00	0.00	0.00

TABLE C4: ADMITTED PREMIUM RECEIVABLES

TIME INTERVAL		CUMULATIVE		COLLECTED PREMIUM MINUS PRIOR PERIOD EARNED PREMIUM (5)	NONADMITTED PREMIUM RECEIVABLES (6)	ADMITTED PREMIUM RECEIVABLES (7)
		EARNED PREMIUM NET (3)	COLLECTED PREMIUM NET (4)			
FROM (1)	TO (2)					
10/01/35	12/31/35	949.56	949.56	0.00	0.00	0.00
01/01/36	03/31/36	949.56	949.56	0.00	0.00	0.00
04/01/36	06/30/36	949.56	949.56	0.00	0.00	0.00
07/01/36	09/30/36	949.56	949.56	0.00	0.00	0.00
10/01/36	12/31/36	949.56	949.56	0.00	0.00	0.00
01/01/37	03/31/37	949.56	949.56	0.00	0.00	0.00
04/01/37	06/30/37	949.56	949.56	0.00	0.00	0.00
07/01/37	09/30/37	949.56	949.56	0.00	0.00	0.00
10/01/37	12/31/37	949.56	949.56	0.00	0.00	0.00
01/01/38	03/31/38	949.56	949.56	0.00	0.00	0.00
04/01/38	06/30/38	949.56	949.56	0.00	0.00	0.00
07/01/38	09/30/38	949.56	949.56	0.00	0.00	0.00
10/01/38	12/31/38	949.56	949.56	0.00	0.00	0.00
01/01/39	03/31/39	949.56	949.56	0.00	0.00	0.00
04/01/39	06/30/39	949.56	949.56	0.00	0.00	0.00
07/01/39	09/30/39	949.56	949.56	0.00	0.00	0.00
10/01/39	12/31/39	949.56	949.56	0.00	0.00	0.00
01/01/40	03/31/40	949.56	949.56	0.00	0.00	0.00
04/01/40	06/30/40	949.56	949.56	0.00	0.00	0.00
07/01/40	09/30/40	949.56	949.56	0.00	0.00	0.00
10/01/40	12/31/40	949.56	949.56	0.00	0.00	0.00
01/01/41	03/31/41	949.56	949.56	0.00	0.00	0.00
04/01/41	06/30/41	949.56	949.56	0.00	0.00	0.00
07/01/41	09/30/41	949.56	949.56	0.00	0.00	0.00
10/01/41	12/31/41	949.56	949.56	0.00	0.00	0.00
01/01/42	03/31/42	949.56	949.56	0.00	0.00	0.00
04/01/42	06/30/42	949.56	949.56	0.00	0.00	0.00
07/01/42	09/30/42	949.56	949.56	0.00	0.00	0.00
10/01/42	12/31/42	949.56	949.56	0.00	0.00	0.00
01/01/43	03/31/43	949.56	949.56	0.00	0.00	0.00
04/01/43	06/30/43	949.56	949.56	0.00	0.00	0.00
07/01/43	09/30/43	949.56	949.56	0.00	0.00	0.00
10/01/43	12/31/43	949.56	949.56	0.00	0.00	0.00
01/01/44	03/31/44	949.56	949.56	0.00	0.00	0.00
04/01/44	06/30/44	949.56	949.56	0.00	0.00	0.00
07/01/44	09/30/44	949.56	949.56	0.00	0.00	0.00
10/01/44	12/31/44	949.56	949.56	0.00	0.00	0.00
01/01/45	03/31/45	949.56	949.56	0.00	0.00	0.00
04/01/45	06/30/45	949.56	949.56	0.00	0.00	0.00
07/01/45	09/30/45	949.56	949.56	0.00	0.00	0.00
10/01/45	12/31/45	949.56	949.56	0.00	0.00	0.00
01/01/46	03/31/46	949.56	949.56	0.00	0.00	0.00
04/01/46	06/30/46	949.56	949.56	0.00	0.00	0.00
07/01/46	09/30/46	949.56	949.56	0.00	0.00	0.00
10/01/46	12/31/46	949.56	949.56	0.00	0.00	0.00
01/01/47	03/31/47	949.56	949.56	0.00	0.00	0.00
04/01/47	06/30/47	949.56	949.56	0.00	0.00	0.00
07/01/47	09/30/47	949.56	949.56	0.00	0.00	0.00
10/01/47	12/31/47	949.56	949.56	0.00	0.00	0.00
01/01/48	03/31/48	949.56	949.56	0.00	0.00	0.00
04/01/48	06/30/48	949.56	949.56	0.00	0.00	0.00
07/01/48	09/30/48	949.56	949.56	0.00	0.00	0.00
10/01/48	12/31/48	949.56	949.56	0.00	0.00	0.00
01/01/49	03/31/49	949.56	949.56	0.00	0.00	0.00
04/01/49	06/30/49	949.56	949.56	0.00	0.00	0.00
07/01/49	09/30/49	949.56	949.56	0.00	0.00	0.00
10/01/49	12/31/49	949.56	949.56	0.00	0.00	0.00
01/01/50	03/31/50	949.56	949.56	0.00	0.00	0.00
04/01/50	06/30/50	949.56	949.56	0.00	0.00	0.00
07/01/50	09/30/50	949.56	949.56	0.00	0.00	0.00
10/01/50	12/31/50	949.56	949.56	0.00	0.00	0.00
01/01/51	03/31/51	949.56	949.56	0.00	0.00	0.00
04/01/51	06/30/51	949.56	949.56	0.00	0.00	0.00
07/01/51	09/30/51	949.56	949.56	0.00	0.00	0.00
10/01/51	12/31/51	949.56	949.56	0.00	0.00	0.00
01/01/52	03/31/52	949.56	949.56	0.00	0.00	0.00
04/01/52	06/30/52	949.56	949.56	0.00	0.00	0.00

Notes:

- (3) = Table A1, (1b) x Table C5_2, (7)
- (4) = Table A1, (1b) x Table C5_1, (12)
- (5) = (4) - (3)_{t-1}, t-1 implies that is nonadmitted if not received in 90 days.
- (6) = max{ 0, -(5) x [1.0 - Table A1, (4) x Table A1, (1a) / Table A1, (1b)] }
- (7) = Table A1, (1b) x [Table C5_2, (6) - Table C5_1, (12)] - (6)

TABLE C5_1: POLICYHOLDER SUPPLIED - UNDERWRITING CASH FLOW PATTERNS

TIME INTERVAL		COLLECTED PREMIUM	LOSS & LAE PAYOUT	COMMISS. & BROKER.	GENERAL EXPENSES	OTHER ACQ. EXPENSES	PREMIUM TAXES	MISC. AND OTHER TAXES	REINS. EXPENSES	PREMIUM DISCOUNT	CUMULATIVE	
FROM	TO										COLLECTED PREMIUM	LOSS & LAE PAYOUT
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
07/01/15	09/30/15	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
10/01/15	12/31/15	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
01/01/16	03/31/16	0.00%	0.00%	0.0000%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
04/01/16	06/30/16	0.57%	0.00%	0.5744%	0.00%	3.99%	0.00%	0.00%	0.00%	0.57%	0.57%	0.00%
07/01/16	09/30/16	5.64%	0.73%	5.6363%	13.58%	23.49%	0.00%	23.94%	23.94%	5.64%	6.21%	0.73%
10/01/16	12/31/16	12.30%	1.95%	12.2977%	14.94%	22.67%	23.94%	21.21%	21.21%	12.30%	18.51%	2.68%
01/01/17	03/31/17	19.21%	3.56%	19.2059%	22.90%	29.13%	21.21%	29.99%	29.99%	19.21%	37.71%	6.24%
04/01/17	06/30/17	21.12%	4.91%	21.1204%	23.34%	20.72%	29.99%	24.86%	24.86%	21.12%	58.83%	11.15%
07/01/17	09/30/17	17.41%	5.72%	17.4076%	10.89%	0.00%	24.86%	0.00%	0.00%	17.41%	76.24%	16.87%
10/01/17	12/31/17	10.36%	5.89%	10.3582%	8.23%	0.00%	0.00%	0.00%	0.00%	10.36%	86.60%	22.76%
01/01/18	03/31/18	5.51%	6.06%	5.5143%	4.59%	0.00%	0.00%	0.00%	0.00%	5.51%	92.11%	28.82%
04/01/18	06/30/18	2.99%	6.19%	2.9906%	1.53%	0.00%	0.00%	0.00%	0.00%	2.99%	95.11%	35.01%
07/01/18	09/30/18	2.21%	6.03%	2.2098%	0.00%	0.00%	0.00%	0.00%	0.00%	2.21%	97.32%	41.03%
10/01/18	12/31/18	1.51%	5.59%	1.5085%	0.00%	0.00%	0.00%	0.00%	0.00%	1.51%	98.82%	46.62%
01/01/19	03/31/19	0.75%	4.93%	0.7528%	0.00%	0.00%	0.00%	0.00%	0.00%	0.75%	99.58%	51.55%
04/01/19	06/30/19	0.33%	4.38%	0.3282%	0.00%	0.00%	0.00%	0.00%	0.00%	0.33%	99.90%	55.93%
07/01/19	09/30/19	0.10%	3.93%	0.0954%	0.00%	0.00%	0.00%	0.00%	0.00%	0.10%	100.00%	59.87%
10/01/19	12/31/19	0.00%	3.61%	0.0000%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	63.48%
01/01/20	03/31/20	0.00%	3.14%	0.0000%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	66.62%
04/01/20	06/30/20	0.00%	2.74%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	69.36%
07/01/20	09/30/20	0.00%	2.43%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	71.79%
10/01/20	12/31/20	0.00%	2.22%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	74.01%
01/01/21	03/31/21	0.00%	1.92%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	75.93%
04/01/21	06/30/21	0.00%	1.66%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	77.60%
07/01/21	09/30/21	0.00%	1.42%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	79.02%
10/01/21	12/31/21	0.00%	1.21%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	80.23%
01/01/22	03/31/22	0.00%	0.92%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	81.15%
04/01/22	06/30/22	0.00%	0.67%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	81.82%
07/01/22	09/30/22	0.00%	0.53%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	82.35%
10/01/22	12/31/22	0.00%	0.51%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	82.86%
01/01/23	03/31/23	0.00%	0.47%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	83.32%
04/01/23	06/30/23	0.00%	0.43%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	83.75%
07/01/23	09/30/23	0.00%	0.41%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	84.16%
10/01/23	12/31/23	0.00%	0.40%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	84.56%
01/01/24	03/31/24	0.00%	0.38%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	84.94%
04/01/24	06/30/24	0.00%	0.36%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	85.30%
07/01/24	09/30/24	0.00%	0.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	85.63%
10/01/24	12/31/24	0.00%	0.30%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	85.93%
01/01/25	03/31/25	0.00%	0.25%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	86.18%
04/01/25	06/30/25	0.00%	0.21%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	86.39%
07/01/25	09/30/25	0.00%	0.19%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	86.57%
10/01/25	12/31/25	0.00%	0.19%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	86.76%
01/01/26	03/31/26	0.00%	0.18%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	86.94%
04/01/26	06/30/26	0.00%	0.18%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	87.12%
07/01/26	09/30/26	0.00%	0.18%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	87.30%
10/01/26	12/31/26	0.00%	0.18%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	87.48%
01/01/27	03/31/27	0.00%	0.17%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	87.65%
04/01/27	06/30/27	0.00%	0.17%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	87.82%
07/01/27	09/30/27	0.00%	0.16%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	87.98%
10/01/27	12/31/27	0.00%	0.16%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	88.14%
01/01/28	03/31/28	0.00%	0.15%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	88.29%
04/01/28	06/30/28	0.00%	0.15%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	88.44%
07/01/28	09/30/28	0.00%	0.17%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	88.61%
10/01/28	12/31/28	0.00%	0.20%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	88.81%
01/01/29	03/31/29	0.00%	0.25%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	89.06%
04/01/29	06/30/29	0.00%	0.28%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	89.34%
07/01/29	09/30/29	0.00%	0.28%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	89.62%
10/01/29	12/31/29	0.00%	0.24%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	89.86%
01/01/30	03/31/30	0.00%	0.18%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	90.03%
04/01/30	06/30/30	0.00%	0.13%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	90.16%
07/01/30	09/30/30	0.00%	0.11%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	90.27%
10/01/30	12/31/30	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	90.38%
01/01/31	03/31/31	0.00%	0.13%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	90.51%
04/01/31	06/30/31	0.00%	0.14%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	90.65%
07/01/31	09/30/31	0.00%	0.14%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	90.79%
10/01/31	12/31/31	0.00%	0.13%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	90.91%
01/01/32	03/31/32	0.00%	0.11%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	91.03%
04/01/32	06/30/32	0.00%	0.10%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	91.12%
07/01/32	09/30/32	0.00%	0.09%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	91.22%
10/01/32	12/31/32	0.00%	0.09%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	91.31%
01/01/33	03/31/33	0.00%	0.10%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	91.41%
04/01/33	06/30/33	0.00%	0.10%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	91.50%
07/01/33	09/30/33	0.00%	0.10%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	91.61%
10/01/33	12/31/33	0.00%	0.11%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	91.72%
01/01/34	03/31/34	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	91.84%
04/01/34	06/30/34	0.00%	0.13%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	91.96%
07/01/34	09/30/34	0.00%	0.13%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	92.09%
10/01/34	12/31/34	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	92.21%
01/01/35	03/31/35	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	92.33%
04/01/35	06/30/35	0.00%	0.11%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	92.44%
07/01/35	09/30/35	0.00%	0.10%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	92.54%
10/01/35	12/31/35	0.00%	0.09%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	92.64%
01/01/36	03/31/36	0.00%	0.08%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	92.72%

TABLE C5_1: POLICYHOLDER SUPPLIED - UNDERWRITING CASH FLOW PATTERNS

TIME INTERVAL		COLLECTED PREMIUM	LOSS & LAE PAYOUT	COMMISS. & BROKER.	GENERAL EXPENSES	OTHER ACQ. EXPENSES	PREMIUM TAXES	MISC. AND OTHER TAXES	REINS. EXPENSES	PREMIUM DISCOUNT	CUMULATIVE	
FROM	TO										COLLECTED PREMIUM	LOSS & LAE PAYOUT
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
04/01/36	06/30/36	0.00%	0.07%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	92.79%
07/01/36	09/30/36	0.00%	0.07%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	92.85%
10/01/36	12/31/36	0.00%	0.07%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	92.92%
01/01/37	03/31/37	0.00%	0.07%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	92.99%
04/01/37	06/30/37	0.00%	0.07%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	93.06%
07/01/37	09/30/37	0.00%	0.08%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	93.14%
10/01/37	12/31/37	0.00%	0.09%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	93.23%
01/01/38	03/31/38	0.00%	0.10%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	93.33%
04/01/38	06/30/38	0.00%	0.11%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	93.45%
07/01/38	09/30/38	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	93.57%
10/01/38	12/31/38	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	93.69%
01/01/39	03/31/39	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	93.81%
04/01/39	06/30/39	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	93.93%
07/01/39	09/30/39	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	94.05%
10/01/39	12/31/39	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	94.18%
01/01/40	03/31/40	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	94.30%
04/01/40	06/30/40	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	94.42%
07/01/40	09/30/40	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	94.54%
10/01/40	12/31/40	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	94.66%
01/01/41	03/31/41	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	94.78%
04/01/41	06/30/41	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	94.90%
07/01/41	09/30/41	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	95.02%
10/01/41	12/31/41	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	95.15%
01/01/42	03/31/42	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	95.27%
04/01/42	06/30/42	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	95.39%
07/01/42	09/30/42	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	95.51%
10/01/42	12/31/42	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	95.63%
01/01/43	03/31/43	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	95.75%
04/01/43	06/30/43	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	95.87%
07/01/43	09/30/43	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	95.99%
10/01/43	12/31/43	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	96.12%
01/01/44	03/31/44	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	96.24%
04/01/44	06/30/44	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	96.36%
07/01/44	09/30/44	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	96.48%
10/01/44	12/31/44	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	96.60%
01/01/45	03/31/45	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	96.72%
04/01/45	06/30/45	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	96.84%
07/01/45	09/30/45	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	96.96%
10/01/45	12/31/45	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	97.09%
01/01/46	03/31/46	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	97.21%
04/01/46	06/30/46	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	97.33%
07/01/46	09/30/46	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	97.45%
10/01/46	12/31/46	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	97.57%
01/01/47	03/31/47	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	97.69%
04/01/47	06/30/47	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	97.81%
07/01/47	09/30/47	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	97.94%
10/01/47	12/31/47	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	98.06%
01/01/48	03/31/48	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	98.18%
04/01/48	06/30/48	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	98.30%
07/01/48	09/30/48	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	98.42%
10/01/48	12/31/48	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	98.54%
01/01/49	03/31/49	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	98.66%
04/01/49	06/30/49	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	98.78%
07/01/49	09/30/49	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	98.91%
10/01/49	12/31/49	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	99.03%
01/01/50	03/31/50	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	99.15%
04/01/50	06/30/50	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	99.27%
07/01/50	09/30/50	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	99.39%
10/01/50	12/31/50	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	99.51%
01/01/51	03/31/51	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	99.63%
04/01/51	06/30/51	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	99.76%
07/01/51	09/30/51	0.00%	0.11%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	99.86%
10/01/51	12/31/51	0.00%	0.08%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	99.94%
01/01/52	03/31/52	0.00%	0.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	99.99%
04/01/52	06/30/52	0.00%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
TOTAL		100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Notes:
 (3): The premium collection pattern for a single policy from Section VII-G, Exhibit 1, converted to a full policy year basis.
 (4): The loss & LAE payout pattern for a single policy from Section VII-I, Exhibit 1, converted to a full policy year basis.
 (5), (11) = (3)
 (6) = 0.5 x Table C5_2, (3) + 0.5 x Table C5_2, (4)
 (7) = 1/6 x Table C5_2, (3)_{t+1} + 5/6 x Table C5_2, (3)_t
 (8) = Table C5_2, (3)_{t-1}
 (9), (10) = Table C5_2, (3)
 (12) = (3), cumulative
 (13) = (4), cumulative

TABLE C5.2: ADDITIONAL PREMIUM AND LOSS PATTERNS

TIME INTERVAL		WRITTEN PREMIUM (3)	EARNED PREMIUM (4)	LOSS & LAE INCURRED (5)	CUMULATIVE		
FROM (1)	TO (2)				WRITTEN PREMIUM (6)	EARNED PREMIUM (7)	LOSS & LAE INCURRED (8)
07/01/15	09/30/15		0.00%	0.00%	0.00%	0.00%	0.00%
10/01/15	12/31/15		0.00%	0.00%	0.00%	0.00%	0.00%
01/01/16	03/31/16		0.00%	0.00%	0.00%	0.00%	0.00%
04/01/16	06/30/16		0.00%	0.00%	0.00%	0.00%	0.00%
07/01/16	09/30/16	23.94%	3.22%	3.22%	23.94%	3.22%	3.22%
10/01/16	12/31/16	21.21%	8.68%	8.68%	45.15%	11.90%	11.90%
01/01/17	03/31/17	29.99%	15.82%	15.82%	75.14%	27.72%	27.72%
04/01/17	06/30/17	24.86%	21.81%	21.81%	100.00%	49.53%	49.53%
07/01/17	09/30/17		21.78%	21.78%	100.00%	71.31%	71.31%
10/01/17	12/31/17		16.46%	16.46%	100.00%	87.77%	87.77%
01/01/18	03/31/18		9.18%	9.18%	100.00%	96.95%	96.95%
04/01/18	06/30/18		3.05%	3.05%	100.00%	100.00%	100.00%
07/01/18	09/30/18		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/18	12/31/18		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/19	03/31/19		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/19	06/30/19		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/19	09/30/19		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/19	12/31/19		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/20	03/31/20		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/20	06/30/20		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/20	09/30/20		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/20	12/31/20		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/21	03/31/21		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/21	06/30/21		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/21	09/30/21		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/21	12/31/21		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/22	03/31/22		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/22	06/30/22		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/22	09/30/22		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/22	12/31/22		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/23	03/31/23		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/23	06/30/23		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/23	09/30/23		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/23	12/31/23		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/24	03/31/24		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/24	06/30/24		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/24	09/30/24		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/24	12/31/24		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/25	03/31/25		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/25	06/30/25		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/25	09/30/25		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/25	12/31/25		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/26	03/31/26		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/26	06/30/26		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/26	09/30/26		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/26	12/31/26		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/27	03/31/27		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/27	06/30/27		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/27	09/30/27		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/27	12/31/27		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/28	03/31/28		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/28	06/30/28		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/28	09/30/28		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/28	12/31/28		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/29	03/31/29		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/29	06/30/29		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/29	09/30/29		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/29	12/31/29		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/30	03/31/30		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/30	06/30/30		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/30	09/30/30		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/30	12/31/30		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/31	03/31/31		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/31	06/30/31		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/31	09/30/31		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/31	12/31/31		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/32	03/31/32		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/32	06/30/32		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/32	09/30/32		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/32	12/31/32		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/33	03/31/33		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/33	06/30/33		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/33	09/30/33		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/33	12/31/33		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/34	03/31/34		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/34	06/30/34		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/34	09/30/34		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/34	12/31/34		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/35	03/31/35		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/35	06/30/35		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/35	09/30/35		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/35	12/31/35		0.00%	0.00%	100.00%	100.00%	100.00%

TABLE C5.2: ADDITIONAL PREMIUM AND LOSS PATTERNS

TIME INTERVAL		WRITTEN PREMIUM (3)	EARNED PREMIUM (4)	LOSS & LAE INCURRED (5)	CUMULATIVE		
FROM (1)	TO (2)				WRITTEN PREMIUM (6)	EARNED PREMIUM (7)	LOSS & LAE INCURRED (8)
01/01/36	03/31/36		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/36	06/30/36		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/36	09/30/36		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/36	12/31/36		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/37	03/31/37		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/37	06/30/37		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/37	09/30/37		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/37	12/31/37		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/38	03/31/38		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/38	06/30/38		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/38	09/30/38		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/38	12/31/38		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/39	03/31/39		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/39	06/30/39		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/39	09/30/39		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/39	12/31/39		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/40	03/31/40		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/40	06/30/40		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/40	09/30/40		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/40	12/31/40		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/41	03/31/41		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/41	06/30/41		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/41	09/30/41		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/41	12/31/41		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/42	03/31/42		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/42	06/30/42		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/42	09/30/42		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/42	12/31/42		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/43	03/31/43		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/43	06/30/43		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/43	09/30/43		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/43	12/31/43		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/44	03/31/44		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/44	06/30/44		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/44	09/30/44		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/44	12/31/44		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/45	03/31/45		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/45	06/30/45		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/45	09/30/45		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/45	12/31/45		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/46	03/31/46		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/46	06/30/46		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/46	09/30/46		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/46	12/31/46		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/47	03/31/47		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/47	06/30/47		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/47	09/30/47		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/47	12/31/47		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/48	03/31/48		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/48	06/30/48		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/48	09/30/48		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/48	12/31/48		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/49	03/31/49		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/49	06/30/49		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/49	09/30/49		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/49	12/31/49		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/50	03/31/50		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/50	06/30/50		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/50	09/30/50		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/50	12/31/50		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/51	03/31/51		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/51	06/30/51		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/51	09/30/51		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/51	12/31/51		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/52	03/31/52		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/52	06/30/52		0.00%	0.00%	100.00%	100.00%	100.00%
TOTAL		100.00%	100.00%	100.00%			

Notes:

- (3): Based on Unit Statistical Plan Data.
- (4): Single policy earned premium is earned uniformly through the one year policy term and then converted to a policy year basis.
- (5): We assume that the loss & LAE incurred pattern coincides with the earned premium pattern.
- (6) = (3), cumulative
- (7) = (4), cumulative
- (8) = (5), cumulative

TABLE D1: CAPITAL NEEDED FROM INVESTORS

TIME INTERVAL		UNEARNED PREMIUM RESERVES (3)	LOSS & LAE RESERVES (4)	TOTAL RESERVES (5)	RESERVES TO SURPLUS RATIO (6)	IMPLIED SURPLUS (7)	RESERVES FUNDED BY INVESTORS (8)	CAPITAL NEEDED FROM INVESTORS (9)
FROM (1)	TO (2)							
07/01/15	09/30/15	0.00	0.00	0.00	1.79	0.00	0.00	0.00
10/01/15	12/31/15	0.00	0.00	0.00	1.79	0.00	0.00	0.00
01/01/16	03/31/16	0.00	0.00	0.00	1.79	0.00	0.00	0.00
04/01/16	06/30/16	0.00	0.00	0.00	1.79	0.00	5.45	5.45
07/01/16	09/30/16	196.74	18.37	215.10	1.79	120.17	9.31	129.48
10/01/16	12/31/16	315.71	67.78	383.49	1.79	214.24	22.14	236.38
01/01/17	03/31/17	450.21	157.89	608.10	1.79	339.73	38.24	377.97
04/01/17	06/30/17	479.21	282.10	761.31	1.79	425.32	41.30	466.62
07/01/17	09/30/17	272.44	400.14	672.58	1.79	375.75	23.95	399.70
10/01/17	12/31/17	116.16	477.78	593.94	1.79	331.82	5.90	337.72
01/01/18	03/31/18	29.01	500.71	529.72	1.79	295.94	0.00	295.94
04/01/18	06/30/18	0.00	477.67	477.67	1.79	266.86	6.72	273.58
07/01/18	09/30/18	0.00	433.38	433.38	1.79	242.12	16.65	258.77
10/01/18	12/31/18	0.00	392.31	392.31	1.79	219.18	5.54	224.72
01/01/19	03/31/19	0.00	356.06	356.06	1.79	198.92	0.00	198.92
04/01/19	06/30/19	0.00	323.88	323.88	1.79	180.94	0.00	180.94
07/01/19	09/30/19	0.00	294.97	294.97	1.79	164.79	0.00	164.79
10/01/19	12/31/19	0.00	268.43	268.43	1.79	149.96	0.00	149.96
01/01/20	03/31/20	0.00	245.35	245.35	1.79	137.07	0.00	137.07
04/01/20	06/30/20	0.00	225.20	225.20	1.79	125.81	0.00	125.81
07/01/20	09/30/20	0.00	207.33	207.33	1.79	115.83	0.00	115.83
10/01/20	12/31/20	0.00	190.98	190.98	1.79	106.70	0.00	106.70
01/01/21	03/31/21	0.00	176.87	176.87	1.79	98.81	0.00	98.81
04/01/21	06/30/21	0.00	164.65	164.65	1.79	91.98	0.00	91.98
07/01/21	09/30/21	0.00	154.22	154.22	1.79	86.16	0.00	86.16
10/01/21	12/31/21	0.00	145.32	145.32	1.79	81.19	0.00	81.19
01/01/22	03/31/22	0.00	138.58	138.58	1.79	77.42	0.00	77.42
04/01/22	06/30/22	0.00	133.65	133.65	1.79	74.67	0.00	74.67
07/01/22	09/30/22	0.00	129.72	129.72	1.79	72.47	0.00	72.47
10/01/22	12/31/22	0.00	125.99	125.99	1.79	70.39	0.00	70.39
01/01/23	03/31/23	0.00	122.57	122.57	1.79	68.48	0.00	68.48
04/01/23	06/30/23	0.00	119.41	119.41	1.79	66.71	0.00	66.71
07/01/23	09/30/23	0.00	116.42	116.42	1.79	65.04	0.00	65.04
10/01/23	12/31/23	0.00	113.50	113.50	1.79	63.41	0.00	63.41
01/01/24	03/31/24	0.00	110.72	110.72	1.79	61.86	0.00	61.86
04/01/24	06/30/24	0.00	108.07	108.07	1.79	60.37	0.00	60.37
07/01/24	09/30/24	0.00	105.61	105.61	1.79	59.00	0.00	59.00
10/01/24	12/31/24	0.00	103.41	103.41	1.79	57.77	0.00	57.77
01/01/25	03/31/25	0.00	101.58	101.58	1.79	56.75	0.00	56.75
04/01/25	06/30/25	0.00	100.06	100.06	1.79	55.90	0.00	55.90
07/01/25	09/30/25	0.00	98.69	98.69	1.79	55.14	0.00	55.14
10/01/25	12/31/25	0.00	97.32	97.32	1.79	54.37	0.00	54.37
01/01/26	03/31/26	0.00	95.97	95.97	1.79	53.62	0.00	53.62
04/01/26	06/30/26	0.00	94.64	94.64	1.79	52.87	0.00	52.87
07/01/26	09/30/26	0.00	93.31	93.31	1.79	52.13	0.00	52.13
10/01/26	12/31/26	0.00	92.01	92.01	1.79	51.40	0.00	51.40
01/01/27	03/31/27	0.00	90.75	90.75	1.79	50.70	0.00	50.70
04/01/27	06/30/27	0.00	89.53	89.53	1.79	50.02	0.00	50.02
07/01/27	09/30/27	0.00	88.34	88.34	1.79	49.35	0.00	49.35
10/01/27	12/31/27	0.00	87.17	87.17	1.79	48.70	0.00	48.70
01/01/28	03/31/28	0.00	86.04	86.04	1.79	48.07	0.00	48.07
04/01/28	06/30/28	0.00	84.95	84.95	1.79	47.46	0.00	47.46
07/01/28	09/30/28	0.00	83.72	83.72	1.79	46.77	0.00	46.77
10/01/28	12/31/28	0.00	82.24	82.24	1.79	45.94	0.00	45.94
01/01/29	03/31/29	0.00	80.42	80.42	1.79	44.93	0.00	44.93
04/01/29	06/30/29	0.00	78.33	78.33	1.79	43.76	0.00	43.76
07/01/29	09/30/29	0.00	76.27	76.27	1.79	42.61	0.00	42.61
10/01/29	12/31/29	0.00	74.54	74.54	1.79	41.64	0.00	41.64
01/01/30	03/31/30	0.00	73.24	73.24	1.79	40.92	0.00	40.92
04/01/30	06/30/30	0.00	72.32	72.32	1.79	40.40	0.00	40.40
07/01/30	09/30/30	0.00	71.53	71.53	1.79	39.96	0.00	39.96
10/01/30	12/31/30	0.00	70.68	70.68	1.79	39.49	0.00	39.49
01/01/31	03/31/31	0.00	69.73	69.73	1.79	38.96	0.00	38.96
04/01/31	06/30/31	0.00	68.72	68.72	1.79	38.39	0.00	38.39
07/01/31	09/30/31	0.00	67.71	67.71	1.79	37.83	0.00	37.83
10/01/31	12/31/31	0.00	66.77	66.77	1.79	37.31	0.00	37.31
01/01/32	03/31/32	0.00	65.96	65.96	1.79	36.85	0.00	36.85
04/01/32	06/30/32	0.00	65.23	65.23	1.79	36.44	0.00	36.44
07/01/32	09/30/32	0.00	64.55	64.55	1.79	36.06	0.00	36.06
10/01/32	12/31/32	0.00	63.85	63.85	1.79	35.67	0.00	35.67
01/01/33	03/31/33	0.00	63.15	63.15	1.79	35.28	0.00	35.28
04/01/33	06/30/33	0.00	62.44	62.44	1.79	34.88	0.00	34.88
07/01/33	09/30/33	0.00	61.68	61.68	1.79	34.46	0.00	34.46
10/01/33	12/31/33	0.00	60.88	60.88	1.79	34.01	0.00	34.01
01/01/34	03/31/34	0.00	60.00	60.00	1.79	33.52	0.00	33.52
04/01/34	06/30/34	0.00	59.08	59.08	1.79	33.00	0.00	33.00
07/01/34	09/30/34	0.00	58.14	58.14	1.79	32.48	0.00	32.48
10/01/34	12/31/34	0.00	57.23	57.23	1.79	31.97	0.00	31.97
01/01/35	03/31/35	0.00	56.37	56.37	1.79	31.49	0.00	31.49
04/01/35	06/30/35	0.00	55.56	55.56	1.79	31.04	0.00	31.04
07/01/35	09/30/35	0.00	54.81	54.81	1.79	30.62	0.00	30.62
10/01/35	12/31/35	0.00	54.12	54.12	1.79	30.23	0.00	30.23

TABLE D1: CAPITAL NEEDED FROM INVESTORS

TIME INTERVAL		UNEARNED PREMIUM RESERVES (3)	LOSS & LAE RESERVES (4)	TOTAL RESERVES (5)	RESERVES TO SURPLUS RATIO (6)	IMPLIED SURPLUS (7)	RESERVES FUNDED BY INVESTORS (8)	CAPITAL NEEDED FROM INVESTORS (9)
FROM (1)	TO (2)							
01/01/36	03/31/36	0.00	53.53	53.53	1.79	29.90	0.00	29.90
04/01/36	06/30/36	0.00	53.02	53.02	1.79	29.62	0.00	29.62
07/01/36	09/30/36	0.00	52.53	52.53	1.79	29.35	0.00	29.35
10/01/36	12/31/36	0.00	52.04	52.04	1.79	29.07	0.00	29.07
01/01/37	03/31/37	0.00	51.53	51.53	1.79	28.79	0.00	28.79
04/01/37	06/30/37	0.00	51.00	51.00	1.79	28.49	0.00	28.49
07/01/37	09/30/37	0.00	50.43	50.43	1.79	28.17	0.00	28.17
10/01/37	12/31/37	0.00	49.77	49.77	1.79	27.80	0.00	27.80
01/01/38	03/31/38	0.00	49.01	49.01	1.79	27.38	0.00	27.38
04/01/38	06/30/38	0.00	48.16	48.16	1.79	26.91	0.00	26.91
07/01/38	09/30/38	0.00	47.27	47.27	1.79	26.41	0.00	26.41
10/01/38	12/31/38	0.00	46.38	46.38	1.79	25.91	0.00	25.91
01/01/39	03/31/39	0.00	45.48	45.48	1.79	25.41	0.00	25.41
04/01/39	06/30/39	0.00	44.60	44.60	1.79	24.92	0.00	24.92
07/01/39	09/30/39	0.00	43.71	43.71	1.79	24.42	0.00	24.42
10/01/39	12/31/39	0.00	42.81	42.81	1.79	23.92	0.00	23.92
01/01/40	03/31/40	0.00	41.92	41.92	1.79	23.42	0.00	23.42
04/01/40	06/30/40	0.00	41.03	41.03	1.79	22.92	0.00	22.92
07/01/40	09/30/40	0.00	40.14	40.14	1.79	22.43	0.00	22.43
10/01/40	12/31/40	0.00	39.24	39.24	1.79	21.92	0.00	21.92
01/01/41	03/31/41	0.00	38.35	38.35	1.79	21.43	0.00	21.43
04/01/41	06/30/41	0.00	37.47	37.47	1.79	20.93	0.00	20.93
07/01/41	09/30/41	0.00	36.57	36.57	1.79	20.43	0.00	20.43
10/01/41	12/31/41	0.00	35.68	35.68	1.79	19.93	0.00	19.93
01/01/42	03/31/42	0.00	34.79	34.79	1.79	19.43	0.00	19.43
04/01/42	06/30/42	0.00	33.90	33.90	1.79	18.94	0.00	18.94
07/01/42	09/30/42	0.00	33.01	33.01	1.79	18.44	0.00	18.44
10/01/42	12/31/42	0.00	32.11	32.11	1.79	17.94	0.00	17.94
01/01/43	03/31/43	0.00	31.22	31.22	1.79	17.44	0.00	17.44
04/01/43	06/30/43	0.00	30.33	30.33	1.79	16.95	0.00	16.95
07/01/43	09/30/43	0.00	29.44	29.44	1.79	16.45	0.00	16.45
10/01/43	12/31/43	0.00	28.54	28.54	1.79	15.95	0.00	15.95
01/01/44	03/31/44	0.00	27.65	27.65	1.79	15.45	0.00	15.45
04/01/44	06/30/44	0.00	26.77	26.77	1.79	14.95	0.00	14.95
07/01/44	09/30/44	0.00	25.87	25.87	1.79	14.46	0.00	14.46
10/01/44	12/31/44	0.00	24.98	24.98	1.79	13.95	0.00	13.95
01/01/45	03/31/45	0.00	24.09	24.09	1.79	13.46	0.00	13.46
04/01/45	06/30/45	0.00	23.20	23.20	1.79	12.96	0.00	12.96
07/01/45	09/30/45	0.00	22.31	22.31	1.79	12.46	0.00	12.46
10/01/45	12/31/45	0.00	21.41	21.41	1.79	11.96	0.00	11.96
01/01/46	03/31/46	0.00	20.52	20.52	1.79	11.46	0.00	11.46
04/01/46	06/30/46	0.00	19.63	19.63	1.79	10.97	0.00	10.97
07/01/46	09/30/46	0.00	18.74	18.74	1.79	10.47	0.00	10.47
10/01/46	12/31/46	0.00	17.84	17.84	1.79	9.97	0.00	9.97
01/01/47	03/31/47	0.00	16.95	16.95	1.79	9.47	0.00	9.47
04/01/47	06/30/47	0.00	16.07	16.07	1.79	8.98	0.00	8.98
07/01/47	09/30/47	0.00	15.17	15.17	1.79	8.48	0.00	8.48
10/01/47	12/31/47	0.00	14.28	14.28	1.79	7.98	0.00	7.98
01/01/48	03/31/48	0.00	13.39	13.39	1.79	7.48	0.00	7.48
04/01/48	06/30/48	0.00	12.50	12.50	1.79	6.98	0.00	6.98
07/01/48	09/30/48	0.00	11.61	11.61	1.79	6.48	0.00	6.48
10/01/48	12/31/48	0.00	10.71	10.71	1.79	5.98	0.00	5.98
01/01/49	03/31/49	0.00	9.82	9.82	1.79	5.49	0.00	5.49
04/01/49	06/30/49	0.00	8.93	8.93	1.79	4.99	0.00	4.99
07/01/49	09/30/49	0.00	8.04	8.04	1.79	4.49	0.00	4.49
10/01/49	12/31/49	0.00	7.14	7.14	1.79	3.99	0.00	3.99
01/01/50	03/31/50	0.00	6.25	6.25	1.79	3.49	0.00	3.49
04/01/50	06/30/50	0.00	5.37	5.37	1.79	3.00	0.00	3.00
07/01/50	09/30/50	0.00	4.47	4.47	1.79	2.50	0.00	2.50
10/01/50	12/31/50	0.00	3.58	3.58	1.79	2.00	0.00	2.00
01/01/51	03/31/51	0.00	2.69	2.69	1.79	1.50	0.00	1.50
04/01/51	06/30/51	0.00	1.80	1.80	1.79	1.01	0.00	1.01
07/01/51	09/30/51	0.00	1.02	1.02	1.79	0.57	0.00	0.57
10/01/51	12/31/51	0.00	0.44	0.44	1.79	0.24	0.00	0.24
01/01/52	03/31/52	0.00	0.11	0.11	1.79	0.06	0.00	0.06
04/01/52	06/30/52	0.00	0.00	0.00	1.79	0.00	0.00	0.00
TOTAL		1,859.47	12,477.00	14,336.47		8,009.39	175.22	8,184.60

Notes:

- (3) = Table A1, (1b) x [Table C5_2, (6) - Table C5_2, (7)]
- (4) = Table A1, (1a) x Table A1, (3) x [Table C5_2, (8) - Table C5_1, (13)]
- (5) = (3) + (4)
- (6) = Table A1, (13)
- (7) = (5) / (6)
- (8) = Table C3, (11)
- (9) = (7) + (8)

COST OF CAPITAL

The first step in setting an underwriting profit factor under a rate of return standard is to determine the fair and reasonable return that should be allowed for bearing the risk of underwriting workers' compensation insurance in Massachusetts. In the context of insurance ratemaking, a "fair and reasonable return" has traditionally been interpreted to mean the cost of the equity capital required to support insurance operations.¹ However, in her Decision on 2003 rates, the Commissioner endorsed the use of a weighted average cost of capital that includes the impact of debt capital at the insurance holding company level.² To narrow the debate again this year, the WCRIBMA has used a weighted average cost of capital in its derivation of the profit provision.

Calculating the weighted average cost of capital is simply a matter of separately calculating the cost of equity capital and the cost of debt capital, and then using appropriate weights to combine the two estimates.

Equity Cost of Capital

Several methods have been used to estimate the cost of equity capital for a regulated firm or industry. However, it is widely agreed that methods that rely on market data are preferred, on both a theoretical and pragmatic basis, to those that are based on accounting data. Indeed, it is market requirements that suggest use of the term "cost of

¹ Insurance operating companies typically carry no debt on their balance sheets; that is, the capital of the operating companies is all equity capital.

² See, for example, page 52: "We agree that estimates of the cost of capital should reflect debt/equity financing at the holding company level."

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capital," as the phrase refers to the cost to the firm of attracting investment funds in capital markets.

As in the past, the WCRIBMA has relied on the two most prominent market based methodologies to estimate the cost of equity capital for the WCRIBMA: the DCF (discounted cash flow) model and the traditional, single factor CAPM (capital asset pricing model). These two methods have been widely recognized as the leading approaches for estimating the cost of equity capital in the US economy, and as a result, each method has explicitly been given equal weight in the estimation process. In this filing the WCRIBMA is introducing a three-stage dividend growth model in place of the one-stage model used in prior filings. In contrast with the previous approach, in which a single growth rate persists in perpetuity, the three stage model reflects the assumption that in the long run, the insurance industry's growth rate will decline to a level consistent with the long term growth of the economy at large.

To apply the CAPM and DCF models in the context of insurance regulation, a sample of firms that investors would view as representative of the risks and required returns for property/casualty insurers was selected. In prior years, the WCRIBMA has relied on a sample of large, publicly traded property/casualty insurers that was drawn exclusively from the Value Line Investment Survey. In filings since 2010, and in this filing the WCRIBMA has expanded the sample of companies to include firms drawn from two additional data sources: those included in the property/casualty insurance industry group in the Value Line Investment Survey, Small & Mid Cap Edition and also all property and casualty companies in Standard & Poor's Compustat database with SIC codes 6300 – 6399

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and revenue in SIC codes 6331 or 6351. (Standard & Poor’s Compustat database is used by institutional money managers and analysts around the world. Compustat provides vital company, index, and industry information that supports financial models and proprietary company and industry analysis.) The resulting sample is the largest sample of publicly traded insurers which can reasonably be used to estimate the cost of capital.

Based on these data, the cost of equity capital was calculated for the full sample of 101 property/casualty insurers. This calculation provides an estimate of the fair rate of return for the average risk activity in which property/casualty insurers are engaged. Based on the average of the DCF and CAPM results, Dr. Appel determined that investors currently require a return on equity of at least 8.26% for bearing the risk of underwriting property/casualty insurance, as shown below.

DCF	7.37 %
CAPM	9.15%
Average	8.26%

Given these results, the WCRIBMA has used a cost of equity capital of 8.26% as the best estimate of the required equity return for the average risk activity in which property/casualty insurers are engaged.

Debt Cost of Capital

To conform to the 2003 Commissioner's decision, the WCRIBMA estimates the cost of debt capital for property/casualty insurers, as well as the share of debt in their capital structure. In this filing, consistent with the 2014 filing, we estimate the cost of debt capital by using current market yields (as opposed to embedded yields) for long term corporate bonds. We calculate the three month average yield of AA Industrials using the Mergent Bond Record. The result, 4.16%, is shown in Section VII-J, Exhibit 2, Page 3, line (12). In calculating the debt/equity proportion, consistent with the 2014 filing, the WCRIBMA in this filing uses the book value of capital (as opposed to market value).³ For this group of 101 insurers, the share of non-equity capital in the corporate capital structure is 20%, as shown in Section VII – E, Exhibit 4. Thus, the weighted average cost of capital is 7.44%, as shown below:

$$(20\% \times 4.16\%) + (80\% \times 8.26\%) = 7.44\%$$

Since the cost of capital is the required return for the average risk activity in which insurers are engaged, the question naturally arises as to whether workers' compensation insurance in Massachusetts is of average risk when compared to all lines of insurance. To the extent that this line of business is viewed as riskier than average, the cost of capital would be higher than average as well. There are several reasons why workers'

³ The WCRIBMA believes that market value capital weights are also appropriate for estimating a weighted average cost of capital. However, in this rate filing we adopted the method suggested by the Commissioner in the 9/1/2012 decision on rates and use book value capital weights.

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compensation might be viewed as riskier than the average activity in which property/casualty insurers are engaged. Among them are these:

1. Workers' compensation is subject to unlimited liability; there are neither per claim, per occurrence or aggregate loss limits under the policy terms. This is in contrast to the typical property/casualty insurance contract, in which all these limits may apply.
2. Workers' compensation is a "long-tailed" line of business, meaning that the payment of losses may extend for many years beyond the sale date of the policy. It is a well-known principle of statistics that the longer the time horizon of a forecast, the greater the expected error in the estimate. Thus the forecast of ultimate losses in this line is subject to greater risk than in many other lines of business.
3. Workers' compensation has a substantial exposure to medical inflation, which has been more rapid and less predictable than general inflation.
4. Workers' compensation is subject to the risk of occupational disease, which can lead to substantial and inherently unpredictable losses in the future.
5. Workers' compensation is subject to the phenomenon of "benefit utilization," which refers to the observation that as benefits become more generous, workers

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increase their utilization of the system. While the term has traditionally been applied to indemnity benefits (as benefits increase both claim frequency and duration increase) it is equally applicable to medical benefits. Since medical costs are covered with no deductibles or co-payments, workers' compensation has become an increasingly attractive alternative to health insurance for coverage of any workplace illness or injury.

While these characteristics suggest that workers' compensation is of above-average risk, such additional risk not been reflected in its estimate of the cost of capital used in deriving the underwriting profit provision, making the WCRIBMA's provision conservative.

The results of the analysis for the full sample of property/casualty insurers are contained in exhibits to this section, and a more detailed explanation of the models is contained in the accompanying appendix.

APPENDIX: COST OF CAPITAL**INTRODUCTION**

This appendix is intended to provide a more detailed description of the cost of capital methods selected by the WCRIBMA to derive the estimated cost of capital that is required to determine the underwriting profit provision in this filing.

The generally recognized standards for determining a fair rate of return for a regulated enterprise were articulated in two cases before the U.S. Supreme Court - Bluefield Waterworks and Hope Natural Gas. In Bluefield, the Court stated:

A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties

Bluefield Waterworks & Improvement Company v. Public Service Commission of West Virginia, 262 U.S. 679, 692-693 (1923). In Hope, the Court further stated:

From the investor or company point of view, it is important that there be enough revenue not only for operating expenses, but also for the capital

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costs of the business. These include service on the debt and dividends on the stock. By that standard the return to the equity owner should be commensurate with the returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital.

Federal Power Commission v. Hope Natural Gas Co., 320 U.S. 591, 603 (1944).

These decisions set forth the two basic standards of fairness under which regulated industries must operate: first, the rate of return to the equity holder should equal that which can be expected to be earned by investors in businesses of similar risk; and second, the rate of return must be sufficient to assure the continued attraction of capital. In essence these criteria, when reasonably applied, balance the interests of consumers of the regulated product or service, and investors, who provide the capital needed to operate the enterprise.

There are several methods that have been used to estimate the fair rate of return, or cost of capital, for a regulated firm or industry. However, it is widely agreed that methods that rely on market data are preferred, on both a theoretical and pragmatic basis, to those that are based on accounting data. Indeed, it is market requirements that suggest use of the term "cost of capital," as the phrase refers to the cost to the firm of attracting investment funds in capital markets. That cost, of course, is the return that the

firm must pay and investors expect to earn as a result of placing their capital at risk in the enterprise. For this reason, Dr. Appel used the two most prominent market-based methodologies to derive the cost of capital estimates for this filing. The first of these is known as the Discounted Cash Flow (DCF) model (sometimes called the Gordon growth model or the dividend valuation model), and the second is a specific form of Risk Premium Analysis known as the Capital Asset Pricing Model (CAPM).

Dr. Appel used DCF and CAPM approaches to obtain independent estimates of the cost of capital, so as not to place undue reliance on any single methodology. Moreover, he used these two models because economic and financial theory strongly support the use of market data to determine required rates of return, and these are the most prominent market-based methods currently available. Reliance on market data is critical for three reasons.

1. Such information reflects the consensus of all investors regarding the risk and required returns on different securities. Thus, the potential for the biases and perceptions of the analyst to overstate or understate the fair rate of return is minimized.
2. The alternative to market data is to use historical accounting data to estimate the cost of capital. This procedure is seriously flawed because it is not prospective and does not necessarily reflect the returns that are of ultimate concern to investors – those that can be earned in the market.

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3. The use of market-based models is consistent with the dictates of Hope, in the sense that Hope instructs us to consider investor requirements when determining the fair and reasonable rate of return. (For example, "the return to the equity owner should be commensurate with the returns on investments in other enterprises having corresponding risks.")

In effect, these market based models provide an initial estimate of the "opportunity cost" of placing capital at risk in support of workers' compensation insurance in Massachusetts. Opportunity cost is among the most basic concepts in economics. It refers to the fact that resources have a variety of potential uses, and by using a resource in a particular endeavor an investor forgoes the returns that are available in other, alternative activities. Thus, the opportunity cost of capital (otherwise termed the cost of capital) is the return available from employing that capital in its next best alternative use. This is, of course, the return that investors have forgone by using their capital in support of Massachusetts workers' compensation insurance activities.

It is entirely appropriate to begin an estimate of Massachusetts workers' compensation insurers' cost of capital by evaluating the cost of capital for comparable insurers in the U.S. economy. To the extent that these firms are viewed by investors as being of equivalent risk, they will provide a reasonable starting point for estimating the appropriate cost of capital in this case. However, it is also necessary to consider the specific characteristics of the insurance coverage at issue in this proceeding, before

determining whether the cost of capital for any sample of insurers is a reasonable estimate to be used in the present rate-setting exercise. Should Massachusetts workers' compensation insurance be viewed as differing in risk from the average line of coverage, then the cost of capital may have to be adjusted.

METHODOLOGY

The Discounted Cash Flow (DCF) model and a specific form of Risk Premium Analysis (RPA) known as the Capital Asset Pricing Model (CAPM) were used to estimate the cost of capital. These are the most widely recognized methods for estimating the cost of capital in regulatory proceedings. The DCF analysis is the leading model used by practitioners to estimate the required rate of return in regulatory rate proceedings, while RPA analysis is the leading approach used by academics, both for estimating the cost of capital and explaining capital market behavior. Each one provides a reasonable basis for estimating the cost of capital, and each should be accorded equal weight in the process.

Turning to the discounted cash flow (DCF) model first, the DCF is based upon the presumption that the cost of an investment, typically the price of a stock, must equal the present value of the cash flows from the investment. The logic of this assumption is as follows: investors are willing to pay the current price for a share of stock only if the present value of the expected cash flows emanating from that investment are equal to that price. If the present value of the cash flows were greater (less) than the current price, investors would bid the price up (down).

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The cash flows arising from the purchase of a share of stock are the dividend payments and capital gains the investor expects to receive in the future.

If the security is expected to be held in perpetuity, then the stock price can be expressed as the sum of the discounted dividends:

$$V_0 = [D_1/(1+k)] + [D_2/(1+k)^2] + [D_3/(1+k)^3] + \dots$$

where V_0 is the price of the stock, D_i is the dividend in period i , and k is the investor's implicit discount rate, or cost of capital.

In this filing, the WCRIBMA requested Dr. Appel to implement a three-stage DCF model, which assumes varying rates of dividend growth at different times in the future. The first stage is a five year period of short-term dividend growth, with the rate of growth calculated in the same manner as the dividend growth rate in prior filings. The calculation of this is shown in Section VII-E, Exhibit 2, Page 4.

The second stage, beginning in year six, is a five year period where the dividend growth rate declines (in a linear fashion) to a level consistent with the expected long term growth in the US economy. Then, starting in year 10 (stage 3), the rate of growth is assumed to be remain equal to the long-term rate of growth of the economy (based on the economy's real long-term growth potential and current inflationary expectations). The calculation of this is shown in Section VII-E, Exhibit 2, Page 2. A mathematical presentation of the three-stage dividend growth rate follows:

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$$V_0 = D_0 \sum_{t=1}^{\infty} \left(\frac{1 + g_t}{1 + k} \right)^t = D_1 \sum_{t=1}^{\infty} \frac{(1 + g_t)^{t-1}}{(1 + k)^t}$$

$$\frac{1}{\frac{D_1}{V_0}} = \sum_{t=1}^5 \frac{(1 + g_{ST})^{t-1}}{(1 + k)^t} + (1 + g_{ST})^4 \sum_{t=6}^9 \frac{\prod_{i=1}^{t-5} (1 + g_{IT_i})}{(1 + k)^t}$$

$$+ (1 + g_{ST})^4 (1 + g_{IT_1})(1 + g_{IT_2})(1 + g_{IT_3})(1 + g_{IT_4}) \sum_{t=10}^{\infty} \frac{(1 + g_{LT})^{t-9}}{(1 + k)^t}$$

$$\frac{1}{\frac{D_1}{V_0}} = \left[\frac{1}{k - g_{ST}} \left(1 - \left(\frac{1 + g_{ST}}{1 + k} \right)^5 \right) + \frac{(1 + g_{ST})^4 (1 + g_{IT_1})}{(1 + k)^6} + \frac{(1 + g_{ST})^4 (1 + g_{IT_1})(1 + g_{IT_2})}{(1 + k)^7} \right.$$

$$+ \frac{(1 + g_{ST})^4 (1 + g_{IT_1})(1 + g_{IT_2})(1 + g_{IT_3})}{(1 + k)^8}$$

$$+ \frac{(1 + g_{ST})^4 (1 + g_{IT_1})(1 + g_{IT_2})(1 + g_{IT_3})(1 + g_{IT_4})}{(1 + k)^9}$$

$$\left. + \frac{(1 + g_{ST})^4 (1 + g_{IT_1})(1 + g_{IT_2})(1 + g_{IT_3})(1 + g_{IT_4})(1 + g_{LT})}{(k - g_{LT})} \frac{1}{(1 + k)^9} \right]$$

Where:

V_0 = Present Value of a stock

D_t = Dividend Paid at the end of period t

g_t = Dividend Growth Rate at time t ,

if $t \leq 5 \rightarrow$ Short Term Stage (ST)

if $5 < t < 10 \rightarrow$ Intermediate Term Stage (IT_t)

if $t \geq 10 \rightarrow$ Long Term Stage (LT)

g_{ST} = Short – Term Dividend Growth Rate

g_{IT_t} = Intermediate – Term Dividend Growth Rate,

Linearly Interpolated between time 5 and 10

g_{LT} = Long – Term Dividend Growth Rate

k = Cost of Capital

$\frac{D_1}{V_0}$ = Dividend Payable in the coming 12 months divided by the current price

Turning to the second model used to calculate the cost of capital, the specific form of Risk Premium Analysis (RPA) known as the Capital Asset Pricing Model (CAPM), it should be noted that risk premium analysis is a technique which attempts to estimate the cost of capital by calculating the incremental return investors require to hold a particular security, as opposed to another, less risky asset. While the DCF estimates the cost of

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capital directly, by looking at expected cash flows and market prices, risk premium analysis estimates required returns by evaluating the relative risk of alternative investments. Obviously, those investments with greater risk require greater returns.

The single factor version of the Capital Asset Pricing Model (CAPM) is one specific form of risk premium analysis, which begins with the assumption that there is a risk-free asset, which is typically taken to be a U.S. Treasury security. It then estimates the relative risk of alternative securities to measure the "risk premium" investors require to hold these risky assets. In the classical application of the CAPM, the relative risk of a particular security is measured by a value known as the "beta for market risk" (otherwise known as simply beta) which is an estimate of the relative volatility of that security's returns (or price) compared with the volatility of the entire market (usually proxied by the New York Stock Exchange index or the S&P 500). The information on the beta is used in the following manner to estimate investors' required rate of return:

$$K = r_f + (\beta \times r_D)$$

where r_f is the risk-free yield, β is the beta for market risk, and r_D is the market risk premium.

As noted above, the beta coefficient is a measure of the relative volatility, or riskiness, of an investment, compared with the market average. If an individual stock has a beta of 1.5, for example, the stock has a tendency to be 50% more volatile than the

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market as a whole. This implies that if the market as a whole goes up (or down) by 10% this stock has a tendency to go up (or down) by 15%.

The market risk premium is the average difference between the returns on the market portfolio and the returns on the riskless asset. For example, over the period 1926 - 2014 a diversified portfolio of common stocks earned an annual return which averaged 8.57 percentage points higher than the return on U.S. Treasury bills. Therefore, an individual security of exactly average risk (i.e., with a beta of 1) would be expected to earn 8.57 percentage points more than a T-bill. In addition to the T-bill, however, it is also reasonable to consider alternative-term securities, and to measure the risk premium relative to them. In fact, this type of procedure is frequently recommended when the time horizon of the investment is relatively long, as is often the case with an investment in insurance.

There are at least three reasons to be concerned about the use of a beta for market risk to measure risk for present purposes. First, it is important to note that beta, as typically estimated, does not properly account for "interest rate risk" (that is, the risk that an investment will fluctuate with changes in interest rates). Since investments in property/casualty insurance stocks are subject to considerable interest rate risk, this means that the CAPM underestimates the cost of capital for the property/casualty insurance industry. Second, it is well known that small stocks tend to earn higher returns than their market betas would predict. Thus, to the extent that property casualty insurers are smaller than typical firms, the cost of capital derived using the single factor CAPM would tend to understate the required return. Finally, it is also well known that firms with

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relatively high book to market value ratios tend to produce higher returns than their betas would predict. Therefore, since property casualty insurers tend to have relatively high book to market ratios, the single factor CAPM would tend to understate required returns.

RESULTS

In estimating the cost of capital Dr. Appel relied on financial data for a sample of publicly traded property/casualty insurers, drawn from the Value Line Investment Survey and Standard & Poor's Compustat database. The Value Line Investment Survey is an independent investment advisory service that provides weekly reports on approximately 1,700 publicly traded stocks. In addition, it provides in depth quarterly reports on each of the firms it covers, which contain a wealth of historical and forecast information on each security. In terms of numbers of subscribers and annual revenues Value Line is the largest such service in the world. In addition, Value Line is the data source most widely relied upon by experts estimating the cost of capital in regulatory proceedings.

The data Dr. Appel used were drawn from Value Line's "Insurance-Property/Casualty" group of companies. This is one among nearly 100 groups that are established by Value Line so that they can report simultaneously on a set of companies, which are affected by common economic, social, and financial forces.

The Standard & Poor's Compustat ("Research Insight") program is one of the most complete and current databases of American and Canadian companies that provides annual and quarterly income statements, balance sheets, cash flows, and supplemental data items (including earnings, dividends and market prices) on most publicly held

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companies. Compustat's financial data items are collected from a wide variety of sources including: news wire services, news releases, shareholder reports, direct company contacts, and quarterly and annual documents filed with the Securities and Exchange Commission. Dr. Appel used all property and casualty companies in Standard & Poor's Compustat database with SIC codes 6300 – 6399 and revenue in SIC codes 6331 or 6351. His estimates are based on the most recent available data, from October 2015.

The DCF model requires an estimate of the current dividend yield and the expected growth rate in dividends. The sum of these is the estimated cost of capital.

To estimate the dividend yield, Dr. Appel utilized estimates for the expected first year dividend yield provided by Value Line and Compustat. If there was no information for a specific company in these two sources he checked Yahoo to see if they provided an estimate. Since the annual DCF model requires an estimate of the dividends payable during the first year of the investment, and Value Line's expected first year dividend yield is defined as the estimated dividends payable in the coming year divided by the current share price of the stock, it is precisely the correct value to use in the DCF model. However, for the companies from Compustat and the Value Line Investment Survey, Small and Mid Cap Edition, the dividend yield is defined as the current annual dividend divided by the current share price, not the coming year's dividend as is required in the model. As a consequence, for those companies, an additional adjustment has been made: to estimate the dividends payable during the first year of the investment the current annual dividends

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are multiplied by $1.0 + 0.5 \times \text{Dividend Growth Rate}$ (derived in Section VII-E Exhibit 2, Page 4)⁴.

To estimate the short-term dividend growth rate, Dr. Appel averaged the results from two different techniques, one called the “growth forecast” method, and the other termed “fundamental analysis”. The first, “growth forecast” method, relies on estimates of growth based on historical earnings and dividend data along with analysts’ forecasts of growth in these variables. The second, “fundamental analysis” relies on estimating a firm’s sustainable growth based on the rate at which it retains and reinvests earnings. For each of these approaches, Dr. Appel relied on long term (i.e., ten-year) and short term (five-year) historical information, along with Value Line analysts’ forecasts and Yahoo forecasts. When calculating the expected growth rate, Dr. Appel averaged the results based on these three data sources.

It is appropriate to assume that when evaluating future growth prospects, investors will consider all available information in forming their estimates. This suggests that historical growth in dividends and earnings per share will be of some significance in forming expectations about future growth. At the same time, analysts are an important source of information for investors, and their estimates of future growth are followed closely by the investment community.

As regards fundamental analysis, the premise is that sustainable growth in the future can arise from two sources: retained earnings and issuance of new stock at prices

⁴ Stock dividends are generally paid quarterly but increased only once a year; thus, depending on the timing, a company’s dividend may be increased in the current quarter, or up to four quarters in the future. The growth rate is multiplied by 0.5 year to account for the fact that on average, across a large sample of companies, dividends will be increased approximately one half year in the future.

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different than book value. In the first case, retained earnings can be reinvested to produce earnings, which will be used to pay higher dividends in the future. In the second case, the proceeds from the sale of stock at prices above book value can also be used for new investment, and the profits ultimately will be used to pay higher dividends in the future. Thus, the fundamental analysis computes the expected growth rate as the sum of the earnings retained as a percentage of common equity and a stock issuance adjustment factor, as follows:

$$g = (b \times r) + (s \times v)$$

where: b = retention ratio (retained earnings/profit)

r = return on equity

s = fraction of shares to be issued

v = (market/book) - 1.

The results of the DCF analysis calculating the short-term dividend growth rate for the sample of property/casualty insurers are contained in summary form in section VII-E, Exhibit 2, Page 4 of the filing, with the details of the calculations contained in Exhibit 2, Page 5.

The long-term dividend growth rate that applies in perpetuity starting in year 10 is calculated in two steps. Using data from Bureau of Economic Analysis, Dr. Appel first estimated the growth rate in real gross domestic product (real GDP) for the period 1929-2014. Second, he multiplied this by the rate of expected inflation, calculated by the spread

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between the yield on 10-year treasury notes and 10-year treasury inflation indexed securities. The resultant long-term rate of dividend growth equals 5.19% as shown in Section VII-E, Exhibit 2, Page2.

Stage 2 is applied to years 6 through 9 and is a linear interpolation between dividend growth rates in stage 1 and stage 3. Using a dividend yield of 1.96% the required rate of return (k) in this three-stage DCF model is equal to 7.37%.

The three-stage dividend growth model produces a lower cost of equity and as a result a lower indicated underwriting profit than the one-stage model used in prior filings. Had we used the one-stage dividend growth model, the DCF cost of capital would have been 1.8% higher, which would have resulted in a 1.5% higher profit provision, and a 2.0% higher rate than is indicated in this filing.

Turning now to the CAPM, the model begins with the assumption that there is a risk-free asset, which is typically taken to be a U.S. Treasury security. It then estimates the relative risk of alternative securities, measured by their “beta,” to measure the "risk premium" investors require to hold the risky assets. This information is used in the following manner to estimate investors' required rate of return:

$$K = r_f + (\beta \times r_D)$$

where r_f is the risk-free yield, β is the beta coefficient, and r_D is the market risk premium. In this case, Dr. Appel relied on an average of three CAPM estimates, where the different

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estimates arise from the choices of short-, intermediate- or long-term Treasuries as the risk-free rate.

As regards the estimate of the beta coefficient for the representative sample of 101 property/casualty insurers, the beta coefficient for this sample of companies ranges from 0.01 to 2.83, and averages 1.00 This is shown on Section VII-E, Exhibit 3, Page 2.

Dr. Appel relied on three estimates of the risk-free yield, based on the yields on one-month US Treasury bills, 5-year US Treasury notes and 20-year US Treasury bonds, the standard choices for the riskless security used in practical applications of the CAPM. In implementing this model he chose to average the yields on these securities for the period from July through September 2015. This procedure obtains a representative estimate of current interest rates, and avoids any anomalous results that might arise due to unusual interest rate volatility. During this period the yields on one-month Treasury bills averaged 0.03%, while the yields on 5- and 20-year Treasuries averaged 1.55% and 2.65% respectively.

Combining the information concerning the recent yields on U.S. Treasury securities, beta coefficients for the property/casualty insurance industry, and the historical differential between risk-free and equity investments, Dr. Appel's best estimate of investors' required return on equity is 9.15%.

To illustrate this calculation, consider the results for the short term CAPM below:

$$K = r_f + (\beta \times r_d) , \text{ or}$$

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$$8.63\% = 0.03\% + (1.00 \times 8.57\%)$$

Each of the other calculations (i.e., the intermediate and long horizon CAPM's) is performed identically. The results from these three models are averaged to produce a 9.15% CAPM cost of capital.

Based on all this information, Dr. Appel's single best estimate of the cost of equity capital for property/casualty insurance is 8.26%, which is the average of the results from the DCF and CAPM analyses. However, because traditional estimates of beta fail to account for interest rate risk, the CAPM estimates of the cost of capital will be understated.

Finally, consistent with the 2003 Commissioner's decision, the WCRIBMA estimated the share of debt and equity in insurer capital structures, and estimate the cost of debt, so as to calculate a weighted average cost of capital for use in ratemaking.⁵ The details of these calculations are contained in Section VII-E, Exhibit 4 and Section VII-J, Exhibit 2, Page 3, line (12). As these exhibits show, debt accounts for approximately 20% of insurer capital, while common equity accounts for 80% of capital.

Given the equity cost, as shown above, of 8.26%, and the debt cost of 4.16%, the weighted average cost of capital is 7.44%, as shown below:

$$(20\% \times 4.16\%) + (80\% \times 8.26\%) = 7.44\%$$

⁵ It is typical in insurance regulation to use the cost of equity capital alone as the target return in ratemaking. Since the cost of debt is lower than the cost of equity, the weighted average cost of capital will be lower than the cost of equity alone, and hence the rate indication is lower as well.

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Exhibit 1

Cost of Capital: Summary Exhibit for Property-Casualty Insurance Companies

(1) Discounted Cash Flow	7.37%
(2) Capital Asset Pricing Model	9.15%
(3) Equity Capital Cost	8.26%
(4) Debt Capital Cost	4.16%
(5) Capital Structure	
(a) Equity Capital Share	80%
(b) Debt Capital Share	20%
(6) Weighted Average Cost of Capital (WACC)	7.44%

Notes:

(1): Exhibit 2, page 1

(2): Exhibit 3, page 1

(3) = [(1) + (2)] / 2.0

(4): Section VII-J, Exhibit 2, page 3, line (12).

(5): Exhibit 4

(6) = [(3) x (5a)] + [(4) x (5b)]

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Cost of Capital Estimate Using Discounted Cash Flow (DCF) Analysis

$$V_0 = D_0 \sum_{t=1}^{\infty} \left(\frac{1 + g_t}{1 + k} \right)^t = D_1 \sum_{t=1}^{\infty} \frac{(1 + g_t)^{t-1}}{(1 + k)^t}$$

$$\frac{1}{\frac{D_1}{V_0}} = \sum_{t=1}^5 \frac{(1 + g_{ST})^{t-1}}{(1 + k)^t} + (1 + g_{ST})^4 \sum_{t=6}^9 \frac{\prod_{i=1}^{t-5} (1 + g_{IT_i})}{(1 + k)^t}$$

$$+ (1 + g_{ST})^4 (1 + g_{IT_1})(1 + g_{IT_2})(1 + g_{IT_3})(1 + g_{IT_4}) \sum_{t=10}^{\infty} \frac{(1 + g_{LT})^{t-9}}{(1 + k)^t}$$

	Time (t) (1)	Dividend Growth Rate (g) (2)	Discounted Dividends (3)
Stage 1	1	7.25%	
	2	7.25%	
	3	7.25%	
	4	7.25%	
	5	7.25%	4.65
Stage 2	6	6.84%	0.92
	7	6.43%	0.91
	8	6.01%	0.90
	9	5.60%	0.89
Stage 3	≥10	5.19%	42.87
(4) Total Discounted Dividends			51.15

(5) Dividend Yield Rate (D_1/V_0)

1.96%

(6) Cost of Capital (k)

7.37%

Notes:

(2): Stage 1 dividend growth rate is the short-term rate from Page 4.

Stage 2 dividend growth rate is a linear interpolation between dividend growth rate of stage 1 and stage 3.

Stage 3 dividend growth rate is the long-term rate from Page 2.

(3): Stage 1 = $(1.0 - [(1.0 + g_{ST}) / (1.0+k)]^5) / (k - g_{ST})$

Stage 2, Time 6 = $[(1.0 + g_{ST})^4 \times (1.0 + g_{IT_1})] / (1.0 + k)^6$

Stage 2, Time 7 = $[(1.0 + g_{ST})^4 \times (1.0 + g_{IT_1}) \times (1.0 + g_{IT_2})] / (1.0 + k)^7$

Stage 2, Time 8 = $[(1.0 + g_{ST})^4 \times (1.0 + g_{IT_1}) \times (1.0 + g_{IT_2}) \times (1.0 + g_{IT_3})] / (1.0 + k)^8$

Stage 2, Time 9 = $[(1.0 + g_{ST})^4 \times (1.0 + g_{IT_1}) \times (1.0 + g_{IT_2}) \times (1.0 + g_{IT_3}) \times (1.0 + g_{IT_4})] / (1.0 + k)^9$

Stage 3 = $[(1.0 + g_{ST})^4 \times (1.0 + g_{IT_1}) \times (1.0 + g_{IT_2}) \times (1.0 + g_{IT_3}) \times (1.0 + g_{IT_4}) \times (1.0 + g_{LT})] / [(k - g_{LT}) \times (1.0 + k)^9]$

(5): Page 5

(6): Cost of Capital is calculated using excel function so that $[1.0 / (5)] - (4) = 0$.

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 Exhibit 2
 Page 2

Discounted Cash Flow (DCF) Analysis: Long-Term Dividend Growth Rate

Years (1)	Real Gross Domestic Product (2)	Real Gross Domestic Product Percent Change (3)
1929	1,056.6	
1930	966.7	-8.51%
1931	904.8	-6.40%
1932	788.2	-12.89%
1933	778.3	-1.26%
1934	862.2	10.78%
1935	939.0	8.91%
1936	1,060.5	12.94%
1937	1,114.6	5.10%
1938	1,077.7	-3.31%
1939	1,163.6	7.97%
1940	1,266.1	8.81%
1941	1,490.3	17.71%
1942	1,771.8	18.89%
1943	2,073.7	17.04%
1944	2,239.4	7.99%
1945	2,217.8	-0.96%
1946	1,960.9	-11.58%
1947	1,939.4	-1.10%
1948	2,020.0	4.16%
1949	2,008.9	-0.55%
1950	2,184.0	8.72%
1951	2,360.0	8.06%
1952	2,456.1	4.07%
1953	2,571.4	4.69%
1954	2,556.9	-0.56%
1955	2,739.0	7.12%
1956	2,797.4	2.13%
1957	2,856.3	2.11%
1958	2,835.3	-0.74%
1959	3,031.0	6.90%
1960	3,108.7	2.56%
1961	3,188.1	2.55%
1962	3,383.1	6.12%
1963	3,530.4	4.35%
1964	3,734.0	5.77%
1965	3,976.7	6.50%
1966	4,238.9	6.59%
1967	4,355.2	2.74%
1968	4,569.0	4.91%
1969	4,712.5	3.14%
1970	4,722.0	0.20%
1971	4,877.6	3.30%
1972	5,134.3	5.26%
1973	5,424.1	5.64%
1974	5,396.0	-0.52%
1975	5,385.4	-0.20%
1976	5,675.4	5.38%
1977	5,937.0	4.61%
1978	6,267.2	5.56%
1979	6,466.2	3.18%

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Section VII - E
 Exhibit 2
 Page 2

Discounted Cash Flow (DCF) Analysis: Long-Term Dividend Growth Rate

Years (1)	Real Gross Domestic Product (2)	Real Gross Domestic Product Percent Change (3)
1980	6,450.4	-0.24%
1981	6,617.7	2.59%
1982	6,491.3	-1.91%
1983	6,792.0	4.63%
1984	7,285.0	7.26%
1985	7,593.8	4.24%
1986	7,860.5	3.51%
1987	8,132.6	3.46%
1988	8,474.5	4.20%
1989	8,786.4	3.68%
1990	8,955.0	1.92%
1991	8,948.4	-0.07%
1992	9,266.6	3.56%
1993	9,521.0	2.75%
1994	9,905.4	4.04%
1995	10,174.8	2.72%
1996	10,561.0	3.80%
1997	11,034.9	4.49%
1998	11,525.9	4.45%
1999	12,065.9	4.69%
2000	12,559.7	4.09%
2001	12,682.2	0.98%
2002	12,908.8	1.79%
2003	13,271.1	2.81%
2004	13,773.5	3.79%
2005	14,234.2	3.34%
2006	14,613.8	2.67%
2007	14,873.7	1.78%
2008	14,830.4	-0.29%
2009	14,418.7	-2.78%
2010	14,783.8	2.53%
2011	15,020.6	1.60%
2012	15,354.6	2.22%
2013	15,583.3	1.49%
2014	15,961.7	2.43%
(4) Average		3.37%
(5) Rate of Expected Inflation		1.76%
(6) Long-Term Dividend Growth Rate		5.19%

Notes:

(2): Bureau of Economic Analysis, Table 1.1.6.

(3) = $[(2)_t / (2)_{t-1}] - 1.0$

(5): Page 3

(6) = $\{ [1.0 + (4)] \times [1.0 + (5)] \} - 1.0$

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 Exhibit 2
 Page 3

Discounted Cash Flow (DCF) Analysis: Long-Term Dividend Growth Rate Rate of Expected Inflation

Time Period (1)	Market yield on U.S. Treasury Securities at 10-year Constant Maturity (2)	Inflation Indexed Market yield on U.S. Treasury Securities at 10-year Constant Maturity (3)	Rate of Expected Inflation (4) = (2) - (3)
2014-10	2.30	0.38	1.92
2014-11	2.33	0.45	1.88
2014-12	2.21	0.51	1.70
2015-01	1.88	0.27	1.61
2015-02	1.98	0.26	1.72
2015-03	2.04	0.28	1.76
2015-04	1.94	0.08	1.86
2015-05	2.20	0.33	1.87
2015-06	2.36	0.50	1.86
2015-07	2.32	0.50	1.82
2015-08	2.17	0.56	1.61
2015-09	2.17	0.65	1.52
Average			1.76%

Source: Federal Reserve Statistical Release, H.15.

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Exhibit 2
Page 4

Discounted Cash Flow (DCF) Analysis: Short-Term Dividend Growth Rate

(1) Growth Forecast { = [(a) + (b)] / 2.0 }	6.39
(a) Dividend Component	6.00
(b) Earnings Component	6.77
(2) Fundamental Analysis [= (a) + (b)]	8.12
(a) Retention to book	8.41
(b) Stock issuance factor	-0.29
(3) Short-Term Dividend Growth Rate { = [(1) + (2)] / 2.0 }	7.25

Notes:

- (1a): Page 5, average of columns (3) through (5)
- (1b): Page 5, average of columns (6) through (8)
- (2a): Page 5, average of columns (9) through (11)
- (2b): Page 5, column (15)

Discounted Cash Flow (DCF) Analysis: Parameter Estimation

Property/Casualty Insurance Companies (1)	Dividend Yield (2)	Average Dividend Growth Rate			Average Earnings Growth Rate			Average Earnings Retention Rates as a Percent of Common Equity			Stock Issuance Adjustment Factor			
		Annual Rate of Change			Annual Rate of Change			as a Percent of Common Equity			2015	2018 - 2020	2018 - 2020	Stock Issuance
		Past 10 Years (3)	Past 5 Years (4)	Forecast (5)	Past 10 Years (6)	Past 5 Years (7)	Forecast (8)	Past 10 Years (9)	Past 5 Years (10)	Forecast (11)	Shares (12)	Shares (13)	Market/ Book (14)	Adjustment Factor (15)
1347 PROPERTY INS HLDGS INC	Nil	NA	NA	NA	NA	NA	NA	7.31	7.31	NA	NA	NA	NA	NA
ACE LTD	2.70	11.50	14.50	7.00	11.00	2.50	9.60	10.55	7.82	9.50	315.00	315.00	1.14	0.00
ACMAT CORP -CL A	Nil	NA	NA	NA	-2.36	14.26	NA	5.98	2.88	NA	NA	NA	NA	NA
AFFIRMATIVE INS HOLDINGS INC	Nil	NA	NA	NA	NA	NA	NA	4.15	0.00	NA	NA	NA	NA	NA
ALLEGHANY CORP	Nil	NA	NA	NIL	NA	16.00	8.50	7.14	7.24	6.50	16.00	16.00	0.94	0.00
ALLIANZ SE -ADR	5.11	-2.73	0.72	NA	18.83	-1.32	7.40	7.10	5.27	NA	NA	NA	NA	NA
ALLIED WORLD ASSURANCE CO AG	2.70	NA	22.00	NA	22.10	12.00	-7.50	13.29	11.42	NA	NA	NA	NA	NA
ALLSTATE CORP	2.10	0.50	-6.50	6.00	3.50	3.50	NA	7.72	4.84	10.00	395.00	375.00	1.40	-0.52
AMBAC FINANCIAL GROUP INC	Nil	NA	NA	NA	19.02	NA	11.00	NA	NA	NA	NA	NA	NA	NA
AMERICAN FINANCIAL GROUP INC	1.80	9.50	11.50	10.50	10.00	1.00	8.00	9.14	6.42	7.00	87.00	86.00	1.06	-0.02
AMERICAN INTERNATIONAL GROUP	2.05	NA	NA	NA	-22.00	NA	10.51	10.53	11.41	NA	NA	NA	NA	NA
AMERICAN NATIONAL INSURANCE	3.41	0.40	0.07	NA	4.36	53.22	NA	3.74	3.13	NA	NA	NA	NA	NA
AMERICAN OVERSEAS GROUP LTD	Nil	NA	NA	NA	-10.20	NA	13.00	22.32	26.17	NA	NA	NA	NA	NA
AMERISAFE INC	1.35	NA	NA	NA	18.50	-0.50	10.00	12.07	7.90	NA	NA	NA	NA	NA
AMTRUST FINANCIAL SERVICES	1.77	NA	31.00	NA	NA	25.00	13.50	16.26	15.22	NA	NA	NA	NA	NA
ARCH CAPITAL GROUP LTD	Nil	NA	NA	NIL	7.00	8.00	-4.90	14.08	12.10	9.50	124.00	124.00	1.08	0.00
ARGO GROUP INTL HOLDINGS LTD	1.56	NA	NA	NA	13.91	11.00	11.00	4.64	3.13	NA	NA	NA	NA	NA
ASPEN INSURANCE HOLDINGS LTD	1.88	6.29	3.62	NA	17.27	1.18	-2.48	8.62	7.15	NA	NA	NA	NA	NA
ASSURANT INC	1.58	15.40	12.22	NA	-6.36	7.57	8.25	9.98	7.61	NA	NA	NA	NA	NA
ASSURED GUARANTY LTD	2.00	17.97	18.20	NA	5.91	NA	3.00	9.50	12.16	NA	NA	NA	NA	NA
ATLANTIC AMERICAN CORP	0.51	NA	NA	NA	4.84	24.87	NA	5.43	4.04	NA	NA	NA	NA	NA
ATLAS FINANCIAL HOLDINGS INC	Nil	NA	NA	NA	NA	NA	NA	10.19	10.19	NA	NA	NA	NA	NA
AVIVA PLC -ADR	4.30	NA	NA	NA	NA	1.04	NA	10.99	12.75	NA	NA	NA	NA	NA
AXA -ADR	4.59	7.75	-7.75	NA	8.43	1.42	8.20	5.14	4.21	NA	NA	NA	NA	NA
AXIS CAPITAL HOLDINGS LTD	2.25	10.57	6.60	NA	7.56	7.96	-2.61	10.79	11.20	NA	NA	NA	NA	NA
BALDWIN & LYONS -CL B	4.47	-0.07	-5.50	NA	2.50	1.50	8.00	6.44	4.20	NA	NA	NA	NA	NA
BERKLEY (W R) CORP	0.90	12.50	11.50	7.50	7.50	1.00	1.39	12.23	7.72	9.00	122.00	120.00	1.30	-0.12
BERKSHIRE HATHAWAY	Nil	NA	NA	NIL	24.00	25.00	NA	NA	NA	NA	2450.00	2450.00	1.60	0.00
BLUE CAP REINSURANCE	7.25	NA	NA	NA	NA	NA	NA	3.99	3.99	NA	NA	NA	NA	NA
CHUBB CORP	1.90	9.00	6.50	5.50	13.00	3.00	5.20	9.60	7.02	7.50	225.00	215.00	1.35	-0.40
CINCINNATI FINANCIAL CORP	3.60	6.50	2.00	5.00	1.50	3.00	-3.29	3.51	2.13	4.00	164.00	164.00	1.36	0.00
CITIZENS INC	Nil	NA	NA	NA	-16.40	-24.80	NA	5.34	3.44	NA	NA	NA	NA	NA
CNA FINANCIAL CORP	2.90	NA	24.00	9.00	NA	NA	2.84	5.87	4.18	6.00	270.00	270.00	1.10	0.00
CONIFER HOLDINGS INC	Nil	NA	NA	NA	NA	NA	20.00	1.64	1.64	NA	NA	NA	NA	NA
DONEGAL GROUP INC	2.29	8.47	5.00	NA	-1.61	-6.00	10.00	5.13	1.80	NA	NA	NA	NA	NA
EMC INSURANCE GROUP INC	3.05	3.79	4.15	NA	7.07	5.87	5.00	8.82	5.83	NA	NA	NA	NA	NA
EMPLOYERS HOLDINGS INC	1.14	NA	2.00	NA	0.64	6.50	10.00	16.01	12.84	NA	NA	NA	NA	NA
ENDURANCE SPECIALTY HOLDINGS	2.39	6.82	5.28	NA	4.08	-0.89	9.00	10.35	7.29	NA	NA	NA	NA	NA
ENSTAR GROUP LTD	Nil	NA	NA	NA	13.96	14.63	10.00	15.32	12.28	NA	NA	NA	NA	NA
ERIE INDEMNITY CO -CL A	3.40	11.50	6.00	4.50	1.00	3.50	10.00	7.35	6.32	14.50	46.00	45.00	4.20	-1.75
ESSENT GROUP LTD	Nil	NA	NA	NA	NA	NA	39.82	9.16	9.16	NA	NA	NA	NA	NA
EVEREST RE GROUP LTD	2.28	21.07	4.88	NA	12.34	20.79	1.33	12.73	12.37	NA	NA	NA	NA	NA
FAIRFAX FINANCIAL HOLDINGS	2.28	23.82	13.75	NA	11.90	-18.60	0.60	13.24	7.60	NA	NA	NA	NA	NA
FEDERATED NATIONAL HLDG CO	0.69	NA	NA	NA	30.76	36.47	20.00	15.49	11.78	NA	NA	NA	NA	NA
FIRST ACCEPTANCE CORP	Nil	NA	NA	NA	NA	NA	NA	12.94	14.05	NA	NA	NA	NA	NA
FIRST AMERICAN FINANCIAL CP	2.66	NA	NA	NA	NA	43.35	11.30	5.40	6.09	NA	NA	NA	NA	NA
GENWORTH FINANCIAL INC	Nil	NA	NA	NA	NA	NA	5.00	4.65	1.90	NA	NA	NA	NA	NA
GLOBAL INDEMNITY PLC	Nil	NA	NA	NA	NA	13.00	10.00	8.61	5.90	NA	NA	NA	NA	NA
GREENLIGHT CAPITAL RE LTD	Nil	NA	NA	NA	NA	21.56	10.00	12.26	8.98	NA	NA	NA	NA	NA
HALLMARK FINANCIAL SERVICES	Nil	NA	NA	NA	-4.20	-16.00	15.00	6.53	2.10	NA	NA	NA	NA	NA
HANOVER INSURANCE GROUP INC	2.10	NA	20.00	9.00	NA	-0.50	-1.10	6.73	4.30	7.00	45.00	45.00	1.04	0.00
HARTFORD FINANCIAL SERVICES	1.91	-7.13	-17.70	NA	-11.00	NA	7.00	8.20	4.16	NA	NA	NA	NA	NA
HCC INSURANCE HOLDINGS INC	1.50	16.00	12.50	9.00	11.50	6.00	7.00	9.66	7.72	8.00	95.00	85.00	1.21	-0.58
HCI GROUP INC	3.22	NA	NA	NA	NA	21.00	25.00	18.87	14.86	NA	NA	NA	NA	NA
HERITAGE INSURANCE HOLDINGS	Nil	NA	NA	NA	NA	NA	NA	30.62	30.62	NA	NA	NA	NA	NA
HORACE MANN EDUCATORS CORP	3.13	5.97	17.03	NA	14.52	14.16	12.67	7.93	6.16	NA	NA	NA	NA	NA
INFINITY PROPERTY & CAS CORP	2.29	21.02	22.50	NA	0.09	-1.00	9.00	7.91	5.40	NA	NA	NA	NA	NA
JAMES RIVER GROUP HLDGS LTD	2.47	NA	NA	NA	NA	NA	NA	8.44	5.35	NA	NA	NA	NA	NA
KEMPER CORP/DE	2.82	-5.33	-9.60	NA	3.58	8.61	10.00	4.81	4.08	NA	NA	NA	NA	NA
KINGSTONE COS INC	2.41	NA	NA	NA	1.78	-1.48	NA	12.76	7.54	NA	NA	NA	NA	NA
KINGSWAY FINANCIAL SVCS INC	Nil	NA	NA	NA	NA	-27.90	10.00	14.51	0.00	NA	NA	NA	NA	NA
LOEWS CORP	0.72	2.26	0.00	NA	10.71	3.70	7.28	8.59	3.81	NA	NA	NA	NA	NA

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Discounted Cash Flow (DCF) Analysis: Parameter Estimation

Property/Casualty Insurance Companies (1)	Dividend Yield (2)	Average Dividend Growth Rate			Average Earnings Growth Rate			Average Earnings Retention Rates Retained Earnings as a Percent of Common Equity			Stock Issuance Adjustment Factor			
		Annual Rate of Change			Annual Rate of Change			Annual Rate of Change			2015	2018 - 2020	2018 - 2020	Stock Issuance
		Past 10 Years (3)	Past 5 Years (4)	Forecast (5)	Past 10 Years (6)	Past 5 Years (7)	Forecast (8)	Past 10 Years (9)	Past 5 Years (10)	Forecast (11)	Shares (12)	Shares (13)	Market/ Book (14)	Adjustment Factor (15)
MAIDEN HOLDINGS LTD	3.90	NA	14.95	NA	NA	7.15	12.00	4.60	4.62	NA	NA	NA	NA	NA
MARKEL CORP	Nil	NA	NA	NIL	8.00	-5.50	10.00	8.39	5.62	5.50	14.00	14.00	1.29	0.00
MBIA INC	Nil	NA	NA	NA	-3.86	NA	10.00	14.88	15.70	NA	NA	NA	NA	NA
MERCURY GENERAL CORP	5.00	6.50	2.00	3.50	-4.50	-7.00	7.60	4.33	1.10	3.50	55.00	55.00	1.50	0.00
METLIFE INC	3.31	13.07	6.73	NA	1.97	5.98	7.24	8.55	4.92	NA	NA	NA	NA	NA
MGIC INVESTMENT CORP/WI	Nil	NA	NA	NA	NA	-35.10	19.08	16.45	24.30	NA	NA	NA	NA	NA
NATIONAL GENERAL HOLDINGS CP	0.43	NA	NA	NA	NA	NA	15.00	9.39	9.39	NA	NA	NA	NA	NA
NATIONAL INTERSTATE CORP	1.98	NA	13.00	NA	-0.15	-9.50	13.00	11.81	8.42	NA	NA	NA	NA	NA
NATIONAL SEC GROUP INC	1.09	-14.00	-25.70	NA	-2.25	11.65	NA	9.41	12.45	NA	NA	NA	NA	NA
NAVIGATORS GROUP INC	Nil	NA	NA	NA	10.97	4.50	10.00	7.74	5.88	NA	NA	NA	NA	NA
NMI HOLDINGS INC	Nil	NA	NA	NA	NA	NA	NA	0.00	0.00	NA	NA	NA	NA	NA
OLD REPUBLIC INTL CORP	4.90	7.00	2.00	1.00	-11.00	NA	10.00	5.87	0.00	5.50	261.00	261.00	0.95	0.00
ONEBEACON INSURANCE GROUP	6.24	NA	-11.00	NA	NA	8.00	47.80	5.99	1.28	NA	NA	NA	NA	NA
OXBRIDGE RE HOLDINGS LTD	8.35	NA	NA	NA	NA	NA	NA	6.24	6.24	NA	NA	NA	NA	NA
PARTNERRE LTD	2.10	7.60	7.25	NA	8.85	5.70	0.59	12.88	10.44	NA	NA	NA	NA	NA
PROASSURANCE CORP	2.70	NA	NA	NA	19.90	8.50	5.00	11.93	11.70	NA	NA	NA	NA	NA
PROGRESSIVE CORP-OHIO	2.40	31.50	31.00	10.00	1.50	8.50	7.59	15.81	10.76	14.00	585.00	570.00	2.35	-0.87
RADIAN GROUP INC	0.07	-18.80	-26.00	NA	-24.30	NA	-4.78	24.84	35.56	NA	NA	NA	NA	NA
RENAISSANCE HOLDINGS LTD	1.17	5.72	4.01	NA	9.41	12.82	5.59	19.61	16.65	NA	NA	NA	NA	NA
RLI CORP	1.50	12.50	6.50	4.00	8.00	-2.50	9.80	11.32	9.70	8.50	43.00	35.00	1.45	-2.26
SAFETY INSURANCE GROUP INC	5.72	19.93	10.00	NA	6.65	-2.50	15.00	9.63	3.83	NA	NA	NA	NA	NA
SCOR SE -ADR	9.74	-22.90	7.04	NA	NA	2.54	NA	6.45	5.03	NA	NA	NA	NA	NA
SELECTIVE INS GROUP INC	1.90	5.00	0.50	2.50	2.00	-2.50	7.40	6.00	1.83	6.50	57.00	57.00	1.20	0.00
STATE AUTO FINANCIAL CORP	1.87	11.49	-4.50	NA	-1.77	13.50	8.00	9.65	0.10	NA	NA	NA	NA	NA
STATE NATIONAL COS INC	2.67	NA	NA	NA	NA	NA	NA	3.15	3.15	NA	NA	NA	NA	NA
SWISS RE LTD -ADR	9.22	NA	NA	NA	11.40	29.49	NA	6.23	5.53	NA	NA	NA	NA	NA
SYMETRA FINANCIAL CORP	1.45	NA	NA	NA	NA	14.20	4.10	5.99	5.06	NA	NA	NA	NA	NA
THIRD POINT REINSURANCE LTD	Nil	NA	NA	NA	NA	NA	15.00	10.41	10.41	NA	NA	NA	NA	NA
TRAVELERS COS INC	2.50	6.00	10.50	6.00	16.50	7.50	4.58	8.39	5.80	7.50	310.00	300.00	1.35	-0.29
TRIPLE-S MANAGEMENT CORP	Nil	NA	NA	NA	NA	5.05	7.85	9.41	8.25	NA	NA	NA	NA	NA
UNICO AMERICAN CORP	Nil	NA	NA	NA	0.16	-25.00	NA	8.18	4.33	NA	NA	NA	NA	NA
UNITED FIRE GROUP INC	2.81	5.92	5.00	NA	NA	NA	10.00	7.00	3.73	NA	NA	NA	NA	NA
UNITED INSURANCE HOLDINGS CO	1.58	NA	5.43	NA	NA	-9.18	20.00	20.88	14.82	NA	NA	NA	NA	NA
UNIVERSAL INSURANCE HLDGS	2.08	NA	-2.00	NA	43.00	8.00	NA	27.97	9.42	NA	NA	NA	NA	NA
VALIDUS HOLDINGS LTD	2.95	NA	21.47	NA	NA	-1.66	3.55	12.46	7.68	NA	NA	NA	NA	NA
VOYA FINANCIAL INC	0.11	NA	NA	NA	NA	NA	12.35	7.37	7.37	NA	NA	NA	NA	NA
WHITE MTNS INS GROUP LTD	0.10	0.00	-25.00	NA	10.97	33.00	-7.70	6.43	4.82	NA	NA	NA	NA	NA
WMIH CORP	Nil	NA	NA	NA	NA	NA	NA	2.00	2.00	NA	NA	NA	NA	NA
XL GROUP PLC	2.20	-12.00	-11.00	10.50	-3.50	-10.00	1.37	9.29	5.60	6.50	305.00	275.00	0.73	0.69
Average	1.96	6.46	5.05	6.50	5.82	5.67	8.82	9.75	7.67	7.80	284.95	279.86	1.41	-0.29

Notes:

Sources: Value Line Investment Survey (VLIS), Part 3, The Ratings & Reports, September 11, 2015
 Value Line Investment Survey, Part 2, Small and Mid Cap Edition, September 4, 2015
 Compustat Database (Version as of September 30, 2015)
<http://finance.yahoo.com> (data available on October 27, 2015)

All companies with Nil values pay no dividends.

(2): The dividend yields needed for the DCF Analysis relate dividends at time 1, D₁, to stock prices at time 0, P₀. Dividend yields from Compustat and VLIS, Small and Mid Cap Edition, must be adjusted because they are derived from the ratio of dividends at time 0, D₀, to stock price at time zero, P₀. D₁ is estimated from D₀ as follows:

$$D_1 = D_0 \times [1.0 + (0.5 \times \text{Dividend Growth Rate})] \quad \text{where Dividend Growth Rate} = 7.25\% \text{ from Page 4.}$$

(12), (13): in millions.

(15) = $[(14) - 1.0] \times \{ [(13) / (12)]^t - 1.0 \} \times 100$, where t is 0.25 for the years between midyear 2015 and midyear 2019.

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Cost of Capital Estimate Using Capital Asset Pricing Model Analysis

$$\text{Cost of Capital: } K = r_f + (\beta \times r_d)$$

Time Horizon (1)	Risk-Free Yield (r_f) (2)	Market Risk Premium (r_d) (3)	Beta Coefficient (β) (4)	Estimated Cost of Capital (K) (5)
Short-Term	0.03	8.57	1.00	8.63
Intermediate-Term	1.55	7.57	1.00	9.15
Long-Term	2.65	7.00	1.00	9.67
Average	1.41	7.71	1.00	9.15

Notes:

(2): Section VII-J, Exhibit 2, page 3

Short-Term = average yield on 1-month U.S. Treasury Constant Maturities (line (2))

Intermediate-Term = average yield on 5-year U.S. Treasury (line (7))

Long-Term = average yield on 20-year U.S. Treasury (line (10))

(3): Section VII-J, Exhibit 4

Short-Term = S&P 500 total returns minus U.S. Treasury Bill total returns

Intermediate-Term = S&P 500 total returns minus Intermediate-Term Government Bonds income returns

Long-Term = S&P 500 total returns minus Long-Term Government Bonds income returns

(4): Average Beta Coefficient (Page 2).

(5) = (2) + [(4) x (3)]

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Capital Asset Pricing Model - Beta Coefficient

<u>Property/Casualty Insurance Companies</u>	<u>Beta Coefficients</u>
1347 PROPERTY INS HLDGS INC	0.92
ACE LTD	0.90
ACMAT CORP -CL A	0.49
AFFIRMATIVE INS HOLDINGS INC	0.90
ALLEGHANY CORP	0.75
ALLIANZ SE -ADR	1.51
ALLIED WORLD ASSURANCE CO AG	0.70
ALLSTATE CORP	0.90
AMBAC FINANCIAL GROUP INC	2.83
AMERICAN FINANCIAL GROUP INC	0.90
AMERICAN INTERNATIONAL GROUP	1.40
AMERICAN NATIONAL INSURANCE	0.98
AMERICAN OVERSEAS GROUP LTD	1.30
AMERISAFE INC	0.85
AMTRUST FINANCIAL SERVICES	0.85
ARCH CAPITAL GROUP LTD	0.65
ARGO GROUP INTL HOLDINGS LTD	0.80
ASPEN INSURANCE HOLDINGS LTD	0.82
ASSURANT INC	0.88
ASSURED GUARANTY LTD	1.68
ATLANTIC AMERICAN CORP	0.61
ATLAS FINANCIAL HOLDINGS INC	1.40
AVIVA PLC -ADR	1.38
AXA -ADR	1.70
AXIS CAPITAL HOLDINGS LTD	0.97
BALDWIN & LYONS -CL B	0.60
BERKLEY (W R) CORP	0.75
BERKSHIRE HATHAWAY	0.75
BLUE CAP REINSURANCE	NA
CHUBB CORP	0.80
CINCINNATI FINANCIAL CORP	0.90
CITIZENS INC	1.05
CNA FINANCIAL CORP	1.00
CONIFER HOLDINGS INC	NA
DONEGAL GROUP INC	0.50
EMC INSURANCE GROUP INC	0.68
EMPLOYERS HOLDINGS INC	1.00
ENDURANCE SPECIALTY HOLDINGS	0.94
ENSTAR GROUP LTD	0.81
ERIE INDEMNITY CO -CL A	0.75
ESSENT GROUP LTD	NA
EVEREST RE GROUP LTD	0.77
FAIRFAX FINANCIAL HOLDINGS	0.66

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Capital Asset Pricing Model - Beta Coefficient

<u>Property/Casualty Insurance Companies</u>	<u>Beta Coefficients</u>
FEDERATED NATIONAL HLDG CO	1.14
FIRST ACCEPTANCE CORP	0.86
FIRST AMERICAN FINANCIAL CP	0.90
GENWORTH FINANCIAL INC	1.86
GLOBAL INDEMNITY PLC	0.75
GREENLIGHT CAPITAL RE LTD	0.96
HALLMARK FINANCIAL SERVICES	0.80
HANOVER INSURANCE GROUP INC	0.90
HARTFORD FINANCIAL SERVICES	1.62
HCC INSURANCE HOLDINGS INC	0.90
HCI GROUP INC	0.90
HERITAGE INSURANCE HOLDINGS	NA
HORACE MANN EDUCATORS CORP	1.34
INFINITY PROPERTY & CAS CORP	0.80
JAMES RIVER GROUP HLDGS LTD	NA
KEMPER CORP/DE	1.00
KINGSTONE COS INC	0.01
KINGSWAY FINANCIAL SVCS INC	1.02
LOEWS CORP	1.04
MAIDEN HOLDINGS LTD	0.90
MARKEL CORP	0.70
MBIA INC	1.60
MERCURY GENERAL CORP	0.70
METLIFE INC	1.74
MGIC INVESTMENT CORP/WI	2.51
NATIONAL GENERAL HOLDINGS CP	1.40
NATIONAL INTERSTATE CORP	0.80
NATIONAL SEC GROUP INC	0.35
NAVIGATORS GROUP INC	0.80
NMI HOLDINGS INC	NA
OLD REPUBLIC INTL CORP	1.05
ONEBEACON INSURANCE GROUP	0.70
OXBRIDGE RE HOLDINGS LTD	NA
PARTNERRE LTD	0.95
PROASSURANCE CORP	0.70
PROGRESSIVE CORP-OHIO	0.85
RADIAN GROUP INC	1.86
RENAISSANCERE HOLDINGS LTD	0.73
RLI CORP	0.85
SAFETY INSURANCE GROUP INC	0.75
SCOR SE -ADR	1.17
SELECTIVE INS GROUP INC	0.95
STATE AUTO FINANCIAL CORP	0.95

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Capital Asset Pricing Model - Beta Coefficient

<u>Property/Casualty Insurance Companies</u>	<u>Beta Coefficients</u>
STATE NATIONAL COS INC	NA
SWISS RE LTD -ADR	1.18
SYMETRA FINANCIAL CORP	1.12
THIRD POINT REINSURANCE LTD	1.22
TRAVELERS COS INC	0.80
TRIPLE-S MANAGEMENT CORP	0.98
UNICO AMERICAN CORP	0.40
UNITED FIRE GROUP INC	0.90
UNITED INSURANCE HOLDINGS CO	0.94
UNIVERSAL INSURANCE HLDGS	1.10
VALIDUS HOLDINGS LTD	0.83
VOYA FINANCIAL INC	1.51
WHITE MTNS INS GROUP LTD	0.60
WMIH CORP	1.90
XL GROUP PLC	1.00
Average	1.00

Sources: Value Line Investment Survey (VLIS), Part 3, The Ratings & Reports, September 11, 2015
Value Line Investment Survey, Part 2, Small and Mid Cap Edition, September 4, 2015
Compustat Database (Version as of September 30, 2015)
If no information for a specific company in the above sources, use Yahoo.

Capital Structure Ratios of Property-Casualty Insurance Companies

Property/Casualty Insurance Companies (1)	Total Debt \$ in millions (2)	Preferred Stock \$ in millions (3)	Total Debt Capital =(2) + (3) (4)	Common Equity \$ in millions (5)	Equity Capital Share (6)	Debt Capital Share (7)
1347 PROPERTY INS HLDGS INC	0.0	0.0	0.0	49.9	1.00	0.00
ACE LTD	6,218.0	0.0	6,218.0	29,587.0	0.83	0.17
ACMAT CORP -CL A	8.1	0.0	8.1	32.5	0.80	0.20
AFFIRMATIVE INS HOLDINGS INC	126.7	0.0	126.7	-134.4	NA	NA
ALLEGHANY CORP	1,767.1	0.0	1,767.1	7,473.4	0.81	0.19
ALLIANZ SE -ADR	26,029.3	0.0	26,029.3	73,509.9	0.74	0.26
ALLIED WORLD ASSURANCE CO AG	818.0	0.0	818.0	3,778.3	0.82	0.18
ALLSTATE CORP	5,205.0	0.0	5,205.0	22,304.0	0.81	0.19
AMBAC FINANCIAL GROUP INC	14,013.3	0.0	14,013.3	1,399.1	0.09	0.91
AMERICAN FINANCIAL GROUP INC	1,501.0	0.0	1,501.0	4,879.0	0.76	0.24
AMERICAN INTERNATIONAL GROUP	31,217.0	0.0	31,217.0	106,898.0	0.77	0.23
AMERICAN NATIONAL INSURANCE	108.2	0.0	108.2	4,432.1	0.98	0.02
AMERICAN OVERSEAS GROUP LTD	70.3	0.0	70.3	52.3	0.43	0.57
AMERISAFE INC	0.1	0.0	0.1	447.0	1.00	0.00
AMTRUST FINANCIAL SERVICES	938.9	300.0	1,238.9	1,737.0	0.58	0.42
ARCH CAPITAL GROUP LTD	900.0	325.0	1,225.0	5,805.1	0.83	0.17
ARGO GROUP INTL HOLDINGS LTD	378.5	0.0	378.5	1,646.7	0.81	0.19
ASPEN INSURANCE HOLDINGS LTD	687.7	0.0	687.7	3,418.8	0.83	0.17
ASSURANT INC	1,171.1	0.0	1,171.1	5,181.3	0.82	0.18
ASSURED GUARANTY LTD	1,303.0	0.0	1,303.0	5,758.0	0.82	0.18
ATLANTIC AMERICAN CORP	33.7	0.1	33.8	104.1	0.76	0.24
ATLAS FINANCIAL HOLDINGS INC	0.0	2.0	2.0	107.4	0.98	0.02
AVIVA PLC -ADR	13,739.8	311.6	14,051.4	15,606.0	0.53	0.47
AXA -ADR	12,978.3	0.0	12,978.3	78,921.5	0.86	0.14
AXIS CAPITAL HOLDINGS LTD	990.8	627.8	1,618.6	5,193.3	0.76	0.24
BALDWIN & LYONS -CL B	20.0	0.0	20.0	399.5	0.95	0.05
BERKLEY (W R) CORP	2,561.7	0.0	2,561.7	4,589.9	0.64	0.36
BERKSHIRE HATHAWAY	80,209.0	0.0	80,209.0	240,170.0	0.75	0.25
BLUE CAP REINSURANCE	8.0	0.0	8.0	180.5	0.96	0.04
CHUBB CORP	3,300.0	0.0	3,300.0	16,296.0	0.83	0.17
CINCINNATI FINANCIAL CORP	876.0	0.0	876.0	6,573.0	0.88	0.12
CITIZENS INC	0.0	0.0	0.0	258.4	1.00	0.00
CNA FINANCIAL CORP	2,559.0	0.0	2,559.0	12,794.0	0.83	0.17
CONIFER HOLDINGS INC	27.6	6.1	33.7	44.2	0.57	0.43
DONEGAL GROUP INC	58.5	0.0	58.5	416.1	0.88	0.12
EMC INSURANCE GROUP INC	25.0	0.0	25.0	502.9	0.95	0.05
EMPLOYERS HOLDINGS INC	92.0	0.0	92.0	686.8	0.88	0.12
ENDURANCE SPECIALTY HOLDINGS	527.7	17.2	544.9	3,168.0	0.85	0.15
ENSTAR GROUP LTD	319.6	0.0	319.6	2,304.9	0.88	0.12

VII 000092

Capital Structure Ratios of Property-Casualty Insurance Companies

Property/Casualty Insurance Companies (1)	Total Debt \$ in millions (2)	Preferred Stock \$ in millions (3)	Total Debt Capital =(2) + (3) (4)	Common Equity \$ in millions (5)	Equity Capital Share (6)	Debt Capital Share (7)
ERIE INDEMNITY CO -CL A	0.0	0.0	0.0	703.0	1.00	0.00
ESSENT GROUP LTD	0.0	0.0	0.0	955.7	1.00	0.00
EVEREST RE GROUP LTD	638.4	0.0	638.4	7,451.1	0.92	0.08
FAIRFAX FINANCIAL HOLDINGS	3,179.0	1,164.7	4,343.7	8,361.0	0.66	0.34
FEDERATED NATIONAL HLDG CO	0.0	0.0	0.0	192.6	1.00	0.00
FIRST ACCEPTANCE CORP	40.3	0.0	40.3	107.0	0.73	0.27
FIRST AMERICAN FINANCIAL CP	587.3	0.0	587.3	2,572.9	0.81	0.19
GENWORTH FINANCIAL INC	6,854.0	0.0	6,854.0	14,923.0	0.69	0.31
GLOBAL INDEMNITY PLC	174.7	0.0	174.7	908.3	0.84	0.16
GREENLIGHT CAPITAL RE LTD	0.0	0.0	0.0	1,165.2	1.00	0.00
HALLMARK FINANCIAL SERVICES	56.7	0.0	56.7	252.0	0.82	0.18
HANOVER INSURANCE GROUP INC	903.5	0.0	903.5	2,844.0	0.76	0.24
HARTFORD FINANCIAL SERVICES	6,109.0	0.0	6,109.0	18,720.0	0.75	0.25
HCC INSURANCE HOLDINGS INC	824.3	0.0	824.3	3,903.4	0.83	0.17
HCI GROUP INC	129.5	0.0	129.5	182.6	0.58	0.42
HERITAGE INSURANCE HOLDINGS	0.0	0.0	0.0	255.1	1.00	0.00
HORACE MANN EDUCATORS CORP	237.9	0.0	237.9	1,336.5	0.85	0.15
INFINITY PROPERTY & CAS CORP	276.7	0.0	276.7	697.7	0.72	0.28
JAMES RIVER GROUP HLDGS LTD	220.9	0.0	220.9	687.9	0.76	0.24
KEMPER CORP/DE	756.2	0.0	756.2	2,090.7	0.73	0.27
KINGSTONE COS INC	0.0	0.0	0.0	40.5	1.00	0.00
KINGSWAY FINANCIAL SVCS INC	59.0	6.3	65.3	37.5	0.36	0.64
LOEWS CORP	10,668.0	0.0	10,668.0	19,280.0	0.64	0.36
MAIDEN HOLDINGS LTD	360.0	315.0	675.0	925.7	0.58	0.42
MARKEL CORP	2,253.6	0.0	2,253.6	7,594.8	0.77	0.23
MBIA INC	8,076.0	0.0	8,076.0	3,929.0	0.33	0.67
MERCURY GENERAL CORP	290.0	0.0	290.0	1,875.4	0.87	0.13
METLIFE INC	23,775.0	1.0	23,776.0	72,052.0	0.75	0.25
MGIC INVESTMENT CORP/WI	1,296.4	0.0	1,296.4	1,036.9	0.44	0.56
NATIONAL GENERAL HOLDINGS CP	380.1	55.0	435.1	1,004.7	0.70	0.30
NATIONAL INTERSTATE CORP	12.0	0.0	12.0	362.1	0.97	0.03
NATIONAL SEC GROUP INC	19.6	0.0	19.6	42.8	0.69	0.31
NAVIGATORS GROUP INC	263.4	0.0	263.4	1,027.2	0.80	0.20
NMI HOLDINGS INC	0.0	0.0	0.0	427.0	1.00	0.00
OLD REPUBLIC INTL CORP	965.0	0.0	965.0	3,924.0	0.80	0.20
ONEBEACON INSURANCE GROUP	281.8	0.0	281.8	1,047.0	0.79	0.21
OXBRIDGE RE HOLDINGS LTD	0.0	0.0	0.0	36.7	1.00	0.00
PARTNERRE LTD	821.0	34.2	855.1	7,014.8	0.89	0.11

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Capital Structure Ratios of Property-Casualty Insurance Companies

Property/Casualty Insurance Companies (1)	Total Debt \$ in millions (2)	Preferred Stock \$ in millions (3)	Total Debt Capital =(2) + (3) (4)	Common Equity \$ in millions (5)	Equity Capital Share (6)	Debt Capital Share (7)
PROASSURANCE CORP	250.0	0.0	250.0	2,157.9	0.90	0.10
PROGRESSIVE CORP-OHIO	2,164.7	0.0	2,164.7	6,928.6	0.76	0.24
RADIAN GROUP INC	1,209.9	74.7	1,284.6	2,097.1	0.62	0.38
RENAISSANCERE HOLDINGS LTD	286.6	400.0	686.6	3,465.7	0.83	0.17
RLI CORP	149.6	0.0	149.6	845.1	0.85	0.15
SAFETY INSURANCE GROUP INC	0.0	0.0	0.0	708.3	1.00	0.00
SCOR SE -ADR	2,700.9	0.0	2,700.9	6,890.3	0.72	0.28
SELECTIVE INS GROUP INC	385.0	0.0	385.0	1,275.6	0.77	0.23
STATE AUTO FINANCIAL CORP	100.8	0.0	100.8	872.9	0.90	0.10
STATE NATIONAL COS INC	44.5	0.0	44.5	240.9	0.84	0.16
SWISS RE LTD -ADR	14,316.0	0.0	14,316.0	35,930.0	0.72	0.28
SYMETRA FINANCIAL CORP	697.2	0.0	697.2	3,360.6	0.83	0.17
THIRD POINT REINSURANCE LTD	82.5	0.0	82.5	1,451.9	0.95	0.05
TRAVELERS COS INC	6,349.0	0.0	6,349.0	24,836.0	0.80	0.20
TRIPLE-S MANAGEMENT CORP	74.5	0.0	74.5	858.6	0.92	0.08
UNICO AMERICAN CORP	0.0	0.0	0.0	71.8	1.00	0.00
UNITED FIRE GROUP INC	0.0	0.0	0.0	817.4	1.00	0.00
UNITED INSURANCE HOLDINGS CO	13.5	0.0	13.5	203.8	0.94	0.06
UNIVERSAL INSURANCE HLDGS	30.6	19.0	49.6	199.9	0.80	0.20
VALIDUS HOLDINGS LTD	1,458.0	0.0	1,458.0	3,588.0	0.71	0.29
VOYA FINANCIAL INC	10,353.8	0.0	10,353.8	16,107.9	0.61	0.39
WHITE MTNS INS GROUP LTD	753.7	0.0	753.7	3,996.6	0.84	0.16
WMIH CORP	31.2	0.0	31.2	88.2	0.74	0.26
XL GROUP PLC	1,853.9	0.0	1,853.9	10,033.8	0.84	0.16
Average					0.80	0.20

Notes:

Source: Compustat Database (Version as of September 30, 2015)

(6) = (5) / [(4) + (5)]

(7) = 1.0 - (6)

VII 000094

VII 000095

Section VII - Profit
 Subsection F - Leverage Ratio
 7/1/2016

Section VII - F
 Exhibit 1

Loss & LAE and Unearned Premium Reserves to Surplus Ratio
 (\$ in Millions)

Year End (1)	Loss & LAE Reserves (2)	Unearned Premium Reserves (3)	Surplus (4)	Ratio = [(2) + (3)] / (4) (5)
2010	249,797	62,772	175,364	1.78
2011	255,065	63,895	172,545	1.85
2012	260,350	67,549	181,779	1.80
2013	262,894	69,591	186,373	1.78
2014	262,805	71,191	192,947	1.73
Average				1.79

Notes:

(2), (4): Best's Aggregates and Averages, 2015 edition, page 127.

(3): Data for Unearned Premium were provided by AM Best after a request from WCRIBMA.

Single Policy
 Determination of Selected Premium Flow From Premium Collection Special Call

Time Interval		Net Premium Ranges									Weighted Average Selected Collection Pattern (12)
		0 - 9,999			10,000 - 199,999			200,000 +			
		Actual Premium Collection Pattern		Weight (5)	Actual Premium Collection Pattern		Weight (8)	Actual Premium Collection Pattern		Weight (11)	
From (1)	To (2)	Actual (3)	Selected (4)		Actual (6)	Selected (7)		Actual (9)	Selected (10)		
07/01/15	09/30/15	0.0%	0.0%	25.6%	0.1%	0.0%	49.3%	0.0%	0.0%	25.1%	0.0%
10/01/15	12/31/15	0.0%	0.0%	25.6%	0.0%	0.0%	49.3%	0.2%	0.0%	25.1%	0.0%
01/01/16	03/31/16	0.1%	0.0%	25.6%	0.1%	0.0%	49.3%	0.0%	0.0%	25.1%	0.0%
04/01/16	06/30/16	11.2%	11.2%	25.6%	2.7%	2.7%	49.3%	1.1%	1.0%	25.1%	4.5%
07/01/16	09/30/16	38.1%	38.1%	25.6%	34.5%	34.5%	49.3%	37.8%	37.8%	25.1%	36.2%
10/01/16	12/31/16	22.6%	22.6%	25.6%	26.0%	26.0%	49.3%	22.4%	22.4%	25.1%	24.2%
01/01/17	03/31/17	15.4%	15.4%	25.6%	20.5%	20.5%	49.3%	20.1%	20.1%	25.1%	19.1%
04/01/17	06/30/17	4.0%	4.0%	25.6%	5.7%	5.7%	49.3%	7.4%	7.5%	25.1%	5.7%
07/01/17	09/30/17	2.2%	2.2%	25.6%	1.8%	1.8%	49.3%	3.1%	3.0%	25.1%	2.2%
10/01/17	12/31/17	2.8%	2.8%	25.6%	4.0%	4.0%	49.3%	5.6%	5.6%	25.1%	4.1%
01/01/18	03/31/18	1.9%	1.9%	25.6%	2.2%	2.2%	49.3%	1.9%	1.9%	25.1%	2.0%
04/01/18	06/30/18	1.1%	1.1%	25.6%	1.2%	1.5%	49.3%	0.2%	0.5%	25.1%	1.1%
07/01/18	09/30/18	0.1%	0.7%	25.6%	0.2%	1.1%	49.3%	0.0%	0.2%	25.1%	0.8%
10/01/18	12/31/18	0.0%	0.0%	25.6%	0.1%	0.0%	49.3%	0.1%	0.0%	25.1%	0.0%
01/01/19	03/31/19	0.0%	0.0%	25.6%	0.0%	0.0%	49.3%	0.1%	0.0%	25.1%	0.0%
04/01/19	06/30/19	0.0%	0.0%	25.6%	0.0%	0.0%	49.3%	0.0%	0.0%	25.1%	0.0%
07/01/19	09/30/19	0.2%	0.0%	25.6%	0.2%	0.0%	49.3%	0.0%	0.0%	25.1%	0.0%
10/01/19	12/31/19	0.2%	0.0%	25.6%	0.4%	0.0%	49.3%	0.0%	0.0%	25.1%	0.0%
01/01/20	03/31/20	0.1%	0.0%	25.6%	0.3%	0.0%	49.3%	0.0%	0.0%	25.1%	0.0%
Total											100.0%

Notes:

(5), (8), (11) are calculated using Unit Statistical Plan data for PY 2013.

(3), (6), (9) are from the premium collection special call.

(12) = [(4) x (5)] + [(7) x (8)] + [(10) x (11)]

960000 IIA

VII 000097

Section VII - Profit
Subsection H - Expense Weights
7/1/2016

Section VII - H
Exhibit 1

Cash Flow Weights

Item of Expense Allowance (% of Standard Premium plus ARAP)	Policy Year		Average
	2012	2013	
(1) Expected Losses	64.00%	66.42%	65.21%
(2) Expected Loss Adjustment Expense (LAE):	12.78%	13.26%	13.02%
(a) Defense and Cost Containment Expense	6.49%	6.73%	6.61%
(b) Adjusting and Other Expense	6.29%	6.53%	6.41%
(3) Expected Losses + Expected LAE [= (1) + (2)]	76.78%	79.68%	78.23%
(4) Fixed Expenses	5.03%	5.04%	5.04%
(a) General Expenses	4.63%	4.64%	4.64%
(b) Miscellaneous and Other Taxes	0.40%	0.40%	0.40%
(5) Variable Expenses [= (5a) + (5b) + (5c)]	19.77%	19.77%	19.77%
(a) Total Acquisition	12.56%	12.56%	12.56%
(i) Commissions	7.90%	7.90%	7.90%
(ii) Other Acquisition	3.67%	3.67%	3.67%
(iii) Reinsurance Expenses	1.00%	1.00%	1.00%
(iv) Incidental Income and Earned but Uncollected Premium	0.00%	0.00%	0.00%
(b) Premium Tax	2.17%	2.17%	2.17%
(c) Premium Discount	5.04%	5.04%	5.04%
(6) Total Expenses [= (4) + (5)]	24.81%	24.82%	24.81%

Notes:

- (1): Policy Year 2012 and Policy Year 2013 Expected Losses are based on the loss ratios projected to the prospective policy period adjusted by the factor to remove the residual market subsidy associated with large deductible policies from Section I-B, Exhibit 1.
- (2): Expected LAE = Expected Losses x 0.2 where 0.2 is the LAE ratio calculated in VI-H, Exhibit 1.
- (2a), (2b): Loss Adjustment Expense split between DCC and AO is $0.508 = 0.101 / 0.2$ and $0.492 = 1 - 0.508$ where 0.101 is three year average ratio of DCC to loss from Section VI-H, Exhibit 1, line (4) and LAE ratio = 0.2 from Section VI-H, Exhibit 1, line (6).
- (4): Section VI-B, Exhibit 1 times the factor to reflect the impact of large deductible policies, from Section I-D, Exhibit 1, Page 1.
- (4a), (4b): Policy Year 2012 Fixed Expenses split between General Expenses and Other Taxes based on \$38,466,404 General Expenses and \$3,329,959 Other Taxes. Policy Year 2013 General Expenses split based on \$40,665,801 General Expenses and \$3,520,356 Other Taxes. See VI-B, Exhibit 1, columns (12) & (13).
- (5a): Section VI-G, Exhibit 1.
- (5b), (5c): Section VI-A, Exhibit 1.

VII 000098

Section VII - Profit
 Subsection I - Loss & LAE Flow
 7/1/2016

Section VII - I
 Exhibit 1

Single Policy
 Loss & Loss Adjustment Expense (LAE) Flow

Time Interval		Earned Premium (3)	Loss Flow (4)	DCC Flow (5) = (4)	AO Flow (6) = [(3) + (4)] / 2.0	Loss & LAE Payout (7)
From (1)	To (2)					
07/01/15	09/30/15	0.0000	0.0000	0.0000	0.0000	0.0000
10/01/15	12/31/15	0.0000	0.0000	0.0000	0.0000	0.0000
01/01/16	03/31/16	0.0000	0.0000	0.0000	0.0000	0.0000
04/01/16	06/30/16	0.0000	0.0000	0.0000	0.0000	0.0000
07/01/16	09/30/16	0.2500	0.0480	0.0480	0.1490	0.0563
10/01/16	12/31/16	0.2500	0.0480	0.0480	0.1490	0.0563
01/01/17	03/31/17	0.2500	0.0480	0.0480	0.1490	0.0563
04/01/17	06/30/17	0.2500	0.0480	0.0480	0.1490	0.0563
07/01/17	09/30/17	0.0000	0.0658	0.0658	0.0329	0.0631
10/01/17	12/31/17	0.0000	0.0658	0.0658	0.0329	0.0631
01/01/18	03/31/18	0.0000	0.0658	0.0658	0.0329	0.0631
04/01/18	06/30/18	0.0000	0.0658	0.0658	0.0329	0.0631
07/01/18	09/30/18	0.0000	0.0431	0.0431	0.0216	0.0414
10/01/18	12/31/18	0.0000	0.0431	0.0431	0.0216	0.0414
01/01/19	03/31/19	0.0000	0.0431	0.0431	0.0216	0.0414
04/01/19	06/30/19	0.0000	0.0431	0.0431	0.0216	0.0414
07/01/19	09/30/19	0.0000	0.0267	0.0267	0.0134	0.0256
10/01/19	12/31/19	0.0000	0.0267	0.0267	0.0134	0.0256
01/01/20	03/31/20	0.0000	0.0267	0.0267	0.0134	0.0256
04/01/20	06/30/20	0.0000	0.0267	0.0267	0.0134	0.0256
07/01/20	09/30/20	0.0000	0.0161	0.0161	0.0081	0.0155
10/01/20	12/31/20	0.0000	0.0161	0.0161	0.0081	0.0155
01/01/21	03/31/21	0.0000	0.0161	0.0161	0.0081	0.0155
04/01/21	06/30/21	0.0000	0.0161	0.0161	0.0081	0.0155
07/01/21	09/30/21	0.0000	0.0058	0.0058	0.0029	0.0055
10/01/21	12/31/21	0.0000	0.0058	0.0058	0.0029	0.0055
01/01/22	03/31/22	0.0000	0.0058	0.0058	0.0029	0.0055
04/01/22	06/30/22	0.0000	0.0058	0.0058	0.0029	0.0055
07/01/22	09/30/22	0.0000	0.0043	0.0043	0.0022	0.0042
10/01/22	12/31/22	0.0000	0.0043	0.0043	0.0022	0.0042
01/01/23	03/31/23	0.0000	0.0043	0.0043	0.0022	0.0042
04/01/23	06/30/23	0.0000	0.0043	0.0043	0.0022	0.0042
07/01/23	09/30/23	0.0000	0.0037	0.0037	0.0019	0.0036
10/01/23	12/31/23	0.0000	0.0037	0.0037	0.0019	0.0036
01/01/24	03/31/24	0.0000	0.0037	0.0037	0.0019	0.0036
04/01/24	06/30/24	0.0000	0.0037	0.0037	0.0019	0.0036
07/01/24	09/30/24	0.0000	0.0019	0.0019	0.0010	0.0019
10/01/24	12/31/24	0.0000	0.0019	0.0019	0.0010	0.0019
01/01/25	03/31/25	0.0000	0.0019	0.0019	0.0010	0.0019
04/01/25	06/30/25	0.0000	0.0019	0.0019	0.0010	0.0019
07/01/25	09/30/25	0.0000	0.0019	0.0019	0.0009	0.0018
10/01/25	12/31/25	0.0000	0.0019	0.0019	0.0009	0.0018
01/01/26	03/31/26	0.0000	0.0019	0.0019	0.0009	0.0018
04/01/26	06/30/26	0.0000	0.0019	0.0019	0.0009	0.0018
07/01/26	09/30/26	0.0000	0.0017	0.0017	0.0009	0.0016
10/01/26	12/31/26	0.0000	0.0017	0.0017	0.0009	0.0016
01/01/27	03/31/27	0.0000	0.0017	0.0017	0.0009	0.0016
04/01/27	06/30/27	0.0000	0.0017	0.0017	0.0009	0.0016
07/01/27	09/30/27	0.0000	0.0015	0.0015	0.0008	0.0015
10/01/27	12/31/27	0.0000	0.0015	0.0015	0.0008	0.0015
01/01/28	03/31/28	0.0000	0.0015	0.0015	0.0008	0.0015
04/01/28	06/30/28	0.0000	0.0015	0.0015	0.0008	0.0015
07/01/28	09/30/28	0.0000	0.0032	0.0032	0.0016	0.0031
10/01/28	12/31/28	0.0000	0.0032	0.0032	0.0016	0.0031
01/01/29	03/31/29	0.0000	0.0032	0.0032	0.0016	0.0031
04/01/29	06/30/29	0.0000	0.0032	0.0032	0.0016	0.0031
07/01/29	09/30/29	0.0000	0.0011	0.0011	0.0005	0.0010
10/01/29	12/31/29	0.0000	0.0011	0.0011	0.0005	0.0010
01/01/30	03/31/30	0.0000	0.0011	0.0011	0.0005	0.0010
04/01/30	06/30/30	0.0000	0.0011	0.0011	0.0005	0.0010
07/01/30	09/30/30	0.0000	0.0015	0.0015	0.0008	0.0014
10/01/30	12/31/30	0.0000	0.0015	0.0015	0.0008	0.0014
01/01/31	03/31/31	0.0000	0.0015	0.0015	0.0008	0.0014
04/01/31	06/30/31	0.0000	0.0015	0.0015	0.0008	0.0014
07/01/31	09/30/31	0.0000	0.0010	0.0010	0.0005	0.0009
10/01/31	12/31/31	0.0000	0.0010	0.0010	0.0005	0.0009
01/01/32	03/31/32	0.0000	0.0010	0.0010	0.0005	0.0009
04/01/32	06/30/32	0.0000	0.0010	0.0010	0.0005	0.0009
07/01/32	09/30/32	0.0000	0.0010	0.0010	0.0005	0.0010
10/01/32	12/31/32	0.0000	0.0010	0.0010	0.0005	0.0010
01/01/33	03/31/33	0.0000	0.0010	0.0010	0.0005	0.0010
04/01/33	06/30/33	0.0000	0.0010	0.0010	0.0005	0.0010
07/01/33	09/30/33	0.0000	0.0014	0.0014	0.0007	0.0013
10/01/33	12/31/33	0.0000	0.0014	0.0014	0.0007	0.0013
01/01/34	03/31/34	0.0000	0.0014	0.0014	0.0007	0.0013
04/01/34	06/30/34	0.0000	0.0014	0.0014	0.0007	0.0013
07/01/34	09/30/34	0.0000	0.0011	0.0011	0.0006	0.0011
10/01/34	12/31/34	0.0000	0.0011	0.0011	0.0006	0.0011

VII 000099

Section VII - Profit
 Subsection I - Loss & LAE Flow
 7/1/2016

Section VII - I
 Exhibit 1

Single Policy Loss & Loss Adjustment Expense (LAE) Flow

Time Interval		Earned Premium (3)	Loss Flow (4)	DCC Flow (5) = (4)	AO Flow (6) = [(3) + (4)] / 2.0	Loss & LAE Payout (7)
From (1)	To (2)					
01/01/35	03/31/35	0.0000	0.0011	0.0011	0.0006	0.0011
04/01/35	06/30/35	0.0000	0.0011	0.0011	0.0006	0.0011
07/01/35	09/30/35	0.0000	0.0007	0.0007	0.0003	0.0006
10/01/35	12/31/35	0.0000	0.0007	0.0007	0.0003	0.0006
01/01/36	03/31/36	0.0000	0.0007	0.0007	0.0003	0.0006
04/01/36	06/30/36	0.0000	0.0007	0.0007	0.0003	0.0006
07/01/36	09/30/36	0.0000	0.0008	0.0008	0.0004	0.0007
10/01/36	12/31/36	0.0000	0.0008	0.0008	0.0004	0.0007
01/01/37	03/31/37	0.0000	0.0008	0.0008	0.0004	0.0007
04/01/37	06/30/37	0.0000	0.0008	0.0008	0.0004	0.0007
07/01/37	09/30/37	0.0000	0.0013	0.0013	0.0006	0.0012
10/01/37	12/31/37	0.0000	0.0013	0.0013	0.0006	0.0012
01/01/38	03/31/38	0.0000	0.0013	0.0013	0.0006	0.0012
04/01/38	06/30/38	0.0000	0.0013	0.0013	0.0006	0.0012
07/01/38	09/30/38	0.0000	0.0013	0.0013	0.0006	0.0012
10/01/38	12/31/38	0.0000	0.0013	0.0013	0.0006	0.0012
01/01/39	03/31/39	0.0000	0.0013	0.0013	0.0006	0.0012
04/01/39	06/30/39	0.0000	0.0013	0.0013	0.0006	0.0012
07/01/39	09/30/39	0.0000	0.0013	0.0013	0.0006	0.0012
10/01/39	12/31/39	0.0000	0.0013	0.0013	0.0006	0.0012
01/01/40	03/31/40	0.0000	0.0013	0.0013	0.0006	0.0012
04/01/40	06/30/40	0.0000	0.0013	0.0013	0.0006	0.0012
07/01/40	09/30/40	0.0000	0.0013	0.0013	0.0006	0.0012
10/01/40	12/31/40	0.0000	0.0013	0.0013	0.0006	0.0012
01/01/41	03/31/41	0.0000	0.0013	0.0013	0.0006	0.0012
04/01/41	06/30/41	0.0000	0.0013	0.0013	0.0006	0.0012
07/01/41	09/30/41	0.0000	0.0013	0.0013	0.0006	0.0012
10/01/41	12/31/41	0.0000	0.0013	0.0013	0.0006	0.0012
01/01/42	03/31/42	0.0000	0.0013	0.0013	0.0006	0.0012
04/01/42	06/30/42	0.0000	0.0013	0.0013	0.0006	0.0012
07/01/42	09/30/42	0.0000	0.0013	0.0013	0.0006	0.0012
10/01/42	12/31/42	0.0000	0.0013	0.0013	0.0006	0.0012
01/01/43	03/31/43	0.0000	0.0013	0.0013	0.0006	0.0012
04/01/43	06/30/43	0.0000	0.0013	0.0013	0.0006	0.0012
07/01/43	09/30/43	0.0000	0.0013	0.0013	0.0006	0.0012
10/01/43	12/31/43	0.0000	0.0013	0.0013	0.0006	0.0012
01/01/44	03/31/44	0.0000	0.0013	0.0013	0.0006	0.0012
04/01/44	06/30/44	0.0000	0.0013	0.0013	0.0006	0.0012
07/01/44	09/30/44	0.0000	0.0013	0.0013	0.0006	0.0012
10/01/44	12/31/44	0.0000	0.0013	0.0013	0.0006	0.0012
01/01/45	03/31/45	0.0000	0.0013	0.0013	0.0006	0.0012
04/01/45	06/30/45	0.0000	0.0013	0.0013	0.0006	0.0012
07/01/45	09/30/45	0.0000	0.0013	0.0013	0.0006	0.0012
10/01/45	12/31/45	0.0000	0.0013	0.0013	0.0006	0.0012
01/01/46	03/31/46	0.0000	0.0013	0.0013	0.0006	0.0012
04/01/46	06/30/46	0.0000	0.0013	0.0013	0.0006	0.0012
07/01/46	09/30/46	0.0000	0.0013	0.0013	0.0006	0.0012
10/01/46	12/31/46	0.0000	0.0013	0.0013	0.0006	0.0012
01/01/47	03/31/47	0.0000	0.0013	0.0013	0.0006	0.0012
04/01/47	06/30/47	0.0000	0.0013	0.0013	0.0006	0.0012
07/01/47	09/30/47	0.0000	0.0013	0.0013	0.0006	0.0012
10/01/47	12/31/47	0.0000	0.0013	0.0013	0.0006	0.0012
01/01/48	03/31/48	0.0000	0.0013	0.0013	0.0006	0.0012
04/01/48	06/30/48	0.0000	0.0013	0.0013	0.0006	0.0012
07/01/48	09/30/48	0.0000	0.0013	0.0013	0.0006	0.0012
10/01/48	12/31/48	0.0000	0.0013	0.0013	0.0006	0.0012
01/01/49	03/31/49	0.0000	0.0013	0.0013	0.0006	0.0012
04/01/49	06/30/49	0.0000	0.0013	0.0013	0.0006	0.0012
07/01/49	09/30/49	0.0000	0.0013	0.0013	0.0006	0.0012
10/01/49	12/31/49	0.0000	0.0013	0.0013	0.0006	0.0012
01/01/50	03/31/50	0.0000	0.0013	0.0013	0.0006	0.0012
04/01/50	06/30/50	0.0000	0.0013	0.0013	0.0006	0.0012
07/01/50	09/30/50	0.0000	0.0013	0.0013	0.0006	0.0012
10/01/50	12/31/50	0.0000	0.0013	0.0013	0.0006	0.0012
01/01/51	03/31/51	0.0000	0.0013	0.0013	0.0006	0.0012
04/01/51	06/30/51	0.0000	0.0013	0.0013	0.0006	0.0012
(8) Relative Weights			1.0000	0.1014	0.0983	

Notes:

- (3): Single policy earned premium is earned uniformly through the one year policy term.
- (4): Exhibit 2, (16). Annual values divided by 4.0.
- (7): Loss & LAE Payout = (1.000 x (4) + 0.1014 x (5) + 0.0983 x (6)) / (1.000 + 0.1014 + 0.0983)
- (8): DCC relative weight = 1.000 x 0.2 x 0.508; AO relative weight = 1.000 x 0.2 x 0.492
 where 0.2 is the LAE factor calculated in Section VI-K, Exhibit 1 and 0.508, 0.492 are the DCC and AO relative weights from Section VI-K, Exhibit 1.

Loss Payment Pattern

Age In Months	Remainder of Industry							AIG							Total	
	Indemnity Unadjusted LDF to Ult (2)	Indemnity % Paid =1.0 / (2) (3)	Indemnity Incremental % Paid (3) - 1st Diff (4)	Medical LDF to Ult (5)	Medical %Paid =1.0 / (5) (6)	Medical Incremental % Paid (6) - 1st Diff (7)	Indemnity & Medical Incremental % Paid (8)	Indemnity Unadjusted LDF to Ult (9)	Indemnity % Paid =1.0 / (9) (10)	Indemnity Incremental % Paid (10) - 1st Diff (11)	Medical LDF to Ult (12)	Medical %Paid =1.0 / (12) (13)	Medical Incremental % Paid (13) - 1st Diff (14)	Indemnity & Medical Incremental % Paid (15)	Indemnity & Medical Incremental % Paid (16)	
12	8.370	11.95%	11.95%	2.903	34.44%	34.44%	19.64%	9.604	10.41%	10.41%	3.319	30.13%	30.13%	16.00%	19.20%	
24	2.817	35.50%	23.55%	1.504	66.51%	32.07%	26.46%	3.042	32.88%	22.46%	1.610	62.10%	31.97%	25.16%	26.31%	
36	1.763	56.73%	21.23%	1.318	75.89%	9.38%	17.18%	1.869	53.49%	20.61%	1.375	72.74%	10.64%	17.79%	17.25%	
48	1.415	70.66%	13.93%	1.252	79.88%	3.99%	10.53%	1.472	67.96%	14.47%	1.283	77.96%	5.22%	11.84%	10.69%	
60	1.262	79.27%	8.61%	1.219	82.02%	2.15%	6.40%	1.305	76.60%	8.65%	1.246	80.28%	2.32%	6.85%	6.46%	
72	1.218	82.12%	2.85%	1.209	82.71%	0.68%	2.11%	1.233	81.08%	4.47%	1.219	82.02%	1.74%	3.70%	2.30%	
84	1.189	84.09%	1.98%	1.194	83.75%	1.05%	1.66%	1.194	83.78%	2.70%	1.202	83.17%	1.15%	2.26%	1.73%	
96	1.165	85.84%	1.74%	1.180	84.76%	1.01%	1.49%	1.173	85.25%	1.48%	1.183	84.51%	1.34%	1.44%	1.49%	
108	1.156	86.54%	0.70%	1.168	85.60%	0.84%	0.75%	1.161	86.14%	0.88%	1.166	85.78%	1.28%	1.00%	0.78%	
120	1.146	87.28%	0.74%	1.158	86.38%	0.77%	0.75%	1.152	86.78%	0.64%	1.150	86.98%	1.20%	0.80%	0.76%	
132	1.138	87.91%	0.63%	1.147	87.20%	0.82%	0.69%	1.145	87.30%	0.52%	1.137	87.94%	0.96%	0.64%	0.69%	
144	1.132	88.36%	0.45%	1.134	88.19%	0.99%	0.63%	1.141	87.61%	0.31%	1.126	88.81%	0.87%	0.47%	0.61%	
156	1.111	89.99%	1.64%	1.125	88.92%	0.73%	1.33%	1.130	88.52%	0.91%	1.115	89.68%	0.88%	0.90%	1.27%	
168	1.108	90.22%	0.23%	1.116	89.58%	0.66%	0.38%	1.122	89.11%	0.59%	1.100	90.87%	1.19%	0.76%	0.42%	
180	1.105	90.54%	0.32%	1.105	90.51%	0.93%	0.53%	1.108	90.23%	1.12%	1.086	92.08%	1.21%	1.15%	0.60%	
192	1.102	90.71%	0.17%	1.096	91.26%	0.76%	0.37%	1.103	90.65%	0.41%	1.078	92.75%	0.67%	0.48%	0.39%	
204	1.100	90.92%	0.22%	1.089	91.86%	0.59%	0.35%	1.090	91.70%	1.06%	1.074	93.10%	0.35%	0.86%	0.41%	
216	1.094	91.39%	0.47%	1.080	92.60%	0.75%	0.56%	1.086	92.04%	0.34%	1.067	93.73%	0.62%	0.42%	0.55%	
228	1.090	91.75%	0.35%	1.071	93.39%	0.78%	0.50%	1.086	92.06%	0.01%	1.064	93.99%	0.26%	0.09%	0.45%	
240	1.088	91.90%	0.15%	1.065	93.92%	0.53%	0.28%	1.085	92.19%	0.14%	1.060	94.32%	0.33%	0.19%	0.27%	
252	1.085	92.19%	0.29%	1.060	94.35%	0.44%	0.34%	1.085	92.19%	0.00%	1.060	94.35%	0.04%	0.01%	0.30%	
264			0.56%			0.40%	0.50%			0.56%			0.40%	0.51%	0.51%	
276			0.56%			0.40%	0.50%			0.56%			0.40%	0.51%	0.51%	
288			0.56%			0.40%	0.50%			0.56%			0.40%	0.51%	0.51%	
300			0.56%			0.40%	0.50%			0.56%			0.40%	0.51%	0.51%	
312			0.56%			0.40%	0.50%			0.56%			0.40%	0.51%	0.51%	
324			0.56%			0.40%	0.50%			0.56%			0.40%	0.51%	0.51%	
336			0.56%			0.40%	0.50%			0.56%			0.40%	0.51%	0.51%	
348			0.56%			0.40%	0.50%			0.56%			0.40%	0.51%	0.51%	
360			0.56%			0.40%	0.50%			0.56%			0.40%	0.51%	0.51%	
372			0.56%			0.40%	0.50%			0.56%			0.40%	0.51%	0.51%	
384			0.56%			0.40%	0.50%			0.56%			0.40%	0.51%	0.51%	
396			0.56%			0.40%	0.50%			0.56%			0.40%	0.51%	0.51%	
408			0.56%			0.40%	0.50%			0.56%			0.40%	0.51%	0.51%	
420			0.56%			0.40%	0.50%			0.56%			0.40%	0.51%	0.51%	
Total			100.00%			100.00%	100.00%			100.00%			100.00%	100.00%	100.00%	

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Notes:

(2), (5): Section II - E, Exhibit 1, Page 1.

(8) = (4) x 65.79% + (7) x 34.21%, where 65.79% and 34.21% are indemnity and medical estimated ultimate losses respectively, from Section II - E, Exhibit 1, Page 2.

(9), (12): Section II - E, Exhibit 1, Page 4.

(15) = (11) x 71.64% + (14) x 28.36%, where 71.64% and 28.36% are indemnity and medical estimated ultimate losses respectively, from Section II - E, Exhibit 1, Page 3.

(16) = (8) x 87.85% + (17) x 12.15%, where 87.85% and 12.15% are estimated ultimate losses for Remainder of Industry and Company A respectively, from Section II - E, Exhibit 1, Pages 2 and 3.

VII 000101

Section VII - Profit
 Subsection J - Portfolio Rate of Return
 7/1/2016

Section VII - J
 Exhibit 1
 Page 1

Calculation of Portfolio Rate of Return

Asset Class (1)	Proportion (2)	Pre-tax Return (3)	Tax Rate (4)	After-tax Return (5)
Cash and Short-term Investments	6.09%	0.03%	35.00%	0.02%
Governments	10.24%	1.14%	35.00%	0.74%
States & Territories	8.87%	1.61%	5.25%	1.53%
Special Revenue	17.29%	1.84%	5.25%	1.75%
Industrials	26.43%	1.93%	35.00%	1.26%
Common Stocks	21.36%	9.12%	22.00%	7.11%
Real Estate	0.66%	3.98%	35.00%	2.59%
Preferred Stocks	0.94%	5.42%	14.18%	4.65%
Other Assets	8.13%	5.42%	14.18%	4.65%
(6) Total	100.00%	3.56%	21.14%	2.80%
(7) Investment Expenses		0.24%	35.00%	0.16%
(8) Portfolio Rate of Return		3.31%	20.12%	2.65%

Notes:

(2): Page 2, Total US Property/Casualty Industry.

(3): Pretax bond returns are from Exhibit 2, page 1.

Cash and short term investments: using short horizon CAPM with beta=0.00. Exhibit 2, Page 3, line (2).

Pretax return for Common Stock: $r_f + b \times \text{MRP}$ with $b=1.00$ and three horizons. MRP from Exhibit 4 and r_f from Exhibit 2,

Page 3, line (2) for short-term, line (7) for intermediate-term and line (10) for long-term horizon.

9.12% = average (8.57% + 0.03%, 7.57% + 1.55%, 7% + 2.65%)

Pretax return for Real Estate: 3 month treasury rate, 0.04% Exhibit 2, page 3, line (3) plus the real estate differential, 3.94% from Ibbotson and Siegel, "Real Estate Returns: A Comparison with Other Investments".

Pretax return for Preferred Stock: yield on A rated preferred stock from Mergent Bond Record (Exhibit 2, page 3, line (13)).

Pretax return for Other Assets: equal to the pretax return for Preferred Stock.

(4): Governments and Other taxable bonds taxed at Federal Tax Rate of 0.35.

Tax rate for Tax Exempt Bonds = 0.15×0.35

Tax rate for Preferred stock = $(0.30 \times 0.35) + (0.70 \times 0.15 \times 0.35)$

Tax rate for Common Stocks from Exhibit 6, page 1.

Tax rate for Other Assets = Tax rate for Preferred stock = $(0.30 \times 0.35) + (0.70 \times 0.15 \times 0.35)$

(5) = (3) x [1.0 - (4)]

(7): Exhibit 5.

(8) = (6) - (7)

VII 000102

Section VII - Profit
 Subsection J - Portfolio Rate of Return
 7/1/2016

Section VII - J
 Exhibit 1
 Page 2

Asset Distribution for Property-Casualty Industry

Assets (1)	Net Admitted Assets (\$000) (2)	Share = (2) / (4) (3)
Cash and Short Term Investments	94,392,146	6.09%
Bonds:	974,224,710	62.83%
Governments		10.24%
States & Territories		8.87%
Special Revenue		17.29%
Industrials		26.43%
Common Stocks	331,203,550	21.36%
Real Estate	10,220,488	0.66%
Preferred Stocks	14,598,368	0.94%
Other Invested Assets	126,030,904	8.13%
(4) Total	1,550,670,166	100.00%

Notes:

Source: Best's Aggregates and Averages, 2015 edition, page 140.

(2): Real estate is sum of: properties occupied by the company, properties held for the production of income and properties held for sale.

None of the values include investments in affiliates.

The Bond Share in total is 62.83%. This is allocated to the subcategories (Governments, States & Territories, Special Revenue and Industrials) by multiplying 62.83% by the adjusted bond weights from Exhibit 3.

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Section VII - Profit
 Subsection J - Portfolio Rate of Return
 7/1/2016

Section VII - J
 Exhibit 2
 Page 1

Calculation of Pretax Returns on Bonds

% of Bonds (adjusted for removal of Other Bonds category) by Class, by Maturity for P/C Industry				
Term to Maturity in years	Governments	States and Territories	Special Revenue	Industrials
0.5	4.15%	1.20%	1.96%	4.21%
3	7.51%	4.73%	9.30%	18.97%
7	2.93%	5.20%	8.70%	15.12%
15	0.92%	2.54%	5.13%	1.65%
25	0.77%	0.46%	2.43%	2.12%
Total	16.29%	14.12%	27.51%	42.07%

As of	Term to Maturity in years	Yield Data			
		Governments	States and Territories	Special Revenue	Industrials
Jul-15	0.5	0.12%	0.13%	0.12%	0.30%
	3	1.03%	1.04%	1.09%	1.37%
	7	2.04%	2.05%	2.20%	2.65%
	15	2.55%	2.59%	2.90%	3.34%
	25	2.92%	3.06%	3.52%	3.95%
Aug-15	0.5	0.22%	0.11%	0.10%	0.43%
	3	1.03%	0.97%	0.99%	1.43%
	7	1.91%	1.93%	2.01%	2.61%
	15	2.36%	2.48%	2.73%	3.25%
	25	2.71%	2.88%	3.41%	3.84%
Sep-15	0.5	0.18%	0.13%	0.12%	0.45%
	3	1.01%	0.99%	1.03%	1.43%
	7	1.88%	1.90%	2.02%	2.54%
	15	2.40%	2.47%	2.78%	3.24%
	25	2.79%	2.93%	3.47%	3.87%
Jul-15 Aug-15 Sep-15 Average	All	Weighted Yields			
		1.16%	1.68%	1.92%	1.93%
		1.14%	1.58%	1.79%	1.95%
		1.12%	1.58%	1.82%	1.92%
	Average	1.14%	1.61%	1.84%	1.93%

Notes:

% of Bonds by Class and by Maturity for P/C Industry are from Exhibit 3.

Yield Data are from Page 2.

Example of Weighted Yield calculation for Jul-15, States and Territories:

$$1.68 = (0.13 \times 1.2 + 1.04 \times 4.73 + 2.05 \times 5.2 + 2.59 \times 2.54 + 3.06 \times 0.46) / 14.12$$

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Calculation of Yield Data

Term to Maturity in Years	Jul-15	Aug-15	Sep-15	Formulas used to derive the yields (reference to data on page 3)
Governments				
0.5	0.12%	0.22%	0.18%	=(4)
3	1.03%	1.03%	1.01%	=(6)
7	2.04%	1.91%	1.88%	=(8)
10	2.32%	2.17%	2.17%	=(9)
20	2.77%	2.55%	2.62%	=(10)
30	3.07%	2.86%	2.95%	=(11)
States and Territories				
0.5	0.13%	0.11%	0.13%	=(4) + 9.5/9.0 x [(18) - (5)] - 0.5/9.0 x [(19) - (9)]
3	1.04%	0.97%	0.99%	=(6) + 7.0/9.0 x [(18) - (5)] + 2.0/9.0 x [(19) - (9)]
7	2.05%	1.93%	1.90%	=(8) + 1.0/3.0 x [(18) - (5)] + 2.0/3.0 x [(19) - (9)]
10	2.32%	2.26%	2.22%	=(19)
20	2.86%	2.70%	2.73%	=(10) + 0.5 x [(19) - (9)] + 0.5 x [(20) - (11)]
30	3.26%	3.07%	3.12%	=(20)
Special Revenue				
0.5	0.12%	0.10%	0.12%	=(4) + 29.5/29.0 x [(18) - (5)] - 0.5/29.0 x [(17) - (11)]
3	1.09%	0.99%	1.03%	=(6) + 27.0/29.0 x [(18) - (5)] + 2.0/29.0 x [(17) - (11)]
7	2.20%	2.01%	2.02%	=(8) + 23.0/29.0 x [(18) - (5)] + 6.0/29.0 x [(17) - (11)]
10	2.55%	2.37%	2.40%	=(9) + 20.0/29.0 x [(18) - (5)] + 9.0/29.0 x [(17) - (11)]
20	3.25%	3.08%	3.15%	=(10) + 10.0/29.0 x [(18) - (5)] + 19.0/29.0 x [(17) - (11)]
30	3.80%	3.73%	3.78%	=(17)
Industrial				
0.5	0.30%	0.43%	0.45%	=(4) + 26.0/27.0 x [(1) - (3)] + 1.0/27.0 x [(15) - (8)]
3	1.37%	1.43%	1.43%	=(6) + 16.0/27.0 x [(1) - (3)] + 11.0/27.0 x [(15) - (8)]
7	2.65%	2.61%	2.54%	=(15)
10	3.00%	2.94%	2.90%	=(9) + 20.0/23.0 x [(15) - (8)] + 3.0/23.0 x [(12) - (11)]
20	3.69%	3.56%	3.59%	=(10) + 10.0/23.0 x [(15) - (8)] + 13.0/23.0 x [(12) - (11)]
30	4.22%	4.11%	4.16%	=(12)

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Yield Data

	Jul-15	Aug-15	Sep-15	Average
FEDERAL RESERVE STATISTICAL RELEASE				
Commercial Paper				
(1) 3-month	0.19%	0.26%	0.27%	0.24%
U.S. Govt Securities - Secondary Market				
Treasury Constant Maturities				
(2) 1-month	0.03%	0.04%	0.01%	0.03%
(3) 3-month	0.03%	0.07%	0.02%	0.04%
(4) 6-month	0.12%	0.22%	0.18%	0.17%
(5) 1-year	0.30%	0.38%	0.37%	0.35%
(6) 3-year	1.03%	1.03%	1.01%	1.02%
(7) 5-year	1.63%	1.54%	1.49%	1.55%
(8) 7-year	2.04%	1.91%	1.88%	1.94%
(9) 10-year	2.32%	2.17%	2.17%	2.22%
(10) 20-year	2.77%	2.55%	2.62%	2.65%
(11) 30-year	3.07%	2.86%	2.95%	2.96%
MERGENT BOND RECORD				
Long-Term Corporate Bond Yields (avg maturity at least 20 yrs)				
(12) Aa Industrial	4.22%	4.11%	4.16%	4.16%
YAHOO				
(13) Preferred Stock	5.61%	5.32%	5.32%	5.42%
BONDS ONLINE				
Aa Corporate				
(14) 5-year to maturity	2.21%	2.18%	2.08%	2.16%
(15) 7-year to maturity (= (14) + 0.4 x [(16) - (14)])	2.65%	2.61%	2.54%	2.60%
(16) 10-year to maturity	3.30%	3.27%	3.22%	3.26%
VALUE LINE INVESTMENT SURVEY (Part II)				
Municipal Bond Yields				
Bond Buyer Indexes				
(17) 20-Bond Index (GOs)	3.80%	3.73%	3.78%	3.77%
General Obligation Bonds (GOs)				
(18) 1-year Aaa	0.31%	0.28%	0.33%	0.31%
(19) 10-year Aaa	2.32%	2.26%	2.22%	2.27%
(20) 25/30-year Aaa	3.26%	3.07%	3.12%	3.15%

Note:

Sources: Various issues of Federal Reserve Statistical Release, H.15 , Mergent Bond Record, and Value Line Investment Survey, Part II.

Online data from <http://finance.yahoo.com> and <http://www.bondsonline.com>.

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Bond Distribution by Class and by Maturity for Property-Casualty Industry

2014 Industry Totals (\$000)

Term to Maturity in Years	Governments	States and Territories	Special Revenue	Industrials	Other Bonds	Total Bonds
0.5	40,128,385	11,615,101	18,974,523	40,708,008	4,799,317	116,225,335
3	72,673,686	45,709,216	89,908,930	183,516,623	303,444	392,111,899
7.5	28,350,109	50,283,374	84,132,425	146,233,063	4,246,113	313,245,084
15	8,942,765	24,591,182	49,624,387	15,940,560	252,957	99,351,851
25	7,486,498	4,403,635	23,476,721	20,536,904	4,920,208	60,823,966
Total	157,581,443	136,602,508	266,116,986	406,935,158	14,522,039	981,758,135

% of Bonds by Class, by Maturity for P/C Industry

Term to Maturity in Years	Governments	States and Territories	Special Revenue	Industrials	Other Bonds	Total Bonds
0.5	4.09%	1.18%	1.93%	4.15%	0.49%	11.84%
3	7.40%	4.66%	9.16%	18.69%	0.03%	39.94%
7.5	2.89%	5.12%	8.57%	14.90%	0.43%	31.91%
15	0.91%	2.50%	5.05%	1.62%	0.03%	10.12%
25	0.76%	0.45%	2.39%	2.09%	0.50%	6.20%
Total	16.05%	13.91%	27.11%	41.45%	1.48%	100.00%

% of Bonds (adjusted for removal of Other Bonds category) by Class, by Maturity for P/C Industry

Term to Maturity in Years	Governments	States and Territories	Special Revenue	Industrials	Total Bonds
0.5	4.15%	1.20%	1.96%	4.21%	11.52%
3	7.51%	4.73%	9.30%	18.97%	40.51%
7.5	2.93%	5.20%	8.70%	15.12%	31.95%
15	0.92%	2.54%	5.13%	1.65%	10.25%
25	0.77%	0.46%	2.43%	2.12%	5.78%
Total	16.29%	14.12%	27.51%	42.07%	100.00%

Notes:

Source: Best's Aggregates and Averages - Property-Casualty, 2015, pages 199-200.

Bonds less than a year adjusted to remove cash and short term investments.

Market Risk Premium

Year (1)	Large Company Stocks Total Returns (2)	Long-Term Government Bonds Income Returns (3)	Intermediate-Term Government Bonds Income Returns (4)	Short-Term Total Returns (5)	Long-Term Market Risk Premium = (2) - (3) (6)	Intermediate-Term Market Risk Premium = (2) - (4) (7)	Short-Term Market Risk Premium = (2) - (5) (8)
1926	11.62	3.73	3.78	3.27	7.89	7.84	8.35
1927	37.49	3.41	3.49	3.12	34.08	34.00	34.37
1928	43.61	3.22	3.64	3.56	40.39	39.97	40.05
1929	-8.42	3.47	4.07	4.75	-11.89	-12.49	-13.17
1930	-24.90	3.32	3.30	2.41	-28.22	-28.20	-27.31
1931	-43.34	3.33	3.16	1.07	-46.67	-46.50	-44.41
1932	-8.19	3.69	3.63	0.96	-11.88	-11.82	-9.15
1933	53.99	3.12	2.83	0.30	50.87	51.16	53.69
1934	-1.44	3.18	2.93	0.16	-4.62	-4.37	-1.60
1935	47.67	2.81	2.02	0.17	44.86	45.65	47.50
1936	33.92	2.77	1.44	0.18	31.15	32.48	33.74
1937	-35.03	2.66	1.48	0.31	-37.69	-36.51	-35.34
1938	31.12	2.64	1.82	-0.02	28.48	29.30	31.14
1939	-0.41	2.40	1.31	0.02	-2.81	-1.72	-0.43
1940	-9.78	2.23	0.90	0.00	-12.01	-10.68	-9.78
1941	-11.59	1.94	0.67	0.06	-13.53	-12.26	-11.65
1942	20.34	2.46	0.76	0.27	17.88	19.58	20.07
1943	25.90	2.44	1.56	0.35	23.46	24.34	25.55
1944	19.75	2.46	1.44	0.33	17.29	18.31	19.42
1945	36.44	2.34	1.19	0.33	34.10	35.25	36.11
1946	-8.07	2.04	1.08	0.35	-10.11	-9.15	-8.42
1947	5.71	2.13	1.21	0.50	3.58	4.50	5.21
1948	5.50	2.40	1.56	0.81	3.10	3.94	4.69
1949	18.79	2.25	1.36	1.10	16.54	17.43	17.69
1950	31.71	2.12	1.39	1.20	29.59	30.32	30.51
1951	24.02	2.38	1.98	1.49	21.64	22.04	22.53
1952	18.37	2.66	2.19	1.66	15.71	16.18	16.71
1953	-0.99	2.84	2.55	1.82	-3.83	-3.54	-2.81
1954	52.62	2.79	1.60	0.86	49.83	51.02	51.76
1955	31.56	2.75	2.45	1.57	28.81	29.11	29.99
1956	6.56	2.99	3.05	2.46	3.57	3.51	4.10
1957	-10.78	3.44	3.59	3.14	-14.22	-14.37	-13.92
1958	43.36	3.27	2.93	1.54	40.09	40.43	41.82
1959	11.96	4.01	4.18	2.95	7.95	7.78	9.01
1960	0.47	4.26	4.15	2.66	-3.79	-3.68	-2.19
1961	26.89	3.83	3.54	2.13	23.06	23.35	24.76
1962	-8.73	4.00	3.73	2.73	-12.73	-12.46	-11.46
1963	22.80	3.89	3.71	3.12	18.91	19.09	19.68
1964	16.48	4.15	4.00	3.54	12.33	12.48	12.94
1965	12.45	4.20	4.15	3.93	8.25	8.30	8.52
1966	-10.06	4.49	4.93	4.76	-14.55	-14.99	-14.82
1967	23.98	4.59	4.88	4.21	19.39	19.10	19.77
1968	11.06	5.50	5.49	5.21	5.56	5.57	5.85
1969	-8.50	5.95	6.65	6.58	-14.45	-15.15	-15.08
1970	3.86	6.74	7.49	6.52	-2.88	-3.63	-2.66
1971	14.30	6.32	5.75	4.39	7.98	8.55	9.91
1972	18.99	5.87	5.75	3.84	13.12	13.24	15.15
1973	-14.69	6.51	6.58	6.93	-21.20	-21.27	-21.62
1974	-26.47	7.27	7.24	8.00	-33.74	-33.71	-34.47
1975	37.23	7.99	7.35	5.80	29.24	29.88	31.43
1976	23.93	7.89	7.10	5.08	16.04	16.83	18.85

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Market Risk Premium

Year (1)	Large Company Stocks Total Returns (2)	Long-Term Government Bonds Income Returns (3)	Intermediate-Term Government Bonds Income Returns (4)	Short-Term Total Returns (5)	Long-Term Market Risk Premium = (2) - (3) (6)	Intermediate-Term Market Risk Premium = (2) - (4) (7)	Short-Term Market Risk Premium = (2) - (5) (8)
1977	-7.16	7.14	6.49	5.12	-14.30	-13.65	-12.28
1978	6.57	7.90	7.83	7.18	-1.33	-1.26	-0.61
1979	18.61	8.86	9.04	10.38	9.75	9.57	8.23
1980	32.50	9.97	10.55	11.24	22.53	21.95	21.26
1981	-4.92	11.55	12.97	14.71	-16.47	-17.89	-19.63
1982	21.55	13.50	12.81	10.54	8.05	8.74	11.01
1983	22.56	10.38	10.35	8.80	12.18	12.21	13.76
1984	6.27	11.74	11.68	9.85	-5.47	-5.41	-3.58
1985	31.73	11.25	10.29	7.72	20.48	21.44	24.01
1986	18.67	8.98	7.72	6.16	9.69	10.95	12.51
1987	5.25	7.92	7.47	5.47	-2.67	-2.22	-0.22
1988	16.61	8.97	8.24	6.35	7.64	8.37	10.26
1989	31.69	8.81	8.46	8.37	22.88	23.23	23.32
1990	-3.10	8.19	8.15	7.81	-11.29	-11.25	-10.91
1991	30.47	8.22	7.43	5.60	22.25	23.04	24.87
1992	7.62	7.26	6.27	3.51	0.36	1.35	4.11
1993	10.08	7.17	5.53	2.90	2.91	4.55	7.18
1994	1.32	6.59	6.07	3.90	-5.27	-4.75	-2.58
1995	37.58	7.60	6.69	5.60	29.98	30.89	31.98
1996	22.96	6.18	5.82	5.21	16.78	17.14	17.75
1997	33.36	6.64	6.14	5.26	26.72	27.22	28.10
1998	28.58	5.83	5.29	4.86	22.75	23.29	23.72
1999	21.04	5.57	5.30	4.68	15.47	15.74	16.36
2000	-9.10	6.50	6.19	5.89	-15.60	-15.29	-14.99
2001	-11.89	5.53	4.27	3.83	-17.42	-16.16	-15.72
2002	-22.10	5.59	3.98	1.65	-27.69	-26.08	-23.75
2003	28.68	4.80	2.85	1.02	23.88	25.83	27.66
2004	10.88	5.02	3.28	1.20	5.86	7.60	9.68
2005	4.91	4.69	3.92	2.98	0.22	0.99	1.93
2006	15.79	4.68	4.54	4.80	11.11	11.25	10.99
2007	5.49	4.86	4.44	4.66	0.63	1.05	0.83
2008	-37.00	4.45	2.96	1.60	-41.45	-39.96	-38.60
2009	26.46	3.47	2.01	0.10	22.99	24.45	26.36
2010	15.06	4.25	1.92	0.12	10.81	13.14	14.94
2011	2.11	3.81	1.58	0.04	-1.70	0.53	2.07
2012	16.00	2.40	0.58	0.06	13.60	15.42	15.94
2013	32.39	2.86	0.85	0.02	29.53	31.54	32.37
2014	13.69	3.12	1.38	0.02	10.57	12.31	13.67
Average	12.07	5.07	4.50	3.50	7.00	7.57	8.57

Notes:

Source: Ibbotson SBBi, 2015 Classic Yearbook.

(2): Table A-1: Large-Capitalization Stocks, Total Returns, pages 196-197.

(3): Table A-7: Long Term Government Bonds Income Returns, pages 208-209.

(4): Table A-11: Intermediate Term Government Bonds, Income Returns, pages 216-217.

(5): Table A-14: US Treasury Bills, Total Returns, pages 222-223.

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 Exhibit 5

Investment Expense to Invested Assets Ratio

Calendar Year (1)	Total Investment Expense Incurred (\$000) (2)	Aggregate Write-ins (\$000) (3)	Total Deductions = (2) + (3) (4)	Total Cash and Invested Assets (\$000) (5)	Ratio = (4) / (5) (6)
2005	2,583,504	598,809	3,182,313	1,170,135,319	0.27%
2006	2,738,201	654,734	3,392,935	1,264,555,809	0.27%
2007	2,829,153	655,075	3,484,228	1,330,400,451	0.26%
2008	2,799,958	281,611	3,081,569	1,246,387,298	0.25%
2009	2,811,669	216,379	3,028,048	1,302,970,319	0.23%
2010	3,065,150	197,863	3,263,013	1,359,025,844	0.24%
2011	3,138,189	186,536	3,324,725	1,374,110,208	0.24%
2012	3,201,888	172,506	3,374,394	1,427,203,029	0.24%
2013	3,243,277	179,579	3,422,856	1,519,998,639	0.23%
2014	3,229,177	296,458	3,525,635	1,567,766,111	0.22%
Average	2,964,017	343,955	3,307,972	1,356,255,303	0.24%

Notes:

Source: Various issues of Best's Aggregates and Averages.

(1) - (4): Exhibit of Net Investment Income, page 150 (calendar year 2014).

(5): Exhibit of Assets, page 140 (calendar year 2014).

Calculation of Common Stock Total Return Tax Rate

Year (1)	Income Returns (2)	Capital Appreciation Returns (3)
1926	5.41%	5.72%
1927	5.71%	30.91%
1928	4.81%	37.88%
1929	3.98%	-11.91%
1930	4.57%	-28.48%
1931	5.35%	-47.07%
1932	6.16%	-15.15%
1933	6.39%	46.59%
1934	4.46%	-5.94%
1935	4.95%	41.37%
1936	5.36%	27.92%
1937	4.66%	-38.59%
1938	4.83%	25.21%
1939	4.69%	-5.45%
1940	5.36%	-15.29%
1941	6.71%	-17.86%
1942	6.79%	12.43%
1943	6.24%	19.45%
1944	5.48%	13.80%
1945	4.97%	30.72%
1946	4.09%	-11.87%
1947	5.49%	0.00%
1948	6.08%	-0.65%
1949	7.50%	10.26%
1950	8.77%	21.78%
1951	6.91%	16.46%
1952	5.93%	11.78%
1953	5.46%	-6.62%
1954	6.21%	45.02%
1955	4.56%	26.40%
1956	3.83%	2.62%
1957	3.84%	-14.31%
1958	4.38%	38.06%
1959	3.31%	8.48%
1960	3.26%	-2.97%
1961	3.48%	23.13%
1962	2.98%	-11.81%
1963	3.61%	18.89%
1964	3.33%	12.97%
1965	3.21%	9.06%
1966	3.11%	-13.09%
1967	3.64%	20.09%
1968	3.18%	7.66%
1969	2.98%	-11.36%
1970	3.33%	0.10%
1971	3.49%	10.63%
1972	2.95%	15.79%
1973	2.86%	-17.37%
1974	3.69%	-29.72%
1975	5.37%	31.55%
1976	4.49%	19.15%
1977	4.35%	-11.50%
1978	5.33%	1.06%
1979	5.89%	12.31%
1980	5.74%	25.77%
1981	4.88%	-9.73%
1982	5.61%	14.76%
1983	5.04%	17.27%
1984	4.57%	1.40%

Calculation of Common Stock Total Return Tax Rate

Year (1)	Income Returns (2)	Capital Appreciation Returns (3)
1985	4.72%	26.33%
1986	3.92%	14.62%
1987	3.64%	2.03%
1988	3.99%	12.40%
1989	4.03%	27.25%
1990	3.43%	-6.56%
1991	3.76%	26.31%
1992	2.98%	4.46%
1993	2.91%	7.06%
1994	2.83%	-1.54%
1995	3.04%	34.11%
1996	2.43%	20.26%
1997	2.10%	31.01%
1998	1.67%	26.67%
1999	1.36%	19.53%
2000	1.11%	-10.14%
2001	1.18%	-13.04%
2002	1.39%	-23.37%
2003	1.99%	26.38%
2004	1.76%	8.99%
2005	1.84%	3.00%
2006	2.01%	13.62%
2007	1.96%	3.53%
2008	1.92%	-38.49%
2009	2.48%	23.45%
2010	2.02%	12.78%
2011	2.13%	0.00%
2012	2.50%	13.41%
2013	2.48%	29.60%
2014	2.09%	11.39%
Average	4.04%	7.78%

	Dividend	Capital Gains
(4) Weights	34.15%	65.85%
(5) Tax Rate	14.18%	26.07%
(6) Common Stock Tax Rate		22.00%

Notes:

Source: Ibbotson SBB, 2015 Classic Yearbook.

(2): Table A-2: Large-Capitalization Stocks, Income Returns, pages 198-199.

(3): Table A-3: Large-Capitalization Stocks, Capital Appreciation Returns, pages 200-201.

(5) = Dividend Tax Rate = $0.3 \times 0.35 + 0.7 \times 0.35 \times 0.15$

Capital Gains Tax Rate is from page 2.

Calculation of Capital Gains Tax Rate

(1) Turnover Rate	36.00%
(2) Weighted Average Cost of Capital	7.44%
(3) Marginal Tax Rate	35.00%
(4) Annual Expected Capital Gains Rate	7.78%

Year (5)	Investment Basis (6) _{t-1} x [1.0 - (1)] (6)	Investment Value		Investment Sold (8) x (1) (9)	Realized Capital Gains [(8) - (6)] x (1) (10)	Taxes Paid (10) x (3) (11)	Present Value of the Taxes (12)
		Beg of Year (8) _{t-1} - (9) _{t-1} (7)	End of Year (7) x [1.0 + (4)] (8)				
0	1,000,000.00	1,000,000.00	1,077,838.20	388,021.75	28,021.75	9,807.61	9,462.06
1	640,000.00	689,816.45	743,510.52	267,663.79	37,263.79	13,042.33	11,711.75
2	409,600.00	475,846.73	512,885.79	184,638.88	37,182.88	13,014.01	10,877.33
3	262,144.00	328,246.90	353,797.05	127,366.94	32,995.10	11,548.28	8,984.08
4	167,772.16	226,430.11	244,055.03	87,859.81	27,461.83	9,611.64	6,959.82
5	107,374.18	156,195.22	168,353.17	60,607.14	21,952.44	7,683.35	5,178.40
6	68,719.48	107,746.03	116,132.79	41,807.80	17,068.79	5,974.08	3,747.66
7	43,980.47	74,324.98	80,110.31	28,839.71	13,006.74	4,552.36	2,658.10
8	28,147.50	51,270.60	55,261.41	19,894.11	9,761.01	3,416.35	1,856.70
9	18,014.40	35,367.30	38,120.23	13,723.28	7,238.10	2,533.33	1,281.49
10	11,529.22	24,396.95	26,295.96	9,466.55	5,316.03	1,860.61	876.04
11	7,378.70	16,829.41	18,139.39	6,530.18	3,873.85	1,355.85	594.19
12	4,722.37	11,609.21	12,512.85	4,504.62	2,804.57	981.60	400.40
13	3,022.31	8,008.22	8,631.57	3,107.36	2,019.33	706.77	268.33
14	1,934.28	5,524.20	5,954.20	2,143.51	1,447.17	506.51	178.99
15	1,237.94	3,810.69	4,107.30	1,478.63	1,032.97	361.54	118.92
16	792.28	2,628.67	2,833.29	1,019.98	734.76	257.17	78.73
17	507.06	1,813.30	1,954.45	703.60	521.06	182.37	51.97
18	324.52	1,250.85	1,348.21	485.36	368.53	128.99	34.21
19	207.69	862.85	930.02	334.81	260.04	91.01	22.47
20	132.92	595.21	641.54	641.54	508.62	178.02	40.90
Total					250,839.36	87,793.78	65,382.54

(13) Implied Tax Rate on Capital Gains 26.07%

Notes:

- (1): Turnover Rate is based on AIB Stock Turnover Study of 1988 transactions. (2001 AIB Profit Filing, R2000-10, 100H-3, Exhibits 15 and 16)
- (2): Interest Rate is the weighted average cost of capital, Section VII - E, Exhibit 1.
- (4): Page 1.
- (10) Year 20 : All remaining capital gains are assumed realized in year 20.
- (12) = (11) x { [1.0 + (2)]ⁿ - [(5) + 0.5] }
- (13) = (12) Total / (10) Total

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Calculation of Common Stock Tax Rate for Different Discount Rates and Turnover Rates

		Discount Rate											
		4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%
Turnover Rate	0.10	18.02%	16.44%	15.10%	13.96%	12.99%	12.15%	11.43%	10.80%	10.26%	9.79%	9.37%	9.01%
	0.15	19.64%	18.25%	17.03%	15.97%	15.05%	14.23%	13.52%	12.88%	12.32%	11.81%	11.36%	10.95%
	0.20	21.15%	19.94%	18.87%	17.91%	17.05%	16.29%	15.60%	14.97%	14.41%	13.89%	13.42%	13.00%
	0.25	22.42%	21.38%	20.45%	19.59%	18.82%	18.11%	17.47%	16.87%	16.33%	15.82%	15.36%	14.93%
	0.30	23.42%	22.54%	21.72%	20.98%	20.28%	19.64%	19.05%	18.50%	17.98%	17.50%	17.06%	16.64%
	0.35	24.20%	23.44%	22.74%	22.08%	21.47%	20.89%	20.35%	19.85%	19.37%	18.92%	18.50%	18.10%
	0.40	24.80%	24.15%	23.54%	22.96%	22.42%	21.91%	21.42%	20.96%	20.53%	20.12%	19.72%	19.35%
	0.45	25.28%	24.72%	24.18%	23.68%	23.20%	22.74%	22.31%	21.89%	21.50%	21.12%	20.76%	20.42%
	0.50	25.67%	25.18%	24.71%	24.27%	23.84%	23.44%	23.05%	22.68%	22.32%	21.98%	21.65%	21.34%
	0.55	25.99%	25.56%	25.15%	24.76%	24.39%	24.03%	23.68%	23.35%	23.03%	22.72%	22.42%	22.14%
	0.60	26.25%	25.88%	25.52%	25.18%	24.85%	24.53%	24.22%	23.93%	23.64%	23.36%	23.09%	22.83%
	0.65	26.48%	26.16%	25.84%	25.54%	25.25%	24.97%	24.70%	24.43%	24.18%	23.93%	23.69%	23.45%
	0.70	26.67%	26.39%	26.12%	25.86%	25.60%	25.35%	25.11%	24.88%	24.65%	24.43%	24.21%	24.00%

MASSACHUSETTS WORKERS' COMPENSATION

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F-CLASS RATE RECOMMENDATION

Background and Summary

The United States Longshore and Harbor Workers (USL&HW) Act is a federal law that offers benefits to longshoremen, harbor workers, and other employees engaged in loading, unloading, repairing and building a vessel while working on the vessel or any adjoining navigable waters. F-Classes were created for risks that have considerable USL&HW exposure. Since the benefit provisions for F-Classes are different than those prescribed by Massachusetts workers' compensation law, rates for these classifications are calculated separately from Massachusetts state class codes.

To allow movement toward the levels indicated by the data, while acknowledging that the volume of F-Class historical data is not fully credible, this section of the filing recommends that average rates for F-Class classifications be decreased by 8.8% for the policy period beginning July 1, 2016.

Indicated Rate Change

The ratemaking methodology used for F-Classes is similar to that used in the statewide rate indication: we compare an indicated loss, LAE, loss based assessment, and fixed expense ratio to a permissible loss, LAE, loss based assessment, and fixed expense ratio. Consistent with prior F-Class filings, the indication is derived using the latest five years of Unit Statistical Plan data. Premium and losses are adjusted for the effects of trend, development, changes in benefits, and changes in rates. The resulting

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indicated adjusted loss ratio is loaded for loss adjustment expenses, loss based assessments associated with the USL&HW Act Special Fund (“Special Fund Assessment”), and fixed expenses. The expense provisions, with the exception of the Special Fund Assessment, are taken from Section I. The Special Fund Assessment is currently calculated by the NCCI as 11.0% of incurred indemnity losses covered under the USL&HW Act.

Complement of Credibility

Due to the limited amount of F-Class experience, the rate change derived from the historical experience is not fully credible. As recommended by the AG in the 2012 rate hearing, in the 2014 Filing and again in this filing the WCRIBMA uses a credibility-weighted formula to derive the F-Class rate revision. The credibility assigned to the historical data is calculated as:

$$Z = \text{square root (number of claims in experience base / full credibility standard)}$$

Using a full credibility standard of 4,000.¹

The complement of credibility calculation shown in Section VIII-A Exhibit 2 adjusts the current rates forward for net loss trend, accounts for changes in benefits and Special Funds Assessments since the last revision, and incorporates the expense and profit provisions used in the general rate revision.

¹ Credibility formula and full credibility standard from 2012 AG filing page 22.

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Calculation of Adjusted Standard Earned Premium

To derive an indicated loss ratio, the premiums for policy years 2009 - 2013 must be projected to the level expected to prevail during the prospective effective period. This is done by first extending the reported exposures using the currently effective rates. Since the reported exposures may be subject to further development as a consequence of delayed premium audits, premium development factors are applied. Next, factors are applied to reflect the expected impacts of experience rating, merit rating and ARAP. Note that no wage trend adjustment is made to premiums because the trend applied in the calculation of adjusted losses is net of the impact of estimated wage trend.

In Section VIII-B, each policy year's premium is adjusted to the prevailing level and then all five years are summed to a five year total. This total will be used with the five year total of adjusted losses calculated in Section VIII-C to calculate the indicated loss ratio in Section VIII-A.

Calculation of Adjusted Total Losses

Within Section VIII-C, the losses from policy years 2009 - 2013 are converted to the level expected to prevail during the prospective effective period. Given the differences in benefits and the applicability of the Special Fund Assessment, claims associated with the USL&HW Act and claims associated with the Massachusetts workers' compensation law are adjusted separately. Indemnity and medical loss data are also adjusted separately because of differences in loss development and trend.

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Losses are adjusted for changes in benefit levels, loss development to ultimate, and trend (in excess of expected wage trend). Factors are also applied for the loading of loss adjustment expenses and the Special Fund Assessment resulting in estimates of the sum of loss, LAE and loss based assessments. Note that the conversion factors used to adjust F-Class losses related to the state workers compensation law are the same ones used in the development of class rates in Section IX.

Calculation of Law Amendment Factors

Injured workers in the F-Classes can receive benefits paid under either state law or federal law. Therefore, law amendment factors for both are needed in the derivation of the conversion factors used in Section VIII-C. Law amendment factors related to the USL&HW Act are taken from Section IV–F. These factors are derived from the estimated effects of federal law amendments reported in NCCI’s Annual Statistical Bulletin. The law amendment factors related to state workers compensation benefits (and reflected in the conversion factors taken from Section IX) are derived in Section IV-A.

Calculation of Loss Development Factors

The reported losses used in the indication include losses paid and payable under the state workers compensation law and under the USL&HW Act. Since the differing benefit levels can affect development patterns, the losses related to the state workers compensation law are developed separately from losses related to the USL&HW Act.

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For USL&HW Act claims, NCCI loss development factors were utilized in Section VIII-E. For state workers compensation claims, the development factors are consistent with those used in Section IX.

Calculation of Trend Factors

Trend factors adjust for changes in wage levels, claim frequency, and average claim size between the historical period and the prospective effective period. The trend factors used in developing the F-Class indication are consistent with the premium and loss trends selected in Section IX-B, Exhibit 3.

Calculation of Class Rates

There are 14 F-Classes in Massachusetts for which we update class pure premium relativities in a manner similar to that used in Section IX.

The Massachusetts indicated pure premiums are derived from the latest five years of Unit Statistical Plan loss and payroll data. This is the same loss data that underlies the F-Class indication in Subsection A. The losses are adjusted for the appropriate law level changes, development to ultimate, the proposed 20.0% loss adjustment expense factor, and the Special Federal Fund Assessment. These adjustment factors are shown in Section VIII-E.

The countrywide relativities are calculated using the same countrywide data set used in Section IX. Pitch Factors are used to adjust the countrywide data to the same law

VIII 000006

level, LAE and Special Federal Fund Assessment level as the Massachusetts indicated pure premiums. The calculation of Pitch Factors is described in Section IX-A.

The relativities underlying present rates are calculated from the pure premiums underlying the last revision, adjusted to reflect the impact of benefit changes and trend to the prospective effective period. These adjustment factors are shown on Exhibit 2 of Subsection F.

This section uses the same classical credibility method and parameters used in Section IX. The Massachusetts full credibility standards come from Section IX-D and are expected losses of \$27,200,000 and \$6,400,000 for indemnity and medical losses respectively. The countrywide full credibility standards also come from Section IX-D and correspond to countrywide claim counts of 1,150 and 1,000 for indemnity and medical losses respectively.

After the formula pure premium relativity is calculated, the proposed manual rates are calculated. Proposed manual rates are subject to swing limits of $\pm 20\%$ surrounding the targeted industry group change (see Section VIII-H). This is the method used for Massachusetts state classes, as outlined in Section IX-H.

Proposed F-Class Rates and Rating Values

Minimum Premium, Expected Loss Rates and D-Ratios are calculated using the methodology and factors from Section IX and X.

Pricing Example

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Section VIII-I contains a sample rate calculation for Class 6824, Boat Building or Repairing & Drivers: US Act. Exhibit 1 of Section VIII-I details the calculation of the Massachusetts indicated pure premium relativity. Exhibit 2 of Section VIII-I details the calculation of the countrywide relativity. Exhibit 3 of Section VIII-I shows the calculation of the credibilities and the formula relativities. Exhibit 4 of Section VIII-I shows the derivation of the proposed average rate, manual rate and rating values.

USL&HW Coverage Percentage

The USL&HW Coverage Percentage is a factor applied to classification rates which do not anticipate operations subject to the USL&HW Act. If operations under such classifications involve some employees subject to the USL&HW Act, the manual rate and minimum premium are increased by the USL&HW Coverage Percentage for Manual Rates and the Expected Loss Rate is increased by the USL&HW Coverage Percentage for Expected Loss Rates.

The calculation of the proposed USL&HW Coverage Percentages are shown in Section VIII-J. The “Differential in Benefits” from the 4/1/2014 USL&HW Coverage Percentage is the starting point. Using the state and federal benefit level changes which have occurred since then and the projected benefit level changes from Section IV-A and IV-F, the revised differential in benefits is calculated on line (4) of Section VIII-J. The impact of the differential in benefits is then combined with the impact of the Special Fund Assessment to derive the USL&HW Coverage Percentage for Manual

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Section VIII – Rate Recommendation
Subsection A – F-Class Rate Recommendation
7/1/2016

Section VIII-A
Page 8

Rates on line (10) of Section VIII-J. The USL&HW Coverage Percentage for Expected Loss Rates does not include the impact of the Special Funds Assessment.

Federal Tax Multiplier

The Federal Tax Multiplier is to be used in retrospective rating for those classes subject to the USL&HW Act. A Federal Tax Multiplier is needed to reflect the impact of the Special Fund Assessment applicable to indemnity losses paid under the USL&HW Act. This filing recommends a Federal Tax Multiplier of 1.067. The calculation is shown in Section VIII-K.

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Section VIII - F-Class Recommendation
Subsection A - Indicated Rate Change
7/1/2016

Section VIII-A
Exhibit 1

F-Class Rate Review Overall Indicated Rate Change

(1)	5-Year Adjusted Standard Plus ARAP Earned Premium	10,687,920
(2)	5-Year Adjusted Losses, LAE, and LBA	4,649,914
(3)	5-Year Adjusted Loss, LAE, and LBA Ratio = (2) / (1)	43.5%
(4)	Fixed Expense Ratio	5.0%
(5)	Indicated Policy Year 7/1/2016 Loss, LAE, Fixed Expense Ratio = (3) + (4)	48.5%
(6)	Variable Expense Ratio	19.8%
(7)	Profit and Contingencies	2.0%
(8)	Permissible Loss, LAE, LBA, and Fixed Expense Ratio = 1.000 - [(6) + (7)]	78.2%
(9)	Indicated Average Rate Change = [(5) / (8)] - 1.000	-37.9%
(10)	Rate Changed based on Trended On-Level Expected Loss Ratio	-1.6%
(11)	5-Year Total Claim Count	155
(12)	Credibility of the Indicated Average Rate Change = [(11) / 4,000] ^{0.5}	19.7%
(13)	Credibility Weighted Average Rate Change = [(9) x (12)] + { (10) x [100% - (12)] }	-8.8%

Notes:

- (1): Section VIII-B, Exhibit 1.
- (2): Section VIII-C, Exhibit 1, Page 2 and 4.
- (4), (6): Section VI-A, Exhibit 1.
- (7): Section VII-A, Exhibit 1.
- (10): Exhibit 2.
- (11): Unit Statistical Plan Data.

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Section VIII - F-Class Recommendation
 Subsection A - Indicated Rate Change
 7/1/2016

Section VIII-A
 Exhibit 2

F-Class Rate Review Complement of Credibility based on Trended On-Level Expected Loss Ratio

(1)	State Class Expected Loss and LAE Ratio from Prior Revision		75.5%
(2)	Loss Adjustment Expense Ratio from Prior Revision		0.192
(3)	Special Fund Assessment Rate as a % of Federal Indemnity Losses from Prior Revision		15.1%
		<u>Indemnity</u>	<u>Medical</u>
(4)	Federal Indemnity/Medical Losses as % of Total Federal Losses	50.2%	49.8%
(5)	F-Class Expected Loss Ratio from Prior Revision		59.6%
	= (1) / {(4) for Indemnity x [1.000 + (2) + (3)] + (4) for Medical x [1.000 + (2)] }		
(6)	Benefit Level Change Factor	1.007	1.000
(7)	Net Indemnity/Medical Trend	-1.9%	-1.8%
(8)	Years since Prior Revision	2.250	2.250
(9)	Trended On-Level Loss Ratio	28.8%	28.5%
	= (4) x (5) x (6) x [1.000 + (7)] ^ (8)		
(10)	Special Fund Assessment Rate as a % of Federal Indemnity Losses		11.0%
(11)	Loss Adjustment Expense Factor		1.200
(12)	Trended Loss, LAE and LBA Ratio		71.9%
	= [(9) for indemnity x (10)] + [(9) Total x (11)]		
(13)	Fixed Expense Ratio		5.0%
(14)	Trended Loss, LAE and Fixed Expense Ratio		77.0%
	= (12) + (13)		
(15)	Variable Expense Ratio		19.8%
(16)	Underwriting Profit Provision		2.0%
(17)	Permissible Loss, LAE, LBA, and Fixed Expense Ratio		78.2%
	= 1.000 - [(15) + (16)]		
(18)	Rate Changed based on Trended On-Level Expected Loss Ratio from Prior Revision		-1.6%
	= [(14) / (17)] - 1.000		

Notes:

- (1): Section VI-J, Exhibit 1 of 04/01/2014 Stipulation.
- (2), (3), (4): Section VIII-J, Exhibit 1 of 04/01/2014 Stipulation.
- (6): Section VIII-F, Exhibit 2.
- (7): Section V-A, Exhibit 1.
- (10): Section VIII-E, Exhibit 1, Page 2.
- (11), (15),(16): Section VI-J, Exhibit 1.
- (13): Section VI-A, Exhibit 1.

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Section VIII - F-Class Recommendation
Subsection B - Adjusted Premium
7/1/2016

Section VIII-B
Exhibit 1

5 Year Adjusted Standard Plus ARAP Earned Premium

Policy Year (1)	Manual Premium (2)	Premium Development Factor (3)	Experience & Merit Rating Adjustment (4)	ARAP Adjustment (5)	Total Adj Standard Plus ARAP Premium (6)
2009	1,880,949	1.000	0.997	1.052	1,972,822
2010	2,418,575	1.000	0.997	1.052	2,536,362
2011	2,135,812	1.000	0.997	1.052	2,239,431
2012	1,965,274	1.000	0.997	1.052	2,060,597
2013	1,789,175	1.001	0.997	1.052	1,878,708
Total	10,189,785				10,687,920

Notes:

(2): Section VIII-F, Exhibit 1, Page 3.

(3): Section V-E, Exhibit 1.

(4): The offset for Merit Rating and Average Experience Modification from the 04/01/2014 Stipulation.

(5): The offset for ARAP from the 04/01/2014 Stipulation.

(6) = (2) x (3) x (4) x (5)

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Section VIII - F-Class Recommendation
 Subsection C - Adjusted Losses
 7/1/2016

Section VIII-C
 Exhibit 1
 Page 1

Calculation of Adjusted Indemnity and Medical Losses Federal Losses

(A). Unit Statistical Plan Limited Reported Losses

Indemnity	Policy Year				
	2009	2010	2011	2012	2013
Fatal	0	0	0	0	0
Permanent Total	0	0	0	0	0
Permanent Partial	194,549	111,107	128,844	174,248	195,843
Temporary Total	31,332	39,520	61,103	236,953	169,263
Medical					
Fatal	0	0	0	0	0
Permanent Total	0	0	0	0	0
Permanent Partial	47,234	98,409	5,367	129,330	270,627
Temporary Total	30,407	59,516	64,766	161,663	102,743
Medical Only	10,371	29,706	8,818	36,972	22,873

(B). Unit Statistical Plan Converted Unlimited Losses

Converted unlimited Losses are Limited Losses after the application of Primary, Excess and Secondary Conversion Factors.

Indemnity	Policy Year				
	2009	2010	2011	2012	2013
Fatal	0	0	0	0	0
Permanent Total	0	0	0	0	0
Permanent Partial	300,947	184,737	212,460	337,068	514,975
Temporary Total	51,743	69,431	103,733	527,254	454,263
Medical					
Fatal	0	0	0	0	0
Permanent Total	0	0	0	0	0
Permanent Partial	94,536	184,747	20,727	253,163	493,083
Temporary Total	53,332	107,830	113,508	320,945	205,223
Medical Only	13,327	36,695	11,589	51,923	34,413

Note:

(B): Section VIII-G.

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Section VIII - F-Class Recommendation
 Subsection C - Adjusted Losses
 7/1/2016

Section VIII-C
 Exhibit 1
 Page 2

Calculation of Adjusted Indemnity and Medical Losses Federal Losses

(C). Investment Income Offset Factor

The impact from this factor needs to be removed from the Federal Conversion Factors.

Indemnity	Investment Income Offset Factor
Fatal	0.869
Permanent Total	0.833
Permanent Partial	1.020
Temporary Total	1.026
Medical	
Fatal	1.000
Permanent Total	0.833
Permanent Partial	1.020
Temporary Total	1.025
Medical Only	1.000

(D). Adjusted Losses

Indemnity	Policy Year				
	2009	2010	2011	2012	2013
Fatal	0	0	0	0	0
Permanent Total	0	0	0	0	0
Permanent Partial	294,950	181,055	208,226	330,351	504,713
Temporary Total	50,419	67,654	101,078	513,759	442,636
Medical					
Fatal	0	0	0	0	0
Permanent Total	0	0	0	0	0
Permanent Partial	92,723	181,204	20,329	248,308	483,626
Temporary Total	52,007	105,150	110,688	312,970	200,123
Medical Only	13,327	36,695	11,589	51,923	34,413
Adjusted Losses, LAE, LBA	4,649,914				

Notes:

(C): Section IX-B, Exhibit 4.

(D) = (B) / (C)

VIII 000014

Section VIII - F-Class Recommendation
 Subsection C - Adjusted Losses
 7/1/2016

Section VIII-C
 Exhibit 1
 Page 3

Calculation of Adjusted Indemnity and Medical Losses State Losses

(A). Unit Statistical Plan Limited Reported Losses

Indemnity	Policy Year				
	2009	2010	2011	2012	2013
Fatal	0	0	0	0	0
Permanent Total	0	0	0	0	0
Permanent Partial	0	0	0	0	0
Temporary Total	0	0	0	0	0
Medical					
Fatal	0	0	0	0	0
Permanent Total	0	0	0	0	0
Permanent Partial	0	0	0	0	0
Temporary Total	0	0	0	0	0
Medical Only	0	0	0	0	0

(B). Unit Statistical Plan Converted Unlimited Losses

Unlimited Losses are Limited Losses after the application of Primary, Excess and Secondary Conversion Factors.

Indemnity	Policy Year				
	2009	2010	2011	2012	2013
Fatal	0	0	0	0	0
Permanent Total	0	0	0	0	0
Permanent Partial	0	0	0	0	0
Temporary Total	0	0	0	0	0
Medical					
Fatal	0	0	0	0	0
Permanent Total	0	0	0	0	0
Permanent Partial	0	0	0	0	0
Temporary Total	0	0	0	0	0
Medical Only	0	0	0	0	0

Notes:

(B): Section VIII-G.

VIII 000015

Section VIII - F-Class Recommendation
 Subsection C - Adjusted Losses
 7/1/2016

Section VIII-C
 Exhibit 1
 Page 4

Calculation of Adjusted Indemnity and Medical Losses State Losses

(C). Investment Income Offset Factor

The impact from this factor needs to be removed from the State Conversion Factors.

Indemnity	Investment Income Offset Factor
Fatal	0.869
Permanent Total	0.833
Permanent Partial	1.020
Temporary Total	1.026
Medical	
Fatal	1.000
Permanent Total	0.833
Permanent Partial	1.020
Temporary Total	1.025
Medical Only	1.000

(D). Adjusted Losses

Indemnity	Policy Year				
	2009	2010	2011	2012	2013
Fatal	0	0	0	0	0
Permanent Total	0	0	0	0	0
Permanent Partial	0	0	0	0	0
Temporary Total	0	0	0	0	0
Medical					
Fatal	0	0	0	0	0
Permanent Total	0	0	0	0	0
Permanent Partial	0	0	0	0	0
Temporary Total	0	0	0	0	0
Medical Only	0	0	0	0	0
Adjusted Losses, LAE	0				

Notes:

(C): Section IX-B, Exhibit 4.

(D) = (B) / (C)

VIII 000016

Section VIII - F-Class Recommendation
Subsection D - Proposed Rates
7/1/2016

Section VIII-D
Exhibit 1

Proposed Rates and Rating Values to be Effective 7/1/2016

Class Code (1)	Manual Rate (2)	Minimum Premium (3)	Loss Constant (4)	Expected Loss Rate (5)	D-Ratio (6)
6801	8.49	500	0	2.83	0.19
6824	11.14	500	0	3.71	0.19
6826	10.68	500	0	3.55	0.17
6843	15.11	500	0	4.20	0.16
6872	20.49	500	0	5.69	0.18
6874	18.24	500	0	5.06	0.17
7309	19.77	500	0	5.49	0.17
7313	16.17	500	0	4.49	0.14
7317	15.45	500	0	4.29	0.16
7327	35.36	500	0	9.82	0.17
7350	18.28	500	0	6.08	0.17
8709	5.60	355	0	1.56	0.18
8726	6.32	471	0	2.10	0.19
9077	5.04	335	0	2.03	0.21

Notes:

(2),(3): Calculated as per Section VIII-I, Exhibit 4.

(4): F-Classes have no loss constant.

(5),(6): Calculated as per Section X.

VIII 000017

Section VIII - F-Class Recommendation
 Subsection E - Conversion/Excess Loss Factors
 7/1/2016

Section VIII-E
 Exhibit 1
 Page 1

Calculation of Indemnity and Medical Conversion Factors Federal Losses

(A). Benefit Level Adjustment Factors

The following factors are used to bring MA Unit Statistical Plan losses to the benefit level of the proposed effective policy year period.

Indemnity	Policy Year				
	2009	2010	2011	2012	2013
Fatal	1.034	1.030	1.026	1.019	1.015
Permanent Total	1.030	1.027	1.023	1.019	1.015
Permanent Partial	1.012	1.012	1.011	1.009	1.007
Temporary Total	1.030	1.027	1.023	1.019	1.015
Medical					
All Injury Types	1.000	1.000	1.000	1.000	1.000

(B). Loss Development Factors

The following factors are used to bring MA Unit Statistical Plan losses from first through fifth report to an ultimate basis.

Indemnity	Policy Year				
	2009	2010	2011	2012	2013
Likely	1.131	1.191	1.270	1.521	2.773
Not Likely	1.044	1.058	1.119	1.234	1.760
Medical					
Likely	1.258	1.294	1.346	1.435	1.758
Not Likely	1.029	1.038	1.068	1.069	1.152

(C). Trend Factors

The following factors trend the MA Unit Statistical Plan losses from the reported period to the proposed effective period for new rates.

Indemnity	Policy Year				
	2009	2010	2011	2012	2013
All Injury Types	0.921	0.941	0.933	0.955	0.934
Medical					
Lost Time Medical	0.967	1.017	0.992	0.967	0.951
Medical Only	0.750	0.768	0.814	0.862	0.869

(D). Primary Conversion Factors (PCF)

Indemnity	Policy Year				
	2009	2010	2011	2012	2013
Fatal - LD	1.077	1.154	1.215	1.480	2.630
Fatal - NLD	0.994	1.025	1.070	1.201	1.669
Permanent Total	1.072	1.151	1.212	1.479	2.630
Permanent Partial - LD	1.054	1.134	1.197	1.465	2.609
Permanent Partial - NLD	0.973	1.007	1.055	1.189	1.656
Temporary Total - LD	1.072	1.151	1.212	1.479	2.630
Temporary Total - NLD	0.990	1.022	1.068	1.200	1.669
Medical					
Lost Time Medical -LD	1.216	1.316	1.336	1.388	1.672
Lost Time Medical -NLD	0.995	1.056	1.060	1.034	1.096
Medical - NLD	0.771	0.797	0.869	0.921	1.001

Notes:

- (A): Section IV-F, Exhibit 1.
- (B): NCCI.
- (C): Section IX-B, Exhibit 1, Page 1.
- (D) = (A) x (B) x (C)

VIII 000018

Section VIII - F-Class Recommendation
 Subsection E - Conversion/Excess Loss Factors
 7/1/2016

Section VIII-E
 Exhibit 1
 Page 2

Calculation of Indemnity and Medical Conversion Factors Federal Losses

(A). Loss Adjustment Expense Factor

The following factor is applied to include the proposed loss adjustment expense.

	Indemnity	Medical
Loss Adjustment Expense Factor	1.200	1.200

(B). Loss Based Assessments (Special Fund Assessment)

	Indemnity	Medical
Loss Based Assessments	0.110	0.000

(C). Investment Income Offset Factor

The following factor is applied to adjust for investment income.

Indemnity	Investment Income Offset Factor
Fatal	0.869
Permanent Total	0.833
Permanent Partial	1.020
Temporary Total	1.026
Medical	
Fatal	1.000
Permanent Total	0.833
Permanent Partial	1.020
Temporary Total	1.025
Medical Only	1.000

(D). Secondary Conversion Factors (SCF)

Indemnity	
Fatal	1.138
Permanent Total	1.092
Permanent Partial	1.336
Temporary Total	1.344
Medical	
Fatal	1.200
Permanent Total	0.999
Permanent Partial	1.223
Temporary Total	1.230
Medical Only	1.200

Notes:

(A): 1.000 + Loss Adjustment Expense (as a percent of losses) from Section VI-A, Exhibit 1.

(B): NCCI Tax and Assessment Directory.

(C): Section IX-B, Exhibit 4.

(D) = [(A) + (B)] x (C)

VIII 000019

Section VIII - F-Class Recommendation
 Subsection E - Conversion/Excess Loss Factors
 7/1/2016

Section VIII-E
 Exhibit 1
 Page 3

Calculation of Indemnity and Medical Conversion Factors State Losses

The MA Indicated Pure Premium Relativities are calculated from exposure and loss data for the latest available 5 policy years of Unit Statistical Plan data.
 Below are adjustment factors used to put the losses at the level proposed in this filing.

(A). Primary State Conversion Factors

Remainder of Industry	Policy Year				
	2009	2010	2011	2012	2013
Indemnity					
Fatal - LD	0.969	1.015	1.068	1.276	1.835
Fatal - NLD	0.972	1.013	1.052	1.200	1.562
Permanent Total	0.968	1.013	1.065	1.270	1.825
Permanent Partial - LD	0.989	1.036	1.085	1.289	1.847
Permanent Partial - NLD	0.992	1.034	1.069	1.211	1.573
Temporary Total - LD	0.954	0.999	1.052	1.259	1.811
Temporary Total - NLD	0.956	0.996	1.037	1.184	1.542
Medical					
Lost Time Medical - LD	0.910	0.944	0.949	0.994	1.101
Lost Time Medical - NLD	0.960	1.007	0.985	0.968	0.989
Medical - NLD	0.745	0.760	0.807	0.863	0.904
Company A					
Indemnity					
Fatal - LD	1.015	1.072	1.152	1.415	2.263
Fatal - NLD	0.979	1.036	1.093	1.296	1.888
Permanent Total	1.014	1.070	1.149	1.409	2.251
Permanent Partial - LD	1.036	1.094	1.171	1.429	2.279
Permanent Partial - NLD	0.999	1.057	1.111	1.309	1.901
Temporary Total - LD	0.999	1.055	1.136	1.397	2.234
Temporary Total - NLD	0.964	1.019	1.077	1.279	1.864
Medical					
Lost Time Medical - LD	0.920	0.954	0.952	0.976	1.137
Lost Time Medical - NLD	0.953	0.990	0.974	0.964	1.018
Medical - NLD	0.739	0.747	0.799	0.859	0.930

(B). Secondary State Conversion Factors

Indemnity	
Fatal	1.043
Permanent Total	1.000
Permanent Partial	1.224
Temporary Total	1.232
Medical	
Fatal	1.200
Permanent Total	0.999
Permanent Partial	1.223
Temporary Total	1.231
Medical Only	1.200

Notes:

- (A): Section IX-B, Exhibit 1, Page 2.
 (B): Section IX-B, Exhibit 1, Page 3.

Calculation of Converted Limited Losses by Indemnity Likely/Not-Likely and Medical Likely/Not-Likely
 Federal Industry Group
 All Classes

Policy Year (1)	Injury Type (2)	Limited Losses					Converted Limited Losses				
		Indemnity		Medical		Total (7)	Indemnity		Medical		Total (12)
		Likely (3)	Not Likely (4)	Likely (5)	Not Likely (6)		Likely (8)	Not Likely (9)	Likely (10)	Not Likely (11)	
2009	1	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0
	9	0	194,549	0	47,234	241,783	0	189,327	0	46,991	236,318
	5	0	31,332	0	30,407	61,739	0	31,016	0	30,251	61,267
	6	0	0	0	10,371	10,371	0	0	0	8,001	8,001
2010	1	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0
	9	24,326	86,781	21,338	77,071	209,516	27,585	87,418	28,090	81,388	224,481
	5	23,018	16,502	15,356	44,160	99,036	26,485	16,867	20,215	46,633	110,200
	6	0	0	0	29,706	29,706	0	0	0	23,668	23,668
2011	1	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0
	9	0	128,844	0	5,367	134,211	0	135,936	0	5,689	141,625
	5	0	61,103	0	64,766	125,869	0	65,254	0	68,646	133,900
	6	0	0	0	8,818	8,818	0	0	0	7,662	7,662
2012	1	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0
	9	0	174,248	0	129,330	303,578	0	207,132	0	133,686	340,818
	5	156,568	80,385	49,797	111,866	398,616	231,628	96,483	69,098	115,633	512,842
	6	0	0	0	36,972	36,972	0	0	0	34,062	34,062
2013	1	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0
	9	0	195,843	0	270,627	466,470	0	324,348	0	296,500	620,848
	5	0	169,263	0	102,743	272,006	0	282,498	0	112,566	395,064
	6	0	0	0	22,873	22,873	0	0	0	22,896	22,896
All Years, All Injury		203,912	1,138,850	86,491	992,311	2,421,564	285,698	1,436,279	117,403	1,034,272	2,873,652

Notes:
 (3),(4),(5),(6): Unit Statistical Plan data, excluding Large Deductibles.
 (8), (9), (10), (11): Limited Incurred Losses x Primary Conversion Factors from Section VIII-E, Exhibit 1, Page 1.
 (12) = (8) + (9) + (10) + (11)

VIII 000020

Calculation of Converted Unlimited Losses by Indemnity Likely/Not-Likely and Medical Likely/Not-Likely
 Federal Industry Group
 All Classes

Policy Year (1)	Injury Type (2)	Adjusted Excess Losses					Converted Unlimited Losses					Exposure (13)
		Indemnity		Medical		Total	Indemnity		Medical		Total	
		Likely (3)	Not Likely (4)	Likely (5)	Not Likely (6)	(7)	Likely (8)	Not Likely (9)	Likely (10)	Not Likely (11)	(12)	
2009	1	0	0	0	0	0	0	0	0	0	0	174,035
	2	0	0	0	0	0	0	0	0	0	0	
	9	0	35,875	0	30,296	66,171	0	300,947	0	94,536	395,483	
	5	0	7,480	0	13,099	20,579	0	51,743	0	53,332	105,075	
	6	0	0	0	3,108	3,108	0	0	0	13,327	13,327	
2010	1	0	0	0	0	0	0	0	0	0	0	196,389
	2	0	0	0	0	0	0	0	0	0	0	
	9	5,574	17,664	10,497	31,064	64,799	44,312	140,425	47,200	137,547	369,484	
	5	5,352	2,951	8,129	12,668	29,100	42,792	26,639	34,872	72,958	177,261	
	6	0	0	0	6,919	6,919	0	0	0	36,695	36,695	
2011	1	0	0	0	0	0	0	0	0	0	0	183,131
	2	0	0	0	0	0	0	0	0	0	0	
	9	0	23,050	0	11,257	34,307	0	212,460	0	20,727	233,187	
	5	0	11,922	0	23,616	35,538	0	103,733	0	113,508	217,241	
	6	0	0	0	1,997	1,997	0	0	0	11,589	11,589	
2012	1	0	0	0	0	0	0	0	0	0	0	179,133
	2	0	0	0	0	0	0	0	0	0	0	
	9	0	45,100	0	73,287	118,387	0	337,068	0	253,163	590,231	
	5	46,803	17,355	40,004	36,136	140,298	374,243	153,011	134,226	186,719	848,199	
	6	0	0	0	9,217	9,217	0	0	0	51,923	51,923	
2013	1	0	0	0	0	0	0	0	0	0	0	172,165
	2	0	0	0	0	0	0	0	0	0	0	
	9	0	61,014	0	106,618	167,632	0	514,975	0	493,083	1,008,058	
	5	0	55,466	0	54,243	109,709	0	454,263	0	205,223	659,486	
	6	0	0	0	5,788	5,788	0	0	0	34,413	34,413	
(14) All Years and Injury Types		57,729	277,877	58,630	419,313	813,549	461,347	2,295,264	216,298	1,778,743	4,751,652	904,853
(15) Pure Premium							0.510	2.537	0.239	1.966	5.251	

Notes:
 (3), (4) = 0.7 x [Excess Factor - 1.0] x Indemnity Converted Limited Losses. Excess Factor from Section IX-B, Exhibit 5 and Indemnity Converted Limited Losses from Page 1, Columns (8) and (9).
 (5), (6) = [Excess Factor - 1.0] x Medical Converted Limited Losses + 0.3 x [Excess Factor - 1.0] x Indemnity Converted Limited Losses. Excess Factor from Section IX-B, Exhibit 5 and Medical Converted Limited Losses from Page 1, Columns (10) and (11).
 (7) = (3) + (4) + (5) + (6)
 (8), (9), (10), (11): (Converted Limited Losses from Page 1 + Adjusted Excess Losses) x Secondary Conversion Factors from Section VIII-E, Exhibit 1, Page 2.
 (12) = (8) + (9) + (10) + (11)
 (13): From Page 3.
 (15): Pure Premium calculated as the All Years, All Injury Types Adjusted Converted Losses divided by the All Years, All Injury Types Exposure.

VIII 000021

Calculation of Manual Premium by Extension of Exposures
 Federal Industry Group
 All Classes

Class Code	Exposure By Policy Year						Current Rate	Manual Premium					
	2009	2010	2011	2012	2013	Total		2009	2010	2011	2012	2013	Total
	(2)	(3)	(4)	(5)	(6)	(7)		= (2) x (8)	= (3) x (8)	= (4) x (8)	= (5) x (8)	= (6) x (8)	= (7) x (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
6801	0	936	2,923	0	0	3,859	11.51	0	10,773	33,644	0	0	44,417
6824	33,905	37,433	42,935	50,915	49,392	214,580	9.82	332,947	367,592	421,622	499,985	485,029	2,107,176
6826	18,412	16,580	3,867	237	612	39,708	10.63	195,720	176,245	41,106	2,519	6,506	422,096
6843	0	0	0	0	6,561	6,561	13.25	0	0	0	0	86,933	86,933
6872	12,357	11,986	9,147	9,553	7,712	50,755	28.05	346,614	336,207	256,573	267,962	216,322	1,423,678
6874	1,650	24,396	7,171	2,803	383	36,403	24.97	41,201	609,168	179,060	69,991	9,564	908,983
7309	6,828	5,877	15,897	13,196	13,835	55,633	27.07	184,834	159,090	430,332	357,216	374,513	1,505,985
7313	0	0	0	0	0	0	14.17	0	0	0	0	0	0
7317	3,892	2,289	1,974	319	1,559	10,033	13.54	52,698	30,993	26,728	4,319	21,109	135,847
7327	121	120	150	182	113	686	31.00	3,751	3,720	4,650	5,642	3,503	21,266
7350	11,007	11,242	11,522	11,270	0	45,041	16.03	176,442	180,209	184,698	180,658	0	722,007
8709	2,265	2,783	2,909	5,659	3,682	17,298	6.28	14,224	17,477	18,269	35,539	23,123	108,631
8726	83,598	82,747	84,636	84,999	88,316	424,296	6.37	532,519	527,098	539,131	541,444	562,573	2,702,766
9077	0	0	0	0	0	0	4.42	0	0	0	0	0	0
Total	174,035	196,389	183,131	179,133	172,165	904,853		1,880,949	2,418,575	2,135,812	1,965,274	1,789,175	10,189,785

Notes:
 (2) - (7): Unit Statistical Plan data.
 (8): Section VIII-D, Exhibit 1 of the 4/1/2014 Stipulation.

VIII 000022

Calculation of Pure Premium Underlying Present Rate Factor

Industry Group (1)	Injury Type (2)	Uncapped Rate Level Factor (3)	Industry Group Pure Premium From Previous Revision (4)	Percent of Pure Premium = $(4) / [\text{Total of (4)}]$ (5)	Expected Loss and LAE Ratio (6)	Loss Based Assessment Change Factor (7)	Federal Losses as a % of Total Losses (8)	Benefit Level Change Factor (9)	Trend (10)	Pure Premium Underlying Present Rate Factor = $(3) \times (5) \times (6) \times (7) \times (9) \times (10)$ (11)
Federal	Indemnity	12.268	2.340	0.526	0.755	0.992	1.000	1.007	0.957	4.656
	Medical	12.268	2.110	0.474	0.755	0.992	1.000	1.000	0.961	4.185
	Total		4.450							

Notes:

- (3): Section VIII-H, Exhibit 1 of the 4/1/2014 Stipulation.
- (4): Section VIII-G of the 4/1/2014 Stipulation.
- (6): Section VI-J, Exhibit 1 of the 4/1/2014 Stipulation.
- (7): Change in load from Section VIII-K, Exhibit 1 and the 4/1/2014 Stipulation.
- (8): Based on ratio of Federal losses to sum of Federal and State losses from Section VIII-C, Exhibit 1, Pages 1 & 3.
- (9): Weighted average of Section IV-A, Exhibit 1 and Section IV-F, Exhibit 1, using weights from Column (8).
- (10): Section V-A, Exhibit 1.

VIII 000024

Section VIII - F-Class Recommendation
 Subsection F - Proposed Pure Premium Relativities
 7/1/2016

Section VIII-F
 Exhibit 3

Calculation of Pure Premiums Underlying Present Rate Federal Industry Group

Class Code	Adopted Relativities		Pure Premiums Underlying Present Rate		
	Indemnity	Medical	Indemnity	Medical	Total = (4) + (5)
(1)	(2)	(3)	(4)	(5)	(6)
6801	0.831	1.027	3.867	4.298	8.166
6824	0.767	0.843	3.573	3.526	7.099
6826	0.836	0.872	3.892	3.648	7.540
6843	3.794	1.917	17.664	8.021	25.684
6872	2.358	2.132	10.978	8.923	19.901
6874	1.803	1.449	8.396	6.062	14.458
7309	1.693	1.554	7.882	6.503	14.386
7313	3.387	0.874	15.771	3.657	19.429
7317	5.060	2.526	23.561	10.573	34.135
7327	4.268	3.944	19.874	16.505	36.379
7350	2.433	2.091	11.329	8.752	20.081
8709	0.521	0.540	2.424	2.258	4.682
8726	0.434	0.597	2.022	2.497	4.519
9077	0.906	1.366	4.216	5.718	9.934

Notes:

(2), (3): Section VIII-H, Exhibit 2 of the 04/01/2014 Stipulation.

(4), (5) = (2),(3) x Pure Premium Underlying Present Rate Factors from Exhibit 2.

VIII 000025

Section VIII - F-Class Recommendation
 Subsection G - Class Relativities
 7/1/2016

Section VIII - G
 Exhibit 1

Calculation of Class Relativities

Class(es): 6801 BOAT BUILDING - WOOD - NOC & DRIVERS: US ACT									Effective: 7/1/2016			Federal Class Codes		
Converted Unlimited Losses														
Amount														
Claim Count				Indemnity		Medical		Total	MA Indicated Pure Premiums					
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)			
2009	0	0	0	0	0	0	0	0	0.000	0.000	0.000			
2010	936	0	1	0	0	0	659	659	0.000	0.704	0.704			
2011	2,923	0	0	0	0	0	0	0	0.000	0.000	0.000			
2012	0	0	0	0	0	0	0	0	0.000	0.000	0.000			
2013	0	0	0	0	0	0	0	0	0.000	0.000	0.000			
MA Total:	3,859	0	1	0	0	0	659	659	0.000	0.171	0.171			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.077	.
(14) Massachusetts Credibility:	0.050	0.090	.
(15) Countrywide Pure Premium:	0.202	1.072	1.274
(16) Countrywide Indicated Relativity:	0.066	0.530	.
(17) Countrywide Credibility:	0.100	0.110	.
(18) Countrywide Lost-Time Claims:	4.000	.	.
(19) Pure Premium Underlying Present Rate:	3.867	4.298	8.166
(20) Relativity to Underlying Present Rate:	0.872	1.076	.
(21) Credibility to Underlying Relativity:	0.850	0.800	.
(22) Industry Group Converted Pure Premium:	3.046	2.205	5.251
(23) Formula Relativity:	0.748	0.926	.
(24) Balanced Formula Relativity:	0.746	0.890	0.806

Class(es): 6824 BOAT BUILDING OR REPAIRING & DRIVERS: US ACT									Effective: 7/1/2016			Federal Class Codes		
Converted Unlimited Losses														
Amount														
Claim Count				Indemnity		Medical		Total	MA Indicated Pure Premiums					
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)			
2009	33,905	0	7	0	0	0	6,549	6,549	0.000	0.193	0.193			
2010	37,433	1	12	44,312	78,096	47,200	75,659	245,267	3,270	3,282	6,552			
2011	42,935	0	5	0	3,912	0	5,539	9,450	0.091	0.129	0.220			
2012	50,915	1	3	78,445	0	100,998	7,267	186,710	1,541	2,126	3,667			
2013	49,392	0	8	0	627,335	0	428,888	1,056,223	12,701	8,683	21,385			
MA Total:	214,580	2	35	122,756	709,344	148,198	523,901	1,504,199	3,878	3,132	7,010			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.273	1.421	.
(14) Massachusetts Credibility:	0.240	0.430	.
(15) Countrywide Pure Premium:	2.837	2.665	5.503
(16) Countrywide Indicated Relativity:	0.925	1.318	.
(17) Countrywide Credibility:	0.380	0.290	.
(18) Countrywide Lost-Time Claims:	138.00	.	.
(19) Pure Premium Underlying Present Rate:	3.573	3.526	7.099
(20) Relativity to Underlying Present Rate:	0.806	0.882	.
(21) Credibility to Underlying Relativity:	0.380	0.280	.
(22) Industry Group Converted Pure Premium:	3.046	2.205	5.251
(23) Formula Relativity:	0.963	1.240	.
(24) Balanced Formula Relativity:	0.961	1.192	1.058

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 Subsection G - Class Relativities
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Section VIII - G
 Exhibit 2

Calculation of Class Relativities

Class(es): 6826 MARINA & DRIVERS: US ACT		Effective: 7/1/2016							Federal Class Codes		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	18,412	0	5	0	233,180	0	78,245	311,425	12,665	4,250	16,915
2010	16,580	0	1	0	0	0	8,450	8,450	0,000	0,510	0,510
2011	3,867	0	0	0	0	0	0	0	0,000	0,000	0,000
2012	237	0	0	0	0	0	0	0	0,000	0,000	0,000
2013	612	0	0	0	0	0	0	0	0,000	0,000	0,000
MA Total:	39,707	0	6	0	233,180	0	86,695	319,875	5,872	2,183	8,056

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.928	0.990	.
(14) Massachusetts Credibility:	0.130	0.220	.
(15) Countrywide Pure Premium:	4.165	1.832	5.997
(16) Countrywide Indicated Relativity:	1.357	0.906	.
(17) Countrywide Credibility:	0.190	0.200	.
(18) Countrywide Lost-Time Claims:	19.000	.	.
(19) Pure Premium Underlying Present Rate:	3.892	3.648	7.540
(20) Relativity to Underlying Present Rate:	0.877	0.913	.
(21) Credibility to Underlying Relativity:	0.680	0.580	.
(22) Industry Group Converted Pure Premium:	3.046	2.205	5.251
(23) Formula Relativity:	1.105	0.928	.
(24) Balanced Formula Relativity:	1.103	0.892	1.014

Class(es): 6843 SHIP BUILDING-IRON OR STEEL-NOC & DRIVERS: US ACT		Effective: 7/1/2016							Federal Class Codes		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	0	0	0	0	0	0	0	0	0,000	0,000	0,000
2010	0	0	0	0	0	0	0	0	0,000	0,000	0,000
2011	0	0	0	0	0	0	0	0	0,000	0,000	0,000
2012	0	0	0	0	0	0	0	0	0,000	0,000	0,000
2013	6,561	0	3	0	9,147	0	5,543	14,690	1,394	0,845	2,239
MA Total:	6,561	0	3	0	9,147	0	5,543	14,690	1,394	0,845	2,239

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.458	0.383	.
(14) Massachusetts Credibility:	0.110	0.150	.
(15) Countrywide Pure Premium:	6.782	3.849	10.631
(16) Countrywide Indicated Relativity:	2.211	1.903	.
(17) Countrywide Credibility:	0.450	0.430	.
(18) Countrywide Lost-Time Claims:	311.00	.	.
(19) Pure Premium Underlying Present Rate:	17.664	8.021	25.684
(20) Relativity to Underlying Present Rate:	3.982	2.007	.
(21) Credibility to Underlying Relativity:	0.440	0.420	.
(22) Industry Group Converted Pure Premium:	3.046	2.205	5.251
(23) Formula Relativity:	2.797	1.719	.
(24) Balanced Formula Relativity:	2.791	1.652	2.313

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Section VIII - G
 Exhibit 3

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Federal Class Codes		
6872 SHIP REPAIR CONVERSION- ALL OP & DR: US ACT											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	12,357	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	11,986	0	5	0	0	0	5,872	5,872	0.000	0.490	0.490
2011	9,147	0	1	0	7,671	0	13,729	21,399	0.839	1.501	2,339
2012	9,553	0	3	0	97,784	0	162,079	259,863	10,236	16,967	27,203
2013	7,712	0	1	0	0	0	242	242	0.000	0.031	0.031
MA Total:	50,755	0	10	0	105,454	0	181,922	287,376	2,078	3,584	5,662

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.682	1.626	.
(14) Massachusetts Credibility:	0.210	0.350	.
(15) Countrywide Pure Premium:	4.164	2.733	6.897
(16) Countrywide Indicated Relativity:	1.357	1.351	.
(17) Countrywide Credibility:	0.400	0.330	.
(18) Countrywide Lost-Time Claims:	261.00	.	.
(19) Pure Premium Underlying Present Rate:	10.978	8.923	19.901
(20) Relativity to Underlying Present Rate:	2.475	2.233	.
(21) Credibility to Underlying Relativity:	0.390	0.320	.
(22) Industry Group Converted Pure Premium:	3.046	2.205	5.251
(23) Formula Relativity:	1.651	1.729	.
(24) Balanced Formula Relativity:	1.648	1.662	1.654

Class(es):		Effective: 7/1/2016							Federal Class Codes		
6874 PAINTING: SHIP HULLS - US ACT											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	1,650	0	1	0	0	0	4,904	4,904	0.000	2,971	2,971
2010	24,396	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	7,171	0	1	0	0	0	130	130	0.000	0.018	0.018
2012	2,803	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	383	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	36,403	0	2	0	0	0	5,034	5,034	0.000	0.138	0.138

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.063	.
(14) Massachusetts Credibility:	0.170	0.260	.
(15) Countrywide Pure Premium:	7.717	4.620	12.337
(16) Countrywide Indicated Relativity:	2.515	2.284	.
(17) Countrywide Credibility:	0.220	0.230	.
(18) Countrywide Lost-Time Claims:	26.000	.	.
(19) Pure Premium Underlying Present Rate:	8.396	6.062	14.458
(20) Relativity to Underlying Present Rate:	1.893	1.517	.
(21) Credibility to Underlying Relativity:	0.610	0.510	.
(22) Industry Group Converted Pure Premium:	3.046	2.205	5.251
(23) Formula Relativity:	1.708	1.315	.
(24) Balanced Formula Relativity:	1.704	1.264	1.520

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Section VIII - G
 Exhibit 4

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Federal Class Codes		
7309 STEVEDORING: NOC - US ACT											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	6.828	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	5.877	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	15.897	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	13.196	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	13.835	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	55.634	0	0	0	0	0	0	0	0.000	0.000	0.000

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.190	0.320	.
(15) Countrywide Pure Premium:	5.820	4.184	10.004
(16) Countrywide Indicated Relativity:	1.897	2.068	.
(17) Countrywide Credibility:	0.410	0.340	.
(18) Countrywide Lost-Time Claims:	123.00	.	.
(19) Pure Premium Underlying Present Rate:	7.882	6.503	14.386
(20) Relativity to Underlying Present Rate:	1.777	1.627	.
(21) Credibility to Underlying Relativity:	0.400	0.340	.
(22) Industry Group Converted Pure Premium:	3.046	2.205	5.251
(23) Formula Relativity:	1.489	1.257	.
(24) Balanced Formula Relativity:	1.485	1.208	1.369

Class(es):		Effective: 7/1/2016							Federal Class Codes		
7313 COAL DOCK OPERATION & STEVEDORING: US ACT											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	0	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	0	0	0	0	0	0	0	0			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.000	0.000	.
(15) Countrywide Pure Premium:	1.556	0.897	2.453
(16) Countrywide Indicated Relativity:	0.507	0.443	.
(17) Countrywide Credibility:	0.190	0.200	.
(18) Countrywide Lost-Time Claims:	19.000	.	.
(19) Pure Premium Underlying Present Rate:	15.771	3.657	19.429
(20) Relativity to Underlying Present Rate:	3.556	0.915	.
(21) Credibility to Underlying Relativity:	0.810	0.800	.
(22) Industry Group Converted Pure Premium:	3.046	2.205	5.251
(23) Formula Relativity:	2.976	0.821	.
(24) Balanced Formula Relativity:	2.970	0.789	2.054

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 Exhibit 5

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Federal Class Codes			
7317 STEVEDORING: BY HAND OR HAND TRUCKS: US ACT												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	3,892	0	6	0	43,852	0	44,451	88,302	11,267	11,421	22,687	
2010	2,289	0	0	0	0	0	0	0	0,000	0,000	0,000	
2011	1,974	0	0	0	0	0	0	0	0,000	0,000	0,000	
2012	319	0	1	0	0	0	3,491	3,491	0,000	10,942	10,942	
2013	1,559	0	0	0	0	0	0	0	0,000	0,000	0,000	
MA Total:	10,033	0	7	0	43,852	0	47,942	91,793	4,371	4,778	9,149	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.435	2.167	.
(14) Massachusetts Credibility:	0.150	0.190	.
(15) Countrywide Pure Premium:	6.096	2.569	8.665
(16) Countrywide Indicated Relativity:	1.987	1.270	.
(17) Countrywide Credibility:	0.410	0.410	.
(18) Countrywide Lost-Time Claims:	122.00	.	.
(19) Pure Premium Underlying Present Rate:	23.561	10.573	34.135
(20) Relativity to Underlying Present Rate:	5.312	2.646	.
(21) Credibility to Underlying Relativity:	0.440	0.400	.
(22) Industry Group Converted Pure Premium:	3.046	2.205	5.251
(23) Formula Relativity:	3.367	1.991	.
(24) Balanced Formula Relativity:	3.360	1.914	2.753

Class(es):		Effective: 7/1/2016							Federal Class Codes			
7327 STEVEDORING: CONTAINERIZED FREIGHT & DRIVERS: US ACT												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	121	0	0	0	0	0	0	0	0,000	0,000	0,000	
2010	120	0	0	0	0	0	0	0	0,000	0,000	0,000	
2011	150	0	0	0	0	0	0	0	0,000	0,000	0,000	
2012	182	0	0	0	0	0	0	0	0,000	0,000	0,000	
2013	113	0	0	0	0	0	0	0	0,000	0,000	0,000	
MA Total:	685	0	0	0	0	0	0	0	0,000	0,000	0,000	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.050	0.080	.
(15) Countrywide Pure Premium:	12.092	6.451	18.543
(16) Countrywide Indicated Relativity:	3.942	3.189	.
(17) Countrywide Credibility:	0.200	0.210	.
(18) Countrywide Lost-Time Claims:	20.000	.	.
(19) Pure Premium Underlying Present Rate:	19.874	16.505	36.379
(20) Relativity to Underlying Present Rate:	4.480	4.130	.
(21) Credibility to Underlying Relativity:	0.750	0.710	.
(22) Industry Group Converted Pure Premium:	3.046	2.205	5.251
(23) Formula Relativity:	4.149	3.602	.
(24) Balanced Formula Relativity:	4.140	3.462	3.855

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 Exhibit 6

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Federal Class Codes			
7350 FREIGHT HANDLING NOC: US ACT												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	11.007	0	3	0	75.658	0	27.046	102.704	6.874	2.457	9.331	
2010	11.242	1	1	42.792	66.872	34.872	76.764	221.300	9.755	9.931	19.686	
2011	11.522	0	0	0	0	0	0	0	0.000	0.000	0.000	
2012	11.270	1	5	295.799	49.461	33.228	27.953	406.440	30.635	5.429	36.064	
2013	0	0	0	0	0	0	0	0	0.000	0.000	0.000	
MA Total:	45.040	2	9	338.591	191.991	68.100	131.763	730.444	11.780	4.437	16.218	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.867	2.013	.
(14) Massachusetts Credibility:	0.200	0.330	.
(15) Countrywide Pure Premium:	7.339	3.896	11.235
(16) Countrywide Indicated Relativity:	2.392	1.926	.
(17) Countrywide Credibility:	0.280	0.300	.
(18) Countrywide Lost-Time Claims:	48.000	.	.
(19) Pure Premium Underlying Present Rate:	11.329	8.752	20.081
(20) Relativity to Underlying Present Rate:	2.554	2.190	.
(21) Credibility to Underlying Relativity:	0.520	0.370	.
(22) Industry Group Converted Pure Premium:	3.046	2.205	5.251
(23) Formula Relativity:	2.771	2.052	.
(24) Balanced Formula Relativity:	2.765	1.973	2.433

Class(es):		Effective: 7/1/2016							Federal Class Codes			
8709 STEVEDORING:TALLIERS & CHECKING CLERKS: US ACT												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	2.265	0	0	0	0	0	0	0	0.000	0.000	0.000	
2010	2.783	0	0	0	0	0	0	0	0.000	0.000	0.000	
2011	2.909	0	0	0	0	0	0	0	0.000	0.000	0.000	
2012	5.659	0	0	0	0	0	0	0	0.000	0.000	0.000	
2013	3.682	0	0	0	0	0	0	0	0.000	0.000	0.000	
MA Total:	17.297	0	0	0	0	0	0	0	0.000	0.000	0.000	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.080	0.130	.
(15) Countrywide Pure Premium:	2.378	1.530	3.908
(16) Countrywide Indicated Relativity:	0.775	0.756	.
(17) Countrywide Credibility:	0.200	0.210	.
(18) Countrywide Lost-Time Claims:	21.000	.	.
(19) Pure Premium Underlying Present Rate:	2.424	2.258	4.682
(20) Relativity to Underlying Present Rate:	0.546	0.565	.
(21) Credibility to Underlying Relativity:	0.720	0.660	.
(22) Industry Group Converted Pure Premium:	3.046	2.205	5.251
(23) Formula Relativity:	0.548	0.532	.
(24) Balanced Formula Relativity:	0.547	0.511	0.532

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Section VIII - F-Class Recommendation
 Subsection G - Class Relativities
 7/1/2016

Section VIII - G
 Exhibit 7

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Federal Class Codes			
8726 STEAMSHIP LINE OR AGENCY-PORT EMP: SPRVSR, CAPTNS, ENGRS, STWR												
Converted Unlimited Losses												
Amount												
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	83,598	0	0	0	0	0	0	0	0.000	0.000	0.000	
2010	82,747	0	9	0	22,096	0	79,797	101,893	0.267	0.964	1.231	
2011	84,636	0	18	0	304,611	0	126,426	431,037	3.599	1.494	5.093	
2012	84,999	0	27	0	342,834	0	291,016	633,849	4.033	3.424	7.457	
2013	88,316	0	24	0	332,755	0	298,045	630,800	3.768	3.375	7.143	
MA Total:	424,296	0	78	0	1,002,295	0	795,284	1,797,578	2.362	1.874	4.237	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.775	0.850	.
(14) Massachusetts Credibility:	0.250	0.490	.
(15) Countrywide Pure Premium:	1.648	0.906	2.555
(16) Countrywide Indicated Relativity:	0.537	0.448	.
(17) Countrywide Credibility:	0.230	0.240	.
(18) Countrywide Lost-Time Claims:	28.000	.	.
(19) Pure Premium Underlying Present Rate:	2.022	2.497	4.519
(20) Relativity to Underlying Present Rate:	0.456	0.625	.
(21) Credibility to Underlying Relativity:	0.520	0.270	.
(22) Industry Group Converted Pure Premium:	3.046	2.205	5.251
(23) Formula Relativity:	0.554	0.693	.
(24) Balanced Formula Relativity:	0.553	0.666	0.601

Class(es):		Effective: 7/1/2016							Federal Class Codes			
9077 UNITED STATES ARMED SERVICE RISK-ALL EMPLOYEES & DRIVERS												
Converted Unlimited Losses												
Amount												
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	0	0	0	0	0	0	0	0	0.000	0.000	0.000	
2010	0	0	0	0	0	0	0	0	0.000	0.000	0.000	
2011	0	0	0	0	0	0	0	0	0.000	0.000	0.000	
2012	0	0	0	0	0	0	0	0	0.000	0.000	0.000	
2013	0	0	0	0	0	0	0	0	0.000	0.000	0.000	
MA Total:	0	0	0	0	0	0	0	0				

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.000	0.000	.
(15) Countrywide Pure Premium:	0.000	23.861	23.861
(16) Countrywide Indicated Relativity:	0.000	11.795	.
(17) Countrywide Credibility:	0.060	0.060	.
(18) Countrywide Lost-Time Claims:	1.000	.	.
(19) Pure Premium Underlying Present Rate:	4.216	5.718	9.934
(20) Relativity to Underlying Present Rate:	0.951	1.431	.
(21) Credibility to Underlying Relativity:	0.940	0.940	.
(22) Industry Group Converted Pure Premium:	3.046	2.205	5.251
(23) Formula Relativity:	0.893	2.053	.
(24) Balanced Formula Relativity:	0.892	1.973	1.346

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Section VIII - F-Class Recommendation
Subsection H - Proposed Rates
7/1/2016

Section VIII-H
Exhibit 1

Calculation of Federal Industry Group Rate Change and Limits

(1) Industry Group Differential	1.000
(2) Experience and Benefit Level Change - Overall	-8.8%
(3) Target Rate Change = (1) x [1.000 + (2)] - 1.000	-8.8%
(4) Maximum Rate Change = (3) + 20.0%	11.2%
(5) Minimum Rate Change = (3) - 20.0%	-28.8%
(6) Present Average Rate	11.790
(7) Uncapped Rate Level Factor = [1.000 + (3)] x (6)	10.753
(8) Capped Rate Level Factor	10.746

In addition, the WCRIBMA is limiting the increase in average rates for any class to \$15 and no average rate shall exceed \$90 per \$100 of payroll.

Notes:

- (1): Federal Industry Group is the only group being evaluated.
- (2): Selected Rate Change, from Section VIII-A, Exhibit 1.
- (6): Rates by class consistent with the 04/01/14 stipulation, weighted by five years of exposure.
- (8): Proposed average uncapped rates are capped by an iterative process using rate levels to determine if the required change is achieved.

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Section VIII - F-Class Recommendation
 Subsection H - Proposed Rates
 7/1/2016

Section VIII-H
 Exhibit 2

Calculation of Average Uncapped Rates

Class Code	Balanced Formula Relativity			Uncapped Rate Level Factor	Proposed Average Uncapped Rate = (4) x (5)
	Indemnity	Medical	Total		
(1)	(2)	(3)	(4)	(5)	(6)
6801	0.746	0.890	0.806	10.753	8.67
6824	0.961	1.192	1.058	10.753	11.38
6826	1.103	0.892	1.014	10.753	10.91
6843	2.791	1.652	2.313	10.753	24.87
6872	1.648	1.662	1.654	10.753	17.78
6874	1.704	1.264	1.520	10.753	16.34
7309	1.485	1.208	1.369	10.753	14.72
7313	2.970	0.789	2.054	10.753	22.09
7317	3.360	1.914	2.753	10.753	29.60
7327	4.140	3.462	3.855	10.753	41.46
7350	2.765	1.973	2.433	10.753	26.16
8709	0.547	0.511	0.532	10.753	5.72
8726	0.553	0.666	0.601	10.753	6.46
9077	0.892	1.973	1.346	10.753	14.47

Notes:

(2),(3),(4): Section VIII-G.

(5): Exhibit 1.

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Section VIII - F-Class Recommendation
Subsection H - Proposed Rates
7/1/2016

Section VIII-H
Exhibit 3

Comparison of Average Rates

Class Code (1)	Present Average Capped Rate (2)	Proposed Average Uncapped Rate (3)	Proposed Average Capped Rate (4)
6801	12.05	8.67	8.67
6824	10.28	11.38	11.37
6826	11.13	10.91	10.90
6843	13.87	24.87	15.42
6872	29.36	17.78	20.91
6874	26.14	16.34	18.62
7309	28.34	14.72	20.18
7313	14.84	22.09	16.50
7317	14.18	29.60	15.76
7327	32.46	41.46	36.09
7350	16.78	26.16	18.66
8709	6.58	5.72	5.72
8726	6.67	6.46	6.45
9077	4.63	14.47	5.15

Notes:

(2): from Section VIII-H, Exhibit 3 of the 04/01/14 Stipulation.

(3): Exhibit 2.

(4) = Total Balanced Formula Relativity (Section VIII-G) x Capped Rate Level Factor Subject to maximum and minimum caps (Exhibit 1).

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Section VIII - F-Class Recommendation
Subsection H - Proposed Rates
7/1/2016

Section VIII-H
Exhibit 4

Summary of Proposed Premium Change

Industry Group (1)	Present Premium (2)	Proposed Premium (3)	Proposed Change (4)	Target Change (5)	Capped Rate Level Factor (6)
Federal	10,668,212	9,729,417	-8.8%	-8.8%	10.75

Notes:

- (2): Exposure x Present Average Rates, from Exhibit 3.
- (3): Exposure x Proposed Average Rates, from Exhibit 3.
- (4) = [(3) - (2)] / (2)
- (5), (6): Exhibit 1.

VIII 000036

Pricing Example for Class 6824
 BOAT BUILDING OR REPAIRING & DRIVERS: US ACT

Calculation of MA Indicated Relativity:

		(A). Federal Benefits - Limited Losses (Unit Statistical Plan data, Excluding Large Deductibles)								
		Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only	
Policy Year		LD	NLD		LD	NLD	LD	NLD		
Indemnity	2009	0	0	0	0	0	0	0		
	2010	0	0	0	24,326	45,455	0	2,751		
	2011	0	0	0	0	0	0	2,267		
	2012	0	0	0	0	0	32,818	0		
	2013	0	0	0	0	111,778	0	122,362		
Medical	2009	0	0	0	0	0	0	0	5,491	
	2010	0	0	0	21,338	33,603	0	2,183	8,866	
	2011	0	0	0	0	0	0	729	3,019	
	2012	0	0	0	0	0	43,559	0	5,102	
	2013	0	0	0	0	170,000	0	52,472	1,807	

		(B). Federal Benefits Primary Conversion Factors (Section VIII-E, Exhibit 1, Page 1)								
		Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only	
Policy Year		LD	NLD		LD	NLD	LD	NLD		
Indemnity	2009	1.077	0.994	1.072	1.054	0.973	1.072	0.990		
	2010	1.154	1.025	1.151	1.134	1.007	1.151	1.022		
	2011	1.215	1.070	1.212	1.197	1.055	1.212	1.068		
	2012	1.480	1.201	1.479	1.465	1.189	1.479	1.200		
	2013	2.630	1.669	2.630	2.609	1.656	2.630	1.669		
Medical	2009	1.216	0.995	1.216	1.216	0.995	1.216	0.995	0.771	
	2010	1.316	1.056	1.316	1.316	1.056	1.316	1.056	0.797	
	2011	1.336	1.060	1.336	1.336	1.060	1.336	1.060	0.869	
	2012	1.388	1.034	1.388	1.388	1.034	1.388	1.034	0.921	
	2013	1.672	1.096	1.672	1.672	1.096	1.672	1.096	1.001	

		(C). Federal Converted Limited Losses [(A) x (B)]								
		Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only	
Policy Year		LD	NLD		LD	NLD	LD	NLD		
Indemnity	2009	0	0	0	0	0	0	0		
	2010	0	0	0	27,585	45,789	0	2,812		
	2011	0	0	0	0	0	0	2,421		
	2012	0	0	0	0	0	48,551	0		
	2013	0	0	0	0	185,122	0	204,221		
Medical	2009	0	0	0	0	0	0	0	4,236	
	2010	0	0	0	28,090	35,485	0	2,305	7,064	
	2011	0	0	0	0	0	0	773	2,623	
	2012	0	0	0	0	0	60,442	0	4,700	
	2013	0	0	0	0	186,253	0	57,489	1,809	

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Section VIII - F-Class Recommendation
 Subsection I - Pricing Example
 7/1/2016

Section VIII-I
 Exhibit 1
 Page 2

Pricing Example for Class 6824
 BOAT BUILDING OR REPAIRING & DRIVERS: US ACT

Calculation of MA Indicated Relativity (cont.):

		(D). Federal Unadjusted Excess Losses [(Excess Factor - 1.0) x (C)]							
Policy Year	Fatal	Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2009	0	0	0	0	0	0	0	
	2010	0	0	0	7,963	13,217	0	812	
	2011	0	0	0	0	0	0	699	
	2012	0	0	0	0	0	14,015	0	
	2013	0	0	0	0	53,437	0	58,950	
Medical	2009	0	0	0	0	0	0	0	1,223
	2010	0	0	0	8,109	10,243	0	665	2,039
	2011	0	0	0	0	0	0	223	757
	2012	0	0	0	0	0	17,447	0	1,357
	2013	0	0	0	0	53,764	0	16,595	522

		(E). Federal Adjusted Excess Losses							
Policy Year	Fatal	Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2009	0	0	0	0	0	0	0	
	2010	0	0	0	5,574	9,252	0	568	
	2011	0	0	0	0	0	0	489	
	2012	0	0	0	0	0	9,810	0	
	2013	0	0	0	0	37,406	0	41,265	
Medical	2009	0	0	0	0	0	0	0	1,223
	2010	0	0	0	10,497	14,208	0	909	2,039
	2011	0	0	0	0	0	0	433	757
	2012	0	0	0	0	0	21,652	0	1,357
	2013	0	0	0	0	69,795	0	34,280	522

		(F). Federal Secondary Conversion Factors				
		Fatal	Permanent Total	Permanent Partial	Temporary Total	Medical Only
Indemnity		1.138	1.092	1.336	1.344	
Medical		1.200	0.999	1.223	1.230	1.200

		(G). Federal Converted Unlimited Losses							
Policy Year	Fatal	Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2009	0	0	0	0	0	0	0	
	2010	0	0	0	44,312	73,553	0	4,543	
	2011	0	0	0	0	0	0	3,912	
	2012	0	0	0	0	0	78,445	0	
	2013	0	0	0	0	297,374	0	329,961	
Medical	2009	0	0	0	0	0	0	0	6,549
	2010	0	0	0	47,200	60,784	0	3,954	10,921
	2011	0	0	0	0	0	0	1,483	4,056
	2012	0	0	0	0	0	100,998	0	7,267
	2013	0	0	0	0	313,190	0	112,901	2,796

		(H). Total Federal Converted Unlimited Losses			
Policy Year	Indemnity	Indemnity		Medical	
		LD	NLD	LD	NLD
2009	0	0	0	0	6,549
2010	44,312	78,096	47,200	75,659	
2011	0	3,912	0	5,539	
2012	78,445	0	100,998	7,267	
2013	0	627,335	0	428,888	
Total	122,756	709,344	148,198	523,901	

Notes:

(E): Indemnity Adjusted Excess Losses = Indemnity Unadjusted Excess Losses x 0.7

Medical Adjusted Excess Losses = Medical Unadjusted Excess Losses + 0.3 x Indemnity Unadjusted Excess Losses

(F): Section VIII-E, Exhibit 1, Page 2.

(G) = [(C) + (E)] x (F)

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Section VIII - F-Class Recommendation
 Subsection I - Pricing Example
 7/1/2016

Section VIII-I
 Exhibit 1
 Page 4

Pricing Example for Class 6824
 BOAT BUILDING OR REPAIRING & DRIVERS: US ACT

Calculation of MA Indicated Relativity (cont.):

		(D). State Unadjusted Excess Losses [(Excess Factor -1.0) x (C)]							
Policy Year		Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2009	0	0	0	0	0	0	0	
	2010	0	0	0	0	0	0	0	
	2011	0	0	0	0	0	0	0	
	2012	0	0	0	0	0	0	0	
	2013	0	0	0	0	0	0	0	
Medical	2009	0	0	0	0	0	0	0	0
	2010	0	0	0	0	0	0	0	0
	2011	0	0	0	0	0	0	0	0
	2012	0	0	0	0	0	0	0	0
	2013	0	0	0	0	0	0	0	0

		(E). State Adjusted Excess Losses							
Policy Year		Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2009	0	0	0	0	0	0	0	
	2010	0	0	0	0	0	0	0	
	2011	0	0	0	0	0	0	0	
	2012	0	0	0	0	0	0	0	
	2013	0	0	0	0	0	0	0	
Medical	2009	0	0	0	0	0	0	0	0
	2010	0	0	0	0	0	0	0	0
	2011	0	0	0	0	0	0	0	0
	2012	0	0	0	0	0	0	0	0
	2013	0	0	0	0	0	0	0	0

		(F). State Secondary Conversion Factors				
		Fatal	Permanent Total	Permanent Partial	Temporary Total	Medical Only
Indemnity		1.043	1.000	1.224	1.232	
Medical		1.200	0.999	1.223	1.231	1.200

		(G). State Converted Unlimited Losses							
Policy Year		Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2009	0	0	0	0	0	0	0	
	2010	0	0	0	0	0	0	0	
	2011	0	0	0	0	0	0	0	
	2012	0	0	0	0	0	0	0	
	2013	0	0	0	0	0	0	0	
Medical	2009	0	0	0	0	0	0	0	0
	2010	0	0	0	0	0	0	0	0
	2011	0	0	0	0	0	0	0	0
	2012	0	0	0	0	0	0	0	0
	2013	0	0	0	0	0	0	0	0

		(H). Total State Converted Unlimited Losses			
Policy Year		Indemnity		Medical	
		LD	NLD	LD	NLD
2009		0	0	0	0
2010		0	0	0	0
2011		0	0	0	0
2012		0	0	0	0
2013		0	0	0	0
Total		0	0	0	0

Notes:

(E): Indemnity Adjusted Excess Losses = Indemnity Unadjusted Excess Losses x 0.7

Medical Adjusted Excess Losses = Medical Unadjusted Excess Losses + 0.3 x Indemnity Unadjusted Excess Losses

(F): Section IX-B, Exhibit 1, Page 3.

(G) = [(C) + (E)] x (F)

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Section VIII - F-Class Recommendation
 Subsection I - Pricing Example
 7/1/2016

Section VIII-I
 Exhibit 1
 Page 5

Pricing Example for Class 6824
 BOAT BUILDING OR REPAIRING & DRIVERS: US ACT

Calculation of MA Indicated Relativity (cont.):

Exposure, Converted Unlimited Losses (Both Federal & State)			
Policy Year (1)	Exposure (2)	Indemnity (3)	Medical (4)
2009	33,905	0	6,549
2010	37,433	122,408	122,859
2011	42,935	3,912	5,539
2012	50,915	78,445	108,265
2013	49,392	627,335	428,888
Total	214,580	832,100	672,099
(5)	Indicated Pure Premium	3.878	3.132
(6)	Federal Class Codes Industry Group Pure Premium	3.046	2.205
(7)	MA Indicated Relativity	1.273	1.421

Notes:

- (2): Unit Statistical Plan data, excluding Large Deductibles
- (3), (4): Converted Unlimited Losses from Pages 2 & 4.
- (5): Totals of (3) and (4), divided by Total of (2), respectively.
- (6): Section VIII-F, Exhibit 1, Page 2.
- (7) = (5) / (6)

VIII 000041

Pricing Example for Class 6824
 BOAT BUILDING OR REPAIRING & DRIVERS: US ACT

Calculation of Countrywide Relativity

State (1)	State Code (2)	Losses				Lost-Time Claims		Payroll (9)
		Indemnity		Medical		Likely (7)	Not Likely (8)	
		Likely (3)	Not Likely (4)	Likely (5)	Not Likely (6)			
Alabama	1	6,931	26,764	269,002	24,713	1	1	3,362,659
Arizona	2	0	8,284	0	18,814	0	1	490,520
Arkansas	3	0	0	0	0	0	0	127,669
Colorado	5	0	0	0	0	0	0	0
Connecticut	6	0	0	0	3,870	0	0	762,236
D.C.	8	0	0	0	0	0	0	0
Florida	9	46,530	43,651	177,823	157,060	2	6	15,582,773
Georgia	10	0	1,305	0	3,057	0	1	2,429,099
Idaho	11	0	0	0	0	0	0	6,993
Illinois	12	0	32,563	0	99,835	0	2	940,878
Indiana	13	0	0	0	0	0	0	204,728
Iowa	14	0	0	0	613	0	0	811,435
Kansas	15	0	0	0	0	0	0	0
Kentucky	16	0	143,340	0	192,137	0	4	1,846,813
Louisiana	17	126,646	92,863	247,659	128,677	3	4	9,217,107
Maine	18	33,227	107,626	0	334,128	1	14	31,263,628
Maryland	19	0	57,208	0	19,407	0	1	3,991,698
Minnesota	22	0	0	0	0	0	0	0
Mississippi	23	3,706	117,015	33,641	250,265	1	10	21,538,411
Missouri	24	0	0	0	0	0	0	600,972
Montana	25	0	0	0	0	0	0	0
Nebraska	26	0	0	0	0	0	0	0
Nevada	27	0	0	0	0	0	0	41,518
New Hampshire	28	0	527	0	5,798	0	1	678,162
New Mexico	30	0	0	0	0	0	0	0
North Carolina	32	122,389	362,084	37,620	280,293	1	4	4,059,527
Oklahoma	35	5,149	22,545	9,409	20,769	1	2	855,977
Oregon	36	409,906	137,421	202,058	234,508	2	13	7,987,297
Rhode Island	38	138,959	634,653	68,783	510,012	1	30	12,125,770
South Carolina	39	38,042	0	48,133	343	1	0	3,299,613
South Dakota	40	0	0	0	0	0	0	0
Tennessee	41	0	34,064	0	22,666	0	1	106,694
Utah	43	0	0	0	0	0	0	0
Vermont	44	0	0	0	0	0	0	41,600
Virginia	45	0	4,294	0	52,589	0	1	4,831,682
West Virginia	47	0	0	0	0	0	0	0
Hawaii	52	0	216,982	0	432,123	0	4	5,709,005
Alaska	54	165,804	460,425	149,795	1,853,946	2	22	21,457,777
Total		1,097,289	2,503,614	1,243,923	4,645,623	16	122	154,372,241

Notes:

(3) - (9): Data are total for latest three policy years. See Section IX-D, Exhibit 3.

(7), (8): Used in calculating countrywide credibilities.

VIII 000042

Pricing Example for Class 6824
 BOAT BUILDING OR REPAIRING & DRIVERS: US ACT

Calculation of Countrywide Relativity

State (1)	State Code (2)	Federal Class Codes Pitch Factors		Pure Premiums, on MA Level		Total (7)
		Indemnity (3)	Medical (4)	Indemnity (5)	Medical (6)	
Alabama	1	0.728	0.401	0.729	3.498	
Arizona	2	2.296	0.817	3.878	3.132	
Arkansas	3	0.000	0.000	0.000	0.000	
Colorado	5	0.000	0.000	0.000	0.000	
Connecticut	6	45.667	2.799	0.000	1.421	
D.C.	8	0.000	18.690	0.000	0.000	
Florida	9	2.950	1.027	1.707	2.207	
Georgia	10	2.956	1.419	0.159	0.179	
Idaho	11	0.000	0.027	0.000	0.000	
Illinois	12	1.222	0.379	4.229	4.016	
Indiana	13	8.327	1.746	0.000	0.000	
Iowa	14	2.677	1.112	0.000	0.084	
Kansas	15	0.000	0.000	0.000	0.000	
Kentucky	16	0.999	0.624	7.754	6.488	
Louisiana	17	0.808	0.674	1.923	2.751	
Maine	18	7.507	2.913	3.382	3.113	
Maryland	19	4.444	2.711	6.369	1.318	
Minnesota	22	0.000	0.000	0.000	0.000	
Mississippi	23	6.156	1.332	3.450	1.756	
Missouri	24	0.778	1.053	0.000	0.000	
Montana	25	0.000	0.000	0.000	0.000	
Nebraska	26	0.007	0.008	0.000	0.000	
Nevada	27	0.000	0.000	0.000	0.000	
New Hampshire	28	2.060	0.456	0.160	0.390	
New Mexico	30	0.000	5.886	0.000	0.000	
North Carolina	32	0.389	0.459	4.643	3.592	
Oklahoma	35	0.893	0.591	2.890	2.082	
Oregon	36	0.765	0.806	5.244	4.407	
Rhode Island	38	0.302	0.359	1.926	1.715	
South Carolina	39	0.454	0.382	0.523	0.562	
South Dakota	40	0.000	0.000	0.000	0.000	
Tennessee	41	0.144	0.194	4.595	4.112	
Utah	43	0.000	0.000	0.000	0.000	
Vermont	44	0.000	0.735	0.000	0.000	
Virginia	45	3.287	1.258	0.292	1.370	
West Virginia	47	0.000	0.000	0.000	0.000	
Hawaii	52	0.811	0.651	3.083	4.928	
Alaska	54	0.914	0.354	2.668	3.308	
(8)	Average of (5), (6) weighted by Payroll from Page 1, respectively			2.837	2.665	5.503
(9)	CW Federal Class Codes Pure Premium			3.068	2.023	5.091
(10)	CW Relativity = (8) / (9)			0.925	1.318	1.081
(11)	CW Relativity, balanced to unity			0.925	1.318	

Notes:

- (3), (4) = (MA Total Federal Class Code Limited Losses) / [(Federal Class Code Pure Premium by State) x (MA Total Federal Class Code Exposure)].
- (5) = 100 x [State Indemnity Losses / State Payroll] x (3), where State Indemnity Losses and State Payroll from page 1.
- (6) = 100 x [State Medical Losses / State Payroll] x (4), where State Medical Losses and State Payroll from page 1.
- (9) = (8) weighted by MA five year Federal Class Codes Exposure
- (11): Relativities balanced to unity (weighted by MA exposure) over Federal Class Codes Industry Group.

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Section VIII - F-Class Recommendation
 Subsection I - Pricing Example
 7/1/2016

Section VIII-I
 Exhibit 3

Pricing Example for Class 6824 BOAT BUILDING OR REPAIRING & DRIVERS: US ACT

Calculation of Credibility and Balanced Formula Relativity:

- (1) MA Indicated Relativity
- (2) Countrywide Indicated Relativity
- (3) Relativity to Underlying Present Rate

Injury Type	
Indemnity	Medical
1.273	1.421
0.925	1.318
0.806	0.882

Calculation of MA Credibility:

The MA Credibilities are calculated using the formula $Z=(E / F)^{0.4}$ where E are expected losses for that injury type.

- (4) Adopted Relativity
- (5) Industry Group Pure Premium Underlying Present Rate Factor
- (6) Pure Premium Underlying Present Rate
= (4) x (5)
- (7) Expected Losses
= (6) x [(Total Exposure from Exhibit 1, Page 5)]
- (8) Full Credibility Standards
- (9) MA Credibility
= Minimum of {100%, [(7) / (8)]^{0.4}}

Injury Type	
Indemnity	Medical
0.767	0.843
4.656	4.185
3.573	3.526
766,707	756,654
27,200,000	6,400,000
24%	43%

Calculation of Countrywide Credibility

The Countrywide Credibilities are calculated using the formula $Z=(E / F)^{0.4}$ where E are the countrywide claim counts for that injury type. The countrywide credibility is limited to no more than half of the complement of the credibility assigned to the Massachusetts data.

- (10) Countrywide Lost-Time Claims
- (11) Countrywide Claim Count Standard
- (12) Countrywide Credibility
= Minimum of { [(10) / (11)]^{0.4}, 0.5 x [100% - (9)] }
- (13) Credibility to Underlying
= 100% - (9) - (12)
- (14) Formula Relativity
= [(1) x (9)] + [(2) x (12)] + [(3) x (13)]
- (15) Off Balance Factor

Injury Type	
Indemnity	Medical
138	138
1,150	1,000
38%	29%
38%	28%
0.963	1.240
1.002	1.040

- (16) Balanced Formula Relativity

Injury Type		
Indemnity	Medical	Total
0.961	1.192	1.058

Notes:

- (1): Exhibit 1, Page 5.
- (2): Exhibit 2, Page 2.
- (3): Relativity of (6) to Industry Group average, using 5 year Schedule Z exposure as weights.
- (4): Section VIII-F, Exhibit 3.
- (5): Section VIII-F, Exhibit 2.
- (8), (11): Section IX-D, Exhibit 1, Page 1.
- (10): Exhibit 2, Page 1.
- (15): Factor to balance Formula relativities across industry group to unity using 5 year Schedule Z exposure by injury type.
- (16) = (14) / (15), Total Balanced Formula Relativity is the weighted average of Partial Relativities using the MA Industry Group Pure Premium as weights.

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Section VIII - F-Class Recommendation
Subsection I - Pricing Example
7/1/2016

Section VIII-I
Exhibit 4

Pricing Example for Class 6824 BOAT BUILDING OR REPAIRING & DRIVERS: US ACT

Calculation of Proposed Average Rate and Proposed Manual Rate:

(1) Present Average Rate	10.28
(2) Total Balanced Formula Relativity	1.058
(3) Capped Rate Level Factor	10.746
(4) Maximum Average Rate	11.43
(5) Minimum Average Rate	7.32
(6) Proposed Average Capped Rate = (2) x (3), Subject to Caps (4), (5)	11.37
(7) Offset for Merit Rating	0.968
(8) Offset for ARAP	1.052
(9) Offset for Construction Classification Premium Adjustment Program	1.000
(10) Provision for Insolvency Fund Assessment Recoupment	-0.0022
(11) Proposed Manual Rate = { (6) / [(7) x (8) x (9)] } x { 1.000 / [1.000 - (10)] }	11.14
(12) Minimum Premium	500
(13) Loss Constant	0
(14) Expected Loss Rate	3.71
(15) D-Ratio	0.19

Notes:

(1): Section VIII-H, Exhibit 3.

(2): Exhibit 3.

(3): Section VIII-H, Exhibit 1. Proposed average uncapped rates are capped by an iterative process using rate levels to determine if the required change is achieved. Class 6824 is in the Federal Class Codes Industry Group.

(4): Multiple caps apply including the maximum increase for any class within the industry group, a maximum absolute dollar change of \$15, and a maximum absolute average rate of \$90.

(5): Based on the minimum decrease for any class within the industry group.

(7), (8), (9), (10): Section IX - K, Exhibit 1. Class 6824 is not eligible for the Construction Credit prog

(12) = { [(11) x 35.0] + (13) + Expense Constant } subject to a maximum of \$500

Where Expense Constant = 159 if (11) x 35 + (13) < 200,

= 250 if (11) x 35 + (13) >= 200 and < 1000

or = 338 if (11) x 35 + (13) >= 1000.

(13): No loss constant for Federal classes.

(14) = (6) x Ratio of Experience Rating ELR to Average Rate, from Section X-C, Exhibit 1.

Class 6824 is in Hazard Group F.

(15): See text of Section X for an explanation of the calculation of D-Ratios.

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Section VIII - F-Class Recommendation
Subsection J - U.S.L.H. & H.W. Coverage Percentage
7/1/2016

Section VIII-J
Exhibit 1

Calculation of USLH & HW Compensation Coverage Percentage

(1)	Benefits Differential Underlying Current USLH & HW Coverage Percentage	1.195
(2)	State Benefit Level Adjustments Since Last Approval	1.012
(3)	Federal Benefit Level Adjustments Since Last Approval	1.004
(4)	Revised Benefits Differential = (1) x [(3) / (2)]	1.186
(5)	Federal Indemnity Losses as % of Total Federal Losses	55.5%
(6)	Expected Loss Ratio for State Classes	61.3%
(7)	Fixed Expense Ratio	5.0%
(8)	Special Fund Assessment Rate as % of Federal Indemnity Losses	0.110
(9)	Loss Adjustment Expense Factor (Applies to Losses)	1.200
(10)	USLH & HW Coverage Percentage for Manual Rates	1.230
(11)	USLH & HW Coverage Percentage for Expected Loss Rates	1.174

Notes:

(1): Section VIII-J, Exhibit 1 of 4/1/2014 Stipulation.

(2): Total Benefit Level Changes from Prior Effective Period to Prospective Period from Section IV-A, Exhibit 1

(3): Total Benefit Level Changes from Prior Effective Period to Prospective Period from Section IV-F, Exhibit 1

(5): Based on ratio of indemnity losses to total losses from Section VIII-C, Exhibit 1, Page 1.

(6): Section VI-J, Exhibit 1.

(7): Average of Fixed Expense Ratios for 2 PYs from Section VI-B, Exhibit 1.

(8): NCCI's Tax & Assessment Directory.

(9): Section VIII-E, Exhibit 1, Page 2.

(10) = { [(6) x (4) x (9)] + [(6) x (4) x (5) x (8)] + (7) } / { [(6) x (9)] + (7) }

(11) = { [(6) x (4) x (9)] + (7) } / { [(6) x (9)] + (7) }

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Section VIII - F-Class Recommendation
Subsection K - Federal Tax Multiplier
7/1/2016

Section VIII-K
Exhibit 1

Calculation of Federal Tax Multiplier

(1)	State Tax Multiplier	1.026
(2)	Loading for Taxes and Residual Market Subsidy = $1.0 - [1.0 / (1)]$	2.6%
(3)	Expected Loss Ratio (no LAE)	61.3%
(4)	Federal Special Funds Assessment	11.0%
(5)	Federal Indemnity Losses as % of Total Losses	55.5%
(6)	Loading for Federal Funds Assessment = $(3) \times (4) \times (5)$	3.7%
(7)	Federal Tax Multiplier = $1.0 / [1.0 - (2) - (6)]$	1.067

Notes:

(1),(3): Section XII-A, Exhibit 4.

(4): NCCI Tax and Assessment Directory.

(5): Based on ratio of federal indemnity losses to state and federal total losses from Section VIII-C, Exhibit 1, Pages 1 and 3.

CLASSIFICATION PRICING

Background

The primary goal of ratemaking is to determine an appropriate price for each insured based on the losses that the insured is expected to generate in the prospective policy period. Because many risks are too small to generate an accurate rate based on their own individual experience, risks are combined into classifications.

The workers' compensation system assigns similar risks to the same classification codes and calculates a rate separately for each code. In aggregating risks, it is desirable to balance stability and responsiveness and derive groups that are distinctly different from each other in terms of experience. In order to attain stability, we want a group large enough that its losses do not fluctuate too much; and for responsiveness, we want a group small enough so that its rate adjusts to the changing costs of similar risks.

In the Massachusetts workers' compensation system, insureds are separated into five Industry Groups: Manufacturing, Construction, Office and Clerical, Goods and Services, and Miscellaneous. The assignment of class codes to each industry group is based on products produced, processes involved, and services provided.

Summary

In this section we first calculate the rate change for each Industry Group as it varies from the statewide overall indicated rate change. The calculation of the indicated Industry Group rate change is similar to the process used in developing the overall rate

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level indication. We update the indicated class relativities within each Industry Group to reflect the ratio of the pure premium for the individual class to the pure premium for the given Industry Group. Class relativities are updated regularly in order to maintain a fair and accurate classification system.

Estimated pure premium relativities for each class are a credibility-weighted average of three pure premium relativities: (1) recent Massachusetts (MA) experience, (2) recent "countrywide" (CW) experience, and (3) the relativities underlying the present rate. Average rates are calculated from the updated relativities to derive the proposed rate change by Industry Group. Proposed average rates are capped by an iterative process to attain the required industry group changes. Finally, proposed manual rates are determined by applying offsets to the proposed average capped rates. Since ARAP, Merit and Experience Rating, and the Construction Credit program are each designed to be revenue neutral, an offset for each of these programs is applied to the rate.

Massachusetts Data

The data used for the purpose of classification pricing are the Unit Statistical Plan data from Schedule Z, which shows detailed policy year payroll, premium and loss data for each classification in Massachusetts. The data used exclude the experience of large deductible policies. In this review, we have utilized the latest available five policy years of data, policy years 2009 through 2013.

Adjustment of Massachusetts Data

We begin the process by calculating "limited losses." Limited losses are determined by applying per claim limits and per occurrence limits. These limited losses are multiplied by primary conversion factors (PCF) (Section IX – B, Exhibit 1, Page 1) in order to adjust each policy year's experience to reflect current conditions. Primary conversion factors include benefit level adjustments, loss development factors, and trend factors. Consistent with other sections of the filing, the WCRIBMA has calculated loss development factors separately for AIG. Section IX-B, Exhibit 1, Page 1 shows the development factors for the remainder of the industry and for AIG used in the calculation of the primary conversion factors. Converted limited losses are the product of the limited losses and the primary conversion factors.

Next, we apply excess loss factors. In this filing as in the 2010, 2011, 2012 and 2014 filings, the WCRIBMA has followed the NCCI's class ratemaking methodology in calculating excess loss factors. A provision for excess losses has been determined using estimated excess ratios by hazard group from Section XII - F, Exhibit 3, Page 1. The excess ratios in Section XII – F, Exhibit 3, Page 1 are "per occurrence" excess ratios which need to be converted to "per claim" excess ratios. This is done by multiplying the excess ratios from Section XII – F, Exhibit 3, Page 1 by a factor of 0.985.

A factor (calculated as $[1.0 / (1.0 - \text{Excess Ratio})] - 1.0$) is applied separately for indemnity and medical losses to converted limited losses by class to derive unadjusted excess losses. Consistent with the methodology in past rate filings and with NCCI's

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methodology, 30% of the unadjusted indemnity excess losses is reassigned to medical excess losses. The resulting quantities are termed the adjusted excess losses.

Finally we calculate converted unlimited losses by multiplying the sum of the converted limited losses and the adjusted excess losses by the secondary conversion factors (SCF) (Section IX – B, Exhibit 1, Page 2). Secondary conversion factors include factors to load loss adjustment expenses and the investment income offset. Indemnity and medical converted unlimited losses are then summed by policy year. These sums are displayed by Industry Group in Section IX - C. Massachusetts indicated pure premiums are calculated by dividing these losses by exposure (generally payrolls).

Inclusion of Countrywide Data

Massachusetts relativities are credibility-weighted with countrywide relativities and with the pure premiums relativities underlying present rates. The countrywide data used in this filing are supplied by NCCI and another independent bureau. Countrywide relativities are based upon the latest available three composite policy years, although the specific years vary by state (see Section IX - D, Exhibit 3). Before the data can be used for ratemaking purposes, they must be adjusted to reflect the Massachusetts' distribution of exposure and loss levels.

Pitch factors are used to adjust the countrywide data to a corresponding Massachusetts level. These pitch factors are calculated as follows:

1. Multiply each state's classification pure premiums by the corresponding Massachusetts exposure to estimate the loss

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level that would occur if the employers in that state were located in Massachusetts.

2. Sum the indemnity and medical losses by state and industry group to determine the aggregate adjusted losses for each state.
3. Calculate aggregate adjusted losses for Massachusetts in a similar fashion.
4. Divide the aggregate adjusted losses for Massachusetts by the aggregate adjusted losses for each state to determine the pitch factors.

Pitch factors represent the amount by which another state's data must be adjusted to be on the same exposure distribution and loss level as the Massachusetts Schedule Z data (Section IX - D, Exhibit 2). Each state's pure premiums are multiplied by its corresponding pitch factor to derive adjusted pure premiums. The sum of the products of the adjusted pure premiums and exposures by state by class is then divided by the total exposure by class to derive countrywide class pure premiums.

For each Industry Group, the countrywide indicated pure premiums are converted to relativities, so that they balance to unity when weighted by Massachusetts exposures.

Underlying Relativities

The relativities underlying present rates are calculated by balancing to unity the pure premiums underlying present rates (which have been adjusted to reflect the impact of benefit changes and trend to the proposed effective period), based on the five most recent years of exposure.

Formula Relativities

Once we have the separate (MA Indicated, CW and Underlying) relativities, we use credibility-weighted averages to calculate formula relativities. The indicated Massachusetts relativity is multiplied by its credibility, the indicated countrywide relativity is multiplied by its (limited) credibility and the relativity underlying the present rate is multiplied by the remaining credibility. The total formula relativity is the weighted average of the indemnity and medical relativities, using the Industry Group indemnity and medical pure premiums as weights. The calculated formula relativities are then balanced to unity based on the five most recent policy years of exposure.

Credibility

Credibility reflects the relative reliability and volume of class data used to determine class relativities. In general, a class with higher expected losses has more weight given to its recent MA indicated relativities, while a class with lower expected losses has more weight given to the countrywide and underlying relativities.

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Credibilities are calculated separately for the MA and the CW experience, and the remainder of credibility is assigned to the relativity underlying the present rate.

Massachusetts Credibility

This filing follows the classical credibility method, which has been used since the 2001 rate filing, based on the formula:

$$Z = (E / F)^{0.4}$$

Where Z = Credibility assigned to MA or CW experience
 E = Expected Losses for MA, Claim Counts for CW
 F = Full Credibility Criterion

The Massachusetts full credibility criterion is calculated as the product of the claim count standard and the average claim cost. We use NCCI's credibility standards. The average claim costs have been updated in Section IX - D, Exhibit 1, Page 2 of this filing.

Credibility is a function of the volume of indemnity and medical expected losses. By class, expected losses are calculated separately for indemnity and medical losses by multiplying the pure premiums underlying the present rate by exposure. Pure premiums underlying present rates are the product of the adopted relativities from the previous rate revision and pure premium underlying present rate factors. The factors are comprised of

the rate level factor implicit in the current rate and an adjustment for benefit level changes and trend since the previous revision (Section IX - E, Exhibit 1).

Practical Credibility Considerations

This method may produce anomalous credibilities for classes with small amounts of data. Therefore, the following constraints apply:

1. Credibilities cannot be negative.
2. Countrywide credibilities are limited so that the sum of the Massachusetts and countrywide credibilities is not more than 100%.
3. Countrywide credibilities cannot be greater than 50% and are limited to $\frac{1}{2}$ of (1.0 - Massachusetts credibility).

Countrywide Credibility

The credibility of adjusted countrywide pure premiums is determined based on claim counts for lost time claims (Section IX - D, Exhibit 1, Page 1). Exposure cannot be used as a measure of credibility since wage levels vary significantly between states.

Proposed Average Capped Rates

Proposed average rates by class are calculated to achieve the proposed rate change by Industry Group. The uncapped rate for each class is the product of the formula pure premium relativity and the uncapped rate level factor for the Industry Group. This

IX 000009

uncapped rate level factor is the product of the present average rate and the average rate level change by industry group.

Proposed average uncapped rates are then subject to several capping mechanisms (Section IX – H, Exhibit 1) that consequently require an iterative process of adjusting capped average rates to balance to the required industry group change, apply the capping mechanism again, and repeating until the capped average rates produce an industry group change equal to the required industry group change. The WCRIBMA uses the five most recent years of exposures by class to determine if the required Industry Group change is achieved.

Swing Limits

The primary capping mechanism used in the process described above is the application of swing limits by class. Swing limits are used to establish an allowable range of rate changes by industry group. In the 2014 rate filing, the WCRIBMA's proposed swing limits were calculated as follows:

$$\text{Maximum Allowable Rate Change} = (50\% \times \text{EC}) + (100\% \times \text{BC}) + 20\%$$

$$\text{Minimum Allowable Rate Change} = (50\% \times \text{EC}) + (100\% \times \text{BC}) - 20\%$$

where EC = Experience Change (as a percentage)

BC = Benefit Change (as a percentage)

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The midpoint of the allowable range of rate changes in this case is 50% of the experience change plus 100% of the benefit change, rather than the required industry group change. This method was potentially biased because only 50% weight is given to the experience change when calculating the upper and lower bounds of the allowable range of rate changes. As the absolute value of the experience change grows, the bias increases until the method is no longer reasonable to use. For instance, assume the WCRIBMA filed a 40% rate decrease driven entirely by an experience change. The allowable range of rate changes would be from -40% to 0%, but for the required industry group change to be realized, all classes within the industry group would have to decrease by 40%. This example, though extreme, is illustrative of the impact biased swing limits can have on the rate capping mechanism.

Swings limits do not impact the total premium for an industry group, but they do impact the dispersion of rates within an industry group. So long as the resulting allowable range of rate changes is valid (that is, it includes the required industry group change) the iterative process will yield a reasonable solution. In this filing the WCRIBMA is proposing to change the method used to calculate swing limits, specifically reflecting 100% of the experience change instead of only 50% of the experience change. This simplifies the calculation of the allowable range of rate changes for a given industry group to the following:

$$\begin{aligned}\text{Maximum Allowable Rate Change} &= (100\% \times \text{EC}) + (100\% \times \text{BC}) + 20\% \\ &= \text{IGC} + 20\%\end{aligned}$$

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$$\begin{aligned}\text{Minimum Allowable Rate Change} &= (100\% \times \text{EC}) + (100\% \times \text{BC}) - 20\% \\ &= \text{IGC} - 20\%\end{aligned}$$

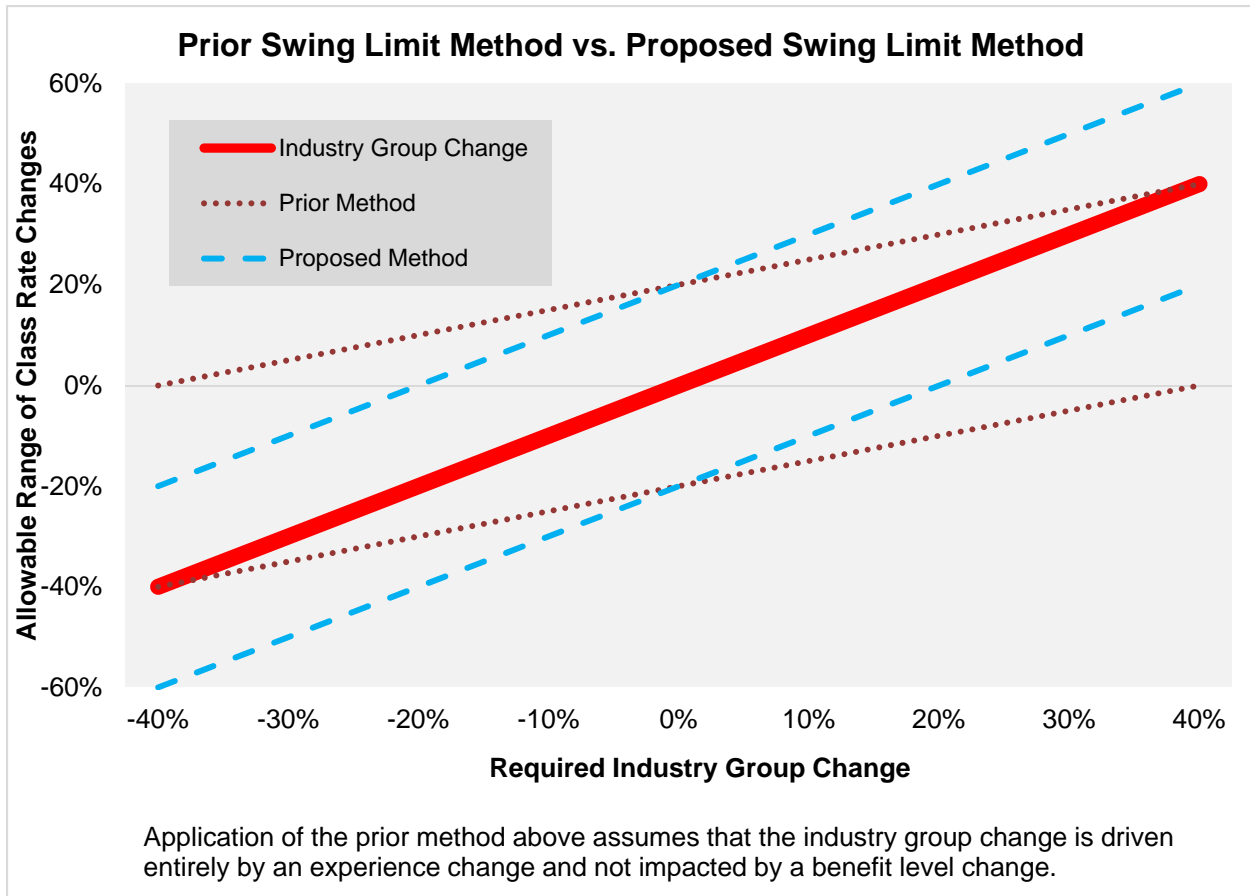
where EC = Experience Change (as a percentage)

BC = Benefit Change (as a percentage)

IGC = Required Industry Group Rate Change

This proposed new method is comparable to what the NCCI has been doing since 1977. When NCCI began using this method, the allowable range of rate changes was based on the required industry group change plus or minus 25%. Currently, a number of NCCI states have modified the calculation to employ +/- 20% or +/- 15% in calculating the allowable range of rate changes for an industry group. The chart below compares the proposed method to the prior method for various required industry group changes.

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As this chart demonstrates, the proposed method results in swing limits that are centered evenly about the required industry group changes, which was not the case for the prior swing limit method. The WCRIBMA believes the proposed swing limit method is more equitable because the extent of capping at the maximum class rate will be more in line with the extent of capping at the minimum class rate. Had the WCRIBMA utilized the prior swing limit method in this rate filing, 236 classes would have higher proposed rates and 150 classes would have lower proposed rates, and the overall rate changes by industry group and for the industry in total would be unchanged.

Manual Rates

Section IX - A displays the proposed manual rates and rating values for this filing. Proposed manual rates are determined by applying offsets to the proposed average capped rates. We calculate offsets for the impact of merit and experience rating, ARAP, construction credits, and the recoupment of the Insolvency Fund assessments, as shown in Section IX - K.

Experience Rating

Expected losses used in the calculation of experience modifications are calculated by multiplying exposures by the expected loss rate (ELR) by classification code. The WCRIBMA's method for estimating ELRs begins with average rates that are subject to a number of adjustments to distill the average rate down to the losses expected to be used to calculate experience modifications during the prospective effective period of the proposed rates. If the average rates are adequate and not excessive, the expected losses will approximate the actual losses over time, and the expected intrastate experience modifications in Massachusetts will approximate 1.00.¹

Experience modifications for interstate rated insureds, generally multistate employers, are based on the ELRs for multiple states. Consequently, interstate experience modifications are inextricably linked to experience rating parameters developed by NCCI. NCCI expressly targets an average experience modification less than 1.00. For an insured with operations in Massachusetts that is interstate rated, the

¹ The formula for the experience modification can be found in NCCI's Experience Rating Plan Manual. If actual losses equal expected losses, the formula yields an experience modification of 1.00.

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experience modification will be calculated using parameters developed by the WCRIBMA and parameters developed by the NCCI. This blending of parameters, some from the WCRIBMA that are targeting an average experience modification of 1.00 and others from NCCI which are targeting an average experience modification less than 1.00, results in interstate experience modifications applicable to Massachusetts workers' compensation premium that are less than 1.00. Therefore, the WCRIBMA is proposing a change in the methodology used to estimate the offset for experience rating.

The experience rating offset applied to average rates, when converting average rates to manual rates, is based on a premium weighted average of the estimated impact in the prospective period of being (1) merit rated, (2) intrastate experience rated, (3) interstate experience rated, or (4) ineligible for either merit or experience rating. In this filing, the WCRIBMA estimated the impact on the experience rating offset of being merit rated, intrastate experience rated, or ineligible for either merit or experience rating in the same manner as was done in all of the rate filing submitted by the WCRIBMA since 2005.

With respect to the impact on the experience rating offset of being interstate experience rated, the WCRIBMA has changed its methodology to recognize the fact that NCCI is targeting average experience modifications less than 1.00 and this has resulted in average interstate experience modifications applicable to Massachusetts exposures that are materially less than 1.00. In the prior rate filing, the WCRIBMA assumed that average interstate rated experience modification was 1.00. In this filing,

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the WCRIBMA has estimated what the average interstate experience modification will be based on data underlying interstate experience modifications promulgated by NCCI. The WCRIBMA recalculated interstate experience modifications with a singular refinement to the data that enters that calculation. Massachusetts actual losses are set equal to expected losses, consonant with the method used in estimating the average intrastate experience modification. This methodological change does not impact the proposed average rate change, but it will have a one-time impact on manual rates that results in additional premium revenue. Manual rates are higher because the adjustment to average rates needed to make merit and experience rating revenue neutral is now, 0.968 as opposed to 0.997 in the 2014 filing. Subsequent filings will not be similarly impacted because the rates subject to revision will reflect an experience rating offset calculated using the new method.

All Risk Adjustment Program

The All Risk Adjustment Program (ARAP) surcharges those experience-rated risks, both voluntary and assigned, with a record of losses greater than expected under the Experience Rating Plan. The purpose of this program is to provide a pricing mechanism to reflect the unusually adverse experience of certain experience-rated risks and to provide an additional financial incentive for such risks to improve workplace safety. Because the program allows for surcharges only, it generates additional

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premium revenue. In order to achieve revenue-neutrality, we apply a corresponding offset to reduce the manual rates to make up for the anticipated surcharge premium.

The ARAP adjustment is calculated and identified as a separate factor on the Experience Rating Calculation sheet. The ARAP factor can range from 1.00 to a maximum of 1.25. The offset factor for ARAP, calculated in Section IX – K, Exhibit 3, is 1.052.

Merit Rating Program

The objective of the Merit Rating Program is to provide a pricing mechanism for risks too small to qualify for experience rating to share in the loss experience that they generate.

A risk is eligible for the Merit Rating Program if it is not eligible for experience rating and has an average annual premium over the last three policy years of at least \$500. Eligible risks receive the following adjustments to their premium, based on the number of lost-time claims over the most recent three policy years.

Number of Lost-Time Claims	Merit Rating Adjustment
0	5% credit
1	None
2 or more	5% debit

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To make the program revenue neutral, rates should be offset by the average historical merit rating credit weighted by the percentage of premium eligible for merit rating. Section IX - K, Exhibit 2 shows the calculation of the combined offset of 0.968 for Experience and Merit Rating.

Construction Credit Program

The Massachusetts Construction Classification Premium Adjustment Program is a credit-only program and we have calculated an offset to the eligible classes to assure revenue neutrality. Section IX - K, Exhibit 4 shows the derivation our selection of the 4.2% offset to be applied to the eligible classes.

Loading for Recoupment of Insolvency Fund Assessments

Under Massachusetts law, the Fund may assess carriers to cover the Fund's costs of providing relief in the event of insurer insolvencies. If a carrier writes premium for a line of business covered by the Fund, such premium will be subject to assessment. The law provides that these assessments can be recouped from policyholders. Beginning in 1988, workers' compensation insurance has been covered by the Fund. The loading included in this filing is intended to recoup prior year assessments as provided in G.L. c. 175D, § 13.

The Fund does not maintain segregated accounts by line of business and consequently workers' compensation insurers may be assessed by the Fund for expenses related to the insolvency of non-workers' compensation carriers. The Fund assessment base is the total written premium for all lines covered by the Fund, and an individual

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carrier's assessment is a function of its written premium for all lines covered by the Fund. Therefore, we must first estimate the proportion of the total Fund assessment that is attributable to workers' compensation. This is done by dividing the Massachusetts workers' compensation Statutory Page 14 written premium by the total premium assessment base of the Fund. The assessment applicable to workers' compensation is the product of this ratio and the total Fund assessment. The resulting estimated workers' compensation assessment is then adjusted to reflect the impact of the time value of money, premium taxes, and commissions. This net assessment is divided by the expected written premium in the prospective period to arrive at the factor to load the assessment.

The Fund has not assessed carriers since the last rate revision. The loading in the 4/1/2014 rates was 0.0019 and was intended to recoup on policies effective during the 4/1/2014 to 3/31/2015 policy period. The loading shown in this filing provides reimbursement for the unanticipated insolvency fund assessment recoupments for the policy period from 4/1/2015 to 6/30/2016. The proposed factor is a loading of -0.0022 (Section X-K, Exhibit 5, Page 1).

Classification Combinations for Ratemaking

Classifications having similar exposures are combined for ratemaking when, over a period of years, they develop a relatively small amount of payroll with resultant low credibility. The classification combinations used in the 2014 rate filing have been used since the 1999 rate filing. The classification combinations were reviewed jointly by the WCRIBMA's Actuarial and Customer Services staff to determine if the groupings used in

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the 2014 rate filing should be used in this filing. The review focused on answering two questions:

- Does a classification still have sufficiently similar exposures as the other classifications with which it is grouped, so that it should continue to be combined for ratemaking purposes?
- Does a classification have sufficiently high credibility to no longer necessitate combination with other classifications for class ratemaking purposes?

Following the review, the WCRIBMA proposes separating 8 groupings found in the 2014 rate filing :

3113 - TOOL MFG-NOT DROP OR MACHINE FORGED-NOC
3118 - SAW MFG

- Propose to ungroup 3113 and 3118.

3179 - ELECTRICAL APPARATUS MFG-NOC
3643 - ELECTRIC POWER OR TRANSMISSION EQUIP MFG

- Propose to ungroup 3179 and 3643.

3681 - TELEVISION, RADIO, TELEPHONE OR TELECOMMUNCTN DEVICE MFG
NOC

3685 - INSTRUMENT MFG NOC

- Propose to ungroup and rate 3681 and 3685 separately.

5057 - IRON OR STEEL: ERECTION-NOC
5059 - IRON OR STEEL: ERECTION: FRAME STRUCT NOT OVER 2 STRS IN HGT
5069 - IRON OR STEEL: ERECTION: CNSTR OF DWELL NT OVR 2 STRS IN HGT

- Propose to ungroup 5057.
- Continue to group 5059 and 5069.

5215 - CONCRETE WORK - INCIDENTAL TO CONSTRUCTION OF PRIVATE RES
5223 - SWIMMING POOL CONSTRUCTN-NOT IRON OR STEEL &DR

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- Propose to ungroup 5215 and 5223.

6217 - EXCAVATION & DRIVERS

6229 - IRRIGATION OR DRAINAGE SYSTEM CONSTRUCTION & DR

- Propose to ungroup 6217 and 6229.

7538 - ELECTRIC LIGHT OR POWER LINE CONSTRUCTION & DRIVERS

7601 - TELEPHONE, TELEGRAPH OR FIRE ALARM LINE CONSTRUCTION & DR

- Propose to ungroup 7538 and 7601.

9052 - HOTEL: ALL OTHER EMPLOYEES & SALES, DRIVERS

9058 - HOTEL: RESTAURANT EMPLOYEES

- Propose to ungroup 9052 and 9058.

Pricing Example

Section IX - L is a sample rate calculation, for Class 2660 – Boot or Shoe Manufacturing. Exhibit 1, page 2 shows the calculation of the MA indicated pure premium and relativity. Exhibit 2, page 2 shows the calculation of the CW indicated pure premium and relativity. On Exhibit 3, we calculate the credibilities and formula relativity. The derivation of the proposed manual rate is shown on Exhibit 4.

Special Classes

The following classes are special situations where the rates and rating values are calculated using a methodology other than that detailed above.

6811, 6854, 6882, 6884: State Act Classes comparable to F-Class Codes

- Established 1/1/1990.

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- The manual rates for 6811, 6854, 6882, and 6884 are set at 81.27²% of the manual rates of F-Class Codes 6801 [Boat Building Wood NOC-US Act], 6843 [Ship Building Iron or Steel-NOC-US Act], 6872 [Ship Repair or Conversion-US Act] and 6874 [Painting Ship Hulls-US Act], respectively.
- The ELRs for 6811, 6854, 6882, and 6884 are set at 85.17%³ of the ELRs of F-Class Codes 6801 [Boat Building Wood NOC-US Act], 6843 [Ship Building Iron or Steel-NOC-US Act], 6872 [Ship Repair or Conversion-US Act] and 6874 [Painting Ship Hulls-US Act], respectively.
- See Circular Letter No. 1519, released 1/3/1990.

8824 – Assisted Living Residences: Personal Care Employees

- Established 4/1/2012.
- The rate and rating values for 8824 are assigned the rate and rating values of Class 9052- Hotel: All Other Employees & Salespersons, Drivers.
- See Circular Letter No. 2188, released 11/14/2011.

8826 – Assisted Living Residences: All Other Employees, Salespersons & Drivers

- Established 4/1/2012.
- The rate and rating values for 8826 are assigned the rate and rating values of Class 9052- Hotel: All Other Employees & Salespersons, Drivers.

² 81.27% = 1.0 / Proposed USLH&HW Coverage Percentage for Manual Rates. Coverage Percentage from Section VIII – J, Exhibit 1.

³ 85.17% = 1.0 / Proposed USLH&HW Coverage Percentage for ELRs. Coverage Percentage from Section VIII – J, Exhibit 1.

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- See Circular Letter No. 2188, released 11/14/2011.

Code 9044 - Casino Gambling – Hotel - All Employees & Clerical, Salespersons,

Drivers

- Approved Effective 2/1/2016.
- The rate and rating values for 9044 are assigned 90% of the rate and rating values of Class 9052 – Hotel: All Other Employees & Salespersons, Drivers.
- See Circular Letter No. 2270, released 12/2/2015.

Code 9062 - Casino Gambling - All Employees & Clerical, Salespersons, Drivers

- Approved Effective 2/1/2016.
- The rate and rating values for 9062 are assigned the rate and rating values of Class 9061 – Club NOC & Clerical.
- See Circular Letter No. 2270, released 12/2/2015.

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MASSACHUSETTS WORKERS COMPENSATION AND EMPLOYERS LIABILITY INSURANCE MANUAL **RATES**

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RATES

LEGEND

(a) Rate for each individual risk must be obtained by Home Office from the MA Bureau.

F Rate provides for coverage under the United States Longshore and Harbor Workers' Compensation Act.

D Supplement Disease Loading. Refer to Section IV of the Manual Supplement - - Treatment of Disease Coverage.

CLASS CODE	MIN RATE	LOSS PREM	LOSS CONST	CLASS CODE	MIN RATE	LOSS PREM	LOSS CONST	CLASS CODE	MIN RATE	LOSS PREM	LOSS CONST	CLASS CODE	MIN RATE	LOSS PREM	LOSS CONST
0005	2.63	271.	20.	1748	3.46	280.	--	2288	3.00	264.	--	2923	1.67	217.	--
0008	2.61	270.	20.	1852	6.29	470.	--	2302	3.01	264.	--	2942	1.91	226.	--
0016	4.67	342.	20.	1853	1.72	219.	--	2305	2.79	257.	--	3018	3.70	289.	--
0034	4.65	342.	20.	1860	2.11	233.	--	2362	1.80	222.	--	3022	3.76	291.	--
0035	2.47	265.	20.	1924	2.12	233.	--	2380	2.61	250.	--	3027	5.08	337.	--
0036	4.65	342.	20.	1925	4.89	330.	--	2402	2.33	241.	--	3028	3.29	274.	--
0037	2.61	270.	20.	2001	3.71	289.	--	2413	3.82	293.	--	3030	6.55	479.	--
0042	4.42	334.	20.	2002	2.84	258.	--	2416	2.74	255.	--	3040	6.13	465.	--
0046	2.28	259.	20.	2003	3.71	289.	--	2417	3.87	294.	--	3041	5.14	339.	--
0050	6.75	500.	50.	2014	3.78	291.	--	2501	2.20	236.	--	3042	6.50	478.	--
0059D	0.31	.	.	2021	3.01	264.	--	2503	1.19	201.	--	3064	3.08	267.	--
0065D	0.13	.	.	2039	3.14	269.	--	2534	2.20	236.	--	3066	3.08	267.	--
0066D	0.11	.	.	2041	2.87	259.	--	2570	5.51	352.	--	3076	2.49	246.	--
0067D	0.11	.	.	2070	4.41	313.	--	2576	2.46	245.	--	3081D	6.26	469.	--
0079	3.37	297.	20.	2081	4.38	312.	--	2578	2.46	245.	--	3082D	6.26	469.	--
0083	4.52	337.	20.	2089	2.81	257.	--	2585	3.51	282.	--	3085D	4.77	326.	--
0106	14.10	500.	20.	2095	3.74	290.	--	2586	1.78	221.	--	3110	8.90	500.	--
0113	4.65	342.	20.	2101	2.81	257.	--	2587	3.54	303.	20.	3111	2.32	240.	--
0170	4.65	342.	20.	2105	(a)	(a)	(a)	2623	4.85	329.	--	3113	1.67	217.	--
0251	3.41	298.	20.	2111	2.34	241.	--	2640	1.87	224.	--	3114	2.75	255.	--
0771b	1.15	.	.	2114	2.81	257.	--	2651	1.87	224.	--	3118	1.75	220.	--
0908	93.00	157.	--	2115	4.28	309.	--	2660	1.88	225.	--	3119	0.88	190.	--
0909	171.00	235.	--	2121	1.64	216.	--	2683	1.79	222.	--	3120	1.60	215.	--
0912	342.00	406.	--	2130	2.05	231.	--	2688	2.59	250.	--	3122	1.99	229.	--
0913	185.00	249.	--	2131	2.53	248.	--	2702	16.82	500.	20.	3127	1.00	194.	--
0917	3.64	306.	20.	2143	2.35	241.	--	2710	7.47	500.	--	3131	1.62	216.	--
0918	0.62	201.	20.	2150	5.47	350.	--	2731	3.66	287.	--	3132	3.66	287.	--
1430	8.92	500.	--	2156	6.00	460.	--	2741	6.76	487.	--	3145	1.70	219.	--
1438	3.49	281.	--	2157	4.35	311.	--	2747	5.99	460.	--	3146	1.91	226.	--
1463	9.74	500.	--	2172	2.32	240.	--	2790	1.85	224.	--	3169	3.29	274.	--
1624D	5.02	355.	20.	2174	3.62	286.	--	2802	4.80	327.	--	3179	1.29	204.	--
1655	4.87	349.	20.	2211	7.08	498.	--	2835	2.05	231.	--	3180	2.87	259.	--
1701	3.69	288.	--	2220	3.01	264.	--	2836	2.44	244.	--	3188	2.60	250.	--
1710D	5.02	355.	20.	2260	7.46	500.	--	2841	4.02	300.	--	3200	2.49	246.	--
1747	3.13	269.	--	2286	3.01	264.	--	2883	3.35	276.	--	3220	2.82	258.	--

Non-Ratable Code and Rate to be used with the following classifications:

b. 4771

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MASSACHUSETTS WORKERS COMPENSATION AND EMPLOYERS LIABILITY INSURANCE MANUAL **RATES**

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RATES															
CLASS CODE	RATE	MIN PREM	LOSS CONST	CLASS CODE	RATE	MIN PREM	LOSS CONST	CLASS CODE	RATE	MIN PREM	LOSS CONST	CLASS CODE	RATE	MIN PREM	LOSS CONST
3223	(a)	(a)	(a)	3808	3.17	270.	--	4410	3.52	282.	--	5160	3.46	330.	50.
3227	3.29	274.	--	3821	4.34	331.	20.	4417	4.70	324.	--	5183	3.73	340.	50.
3241	2.12	233.	--	3826	3.43	279.	--	4432	1.12	198.	--	5188	5.52	493.	50.
3255	2.72	254.	--	3830	1.79	222.	--	4439	3.47	280.	--	5190	2.82	308.	50.
3257	2.80	257.	--	3841	1.43	209.	--	4452	3.64	286.	--	5191	0.99	214.	20.
3270	2.22	237.	--	4000	4.65	342.	20.	4459	2.96	263.	--	5192	3.23	292.	20.
3300	5.41	348.	--	4021	4.19	306.	--	4470	2.22	237.	--	5213	16.69	500.	50.
3305	(a)	(a)	(a)	4024	3.17	270.	--	4484	2.27	238.	--	5215	6.10	500.	50.
3315	3.72	289.	--	4034	6.62	482.	--	4493	2.73	255.	--	5221	7.31	500.	50.
3336	4.04	300.	--	4036	2.43	244.	--	4511	0.30	190.	20.	5222	11.61	500.	50.
3365	7.96	500.	50.	4038	2.74	255.	--	4512	0.13	184.	20.	5223	4.64	462.	50.
3372	2.59	250.	--	4053	1.93	227.	--	4557	2.10	233.	--	5348	5.48	492.	50.
3373	3.84	293.	--	4061	2.31	240.	--	4558	1.46	210.	--	5402	9.46	500.	50.
3381	2.77	256.	--	4062	2.31	240.	--	4561	3.47	280.	--	5403	11.88	500.	50.
3383	1.54	213.	--	4112	0.69	183.	--	4583	3.74	290.	--	5437	5.96	500.	50.
3385	0.83	188.	--	4113	1.93	227.	--	4611	1.23	202.	--	5443	4.34	452.	50.
3400	3.29	274.	--	4114	2.27	238.	--	4635	4.28	309.	--	5445	7.45	500.	50.
3507	3.00	264.	--	4130	3.89	295.	--	4653	2.43	244.	--	5462	8.31	500.	50.
3515	2.81	257.	--	4133	1.85	224.	--	4665	6.85	490.	--	5472	10.01	500.	50.
3548	1.79	222.	--	4150	0.78	186.	--	4692	0.67	182.	--	5473	11.07	500.	50.
3558	0.88	190.	--	4239	2.72	254.	--	4693	1.00	194.	--	5474	6.11	500.	50.
3559	1.79	222.	--	4243	3.86	294.	--	4720	2.01	229.	--	5478	6.25	500.	50.
3571	0.98	193.	--	4244	2.95	262.	--	4740	1.24	202.	--	5479	9.61	500.	50.
3574	1.79	222.	--	4250	2.40	243.	--	4741	2.59	250.	--	5480	5.01	475.	50.
3612	2.05	231.	--	4251	2.22	237.	--	4771c	7.70	500.	--	5506	7.40	500.	50.
3620	5.81	453.	--	4273	2.39	243.	--	4777	3.74	290.	--	5507	8.26	500.	50.
3629	1.79	222.	--	4279	2.82	258.	--	4825	0.74	185.	--	5508D	7.04	500.	50.
3632	1.79	222.	--	4282	0.82	188.	--	4828	1.04	195.	--	5509	4.01	349.	50.
3634	1.75	220.	--	4283	2.29	239.	--	4829	1.04	195.	--	5538	4.70	465.	50.
3635	3.03	265.	--	4299	2.02	230.	--	4902	1.91	226.	--	5545	40.21	500.	50.
3638	1.79	222.	--	4301	5.69	358.	--	4923	1.01	194.	--	5547	14.57	500.	50.
3642	1.16	200.	--	4304	4.45	315.	--	5020	5.26	484.	50.	5606	2.02	280.	50.
3643	1.72	219.	--	4307	1.82	223.	--	5022	10.47	500.	50.	5610	7.24	500.	50.
3647	2.15	234.	--	4308	1.35	206.	--	5037	24.48	500.	50.	5645	8.76	500.	50.
3648	1.44	209.	--	4350	0.62	181.	--	5040	63.80	500.	50.	5651	8.76	500.	50.
3681	0.88	190.	--	4351	0.89	190.	--	5057	28.15	500.	50.	5701	27.42	500.	50.
3685	0.69	183.	--	4352	1.27	203.	--	5059	27.15	500.	50.	5703	21.99	500.	50.
3724	5.38	488.	50.	4360	1.01	194.	--	5069	27.15	500.	50.	5705	13.47	500.	50.
3726	12.69	500.	50.	4361	0.70	204.	20.	5102	6.61	500.	50.	6003	11.30	500.	50.
3807	3.29	274.	--	4362	0.65	202.	20.	5146	7.13	500.	50.	6005	7.04	500.	50.

For Non-Ratable portion of Rate, refer to:
 c 0771

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MASSACHUSETTS WORKERS COMPENSATION AND EMPLOYERS LIABILITY INSURANCE MANUAL **RATES**

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RATES															
CLASS CODE	RATE	MIN PREM	LOSS CONST	CLASS CODE	RATE	MIN PREM	LOSS CONST	CLASS CODE	RATE	MIN PREM	LOSS CONST	CLASS CODE	RATE	MIN PREM	LOSS CONST
6204	7.99	500.	50.	7422	1.84	243.	20.	8107	3.18	290.	20.	8826	1.94	247.	20.
6217	4.89	471.	50.	7425	3.14	289.	20.	8111	2.85	279.	20.	8829	2.23	257.	20.
6229	4.93	473.	50.	7431j	1.38	243.	20.	8116	3.18	290.	20.	8831	1.05	216.	20.
6233	4.56	460.	50.	7445k	0.41	.	.	8203	6.89	500.	20.	8832	0.31	190.	20.
6251D	6.86	500.	50.	7453l	0.46	.	.	8204	4.36	332.	20.	8833	1.38	227.	20.
6252D	10.45	500.	50.	7502	3.06	286.	20.	8215	4.20	326.	20.	8835	2.19	256.	20.
6306	10.16	500.	50.	7515	2.35	261.	20.	8227	5.25	484.	50.	8837	(a)	(a)	(a)
6319	4.84	469.	50.	7520	3.41	298.	20.	8232	6.18	486.	20.	8868	0.88	210.	20.
6325	5.17	481.	50.	7538	6.48	500.	50.	8233	7.03	500.	20.	8901	0.08	182.	20.
6400	6.48	500.	50.	7539	1.39	228.	20.	8235	4.67	342.	20.	9014	3.25	293.	20.
6504	2.81	257.	--	7580	3.53	303.	20.	8263	5.58	465.	20.	9015	3.43	299.	20.
6801F	8.49	500.	--	7590	5.06	356.	20.	8264	6.21	487.	20.	9016	2.26	258.	20.
6811	6.90	500.	20.	7600	4.29	329.	20.	8265	7.03	500.	20.	9019	2.90	281.	20.
6824F	11.14	500.	--	7601	5.81	500.	50.	8279	5.97	479.	20.	9033	3.74	310.	20.
6826F	10.68	500.	--	7610	0.26	188.	20.	8291	4.48	336.	20.	9040	3.28	294.	20.
6834	2.68	273.	20.	7704	2.58	269.	20.	8292	3.09	287.	20.	9044	1.75	240.	20.
6836	3.47	300.	20.	7720	1.85	244.	20.	8293	10.20	500.	20.	9052	1.94	247.	20.
6843F	15.11	500.	--	7855	5.59	496.	50.	8350	6.15	485.	20.	9058	1.62	236.	20.
6854	12.28	500.	20.	8001	2.00	249.	20.	8380	3.32	295.	20.	9060	1.04	215.	20.
6872F	20.49	500.	--	8002	1.82	243.	20.	8381	2.09	252.	20.	9061	1.01	214.	20.
6874F	18.24	500.	--	8006	1.54	233.	20.	8385	2.87	279.	20.	9062	1.01	214.	20.
6882	16.66	500.	20.	8008	0.87	209.	20.	8392	1.70	239.	20.	9063	0.86	209.	20.
6884	14.83	500.	20.	8010	1.53	233.	20.	8393	2.36	262.	20.	9077F	5.04	335.	--
7133	(a)	(a)	(a)	8013	0.45	195.	20.	8500	7.03	500.	20.	9079	1.18	220.	20.
7219	10.57	500.	20.	8017	1.15	219.	20.	8601	0.29	189.	20.	9089	1.16	220.	20.
7230	8.91	500.	20.	8018	3.25	293.	20.	8709F	5.60	355.	--	9093	1.32	225.	20.
7231	9.04	500.	20.	8021	3.19	291.	20.	8710	3.12	288.	20.	9101	3.13	289.	20.
7309F	19.77	500.	--	8031	2.28	259.	20.	8719	3.12	288.	20.	9102	2.88	280.	20.
7313F	16.17	500.	--	8032	1.67	237.	20.	8720	0.97	213.	20.	9154	1.72	239.	20.
7317F	15.45	500.	--	8033	2.08	252.	20.	8721	0.24	187.	20.	9156	1.58	234.	20.
7327F	35.36	500.	--	8034	3.44	299.	20.	8726F	6.32	471.	--	9178	14.40	500.	20.
7350F	18.28	500.	--	8039	1.30	225.	20.	8742	0.17	185.	20.	9179	29.29	500.	20.
7360	6.04	481.	20.	8044	4.28	329.	20.	8745	4.69	343.	20.	9180	4.44	334.	20.
7370	4.23	327.	20.	8046	2.19	256.	20.	8747	1.03	215.	20.	9182	3.72	309.	20.
7380	6.57	500.	20.	8048	2.92	281.	20.	8748	0.65	202.	20.	9186	4.44	334.	20.
7382	4.02	320.	20.	8050	1.57	234.	20.	8800	1.09	217.	20.	9220	3.42	299.	20.
7403	5.68	469.	20.	8058	2.63	271.	20.	8803	0.04	180.	20.	9402	5.19	452.	20.
7405i	1.22	236.	20.	8103	2.90	281.	20.	8810	0.08	182.	20.	9403	10.60	500.	20.
7420	8.37	500.	20.	8105	5.81	473.	20.	8820	0.10	183.	20.	9410	2.78	276.	20.
7421*	1.84	243.	20.	8106	6.78	500.	20.	8824	1.94	247.	20.	9501	2.57	249.	--

*7421--A policy surcharge of \$100 per passenger seat, subject to a maximum surcharge of \$1,000 per aircraft, shall be charged in addition to the premium otherwise determined under this classification. These surcharges shall not be cumulative in the event of substitution of aircraft during the policy period; but these surcharges shall be cumulative in the event more than one aircraft is owned or operated during the same policy period. These surcharges and losses to employees other than members of flying crew are to be reported under Code 0088.

For Non-Ratable portion of Rate, refer to:

i 7445 j 7453

Non-Ratable Code and Rate to be used with:

k 7405 l 7431

IX 000026

Section IX - Classification Pricing
 Subsection A - Summary
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Section IX - A
 Exhibit 1
 Page 4

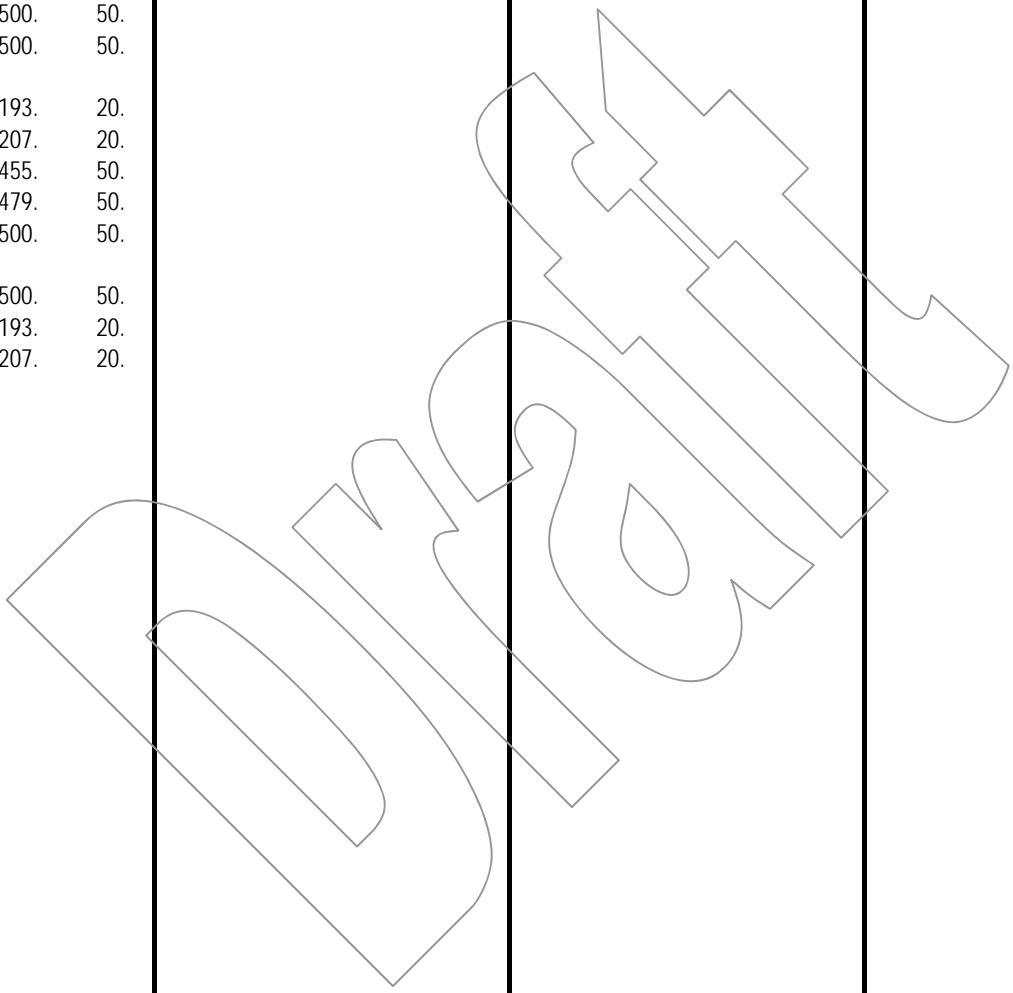
**MASSACHUSETTS WORKERS COMPENSATION
 AND EMPLOYERS LIABILITY INSURANCE MANUAL**

RATES

Draft Proposed Effective July 1, 2016 Page RA-4

RATES

CLASS CODE	RATE	MIN PREM	LOSS CONST	CLASS CODE	RATE	MIN PREM	LOSS CONST	CLASS CODE	RATE	MIN PREM	LOSS CONST	CLASS CODE	RATE	MIN PREM	LOSS CONST
9505	2.57	249.	--												
9519	3.61	305.	20.												
9521	3.69	288.	--												
9522	1.96	228.	--												
9533	17.45	500.	50.												
9534	7.48	500.	50.												
9545	4.42	455.	50.												
9549	5.11	479.	50.												
9552	7.50	500.	50.												
9553	7.50	500.	50.												
9586	0.39	193.	20.												
9620	0.79	207.	20.												
9545	4.42	455.	50.												
9549	5.11	479.	50.												
9552	7.50	500.	50.												
9553	7.50	500.	50.												
9586	0.39	193.	20.												
9620	0.79	207.	20.												



Calculation of Pure Premium Underlying Proposed Rate Factor

Industry Group (1)	Injury Type (2)	Uncapped Rate Level Factor (3)	Industry Group Pure Premium (4)	Percent of Pure Premium =(4) / [Total of (4)] (5)	Expected Loss and LAE Ratio (6)	Pure Premium Underlying Proposed Rate Factor = (3) x (5) x (6) (7)
Manufacturing	Indemnity	2.135	1.080	0.627	0.735	0.983
	Medical	2.135	0.644	0.373	0.735	0.586
	Total		1.724			
Construction	Indemnity	5.739	3.094	0.665	0.735	2.807
	Medical	5.739	1.555	0.335	0.735	1.411
	Total		4.649			
Office and Clerical	Indemnity	0.176	0.084	0.594	0.735	0.077
	Medical	0.176	0.057	0.406	0.735	0.052
	Total		0.141			
Goods and Services	Indemnity	1.921	0.951	0.613	0.735	0.866
	Medical	1.921	0.600	0.387	0.735	0.546
	Total		1.552			
Miscellaneous	Indemnity	5.387	2.823	0.644	0.735	2.549
	Medical	5.387	1.563	0.356	0.735	1.411
	Total		4.385			

Notes:

- (3): Section IX - H, Exhibit 1.
- (4): Section IX - C, Exhibits 1-5, page 2.
- (6): Section VI - J, Exhibit 1.

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IX 000028

Calculation of Indemnity and Medical Conversion Factors

(A). Benefit Level Adjustment Factors

The following factors are used to bring MA Unit Statistical Plan losses to the benefit level of the proposed effective policy year period.

Indemnity	Policy Year				
	2009	2010	2011	2012	2013
Fatal	1.033	1.033	1.030	1.025	1.023
Permanent Total	1.031	1.032	1.027	1.020	1.017
Permanent Partial	1.054	1.055	1.046	1.035	1.030
Temporary Total	1.016	1.017	1.015	1.011	1.010

Medical	2009	2010	2011	2012	2013
All Injury Types	1.002	1.000	1.000	1.000	1.000

(B). Loss Development Factors

The following factors are used to bring MA Unit Statistical Plan losses from first through fifth report to an ultimate basis.

Indemnity	Remainder of Industry				
	Policy Year				
	2009	2010	2011	2012	2013
Likely	1.019	1.044	1.112	1.304	1.921
Not Likely	1.022	1.042	1.095	1.226	1.635

Medical	2009	2010	2011	2012	2013
Likely	0.939	0.928	0.956	1.028	1.158
Not Likely	0.991	0.990	0.992	1.001	1.040

Indemnity	AIG				
	Policy Year				
	2009	2010	2011	2012	2013
Likely	1.068	1.103	1.200	1.446	2.369
Not Likely	1.030	1.065	1.138	1.325	1.976

Medical	2009	2010	2011	2012	2013
Likely	0.949	0.938	0.959	1.009	1.195
Not Likely	0.984	0.974	0.982	0.996	1.071

(C). Trend Factors

The following factors trend the reported pure premiums from the reported period to the proposed effective period for new rates.

Indemnity	Policy Year				
	2009	2010	2011	2012	2013
All Injury Types	0.921	0.941	0.933	0.955	0.934

Medical	2009	2010	2011	2012	2013
Lost Time Medical	0.967	1.017	0.992	0.967	0.951
Medical Only	0.750	0.768	0.814	0.862	0.869

Notes:

(A): Section IV - A, Exhibit 1.

(B): Development to 10th report (Exhibit 2, Page 1) x Development from 10th to ultimate. The 10th to ultimate development factor was calculated using data from Financial Aggregate Policy Year Call (Call 2) and Large Loss & Catastrophe Call (Call 7).

(C): Exhibit 3. Frequency x Severity Trends / Wage Trends

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Section IX - Classification Pricing
 Subsection B - Conversion/Excess Loss Factors
 7/1/2016

Section IX - B
 Exhibit 1
 Page 2

Calculation of Indemnity and Medical Conversion Factors

(D). Primary Conversion Factors (PCF)

Remainder of Industry					
	Policy Year				
Indemnity	2009	2010	2011	2012	2013
Fatal - LD	0.969	1.015	1.068	1.276	1.835
Fatal - NLD	0.972	1.013	1.052	1.200	1.562
Permanent Total	0.968	1.013	1.065	1.270	1.825
Permanent Partial - LD	0.989	1.036	1.085	1.289	1.847
Permanent Partial - NLD	0.992	1.034	1.069	1.211	1.573
Temporary Total - LD	0.954	0.999	1.052	1.259	1.811
Temporary Total - NLD	0.956	0.996	1.037	1.184	1.542

Medical					
Lost Time Medical -LD	0.910	0.944	0.949	0.994	1.101
Lost Time Medical -NLD	0.960	1.007	0.985	0.968	0.989
Medical - NLD	0.745	0.760	0.807	0.863	0.904

AIG					
	Policy Year				
Indemnity	2009	2010	2011	2012	2013
Fatal - LD	1.015	1.072	1.152	1.415	2.263
Fatal - NLD	0.979	1.036	1.093	1.296	1.888
Permanent Total	1.014	1.070	1.149	1.409	2.251
Permanent Partial - LD	1.036	1.094	1.171	1.429	2.279
Permanent Partial - NLD	0.999	1.057	1.111	1.309	1.901
Temporary Total - LD	0.999	1.055	1.136	1.397	2.234
Temporary Total - NLD	0.964	1.019	1.077	1.279	1.864

Medical					
Lost Time Medical -LD	0.920	0.954	0.952	0.976	1.137
Lost Time Medical -NLD	0.953	0.990	0.974	0.964	1.018
Medical - NLD	0.739	0.747	0.799	0.859	0.930

Notes:

(D) = (A) x (B) x (C)

IX 000030

Section IX - Classification Pricing
Subsection B - Conversion/Excess Loss Factors
7/1/2016

Section IX - B
Exhibit 1
Page 3

Calculation of Indemnity and Medical Conversion Factors

(A). Loss Adjustment Expense Factor

The following factor is applied to include the proposed loss adjustment expense.

	Indemnity	Medical
Loss Adjustment Expense	1.200	1.200

(B). Investment Income Offset Factor

The following factor is applied to adjust for investment income.

	Investment Income Offset Factor
Indemnity	
Fatal	0.869
Permanent Total	0.833
Permanent Partial	1.020
Temporary Total	1.026
Medical	
Fatal	1.000
Permanent Total	0.833
Permanent Partial	1.020
Temporary Total	1.025
Medical Only	1.000

(C). Secondary Conversion Factors

The factors above are combined multiplicatively, resulting in the following conversion factors.

Indemnity	
Fatal	1.043
Permanent Total	1.000
Permanent Partial	1.224
Temporary Total	1.232
Medical	
Fatal	1.200
Permanent Total	0.999
Permanent Partial	1.223
Temporary Total	1.231
Medical Only	1.200

Notes:

(A): 1.000 + Loss Adjustment Expense (as a percent of losses) from Section VI-A, Exhibit 1.

(B): Exhibit 4.

(C) = (A) x (B)

IX 000031

Summary of Development Factors Remainder of Industry

		Likely to Develop								
		Development Factors From:								
		18-30	30-42	42-54	54-66	66-78	78-90	90-102	102-114	114-126
		<u>(1) Indemnity Losses</u>								
2Yr Weighted Average		1.473	1.173	1.065	1.024	1.007	1.004	1.004	1.005	1.002
Cumulative		1.924	1.306	1.114	1.046	1.021	1.014	1.010	1.006	1.002
		<u>(2) Medical Losses</u>								
2Yr Weighted Average		1.126	1.075	1.030	0.988	1.002	0.993	0.992	0.993	1.003
Cumulative		1.211	1.075	1.000	0.971	0.982	0.980	0.987	0.995	1.003
		<u>(3) Claim Counts</u>								
2Yr Weighted Average		1.022	1.008	1.007	1.007	0.998	1.001	0.999	1.000	1.000
Cumulative		1.043	1.021	1.013	1.006	0.998	1.001	1.000	1.001	1.000
		Not-Likely to Develop								
		Development Factors From:								
		18-30	30-42	42-54	54-66	66-78	78-90	90-102	102-114	114-126
		<u>(4) Indemnity Losses</u>								
2Yr Weighted Average		1.334	1.119	1.052	1.019	1.007	1.006	1.004	1.000	1.004
Cumulative		1.636	1.226	1.096	1.042	1.022	1.015	1.008	1.004	1.004
		<u>(5) Medical Losses</u>								
2Yr Weighted Average		1.038	1.009	1.002	0.998	0.996	0.998	1.003	0.999	1.002
Cumulative		1.047	1.008	0.999	0.997	0.998	1.002	1.004	1.001	1.002
		<u>(6) Claim Counts</u>								
2Yr Weighted Average		1.016	1.005	1.002	1.001	1.001	1.000	1.000	1.000	1.000
Cumulative		1.026	1.010	1.005	1.003	1.001	1.000	1.000	1.000	1.000

Notes:
 (1), (2), (3): Page 3.
 (4), (5), (6): Page 5.

IX 000032

Summary of Development Factors AIG

		Likely to Develop								
		Development Factors From:								
		18-30	30-42	42-54	54-66	66-78	78-90	90-102	102-114	114-126
		(1) Indemnity Losses								
5Yr Weighted Average		1.638	1.205	1.088	1.033	1.016	1.000	1.006	1.001	1.002
Cumulative		2.273	1.388	1.151	1.058	1.025	1.009	1.009	1.003	1.002
		(2) Medical Losses								
5Yr Weighted Average		1.184	1.052	1.023	0.988	0.984	0.972	0.982	0.989	0.995
Cumulative		1.164	0.983	0.934	0.913	0.925	0.939	0.966	0.984	0.995
		(3) Claim Counts								
5Yr Weighted Average		1.023	1.009	1.007	0.999	1.002	1.001	1.000	1.001	1.001
Cumulative		1.043	1.020	1.010	1.003	1.004	1.002	1.001	1.001	1.001
		Not-Likely to Develop								
		Development Factors From:								
		18-30	30-42	42-54	54-66	66-78	78-90	90-102	102-114	114-126
		(4) Indemnity Losses								
5Yr Weighted Average		1.492	1.164	1.069	1.035	1.007	1.003	1.004	1.000	1.002
Cumulative		1.949	1.306	1.123	1.051	1.015	1.009	1.006	1.002	1.002
		(5) Medical Losses								
5Yr Weighted Average		1.074	1.015	1.009	0.990	0.993	0.997	0.993	0.999	0.996
Cumulative		1.064	0.990	0.976	0.968	0.978	0.985	0.988	0.995	0.996
		(6) Claim Counts								
5Yr Weighted Average		1.019	1.005	1.003	1.002	1.000	1.001	1.000	1.000	1.000
Cumulative		1.030	1.011	1.006	1.003	1.001	1.001	1.000	1.000	1.000

Notes:
 (1), (2), (3): Page 4.
 (4), (5), (6): Page 6.

IX 000033

Section IX - Classification Pricing
 Subsection B - Conversion/Excess Loss Factors
 7/1/2016

Section IX - B
 Exhibit 2
 Page 3

Calculation of Likely to Develop Development Factors Remainder of Industry

Policy Year	Likely to Develop								
	Indemnity Losses			Medical Losses			Claim Counts		
	Evaluated at month	Link Ratio		Evaluated at month	Link Ratio		Evaluated at month	Link Ratio	
	18	30		18	30		18	30	
2012	62,928,194	93,251,050	1.482	40,357,299	45,616,637	1.130	1,404	1,448	1.031
2011	54,650,319	79,937,617	1.463	34,671,280	38,854,106	1.121	1,276	1,290	1.011
Weighted Average			1.473			1.126			1.022
	30	42		30	42		30	42	
2011	83,950,299	97,727,592	1.164	40,800,688	44,705,682	1.096	1,330	1,348	1.014
2010	75,087,419	88,791,682	1.183	38,889,245	40,992,509	1.054	1,340	1,344	1.003
Weighted Average			1.173			1.075			1.008
	42	54		42	54		42	54	
2010	92,300,360	96,044,683	1.041	42,678,392	43,063,125	1.009	1,369	1,383	1.010
2009	90,876,512	99,074,411	1.090	40,196,625	42,313,556	1.053	1,277	1,281	1.003
Weighted Average			1.065			1.030			1.007
	54	66		54	66		54	66	
2009	103,867,515	105,934,584	1.020	43,833,329	43,776,938	0.999	1,298	1,301	1.002
2008	93,891,810	96,575,466	1.029	42,319,567	41,374,190	0.978	1,310	1,326	1.012
Weighted Average			1.024			0.988			1.007
	66	78		66	78		66	78	
2008	97,733,075	98,641,150	1.009	41,858,252	40,795,044	0.975	1,334	1,331	0.998
2007	93,519,867	93,940,116	1.004	42,297,398	43,508,645	1.029	1,363	1,360	0.998
Weighted Average			1.007			1.002			0.998
	78	90		78	90		78	90	
2007	98,179,942	98,217,757	1.000	44,397,226	44,400,461	1.000	1,375	1,377	1.001
2006	94,940,220	95,656,108	1.008	43,007,611	42,433,753	0.987	1,449	1,449	1.000
Weighted Average			1.004			0.993			1.001
	90	102		90	102		90	102	
2006	96,355,282	96,709,620	1.004	43,361,379	42,872,166	0.989	1,452	1,451	0.999
2005	90,842,441	91,207,498	1.004	44,105,499	43,867,021	0.995	1,544	1,543	0.999
Weighted Average			1.004			0.992			0.999
	102	114		102	114		102	114	
2005	91,207,498	91,877,003	1.007	43,867,021	44,132,733	1.006	1,543	1,546	1.002
2004	107,243,260	107,505,289	1.002	46,201,641	45,265,797	0.980	1,748	1,746	0.999
Weighted Average			1.005			0.993			1.000
	114	126		114	126		114	126	
2004	108,149,973	108,207,473	1.001	45,425,156	45,829,324	1.009	1,748	1,750	1.001
2003	107,601,626	107,887,046	1.003	49,144,838	48,978,169	0.997	1,975	1,974	0.999
Weighted Average			1.002			1.003			1.000

Note:
 Unit Statistical Plan data, excluding Large Deductibles.

IX 000034

Calculation of Likely to Develop Development Factors
AIG

Policy Year	Likely to Develop								
	Indemnity Losses			Medical Losses			Claim Counts		
	Evaluated at month 18	30	Link Ratio	Evaluated at month 18	30	Link Ratio	Evaluated at month 18	30	Link Ratio
2012	7,780,547	12,485,794	1.605	4,701,318	5,891,369	1.253	193	193	1.000
2011	14,391,984	22,338,422	1.552	8,982,929	10,282,600	1.145	336	344	1.024
2010	13,890,482	22,933,362	1.651	7,721,224	9,044,687	1.171	370	380	1.027
2009	10,068,275	18,058,829	1.794	7,157,015	8,505,257	1.188	246	252	1.024
2008	16,359,653	26,562,518	1.624	9,710,367	11,600,971	1.195	356	366	1.028
Weighted Average			1.638			1.184			1.023
2011	22,882,851	27,658,568	1.209	10,439,979	11,252,759	1.078	350	351	1.003
2010	23,398,598	29,527,996	1.262	9,078,000	9,684,789	1.067	387	392	1.013
2009	18,325,045	22,555,446	1.231	8,562,801	8,627,026	1.008	258	261	1.012
2008	27,526,296	32,455,974	1.179	11,669,437	12,073,318	1.035	372	374	1.005
2007	37,377,524	43,892,669	1.174	15,403,930	16,401,133	1.065	595	602	1.012
Weighted Average			1.205			1.052			1.009
2010	30,132,433	31,393,276	1.042	9,737,338	9,851,938	1.012	400	403	1.008
2009	23,284,285	24,946,179	1.071	8,919,511	8,942,300	1.003	265	270	1.019
2008	32,762,041	35,090,352	1.071	12,256,283	12,381,930	1.010	376	376	1.000
2007	45,292,003	50,504,023	1.115	16,578,980	16,420,447	0.990	607	613	1.010
2006	55,516,234	61,532,223	1.108	23,553,006	25,051,849	1.064	770	774	1.005
Weighted Average			1.088			1.023			1.007
2009	26,200,586	26,397,421	1.008	9,539,765	9,193,914	0.964	275	275	1.000
2008	36,279,697	37,808,547	1.042	12,846,590	12,593,570	0.980	384	383	0.997
2007	51,234,527	52,666,248	1.028	16,699,358	16,529,288	0.990	617	618	1.002
2006	61,955,490	63,376,696	1.023	24,855,294	24,283,090	0.977	775	775	1.000
2005	68,229,993	71,619,789	1.050	27,819,248	28,036,805	1.008	888	885	0.997
Weighted Average			1.033			0.988			0.999
2008	39,190,446	39,527,214	1.009	12,881,521	12,921,703	1.003	390	392	1.005
2007	53,659,625	54,334,272	1.013	16,895,438	16,849,817	0.997	625	627	1.003
2006	64,275,234	65,160,242	1.014	24,377,645	24,309,545	0.997	778	778	1.000
2005	70,888,105	71,289,253	1.006	27,854,390	27,106,378	0.973	884	887	1.003
2004	65,897,335	68,195,684	1.035	28,793,294	27,886,493	0.969	938	939	1.001
Weighted Average			1.016			0.984			1.002
2007	54,334,272	54,731,410	1.007	16,849,817	16,528,691	0.981	627	626	0.998
2006	66,414,918	65,907,521	0.992	25,133,229	24,965,179	0.993	784	785	1.001
2005	72,291,096	72,116,232	0.998	27,795,386	27,226,019	0.980	893	894	1.001
2004	68,163,333	68,490,750	1.005	27,918,844	26,807,550	0.960	939	940	1.001
2003	60,270,656	60,171,264	0.998	24,948,458	23,666,487	0.949	934	936	1.002
Weighted Average			1.000			0.972			1.001
2006	65,922,928	65,993,971	1.001	24,988,283	25,231,344	1.010	786	786	1.000
2005	72,725,882	73,525,819	1.011	27,583,002	27,359,553	0.992	896	894	0.998
2004	68,251,462	68,798,336	1.008	26,786,058	26,161,421	0.977	941	941	1.000
2003	59,893,520	60,105,803	1.004	23,574,350	21,904,520	0.929	936	936	1.000
2002	39,798,453	39,996,398	1.005	15,876,027	15,981,750	1.007	716	716	1.000
Weighted Average			1.006			0.982			1.000
2005	74,525,394	74,476,433	0.999	27,816,337	27,058,736	0.973	897	899	1.002
2004	70,479,555	70,477,945	1.000	26,960,002	26,607,245	0.987	946	946	1.000
2003	59,750,489	59,988,892	1.004	21,759,834	21,860,197	1.005	935	935	1.000
2002	39,832,465	40,134,674	1.008	16,064,035	15,795,902	0.983	715	715	1.000
2001	27,246,262	27,036,081	0.992	8,148,293	8,345,489	1.024	416	416	1.000
Weighted Average			1.001			0.989			1.001
2004	70,477,945	70,512,451	1.000	26,607,245	26,304,493	0.989	946	946	1.000
2003	60,570,364	60,711,073	1.002	22,043,712	22,177,008	1.006	937	939	1.002
2002	40,780,517	40,843,002	1.002	15,895,102	15,533,478	0.977	718	718	1.000
2001	25,970,181	25,985,358	1.001	8,116,252	8,440,274	1.040	413	413	1.000
2000	19,407,338	19,594,457	1.010	6,380,743	6,196,184	0.971	272	272	1.000
Weighted Average			1.002			0.995			1.001

Note:
Unit Statistical Plan data, excluding Large Deductibles.

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Section IX - Classification Pricing
 Subsection B - Conversion/Excess Loss Factors
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Section IX - B
 Exhibit 2
 Page 5

Calculation of Not-Likely to Develop Development Factors Remainder of Industry

Policy Year		Not-Likely to Develop								
		Indemnity Losses			Medical Losses			Claim Counts		
		Evaluated at month	Link	Ratio	Evaluated at month	Link	Ratio	Evaluated at month	Link	Ratio
18	30	18	30		18	30				
	2012	119,710,897	161,235,451	1.347	113,701,129	117,878,252	1.037	11,263	11,441	1.016
	2011	116,441,844	153,852,701	1.321	108,866,273	113,221,098	1.040	10,725	10,903	1.017
	Weighted Average			1.334			1.038			1.016
	2011	149,840,019	167,626,378	1.119	111,274,516	111,261,300	1.000	10,863	10,923	1.006
	2010	131,698,517	147,367,161	1.119	100,725,255	102,684,777	1.019	10,439	10,484	1.004
	Weighted Average			1.119			1.009			1.005
	2010	143,858,483	151,713,236	1.055	100,998,894	101,420,644	1.004	10,459	10,484	1.002
	2009	137,704,816	144,389,150	1.049	99,170,905	99,247,049	1.001	9,663	9,681	1.002
	Weighted Average			1.052			1.002			1.002
	2009	139,596,047	140,972,277	1.010	97,727,275	97,547,512	0.998	9,664	9,670	1.001
	2008	130,984,879	134,863,524	1.030	90,607,737	90,485,162	0.999	9,905	9,924	1.002
	Weighted Average			1.019			0.998			1.001
	2008	133,705,915	135,036,244	1.010	90,001,100	88,632,876	0.985	9,916	9,925	1.001
	2007	130,077,173	130,696,656	1.005	90,757,525	91,438,009	1.007	10,347	10,358	1.001
	Weighted Average			1.007			0.996			1.001
	2007	126,456,830	127,218,805	1.006	90,549,428	90,199,712	0.996	10,343	10,348	1.000
	2006	120,664,296	121,445,789	1.006	83,217,746	83,260,108	1.001	10,190	10,188	1.000
	Weighted Average			1.006			0.998			1.000
	2006	120,746,615	121,551,760	1.007	82,332,482	82,278,624	0.999	10,185	10,186	1.000
	2005	118,513,487	118,761,410	1.002	79,809,036	80,328,014	1.007	10,981	10,986	1.000
	Weighted Average			1.004			1.003			1.000
	2005	118,761,410	118,846,342	1.001	80,328,014	80,384,592	1.001	10,986	10,990	1.000
	2004	124,262,713	124,252,916	1.000	83,057,174	82,801,468	0.997	11,635	11,631	1.000
	Weighted Average			1.000			0.999			1.000
	2004	123,608,233	123,994,755	1.003	82,642,108	82,848,647	1.002	11,629	11,629	1.000
	2003	124,876,285	125,386,731	1.004	87,067,928	87,237,002	1.002	13,430	13,429	1.000
	Weighted Average			1.004			1.002			1.000

Note:
 Unit Statistical Plan data, excluding Large Deductibles.

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Section IX - Classification Pricing
 Subsection B - Conversion/Excess Loss Factors
 7/1/2016

Section IX - B
 Exhibit 2
 Page 6

Calculation of Not-Likely to Develop Development Factors AIG

Policy Year	Not-Likely to Develop								
	Indemnity Losses			Medical Losses			Claim Counts		
	Evaluated at month 18	30	Link Ratio	Evaluated at month 18	30	Link Ratio	Evaluated at month 18	30	Link Ratio
2012	15,424,642	23,195,495	1.504	13,838,853	14,778,840	1.068	1,358	1,390	1.024
2011	21,563,755	32,467,884	1.506	19,733,818	21,353,729	1.082	2,110	2,145	1.017
2010	24,337,100	38,320,952	1.575	22,387,324	24,116,617	1.077	2,461	2,508	1.019
2009	21,260,206	30,833,824	1.450	20,307,061	21,416,671	1.055	2,028	2,067	1.019
2008	29,372,492	42,224,106	1.438	26,197,446	28,426,204	1.085	2,663	2,708	1.017
Weighted Average			1.492			1.074			1.019
	30	42		30	42		30	42	
2011	31,923,455	36,915,593	1.156	21,196,350	21,605,687	1.019	2,139	2,152	1.006
2010	37,855,716	42,902,172	1.133	24,083,304	24,823,321	1.031	2,501	2,515	1.006
2009	30,567,608	36,411,763	1.191	21,359,127	21,460,387	1.005	2,061	2,072	1.005
2008	41,260,328	48,717,826	1.181	28,357,738	27,976,880	0.987	2,702	2,719	1.006
2007	38,807,248	44,969,780	1.159	29,643,692	30,627,031	1.033	3,375	3,388	1.004
Weighted Average			1.164			1.015			1.005
	42	54		42	54		42	54	
2010	42,297,735	44,229,792	1.046	24,770,772	24,797,061	1.001	2,507	2,512	1.002
2009	35,682,924	36,695,879	1.028	21,167,902	21,974,806	1.038	2,068	2,077	1.004
2008	48,411,759	51,439,955	1.063	27,793,915	27,688,035	0.996	2,717	2,731	1.005
2007	43,570,446	47,868,274	1.099	30,449,184	30,106,043	0.989	3,383	3,395	1.004
2006	42,492,835	46,810,924	1.102	30,178,761	30,939,609	1.025	3,519	3,526	1.002
Weighted Average			1.069			1.009			1.003
	54	66		54	66		54	66	
2009	35,441,472	36,110,344	1.019	21,377,341	20,711,802	0.969	2,072	2,074	1.001
2008	50,250,610	51,315,909	1.021	27,223,375	27,053,406	0.994	2,723	2,728	1.002
2007	47,137,770	49,100,842	1.042	29,827,132	29,640,713	0.994	3,391	3,399	1.002
2006	46,387,657	47,447,803	1.023	31,136,164	30,879,792	0.992	3,525	3,529	1.001
2005	49,502,851	52,649,488	1.064	33,082,381	32,890,310	0.994	3,816	3,821	1.001
Weighted Average			1.035			0.990			1.002
	66	78		66	78		66	78	
2008	49,934,010	50,273,982	1.007	26,765,455	26,703,357	0.998	2,721	2,725	1.001
2007	48,107,465	48,133,533	1.001	29,274,563	29,056,724	0.993	3,392	3,388	0.999
2006	46,549,265	46,960,539	1.009	30,785,237	30,492,150	0.990	3,526	3,533	1.002
2005	53,381,172	53,632,254	1.005	33,072,725	32,768,091	0.991	3,822	3,822	1.000
2004	46,949,198	47,575,102	1.013	29,798,895	29,607,097	0.994	3,570	3,569	1.000
Weighted Average			1.007			0.993			1.000
	78	90		78	90		78	90	
2007	48,133,533	48,170,567	1.001	29,056,724	28,995,395	0.998	3,388	3,388	1.000
2006	45,705,863	45,589,141	0.997	29,668,466	29,504,653	0.994	3,527	3,529	1.001
2005	52,630,412	52,568,005	0.999	32,079,082	32,292,130	1.007	3,816	3,817	1.000
2004	47,607,453	47,950,882	1.007	29,574,746	29,070,260	0.983	3,569	3,572	1.001
2003	35,536,083	36,031,725	1.014	21,252,812	21,318,777	1.003	3,005	3,008	1.001
Weighted Average			1.003			0.997			1.001
	90	102		90	102		90	102	
2006	45,573,734	45,776,591	1.004	29,481,549	29,253,634	0.992	3,528	3,528	1.000
2005	51,958,354	52,009,264	1.001	31,935,148	31,836,852	0.997	3,815	3,816	1.000
2004	48,190,170	48,123,497	0.999	29,091,752	29,170,995	1.003	3,571	3,570	1.000
2003	36,309,469	36,468,690	1.004	21,410,914	21,083,388	0.985	3,008	3,008	1.000
2002	31,032,636	31,478,566	1.014	17,621,457	17,281,908	0.981	2,709	2,709	1.000
Weighted Average			1.004			0.993			1.000
	102	114		102	114		102	114	
2005	51,009,689	50,951,879	0.999	31,380,068	31,446,084	1.002	3,813	3,815	1.001
2004	46,442,279	46,656,949	1.005	28,372,413	28,559,550	1.007	3,565	3,565	1.000
2003	36,824,004	36,648,947	0.995	21,228,074	21,349,177	1.006	3,009	3,011	1.001
2002	31,642,499	31,930,538	1.009	17,199,623	16,924,984	0.984	2,710	2,712	1.001
2001	22,173,694	21,872,038	0.986	10,566,451	10,324,448	0.977	1,777	1,777	1.000
Weighted Average			1.000			0.999			1.000
	114	126		114	126		114	126	
2004	46,656,949	46,931,935	1.006	28,559,550	28,497,607	0.998	3,565	3,565	1.000
2003	36,067,475	36,133,693	1.002	21,165,662	21,069,028	0.995	3,009	3,008	1.000
2002	31,284,695	31,260,735	0.999	16,825,784	16,873,374	1.003	2,709	2,709	1.000
2001	22,937,939	22,939,725	1.000	10,553,684	10,597,884	1.004	1,780	1,780	1.000
2000	21,084,783	21,090,976	1.000	8,735,304	8,477,343	0.970	1,299	1,299	1.000
Weighted Average			1.002			0.996			1.000

Note:
 Unit Statistical Plan data, excluding Large Deductibles.

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Section IX - Classification Pricing
 Subsection B - Conversion/Excess Loss Factors
 7/1/2016

Section IX - B
 Exhibit 3

Trend Factors

Policy Year	Statewide Average Weekly Wage	Indemnity Severity	Lost Time Medical Severity	Medical Only Severity	Lost Time Claim Frequency	Medical Only Claim Frequency
(1) Historical Values						
2009	1,101.70	26,192	12,890	790	180.09	407.93
2010	1,144.80	25,262	12,072	797	189.89	410.14
2011	1,174.21	27,108	13,166	816	183.07	387.56
2012	1,190.50	27,750	14,162	847	177.10	357.69
2013	1,225.60	29,747	15,098	898	173.88	344.48

(2) Trend to PY 2013						
2009	1.112	1.136	1.171	1.137	0.966	0.844
2010	1.071	1.178	1.251	1.126	0.916	0.840
2011	1.044	1.097	1.147	1.100	0.950	0.889
2012	1.029	1.072	1.066	1.060	0.982	0.963
2013	1.000	1.000	1.000	1.000	1.000	1.000

(3) Projected Trend from PY 2013 to Prospective Effective Period						
Selected Annual Trend	2.4%	2.6%	3.1%	2.9%	-2.1%	-4.4%
Trend Factor	1.085	1.093	1.113	1.105	0.927	0.853

(4) Trend Factors from PY 2013 to Prospective Effective Period						
Policy Year	Statewide Average Weekly Wage	Indemnity Severity	Lost Time Medical Severity	Medical Only Severity	Lost Time Claim Frequency	Medical Only Claim Frequency
2009	1.207	1.242	1.304	1.255	0.895	0.721
2010	1.161	1.288	1.392	1.244	0.849	0.717
2011	1.132	1.200	1.277	1.215	0.880	0.759
2012	1.117	1.172	1.187	1.171	0.910	0.822
2013	1.085	1.093	1.113	1.105	0.927	0.853

Notes:

(1): Weekly Wage from Section V-G, Exhibit 2.

Indemnity Severity from Section V-C, Exhibit 1, Page 1.

Lost Time Medical Severity from Section V-D, Exhibit 1, Page 1.

Medical Only Severity from Section V-D, Exhibit 2, Page 1.

Lost Time Claim Frequency from Section V-B, Exhibit 1, Page 1.

Medical Only Claim Frequency from Section V-B, Exhibit 2, Page 1.

(2) = (1) / (1) for Policy Year 2013

(3): Selected Annual Trend from Section I-D, Exhibit 1, Page 1.

Trend Factor = $(1.0 + \text{Selected Annual Trend})^{\text{Trend Period}}$, where Trend Period extends from the midpoint of PY 2013 to midpoint of policy effective period 7/1/2016 - 6/30/2017, which is 3.5 years.

(4) = (2) x (3)

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Section IX - Classification Pricing
 Subsection B - Conversion/Excess Loss Factors
 7/1/2016

Section IX - B
 Exhibit 4

Calculation of Investment Income Offset Factor

Indemnity

Injury Type (1)	Loss Flow Discounted at 0.90% Post-Chapter 398 (2)	Injury Type Weights At Ultimate (3)	Investment Income Offset Factor (4)
Fatal	0.835	1.79%	0.869
Permanent Total	0.801	6.09%	0.833
Permanent Partial	0.980	41.07%	1.020
Temporary Total	0.986	15.79%	1.026
Total Indemnity			0.961

Medical

Injury Type (5)	Loss Flow Discounted at 0.90% Post-Chapter 398 (6)	Injury Type Weights At Ultimate (7)	Investment Income Offset Factor (8)
Fatal	0.835	0.28%	1.000
Permanent Total	0.801	3.51%	0.833
Permanent Partial	0.980	15.76%	1.020
Temporary Total	0.986	10.95%	1.025
Medical Only		4.77%	1.000
Total Medical			0.961

Notes:

(2), (6): Loss Flows are from the 8/1/99 rate filing, Section VIII - E, Exhibits 12 and 16. The discount rate is calculated by multiplying the pre-tax rate of return on governments (Section VII-J, Exhibit 1, Page 1) times the complement of the federal tax rate on investment income (Section VII-J, Exhibit 1, Page 1) [1.14% x (1.000 - 21.14%)] = 0.9%

(3): Section IV - E, Exhibit 2, Page 1.

(4)= (2) / 0.961, which is the weighted average of (2) and (3).

(7): Section IV - E, Exhibit 2, Page 2.

(8)= (6) / 0.961, which is the weighted average of (6) and (7). This weighted average excludes Fatal and Medical Only injury types as it is assumed that they generate no investment income.

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Section IX - Classification Pricing
Subsection B - Conversion/Excess Loss Factors
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Section IX - B
Exhibit 5

Calculation of Excess Loss Factors

Hazard Group (1)	Excess Ratio (2)	Excess Factor (3) = [1.0 / (1.0 - (2))]
A	0.098	1.109
B	0.111	1.125
C	0.137	1.159
D	0.178	1.217
E	0.195	1.242
F	0.224	1.289
G	0.336	1.506

Note:

(2) = Excess Ratio for Accident Limit of \$500,000 x 0.985, where Excess Ratio from Section XII-F, Exhibit 3, Page 1 and 0.985 is the factor to convert the per occurrence claims to per claim basis.

Calculation of Converted Limited Losses by Indemnity Likely/Not-Likely and Medical Likely/Not-Likely
 Manufacturing Industry Group, Industry Code 1
 All Classes

Policy Year (1)	Injury Type (2)	Limited Losses					Converted Limited Losses					Total (12)
		Indemnity		Medical		Total (7)	Indemnity		Medical			
		Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)			Likely (8)	Not-Likely (9)	Likely (10)	Not-Likely (11)	
2009	Fatal	15,000	687,187	1,109	147,416	850,712	14,542	667,716	1,009	141,551	824,818	
	Permanent Total	3,113,045	0	904,723	0	4,017,768	3,035,148	0	825,937	0	3,861,085	
	Permanent Partial	8,611,365	14,131,191	3,718,892	5,654,219	32,115,667	8,576,961	14,031,157	3,384,602	5,421,634	31,414,354	
	Temporary Total	3,714,852	7,499,423	1,337,092	6,832,943	19,384,310	3,544,001	7,172,224	1,216,251	6,559,253	18,491,729	
	Medical Only	0	0	0	3,636,202	3,636,202	0	0	0	2,705,117	2,705,117	
2010	Fatal	28,500	644,362	700	55,350	728,912	28,922	652,447	661	55,740	737,770	
	Permanent Total	3,552,041	0	1,509,563	0	5,061,604	3,598,572	0	1,425,639	0	5,024,211	
	Permanent Partial	8,276,217	17,945,243	3,610,634	7,861,377	37,693,471	8,659,206	18,649,953	3,415,203	7,881,969	38,606,331	
	Temporary Total	3,878,197	10,276,781	2,759,822	7,549,282	24,464,082	3,873,114	10,246,368	2,606,388	7,597,653	24,323,523	
	Medical Only	0	0	0	3,869,446	3,869,446	0	0	0	2,933,639	2,933,639	
2011	Fatal	98,500	310,144	0	0	408,644	113,507	326,277	0	0	439,784	
	Permanent Total	2,434,029	0	1,236,721	0	3,670,750	2,661,189	0	1,174,743	0	3,835,932	
	Permanent Partial	11,392,697	18,239,993	4,133,615	8,051,954	41,818,259	12,595,424	19,632,200	3,926,580	7,916,023	44,070,227	
	Temporary Total	4,434,415	9,478,496	2,688,226	8,269,209	24,870,346	4,666,536	9,837,522	2,551,311	8,140,444	25,195,813	
	Medical Only	0	0	0	4,010,541	4,010,541	0	0	0	3,234,089	3,234,089	
2012	Fatal	0	1,373,241	0	97,004	1,470,245	0	1,647,285	0	93,933	1,741,218	
	Permanent Total	993,472	0	351,689	0	1,345,161	1,261,908	0	349,733	0	1,611,641	
	Permanent Partial	8,388,626	14,949,308	4,234,316	6,992,242	34,564,492	11,071,998	18,262,646	4,196,915	6,765,273	40,296,832	
	Temporary Total	4,202,315	10,495,350	2,385,988	7,972,836	25,056,489	5,292,672	12,436,994	2,372,720	7,719,725	27,822,111	
	Medical Only	0	0	0	3,586,121	3,586,121	0	0	0	3,093,741	3,093,741	
2013	Fatal	0	801,745	0	2,175	803,920	0	1,252,535	0	2,150	1,254,685	
	Permanent Total	328,026	0	218,101	0	546,127	598,624	0	240,165	0	838,789	
	Permanent Partial	2,802,019	8,021,782	1,268,615	5,175,669	17,268,085	5,185,711	12,779,552	1,397,433	5,127,248	24,489,944	
	Temporary Total	4,660,264	10,838,019	2,440,786	9,359,564	27,298,633	8,751,434	16,989,497	2,695,692	9,271,984	37,708,607	
	Medical Only	0	0	0	3,698,422	3,698,422	0	0	0	3,347,673	3,347,673	
(13) All Years, All Injury Types		70,923,580	125,692,265	32,800,592	92,821,972	322,238,409	83,529,469	144,584,373	31,780,982	88,008,839	347,903,663	

Notes:
 (3), (4), (5), (6): From Unit Statistical Plan data, excluding Large Deductibles.
 (7)= (3) + (4) + (5) + (6)
 (8)= (3) x Primary Conversion Factors from Section IX - B, Exhibit 1
 (9)= (4) x Primary Conversion Factors from Section IX - B, Exhibit 1
 (10)= (5) x Primary Conversion Factors from Section IX - B, Exhibit 1
 (11)= (6) x Primary Conversion Factors from Section IX - B, Exhibit 1
 (12)= (8) + (9) + (10) + (11)

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Calculation of Converted Unlimited Losses by Indemnity Likely/Not-Likely and Medical Likely/Not-Likely
 Manufacturing Industry Group, Industry Code 1
 All Classes

Policy Year (1)	Injury Type (2)	Adjusted Excess Losses				Converted Unlimited Losses						Exposure (13)
		Indemnity		Medical		Indemnity		Medical		Total		
		Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Total (7)	Likely (8)	Not-Likely (9)	Likely (10)	Not-Likely (11)	Total (12)	
2009	Fatal	2,204	62,686	1,163	49,320	115,373	17,462	761,631	2,606	229,045	1,010,744	49,717,443
	Permanent Total	312,106	0	252,255	0	564,361	3,347,780	0	1,077,538	0	4,425,318	
	Permanent Partial	986,210	1,696,989	960,311	1,667,680	5,311,190	11,709,139	19,257,529	5,315,846	8,673,523	44,956,037	
	Temporary Total	401,356	835,401	390,628	1,474,226	3,101,611	4,858,786	9,861,550	1,977,392	9,885,836	26,583,564	
	Medical Only	0	0	0	442,547	442,547	0	0	0	3,777,197	3,777,197	
2010	Fatal	2,528	64,158	1,166	35,996	103,848	32,794	747,245	2,192	110,082	892,313	56,343,856
	Permanent Total	412,305	0	419,946	0	832,251	4,011,507	0	1,844,465	0	5,855,972	
	Permanent Partial	1,038,370	2,191,836	1,041,424	2,286,663	6,558,293	11,873,704	25,518,669	5,452,524	12,440,958	55,285,855	
	Temporary Total	432,919	1,193,347	585,461	1,774,176	3,985,903	5,302,965	14,088,237	3,927,825	11,532,782	34,851,809	
	Medical Only	0	0	0	487,839	487,839	0	0	0	4,105,774	4,105,774	
2011	Fatal	12,613	36,257	5,406	15,539	69,815	131,513	378,035	6,487	18,647	534,682	60,816,782
	Permanent Total	308,325	0	351,291	0	659,616	2,969,981	0	1,525,108	0	4,495,089	
	Permanent Partial	1,603,187	2,492,507	1,430,279	2,483,027	8,009,000	17,384,768	27,089,473	6,553,926	12,722,866	63,751,033	
	Temporary Total	500,443	1,176,142	605,946	1,878,303	4,160,834	6,363,238	13,563,546	3,885,256	12,328,866	36,140,906	
	Medical Only	0	0	0	538,220	538,220	0	0	0	4,526,770	4,526,770	
2012	Fatal	0	201,902	0	108,950	310,852	0	1,928,252	0	243,460	2,171,712	59,887,657
	Permanent Total	160,482	0	130,475	0	290,957	1,422,614	0	479,917	0	1,902,531	
	Permanent Partial	1,290,151	2,223,297	1,205,288	2,105,316	6,824,052	15,136,205	25,082,972	6,609,402	10,852,849	57,681,428	
	Temporary Total	650,678	1,431,871	696,211	1,879,138	4,657,898	7,319,353	17,079,783	3,776,564	11,812,164	39,987,864	
	Medical Only	0	0	0	518,790	518,790	0	0	0	4,335,038	4,335,038	
2013	Fatal	0	148,408	0	63,942	212,350	0	1,460,843	0	79,310	1,540,153	59,683,715
	Permanent Total	53,049	0	53,816	0	106,865	651,775	0	293,802	0	945,577	
	Permanent Partial	527,512	1,566,691	443,551	1,563,368	4,101,122	6,995,265	17,565,527	2,252,378	8,185,729	34,998,899	
	Temporary Total	1,058,561	2,043,321	901,184	2,457,578	6,460,644	12,081,205	23,439,296	4,426,243	14,434,160	54,380,904	
	Medical Only	0	0	0	555,926	555,926	0	0	0	4,684,319	4,684,319	
(14) All Years, All Injury Types		9,752,999	17,364,813	9,475,801	22,386,544	58,980,157	111,610,054	197,822,588	49,409,471	134,979,375	493,821,488	286,449,454
(15) Pure Premium							0.390	0.691	0.172	0.471	1.724	

Notes:
 (3) , (4) = 0.7 x [Excess Factor - 1.0] x Indemnity Converted Limited Losses. Excess Factor from Section IX-B, Exhibit 5 and Indemnity Converted Limited Losses from Page 1, Columns (8) and (9).
 (5), (6) = [Excess Factor - 1.0] x Medical Converted Limited Losses + 0.3 x [Excess Factor - 1.0] x Indemnity Converted Limited Losses. Excess Factor from Section IX-B, Exhibit 5 and Medical Converted Limited Losses from Page 1, Columns (10) and (11).
 (7) = (3) + (4) + (5) + (6)
 (8), (9), (10), (11): (Converted Limited Losses from Page 1 + Adjusted Excess Losses) x Secondary Conversion Factors from Section IX - B, Exhibit 1, Page 3.
 (12) = (8) + (9) + (10) + (11)
 (13): Unit Statistical Plan data, excluding Large Deductibles.
 (15): Pure Premium calculated as the All Years, All Injury Types Converted Unlimited Losses divided by the All Years, All Injury Types Exposure.

IX 000041

Calculation of Converted Limited Losses by Indemnity Likely/Not-Likely and Medical Likely/Not-Likely
 Construction Industry Group, Industry Code 2
 All Classes

Policy Year (1)	Injury Type (2)	Limited Losses				Converted Limited Losses					
		Indemnity		Medical		Total (7)	Indemnity		Medical		Total (12)
		Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)		Likely (8)	Not-Likely (9)	Likely (10)	Not-Likely (11)	
2009	Fatal	520,861	1,656,419	284,039	108,557	2,569,876	515,106	1,609,515	261,137	104,219	2,489,977
	Permanent Total	11,804,867	0	3,103,909	0	14,908,776	11,501,779	0	2,828,896	0	14,330,675
	Permanent Partial	23,547,346	38,640,900	7,972,975	14,973,302	85,134,523	23,630,822	38,410,042	7,268,084	14,346,693	83,655,641
	Temporary Total	7,387,926	14,135,138	2,985,373	9,213,547	33,721,984	7,048,146	13,520,592	2,715,566	8,842,167	32,126,471
	Medical Only	0	0	0	3,197,265	3,197,265	0	0	0	2,377,259	2,377,259
2010	Fatal	5,000	1,071,072	0	45,188	1,121,260	5,360	1,095,631	0	45,466	1,146,457
	Permanent Total	6,416,277	0	3,136,383	0	9,552,660	6,565,430	0	2,964,334	0	9,529,764
	Permanent Partial	22,632,408	41,246,124	7,938,993	13,045,702	84,863,227	23,889,594	42,887,950	7,518,963	13,089,562	87,386,069
	Temporary Total	7,013,046	15,808,026	3,182,638	10,385,058	36,388,768	7,003,853	15,764,674	3,005,698	10,451,177	36,225,402
	Medical Only	0	0	0	3,393,358	3,393,358	0	0	0	2,572,512	2,572,512
2011	Fatal	101,519	1,409,737	0	81,544	1,592,800	108,417	1,503,694	0	80,299	1,692,410
	Permanent Total	5,308,957	0	2,125,943	0	7,434,900	5,652,831	0	2,017,665	0	7,670,496
	Permanent Partial	21,542,173	40,586,183	8,329,563	14,508,600	84,966,519	23,761,331	43,756,508	7,908,529	14,258,820	89,685,188
	Temporary Total	7,704,846	19,645,656	3,359,074	11,300,116	42,009,692	8,108,159	20,390,785	3,187,992	11,124,328	42,811,264
	Medical Only	0	0	0	3,247,812	3,247,812	0	0	0	2,618,764	2,618,764
2012	Fatal	0	2,843,048	0	252,264	3,095,312	0	3,410,406	0	244,279	3,654,685
	Permanent Total	4,128,298	0	2,355,408	0	6,483,706	5,294,785	0	2,339,763	0	7,634,548
	Permanent Partial	22,323,394	36,079,632	8,528,382	14,378,945	81,310,353	29,252,058	44,257,098	8,465,355	13,914,924	95,889,435
	Temporary Total	8,048,627	18,452,275	3,648,813	12,461,228	42,610,943	10,136,969	21,898,928	3,628,523	12,065,498	47,729,918
	Medical Only	0	0	0	3,486,849	3,486,849	0	0	0	3,008,238	3,008,238
2013	Fatal	0	3,097,824	0	134,251	3,232,075	0	5,060,836	0	133,856	5,194,692
	Permanent Total	1,363,132	0	1,148,887	0	2,512,019	2,487,620	0	1,265,112	0	3,752,732
	Permanent Partial	8,119,875	18,850,826	4,729,830	10,660,265	42,360,796	15,074,145	30,135,867	5,209,128	10,559,202	60,978,342
	Temporary Total	8,959,740	22,246,454	5,286,489	16,624,959	53,117,642	16,600,378	35,175,408	5,840,270	16,483,091	74,099,147
	Medical Only	0	0	0	3,374,679	3,374,679	0	0	0	3,059,517	3,059,517
(13) All Years, All Injury Types		166,928,292	275,769,314	68,116,699	144,873,489	655,687,794	196,636,783	318,877,934	66,425,015	139,379,871	721,319,603

Notes:

(3), (4), (5), (6): From Unit Statistical Plan data, excluding Large Deductibles.

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

(8)= (3) x Primary Conversion Factors from Section IX - B, Exhibit 1

(9)= (4) x Primary Conversion Factors from Section IX - B, Exhibit 1

(10)= (5) x Primary Conversion Factors from Section IX - B, Exhibit 1

(11)= (6) x Primary Conversion Factors from Section IX - B, Exhibit 1

(12)= (8) + (9) + (10) +(11)

IX 000042

Calculation of Converted Unlimited Losses by Indemnity Likely/Not-Likely and Medical Likely/Not-Likely
 Construction Industry Group, Industry Code 2
 All Classes

Policy Year (1)	Injury Type (2)	Indemnity		Adjusted Excess Losses Medical		Total (7)	Indemnity		Converted Unlimited Losses Medical		Total (12)	Exposure (13)
		Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)		Likely (8)	Not-Likely (9)	Likely (10)	Not-Likely (11)		
2009	Fatal	104,083	383,959	119,987	195,165	803,194	645,664	2,078,708	457,349	359,260	3,540,981	42,031,184
	Permanent Total	2,457,525	0	1,917,460	0	4,374,985	13,961,497	0	4,743,477	0	18,704,974	
	Permanent Partial	5,080,713	7,972,361	4,432,837	7,624,937	25,110,848	35,154,381	56,790,576	14,315,659	26,881,505	133,142,121	
	Temporary Total	1,356,759	2,640,659	1,345,812	3,629,738	8,972,968	10,350,807	19,902,903	4,997,848	15,347,672	50,599,230	
	Medical Only	0	0	0	675,346	675,346	0	0	0	3,663,126	3,663,126	
2010	Fatal	1,898	351,108	814	163,887	517,707	7,568	1,508,597	976	251,223	1,768,364	44,623,282
	Permanent Total	1,251,102	0	1,407,821	0	2,658,923	7,817,761	0	4,369,504	0	12,187,265	
	Permanent Partial	4,921,471	8,644,198	4,408,329	7,415,447	25,389,445	35,276,244	63,095,919	14,592,615	25,087,145	138,051,923	
	Temporary Total	1,451,926	3,109,390	1,491,619	4,341,087	10,394,022	10,413,461	23,243,787	5,534,307	18,203,059	57,394,614	
	Medical Only	0	0	0	728,991	728,991	0	0	0	3,961,803	3,961,803	
2011	Fatal	21,907	294,011	9,389	149,184	474,491	135,896	1,874,569	11,266	275,379	2,297,110	47,995,428
	Permanent Total	1,324,268	0	1,219,958	0	2,544,226	6,978,195	0	3,235,660	0	10,213,855	
	Permanent Partial	5,067,130	9,247,885	4,548,608	8,279,416	27,143,039	35,297,545	64,898,536	15,240,862	27,574,728	143,011,671	
	Temporary Total	1,636,129	4,141,287	1,622,155	5,001,949	12,401,520	12,000,285	30,211,736	5,919,268	19,844,667	67,975,956	
	Medical Only	0	0	0	737,145	737,145	0	0	0	4,027,091	4,027,091	
2012	Fatal	0	693,630	0	378,017	1,071,647	0	4,279,512	0	746,755	5,026,267	51,917,395
	Permanent Total	1,171,042	0	1,288,389	0	2,459,431	6,466,843	0	3,625,951	0	10,092,794	
	Permanent Partial	5,900,439	9,028,875	4,892,759	7,894,641	27,716,714	43,040,688	65,243,302	16,343,176	26,683,224	151,310,390	
	Temporary Total	2,177,552	4,572,828	2,110,684	5,490,206	14,351,270	15,165,579	32,600,495	7,062,552	21,603,692	76,432,318	
	Medical Only	0	0	0	841,297	841,297	0	0	0	4,619,442	4,619,442	
2013	Fatal	0	1,189,752	0	552,161	1,741,913	0	6,517,843	0	823,220	7,341,063	56,229,925
	Permanent Total	471,671	0	542,303	0	1,013,974	2,959,756	0	1,806,319	0	4,766,075	
	Permanent Partial	2,974,431	6,156,005	2,712,886	5,771,001	17,614,323	22,098,661	44,435,738	9,692,301	19,979,419	96,206,119	
	Temporary Total	3,340,703	7,120,322	3,105,248	7,848,271	21,414,544	24,557,839	52,088,036	11,008,172	29,941,679	117,595,726	
	Medical Only	0	0	0	871,230	871,230	0	0	0	4,716,897	4,716,897	
(14) All Years, All Injury Types		40,710,749	65,546,270	37,177,058	68,589,116	212,023,193	282,328,670	468,770,257	122,957,262	254,590,986	1,128,647,175	242,797,212
(15) Pure Premium							1.163	1.931	0.506	1.049	4.649	

Notes:
 (3) , (4) = 0.7 x [Excess Factor - 1.0] x Indemnity Converted Limited Losses. Excess Factor from Section IX-B, Exhibit 5 and Indemnity Converted Limited Losses from Page 1, Columns (8) and (9).
 (5), (6) = [Excess Factor - 1.0] x Medical Converted Limited Losses + 0.3 x [Excess Factor - 1.0] x Indemnity Converted Limited Losses. Excess Factor from Section IX-B, Exhibit 5 and Medical Converted Limited Losses from Page 1, Columns (10) and (11).
 (7) = (3) + (4) + (5) + (6)
 (8), (9), (10), (11): (Converted Limited Losses from Page 1 + Adjusted Excess Losses) x Secondary Conversion Factors from Section IX - B, Exhibit 1, Page 3.
 (12) = (8) + (9) + (10) + (11)
 (13): Unit Statistical Plan data, excluding Large Deductibles.
 (15): Pure Premium calculated as the All Years, All Injury Types Converted Unlimited Losses divided by the All Years, All Injury Types Exposure.

IX 000043

Calculation of Converted Limited Losses by Indemnity Likely/Not-Likely and Medical Likely/Not-Likely
 Office and Clerical Industry Group, Industry Code 3
 All Classes

Policy Year (1)	Injury Type (2)	Limited Losses					Converted Limited Losses				
		Indemnity		Medical		Total (7)	Indemnity		Medical		Total (12)
		Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)			Likely (8)	Not-Likely (9)	Likely (10)	
2009	Fatal	388,211	287,500	693	563	676,967	376,350	279,354	630	541	656,875
	Permanent Total	2,922,611	0	886,688	0	3,809,299	2,828,730	0	806,553	0	3,635,283
	Permanent Partial	8,786,886	11,640,726	3,273,287	6,299,050	29,999,949	8,879,927	11,575,336	2,990,578	6,035,092	29,480,933
	Temporary Total	3,354,941	8,072,905	1,866,937	7,855,886	21,150,669	3,200,643	7,722,768	1,698,210	7,538,646	20,160,267
	Medical Only	0	0	0	5,340,841	5,340,841	0	0	0	3,970,191	3,970,191
2010	Fatal	717,760	426,740	1,452	4,667	1,150,619	728,379	432,318	1,372	4,663	1,166,732
	Permanent Total	1,818,339	0	1,063,373	0	2,881,712	1,855,563	0	1,005,205	0	2,860,768
	Permanent Partial	10,325,023	12,046,485	3,262,232	5,583,657	31,217,397	10,913,079	12,556,682	3,089,230	5,587,948	32,146,939
	Temporary Total	5,279,163	9,867,225	3,182,269	8,189,686	26,518,343	5,272,243	9,843,005	3,005,350	8,238,817	26,359,415
	Medical Only	0	0	0	5,988,799	5,988,799	0	0	0	4,536,464	4,536,464
2011	Fatal	100	831,661	0	50,847	882,608	107	890,609	0	50,047	940,763
	Permanent Total	1,583,053	0	577,786	0	2,160,839	1,685,591	0	548,359	0	2,233,950
	Permanent Partial	12,448,879	12,032,880	5,212,870	6,562,127	36,256,756	13,846,550	12,989,396	4,952,061	6,440,223	38,228,230
	Temporary Total	5,189,928	8,098,588	2,662,358	7,365,828	23,316,702	5,461,596	8,414,718	2,526,761	7,250,180	23,653,255
	Medical Only	0	0	0	5,597,123	5,597,123	0	0	0	4,511,579	4,511,579
2012	Fatal	0	0	0	0	0	0	0	0	0	0
	Permanent Total	654,723	0	243,651	0	898,374	831,629	0	242,296	0	1,073,925
	Permanent Partial	7,352,125	11,651,469	3,926,889	5,822,886	28,753,369	9,701,043	14,303,689	3,886,573	5,633,167	33,524,472
	Temporary Total	5,688,456	8,762,411	2,393,564	8,609,848	25,454,279	7,164,415	10,390,525	2,380,254	8,336,481	28,271,675
	Medical Only	0	0	0	5,585,134	5,585,134	0	0	0	4,818,406	4,818,406
2013	Fatal	0	1,052,284	0	19,804	1,072,088	0	1,643,942	0	19,585	1,663,527
	Permanent Total	311,672	0	47,811	0	359,483	568,780	0	52,648	0	621,428
	Permanent Partial	4,501,101	6,636,216	2,685,528	4,677,265	18,500,110	8,444,700	10,632,527	2,970,162	4,637,908	26,685,297
	Temporary Total	5,409,685	8,977,119	4,144,073	9,296,853	27,827,730	10,099,690	14,025,379	4,587,043	9,215,541	37,927,653
	Medical Only	0	0	0	6,062,658	6,062,658	0	0	0	5,488,024	5,488,024
(13) All Years, All Injury Types		76,732,656	100,384,209	35,431,461	98,913,522	311,461,848	91,859,015	115,700,248	34,743,285	92,313,503	334,616,051

Notes:
 (3), (4), (5), (6): From Unit Statistical Plan data, excluding Large Deductibles.
 (7)= (3) + (4) + (5) + (6)
 (8)= (3) x Primary Conversion Factors from Section IX - B, Exhibit 1
 (9)= (4) x Primary Conversion Factors from Section IX - B, Exhibit 1
 (10)= (5) x Primary Conversion Factors from Section IX - B, Exhibit 1
 (11)= (6) x Primary Conversion Factors from Section IX - B, Exhibit 1
 (12)= (8) + (9) + (10) + (11)

IX 000044

Calculation of Converted Unlimited Losses by Indemnity Likely/Not-Likely and Medical Likely/Not-Likely
 Office and Clerical Industry Group, Industry Code 3
 All Classes

Policy Year (1)	Injury Type (2)	Adjusted Excess Losses					Converted Unlimited Losses					Exposure (13)
		Indemnity		Medical		Total (7)	Indemnity		Medical		Total (12)	
		Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)			Likely (8)	Not-Likely (9)	Likely (10)		Not-Likely (11)
2009	Fatal	57,867	31,043	24,900	13,390	127,200	452,782	323,668	30,637	16,717	823,804	584,743,169
	Permanent Total	319,672	0	275,777	0	595,449	3,148,896	0	1,081,673	0	4,230,569	
	Permanent Partial	967,535	1,321,331	881,887	1,546,324	4,717,077	12,057,225	15,790,669	4,737,823	9,275,592	41,861,309	
	Temporary Total	383,183	906,237	445,183	1,651,001	3,385,604	4,413,554	10,626,792	2,637,616	11,308,592	28,986,554	
	Medical Only	0	0	0	631,114	631,114	0	0	0	5,521,566	5,521,566	
2010	Fatal	80,940	60,082	34,906	26,632	202,560	843,924	513,453	43,534	37,554	1,438,465	642,829,769
	Permanent Total	227,135	0	267,258	0	494,393	2,083,025	0	1,271,691	0	3,354,716	
	Permanent Partial	1,260,160	1,462,618	1,028,320	1,560,472	5,311,570	14,904,904	17,165,219	5,037,675	8,745,837	45,853,635	
	Temporary Total	584,999	1,085,322	726,006	1,775,513	4,171,840	7,213,310	13,458,454	4,591,730	12,323,430	37,586,924	
	Medical Only	0	0	0	731,253	731,253	0	0	0	6,321,260	6,321,260	
2011	Fatal	12	104,493	5	51,270	155,780	124	1,037,649	6	121,580	1,159,359	686,497,533
	Permanent Total	158,315	0	138,402	0	296,717	1,844,196	0	686,344	0	2,530,540	
	Permanent Partial	1,755,292	1,519,396	1,649,314	1,744,604	6,668,606	19,102,883	17,764,553	8,076,547	10,013,844	54,957,827	
	Temporary Total	600,764	923,377	645,559	1,512,539	3,682,239	7,465,918	11,500,049	3,903,792	10,783,223	33,652,982	
	Medical Only	0	0	0	730,619	730,619	0	0	0	6,290,637	6,290,637	
2012	Fatal	0	0	0	0	0	0	0	0	0	0	702,275,923
	Permanent Total	92,414	0	78,070	0	170,484	924,188	0	320,172	0	1,244,360	
	Permanent Partial	1,164,537	1,591,225	1,167,885	1,596,455	5,520,102	13,303,806	19,461,719	6,183,949	8,845,184	47,794,658	
	Temporary Total	833,069	1,177,881	744,634	1,837,988	4,593,572	9,849,061	14,246,723	3,845,424	12,520,494	40,461,702	
	Medical Only	0	0	0	789,787	789,787	0	0	0	6,729,831	6,729,831	
2013	Fatal	0	198,483	0	88,173	286,656	0	1,921,200	0	129,309	2,050,509	732,531,158
	Permanent Total	96,445	0	54,087	0	150,532	665,329	0	106,670	0	771,999	
	Permanent Partial	1,004,346	1,188,444	954,222	1,274,223	4,421,235	11,569,405	14,473,587	4,801,344	7,233,282	38,077,618	
	Temporary Total	1,189,698	1,607,663	1,274,933	2,177,276	6,249,570	13,903,106	19,252,404	7,213,628	14,019,768	54,388,906	
	Medical Only	0	0	0	887,817	887,817	0	0	0	7,651,010	7,651,010	
(14) All Years, All Injury Types		10,776,383	13,177,595	10,391,348	20,626,450	54,971,776	123,745,636	157,536,139	54,570,255	137,888,710	473,740,740	3,348,877,552
(15) Pure Premium							0.037	0.047	0.016	0.041	0.141	

Notes:
 (3), (4) = 0.7 x [Excess Factor - 1.0] x Indemnity Converted Limited Losses. Excess Factor from Section IX-B, Exhibit 5 and Indemnity Converted Limited Losses from Page 1, Columns (8) and (9).
 (5), (6) = [Excess Factor - 1.0] x Medical Converted Limited Losses + 0.3 x [Excess Factor - 1.0] x Indemnity Converted Limited Losses. Excess Factor from Section IX-B, Exhibit 5 and Medical Converted Limited Losses from Page 1, Columns (10) and (11).
 (7) = (3) + (4) + (5) + (6)
 (8), (9), (10), (11): (Converted Limited Losses from Page 1 + Adjusted Excess Losses) x Secondary Conversion Factors from Section IX - B, Exhibit 1, Page 3.
 (12) = (8) + (9) + (10) + (11)
 (13): Unit Statistical Plan data, excluding Large Deductibles.
 (15): Pure Premium calculated as the All Years, All Injury Types Converted Unlimited Losses divided by the All Years, All Injury Types Exposure.

IX 000045

Calculation of Converted Limited Losses by Indemnity Likely/Not-Likely and Medical Likely/Not-Likely
Goods and Services Industry Group, Industry Code 9
All Classes

Policy Year (1)	Injury Type (2)	Limited Losses					Converted Limited Losses				
		Indemnity		Medical		Total (7)	Indemnity		Medical		Total (12)
		Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)		Likely (8)	Not-Likely (9)	Likely (10)	Not-Likely (11)	
2009	Fatal	418,243	1,049,186	418,371	93,504	1,979,304	409,220	1,019,511	384,709	89,771	1,903,211
	Permanent Total	10,391,406	0	5,286,815	0	15,678,221	10,106,055	0	4,816,211	0	14,922,266
	Permanent Partial	22,612,463	36,235,257	9,357,302	14,883,637	83,088,659	22,643,023	36,001,090	8,536,838	14,258,468	81,439,419
	Temporary Total	10,948,961	20,932,083	5,723,061	17,247,390	54,851,495	10,445,403	20,021,044	5,205,832	16,553,891	52,226,170
	Medical Only	0	0	0	9,605,602	9,605,602	0	0	0	7,144,394	7,144,394
2010	Fatal	463,654	1,035,944	21,183	16,741	1,537,522	479,989	1,060,172	20,204	16,581	1,576,946
	Permanent Total	5,572,348	0	2,970,977	0	8,543,325	5,681,475	0	2,807,547	0	8,489,022
	Permanent Partial	25,597,143	34,375,236	9,800,080	15,156,511	84,928,970	27,014,342	35,766,628	9,285,028	15,173,132	87,239,130
	Temporary Total	9,511,383	19,707,696	4,256,184	17,043,730	50,518,993	9,498,916	19,659,520	4,019,559	17,146,848	50,324,843
	Medical Only	0	0	0	9,772,094	9,772,094	0	0	0	7,405,324	7,405,324
2011	Fatal	238,648	3,102,769	36,000	40,600	3,418,017	275,008	3,279,694	34,262	39,961	3,628,925
	Permanent Total	4,542,452	0	1,913,136	0	6,455,588	4,912,619	0	1,815,939	0	6,728,558
	Permanent Partial	25,079,561	35,585,658	11,426,938	16,454,787	88,546,944	27,819,704	38,390,066	10,852,784	16,153,923	93,216,477
	Temporary Total	10,773,415	23,681,812	6,119,706	19,687,254	60,262,187	11,337,354	24,583,096	5,808,021	19,378,746	61,107,217
	Medical Only	0	0	0	10,345,575	10,345,575	0	0	0	8,339,764	8,339,764
2012	Fatal	320,770	406,288	7,959	8,570	743,587	409,451	494,779	7,915	8,294	920,439
	Permanent Total	3,357,563	0	2,213,404	0	5,570,967	4,264,777	0	2,201,096	0	6,465,873
	Permanent Partial	17,374,983	30,395,343	7,998,513	16,197,328	71,966,167	22,762,083	37,298,162	7,926,966	15,669,275	83,656,486
	Temporary Total	10,346,114	23,367,249	6,030,599	20,770,320	60,514,282	13,030,576	27,709,148	5,997,064	20,109,712	66,846,500
	Medical Only	0	0	0	10,079,121	10,079,121	0	0	0	8,693,707	8,693,707
2013	Fatal	0	783,828	0	100,164	883,992	0	1,224,543	0	99,055	1,323,598
	Permanent Total	488,554	0	260,898	0	749,452	891,577	0	287,291	0	1,178,868
	Permanent Partial	11,244,067	17,983,911	7,213,279	11,087,989	47,529,246	21,183,436	28,582,891	7,975,154	10,980,375	68,721,856
	Temporary Total	10,670,793	26,381,875	7,505,267	24,933,529	69,491,464	19,887,952	41,906,259	8,305,956	24,765,850	94,866,017
	Medical Only	0	0	0	10,307,920	10,307,920	0	0	0	9,346,558	9,346,558
(13) All Years, All Injury Types		179,952,521	275,024,135	88,559,672	223,832,366	767,368,694	213,052,960	316,996,603	86,288,376	211,373,629	827,711,568

Notes:

(3), (4), (5), (6): From Unit Statistical Plan data, excluding Large Deductibles.

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

(8)= (3) x Primary Conversion Factors from Section IX - B, Exhibit 1

(9)= (4) x Primary Conversion Factors from Section IX - B, Exhibit 1

(10)= (5) x Primary Conversion Factors from Section IX - B, Exhibit 1

(11)= (6) x Primary Conversion Factors from Section IX - B, Exhibit 1

(12)= (8) + (9) + (10) +(11)

IX 000046

Calculation of Converted Unlimited Losses by Indemnity Likely/Not-Likely and Medical Likely/Not-Likely
 Goods and Services Industry Group, Industry Code 9
 All Classes

Policy Year (1)	Injury Type (2)	Indemnity		Adjusted Excess Losses Medical		Total (7)	Indemnity		Converted Unlimited Losses Medical		Total (12)	Exposure (13)
		Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)		Likely (8)	Not-Likely (9)	Likely (10)	Not-Likely (11)		
2009	Fatal	32,063	104,478	61,776	54,744	253,061	460,151	1,172,048	535,782	173,417	2,341,398	133,901,374
	Permanent Total	1,193,838	0	1,310,195	0	2,504,033	11,301,669	0	6,122,690	0	17,424,359	
	Permanent Partial	2,717,606	4,449,722	2,634,854	4,376,550	14,178,732	31,051,533	49,527,941	13,668,165	22,799,278	117,046,917	
	Temporary Total	1,213,557	2,349,751	1,375,276	3,706,973	8,645,557	14,358,243	27,550,081	8,098,577	24,932,606	74,939,507	
	Medical Only	0	0	0	1,094,794	1,094,794	0	0	0	9,887,025	9,887,025	
2010	Fatal	63,301	137,276	31,447	61,465	293,489	566,519	1,248,647	61,982	93,655	1,970,803	145,766,704
	Permanent Total	683,003	0	799,755	0	1,482,758	6,365,478	0	3,605,114	0	9,970,592	
	Permanent Partial	3,189,081	4,317,349	2,897,788	4,465,334	14,869,552	36,981,046	49,078,789	14,905,241	24,026,962	124,992,038	
	Temporary Total	1,169,143	2,263,553	1,193,926	3,797,529	8,424,151	13,137,927	26,998,701	6,415,609	25,773,724	72,325,961	
	Medical Only	0	0	0	1,140,394	1,140,394	0	0	0	10,254,862	10,254,862	
2011	Fatal	24,036	390,104	14,579	175,814	604,533	311,830	3,826,707	58,610	258,930	4,456,077	154,115,063
	Permanent Total	643,472	0	600,720	0	1,244,192	5,556,964	0	2,415,193	0	7,972,157	
	Permanent Partial	3,267,555	4,369,502	3,213,581	4,485,572	15,336,210	38,063,214	52,354,779	17,209,695	25,251,684	132,879,372	
	Temporary Total	1,294,550	2,822,987	1,483,805	4,387,087	9,988,429	15,556,442	33,751,137	8,973,172	29,245,749	87,526,500	
	Medical Only	0	0	0	1,272,490	1,272,490	0	0	0	11,534,704	11,534,704	
2012	Fatal	45,497	38,755	20,755	17,527	122,534	474,400	556,346	34,404	30,985	1,096,135	155,928,317
	Permanent Total	576,789	0	696,513	0	1,273,302	4,842,327	0	2,895,851	0	7,738,178	
	Permanent Partial	2,763,451	4,230,881	2,584,309	4,370,553	13,949,194	31,253,443	50,848,126	12,860,169	24,518,014	119,479,752	
	Temporary Total	1,607,592	3,228,799	1,707,192	4,688,102	11,231,685	18,027,196	38,100,700	9,480,700	30,515,685	96,124,281	
	Medical Only	0	0	0	1,329,657	1,329,657	0	0	0	12,028,037	12,028,037	
2013	Fatal	0	163,931	0	85,761	249,692	0	1,447,841	0	221,779	1,669,620	166,043,991
	Permanent Total	109,674	0	99,367	0	209,041	1,001,409	0	386,423	0	1,387,832	
	Permanent Partial	2,604,907	3,412,152	2,556,905	3,323,887	11,897,851	29,126,427	39,174,704	12,885,597	17,500,753	98,687,481	
	Temporary Total	2,295,619	4,804,346	2,342,625	6,111,749	15,554,339	27,319,511	57,525,042	13,103,927	37,997,344	135,945,824	
	Medical Only	0	0	0	1,435,735	1,435,735	0	0	0	12,938,751	12,938,751	
(14) All Years, All Injury Types		25,494,734	37,083,586	25,625,368	50,381,717	138,585,405	285,755,729	433,161,589	133,716,901	319,983,944	1,172,618,163	755,755,449
(15) Pure Premium							0.378	0.573	0.177	0.423	1.552	

Notes:
 (3) , (4) = 0.7 x [Excess Factor - 1.0] x Indemnity Converted Limited Losses. Excess Factor from Section IX-B, Exhibit 5 and Indemnity Converted Limited Losses from Page 1, Columns (8) and (9).
 (5), (6) = [Excess Factor - 1.0] x Medical Converted Limited Losses + 0.3 x [Excess Factor - 1.0] x Indemnity Converted Limited Losses. Excess Factor from Section IX-B, Exhibit 5 and Medical Converted Limited Losses from Page 1, Columns (10) and (11).
 (7) = (3) + (4) + (5) + (6)
 (8), (9), (10), (11): (Converted Limited Losses from Page 1 + Adjusted Excess Losses) x Secondary Conversion Factors from Section IX - B, Exhibit 1, Page 3.
 (12) = (8) + (9) + (10) + (11)
 (13): Unit Statistical Plan data, excluding Large Deductibles.
 (15): Pure Premium calculated as the All Years, All Injury Types Converted Unlimited Losses divided by the All Years, All Injury Types Exposure.

IX 000047

Calculation of Converted Limited Losses by Indemnity Likely/Not-Likely and Medical Likely/Not-Likely
 Miscellaneous Industry Group, Industry Code 0
 All Classes

Policy Year (1)	Injury Type (2)	Limited Losses					Converted Limited Losses				
		Indemnity		Medical		Total	Indemnity		Medical		Total
		Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	(7)	Likely (8)	Not-Likely (9)	Likely (10)	Not-Likely (11)	(12)
2009	Fatal	0	757,411	0	27,111	784,522	0	736,696	0	26,015	762,711
	Permanent Total	2,885,320	0	1,219,014	0	4,104,334	2,819,187	0	1,109,118	0	3,928,305
	Permanent Partial	10,439,159	12,252,341	4,171,660	5,576,556	32,439,716	10,526,290	12,188,733	3,807,123	5,338,306	31,860,452
	Temporary Total	2,005,971	7,080,690	934,014	4,751,162	14,771,837	1,913,714	6,775,300	849,601	4,557,095	14,095,710
	Medical Only	0	0	0	2,058,511	2,058,511	0	0	0	1,529,419	1,529,419
2010	Fatal	0	671,470	0	82,248	753,718	0	691,504	0	82,827	774,331
	Permanent Total	3,826,928	0	2,103,123	0	5,930,051	3,907,975	0	1,988,646	0	5,896,621
	Permanent Partial	13,087,232	18,582,236	4,210,438	8,617,757	44,497,663	14,004,354	19,446,443	4,000,405	8,603,595	46,054,797
	Temporary Total	2,960,878	8,468,031	1,175,960	5,553,601	18,158,470	2,956,997	8,464,172	1,110,582	5,579,015	18,110,766
	Medical Only	0	0	0	2,462,730	2,462,730	0	0	0	1,861,109	1,861,109
2011	Fatal	0	402,016	0	1,822	403,838	0	425,556	0	1,775	427,331
	Permanent Total	2,055,127	0	643,156	0	2,698,283	2,268,974	0	610,779	0	2,879,753
	Permanent Partial	12,437,753	16,880,927	5,948,528	7,072,485	42,339,693	14,074,221	18,395,470	5,654,842	6,926,867	45,051,400
	Temporary Total	2,706,695	9,103,808	1,097,229	6,003,820	18,911,552	2,848,378	9,482,684	1,041,346	5,904,924	19,277,332
	Medical Only	0	0	0	2,450,593	2,450,593	0	0	0	1,972,382	1,972,382
2012	Fatal	202,757	498,164	53,558	1,836	756,315	258,812	645,846	53,260	1,769	959,687
	Permanent Total	1,190,209	0	243,685	0	1,433,894	1,511,804	0	242,330	0	1,754,134
	Permanent Partial	9,552,983	11,222,156	4,869,539	5,277,622	30,922,300	12,763,436	14,085,487	4,806,525	5,097,062	36,752,510
	Temporary Total	6,381,342	8,053,158	3,564,962	6,432,546	24,432,008	8,037,081	9,607,961	3,545,138	6,226,561	27,416,741
	Medical Only	0	0	0	2,221,531	2,221,531	0	0	0	1,915,433	1,915,433
2013	Fatal	0	1,005,186	0	73,355	1,078,541	0	1,655,940	0	72,542	1,728,482
	Permanent Total	257,287	0	424,451	0	681,738	469,531	0	467,390	0	936,921
	Permanent Partial	6,855,660	8,996,404	3,228,796	5,759,123	24,839,983	13,095,465	14,633,487	3,567,073	5,723,624	37,019,649
	Temporary Total	6,329,276	12,353,853	4,559,612	10,274,771	33,517,512	12,488,743	20,178,430	5,067,040	10,235,400	47,969,613
	Medical Only	0	0	0	2,850,616	2,850,616	0	0	0	2,587,716	2,587,716
(13) All Years, All Injury Types		83,174,577	116,327,851	38,447,725	77,549,796	315,499,949	103,944,962	137,413,709	37,921,198	74,243,436	353,523,305

Notes:
 (3), (4), (5), (6): From Unit Statistical Plan data, excluding Large Deductibles.
 (7)= (3) + (4) + (5) + (6)
 (8)= (3) x Primary Conversion Factors from Section IX - B, Exhibit 1
 (9)= (4) x Primary Conversion Factors from Section IX - B, Exhibit 1
 (10)= (5) x Primary Conversion Factors from Section IX - B, Exhibit 1
 (11)= (6) x Primary Conversion Factors from Section IX - B, Exhibit 1
 (12)= (8) + (9) + (10) + (11)

IX 000048

Calculation of Converted Unlimited Losses by Indemnity Likely/Not-Likely and Medical Likely/Not-Likely
 Miscellaneous Industry Group, Industry Code 0
 All Classes

Policy Year (1)	Injury Type (2)	Adjusted Excess Losses					Converted Unlimited Losses					Exposure (13)
		Indemnity		Medical		Total	Indemnity		Medical		Total	
		Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	(7)	Likely (8)	Not-Likely (9)	Likely (10)	Not-Likely (11)	(12)	
2009	Fatal	0	129,292	0	61,044	190,336	0	903,015	0	104,472	1,007,487	18,738,916
	Permanent Total	480,108	0	475,779	0	955,887	3,299,813	0	1,583,936	0	4,883,749	
	Permanent Partial	1,758,063	1,993,516	1,656,959	2,104,075	7,512,613	15,040,952	17,364,733	6,685,109	9,105,488	48,196,282	
	Temporary Total	317,856	1,163,643	348,602	1,566,286	3,396,387	2,748,223	9,776,968	1,474,484	7,535,308	21,534,983	
	Medical Only	0	0	0	329,066	329,066	0	0	0	2,230,182	2,230,182	
2010	Fatal	0	115,858	0	69,716	185,574	0	841,883	0	183,052	1,024,935	23,932,770
	Permanent Total	671,639	0	787,743	0	1,459,382	4,580,334	0	2,774,705	0	7,355,039	
	Permanent Partial	2,298,618	3,371,190	1,913,940	3,553,768	11,137,516	19,961,345	27,937,892	7,235,990	14,874,100	70,009,327	
	Temporary Total	472,758	1,383,527	441,706	1,887,348	4,185,339	4,223,812	12,127,638	1,910,213	9,187,954	27,449,617	
	Medical Only	0	0	0	403,730	403,730	0	0	0	2,717,807	2,717,807	
2011	Fatal	0	85,852	0	37,306	123,158	0	533,274	0	46,898	580,172	25,270,197
	Permanent Total	389,292	0	287,535	0	676,827	2,658,684	0	897,769	0	3,556,453	
	Permanent Partial	2,263,703	3,053,407	2,249,804	2,922,408	10,489,322	20,004,141	26,261,988	9,671,052	12,050,236	67,987,417	
	Temporary Total	491,434	1,539,484	452,299	2,008,182	4,491,399	4,113,045	13,574,019	1,838,048	9,737,707	29,262,819	
	Medical Only	0	0	0	436,232	436,232	0	0	0	2,890,337	2,890,337	
2012	Fatal	43,885	109,513	31,710	47,363	232,471	315,640	787,656	101,964	58,958	1,264,218	25,829,084
	Permanent Total	252,345	0	165,256	0	417,601	1,764,427	0	407,338	0	2,171,765	
	Permanent Partial	2,221,805	2,390,665	2,116,693	2,270,207	8,999,370	18,347,917	20,173,387	8,470,310	9,013,591	56,005,205	
	Temporary Total	1,245,556	1,515,568	1,356,389	2,048,164	6,165,677	11,431,753	13,698,848	6,031,720	10,182,707	41,345,028	
	Medical Only	0	0	0	414,140	414,140	0	0	0	2,795,488	2,795,488	
2013	Fatal	0	305,108	0	151,058	456,166	0	2,044,897	0	268,321	2,313,218	27,335,058
	Permanent Total	94,874	0	175,577	0	270,451	564,494	0	642,576	0	1,207,070	
	Permanent Partial	2,159,161	2,573,678	1,728,760	2,502,883	8,964,482	18,677,752	21,068,438	6,479,263	10,064,837	56,290,290	
	Temporary Total	2,112,926	3,416,669	2,122,452	3,909,347	11,561,394	17,982,246	29,057,836	8,847,243	17,406,237	73,293,562	
	Medical Only	0	0	0	516,250	516,250	0	0	0	3,724,759	3,724,759	
(14) All Years, All Injury Types		17,274,023	23,146,970	16,311,204	27,238,573	83,970,770	145,714,578	196,152,472	65,051,720	124,178,439	531,097,209	121,106,025
(15) Pure Premium							1.203	1.620	0.537	1.025	4.385	

Notes:
 (3) , (4) = 0.7 x [Excess Factor - 1.0] x Indemnity Converted Limited Losses. Excess Factor from Section IX-B, Exhibit 5 and Indemnity Converted Limited Losses from Page 1, Columns (8) and (9).
 (5), (6) = [Excess Factor - 1.0] x Medical Converted Limited Losses + 0.3 x [Excess Factor - 1.0] x Indemnity Converted Limited Losses. Excess Factor from Section IX-B, Exhibit 5 and Medical Converted Limited Losses from Page 1, Columns (10) and (11).
 (7) = (3) + (4) + (5) + (6)
 (8), (9), (10), (11): (Converted Limited Losses from Page 1 + Adjusted Excess Losses) x Secondary Conversion Factors from Section IX - B, Exhibit 1, Page 3.
 (12) = (8) + (9) + (10) + (11)
 (13): Unit Statistical Plan data, excluding Large Deductibles.
 (15): Pure Premium calculated as the All Years, All Injury Types Converted Unlimited Losses divided by the All Years, All Injury Types Exposure.

IX 000049

Calculation of Converted Limited Losses by Indemnity Likely/Not-Likely and Medical Likely/Not-Likely
 All Industry Groups
 All Classes

Policy Year (1)	Injury Type (2)	Limited Losses					Converted Limited Losses				
		Indemnity		Medical		Total (7)	Indemnity		Medical		Total (12)
		Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)			Likely (8)	Not-Likely (9)	Likely (10)	
2009	Fatal	1,342,315	4,437,703	704,212	377,151	6,861,381	1,315,218	4,312,792	647,485	362,097	6,637,592
	Permanent Total	31,117,249	0	11,401,149	0	42,518,398	30,290,899	0	10,386,715	0	40,677,614
	Permanent Partial	73,997,219	112,900,415	28,494,116	47,386,764	262,778,514	74,257,023	112,206,358	25,987,225	45,400,193	257,850,799
	Temporary Total	27,412,651	57,720,239	12,846,477	45,900,928	143,880,295	26,151,907	55,211,928	11,685,460	44,051,052	137,100,347
	Medical Only	0	0	0	23,838,421	23,838,421	0	0	0	17,726,380	17,726,380
2010	Fatal	1,214,914	3,849,588	23,335	204,194	5,292,031	1,242,650	3,932,072	22,237	205,277	5,402,236
	Permanent Total	21,185,933	0	10,783,419	0	31,969,352	21,609,015	0	10,191,371	0	31,800,386
	Permanent Partial	79,918,023	124,195,324	28,822,377	50,265,004	283,200,728	84,480,575	129,307,656	27,308,829	50,336,206	291,433,266
	Temporary Total	28,642,667	64,127,759	14,556,873	48,721,357	156,048,656	28,605,123	63,977,739	13,747,577	49,013,510	155,343,949
	Medical Only	0	0	0	25,486,427	25,486,427	0	0	0	19,309,048	19,309,048
2011	Fatal	438,767	6,056,327	36,000	174,813	6,705,907	497,039	6,425,830	34,262	172,082	7,129,213
	Permanent Total	15,923,618	0	6,496,742	0	22,420,360	17,181,204	0	6,167,485	0	23,348,689
	Permanent Partial	82,901,063	123,325,641	35,051,514	52,649,953	293,928,171	92,097,230	133,163,640	33,294,796	51,695,856	310,251,522
	Temporary Total	30,809,299	70,008,360	15,926,593	52,626,227	169,370,479	32,422,023	72,708,805	15,115,431	51,798,622	172,044,881
	Medical Only	0	0	0	25,651,644	25,651,644	0	0	0	20,676,578	20,676,578
2012	Fatal	523,527	5,120,741	61,517	359,674	6,065,459	668,263	6,198,316	61,175	348,275	7,276,029
	Permanent Total	10,324,265	0	5,407,837	0	15,732,102	13,164,903	0	5,375,218	0	18,540,121
	Permanent Partial	64,992,111	104,297,908	29,557,639	48,669,023	247,516,681	85,550,618	128,207,082	29,282,334	47,079,701	290,119,735
	Temporary Total	34,666,854	69,130,443	18,023,926	56,246,778	178,068,001	43,661,713	82,043,556	17,923,699	54,457,977	198,086,945
	Medical Only	0	0	0	24,958,756	24,958,756	0	0	0	21,529,525	21,529,525
2013	Fatal	0	6,740,867	0	329,749	7,070,616	0	10,837,796	0	327,188	11,164,984
	Permanent Total	2,748,671	0	2,100,148	0	4,848,819	5,016,132	0	2,312,606	0	7,328,738
	Permanent Partial	33,522,722	60,489,139	19,126,048	37,360,311	150,498,220	62,983,457	96,764,324	21,118,950	37,028,357	217,895,088
	Temporary Total	36,029,758	80,797,320	23,936,227	70,489,676	211,252,981	67,828,197	128,274,973	26,496,001	69,971,866	292,571,037
	Medical Only	0	0	0	26,294,295	26,294,295	0	0	0	23,829,488	23,829,488
(13) All Years, All Injury Types		577,711,626	893,197,774	263,356,149	637,991,145	2,372,256,694	689,023,189	1,033,572,867	257,158,856	605,319,278	2,585,074,190

Notes:

(3) - (12): Total of Section IX - C, Page 1 of Exhibits 1 through 5.

IX 000050

Calculation of Converted Unlimited Losses by Indemnity Likely/Not-Likely and Medical Likely/Not-Likely
 All Industry Groups
 All Classes

Policy Year (1)	Injury Type (2)	Adjusted Excess Losses				Converted Unlimited Losses						Exposure (13)
		Indemnity		Medical		Indemnity		Medical		Total		
		Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Total (7)	Likely (8)	Not-Likely (9)	Likely (10)	Not-Likely (11)	Total (12)	
2009	Fatal	196,217	711,458	207,826	373,663	1,489,164	1,576,059	5,239,070	1,026,374	882,911	8,724,414	829,132,086
	Permanent Total	4,763,249	0	4,231,466	0	8,994,715	35,059,655	0	14,609,314	0	49,668,969	
	Permanent Partial	11,510,127	17,433,919	10,566,848	17,319,566	56,830,460	105,013,230	158,731,448	44,722,602	76,735,386	385,202,666	
	Temporary Total	3,672,711	7,895,691	3,905,501	12,028,224	27,502,127	36,729,613	77,718,294	19,185,917	69,010,014	202,643,838	
	Medical Only	0	0	0	3,172,867	3,172,867	0	0	0	25,079,096	25,079,096	
2010	Fatal	148,667	728,482	68,333	357,696	1,303,178	1,450,805	4,859,825	108,684	675,566	7,094,880	913,496,382
	Permanent Total	3,245,184	0	3,682,523	0	6,927,707	24,858,105	0	13,865,479	0	38,723,584	
	Permanent Partial	12,707,700	19,987,191	11,289,801	19,281,684	63,266,376	118,997,243	182,796,488	47,224,045	85,175,002	434,192,778	
	Temporary Total	4,111,745	9,035,139	4,438,718	13,575,653	31,161,255	40,291,475	89,916,817	22,379,684	77,020,949	229,608,925	
	Medical Only	0	0	0	3,492,207	3,492,207	0	0	0	27,361,506	27,361,506	
2011	Fatal	58,568	910,717	29,379	429,113	1,427,777	579,363	7,650,234	76,369	721,434	9,027,400	974,695,003
	Permanent Total	2,823,672	0	2,597,906	0	5,421,578	20,008,020	0	8,760,074	0	28,768,094	
	Permanent Partial	13,956,867	20,682,697	13,091,586	19,915,027	67,646,177	129,852,551	188,369,329	56,752,082	87,613,358	462,587,320	
	Temporary Total	4,523,320	10,603,277	4,809,764	14,788,060	34,724,421	45,498,928	102,600,487	24,519,536	81,940,212	254,559,163	
	Medical Only	0	0	0	3,714,706	3,714,706	0	0	0	29,269,539	29,269,539	
2012	Fatal	89,382	1,043,800	52,465	551,857	1,737,504	790,040	7,551,766	136,368	1,080,158	9,558,332	995,838,375
	Permanent Total	2,253,072	0	2,358,703	0	4,611,775	15,420,399	0	7,729,229	0	23,149,628	
	Permanent Partial	13,340,383	19,464,943	11,966,934	18,237,172	63,009,432	121,082,059	180,809,506	50,467,006	79,912,862	432,271,433	
	Temporary Total	6,514,447	11,926,947	6,615,110	15,943,598	41,000,102	61,792,942	115,726,549	30,196,960	86,634,742	294,351,193	
	Medical Only	0	0	0	3,893,671	3,893,671	0	0	0	30,507,836	30,507,836	
2013	Fatal	0	2,005,682	0	941,095	2,946,777	0	13,392,624	0	1,521,939	14,914,563	1,041,823,847
	Permanent Total	825,713	0	925,150	0	1,750,863	5,842,763	0	3,235,790	0	9,078,553	
	Permanent Partial	9,270,357	14,896,970	8,396,324	14,435,362	46,999,013	88,467,510	136,717,994	36,110,883	62,964,020	324,260,407	
	Temporary Total	9,997,507	18,992,321	9,746,442	22,504,221	61,240,491	95,843,907	181,362,614	44,599,213	113,799,188	435,604,922	
	Medical Only	0	0	0	4,266,958	4,266,958	0	0	0	33,715,736	33,715,736	
(14) All Years, All Injury Types		104,008,888	156,319,234	98,980,779	189,222,400	548,531,301	949,154,667	1,453,443,045	425,705,609	971,621,454	3,799,924,775	4,754,985,693
(15) Pure Premium							0.200	0.306	0.090	0.204	0.799	

Notes:
 (3) - (13): Total of Section IX - C, Page 2 of Exhibits 1 through 5.
 (15): Pure Premium calculated as the All Years, All Injury Types Converted Unlimited Losses divided by the All Years, All Injury Types Exposure.

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Section IX - Classification Pricing
Subsection D - Credibility/Countrywide Data
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Section IX - D
Exhibit 1
Page 1

MA Full Credibility Standard and Partial Credibility

	Indemnity	Medical
(1) Average Claim Cost (See Page 2)	32,000	16,000
(2) Claims	850	400
(3) Full Credibility Standard =(1) x (2)	27,200,000	6,400,000

Partial Credibility Z is given in terms of E, the expected losses and F, the criterion for full credibility by the formula:

$$Z=(E / F)^{0.4}$$

Credibility of Countrywide Data

	Indemnity	Medical
(4) Number of Countrywide Claims	1,150	1,000

Notes:

Partial Credibility is determined from the full credibility standard and the observed number of countrywide claims using the same formula as is done for the Massachusetts data.

(2),(4): From the paper "Class Ratemaking for Workers Compensation: NCCI's New Methodology" by Tom Daley.

IX 000053

Selection of Average Massachusetts Claim Costs

Policy Year 2013

	Injury Type				
	1	2	9	5	6
	Indemnity				
(1) Losses Developed to Ultimate	16,086,641	16,076,520	193,368,445	242,822,597	
(2) On-Level Factor	1.023	1.017	1.030	1.010	
(3) On-Level Ultimate Losses = (1) x (2)	16,453,648	16,350,948	199,096,012	245,143,505	
	Medical				
(4) Losses Developed to Ultimate	390,708	30,790,136	74,843,451	113,070,735	28,286,409
(5) On-Level Factor	1.000	1.000	1.000	1.000	1.000
(6) On-Level Ultimate Losses = (4) x (5)	390,708	30,790,136	74,843,451	113,070,735	28,286,409
	Claim Count				
(7) Claim Count Developed to Fifth Report	34	15	2,125	12,840	
Summary:					
(8) Ultimate Losses			Indemnity 477,044,113		
(9) Ultimate Claim Count			15,015		
(10) Average Claim Cost = (8) / (9)			31,771		
(11) Selected Average Claim Cost			32,000		
(12) Ultimate Losses			Medical 247,381,439		
(13) Ultimate Claim Count			15,015		
(14) Average Claim Cost = (12) / (13)			16,475		
(15) Selected Average Claim Cost			16,000		

Notes:

- (1), (4) : Unit Statistical Plan Data, developed to Ultimate using development factors from Section X-A, Exhibit 5, Pages 2 and 5.
- (2), (5): Section IV-A, Exhibit 1.
- (7) : Unit Statistical Plan Data, developed to fifth report using development factors from Section IX-B, Exhibit 2, Page 1.
- (8) = Sum of (3)
- (9), (13) = Sum of (7)
- (12) = Sum of (6)

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Section IX - Classification Pricing
 Subsection D - Credibility/Countrywide Data
 7/1/2016

Section IX - D
 Exhibit 2

Countrywide Classification Experience: Pitch Factors

State (1)	State Code (2)	Industry Group (3)	Industry Code (4)	Indemnity (5)	Medical (6)
Alabama	1	Manufacturing	1	2.211	0.443
		Construction	2	2.305	0.440
		Office and Clerical	3	1.116	0.278
		Goods and Services	9	1.650	0.352
		Miscellaneous	0	2.144	0.488
Arizona	2	Manufacturing	1	3.091	0.540
		Construction	2	2.224	0.468
		Office and Clerical	3	1.864	0.376
		Goods and Services	9	2.307	0.456
		Miscellaneous	0	2.320	0.559
Arkansas	3	Manufacturing	1	3.500	0.790
		Construction	2	3.813	0.885
		Office and Clerical	3	3.637	0.923
		Goods and Services	9	3.474	0.832
		Miscellaneous	0	3.788	1.084
Colorado	5	Manufacturing	1	1.376	0.500
		Construction	2	1.700	0.628
		Office and Clerical	3	1.161	0.419
		Goods and Services	9	1.280	0.458
		Miscellaneous	0	1.521	0.583
Connecticut	6	Manufacturing	1	0.639	0.292
		Construction	2	0.697	0.322
		Office and Clerical	3	0.503	0.275
		Goods and Services	9	0.676	0.300
		Miscellaneous	0	0.717	0.382
D.C.	8	Manufacturing	1	0.465	0.345
		Construction	2	1.220	0.812
		Office and Clerical	3	1.269	1.194
		Goods and Services	9	1.306	1.200
		Miscellaneous	0	1.267	1.027
Florida	9	Manufacturing	1	1.879	0.462
		Construction	2	1.834	0.416
		Office and Clerical	3	1.089	0.295
		Goods and Services	9	1.738	0.436
		Miscellaneous	0	2.006	0.501
Georgia	10	Manufacturing	1	1.411	0.747
		Construction	2	1.024	0.516
		Office and Clerical	3	1.263	0.649
		Goods and Services	9	1.127	0.637
		Miscellaneous	0	1.412	0.772
Idaho	11	Manufacturing	1	1.635	0.383
		Construction	2	1.943	0.471
		Office and Clerical	3	1.054	0.215
		Goods and Services	9	1.561	0.387
		Miscellaneous	0	2.388	0.583

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Section IX - Classification Pricing
 Subsection D - Credibility/Countrywide Data
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Section IX - D
 Exhibit 2

Countrywide Classification Experience: Pitch Factors

State (1)	State Code (2)	Industry Group (3)	Industry Code (4)	Indemnity (5)	Medical (6)
Illinois	12	Manufacturing	1	0.790	0.375
		Construction	2	0.839	0.477
		Office and Clerical	3	0.667	0.395
		Goods and Services	9	0.891	0.434
		Miscellaneous	0	0.866	0.495
Indiana	13	Manufacturing	1	3.694	0.705
		Construction	2	5.003	0.959
		Office and Clerical	3	1.637	0.468
		Goods and Services	9	2.960	0.596
		Miscellaneous	0	3.986	0.800
Iowa	14	Manufacturing	1	0.988	0.316
		Construction	2	1.424	0.476
		Office and Clerical	3	0.595	0.249
		Goods and Services	9	1.207	0.427
		Miscellaneous	0	1.776	0.592
Kansas	15	Manufacturing	1	1.422	0.424
		Construction	2	2.344	0.682
		Office and Clerical	3	1.362	0.528
		Goods and Services	9	1.580	0.538
		Miscellaneous	0	1.023	0.987
Kentucky	16	Manufacturing	1	2.521	0.791
		Construction	2	2.203	0.637
		Office and Clerical	3	1.455	0.519
		Goods and Services	9	1.904	0.656
		Miscellaneous	0	1.810	0.578
Louisiana	17	Manufacturing	1	1.371	0.465
		Construction	2	1.796	0.602
		Office and Clerical	3	0.829	0.320
		Goods and Services	9	1.359	0.484
		Miscellaneous	0	1.518	0.589
Maine	18	Manufacturing	1	1.099	0.531
		Construction	2	1.333	0.596
		Office and Clerical	3	0.890	0.293
		Goods and Services	9	1.095	0.494
		Miscellaneous	0	1.444	0.635
Maryland	19	Manufacturing	1	1.279	0.595
		Construction	2	1.542	0.603
		Office and Clerical	3	1.147	0.698
		Goods and Services	9	1.344	0.636
		Miscellaneous	0	1.305	0.652
Minnesota	22	Manufacturing	1	1.252	0.559
		Construction	2	1.890	0.714
		Office and Clerical	3	1.176	0.474
		Goods and Services	9	1.593	0.612
		Miscellaneous	0	2.013	0.763
Mississippi	23	Manufacturing	1	1.451	0.521
		Construction	2	1.697	0.541
		Office and Clerical	3	0.698	0.271
		Goods and Services	9	1.468	0.526
		Miscellaneous	0	1.599	0.650

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Section IX - Classification Pricing
 Subsection D - Credibility/Countrywide Data
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Section IX - D
 Exhibit 2

Countrywide Classification Experience: Pitch Factors

State (1)	State Code (2)	Industry Group (3)	Industry Code (4)	Indemnity (5)	Medical (6)
Missouri	24	Manufacturing	1	1.391	0.465
		Construction	2	1.697	0.581
		Office and Clerical	3	0.890	0.420
		Goods and Services	9	1.357	0.471
		Miscellaneous	0	1.526	0.603
Montana	25	Manufacturing	1	0.526	0.203
		Construction	2	1.204	0.355
		Office and Clerical	3	0.430	0.121
		Goods and Services	9	1.222	0.326
		Miscellaneous	0	1.743	0.508
Nebraska	26	Manufacturing	1	1.704	0.473
		Construction	2	2.038	0.552
		Office and Clerical	3	1.108	0.342
		Goods and Services	9	2.019	0.491
		Miscellaneous	0	1.955	0.558
Nevada	27	Manufacturing	1	1.045	0.171
		Construction	2	1.529	0.619
		Office and Clerical	3	0.558	0.237
		Goods and Services	9	1.401	0.518
		Miscellaneous	0	1.388	0.540
New Hampshire	28	Manufacturing	1	1.580	0.267
		Construction	2	1.547	0.316
		Office and Clerical	3	1.849	0.320
		Goods and Services	9	1.426	0.273
		Miscellaneous	0	2.465	0.487
New Mexico	30	Manufacturing	1	1.644	0.511
		Construction	2	1.791	0.493
		Office and Clerical	3	0.658	0.201
		Goods and Services	9	1.392	0.378
		Miscellaneous	0	1.447	0.425
North Carolina	32	Manufacturing	1	1.236	0.671
		Construction	2	1.055	0.520
		Office and Clerical	3	0.708	0.483
		Goods and Services	9	1.052	0.568
		Miscellaneous	0	1.052	0.657
Oklahoma	35	Manufacturing	1	0.878	0.383
		Construction	2	1.333	0.532
		Office and Clerical	3	0.411	0.209
		Goods and Services	9	0.858	0.371
		Miscellaneous	0	1.152	0.485
Oregon	36	Manufacturing	1	1.614	0.631
		Construction	2	1.780	0.704
		Office and Clerical	3	1.056	0.391
		Goods and Services	9	1.457	0.552
		Miscellaneous	0	1.911	0.812
Rhode Island	38	Manufacturing	1	0.487	0.544
		Construction	2	0.953	0.833
		Office and Clerical	3	0.574	0.570
		Goods and Services	9	0.619	0.603
		Miscellaneous	0	0.948	0.815

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Section IX - Classification Pricing
 Subsection D - Credibility/Countrywide Data
 7/1/2016

Section IX - D
 Exhibit 2

Countrywide Classification Experience: Pitch Factors

State (1)	State Code (2)	Industry Group (3)	Industry Code (4)	Indemnity (5)	Medical (6)
South Carolina	39	Manufacturing	1	1.060	0.673
		Construction	2	0.881	0.471
		Office and Clerical	3	0.453	0.371
		Goods and Services	9	0.962	0.568
		Miscellaneous	0	1.036	0.629
South Dakota	40	Manufacturing	1	3.125	0.522
		Construction	2	2.138	0.442
		Office and Clerical	3	1.517	0.319
		Goods and Services	9	3.035	0.560
		Miscellaneous	0	3.740	0.744
Tennessee	41	Manufacturing	1	1.646	0.469
		Construction	2	2.045	0.497
		Office and Clerical	3	0.921	0.323
		Goods and Services	9	2.166	0.548
		Miscellaneous	0	2.196	0.625
Utah	43	Manufacturing	1	4.652	0.733
		Construction	2	3.626	0.579
		Office and Clerical	3	2.377	0.430
		Goods and Services	9	3.175	0.571
		Miscellaneous	0	3.593	0.806
Vermont	44	Manufacturing	1	1.105	0.455
		Construction	2	1.128	0.509
		Office and Clerical	3	0.355	0.241
		Goods and Services	9	0.818	0.402
		Miscellaneous	0	0.675	0.532
Virginia	45	Manufacturing	1	3.033	0.651
		Construction	2	2.225	0.577
		Office and Clerical	3	2.622	0.743
		Goods and Services	9	2.137	0.582
		Miscellaneous	0	2.305	0.666
West Virginia	47	Manufacturing	1	1.348	0.579
		Construction	2	3.103	0.904
		Office and Clerical	3	0.967	0.434
		Goods and Services	9	2.050	0.709
		Miscellaneous	0	1.591	0.414
Hawaii	52	Manufacturing	1	1.224	0.500
		Construction	2	1.812	0.970
		Office and Clerical	3	0.677	0.394
		Goods and Services	9	0.977	0.543
		Miscellaneous	0	1.533	0.753
Alaska	54	Manufacturing	1	1.098	0.218
		Construction	2	2.293	0.392
		Office and Clerical	3	0.475	0.092
		Goods and Services	9	1.776	0.265
		Miscellaneous	0	2.743	0.367

Notes:

Factors to adjust countrywide data to the same payroll distribution and loss level as MA.

Pitch Factor = (MA Limited Losses) / [(State Pure Premium) x (MA Exposure)]

For a sample countrywide pure premium calculation, see Section IX - L, Exhibit 2, Page 2.

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Section IX - Classification Pricing
 Subsection D - Credibility/Countrywide Data
 7/1/2016

Section IX - D
 Exhibit 3

Countrywide Classification Experience: Database

State (1)	State Code (2)	Experience Data					
		First Report (3)		Second Report (4)		Third Report (5)	
Alabama	1	5/1/2011	- 4/30/2012	5/1/2010	- 4/30/2011	5/1/2009	- 4/30/2010
Arizona	2	3/1/2011	- 2/29/2012	3/1/2010	- 2/28/2011	3/1/2009	- 2/28/2010
Arkansas	3	2/1/2012	- 1/31/2013	2/1/2011	- 1/31/2012	2/1/2010	- 1/31/2011
Colorado	5	3/1/2011	- 2/29/2012	3/1/2010	- 2/28/2011	3/1/2009	- 2/28/2010
Connecticut	6	8/1/2011	- 7/31/2012	8/1/2010	- 7/31/2011	8/1/2009	- 7/31/2010
D.C.	8	2/1/2011	- 1/31/2012	2/1/2010	- 1/31/2011	2/1/2009	- 1/31/2010
Florida	9	1/1/2011	- 12/31/2011	1/1/2010	- 12/31/2010	1/1/2009	- 12/31/2009
Georgia	10	7/1/2011	- 6/30/2012	7/1/2010	- 6/30/2011	7/1/2009	- 6/30/2010
Idaho	11	7/1/2011	- 6/30/2012	7/1/2010	- 6/30/2011	7/1/2009	- 6/30/2010
Illinois	12	4/1/2011	- 3/31/2012	4/1/2010	- 3/31/2011	4/1/2009	- 3/31/2010
Indiana	13	7/1/2011	- 6/30/2012	7/1/2010	- 6/30/2011	7/1/2009	- 6/30/2010
Iowa	14	3/1/2011	- 2/29/2012	3/1/2010	- 2/28/2011	3/1/2009	- 2/28/2010
Kansas	15	7/1/2011	- 6/30/2012	7/1/2010	- 6/30/2011	7/1/2009	- 6/30/2010
Kentucky	16	5/1/2011	- 4/30/2012	5/1/2010	- 4/30/2011	5/1/2009	- 4/30/2010
Louisiana	17	9/1/2011	- 8/31/2012	9/1/2010	- 8/31/2011	9/1/2009	- 8/31/2010
Maine	18	6/1/2011	- 5/31/2012	6/1/2010	- 5/31/2011	6/1/2009	- 5/31/2010
Maryland	19	4/1/2011	- 3/31/2012	4/1/2010	- 3/31/2011	4/1/2009	- 3/31/2010
Minnesota	22	1/1/2012	- 12/31/2012	1/1/2011	- 12/31/2011	1/1/2010	- 12/31/2010
Mississippi	23	9/1/2011	- 8/31/2012	9/1/2010	- 8/31/2011	9/1/2009	- 8/31/2010
Missouri	24	7/1/2011	- 6/30/2012	7/1/2010	- 6/30/2011	7/1/2009	- 6/30/2010
Montana	25	1/1/2012	- 12/31/2012	1/1/2011	- 12/31/2011	1/1/2010	- 12/31/2010
Nebraska	26	8/1/2011	- 7/31/2012	8/1/2010	- 7/31/2011	8/1/2009	- 7/31/2010
Nevada	27	1/1/2011	- 12/31/2011	1/1/2010	- 12/31/2010	1/1/2009	- 12/31/2009
New Hampshire	28	4/1/2011	- 3/31/2012	4/1/2010	- 3/31/2011	4/1/2009	- 3/31/2010
New Mexico	30	7/1/2011	- 6/30/2012	7/1/2010	- 6/30/2011	7/1/2009	- 6/30/2010
North Carolina	32	1/1/2011	- 12/31/2011	1/1/2010	- 12/31/2010	1/1/2009	- 12/31/2009
Oklahoma	35	6/1/2011	- 5/31/2012	6/1/2010	- 5/31/2011	6/1/2009	- 5/31/2010
Oregon	36	1/1/2011	- 12/31/2011	1/1/2010	- 12/31/2010	1/1/2009	- 12/31/2009
Rhode Island	38	1/1/2011	- 12/31/2011	1/1/2010	- 12/31/2010	1/1/2009	- 12/31/2009
South Carolina	39	5/1/2011	- 4/30/2012	5/1/2010	- 4/30/2011	5/1/2009	- 4/30/2010
South Dakota	40	1/1/2012	- 12/31/2012	1/1/2011	- 12/31/2011	1/1/2010	- 12/31/2010
Tennessee	41	6/1/2011	- 5/31/2012	6/1/2010	- 5/31/2011	6/1/2009	- 5/31/2010
Utah	43	7/1/2011	- 6/30/2012	7/1/2010	- 6/30/2011	7/1/2009	- 6/30/2010
Vermont	44	7/1/2011	- 6/30/2012	7/1/2010	- 6/30/2011	7/1/2009	- 6/30/2010
Virginia	45	2/1/2011	- 1/31/2012	2/1/2010	- 1/31/2011	2/1/2009	- 1/31/2010
West Virginia	47	7/1/2011	- 6/30/2012	7/1/2010	- 6/30/2011	7/1/2009	- 6/30/2010
Hawaii	52	6/1/2011	- 5/31/2012	6/1/2010	- 5/31/2011	6/1/2009	- 5/31/2010
Alaska	54	4/1/2011	- 3/31/2012	4/1/2010	- 3/31/2011	4/1/2009	- 3/31/2010

Calculation of Pure Premium Underlying Present Rate Factor

Industry Group (1)	Injury Type (2)	Uncapped Rate Level Factor (3)	Industry Group Pure Premium From Previous Revision (4)	Percent of Pure Premium =(4) / [Total of (4)] (5)	Expected Loss and LAE Ratio (6)	Benefit Level Change Factor (7)	Trend Factor (8)	Pure Premium Underlying Present Rate Factor = (3) x (5) x (6) x (7) x (8) (9)
Manufacturing	Indemnity	2.066	1.026	0.593	0.755	1.017	0.957	0.901
	Medical	2.066	0.703	0.407	0.755	1.000	0.961	0.609
	Total		1.729					
Construction	Indemnity	5.418	2.924	0.649	0.755	1.017	0.957	2.584
	Medical	5.418	1.584	0.351	0.755	1.000	0.961	1.381
	Total		4.508					
Office and Clerical	Indemnity	0.162	0.077	0.566	0.755	1.017	0.957	0.067
	Medical	0.162	0.059	0.434	0.755	1.000	0.961	0.051
	Total		0.136					
Goods and Services	Indemnity	1.821	0.888	0.587	0.755	1.017	0.957	0.785
	Medical	1.821	0.626	0.413	0.755	1.000	0.961	0.546
	Total		1.514					
Miscellaneous	Indemnity	5.185	2.728	0.624	0.755	1.017	0.957	2.380
	Medical	5.185	1.642	0.376	0.755	1.000	0.961	1.413
	Total		4.370					

Notes:

- (3): Section IX - H, Exhibit 1 of 04/01/14 stipulation.
- (4): Section IX - G of 04/01/14 stipulation.
- (6): Section VI - J, Exhibit 1 of 04/01/14 stipulation.
- (7): Section IV - A, Exhibit 1.
- (8): Net Indemnity and Medical Trends from Section V - A, Exhibit 1.

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Section IX - Classification Pricing
 Subsection F - Underlying Pure Premiums
 7/1/2016

Section IX - F
 Exhibit 1

Calculation of Pure Premiums Underlying Present Rate Manufacturing Industry Group, Industry Code 1

Class (1)	Adopted Relativities		Pure Premiums Underlying Present Rate		
	Indemnity (2)	Medical (3)	Indemnity (4)	Medical (5)	Total (6) = (4) + (5)
1430	3.674	2.124	3.311	1.293	4.604
1438	1.637	1.632	1.475	0.994	2.469
1463	5.428	4.247	4.890	2.586	7.477
1701	2.052	1.479	1.849	0.901	2.750
1747	1.416	1.335	1.276	0.813	2.089
1748	1.517	1.615	1.366	0.984	2.350
1852	4.074	1.896	3.670	1.154	4.825
1853	0.895	0.531	0.806	0.323	1.129
1860	1.117	1.005	1.007	0.612	1.619
1924	0.969	0.885	0.873	0.539	1.412
1925	1.537	1.587	1.385	0.966	2.351
2001	1.651	1.928	1.487	1.174	2.661
2002	1.506	1.873	1.357	1.141	2.498
2003	1.651	1.928	1.487	1.174	2.661
2014	1.768	1.788	1.593	1.089	2.682
2021	1.635	1.491	1.473	0.908	2.381
2039	1.172	1.008	1.056	0.614	1.670
2041	1.265	1.151	1.139	0.701	1.840
2070	2.084	1.940	1.878	1.182	3.059
2081	1.472	2.098	1.326	1.278	2.604
2089	1.246	1.106	1.123	0.673	1.796
2095	1.910	1.737	1.720	1.058	2.778
2101	1.246	1.106	1.123	0.673	1.796
2111	1.160	1.087	1.045	0.662	1.707
2114	1.246	1.106	1.123	0.673	1.796
2115	1.684	2.013	1.517	1.226	2.744
2121	0.775	0.813	0.698	0.495	1.193
2130	1.124	0.988	1.013	0.602	1.615
2131	1.059	1.021	0.954	0.622	1.576
2143	1.060	1.155	0.955	0.703	1.659
2150	2.802	2.880	2.525	1.754	4.278
2156	3.417	2.714	3.079	1.653	4.732
2157	2.508	2.204	2.260	1.342	3.602
2172	1.391	0.856	1.253	0.521	1.774
2174	1.816	1.368	1.636	0.833	2.469
2211	2.783	3.333	2.507	2.030	4.537
2220	1.314	1.490	1.184	0.908	2.091
2260	3.611	2.598	3.253	1.582	4.835
2286	1.314	1.490	1.184	0.908	2.091
2288	1.311	1.220	1.181	0.743	1.924
2302	1.314	1.490	1.184	0.908	2.091
2305	1.428	1.123	1.286	0.684	1.970
2362	0.939	1.022	0.846	0.622	1.468
2380	1.086	1.173	0.979	0.714	1.693
2402	1.160	1.033	1.045	0.629	1.674
2413	1.666	1.450	1.501	0.883	2.384
2416	1.207	1.220	1.088	0.743	1.831
2417	1.885	1.473	1.699	0.897	2.596

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Section IX - Classification Pricing
 Subsection F - Underlying Pure Premiums
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Section IX - F
 Exhibit 1

Calculation of Pure Premiums Underlying Present Rate Manufacturing Industry Group, Industry Code 1

Class (1)	Adopted Relativities		Pure Premiums Underlying Present Rate		
	Indemnity (2)	Medical (3)	Indemnity (4)	Medical (5)	Total (6) = (4) + (5)
2501	1.017	0.955	0.916	0.582	1.498
2503	0.499	0.563	0.450	0.343	0.793
2534	1.017	0.955	0.916	0.582	1.498
2570	2.380	2.272	2.144	1.384	3.528
2576	1.249	1.012	1.126	0.616	1.742
2578	1.249	1.012	1.126	0.616	1.742
2585	1.539	1.832	1.386	1.116	2.502
2586	0.861	0.732	0.775	0.446	1.222
2623	2.191	1.867	1.974	1.137	3.111
2640	0.919	0.986	0.828	0.601	1.428
2651	0.919	0.986	0.828	0.601	1.428
2660	0.885	1.005	0.798	0.612	1.410
2683	1.012	0.944	0.912	0.575	1.487
2688	1.321	1.324	1.190	0.806	1.996
2710	3.242	3.904	2.921	2.378	5.299
2731	1.954	1.846	1.760	1.124	2.884
2741	2.774	2.057	2.499	1.253	3.752
2747	3.100	2.917	2.793	1.776	4.569
2790	0.758	0.832	0.683	0.507	1.189
2802	2.036	2.170	1.834	1.321	3.156
2835	0.936	0.920	0.843	0.560	1.403
2836	1.335	1.092	1.203	0.665	1.868
2841	2.101	1.537	1.893	0.936	2.829
2883	1.633	1.533	1.471	0.934	2.405
2923	0.796	0.776	0.717	0.472	1.189
2942	0.875	1.112	0.789	0.677	1.466
3018	1.768	1.474	1.593	0.898	2.491
3022	1.649	1.902	1.486	1.158	2.644
3027	1.492	1.382	1.344	0.841	2.185
3028	1.565	1.544	1.410	0.940	2.350
3030	3.190	4.051	2.874	2.467	5.341
3040	4.045	3.507	3.645	2.136	5.780
3041	2.299	2.331	2.071	1.420	3.491
3042	3.694	2.216	3.328	1.349	4.678
3064	1.392	1.331	1.255	0.810	2.065
3066	1.392	1.331	1.255	0.810	2.065
3076	1.157	1.417	1.042	0.863	1.905
3081	2.667	2.593	2.403	1.579	3.982
3082	2.667	2.593	2.403	1.579	3.982
3085	2.005	1.865	1.807	1.136	2.943
3110	3.202	3.387	2.885	2.063	4.948
3111	1.151	1.312	1.037	0.799	1.836
3113	0.932	0.775	0.840	0.472	1.311
3114	1.305	1.223	1.176	0.745	1.921
3118	0.932	0.775	0.840	0.472	1.311
3119	0.398	0.488	0.359	0.297	0.656
3120	0.938	0.595	0.845	0.362	1.207
3122	0.789	0.787	0.711	0.479	1.190

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Section IX - Classification Pricing
 Subsection F - Underlying Pure Premiums
 7/1/2016

Section IX - F
 Exhibit 1

Calculation of Pure Premiums Underlying Present Rate Manufacturing Industry Group, Industry Code 1

Class (1)	Adopted Relativities		Pure Premiums Underlying Present Rate		
	Indemnity (2)	Medical (3)	Indemnity (4)	Medical (5)	Total (6) = (4) + (5)
3127	0.372	0.486	0.335	0.296	0.631
3131	0.790	0.805	0.712	0.490	1.202
3132	1.714	1.909	1.544	1.162	2.707
3145	0.867	0.933	0.781	0.568	1.349
3146	0.917	0.870	0.827	0.530	1.356
3169	1.474	1.460	1.328	0.889	2.217
3179	0.632	0.489	0.569	0.298	0.867
3180	1.267	1.362	1.142	0.829	1.971
3188	1.165	1.026	1.050	0.625	1.674
3200	1.178	1.325	1.061	0.807	1.868
3220	1.562	1.404	1.407	0.855	2.262
3227	1.474	1.460	1.328	0.889	2.217
3241	0.969	0.885	0.873	0.539	1.412
3255	1.438	1.350	1.295	0.822	2.117
3257	1.409	1.193	1.269	0.727	1.996
3270	1.208	1.280	1.088	0.780	1.868
3300	2.455	2.273	2.212	1.384	3.596
3315	1.609	1.532	1.450	0.933	2.383
3336	1.831	1.545	1.649	0.941	2.590
3372	1.147	1.253	1.034	0.763	1.797
3373	2.177	2.004	1.962	1.221	3.182
3381	1.392	1.395	1.254	0.849	2.104
3383	0.562	0.546	0.506	0.333	0.839
3385	0.413	0.410	0.372	0.249	0.621
3400	1.474	1.460	1.328	0.889	2.217
3507	1.417	1.553	1.277	0.946	2.223
3515	1.132	1.222	1.020	0.744	1.764
3548	0.728	0.751	0.656	0.457	1.113
3558	0.368	0.579	0.332	0.353	0.685
3559	0.728	0.751	0.656	0.457	1.113
3571	0.527	0.499	0.475	0.304	0.779
3574	0.728	0.751	0.656	0.457	1.113
3612	0.873	0.805	0.787	0.490	1.277
3620	2.559	3.917	2.306	2.386	4.691
3629	0.728	0.751	0.656	0.457	1.113
3632	0.728	0.751	0.656	0.457	1.113
3634	0.899	0.813	0.810	0.495	1.305
3635	1.411	1.993	1.271	1.214	2.485
3638	0.728	0.751	0.656	0.457	1.113
3642	0.627	0.469	0.565	0.285	0.851
3643	0.632	0.489	0.569	0.298	0.867
3647	1.100	1.135	0.991	0.691	1.682
3648	0.665	0.758	0.599	0.462	1.061
3681	0.349	0.357	0.315	0.218	0.532
3685	0.349	0.357	0.315	0.218	0.532
3807	1.474	1.460	1.328	0.889	2.217
3808	1.677	1.382	1.511	0.842	2.353
3826	2.385	2.427	2.149	1.478	3.627

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Section IX - Classification Pricing
 Subsection F - Underlying Pure Premiums
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Section IX - F
 Exhibit 1

Calculation of Pure Premiums Underlying Present Rate Manufacturing Industry Group, Industry Code 1

Class (1)	Adopted Relativities		Pure Premiums Underlying Present Rate		
	Indemnity (2)	Medical (3)	Indemnity (4)	Medical (5)	Total (6) = (4) + (5)
3830	0.728	0.751	0.656	0.457	1.113
3841	0.781	0.856	0.704	0.521	1.225
4021	2.068	2.090	1.864	1.273	3.136
4024	1.458	1.316	1.314	0.801	2.115
4034	2.681	2.991	2.416	1.821	4.237
4036	1.652	0.956	1.488	0.582	2.070
4038	1.198	1.107	1.079	0.674	1.753
4053	0.922	0.887	0.831	0.540	1.371
4061	0.946	1.270	0.852	0.774	1.626
4062	0.946	1.270	0.852	0.774	1.626
4112	0.350	0.307	0.316	0.187	0.503
4113	0.922	0.887	0.831	0.540	1.371
4114	1.236	1.005	1.113	0.612	1.725
4130	2.109	2.001	1.900	1.219	3.119
4133	0.844	0.869	0.761	0.529	1.290
4150	0.362	0.300	0.326	0.183	0.509
4239	1.416	1.473	1.276	0.897	2.173
4243	1.689	1.640	1.522	0.999	2.520
4244	1.511	1.711	1.362	1.042	2.404
4250	1.003	1.057	0.903	0.644	1.547
4251	0.992	0.869	0.894	0.529	1.423
4273	1.086	1.118	0.978	0.681	1.659
4279	1.186	1.233	1.068	0.751	1.819
4282	0.440	0.416	0.397	0.253	0.650
4283	1.280	1.102	1.153	0.671	1.824
4299	0.906	0.744	0.816	0.453	1.269
4301	2.819	2.439	2.540	1.485	4.025
4304	1.574	1.655	1.418	1.008	2.426
4307	0.787	0.755	0.709	0.460	1.169
4308	1.679	0.400	1.513	0.244	1.756
4350	0.312	0.250	0.282	0.152	0.433
4351	0.612	0.400	0.551	0.243	0.795
4352	0.417	0.494	0.375	0.301	0.676
4360	0.613	0.656	0.553	0.400	0.952
4410	1.935	1.776	1.744	1.082	2.825
4417	2.457	2.147	2.214	1.308	3.522
4432	0.563	0.543	0.507	0.331	0.838
4439	1.613	1.942	1.453	1.183	2.636
4452	1.753	1.625	1.579	0.989	2.569
4459	1.358	1.616	1.224	0.984	2.208
4470	1.153	0.969	1.039	0.590	1.629
4484	1.049	1.101	0.945	0.671	1.616
4493	1.365	1.611	1.230	0.981	2.211
4557	0.912	0.857	0.822	0.522	1.344
4558	0.727	0.758	0.655	0.461	1.116
4561	1.613	1.942	1.453	1.183	2.636
4583	1.694	1.374	1.526	0.836	2.363
4611	0.530	0.564	0.477	0.344	0.821

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Section IX - Classification Pricing
Subsection F - Underlying Pure Premiums
7/1/2016

Section IX - F
Exhibit 1

Calculation of Pure Premiums Underlying Present Rate Manufacturing Industry Group, Industry Code 1

Class (1)	Adopted Relativities		Pure Premiums Underlying Present Rate		
	Indemnity (2)	Medical (3)	Indemnity (4)	Medical (5)	Total (6) = (4) + (5)
4635	1.743	1.919	1.571	1.169	2.740
4653	0.975	0.834	0.879	0.508	1.387
4665	3.619	3.477	3.261	2.118	5.379
4692	0.373	0.236	0.337	0.144	0.480
4693	0.462	0.468	0.416	0.285	0.701
4720	0.809	0.867	0.729	0.528	1.256
4740	0.464	0.387	0.418	0.236	0.654
4741	1.357	0.978	1.223	0.595	1.818
4771	8.425	1.294	7.591	0.788	8.379
4777	1.694	1.374	1.526	0.836	2.363
4825	0.349	0.391	0.314	0.238	0.552
4828	0.587	0.467	0.529	0.284	0.813
4829	0.587	0.467	0.529	0.284	0.813
4902	0.875	1.112	0.789	0.677	1.466
4923	0.613	0.656	0.553	0.400	0.952
6504	1.246	1.106	1.123	0.673	1.796
9501	1.129	1.563	1.017	0.952	1.969
9505	1.129	1.563	1.017	0.952	1.969
9521	1.719	1.204	1.549	0.733	2.282
9522	0.944	0.781	0.851	0.476	1.327

Notes:

(2), (3): Section IX - I, Exhibit 1 of 04/01/2014 stipulation.

(4) = (2) x Pure Premium Underlying Present Rate Factors from Section IX - E, Exhibit 1

(5) = (3) x Pure Premium Underlying Present Rate Factors from Section IX - E, Exhibit 1
(Indemnity = 0.901, Medical = 0.609).

IX 000065

Section IX - Classification Pricing
 Subsection F - Underlying Pure Premiums
 7/1/2016

Section IX - F
 Exhibit 2

Calculation of Pure Premiums Underlying Present Rate Construction Industry Group, Industry Code 2

Class (1)	Adopted Relativities		Pure Premiums Underlying Present Rate		
	Indemnity (2)	Medical (3)	Indemnity (4)	Medical (5)	Total (6) = (4) + (5)
0050	1.269	1.039	3.279	1.435	4.714
3365	1.341	1.226	3.464	1.693	5.157
3724	0.751	0.766	1.940	1.058	2.999
3726	2.304	1.737	5.953	2.399	8.352
5020	1.162	0.861	3.003	1.190	4.193
5022	1.677	1.410	4.333	1.947	6.281
5037	4.205	3.129	10.865	4.321	15.185
5040	13.290	10.274	34.342	14.188	48.530
5057	4.455	4.913	11.513	6.784	18.297
5059	4.455	4.913	11.513	6.784	18.297
5069	4.455	4.913	11.513	6.784	18.297
5102	1.183	0.856	3.057	1.183	4.240
5146	1.065	1.176	2.753	1.624	4.376
5160	0.665	0.583	1.719	0.805	2.524
5183	0.626	0.571	1.618	0.788	2.406
5188	0.992	0.918	2.564	1.268	3.831
5190	0.499	0.534	1.289	0.738	2.027
5213	2.639	2.309	6.820	3.188	10.008
5215	0.889	0.860	2.297	1.187	3.484
5221	1.257	1.232	3.249	1.701	4.950
5222	1.889	1.610	4.881	2.224	7.105
5223	0.889	0.860	2.297	1.187	3.484
5348	1.184	0.960	3.060	1.325	4.385
5402	1.672	1.993	4.320	2.753	7.073
5403	2.128	2.049	5.498	2.830	8.329
5437	0.937	0.836	2.420	1.154	3.574
5443	0.775	0.812	2.004	1.121	3.125
5445	1.483	1.218	3.831	1.682	5.514
5462	1.340	1.018	3.463	1.406	4.869
5472	1.981	1.597	5.120	2.205	7.325
5473	1.795	1.965	4.637	2.714	7.351
5474	1.084	1.164	2.800	1.607	4.407
5478	1.301	1.034	3.361	1.429	4.790
5479	1.309	1.905	3.384	2.631	6.014
5480	1.027	0.832	2.653	1.149	3.802
5506	1.328	1.308	3.432	1.807	5.239
5507	1.348	1.423	3.483	1.965	5.448
5508	1.269	1.039	3.279	1.435	4.714
5509	0.580	0.615	1.498	0.849	2.347
5538	0.934	0.909	2.413	1.256	3.668
5545	6.655	8.966	17.196	12.382	29.578
5547	2.588	3.430	6.686	4.737	11.423
5606	0.354	0.363	0.915	0.501	1.415
5610	1.432	1.077	3.699	1.487	5.186
5645	1.365	1.617	3.526	2.233	5.759
5651	1.365	1.617	3.526	2.233	5.759
5701	3.317	5.608	8.572	7.745	16.317
5703	3.970	2.936	10.259	4.054	14.314

IX 000066

Section IX - Classification Pricing
Subsection F - Underlying Pure Premiums
7/1/2016

Section IX - F
Exhibit 2

Calculation of Pure Premiums Underlying Present Rate Construction Industry Group, Industry Code 2

Class (1)	Adopted Relativities		Pure Premiums Underlying Present Rate		
	Indemnity (2)	Medical (3)	Indemnity (4)	Medical (5)	Total (6) = (4) + (5)
5705	1.768	1.948	4.568	2.690	7.258
6003	2.091	1.586	5.402	2.191	7.593
6005	1.269	1.039	3.279	1.435	4.714
6204	1.812	1.438	4.681	1.986	6.668
6217	0.867	0.874	2.239	1.207	3.446
6229	0.867	0.874	2.239	1.207	3.446
6233	0.930	0.630	2.403	0.870	3.272
6251	1.365	0.684	3.527	0.945	4.472
6252	1.785	1.607	4.612	2.220	6.832
6306	1.740	1.665	4.496	2.300	6.796
6319	0.824	0.950	2.129	1.313	3.442
6325	1.094	1.283	2.828	1.772	4.600
6400	1.198	1.236	3.096	1.707	4.803
7538	1.081	1.005	2.792	1.387	4.180
7601	1.081	1.005	2.792	1.387	4.180
7855	1.097	0.784	2.834	1.082	3.916
8227	0.772	0.899	1.995	1.242	3.236
9533	3.103	1.951	8.019	2.694	10.713
9534	1.367	1.253	3.533	1.730	5.263
9545	0.799	0.760	2.065	1.049	3.115
9549	0.791	0.950	2.043	1.312	3.355
9552	1.635	1.263	4.224	1.744	5.968
9553	1.635	1.263	4.224	1.744	5.968

Notes:

(2), (3): Section IX - I, Exhibit 1 of 04/01/2014 stipulation.

(4) = (2) x Pure Premium Underlying Present Rate Factors from Section IX - E, Exhibit 1

(5) = (3) x Pure Premium Underlying Present Rate Factors from Section IX - E, Exhibit 1
(Indemnity = 2.584, Medical = 1.381).

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Section IX - Classification Pricing
Subsection F - Underlying Pure Premiums
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Section IX - F
Exhibit 3

Calculation of Pure Premiums Underlying Present Rate Office and Clerical Industry Group, Industry Code 3

Class (1)	Adopted Relativities		Pure Premiums Underlying Present Rate		
	Indemnity (2)	Medical (3)	Indemnity (4)	Medical (5)	Total (6) = (4) + (5)
4361	4.003	4.467	0.268	0.228	0.496
7610	2.690	1.970	0.180	0.100	0.281
8601	1.867	1.610	0.125	0.082	0.207
8721	1.607	3.892	0.108	0.198	0.306
8742	1.094	1.022	0.073	0.052	0.125
8748	3.927	3.682	0.263	0.188	0.451
8800	8.145	8.657	0.546	0.441	0.987
8803	0.244	0.226	0.016	0.012	0.028
8810	0.417	0.465	0.028	0.024	0.052
8820	0.634	0.501	0.042	0.026	0.068
8832	1.795	1.445	0.120	0.074	0.194
8833	8.083	6.635	0.542	0.338	0.880
8868	4.972	5.626	0.333	0.287	0.620
8901	0.417	0.465	0.028	0.024	0.052
9156	8.021	8.804	0.537	0.449	0.986

Notes:

(2), (3): Section IX - I, Exhibit 1 of 04/01/2014 stipulation.

(4) = (2) x Pure Premium Underlying Present Rate Factors from Section IX - E, Exhibit 1

(5) = (3) x Pure Premium Underlying Present Rate Factors from Section IX - E, Exhibit 1
(Indemnity = 0.067, Medical = 0.051).

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Section IX - Classification Pricing
 Subsection F - Underlying Pure Premiums
 7/1/2016

Section IX - F
 Exhibit 4

Calculation of Pure Premiums Underlying Present Rate Goods and Services Industry Group, Industry Code 9

Class (1)	Adopted Relativities		Pure Premiums Underlying Present Rate		
	Indemnity (2)	Medical (3)	Indemnity (4)	Medical (5)	Total (6) = (4) + (5)
0005	1.436	1.535	1.127	0.838	1.965
0008	1.329	1.478	1.044	0.807	1.851
0016	2.116	2.330	1.661	1.272	2.933
0034	1.891	2.592	1.485	1.415	2.900
0035	1.150	1.219	0.903	0.666	1.568
0036	1.891	2.592	1.485	1.415	2.900
0037	1.329	1.478	1.044	0.807	1.851
0042	2.224	2.498	1.746	1.364	3.110
0046	1.023	1.139	0.803	0.622	1.425
0079	1.418	1.549	1.113	0.846	1.959
0083	2.243	3.801	1.761	2.075	3.836
0113	1.891	2.592	1.485	1.415	2.900
0170	1.891	2.592	1.485	1.415	2.900
0908	103.000	86.450	80.855	47.202	128.057
0909	112.571	257.967	88.368	140.850	229.218
0912	112.571	257.967	88.368	140.850	229.218
0913	103.000	86.450	80.855	47.202	128.057
0917	1.793	2.110	1.407	1.152	2.559
0918	0.474	0.218	0.372	0.119	0.491
2587	2.234	2.367	1.754	1.292	3.046
3821	2.546	2.815	1.998	1.537	3.535
4362	0.367	0.352	0.288	0.192	0.481
4511	0.177	0.156	0.139	0.085	0.225
4512	0.071	0.078	0.056	0.043	0.099
5191	0.593	0.588	0.465	0.321	0.786
5192	1.961	1.656	1.540	0.904	2.444
8001	0.968	1.048	0.760	0.572	1.332
8002	0.898	1.117	0.705	0.610	1.315
8006	0.843	0.961	0.662	0.525	1.186
8008	0.436	0.430	0.343	0.235	0.577
8010	0.815	0.883	0.640	0.482	1.122
8013	0.233	0.279	0.183	0.152	0.335
8017	0.603	0.686	0.474	0.375	0.848
8018	1.690	1.603	1.327	0.875	2.202
8021	1.648	1.527	1.294	0.834	2.127
8031	1.486	1.273	1.166	0.695	1.861
8032	0.883	0.841	0.693	0.459	1.152
8033	1.077	1.131	0.845	0.617	1.463
8034	2.250	1.961	1.766	1.071	2.837
8039	0.632	0.716	0.496	0.391	0.887
8044	1.929	2.728	1.515	1.489	3.004
8046	1.250	1.486	0.981	0.811	1.793
8048	1.640	1.472	1.287	0.804	2.091
8050	0.861	0.933	0.676	0.509	1.185
8058	1.337	1.655	1.049	0.904	1.953
8103	1.745	1.606	1.370	0.877	2.247

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Section IX - Classification Pricing
 Subsection F - Underlying Pure Premiums
 7/1/2016

Section IX - F
 Exhibit 4

Calculation of Pure Premiums Underlying Present Rate Goods and Services Industry Group, Industry Code 9

Class (1)	Adopted Relativities		Pure Premiums Underlying Present Rate		
	Indemnity (2)	Medical (3)	Indemnity (4)	Medical (5)	Total (6) = (4) + (5)
8105	2.663	2.361	2.090	1.289	3.380
8106	3.636	4.417	2.854	2.412	5.266
8107	1.640	1.665	1.287	0.909	2.196
8111	1.424	1.602	1.118	0.875	1.993
8116	1.640	1.665	1.287	0.909	2.196
8203	3.067	3.388	2.408	1.850	4.258
8204	3.236	2.143	2.540	1.170	3.710
8215	1.954	1.669	1.534	0.912	2.446
8232	2.792	2.578	2.192	1.408	3.600
8233	3.228	3.090	2.534	1.687	4.221
8235	2.416	2.342	1.897	1.279	3.175
8263	3.653	3.438	2.867	1.877	4.744
8264	3.448	2.817	2.707	1.538	4.245
8265	3.228	3.090	2.534	1.687	4.221
8279	2.625	3.502	2.061	1.912	3.973
8291	2.532	2.510	1.988	1.371	3.359
8292	1.749	1.627	1.373	0.888	2.261
8293	5.533	6.135	4.343	3.350	7.693
8350	3.611	2.926	2.834	1.597	4.432
8380	1.709	1.607	1.342	0.878	2.219
8381	0.979	1.298	0.769	0.709	1.477
8385	1.753	1.436	1.376	0.784	2.160
8392	0.884	0.924	0.694	0.504	1.198
8393	1.173	0.951	0.921	0.519	1.440
8500	3.228	3.090	2.534	1.687	4.221
8710	2.032	2.042	1.595	1.115	2.711
8719	2.032	2.042	1.595	1.115	2.711
8720	0.527	0.449	0.414	0.245	0.659
8745	2.332	2.345	1.831	1.280	3.111
8747	0.533	0.592	0.418	0.323	0.741
8829	1.248	1.081	0.980	0.590	1.570
8831	0.452	0.866	0.355	0.473	0.828
8835	1.204	0.986	0.945	0.538	1.484
9014	1.538	1.361	1.207	0.743	1.950
9015	1.891	1.648	1.484	0.900	2.384
9016	0.994	1.513	0.780	0.826	1.607
9033	2.309	1.616	1.812	0.883	2.695
9040	1.550	1.384	1.217	0.756	1.972
9052	0.878	0.922	0.690	0.504	1.193
9058	0.878	0.922	0.690	0.504	1.193
9060	0.511	0.657	0.401	0.359	0.760
9061	0.527	0.578	0.414	0.316	0.729
9063	0.357	0.476	0.281	0.260	0.540
9079	0.602	0.732	0.473	0.400	0.873
9089	0.662	0.733	0.520	0.400	0.920
9093	0.531	0.859	0.417	0.469	0.886

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Section IX - Classification Pricing
Subsection F - Underlying Pure Premiums
7/1/2016

Section IX - F
Exhibit 4

Calculation of Pure Premiums Underlying Present Rate Goods and Services Industry Group, Industry Code 9

Class (1)	Adopted Relativities		Pure Premiums Underlying Present Rate		
	Indemnity (2)	Medical (3)	Indemnity (4)	Medical (5)	Total (6) = (4) + (5)
9101	1.836	1.989	1.441	1.086	2.527
9220	1.974	1.720	1.550	0.939	2.489
9410	1.173	1.813	0.921	0.990	1.910
9519	1.737	1.807	1.364	0.986	2.350
9586	0.261	0.219	0.205	0.120	0.324
9620	0.398	0.414	0.313	0.226	0.539

Notes:

(2), (3): Section IX - I, Exhibit 1 of 04/01/2014 stipulation.

(4) = (2) x Pure Premium Underlying Present Rate Factors from Section IX - E, Exhibit 1

(5) = (3) x Pure Premium Underlying Present Rate Factors from Section IX - E, Exhibit 1
(Indemnity = 0.785, Medical = 0.546).

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Section IX - Classification Pricing
 Subsection F - Underlying Pure Premiums
 7/1/2016

Section IX - F
 Exhibit 5

Calculation of Pure Premiums Underlying Present Rate Miscellaneous Industry Group, Industry Code 0

Class (1)	Adopted Relativities		Pure Premiums Underlying Present Rate		
	Indemnity (2)	Medical (3)	Indemnity (4)	Medical (5)	Total (6) = (4) + (5)
0106	2.308	3.919	5.493	5.538	11.031
0251	0.748	0.733	1.780	1.036	2.816
1624	1.052	0.874	2.504	1.234	3.739
1655	0.943	1.113	2.245	1.573	3.817
1710	1.052	0.874	2.504	1.234	3.739
2702	3.123	2.625	7.432	3.709	11.141
4000	0.890	0.687	2.117	0.971	3.089
6834	0.529	0.461	1.259	0.652	1.911
6836	0.659	0.667	1.568	0.943	2.511
7219	2.004	1.732	4.770	2.447	7.217
7230	1.521	1.338	3.621	1.891	5.511
7231	2.091	1.848	4.976	2.611	7.587
7360	1.297	1.192	3.088	1.684	4.771
7370	0.810	0.959	1.927	1.355	3.282
7380	1.148	1.121	2.733	1.584	4.317
7382	0.689	0.813	1.639	1.149	2.788
7403	0.808	1.075	1.922	1.519	3.441
7405	0.352	0.356	0.837	0.504	1.341
7420	1.919	0.765	4.568	1.081	5.648
7421	0.454	0.260	1.079	0.367	1.446
7422	0.454	0.260	1.079	0.367	1.446
7425	0.800	0.406	1.903	0.573	2.476
7431	0.454	0.260	1.079	0.367	1.446
7502	0.531	0.605	1.263	0.855	2.118
7515	0.346	0.567	0.822	0.802	1.624
7520	0.748	0.733	1.780	1.036	2.816
7539	0.302	0.265	0.720	0.374	1.093
7580	0.537	0.629	1.277	0.889	2.166
7590	1.057	0.904	2.516	1.277	3.794
7600	0.938	0.770	2.233	1.088	3.321
7704	0.646	0.822	1.537	1.161	2.698
7720	0.366	0.376	0.871	0.531	1.402
9019	0.399	0.248	0.949	0.351	1.300
9102	0.496	0.618	1.180	0.873	2.053
9154	0.301	0.351	0.717	0.497	1.213
9178	1.099	3.610	2.615	5.101	7.716
9179	4.858	4.381	11.562	6.190	17.752
9180	0.650	1.080	1.546	1.526	3.072
9182	0.484	1.282	1.152	1.812	2.963
9186	0.650	1.080	1.546	1.526	3.072
9402	1.030	0.964	2.450	1.362	3.813
9403	1.893	1.833	4.504	2.590	7.094

Notes:

- (2), (3): Section IX - I, Exhibit 1 of 04/01/2014 stipulation.
- (4) = (2) x Pure Premium Underlying Present Rate Factors from Section IX - E, Exhibit 1
- (5) = (3) x Pure Premium Underlying Present Rate Factors from Section IX - E, Exhibit 1
 (Indemnity = 2.38, Medical = 1.413).

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Section IX - Classification Pricing
 Subsection G - Class Relativities
 7/1/2016

Section IX - G

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0008	FARM: GARDENING-MARKET OR TRUCK & DRIVERS	0008	Section IX - G, Exhibit 1
0016	FARM: ORCHARDS & DRIVERS	0016	Section IX - G, Exhibit 2
0034	FARM: POULTRY OR EGG PRODUCERS & DRIVERS	0034	Section IX - G, Exhibit 2
0035	FARM: FLORIST & DRIVERS	0035	Section IX - G, Exhibit 3
0036	FARM: DAIRY & DRIVERS	0034	Section IX - G, Exhibit 2
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0042	LANDSCAPE GARDENING & DRIVERS	0042	Section IX - G, Exhibit 3
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0079	FARM: BERRY OR VINEYARD & DRIVERS	0079	Section IX - G, Exhibit 5
0083	FARM: CATTLE OR LIVESTOCK RAISING NOC & DRIVERS	0083	Section IX - G, Exhibit 5
0106	TREE PRUNING, SPRAYING, REPAIRING & DRIVERS	0106	Section IX - G, Exhibit 6
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0909	DOMESTIC WORKERS-OUTSIDE-OCCASIONAL-INCL OCCASNL PRIV CHAUFF	0909	Section IX - G, Exhibit 7
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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services		
0005 FARM: NURSERY EMP & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	124,736	0	23	0	451,693	0	149,380	601,073	3,621	1,198	4,819
2010	107,778	0	28	0	16,394	0	32,135	48,529	0,152	0,298	0,450
2011	114,867	0	34	0	33,249	0	44,955	78,204	0,289	0,391	0,681
2012	108,045	1	24	99,471	6,950	16,970	14,049	137,439	0,985	0,287	1,272
2013	112,524	0	26	0	9,248	0	31,488	40,736	0,082	0,280	0,362
MA Total:	567,951	1	135	99,471	517,533	16,970	272,009	905,983	1,086	0,509	1,595

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.142	0.848	.
(14) Massachusetts Credibility:	0.220	0.350	.
(15) Countrywide Pure Premium:	1.520	0.999	2.520
(16) Countrywide Indicated Relativity:	1.585	1.637	.
(17) Countrywide Credibility:	0.390	0.330	.
(18) Countrywide Lost-Time Claims:	1595.0	.	.
(19) Pure Premium Underlying Present Rate:	1.127	0.838	1.965
(20) Relativity to Underlying Present Rate:	1.454	1.556	.
(21) Credibility to Underlying Relativity:	0.390	0.320	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	1.437	1.335	.
(24) Balanced Formula Relativity:	1.429	1.336	1.393

Class(es):		Effective: 7/1/2016							Goods and Services		
0008 FARM: GARDENING-MARKET OR TRUCK & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	229,400	1	42	121,790	177,839	21,344	158,520	479,493	1,306	0,784	2,090
2010	253,424	2	52	129,952	76,263	11,632	196,703	414,550	0,814	0,822	1,636
2011	274,639	2	54	30,010	82,091	7,316	228,682	348,100	0,408	0,859	1,267
2012	262,453	0	39	0	34,081	0	88,210	122,292	0,130	0,336	0,466
2013	295,950	0	38	0	177,480	0	317,111	494,592	0,600	1,072	1,671
MA Total:	1,315,865	5	225	281,752	547,755	40,293	989,227	1,859,027	0,630	0,782	1,413

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.663	1.303	.
(14) Massachusetts Credibility:	0.300	0.490	.
(15) Countrywide Pure Premium:	1.728	1.169	2.897
(16) Countrywide Indicated Relativity:	1.802	1.914	.
(17) Countrywide Credibility:	0.350	0.260	.
(18) Countrywide Lost-Time Claims:	4304.0	.	.
(19) Pure Premium Underlying Present Rate:	1.044	0.807	1.851
(20) Relativity to Underlying Present Rate:	1.347	1.498	.
(21) Credibility to Underlying Relativity:	0.350	0.250	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	1.301	1.511	.
(24) Balanced Formula Relativity:	1.294	1.512	1.378

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services		
0016 FARM: ORCHARDS & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	72,119	1	15	32,932	7,653	64,623	49,636	154,845	0.563	1.584	2.147
2010	75,262	0	22	0	110,896	0	91,058	201,954	1.473	1.210	2.683
2011	64,358	0	7	0	0	0	6,246	6,246	0.000	0.097	0.097
2012	70,870	0	7	0	88,508	0	46,946	135,454	1.249	0.662	1.911
2013	78,206	0	11	0	250,106	0	142,920	393,026	3.198	1.827	5.026
MA Total:	360,815	1	62	32,932	457,164	64,623	336,806	891,525	1.358	1.113	2.471

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.428	1.853	.
(14) Massachusetts Credibility:	0.220	0.350	.
(15) Countrywide Pure Premium:	3.195	2.063	5.258
(16) Countrywide Indicated Relativity:	3.332	3.378	.
(17) Countrywide Credibility:	0.390	0.330	.
(18) Countrywide Lost-Time Claims:	1297.0	.	.
(19) Pure Premium Underlying Present Rate:	1.661	1.272	2.933
(20) Relativity to Underlying Present Rate:	2.144	2.361	.
(21) Credibility to Underlying Relativity:	0.390	0.320	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	2.450	2.519	.
(24) Balanced Formula Relativity:	2.437	2.521	2.469

Class(es):		Effective: 7/1/2016							Goods and Services		
0034 FARM: POULTRY OR EGG PRODUCERS & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	101,926	0	29	0	84,435	0	145,244	229,679	0.828	1.425	2.253
2010	96,594	3	22	365,003	277,371	114,271	142,767	899,411	6.650	2.661	9.311
2011	99,357	0	28	0	232,529	0	315,341	547,870	2.340	3.174	5.514
2012	96,161	2	30	504,172	43,883	67,903	114,301	730,259	5.699	1.895	7.594
2013	91,677	0	22	0	118,362	0	150,816	269,178	1.291	1.645	2.936
MA Total:	485,715	5	131	869,175	756,580	182,174	868,469	2,676,398	3.347	2.163	5.510

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.519	3.603	.
(14) Massachusetts Credibility:	0.230	0.410	.
(15) Countrywide Pure Premium:	1.738	1.191	2.928
(16) Countrywide Indicated Relativity:	1.812	1.950	.
(17) Countrywide Credibility:	0.390	0.300	.
(18) Countrywide Lost-Time Claims:	2953.0	.	.
(19) Pure Premium Underlying Present Rate:	1.485	1.415	2.900
(20) Relativity to Underlying Present Rate:	1.916	2.627	.
(21) Credibility to Underlying Relativity:	0.380	0.290	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	2.244	2.824	.
(24) Balanced Formula Relativity:	2.232	2.826	2.462

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services		
0035 FARM: FLORIST & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	350,513	4	62	427,403	9,845	379,599	52,057	868,903	1,247	1,231	2,479
2010	332,111	0	50	0	335,291	0	227,950	563,241	1,010	0,686	1,696
2011	335,988	1	53	3,337	140,841	2,786	213,188	360,152	0,429	0,643	1,072
2012	333,768	0	51	0	294,142	0	335,313	629,456	0,881	1,005	1,886
2013	344,794	2	74	157,422	551,969	119,077	363,594	1,192,062	2,057	1,400	3,457
MA Total:	1,697,173	7	290	588,162	1,332,088	501,462	1,192,102	3,613,814	1,131	0,998	2,129

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.189	1.662	.
(14) Massachusetts Credibility:	0.320	0.500	.
(15) Countrywide Pure Premium:	1.198	0.840	2.038
(16) Countrywide Indicated Relativity:	1.249	1.375	.
(17) Countrywide Credibility:	0.340	0.250	.
(18) Countrywide Lost-Time Claims:	1253.0	.	.
(19) Pure Premium Underlying Present Rate:	0.903	0.666	1.568
(20) Relativity to Underlying Present Rate:	1.165	1.236	.
(21) Credibility to Underlying Relativity:	0.340	0.250	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	1.201	1.484	.
(24) Balanced Formula Relativity:	1.195	1.485	1.307

Class(es):		Effective: 7/1/2016							Goods and Services		
0042 LANDSCAPE GARDENING & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	3,417,983	23	655	2,102,479	4,558,677	917,013	3,318,182	10,896,352	1,949	1,239	3,188
2010	3,670,954	27	725	2,379,458	4,984,319	1,242,244	3,663,633	12,269,653	2,006	1,336	3,342
2011	4,026,200	26	823	3,095,859	5,688,284	1,948,311	4,458,645	15,191,098	2,182	1,591	3,773
2012	4,238,110	37	762	4,538,082	6,125,722	1,713,300	5,014,308	17,391,411	2,516	1,587	4,104
2013	4,626,470	30	751	3,834,912	6,501,218	1,811,231	4,759,228	16,906,589	2,234	1,420	3,654
MA Total:	19,979,717	143	3,716	15,950,789	27,858,220	7,632,099	21,213,995	72,655,104	2,193	1,444	3,636

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.305	2.405	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	2.895	1.746	4.641
(16) Countrywide Indicated Relativity:	3.019	2.859	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	6672.0	.	.
(19) Pure Premium Underlying Present Rate:	1.746	1.364	3.110
(20) Relativity to Underlying Present Rate:	2.253	2.532	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	2.305	2.405	.
(24) Balanced Formula Relativity:	2.293	2.407	2.337

IX 000082

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services		
0046 FERTILIZER OR PESTICIDE APPLICATION-COMM OR DOMESTIC, DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	83,208	0	15	0	57,511	0	65,751	123,262	0.691	0.790	1.481
2010	96,870	0	13	0	26,221	0	35,886	62,107	0.271	0.370	0.641
2011	95,292	1	20	4,205	43,774	8,335	100,169	156,483	0.503	1.139	1.642
2012	105,290	0	10	0	151,130	0	43,192	194,322	1.435	0.410	1.846
2013	115,931	1	15	53,023	104,335	19,391	70,256	247,004	1.357	0.773	2.131
MA Total:	496,591	2	73	57,227	382,971	27,726	315,254	783,178	0.886	0.691	1.577

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.932	1.150	.
(14) Massachusetts Credibility:	0.180	0.300	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	1.030	1.145	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	0.803	0.622	1.425
(20) Relativity to Underlying Present Rate:	1.037	1.154	.
(21) Credibility to Underlying Relativity:	0.820	0.700	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	1.018	1.153	.
(24) Balanced Formula Relativity:	1.012	1.154	1.067

Class(es):		Effective: 7/1/2016							Construction		
0050 FARM MACHINERY OPERATION-BY CONTRACTOR & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	14,948	0	5	0	331,887	0	55,863	387,749	22.203	3.737	25.940
2010	17,900	0	2	0	0	0	1,488	1,488	0.000	0.083	0.083
2011	14,553	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	14,229	0	3	0	31,643	0	24,598	56,241	2.224	1.729	3.953
2013	15,691	0	1	0	0	0	187	187	0.000	0.012	0.012
MA Total:	77,320	0	11	0	363,530	0	82,136	445,666	4.702	1.062	5.764

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.520	0.683	.
(14) Massachusetts Credibility:	0.150	0.200	.
(15) Countrywide Pure Premium:	3.647	1.827	5.473
(16) Countrywide Indicated Relativity:	1.175	1.174	.
(17) Countrywide Credibility:	0.430	0.400	.
(18) Countrywide Lost-Time Claims:	836.00	.	.
(19) Pure Premium Underlying Present Rate:	3.279	1.435	4.714
(20) Relativity to Underlying Present Rate:	1.261	1.036	.
(21) Credibility to Underlying Relativity:	0.420	0.400	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	1.263	1.020	.
(24) Balanced Formula Relativity:	1.283	1.024	1.197

IX 000083

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services		
0079 FARM: BERRY OR VINEYARD & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	146,088	1	24	17,246	35,348	47,759	62,362	162,716	0.360	0.754	1.114
2010	151,088	0	27	0	661,625	0	622,658	1,284,282	4.379	4.121	8.500
2011	153,993	2	37	385,717	34,283	278,924	142,343	841,267	2.727	2.736	5.463
2012	165,436	1	35	442,860	283,569	216,417	223,449	1,166,295	4.391	2.659	7.050
2013	162,646	4	28	247,667	89,501	368,282	112,359	817,809	2.073	2.955	5.028
MA Total:	779,250	8	151	1,093,490	1,104,325	911,382	1,163,171	4,272,369	2.820	2.662	5.483

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.965	4.435	.
(14) Massachusetts Credibility:	0.250	0.400	.
(15) Countrywide Pure Premium:	1.485	1.223	2.708
(16) Countrywide Indicated Relativity:	1.549	2.003	.
(17) Countrywide Credibility:	0.380	0.300	.
(18) Countrywide Lost-Time Claims:	134.00	.	.
(19) Pure Premium Underlying Present Rate:	1.113	0.846	1.959
(20) Relativity to Underlying Present Rate:	1.437	1.570	.
(21) Credibility to Underlying Relativity:	0.370	0.300	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	1.861	2.846	.
(24) Balanced Formula Relativity:	1.851	2.848	2.237

Class(es):		Effective: 7/1/2016							Goods and Services		
0083 FARM: CATTLE OR LIVESTOCK RAISING NOC & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	51,044	0	8	0	734	0	6,575	7,309	0.014	0.129	0.143
2010	53,266	0	8	0	0	0	14,645	14,645	0.000	0.275	0.275
2011	44,401	0	7	0	13,040	0	20,964	34,005	0.294	0.472	0.766
2012	66,054	0	7	0	33,357	0	44,617	77,974	0.505	0.675	1.180
2013	46,963	0	4	0	36,372	0	95,658	132,030	0.774	2.037	2.811
MA Total:	261,728	0	34	0	83,504	0	182,459	265,963	0.319	0.697	1.016

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.335	1.161	.
(14) Massachusetts Credibility:	0.200	0.370	.
(15) Countrywide Pure Premium:	2.602	1.790	4.393
(16) Countrywide Indicated Relativity:	2.714	2.931	.
(17) Countrywide Credibility:	0.400	0.320	.
(18) Countrywide Lost-Time Claims:	3228.0	.	.
(19) Pure Premium Underlying Present Rate:	1.761	2.075	3.836
(20) Relativity to Underlying Present Rate:	2.272	3.853	.
(21) Credibility to Underlying Relativity:	0.400	0.310	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	2.061	2.562	.
(24) Balanced Formula Relativity:	2.051	2.564	2.249

IX 000084

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Miscellaneous		
0106 TREE PRUNING, SPRAYING, REPAIRING & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	280,007	9	119	720,619	1,088,495	993,290	1,605,822	4,408,226	6,461	9,282	15,743
2010	313,821	2	102	717,252	1,211,209	162,345	1,278,221	3,369,027	6,145	4,590	10,735
2011	371,071	2	112	299,924	1,172,229	707,877	847,022	3,027,052	3,967	4,190	8,158
2012	379,251	6	85	1,263,577	1,275,241	1,126,364	951,616	4,616,797	6,694	5,479	12,173
2013	398,765	7	91	1,016,961	1,416,643	817,432	1,225,011	4,476,047	6,103	5,122	11,225
MA Total:	1,742,916	26	509	4,018,332	6,163,817	3,807,308	5,907,692	19,897,149	5,842	5,574	11,416

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.070	3.567	.
(14) Massachusetts Credibility:	0.660	1.000	.
(15) Countrywide Pure Premium:	6.033	4.036	10.069
(16) Countrywide Indicated Relativity:	2.336	2.852	.
(17) Countrywide Credibility:	0.170	0.000	.
(18) Countrywide Lost-Time Claims:	2816.0	.	.
(19) Pure Premium Underlying Present Rate:	5.493	5.538	11.031
(20) Relativity to Underlying Present Rate:	2.355	3.996	.
(21) Credibility to Underlying Relativity:	0.170	0.000	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	2.163	3.567	.
(24) Balanced Formula Relativity:	2.137	3.560	2.644

Class(es):		Effective: 7/1/2016							Miscellaneous		
0251 IRRIGATION WORKS OPERATION & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	241,782	2	41	139,735	408,278	52,925	202,382	803,321	2,267	1,056	3,322
2010	225,124	0	27	0	80,862	0	53,116	133,977	0,359	0,236	0,595
2011	220,324	3	38	182,198	561,903	40,270	316,516	1,100,886	3,377	1,619	4,997
2012	233,980	1	36	114,493	218,390	14,851	80,336	428,070	1,423	0,407	1,830
2013	261,310	1	48	6,197	142,316	4,191	143,160	295,863	0,568	0,564	1,132
MA Total:	1,182,520	7	190	442,623	1,411,748	112,237	795,510	2,762,118	1,568	0,768	2,336

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.556	0.491	.
(14) Massachusetts Credibility:	0.360	0.520	.
(15) Countrywide Pure Premium:	1.744	1.087	2.830
(16) Countrywide Indicated Relativity:	0.675	0.768	.
(17) Countrywide Credibility:	0.320	0.240	.
(18) Countrywide Lost-Time Claims:	2239.0	.	.
(19) Pure Premium Underlying Present Rate:	1.780	1.036	2.816
(20) Relativity to Underlying Present Rate:	0.763	0.747	.
(21) Credibility to Underlying Relativity:	0.320	0.240	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	0.660	0.619	.
(24) Balanced Formula Relativity:	0.652	0.618	0.640

IX 000085

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services			
0908 DOMESTIC WORKERS-INSIDE-OCCASIONAL-NO												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	2,613	0	7	0	459,211	0	117,554	576,765	175.76	44,992	220.75	
2010	2,675	2	17	31,669	53,401	36,623	53,810	175,503	31,803	33,808	65,611	
2011	2,842	0	15	0	5,220	0	29,980	35,200	1,837	10,550	12,387	
2012	2,916	2	18	10,285	481,147	35,202	117,865	644,499	168.55	52,499	221.05	
2013	2,988	0	15	0	137,593	0	70,481	208,074	46,049	23,588	69,637	
MA Total:	14,033	4	72	41,954	1,136,573	71,825	389,689	1,640,040	83,983	32,888	116.87	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	88.286	54.783	.
(14) Massachusetts Credibility:	0.300	0.420	.
(15) Countrywide Pure Premium:	167.89	84.503	252.40
(16) Countrywide Indicated Relativity:	117.90	98.955	.
(17) Countrywide Credibility:	0.350	0.290	.
(18) Countrywide Lost-Time Claims:	425.00	.	.
(19) Pure Premium Underlying Present Rate:	91.988	53.701	145.69
(20) Relativity to Underlying Present Rate:	118.72	99.696	.
(21) Credibility to Underlying Relativity:	0.350	0.290	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	109.30	80.618	.
(24) Balanced Formula Relativity:	108.72	80.679	97.872

Class(es):		Effective: 7/1/2016							Goods and Services			
0909 DOMESTIC WORKERS-OUTSIDE-OCCASIONAL-INCL OCCASNL PRIV CHAUFF												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	364	0	6	0	269	0	7,063	7,332	0.739	19,424	20,163	
2010	347	2	3	81,249	0	13,910	2,279	97,439	233.98	46,623	280.60	
2011	341	0	8	0	1,553	0	6,461	8,014	4,560	18,963	23,522	
2012	349	0	4	0	0	0	3,893	3,893	0,000	11,147	11,147	
2013	337	0	6	0	114,611	0	55,405	170,016	340.40	164,55	504.95	
MA Total:	1,738	2	27	81,249	116,434	13,910	75,101	286,694	113.77	51,230	165.00	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	119.60	85.336	.
(14) Massachusetts Credibility:	0.140	0.290	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	138.77	318.00	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	108.27	172.57	280.84
(20) Relativity to Underlying Present Rate:	139.74	320.38	.
(21) Credibility to Underlying Relativity:	0.860	0.710	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	136.92	252.22	.
(24) Balanced Formula Relativity:	136.19	252.41	181.16

IX 000086

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services		
0917 DOMESTIC SERVICE CONTRACTOR-INSIDE											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	278,000	8	38	181,950	171,000	592,432	104,012	1,049,394	1,270	2,505	3,775
2010	277,758	2	35	91,809	170,384	128,526	123,957	514,676	0,944	0,909	1,853
2011	291,680	6	45	325,309	223,109	255,252	140,693	944,364	1,880	1,357	3,238
2012	311,000	2	40	57,703	160,257	96,243	381,350	695,552	0,701	1,536	2,237
2013	361,863	3	45	140,343	352,400	32,981	158,300	684,024	1,362	0,529	1,890
MA Total:	1,520,300	21	203	797,113	1,077,150	1,105,435	908,313	3,888,011	1,233	1,325	2,557

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.296	2.206	.
(14) Massachusetts Credibility:	0.360	0.600	.
(15) Countrywide Pure Premium:	2.236	1.523	3.759
(16) Countrywide Indicated Relativity:	2.331	2.494	.
(17) Countrywide Credibility:	0.320	0.200	.
(18) Countrywide Lost-Time Claims:	763.00	.	.
(19) Pure Premium Underlying Present Rate:	1.407	1.152	2.559
(20) Relativity to Underlying Present Rate:	1.816	2.139	.
(21) Credibility to Underlying Relativity:	0.320	0.200	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	1.794	2.250	.
(24) Balanced Formula Relativity:	1.784	2.252	1.965

Class(es):		Effective: 7/1/2016							Goods and Services		
0918 DOMESTIC WORKERS-INSIDE-PHYSICAL ASSISTANCE											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	3,992,338	8	57	379,515	285,275	196,481	159,840	1,021,111	0,167	0,089	0,256
2010	4,724,502	8	54	312,741	321,692	111,348	183,865	929,646	0,134	0,062	0,197
2011	4,665,379	9	76	397,343	945,710	237,127	314,547	1,894,727	0,288	0,118	0,406
2012	5,291,482	6	81	457,306	769,954	128,471	365,565	1,721,295	0,232	0,093	0,325
2013	5,801,546	8	69	716,855	1,211,487	413,844	426,251	2,768,437	0,332	0,145	0,477
MA Total:	24,475,248	39	337	2,263,760	3,534,118	1,087,271	1,450,068	8,335,217	0,237	0,104	0,341

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.249	0.173	.
(14) Massachusetts Credibility:	0.650	0.730	.
(15) Countrywide Pure Premium:	0.756	0.398	1.155
(16) Countrywide Indicated Relativity:	0.789	0.652	.
(17) Countrywide Credibility:	0.180	0.140	.
(18) Countrywide Lost-Time Claims:	42,000	.	.
(19) Pure Premium Underlying Present Rate:	0.372	0.119	0.491
(20) Relativity to Underlying Present Rate:	0.480	0.221	.
(21) Credibility to Underlying Relativity:	0.170	0.130	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	0.385	0.246	.
(24) Balanced Formula Relativity:	0.383	0.246	0.330

IX 000087

Calculation of Class Relativities

Class(es): 1430 SMELTING, SINTERING OR REFINING-LEAD & DRIVERS									Effective: 7/1/2016			Manufacturing		
Converted Unlimited Losses														
Amount														
Claim Count				Indemnity			Medical		MA Indicated Pure Premiums					
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)			
2009	0	0	0	0	0	0	0	0	0.000	0.000	0.000			
2010	0	0	0	0	0	0	0	0	0.000	0.000	0.000			
2011	0	0	0	0	0	0	0	0	0.000	0.000	0.000			
2012	0	0	0	0	0	0	0	0	0.000	0.000	0.000			
2013	0	0	0	0	0	0	0	0	0.000	0.000	0.000			
MA Total:	0	0	0	0	0	0	0	0	.	.	.			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.000	0.000	.
(15) Countrywide Pure Premium:	1.775	0.961	2.736
(16) Countrywide Indicated Relativity:	1.813	1.694	.
(17) Countrywide Credibility:	0.340	0.360	.
(18) Countrywide Lost-Time Claims:	77.000	.	.
(19) Pure Premium Underlying Present Rate:	3.311	1.293	4.604
(20) Relativity to Underlying Present Rate:	3.731	2.155	.
(21) Credibility to Underlying Relativity:	0.660	0.640	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	3.079	1.989	.
(24) Balanced Formula Relativity:	3.036	1.975	2.640

Class(es): 1438 SMELTING, SINTERING OR REFINING-METALS-NOT IRON OR LEAD-NOC & D									Effective: 7/1/2016			Manufacturing		
Converted Unlimited Losses														
Amount														
Claim Count				Indemnity			Medical		MA Indicated Pure Premiums					
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)			
2009	53.641	1	5	8.823	0	38.945	6.185	53.954	0.164	0.841	1.006			
2010	64.732	0	10	0	12.416	0	33.373	45.789	0.192	0.516	0.707			
2011	71.680	0	10	0	17.069	0	41.130	58.199	0.238	0.574	0.812			
2012	148.767	0	16	0	122.491	0	99.847	222.338	0.823	0.671	1.495			
2013	138.852	0	17	0	118.213	0	83.272	201.485	0.851	0.600	1.451			
MA Total:	477.672	1	58	8.823	270.189	38.945	263.808	581.766	0.584	0.634	1.218			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.541	0.985	.
(14) Massachusetts Credibility:	0.230	0.350	.
(15) Countrywide Pure Premium:	2.369	1.164	3.532
(16) Countrywide Indicated Relativity:	2.418	2.051	.
(17) Countrywide Credibility:	0.390	0.330	.
(18) Countrywide Lost-Time Claims:	756.00	.	.
(19) Pure Premium Underlying Present Rate:	1.475	0.994	2.469
(20) Relativity to Underlying Present Rate:	1.662	1.656	.
(21) Credibility to Underlying Relativity:	0.380	0.320	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.699	1.551	.
(24) Balanced Formula Relativity:	1.676	1.541	1.625

IX 000088

Calculation of Class Relativities

Class(es): 1463 ASPHALT WORKS & DRIVERS		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	64,209	1	15	150,944	48,853	25,972	106,871	332,639	3,112	2,069	5,181
2010	73,973	1	18	185,364	143,418	39,826	54,303	422,912	4,445	1,272	5,717
2011	85,153	3	13	725,102	66,122	284,186	71,520	1,146,931	9,292	4,177	13,469
2012	116,267	2	27	155,217	153,069	59,333	74,166	441,785	2,652	1,148	3,800
2013	131,806	1	18	109,190	530,805	34,927	390,688	1,065,609	4,856	3,229	8,085
MA Total:	471,409	8	91	1,325,816	942,267	444,244	697,549	3,409,876	4,811	2,422	7,233

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	4.454	3.763	.
(14) Massachusetts Credibility:	0.370	0.520	.
(15) Countrywide Pure Premium:	4.599	2.697	7.297
(16) Countrywide Indicated Relativity:	4.696	4.755	.
(17) Countrywide Credibility:	0.320	0.240	.
(18) Countrywide Lost-Time Claims:	642.00	.	.
(19) Pure Premium Underlying Present Rate:	4.890	2.586	7.477
(20) Relativity to Underlying Present Rate:	5.511	4.309	.
(21) Credibility to Underlying Relativity:	0.310	0.240	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	4.859	4.132	.
(24) Balanced Formula Relativity:	4.792	4.104	4.535

Class(es): 1624 QUARRY NOC & DRIVERS		Effective: 7/1/2016							Miscellaneous		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	350,441	3	56	673,376	229,439	227,953	237,862	1,368,631	2,576	1,329	3,905
2010	386,463	1	49	156,683	861,027	22,236	580,556	1,620,503	2,633	1,560	4,193
2011	377,962	2	44	384,961	841,664	124,082	747,320	2,098,026	3,245	2,306	5,551
2012	457,936	1	48	209,257	337,259	60,177	297,517	904,210	1,193	0,781	1,975
2013	460,264	4	52	667,699	623,478	367,079	775,273	2,433,529	2,805	2,482	5,287
MA Total:	2,033,067	11	249	2,091,975	2,892,867	801,528	2,638,529	8,424,899	2,452	1,692	4,144

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.869	1.083	.
(14) Massachusetts Credibility:	0.510	0.690	.
(15) Countrywide Pure Premium:	2.222	1.113	3.335
(16) Countrywide Indicated Relativity:	0.861	0.786	.
(17) Countrywide Credibility:	0.250	0.160	.
(18) Countrywide Lost-Time Claims:	1088.0	.	.
(19) Pure Premium Underlying Present Rate:	2.504	1.234	3.739
(20) Relativity to Underlying Present Rate:	1.074	0.891	.
(21) Credibility to Underlying Relativity:	0.240	0.150	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	0.916	1.007	.
(24) Balanced Formula Relativity:	0.905	1.004	0.940

IX 000089

Calculation of Class Relativities

Class(es): 1655 LIME MFG-QUARRY-SURFACE & DRIVERS		Effective: 7/1/2016							Miscellaneous		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	470	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	1,871	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	3,182	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	2,731	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	3,333	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	11,586	0	0	0	0	0	0	0	0.000	0.000	0.000

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.060	0.100	.
(15) Countrywide Pure Premium:	1.273	0.577	1.850
(16) Countrywide Indicated Relativity:	0.493	0.408	.
(17) Countrywide Credibility:	0.220	0.230	.
(18) Countrywide Lost-Time Claims:	26.000	.	.
(19) Pure Premium Underlying Present Rate:	2.245	1.573	3.817
(20) Relativity to Underlying Present Rate:	0.963	1.135	.
(21) Credibility to Underlying Relativity:	0.720	0.670	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	0.802	0.854	.
(24) Balanced Formula Relativity:	0.792	0.852	0.813

Class(es): 1701 CEMENT MFG		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	5,465	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	8,470	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	8,530	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	10,053	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	32,518	0	0	0	0	0	0	0	0.000	0.000	0.000

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.090	0.120	.
(15) Countrywide Pure Premium:	1.751	0.892	2.643
(16) Countrywide Indicated Relativity:	1.788	1.572	.
(17) Countrywide Credibility:	0.460	0.440	.
(18) Countrywide Lost-Time Claims:	486.00	.	.
(19) Pure Premium Underlying Present Rate:	1.849	0.901	2.750
(20) Relativity to Underlying Present Rate:	2.083	1.501	.
(21) Credibility to Underlying Relativity:	0.450	0.440	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.760	1.352	.
(24) Balanced Formula Relativity:	1.736	1.343	1.589

IX 000090

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
1747 EMERY WORKS & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	34,407	0	2	0	0	0	571	571	0.000	0.017	0.017
2010	46,682	0	9	0	50,378	0	90,518	140,896	1.079	1.939	3.018
2011	47,154	1	13	83,502	25,070	14,365	11,805	134,742	2.302	0.555	2.857
2012	45,855	1	10	113,080	198,694	42,806	37,567	392,148	6.799	1.753	8.552
2013	18,821	0	4	0	22,894	0	15,391	38,285	1.216	0.818	2.034
MA Total:	192,920	2	38	196,582	297,037	57,171	155,852	706,641	2.559	1.104	3.663

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.369	1.715	.
(14) Massachusetts Credibility:	0.150	0.230	.
(15) Countrywide Pure Premium:	1.384	0.553	1.936
(16) Countrywide Indicated Relativity:	1.413	0.975	.
(17) Countrywide Credibility:	0.300	0.320	.
(18) Countrywide Lost-Time Claims:	59.000	.	.
(19) Pure Premium Underlying Present Rate:	1.276	0.813	2.089
(20) Relativity to Underlying Present Rate:	1.438	1.355	.
(21) Credibility to Underlying Relativity:	0.550	0.450	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.570	1.316	.
(24) Balanced Formula Relativity:	1.548	1.307	1.458

Class(es):		Effective: 7/1/2016							Manufacturing		
1748 ABRASIVE WHEEL MFG & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	28,696	0	4	0	5,908	0	18,210	24,118	0.206	0.635	0.840
2010	48,515	0	12	0	0	0	5,971	5,971	0.000	0.123	0.123
2011	53,374	0	14	0	23,459	0	16,750	40,209	0.440	0.314	0.753
2012	44,500	0	14	0	1,984	0	10,725	12,709	0.045	0.241	0.286
2013	39,087	0	14	0	32,800	0	76,649	109,449	0.839	1.961	2.800
MA Total:	214,172	0	58	0	64,152	0	128,305	192,457	0.300	0.599	0.899

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.277	0.931	.
(14) Massachusetts Credibility:	0.160	0.260	.
(15) Countrywide Pure Premium:	1.980	1.603	3.584
(16) Countrywide Indicated Relativity:	2.022	2.827	.
(17) Countrywide Credibility:	0.320	0.340	.
(18) Countrywide Lost-Time Claims:	68.000	.	.
(19) Pure Premium Underlying Present Rate:	1.366	0.984	2.350
(20) Relativity to Underlying Present Rate:	1.540	1.639	.
(21) Credibility to Underlying Relativity:	0.520	0.400	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.492	1.859	.
(24) Balanced Formula Relativity:	1.472	1.846	1.611

IX 000091

Section IX - Classification Pricing
 Subsection G - Class Relativities
 7/1/2016

Section IX - G
 Exhibit 13

Calculation of Class Relativities

Class(es): 1852 ASBESTOS GOODS MFG		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	2	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	0	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	2	0	0	0	0	0	0	0	0.000	0.000	0.000

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.000	0.000	.
(15) Countrywide Pure Premium:	0.893	0.877	1.769
(16) Countrywide Indicated Relativity:	0.911	1.545	.
(17) Countrywide Credibility:	0.160	0.170	.
(18) Countrywide Lost-Time Claims:	12.000	.	.
(19) Pure Premium Underlying Present Rate:	3.670	1.154	4.825
(20) Relativity to Underlying Present Rate:	4.136	1.923	.
(21) Credibility to Underlying Relativity:	0.840	0.830	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	3.620	1.859	.
(24) Balanced Formula Relativity:	3.570	1.846	2.927

Class(es): 1853 MICA GOODS MFG & MICA PREPARING		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	1.535	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	1.691	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	1.796	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	1.555	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	1.525	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	8.101	0	0	0	0	0	0	0	0.000	0.000	0.000

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.040	0.040	.
(15) Countrywide Pure Premium:	1.492	0.583	2.075
(16) Countrywide Indicated Relativity:	1.523	1.028	.
(17) Countrywide Credibility:	0.120	0.130	.
(18) Countrywide Lost-Time Claims:	6.000	.	.
(19) Pure Premium Underlying Present Rate:	0.806	0.323	1.129
(20) Relativity to Underlying Present Rate:	0.909	0.539	.
(21) Credibility to Underlying Relativity:	0.840	0.830	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.946	0.581	.
(24) Balanced Formula Relativity:	0.933	0.577	0.800

IX 000092

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
1860 ABRASIVE PAPER OR CLOTH PREPARATION											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	1,258	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	1,948	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	1,782	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	1,672	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	1,840	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	8,500	0	0	0	0	0	0	0	0.000	0.000	0.000

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.040	0.060	.
(15) Countrywide Pure Premium:	0.978	0.482	1.460
(16) Countrywide Indicated Relativity:	0.998	0.850	.
(17) Countrywide Credibility:	0.320	0.340	.
(18) Countrywide Lost-Time Claims:	69.000	.	.
(19) Pure Premium Underlying Present Rate:	1.007	0.612	1.619
(20) Relativity to Underlying Present Rate:	1.135	1.020	.
(21) Credibility to Underlying Relativity:	0.640	0.600	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.046	0.901	.
(24) Balanced Formula Relativity:	1.031	0.895	0.980

Class(es):		Effective: 7/1/2016							Manufacturing		
1924 WIRE DRAWING OR CABLE MFG-NOT IRON OR STEEL											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	131,852	0	16	0	58,961	0	35,077	94,038	0.447	0.266	0.713
2010	143,894	0	21	0	37,822	0	47,631	85,453	0.263	0.331	0.594
2011	137,113	0	24	0	134,649	0	57,986	192,636	0.982	0.423	1.405
2012	166,423	1	40	50,505	248,488	8,863	209,688	517,543	1.797	1.313	3.110
2013	167,366	1	16	60,662	236,652	19,312	90,538	407,165	1.776	0.656	2.433
MA Total:	746,648	2	117	111,167	716,573	28,175	440,920	1,296,835	1.109	0.628	1.737

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.026	0.976	.
(14) Massachusetts Credibility:	0.220	0.330	.
(15) Countrywide Pure Premium:	1.034	0.562	1.596
(16) Countrywide Indicated Relativity:	1.056	0.990	.
(17) Countrywide Credibility:	0.390	0.340	.
(18) Countrywide Lost-Time Claims:	468.00	.	.
(19) Pure Premium Underlying Present Rate:	0.873	0.539	1.412
(20) Relativity to Underlying Present Rate:	0.984	0.898	.
(21) Credibility to Underlying Relativity:	0.390	0.330	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.021	0.955	.
(24) Balanced Formula Relativity:	1.007	0.949	0.985

IX 000093

Calculation of Class Relativities

Class(es): 1925 DIE CASTING MFG		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	3,205	0	2	0	0	0	849	849	0.000	0.265	0.265
2010	3,604	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	4,035	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	3,274	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	5,017	0	2	0	83,582	0	685,331	768,913	16.660	136.60	153.26
MA Total:	19,135	0	4	0	83,582	0	686,180	769,762	4.368	35.859	40.227

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	4.043	55.708	.
(14) Massachusetts Credibility:	0.060	0.100	.
(15) Countrywide Pure Premium:	1.368	1.014	2.382
(16) Countrywide Indicated Relativity:	1.396	1.789	.
(17) Countrywide Credibility:	0.470	0.450	.
(18) Countrywide Lost-Time Claims:	453.00	.	.
(19) Pure Premium Underlying Present Rate:	1.385	0.966	2.351
(20) Relativity to Underlying Present Rate:	1.560	1.610	.
(21) Credibility to Underlying Relativity:	0.470	0.450	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.632	7.100	.
(24) Balanced Formula Relativity:	1.610	7.052	3.642

Class(es): 2001 CRACKER MFG		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	1,696,471	8	383	334,401	1,964,307	185,594	1,512,658	3,996,959	1,355	1,001	2,356
2010	1,878,371	14	403	1,228,438	3,656,539	441,709	2,279,827	7,606,514	2,601	1,449	4,050
2011	1,811,632	6	394	511,824	2,021,466	420,412	1,270,256	4,223,957	1,398	0.933	2,332
2012	1,935,389	15	423	1,403,136	3,398,280	822,625	1,596,656	7,220,696	2,481	1,250	3,731
2013	1,815,048	18	300	1,280,862	1,348,401	536,497	917,012	4,082,772	1,449	0.801	2,249
MA Total:	9,136,910	61	1,903	4,758,661	12,388,993	2,406,836	7,576,408	27,130,898	1,877	1,093	2,969

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.737	1.697	.
(14) Massachusetts Credibility:	0.760	1.000	.
(15) Countrywide Pure Premium:	2.069	1.066	3.134
(16) Countrywide Indicated Relativity:	2.112	1.879	.
(17) Countrywide Credibility:	0.120	0.000	.
(18) Countrywide Lost-Time Claims:	6517.0	.	.
(19) Pure Premium Underlying Present Rate:	1.487	1.174	2.661
(20) Relativity to Underlying Present Rate:	1.676	1.956	.
(21) Credibility to Underlying Relativity:	0.120	0.000	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.775	1.697	.
(24) Balanced Formula Relativity:	1.750	1.686	1.726

IX 000094

Calculation of Class Relativities

Class(es): 2002 MACARONI MFG		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	9,395	0	2	0	0	0	282	282	0.000	0.030	0.030
2010	17,674	1	0	38,116	0	12,395	0	50,511	2,157	0.701	2,858
2011	6,425	0	7	0	11,243	0	3,854	15,097	1,750	0.600	2,350
2012	11,246	0	2	0	1,721	0	3,003	4,724	0.153	0.267	0.420
2013	97,185	1	5	83,193	4,359	32,035	35,260	154,847	0.901	0.692	1,593
MA Total:	141,925	2	16	121,309	17,323	44,430	42,399	225,462	0.977	0.612	1,589

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.904	0.950	.
(14) Massachusetts Credibility:	0.140	0.230	.
(15) Countrywide Pure Premium:	0.876	0.776	1.652
(16) Countrywide Indicated Relativity:	0.895	1.369	.
(17) Countrywide Credibility:	0.430	0.390	.
(18) Countrywide Lost-Time Claims:	137.00	.	.
(19) Pure Premium Underlying Present Rate:	1.357	1.141	2.498
(20) Relativity to Underlying Present Rate:	1.529	1.900	.
(21) Credibility to Underlying Relativity:	0.430	0.380	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.169	1.474	.
(24) Balanced Formula Relativity:	1.153	1.464	1.269

Class(es): 2014 GRAIN MILLING		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	3,417	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	22,499	0	1	0	10,561	0	31,338	41,899	0.469	1.393	1.862
2011	25,666	0	1	0	0	0	1,157	1,157	0.000	0.045	0.045
2012	24,857	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	21,420	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	97,859	0	2	0	10,561	0	32,495	43,057	0.108	0.332	0.440

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.100	0.516	.
(14) Massachusetts Credibility:	0.130	0.190	.
(15) Countrywide Pure Premium:	2.303	1.224	3.527
(16) Countrywide Indicated Relativity:	2.352	2.158	.
(17) Countrywide Credibility:	0.440	0.410	.
(18) Countrywide Lost-Time Claims:	1147.0	.	.
(19) Pure Premium Underlying Present Rate:	1.593	1.089	2.682
(20) Relativity to Underlying Present Rate:	1.796	1.815	.
(21) Credibility to Underlying Relativity:	0.430	0.400	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.820	1.709	.
(24) Balanced Formula Relativity:	1.795	1.697	1.758

IX 000095

Section IX - Classification Pricing
 Subsection G - Class Relativities
 7/1/2016

Section IX - G
 Exhibit 17

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
2021 SUGAR REFINING-ALL OPERATIONS & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	1,721	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	2,037	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	1,438	0	1	0	0	0	1,351	1,351	0.000	0.939	0.939
2012	1,289	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	1,788	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	8,273	0	1	0	0	0	1,351	1,351	0.000	0.163	0.163

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.254	.
(14) Massachusetts Credibility:	0.050	0.070	.
(15) Countrywide Pure Premium:	1.350	0.798	2.149
(16) Countrywide Indicated Relativity:	1.379	1.407	.
(17) Countrywide Credibility:	0.480	0.470	.
(18) Countrywide Lost-Time Claims:	263.00	.	.
(19) Pure Premium Underlying Present Rate:	1.473	0.908	2.381
(20) Relativity to Underlying Present Rate:	1.660	1.513	.
(21) Credibility to Underlying Relativity:	0.470	0.460	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.442	1.375	.
(24) Balanced Formula Relativity:	1.422	1.366	1.401

Class(es):		Effective: 7/1/2016							Manufacturing		
2039 ICE CREAM MFG & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	30,340	0	5	0	16,942	0	44,793	61,735	0.558	1.476	2.035
2010	134,013	0	7	0	109,110	0	97,670	206,781	0.814	0.729	1.543
2011	22,929	0	4	0	0	0	555	555	0.000	0.024	0.024
2012	128,989	1	15	438,973	333,407	376,697	138,112	1,287,189	5.988	3.991	9.979
2013	144,801	1	18	732,807	35,268	104,182	27,467	899,725	5.304	0.909	6.214
MA Total:	461,073	2	49	1,171,780	494,728	480,879	308,597	2,455,984	3.614	1.712	5.327

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.346	2.660	.
(14) Massachusetts Credibility:	0.200	0.290	.
(15) Countrywide Pure Premium:	1.281	0.599	1.879
(16) Countrywide Indicated Relativity:	1.308	1.056	.
(17) Countrywide Credibility:	0.400	0.360	.
(18) Countrywide Lost-Time Claims:	439.00	.	.
(19) Pure Premium Underlying Present Rate:	1.056	0.614	1.670
(20) Relativity to Underlying Present Rate:	1.190	1.023	.
(21) Credibility to Underlying Relativity:	0.400	0.350	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.668	1.509	.
(24) Balanced Formula Relativity:	1.645	1.499	1.591

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Section IX - Classification Pricing
 Subsection G - Class Relativities
 7/1/2016

Section IX - G
 Exhibit 18

Calculation of Class Relativities

Class(es): 2041 CONFECTION MFG		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	204,539	1	30	56,115	74,676	3,051	33,692	167,533	0.639	0.180	0.819
2010	183,154	2	11	69,708	197,119	49,509	61,250	377,587	1.457	0.605	2.062
2011	189,619	0	24	0	284,484	0	133,301	417,785	1.500	0.703	2.203
2012	205,026	1	25	15,606	680,926	2,551	358,597	1,057,680	3.397	1.761	5.159
2013	204,813	0	16	0	394,744	0	205,213	599,957	1.927	1.002	2.929
MA Total:	987,151	4	106	141,430	1,631,949	55,111	792,052	2,620,542	1.796	0.858	2.655

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.663	1.333	.
(14) Massachusetts Credibility:	0.280	0.410	.
(15) Countrywide Pure Premium:	1.297	0.768	2.065
(16) Countrywide Indicated Relativity:	1.324	1.354	.
(17) Countrywide Credibility:	0.360	0.300	.
(18) Countrywide Lost-Time Claims:	984.00	.	.
(19) Pure Premium Underlying Present Rate:	1.139	0.701	1.840
(20) Relativity to Underlying Present Rate:	1.284	1.168	.
(21) Credibility to Underlying Relativity:	0.360	0.290	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.405	1.292	.
(24) Balanced Formula Relativity:	1.385	1.283	1.347

Class(es): 2070 CREAMERY OR DAIRY & ROUTE SUPERVISORS, DRIVERS		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	137,227	0	13	0	2,229	0	10,230	12,459	0.016	0.075	0.091
2010	306,023	3	45	161,587	528,842	34,571	213,888	938,889	2.256	0.812	3.068
2011	269,575	2	40	53,214	577,558	515,548	247,603	1,393,923	2.340	2.831	5.171
2012	288,812	0	26	0	521,352	0	234,775	756,127	1.805	0.813	2.618
2013	293,456	3	35	181,106	659,370	76,232	264,983	1,181,691	2.864	1.163	4.027
MA Total:	1,295,094	8	159	395,907	2,289,351	626,351	971,479	4,283,088	2.073	1.234	3.307

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.919	1.917	.
(14) Massachusetts Credibility:	0.380	0.560	.
(15) Countrywide Pure Premium:	2.416	1.162	3.577
(16) Countrywide Indicated Relativity:	2.466	2.048	.
(17) Countrywide Credibility:	0.310	0.220	.
(18) Countrywide Lost-Time Claims:	2679.0	.	.
(19) Pure Premium Underlying Present Rate:	1.878	1.182	3.059
(20) Relativity to Underlying Present Rate:	2.116	1.969	.
(21) Credibility to Underlying Relativity:	0.310	0.220	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	2.150	1.957	.
(24) Balanced Formula Relativity:	2.120	1.944	2.054

IX 000097

Calculation of Class Relativities

Class(es): 2081 BUTCHERING		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	12,462	0	9	0	76,935	0	39,583	116,518	6,174	3,176	9,350
2010	12,385	0	17	0	182,602	0	165,871	348,473	14,744	13,393	28,137
2011	18,553	0	25	0	18,612	0	46,843	65,455	1,003	2,525	3,528
2012	16,408	0	9	0	50,069	0	32,991	83,060	3,052	2,011	5,062
2013	16,802	0	20	0	2,519	0	13,865	16,384	0,150	0,825	0,975
MA Total:	76,609	0	80	0	330,737	0	299,153	629,890	4,317	3,905	8,222

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.997	6.066	.
(14) Massachusetts Credibility:	0.110	0.190	.
(15) Countrywide Pure Premium:	1.454	1.040	2.494
(16) Countrywide Indicated Relativity:	1.485	1.834	.
(17) Countrywide Credibility:	0.450	0.410	.
(18) Countrywide Lost-Time Claims:	876.00	.	.
(19) Pure Premium Underlying Present Rate:	1.326	1.278	2.604
(20) Relativity to Underlying Present Rate:	1.495	2.129	.
(21) Credibility to Underlying Relativity:	0.440	0.400	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.766	2.756	.
(24) Balanced Formula Relativity:	1.741	2.737	2.113

Class(es): 2089 PACKING HOUSE- ALL OPERATIONS		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	874,039	2	201	28,641	670,597	2,852	664,830	1,366,921	0,800	0,764	1,564
2010	946,798	8	261	605,021	1,014,390	333,289	609,296	2,561,995	1,710	0,996	2,706
2011	1,020,525	9	213	563,405	1,842,993	119,048	1,053,102	3,578,548	2,358	1,149	3,507
2012	1,115,710	14	208	1,098,030	1,284,737	507,511	647,915	3,538,193	2,136	1,036	3,171
2013	1,285,931	9	199	979,222	2,020,095	348,938	818,672	4,166,926	2,332	0,908	3,240
MA Total:	5,243,002	42	1,082	3,274,319	6,832,812	1,311,637	3,793,816	15,212,583	1,928	0,974	2,902

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.785	1.513	.
(14) Massachusetts Credibility:	0.540	0.790	.
(15) Countrywide Pure Premium:	1.356	0.750	2.107
(16) Countrywide Indicated Relativity:	1.385	1.323	.
(17) Countrywide Credibility:	0.230	0.110	.
(18) Countrywide Lost-Time Claims:	9837.0	.	.
(19) Pure Premium Underlying Present Rate:	1.123	0.673	1.796
(20) Relativity to Underlying Present Rate:	1.265	1.122	.
(21) Credibility to Underlying Relativity:	0.230	0.100	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.573	1.453	.
(24) Balanced Formula Relativity:	1.551	1.443	1.511

IX 000098

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
2095 MEAT PRODUCTS MFG-NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	373,462	9	75	639,325	267,532	140,479	240,316	1,287,652	2,428	1,020	3,448
2010	428,986	4	72	390,459	533,580	98,435	401,834	1,424,308	2,154	1,166	3,320
2011	385,043	7	77	565,534	437,632	127,514	242,917	1,373,597	2,605	0,962	3,567
2012	392,719	2	85	180,814	614,389	48,046	412,880	1,256,129	2,025	1,174	3,199
2013	401,475	1	67	72,905	393,324	23,535	271,325	761,088	1,161	0,734	1,896
MA Total:	1,981,686	23	376	1,849,037	2,246,457	438,009	1,569,271	6,102,773	2,067	1,013	3,080

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.913	1.574	.
(14) Massachusetts Credibility:	0.440	0.640	.
(15) Countrywide Pure Premium:	1.589	0.956	2.545
(16) Countrywide Indicated Relativity:	1.622	1.686	.
(17) Countrywide Credibility:	0.280	0.180	.
(18) Countrywide Lost-Time Claims:	2555.0	.	.
(19) Pure Premium Underlying Present Rate:	1.720	1.058	2.778
(20) Relativity to Underlying Present Rate:	1.939	1.762	.
(21) Credibility to Underlying Relativity:	0.280	0.180	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.839	1.628	.
(24) Balanced Formula Relativity:	1.814	1.617	1.740

Class(es):		Effective: 7/1/2016							Manufacturing		
2111 CANNERY NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	7,224	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	5,691	0	1	0	0	0	309	309	0.000	0.054	0.054
2011	8,487	0	2	0	0	0	1,493	1,493	0.000	0.176	0.176
2012	21,307	0	4	0	8,645	0	4,166	12,811	0.406	0.196	0.601
2013	9,992	0	1	0	0	0	2,471	2,471	0.000	0.247	0.247
MA Total:	52,701	0	8	0	8,645	0	8,439	17,083	0.164	0.160	0.324

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.152	0.249	.
(14) Massachusetts Credibility:	0.080	0.120	.
(15) Countrywide Pure Premium:	1.238	0.690	1.928
(16) Countrywide Indicated Relativity:	1.264	1.216	.
(17) Countrywide Credibility:	0.460	0.440	.
(18) Countrywide Lost-Time Claims:	910.00	.	.
(19) Pure Premium Underlying Present Rate:	1.045	0.662	1.707
(20) Relativity to Underlying Present Rate:	1.178	1.103	.
(21) Credibility to Underlying Relativity:	0.460	0.440	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.135	1.050	.
(24) Balanced Formula Relativity:	1.120	1.043	1.091

IX 000099

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
2115 SEAFOOD PRODUCTS MFG-NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	242,312	2	47	329,702	206,703	91,790	197,710	825,906	2,214	1,195	3,408
2010	200,799	1	45	297,046	88,583	448,742	174,135	1,008,507	1,920	3,102	5,022
2011	224,850	1	54	16,384	1,136,828	22,034	361,772	1,537,018	5,129	1,707	6,836
2012	208,009	1	52	92,751	534,184	10,736	245,385	883,056	3,014	1,231	4,245
2013	128,207	0	23	0	303,731	0	160,952	464,683	2,369	1,255	3,624
MA Total:	1,004,177	5	221	735,884	2,270,029	573,301	1,139,954	4,719,169	2,993	1,706	4,700

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.771	2.650	.
(14) Massachusetts Credibility:	0.320	0.520	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	1.685	2.011	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	1.517	1.226	2.744
(20) Relativity to Underlying Present Rate:	1.710	2.043	.
(21) Credibility to Underlying Relativity:	0.680	0.480	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	2.050	2.359	.
(24) Balanced Formula Relativity:	2.021	2.343	2.141

Class(es):		Effective: 7/1/2016							Manufacturing		
2121 BREWERY & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	55,503	0	6	0	83,491	0	59,501	142,991	1,504	1,072	2,576
2010	55,816	0	10	0	20,407	0	53,599	74,007	0,366	0,960	1,326
2011	73,032	0	4	0	948	0	4,099	5,047	0,013	0,056	0,069
2012	81,670	0	7	0	4,600	0	37,187	41,787	0,056	0,455	0,512
2013	77,253	0	15	0	8,949	0	31,801	40,749	0,116	0,412	0,527
MA Total:	343,274	0	42	0	118,394	0	186,188	304,582	0,345	0,542	0,887

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.319	0.843	.
(14) Massachusetts Credibility:	0.150	0.230	.
(15) Countrywide Pure Premium:	0.711	0.413	1.125
(16) Countrywide Indicated Relativity:	0.726	0.729	.
(17) Countrywide Credibility:	0.430	0.390	.
(18) Countrywide Lost-Time Claims:	549.00	.	.
(19) Pure Premium Underlying Present Rate:	0.698	0.495	1.193
(20) Relativity to Underlying Present Rate:	0.786	0.825	.
(21) Credibility to Underlying Relativity:	0.420	0.380	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.690	0.792	.
(24) Balanced Formula Relativity:	0.681	0.786	0.720

IX 000100

Section IX - Classification Pricing
 Subsection G - Class Relativities
 7/1/2016

Section IX - G
 Exhibit 22

Calculation of Class Relativities

Class(es): 2130 SPIRITUOUS LIQUOR DISTILLERY		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	3.125	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	3.447	0	1	0	0	0	890	890	0.000	0.258	0.258
2011	1.836	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	1.748	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	1.148	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	11,305	0	1	0	0	0	890	890	0.000	0.079	0.079

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.122	.
(14) Massachusetts Credibility:	0.040	0.060	.
(15) Countrywide Pure Premium:	0.888	0.503	1.390
(16) Countrywide Indicated Relativity:	0.906	0.887	.
(17) Countrywide Credibility:	0.480	0.470	.
(18) Countrywide Lost-Time Claims:	249.00	.	.
(19) Pure Premium Underlying Present Rate:	1.013	0.602	1.615
(20) Relativity to Underlying Present Rate:	1.141	1.003	.
(21) Credibility to Underlying Relativity:	0.480	0.470	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.983	0.895	.
(24) Balanced Formula Relativity:	0.969	0.889	0.939

Class(es): 2131 SPIRITUOUS LIQUOR BOTTLING		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	38.613	0	4	0	5.945	0	5.548	11.493	0.154	0.144	0.298
2010	40.210	0	13	0	0	0	8,905	8,905	0.000	0.221	0.221
2011	43.388	0	8	0	18.295	0	65,288	83,583	0.422	1.505	1.926
2012	49.249	0	10	0	6,430	0	8,860	15,290	0.131	0.180	0.310
2013	51.849	0	14	0	276,535	0	137,766	414,301	5.333	2.657	7.991
MA Total:	223,308	0	49	0	307,205	0	226,367	533,572	1.376	1.014	2.389

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.274	1.575	.
(14) Massachusetts Credibility:	0.140	0.220	.
(15) Countrywide Pure Premium:	1.279	0.619	1.898
(16) Countrywide Indicated Relativity:	1.306	1.091	.
(17) Countrywide Credibility:	0.430	0.390	.
(18) Countrywide Lost-Time Claims:	174.00	.	.
(19) Pure Premium Underlying Present Rate:	0.954	0.622	1.576
(20) Relativity to Underlying Present Rate:	1.075	1.036	.
(21) Credibility to Underlying Relativity:	0.430	0.390	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.202	1.176	.
(24) Balanced Formula Relativity:	1.185	1.168	1.179

IX 000101

Calculation of Class Relativities

Class(es): 2143 FRUIT JUICE MFG		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	58,958	0	7	0	0	0	5,134	5,134	0.000	0.087	0.087
2010	106,004	0	4	0	18,469	0	4,567	23,036	0.174	0.043	0.217
2011	62,032	0	3	0	0	0	1,326	1,326	0.000	0.021	0.021
2012	61,502	0	6	0	0	0	4,901	4,901	0.000	0.080	0.080
2013	42,366	0	15	0	20,423	0	20,274	40,697	0.482	0.479	0.961
MA Total:	330,863	0	35	0	38,892	0	36,203	75,094	0.118	0.109	0.227

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.109	0.170	.
(14) Massachusetts Credibility:	0.170	0.270	.
(15) Countrywide Pure Premium:	1.003	0.843	1.846
(16) Countrywide Indicated Relativity:	1.024	1.486	.
(17) Countrywide Credibility:	0.420	0.370	.
(18) Countrywide Lost-Time Claims:	167.00	.	.
(19) Pure Premium Underlying Present Rate:	0.955	0.703	1.659
(20) Relativity to Underlying Present Rate:	1.077	1.172	.
(21) Credibility to Underlying Relativity:	0.410	0.360	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.890	1.018	.
(24) Balanced Formula Relativity:	0.878	1.011	0.927

Class(es): 2150 ICE MFG		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	9,318	0	1	0	5,758	0	19,002	24,760	0.618	2.039	2.657
2010	6,021	0	3	0	0	0	2,064	2,064	0.000	0.343	0.343
2011	9,732	0	1	0	0	0	504	504	0.000	0.052	0.052
2012	8,181	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	7,624	0	2	0	1,070	0	8,814	9,884	0.140	1.156	1.296
MA Total:	40,876	0	7	0	6,828	0	30,385	37,213	0.167	0.743	0.910

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.155	1.155	.
(14) Massachusetts Credibility:	0.110	0.170	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	2.803	2.876	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	2.525	1.754	4.278
(20) Relativity to Underlying Present Rate:	2.845	2.922	.
(21) Credibility to Underlying Relativity:	0.890	0.830	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	2.549	2.621	.
(24) Balanced Formula Relativity:	2.514	2.604	2.547

IX 000102

Calculation of Class Relativities

Class(es): 2156 BOTTLING-NOT CARBONATED LIQUIDS OR SPIRIT LIQRS & RTE SUP,DR									Effective: 7/1/2016 Manufacturing		
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical				MA Indicated Pure Premiums	
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	63,573	0	11	0	94,405	0	153,192	247,598	1,485	2,410	3,895
2010	70,852	1	12	4,016	76,282	30,182	31,108	141,589	1,133	0,865	1,998
2011	89,699	0	19	0	7,112	0	24,441	31,553	0,079	0,272	0,352
2012	89,562	0	9	0	2,828	0	9,339	12,167	0,032	0,104	0,136
2013	64,810	1	12	76,020	270,573	18,867	271,440	636,900	5,348	4,479	9,827
MA Total:	378,497	2	63	80,036	451,201	49,049	489,520	1,069,806	1,404	1,423	2,826

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.299	2.211	.
(14) Massachusetts Credibility:	0.280	0.390	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	3.418	2.711	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	3.079	1.653	4.732
(20) Relativity to Underlying Present Rate:	3.470	2.754	.
(21) Credibility to Underlying Relativity:	0.720	0.610	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	2.862	2.542	.
(24) Balanced Formula Relativity:	2.823	2.525	2.711

Class(es): 2157 BOTTLING NOC & ROUTE SUPERVISORS, DRIVERS									Effective: 7/1/2016 Manufacturing		
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical				MA Indicated Pure Premiums	
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	278,436	1	89	26,323	99,528	6,229	128,377	260,457	0,452	0,483	0,935
2010	291,287	2	129	104,494	396,260	72,829	453,862	1,027,444	1,719	1,808	3,527
2011	286,026	1	110	173,959	272,115	23,876	275,097	745,048	1,560	1,045	2,605
2012	292,921	1	104	19,113	876,332	3,755	360,691	1,259,891	3,057	1,244	4,301
2013	294,509	2	102	280,487	257,379	63,436	173,605	774,908	1,826	0,805	2,631
MA Total:	1,443,180	7	534	604,376	1,901,614	170,126	1,391,632	4,067,748	1,736	1,082	2,819

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.607	1.681	.
(14) Massachusetts Credibility:	0.430	0.620	.
(15) Countrywide Pure Premium:	2.586	1.132	3.718
(16) Countrywide Indicated Relativity:	2.640	1.995	.
(17) Countrywide Credibility:	0.290	0.190	.
(18) Countrywide Lost-Time Claims:	6414.0	.	.
(19) Pure Premium Underlying Present Rate:	2.260	1.342	3.602
(20) Relativity to Underlying Present Rate:	2.547	2.236	.
(21) Credibility to Underlying Relativity:	0.280	0.190	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	2.170	1.846	.
(24) Balanced Formula Relativity:	2.140	1.834	2.026

IX 000103

Calculation of Class Relativities

Class(es): 2172 CIGARETTE MFG		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	262	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	172	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	172	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	52	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	0	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	658	0	0	0	0	0	0	0	0.000	0.000	0.000

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.020	0.020	.
(15) Countrywide Pure Premium:	1.282	0.391	1.673
(16) Countrywide Indicated Relativity:	1.309	0.689	.
(17) Countrywide Credibility:	0.490	0.490	.
(18) Countrywide Lost-Time Claims:	259.00	.	.
(19) Pure Premium Underlying Present Rate:	1.253	0.521	1.774
(20) Relativity to Underlying Present Rate:	1.412	0.869	.
(21) Credibility to Underlying Relativity:	0.490	0.490	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.333	0.763	.
(24) Balanced Formula Relativity:	1.315	0.758	1.107

Class(es): 2174 TOBACCO REHANDLING OR WAREHOUSING		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	0	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	0	0	0	0	0	0	0	0	0.000	0.000	0.000

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.000	0.000	.
(15) Countrywide Pure Premium:	1.631	1.082	2.713
(16) Countrywide Indicated Relativity:	1.665	1.908	.
(17) Countrywide Credibility:	0.350	0.370	.
(18) Countrywide Lost-Time Claims:	83.000	.	.
(19) Pure Premium Underlying Present Rate:	1.636	0.833	2.469
(20) Relativity to Underlying Present Rate:	1.844	1.388	.
(21) Credibility to Underlying Relativity:	0.650	0.630	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.781	1.580	.
(24) Balanced Formula Relativity:	1.757	1.569	1.687

IX 000104

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 7/1/2016

Section IX - G
 Exhibit 26

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
2211 COTTON BATTING,WADDING OR WASTE MFG											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	55	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	1,416	0	2	0	0	0	1,464	1,464	0.000	1,034	1,034
2012	1,123	0	3	0	2,670	0	4,337	7,007	2,377	3,862	6,239
2013	551	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	3,145	0	5	0	2,670	0	5,801	8,470	0.849	1.845	2.693

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.786	2.865	.
(14) Massachusetts Credibility:	0.040	0.060	.
(15) Countrywide Pure Premium:	5,681	2,095	7,775
(16) Countrywide Indicated Relativity:	5.800	3.693	.
(17) Countrywide Credibility:	0.300	0.320	.
(18) Countrywide Lost-Time Claims:	56,000	.	.
(19) Pure Premium Underlying Present Rate:	2.507	2.030	4.537
(20) Relativity to Underlying Present Rate:	2.825	3.382	.
(21) Credibility to Underlying Relativity:	0.660	0.620	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	3.636	3.450	.
(24) Balanced Formula Relativity:	3.586	3.427	3.526

Class(es):		Effective: 7/1/2016							Manufacturing		
2220 YARN OR THREAD MFG-COTTON											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	79,627	1	13	83,823	14,584	44,746	28,247	171,400	1,236	0,917	2,153
2010	85,174	0	31	0	71,267	0	65,625	136,892	0,837	0,770	1,607
2011	87,372	0	27	0	211,269	0	163,030	374,299	2,418	1,866	4,284
2012	87,440	0	35	0	129,080	0	122,647	251,727	1,476	1,403	2,879
2013	85,873	1	28	74,899	328,146	30,527	90,594	524,166	4,693	1,410	6,104
MA Total:	425,487	2	134	158,722	754,346	75,274	470,143	1,458,485	2.146	1.282	3.428

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.987	1.991	.
(14) Massachusetts Credibility:	0.200	0.330	.
(15) Countrywide Pure Premium:	1,029	0,617	1,646
(16) Countrywide Indicated Relativity:	1.051	1.087	.
(17) Countrywide Credibility:	0.400	0.340	.
(18) Countrywide Lost-Time Claims:	832.00	.	.
(19) Pure Premium Underlying Present Rate:	1.184	0.908	2.091
(20) Relativity to Underlying Present Rate:	1.334	1.512	.
(21) Credibility to Underlying Relativity:	0.400	0.330	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.351	1.526	.
(24) Balanced Formula Relativity:	1.332	1.515	1.401

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Calculation of Class Relativities

Class(es): 2260 WOOL COMBING OR SCOURING		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	1,312	0	2	0	61,463	0	34,842	96,306	46,843	26,554	73,397
2010	2,290	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	544	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	550	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	405	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	5,101	0	2	0	61,463	0	34,842	96,306	12,050	6,831	18,882

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	11.155	10.612	.
(14) Massachusetts Credibility:	0.050	0.070	.
(15) Countrywide Pure Premium:	1.790	0.966	2.756
(16) Countrywide Indicated Relativity:	1.827	1.703	.
(17) Countrywide Credibility:	0.140	0.140	.
(18) Countrywide Lost-Time Claims:	8.000	.	.
(19) Pure Premium Underlying Present Rate:	3.253	1.582	4.835
(20) Relativity to Underlying Present Rate:	3.666	2.636	.
(21) Credibility to Underlying Relativity:	0.810	0.790	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	3.783	3.064	.
(24) Balanced Formula Relativity:	3.731	3.043	3.474

Class(es): 2288 FELTING MFG		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	72,874	0	11	0	92,892	0	56,405	149,297	1,275	0,774	2,049
2010	94,887	1	8	74,704	3,044	77,022	10,694	165,463	0,819	0,924	1,744
2011	107,534	0	18	0	154,913	0	79,924	234,838	1,441	0,743	2,184
2012	120,026	0	20	0	41,601	0	43,787	85,387	0,347	0,365	0,711
2013	128,095	0	26	0	159,288	0	79,104	238,393	1,244	0,618	1,861
MA Total:	523,417	1	83	74,704	451,738	77,022	269,915	873,379	1,006	0,663	1,669

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.931	1.030	.
(14) Massachusetts Credibility:	0.220	0.330	.
(15) Countrywide Pure Premium:	2.468	1.475	3.943
(16) Countrywide Indicated Relativity:	2.519	2.601	.
(17) Countrywide Credibility:	0.390	0.340	.
(18) Countrywide Lost-Time Claims:	186.00	.	.
(19) Pure Premium Underlying Present Rate:	1.181	0.743	1.924
(20) Relativity to Underlying Present Rate:	1.331	1.237	.
(21) Credibility to Underlying Relativity:	0.390	0.330	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.706	1.633	.
(24) Balanced Formula Relativity:	1.683	1.621	1.660

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Calculation of Class Relativities

Class(es): 2305 TEXTILE FIBER MFG-SYNTHETIC		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	47,206	0	6	0	398,297	0	119,115	517,412	8,437	2,523	10,961
2010	52,381	1	8	111,173	74,503	18,111	43,559	247,346	3,545	1,177	4,722
2011	41,146	0	5	0	31,866	0	16,693	48,559	0,774	0,406	1,180
2012	33,800	1	5	142,102	107,981	153,295	89,837	493,215	7,399	7,193	14,592
2013	13,319	1	2	111,750	43,548	22,327	3,916	181,541	11,660	1,970	13,631
MA Total:	187,852	3	26	365,025	656,195	193,732	273,121	1,488,073	5,436	2,485	7,922

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	5.033	3.861	.
(14) Massachusetts Credibility:	0.150	0.210	.
(15) Countrywide Pure Premium:	1.191	0.624	1.815
(16) Countrywide Indicated Relativity:	1.216	1.101	.
(17) Countrywide Credibility:	0.430	0.400	.
(18) Countrywide Lost-Time Claims:	738.00	.	.
(19) Pure Premium Underlying Present Rate:	1.286	0.684	1.970
(20) Relativity to Underlying Present Rate:	1.450	1.139	.
(21) Credibility to Underlying Relativity:	0.420	0.390	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.887	1.695	.
(24) Balanced Formula Relativity:	1.860	1.684	1.794

Class(es): 2362 KNIT GOODS MFG NOC		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	11,685	0	2	0	4,687	0	9,118	13,806	0,401	0,780	1,182
2010	12,969	0	1	0	0	0	859	859	0,000	0,066	0,066
2011	13,842	0	8	0	8,671	0	17,880	26,551	0,626	1,292	1,918
2012	12,978	0	1	0	0	0	448	448	0,000	0,034	0,034
2013	14,482	0	1	0	0	0	402	402	0,000	0,028	0,028
MA Total:	65,956	0	13	0	13,359	0	28,707	42,065	0,203	0,435	0,638

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.187	0.676	.
(14) Massachusetts Credibility:	0.080	0.130	.
(15) Countrywide Pure Premium:	0.669	0.412	1.081
(16) Countrywide Indicated Relativity:	0.683	0.727	.
(17) Countrywide Credibility:	0.450	0.440	.
(18) Countrywide Lost-Time Claims:	153.00	.	.
(19) Pure Premium Underlying Present Rate:	0.846	0.622	1.468
(20) Relativity to Underlying Present Rate:	0.953	1.037	.
(21) Credibility to Underlying Relativity:	0.470	0.430	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.770	0.853	.
(24) Balanced Formula Relativity:	0.760	0.848	0.793

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Calculation of Class Relativities

Class(es): 2380 WEBBING MFG		Effective: 7/1/2016							Manufacturing		
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	64,172	0	7	0	10,783	0	16,112	26,895	0.168	0.251	0.419
2010	67,071	0	8	0	1,695	0	9,864	11,559	0.025	0.147	0.172
2011	72,496	1	13	72,198	1,335	15,379	14,121	103,032	1.014	0.407	1.421
2012	67,197	0	7	0	9,505	0	12,095	21,600	0.141	0.180	0.321
2013	67,407	1	10	259,534	195,437	98,086	82,305	635,362	6.750	2.676	9.426
MA Total:	338,343	2	45	331,731	218,754	113,465	134,496	798,447	1.627	0.733	2.360

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.506	1.139	.
(14) Massachusetts Credibility:	0.170	0.270	.
(15) Countrywide Pure Premium:	1.165	0.809	1.974
(16) Countrywide Indicated Relativity:	1.190	1.426	.
(17) Countrywide Credibility:	0.420	0.370	.
(18) Countrywide Lost-Time Claims:	187.00	.	.
(19) Pure Premium Underlying Present Rate:	0.979	0.714	1.693
(20) Relativity to Underlying Present Rate:	1.103	1.190	.
(21) Credibility to Underlying Relativity:	0.410	0.360	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.208	1.263	.
(24) Balanced Formula Relativity:	1.191	1.255	1.215

Class(es): 2402 CARPET OR RUG MFG NOC		Effective: 7/1/2016							Manufacturing		
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	2,322	0	1	0	1,076	0	1,696	2,772	0.463	0.731	1.194
2010	2,512	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	5,165	0	1	0	0	0	474	474	0.000	0.092	0.092
2012	8,903	0	3	0	191	0	2,472	2,663	0.021	0.278	0.299
2013	9,491	0	2	0	0	0	343	343	0.000	0.036	0.036
MA Total:	28,393	0	7	0	1,267	0	4,986	6,252	0.045	0.176	0.220

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.041	0.273	.
(14) Massachusetts Credibility:	0.070	0.100	.
(15) Countrywide Pure Premium:	1.153	0.758	1.911
(16) Countrywide Indicated Relativity:	1.177	1.337	.
(17) Countrywide Credibility:	0.470	0.450	.
(18) Countrywide Lost-Time Claims:	324.00	.	.
(19) Pure Premium Underlying Present Rate:	1.045	0.629	1.674
(20) Relativity to Underlying Present Rate:	1.178	1.048	.
(21) Credibility to Underlying Relativity:	0.460	0.450	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.098	1.100	.
(24) Balanced Formula Relativity:	1.083	1.093	1.087

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
2413 TEXTILE - BLEACHING, DYEING, MERCERZNG, FINISH											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	255.758	3	69	51.002	431.411	19.436	406.430	908.280	1.886	1.665	3.551
2010	289.853	5	89	634.961	734.761	360.352	594.143	2,324.218	4.726	3.293	8.019
2011	278.543	0	58	0	491.397	0	231.364	722.760	1.764	0.831	2.595
2012	229.018	1	56	98.902	508.283	44.649	215.037	866.871	2.651	1.134	3.785
2013	278.355	0	39	0	502.236	0	158.745	660.981	1.804	0.570	2.375
MA Total:	1,331,528	9	311	784.865	2,668,088	424.437	1,605,719	5,483,109	2.593	1.525	4.118

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.401	2.369	.
(14) Massachusetts Credibility:	0.350	0.510	.
(15) Countrywide Pure Premium:	1.084	0.740	1.824
(16) Countrywide Indicated Relativity:	1.107	1.305	.
(17) Countrywide Credibility:	0.330	0.250	.
(18) Countrywide Lost-Time Claims:	296.00	.	.
(19) Pure Premium Underlying Present Rate:	1.501	0.883	2.384
(20) Relativity to Underlying Present Rate:	1.692	1.471	.
(21) Credibility to Underlying Relativity:	0.320	0.240	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.747	1.887	.
(24) Balanced Formula Relativity:	1.723	1.874	1.779

Class(es):		Effective: 7/1/2016							Manufacturing		
2416 YARN OR THREAD DYEING OR FINISHING											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	13.894	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	19.694	0	3	0	0	0	1.780	1.780	0.000	0.090	0.090
2011	18.839	0	3	0	0	0	2.270	2.270	0.000	0.120	0.120
2012	14.636	0	3	0	23.255	0	6.286	29.541	1.589	0.429	2.018
2013	16.577	1	4	122.336	170.494	32.763	39.152	364.744	17.665	4.338	22.003
MA Total:	83.638	1	13	122.336	193.748	32.763	49.488	398.335	3.779	0.983	4.763

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.498	1.528	.
(14) Massachusetts Credibility:	0.100	0.160	.
(15) Countrywide Pure Premium:	0.837	0.516	1.353
(16) Countrywide Indicated Relativity:	0.855	0.910	.
(17) Countrywide Credibility:	0.270	0.290	.
(18) Countrywide Lost-Time Claims:	45.000	.	.
(19) Pure Premium Underlying Present Rate:	1.088	0.743	1.831
(20) Relativity to Underlying Present Rate:	1.226	1.238	.
(21) Credibility to Underlying Relativity:	0.630	0.550	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.353	1.189	.
(24) Balanced Formula Relativity:	1.334	1.181	1.277

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Calculation of Class Relativities

Class(es): 2417 CLOTH PRINTING		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	70,291	1	16	417,834	134,408	42,329	51,254	645,825	7,857	1,331	9,188
2010	74,045	2	13	170,820	223,325	21,003	162,114	577,263	5,323	2,473	7,796
2011	63,184	2	12	283,186	12,910	80,973	23,179	400,248	4,686	1,648	6,335
2012	52,651	0	9	0	124,110	0	25,316	149,427	2,357	0,481	2,838
2013	54,585	0	0	0	0	0	0	0	0,000	0,000	0,000
MA Total:	314,756	5	50	871,841	494,754	144,305	261,864	1,772,763	4,342	1,290	5,632

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	4.019	2.005	.
(14) Massachusetts Credibility:	0.210	0.290	.
(15) Countrywide Pure Premium:	0.640	0.438	1.078
(16) Countrywide Indicated Relativity:	0.654	0.772	.
(17) Countrywide Credibility:	0.250	0.260	.
(18) Countrywide Lost-Time Claims:	36,000	.	.
(19) Pure Premium Underlying Present Rate:	1.699	0.897	2,596
(20) Relativity to Underlying Present Rate:	1.914	1.495	.
(21) Credibility to Underlying Relativity:	0.540	0.450	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	2.041	1.455	.
(24) Balanced Formula Relativity:	2.013	1.445	1.801

Class(es): 2501 CLOTHING MFG		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	907,272	5	139	487,465	696,236	368,848	414,547	1,967,096	1,305	0,863	2,168
2010	993,941	4	185	289,658	663,589	215,715	537,297	1,706,259	0,959	0,758	1,717
2011	928,736	4	132	276,654	556,644	83,263	339,234	1,255,795	0,897	0,455	1,352
2012	920,097	4	117	123,122	892,732	118,021	612,411	1,746,286	1,104	0,794	1,898
2013	887,861	4	104	160,962	477,828	88,391	338,556	1,065,736	0,719	0,481	1,200
MA Total:	4,637,906	21	677	1,337,861	3,287,028	874,238	2,242,046	7,741,172	0,997	0,672	1,669

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.923	1.044	.
(14) Massachusetts Credibility:	0.480	0.710	.
(15) Countrywide Pure Premium:	1.162	0.706	1.868
(16) Countrywide Indicated Relativity:	1.186	1.245	.
(17) Countrywide Credibility:	0.260	0.150	.
(18) Countrywide Lost-Time Claims:	2636.0	.	.
(19) Pure Premium Underlying Present Rate:	0.916	0.582	1,498
(20) Relativity to Underlying Present Rate:	1.032	0.969	.
(21) Credibility to Underlying Relativity:	0.260	0.140	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.020	1.064	.
(24) Balanced Formula Relativity:	1.006	1.056	1.025

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
2503 DRESSMAKING OR TAILORING-CUSTOM EXCLUSIVELY											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	41,521	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	49,211	0	4	0	105	0	1,182	1,287	0.002	0.024	0.026
2011	50,963	0	5	0	22,316	0	13,022	35,337	0.438	0.256	0.693
2012	50,284	0	2	0	6,285	0	24,608	30,893	0.125	0.489	0.614
2013	52,284	1	3	97,021	19,957	28,561	2,571	148,109	2.237	0.595	2.833
MA Total:	244,263	1	14	97,021	48,662	28,561	41,382	215,627	0.596	0.286	0.883

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.552	0.445	.
(14) Massachusetts Credibility:	0.110	0.180	.
(15) Countrywide Pure Premium:	0.657	0.347	1.004
(16) Countrywide Indicated Relativity:	0.670	0.612	.
(17) Countrywide Credibility:	0.290	0.310	.
(18) Countrywide Lost-Time Claims:	52.000	.	.
(19) Pure Premium Underlying Present Rate:	0.450	0.343	0.793
(20) Relativity to Underlying Present Rate:	0.507	0.571	.
(21) Credibility to Underlying Relativity:	0.600	0.510	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.559	0.561	.
(24) Balanced Formula Relativity:	0.552	0.557	0.554

Class(es):		Effective: 7/1/2016							Manufacturing		
2570 MATTRESS OR BOX SPRING MFG											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	29,551	0	2	0	1,645	0	1,261	2,906	0.056	0.043	0.098
2010	106,152	3	13	552,459	11,555	720,429	26,552	1,310,996	5.313	7.037	12.350
2011	110,957	3	19	293,100	278,272	138,828	126,572	836,772	5.150	2.392	7.541
2012	115,813	4	31	837,230	254,882	301,037	149,345	1,542,495	9.430	3.889	13.319
2013	29,228	0	8	0	60,711	0	20,000	80,711	2.077	0.684	2.761
MA Total:	391,701	10	73	1,682,789	607,066	1,160,295	323,729	3,773,879	5.846	3.789	9.635

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	5.412	5.886	.
(14) Massachusetts Credibility:	0.250	0.370	.
(15) Countrywide Pure Premium:	1.937	0.985	2.922
(16) Countrywide Indicated Relativity:	1.977	1.737	.
(17) Countrywide Credibility:	0.380	0.320	.
(18) Countrywide Lost-Time Claims:	445.00	.	.
(19) Pure Premium Underlying Present Rate:	2.144	1.384	3.528
(20) Relativity to Underlying Present Rate:	2.417	2.305	.
(21) Credibility to Underlying Relativity:	0.370	0.310	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	2.998	3.448	.
(24) Balanced Formula Relativity:	2.957	3.425	3.132

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
2576 CANVAS GOODS MFG NOC-SHOP											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	67.115	0	5	0	6.414	0	32.260	38.674	0.096	0.481	0.576
2010	81.711	1	10	16.553	19.734	691	22.136	59.114	0.444	0.279	0.723
2011	84.578	0	11	0	19.964	0	36.856	56.820	0.236	0.436	0.672
2012	91.237	0	8	0	54	0	4.180	4.234	0.001	0.046	0.046
2013	101.255	0	11	0	126.120	0	112.639	238.759	1.246	1.112	2.358
MA Total:	425.897	1	45	16.553	172.286	691	208.072	397.602	0.443	0.490	0.934

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.410	0.761	.
(14) Massachusetts Credibility:	0.200	0.280	.
(15) Countrywide Pure Premium:	0.168	0.373	0.541
(16) Countrywide Indicated Relativity:	0.171	0.658	.
(17) Countrywide Credibility:	0.110	0.120	.
(18) Countrywide Lost-Time Claims:	5.000	.	.
(19) Pure Premium Underlying Present Rate:	1.126	0.616	1.742
(20) Relativity to Underlying Present Rate:	1.269	1.026	.
(21) Credibility to Underlying Relativity:	0.690	0.600	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.976	0.908	.
(24) Balanced Formula Relativity:	0.963	0.902	0.940

Class(es):		Effective: 7/1/2016							Manufacturing		
2585 LAUNDRY NOC & ROUTE SUPERVISORS, DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	697.124	2	147	305.044	524.127	38.723	386.299	1,254.193	1.189	0.610	1.799
2010	533.133	3	120	324.287	646.294	199.624	367.521	1,537.726	1.821	1.064	2.884
2011	603.962	4	117	773.804	557.154	705.520	310.419	2,346.897	2.204	1.682	3.886
2012	591.089	4	83	351.551	956.115	154.076	551.203	2,012.945	2.212	1.193	3.405
2013	667.902	8	72	381.845	340.874	224.632	232.268	1,179.619	1.082	0.684	1.766
MA Total:	3,093.209	21	539	2,136.531	3,024.565	1,322.575	1,847.710	8,331.381	1.669	1.025	2.693

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.545	1.592	.
(14) Massachusetts Credibility:	0.480	0.780	.
(15) Countrywide Pure Premium:	1.902	1.030	2.932
(16) Countrywide Indicated Relativity:	1.942	1.816	.
(17) Countrywide Credibility:	0.260	0.110	.
(18) Countrywide Lost-Time Claims:	3750.0	.	.
(19) Pure Premium Underlying Present Rate:	1.386	1.116	2.502
(20) Relativity to Underlying Present Rate:	1.562	1.859	.
(21) Credibility to Underlying Relativity:	0.260	0.110	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.653	1.646	.
(24) Balanced Formula Relativity:	1.630	1.635	1.632

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Calculation of Class Relativities

Class(es): 2586 CLEANING OR DYEING & ROUTE SUPERVISORS, DRIVERS									Effective: 7/1/2016			Manufacturing		
Converted Unlimited Losses														
Amount														
Claim Count				Indemnity		Medical		MA Indicated Pure Premiums						
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)			
2009	491,540	2	40	105,362	415,813	25,151	375,755	922,081	1,060	0,816	1,876			
2010	489,462	1	25	2,146	162,965	11,160	72,221	248,491	0,337	0,170	0,508			
2011	505,573	1	43	54,952	292,614	3,200	254,705	605,471	0,687	0,510	1,198			
2012	514,100	3	34	294,610	317,848	101,985	229,309	943,752	1,191	0,644	1,836			
2013	510,755	1	41	12,394	118,701	2,886	107,380	241,361	0,257	0,216	0,473			
MA Total:	2,511,430	8	183	469,464	1,307,940	144,382	1,039,371	2,961,157	0,708	0,471	1,179			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.655	0.732	.
(14) Massachusetts Credibility:	0.350	0.500	.
(15) Countrywide Pure Premium:	1.020	0.602	1.623
(16) Countrywide Indicated Relativity:	1.042	1.062	.
(17) Countrywide Credibility:	0.330	0.250	.
(18) Countrywide Lost-Time Claims:	214.00	.	.
(19) Pure Premium Underlying Present Rate:	0.775	0.446	1.222
(20) Relativity to Underlying Present Rate:	0.874	0.743	.
(21) Credibility to Underlying Relativity:	0.320	0.250	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.853	0.817	.
(24) Balanced Formula Relativity:	0.841	0.812	0.830

Class(es): 2587 TOWEL OR TOILET SUPPLY CO & RTE SUPERVISORS, DR									Effective: 7/1/2016			Goods and Services		
Converted Unlimited Losses														
Amount														
Claim Count				Indemnity		Medical		MA Indicated Pure Premiums						
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)			
2009	31,612	0	4	0	66,577	0	49,896	116,473	2,106	1,578	3,684			
2010	33,208	0	6	0	2,613	0	6,226	8,839	0,079	0,187	0,266			
2011	33,600	1	4	2,101	387,707	8,359	418,859	817,027	11,601	12,715	24,316			
2012	22,983	0	2	0	0	0	4,232	4,232	0,000	0,184	0,184			
2013	27,961	0	1	0	4,314	0	3,014	7,327	0,154	0,108	0,262			
MA Total:	149,364	1	17	2,101	461,211	8,359	482,228	953,899	3,102	3,285	6,386			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.261	5.471	.
(14) Massachusetts Credibility:	0.160	0.250	.
(15) Countrywide Pure Premium:	1.787	0.745	2.533
(16) Countrywide Indicated Relativity:	1.864	1.220	.
(17) Countrywide Credibility:	0.420	0.380	.
(18) Countrywide Lost-Time Claims:	137.00	.	.
(19) Pure Premium Underlying Present Rate:	1.754	1.292	3.046
(20) Relativity to Underlying Present Rate:	2.263	2.399	.
(21) Credibility to Underlying Relativity:	0.420	0.370	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	2.255	2.719	.
(24) Balanced Formula Relativity:	2.243	2.721	2.428

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Calculation of Class Relativities

Class(es): 2623 TANNING		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	1,114	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	891	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	132	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	2,086	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	1,896	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	6,118	0	0	0	0	0	0	0	0.000	0.000	0.000

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.050	0.070	.
(15) Countrywide Pure Premium:	3.168	2.409	5.577
(16) Countrywide Indicated Relativity:	3.234	4.248	.
(17) Countrywide Credibility:	0.320	0.340	.
(18) Countrywide Lost-Time Claims:	68.000	.	.
(19) Pure Premium Underlying Present Rate:	1.974	1.137	3.111
(20) Relativity to Underlying Present Rate:	2.224	1.894	.
(21) Credibility to Underlying Relativity:	0.630	0.590	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	2.436	2.562	.
(24) Balanced Formula Relativity:	2.403	2.544	2.456

Class(es): 2640 LEATHER EMBOSsing		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	52,655	0	5	0	3,114	0	11,778	14,892	0.059	0.224	0.283
2010	59,359	1	3	116,263	738	13,338	2,869	133,208	1.971	0.273	2.244
2011	59,515	1	7	245,497	12,569	16,015	23,300	297,380	4.336	0.661	4.997
2012	63,079	0	13	0	1,820	0	18,438	20,258	0.029	0.292	0.321
2013	61,831	0	7	0	0	0	3,423	3,423	0.000	0.055	0.055
MA Total:	296,438	2	35	361,759	18,241	29,353	59,808	469,161	1.282	0.301	1.583

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.187	0.467	.
(14) Massachusetts Credibility:	0.150	0.240	.
(15) Countrywide Pure Premium:	0.642	0.436	1.078
(16) Countrywide Indicated Relativity:	0.655	0.769	.
(17) Countrywide Credibility:	0.360	0.380	.
(18) Countrywide Lost-Time Claims:	89.000	.	.
(19) Pure Premium Underlying Present Rate:	0.828	0.601	1.428
(20) Relativity to Underlying Present Rate:	0.933	1.001	.
(21) Credibility to Underlying Relativity:	0.490	0.380	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.871	0.785	.
(24) Balanced Formula Relativity:	0.859	0.779	0.829

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Section IX - Classification Pricing
 Subsection G - Class Relativities
 7/1/2016

Section IX - G
 Exhibit 36

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
2660 BOOT OR SHOE MFG NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	33,512	0	4	0	0	0	2,194	2,194	0.000	0.065	0.065
2010	38,376	0	7	0	83	0	8,759	8,841	0.002	0.228	0.230
2011	43,694	0	9	0	78,439	0	92,458	170,897	1.795	2,116	3,911
2012	48,173	0	6	0	16,147	0	7,393	23,541	0.335	0.153	0.489
2013	44,048	0	1	0	3,137	0	9,711	12,847	0.071	0.220	0.292
MA Total:	207,803	0	27	0	97,805	0	120,515	218,320	0.471	0.580	1.051

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.436	0.901	.
(14) Massachusetts Credibility:	0.130	0.210	.
(15) Countrywide Pure Premium:	0.799	0.621	1.420
(16) Countrywide Indicated Relativity:	0.816	1.094	.
(17) Countrywide Credibility:	0.440	0.400	.
(18) Countrywide Lost-Time Claims:	205.00	.	.
(19) Pure Premium Underlying Present Rate:	0.798	0.612	1.410
(20) Relativity to Underlying Present Rate:	0.899	1.020	.
(21) Credibility to Underlying Relativity:	0.430	0.390	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.802	1.024	.
(24) Balanced Formula Relativity:	0.791	1.018	0.876

Class(es):		Effective: 7/1/2016							Manufacturing		
2683 LUGGAGE MFG											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	2,435	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	2,640	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	1,395	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	2,504	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	3,225	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	12,198	0	0	0	0	0	0	0	0.000	0.000	0.000

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.040	0.070	.
(15) Countrywide Pure Premium:	0.446	0.412	0.858
(16) Countrywide Indicated Relativity:	0.455	0.727	.
(17) Countrywide Credibility:	0.240	0.250	.
(18) Countrywide Lost-Time Claims:	31.000	.	.
(19) Pure Premium Underlying Present Rate:	0.912	0.575	1.487
(20) Relativity to Underlying Present Rate:	1.028	0.958	.
(21) Credibility to Underlying Relativity:	0.720	0.680	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.849	0.833	.
(24) Balanced Formula Relativity:	0.838	0.827	0.834

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Section IX - Classification Pricing
 Subsection G - Class Relativities
 7/1/2016

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
2688 LEATHER GOODS MFG NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	68,813	1	7	87	12,705	15,364	9,383	37,539	0.186	0.360	0.546
2010	68,532	0	19	0	21,647	0	15,633	37,280	0.316	0.228	0.544
2011	71,166	0	16	0	31,645	0	66,187	97,832	0.445	0.930	1.375
2012	69,119	0	9	0	2,335	0	11,971	14,305	0.034	0.173	0.207
2013	70,432	1	7	63,586	374	25,981	7,804	97,745	0.908	0.480	1.388
MA Total:	348,063	2	58	63,673	68,706	41,345	110,978	284,701	0.380	0.438	0.818

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.352	0.680	.
(14) Massachusetts Credibility:	0.190	0.290	.
(15) Countrywide Pure Premium:	1.483	0.875	2.359
(16) Countrywide Indicated Relativity:	1.515	1.543	.
(17) Countrywide Credibility:	0.380	0.360	.
(18) Countrywide Lost-Time Claims:	103.00	.	.
(19) Pure Premium Underlying Present Rate:	1.190	0.806	1.996
(20) Relativity to Underlying Present Rate:	1.341	1.343	.
(21) Credibility to Underlying Relativity:	0.430	0.350	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.219	1.223	.
(24) Balanced Formula Relativity:	1.202	1.214	1.207

Class(es):		Effective: 7/1/2016							Miscellaneous		
2702 LOGGING OR LUMBERING & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	24,460	0	6	0	4,970	0	21,214	26,184	0.203	0.867	1.070
2010	24,678	0	6	0	25,602	0	27,396	52,998	1.037	1.110	2.148
2011	28,852	0	7	0	71,790	0	66,970	138,759	2.488	2.321	4.809
2012	28,970	0	6	0	8,553	0	47,034	55,587	0.295	1.624	1.919
2013	30,042	0	8	0	445,614	0	334,442	780,056	14.833	11.132	25.965
MA Total:	137,003	0	33	0	556,529	0	497,056	1,053,584	4.062	3.628	7.690

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.439	2.322	.
(14) Massachusetts Credibility:	0.270	0.360	.
(15) Countrywide Pure Premium:	11.729	6.287	18.016
(16) Countrywide Indicated Relativity:	4.542	4.442	.
(17) Countrywide Credibility:	0.370	0.320	.
(18) Countrywide Lost-Time Claims:	1831.0	.	.
(19) Pure Premium Underlying Present Rate:	7.432	3.709	11.141
(20) Relativity to Underlying Present Rate:	3.187	2.676	.
(21) Credibility to Underlying Relativity:	0.360	0.320	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	3.217	3.114	.
(24) Balanced Formula Relativity:	3.177	3.107	3.152

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Calculation of Class Relativities

Class(es): 2710 SAWMILLS		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	18,637	0	4	0	0	0	9,439	9,439	0.000	0.506	0.506
2010	23,215	0	7	0	13,758	0	16,283	30,041	0.593	0.701	1,294
2011	22,568	2	7	134,516	18,573	140,001	18,135	311,225	6.783	7.007	13,791
2012	25,090	0	17	0	31,796	0	47,147	78,943	1.267	1.879	3,146
2013	32,059	0	10	0	12,888	0	21,570	34,458	0.402	0.673	1,075
MA Total:	121,569	2	45	134,516	77,016	140,001	112,574	464,107	1.740	2.078	3.818

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.611	3.228	.
(14) Massachusetts Credibility:	0.180	0.290	.
(15) Countrywide Pure Premium:	3.812	2.622	6.434
(16) Countrywide Indicated Relativity:	3.892	4.622	.
(17) Countrywide Credibility:	0.410	0.360	.
(18) Countrywide Lost-Time Claims:	1828.0	.	.
(19) Pure Premium Underlying Present Rate:	2.921	2.378	5.299
(20) Relativity to Underlying Present Rate:	3.292	3.961	.
(21) Credibility to Underlying Relativity:	0.410	0.350	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	3.236	3.986	.
(24) Balanced Formula Relativity:	3.191	3.959	3.478

Class(es): 2731 PLANING OR MOLDING MILL		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	35,264	0	13	0	101,237	0	29,202	130,439	2.871	0.828	3,699
2010	35,259	0	11	0	84,246	0	46,735	130,981	2.389	1.326	3,715
2011	32,143	0	8	0	766	0	4,755	5,521	0.024	0.148	0.172
2012	30,486	0	8	0	0	0	5,810	5,810	0.000	0.191	0.191
2013	35,328	0	8	0	0	0	5,618	5,618	0.000	0.159	0.159
MA Total:	168,479	0	48	0	186,248	0	92,121	278,369	1.105	0.547	1.652

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.023	0.849	.
(14) Massachusetts Credibility:	0.160	0.240	.
(15) Countrywide Pure Premium:	1.672	1.223	2.895
(16) Countrywide Indicated Relativity:	1.707	2.156	.
(17) Countrywide Credibility:	0.420	0.380	.
(18) Countrywide Lost-Time Claims:	1087.0	.	.
(19) Pure Premium Underlying Present Rate:	1.760	1.124	2.884
(20) Relativity to Underlying Present Rate:	1.984	1.873	.
(21) Credibility to Underlying Relativity:	0.420	0.380	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.714	1.735	.
(24) Balanced Formula Relativity:	1.690	1.723	1.702

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
2741 COOPERAGE STOCK MFG											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	0	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	0	0	0	0	0	0	0	0	.	.	.

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.000	0.000	.
(15) Countrywide Pure Premium:	8.433	5.314	13.747
(16) Countrywide Indicated Relativity:	8.610	9.369	.
(17) Countrywide Credibility:	0.120	0.130	.
(18) Countrywide Lost-Time Claims:	6.000	.	.
(19) Pure Premium Underlying Present Rate:	2.499	1.253	3.752
(20) Relativity to Underlying Present Rate:	2.817	2.087	.
(21) Credibility to Underlying Relativity:	0.880	0.870	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	3.512	3.034	.
(24) Balanced Formula Relativity:	3.463	3.013	3.295

Class(es):		Effective: 7/1/2016							Manufacturing		
2747 COOPERAGE ASSEMBLY											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	0	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	0	0	0	0	0	0	0	0	.	.	.

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.000	0.000	.
(15) Countrywide Pure Premium:	1.599	1.356	2.954
(16) Countrywide Indicated Relativity:	1.632	2.390	.
(17) Countrywide Credibility:	0.220	0.230	.
(18) Countrywide Lost-Time Claims:	25.000	.	.
(19) Pure Premium Underlying Present Rate:	2.793	1.776	4.569
(20) Relativity to Underlying Present Rate:	3.147	2.959	.
(21) Credibility to Underlying Relativity:	0.780	0.770	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	2.814	2.828	.
(24) Balanced Formula Relativity:	2.775	2.809	2.788

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Calculation of Class Relativities

Class(es): 2790 PATTERN MAKING NOC		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	35,583	0	8	0	21,347	0	16,806	38,153	0.600	0.472	1.072
2010	37,133	0	4	0	0	0	1,963	1,963	0.000	0.053	0.053
2011	37,339	0	7	0	789	0	5,224	6,012	0.021	0.140	0.161
2012	37,500	0	8	0	115,943	0	31,606	147,549	3.092	0.843	3.935
2013	35,372	0	4	0	256,585	0	38,614	295,199	7.254	1.092	8.346
MA Total:	182,927	0	31	0	394,663	0	94,212	488,876	2.157	0.515	2.673

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.997	0.800	.
(14) Massachusetts Credibility:	0.120	0.180	.
(15) Countrywide Pure Premium:	0.674	0.504	1.179
(16) Countrywide Indicated Relativity:	0.689	0.889	.
(17) Countrywide Credibility:	0.410	0.410	.
(18) Countrywide Lost-Time Claims:	124.00	.	.
(19) Pure Premium Underlying Present Rate:	0.683	0.507	1.189
(20) Relativity to Underlying Present Rate:	0.769	0.844	.
(21) Credibility to Underlying Relativity:	0.470	0.410	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.884	0.855	.
(24) Balanced Formula Relativity:	0.871	0.849	0.863

Class(es): 2802 CARPENTRY-SHOP ONLY & DRIVERS		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	949,193	5	239	222,648	1,398,804	100,180	1,242,785	2,964,417	1.708	1.415	3.123
2010	976,638	4	197	723,540	1,544,650	330,818	1,384,439	3,983,447	2.322	1.756	4.079
2011	1,001,798	10	198	1,345,577	1,946,275	207,851	1,047,470	4,547,173	3.286	1.253	4.539
2012	1,021,220	14	200	1,225,270	1,641,519	679,597	1,199,686	4,746,072	2.807	1.840	4.647
2013	1,073,803	3	196	105,395	2,158,691	65,040	1,022,310	3,351,437	2.108	1.013	3.121
MA Total:	5,022,652	36	1,030	3,622,430	8,689,939	1,383,486	5,896,690	19,592,545	2.451	1.449	3.901

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.269	2.252	.
(14) Massachusetts Credibility:	0.650	1.000	.
(15) Countrywide Pure Premium:	2.366	1.432	3.798
(16) Countrywide Indicated Relativity:	2.416	2.524	.
(17) Countrywide Credibility:	0.180	0.000	.
(18) Countrywide Lost-Time Claims:	4114.0	.	.
(19) Pure Premium Underlying Present Rate:	1.834	1.321	3.156
(20) Relativity to Underlying Present Rate:	2.067	2.201	.
(21) Credibility to Underlying Relativity:	0.170	0.000	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	2.261	2.252	.
(24) Balanced Formula Relativity:	2.230	2.236	2.232

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Section IX - Classification Pricing
 Subsection G - Class Relativities
 7/1/2016

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
2835 BRUSH OR BROOM ASSEMBLY											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	15,683	0	1	0	588	0	847	1,435	0.037	0.054	0.091
2010	19,170	0	2	0	0	0	1,893	1,893	0.000	0.099	0.099
2011	16,315	0	1	0	0	0	352	352	0.000	0.022	0.022
2012	47,825	0	4	0	645	0	5,220	5,864	0.013	0.109	0.123
2013	51,653	0	4	0	22,188	0	36,299	58,486	0.430	0.703	1.132
MA Total:	150,646	0	12	0	23,420	0	44,611	68,031	0.155	0.296	0.452

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.144	0.460	.
(14) Massachusetts Credibility:	0.120	0.180	.
(15) Countrywide Pure Premium:	1.268	0.697	1.965
(16) Countrywide Indicated Relativity:	1.295	1.228	.
(17) Countrywide Credibility:	0.340	0.360	.
(18) Countrywide Lost-Time Claims:	78.000	.	.
(19) Pure Premium Underlying Present Rate:	0.843	0.560	1.403
(20) Relativity to Underlying Present Rate:	0.950	0.933	.
(21) Credibility to Underlying Relativity:	0.540	0.460	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.970	0.954	.
(24) Balanced Formula Relativity:	0.957	0.948	0.954

Class(es):		Effective: 7/1/2016							Manufacturing		
2836 BRUSH OR BROOM MFG NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	5,774	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	4,913	0	1	0	0	0	257	257	0.000	0.052	0.052
2011	4,826	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	5,100	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	5,613	0	3	0	69	0	1,333	1,403	0.012	0.238	0.250
MA Total:	26,226	0	4	0	69	0	1,590	1,660	0.003	0.061	0.063

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.002	0.094	.
(14) Massachusetts Credibility:	0.070	0.090	.
(15) Countrywide Pure Premium:	0.607	0.596	1.203
(16) Countrywide Indicated Relativity:	0.620	1.051	.
(17) Countrywide Credibility:	0.280	0.300	.
(18) Countrywide Lost-Time Claims:	48.000	.	.
(19) Pure Premium Underlying Present Rate:	1.203	0.665	1.868
(20) Relativity to Underlying Present Rate:	1.355	1.108	.
(21) Credibility to Underlying Relativity:	0.650	0.610	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.055	1.000	.
(24) Balanced Formula Relativity:	1.040	0.993	1.023

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 Subsection G - Class Relativities
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Calculation of Class Relativities

Class(es): 2841 WOODENWARE MFG NOC		Effective: 7/1/2016							Manufacturing		
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	25,299	0	6	0	551,585	0	24,846	576,430	21,803	0.982	22,785
2010	31,856	0	2	0	0	0	408	408	0.000	0.013	0.013
2011	45,160	0	5	0	13,681	0	8,995	22,676	0.303	0.199	0.502
2012	37,113	0	6	0	16,899	0	4,333	21,231	0.455	0.117	0.572
2013	44,738	0	12	0	32,028	0	51,610	83,638	0.716	1.154	1.869
MA Total:	184,165	0	31	0	614,193	0	90,191	704,383	3.335	0.490	3.825

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.087	0.761	.
(14) Massachusetts Credibility:	0.180	0.240	.
(15) Countrywide Pure Premium:	1.589	1.166	2.755
(16) Countrywide Indicated Relativity:	1.622	2.055	.
(17) Countrywide Credibility:	0.410	0.380	.
(18) Countrywide Lost-Time Claims:	181.00	.	.
(19) Pure Premium Underlying Present Rate:	1.893	0.936	2.829
(20) Relativity to Underlying Present Rate:	2.133	1.559	.
(21) Credibility to Underlying Relativity:	0.410	0.380	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	2.096	1.556	.
(24) Balanced Formula Relativity:	2.067	1.546	1.872

Class(es): 2883 FURNITURE MFG-WOOD-NOC		Effective: 7/1/2016							Manufacturing		
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	352,120	3	60	338,592	304,657	158,043	200,455	1,001,747	1,827	1.018	2,845
2010	390,632	3	75	201,325	210,819	192,429	165,448	770,020	1.055	0.916	1.971
2011	383,665	6	79	398,469	314,371	124,162	208,992	1,045,995	1.858	0.868	2,726
2012	437,606	5	82	327,313	516,054	88,325	323,171	1,254,863	1.927	0.940	2,868
2013	451,242	1	73	56,441	540,120	12,952	408,574	1,018,087	1.322	0.934	2,256
MA Total:	2,015,264	18	369	1,322,139	1,886,022	575,910	1,306,641	5,090,713	1.592	0.934	2,526

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.474	1.451	.
(14) Massachusetts Credibility:	0.410	0.610	.
(15) Countrywide Pure Premium:	1.697	0.986	2.683
(16) Countrywide Indicated Relativity:	1.733	1.738	.
(17) Countrywide Credibility:	0.300	0.200	.
(18) Countrywide Lost-Time Claims:	4306.0	.	.
(19) Pure Premium Underlying Present Rate:	1.471	0.934	2.405
(20) Relativity to Underlying Present Rate:	1.658	1.556	.
(21) Credibility to Underlying Relativity:	0.290	0.190	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.605	1.528	.
(24) Balanced Formula Relativity:	1.583	1.518	1.558

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Calculation of Class Relativities

Class(es): 2923 PIANO MFG		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	54.844	0	4	0	0	0	4.049	4.049	0.000	0.074	0.074
2010	54.755	0	5	0	4.457	0	19.829	24.286	0.081	0.362	0.444
2011	59.563	0	6	0	4.921	0	28.795	33.716	0.083	0.483	0.566
2012	50.048	0	2	0	0	0	2.240	2.240	0.000	0.045	0.045
2013	52.244	0	7	0	59.020	0	6.508	65.527	1.130	0.125	1.254
MA Total:	271.454	0	24	0	68.398	0	61.421	129.819	0.252	0.226	0.478

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.233	0.352	.
(14) Massachusetts Credibility:	0.140	0.210	.
(15) Countrywide Pure Premium:	0.917	0.589	1.506
(16) Countrywide Indicated Relativity:	0.936	1.039	.
(17) Countrywide Credibility:	0.390	0.400	.
(18) Countrywide Lost-Time Claims:	111.00	.	.
(19) Pure Premium Underlying Present Rate:	0.717	0.472	1.189
(20) Relativity to Underlying Present Rate:	0.808	0.787	.
(21) Credibility to Underlying Relativity:	0.470	0.390	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.777	0.796	.
(24) Balanced Formula Relativity:	0.767	0.791	0.776

Class(es): 2942 PENCIL, PENHOLDER OR CRAYON MFG		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	189.577	0	40	0	54.092	0	101.878	155.970	0.285	0.537	0.823
2010	162.113	0	23	0	134.712	0	173.501	308.213	0.831	1.070	1.901
2011	922.472	2	59	348.046	415.527	126.936	423.300	1,313.808	0.828	0.596	1.424
2012	857.108	3	31	730.879	515.487	340.063	228.566	1,814.995	1.454	0.663	2.118
2013	954.212	1	53	36.387	105.958	5.825	286.156	434.327	0.149	0.306	0.455
MA Total:	3,085.482	6	206	1,115.312	1,225.775	472.824	1,213.402	4,027.313	0.759	0.547	1.305

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.702	0.849	.
(14) Massachusetts Credibility:	0.380	0.640	.
(15) Countrywide Pure Premium:	1.010	0.659	1.669
(16) Countrywide Indicated Relativity:	1.031	1.161	.
(17) Countrywide Credibility:	0.310	0.180	.
(18) Countrywide Lost-Time Claims:	413.00	.	.
(19) Pure Premium Underlying Present Rate:	0.789	0.677	1.466
(20) Relativity to Underlying Present Rate:	0.889	1.128	.
(21) Credibility to Underlying Relativity:	0.310	0.180	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.862	0.955	.
(24) Balanced Formula Relativity:	0.850	0.949	0.887

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
3018 IRON OR STEEL: MFG: ROLLING MILL & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	103.340	0	13	0	717.769	0	111.479	829.248	6.946	1.079	8.024
2010	103.017	1	16	493.121	223.242	157.429	56.803	930.594	6.954	2.080	9.033
2011	98.762	1	5	434.288	26.960	164.912	9.555	635.715	4.670	1.767	6.437
2012	180.999	1	18	10.884	85.579	59.962	61.262	217.688	0.533	0.670	1.203
2013	206.122	0	19	0	123.622	0	106.665	230.287	0.600	0.517	1.117
MA Total:	692.241	3	71	938,293	1,177,172	382,302	345,766	2,843,533	3.056	1.052	4.108

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.829	1.634	.
(14) Massachusetts Credibility:	0.280	0.390	.
(15) Countrywide Pure Premium:	1.222	0.746	1.968
(16) Countrywide Indicated Relativity:	1.248	1.316	.
(17) Countrywide Credibility:	0.360	0.310	.
(18) Countrywide Lost-Time Claims:	414.00	.	.
(19) Pure Premium Underlying Present Rate:	1.593	0.898	2.491
(20) Relativity to Underlying Present Rate:	1.795	1.496	.
(21) Credibility to Underlying Relativity:	0.360	0.300	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.888	1.494	.
(24) Balanced Formula Relativity:	1.861	1.484	1.720

Class(es):		Effective: 7/1/2016							Manufacturing		
3022 PIPE OR TUBE MFG NOC & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	7.199	0	2	0	1.455	0	1.787	3.241	0.202	0.248	0.450
2010	6.533	0	4	0	10.238	0	8.544	18.782	1.567	1.308	2.875
2011	6.875	0	3	0	0	0	806	806	0.000	0.117	0.117
2012	5.700	0	1	0	0	0	818	818	0.000	0.143	0.143
2013	10.326	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	36.634	0	10	0	11,693	0	11,955	23,648	0.319	0.326	0.646

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.295	0.507	.
(14) Massachusetts Credibility:	0.080	0.130	.
(15) Countrywide Pure Premium:	2.163	1.037	3.200
(16) Countrywide Indicated Relativity:	2.209	1.828	.
(17) Countrywide Credibility:	0.460	0.440	.
(18) Countrywide Lost-Time Claims:	464.00	.	.
(19) Pure Premium Underlying Present Rate:	1.486	1.158	2.644
(20) Relativity to Underlying Present Rate:	1.674	1.930	.
(21) Credibility to Underlying Relativity:	0.460	0.430	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.810	1.700	.
(24) Balanced Formula Relativity:	1.785	1.688	1.749

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
3027 ROLLING MILL NOC & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	8,936	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	9,147	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	12,416	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	8,427	0	1	0	322,473	0	373,611	696,084	38,265	44,333	82,598
2013	7,348	0	1	0	12,931	0	5,119	18,050	1,760	0,697	2,456
MA Total:	46,275	0	2	0	335,404	0	378,730	714,133	7,248	8,184	15,432

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	6.710	12.714	.
(14) Massachusetts Credibility:	0.090	0.130	.
(15) Countrywide Pure Premium:	1.710	0.823	2.533
(16) Countrywide Indicated Relativity:	1.746	1.451	.
(17) Countrywide Credibility:	0.460	0.440	.
(18) Countrywide Lost-Time Claims:	390.00	.	.
(19) Pure Premium Underlying Present Rate:	1.344	0.841	2.185
(20) Relativity to Underlying Present Rate:	1.515	1.402	.
(21) Credibility to Underlying Relativity:	0.450	0.430	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	2.089	2.894	.
(24) Balanced Formula Relativity:	2.060	2.874	2.364

Class(es):		Effective: 7/1/2016							Manufacturing		
3028 PIPE OR TUBE MFG - IRON OR STEEL & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	60,630	0	16	0	0	0	13,672	13,672	0.000	0.225	0.225
2010	69,281	0	13	0	0	0	9,391	9,391	0.000	0.136	0.136
2011	73,718	0	20	0	110,599	0	71,348	181,947	1,500	0.968	2,468
2012	5,317	0	3	0	0	0	4,259	4,259	0.000	0.801	0.801
2013	4,653	0	9	0	48,409	0	28,664	77,074	10,403	6,160	16,563
MA Total:	213,600	0	61	0	159,009	0	127,335	286,343	0.744	0.596	1.341

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.689	0.926	.
(14) Massachusetts Credibility:	0.170	0.250	.
(15) Countrywide Pure Premium:	1.448	0.855	2.303
(16) Countrywide Indicated Relativity:	1.478	1.508	.
(17) Countrywide Credibility:	0.420	0.380	.
(18) Countrywide Lost-Time Claims:	866.00	.	.
(19) Pure Premium Underlying Present Rate:	1.410	0.940	2.350
(20) Relativity to Underlying Present Rate:	1.589	1.566	.
(21) Credibility to Underlying Relativity:	0.410	0.370	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.390	1.384	.
(24) Balanced Formula Relativity:	1.370	1.375	1.372

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Calculation of Class Relativities

Class(es): 3030 IRON OR STEEL: FABRICATION: IRON/STEEL WORK-SHOP-STRUCT & DR									Effective: 7/1/2016			Manufacturing		
Converted Unlimited Losses														
Amount														
		Claim Count		Indemnity		Medical				MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)			
2009	82,872	0	24	0	181,590	0	132,110	313,700	2,191	1,594	3,785			
2010	82,199	1	26	17,433	109,101	10,094	122,591	259,218	1,539	1,614	3,154			
2011	118,717	1	44	27,955	667,545	18,758	305,895	1,020,153	5,858	2,735	8,593			
2012	104,498	0	25	0	25,811	0	86,145	111,956	0,247	0,824	1,071			
2013	115,752	0	34	0	787,318	0	247,534	1,034,852	6,802	2,138	8,940			
MA Total:	504,038	2	153	45,387	1,771,366	28,852	894,274	2,739,879	3,604	1,831	5,436			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.337	2.845	.
(14) Massachusetts Credibility:	0.310	0.520	.
(15) Countrywide Pure Premium:	2.651	1.449	4.099
(16) Countrywide Indicated Relativity:	2.706	2.554	.
(17) Countrywide Credibility:	0.350	0.240	.
(18) Countrywide Lost-Time Claims:	2324.0	.	.
(19) Pure Premium Underlying Present Rate:	2.874	2.467	5.341
(20) Relativity to Underlying Present Rate:	3.239	4.110	.
(21) Credibility to Underlying Relativity:	0.340	0.240	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	3.083	3.079	.
(24) Balanced Formula Relativity:	3.040	3.058	3.047

Class(es): 3040 IRON OR STEEL: FABRICATION: IRON WORKS-SHOP-ORNAMENTAL & DR									Effective: 7/1/2016			Manufacturing		
Converted Unlimited Losses														
Amount														
		Claim Count		Indemnity		Medical				MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)			
2009	114,800	0	29	0	209,312	0	165,422	374,734	1,823	1,441	3,264			
2010	119,973	1	29	98,652	720,586	93,681	248,745	1,161,664	6,828	2,854	9,683			
2011	140,105	0	28	0	317,762	0	302,706	620,468	2,268	2,161	4,429			
2012	151,401	2	24	316,914	49,261	44,476	54,752	465,404	2,419	0,655	3,074			
2013	168,316	1	24	7,827	53,650	12,939	53,132	127,549	0,365	0,393	0,758			
MA Total:	694,596	4	134	423,394	1,350,571	151,096	824,758	2,749,819	2,554	1,405	3,959			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.364	2.183	.
(14) Massachusetts Credibility:	0.390	0.560	.
(15) Countrywide Pure Premium:	2.662	1.445	4.107
(16) Countrywide Indicated Relativity:	2.717	2.547	.
(17) Countrywide Credibility:	0.310	0.220	.
(18) Countrywide Lost-Time Claims:	1362.0	.	.
(19) Pure Premium Underlying Present Rate:	3.645	2.136	5.780
(20) Relativity to Underlying Present Rate:	4.108	3.558	.
(21) Credibility to Underlying Relativity:	0.300	0.220	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	2.997	2.565	.
(24) Balanced Formula Relativity:	2.955	2.548	2.803

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
3041 IRON OR STEEL: FABRICATION: IRON WORKS-SHP-DEC/ART &FNDRS,DR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	40,744	0	8	0	253	0	6,838	7,091	0.006	0.168	0.174
2010	42,538	1	16	432,247	21,466	143,522	58,834	656,069	10.666	4.757	15.423
2011	47,557	0	22	0	61,339	0	61,285	122,624	1.290	1.289	2.578
2012	34,678	0	9	0	18,032	0	139,788	157,820	0.520	4.031	4.551
2013	38,530	0	1	0	0	0	1,709	1,709	0.000	0.044	0.044
MA Total:	204,047	1	56	432,247	101,091	143,522	268,454	945,313	2.614	2.019	4.633

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.420	3.137	.
(14) Massachusetts Credibility:	0.190	0.290	.
(15) Countrywide Pure Premium:	2.244	1.305	3.549
(16) Countrywide Indicated Relativity:	2.291	2.301	.
(17) Countrywide Credibility:	0.410	0.360	.
(18) Countrywide Lost-Time Claims:	192.00	.	.
(19) Pure Premium Underlying Present Rate:	2.071	1.420	3.491
(20) Relativity to Underlying Present Rate:	2.334	2.365	.
(21) Credibility to Underlying Relativity:	0.400	0.350	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	2.333	2.566	.
(24) Balanced Formula Relativity:	2.300	2.548	2.393

Class(es):		Effective: 7/1/2016							Manufacturing		
3042 ELEVATOR OR ESCALATOR MFG											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	8,393	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	8,978	0	6	0	311	0	8,836	9,147	0.035	0.984	1.019
2011	7,230	0	1	0	0	0	819	819	0.000	0.113	0.113
2012	6,818	2	3	299,778	18,380	50,201	6,943	375,302	46.663	8.381	55.044
2013	7,294	0	2	0	3,322	0	45,940	49,262	0.455	6.298	6.754
MA Total:	38,713	2	12	299,778	22,013	50,201	62,538	434,531	8.312	2.912	11.224

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	7.695	4.524	.
(14) Massachusetts Credibility:	0.120	0.150	.
(15) Countrywide Pure Premium:	2.102	1.100	3.202
(16) Countrywide Indicated Relativity:	2.146	1.940	.
(17) Countrywide Credibility:	0.440	0.430	.
(18) Countrywide Lost-Time Claims:	149.00	.	.
(19) Pure Premium Underlying Present Rate:	3.328	1.349	4.678
(20) Relativity to Underlying Present Rate:	3.751	2.248	.
(21) Credibility to Underlying Relativity:	0.440	0.420	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	3.518	2.457	.
(24) Balanced Formula Relativity:	3.470	2.440	3.085

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Calculation of Class Relativities

Class(es): 3064 SIGN MFG-METAL		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	822,410	5	150	1,163,791	189,720	521,067	334,702	2,209,280	1,646	1,041	2,686
2010	924,707	2	199	183,306	356,055	500,306	473,983	1,513,651	0,583	1,054	1,637
2011	919,743	2	173	246,042	1,126,740	180,463	820,618	2,373,863	1,493	1,088	2,581
2012	899,054	3	150	103,457	565,581	77,934	420,448	1,167,421	0,744	0,554	1,298
2013	928,599	3	142	397,537	862,981	123,588	762,334	2,146,440	1,357	0,954	2,311
MA Total:	4,494,513	15	814	2,094,134	3,101,077	1,403,359	2,812,085	9,410,655	1,156	0,938	2,094

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.070	1.457	.
(14) Massachusetts Credibility:	0.530	0.800	.
(15) Countrywide Pure Premium:	2.061	1.367	3.428
(16) Countrywide Indicated Relativity:	2.104	2.409	.
(17) Countrywide Credibility:	0.240	0.100	.
(18) Countrywide Lost-Time Claims:	549.00	.	.
(19) Pure Premium Underlying Present Rate:	1.255	0.810	2.065
(20) Relativity to Underlying Present Rate:	1.414	1.350	.
(21) Credibility to Underlying Relativity:	0.230	0.100	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.397	1.542	.
(24) Balanced Formula Relativity:	1.378	1.531	1.435

Class(es): 3076 FIREPROOF EQUIPMENT MFG		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	310,519	5	92	406,736	40,906	215,898	97,066	760,606	1,442	1,008	2,449
2010	304,240	0	78	0	199,999	0	189,779	389,778	0,657	0,624	1,281
2011	278,490	0	41	0	74,397	0	129,333	203,730	0,267	0,464	0,732
2012	241,648	0	49	0	315,615	0	177,204	492,819	1,306	0,733	2,039
2013	304,646	0	33	0	217,683	0	170,865	388,548	0,715	0,561	1,275
MA Total:	1,439,542	5	293	406,736	848,601	215,898	764,246	2,235,482	0,872	0,681	1,553

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.807	1.058	.
(14) Massachusetts Credibility:	0.310	0.520	.
(15) Countrywide Pure Premium:	1.339	0.842	2.181
(16) Countrywide Indicated Relativity:	1.367	1.485	.
(17) Countrywide Credibility:	0.350	0.240	.
(18) Countrywide Lost-Time Claims:	6245.0	.	.
(19) Pure Premium Underlying Present Rate:	1.042	0.863	1.905
(20) Relativity to Underlying Present Rate:	1.174	1.437	.
(21) Credibility to Underlying Relativity:	0.340	0.240	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.128	1.251	.
(24) Balanced Formula Relativity:	1.112	1.243	1.161

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Calculation of Class Relativities

Class(es): 3081 FOUNDRY-FERROUS-NOC		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	86,720	2	20	148,375	33,469	9,241	45,518	236,603	2,097	0,631	2,728
2010	30,630	1	11	43	151,392	514	21,835	173,784	4,944	0,730	5,674
2011	76,997	2	21	36,327	114,873	6,750	155,397	313,347	1,964	2,106	4,070
2012	74,736	1	20	331,429	90,797	45,618	43,438	511,283	5,650	1,192	6,841
2013	16,664	0	4	0	18,765	0	167,930	186,696	1,126	10,077	11,203
MA Total:	285,747	6	76	516,175	409,296	62,122	434,119	1,421,712	3,239	1,737	4,975

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.998	2.698	.
(14) Massachusetts Credibility:	0.230	0.350	.
(15) Countrywide Pure Premium:	1.772	1.208	2.980
(16) Countrywide Indicated Relativity:	1.810	2.129	.
(17) Countrywide Credibility:	0.390	0.330	.
(18) Countrywide Lost-Time Claims:	1229.0	.	.
(19) Pure Premium Underlying Present Rate:	2.403	1.579	3.982
(20) Relativity to Underlying Present Rate:	2.708	2.631	.
(21) Credibility to Underlying Relativity:	0.380	0.320	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	2.425	2.489	.
(24) Balanced Formula Relativity:	2.391	2.472	2.421

Class(es): 3085 FOUNDRY-NON FERROUS		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	121,467	1	26	38,535	266,876	8,110	71,976	385,497	2,514	0,659	3,174
2010	145,748	0	38	0	207,896	0	156,791	364,687	1,426	1,076	2,502
2011	126,196	4	23	463,112	187,712	161,206	151,178	963,209	5,157	2,475	7,633
2012	109,479	0	28	0	151,445	0	86,642	238,087	1,383	0,791	2,175
2013	114,230	4	24	739,110	79,968	160,984	51,572	1,031,634	7,170	1,861	9,031
MA Total:	617,121	9	139	1,240,757	893,897	330,300	518,158	2,983,112	3,459	1,375	4,834

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.202	2.136	.
(14) Massachusetts Credibility:	0.280	0.410	.
(15) Countrywide Pure Premium:	1.992	1.183	3.175
(16) Countrywide Indicated Relativity:	2.034	2.086	.
(17) Countrywide Credibility:	0.360	0.300	.
(18) Countrywide Lost-Time Claims:	722.00	.	.
(19) Pure Premium Underlying Present Rate:	1.807	1.136	2.943
(20) Relativity to Underlying Present Rate:	2.036	1.893	.
(21) Credibility to Underlying Relativity:	0.360	0.290	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	2.362	2.050	.
(24) Balanced Formula Relativity:	2.329	2.036	2.220

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
3110 FORGING WORK - DROP OR MACHINE											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	11,848	0	12	0	51,390	0	49,167	100,557	4,338	4,150	8,488
2010	16,209	0	7	0	4,997	0	1,718	6,715	0,308	0,106	0,414
2011	16,409	0	14	0	416,678	0	151,508	568,186	25,393	9,233	34,626
2012	19,069	1	8	290,215	2,883	304,626	3,667	601,391	15,371	16,167	31,538
2013	14,727	0	11	0	81,167	0	44,582	125,749	5,511	3,027	8,539
MA Total:	78,262	1	52	290,215	557,115	304,626	250,642	1,402,598	10,827	7,095	17,922

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	10.023	11.022	.
(14) Massachusetts Credibility:	0.150	0.230	.
(15) Countrywide Pure Premium:	2.378	1.184	3.562
(16) Countrywide Indicated Relativity:	2.428	2.087	.
(17) Countrywide Credibility:	0.430	0.390	.
(18) Countrywide Lost-Time Claims:	383.00	.	.
(19) Pure Premium Underlying Present Rate:	2.885	2.063	4.948
(20) Relativity to Underlying Present Rate:	3.251	3.436	.
(21) Credibility to Underlying Relativity:	0.420	0.380	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	3.913	4.655	.
(24) Balanced Formula Relativity:	3.859	4.623	4.144

Class(es):		Effective: 7/1/2016							Manufacturing		
3111 BLACKSMITH											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	79,361	3	15	246,321	1,333	81,576	84,755	413,987	3,121	2,096	5,217
2010	80,394	1	11	14,270	12,940	12,959	15,902	56,071	0,338	0,359	0,697
2011	95,744	1	14	41,409	568	17,545	12,028	71,550	0,438	0,309	0,747
2012	55,644	0	13	0	1,819	0	10,764	12,582	0,033	0,193	0,226
2013	60,464	0	10	0	1,106	0	6,539	7,645	0,018	0,108	0,126
MA Total:	371,608	5	63	302,000	17,766	112,080	129,988	561,834	0,860	0,651	1,512

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.797	1.012	.
(14) Massachusetts Credibility:	0.180	0.290	.
(15) Countrywide Pure Premium:	0.991	0.667	1.658
(16) Countrywide Indicated Relativity:	1.012	1.176	.
(17) Countrywide Credibility:	0.410	0.360	.
(18) Countrywide Lost-Time Claims:	196.00	.	.
(19) Pure Premium Underlying Present Rate:	1.037	0.799	1.836
(20) Relativity to Underlying Present Rate:	1.169	1.331	.
(21) Credibility to Underlying Relativity:	0.410	0.350	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.037	1.183	.
(24) Balanced Formula Relativity:	1.023	1.175	1.080

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing			
3113 TOOL MFG-NOT DROP OR MACHINE FORGED-NOC												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical					MA Indicated Pure Premiums	
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	791,834	2	118	228,559	248,877	23,556	338,126	839,118	0.603	0.457	1.060	
2010	864,457	2	125	21,771	512,240	41,448	470,046	1,045,504	0.618	0.592	1.209	
2011	729,266	0	104	0	351,854	0	239,246	591,100	0.482	0.328	0.811	
2012	838,089	0	115	0	230,860	0	261,148	492,008	0.275	0.312	0.587	
2013	794,761	0	82	0	263,211	0	275,002	538,214	0.331	0.346	0.677	
MA Total:	4,018,407	4	544	250,329	1,607,043	65,004	1,583,567	3,505,944	0.462	0.410	0.872	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.428	0.637	.
(14) Massachusetts Credibility:	0.430	0.610	.
(15) Countrywide Pure Premium:	0.736	0.453	1.189
(16) Countrywide Indicated Relativity:	0.751	0.799	.
(17) Countrywide Credibility:	0.290	0.200	.
(18) Countrywide Lost-Time Claims:	1541.0	.	.
(19) Pure Premium Underlying Present Rate:	0.840	0.472	1.311
(20) Relativity to Underlying Present Rate:	0.946	0.786	.
(21) Credibility to Underlying Relativity:	0.280	0.190	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.667	0.698	.
(24) Balanced Formula Relativity:	0.658	0.693	0.671

Class(es):		Effective: 7/1/2016							Manufacturing			
3114 TOOL MFG-DROP OR MACHINE FORGED-NOC: MACHINING OR FINISHING												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical					MA Indicated Pure Premiums	
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	41,570	0	0	0	0	0	0	0	0.000	0.000	0.000	
2010	17,274	0	4	0	1,754	0	29,931	31,685	0.102	1.733	1.834	
2011	17,254	0	1	0	0	0	323	323	0.000	0.019	0.019	
2012	36,462	0	17	0	16,403	0	19,172	35,575	0.450	0.526	0.976	
2013	34,544	1	9	6,378	71,520	3,414	68,165	149,476	2.255	2.072	4.327	
MA Total:	147,102	1	31	6,378	89,677	3,414	117,591	217,059	0.653	0.823	1.476	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.604	1.278	.
(14) Massachusetts Credibility:	0.130	0.200	.
(15) Countrywide Pure Premium:	1.116	0.779	1.895
(16) Countrywide Indicated Relativity:	1.139	1.373	.
(17) Countrywide Credibility:	0.440	0.400	.
(18) Countrywide Lost-Time Claims:	246.00	.	.
(19) Pure Premium Underlying Present Rate:	1.176	0.745	1.921
(20) Relativity to Underlying Present Rate:	1.325	1.241	.
(21) Credibility to Underlying Relativity:	0.430	0.400	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.150	1.301	.
(24) Balanced Formula Relativity:	1.134	1.292	1.193

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Calculation of Class Relativities

Class(es): 3118 SAW MFG		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	226.831	2	23	98.517	92.576	6.624	34.275	231.993	0.842	0.180	1.023
2010	263.639	1	44	9.782	246.445	411	85.716	342.353	0.972	0.327	1.299
2011	319.351	3	32	323.698	310.805	31.149	129.358	795.010	1.987	0.503	2.489
2012	319.398	0	28	0	314.566	0	98.529	413.095	0.985	0.308	1.293
2013	326.043	0	21	0	153.791	0	42.027	195.818	0.472	0.129	0.601
MA Total:	1,455,262	6	148	431,996	1,118,183	38,184	389,905	1,978,268	1.065	0.294	1.359

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.986	0.457	.
(14) Massachusetts Credibility:	0.290	0.410	.
(15) Countrywide Pure Premium:	0.809	0.483	1.292
(16) Countrywide Indicated Relativity:	0.826	0.851	.
(17) Countrywide Credibility:	0.360	0.300	.
(18) Countrywide Lost-Time Claims:	128.00	.	.
(19) Pure Premium Underlying Present Rate:	0.840	0.472	1.311
(20) Relativity to Underlying Present Rate:	0.946	0.786	.
(21) Credibility to Underlying Relativity:	0.350	0.290	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.915	0.671	.
(24) Balanced Formula Relativity:	0.902	0.666	0.814

Class(es): 3119 NEEDLE MFG		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	73.155	0	7	0	6.873	0	24.493	31.366	0.094	0.335	0.429
2010	69.196	0	8	0	6.603	0	7.991	14.594	0.095	0.115	0.211
2011	59.995	0	7	0	5.321	0	43.591	48.911	0.089	0.727	0.815
2012	69.362	0	5	0	0	0	2.389	2.389	0.000	0.034	0.034
2013	77.087	0	3	0	0	0	4.335	4.335	0.000	0.056	0.056
MA Total:	348,796	0	30	0	18,796	0	82,799	101,595	0.054	0.237	0.291

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.050	0.369	.
(14) Massachusetts Credibility:	0.120	0.190	.
(15) Countrywide Pure Premium:	0.495	0.285	0.780
(16) Countrywide Indicated Relativity:	0.506	0.502	.
(17) Countrywide Credibility:	0.200	0.210	.
(18) Countrywide Lost-Time Claims:	20.000	.	.
(19) Pure Premium Underlying Present Rate:	0.359	0.297	0.656
(20) Relativity to Underlying Present Rate:	0.404	0.495	.
(21) Credibility to Underlying Relativity:	0.680	0.600	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.382	0.473	.
(24) Balanced Formula Relativity:	0.377	0.469	0.411

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Calculation of Class Relativities

Class(es): 3120 RAZOR MFG-SAFETY		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	9.536	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	29.223	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	10.289	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	1.689	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	7.679	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	58.417	0	0	0	0	0	0	0	0.000	0.000	0.000

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.080	0.100	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	0.938	0.594	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	0.845	0.362	1.207
(20) Relativity to Underlying Present Rate:	0.952	0.604	.
(21) Credibility to Underlying Relativity:	0.920	0.900	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.876	0.543	.
(24) Balanced Formula Relativity:	0.864	0.540	0.743

Class(es): 3122 CUTLERY MFG-NOC		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	62.904	0	3	0	141	0	1,940	2,081	0.002	0.031	0.033
2010	69.036	1	15	8,894	16,359	5,845	35,546	66,644	0.366	0.600	0.965
2011	104.035	0	31	0	79,885	0	34,092	113,977	0.768	0.328	1.096
2012	101.101	0	34	0	128,093	0	172,940	301,032	1.267	1.711	2.978
2013	108.468	3	41	308,120	52,067	47,747	126,339	534,272	3.321	1.605	4.926
MA Total:	445.544	4	124	317,013	276,544	53,592	370,856	1,018,006	1.332	0.953	2.285

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.233	1.480	.
(14) Massachusetts Credibility:	0.170	0.260	.
(15) Countrywide Pure Premium:	0.561	0.449	1.011
(16) Countrywide Indicated Relativity:	0.573	0.792	.
(17) Countrywide Credibility:	0.300	0.320	.
(18) Countrywide Lost-Time Claims:	59.000	.	.
(19) Pure Premium Underlying Present Rate:	0.711	0.479	1.190
(20) Relativity to Underlying Present Rate:	0.801	0.798	.
(21) Credibility to Underlying Relativity:	0.530	0.420	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.806	0.974	.
(24) Balanced Formula Relativity:	0.795	0.967	0.859

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
3127 PRECISION MEASURING TOOL MFG-NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	131.302	0	12	0	2,350	0	11,302	13,652	0.018	0.086	0.104
2010	169.490	0	38	0	94,274	0	138,281	232,555	0.556	0.816	1.372
2011	182.630	0	34	0	53,373	0	92,744	146,117	0.292	0.508	0.800
2012	163.401	0	26	0	634,399	0	216,728	851,127	3.882	1.326	5.209
2013	2.144	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	648,968	0	110	0	784,396	0	459,056	1,243,452	1.209	0.707	1.916

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.119	1.099	.
(14) Massachusetts Credibility:	0.140	0.250	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	0.372	0.485	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	0.335	0.296	0.631
(20) Relativity to Underlying Present Rate:	0.378	0.493	.
(21) Credibility to Underlying Relativity:	0.860	0.750	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.481	0.644	.
(24) Balanced Formula Relativity:	0.475	0.640	0.537

Class(es):		Effective: 7/1/2016							Manufacturing		
3131 BUTTON OR FASTENER MFG-METAL											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	7.341	0	1	0	614	0	3,670	4,283	0.084	0.500	0.584
2010	8.374	0	2	0	213	0	4,617	4,829	0.025	0.551	0.577
2011	8.386	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	7.417	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	6.832	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	38,349	0	3	0	826	0	8,286	9,113	0.022	0.216	0.238

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.020	0.336	.
(14) Massachusetts Credibility:	0.060	0.100	.
(15) Countrywide Pure Premium:	0.698	0.518	1.216
(16) Countrywide Indicated Relativity:	0.712	0.914	.
(17) Countrywide Credibility:	0.410	0.430	.
(18) Countrywide Lost-Time Claims:	122.00	.	.
(19) Pure Premium Underlying Present Rate:	0.712	0.490	1.202
(20) Relativity to Underlying Present Rate:	0.802	0.816	.
(21) Credibility to Underlying Relativity:	0.530	0.470	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.718	0.810	.
(24) Balanced Formula Relativity:	0.709	0.805	0.744

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Calculation of Class Relativities

Class(es): 3132 NUT OR BOLT MFG		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	2,397	1	1	60,705	0	16,679	452	77,836	25,327	7,148	32,475
2010	4,127	0	1	0	8,751	0	12,393	21,144	2,120	3,003	5,123
2011	4,597	0	4	0	46,439	0	12,740	59,179	10,101	2,771	12,872
2012	6,680	1	2	862	0	1,455	3,848	6,164	0,129	0,794	0,923
2013	7,470	0	1	0	14,639	0	5,881	20,521	1,960	0,787	2,747
MA Total:	25,272	2	9	61,566	69,830	18,134	35,314	184,844	5,199	2,115	7,314

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	4.813	3.286	.
(14) Massachusetts Credibility:	0.070	0.120	.
(15) Countrywide Pure Premium:	1.028	0.805	1.833
(16) Countrywide Indicated Relativity:	1.049	1.419	.
(17) Countrywide Credibility:	0.470	0.440	.
(18) Countrywide Lost-Time Claims:	210.00	.	.
(19) Pure Premium Underlying Present Rate:	1.544	1.162	2.707
(20) Relativity to Underlying Present Rate:	1.740	1.937	.
(21) Credibility to Underlying Relativity:	0.460	0.440	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.631	1.871	.
(24) Balanced Formula Relativity:	1.608	1.858	1.701

Class(es): 3145 SCREW MFG		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	172,494	1	26	100,849	31,675	21,646	70,990	225,161	0,768	0,537	1,305
2010	178,117	0	30	0	34,262	0	84,734	118,995	0,192	0,476	0,668
2011	217,920	0	21	0	22,697	0	35,681	58,377	0,104	0,164	0,268
2012	207,820	1	21	231	31,703	14,587	30,836	77,356	0,154	0,219	0,372
2013	191,017	0	32	0	246,502	0	64,052	310,553	1,290	0,335	1,626
MA Total:	967,369	2	130	101,080	366,838	36,233	286,292	790,443	0,484	0,333	0,817

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.448	0.518	.
(14) Massachusetts Credibility:	0.240	0.370	.
(15) Countrywide Pure Premium:	0.887	0.593	1.480
(16) Countrywide Indicated Relativity:	0.905	1.046	.
(17) Countrywide Credibility:	0.380	0.320	.
(18) Countrywide Lost-Time Claims:	500.00	.	.
(19) Pure Premium Underlying Present Rate:	0.781	0.568	1.349
(20) Relativity to Underlying Present Rate:	0.880	0.947	.
(21) Credibility to Underlying Relativity:	0.380	0.310	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.786	0.820	.
(24) Balanced Formula Relativity:	0.775	0.814	0.790

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Calculation of Class Relativities

Class(es): 3146 HARDWARE MFG-NOC		Effective: 7/1/2016							Manufacturing		
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	84,127	0	13	0	369	0	18,748	19,117	0.004	0.223	0.227
2010	78,998	0	17	0	13,780	0	34,157	47,937	0.174	0.432	0.607
2011	77,881	0	8	0	48	0	7,545	7,594	0.001	0.097	0.098
2012	75,843	0	11	0	232,481	0	82,180	314,661	3.065	1.084	4.149
2013	79,044	1	7	61,968	9,732	23,852	11,433	106,984	0.907	0.446	1.353
MA Total:	395,893	1	56	61,968	256,410	23,852	154,063	496,293	0.804	0.449	1.254

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.744	0.698	.
(14) Massachusetts Credibility:	0.170	0.250	.
(15) Countrywide Pure Premium:	0.910	0.596	1.506
(16) Countrywide Indicated Relativity:	0.929	1.050	.
(17) Countrywide Credibility:	0.420	0.380	.
(18) Countrywide Lost-Time Claims:	1016.0	.	.
(19) Pure Premium Underlying Present Rate:	0.827	0.530	1.356
(20) Relativity to Underlying Present Rate:	0.931	0.882	.
(21) Credibility to Underlying Relativity:	0.410	0.370	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.899	0.900	.
(24) Balanced Formula Relativity:	0.886	0.894	0.889

Class(es): 3169 STOVE MFG		Effective: 7/1/2016							Manufacturing		
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	359,446	1	81	117,214	284,565	16,489	248,337	666,604	1.118	0.737	1.855
2010	389,987	2	79	311,750	407,660	170,363	231,138	1,120,911	1.845	1.030	2.874
2011	378,917	2	84	96,387	113,396	34,152	189,946	433,881	0.554	0.591	1.145
2012	381,248	3	66	37,800	489,648	85,353	379,395	992,195	1.383	1.219	2.602
2013	374,708	2	63	210,690	528,217	84,545	412,643	1,236,095	1.972	1.327	3.299
MA Total:	1,884,306	10	373	773,840	1,823,485	390,902	1,461,459	4,449,686	1.378	0.983	2.361

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.276	1.527	.
(14) Massachusetts Credibility:	0.390	0.590	.
(15) Countrywide Pure Premium:	1.405	0.883	2.288
(16) Countrywide Indicated Relativity:	1.435	1.556	.
(17) Countrywide Credibility:	0.310	0.210	.
(18) Countrywide Lost-Time Claims:	5127.0	.	.
(19) Pure Premium Underlying Present Rate:	1.328	0.889	2.217
(20) Relativity to Underlying Present Rate:	1.497	1.481	.
(21) Credibility to Underlying Relativity:	0.300	0.200	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.391	1.524	.
(24) Balanced Formula Relativity:	1.372	1.514	1.425

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
3179 ELECTRICAL APPARATUS MFG-NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	1,287,554	3	81	71,278	468,248	27,150	316,328	883,004	0.419	0.267	0.686
2010	1,754,055	2	108	34,490	771,881	13,464	393,932	1,213,767	0.460	0.232	0.692
2011	1,480,717	0	105	0	587,004	0	382,703	969,708	0.396	0.258	0.655
2012	1,468,313	4	79	591,941	169,967	90,963	363,742	1,216,614	0.519	0.310	0.829
2013	1,510,562	5	110	398,830	187,076	96,910	219,012	901,827	0.388	0.209	0.597
MA Total:	7,501,201	14	483	1,096,539	2,184,177	228,486	1,675,718	5,184,919	0.437	0.254	0.691

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.405	0.394	.
(14) Massachusetts Credibility:	0.480	0.660	.
(15) Countrywide Pure Premium:	0.979	0.552	1.531
(16) Countrywide Indicated Relativity:	0.999	0.973	.
(17) Countrywide Credibility:	0.260	0.170	.
(18) Countrywide Lost-Time Claims:	4006.0	.	.
(19) Pure Premium Underlying Present Rate:	0.569	0.298	0.867
(20) Relativity to Underlying Present Rate:	0.641	0.496	.
(21) Credibility to Underlying Relativity:	0.260	0.170	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.621	0.510	.
(24) Balanced Formula Relativity:	0.612	0.507	0.573

Class(es):		Effective: 7/1/2016							Manufacturing		
3180 ELECTRIC OR GAS LIGHTING FIXTURES MFG											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	128,202	0	27	0	40,403	0	37,844	78,247	0.315	0.295	0.610
2010	297,505	1	45	412	598,814	13,644	305,509	918,380	2.014	1.073	3.087
2011	308,467	2	52	148,861	699,874	34,192	333,644	1,216,571	2.751	1.192	3.944
2012	156,480	2	48	169,121	188,190	123,323	94,839	575,474	2.283	1.394	3.678
2013	154,440	0	33	0	33,757	0	44,598	78,354	0.219	0.289	0.507
MA Total:	1,045,094	5	205	318,394	1,561,038	171,160	816,434	2,867,026	1.798	0.945	2.743

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.665	1.468	.
(14) Massachusetts Credibility:	0.290	0.450	.
(15) Countrywide Pure Premium:	1.101	0.681	1.782
(16) Countrywide Indicated Relativity:	1.124	1.200	.
(17) Countrywide Credibility:	0.360	0.280	.
(18) Countrywide Lost-Time Claims:	352.00	.	.
(19) Pure Premium Underlying Present Rate:	1.142	0.829	1.971
(20) Relativity to Underlying Present Rate:	1.286	1.381	.
(21) Credibility to Underlying Relativity:	0.350	0.270	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.338	1.370	.
(24) Balanced Formula Relativity:	1.319	1.360	1.335

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Calculation of Class Relativities

Class(es): 3188 PLUMBERS SUPPLIES MFG-NOC		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	18,914	0	5	0	10,108	0	12,963	23,070	0.534	0.685	1.220
2010	32,255	0	3	0	0	0	5,160	5,160	0.000	0.160	0.160
2011	29,712	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	23,754	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	18,059	0	3	0	1,322	0	973	2,295	0.073	0.054	0.127
MA Total:	122,693	0	11	0	11,430	0	19,096	30,525	0.093	0.156	0.249

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.086	0.242	.
(14) Massachusetts Credibility:	0.120	0.170	.
(15) Countrywide Pure Premium:	0.662	0.430	1.092
(16) Countrywide Indicated Relativity:	0.676	0.758	.
(17) Countrywide Credibility:	0.440	0.420	.
(18) Countrywide Lost-Time Claims:	294.00	.	.
(19) Pure Premium Underlying Present Rate:	1.050	0.625	1.674
(20) Relativity to Underlying Present Rate:	1.183	1.041	.
(21) Credibility to Underlying Relativity:	0.440	0.410	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.829	0.786	.
(24) Balanced Formula Relativity:	0.817	0.781	0.804

Class(es): 3200 ARMS MFG-SMALL		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	92,817	2	24	160,533	19,052	51,809	38,578	269,973	1.935	0.974	2.909
2010	118,221	0	21	0	287,618	0	81,876	369,495	2.433	0.693	3.125
2011	174,009	0	39	0	94,648	0	102,033	196,680	0.544	0.586	1.130
2012	221,072	1	64	39,378	172,395	15,301	106,569	333,643	0.958	0.551	1.509
2013	78,866	0	14	0	7,638	0	19,894	27,532	0.097	0.252	0.349
MA Total:	684,985	3	162	199,911	581,351	67,110	348,951	1,197,323	1.141	0.607	1.748

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.056	0.944	.
(14) Massachusetts Credibility:	0.230	0.380	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	1.178	1.323	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	1.061	0.807	1.868
(20) Relativity to Underlying Present Rate:	1.196	1.344	.
(21) Credibility to Underlying Relativity:	0.770	0.620	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.164	1.192	.
(24) Balanced Formula Relativity:	1.147	1.184	1.161

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Calculation of Class Relativities

Class(es): 3220 CAN MFG		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	80	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	63,105	4	9	1,101,880	35,770	239,557	18,937	1,396,145	18,028	4,096	22,124
2012	103,474	0	13	0	252,835	0	77,257	330,092	2,443	0,747	3,190
2013	97,625	1	10	123,696	14,987	8,438	19,396	166,517	1,421	0,285	1,706
MA Total:	264,284	5	32	1,225,576	303,592	247,996	115,590	1,892,754	5,786	1,376	7,162

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	5.356	2.137	.
(14) Massachusetts Credibility:	0.180	0.260	.
(15) Countrywide Pure Premium:	0.858	0.385	1.243
(16) Countrywide Indicated Relativity:	0.876	0.679	.
(17) Countrywide Credibility:	0.410	0.370	.
(18) Countrywide Lost-Time Claims:	270.00	.	.
(19) Pure Premium Underlying Present Rate:	1.407	0.855	2.262
(20) Relativity to Underlying Present Rate:	1.586	1.424	.
(21) Credibility to Underlying Relativity:	0.410	0.370	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.973	1.334	.
(24) Balanced Formula Relativity:	1.946	1.325	1.714

Class(es): 3255 WIRE CLOTH MFG		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	2,614	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	1,812	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	1,158	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	1,634	0	1	0	0	0	906	906	0.000	0,554	0,554
2013	1,948	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	9,166	0	1	0	0	0	906	906	0.000	0,099	0,099

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.154	.
(14) Massachusetts Credibility:	0.050	0.070	.
(15) Countrywide Pure Premium:	1.159	0.564	1.722
(16) Countrywide Indicated Relativity:	1.183	0.994	.
(17) Countrywide Credibility:	0.210	0.220	.
(18) Countrywide Lost-Time Claims:	23.000	.	.
(19) Pure Premium Underlying Present Rate:	1.295	0.822	2.117
(20) Relativity to Underlying Present Rate:	1.460	1.369	.
(21) Credibility to Underlying Relativity:	0.740	0.710	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.329	1.202	.
(24) Balanced Formula Relativity:	1.310	1.193	1.267

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Calculation of Class Relativities

Class(es): 3257 WIRE GOODS MFG - NOC		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	178.347	1	24	7.049	522.123	3.960	97.831	630.964	2.967	0.571	3.538
2010	193.311	1	32	94.726	388.939	13.247	156.818	653.731	2.502	0.880	3.382
2011	163.233	2	25	185.042	107.460	65.781	55.319	413.603	1.792	0.742	2.534
2012	183.881	1	42	121.599	150.779	42.827	122.896	438.101	1.481	0.901	2.383
2013	205.653	1	27	12.567	37.217	31.645	30.656	112.084	0.242	0.303	0.545
MA Total:	924.424	6	150	420.984	1,206.519	157.460	463.520	2,248.483	1.761	0.672	2.432

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.630	1.044	.
(14) Massachusetts Credibility:	0.280	0.410	.
(15) Countrywide Pure Premium:	1.172	0.758	1.930
(16) Countrywide Indicated Relativity:	1.196	1.337	.
(17) Countrywide Credibility:	0.360	0.300	.
(18) Countrywide Lost-Time Claims:	906.00	.	.
(19) Pure Premium Underlying Present Rate:	1.269	0.727	1.996
(20) Relativity to Underlying Present Rate:	1.430	1.211	.
(21) Credibility to Underlying Relativity:	0.360	0.290	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.402	1.180	.
(24) Balanced Formula Relativity:	1.382	1.172	1.304

Class(es): 3270 EYELET MFG		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	10.527	0	2	0	0	0	222	222	0.000	0.021	0.021
2010	11.165	0	2	0	0	0	841	841	0.000	0.075	0.075
2011	11.923	0	1	0	0	0	567	567	0.000	0.048	0.048
2012	8.897	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	5.234	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	47.746	0	5	0	0	0	1,629	1,629	0.000	0.034	0.034

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.053	.
(14) Massachusetts Credibility:	0.080	0.130	.
(15) Countrywide Pure Premium:	0.948	0.667	1.615
(16) Countrywide Indicated Relativity:	0.968	1.176	.
(17) Countrywide Credibility:	0.420	0.440	.
(18) Countrywide Lost-Time Claims:	134.00	.	.
(19) Pure Premium Underlying Present Rate:	1.088	0.780	1.868
(20) Relativity to Underlying Present Rate:	1.227	1.299	.
(21) Credibility to Underlying Relativity:	0.500	0.430	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.020	1.083	.
(24) Balanced Formula Relativity:	1.006	1.075	1.032

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Section IX - Classification Pricing
 Subsection G - Class Relativities
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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
3300 BED SPRING OR WIRE MATTRESS MFG											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	6,792	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	5,957	0	1	0	0	0	140	140	0.000	0.024	0.024
2013	0	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	12,749	0	1	0	0	0	140	140	0.000	0.011	0.011

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.017	.
(14) Massachusetts Credibility:	0.060	0.090	.
(15) Countrywide Pure Premium:	1.569	1.332	2.902
(16) Countrywide Indicated Relativity:	1.602	2.349	.
(17) Countrywide Credibility:	0.470	0.460	.
(18) Countrywide Lost-Time Claims:	244.00	.	.
(19) Pure Premium Underlying Present Rate:	2.212	1.384	3.596
(20) Relativity to Underlying Present Rate:	2.493	2.306	.
(21) Credibility to Underlying Relativity:	0.470	0.450	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.925	2.120	.
(24) Balanced Formula Relativity:	1.898	2.105	1.975

Class(es):		Effective: 7/1/2016							Manufacturing		
3315 BRASS OR COPPER GOODS MFG											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	181,246	0	41	0	87,813	0	108,404	196,217	0.484	0.598	1.083
2010	193,357	0	39	0	358,749	0	519,561	878,311	1.855	2.687	4.542
2011	210,916	0	44	0	364,289	0	174,002	538,291	1.727	0.825	2.552
2012	196,336	1	53	111,400	83,648	4,161	118,075	317,283	0.993	0.623	1.616
2013	196,174	1	31	261,350	54,855	28,811	102,073	447,089	1.612	0.667	2.279
MA Total:	978,030	2	208	372,750	949,354	32,972	1,022,115	2,377,190	1.352	1.079	2.431

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.251	1.676	.
(14) Massachusetts Credibility:	0.310	0.460	.
(15) Countrywide Pure Premium:	2.548	1.280	3.828
(16) Countrywide Indicated Relativity:	2.601	2.257	.
(17) Countrywide Credibility:	0.350	0.270	.
(18) Countrywide Lost-Time Claims:	217.00	.	.
(19) Pure Premium Underlying Present Rate:	1.450	0.933	2.383
(20) Relativity to Underlying Present Rate:	1.634	1.554	.
(21) Credibility to Underlying Relativity:	0.340	0.270	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.854	1.800	.
(24) Balanced Formula Relativity:	1.828	1.788	1.813

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Calculation of Class Relativities

Class(es): 3336 TYPE FOUNDRY		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	5.555	0	1	0	171,806	0	22,618	194,424	30,930	4,072	35,002
2010	5.350	0	2	0	3,885	0	6,506	10,391	0,726	1,216	1,942
2011	5.154	0	3	0	58,204	0	18,422	76,626	11,292	3,574	14,866
2012	6.167	0	3	0	17,392	0	7,739	25,131	2,820	1,255	4,075
2013	7.023	0	2	0	5,295	0	2,215	7,510	0,754	0,315	1,069
MA Total:	29,249	0	11	0	256,582	0	57,501	314,083	8,772	1,966	10,738

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	8.121	3.054	.
(14) Massachusetts Credibility:	0.080	0.110	.
(15) Countrywide Pure Premium:	1.787	0.756	2,542
(16) Countrywide Indicated Relativity:	1.824	1.332	.
(17) Countrywide Credibility:	0.460	0.450	.
(18) Countrywide Lost-Time Claims:	237.00	.	.
(19) Pure Premium Underlying Present Rate:	1.649	0.941	2,590
(20) Relativity to Underlying Present Rate:	1.859	1.568	.
(21) Credibility to Underlying Relativity:	0.460	0.440	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1,724
(23) Formula Relativity:	2.344	1.625	.
(24) Balanced Formula Relativity:	2.311	1.614	2,051

Class(es): 3365 WELDING OR CUTTING - NOC & DRIVERS		Effective: 7/1/2016							Construction		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	89.068	2	31	234,773	236,892	53,912	108,389	633,966	5,296	1,822	7,118
2010	96.034	1	27	24,481	32,908	3,064	45,148	105,602	0,598	0,502	1,100
2011	107.897	1	26	265,743	100,607	73,495	90,173	530,019	3,395	1,517	4,912
2012	121.714	1	17	317,376	387,567	55,978	285,393	1,046,315	5,792	2,805	8,597
2013	122.859	1	31	101,588	803,022	22,979	321,150	1,248,738	7,363	2,801	10,164
MA Total:	537,573	6	132	943,962	1,560,996	209,429	850,253	3,564,640	4,660	1,971	6,631

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.506	1.268	.
(14) Massachusetts Credibility:	0.340	0.460	.
(15) Countrywide Pure Premium:	3.296	1.620	4,916
(16) Countrywide Indicated Relativity:	1.062	1.041	.
(17) Countrywide Credibility:	0.330	0.270	.
(18) Countrywide Lost-Time Claims:	1015.0	.	.
(19) Pure Premium Underlying Present Rate:	3.464	1.693	5,157
(20) Relativity to Underlying Present Rate:	1.333	1.221	.
(21) Credibility to Underlying Relativity:	0.330	0.270	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4,649
(23) Formula Relativity:	1.303	1.194	.
(24) Balanced Formula Relativity:	1.323	1.198	1,281

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Calculation of Class Relativities

Class(es): 3372 ELECTROPLATING		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	483,202	2	71	96,590	148,898	27,453	204,213	477,154	0.508	0.479	0.987
2010	504,786	1	77	94,276	309,448	29,141	317,014	749,880	0.800	0.686	1.486
2011	524,523	1	71	121,706	730,668	21,905	873,312	1,747,590	1.625	1.707	3.332
2012	537,618	2	65	211,496	61,640	49,961	136,632	459,729	0.508	0.347	0.855
2013	546,683	0	77	0	378,706	0	518,917	897,623	0.693	0.949	1.642
MA Total:	2,596,812	6	361	524,069	1,629,358	128,461	2,050,088	4,331,975	0.829	0.839	1.668

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.768	1.303	.
(14) Massachusetts Credibility:	0.400	0.630	.
(15) Countrywide Pure Premium:	1.504	0.999	2.502
(16) Countrywide Indicated Relativity:	1.535	1.761	.
(17) Countrywide Credibility:	0.300	0.190	.
(18) Countrywide Lost-Time Claims:	889.00	.	.
(19) Pure Premium Underlying Present Rate:	1.034	0.763	1.797
(20) Relativity to Underlying Present Rate:	1.165	1.271	.
(21) Credibility to Underlying Relativity:	0.300	0.180	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.117	1.384	.
(24) Balanced Formula Relativity:	1.102	1.375	1.204

Class(es): 3373 GALVANIZING OR TINNING - NOT ELECTROLYTIC		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	12,775	0	1	0	57,130	0	4,261	61,391	4.472	0.334	4.805
2010	11,200	0	1	0	0	0	767	767	0.000	0.068	0.068
2011	12,269	0	2	0	3,512	0	4,214	7,726	0.286	0.343	0.630
2012	17,048	0	2	0	1,339	0	2,483	3,822	0.079	0.146	0.224
2013	9,306	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	62,599	0	6	0	61,981	0	11,725	73,706	0.990	0.187	1.177

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.917	0.291	.
(14) Massachusetts Credibility:	0.120	0.170	.
(15) Countrywide Pure Premium:	1.826	1.037	2.863
(16) Countrywide Indicated Relativity:	1.864	1.828	.
(17) Countrywide Credibility:	0.440	0.420	.
(18) Countrywide Lost-Time Claims:	154.00	.	.
(19) Pure Premium Underlying Present Rate:	1.962	1.221	3.182
(20) Relativity to Underlying Present Rate:	2.211	2.034	.
(21) Credibility to Underlying Relativity:	0.440	0.410	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.903	1.651	.
(24) Balanced Formula Relativity:	1.877	1.640	1.788

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Calculation of Class Relativities

Class(es): 3381 SILVERWARE MFG		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	14,226	0	3	0	8,004	0	6,413	14,417	0.563	0.451	1.013
2010	5,850	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	4,893	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	5,810	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	5,499	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	36,278	0	3	0	8,004	0	6,413	14,417	0.221	0.177	0.397

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.204	0.275	.
(14) Massachusetts Credibility:	0.080	0.120	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	1.393	1.393	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	1.254	0.849	2.104
(20) Relativity to Underlying Present Rate:	1.414	1.415	.
(21) Credibility to Underlying Relativity:	0.920	0.880	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.317	1.278	.
(24) Balanced Formula Relativity:	1.299	1.270	1.288

Class(es): 3383 JEWELRY MFG		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	356,720	0	31	0	45,294	0	20,012	65,305	0.127	0.056	0.183
2010	375,402	0	41	0	450,235	0	205,171	655,406	1.199	0.547	1.746
2011	378,913	0	33	0	91,693	0	50,617	142,310	0.242	0.134	0.376
2012	595,970	5	81	765,268	633,715	251,320	284,020	1,934,324	2.347	0.898	3.246
2013	637,557	1	73	189,170	745,063	24,773	289,670	1,248,675	1.465	0.493	1.959
MA Total:	2,344,561	6	259	954,437	1,966,000	276,093	849,490	4,046,021	1.246	0.480	1.726

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.153	0.746	.
(14) Massachusetts Credibility:	0.290	0.430	.
(15) Countrywide Pure Premium:	0.588	0.394	0.981
(16) Countrywide Indicated Relativity:	0.600	0.694	.
(17) Countrywide Credibility:	0.360	0.290	.
(18) Countrywide Lost-Time Claims:	343.00	.	.
(19) Pure Premium Underlying Present Rate:	0.506	0.333	0.839
(20) Relativity to Underlying Present Rate:	0.571	0.554	.
(21) Credibility to Underlying Relativity:	0.350	0.280	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.750	0.677	.
(24) Balanced Formula Relativity:	0.740	0.673	0.715

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Calculation of Class Relativities

Class(es): 3385 WATCH MFG		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	30.763	0	1	0	638	0	1,908	2,546	0.021	0.062	0.083
2010	31.565	0	2	0	0	0	1,434	1,434	0.000	0.045	0.045
2011	25.703	0	2	0	0	0	1,174	1,174	0.000	0.046	0.046
2012	26.063	0	2	0	588	0	1,046	1,634	0.023	0.040	0.063
2013	27.418	0	2	0	0	0	1,045	1,045	0.000	0.038	0.038
MA Total:	141,512	0	9	0	1,226	0	6,607	7,832	0.009	0.047	0.055

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.008	0.073	.
(14) Massachusetts Credibility:	0.080	0.120	.
(15) Countrywide Pure Premium:	0.498	0.206	0.704
(16) Countrywide Indicated Relativity:	0.508	0.363	.
(17) Countrywide Credibility:	0.210	0.220	.
(18) Countrywide Lost-Time Claims:	23.000	.	.
(19) Pure Premium Underlying Present Rate:	0.372	0.249	0.621
(20) Relativity to Underlying Present Rate:	0.419	0.416	.
(21) Credibility to Underlying Relativity:	0.710	0.660	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.405	0.363	.
(24) Balanced Formula Relativity:	0.399	0.360	0.385

Class(es): 3507 CONSTRUCTION OR AGRICULTURAL MACHINERY MFG		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	32.958	0	5	0	12,724	0	11,200	23,925	0.386	0.340	0.726
2010	34.735	0	8	0	0	0	3,875	3,875	0.000	0.112	0.112
2011	31.473	0	4	0	0	0	3,083	3,083	0.000	0.098	0.098
2012	37.035	1	6	204,601	0	20,360	6,849	231,810	5.524	0.735	6.259
2013	52.458	0	16	0	96,055	0	51,864	147,919	1.831	0.989	2.820
MA Total:	188,659	1	39	204,601	108,780	20,360	76,871	410,611	1.661	0.515	2.176

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.538	0.801	.
(14) Massachusetts Credibility:	0.150	0.240	.
(15) Countrywide Pure Premium:	1.431	0.805	2.236
(16) Countrywide Indicated Relativity:	1.461	1.420	.
(17) Countrywide Credibility:	0.430	0.380	.
(18) Countrywide Lost-Time Claims:	4875.0	.	.
(19) Pure Premium Underlying Present Rate:	1.277	0.946	2.223
(20) Relativity to Underlying Present Rate:	1.439	1.575	.
(21) Credibility to Underlying Relativity:	0.420	0.380	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.463	1.330	.
(24) Balanced Formula Relativity:	1.443	1.321	1.398

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
3515 TEXTILE MACHINERY MFG											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	30,021	0	11	0	42,946	0	34,574	77,520	1,431	1,152	2,582
2010	38,315	0	19	0	47,076	0	33,117	80,193	1,229	0,864	2,093
2011	31,416	0	11	0	14,077	0	15,911	29,989	0,448	0,506	0,955
2012	33,559	0	15	0	317,887	0	87,597	405,484	9,472	2,610	12,083
2013	33,773	0	19	0	20,514	0	27,380	47,894	0,607	0,811	1,418
MA Total:	167,084	0	75	0	442,501	0	198,579	641,080	2,648	1,188	3,837

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.452	1.846	.
(14) Massachusetts Credibility:	0.130	0.210	.
(15) Countrywide Pure Premium:	0.969	0.775	1.744
(16) Countrywide Indicated Relativity:	0.989	1.366	.
(17) Countrywide Credibility:	0.320	0.340	.
(18) Countrywide Lost-Time Claims:	65,000	.	.
(19) Pure Premium Underlying Present Rate:	1.020	0.744	1.764
(20) Relativity to Underlying Present Rate:	1.149	1.239	.
(21) Credibility to Underlying Relativity:	0.550	0.450	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.267	1.410	.
(24) Balanced Formula Relativity:	1.250	1.400	1.306

Class(es):		Effective: 7/1/2016							Manufacturing		
3548 PRINTING OR BOOKBINDING MACHINE MFG											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	4,704,495	11	514	815,672	1,759,322	201,196	1,851,792	4,627,981	0,547	0,436	0,984
2010	5,201,433	13	577	860,938	2,919,198	828,725	1,961,488	6,570,349	0,727	0,536	1,263
2011	5,564,694	13	661	1,991,190	4,297,748	498,524	2,755,020	9,542,481	1,130	0,585	1,715
2012	5,590,461	14	570	1,911,996	3,901,924	508,438	2,387,324	8,709,683	1,040	0,518	1,558
2013	6,053,004	8	533	1,360,512	5,816,005	435,515	2,427,008	10,039,040	1,186	0,473	1,659
MA Total:	27,114,088	59	2,855	6,940,309	18,694,196	2,472,397	11,382,631	39,489,533	0,945	0,511	1,456

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.875	0.794	.
(14) Massachusetts Credibility:	0.840	1.000	.
(15) Countrywide Pure Premium:	0.921	0.534	1.455
(16) Countrywide Indicated Relativity:	0.940	0.942	.
(17) Countrywide Credibility:	0.080	0.000	.
(18) Countrywide Lost-Time Claims:	17018	.	.
(19) Pure Premium Underlying Present Rate:	0.656	0.457	1.113
(20) Relativity to Underlying Present Rate:	0.739	0.762	.
(21) Credibility to Underlying Relativity:	0.080	0.000	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.870	0.794	.
(24) Balanced Formula Relativity:	0.858	0.788	0.832

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Section IX - Classification Pricing
 Subsection G - Class Relativities
 7/1/2016

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
3558 BOOT OR SHOE MACHINERY MFG											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	13,164	0	5	0	0	0	1,899	1,899	0.000	0.144	0.144
2010	9,679	0	2	0	22,471	0	29,970	52,441	2.322	3.096	5.418
2011	9,780	0	1	0	0	0	598	598	0.000	0.061	0.061
2012	1,695	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	2,219	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	36,536	0	8	0	22,471	0	32,467	54,938	0.615	0.889	1.504

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.569	1.380	.
(14) Massachusetts Credibility:	0.050	0.080	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	0.369	0.579	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	0.332	0.353	0.685
(20) Relativity to Underlying Present Rate:	0.374	0.588	.
(21) Credibility to Underlying Relativity:	0.950	0.920	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.384	0.651	.
(24) Balanced Formula Relativity:	0.379	0.647	0.479

Class(es):		Effective: 7/1/2016							Manufacturing		
3571 STEAM OR AIR PRESSURE GAUGE MFG											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	4,207	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	6,100	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	5,200	0	1	0	0	0	393	393	0.000	0.075	0.075
2012	6,485	0	1	0	0	0	553	553	0.000	0.085	0.085
2013	4,046	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	26,038	0	2	0	0	0	945	945	0.000	0.036	0.036

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.056	.
(14) Massachusetts Credibility:	0.050	0.070	.
(15) Countrywide Pure Premium:	0.222	0.108	0.330
(16) Countrywide Indicated Relativity:	0.227	0.190	.
(17) Countrywide Credibility:	0.100	0.110	.
(18) Countrywide Lost-Time Claims:	4.000	.	.
(19) Pure Premium Underlying Present Rate:	0.475	0.304	0.779
(20) Relativity to Underlying Present Rate:	0.535	0.506	.
(21) Credibility to Underlying Relativity:	0.850	0.820	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.478	0.440	.
(24) Balanced Formula Relativity:	0.471	0.437	0.458

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Calculation of Class Relativities

Class(es): 3612 PUMP MFG		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	144,719	0	16	0	16,688	0	14,962	31,649	0.115	0.103	0.219
2010	183,768	0	19	0	113,737	0	142,703	256,440	0.619	0.777	1.395
2011	280,271	1	30	241,257	59,522	36,113	62,736	399,628	1.073	0.353	1.426
2012	265,296	1	25	72,254	32,998	37,376	101,979	244,606	0.397	0.525	0.922
2013	292,947	0	25	0	462,366	0	440,376	902,743	1.578	1.503	3.082
MA Total:	1,167,001	2	115	313,510	685,310	73,489	762,757	1,835,066	0.856	0.717	1.572

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.792	1.113	.
(14) Massachusetts Credibility:	0.260	0.380	.
(15) Countrywide Pure Premium:	1.081	0.606	1.687
(16) Countrywide Indicated Relativity:	1.104	1.068	.
(17) Countrywide Credibility:	0.370	0.310	.
(18) Countrywide Lost-Time Claims:	1520.0	.	.
(19) Pure Premium Underlying Present Rate:	0.787	0.490	1.277
(20) Relativity to Underlying Present Rate:	0.886	0.817	.
(21) Credibility to Underlying Relativity:	0.370	0.310	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.942	1.007	.
(24) Balanced Formula Relativity:	0.929	1.000	0.956

Class(es): 3620 BOILERMAKING		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	99,805	0	25	0	75,732	0	57,822	133,554	0.759	0.579	1.338
2010	137,463	0	39	0	293,375	0	187,885	481,260	2.134	1.367	3.501
2011	147,119	4	33	677,872	515,725	1,109,218	361,585	2,664,400	8.113	9.997	18.111
2012	152,820	1	22	123,544	75,048	21,651	40,638	260,881	1.300	0.408	1.707
2013	179,144	0	18	0	69,149	0	129,761	198,910	0.386	0.724	1.110
MA Total:	716,351	5	137	801,416	1,029,029	1,130,869	777,691	3,739,004	2.555	2.664	5.220

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.365	4.139	.
(14) Massachusetts Credibility:	0.330	0.590	.
(15) Countrywide Pure Premium:	1.668	0.982	2.649
(16) Countrywide Indicated Relativity:	1.703	1.731	.
(17) Countrywide Credibility:	0.340	0.210	.
(18) Countrywide Lost-Time Claims:	1211.0	.	.
(19) Pure Premium Underlying Present Rate:	2.306	2.386	4.691
(20) Relativity to Underlying Present Rate:	2.598	3.975	.
(21) Credibility to Underlying Relativity:	0.330	0.200	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	2.217	3.600	.
(24) Balanced Formula Relativity:	2.186	3.576	2.705

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Calculation of Class Relativities

Class(es): 3634 VALVE MFG		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	183.161	2	19	384.867	78.945	68.814	44.045	576.672	2.532	0.616	3.148
2010	230.560	1	28	146.482	238.555	37.457	99.150	521.644	1.670	0.593	2.263
2011	293.642	0	22	0	236.754	0	204.827	441.581	0.806	0.698	1.504
2012	332.456	0	22	0	66.558	0	65.666	132.224	0.200	0.198	0.398
2013	441.782	0	33	0	270.147	0	183.747	453.894	0.611	0.416	1.027
MA Total:	1,481,601	3	124	531,349	890,960	106,271	597,435	2,126,014	0.960	0.475	1.435

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.889	0.738	.
(14) Massachusetts Credibility:	0.290	0.420	.
(15) Countrywide Pure Premium:	0.751	0.437	1.188
(16) Countrywide Indicated Relativity:	0.767	0.771	.
(17) Countrywide Credibility:	0.360	0.290	.
(18) Countrywide Lost-Time Claims:	801.00	.	.
(19) Pure Premium Underlying Present Rate:	0.810	0.495	1.305
(20) Relativity to Underlying Present Rate:	0.913	0.825	.
(21) Credibility to Underlying Relativity:	0.350	0.290	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.853	0.773	.
(24) Balanced Formula Relativity:	0.842	0.767	0.814

Class(es): 3635 GEAR MFG OR GRINDING		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	183.540	1	41	127.598	68.814	38.061	101.094	335.567	1.070	0.758	1.828
2010	222.095	1	47	23.128	127.747	43.732	113.091	307.698	0.679	0.706	1.385
2011	242.217	2	51	34.770	140.973	62.563	182.329	420.634	0.726	1.011	1.737
2012	252.636	1	48	25.851	841.702	1.107	367.051	1,235.711	3.434	1.457	4.891
2013	257.744	1	47	12.394	225.798	644	282.707	521.543	0.924	1.099	2.023
MA Total:	1,158,232	6	234	223,741	1,405,033	146,107	1,046,272	2,821,153	1.406	1.029	2.436

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.302	1.599	.
(14) Massachusetts Credibility:	0.310	0.550	.
(15) Countrywide Pure Premium:	1.209	0.689	1.898
(16) Countrywide Indicated Relativity:	1.235	1.214	.
(17) Countrywide Credibility:	0.350	0.230	.
(18) Countrywide Lost-Time Claims:	382.00	.	.
(19) Pure Premium Underlying Present Rate:	1.271	1.214	2.485
(20) Relativity to Underlying Present Rate:	1.433	2.022	.
(21) Credibility to Underlying Relativity:	0.340	0.220	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.323	1.604	.
(24) Balanced Formula Relativity:	1.305	1.593	1.412

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Calculation of Class Relativities

Class(es): 3642 BATTERY MFG-DRY		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	146.316	2	6	420.374	90.803	62.661	57.595	631.434	3.494	0.822	4.316
2010	149.297	0	10	0	1.353	0	11.330	12.683	0.009	0.076	0.085
2011	170.172	0	6	0	112.721	0	34.651	147.373	0.662	0.204	0.866
2012	317.808	0	15	0	13.661	0	18.116	31.778	0.043	0.057	0.100
2013	157.524	0	5	0	51.567	0	30.994	82.561	0.327	0.197	0.524
MA Total:	941.117	2	42	420.374	270.106	62.661	152.687	905.828	0.734	0.229	0.963

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.679	0.355	.
(14) Massachusetts Credibility:	0.210	0.280	.
(15) Countrywide Pure Premium:	0.491	0.302	0.793
(16) Countrywide Indicated Relativity:	0.501	0.532	.
(17) Countrywide Credibility:	0.360	0.360	.
(18) Countrywide Lost-Time Claims:	87.000	.	.
(19) Pure Premium Underlying Present Rate:	0.565	0.285	0.851
(20) Relativity to Underlying Present Rate:	0.637	0.476	.
(21) Credibility to Underlying Relativity:	0.430	0.360	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.597	0.462	.
(24) Balanced Formula Relativity:	0.589	0.459	0.540

Class(es): 3643 ELECTRIC POWER OR TRANSMISSION EQUIP MFG		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	570.200	0	63	0	664.435	0	189.213	853.647	1.165	0.332	1.497
2010	674.101	3	63	54.794	144.155	66.773	211.548	477.270	0.295	0.413	0.708
2011	700.154	1	35	128.507	47.522	27.224	93.826	297.079	0.251	0.173	0.424
2012	807.895	3	60	779.385	695.770	443.019	243.692	2,161.866	1.826	0.850	2.676
2013	882.250	1	97	37.181	496.100	1.592	343.130	878.004	0.604	0.391	0.995
MA Total:	3,634.600	8	318	999.867	2,047.982	538.609	1,081.408	4,667.866	0.839	0.446	1.284

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.776	0.692	.
(14) Massachusetts Credibility:	0.360	0.490	.
(15) Countrywide Pure Premium:	1.158	0.568	1.727
(16) Countrywide Indicated Relativity:	1.183	1.002	.
(17) Countrywide Credibility:	0.320	0.260	.
(18) Countrywide Lost-Time Claims:	1792.0	.	.
(19) Pure Premium Underlying Present Rate:	0.569	0.298	0.867
(20) Relativity to Underlying Present Rate:	0.641	0.496	.
(21) Credibility to Underlying Relativity:	0.320	0.250	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.863	0.724	.
(24) Balanced Formula Relativity:	0.851	0.719	0.802

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Section IX - G
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Calculation of Class Relativities

Class(es): 3647 BATTERY MFG-STORAGE		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	334	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	1,519	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	4,065	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	10,773	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	3,280	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	19,971	0	0	0	0	0	0	0	0.000	0.000	0.000

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.060	0.090	.
(15) Countrywide Pure Premium:	0.898	0.495	1.393
(16) Countrywide Indicated Relativity:	0.917	0.872	.
(17) Countrywide Credibility:	0.470	0.460	.
(18) Countrywide Lost-Time Claims:	349.00	.	.
(19) Pure Premium Underlying Present Rate:	0.991	0.691	1.682
(20) Relativity to Underlying Present Rate:	1.117	1.152	.
(21) Credibility to Underlying Relativity:	0.470	0.450	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.956	0.919	.
(24) Balanced Formula Relativity:	0.943	0.913	0.932

Class(es): 3648 AUTOMOTIVE LIGHTING, IGNITION APPARATUS MFG NOC		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	383	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	395	0	1	0	749	0	1,134	1,883	1,897	2,870	4,766
2011	2,822	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	1,014	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	417	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	5,032	0	1	0	749	0	1,134	1,883	0.149	0.225	0.374

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.138	0.350	.
(14) Massachusetts Credibility:	0.030	0.040	.
(15) Countrywide Pure Premium:	0.624	0.425	1.049
(16) Countrywide Indicated Relativity:	0.637	0.750	.
(17) Countrywide Credibility:	0.490	0.480	.
(18) Countrywide Lost-Time Claims:	441.00	.	.
(19) Pure Premium Underlying Present Rate:	0.599	0.462	1.061
(20) Relativity to Underlying Present Rate:	0.675	0.770	.
(21) Credibility to Underlying Relativity:	0.480	0.480	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.640	0.743	.
(24) Balanced Formula Relativity:	0.631	0.738	0.671

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
3681 TELEVISION, RADIO, TELEPHONE OR TELECOMMUNCTN DEVICE MFG NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	5,168,858	10	270	1,215,744	1,204,480	1,155,927	780,659	4,356,810	0.468	0.375	0.843
2010	5,608,677	9	302	661,599	2,257,437	359,084	1,133,355	4,411,477	0.520	0.266	0.787
2011	5,426,674	8	269	957,264	1,222,781	211,340	983,870	3,375,255	0.402	0.220	0.622
2012	5,243,901	6	193	530,531	1,480,001	477,413	952,043	3,439,987	0.383	0.273	0.656
2013	5,192,873	11	200	2,259,521	790,463	572,667	715,664	4,338,314	0.587	0.248	0.835
MA Total:	26,640,983	44	1,234	5,624,659	6,955,162	2,776,432	4,565,591	19,921,843	0.472	0.276	0.748

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.437	0.428	.
(14) Massachusetts Credibility:	0.620	0.960	.
(15) Countrywide Pure Premium:	0.372	0.228	0.600
(16) Countrywide Indicated Relativity:	0.380	0.402	.
(17) Countrywide Credibility:	0.190	0.020	.
(18) Countrywide Lost-Time Claims:	2952.0	.	.
(19) Pure Premium Underlying Present Rate:	0.315	0.218	0.532
(20) Relativity to Underlying Present Rate:	0.355	0.363	.
(21) Credibility to Underlying Relativity:	0.190	0.020	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.411	0.426	.
(24) Balanced Formula Relativity:	0.405	0.423	0.412

Class(es):		Effective: 7/1/2016							Manufacturing		
3685 INSTRUMENT MFG NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	4,214,999	7	214	394,580	585,012	240,428	662,761	1,882,782	0.232	0.214	0.447
2010	5,336,794	7	231	1,261,842	519,624	395,989	532,278	2,709,732	0.334	0.174	0.508
2011	5,544,189	7	237	485,750	859,403	372,179	580,756	2,298,088	0.243	0.172	0.415
2012	5,402,205	4	241	531,965	2,226,088	152,891	1,033,422	3,944,365	0.511	0.220	0.730
2013	5,670,288	8	199	918,489	881,537	411,304	728,900	2,940,230	0.317	0.201	0.519
MA Total:	26,168,474	33	1,122	3,592,625	5,071,664	1,572,792	3,538,117	13,775,198	0.331	0.195	0.526

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.307	0.303	.
(14) Massachusetts Credibility:	0.620	0.950	.
(15) Countrywide Pure Premium:	0.401	0.249	0.650
(16) Countrywide Indicated Relativity:	0.410	0.438	.
(17) Countrywide Credibility:	0.190	0.030	.
(18) Countrywide Lost-Time Claims:	2124.0	.	.
(19) Pure Premium Underlying Present Rate:	0.315	0.218	0.532
(20) Relativity to Underlying Present Rate:	0.355	0.363	.
(21) Credibility to Underlying Relativity:	0.190	0.020	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.335	0.309	.
(24) Balanced Formula Relativity:	0.331	0.307	0.322

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Construction		
3724 MACHINERY OR EQUIPMENT ERECT OR REPAIR NOC &DR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	1,976,497	9	330	972,887	3,596,737	210,035	2,795,417	7,575,076	2,312	1,521	3,833
2010	2,083,974	15	324	2,830,639	2,666,456	1,162,949	1,576,192	8,236,237	2,638	1,314	3,952
2011	2,173,583	12	329	2,699,605	3,795,497	810,669	2,077,508	9,383,280	2,988	1,329	4,317
2012	2,273,673	15	317	2,620,559	4,103,996	851,424	2,664,967	10,240,946	2,958	1,547	4,504
2013	2,526,844	10	313	1,246,246	6,730,870	559,275	2,960,742	11,497,132	3,157	1,393	4,550
MA Total:	11,034,571	61	1,613	10,369,936	20,893,557	3,594,352	12,074,826	46,932,671	2,833	1,420	4,253

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.916	0.913	.
(14) Massachusetts Credibility:	0.910	1.000	.
(15) Countrywide Pure Premium:	2.237	1.071	3.308
(16) Countrywide Indicated Relativity:	0.721	0.688	.
(17) Countrywide Credibility:	0.050	0.000	.
(18) Countrywide Lost-Time Claims:	6954.0	.	.
(19) Pure Premium Underlying Present Rate:	1.940	1.058	2.999
(20) Relativity to Underlying Present Rate:	0.746	0.764	.
(21) Credibility to Underlying Relativity:	0.040	0.000	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	0.899	0.913	.
(24) Balanced Formula Relativity:	0.914	0.917	0.915

Class(es):		Effective: 7/1/2016							Construction		
3726 BOILER INSTALLATION OR REPAIR-STEAM											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	28,919	0	8	0	8,837	0	16,888	25,724	0.306	0.584	0.890
2010	83,742	3	20	212,376	189,433	79,922	96,592	578,323	4.798	2.108	6.906
2011	68,554	1	13	26,355	5,752	19,310	18,383	69,800	0.468	0.550	1.018
2012	66,743	3	7	1,050,747	92,235	137,362	52,725	1,333,069	17.125	2,848	19,973
2013	67,705	1	7	120,663	130,223	31,169	48,381	330,437	3.706	1.175	4.881
MA Total:	315,664	8	55	1,410,142	426,480	267,762	232,969	2,337,353	5,818	1,586	7,405

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.881	1.020	.
(14) Massachusetts Credibility:	0.340	0.430	.
(15) Countrywide Pure Premium:	2.560	1.069	3.629
(16) Countrywide Indicated Relativity:	0.825	0.687	.
(17) Countrywide Credibility:	0.330	0.290	.
(18) Countrywide Lost-Time Claims:	655.00	.	.
(19) Pure Premium Underlying Present Rate:	5.953	2.399	8.352
(20) Relativity to Underlying Present Rate:	2.290	1.731	.
(21) Credibility to Underlying Relativity:	0.330	0.280	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	1.668	1.122	.
(24) Balanced Formula Relativity:	1.694	1.127	1.504

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
3808 AUTOMOBILE MFG OR ASSEMBLY											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	101.095	1	35	337.156	137.840	56.685	62.649	594.330	4.699	1.180	5.879
2010	130.900	0	57	0	46.321	0	99.024	145.345	0.354	0.756	1.110
2011	119.558	0	43	0	12.689	0	35.161	47.850	0.106	0.294	0.400
2012	90.519	0	50	0	28.698	0	80.883	109.582	0.317	0.894	1.211
2013	115.524	0	26	0	74.875	0	169.439	244.314	0.648	1.467	2.115
MA Total:	557.596	1	211	337.156	300.423	56.685	447.156	1,141.420	1.143	0.904	2.047

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.059	1.404	.
(14) Massachusetts Credibility:	0.250	0.350	.
(15) Countrywide Pure Premium:	1.651	0.818	2.469
(16) Countrywide Indicated Relativity:	1.686	1.441	.
(17) Countrywide Credibility:	0.380	0.330	.
(18) Countrywide Lost-Time Claims:	3387.0	.	.
(19) Pure Premium Underlying Present Rate:	1.511	0.842	2.353
(20) Relativity to Underlying Present Rate:	1.703	1.402	.
(21) Credibility to Underlying Relativity:	0.370	0.320	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.535	1.416	.
(24) Balanced Formula Relativity:	1.514	1.406	1.474

Class(es):		Effective: 7/1/2016							Goods and Services		
3821 AUTOMOBILE DISMANTLING & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	168.988	1	44	110.580	50.877	25.346	69.593	256.396	0.955	0.562	1.517
2010	182.144	1	38	72.961	117.015	28.284	128.332	346.591	1.043	0.860	1.903
2011	191.480	1	47	33.018	575.555	6.454	274.012	889.039	3.178	1.465	4.643
2012	175.047	0	42	0	226.092	0	190.012	416.104	1.292	1.085	2.377
2013	174.556	0	28	0	63.708	0	164.988	228.696	0.365	0.945	1.310
MA Total:	892.215	3	199	216.559	1,033.246	60.083	826.938	2,136.826	1.401	0.994	2.395

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.473	1.656	.
(14) Massachusetts Credibility:	0.340	0.540	.
(15) Countrywide Pure Premium:	2.953	1.733	4.686
(16) Countrywide Indicated Relativity:	3.079	2.837	.
(17) Countrywide Credibility:	0.330	0.230	.
(18) Countrywide Lost-Time Claims:	1000.0	.	.
(19) Pure Premium Underlying Present Rate:	1.998	1.537	3.535
(20) Relativity to Underlying Present Rate:	2.579	2.853	.
(21) Credibility to Underlying Relativity:	0.330	0.230	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	2.368	2.203	.
(24) Balanced Formula Relativity:	2.355	2.205	2.297

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
3826 AIRCRAFT ENGINE MFG											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	2,080,754	21	276	3,265,204	2,311,275	978,106	2,429,918	8,984,502	2,680	1,638	4,318
2010	1,919,404	17	305	1,713,116	4,410,275	664,835	3,251,466	10,039,692	3,190	2,040	5,231
2011	2,020,234	15	309	2,516,702	2,190,625	982,234	2,584,662	8,274,223	2,330	1,766	4,096
2012	1,903,231	15	243	1,787,526	2,180,587	810,928	2,008,647	6,787,688	2,085	1,481	3,566
2013	1,849,583	14	284	1,817,569	4,157,264	1,052,668	2,670,436	9,697,937	3,230	2,013	5,243
MA Total:	9,773,205	82	1,417	11,100,116	15,250,026	4,488,771	12,945,129	43,784,043	2,696	1,784	4,480

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.496	2.771	.
(14) Massachusetts Credibility:	0.900	1.000	.
(15) Countrywide Pure Premium:	0.412	0.189	0.601
(16) Countrywide Indicated Relativity:	0.421	0.333	.
(17) Countrywide Credibility:	0.050	0.000	.
(18) Countrywide Lost-Time Claims:	375.00	.	.
(19) Pure Premium Underlying Present Rate:	2.149	1.478	3.627
(20) Relativity to Underlying Present Rate:	2.422	2.463	.
(21) Credibility to Underlying Relativity:	0.050	0.000	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	2.388	2.771	.
(24) Balanced Formula Relativity:	2.355	2.752	2.504

Class(es):		Effective: 7/1/2016							Manufacturing		
3841 TUBULAR METAL PRODUCTS MFG OR ASSEMBLY											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	56,231	0	8	0	40,558	0	9,405	49,963	0.721	0.167	0.889
2010	59,128	0	8	0	7,969	0	7,442	15,411	0.135	0.126	0.261
2011	56,334	0	7	0	0	0	3,312	3,312	0.000	0.059	0.059
2012	51,296	0	3	0	1,681	0	12,493	14,174	0.033	0.244	0.276
2013	46,193	0	2	0	0	0	1,005	1,005	0.000	0.022	0.022
MA Total:	269,182	0	28	0	50,208	0	33,657	83,865	0.187	0.125	0.312

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.173	0.194	.
(14) Massachusetts Credibility:	0.140	0.220	.
(15) Countrywide Pure Premium:	0.498	0.515	1.013
(16) Countrywide Indicated Relativity:	0.508	0.908	.
(17) Countrywide Credibility:	0.250	0.260	.
(18) Countrywide Lost-Time Claims:	35.000	.	.
(19) Pure Premium Underlying Present Rate:	0.704	0.521	1.225
(20) Relativity to Underlying Present Rate:	0.793	0.868	.
(21) Credibility to Underlying Relativity:	0.610	0.520	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.635	0.730	.
(24) Balanced Formula Relativity:	0.626	0.725	0.663

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Miscellaneous		
4000 SAND OR GRAVEL DIGGING & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	285.959	1	46	205.682	241.667	108.249	235.215	790.813	1.564	1.201	2.765
2010	325.671	4	38	323.397	201.834	142.539	151.555	819.325	1.613	0.903	2.516
2011	326.814	1	47	366.623	414.379	123.502	184.883	1,089.387	2.390	0.944	3.333
2012	344.864	1	27	267.514	406.645	114.158	194.567	982.884	1.955	0.895	2.850
2013	389.795	1	38	244.981	454.522	88.170	394.797	1,182.470	1.795	1.239	3.034
MA Total:	1,673,104	8	196	1,408,196	1,719,047	576,618	1,161,018	4,864,878	1.869	1.039	2.908

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.662	0.665	.
(14) Massachusetts Credibility:	0.440	0.580	.
(15) Countrywide Pure Premium:	3.417	1.877	5.294
(16) Countrywide Indicated Relativity:	1.323	1.326	.
(17) Countrywide Credibility:	0.280	0.210	.
(18) Countrywide Lost-Time Claims:	920.00	.	.
(19) Pure Premium Underlying Present Rate:	2.117	0.971	3.089
(20) Relativity to Underlying Present Rate:	0.908	0.701	.
(21) Credibility to Underlying Relativity:	0.280	0.210	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	0.916	0.811	.
(24) Balanced Formula Relativity:	0.905	0.809	0.871

Class(es):		Effective: 7/1/2016							Manufacturing		
4021 BRICK OR CLAY PRODUCTS MFG NOC & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	11.541	0	6	0	0	0	3.470	3.470	0.000	0.301	0.301
2010	12.862	0	6	0	8.631	0	43.938	52.568	0.671	3.416	4.087
2011	11.703	0	5	0	585	0	3.325	3.910	0.050	0.284	0.334
2012	13.269	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	12.117	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	61.493	0	17	0	9.216	0	50.732	59.948	0.150	0.825	0.975

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.139	1.282	.
(14) Massachusetts Credibility:	0.110	0.170	.
(15) Countrywide Pure Premium:	2.057	1.397	3.454
(16) Countrywide Indicated Relativity:	2.100	2.463	.
(17) Countrywide Credibility:	0.450	0.420	.
(18) Countrywide Lost-Time Claims:	275.00	.	.
(19) Pure Premium Underlying Present Rate:	1.864	1.273	3.136
(20) Relativity to Underlying Present Rate:	2.100	2.121	.
(21) Credibility to Underlying Relativity:	0.440	0.410	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.884	2.122	.
(24) Balanced Formula Relativity:	1.858	2.107	1.951

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
4024 REFRACTORY PRODUCTS MFG & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	4.923	0	1	0	0	0	941	941	0.000	0.191	0.191
2010	10.973	0	1	0	553	0	4,548	5,101	0.050	0.414	0.465
2011	36.915	0	3	0	90,595	0	40,425	131,020	2.454	1.095	3.549
2012	6.510	0	1	0	0	0	799	799	0.000	0.123	0.123
2013	4.733	0	1	0	0	0	337	337	0.000	0.071	0.071
MA Total:	64,054	0	7	0	91,147	0	47,050	138,198	1.423	0.735	2.158

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.317	1.141	.
(14) Massachusetts Credibility:	0.100	0.150	.
(15) Countrywide Pure Premium:	1.681	0.850	2.531
(16) Countrywide Indicated Relativity:	1.716	1.499	.
(17) Countrywide Credibility:	0.400	0.430	.
(18) Countrywide Lost-Time Claims:	119.00	.	.
(19) Pure Premium Underlying Present Rate:	1.314	0.801	2.115
(20) Relativity to Underlying Present Rate:	1.481	1.335	.
(21) Credibility to Underlying Relativity:	0.500	0.420	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.559	1.376	.
(24) Balanced Formula Relativity:	1.537	1.367	1.474

Class(es):		Effective: 7/1/2016							Manufacturing		
4034 CONCRETE PRODUCTS MFG & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	251.380	1	62	336.083	518.573	67.168	394.785	1,316.610	3.400	1.838	5.238
2010	285.634	3	49	111.895	675.244	24.111	467.238	1,278.487	2.756	1.720	4.476
2011	161.217	1	38	33.237	877.964	93.242	541.207	1,545.651	5.652	3.935	9.587
2012	152.147	2	35	58.088	480.937	41.804	460.544	1,041.373	3.543	3.302	6.845
2013	155.112	2	40	270.121	530.502	123.822	305.144	1,229.588	5.162	2.766	7.927
MA Total:	1,005,490	9	224	809,424	3,083,220	350,147	2,168,918	6,411,709	3.871	2.505	6.377

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.584	3.892	.
(14) Massachusetts Credibility:	0.380	0.610	.
(15) Countrywide Pure Premium:	3.064	1.690	4.754
(16) Countrywide Indicated Relativity:	3.129	2.980	.
(17) Countrywide Credibility:	0.310	0.200	.
(18) Countrywide Lost-Time Claims:	2272.0	.	.
(19) Pure Premium Underlying Present Rate:	2.416	1.821	4.237
(20) Relativity to Underlying Present Rate:	2.723	3.035	.
(21) Credibility to Underlying Relativity:	0.310	0.190	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	3.176	3.547	.
(24) Balanced Formula Relativity:	3.132	3.522	3.278

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Calculation of Class Relativities

Class(es): 4036 PLASTERBOARD OR PLASTER BLOCK MFG & DRIVERS									Effective: 7/1/2016			Manufacturing		
Converted Unlimited Losses														
Amount														
Claim Count				Indemnity		Medical		MA Indicated Pure Premiums						
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)			
2009	6.951	0	1	0	0	0	326	326	0.000	0.047	0.047			
2010	8.504	0	1	0	0	0	599	599	0.000	0.070	0.070			
2011	10.922	0	0	0	0	0	0	0	0.000	0.000	0.000			
2012	11.371	0	0	0	0	0	0	0	0.000	0.000	0.000			
2013	11.496	0	0	0	0	0	0	0	0.000	0.000	0.000			
MA Total:	49,244	0	2	0	0	0	925	925	0.000	0.019	0.019			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.029	.
(14) Massachusetts Credibility:	0.090	0.110	.
(15) Countrywide Pure Premium:	1.129	0.611	1.740
(16) Countrywide Indicated Relativity:	1.153	1.077	.
(17) Countrywide Credibility:	0.460	0.450	.
(18) Countrywide Lost-Time Claims:	201.00	.	.
(19) Pure Premium Underlying Present Rate:	1.488	0.582	2.070
(20) Relativity to Underlying Present Rate:	1.677	0.970	.
(21) Credibility to Underlying Relativity:	0.450	0.440	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.285	0.915	.
(24) Balanced Formula Relativity:	1.267	0.909	1.133

Class(es): 4038 PLASTER STATUARY OR ORNAMENT MFG									Effective: 7/1/2016			Manufacturing		
Converted Unlimited Losses														
Amount														
Claim Count				Indemnity		Medical		MA Indicated Pure Premiums						
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)			
2009	19.296	0	1	0	0	0	410	410	0.000	0.021	0.021			
2010	20.294	1	0	121.151	0	129.103	0	250.254	5.970	6.362	12.332			
2011	17.974	0	0	0	0	0	0	0	0.000	0.000	0.000			
2012	17.308	0	0	0	0	0	0	0	0.000	0.000	0.000			
2013	15.298	0	0	0	0	0	0	0	0.000	0.000	0.000			
MA Total:	90,169	1	1	121,151	0	129,103	410	250,664	1,344	1,436	2,780			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.244	2.231	.
(14) Massachusetts Credibility:	0.110	0.160	.
(15) Countrywide Pure Premium:	2.788	0.980	3.769
(16) Countrywide Indicated Relativity:	2.847	1.729	.
(17) Countrywide Credibility:	0.300	0.320	.
(18) Countrywide Lost-Time Claims:	58.000	.	.
(19) Pure Premium Underlying Present Rate:	1.079	0.674	1.753
(20) Relativity to Underlying Present Rate:	1.216	1.123	.
(21) Credibility to Underlying Relativity:	0.590	0.520	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.708	1.494	.
(24) Balanced Formula Relativity:	1.685	1.484	1.610

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
4053 POTTERY MFG: CHINA OR TABLEWARE											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	38,343	0	3	0	2,885	0	16,398	19,283	0.075	0.428	0.503
2010	32,392	0	1	0	1,445	0	952	2,398	0.045	0.029	0.074
2011	50,266	1	13	80,888	21,785	33,050	66,664	202,387	2.043	1.984	4.026
2012	47,359	0	5	0	22,344	0	27,732	50,076	0.472	0.586	1.057
2013	59,234	0	7	0	17,680	0	57,004	74,684	0.298	0.962	1.261
MA Total:	227,594	1	29	80,888	66,140	33,050	168,749	348,827	0.646	0.887	1.533

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.598	1.377	.
(14) Massachusetts Credibility:	0.140	0.210	.
(15) Countrywide Pure Premium:	0.911	0.408	1.318
(16) Countrywide Indicated Relativity:	0.930	0.718	.
(17) Countrywide Credibility:	0.260	0.280	.
(18) Countrywide Lost-Time Claims:	41.000	.	.
(19) Pure Premium Underlying Present Rate:	0.831	0.540	1.371
(20) Relativity to Underlying Present Rate:	0.936	0.900	.
(21) Credibility to Underlying Relativity:	0.600	0.510	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.887	0.949	.
(24) Balanced Formula Relativity:	0.875	0.943	0.900

Class(es):		Effective: 7/1/2016							Manufacturing		
4061 POTTERY MFG: EARTHENWARE-GLAZD OR PORCELN-HAND MOLDED OR CAST											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	17,484	0	2	0	0	0	1,165	1,165	0.000	0.067	0.067
2010	10,331	0	2	0	0	0	339	339	0.000	0.033	0.033
2011	30,269	0	3	0	0	0	1,131	1,131	0.000	0.037	0.037
2012	39,662	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	43,212	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	140,958	0	7	0	0	0	2,635	2,635	0.000	0.019	0.019

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.029	.
(14) Massachusetts Credibility:	0.110	0.200	.
(15) Countrywide Pure Premium:	1.072	0.619	1.691
(16) Countrywide Indicated Relativity:	1.095	1.091	.
(17) Countrywide Credibility:	0.450	0.400	.
(18) Countrywide Lost-Time Claims:	281.00	.	.
(19) Pure Premium Underlying Present Rate:	0.852	0.774	1.626
(20) Relativity to Underlying Present Rate:	0.960	1.289	.
(21) Credibility to Underlying Relativity:	0.440	0.400	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.915	0.958	.
(24) Balanced Formula Relativity:	0.902	0.951	0.921

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
4112 INCANDESCENT LAMP MFG											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	117.159	0	6	0	7.941	0	28.305	36.246	0.068	0.242	0.309
2010	103.028	0	14	0	12.519	0	30.089	42.607	0.122	0.292	0.414
2011	182.773	0	2	0	0	0	262	262	0.000	0.001	0.001
2012	201.629	0	3	0	2.123	0	12.397	14.520	0.011	0.061	0.072
2013	70.148	0	3	0	0	0	1.574	1.574	0.000	0.022	0.022
MA Total:	674.738	0	28	0	22.583	0	72.626	95.209	0.033	0.108	0.141

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.031	0.167	.
(14) Massachusetts Credibility:	0.140	0.210	.
(15) Countrywide Pure Premium:	0.424	0.207	0.631
(16) Countrywide Indicated Relativity:	0.433	0.364	.
(17) Countrywide Credibility:	0.390	0.400	.
(18) Countrywide Lost-Time Claims:	109.00	.	.
(19) Pure Premium Underlying Present Rate:	0.316	0.187	0.503
(20) Relativity to Underlying Present Rate:	0.356	0.312	.
(21) Credibility to Underlying Relativity:	0.470	0.390	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.340	0.303	.
(24) Balanced Formula Relativity:	0.336	0.300	0.322

Class(es):		Effective: 7/1/2016							Manufacturing		
4114 GLASSWARE MFG-NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	4.338	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	24.754	0	2	0	0	0	2.619	2.619	0.000	0.106	0.106
2011	135.079	1	17	21.627	19.998	16.668	33.685	91.978	0.308	0.373	0.681
2012	153.657	0	18	0	43.619	0	23.862	67.481	0.284	0.155	0.439
2013	136.015	1	13	82.294	8.672	25.239	9.193	125.398	0.669	0.253	0.922
MA Total:	453.842	2	50	103.921	72.289	41.907	69.359	287.476	0.388	0.245	0.633

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.359	0.381	.
(14) Massachusetts Credibility:	0.200	0.290	.
(15) Countrywide Pure Premium:	1.384	0.772	2.156
(16) Countrywide Indicated Relativity:	1.413	1.362	.
(17) Countrywide Credibility:	0.400	0.360	.
(18) Countrywide Lost-Time Claims:	329.00	.	.
(19) Pure Premium Underlying Present Rate:	1.113	0.612	1.725
(20) Relativity to Underlying Present Rate:	1.255	1.019	.
(21) Credibility to Underlying Relativity:	0.400	0.350	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.139	0.957	.
(24) Balanced Formula Relativity:	1.123	0.951	1.059

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Calculation of Class Relativities

Class(es): 4130 GLASS MERCHANT		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	175.599	0	50	0	191.555	0	139.162	330.717	1.091	0.793	1.883
2010	165.879	0	25	0	65.782	0	85.589	151.371	0.397	0.516	0.913
2011	172.898	0	40	0	421.910	0	274.486	696.397	2.440	1.588	4.028
2012	188.031	3	35	158.962	24.632	136.621	57.357	377.572	0.976	1.032	2.008
2013	193.870	0	25	0	461.661	0	167.295	628.956	2.381	0.863	3.244
MA Total:	896.277	3	175	158.962	1,165,540	136,621	723,890	2,185,013	1.478	0.960	2.438

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.368	1.492	.
(14) Massachusetts Credibility:	0.330	0.490	.
(15) Countrywide Pure Premium:	1.600	0.943	2.544
(16) Countrywide Indicated Relativity:	1.634	1.663	.
(17) Countrywide Credibility:	0.340	0.260	.
(18) Countrywide Lost-Time Claims:	698.00	.	.
(19) Pure Premium Underlying Present Rate:	1.900	1.219	3.119
(20) Relativity to Underlying Present Rate:	2.141	2.030	.
(21) Credibility to Underlying Relativity:	0.330	0.250	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.714	1.671	.
(24) Balanced Formula Relativity:	1.690	1.659	1.679

Class(es): 4133 CATHEDRAL OR ART GLASS WINDOW MFG		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	9.924	0	1	0	0	0	97	97	0.000	0.010	0.010
2010	8.315	1	0	68.033	0	10.613	0	78.646	8.182	1.276	9.458
2011	8.692	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	8.411	0	1	0	7.925	0	273	8.198	0.942	0.032	0.975
2013	10.431	0	1	0	124	0	717	841	0.012	0.069	0.081
MA Total:	45.773	1	3	68.033	8,049	10,613	1,088	87,782	1.662	0.256	1.918

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.539	0.397	.
(14) Massachusetts Credibility:	0.070	0.110	.
(15) Countrywide Pure Premium:	0.863	0.439	1.302
(16) Countrywide Indicated Relativity:	0.881	0.773	.
(17) Countrywide Credibility:	0.200	0.210	.
(18) Countrywide Lost-Time Claims:	20.000	.	.
(19) Pure Premium Underlying Present Rate:	0.761	0.529	1.290
(20) Relativity to Underlying Present Rate:	0.857	0.881	.
(21) Credibility to Underlying Relativity:	0.730	0.680	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.910	0.805	.
(24) Balanced Formula Relativity:	0.897	0.800	0.861

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Calculation of Class Relativities

Class(es): 4150 OPTICAL GOODS MFG-NOC		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	1,542,080	3	107	325,251	282,696	94,335	261,189	963,471	0.394	0.231	0.625
2010	1,704,120	4	102	230,167	218,497	57,153	228,950	734,768	0.263	0.168	0.431
2011	2,049,053	4	103	460,969	373,766	86,434	277,997	1,199,166	0.407	0.178	0.585
2012	1,802,998	2	103	74,866	502,314	14,865	319,523	911,568	0.320	0.185	0.506
2013	1,755,277	1	104	12,003	469,023	18,391	291,091	790,507	0.274	0.176	0.450
MA Total:	8,853,528	14	519	1,103,255	1,846,296	271,178	1,378,751	4,599,479	0.333	0.186	0.520

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.308	0.290	.
(14) Massachusetts Credibility:	0.410	0.580	.
(15) Countrywide Pure Premium:	0.382	0.212	0.594
(16) Countrywide Indicated Relativity:	0.390	0.375	.
(17) Countrywide Credibility:	0.300	0.210	.
(18) Countrywide Lost-Time Claims:	360.00	.	.
(19) Pure Premium Underlying Present Rate:	0.326	0.183	0.509
(20) Relativity to Underlying Present Rate:	0.368	0.305	.
(21) Credibility to Underlying Relativity:	0.290	0.210	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.350	0.311	.
(24) Balanced Formula Relativity:	0.345	0.308	0.331

Class(es): 4239 PAPER MFG		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	421,013	0	52	0	95,282	0	106,849	202,131	0.226	0.254	0.480
2010	448,955	1	78	449,114	440,130	169,780	474,855	1,533,879	1.981	1.436	3.417
2011	446,925	1	54	433,261	563,618	236,294	290,025	1,523,198	2.231	1.178	3.408
2012	410,086	0	48	0	262,486	0	241,135	503,622	0.640	0.588	1.228
2013	160,672	0	26	0	17,273	0	42,314	59,588	0.108	0.263	0.371
MA Total:	1,887,652	2	258	882,375	1,378,790	406,074	1,155,179	3,822,418	1.198	0.827	2.025

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.109	1.285	.
(14) Massachusetts Credibility:	0.380	0.590	.
(15) Countrywide Pure Premium:	1.319	0.575	1.894
(16) Countrywide Indicated Relativity:	1.346	1.014	.
(17) Countrywide Credibility:	0.310	0.210	.
(18) Countrywide Lost-Time Claims:	1499.0	.	.
(19) Pure Premium Underlying Present Rate:	1.276	0.897	2.173
(20) Relativity to Underlying Present Rate:	1.438	1.494	.
(21) Credibility to Underlying Relativity:	0.310	0.200	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.285	1.270	.
(24) Balanced Formula Relativity:	1.267	1.261	1.265

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Calculation of Class Relativities

Class(es): 4243 BOX MFG-FOLDING PAPER-NOC		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	290.765	1	46	42.530	385.465	79.996	211.188	719.179	1.472	1.001	2.473
2010	303.972	4	58	118.841	950.846	99.837	249.178	1,418.702	3.519	1.148	4.667
2011	272.750	4	56	203.866	656.291	92.318	202.570	1,155.045	3.154	1.081	4.235
2012	271.995	2	38	374.604	844.049	341.895	297.157	1,857.705	4.480	2.349	6.830
2013	226.968	1	30	86.756	528.571	30.925	138.217	784.469	2.711	0.745	3.456
MA Total:	1,366.451	12	228	826.597	3,365,222	644.971	1,098,309	5,935.100	3.068	1.276	4.343

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.840	1.982	.
(14) Massachusetts Credibility:	0.360	0.540	.
(15) Countrywide Pure Premium:	1.007	0.564	1.571
(16) Countrywide Indicated Relativity:	1.028	0.995	.
(17) Countrywide Credibility:	0.320	0.230	.
(18) Countrywide Lost-Time Claims:	1069.0	.	.
(19) Pure Premium Underlying Present Rate:	1.522	0.999	2.520
(20) Relativity to Underlying Present Rate:	1.715	1.664	.
(21) Credibility to Underlying Relativity:	0.320	0.230	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.900	1.682	.
(24) Balanced Formula Relativity:	1.874	1.670	1.798

Class(es): 4244 CORRUGATED OR FIBERBOARD CONTAINER MFG		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	159.797	0	44	0	573.922	0	314.063	887.985	3.592	1.965	5.557
2010	256.927	0	54	0	195.708	0	246.296	442.004	0.762	0.959	1.720
2011	372.179	0	44	0	171.916	0	172.637	344.553	0.462	0.464	0.926
2012	356.482	0	32	0	243.327	0	166.976	410.302	0.683	0.468	1.151
2013	338.472	0	36	0	524.828	0	278.665	803.493	1.551	0.823	2.374
MA Total:	1,483.857	0	210	0	1,709.700	0	1,178.637	2,888.337	1.152	0.794	1.947

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.067	1.234	.
(14) Massachusetts Credibility:	0.350	0.570	.
(15) Countrywide Pure Premium:	1.164	0.651	1.815
(16) Countrywide Indicated Relativity:	1.188	1.148	.
(17) Countrywide Credibility:	0.330	0.220	.
(18) Countrywide Lost-Time Claims:	971.00	.	.
(19) Pure Premium Underlying Present Rate:	1.362	1.042	2.404
(20) Relativity to Underlying Present Rate:	1.535	1.736	.
(21) Credibility to Underlying Relativity:	0.320	0.210	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.257	1.321	.
(24) Balanced Formula Relativity:	1.239	1.312	1.266

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Calculation of Class Relativities

Class(es): 4250 PAPER COATING		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	778,123	1	106	151,131	823,409	69,068	513,701	1,557,310	1,252	0,749	2,001
2010	798,512	6	93	999,006	467,216	635,138	400,196	2,501,556	1,836	1,297	3,133
2011	817,487	1	88	21,439	881,533	29,533	734,585	1,667,089	1,105	0,935	2,039
2012	858,569	3	75	569,453	1,153,690	488,652	637,385	2,849,180	2,007	1,312	3,319
2013	890,994	1	82	39,660	573,417	24,071	304,270	941,417	0,688	0,369	1,057
MA Total:	4,143,685	12	444	1,780,688	3,899,265	1,246,461	2,590,136	9,516,550	1,371	0,926	2,297

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.269	1.438	.
(14) Massachusetts Credibility:	0.450	0.700	.
(15) Countrywide Pure Premium:	0.722	0.348	1.070
(16) Countrywide Indicated Relativity:	0.737	0.614	.
(17) Countrywide Credibility:	0.280	0.150	.
(18) Countrywide Lost-Time Claims:	513.00	.	.
(19) Pure Premium Underlying Present Rate:	0.903	0.644	1.547
(20) Relativity to Underlying Present Rate:	1.018	1.073	.
(21) Credibility to Underlying Relativity:	0.270	0.150	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.052	1.260	.
(24) Balanced Formula Relativity:	1.038	1.251	1.118

Class(es): 4251 STATIONERY MFG		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	185,919	0	11	0	26,908	0	27,125	54,033	0,145	0,146	0,291
2010	294,153	2	44	39,930	674,950	11,285	229,233	955,397	2,430	0,818	3,248
2011	149,016	0	7	0	45,333	0	25,883	71,215	0,304	0,174	0,478
2012	147,754	0	7	0	758,929	0	137,553	896,482	5,136	0,931	6,067
2013	138,854	0	8	0	15,327	0	12,062	27,389	0,110	0,087	0,197
MA Total:	915,695	2	77	39,930	1,521,447	11,285	431,855	2,004,517	1,705	0,484	2,189

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.578	0.752	.
(14) Massachusetts Credibility:	0.250	0.360	.
(15) Countrywide Pure Premium:	1.309	0.708	2.018
(16) Countrywide Indicated Relativity:	1.337	1.249	.
(17) Countrywide Credibility:	0.380	0.320	.
(18) Countrywide Lost-Time Claims:	328.00	.	.
(19) Pure Premium Underlying Present Rate:	0.894	0.529	1.423
(20) Relativity to Underlying Present Rate:	1.007	0.881	.
(21) Credibility to Underlying Relativity:	0.370	0.320	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.275	0.952	.
(24) Balanced Formula Relativity:	1.258	0.946	1.141

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
4273 BAG MFG-PAPER OR PLASTIC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	37,745	0	10	0	17,492	0	13,275	30,767	0.463	0.352	0.815
2010	40,087	0	9	0	4,474	0	11,609	16,083	0.112	0.290	0.401
2011	39,265	0	11	0	2,802	0	8,331	11,133	0.071	0.212	0.284
2012	46,639	0	13	0	13,851	0	22,769	36,620	0.297	0.488	0.785
2013	45,097	1	15	45,438	96,703	26,213	49,152	217,506	3.152	1.671	4.823
MA Total:	208,833	1	58	45,438	135,321	26,213	105,137	312,109	0.866	0.629	1.495

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.801	0.977	.
(14) Massachusetts Credibility:	0.140	0.220	.
(15) Countrywide Pure Premium:	1.052	0.570	1.622
(16) Countrywide Indicated Relativity:	1.074	1.005	.
(17) Countrywide Credibility:	0.430	0.390	.
(18) Countrywide Lost-Time Claims:	579.00	.	.
(19) Pure Premium Underlying Present Rate:	0.978	0.681	1.659
(20) Relativity to Underlying Present Rate:	1.102	1.134	.
(21) Credibility to Underlying Relativity:	0.430	0.390	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.048	1.049	.
(24) Balanced Formula Relativity:	1.034	1.042	1.037

Class(es):		Effective: 7/1/2016							Manufacturing		
4279 PAPER GOODS MFG NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	331,608	0	58	0	168,799	0	199,482	368,281	0.509	0.602	1.111
2010	329,240	2	51	126,623	200,111	14,187	188,377	529,297	0.992	0.615	1.608
2011	325,187	2	47	69,477	204,966	126,237	206,385	607,065	0.844	1.023	1.867
2012	317,224	1	46	52,038	62,208	2,229	102,073	218,548	0.360	0.329	0.689
2013	349,353	1	39	35,344	222,467	13,290	143,566	414,667	0.738	0.449	1.187
MA Total:	1,652,612	6	241	283,483	858,551	155,943	839,882	2,137,858	0.691	0.603	1.294

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.640	0.936	.
(14) Massachusetts Credibility:	0.330	0.520	.
(15) Countrywide Pure Premium:	1.189	0.657	1.846
(16) Countrywide Indicated Relativity:	1.214	1.158	.
(17) Countrywide Credibility:	0.340	0.240	.
(18) Countrywide Lost-Time Claims:	995.00	.	.
(19) Pure Premium Underlying Present Rate:	1.068	0.751	1.819
(20) Relativity to Underlying Present Rate:	1.204	1.251	.
(21) Credibility to Underlying Relativity:	0.330	0.240	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.021	1.065	.
(24) Balanced Formula Relativity:	1.007	1.058	1.026

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Calculation of Class Relativities

Class(es): 4282 DRESS PATTERN MFG-PAPER		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	515	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	520	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	1,674	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	2,241	0	1	0	0	0	925	925	0.000	0.413	0.413
2013	10,227	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	15,177	0	1	0	0	0	925	925	0.000	0.061	0.061

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.095	.
(14) Massachusetts Credibility:	0.030	0.050	.
(15) Countrywide Pure Premium:	0.079	0.143	0.222
(16) Countrywide Indicated Relativity:	0.081	0.252	.
(17) Countrywide Credibility:	0.130	0.140	.
(18) Countrywide Lost-Time Claims:	7.000	.	.
(19) Pure Premium Underlying Present Rate:	0.397	0.253	0.650
(20) Relativity to Underlying Present Rate:	0.447	0.422	.
(21) Credibility to Underlying Relativity:	0.840	0.810	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.386	0.382	.
(24) Balanced Formula Relativity:	0.381	0.379	0.380

Class(es): 4283 BUILDING OR ROOFING PAPER OR FELT PREPARATION-NO INSTALLATION		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	90	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	536	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	3,170	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	13,526	0	3	0	10,341	0	4,401	14,741	0.765	0.325	1.090
MA Total:	17,322	0	3	0	10,341	0	4,401	14,741	0.597	0.254	0.851

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.553	0.395	.
(14) Massachusetts Credibility:	0.060	0.080	.
(15) Countrywide Pure Premium:	0.692	0.446	1.138
(16) Countrywide Indicated Relativity:	0.707	0.786	.
(17) Countrywide Credibility:	0.380	0.400	.
(18) Countrywide Lost-Time Claims:	101.00	.	.
(19) Pure Premium Underlying Present Rate:	1.153	0.671	1.824
(20) Relativity to Underlying Present Rate:	1.299	1.118	.
(21) Credibility to Underlying Relativity:	0.560	0.520	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.029	0.928	.
(24) Balanced Formula Relativity:	1.015	0.921	0.980

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Calculation of Class Relativities

Class(es): 4299 PRINTING		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	2,175,170	9	281	1,293,961	1,432,506	377,745	974,357	4,078,569	1,253	0.622	1.875
2010	2,119,728	9	224	902,589	856,705	683,846	654,860	3,098,000	0.830	0.632	1.462
2011	2,216,521	15	243	1,334,582	934,117	615,010	620,477	3,504,186	1.024	0.557	1.581
2012	2,135,761	7	189	1,350,667	649,356	634,116	667,526	3,301,664	0.936	0.609	1.546
2013	2,261,978	8	300	956,259	1,427,025	151,963	1,405,591	3,940,837	1.054	0.689	1.742
MA Total:	10,909,158	48	1,237	5,838,058	5,299,709	2,462,680	4,322,811	17,923,257	1.021	0.622	1.643

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.945	0.966	.
(14) Massachusetts Credibility:	0.640	0.900	.
(15) Countrywide Pure Premium:	0.977	0.556	1.533
(16) Countrywide Indicated Relativity:	0.998	0.980	.
(17) Countrywide Credibility:	0.180	0.050	.
(18) Countrywide Lost-Time Claims:	5374.0	.	.
(19) Pure Premium Underlying Present Rate:	0.816	0.453	1.269
(20) Relativity to Underlying Present Rate:	0.920	0.754	.
(21) Credibility to Underlying Relativity:	0.180	0.050	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.950	0.956	.
(24) Balanced Formula Relativity:	0.937	0.950	0.942

Class(es): 4301 WALLPAPER MFG		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	154	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	99	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	16	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	0	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	269	0	0	0	0	0	0	0	0.000	0.000	0.000

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.010	0.020	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	2.819	2.435	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	2.540	1.485	4.025
(20) Relativity to Underlying Present Rate:	2.862	2.474	.
(21) Credibility to Underlying Relativity:	0.990	0.980	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	2.833	2.425	.
(24) Balanced Formula Relativity:	2.794	2.408	2.650

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Calculation of Class Relativities

Class(es): 4304 NEWSPAPER PUBLISHING		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	198.733	1	32	37.665	19.400	19.156	83.826	160.047	0.287	0.518	0.805
2010	216.181	2	39	201.975	9.605	248.364	39.046	498.990	0.979	1.329	2.308
2011	245.890	5	32	721.910	157.449	964.780	155.589	1,999.728	3.576	4.556	8.133
2012	209.545	7	34	1,095.620	124.212	709.484	99.904	2,029.220	5.821	3.863	9.684
2013	217.445	3	42	302.350	937.867	248.446	329.753	1,818.415	5.704	2.659	8.363
MA Total:	1,087.794	18	179	2,359,519	1,248,533	2,190,229	708,118	6,506,399	3.317	2.664	5.981

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.070	4.139	.
(14) Massachusetts Credibility:	0.320	0.490	.
(15) Countrywide Pure Premium:	1.907	1.243	3.150
(16) Countrywide Indicated Relativity:	1.947	2.191	.
(17) Countrywide Credibility:	0.340	0.260	.
(18) Countrywide Lost-Time Claims:	1514.0	.	.
(19) Pure Premium Underlying Present Rate:	1.418	1.008	2.426
(20) Relativity to Underlying Present Rate:	1.598	1.679	.
(21) Credibility to Underlying Relativity:	0.340	0.250	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	2.188	3.018	.
(24) Balanced Formula Relativity:	2.158	2.997	2.471

Class(es): 4307 BOOKBINDING		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	202.250	0	18	0	74.690	0	29.130	103.820	0.369	0.144	0.513
2010	195.513	1	23	96.470	158.837	3.869	107.043	366.219	1.306	0.567	1.873
2011	143.463	3	13	64.268	30.427	156.190	70.336	321.222	0.660	1.579	2.239
2012	156.720	1	8	245.556	33.027	25.564	33.649	337.795	1.778	0.378	2.155
2013	149.370	0	10	0	235.658	0	168.419	404.077	1.578	1.128	2.705
MA Total:	847.316	5	72	406,294	532,639	185,623	408,577	1,533,133	1.108	0.701	1.809

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.026	1.089	.
(14) Massachusetts Credibility:	0.220	0.330	.
(15) Countrywide Pure Premium:	0.800	0.487	1.288
(16) Countrywide Indicated Relativity:	0.817	0.859	.
(17) Countrywide Credibility:	0.390	0.340	.
(18) Countrywide Lost-Time Claims:	293.00	.	.
(19) Pure Premium Underlying Present Rate:	0.709	0.460	1.169
(20) Relativity to Underlying Present Rate:	0.799	0.766	.
(21) Credibility to Underlying Relativity:	0.390	0.330	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.856	0.905	.
(24) Balanced Formula Relativity:	0.844	0.898	0.864

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
4308 LINOTYPE OR HAND COMPOSITION											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	104	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	104	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	114	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	115	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	118	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	556	0	0	0	0	0	0	0	0.000	0.000	0.000

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.020	0.010	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	1.679	0.400	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	1.513	0.244	1.756
(20) Relativity to Underlying Present Rate:	1.705	0.406	.
(21) Credibility to Underlying Relativity:	0.980	0.990	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.671	0.402	.
(24) Balanced Formula Relativity:	1.647	0.399	1.181

Class(es):		Effective: 7/1/2016							Manufacturing		
4350 ELECTROTYPING											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	1	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	3	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	4	0	0	0	0	0	0	0	0.000	0.000	0.000

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.000	0.000	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	0.313	0.249	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	0.282	0.152	0.433
(20) Relativity to Underlying Present Rate:	0.317	0.253	.
(21) Credibility to Underlying Relativity:	1.000	1.000	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.317	0.253	.
(24) Balanced Formula Relativity:	0.313	0.251	0.290

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Calculation of Class Relativities

Class(es): 4351 PHOTOENGRAVING		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	246,799	0	17	0	3,407	0	21,856	25,263	0.014	0.089	0.102
2010	280,999	1	13	53,970	47,335	16,051	15,741	133,099	0.361	0.113	0.474
2011	240,577	0	25	0	79,591	0	18,371	97,962	0.331	0.076	0.407
2012	243,488	0	15	0	10,187	0	7,746	17,933	0.042	0.032	0.074
2013	264,619	1	25	87,031	40,561	120,665	42,803	291,059	0.482	0.618	1.100
MA Total:	1,276,482	2	95	141,001	181,081	136,716	106,517	565,315	0.252	0.191	0.443

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.234	0.296	.
(14) Massachusetts Credibility:	0.230	0.300	.
(15) Countrywide Pure Premium:	0.267	0.236	0.503
(16) Countrywide Indicated Relativity:	0.273	0.416	.
(17) Countrywide Credibility:	0.260	0.270	.
(18) Countrywide Lost-Time Claims:	38,000	.	.
(19) Pure Premium Underlying Present Rate:	0.551	0.243	0.795
(20) Relativity to Underlying Present Rate:	0.622	0.405	.
(21) Credibility to Underlying Relativity:	0.510	0.430	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.442	0.376	.
(24) Balanced Formula Relativity:	0.436	0.373	0.412

Class(es): 4352 ENGRAVING		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	66,594	0	1	0	0	0	1,201	1,201	0.000	0.018	0.018
2010	54,318	0	4	0	3,004	0	2,614	5,618	0.055	0.048	0.103
2011	58,801	0	3	0	394	0	2,677	3,071	0.007	0.046	0.052
2012	52,698	0	4	0	67,822	0	66,090	133,912	1.287	1.254	2.541
2013	46,244	0	1	0	0	0	224	224	0.000	0.005	0.005
MA Total:	278,655	0	13	0	71,220	0	72,806	144,026	0.256	0.261	0.517

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.237	0.406	.
(14) Massachusetts Credibility:	0.110	0.180	.
(15) Countrywide Pure Premium:	2.193	0.588	2.781
(16) Countrywide Indicated Relativity:	2.239	1.038	.
(17) Countrywide Credibility:	0.340	0.360	.
(18) Countrywide Lost-Time Claims:	80,000	.	.
(19) Pure Premium Underlying Present Rate:	0.375	0.301	0.676
(20) Relativity to Underlying Present Rate:	0.423	0.501	.
(21) Credibility to Underlying Relativity:	0.550	0.460	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.020	0.677	.
(24) Balanced Formula Relativity:	1.006	0.672	0.881

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
4360 MOTION PICTURE: DEVLPMNT OF NEGATIVES, PRINTING & ALL SUB OP											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	145,841	0	4	0	26,329	0	8,680	35,009	0.181	0.060	0.240
2010	126,006	0	4	0	11,357	0	8,154	19,511	0.090	0.065	0.155
2011	113,434	0	3	0	27,934	0	35,322	63,256	0.246	0.311	0.558
2012	125,451	0	3	0	1,354	0	8,356	9,710	0.011	0.067	0.077
2013	577,792	0	5	0	0	0	30,648	30,648	0.000	0.053	0.053
MA Total:	1,088,524	0	19	0	66,974	0	91,159	158,133	0.062	0.084	0.145

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.057	0.130	.
(14) Massachusetts Credibility:	0.220	0.340	.
(15) Countrywide Pure Premium:	0.430	0.231	0.662
(16) Countrywide Indicated Relativity:	0.439	0.408	.
(17) Countrywide Credibility:	0.390	0.330	.
(18) Countrywide Lost-Time Claims:	176.00	.	.
(19) Pure Premium Underlying Present Rate:	0.553	0.400	0.952
(20) Relativity to Underlying Present Rate:	0.623	0.666	.
(21) Credibility to Underlying Relativity:	0.390	0.330	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.427	0.399	.
(24) Balanced Formula Relativity:	0.421	0.396	0.411

Class(es):		Effective: 7/1/2016							Office and Clerical		
4361 PHOTOGRAPHER - ALL EMP & CLERICAL, SALES, DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	715,567	1	23	102,598	53,761	31,425	101,799	289,583	0.219	0.186	0.405
2010	664,240	1	41	93,405	24,766	21,168	52,118	191,457	0.178	0.110	0.288
2011	641,074	2	33	132,618	19,780	19,602	40,197	212,196	0.238	0.093	0.331
2012	646,987	1	19	30,880	71,952	58,598	49,161	210,591	0.159	0.167	0.325
2013	615,430	1	23	305,697	68,033	424,887	61,283	859,899	0.607	0.790	1.397
MA Total:	3,283,297	6	139	665,198	238,291	555,679	304,558	1,763,726	0.275	0.262	0.537

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.276	4.559	.
(14) Massachusetts Credibility:	0.250	0.420	.
(15) Countrywide Pure Premium:	0.373	0.261	0.635
(16) Countrywide Indicated Relativity:	5.478	5.298	.
(17) Countrywide Credibility:	0.380	0.290	.
(18) Countrywide Lost-Time Claims:	701.00	.	.
(19) Pure Premium Underlying Present Rate:	0.268	0.228	0.496
(20) Relativity to Underlying Present Rate:	4.010	4.476	.
(21) Credibility to Underlying Relativity:	0.370	0.290	.
(22) Industry Group Converted Pure Premium:	0.084	0.057	0.141
(23) Formula Relativity:	4.385	4.749	.
(24) Balanced Formula Relativity:	4.370	4.752	4.525

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services		
4362 MOTION PICTURE: FILM EXCH & PROJECTION RMS, CL											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	6.773	0	1	0	0	0	678	678	0.000	0.100	0.100
2010	7.685	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	10.871	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	9.920	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	8.720	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	43,970	0	1	0	0	0	678	678	0.000	0.015	0.015

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.026	.
(14) Massachusetts Credibility:	0.050	0.070	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	0.370	0.355	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	0.288	0.192	0.481
(20) Relativity to Underlying Present Rate:	0.372	0.357	.
(21) Credibility to Underlying Relativity:	0.950	0.930	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	0.354	0.334	.
(24) Balanced Formula Relativity:	0.352	0.334	0.345

Class(es):		Effective: 7/1/2016							Manufacturing		
4410 RUBBER GOODS MFG NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	401.442	1	65	174.302	430.221	33.658	188.995	827.175	1.506	0.555	2.061
2010	330.791	2	73	230.650	211.919	26.479	162.529	631.578	1.338	0.571	1.909
2011	480.166	3	88	914.061	323.419	207.135	352.801	1,797.416	2.577	1.166	3.743
2012	482.498	0	73	0	215.092	0	193.762	408.854	0.446	0.402	0.847
2013	575.690	1	95	59.730	286.474	19.406	252.185	617.794	0.601	0.472	1.073
MA Total:	2,270.587	7	394	1,378.744	1,467.125	286.678	1,150.271	4,282.818	1.253	0.633	1.886

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.160	0.983	.
(14) Massachusetts Credibility:	0.460	0.680	.
(15) Countrywide Pure Premium:	1.569	0.933	2.503
(16) Countrywide Indicated Relativity:	1.602	1.646	.
(17) Countrywide Credibility:	0.270	0.160	.
(18) Countrywide Lost-Time Claims:	2500.0	.	.
(19) Pure Premium Underlying Present Rate:	1.744	1.082	2.825
(20) Relativity to Underlying Present Rate:	1.965	1.802	.
(21) Credibility to Underlying Relativity:	0.270	0.160	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.497	1.220	.
(24) Balanced Formula Relativity:	1.476	1.212	1.377

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
4417 BOOT OR SHOE MFG-RUBBER											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	952	0	1	0	0	0	511	511	0.000	0.537	0.537
2012	259	0	1	0	0	0	263	263	0.000	1.015	1.015
2013	157	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	1,369	0	2	0	0	0	774	774	0.000	0.566	0.566

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.879	.
(14) Massachusetts Credibility:	0.030	0.040	.
(15) Countrywide Pure Premium:	1.958	0.329	2.286
(16) Countrywide Indicated Relativity:	1.999	0.579	.
(17) Countrywide Credibility:	0.100	0.110	.
(18) Countrywide Lost-Time Claims:	4.000	.	.
(19) Pure Premium Underlying Present Rate:	2.214	1.308	3.522
(20) Relativity to Underlying Present Rate:	2.495	2.179	.
(21) Credibility to Underlying Relativity:	0.870	0.850	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	2.371	1.951	.
(24) Balanced Formula Relativity:	2.338	1.938	2.188

Class(es):		Effective: 7/1/2016							Manufacturing		
4432 FOUNTAIN PEN MFG											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	42.475	0	4	0	35.886	0	14.839	50.725	0.845	0.349	1.194
2010	35.688	0	3	0	44.400	0	15.785	60.185	1.244	0.442	1.686
2011	44.121	0	4	0	6.593	0	5.622	12.214	0.149	0.127	0.277
2012	56.910	0	2	0	588	0	3,568	4,156	0.010	0.063	0.073
2013	57.316	0	5	0	8,799	0	21,626	30,425	0.154	0.377	0.531
MA Total:	236,511	0	18	0	96,266	0	61,438	157,704	0.407	0.260	0.667

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.377	0.404	.
(14) Massachusetts Credibility:	0.110	0.170	.
(15) Countrywide Pure Premium:	0.462	0.326	0.788
(16) Countrywide Indicated Relativity:	0.472	0.575	.
(17) Countrywide Credibility:	0.250	0.260	.
(18) Countrywide Lost-Time Claims:	35.000	.	.
(19) Pure Premium Underlying Present Rate:	0.507	0.331	0.838
(20) Relativity to Underlying Present Rate:	0.572	0.551	.
(21) Credibility to Underlying Relativity:	0.640	0.570	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.525	0.532	.
(24) Balanced Formula Relativity:	0.518	0.528	0.522

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Section IX - Classification Pricing
 Subsection G - Class Relativities
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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
4439 LACQUER OR SPIRIT VARNISH MFG											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	35,122	0	5	0	304	0	1,609	1,913	0.009	0.046	0.054
2010	31,680	1	4	239,244	154,655	35,863	42,204	471,965	12,434	2,464	14,898
2011	38,625	1	5	184,837	92,755	51,159	85,637	414,387	7,187	3,542	10,729
2012	37,248	0	7	0	7,344	0	13,996	21,340	0.197	0.376	0.573
2013	41,169	0	4	0	0	0	2,353	2,353	0.000	0.057	0.057
MA Total:	183,844	2	25	424,080	255,059	87,022	145,798	911,959	3.694	1.266	4.960

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.420	1.967	.
(14) Massachusetts Credibility:	0.160	0.260	.
(15) Countrywide Pure Premium:	0.711	0.657	1.369
(16) Countrywide Indicated Relativity:	0.726	1.159	.
(17) Countrywide Credibility:	0.180	0.190	.
(18) Countrywide Lost-Time Claims:	15.000	.	.
(19) Pure Premium Underlying Present Rate:	1.453	1.183	2.636
(20) Relativity to Underlying Present Rate:	1.637	1.971	.
(21) Credibility to Underlying Relativity:	0.660	0.550	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.759	1.816	.
(24) Balanced Formula Relativity:	1.734	1.803	1.760

Class(es):		Effective: 7/1/2016							Manufacturing		
4452 PLASTICS MFG: FABRICATED PRODUCTS NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	478,303	9	133	1,025,846	436,959	455,629	474,712	2,393,145	3,058	1,945	5,003
2010	519,447	5	139	337,247	658,188	67,233	456,605	1,519,273	1,916	1,008	2,925
2011	574,879	9	96	940,166	790,502	119,040	457,902	2,307,609	3,010	1,004	4,014
2012	637,446	2	93	62,267	294,214	27,434	180,423	564,338	0.559	0.326	0.885
2013	559,636	3	88	765,048	789,005	315,672	330,135	2,199,860	2,777	1,154	3,931
MA Total:	2,769,711	28	549	3,130,574	2,968,867	985,008	1,899,777	8,984,226	2.202	1.042	3.244

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.039	1.618	.
(14) Massachusetts Credibility:	0.480	0.710	.
(15) Countrywide Pure Premium:	1.289	0.834	2.122
(16) Countrywide Indicated Relativity:	1.316	1.470	.
(17) Countrywide Credibility:	0.260	0.150	.
(18) Countrywide Lost-Time Claims:	1600.0	.	.
(19) Pure Premium Underlying Present Rate:	1.579	0.989	2.569
(20) Relativity to Underlying Present Rate:	1.780	1.648	.
(21) Credibility to Underlying Relativity:	0.260	0.140	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.783	1.600	.
(24) Balanced Formula Relativity:	1.759	1.589	1.695

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
4459 PLASTICS MFG: SHEETS, RODS OR TUBES											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	626.730	8	128	1,049,608	612,780	448,658	382,321	2,493,367	2,652	1,326	3,978
2010	654.601	3	125	187,332	308,035	115,019	284,574	894,960	0.757	0.610	1,367
2011	615.528	2	120	86,936	561,582	32,114	438,755	1,119,387	1,054	0.765	1,819
2012	495.097	3	87	334,551	652,817	135,624	388,485	1,511,476	1,994	1,059	3,053
2013	628.200	1	104	65,618	782,356	24,697	491,772	1,364,444	1,350	0.822	2,172
MA Total:	3,020,157	17	564	1,724,045	2,917,570	756,112	1,985,907	7,383,635	1,537	0.908	2,445

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.423	1.410	.
(14) Massachusetts Credibility:	0.450	0.740	.
(15) Countrywide Pure Premium:	1.251	0.782	2.033
(16) Countrywide Indicated Relativity:	1.277	1.378	.
(17) Countrywide Credibility:	0.280	0.130	.
(18) Countrywide Lost-Time Claims:	2103.0	.	.
(19) Pure Premium Underlying Present Rate:	1.224	0.984	2.208
(20) Relativity to Underlying Present Rate:	1.379	1.639	.
(21) Credibility to Underlying Relativity:	0.270	0.130	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.370	1.436	.
(24) Balanced Formula Relativity:	1.351	1.426	1.379

Class(es):		Effective: 7/1/2016							Manufacturing		
4470 CABLE MFG - INSULATED ELECTRICAL											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	265.417	0	28	0	73,378	0	71,865	145,244	0.276	0.271	0.547
2010	436.481	3	47	382,297	323,458	54,203	126,221	886,179	1.617	0.413	2,030
2011	471.547	1	48	57,794	249,338	18,453	137,711	463,296	0.651	0.331	0.983
2012	527.935	0	60	0	258,673	0	373,047	631,720	0.490	0.707	1,197
2013	503.677	1	57	168,554	217,861	46,474	136,806	569,694	0.767	0.364	1,131
MA Total:	2,205,057	5	240	608,645	1,122,708	119,130	845,650	2,696,132	0.785	0.438	1,223

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.727	0.680	.
(14) Massachusetts Credibility:	0.370	0.530	.
(15) Countrywide Pure Premium:	1.140	0.660	1.801
(16) Countrywide Indicated Relativity:	1.164	1.164	.
(17) Countrywide Credibility:	0.320	0.240	.
(18) Countrywide Lost-Time Claims:	469.00	.	.
(19) Pure Premium Underlying Present Rate:	1.039	0.590	1.629
(20) Relativity to Underlying Present Rate:	1.170	0.983	.
(21) Credibility to Underlying Relativity:	0.310	0.230	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.004	0.866	.
(24) Balanced Formula Relativity:	0.990	0.860	0.942

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Section IX - Classification Pricing
 Subsection G - Class Relativities
 7/1/2016

Section IX - G
 Exhibit 96

Calculation of Class Relativities

Class(es): 4484 PLASTICS MFG: MOLDED PRODUCTS NOC		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	1,626,038	7	234	501,055	2,200,798	677,149	923,410	4,302,411	1,662	0,984	2,646
2010	1,819,501	5	274	184,415	1,558,162	99,543	779,763	2,621,883	0,958	0,483	1,441
2011	1,779,198	12	262	1,084,552	1,306,139	361,866	1,198,958	3,951,514	1,344	0,877	2,221
2012	1,767,294	10	225	910,061	1,291,565	259,877	745,671	3,207,174	1,246	0,569	1,815
2013	1,794,262	7	206	454,918	674,642	129,316	606,932	1,865,809	0,630	0,410	1,040
MA Total:	8,786,293	41	1,201	3,135,001	7,031,305	1,527,750	4,254,734	15,948,791	1,157	0,658	1,815

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.071	1.022	.
(14) Massachusetts Credibility:	0.620	0.970	.
(15) Countrywide Pure Premium:	1.159	0.730	1.889
(16) Countrywide Indicated Relativity:	1.183	1.287	.
(17) Countrywide Credibility:	0.190	0.020	.
(18) Countrywide Lost-Time Claims:	7836.0	.	.
(19) Pure Premium Underlying Present Rate:	0.945	0.671	1.616
(20) Relativity to Underlying Present Rate:	1.065	1.117	.
(21) Credibility to Underlying Relativity:	0.190	0.010	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.091	1.029	.
(24) Balanced Formula Relativity:	1.076	1.022	1.056

Class(es): 4493 FABRIC COATING OR IMPREGNATING NOC		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	362,073	3	89	59,086	86,256	68,110	102,213	315,665	0,401	0,470	0,872
2010	368,142	2	90	317,007	644,156	84,143	545,673	1,590,979	2,611	1,711	4,322
2011	357,725	2	73	23,000	333,626	54,593	274,003	685,223	0,997	0,919	1,916
2012	398,319	2	107	102,500	280,439	28,242	222,497	633,678	0,961	0,629	1,591
2013	408,848	0	57	0	175,883	0	119,829	295,711	0,430	0,293	0,723
MA Total:	1,895,107	9	416	501,594	1,520,358	235,089	1,264,215	3,521,255	1,067	0,791	1,858

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.988	1.229	.
(14) Massachusetts Credibility:	0.370	0.610	.
(15) Countrywide Pure Premium:	1.448	0.702	2.150
(16) Countrywide Indicated Relativity:	1.478	1.238	.
(17) Countrywide Credibility:	0.320	0.200	.
(18) Countrywide Lost-Time Claims:	157.00	.	.
(19) Pure Premium Underlying Present Rate:	1.230	0.981	2.211
(20) Relativity to Underlying Present Rate:	1.386	1.634	.
(21) Credibility to Underlying Relativity:	0.310	0.190	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.268	1.308	.
(24) Balanced Formula Relativity:	1.251	1.299	1.269

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services		
4511 ANALYTICAL CHEMIST											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	4,734,995	1	110	128,724	442,772	41,122	529,573	1,142,191	0.121	0.121	0.241
2010	5,451,733	0	95	0	468,693	0	272,815	741,508	0.086	0.050	0.136
2011	4,885,684	1	100	104,043	299,968	83,781	318,593	806,385	0.083	0.082	0.165
2012	5,986,136	4	110	120,786	408,175	183,945	360,875	1,073,782	0.088	0.091	0.179
2013	5,936,209	3	111	352,755	165,376	253,424	220,478	992,033	0.087	0.080	0.167
MA Total:	26,994,757	9	526	706,308	1,784,984	562,272	1,702,334	4,755,899	0.092	0.084	0.176

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.097	0.140	.
(14) Massachusetts Credibility:	0.450	0.660	.
(15) Countrywide Pure Premium:	0.229	0.151	0.380
(16) Countrywide Indicated Relativity:	0.239	0.247	.
(17) Countrywide Credibility:	0.280	0.170	.
(18) Countrywide Lost-Time Claims:	1418.0	.	.
(19) Pure Premium Underlying Present Rate:	0.139	0.085	0.225
(20) Relativity to Underlying Present Rate:	0.180	0.158	.
(21) Credibility to Underlying Relativity:	0.270	0.170	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	0.159	0.161	.
(24) Balanced Formula Relativity:	0.158	0.161	0.159

Class(es):		Effective: 7/1/2016							Goods and Services		
4512 BIOMEDICAL RESEARCH LABS-INCL OUTSIDE OPERATNS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	5,808,621	1	102	23,554	450,105	5,366	697,532	1,176,558	0.082	0.121	0.203
2010	6,048,504	1	96	2,916	247,961	12,817	200,706	464,400	0.041	0.035	0.077
2011	8,083,552	2	112	422,617	68,606	188,025	178,990	858,239	0.061	0.045	0.106
2012	6,632,185	0	86	0	68,185	0	138,748	206,933	0.010	0.021	0.031
2013	9,156,498	0	85	0	228,214	0	162,111	390,325	0.025	0.018	0.043
MA Total:	35,729,360	4	481	449,088	1,063,071	206,209	1,378,088	3,096,455	0.042	0.044	0.087

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.044	0.074	.
(14) Massachusetts Credibility:	0.350	0.560	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	0.072	0.079	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	0.056	0.043	0.099
(20) Relativity to Underlying Present Rate:	0.072	0.079	.
(21) Credibility to Underlying Relativity:	0.650	0.440	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	0.063	0.076	.
(24) Balanced Formula Relativity:	0.062	0.076	0.068

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Calculation of Class Relativities

Class(es): 4557 INK MFG		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	308.136	1	21	216.726	167.606	44.185	42.835	471.351	1.247	0.282	1.530
2010	677.555	3	98	238.623	628.438	116.820	240.060	1,223.941	1.280	0.527	1.806
2011	688.303	5	94	834.037	182.480	417.519	207.401	1,641.437	1.477	0.908	2.385
2012	641.594	1	81	1.550	261.066	3.166	271.489	537.271	0.409	0.428	0.837
2013	380.076	2	52	626.846	168.436	266.990	138.554	1,200.825	2.092	1.067	3.159
MA Total:	2,695.664	12	346	1,917.781	1,408.026	848.680	900.338	5,074.825	1.234	0.649	1.883

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.142	1.008	.
(14) Massachusetts Credibility:	0.370	0.550	.
(15) Countrywide Pure Premium:	0.921	0.497	1.418
(16) Countrywide Indicated Relativity:	0.941	0.876	.
(17) Countrywide Credibility:	0.320	0.230	.
(18) Countrywide Lost-Time Claims:	510.00	.	.
(19) Pure Premium Underlying Present Rate:	0.822	0.522	1.344
(20) Relativity to Underlying Present Rate:	0.927	0.870	.
(21) Credibility to Underlying Relativity:	0.310	0.220	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.011	0.947	.
(24) Balanced Formula Relativity:	0.997	0.941	0.976

Class(es): 4558 PAINT MFG		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	72.585	1	7	11.141	37.628	477	25.383	74.630	0.672	0.356	1.028
2010	78.148	1	7	7.729	1.910	37.798	5.391	52.829	0.123	0.553	0.676
2011	75.761	0	3	0	10.132	0	41.772	51.905	0.134	0.551	0.685
2012	75.903	0	4	0	3.170	0	4.135	7.304	0.042	0.054	0.096
2013	85.298	0	8	0	17.997	0	27.226	45.222	0.211	0.319	0.530
MA Total:	387.695	2	29	18.870	70.837	38.275	103.908	231.890	0.231	0.367	0.598

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.214	0.570	.
(14) Massachusetts Credibility:	0.150	0.240	.
(15) Countrywide Pure Premium:	0.758	0.419	1.177
(16) Countrywide Indicated Relativity:	0.773	0.739	.
(17) Countrywide Credibility:	0.430	0.380	.
(18) Countrywide Lost-Time Claims:	405.00	.	.
(19) Pure Premium Underlying Present Rate:	0.655	0.461	1.116
(20) Relativity to Underlying Present Rate:	0.738	0.769	.
(21) Credibility to Underlying Relativity:	0.420	0.380	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.675	0.710	.
(24) Balanced Formula Relativity:	0.665	0.705	0.680

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
4583 FERTILIZER MFG & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	45,919	0	5	0	241,562	0	67,023	308,585	5,261	1,460	6,720
2010	45,676	0	7	0	198,066	0	29,478	227,544	4,336	0,645	4,982
2011	48,412	0	0	0	0	0	0	0	0,000	0,000	0,000
2012	46,510	0	4	0	113,845	0	34,810	148,655	2,448	0,748	3,196
2013	43,040	0	0	0	0	0	0	0	0,000	0,000	0,000
MA Total:	229,558	0	16	0	553,474	0	131,310	684,784	2,411	0,572	2,983

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.232	0.889	.
(14) Massachusetts Credibility:	0.180	0.250	.
(15) Countrywide Pure Premium:	2.165	1.130	3.295
(16) Countrywide Indicated Relativity:	2.210	1.992	.
(17) Countrywide Credibility:	0.410	0.380	.
(18) Countrywide Lost-Time Claims:	533.00	.	.
(19) Pure Premium Underlying Present Rate:	1.526	0.836	2.363
(20) Relativity to Underlying Present Rate:	1.720	1.394	.
(21) Credibility to Underlying Relativity:	0.410	0.370	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	2.013	1.495	.
(24) Balanced Formula Relativity:	1.985	1.485	1.798

Class(es):		Effective: 7/1/2016							Manufacturing		
4611 DRUG MEDICINE OR PHARMACEUTICAL PREP-NO MFG OF INGREDIENTS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	827,425	0	62	0	117,562	0	122,156	239,718	0.142	0.148	0.290
2010	527,732	6	37	558,646	24,399	187,059	33,065	803,169	1.105	0.417	1.522
2011	1,536,996	2	42	116,967	259,772	86,505	168,274	631,518	0.245	0.166	0.411
2012	1,679,751	1	35	6,746	120,941	7,115	55,191	189,993	0.076	0.037	0.113
2013	1,025,609	0	41	0	32,897	0	81,726	114,623	0.032	0.080	0.112
MA Total:	5,597,512	9	217	682,359	555,572	280,679	460,411	1,979,021	0.221	0.132	0.354

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.205	0.206	.
(14) Massachusetts Credibility:	0.400	0.620	.
(15) Countrywide Pure Premium:	0.424	0.258	0.682
(16) Countrywide Indicated Relativity:	0.433	0.456	.
(17) Countrywide Credibility:	0.300	0.190	.
(18) Countrywide Lost-Time Claims:	1897.0	.	.
(19) Pure Premium Underlying Present Rate:	0.477	0.344	0.821
(20) Relativity to Underlying Present Rate:	0.538	0.573	.
(21) Credibility to Underlying Relativity:	0.300	0.190	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.373	0.323	.
(24) Balanced Formula Relativity:	0.368	0.321	0.350

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
4635 OXYGEN OR HYDROGEN MFG & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	82,429	2	17	58,135	220,940	52,558	264,705	596,339	3,386	3,849	7,235
2010	156,848	1	39	7,383	64,427	9,300	159,474	240,584	0,458	1,076	1,534
2011	170,281	1	34	152,075	851,364	53,555	400,172	1,457,167	5,893	2,665	8,557
2012	152,871	3	35	482,443	843,092	150,071	227,915	1,703,521	8,671	2,473	11,144
2013	145,252	3	29	276,401	242,151	93,996	302,799	915,346	3,570	2,732	6,302
MA Total:	707,682	10	154	976,437	2,221,974	359,480	1,355,066	4,912,958	4,520	2,423	6,942

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	4.184	3.764	.
(14) Massachusetts Credibility:	0.280	0.440	.
(15) Countrywide Pure Premium:	1.469	0.708	2.177
(16) Countrywide Indicated Relativity:	1.500	1.248	.
(17) Countrywide Credibility:	0.360	0.280	.
(18) Countrywide Lost-Time Claims:	702.00	.	.
(19) Pure Premium Underlying Present Rate:	1.571	1.169	2.740
(20) Relativity to Underlying Present Rate:	1.770	1.948	.
(21) Credibility to Underlying Relativity:	0.360	0.280	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	2.349	2.551	.
(24) Balanced Formula Relativity:	2.316	2.533	2.397

Class(es):		Effective: 7/1/2016							Manufacturing		
4653 GLUE MFG & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	30,824	0	2	0	0	0	3,100	3,100	0.000	0.101	0.101
2010	27,077	1	2	275,455	106,155	112,995	13,948	508,553	14.093	4.688	18.782
2011	27,065	0	1	0	579	0	1,240	1,819	0.021	0.046	0.067
2012	17,929	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	43,947	0	2	0	0	0	721	721	0.000	0.016	0.016
MA Total:	146,843	1	7	275,455	106,734	112,995	19,009	514,192	2.603	0.899	3.502

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.409	1.397	.
(14) Massachusetts Credibility:	0.120	0.170	.
(15) Countrywide Pure Premium:	0.676	0.489	1.165
(16) Countrywide Indicated Relativity:	0.690	0.863	.
(17) Countrywide Credibility:	0.290	0.300	.
(18) Countrywide Lost-Time Claims:	51.000	.	.
(19) Pure Premium Underlying Present Rate:	0.879	0.508	1.387
(20) Relativity to Underlying Present Rate:	0.990	0.846	.
(21) Credibility to Underlying Relativity:	0.590	0.530	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.074	0.945	.
(24) Balanced Formula Relativity:	1.059	0.938	1.014

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Section IX - Classification Pricing
 Subsection G - Class Relativities
 7/1/2016

Section IX - G
 Exhibit 101

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing			
4665 RENDERING WORKS NOC & DR												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	44,738	0	11	0	65,052	0	79,807	144,859	1,454	1,784	3,238	
2010	44,107	0	16	0	244,549	0	95,363	339,912	5,544	2,162	7,707	
2011	46,413	1	18	3,060	70,400	955	148,715	223,131	1,583	3,225	4,808	
2012	50,236	1	14	110,192	31,363	14,117	36,785	192,456	2,818	1,013	3,831	
2013	53,599	0	10	0	139,605	0	50,212	189,817	2,605	0,937	3,541	
MA Total:	239,093	2	69	113,252	550,969	15,072	410,882	1,090,175	2,778	1,782	4,560	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.572	2.768	.
(14) Massachusetts Credibility:	0.240	0.360	.
(15) Countrywide Pure Premium:	3.237	1.818	5.055
(16) Countrywide Indicated Relativity:	3.305	3.206	.
(17) Countrywide Credibility:	0.380	0.320	.
(18) Countrywide Lost-Time Claims:	340.00	.	.
(19) Pure Premium Underlying Present Rate:	3.261	2.118	5.379
(20) Relativity to Underlying Present Rate:	3.675	3.528	.
(21) Credibility to Underlying Relativity:	0.380	0.320	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	3.269	3.151	.
(24) Balanced Formula Relativity:	3.224	3.130	3.189

Class(es):		Effective: 7/1/2016							Manufacturing			
4692 DENTAL LABORATORY												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	267,732	1	7	482,907	597	16,622	14,489	514,615	1,806	0,116	1,922	
2010	284,609	0	5	0	92,374	0	22,538	114,912	0,325	0,079	0,404	
2011	258,513	2	7	144,003	1,211	68,461	14,629	228,304	0,562	0,321	0,883	
2012	274,869	0	13	0	24,851	0	28,215	53,066	0,090	0,103	0,193	
2013	314,706	0	6	0	0	0	8,853	8,853	0,000	0,028	0,028	
MA Total:	1,400,429	3	38	626,911	119,032	85,083	88,724	919,750	0,533	0,124	0,657	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.493	0.193	.
(14) Massachusetts Credibility:	0.200	0.250	.
(15) Countrywide Pure Premium:	0.257	0.164	0.421
(16) Countrywide Indicated Relativity:	0.262	0.289	.
(17) Countrywide Credibility:	0.400	0.380	.
(18) Countrywide Lost-Time Claims:	175.00	.	.
(19) Pure Premium Underlying Present Rate:	0.337	0.144	0.480
(20) Relativity to Underlying Present Rate:	0.379	0.239	.
(21) Credibility to Underlying Relativity:	0.400	0.370	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.355	0.247	.
(24) Balanced Formula Relativity:	0.350	0.245	0.311

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
4693 PHARMACEUTICAL OR SURGICAL GOODS MFG NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	308.732	1	9	155.687	8.489	20.557	10.897	195.629	0.532	0.102	0.634
2010	773.031	4	25	445.430	42.644	213.010	50.041	751.125	0.631	0.340	0.972
2011	850.720	2	57	275.004	274.983	46.860	223.039	819.886	0.646	0.317	0.964
2012	872.064	1	38	489.892	258.749	87.385	115.302	951.327	0.858	0.232	1.091
2013	717.593	1	35	54.307	381.220	29.019	277.090	741.636	0.607	0.427	1.034
MA Total:	3,522,141	9	164	1,420,319	966,084	396,831	676,369	3,459,604	0.678	0.305	0.982

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.627	0.473	.
(14) Massachusetts Credibility:	0.310	0.480	.
(15) Countrywide Pure Premium:	0.349	0.231	0.580
(16) Countrywide Indicated Relativity:	0.356	0.407	.
(17) Countrywide Credibility:	0.350	0.260	.
(18) Countrywide Lost-Time Claims:	736.00	.	.
(19) Pure Premium Underlying Present Rate:	0.416	0.285	0.701
(20) Relativity to Underlying Present Rate:	0.469	0.475	.
(21) Credibility to Underlying Relativity:	0.340	0.260	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.478	0.457	.
(24) Balanced Formula Relativity:	0.472	0.454	0.465

Class(es):		Effective: 7/1/2016							Manufacturing		
4720 SOAP OR SYNTHETIC DETERGENT MFG											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	151.537	0	23	0	26.477	0	57.492	83.970	0.175	0.379	0.554
2010	167.306	0	12	0	102.916	0	44.602	147.518	0.615	0.267	0.882
2011	172.331	2	16	183.417	98.712	56.546	202.744	541.420	1.637	1.505	3.142
2012	170.727	1	16	12.803	21.207	548	23.256	57.814	0.199	0.139	0.339
2013	179.979	1	26	128.101	229.363	59.278	148.347	565.088	1.986	1.154	3.140
MA Total:	841,881	4	93	324,322	478,675	116,372	476,441	1,395,810	0.954	0.704	1.658

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.883	1.094	.
(14) Massachusetts Credibility:	0.220	0.340	.
(15) Countrywide Pure Premium:	0.995	0.591	1.586
(16) Countrywide Indicated Relativity:	1.016	1.043	.
(17) Countrywide Credibility:	0.390	0.330	.
(18) Countrywide Lost-Time Claims:	457.00	.	.
(19) Pure Premium Underlying Present Rate:	0.729	0.528	1.256
(20) Relativity to Underlying Present Rate:	0.821	0.879	.
(21) Credibility to Underlying Relativity:	0.390	0.330	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.911	1.006	.
(24) Balanced Formula Relativity:	0.898	0.999	0.936

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
4740 OIL REFINING - PETROLEUM & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	19,283	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	19,344	0	1	0	4,798	0	1,414	6,212	0.248	0.073	0.321
2011	12,335	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	12,334	0	1	0	202,396	0	107,772	310,168	16,410	8,738	25,148
2013	17,540	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	80,835	0	2	0	207,194	0	109,186	316,380	2.563	1.351	3.914

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.373	2.098	.
(14) Massachusetts Credibility:	0.070	0.100	.
(15) Countrywide Pure Premium:	0.472	0.200	0.672
(16) Countrywide Indicated Relativity:	0.482	0.353	.
(17) Countrywide Credibility:	0.470	0.450	.
(18) Countrywide Lost-Time Claims:	500.00	.	.
(19) Pure Premium Underlying Present Rate:	0.418	0.236	0.654
(20) Relativity to Underlying Present Rate:	0.471	0.393	.
(21) Credibility to Underlying Relativity:	0.460	0.450	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.610	0.545	.
(24) Balanced Formula Relativity:	0.601	0.541	0.579

Class(es):		Effective: 7/1/2016							Manufacturing		
4741 ASPHALT OR TAR DISTILLING OR REFINING & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	7,658	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	11,027	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	9,977	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	6,605	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	6,337	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	41,604	0	0	0	0	0	0	0	0.000	0.000	0.000

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.080	0.110	.
(15) Countrywide Pure Premium:	1.214	0.508	1.722
(16) Countrywide Indicated Relativity:	1.240	0.895	.
(17) Countrywide Credibility:	0.420	0.440	.
(18) Countrywide Lost-Time Claims:	129.00	.	.
(19) Pure Premium Underlying Present Rate:	1.223	0.595	1.818
(20) Relativity to Underlying Present Rate:	1.378	0.992	.
(21) Credibility to Underlying Relativity:	0.500	0.450	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.210	0.840	.
(24) Balanced Formula Relativity:	1.193	0.834	1.059

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Calculation of Class Relativities

Class(es): 4771 EXPLOSIVES OR AMMUNITION MFG: NOC - & DRIVERS									Effective: 7/1/2016			Manufacturing		
Converted Unlimited Losses														
Amount														
		Claim Count		Indemnity		Medical				MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)			
2009	0	0	0	0	0	0	0	0	0.000	0.000	0.000			
2010	0	0	0	0	0	0	0	0	0.000	0.000	0.000			
2011	0	0	0	0	0	0	0	0	0.000	0.000	0.000			
2012	0	0	0	0	0	0	0	0	0.000	0.000	0.000			
2013	0	0	0	0	0	0	0	0	0.000	0.000	0.000			
MA Total:	0	0	0	0	0	0	0	0	.	.	.			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.000	0.000	.
(15) Countrywide Pure Premium:	1.362	0.724	2.086
(16) Countrywide Indicated Relativity:	1.391	1.276	.
(17) Countrywide Credibility:	0.500	0.500	.
(18) Countrywide Lost-Time Claims:	468.00	.	.
(19) Pure Premium Underlying Present Rate:	7.591	0.788	8.379
(20) Relativity to Underlying Present Rate:	8.554	1.313	.
(21) Credibility to Underlying Relativity:	0.500	0.500	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	4.973	1.294	.
(24) Balanced Formula Relativity:	4.904	1.285	3.553

Class(es): 4825 DRUG, MEDICINE OR PHARM PREP MFG & INCIDENTAL MFG INGREDIENTS									Effective: 7/1/2016			Manufacturing		
Converted Unlimited Losses														
Amount														
		Claim Count		Indemnity		Medical				MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)			
2009	1,255,954	2	34	315,667	25,085	608,792	78,376	1,027,920	0.271	0.547	0.818			
2010	2,654,673	5	62	1,448,951	35,372	636,527	183,092	2,303,941	0.559	0.309	0.868			
2011	3,995,700	7	137	788,582	764,932	261,324	734,359	2,549,197	0.389	0.249	0.638			
2012	2,807,236	1	61	1,560	437,689	7,223	215,914	662,387	0.156	0.079	0.236			
2013	2,577,211	0	43	0	243,439	0	160,085	403,524	0.094	0.062	0.157			
MA Total:	13,290,773	15	337	2,554,760	1,506,518	1,513,866	1,371,826	6,946,970	0.306	0.217	0.523			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.283	0.337	.
(14) Massachusetts Credibility:	0.470	0.750	.
(15) Countrywide Pure Premium:	0.414	0.249	0.663
(16) Countrywide Indicated Relativity:	0.423	0.438	.
(17) Countrywide Credibility:	0.270	0.130	.
(18) Countrywide Lost-Time Claims:	576.00	.	.
(19) Pure Premium Underlying Present Rate:	0.314	0.238	0.552
(20) Relativity to Underlying Present Rate:	0.354	0.397	.
(21) Credibility to Underlying Relativity:	0.260	0.120	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.339	0.358	.
(24) Balanced Formula Relativity:	0.335	0.355	0.342

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Section IX - Classification Pricing
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Section IX - G
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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Manufacturing		
4828 CHEMICAL BLENDING OR MIXING NOC- ALL OPERS & DR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	965,246	1	30	169,166	163,083	81,310	124,011	537,569	0.344	0.213	0.557
2010	659,579	0	24	0	14,427	0	38,147	52,574	0.022	0.058	0.080
2011	755,253	0	32	0	149,962	0	117,405	267,367	0.199	0.155	0.354
2012	780,680	1	27	165,233	372,992	87,999	192,420	818,644	0.689	0.359	1.049
2013	656,693	1	20	51,380	196,164	19,381	102,906	369,831	0.377	0.186	0.563
MA Total:	3,817,452	3	133	385,778	896,627	188,691	574,889	2,045,985	0.336	0.200	0.536

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.311	0.311	.
(14) Massachusetts Credibility:	0.350	0.490	.
(15) Countrywide Pure Premium:	0.675	0.354	1.030
(16) Countrywide Indicated Relativity:	0.690	0.624	.
(17) Countrywide Credibility:	0.330	0.260	.
(18) Countrywide Lost-Time Claims:	1907.0	.	.
(19) Pure Premium Underlying Present Rate:	0.529	0.284	0.813
(20) Relativity to Underlying Present Rate:	0.596	0.474	.
(21) Credibility to Underlying Relativity:	0.320	0.250	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.527	0.433	.
(24) Balanced Formula Relativity:	0.520	0.430	0.486

Class(es):		Effective: 7/1/2016							Construction		
5020 CEILING INSTALLATION-SUSPENDED ACOUSTICAL GRID											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	177,971	2	25	95,709	209,626	26,860	145,538	477,733	1.716	0.969	2.684
2010	179,647	0	17	0	109,642	0	108,850	218,491	0.610	0.606	1.216
2011	167,829	1	11	111,386	1,602	8,075	13,084	134,147	0.673	0.126	0.799
2012	183,097	0	15	0	1,086,949	0	289,163	1,376,112	5.936	1.579	7.516
2013	242,302	0	15	0	469,491	0	120,871	590,362	1.938	0.499	2.436
MA Total:	950,846	3	83	207,095	1,877,310	34,935	677,506	2,796,845	2.192	0.749	2.941

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.709	0.482	.
(14) Massachusetts Credibility:	0.410	0.500	.
(15) Countrywide Pure Premium:	3.537	1.605	5.142
(16) Countrywide Indicated Relativity:	1.140	1.031	.
(17) Countrywide Credibility:	0.300	0.250	.
(18) Countrywide Lost-Time Claims:	291.00	.	.
(19) Pure Premium Underlying Present Rate:	3.003	1.190	4.193
(20) Relativity to Underlying Present Rate:	1.155	0.858	.
(21) Credibility to Underlying Relativity:	0.290	0.250	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	0.968	0.713	.
(24) Balanced Formula Relativity:	0.983	0.716	0.894

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Calculation of Class Relativities

Class(es): 5022 MASONRY NOC		Effective: 7/1/2016							Construction		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	771,691	13	100	2,099,008	3,525,735	1,251,019	1,600,294	8,476,056	7,289	3,695	10,984
2010	864,617	7	100	1,111,461	2,620,688	308,211	924,107	4,964,467	4,317	1,425	5,742
2011	906,716	14	134	1,724,658	4,058,774	653,965	1,680,790	8,118,186	6,378	2,575	8,953
2012	1,070,288	10	123	1,378,888	2,933,274	1,031,804	1,642,213	6,986,180	4,029	2,498	6,527
2013	1,106,291	10	131	2,421,958	4,783,881	1,516,855	1,637,927	10,360,621	6,514	2,852	9,365
MA Total:	4,719,604	54	588	8,735,973	17,922,352	4,761,854	7,485,332	38,905,510	5,648	2,595	8,243

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.826	1.669	.
(14) Massachusetts Credibility:	0.890	1.000	.
(15) Countrywide Pure Premium:	4.873	2.250	7.123
(16) Countrywide Indicated Relativity:	1.571	1.446	.
(17) Countrywide Credibility:	0.060	0.000	.
(18) Countrywide Lost-Time Claims:	4819.0	.	.
(19) Pure Premium Underlying Present Rate:	4.333	1.947	6.281
(20) Relativity to Underlying Present Rate:	1.667	1.405	.
(21) Credibility to Underlying Relativity:	0.050	0.000	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	1.803	1.669	.
(24) Balanced Formula Relativity:	1.831	1.675	1.779

Class(es): 5037 PAINTING: METAL STRUCTURES-OVER 2 STORIES IN HEIGHT & DRIVERS		Effective: 7/1/2016							Construction		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	35,252	3	2	1,030,400	80,687	569,441	50,243	1,730,771	31,519	17,579	49,097
2010	65,604	1	5	168,670	453,135	26,907	99,179	747,891	9,478	1,922	11,400
2011	51,806	0	9	0	80,536	0	80,177	160,712	1,555	1,548	3,102
2012	69,799	0	10	0	1,478,249	0	465,071	1,943,320	21,179	6,663	27,842
2013	95,019	2	11	1,217,733	511,101	246,929	345,861	2,321,625	18,195	6,239	24,433
MA Total:	317,480	6	37	2,416,803	2,603,708	843,277	1,040,531	6,904,319	15,814	5,934	21,747

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	5.112	3.816	.
(14) Massachusetts Credibility:	0.440	0.540	.
(15) Countrywide Pure Premium:	11.385	4.415	15.800
(16) Countrywide Indicated Relativity:	3.670	2.837	.
(17) Countrywide Credibility:	0.280	0.230	.
(18) Countrywide Lost-Time Claims:	75,000	.	.
(19) Pure Premium Underlying Present Rate:	10.865	4.321	15.185
(20) Relativity to Underlying Present Rate:	4.180	3.117	.
(21) Credibility to Underlying Relativity:	0.280	0.230	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	4.447	3.430	.
(24) Balanced Formula Relativity:	4.518	3.443	4.158

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Construction		
5040 IRON OR STEEL: ERECTION: ERECTION-FRAME STRUCTURES											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	53,245	11	48	1,606,511	1,996,273	437,593	633,413	4,673,790	67,665	20,115	87,779
2010	50,861	3	27	969,664	1,854,713	182,083	441,142	3,447,601	55,532	12,254	67,785
2011	55,344	0	44	0	3,174,120	0	1,457,582	4,631,701	57,352	26,337	83,689
2012	75,779	1	28	383,360	2,198,591	105,424	726,944	3,414,319	34,072	10,984	45,057
2013	115,903	4	34	1,195,121	1,181,086	485,111	417,977	3,279,295	20,502	7,792	28,293
MA Total:	351,131	19	181	4,154,657	10,404,782	1,210,210	3,677,057	19,446,706	41,464	13,919	55,383

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	13.404	8.951	.
(14) Massachusetts Credibility:	0.720	0.900	.
(15) Countrywide Pure Premium:	5.232	2.364	7.596
(16) Countrywide Indicated Relativity:	1.687	1.519	.
(17) Countrywide Credibility:	0.140	0.050	.
(18) Countrywide Lost-Time Claims:	862.00	.	.
(19) Pure Premium Underlying Present Rate:	34.342	14.188	48.530
(20) Relativity to Underlying Present Rate:	13.213	10.236	.
(21) Credibility to Underlying Relativity:	0.140	0.050	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	11.737	8.644	.
(24) Balanced Formula Relativity:	11.923	8.675	10.836

Class(es):		Effective: 7/1/2016							Construction		
5057 IRON OR STEEL: ERECTION-NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	31,929	2	5	846,020	140,430	115,791	79,074	1,181,316	30,896	6,103	36,999
2010	11,000	0	2	0	278,515	0	51,743	330,258	25,320	4,704	30,024
2011	8,755	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	5,120	2	2	480,213	507,690	297,360	226,500	1,511,764	192,96	102,32	295,28
2013	8,314	0	4	0	49,409	0	14,426	63,835	5,943	1,735	7,678
MA Total:	65,118	4	13	1,326,234	976,045	413,151	371,743	3,087,173	35,356	12,053	47,409

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	11.429	7.751	.
(14) Massachusetts Credibility:	0.240	0.340	.
(15) Countrywide Pure Premium:	3.194	1.380	4.573
(16) Countrywide Indicated Relativity:	1.030	0.886	.
(17) Countrywide Credibility:	0.380	0.330	.
(18) Countrywide Lost-Time Claims:	796.00	.	.
(19) Pure Premium Underlying Present Rate:	11.513	6.784	18.297
(20) Relativity to Underlying Present Rate:	4.430	4.894	.
(21) Credibility to Underlying Relativity:	0.380	0.330	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	4.817	4.543	.
(24) Balanced Formula Relativity:	4.894	4.560	4.782

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Construction		
5059 IRON OR STEEL: ERECTION: FRAME STRUCT NOT OVER 2 STRS IN HGT											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	36.392	0	8	0	236.965	0	52.681	289.646	6.511	1.448	7.959
2010	35.832	0	15	0	45.950	0	52.952	98.903	1.282	1.478	2.760
2011	30.279	0	14	0	66.247	0	38.197	104.444	2.188	1.262	3.449
2012	35.484	0	5	0	106.117	0	31.867	137.984	2.991	0.898	3.889
2013	39.003	0	7	0	569.547	0	319.675	889.221	14.603	8.196	22.799
MA Total:	176.989	0	49	0	1,024.826	0	495.372	1,520.198	5.790	2.799	8.589

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.872	1.800	.
(14) Massachusetts Credibility:	0.350	0.510	.
(15) Countrywide Pure Premium:	10.607	6.243	16.850
(16) Countrywide Indicated Relativity:	3.419	4.012	.
(17) Countrywide Credibility:	0.330	0.250	.
(18) Countrywide Lost-Time Claims:	324.00	.	.
(19) Pure Premium Underlying Present Rate:	11.513	6.784	18.297
(20) Relativity to Underlying Present Rate:	4.430	4.894	.
(21) Credibility to Underlying Relativity:	0.320	0.240	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	3.201	3.096	.
(24) Balanced Formula Relativity:	3.252	3.107	3.203

Class(es):		Effective: 7/1/2016							Construction		
5102 DOOR, DOOR FRAME OR SASH ERECTION - METAL OR METAL COVERED											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	343.750	4	57	1,019.863	1,132.341	367.522	633.593	3,153.318	6.261	2.912	9.173
2010	355.796	2	34	426.169	432.847	117.035	354.258	1,330.309	2.414	1.325	3.739
2011	442.066	1	60	3.895	1,679.588	280	745.398	2,429.161	3.808	1.687	5.495
2012	481.656	5	53	1,544.949	281.046	238.094	194.112	2,258.201	3.791	0.897	4.688
2013	540.029	4	59	478.965	1,373.359	113.200	441.635	2,407.159	3.430	1.027	4.457
MA Total:	2,163.297	16	263	3,473.840	4,899.181	836.131	2,368.995	11,578.148	3.870	1.482	5.352

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.251	0.953	.
(14) Massachusetts Credibility:	0.570	0.690	.
(15) Countrywide Pure Premium:	3.241	1.598	4.838
(16) Countrywide Indicated Relativity:	1.045	1.027	.
(17) Countrywide Credibility:	0.220	0.160	.
(18) Countrywide Lost-Time Claims:	1429.0	.	.
(19) Pure Premium Underlying Present Rate:	3.057	1.183	4.240
(20) Relativity to Underlying Present Rate:	1.176	0.853	.
(21) Credibility to Underlying Relativity:	0.210	0.150	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	1.190	0.950	.
(24) Balanced Formula Relativity:	1.209	0.953	1.123

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Construction		
5146 FURNITURE OR FIXTURES INSTALLATION - PORTABLE - NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	531,159	6	71	970,384	1,234,475	661,255	404,999	3,271,113	4,151	2,007	6,158
2010	451,526	11	65	1,601,140	592,471	735,770	432,282	3,361,663	4,858	2,587	7,445
2011	580,224	8	115	876,154	3,398,670	716,655	1,159,918	6,151,397	7,368	3,234	10,602
2012	658,054	7	115	1,134,172	1,638,142	354,380	1,135,088	4,261,782	4,213	2,263	6,476
2013	566,667	9	94	1,029,977	800,565	370,959	436,871	2,638,373	3,230	1,426	4,656
MA Total:	2,787,630	41	460	5,611,828	7,664,322	2,839,019	3,569,158	19,684,327	4,763	2,299	7,061

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.540	1.478	.
(14) Massachusetts Credibility:	0.600	0.870	.
(15) Countrywide Pure Premium:	2.725	1.296	4.021
(16) Countrywide Indicated Relativity:	0.878	0.833	.
(17) Countrywide Credibility:	0.200	0.070	.
(18) Countrywide Lost-Time Claims:	1571.0	.	.
(19) Pure Premium Underlying Present Rate:	2.753	1.624	4.376
(20) Relativity to Underlying Present Rate:	1.059	1.171	.
(21) Credibility to Underlying Relativity:	0.200	0.060	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	1.311	1.415	.
(24) Balanced Formula Relativity:	1.332	1.420	1.361

Class(es):		Effective: 7/1/2016							Construction		
5160 ELEVATOR ERECTION OR REPAIR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	328,544	2	33	698,261	123,318	84,567	126,828	1,032,974	2,501	0,643	3,144
2010	611,633	6	45	1,772,018	521,298	602,951	284,094	3,180,361	3,749	1,450	5,200
2011	635,473	1	37	337,033	46,194	86,106	147,917	617,250	0,603	0,368	0,971
2012	720,375	4	41	1,148,992	570,723	206,367	263,627	2,189,710	2,387	0,652	3,040
2013	737,213	0	28	0	879,267	0	307,338	1,186,604	1,193	0,417	1,610
MA Total:	3,033,238	13	184	3,956,305	2,140,799	979,991	1,129,804	8,206,899	2,010	0,696	2,706

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.650	0.447	.
(14) Massachusetts Credibility:	0.520	0.680	.
(15) Countrywide Pure Premium:	1.562	0.627	2.189
(16) Countrywide Indicated Relativity:	0.503	0.403	.
(17) Countrywide Credibility:	0.240	0.160	.
(18) Countrywide Lost-Time Claims:	516.00	.	.
(19) Pure Premium Underlying Present Rate:	1.719	0.805	2.524
(20) Relativity to Underlying Present Rate:	0.661	0.581	.
(21) Credibility to Underlying Relativity:	0.240	0.160	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	0.617	0.462	.
(24) Balanced Formula Relativity:	0.627	0.463	0.572

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Section IX - Classification Pricing
 Subsection G - Class Relativities
 7/1/2016

Section IX - G
 Exhibit 110

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Construction		
5183 PLUMBING NOC & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	4,724,469	28	605	3,941,593	5,760,157	931,470	3,409,757	14,042,977	2,054	0,919	2,972
2010	5,102,393	25	673	4,518,511	8,286,049	1,208,478	4,367,178	18,380,216	2,510	1,093	3,602
2011	5,301,817	23	606	3,076,298	5,492,885	994,031	3,132,578	12,695,791	1,616	0,778	2,395
2012	5,766,987	20	606	3,323,016	6,883,319	1,090,463	3,812,947	15,109,745	1,770	0,850	2,620
2013	6,281,962	30	619	5,395,545	7,820,031	1,748,461	3,792,903	18,756,940	2,104	0,882	2,986
MA Total:	27,177,629	126	3,109	20,254,963	34,242,441	5,972,903	18,515,363	78,985,669	2,005	0,901	2,906

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.648	0.579	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	2.166	0.965	3.131
(16) Countrywide Indicated Relativity:	0.698	0.620	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	10374	.	.
(19) Pure Premium Underlying Present Rate:	1.618	0.788	2.406
(20) Relativity to Underlying Present Rate:	0.623	0.569	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	0.648	0.579	.
(24) Balanced Formula Relativity:	0.658	0.582	0.633

Class(es):		Effective: 7/1/2016							Construction		
5188 AUTOMATIC SPRINKLER INSTALLATION & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	519,505	2	63	929,671	1,632,031	160,377	798,940	3,521,020	4,931	1,847	6,778
2010	641,992	5	65	967,550	1,898,841	438,351	716,547	4,021,289	4,465	1,799	6,264
2011	647,171	2	71	68,790	717,824	68,825	243,908	1,099,348	1,215	0,483	1,699
2012	713,788	9	70	1,834,678	808,855	751,924	530,488	3,925,945	3,704	1,797	5,500
2013	805,626	3	66	109,561	1,808,876	125,489	620,791	2,664,717	2,381	0,926	3,308
MA Total:	3,328,081	21	335	3,910,251	6,866,427	1,544,966	2,910,675	15,232,319	3,238	1,339	4,577

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.047	0.861	.
(14) Massachusetts Credibility:	0.630	0.850	.
(15) Countrywide Pure Premium:	2.570	1.003	3.573
(16) Countrywide Indicated Relativity:	0.828	0.644	.
(17) Countrywide Credibility:	0.190	0.080	.
(18) Countrywide Lost-Time Claims:	1008.0	.	.
(19) Pure Premium Underlying Present Rate:	2.564	1.268	3.831
(20) Relativity to Underlying Present Rate:	0.986	0.915	.
(21) Credibility to Underlying Relativity:	0.180	0.070	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	0.994	0.847	.
(24) Balanced Formula Relativity:	1.010	0.850	0.957

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Construction		
5190 ELECTRICAL WIRING - WITHIN BUILDINGS & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	5,539,646	25	578	4,525,565	4,830,573	1,707,767	2,498,587	13,562,491	1,689	0,759	2,448
2010	5,798,146	16	616	2,305,677	5,644,163	1,318,470	4,164,715	13,433,025	1,371	0,946	2,317
2011	5,958,742	15	571	2,400,173	6,104,283	1,352,171	3,299,119	13,155,746	1,427	0,781	2,208
2012	6,494,389	31	528	4,581,180	5,143,759	1,731,076	2,790,133	14,246,148	1,497	0,696	2,194
2013	6,946,289	18	599	2,702,367	5,726,960	1,236,515	3,553,610	13,219,453	1,214	0,690	1,903
MA Total:	30,737,212	105	2,892	16,514,962	27,449,739	7,345,999	16,306,164	67,616,864	1,430	0,769	2,200

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.462	0.495	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	1.751	0.858	2.609
(16) Countrywide Indicated Relativity:	0.564	0.552	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	10047	.	.
(19) Pure Premium Underlying Present Rate:	1.289	0.738	2.027
(20) Relativity to Underlying Present Rate:	0.496	0.532	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	0.462	0.495	.
(24) Balanced Formula Relativity:	0.470	0.497	0.479

Class(es):		Effective: 7/1/2016							Goods and Services		
5191 OFFICE MACHICE OR APPLIANCE INSTALL, INSP, ADJSTMT OR REPAIR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	3,627,229	7	161	611,562	1,151,714	498,355	748,306	3,009,937	0.486	0.344	0.830
2010	3,758,302	5	180	985,971	1,523,601	513,476	1,352,783	4,375,830	0.668	0.497	1.164
2011	3,854,839	8	134	1,507,552	924,093	756,682	500,947	3,689,274	0.631	0.326	0.957
2012	3,653,712	9	155	1,062,158	307,785	517,043	363,859	2,250,844	0.375	0.241	0.616
2013	4,374,692	3	139	221,763	1,183,714	62,099	715,593	2,183,168	0.321	0.178	0.499
MA Total:	19,268,774	32	769	4,389,004	5,090,906	2,347,654	3,681,488	15,509,053	0.492	0.313	0.805

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.517	0.521	.
(14) Massachusetts Credibility:	0.640	0.990	.
(15) Countrywide Pure Premium:	0.473	0.237	0.710
(16) Countrywide Indicated Relativity:	0.493	0.389	.
(17) Countrywide Credibility:	0.180	0.010	.
(18) Countrywide Lost-Time Claims:	3737.0	.	.
(19) Pure Premium Underlying Present Rate:	0.465	0.321	0.786
(20) Relativity to Underlying Present Rate:	0.600	0.596	.
(21) Credibility to Underlying Relativity:	0.180	0.000	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	0.528	0.520	.
(24) Balanced Formula Relativity:	0.525	0.520	0.523

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Section IX - Classification Pricing
 Subsection G - Class Relativities
 7/1/2016

Section IX - G
 Exhibit 112

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services			
5192 VENDING OR COIN OPERTD MACHINES-INSTALL, SRVC OR RPR &SALES, DR												
Converted Unlimited Losses												
Amount												
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	328,336	1	55	15,013	332,500	2,578	320,055	670,146	1,058	0,983	2,041	
2010	384,650	1	71	4,273	693,314	16,026	317,118	1,030,732	1,814	0,866	2,680	
2011	318,708	4	70	386,286	288,310	342,073	172,568	1,189,238	2,117	1,615	3,731	
2012	295,012	3	52	152,504	68,522	123,866	58,042	402,934	0,749	0,617	1,366	
2013	307,799	1	47	173,132	318,948	103,330	150,107	745,516	1,599	0,823	2,422	
MA Total:	1,634,505	10	295	731,209	1,701,594	587,873	1,017,890	4,038,567	1,488	0,982	2,471	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.565	1.636	.
(14) Massachusetts Credibility:	0.390	0.560	.
(15) Countrywide Pure Premium:	1.737	0.908	2.645
(16) Countrywide Indicated Relativity:	1.811	1.486	.
(17) Countrywide Credibility:	0.310	0.220	.
(18) Countrywide Lost-Time Claims:	1781.0	.	.
(19) Pure Premium Underlying Present Rate:	1.540	0.904	2.444
(20) Relativity to Underlying Present Rate:	1.987	1.679	.
(21) Credibility to Underlying Relativity:	0.300	0.220	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	1.768	1.613	.
(24) Balanced Formula Relativity:	1.758	1.614	1.703

Class(es):		Effective: 7/1/2016							Construction			
5213 CONCRETE CONSTRUCTION-NOC												
Converted Unlimited Losses												
Amount												
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	265,333	2	68	539,985	1,448,562	241,035	667,163	2,896,745	7,495	3,423	10,917	
2010	278,817	5	73	974,973	2,120,007	574,502	1,046,469	4,715,950	11,100	5,814	16,914	
2011	412,385	5	140	507,340	2,308,527	299,700	1,239,858	4,355,426	6,828	3,733	10,562	
2012	440,752	10	136	2,434,822	3,353,534	715,926	1,321,436	7,825,718	13,133	4,622	17,755	
2013	476,217	9	119	1,903,881	2,995,333	411,760	1,332,003	6,642,977	10,288	3,662	13,949	
MA Total:	1,873,503	31	536	6,361,002	12,225,962	2,242,923	5,606,929	26,436,816	9,921	4,190	14,111	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.207	2.695	.
(14) Massachusetts Credibility:	0.740	0.970	.
(15) Countrywide Pure Premium:	3.794	1.774	5.569
(16) Countrywide Indicated Relativity:	1.223	1.140	.
(17) Countrywide Credibility:	0.130	0.020	.
(18) Countrywide Lost-Time Claims:	3984.0	.	.
(19) Pure Premium Underlying Present Rate:	6.820	3.188	10.008
(20) Relativity to Underlying Present Rate:	2.624	2.300	.
(21) Credibility to Underlying Relativity:	0.130	0.010	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	2.873	2.659	.
(24) Balanced Formula Relativity:	2.919	2.669	2.835

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Construction			
5215 CONCRETE WORK - INCIDENTAL TO CONSTRUCTION OF PRIVATE RES												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	220,608	2	35	168,934	821,616	78,034	513,417	1,582,002	4,490	2,681	7,171	
2010	228,258	3	27	362,764	525,062	83,279	399,643	1,370,748	3,890	2,116	6,005	
2011	240,434	1	24	48,436	675,839	8,635	290,646	1,023,555	3,012	1,245	4,257	
2012	255,765	2	31	126,959	629,511	18,919	292,664	1,068,054	2,958	1,218	4,176	
2013	281,324	1	27	367,287	416,143	73,151	287,853	1,144,434	2,785	1,283	4,068	
MA Total:	1,226,390	9	144	1,074,381	3,068,171	262,019	1,784,223	6,188,793	3,378	1,669	5,046	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.092	1.073	.
(14) Massachusetts Credibility:	0.400	0.550	.
(15) Countrywide Pure Premium:	3.358	1.624	4.982
(16) Countrywide Indicated Relativity:	1.082	1.044	.
(17) Countrywide Credibility:	0.300	0.230	.
(18) Countrywide Lost-Time Claims:	1206.0	.	.
(19) Pure Premium Underlying Present Rate:	2.297	1.187	3.484
(20) Relativity to Underlying Present Rate:	0.884	0.857	.
(21) Credibility to Underlying Relativity:	0.300	0.220	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	1.027	1.019	.
(24) Balanced Formula Relativity:	1.043	1.022	1.036

Class(es):		Effective: 7/1/2016							Construction			
5221 CONCRETE OR CEMENT WORK-FLOORS DRIVEWAYS YRDS OR SIDEWALKS &DR												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	950,466	9	136	979,516	2,098,288	707,895	998,110	4,783,809	3,238	1,795	5,033	
2010	971,837	10	132	1,178,851	2,051,828	337,593	863,464	4,431,736	3,324	1,236	4,560	
2011	1,153,567	15	166	2,688,228	3,007,490	1,293,807	1,049,890	8,039,415	4,937	2,032	6,969	
2012	1,205,586	7	157	1,108,591	3,307,351	826,092	1,729,855	6,971,889	3,663	2,120	5,783	
2013	1,216,691	6	155	1,226,876	3,653,531	536,373	2,083,928	7,500,709	4,011	2,154	6,165	
MA Total:	5,498,147	47	746	7,182,063	14,118,489	3,701,760	6,725,247	31,727,558	3,874	1,896	5,771	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.252	1.220	.
(14) Massachusetts Credibility:	0.850	1.000	.
(15) Countrywide Pure Premium:	3.054	1.409	4.463
(16) Countrywide Indicated Relativity:	0.984	0.905	.
(17) Countrywide Credibility:	0.080	0.000	.
(18) Countrywide Lost-Time Claims:	6886.0	.	.
(19) Pure Premium Underlying Present Rate:	3.249	1.701	4.950
(20) Relativity to Underlying Present Rate:	1.250	1.227	.
(21) Credibility to Underlying Relativity:	0.070	0.000	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	1.231	1.220	.
(24) Balanced Formula Relativity:	1.250	1.224	1.242

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Construction		
5222 CONCRETE CONSTRUCTION IN CONNECTION WITH BRIDGES OR CULVERTS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	244,440	3	28	762,948	846,817	142,927	446,305	2,198,996	6,586	2,411	8,996
2010	279,634	2	54	433,533	1,122,174	524,720	587,828	2,668,254	5,563	3,979	9,542
2011	330,861	6	59	857,313	1,842,607	219,733	1,037,209	3,956,862	8,160	3,799	11,959
2012	295,763	1	49	2,845	2,231,975	2,557	679,282	2,916,659	7,556	2,305	9,861
2013	241,376	2	30	1,647,963	429,707	637,821	175,351	2,890,843	8,608	3,369	11,977
MA Total:	1,392,073	14	220	3,704,602	6,473,279	1,527,757	2,925,975	14,631,613	7,311	3,199	10,511

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.363	2.057	.
(14) Massachusetts Credibility:	0.570	0.750	.
(15) Countrywide Pure Premium:	4.815	2.211	7.026
(16) Countrywide Indicated Relativity:	1.552	1.421	.
(17) Countrywide Credibility:	0.220	0.130	.
(18) Countrywide Lost-Time Claims:	1036.0	.	.
(19) Pure Premium Underlying Present Rate:	4.881	2.224	7.105
(20) Relativity to Underlying Present Rate:	1.878	1.605	.
(21) Credibility to Underlying Relativity:	0.210	0.120	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	2.083	1.920	.
(24) Balanced Formula Relativity:	2.116	1.927	2.053

Class(es):		Effective: 7/1/2016							Construction		
5223 SWIMMING POOL CONSTRUCTN-NOT IRON OR STEEL &DR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	153,769	1	27	110,965	99,153	9,373	104,066	323,558	1,366	0,738	2,104
2010	161,936	1	30	152	76,080	1,912	131,314	209,458	0,471	0,823	1,293
2011	169,161	0	23	0	74,497	0	70,551	145,048	0,440	0,417	0,857
2012	175,421	1	34	220,811	275,728	120,655	133,450	750,643	2,831	1,449	4,279
2013	183,642	0	25	0	395,629	0	298,979	694,608	2,154	1,628	3,782
MA Total:	843,928	3	139	331,929	921,086	131,940	738,360	2,123,316	1,485	1,031	2,516

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.480	0.663	.
(14) Massachusetts Credibility:	0.350	0.480	.
(15) Countrywide Pure Premium:	3.014	1.521	4.535
(16) Countrywide Indicated Relativity:	0.972	0.977	.
(17) Countrywide Credibility:	0.330	0.260	.
(18) Countrywide Lost-Time Claims:	609.00	.	.
(19) Pure Premium Underlying Present Rate:	2.297	1.187	3.484
(20) Relativity to Underlying Present Rate:	0.884	0.857	.
(21) Credibility to Underlying Relativity:	0.320	0.260	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	0.771	0.795	.
(24) Balanced Formula Relativity:	0.784	0.798	0.788

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Construction		
5348 STONE, MOSAIC, TERRAZZO OR CERAMIC TILE WORK - INSIDE											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	372,494	3	35	1,008,559	761,738	256,519	214,033	2,240,848	4,753	1,263	6,016
2010	390,209	4	34	874,119	633,938	243,054	309,391	2,060,501	3,865	1,416	5,281
2011	425,281	4	44	284,835	1,007,607	136,115	420,862	1,849,419	3,039	1,310	4,349
2012	521,651	5	38	535,790	483,911	170,237	251,521	1,441,459	1,955	0,809	2,763
2013	573,431	4	41	787,159	293,326	171,922	278,942	1,531,350	1,884	0,786	2,671
MA Total:	2,283,066	20	192	3,490,463	3,180,519	977,847	1,474,749	9,123,578	2,922	1,074	3,996

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.945	0.691	.
(14) Massachusetts Credibility:	0.580	0.740	.
(15) Countrywide Pure Premium:	3.117	1.330	4.448
(16) Countrywide Indicated Relativity:	1.005	0.855	.
(17) Countrywide Credibility:	0.210	0.130	.
(18) Countrywide Lost-Time Claims:	1526.0	.	.
(19) Pure Premium Underlying Present Rate:	3.060	1.325	4.385
(20) Relativity to Underlying Present Rate:	1.177	0.956	.
(21) Credibility to Underlying Relativity:	0.210	0.130	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	1.006	0.747	.
(24) Balanced Formula Relativity:	1.022	0.749	0.931

Class(es):		Effective: 7/1/2016							Construction		
5402 HOTHOUSE ERECTION - ALL OPERATIONS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	3,363	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	3,497	0	5	0	189	0	9,064	9,253	0,054	2,592	2,646
2011	3,467	0	2	0	915	0	6,265	7,180	0,264	1,807	2,071
2012	2,464	0	2	0	2,270	0	2,737	5,007	0,921	1,111	2,032
2013	5,485	0	1	0	0	0	3,673	3,673	0,000	0,670	0,670
MA Total:	18,275	0	10	0	3,373	0	21,740	25,113	0,185	1,190	1,374

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.060	0.765	.
(14) Massachusetts Credibility:	0.100	0.140	.
(15) Countrywide Pure Premium:	2.784	1.925	4.709
(16) Countrywide Indicated Relativity:	0.897	1.237	.
(17) Countrywide Credibility:	0.210	0.220	.
(18) Countrywide Lost-Time Claims:	23.000	.	.
(19) Pure Premium Underlying Present Rate:	4.320	2.753	7.073
(20) Relativity to Underlying Present Rate:	1.662	1.986	.
(21) Credibility to Underlying Relativity:	0.690	0.640	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	1.341	1.650	.
(24) Balanced Formula Relativity:	1.363	1.656	1.461

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Calculation of Class Relativities

Class(es): 5403 CARPENTRY NOC		Effective: 7/1/2016							Construction		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	601,683	9	132	1,548,538	2,698,841	369,842	1,512,287	6,129,509	7,059	3,128	10,187
2010	728,610	17	176	1,461,382	4,653,093	473,213	2,111,151	8,698,839	8,392	3,547	11,939
2011	961,474	9	196	2,228,556	3,840,548	732,916	2,319,538	9,121,558	6,312	3,175	9,487
2012	1,109,893	13	169	3,376,134	5,197,983	887,663	2,093,129	11,554,909	7,725	2,686	10,411
2013	1,429,588	11	200	1,292,136	5,140,017	427,185	2,510,150	9,369,489	4,499	2,055	6,554
MA Total:	4,831,248	59	873	9,906,745	21,530,482	2,890,819	10,546,255	44,874,302	6,507	2,781	9,288

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.103	1.789	.
(14) Massachusetts Credibility:	0.990	1.000	.
(15) Countrywide Pure Premium:	4.155	2.121	6.277
(16) Countrywide Indicated Relativity:	1.339	1.363	.
(17) Countrywide Credibility:	0.010	0.000	.
(18) Countrywide Lost-Time Claims:	6291.0	.	.
(19) Pure Premium Underlying Present Rate:	5.498	2.830	8.329
(20) Relativity to Underlying Present Rate:	2.115	2.042	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	2.096	1.789	.
(24) Balanced Formula Relativity:	2.129	1.795	2.017

Class(es): 5437 CARPENTRY-INSTALL OF CABINET WORK OR INT TRIM		Effective: 7/1/2016							Construction		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	1,819,743	12	223	3,049,551	3,728,700	1,042,643	2,312,903	10,133,798	3,725	1,844	5,569
2010	1,903,930	18	289	2,408,999	5,489,094	1,183,833	2,370,394	11,452,321	4,148	1,867	6,015
2011	2,068,106	10	260	1,253,557	2,335,639	565,041	1,348,456	5,502,693	1,735	0,925	2,661
2012	2,268,308	12	251	2,499,984	4,306,585	740,166	2,754,974	10,301,710	3,001	1,541	4,542
2013	2,381,808	18	241	2,181,754	4,437,074	1,932,495	2,569,996	11,121,320	2,779	1,890	4,669
MA Total:	10,441,895	70	1,264	11,393,844	20,297,093	5,464,180	11,356,724	48,511,841	3,035	1,611	4,646

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.981	1.036	.
(14) Massachusetts Credibility:	0.970	1.000	.
(15) Countrywide Pure Premium:	3.486	1.694	5.180
(16) Countrywide Indicated Relativity:	1.124	1.089	.
(17) Countrywide Credibility:	0.020	0.000	.
(18) Countrywide Lost-Time Claims:	3842.0	.	.
(19) Pure Premium Underlying Present Rate:	2.420	1.154	3.574
(20) Relativity to Underlying Present Rate:	0.931	0.833	.
(21) Credibility to Underlying Relativity:	0.010	0.000	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	0.983	1.036	.
(24) Balanced Formula Relativity:	0.999	1.040	1.013

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Calculation of Class Relativities

Class(es): 5443 LATHING & DRIVERS		Effective: 7/1/2016							Construction		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	167	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	132	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	718	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	1,223	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	2,239	0	0	0	0	0	0	0	0.000	0.000	0.000

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.030	0.040	.
(15) Countrywide Pure Premium:	2.088	1.121	3.210
(16) Countrywide Indicated Relativity:	0.673	0.721	.
(17) Countrywide Credibility:	0.360	0.380	.
(18) Countrywide Lost-Time Claims:	88.000	.	.
(19) Pure Premium Underlying Present Rate:	2.004	1.121	3.125
(20) Relativity to Underlying Present Rate:	0.771	0.809	.
(21) Credibility to Underlying Relativity:	0.610	0.580	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	0.713	0.743	.
(24) Balanced Formula Relativity:	0.724	0.746	0.731

Class(es): 5445 WALLBOARD INSTALLATION WITHIN BUILDINGS & DR		Effective: 7/1/2016							Construction		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	1,341,072	8	180	2,164,016	4,327,586	696,031	1,614,413	8,802,045	4,841	1,723	6,563
2010	1,368,240	18	164	3,983,156	3,538,741	1,095,536	1,615,469	10,232,902	5,497	1,981	7,479
2011	1,408,182	7	151	1,789,205	4,214,585	645,751	1,718,917	8,368,458	4,264	1,679	5,943
2012	1,883,047	14	184	3,235,171	5,190,262	1,372,001	1,836,126	11,633,561	4,474	1,704	6,178
2013	1,955,857	8	187	1,454,693	3,725,538	295,484	1,707,636	7,183,351	2,649	1,024	3,673
MA Total:	7,956,397	55	866	12,626,241	20,996,712	4,104,803	8,492,561	46,220,317	4,226	1,583	5,809

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.366	1.018	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	3.779	1.691	5.469
(16) Countrywide Indicated Relativity:	1.218	1.086	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	3872.0	.	.
(19) Pure Premium Underlying Present Rate:	3.831	1.682	5.514
(20) Relativity to Underlying Present Rate:	1.474	1.214	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	1.366	1.018	.
(24) Balanced Formula Relativity:	1.388	1.022	1.265

IX 000196

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Construction		
5462 GLAZIER-AWAY FROM SHOP & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	357,058	6	54	965,709	1,019,598	183,767	349,783	2,518,857	5,560	1,494	7,054
2010	373,275	6	61	419,931	996,956	98,404	454,109	1,969,399	3,796	1,480	5,276
2011	393,394	5	77	1,020,028	670,009	265,840	543,467	2,499,344	4,296	2,057	6,353
2012	494,609	6	84	1,367,671	1,491,406	422,193	732,119	4,013,389	5,780	2,334	8,114
2013	487,603	7	68	1,605,782	768,244	414,611	390,927	3,179,564	4,869	1,652	6,521
MA Total:	2,105,939	30	344	5,379,121	4,946,214	1,384,815	2,470,405	14,180,554	4,903	1,831	6,734

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.585	1.177	.
(14) Massachusetts Credibility:	0.590	0.730	.
(15) Countrywide Pure Premium:	4.492	2.032	6.523
(16) Countrywide Indicated Relativity:	1.448	1.305	.
(17) Countrywide Credibility:	0.210	0.140	.
(18) Countrywide Lost-Time Claims:	1412.0	.	.
(19) Pure Premium Underlying Present Rate:	3.463	1.406	4.869
(20) Relativity to Underlying Present Rate:	1.332	1.014	.
(21) Credibility to Underlying Relativity:	0.200	0.130	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	1.506	1.174	.
(24) Balanced Formula Relativity:	1.530	1.178	1.412

Class(es):		Effective: 7/1/2016							Construction		
5472 ASBESTOS REMOVAL OP: ASBESTOS CONTR-PIPE&BOILR WORK EXCL &DR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	151,158	4	24	1,195,289	299,707	319,098	124,386	1,938,481	9,890	2,934	12,824
2010	141,396	1	25	170,751	574,488	22,347	276,702	1,044,289	5,271	2,115	7,386
2011	137,258	1	29	52,414	1,095,002	8,993	468,394	1,624,803	8,360	3,478	11,838
2012	134,543	3	20	200,302	428,841	178,577	214,593	1,022,313	4,676	2,922	7,598
2013	122,095	0	19	0	463,270	0	179,331	642,601	3,794	1,469	5,263
MA Total:	686,450	9	117	1,618,757	2,861,309	529,016	1,263,406	6,272,488	6,526	2,611	9,138

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.110	1.679	.
(14) Massachusetts Credibility:	0.440	0.560	.
(15) Countrywide Pure Premium:	3.431	1.204	4.635
(16) Countrywide Indicated Relativity:	1.106	0.774	.
(17) Countrywide Credibility:	0.280	0.220	.
(18) Countrywide Lost-Time Claims:	133.00	.	.
(19) Pure Premium Underlying Present Rate:	5.120	2.205	7.325
(20) Relativity to Underlying Present Rate:	1.970	1.591	.
(21) Credibility to Underlying Relativity:	0.280	0.220	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	1.789	1.461	.
(24) Balanced Formula Relativity:	1.818	1.466	1.700

IX 000197

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Construction			
5473 ASBESTOS REMOVAL OP: ASBESTOS CONTRCTR-NOC &DR												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	90.557	0	11	0	324.701	0	87.192	411.893	3.586	0.963	4.548	
2010	136.033	3	13	136.754	22.498	15.651	51.848	226.751	1.171	0.496	1.667	
2011	174.494	4	16	930.857	1,138.403	320.344	480.996	2,870.601	11.859	4.592	16.451	
2012	202.324	3	27	1,064.489	249.965	806.882	187.432	2,308.769	6.497	4.914	11.411	
2013	250.618	2	34	655.130	710.183	329.484	472.043	2,166.840	5.448	3.198	8.646	
MA Total:	854.026	12	101	2,787.230	2,445.750	1,472.361	1,279.512	7,984.853	6.127	3.222	9.350	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.981	2.072	.
(14) Massachusetts Credibility:	0.460	0.670	.
(15) Countrywide Pure Premium:	4.669	2.527	7.196
(16) Countrywide Indicated Relativity:	1.505	1.624	.
(17) Countrywide Credibility:	0.270	0.170	.
(18) Countrywide Lost-Time Claims:	471.00	.	.
(19) Pure Premium Underlying Present Rate:	4.637	2.714	7.351
(20) Relativity to Underlying Present Rate:	1.784	1.958	.
(21) Credibility to Underlying Relativity:	0.270	0.160	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	1.799	1.978	.
(24) Balanced Formula Relativity:	1.828	1.985	1.880

Class(es):		Effective: 7/1/2016							Construction			
5474 PAINTING OR PAPERHANGING NOC & SHOP OPERS, DR												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	2,142.333	23	184	2,992.187	3,644.657	1,237.009	2,507.886	10,381.738	3.098	1.748	4.846	
2010	2,297.933	12	156	1,548.874	5,765.100	728.004	3,199.576	11,241.555	3.183	1.709	4.892	
2011	2,531.626	22	190	3,693.133	5,362.062	1,554.592	3,370.557	13,980.344	3.577	1.945	5.522	
2012	2,606.902	16	156	3,629.459	3,427.771	1,854.900	2,032.116	10,944.246	2.707	1.491	4.198	
2013	2,894.803	13	174	2,455.356	5,791.363	960.963	3,720.121	12,927.803	2.849	1.617	4.466	
MA Total:	12,473.597	86	860	14,319.009	23,990.953	6,335.468	14,830.256	59,475.686	3.071	1.697	4.768	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.993	1.091	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	3.513	1.853	5.366
(16) Countrywide Indicated Relativity:	1.132	1.191	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	5214.0	.	.
(19) Pure Premium Underlying Present Rate:	2.800	1.607	4.407
(20) Relativity to Underlying Present Rate:	1.077	1.159	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	0.993	1.091	.
(24) Balanced Formula Relativity:	1.009	1.095	1.038

IX 000198

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Construction		
5478 CARPET, LINOLEUM, VINYL, ASPHALT OR RUBBER FLOOR TILE INSTAL											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	508,400	3	65	194,413	1,319,643	197,609	820,953	2,532,618	2,978	2,003	4,982
2010	527,664	6	67	1,507,117	1,697,539	477,432	625,733	4,307,821	6,073	2,091	8,164
2011	568,021	8	68	1,657,196	1,473,237	397,955	600,958	4,129,345	5,511	1,759	7,270
2012	596,066	4	46	772,534	589,233	214,855	219,596	1,796,218	2,285	0,729	3,013
2013	677,854	2	50	168,941	1,163,304	71,913	437,764	1,841,922	1,965	0,752	2,717
MA Total:	2,878,004	23	296	4,300,202	6,242,955	1,359,765	2,705,003	14,607,925	3,663	1,412	5,076

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.184	0.908	.
(14) Massachusetts Credibility:	0.660	0.840	.
(15) Countrywide Pure Premium:	3.000	1.265	4.265
(16) Countrywide Indicated Relativity:	0.967	0.813	.
(17) Countrywide Credibility:	0.170	0.080	.
(18) Countrywide Lost-Time Claims:	1270.0	.	.
(19) Pure Premium Underlying Present Rate:	3.361	1.429	4.790
(20) Relativity to Underlying Present Rate:	1.293	1.031	.
(21) Credibility to Underlying Relativity:	0.170	0.080	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	1.166	0.910	.
(24) Balanced Formula Relativity:	1.184	0.914	1.094

Class(es):		Effective: 7/1/2016							Construction		
5479 INSULATION WORK NOC & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	211,907	5	36	788,269	842,783	503,183	382,226	2,516,462	7,697	4,178	11,875
2010	257,577	4	50	348,853	498,538	168,374	452,287	1,468,051	3,290	2,410	5,699
2011	358,437	4	75	856,689	1,439,134	863,617	606,915	3,766,355	6,405	4,103	10,508
2012	389,341	4	100	166,094	1,260,439	217,284	971,537	2,615,353	3,664	3,053	6,717
2013	394,475	2	83	76,227	2,201,714	59,595	612,544	2,950,080	5,775	1,704	7,479
MA Total:	1,611,737	19	344	2,236,131	6,242,608	1,812,054	3,025,510	13,316,303	5,261	3,001	8,262

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.701	1.930	.
(14) Massachusetts Credibility:	0.530	0.850	.
(15) Countrywide Pure Premium:	3.660	1.960	5.620
(16) Countrywide Indicated Relativity:	1.180	1.260	.
(17) Countrywide Credibility:	0.240	0.080	.
(18) Countrywide Lost-Time Claims:	1309.0	.	.
(19) Pure Premium Underlying Present Rate:	3.384	2.631	6.014
(20) Relativity to Underlying Present Rate:	1.302	1.898	.
(21) Credibility to Underlying Relativity:	0.230	0.070	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	1.484	1.874	.
(24) Balanced Formula Relativity:	1.507	1.881	1.632

IX 000199

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Construction		
5480 PLASTERING NOC & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	302,706	2	27	353,085	564,441	55,344	290,517	1,263,388	3,031	1,143	4,174
2010	273,058	2	32	156,450	1,130,390	23,898	455,355	1,766,092	4,713	1,755	6,468
2011	313,823	0	20	0	248,166	0	199,188	447,354	0,791	0,635	1,425
2012	347,552	0	20	0	313,859	0	186,228	500,087	0,903	0,536	1,439
2013	377,985	1	23	65,678	744,460	56,889	359,882	1,226,910	2,143	1,103	3,246
MA Total:	1,615,123	5	122	575,213	3,001,316	136,131	1,491,170	5,203,831	2,214	1,008	3,222

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.716	0.648	.
(14) Massachusetts Credibility:	0.480	0.610	.
(15) Countrywide Pure Premium:	3.373	1.460	4.833
(16) Countrywide Indicated Relativity:	1.087	0.938	.
(17) Countrywide Credibility:	0.260	0.200	.
(18) Countrywide Lost-Time Claims:	145.00	.	.
(19) Pure Premium Underlying Present Rate:	2.653	1.149	3.802
(20) Relativity to Underlying Present Rate:	1.021	0.829	.
(21) Credibility to Underlying Relativity:	0.260	0.190	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	0.892	0.740	.
(24) Balanced Formula Relativity:	0.906	0.743	0.851

Class(es):		Effective: 7/1/2016							Construction		
5506 STREET OR ROAD CONSTRUCTION: PAVING OR REPAVING & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	420,424	4	54	584,988	432,311	156,331	199,230	1,372,859	2,420	0,846	3,265
2010	508,303	3	53	719,393	1,002,677	622,154	692,466	3,036,690	3,388	2,586	5,974
2011	486,026	6	61	2,263,540	1,983,324	941,509	1,044,096	6,232,468	8,738	4,085	12,823
2012	536,923	7	55	1,114,455	837,815	290,054	481,285	2,723,609	3,636	1,437	5,073
2013	508,179	0	42	0	275,205	0	331,251	606,457	0,542	0,652	1,193
MA Total:	2,459,854	20	265	4,682,376	4,531,332	2,010,048	2,748,328	13,972,084	3,746	1,934	5,680

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.211	1.244	.
(14) Massachusetts Credibility:	0.630	0.860	.
(15) Countrywide Pure Premium:	3.910	1.898	5.808
(16) Countrywide Indicated Relativity:	1.260	1.220	.
(17) Countrywide Credibility:	0.190	0.070	.
(18) Countrywide Lost-Time Claims:	4765.0	.	.
(19) Pure Premium Underlying Present Rate:	3.432	1.807	5.239
(20) Relativity to Underlying Present Rate:	1.321	1.304	.
(21) Credibility to Underlying Relativity:	0.180	0.070	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	1.240	1.246	.
(24) Balanced Formula Relativity:	1.260	1.251	1.257

IX 000200

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Construction		
5507 STREET OR ROAD CONSTRUCTION: SUB-SURFACE WORK & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	209,474	2	19	466,841	387,944	161,518	138,169	1,154,472	4,081	1,431	5,511
2010	222,556	4	35	919,957	346,279	366,007	337,929	1,970,172	5,690	3,163	8,852
2011	254,930	4	22	907,534	120,863	675,327	69,136	1,772,860	4,034	2,920	6,954
2012	211,374	5	20	972,007	915,116	177,152	1,062,204	3,126,479	8,928	5,863	14,791
2013	214,344	1	18	3	349,591	15,831	85,414	450,840	1,631	0,472	2,103
MA Total:	1,112,679	16	114	3,266,342	2,119,793	1,395,835	1,692,853	8,474,823	4,841	2,776	7,617

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.565	1.785	.
(14) Massachusetts Credibility:	0.460	0.650	.
(15) Countrywide Pure Premium:	2.576	1.265	3.841
(16) Countrywide Indicated Relativity:	0.830	0.813	.
(17) Countrywide Credibility:	0.270	0.180	.
(18) Countrywide Lost-Time Claims:	1082.0	.	.
(19) Pure Premium Underlying Present Rate:	3.483	1.965	5.448
(20) Relativity to Underlying Present Rate:	1.340	1.418	.
(21) Credibility to Underlying Relativity:	0.270	0.170	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	1.306	1.548	.
(24) Balanced Formula Relativity:	1.327	1.553	1.402

Class(es):		Effective: 7/1/2016							Construction		
5509 STREET OR ROAD MAINTENANCE BY COUNTY OR MUNICIPAL EMP & DR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	179,152	0	36	0	413,472	0	144,328	557,800	2,308	0,806	3,114
2010	207,529	1	15	3,399	3,449	16,334	11,047	34,228	0,033	0,132	0,165
2011	86,137	0	11	0	70,127	0	44,968	115,096	0,814	0,522	1,336
2012	48,277	1	14	5,582	455,065	7,792	295,784	764,222	9,542	6,288	15,830
2013	49,458	0	12	0	2,404	0	7,506	9,910	0,049	0,152	0,200
MA Total:	570,553	2	88	8,981	944,517	24,125	503,633	1,481,256	1,671	0,925	2,596

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.540	0.595	.
(14) Massachusetts Credibility:	0.250	0.360	.
(15) Countrywide Pure Premium:	2.507	1.459	3.966
(16) Countrywide Indicated Relativity:	0.808	0.938	.
(17) Countrywide Credibility:	0.380	0.320	.
(18) Countrywide Lost-Time Claims:	580.00	.	.
(19) Pure Premium Underlying Present Rate:	1.498	0.849	2.347
(20) Relativity to Underlying Present Rate:	0.576	0.613	.
(21) Credibility to Underlying Relativity:	0.370	0.320	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	0.655	0.710	.
(24) Balanced Formula Relativity:	0.666	0.713	0.681

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Construction		
5538 SHEET METAL WORK-SHOP & OUTSIDE-NOC & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	1,443,004	6	236	298,121	1,511,669	206,416	934,719	2,950,925	1,254	0,791	2,045
2010	1,431,138	7	252	843,783	2,603,889	310,244	1,776,595	5,534,510	2,409	1,458	3,867
2011	1,648,481	12	259	1,459,860	2,364,282	653,346	1,827,971	6,305,458	2,320	1,505	3,825
2012	1,900,914	6	275	858,169	4,509,941	542,990	1,659,793	7,570,893	2,824	1,159	3,983
2013	2,102,454	16	256	2,190,147	2,298,959	842,081	1,378,174	6,709,361	2,135	1,056	3,191
MA Total:	8,525,991	47	1,278	5,650,080	13,288,741	2,555,076	7,577,251	29,071,148	2,221	1,188	3,410

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.718	0.764	.
(14) Massachusetts Credibility:	0.890	1.000	.
(15) Countrywide Pure Premium:	4.302	2.090	6.392
(16) Countrywide Indicated Relativity:	1.387	1.343	.
(17) Countrywide Credibility:	0.060	0.000	.
(18) Countrywide Lost-Time Claims:	162.00	.	.
(19) Pure Premium Underlying Present Rate:	2.413	1.256	3.668
(20) Relativity to Underlying Present Rate:	0.928	0.906	.
(21) Credibility to Underlying Relativity:	0.050	0.000	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	0.769	0.764	.
(24) Balanced Formula Relativity:	0.781	0.767	0.776

Class(es):		Effective: 7/1/2016							Construction		
5545 ROOFING NOC & YARD EMP, DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	95,669	5	32	581,241	1,897,269	328,134	1,086,099	3,892,744	25,907	14,783	40,690
2010	98,797	13	29	1,551,580	1,578,072	1,309,541	415,866	4,855,058	31,678	17,464	49,142
2011	153,685	13	33	1,850,455	556,837	845,219	449,293	3,701,802	15,664	8,423	24,087
2012	135,692	8	33	1,180,577	1,731,502	1,102,957	1,231,617	5,246,653	21,461	17,205	38,666
2013	150,151	3	36	314,212	870,373	154,787	599,240	1,938,613	7,889	5,022	12,911
MA Total:	633,995	42	163	5,478,065	6,634,052	3,740,638	3,782,115	19,634,871	19,104	11,866	30,970

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	6.176	7.631	.
(14) Massachusetts Credibility:	0.690	1.000	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	6.303	8.390	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	17.196	12.382	29.578
(20) Relativity to Underlying Present Rate:	6.616	8.933	.
(21) Credibility to Underlying Relativity:	0.310	0.000	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	6.312	7.631	.
(24) Balanced Formula Relativity:	6.412	7.659	6.829

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Construction		
5547 ROOFING-BUILT UP - YARD EMP & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	455,262	12	87	2,909,222	1,788,470	1,642,603	1,114,036	7,454,331	10,319	6,055	16,374
2010	475,712	8	83	1,029,435	1,316,412	590,899	1,283,119	4,219,865	4,931	3,939	8,871
2011	519,430	5	78	1,942,279	2,703,585	1,166,774	1,390,489	7,203,128	8,944	4,923	13,867
2012	489,371	4	68	259,957	1,979,338	332,802	1,594,157	4,166,254	4,576	3,938	8,513
2013	530,269	1	68	160,348	2,370,949	72,682	1,883,717	4,487,696	4,774	3,689	8,463
MA Total:	2,470,044	30	384	6,301,241	10,158,755	3,805,760	7,265,518	27,531,274	6,664	4,482	11,146

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.154	2.882	.
(14) Massachusetts Credibility:	0.820	1.000	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	2.451	3.210	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	6.686	4.737	11.423
(20) Relativity to Underlying Present Rate:	2.572	3.418	.
(21) Credibility to Underlying Relativity:	0.180	0.000	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	2.229	2.882	.
(24) Balanced Formula Relativity:	2.265	2.893	2.475

Class(es):		Effective: 7/1/2016							Construction		
5606 CONTRACTOR-EXECUTIVE SUPERVISOR OR CONSTRUCT SUPERINTENDENT											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	4,450,085	11	167	3,145,183	2,448,615	1,425,715	963,510	7,983,023	1,257	0,537	1,794
2010	4,574,943	9	204	875,834	3,007,500	662,873	1,840,350	6,386,557	0,849	0,547	1,396
2011	4,958,661	9	225	2,156,037	4,296,482	1,154,540	2,390,670	9,997,729	1,301	0,715	2,016
2012	5,215,520	17	204	4,067,413	2,200,868	1,708,667	1,581,612	9,558,561	1,202	0,631	1,833
2013	5,906,009	10	161	1,756,507	1,812,538	1,161,895	1,177,883	5,908,824	0,604	0,396	1,000
MA Total:	25,105,220	56	961	12,000,975	13,766,003	6,113,689	7,954,026	39,834,693	1,026	0,560	1,587

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.332	0.360	.
(14) Massachusetts Credibility:	0.930	1.000	.
(15) Countrywide Pure Premium:	0.739	0.381	1.120
(16) Countrywide Indicated Relativity:	0.238	0.245	.
(17) Countrywide Credibility:	0.040	0.000	.
(18) Countrywide Lost-Time Claims:	3620.0	.	.
(19) Pure Premium Underlying Present Rate:	0.915	0.501	1.415
(20) Relativity to Underlying Present Rate:	0.352	0.361	.
(21) Credibility to Underlying Relativity:	0.030	0.000	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	0.329	0.360	.
(24) Balanced Formula Relativity:	0.334	0.362	0.343

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Calculation of Class Relativities

Class(es): 5610 CLEANER - DEBRIS REMOVAL		Effective: 7/1/2016							Construction		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	279,425	5	48	1,373,167	682,941	437,095	677,080	3,170,283	7,358	3,987	11,346
2010	315,815	5	42	1,047,371	1,133,017	126,794	386,664	2,693,845	6,904	1,626	8,530
2011	304,354	3	29	412,541	1,200,735	42,991	354,607	2,010,874	5,301	1,306	6,607
2012	377,466	2	29	635,622	1,096,151	149,405	511,944	2,393,121	4,588	1,752	6,340
2013	424,120	2	34	520,832	801,049	65,378	419,794	1,807,054	3,117	1,144	4,261
MA Total:	1,701,179	17	182	3,989,533	4,913,893	821,662	2,350,089	12,075,177	5,234	1,864	7,098

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.692	1.199	.
(14) Massachusetts Credibility:	0.560	0.690	.
(15) Countrywide Pure Premium:	3.147	1.660	4.807
(16) Countrywide Indicated Relativity:	1.014	1.067	.
(17) Countrywide Credibility:	0.220	0.160	.
(18) Countrywide Lost-Time Claims:	575.00	.	.
(19) Pure Premium Underlying Present Rate:	3.699	1.487	5.186
(20) Relativity to Underlying Present Rate:	1.423	1.073	.
(21) Credibility to Underlying Relativity:	0.220	0.150	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	1.484	1.159	.
(24) Balanced Formula Relativity:	1.507	1.163	1.392

Class(es): 5645 CARPENTRY-DETACHED ONE OR TWO FAMILY DWELLINGS		Effective: 7/1/2016							Construction		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	4,095,504	45	716	8,069,662	10,180,750	4,153,090	8,413,393	30,816,895	4,456	3,068	7,525
2010	4,225,910	53	707	5,697,992	10,953,358	3,688,875	6,825,734	27,165,959	3,940	2,488	6,428
2011	4,335,411	41	670	5,785,455	9,994,741	3,435,807	6,319,361	25,535,365	3,640	2,250	5,890
2012	4,577,204	53	653	8,010,645	12,363,196	4,948,233	7,005,863	32,327,937	4,451	2,612	7,063
2013	4,969,080	44	657	7,504,969	15,016,154	4,043,832	9,448,724	36,013,679	4,532	2,715	7,248
MA Total:	22,203,110	236	3,403	35,068,724	58,508,199	20,269,838	38,013,076	151,859,836	4,215	2,625	6,840

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.362	1.688	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	6.083	3.455	9.538
(16) Countrywide Indicated Relativity:	1.961	2.220	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	11215	.	.
(19) Pure Premium Underlying Present Rate:	3.526	2.233	5.759
(20) Relativity to Underlying Present Rate:	1.357	1.611	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	1.362	1.688	.
(24) Balanced Formula Relativity:	1.384	1.694	1.488

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Construction			
5701 WRECKING: BUILDING OR STRUCTURES-NOT MARINE- ALL OPERATIONS												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	12,428	2	0	526,194	0	249,970	0	776,163	42,341	20,114	62,455	
2010	39,431	1	8	374,021	17,670	365,163	20,766	777,621	9,934	9,787	19,721	
2011	32,613	2	5	559,335	236,952	480,234	272,947	1,549,467	24,416	23,094	47,511	
2012	45,950	1	3	633,202	3,772	180,476	25,370	842,820	13,862	4,480	18,342	
2013	35,826	0	6	0	263,531	0	107,249	370,780	7,356	2,994	10,349	
MA Total:	166,247	6	22	2,092,752	521,925	1,275,843	426,332	4,316,851	15,728	10,239	25,966	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	5.084	6.584	.
(14) Massachusetts Credibility:	0.310	0.530	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	3.142	5.248	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	8.572	7.745	16.317
(20) Relativity to Underlying Present Rate:	3.298	5.588	.
(21) Credibility to Underlying Relativity:	0.690	0.470	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	3.852	6.116	.
(24) Balanced Formula Relativity:	3.913	6.138	4.657

Class(es):		Effective: 7/1/2016							Construction			
5703 BUILDING RAISING OR MOVING & DRIVERS												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	8,438	0	0	0	0	0	0	0	0.000	0.000	0.000	
2010	6,508	0	4	0	13,915	0	13,597	27,512	2,138	2,089	4,227	
2011	11,802	0	1	0	0	0	2,067	2,067	0.000	0.175	0.175	
2012	7,351	0	1	0	6,115	0	3,743	9,858	0,832	0,509	1,341	
2013	8,197	0	1	0	108,101	0	50,299	158,400	13,188	6,136	19,325	
MA Total:	42,296	0	7	0	128,131	0	69,705	197,836	3,029	1,648	4,677	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.979	1.060	.
(14) Massachusetts Credibility:	0.190	0.240	.
(15) Countrywide Pure Premium:	5.530	3.036	8.566
(16) Countrywide Indicated Relativity:	1.782	1.951	.
(17) Countrywide Credibility:	0.270	0.280	.
(18) Countrywide Lost-Time Claims:	43.000	.	.
(19) Pure Premium Underlying Present Rate:	10.259	4.054	14.314
(20) Relativity to Underlying Present Rate:	3.947	2.925	.
(21) Credibility to Underlying Relativity:	0.540	0.480	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	2.799	2.205	.
(24) Balanced Formula Relativity:	2.843	2.213	2.632

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Construction			
5705 SALVAGE OPERATION - NO WRECKING OR ANY STRUCTURAL OPERATIONS												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	567	0	0	0	0	0	0	0	0.000	0.000	0.000	
2010	1,058	0	2	0	0	0	1,101	1,101	0.000	1.040	1.040	
2011	87	0	0	0	0	0	0	0	0.000	0.000	0.000	
2012	821	0	0	0	0	0	0	0	0.000	0.000	0.000	
2013	248	0	0	0	0	0	0	0	0.000	0.000	0.000	
MA Total:	2,781	0	2	0	0	0	1,101	1,101	0.000	0.396	0.396	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.255	.
(14) Massachusetts Credibility:	0.050	0.070	.
(15) Countrywide Pure Premium:	14.868	5.876	20.745
(16) Countrywide Indicated Relativity:	4.792	3.776	.
(17) Countrywide Credibility:	0.270	0.290	.
(18) Countrywide Lost-Time Claims:	45.000	.	.
(19) Pure Premium Underlying Present Rate:	4.568	2.690	7.258
(20) Relativity to Underlying Present Rate:	1.758	1.941	.
(21) Credibility to Underlying Relativity:	0.680	0.640	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	2.489	2.355	.
(24) Balanced Formula Relativity:	2.529	2.364	2.473

Class(es):		Effective: 7/1/2016							Construction			
6003 PILE DRIVING & DRIVERS												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	43,912	0	14	0	25,281	0	59,760	85,041	0.576	1.361	1.937	
2010	40,004	0	5	0	275,734	0	98,828	374,562	6.893	2.470	9.363	
2011	51,623	0	14	0	815,416	0	151,716	967,133	15.796	2.939	18.735	
2012	48,725	1	6	179,150	234,486	50,663	90,154	554,452	8.489	2.890	11.379	
2013	70,991	0	5	0	468,076	0	199,189	667,265	6.593	2.806	9.399	
MA Total:	255,256	1	44	179,150	1,818,993	50,663	599,648	2,648,453	7.828	2.548	10.376	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.530	1.638	.
(14) Massachusetts Credibility:	0.300	0.380	.
(15) Countrywide Pure Premium:	5.018	2.357	7.376
(16) Countrywide Indicated Relativity:	1.618	1.515	.
(17) Countrywide Credibility:	0.350	0.310	.
(18) Countrywide Lost-Time Claims:	132.00	.	.
(19) Pure Premium Underlying Present Rate:	5.402	2.191	7.593
(20) Relativity to Underlying Present Rate:	2.078	1.580	.
(21) Credibility to Underlying Relativity:	0.350	0.310	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	2.053	1.582	.
(24) Balanced Formula Relativity:	2.085	1.588	1.919

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Calculation of Class Relativities

Class(es): 6204 DRILLING NOC & DRIVERS		Effective: 7/1/2016							Construction		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	126,883	0	16	0	532,969	0	211,144	744,113	4,200	1,664	5,865
2010	111,134	0	13	0	209,398	0	100,688	310,085	1,884	0,906	2,790
2011	126,955	1	17	5,102	96,501	783	174,417	276,803	0,800	1,380	2,180
2012	123,584	1	8	44,900	286,776	7,266	107,971	446,913	2,684	0,932	3,616
2013	133,097	0	14	0	48,017	0	34,424	82,441	0,361	0,259	0,619
MA Total:	621,653	2	68	50,002	1,173,661	8,049	628,644	1,860,356	1,968	1,024	2,993

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.636	0.659	.
(14) Massachusetts Credibility:	0.410	0.520	.
(15) Countrywide Pure Premium:	5,830	2,660	8,490
(16) Countrywide Indicated Relativity:	1.879	1.709	.
(17) Countrywide Credibility:	0.300	0.240	.
(18) Countrywide Lost-Time Claims:	1174.0	.	.
(19) Pure Premium Underlying Present Rate:	4.681	1.986	6.668
(20) Relativity to Underlying Present Rate:	1.801	1.433	.
(21) Credibility to Underlying Relativity:	0.290	0.240	.
(22) Industry Group Converted Pure Premium:	3,094	1,555	4,649
(23) Formula Relativity:	1.347	1.097	.
(24) Balanced Formula Relativity:	1.368	1.101	1.279

Class(es): 6217 EXCAVATION & DRIVERS		Effective: 7/1/2016							Construction		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	2,377,796	13	248	2,302,667	3,012,130	1,258,022	2,251,009	8,823,828	2,235	1,476	3,711
2010	2,605,101	19	224	3,713,209	2,937,141	1,737,679	1,421,344	9,809,374	2,553	1,213	3,765
2011	2,914,939	20	255	3,764,060	5,594,435	1,669,799	3,407,911	14,436,205	3,211	1,742	4,952
2012	2,975,787	13	206	1,296,099	5,324,664	496,183	2,533,829	9,650,775	2,225	1,018	3,243
2013	3,236,750	15	250	2,847,401	4,226,939	1,292,319	2,799,856	11,166,515	2,186	1,264	3,450
MA Total:	14,110,373	80	1,183	13,923,436	21,095,309	6,454,002	12,413,950	53,886,698	2,482	1,337	3,819

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.802	0.860	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	3,070	1,438	4,508
(16) Countrywide Indicated Relativity:	0.990	0.924	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	6398.0	.	.
(19) Pure Premium Underlying Present Rate:	2.239	1.207	3.446
(20) Relativity to Underlying Present Rate:	0.862	0.871	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	3,094	1,555	4,649
(23) Formula Relativity:	0.802	0.860	.
(24) Balanced Formula Relativity:	0.815	0.863	0.831

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Construction		
6229 IRRIGATION OR DRAINAGE SYSTEM CONSTRUCTION &DR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	285,438	3	32	436,114	177,483	183,964	114,091	911,653	2,150	1,044	3,194
2010	325,433	4	45	514,158	578,090	349,443	302,229	1,743,920	3,356	2,002	5,359
2011	302,861	1	36	452,304	1,080,954	263,230	297,801	2,094,289	5,063	1,852	6,915
2012	327,133	0	25	0	288,671	0	141,380	430,051	0,882	0,432	1,315
2013	346,694	3	30	97,358	354,597	130,374	131,661	713,990	1,304	0,756	2,059
MA Total:	1,587,558	11	168	1,499,935	2,479,795	927,012	987,162	5,893,903	2,507	1,206	3,713

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.810	0.775	.
(14) Massachusetts Credibility:	0.440	0.620	.
(15) Countrywide Pure Premium:	2.548	1.470	4.017
(16) Countrywide Indicated Relativity:	0.821	0.944	.
(17) Countrywide Credibility:	0.280	0.190	.
(18) Countrywide Lost-Time Claims:	600.00	.	.
(19) Pure Premium Underlying Present Rate:	2.239	1.207	3.446
(20) Relativity to Underlying Present Rate:	0.862	0.871	.
(21) Credibility to Underlying Relativity:	0.280	0.190	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	0.828	0.826	.
(24) Balanced Formula Relativity:	0.841	0.829	0.837

Class(es):		Effective: 7/1/2016							Construction		
6233 OIL OR GAS PIPELINE CONSTRUCTION & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	21,672	1	4	272,136	40,240	21,634	36,697	370,707	14,414	2,692	17,105
2010	12,170	0	0	0	0	0	0	0	0,000	0,000	0,000
2011	14,231	0	0	0	0	0	0	0	0,000	0,000	0,000
2012	9,896	0	1	0	0	0	1,328	1,328	0,000	0,134	0,134
2013	11,870	0	1	0	0	0	1,220	1,220	0,000	0,103	0,103
MA Total:	69,839	1	6	272,136	40,240	21,634	39,244	373,255	4,473	0,872	5,345

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.446	0.561	.
(14) Massachusetts Credibility:	0.130	0.160	.
(15) Countrywide Pure Premium:	1.952	0.811	2.764
(16) Countrywide Indicated Relativity:	0.629	0.521	.
(17) Countrywide Credibility:	0.440	0.420	.
(18) Countrywide Lost-Time Claims:	618.00	.	.
(19) Pure Premium Underlying Present Rate:	2.403	0.870	3.272
(20) Relativity to Underlying Present Rate:	0.924	0.627	.
(21) Credibility to Underlying Relativity:	0.430	0.420	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	0.862	0.572	.
(24) Balanced Formula Relativity:	0.876	0.574	0.775

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Section IX - Classification Pricing
 Subsection G - Class Relativities
 7/1/2016

Section IX - G
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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Construction		
6251 TUNNELING - NOT PNEUMATIC - ALL OPERATIONS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	2,882	0	1	0	0	0	3,366	3,366	0.000	1.168	1.168
2013	0	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	2,882	0	1	0	0	0	3,366	3,366	0.000	1.168	1.168

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.751	.
(14) Massachusetts Credibility:	0.040	0.040	.
(15) Countrywide Pure Premium:	5.154	1.004	6.158
(16) Countrywide Indicated Relativity:	1.661	0.645	.
(17) Countrywide Credibility:	0.280	0.300	.
(18) Countrywide Lost-Time Claims:	48.000	.	.
(19) Pure Premium Underlying Present Rate:	3.527	0.945	4.472
(20) Relativity to Underlying Present Rate:	1.357	0.682	.
(21) Credibility to Underlying Relativity:	0.680	0.660	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	1.388	0.674	.
(24) Balanced Formula Relativity:	1.410	0.676	1.165

Class(es):		Effective: 7/1/2016							Construction		
6252 SHAFT SINKING - ALL OPERATIONS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	10,066	0	1	0	0	0	3,344	3,344	0.000	0.332	0.332
2010	26,948	0	1	0	19,416	0	78,538	97,953	0.720	2,914	3,635
2011	42,672	2	6	440,982	995,701	88,299	431,075	1,956,057	33,668	12,171	45,839
2012	22,218	0	2	0	980	0	40,373	41,353	0.044	1,817	1,861
2013	18,716	0	1	0	0	0	425	425	0.000	0.023	0.023
MA Total:	120,621	2	11	440,982	1,016,096	88,299	553,755	2,099,132	12,080	5,323	17,403

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.905	3.423	.
(14) Massachusetts Credibility:	0.210	0.280	.
(15) Countrywide Pure Premium:	2.421	1.444	3.865
(16) Countrywide Indicated Relativity:	0.780	0.928	.
(17) Countrywide Credibility:	0.350	0.360	.
(18) Countrywide Lost-Time Claims:	82.000	.	.
(19) Pure Premium Underlying Present Rate:	4.612	2.220	6.832
(20) Relativity to Underlying Present Rate:	1.774	1.601	.
(21) Credibility to Underlying Relativity:	0.440	0.360	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	1.874	1.869	.
(24) Balanced Formula Relativity:	1.904	1.876	1.894

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Construction		
6306 SEWER CONSTRUCTION - ALL OPERATIONS & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	248,940	8	36	2,221,394	520,694	660,032	454,514	3,856,635	11,015	4,477	15,492
2010	199,675	3	22	470,455	142,597	92,688	73,319	779,059	3,070	0,831	3,902
2011	206,132	1	28	19,289	1,196,565	4,838	368,893	1,589,586	5,898	1,813	7,711
2012	196,673	3	25	805,786	1,393,841	147,894	524,351	2,871,872	11,184	3,418	14,602
2013	229,362	2	24	688,217	765,626	231,079	629,214	2,314,136	6,339	3,751	10,089
MA Total:	1,080,782	17	135	4,205,143	4,019,323	1,136,531	2,050,291	11,411,287	7,610	2,949	10,558

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.460	1.896	.
(14) Massachusetts Credibility:	0.500	0.690	.
(15) Countrywide Pure Premium:	2.984	1.429	4.413
(16) Countrywide Indicated Relativity:	0.962	0.918	.
(17) Countrywide Credibility:	0.250	0.160	.
(18) Countrywide Lost-Time Claims:	1213.0	.	.
(19) Pure Premium Underlying Present Rate:	4.496	2.300	6.796
(20) Relativity to Underlying Present Rate:	1.730	1.659	.
(21) Credibility to Underlying Relativity:	0.250	0.150	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	1.903	1.704	.
(24) Balanced Formula Relativity:	1.933	1.710	1.859

Class(es):		Effective: 7/1/2016							Construction		
6319 GAS MAIN OR CONNECTION CONSTRUCTION & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	453,332	1	63	122,288	513,701	28,353	298,132	962,475	1,403	0,720	2,123
2010	473,094	4	55	725,368	536,661	825,088	255,493	2,342,611	2,668	2,284	4,952
2011	517,858	1	56	12,740	894,324	8,636	558,514	1,474,214	1,752	1,095	2,847
2012	566,589	4	32	1,450,345	1,247,234	481,477	1,005,665	4,184,721	4,761	2,625	7,386
2013	637,772	1	29	143,616	359,406	47,535	337,183	887,740	0,789	0,603	1,392
MA Total:	2,648,645	11	235	2,454,358	3,551,326	1,391,089	2,454,987	9,851,760	2,267	1,452	3,720

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.733	0.934	.
(14) Massachusetts Credibility:	0.530	0.780	.
(15) Countrywide Pure Premium:	2.386	1.151	3.537
(16) Countrywide Indicated Relativity:	0.769	0.740	.
(17) Countrywide Credibility:	0.240	0.110	.
(18) Countrywide Lost-Time Claims:	1239.0	.	.
(19) Pure Premium Underlying Present Rate:	2.129	1.313	3.442
(20) Relativity to Underlying Present Rate:	0.819	0.947	.
(21) Credibility to Underlying Relativity:	0.230	0.110	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	0.761	0.914	.
(24) Balanced Formula Relativity:	0.774	0.917	0.822

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Construction			
6325 CONDUIT CONSTRUCTION - FOR CABLES OR WIRES & DR												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	167,780	3	11	658,272	243,072	380,756	295,336	1,577,436	5,372	4,030	9,402	
2010	188,035	1	10	5,478	387,498	7,096	106,168	506,240	2,090	0,602	2,692	
2011	199,587	2	8	190,321	28,255	105,511	25,328	349,415	1,095	0,656	1,751	
2012	197,610	1	10	184,821	103,320	47,880	100,216	436,237	1,458	0,749	2,208	
2013	224,228	1	8	110,458	46,826	87,974	31,229	276,487	0,701	0,532	1,233	
MA Total:	977,240	8	47	1,149,349	808,971	629,216	558,278	3,145,815	2,004	1,215	3,219	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.648	0.781	.
(14) Massachusetts Credibility:	0.400	0.590	.
(15) Countrywide Pure Premium:	2.804	1.284	4.088
(16) Countrywide Indicated Relativity:	0.904	0.825	.
(17) Countrywide Credibility:	0.300	0.210	.
(18) Countrywide Lost-Time Claims:	1208.0	.	.
(19) Pure Premium Underlying Present Rate:	2.828	1.772	4.600
(20) Relativity to Underlying Present Rate:	1.088	1.279	.
(21) Credibility to Underlying Relativity:	0.300	0.200	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	0.857	0.890	.
(24) Balanced Formula Relativity:	0.870	0.893	0.878

Class(es):		Effective: 7/1/2016							Construction			
6400 FENCE ERECTION - ALL TYPES												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	238,112	1	52	95,564	249,496	18,926	142,940	506,926	1,449	0,680	2,129	
2010	258,202	2	74	177,791	769,226	273,942	583,758	1,804,716	3,668	3,322	6,990	
2011	281,649	6	57	679,795	407,129	238,591	326,338	1,651,852	3,859	2,006	5,865	
2012	296,894	0	64	0	961,435	0	380,950	1,342,385	3,238	1,283	4,521	
2013	319,173	4	35	341,661	318,192	164,964	142,391	967,207	2,067	0,963	3,030	
MA Total:	1,394,032	13	282	1,294,811	2,705,477	696,422	1,576,376	6,273,086	2,870	1,630	4,500	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.928	1.048	.
(14) Massachusetts Credibility:	0.480	0.670	.
(15) Countrywide Pure Premium:	3.861	1.875	5.736
(16) Countrywide Indicated Relativity:	1.245	1.205	.
(17) Countrywide Credibility:	0.260	0.170	.
(18) Countrywide Lost-Time Claims:	852.00	.	.
(19) Pure Premium Underlying Present Rate:	3.096	1.707	4.803
(20) Relativity to Underlying Present Rate:	1.191	1.232	.
(21) Credibility to Underlying Relativity:	0.260	0.160	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	1.079	1.104	.
(24) Balanced Formula Relativity:	1.096	1.108	1.100

IX 000211

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Miscellaneous		
6834 BOAT BUILDING OR REPAIRING & DRIVERS: MA ACT											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	142,646	1	15	6,084	8,752	343	23,053	38,233	0.104	0.164	0.268
2010	139,300	0	14	0	155,476	0	58,393	213,869	1.116	0.419	1.535
2011	149,943	0	14	0	2,785	0	20,169	22,955	0.019	0.135	0.153
2012	165,688	0	22	0	26,521	0	167,061	193,582	0.160	1.008	1.168
2013	195,066	0	21	0	71,266	0	81,060	152,326	0.365	0.416	0.781
MA Total:	792,643	1	86	6,084	264,800	343	349,737	620,965	0.342	0.442	0.783

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.121	0.283	.
(14) Massachusetts Credibility:	0.270	0.370	.
(15) Countrywide Pure Premium:	1.854	1.256	3.110
(16) Countrywide Indicated Relativity:	0.718	0.887	.
(17) Countrywide Credibility:	0.370	0.320	.
(18) Countrywide Lost-Time Claims:	855.00	.	.
(19) Pure Premium Underlying Present Rate:	1.259	0.652	1.911
(20) Relativity to Underlying Present Rate:	0.540	0.470	.
(21) Credibility to Underlying Relativity:	0.360	0.310	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	0.493	0.534	.
(24) Balanced Formula Relativity:	0.487	0.533	0.503

Class(es):		Effective: 7/1/2016							Miscellaneous		
6836 MARINA & DRIVERS: MA ACT											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	418,727	3	64	209,658	109,938	59,815	322,884	702,295	0.763	0.914	1.677
2010	418,091	2	60	874,863	522,668	233,173	520,159	2,150,864	3.343	1.802	5.144
2011	415,469	1	57	17,572	227,209	41,653	209,725	496,159	0.589	0.605	1.194
2012	421,495	1	80	47,409	909,727	19,285	762,523	1,738,945	2.271	1.855	4.126
2013	443,669	1	72	33,009	2,470,067	84,278	1,163,198	3,750,551	5.642	2.812	8.453
MA Total:	2,117,451	8	333	1,182,510	4,239,610	438,203	2,978,490	8,838,814	2.561	1.614	4.174

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.907	1.033	.
(14) Massachusetts Credibility:	0.430	0.630	.
(15) Countrywide Pure Premium:	1.897	1.302	3.199
(16) Countrywide Indicated Relativity:	0.735	0.920	.
(17) Countrywide Credibility:	0.290	0.190	.
(18) Countrywide Lost-Time Claims:	605.00	.	.
(19) Pure Premium Underlying Present Rate:	1.568	0.943	2.511
(20) Relativity to Underlying Present Rate:	0.672	0.680	.
(21) Credibility to Underlying Relativity:	0.280	0.180	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	0.791	0.948	.
(24) Balanced Formula Relativity:	0.782	0.946	0.840

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Miscellaneous			
7219 TRUCKING: NOC - ALL EMP & DRIVERS												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	2,144,712	40	380	5,422,256	6,757,314	2,615,657	3,000,370	17,795,596	5,679	2,619	8,297	
2010	2,279,124	39	417	6,930,505	9,118,097	3,196,141	5,452,534	24,697,278	7,042	3,795	10,836	
2011	2,513,000	31	445	4,483,521	8,209,762	1,380,542	3,855,917	17,929,741	5,051	2,084	7,135	
2012	2,496,113	43	423	6,354,470	6,412,740	2,844,895	3,441,395	19,053,500	5,115	2,518	7,633	
2013	2,837,838	50	492	8,854,080	10,567,910	3,700,110	4,954,711	28,076,811	6,844	3,050	9,894	
MA Total:	12,270,788	203	2,157	32,044,831	41,065,823	13,737,345	20,704,927	107,552,926	5,958	2,807	8,765	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.111	1.796	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	4.719	2.057	6.776
(16) Countrywide Indicated Relativity:	1.827	1.454	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	9239.0	.	.
(19) Pure Premium Underlying Present Rate:	4.770	2.447	7.217
(20) Relativity to Underlying Present Rate:	2.045	1.766	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	2.111	1.796	.
(24) Balanced Formula Relativity:	2.085	1.793	1.981

Class(es):		Effective: 7/1/2016							Miscellaneous			
7230 TRUCKING: PARCEL OR PACKAGE DELIVERY- ALL EMP & DRIVERS												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	28,855	1	7	159,475	143,414	50,606	66,660	420,155	10,497	4,064	14,561	
2010	30,519	0	6	0	11,419	0	18,935	30,354	0,374	0,620	0,995	
2011	33,108	1	8	153,486	39,802	64,419	18,391	276,098	5,838	2,501	8,339	
2012	38,270	4	6	240,366	108,024	105,809	44,584	498,783	9,104	3,930	13,033	
2013	63,371	2	16	399,697	423,351	377,368	162,275	1,362,692	12,988	8,516	21,503	
MA Total:	194,123	8	43	953,025	726,010	598,201	310,845	2,588,081	8,649	4,683	13,332	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.064	2.997	.
(14) Massachusetts Credibility:	0.230	0.320	.
(15) Countrywide Pure Premium:	5.394	2.385	7.779
(16) Countrywide Indicated Relativity:	2.089	1.685	.
(17) Countrywide Credibility:	0.390	0.340	.
(18) Countrywide Lost-Time Claims:	401.00	.	.
(19) Pure Premium Underlying Present Rate:	3.621	1.891	5.511
(20) Relativity to Underlying Present Rate:	1.553	1.364	.
(21) Credibility to Underlying Relativity:	0.380	0.340	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	2.109	1.996	.
(24) Balanced Formula Relativity:	2.084	1.992	2.051

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Miscellaneous		
7231 TRUCKING: MAIL, PARCEL OR PACKAGE DELIVERY-ALL EMP & DRIVERS											
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	231.064	8	39	448.832	234.757	139.326	100.700	923.615	2.958	1.039	3.997
2010	332.702	8	87	622.286	1,463.678	273.715	726.803	3,086.483	6.270	3.007	9.277
2011	433.559	14	80	2,306.209	1,700.846	717.417	969.511	5,693.983	9.242	3.891	13.133
2012	403.431	8	69	1,337.695	1,390.060	503.591	707.740	3,939.085	6.761	3.003	9.764
2013	459.078	10	93	657.276	1,320.284	262.133	936.682	3,176.375	4.308	2.611	6.919
MA Total:	1,859.835	48	368	5,372,299	6,109,625	1,896,182	3,441,435	16,819,541	6.174	2.870	9.044

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.187	1.837	.
(14) Massachusetts Credibility:	0.650	0.900	.
(15) Countrywide Pure Premium:	4.962	2.447	7.409
(16) Countrywide Indicated Relativity:	1.922	1.729	.
(17) Countrywide Credibility:	0.180	0.050	.
(18) Countrywide Lost-Time Claims:	3648.0	.	.
(19) Pure Premium Underlying Present Rate:	4.976	2.611	7.587
(20) Relativity to Underlying Present Rate:	2.134	1.884	.
(21) Credibility to Underlying Relativity:	0.170	0.050	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	2.130	1.834	.
(24) Balanced Formula Relativity:	2.104	1.830	2.006

Class(es):		Effective: 7/1/2016							Miscellaneous		
7360 FREIGHT HANDLING NOC: MA ACT											
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	59.725	0	15	0	51.777	0	63.029	114.806	0.867	1.055	1.922
2010	91.601	0	22	0	49.760	0	50.835	100.595	0.543	0.555	1.098
2011	93.329	2	23	332.406	274.995	89.499	184.741	881.642	6.508	2.938	9.447
2012	95.600	0	16	0	152.448	0	167.185	319.634	1.595	1.749	3.343
2013	91.838	0	8	0	360.748	0	261.784	622.532	3.928	2.850	6.779
MA Total:	432.093	2	84	332,406	889,729	89,499	727,576	2,039,210	2.828	1.891	4.719

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.002	1.210	.
(14) Massachusetts Credibility:	0.300	0.420	.
(15) Countrywide Pure Premium:	2.614	1.591	4.205
(16) Countrywide Indicated Relativity:	1.012	1.124	.
(17) Countrywide Credibility:	0.350	0.290	.
(18) Countrywide Lost-Time Claims:	1340.0	.	.
(19) Pure Premium Underlying Present Rate:	3.088	1.684	4.771
(20) Relativity to Underlying Present Rate:	1.324	1.215	.
(21) Credibility to Underlying Relativity:	0.350	0.290	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	1.118	1.187	.
(24) Balanced Formula Relativity:	1.105	1.184	1.133

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Miscellaneous		
7370 TAXICAB CO: ALL OTHER EMP & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	1,266,029	15	521	1,385,228	1,133,267	489,040	1,188,640	4,196,174	1,989	1,325	3,314
2010	1,267,559	18	527	1,244,914	1,768,024	671,191	1,321,594	5,005,723	2,377	1,572	3,949
2011	1,222,697	13	422	939,164	1,260,134	398,591	1,352,738	3,950,626	1,799	1,432	3,231
2012	1,332,415	15	444	892,490	1,338,375	346,024	1,432,344	4,009,233	1,674	1,335	3,009
2013	1,211,942	14	310	1,087,038	1,196,953	441,703	944,455	3,670,150	1,885	1,144	3,028
MA Total:	6,300,641	75	2,224	5,548,834	6,696,753	2,346,548	6,239,771	20,831,906	1,944	1,363	3,306

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.688	0.872	.
(14) Massachusetts Credibility:	0.720	1.000	.
(15) Countrywide Pure Premium:	2.753	1.613	4.366
(16) Countrywide Indicated Relativity:	1.066	1.140	.
(17) Countrywide Credibility:	0.140	0.000	.
(18) Countrywide Lost-Time Claims:	1934.0	.	.
(19) Pure Premium Underlying Present Rate:	1.927	1.355	3.282
(20) Relativity to Underlying Present Rate:	0.826	0.978	.
(21) Credibility to Underlying Relativity:	0.140	0.000	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	0.761	0.872	.
(24) Balanced Formula Relativity:	0.751	0.870	0.794

Class(es):		Effective: 7/1/2016							Miscellaneous		
7380 DRIVERS, CHAUFFEURS AND HELPERS-NOC-COMMERCIAL											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	3,025,336	34	722	2,728,646	5,503,544	1,093,950	3,491,532	12,817,671	2,721	1,516	4,237
2010	3,242,132	57	787	5,726,792	5,848,560	2,358,171	3,387,340	17,320,862	3,570	1,772	5,342
2011	3,325,598	57	782	5,848,438	6,143,440	3,073,809	3,735,853	18,801,540	3,606	2,048	5,654
2012	3,416,400	56	676	5,426,032	5,115,712	2,976,742	3,229,834	16,748,319	3,086	1,817	4,902
2013	4,075,176	70	785	8,448,199	10,548,302	2,898,231	5,568,407	27,463,138	4,662	2,078	6,739
MA Total:	17,084,642	274	3,752	28,178,107	33,159,557	12,400,902	19,412,965	93,151,531	3,590	1,862	5,452

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.272	1.192	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	2.939	1.530	4.469
(16) Countrywide Indicated Relativity:	1.138	1.081	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	23816	.	.
(19) Pure Premium Underlying Present Rate:	2.733	1.584	4.317
(20) Relativity to Underlying Present Rate:	1.172	1.143	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	1.272	1.192	.
(24) Balanced Formula Relativity:	1.256	1.189	1.232

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 7/1/2016

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Miscellaneous			
7382 BUS CO: ALL OTHER EMPLOYEES & DRIVERS												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	2,405,026	45	539	2,232,753	2,410,897	1,235,113	1,867,432	7,746,195	1,931	1,290	3,221	
2010	2,908,811	58	652	2,940,285	2,868,190	1,463,877	2,908,393	10,180,744	1,997	1,503	3,500	
2011	2,908,099	50	623	2,585,018	3,195,628	1,390,638	2,192,834	9,364,118	1,988	1,232	3,220	
2012	3,000,351	51	628	2,535,045	3,012,355	1,597,079	2,056,768	9,201,247	1,849	1,218	3,067	
2013	3,221,497	54	638	3,629,810	3,367,892	1,842,406	2,650,485	11,490,593	2,172	1,395	3,567	
MA Total:	14,443,784	258	3,080	13,922,910	14,854,963	7,529,113	11,675,912	47,982,898	1,992	1,330	3,322	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.706	0.851	.
(14) Massachusetts Credibility:	0.950	1.000	.
(15) Countrywide Pure Premium:	2.150	1.388	3.538
(16) Countrywide Indicated Relativity:	0.833	0.981	.
(17) Countrywide Credibility:	0.030	0.000	.
(18) Countrywide Lost-Time Claims:	6326.0	.	.
(19) Pure Premium Underlying Present Rate:	1.639	1.149	2.788
(20) Relativity to Underlying Present Rate:	0.703	0.829	.
(21) Credibility to Underlying Relativity:	0.020	0.000	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	0.710	0.851	.
(24) Balanced Formula Relativity:	0.701	0.849	0.754

Class(es):		Effective: 7/1/2016							Miscellaneous			
7403 AIRCRAFT OR HELICOP OP: AIR CARRIER-SCHD/ SUPPL: A/O EMP & DR												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	658,088	7	154	423,353	424,476	155,364	670,918	1,674,111	1,288	1,256	2,544	
2010	1,158,227	15	364	1,596,566	2,063,321	430,303	1,804,111	5,894,301	3,160	1,929	5,089	
2011	1,271,902	13	356	1,644,289	2,012,224	685,787	1,545,569	5,887,868	2,875	1,754	4,629	
2012	1,329,966	14	367	1,284,177	2,246,923	1,098,936	1,619,793	6,249,828	2,655	2,044	4,699	
2013	1,234,053	9	295	648,228	3,490,513	565,530	2,948,721	7,652,992	3,354	2,848	6,202	
MA Total:	5,652,237	58	1,536	5,596,612	10,237,457	2,935,920	8,589,111	27,359,101	2,801	2,039	4,840	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.992	1.305	.
(14) Massachusetts Credibility:	0.690	1.000	.
(15) Countrywide Pure Premium:	2.218	1.296	3.514
(16) Countrywide Indicated Relativity:	0.859	0.915	.
(17) Countrywide Credibility:	0.160	0.000	.
(18) Countrywide Lost-Time Claims:	15951	.	.
(19) Pure Premium Underlying Present Rate:	1.922	1.519	3.441
(20) Relativity to Underlying Present Rate:	0.824	1.096	.
(21) Credibility to Underlying Relativity:	0.150	0.000	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	0.946	1.305	.
(24) Balanced Formula Relativity:	0.934	1.302	1.065

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Calculation of Class Relativities

Class(es):									Effective: 7/1/2016			Miscellaneous	
7405 AIRCRAFT OR HELICOP OP: AIR CARRIER-SCHD/ SUPPL: FLYING CREW													
Converted Unlimited Losses													
Amount													
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums					
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)		
2009	251.915	1	17	155.618	42.388	28.564	49.637	276.207	0.786	0.310	1.096		
2010	1,339.528	7	105	764.184	1,132.360	611.415	625.793	3,133.752	1.416	0.924	2.339		
2011	1,455.711	6	78	543.375	390.242	192.598	464.260	1,590.476	0.641	0.451	1.093		
2012	1,538.596	4	76	205.846	632.278	153.786	406.393	1,398.303	0.545	0.364	0.909		
2013	1,618.054	4	75	260.671	903.937	120.428	458.431	1,743.468	0.720	0.358	1.078		
MA Total:	6,203.804	22	351	1,929.695	3,101.206	1,106.792	2,004.514	8,142.206	0.811	0.502	1.312		

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.287	0.321	.
(14) Massachusetts Credibility:	0.520	0.750	.
(15) Countrywide Pure Premium:	0.723	0.351	1.073
(16) Countrywide Indicated Relativity:	0.280	0.248	.
(17) Countrywide Credibility:	0.240	0.130	.
(18) Countrywide Lost-Time Claims:	4563.0	.	.
(19) Pure Premium Underlying Present Rate:	0.837	0.504	1.341
(20) Relativity to Underlying Present Rate:	0.359	0.363	.
(21) Credibility to Underlying Relativity:	0.240	0.120	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	0.303	0.317	.
(24) Balanced Formula Relativity:	0.299	0.316	0.305

Class(es):									Effective: 7/1/2016			Miscellaneous	
7420 AIRCRAFT OR HELICOP OP: PUBLIC EXHIB STUNT FLYING: FLY CREW													
Converted Unlimited Losses													
Amount													
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums					
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)		
2009	2.377	0	0	0	0	0	0	0	0.000	0.000	0.000		
2010	5.238	0	0	0	0	0	0	0	0.000	0.000	0.000		
2011	3.515	0	0	0	0	0	0	0	0.000	0.000	0.000		
2012	3.364	0	0	0	0	0	0	0	0.000	0.000	0.000		
2013	5.081	0	0	0	0	0	0	0	0.000	0.000	0.000		
MA Total:	19.575	0	0	0	0	0	0	0	0.000	0.000	0.000		

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.100	0.100	.
(15) Countrywide Pure Premium:	9.122	2.212	11.334
(16) Countrywide Indicated Relativity:	3.533	1.563	.
(17) Countrywide Credibility:	0.220	0.230	.
(18) Countrywide Lost-Time Claims:	26.000	.	.
(19) Pure Premium Underlying Present Rate:	4.568	1.081	5.648
(20) Relativity to Underlying Present Rate:	1.959	0.780	.
(21) Credibility to Underlying Relativity:	0.680	0.670	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	2.109	0.882	.
(24) Balanced Formula Relativity:	2.083	0.880	1.655

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Miscellaneous			
7421 AIRCRAFT OR HELICOP OP: TRANSPORT PERS IN EMPLR BUS: FLY CRW												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	200.736	0	4	0	48.416	0	21.402	69.818	0.241	0.107	0.348	
2010	227.492	0	8	0	386.225	0	128.580	514.806	1.698	0.565	2.263	
2011	233.925	0	7	0	6.172	0	32.845	39.017	0.026	0.140	0.167	
2012	255.660	0	6	0	89.739	0	67.565	157.303	0.351	0.264	0.615	
2013	265.397	0	7	0	824.653	0	245.784	1,070.436	3.107	0.926	4.033	
MA Total:	1,183,209	0	32	0	1,355,205	0	496,176	1,851,380	1.145	0.419	1.565	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.406	0.268	.
(14) Massachusetts Credibility:	0.290	0.340	.
(15) Countrywide Pure Premium:	0.742	0.302	1.044
(16) Countrywide Indicated Relativity:	0.287	0.213	.
(17) Countrywide Credibility:	0.360	0.330	.
(18) Countrywide Lost-Time Claims:	528.00	.	.
(19) Pure Premium Underlying Present Rate:	1.079	0.367	1.446
(20) Relativity to Underlying Present Rate:	0.463	0.265	.
(21) Credibility to Underlying Relativity:	0.350	0.330	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	0.383	0.249	.
(24) Balanced Formula Relativity:	0.378	0.248	0.332

Class(es):		Effective: 7/1/2016							Miscellaneous			
7425 AIRCRAFT OR HELICOP OP: NOC- HELICOPTERS: FLYING CREW												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	63.694	0	2	0	0	0	408	408	0.000	0.006	0.006	
2010	63.585	0	7	0	3.119	0	7.890	11.010	0.049	0.124	0.173	
2011	66.164	0	0	0	0	0	0	0	0.000	0.000	0.000	
2012	65.394	0	5	0	0	0	6.036	6.036	0.000	0.092	0.092	
2013	68.665	0	4	0	1.044	0	5.062	6.106	0.015	0.074	0.089	
MA Total:	327,502	0	18	0	4,163	0	19,396	23,560	0.013	0.059	0.072	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.005	0.038	.
(14) Massachusetts Credibility:	0.220	0.240	.
(15) Countrywide Pure Premium:	2.371	0.524	2.895
(16) Countrywide Indicated Relativity:	0.918	0.370	.
(17) Countrywide Credibility:	0.390	0.380	.
(18) Countrywide Lost-Time Claims:	177.00	.	.
(19) Pure Premium Underlying Present Rate:	1.903	0.573	2.476
(20) Relativity to Underlying Present Rate:	0.816	0.414	.
(21) Credibility to Underlying Relativity:	0.390	0.380	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	0.677	0.307	.
(24) Balanced Formula Relativity:	0.669	0.306	0.540

IX 000218

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Miscellaneous		
7502 GAS COMPANY: GAS CO-NATURAL GAS-LOCAL DISTRIBUTION & DR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	173.356	0	32	0	25.217	0	37.880	63.097	0.145	0.219	0.364
2010	186.728	1	42	173.739	32.514	32.792	73.996	313.041	1.105	0.572	1.676
2011	197.246	1	30	6.066	38.350	5.492	87.446	137.354	0.225	0.471	0.696
2012	108.406	0	10	0	67.514	0	43.966	111.480	0.623	0.406	1.028
2013	129.354	0	13	0	11.827	0	15.399	27.226	0.091	0.119	0.210
MA Total:	795.089	2	127	179.805	175.421	38.284	258.687	652.198	0.447	0.374	0.820

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.158	0.239	.
(14) Massachusetts Credibility:	0.270	0.410	.
(15) Countrywide Pure Premium:	1.473	0.749	2.222
(16) Countrywide Indicated Relativity:	0.571	0.529	.
(17) Countrywide Credibility:	0.370	0.300	.
(18) Countrywide Lost-Time Claims:	578.00	.	.
(19) Pure Premium Underlying Present Rate:	1.263	0.855	2.118
(20) Relativity to Underlying Present Rate:	0.542	0.617	.
(21) Credibility to Underlying Relativity:	0.360	0.290	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	0.449	0.436	.
(24) Balanced Formula Relativity:	0.443	0.435	0.440

Class(es):		Effective: 7/1/2016							Miscellaneous		
7515 OIL OR GAS PIPELINE OPERATION & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	10.729	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	34.838	0	9	0	92.461	0	91.944	184.406	2.654	2.639	5.293
2011	13.382	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	12.749	0	1	0	7.219	0	6.507	13.725	0.566	0.510	1.077
2013	11.216	0	12	0	117.810	0	128.941	246.750	10.504	11.497	22.001
MA Total:	82.914	0	22	0	217.490	0	227.391	444.881	2.623	2.743	5.366

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.929	1.755	.
(14) Massachusetts Credibility:	0.090	0.160	.
(15) Countrywide Pure Premium:	0.540	0.372	0.912
(16) Countrywide Indicated Relativity:	0.209	0.263	.
(17) Countrywide Credibility:	0.460	0.420	.
(18) Countrywide Lost-Time Claims:	391.00	.	.
(19) Pure Premium Underlying Present Rate:	0.822	0.802	1.624
(20) Relativity to Underlying Present Rate:	0.353	0.578	.
(21) Credibility to Underlying Relativity:	0.450	0.420	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	0.338	0.634	.
(24) Balanced Formula Relativity:	0.334	0.633	0.441

IX 000219

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Construction		
7538 ELECTRIC LIGHT OR POWER LINE CONSTRUCTION & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	163,527	0	13	0	35,346	0	32,866	68,212	0.216	0.201	0.417
2010	114,709	2	4	344,330	885,361	220,785	341,079	1,791,556	10.720	4.898	15.618
2011	165,799	1	9	95,552	360,719	70,032	139,981	666,283	2.752	1.267	4.019
2012	263,385	0	9	0	106,060	0	109,530	215,590	0.403	0.416	0.819
2013	185,576	0	20	0	1,337,926	0	305,521	1,643,447	7.210	1.646	8.856
MA Total:	892,996	3	55	439,882	2,725,412	290,817	928,977	4,385,087	3.545	1.366	4.911

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.146	0.878	.
(14) Massachusetts Credibility:	0.380	0.520	.
(15) Countrywide Pure Premium:	3.861	1.662	5.523
(16) Countrywide Indicated Relativity:	1.244	1.068	.
(17) Countrywide Credibility:	0.310	0.240	.
(18) Countrywide Lost-Time Claims:	936.00	.	.
(19) Pure Premium Underlying Present Rate:	2.792	1.387	4.180
(20) Relativity to Underlying Present Rate:	1.074	1.001	.
(21) Credibility to Underlying Relativity:	0.310	0.240	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	1.154	0.953	.
(24) Balanced Formula Relativity:	1.173	0.957	1.100

Class(es):		Effective: 7/1/2016							Miscellaneous		
7539 ELECTRIC LIGHT OR POWER CO NOC-ALL EMP & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	673,073	2	33	695,228	53,749	275,862	54,804	1,079,643	1.113	0.491	1.604
2010	814,609	1	36	51,934	250,618	19,908	236,257	558,717	0.371	0.314	0.686
2011	768,031	2	37	360,766	303,533	79,784	204,001	948,084	0.865	0.369	1.234
2012	1,131,255	0	31	0	205,491	0	109,204	314,694	0.182	0.097	0.278
2013	1,018,069	0	20	0	131,344	0	80,055	211,399	0.129	0.079	0.208
MA Total:	4,405,038	5	157	1,107,928	944,735	375,554	684,321	3,112,537	0.466	0.241	0.707

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.165	0.154	.
(14) Massachusetts Credibility:	0.420	0.580	.
(15) Countrywide Pure Premium:	1.056	0.599	1.654
(16) Countrywide Indicated Relativity:	0.409	0.423	.
(17) Countrywide Credibility:	0.290	0.210	.
(18) Countrywide Lost-Time Claims:	1516.0	.	.
(19) Pure Premium Underlying Present Rate:	0.720	0.374	1.093
(20) Relativity to Underlying Present Rate:	0.309	0.270	.
(21) Credibility to Underlying Relativity:	0.290	0.210	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	0.277	0.235	.
(24) Balanced Formula Relativity:	0.274	0.234	0.260

IX 000220

Calculation of Class Relativities

Class(es): 7580 SEWAGE DISPOSAL PLANT OPERATION & DRIVERS									Effective: 7/1/2016			Miscellaneous	
Converted Unlimited Losses													
Amount													
		Claim Count		Indemnity		Medical				MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)		
2009	271,214	2	35	37,206	303,703	11,207	107,284	459,400	1,257	0,437	1,694		
2010	285,403	2	21	162,269	276,995	25,025	409,344	873,632	1,539	1,522	3,061		
2011	395,495	4	35	867,102	251,723	726,857	296,640	2,142,322	2,829	2,588	5,417		
2012	417,711	5	38	422,793	464,118	279,982	204,618	1,371,512	2,123	1,160	3,283		
2013	338,402	1	22	465,602	195,734	87,485	183,787	932,609	1,954	0,802	2,756		
MA Total:	1,708,223	14	151	1,954,971	1,492,273	1,130,555	1,201,674	5,779,474	2,018	1,365	3,383		

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.715	0.874	.
(14) Massachusetts Credibility:	0.360	0.560	.
(15) Countrywide Pure Premium:	1.630	0.969	2.599
(16) Countrywide Indicated Relativity:	0.631	0.684	.
(17) Countrywide Credibility:	0.320	0.220	.
(18) Countrywide Lost-Time Claims:	805.00	.	.
(19) Pure Premium Underlying Present Rate:	1.277	0.889	2.166
(20) Relativity to Underlying Present Rate:	0.548	0.642	.
(21) Credibility to Underlying Relativity:	0.320	0.220	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	0.635	0.781	.
(24) Balanced Formula Relativity:	0.627	0.779	0.681

Class(es): 7590 GARBAGE WORKS									Effective: 7/1/2016			Miscellaneous	
Converted Unlimited Losses													
Amount													
		Claim Count		Indemnity		Medical				MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)		
2009	21,870	0	1	0	3,170	0	6,233	9,404	0,145	0,285	0,430		
2010	14,920	1	3	998	1,131	1,510	3,260	6,899	0,143	0,320	0,462		
2011	22,429	0	1	0	60,508	0	21,717	82,225	2,698	0,968	3,666		
2012	27,563	0	1	0	0	0	2,351	0,000	0,000	0,085	0,085		
2013	23,882	1	6	15,414	46,152	25,596	10,916	98,078	2,578	1,529	4,107		
MA Total:	110,665	2	12	16,412	110,961	27,107	44,478	198,958	1,151	0,647	1,798		

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.408	0.414	.
(14) Massachusetts Credibility:	0.160	0.220	.
(15) Countrywide Pure Premium:	1.583	0.942	2.525
(16) Countrywide Indicated Relativity:	0.613	0.665	.
(17) Countrywide Credibility:	0.420	0.390	.
(18) Countrywide Lost-Time Claims:	451.00	.	.
(19) Pure Premium Underlying Present Rate:	2.516	1.277	3.794
(20) Relativity to Underlying Present Rate:	1.079	0.922	.
(21) Credibility to Underlying Relativity:	0.420	0.390	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	0.776	0.710	.
(24) Balanced Formula Relativity:	0.766	0.708	0.746

IX 000221

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Miscellaneous		
7600 TELEPHONE OR TELEGRAPH CO: ALL OTHER EMP & DR											
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	1,314,305	17	214	2,092,316	1,318,654	659,434	942,368	5,012,772	2,595	1,219	3,814
2010	3,079,309	37	423	2,079,576	5,353,772	964,213	3,070,556	11,468,116	2,414	1,310	3,724
2011	3,654,478	19	337	2,165,532	4,842,123	829,410	2,307,014	10,144,079	1,918	0,858	2,776
2012	3,409,914	18	255	3,596,894	4,593,469	1,224,356	2,152,555	11,567,274	2,402	0,990	3,392
2013	3,696,081	33	284	6,443,395	5,154,704	2,024,285	2,169,083	15,791,466	3,138	1,135	4,272
MA Total:	15,154,086	124	1,513	16,377,713	21,262,721	5,701,698	10,641,576	53,983,708	2,484	1,078	3,562

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.880	0.690	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	2.337	1.218	3.555
(16) Countrywide Indicated Relativity:	0.905	0.861	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	9804.0	.	.
(19) Pure Premium Underlying Present Rate:	2.233	1.088	3.321
(20) Relativity to Underlying Present Rate:	0.957	0.785	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	0.880	0.690	.
(24) Balanced Formula Relativity:	0.869	0.689	0.805

Class(es):		Effective: 7/1/2016							Construction		
7601 TELEPHONE, TELEGRAPH OR FIRE ALARM LINE CONSTRUCTION & DR											
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	135,514	0	25	0	438,440	0	272,608	711,049	3,235	2,012	5,247
2010	154,363	0	15	0	486,505	0	355,725	842,230	3,152	2,304	5,456
2011	187,329	0	27	0	78,506	0	90,740	169,246	0,419	0,484	0,903
2012	255,259	2	38	337,570	229,886	92,470	347,229	1,007,156	2,223	1,723	3,946
2013	261,577	1	24	106,605	107,067	81,627	107,108	402,406	0,817	0,722	1,538
MA Total:	994,042	3	129	444,175	1,340,405	174,097	1,173,410	3,132,087	1,795	1,356	3,151

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.580	0.872	.
(14) Massachusetts Credibility:	0.400	0.540	.
(15) Countrywide Pure Premium:	4.097	2.459	6.556
(16) Countrywide Indicated Relativity:	1.321	1.580	.
(17) Countrywide Credibility:	0.220	0.230	.
(18) Countrywide Lost-Time Claims:	27.000	.	.
(19) Pure Premium Underlying Present Rate:	2.792	1.387	4.180
(20) Relativity to Underlying Present Rate:	1.074	1.001	.
(21) Credibility to Underlying Relativity:	0.380	0.230	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	0.931	1.064	.
(24) Balanced Formula Relativity:	0.946	1.068	0.987

IX 000222

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Office and Clerical		
7610 RADIO OR TV BROADCAST STATION-ALL EMP & CL, DR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	3,525,480	6	40	807,134	288,907	364,301	296,782	1,757,124	0.311	0.188	0.498
2010	3,551,975	1	52	48,155	508,054	3,368	218,992	778,570	0.157	0.063	0.219
2011	4,704,321	9	125	2,496,077	1,035,607	502,586	492,205	4,526,475	0.751	0.211	0.962
2012	4,653,889	4	60	737,499	380,016	172,609	259,608	1,549,733	0.240	0.093	0.333
2013	4,440,516	4	52	207,064	432,743	141,377	285,969	1,067,153	0.144	0.096	0.240
MA Total:	20,876,182	24	329	4,295,929	2,645,327	1,184,241	1,553,557	9,679,054	0.332	0.131	0.464

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.959	2.282	.
(14) Massachusetts Credibility:	0.450	0.640	.
(15) Countrywide Pure Premium:	0.151	0.100	0.251
(16) Countrywide Indicated Relativity:	2.211	2.027	.
(17) Countrywide Credibility:	0.280	0.180	.
(18) Countrywide Lost-Time Claims:	1682.0	.	.
(19) Pure Premium Underlying Present Rate:	0.180	0.100	0.281
(20) Relativity to Underlying Present Rate:	2.695	1.973	.
(21) Credibility to Underlying Relativity:	0.270	0.180	.
(22) Industry Group Converted Pure Premium:	0.084	0.057	0.141
(23) Formula Relativity:	3.128	2.181	.
(24) Balanced Formula Relativity:	3.118	2.182	2.737

Class(es):		Effective: 7/1/2016							Miscellaneous		
7704 FIREFIGHTERS & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	26,038	0	2	0	573	0	4,528	5,101	0.022	0.174	0.196
2010	13,417	1	1	223,586	3,695	88,325	3,141	318,747	16.940	6.817	23.757
2011	12,606	0	2	0	0	0	599	599	0.000	0.048	0.048
2012	15,913	0	1	0	5,051	0	2,401	7,453	0.317	0.151	0.468
2013	17,642	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	85,617	1	6	223,586	9,320	88,325	10,669	331,901	2.720	1.156	3.877

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.964	0.740	.
(14) Massachusetts Credibility:	0.120	0.190	.
(15) Countrywide Pure Premium:	2.695	2.059	4.754
(16) Countrywide Indicated Relativity:	1.044	1.455	.
(17) Countrywide Credibility:	0.440	0.410	.
(18) Countrywide Lost-Time Claims:	2777.0	.	.
(19) Pure Premium Underlying Present Rate:	1.537	1.161	2.698
(20) Relativity to Underlying Present Rate:	0.659	0.838	.
(21) Credibility to Underlying Relativity:	0.440	0.400	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	0.865	1.072	.
(24) Balanced Formula Relativity:	0.854	1.070	0.931

IX 000223

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Miscellaneous		
7720 POLICE OFFICERS & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	1,534,795	5	94	307,057	1,360,145	341,919	572,368	2,581,489	1,086	0,596	1,682
2010	1,716,883	3	100	263,760	786,857	328,095	421,132	1,799,844	0,612	0,436	1,048
2011	1,870,437	4	136	889,410	716,071	469,984	607,872	2,683,336	0,858	0,576	1,435
2012	1,842,478	7	118	377,383	659,438	130,201	466,127	1,633,149	0,563	0,324	0,886
2013	1,563,020	4	97	214,119	949,175	507,511	516,479	2,187,284	0,744	0,655	1,399
MA Total:	8,527,614	23	545	2,051,728	4,471,686	1,777,710	2,583,979	10,885,102	0,765	0,511	1,276

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.271	0.327	.
(14) Massachusetts Credibility:	0.600	0.870	.
(15) Countrywide Pure Premium:	1.436	0.929	2.365
(16) Countrywide Indicated Relativity:	0.556	0.657	.
(17) Countrywide Credibility:	0.200	0.070	.
(18) Countrywide Lost-Time Claims:	12080	.	.
(19) Pure Premium Underlying Present Rate:	0.871	0.531	1.402
(20) Relativity to Underlying Present Rate:	0.374	0.383	.
(21) Credibility to Underlying Relativity:	0.200	0.060	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	0.349	0.354	.
(24) Balanced Formula Relativity:	0.344	0.353	0.347

Class(es):		Effective: 7/1/2016							Construction		
7855 RAILROAD CONSTR: LAYING/RELAYING TRACK OR MAINT BY CONTR & DR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	7,184	0	1	0	0	0	1,128	1,128	0,000	0,157	0,157
2010	9,131	0	0	0	0	0	0	0	0,000	0,000	0,000
2011	20,598	0	1	0	1,523	0	3,050	4,573	0,074	0,148	0,222
2012	14,801	0	6	0	271,161	0	88,525	359,685	18,321	5,981	24,302
2013	13,254	0	1	0	9,559	0	5,768	15,327	0,721	0,435	1,156
MA Total:	64,967	0	9	0	282,243	0	98,470	380,713	4,344	1,516	5,860

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.404	0.975	.
(14) Massachusetts Credibility:	0.140	0.160	.
(15) Countrywide Pure Premium:	2.412	1.228	3.640
(16) Countrywide Indicated Relativity:	0.778	0.789	.
(17) Countrywide Credibility:	0.430	0.420	.
(18) Countrywide Lost-Time Claims:	286.00	.	.
(19) Pure Premium Underlying Present Rate:	2.834	1.082	3.916
(20) Relativity to Underlying Present Rate:	1.090	0.781	.
(21) Credibility to Underlying Relativity:	0.430	0.420	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4,649
(23) Formula Relativity:	1.000	0.815	.
(24) Balanced Formula Relativity:	1.016	0.818	0.950

IX 000224

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services		
8001 STORE: FLORISTS & DRIVERS											
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	588,849	3	79	313,583	307,903	420,368	327,469	1,369,324	1,055	1,270	2,325
2010	620,258	1	89	185,534	133,194	15,657	171,763	506,147	0,514	0,302	0,816
2011	619,691	2	64	3,315	415,671	5,945	240,780	665,711	0,676	0,398	1,074
2012	598,781	4	64	640,195	225,083	480,301	299,297	1,644,877	1,445	1,302	2,747
2013	621,378	3	79	117,046	216,253	54,329	386,126	773,754	0,536	0,709	1,245
MA Total:	3,048,955	13	375	1,259,672	1,298,104	976,601	1,425,435	4,959,812	0.839	0.788	1.627

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.882	1.312	.
(14) Massachusetts Credibility:	0.370	0.590	.
(15) Countrywide Pure Premium:	0.986	0.686	1.672
(16) Countrywide Indicated Relativity:	1.028	1.123	.
(17) Countrywide Credibility:	0.320	0.210	.
(18) Countrywide Lost-Time Claims:	1163.0	.	.
(19) Pure Premium Underlying Present Rate:	0.760	0.572	1.332
(20) Relativity to Underlying Present Rate:	0.981	1.062	.
(21) Credibility to Underlying Relativity:	0.310	0.200	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	0.959	1.223	.
(24) Balanced Formula Relativity:	0.954	1.224	1.058

Class(es):		Effective: 7/1/2016							Goods and Services		
8002 AUTOMOBILE RENTAL CO: ALL OTHER EMP & COUNTER PERSONNEL, DR											
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	103,429	0	9	0	17,430	0	87,506	104,936	0,169	0,846	1,015
2010	179,487	1	32	131	933	24,933	23,904	49,901	0,006	0,272	0,278
2011	185,420	0	32	0	92,326	0	76,905	169,231	0,498	0,415	0,913
2012	183,915	1	30	29,158	189,155	1,249	68,981	288,542	1,187	0,382	1,569
2013	81,528	0	5	0	20,713	0	12,922	33,634	0,254	0,158	0,413
MA Total:	733,779	2	108	29,289	320,556	26,182	270,217	646,245	0.477	0.404	0.881

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.501	0.673	.
(14) Massachusetts Credibility:	0.200	0.350	.
(15) Countrywide Pure Premium:	0.850	0.685	1.535
(16) Countrywide Indicated Relativity:	0.887	1.121	.
(17) Countrywide Credibility:	0.400	0.330	.
(18) Countrywide Lost-Time Claims:	1717.0	.	.
(19) Pure Premium Underlying Present Rate:	0.705	0.610	1.315
(20) Relativity to Underlying Present Rate:	0.910	1.133	.
(21) Credibility to Underlying Relativity:	0.400	0.320	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	0.819	0.968	.
(24) Balanced Formula Relativity:	0.815	0.969	0.874

IX 000225

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services		
8006 STORE: GROCERY STORES-RETAIL-NO HANDLING OF FRESH MEATS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	2,153,200	14	273	1,604,221	694,570	1,334,048	785,421	4,418,260	1,068	0,984	2,052
2010	2,210,085	8	272	505,697	1,030,964	178,525	941,986	2,657,171	0,695	0,507	1,202
2011	2,373,143	10	250	709,474	304,141	297,223	421,246	1,732,084	0,427	0,303	0,730
2012	2,482,333	3	315	157,031	774,581	67,327	751,196	1,750,134	0,375	0,330	0,705
2013	2,649,136	8	308	878,034	1,033,101	366,430	1,008,801	3,286,366	0,721	0,519	1,241
MA Total:	11,867,896	43	1,418	3,854,456	3,837,356	2,243,553	3,908,649	13,844,015	0,648	0,518	1,167

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.681	0.864	.
(14) Massachusetts Credibility:	0.610	0.990	.
(15) Countrywide Pure Premium:	1.016	0.660	1.676
(16) Countrywide Indicated Relativity:	1.059	1.080	.
(17) Countrywide Credibility:	0.200	0.010	.
(18) Countrywide Lost-Time Claims:	10434	.	.
(19) Pure Premium Underlying Present Rate:	0.662	0.525	1.186
(20) Relativity to Underlying Present Rate:	0.854	0.974	.
(21) Credibility to Underlying Relativity:	0.190	0.000	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	0.790	0.866	.
(24) Balanced Formula Relativity:	0.786	0.866	0.817

Class(es):		Effective: 7/1/2016							Goods and Services		
8008 STORE: CLOTHING, WEARING APPAREL OR DRY GOODS - RETAIL											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	2,955,873	9	235	1,014,862	598,893	527,532	587,571	2,728,858	0,546	0,377	0,923
2010	2,953,942	8	215	459,102	619,665	83,222	414,476	1,576,465	0,365	0,168	0,534
2011	3,261,463	5	257	399,550	976,377	82,273	779,147	2,237,348	0,422	0,264	0,686
2012	3,323,409	6	253	319,687	1,412,617	137,100	949,209	2,818,614	0,521	0,327	0,848
2013	3,525,648	4	241	350,546	722,401	77,456	467,013	1,617,417	0,304	0,154	0,459
MA Total:	16,020,335	32	1,201	2,543,748	4,329,954	907,583	3,197,417	10,978,702	0,429	0,256	0,685

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.451	0.427	.
(14) Massachusetts Credibility:	0.530	0.810	.
(15) Countrywide Pure Premium:	0.518	0.376	0.895
(16) Countrywide Indicated Relativity:	0.540	0.616	.
(17) Countrywide Credibility:	0.240	0.100	.
(18) Countrywide Lost-Time Claims:	8894.0	.	.
(19) Pure Premium Underlying Present Rate:	0.343	0.235	0.577
(20) Relativity to Underlying Present Rate:	0.442	0.436	.
(21) Credibility to Underlying Relativity:	0.230	0.090	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	0.470	0.447	.
(24) Balanced Formula Relativity:	0.468	0.447	0.460

IX 000226

Calculation of Class Relativities

Class(es): 8010 STORE: HARDWARE		Effective: 7/1/2016							Goods and Services		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	1,684,510	4	212	540,061	1,242,967	235,388	782,720	2,801,136	1,058	0,604	1,663
2010	1,744,327	4	208	561,270	291,730	71,706	538,858	1,463,564	0,489	0,350	0,839
2011	2,038,309	7	253	604,096	963,368	231,295	780,818	2,579,577	0,769	0,497	1,266
2012	1,843,955	6	243	242,891	1,559,788	134,484	1,118,742	3,055,904	0,978	0,680	1,657
2013	1,892,115	2	192	231,752	554,819	81,657	591,410	1,459,638	0,416	0,356	0,771
MA Total:	9,203,216	23	1,108	2,180,069	4,612,672	754,530	3,812,548	11,359,819	0,738	0,496	1,234

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.776	0.827	.
(14) Massachusetts Credibility:	0.540	0.860	.
(15) Countrywide Pure Premium:	0.798	0.537	1.335
(16) Countrywide Indicated Relativity:	0.832	0.880	.
(17) Countrywide Credibility:	0.230	0.070	.
(18) Countrywide Lost-Time Claims:	4604.0	.	.
(19) Pure Premium Underlying Present Rate:	0.640	0.482	1.122
(20) Relativity to Underlying Present Rate:	0.826	0.895	.
(21) Credibility to Underlying Relativity:	0.230	0.070	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	0.800	0.835	.
(24) Balanced Formula Relativity:	0.796	0.836	0.811

Class(es): 8013 STORE: JEWELRY STORES		Effective: 7/1/2016							Goods and Services		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	1,145,806	3	29	180,577	257,388	49,716	146,582	634,264	0,382	0,171	0,554
2010	1,394,444	2	30	131,605	175,879	125,004	119,874	552,361	0,221	0,176	0,396
2011	1,396,823	0	30	0	335,227	0	308,563	643,789	0,240	0,221	0,461
2012	1,393,516	1	27	38,163	61,650	9,823	113,549	223,184	0,072	0,089	0,160
2013	1,395,385	1	22	93,201	226,770	30,686	165,843	516,500	0,229	0,141	0,370
MA Total:	6,725,975	7	138	443,546	1,056,913	215,228	854,411	2,570,098	0,223	0,159	0,382

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.235	0.265	.
(14) Massachusetts Credibility:	0.290	0.480	.
(15) Countrywide Pure Premium:	0.201	0.121	0.322
(16) Countrywide Indicated Relativity:	0.209	0.198	.
(17) Countrywide Credibility:	0.360	0.260	.
(18) Countrywide Lost-Time Claims:	741.00	.	.
(19) Pure Premium Underlying Present Rate:	0.183	0.152	0.335
(20) Relativity to Underlying Present Rate:	0.236	0.283	.
(21) Credibility to Underlying Relativity:	0.350	0.260	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	0.226	0.252	.
(24) Balanced Formula Relativity:	0.225	0.252	0.235

IX 000227

Section IX - Classification Pricing
 Subsection G - Class Relativities
 7/1/2016

Section IX - G
 Exhibit 149

Calculation of Class Relativities

Class(es): 8017 STORE: RETAIL NOC		Effective: 7/1/2016							Goods and Services		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	12,841,910	49	1,440	4,246,356	3,989,558	2,112,817	3,449,568	13,798,300	0.641	0.433	1.074
2010	13,032,726	45	1,332	2,873,876	4,313,362	1,256,692	3,919,515	12,363,444	0.551	0.397	0.949
2011	13,193,274	28	1,316	2,563,774	5,880,865	1,725,574	3,403,982	13,574,195	0.640	0.389	1.029
2012	13,119,060	34	1,221	1,462,321	5,244,341	1,253,157	3,883,179	11,842,998	0.511	0.392	0.903
2013	12,462,234	30	1,091	2,172,261	3,326,199	860,013	3,382,787	9,741,260	0.441	0.340	0.782
MA Total:	64,649,203	186	6,400	13,318,588	22,754,324	7,208,253	18,039,031	61,320,196	0.558	0.391	0.949

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.587	0.651	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	0.621	0.459	1.080
(16) Countrywide Indicated Relativity:	0.647	0.752	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	36816	.	.
(19) Pure Premium Underlying Present Rate:	0.474	0.375	0.848
(20) Relativity to Underlying Present Rate:	0.611	0.695	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	0.587	0.651	.
(24) Balanced Formula Relativity:	0.583	0.651	0.610

Class(es): 8018 STORE: WHOLESALE NOC		Effective: 7/1/2016							Goods and Services		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	2,512,913	20	589	1,716,745	2,379,491	560,795	1,802,804	6,459,835	1.630	0.941	2.571
2010	2,839,461	24	636	2,263,327	2,526,919	833,692	1,853,464	7,477,402	1.687	0.946	2.633
2011	3,053,750	23	666	2,099,912	3,073,731	715,810	2,020,938	7,910,391	1.694	0.896	2.590
2012	3,112,455	16	572	1,836,346	3,352,662	465,170	2,329,044	7,983,222	1.667	0.898	2.565
2013	3,448,090	23	714	2,881,549	4,230,627	931,572	2,732,398	10,776,146	2.063	1.063	3.125
MA Total:	14,966,670	106	3,177	10,797,879	15,563,430	3,507,040	10,738,648	40,606,997	1.761	0.952	2.713

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.852	1.586	.
(14) Massachusetts Credibility:	0.880	1.000	.
(15) Countrywide Pure Premium:	1.324	0.775	2.099
(16) Countrywide Indicated Relativity:	1.380	1.269	.
(17) Countrywide Credibility:	0.060	0.000	.
(18) Countrywide Lost-Time Claims:	19578	.	.
(19) Pure Premium Underlying Present Rate:	1.327	0.875	2.202
(20) Relativity to Underlying Present Rate:	1.712	1.625	.
(21) Credibility to Underlying Relativity:	0.060	0.000	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	1.815	1.586	.
(24) Balanced Formula Relativity:	1.805	1.587	1.721

IX 000228

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services		
8021 STORE: MEAT, FISH OR POULTRY DEALER- WHOLESALE											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	625.932	1	109	419.908	306.773	133.441	343.700	1,203.823	1.161	0.762	1.923
2010	686.285	10	101	752.252	379.835	594.083	296.396	2,022.566	1.650	1.298	2.947
2011	706.228	4	129	133.337	1,870.816	32.922	770.491	2,807.565	2.838	1.138	3.975
2012	740.086	3	107	611.738	654.078	457.823	380.753	2,104.393	1.710	1.133	2.843
2013	820.969	6	85	554.777	808.430	243.237	430.380	2,036.825	1.660	0.821	2.481
MA Total:	3,579.498	24	531	2,472.012	4,019.932	1,461.507	2,221.720	10,175.172	1.814	1.029	2.843

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.907	1.714	.
(14) Massachusetts Credibility:	0.490	0.740	.
(15) Countrywide Pure Premium:	1.310	0.968	2.279
(16) Countrywide Indicated Relativity:	1.366	1.586	.
(17) Countrywide Credibility:	0.260	0.130	.
(18) Countrywide Lost-Time Claims:	2878.0	.	.
(19) Pure Premium Underlying Present Rate:	1.294	0.834	2.127
(20) Relativity to Underlying Present Rate:	1.670	1.548	.
(21) Credibility to Underlying Relativity:	0.250	0.130	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	1.707	1.676	.
(24) Balanced Formula Relativity:	1.698	1.677	1.690

Class(es):		Effective: 7/1/2016							Goods and Services		
8031 STORE: MEAT, FISH OR POULTRY - RETAIL											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	222.228	1	54	276.987	175.319	57.989	142.294	652.589	2.035	0.901	2.937
2010	229.097	1	36	299	247.608	10.359	99.244	357.510	1.082	0.478	1.561
2011	224.708	0	37	0	496.677	0	78.780	575.458	2.210	0.351	2.561
2012	215.394	0	26	0	3.915	0	32.715	36.629	0.018	0.152	0.170
2013	197.900	2	20	147.553	78.839	72.025	70.877	369.294	1.144	0.722	1.866
MA Total:	1,089.327	4	173	424.839	1,002.357	140.373	423.911	1,991.480	1.310	0.518	1.828

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.377	0.863	.
(14) Massachusetts Credibility:	0.290	0.430	.
(15) Countrywide Pure Premium:	0.970	0.724	1.694
(16) Countrywide Indicated Relativity:	1.011	1.186	.
(17) Countrywide Credibility:	0.360	0.290	.
(18) Countrywide Lost-Time Claims:	516.00	.	.
(19) Pure Premium Underlying Present Rate:	1.166	0.695	1.861
(20) Relativity to Underlying Present Rate:	1.505	1.290	.
(21) Credibility to Underlying Relativity:	0.350	0.280	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	1.290	1.076	.
(24) Balanced Formula Relativity:	1.283	1.077	1.203

IX 000229

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services		
8032 STORE: CLOTHING, WEARING APPAREL OR DRY GOODS - WHOLESALE											
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	351,723	2	74	112,843	151,764	26,963	248,166	539,737	0.752	0.782	1.535
2010	343,324	1	53	167,072	114,831	7,466	94,667	384,036	0.821	0.297	1.119
2011	285,894	0	44	0	167,028	0	73,379	240,407	0.584	0.257	0.841
2012	280,649	0	41	0	505,821	0	154,663	660,485	1.802	0.551	2.353
2013	298,949	0	31	0	15,886	0	33,500	49,386	0.053	0.112	0.165
MA Total:	1,560,539	3	243	279,915	955,331	34,429	604,376	1,874,051	0.792	0.409	1.201

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.832	0.682	.
(14) Massachusetts Credibility:	0.280	0.420	.
(15) Countrywide Pure Premium:	0.965	0.633	1.598
(16) Countrywide Indicated Relativity:	1.006	1.036	.
(17) Countrywide Credibility:	0.360	0.290	.
(18) Countrywide Lost-Time Claims:	1144.0	.	.
(19) Pure Premium Underlying Present Rate:	0.693	0.459	1.152
(20) Relativity to Underlying Present Rate:	0.894	0.852	.
(21) Credibility to Underlying Relativity:	0.360	0.290	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	0.917	0.834	.
(24) Balanced Formula Relativity:	0.912	0.835	0.882

Class(es):		Effective: 7/1/2016							Goods and Services		
8033 STORE: MEAT, GROCERY & PROVISION COMBINED RETAIL-NOC											
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	708,035	3	118	115,919	348,518	34,383	303,863	802,684	0.656	0.478	1.134
2010	763,513	5	154	317,073	967,192	118,399	604,215	2,006,878	1.682	0.946	2.628
2011	809,521	3	123	281,428	430,639	535,711	409,339	1,657,117	0.880	1.167	2.047
2012	608,159	1	65	38,229	394,114	2,460	429,628	864,431	0.711	0.710	1.421
2013	622,060	3	53	383,368	192,871	127,384	180,232	883,855	0.926	0.495	1.421
MA Total:	3,511,288	15	513	1,136,016	2,333,334	818,337	1,927,277	6,214,964	0.988	0.782	1.770

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.039	1.303	.
(14) Massachusetts Credibility:	0.410	0.650	.
(15) Countrywide Pure Premium:	0.903	0.635	1.538
(16) Countrywide Indicated Relativity:	0.941	1.040	.
(17) Countrywide Credibility:	0.300	0.180	.
(18) Countrywide Lost-Time Claims:	19158	.	.
(19) Pure Premium Underlying Present Rate:	0.845	0.617	1.463
(20) Relativity to Underlying Present Rate:	1.091	1.146	.
(21) Credibility to Underlying Relativity:	0.290	0.170	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	1.025	1.229	.
(24) Balanced Formula Relativity:	1.019	1.230	1.101

IX 000230

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services		
8034 STORE: GROCERY STORES - WHOLESALE											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	147,410	1	22	59,097	51,651	112,826	38,802	262,377	0.751	1.029	1.780
2010	548,603	9	103	785,820	744,248	449,658	402,171	2,381,897	2.789	1.553	4.342
2011	515,388	7	79	313,403	1,151,466	95,345	460,272	2,020,486	2.842	1.078	3.920
2012	498,154	4	76	492,713	708,158	264,884	248,220	1,713,975	2.411	1.030	3.441
2013	617,816	1	75	27,267	672,075	18,145	355,976	1,073,463	1.132	0.606	1.738
MA Total:	2,327,371	22	355	1,678,300	3,327,599	940,858	1,505,441	7,452,198	2.151	1.051	3.202

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.261	1.751	.
(14) Massachusetts Credibility:	0.470	0.690	.
(15) Countrywide Pure Premium:	1.056	0.474	1.531
(16) Countrywide Indicated Relativity:	1.102	0.776	.
(17) Countrywide Credibility:	0.270	0.160	.
(18) Countrywide Lost-Time Claims:	155.00	.	.
(19) Pure Premium Underlying Present Rate:	1.766	1.071	2.837
(20) Relativity to Underlying Present Rate:	2.279	1.988	.
(21) Credibility to Underlying Relativity:	0.260	0.150	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	1.953	1.630	.
(24) Balanced Formula Relativity:	1.942	1.632	1.822

Class(es):		Effective: 7/1/2016							Goods and Services		
8039 STORE: DEPARTMENT - RETAIL											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	609,914	2	75	85,596	23,472	50,296	105,197	264,561	0.179	0.255	0.434
2010	382,858	2	66	16,768	18,813	8,188	63,091	106,861	0.093	0.186	0.279
2011	675,213	4	104	333,324	62,212	147,249	151,450	694,234	0.586	0.442	1.028
2012	656,737	4	71	53,090	380,115	58,046	323,031	814,282	0.660	0.580	1.240
2013	617,209	4	98	139,072	179,084	186,331	216,554	721,041	0.515	0.653	1.168
MA Total:	2,941,931	16	414	627,850	663,696	450,109	859,323	2,600,979	0.439	0.445	0.884

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.462	0.741	.
(14) Massachusetts Credibility:	0.310	0.500	.
(15) Countrywide Pure Premium:	0.700	0.536	1.235
(16) Countrywide Indicated Relativity:	0.730	0.877	.
(17) Countrywide Credibility:	0.350	0.250	.
(18) Countrywide Lost-Time Claims:	4251.0	.	.
(19) Pure Premium Underlying Present Rate:	0.496	0.391	0.887
(20) Relativity to Underlying Present Rate:	0.640	0.726	.
(21) Credibility to Underlying Relativity:	0.340	0.250	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	0.616	0.772	.
(24) Balanced Formula Relativity:	0.613	0.772	0.674

IX 000231

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services		
8044 STORE: FURNITURE & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	665,614	13	141	1,055,693	694,953	1,715,692	781,580	4,247,917	2,630	3,752	6,382
2010	818,031	13	124	1,547,356	548,669	576,342	806,664	3,479,030	2,562	1,691	4,253
2011	680,548	9	105	722,951	1,012,347	305,851	606,824	2,647,973	2,550	1,341	3,891
2012	652,877	1	92	81,058	531,789	28,371	463,556	1,104,775	0,939	0,753	1,692
2013	702,662	9	82	529,176	744,973	161,869	372,298	1,808,316	1,813	0,760	2,574
MA Total:	3,519,732	45	544	3,936,233	3,532,730	2,788,125	3,030,922	13,288,010	2,122	1,653	3,775

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.231	2.754	.
(14) Massachusetts Credibility:	0.520	0.920	.
(15) Countrywide Pure Premium:	1.464	0.853	2.317
(16) Countrywide Indicated Relativity:	1.526	1.397	.
(17) Countrywide Credibility:	0.240	0.040	.
(18) Countrywide Lost-Time Claims:	6688.0	.	.
(19) Pure Premium Underlying Present Rate:	1.515	1.489	3.004
(20) Relativity to Underlying Present Rate:	1.955	2.765	.
(21) Credibility to Underlying Relativity:	0.240	0.040	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	1.995	2.700	.
(24) Balanced Formula Relativity:	1.985	2.702	2.262

Class(es):		Effective: 7/1/2016							Goods and Services		
8046 STORE: AUTOMOBILE ACCESSORIES-RETAIL-NOC & DR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	377,314	3	47	393,489	298,106	229,117	368,444	1,289,156	1,833	1,584	3,417
2010	711,260	6	121	196,318	204,954	233,454	299,537	934,263	0,564	0,749	1,314
2011	622,139	5	79	384,195	283,036	139,487	266,232	1,072,951	1,072	0,652	1,725
2012	453,261	2	64	96,691	154,473	79,677	160,291	491,131	0,554	0,529	1,084
2013	474,998	3	38	354,886	52,751	69,137	80,439	557,213	0,858	0,315	1,173
MA Total:	2,638,972	19	349	1,425,578	993,320	750,872	1,174,944	4,344,714	0,917	0,730	1,646

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.964	1.216	.
(14) Massachusetts Credibility:	0.390	0.650	.
(15) Countrywide Pure Premium:	1.054	0.728	1.782
(16) Countrywide Indicated Relativity:	1.099	1.193	.
(17) Countrywide Credibility:	0.310	0.180	.
(18) Countrywide Lost-Time Claims:	5207.0	.	.
(19) Pure Premium Underlying Present Rate:	0.981	0.811	1.793
(20) Relativity to Underlying Present Rate:	1.266	1.507	.
(21) Credibility to Underlying Relativity:	0.300	0.170	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	1.096	1.261	.
(24) Balanced Formula Relativity:	1.090	1.262	1.157

IX 000232

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services		
8048 STORE: FRUIT OR VEGETABLE -WHOLESALE											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	261.432	3	30	532.083	190.570	40.905	178.077	941.635	2.764	0.838	3.602
2010	283.003	2	31	109.343	365.831	24.416	213.671	713.261	1.679	0.841	2.520
2011	309.175	2	36	133.411	121.870	27.202	154.518	437.000	0.826	0.588	1.413
2012	344.071	4	37	248.369	176.573	40.398	79.478	544.817	1.235	0.348	1.583
2013	296.253	2	35	395.004	427.190	84.422	211.266	1,117.881	2.775	0.998	3.773
MA Total:	1,493,934	13	169	1,418,210	1,282,032	217,343	837,010	3,754,595	1.807	0.706	2.513

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.900	1.176	.
(14) Massachusetts Credibility:	0.350	0.510	.
(15) Countrywide Pure Premium:	1.368	0.955	2.323
(16) Countrywide Indicated Relativity:	1.427	1.564	.
(17) Countrywide Credibility:	0.300	0.250	.
(18) Countrywide Lost-Time Claims:	56.000	.	.
(19) Pure Premium Underlying Present Rate:	1.287	0.804	2.091
(20) Relativity to Underlying Present Rate:	1.661	1.492	.
(21) Credibility to Underlying Relativity:	0.350	0.240	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	1.675	1.349	.
(24) Balanced Formula Relativity:	1.666	1.350	1.543

Class(es):		Effective: 7/1/2016							Goods and Services		
8050 STORE: FIVE & TEN CENT STORES											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	7.312	0	1	0	0	0	797	797	0.000	0.109	0.109
2010	10.396	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	9.843	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	8.596	0	1	0	0	0	642	642	0.000	0.075	0.075
2013	7.043	0	1	0	0	0	305	305	0.000	0.043	0.043
MA Total:	43.191	0	3	0	0	0	1,744	1,744	0.000	0.040	0.040

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.067	.
(14) Massachusetts Credibility:	0.060	0.100	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	0.866	0.938	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	0.676	0.509	1.185
(20) Relativity to Underlying Present Rate:	0.872	0.945	.
(21) Credibility to Underlying Relativity:	0.940	0.900	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	0.820	0.857	.
(24) Balanced Formula Relativity:	0.816	0.858	0.832

IX 000233

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services		
8058 BUILDING MATERIAL DEALER-NEW MATERIALS ONLY-STORE EMP											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	235,049	2	60	149,250	308,506	52,818	275,905	786,479	1,947	1,399	3,346
2010	255,184	2	57	94,822	116,134	148,669	197,739	557,364	0,827	1,357	2,184
2011	292,669	0	57	0	393,857	0	291,262	685,120	1,346	0,995	2,341
2012	279,434	3	44	255,007	299,936	86,140	278,210	919,293	1,986	1,304	3,290
2013	312,721	1	48	9,171	83,925	393	115,839	209,328	0,298	0,372	0,669
MA Total:	1,375,058	8	266	508,250	1,202,357	288,020	1,158,955	3,157,583	1,244	1,052	2,296

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.308	1.753	.
(14) Massachusetts Credibility:	0.310	0.520	.
(15) Countrywide Pure Premium:	1.044	0.817	1.861
(16) Countrywide Indicated Relativity:	1.089	1.338	.
(17) Countrywide Credibility:	0.350	0.240	.
(18) Countrywide Lost-Time Claims:	5341.0	.	.
(19) Pure Premium Underlying Present Rate:	1.049	0.904	1.953
(20) Relativity to Underlying Present Rate:	1.354	1.678	.
(21) Credibility to Underlying Relativity:	0.340	0.240	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	1.247	1.635	.
(24) Balanced Formula Relativity:	1.240	1.636	1.394

Class(es):		Effective: 7/1/2016							Goods and Services		
8103 WOOL MERCHANT											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	8,441	0	0	0	0	0	0	0	0,000	0,000	0,000
2010	1,985	0	0	0	0	0	0	0	0,000	0,000	0,000
2011	2,381	0	1	0	46,878	0	13,678	60,557	19,690	5,745	25,436
2012	602	0	0	0	0	0	0	0	0,000	0,000	0,000
2013	0	0	0	0	0	0	0	0	0,000	0,000	0,000
MA Total:	13,410	0	1	0	46,878	0	13,678	60,557	3,496	1,020	4,516

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.675	1.699	.
(14) Massachusetts Credibility:	0.050	0.080	.
(15) Countrywide Pure Premium:	0.567	0.401	0.968
(16) Countrywide Indicated Relativity:	0.591	0.657	.
(17) Countrywide Credibility:	0.210	0.220	.
(18) Countrywide Lost-Time Claims:	22,000	.	.
(19) Pure Premium Underlying Present Rate:	1.370	0.877	2.247
(20) Relativity to Underlying Present Rate:	1.768	1.628	.
(21) Credibility to Underlying Relativity:	0.740	0.700	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	1.616	1.420	.
(24) Balanced Formula Relativity:	1.608	1.421	1.536

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services			
8105 STORE: HIDE OR LEATHER DEALERS OR STORES												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	7.805	0	1	0	4.726	0	8.913	13.639	0.606	1.142	1.747	
2010	2.782	0	0	0	0	0	0	0	0.000	0.000	0.000	
2011	7.906	2	1	131.007	31.371	69.359	1.080	232.816	20.538	8.909	29.448	
2012	10.055	0	1	0	130.156	0	77.399	207.556	12.945	7.698	20.643	
2013	9.887	2	1	222.374	222.485	62.596	46.373	553.828	44.995	11.022	56.017	
MA Total:	38.434	4	4	353.381	388.738	131.955	133.765	1,007.839	19.309	6.914	26.222	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	20.298	11.516	.
(14) Massachusetts Credibility:	0.100	0.140	.
(15) Countrywide Pure Premium:	1.744	0.588	2.331
(16) Countrywide Indicated Relativity:	1.818	0.963	.
(17) Countrywide Credibility:	0.140	0.150	.
(18) Countrywide Lost-Time Claims:	9.000	.	.
(19) Pure Premium Underlying Present Rate:	2.090	1.289	3.380
(20) Relativity to Underlying Present Rate:	2.698	2.393	.
(21) Credibility to Underlying Relativity:	0.760	0.710	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	4.335	3.456	.
(24) Balanced Formula Relativity:	4.312	3.459	3.982

Class(es):		Effective: 7/1/2016							Goods and Services			
8106 IRON OR STEEL MERCHANT & DRIVERS												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	123.495	2	34	742.658	453.985	322.959	105.962	1,625.564	9.690	3.473	13.163	
2010	128.382	1	22	132.408	181.365	129.863	119.024	562.660	2.444	1.939	4.383	
2011	137.989	3	21	223.537	21.291	170.015	61.523	476.367	1.774	1.678	3.452	
2012	144.396	1	32	231.574	446.546	90.199	358.926	1,127.246	4.696	3.110	7.807	
2013	147.652	1	38	295	446.982	1.261	244.987	693.524	3.029	1.668	4.697	
MA Total:	681.914	8	147	1,330.472	1,550.169	714.297	890.423	4,485.361	4.224	2.353	6.578	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	4.441	3.920	.
(14) Massachusetts Credibility:	0.350	0.580	.
(15) Countrywide Pure Premium:	2.341	1.363	3.704
(16) Countrywide Indicated Relativity:	2.441	2.232	.
(17) Countrywide Credibility:	0.330	0.210	.
(18) Countrywide Lost-Time Claims:	2238.0	.	.
(19) Pure Premium Underlying Present Rate:	2.854	2.412	5.266
(20) Relativity to Underlying Present Rate:	3.684	4.478	.
(21) Credibility to Underlying Relativity:	0.320	0.210	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	3.539	3.683	.
(24) Balanced Formula Relativity:	3.520	3.685	3.584

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services		
8107 MACHINERY DEALER- NOC- STORE OR YARD & DRIVERS											
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	524,255	3	73	88,486	504,929	48,802	359,540	1,001,757	1.132	0.779	1.911
2010	557,513	2	88	43,022	543,509	122,821	588,991	1,298,343	1.052	1.277	2.329
2011	559,680	1	86	147,305	147,011	50,079	221,517	565,912	0.526	0.485	1.011
2012	586,430	5	71	1,645,762	277,287	579,100	193,173	2,695,321	3.279	1.317	4.596
2013	577,908	1	56	82,051	179,203	31,021	303,960	596,236	0.452	0.580	1.032
MA Total:	2,805,785	12	374	2,006,626	1,651,939	831,822	1,667,180	6,157,568	1.304	0.891	2.195

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.371	1.484	.
(14) Massachusetts Credibility:	0.450	0.690	.
(15) Countrywide Pure Premium:	1.485	0.828	2.313
(16) Countrywide Indicated Relativity:	1.549	1.356	.
(17) Countrywide Credibility:	0.280	0.160	.
(18) Countrywide Lost-Time Claims:	5551.0	.	.
(19) Pure Premium Underlying Present Rate:	1.287	0.909	2.196
(20) Relativity to Underlying Present Rate:	1.661	1.688	.
(21) Credibility to Underlying Relativity:	0.270	0.150	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	1.499	1.494	.
(24) Balanced Formula Relativity:	1.491	1.495	1.493

Class(es):		Effective: 7/1/2016							Goods and Services		
8111 PLUMBERS SUPPLIES DEALERS & DRIVERS											
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	423,611	3	81	591,442	205,726	217,159	187,120	1,201,447	1.882	0.954	2.836
2010	599,345	2	84	39,244	602,915	22,177	557,731	1,222,067	1.071	0.968	2.039
2011	682,974	7	85	829,956	233,273	152,508	300,984	1,516,722	1.557	0.664	2.221
2012	698,486	2	87	195,802	714,000	99,368	566,605	1,575,774	1.303	0.953	2.256
2013	748,438	7	86	1,844,932	372,638	498,833	272,420	2,988,823	2.963	1.030	3.993
MA Total:	3,152,855	21	423	3,501,376	2,128,552	990,045	1,884,860	8,504,833	1.786	0.912	2.698

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.877	1.519	.
(14) Massachusetts Credibility:	0.440	0.710	.
(15) Countrywide Pure Premium:	1.097	0.613	1.710
(16) Countrywide Indicated Relativity:	1.143	1.004	.
(17) Countrywide Credibility:	0.280	0.150	.
(18) Countrywide Lost-Time Claims:	1073.0	.	.
(19) Pure Premium Underlying Present Rate:	1.118	0.875	1.993
(20) Relativity to Underlying Present Rate:	1.443	1.624	.
(21) Credibility to Underlying Relativity:	0.280	0.140	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	1.550	1.456	.
(24) Balanced Formula Relativity:	1.542	1.458	1.509

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Calculation of Class Relativities

Class(es): 8203 ICE DEALER & DRIVERS		Effective: 7/1/2016							Goods and Services		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	36,619	0	16	0	20,619	0	60,010	80,629	0.563	1.639	2.202
2010	37,272	1	9	450,709	16,239	286,155	18,793	771,896	12.528	8.182	20.710
2011	38,315	1	7	59,278	62,225	55,418	21,008	197,929	3.171	1.995	5.166
2012	39,450	1	8	47,815	131,818	7,473	67,595	254,701	4.553	1.903	6.456
2013	39,043	1	12	19,282	113,398	5,591	119,971	258,242	3.398	3.216	6.614
MA Total:	190,698	4	52	577,084	344,299	354,637	287,377	1,563,397	4.832	3.367	8.198

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	5.079	5.608	.
(14) Massachusetts Credibility:	0.200	0.310	.
(15) Countrywide Pure Premium:	3.111	1.577	4.687
(16) Countrywide Indicated Relativity:	3.244	2.582	.
(17) Countrywide Credibility:	0.400	0.350	.
(18) Countrywide Lost-Time Claims:	371.00	.	.
(19) Pure Premium Underlying Present Rate:	2.408	1.850	4.258
(20) Relativity to Underlying Present Rate:	3.107	3.435	.
(21) Credibility to Underlying Relativity:	0.400	0.340	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	3.556	3.810	.
(24) Balanced Formula Relativity:	3.537	3.813	3.644

Class(es): 8204 BUILDING MATERIAL YARD & LOCAL MANAGERS, DRIVERS		Effective: 7/1/2016							Goods and Services		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	21,658	0	6	0	5,757	0	28,532	34,289	0.266	1.317	1.583
2010	30,188	0	3	0	40,732	0	34,669	75,401	1.349	1.148	2.498
2011	15,434	0	1	0	3,310	0	7,981	11,291	0.214	0.517	0.732
2012	19,705	0	2	0	2,296	0	5,048	7,344	0.117	0.256	0.373
2013	21,928	0	4	0	624	0	30,727	31,352	0.028	1.401	1.430
MA Total:	108,914	0	16	0	52,720	0	106,958	159,678	0.484	0.982	1.466

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.509	1.636	.
(14) Massachusetts Credibility:	0.160	0.210	.
(15) Countrywide Pure Premium:	1.593	1.177	2.770
(16) Countrywide Indicated Relativity:	1.661	1.928	.
(17) Countrywide Credibility:	0.420	0.400	.
(18) Countrywide Lost-Time Claims:	172.00	.	.
(19) Pure Premium Underlying Present Rate:	2.540	1.170	3.710
(20) Relativity to Underlying Present Rate:	3.279	2.172	.
(21) Credibility to Underlying Relativity:	0.420	0.390	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	2.156	1.962	.
(24) Balanced Formula Relativity:	2.145	1.963	2.074

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services			
8215 HAY, GRAIN OR FEED DEALER & LOCAL MANAGERS, DR												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	47,243	1	12	117,448	4,520	38,143	48,604	208,715	2,582	1,836	4,418	
2010	64,265	1	14	235,315	4,937	108,751	17,334	366,338	3,738	1,962	5,700	
2011	55,991	0	10	0	35,059	0	16,489	51,548	0,626	0,294	0,921	
2012	55,113	0	9	0	30,991	0	81,148	112,139	0,562	1,472	2,035	
2013	60,322	2	9	480,582	110,436	468,467	21,261	1,080,746	9,798	8,119	17,916	
MA Total:	282,934	4	54	833,345	185,943	615,362	184,837	1,819,486	3,603	2,828	6,431	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.787	4.711	.
(14) Massachusetts Credibility:	0.190	0.280	.
(15) Countrywide Pure Premium:	1.944	1.090	3.034
(16) Countrywide Indicated Relativity:	2.027	1.786	.
(17) Countrywide Credibility:	0.410	0.360	.
(18) Countrywide Lost-Time Claims:	1600.0	.	.
(19) Pure Premium Underlying Present Rate:	1.534	0.912	2.446
(20) Relativity to Underlying Present Rate:	1.980	1.692	.
(21) Credibility to Underlying Relativity:	0.400	0.360	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	2.343	2.571	.
(24) Balanced Formula Relativity:	2.330	2.573	2.424

Class(es):		Effective: 7/1/2016							Construction			
8227 CONTRACTORS PERMANENT YARD												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	801,635	2	93	192,335	2,152,628	568,696	1,529,515	4,443,174	2,925	2,617	5,543	
2010	854,440	1	69	384,820	960,710	112,710	1,031,717	2,489,957	1,575	1,339	2,914	
2011	923,759	4	66	1,061,512	940,936	269,849	800,927	3,073,224	2,168	1,159	3,327	
2012	937,620	5	66	1,148,396	2,629,583	389,077	1,137,755	5,304,811	4,029	1,628	5,658	
2013	980,195	2	85	146,312	3,138,934	63,971	1,795,550	5,144,767	3,352	1,897	5,249	
MA Total:	4,497,650	14	379	2,933,375	9,822,792	1,404,303	6,295,463	20,455,933	2,836	1,712	4,548	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.917	1.101	.
(14) Massachusetts Credibility:	0.640	0.950	.
(15) Countrywide Pure Premium:	2.499	1.196	3.695
(16) Countrywide Indicated Relativity:	0.806	0.769	.
(17) Countrywide Credibility:	0.180	0.030	.
(18) Countrywide Lost-Time Claims:	3017.0	.	.
(19) Pure Premium Underlying Present Rate:	1.995	1.242	3.236
(20) Relativity to Underlying Present Rate:	0.767	0.896	.
(21) Credibility to Underlying Relativity:	0.180	0.020	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	0.870	1.087	.
(24) Balanced Formula Relativity:	0.884	1.091	0.953

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services		
8232 LUMBER YARD-NEW MATERIALS ONLY: A/O EMP INCL YRD & WHSE & DR											
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	847,275	7	156	1,406,948	2,012,633	473,310	1,169,158	5,062,049	4,036	1,939	5,975
2010	861,166	9	171	1,017,890	1,206,864	317,449	892,444	3,434,647	2,583	1,405	3,988
2011	975,038	10	210	2,192,502	997,330	946,419	862,383	4,998,634	3,271	1,855	5,127
2012	1,019,840	14	202	1,430,941	2,760,753	1,180,463	1,603,393	6,975,550	4,110	2,730	6,840
2013	1,185,618	14	254	3,316,152	3,232,291	1,993,940	1,899,623	10,442,006	5,523	3,284	8,807
MA Total:	4,888,937	54	993	9,364,433	10,209,870	4,911,582	6,427,002	30,912,886	4,004	2,319	6,323

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	4.209	3.863	.
(14) Massachusetts Credibility:	0.690	1.000	.
(15) Countrywide Pure Premium:	2.354	1.351	3.705
(16) Countrywide Indicated Relativity:	2.455	2.212	.
(17) Countrywide Credibility:	0.160	0.000	.
(18) Countrywide Lost-Time Claims:	8526.0	.	.
(19) Pure Premium Underlying Present Rate:	2.192	1.408	3.600
(20) Relativity to Underlying Present Rate:	2.829	2.614	.
(21) Credibility to Underlying Relativity:	0.150	0.000	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	3.721	3.863	.
(24) Balanced Formula Relativity:	3.701	3.866	3.765

Class(es):		Effective: 7/1/2016							Goods and Services		
8233 COAL MERCHANT & LOCAL MANAGERS & DRIVERS											
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	159,014	0	42	0	558,129	0	172,194	730,322	3,510	1,083	4,593
2010	182,560	2	39	697,626	89,365	303,826	149,160	1,239,976	4,311	2,481	6,792
2011	292,407	1	44	462,039	475,335	187,814	304,991	1,430,179	3,206	1,685	4,891
2012	269,762	1	41	349,138	1,326,076	92,042	1,003,779	2,771,035	6,210	4,062	10,272
2013	274,334	1	37	1,175	583,012	27,327	606,790	1,218,304	2,129	2,311	4,441
MA Total:	1,178,077	5	203	1,509,978	3,031,916	611,009	2,236,913	7,389,816	3,855	2,417	6,273

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	4.053	4.027	.
(14) Massachusetts Credibility:	0.410	0.630	.
(15) Countrywide Pure Premium:	2.708	1.620	4.328
(16) Countrywide Indicated Relativity:	2.824	2.653	.
(17) Countrywide Credibility:	0.300	0.190	.
(18) Countrywide Lost-Time Claims:	2272.0	.	.
(19) Pure Premium Underlying Present Rate:	2.534	1.687	4.221
(20) Relativity to Underlying Present Rate:	3.271	3.132	.
(21) Credibility to Underlying Relativity:	0.290	0.180	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	3.457	3.605	.
(24) Balanced Formula Relativity:	3.439	3.607	3.504

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services			
8235 SASH, DOOR OR ASSEMBLED MILLWORK DEALER & DR												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		Total	MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	130.986	1	48	45.510	498.985	32.367	304.433	881.295	4.157	2.571	6.728	
2010	123.067	1	35	96.123	169.620	21.574	157.037	444.355	2.159	1.451	3.611	
2011	138.881	2	35	305.655	381.558	30.659	326.836	1,044.708	4.948	2.574	7.522	
2012	131.973	0	25	0	323.410	0	159.777	483.187	2.451	1.211	3.661	
2013	133.917	0	21	0	29.772	0	33.980	63.751	0.222	0.254	0.476	
MA Total:	658.824	4	164	447.288	1,403.345	84.600	982.063	2,917.296	2.809	1.619	4.428	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.953	2.697	.
(14) Massachusetts Credibility:	0.290	0.440	.
(15) Countrywide Pure Premium:	2.055	1.337	3.392
(16) Countrywide Indicated Relativity:	2.142	2.190	.
(17) Countrywide Credibility:	0.360	0.280	.
(18) Countrywide Lost-Time Claims:	548.00	.	.
(19) Pure Premium Underlying Present Rate:	1.897	1.279	3.175
(20) Relativity to Underlying Present Rate:	2.448	2.374	.
(21) Credibility to Underlying Relativity:	0.350	0.280	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	2.484	2.464	.
(24) Balanced Formula Relativity:	2.471	2.466	2.469

Class(es):		Effective: 7/1/2016							Goods and Services			
8263 JUNK DEALERS & DRIVERS												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		Total	MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	66.697	0	16	0	39.482	0	40.426	79.908	0.592	0.606	1.198	
2010	71.395	1	9	213.472	13.513	42.443	39.045	308.472	3.179	1.141	4.321	
2011	81.547	1	11	11.121	36.871	7.235	148.088	203.315	0.589	1.905	2.493	
2012	81.201	0	10	0	46.260	0	42.021	88.281	0.570	0.517	1.087	
2013	85.748	0	19	0	30.840	0	67.765	98.605	0.360	0.790	1.150	
MA Total:	386.588	2	65	224.594	166.965	49.678	337.346	778.582	1.013	1.001	2.014	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.065	1.668	.
(14) Massachusetts Credibility:	0.280	0.420	.
(15) Countrywide Pure Premium:	1.943	2.224	4.167
(16) Countrywide Indicated Relativity:	2.026	3.642	.
(17) Countrywide Credibility:	0.360	0.290	.
(18) Countrywide Lost-Time Claims:	177.00	.	.
(19) Pure Premium Underlying Present Rate:	2.867	1.877	4.744
(20) Relativity to Underlying Present Rate:	3.701	3.484	.
(21) Credibility to Underlying Relativity:	0.360	0.290	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	2.360	2.767	.
(24) Balanced Formula Relativity:	2.347	2.769	2.510

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services		
8264 BOTTLE DEALER-USED & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	205,594	7	81	395,326	703,589	142,018	326,991	1,567,924	5,345	2,281	7,626
2010	223,357	3	57	509,306	827,997	88,208	298,655	1,724,166	5,987	1,732	7,719
2011	273,864	5	60	508,053	171,157	130,966	286,201	1,096,377	2,480	1,523	4,003
2012	314,371	3	67	43,642	654,492	27,146	325,046	1,050,326	2,221	1,120	3,341
2013	285,204	2	51	49,359	992,143	22,818	836,820	1,901,140	3,652	3,014	6,666
MA Total:	1,302,390	20	316	1,505,687	3,349,378	411,156	2,073,714	7,339,934	3,728	1,908	5,636

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.919	3.178	.
(14) Massachusetts Credibility:	0.440	0.630	.
(15) Countrywide Pure Premium:	2.619	1.616	4.236
(16) Countrywide Indicated Relativity:	2.731	2.647	.
(17) Countrywide Credibility:	0.280	0.190	.
(18) Countrywide Lost-Time Claims:	1212.0	.	.
(19) Pure Premium Underlying Present Rate:	2.707	1.538	4.245
(20) Relativity to Underlying Present Rate:	3.493	2.855	.
(21) Credibility to Underlying Relativity:	0.280	0.180	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	3.467	3.019	.
(24) Balanced Formula Relativity:	3.449	3.021	3.283

Class(es):		Effective: 7/1/2016							Goods and Services		
8279 STABLE OR BREEDING FARM & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	150,847	5	25	569,819	153,450	283,849	400,718	1,407,836	4,795	4,538	9,333
2010	146,515	3	21	325,937	36,646	125,811	160,429	648,823	2,475	1,954	4,428
2011	159,264	0	31	0	328,796	0	211,645	540,441	2,064	1,329	3,393
2012	165,442	3	23	604,761	25,635	290,514	82,104	1,003,014	3,810	2,252	6,063
2013	166,040	1	20	51,873	98,475	27,448	211,951	389,747	0,905	1,442	2,347
MA Total:	788,108	12	120	1,552,390	643,002	727,622	1,066,846	3,989,860	2,786	2,277	5,063

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.928	3.793	.
(14) Massachusetts Credibility:	0.320	0.560	.
(15) Countrywide Pure Premium:	2.839	2.122	4.960
(16) Countrywide Indicated Relativity:	2.960	3.474	.
(17) Countrywide Credibility:	0.340	0.220	.
(18) Countrywide Lost-Time Claims:	1014.0	.	.
(19) Pure Premium Underlying Present Rate:	2.061	1.912	3.973
(20) Relativity to Underlying Present Rate:	2.659	3.550	.
(21) Credibility to Underlying Relativity:	0.340	0.220	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	2.848	3.669	.
(24) Balanced Formula Relativity:	2.833	3.672	3.157

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Calculation of Class Relativities

Class(es): 8291 STORAGE WAREHOUSE-COLD		Effective: 7/1/2016							Goods and Services		
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	163,597	3	50	149,776	64,208	66,375	104,550	384,908	1,308	1,045	2,353
2010	141,710	1	44	47,129	365,181	9,383	212,306	633,998	2,910	1,564	4,474
2011	135,063	2	31	129,864	589,264	47,584	285,923	1,052,634	5,324	2,469	7,794
2012	119,643	0	20	0	41,090	0	36,642	77,731	0,343	0,306	0,650
2013	120,828	0	33	0	273,742	0	212,195	485,937	2,266	1,756	4,022
MA Total:	680,841	6	178	326,768	1,333,485	123,341	851,615	2,635,209	2,439	1,432	3,871

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.563	2.385	.
(14) Massachusetts Credibility:	0.300	0.460	.
(15) Countrywide Pure Premium:	2.064	1.191	3.255
(16) Countrywide Indicated Relativity:	2.152	1.950	.
(17) Countrywide Credibility:	0.350	0.270	.
(18) Countrywide Lost-Time Claims:	1012.0	.	.
(19) Pure Premium Underlying Present Rate:	1.988	1.371	3.359
(20) Relativity to Underlying Present Rate:	2.565	2.545	.
(21) Credibility to Underlying Relativity:	0.350	0.270	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	2.420	2.311	.
(24) Balanced Formula Relativity:	2.407	2.313	2.371

Class(es): 8292 STORAGE WAREHOUSE NOC		Effective: 7/1/2016							Goods and Services		
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	366,051	1	70	78	618,764	8,740	227,890	855,472	1,691	0,646	2,337
2010	496,665	1	71	92,058	104,483	12,578	182,701	391,820	0,396	0,393	0,789
2011	518,867	1	104	387,492	220,450	36,964	311,384	956,291	1,172	0,671	1,843
2012	551,973	3	98	297,014	556,148	73,885	386,203	1,313,250	1,546	0,834	2,379
2013	600,774	8	115	729,415	530,500	243,473	396,200	1,899,588	2,097	1,065	3,162
MA Total:	2,534,330	14	458	1,506,058	2,030,345	375,640	1,504,378	5,416,421	1,395	0,742	2,137

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.467	1.236	.
(14) Massachusetts Credibility:	0.440	0.660	.
(15) Countrywide Pure Premium:	1.694	0.977	2.671
(16) Countrywide Indicated Relativity:	1.766	1.601	.
(17) Countrywide Credibility:	0.280	0.170	.
(18) Countrywide Lost-Time Claims:	5964.0	.	.
(19) Pure Premium Underlying Present Rate:	1.373	0.888	2.261
(20) Relativity to Underlying Present Rate:	1.772	1.649	.
(21) Credibility to Underlying Relativity:	0.280	0.170	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	1.636	1.368	.
(24) Balanced Formula Relativity:	1.628	1.369	1.527

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Calculation of Class Relativities

Class(es): 8293 STORAGE WAREHOUSE-FURNITURE & DRIVERS		Effective: 7/1/2016							Goods and Services		
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	344,916	15	109	1,627,285	1,273,898	722,084	834,772	4,458,039	8,411	4,514	12,925
2010	375,607	5	101	490,044	1,625,423	939,132	908,950	3,963,549	5,632	4,920	10,552
2011	394,336	9	112	1,116,815	679,756	269,166	751,677	2,817,414	4,556	2,589	7,145
2012	447,664	8	97	802,041	760,568	821,742	473,418	2,857,769	3,491	2,893	6,384
2013	507,595	3	100	633,012	1,480,191	282,482	875,394	3,271,079	4,163	2,281	6,444
MA Total:	2,070,117	40	519	4,669,198	5,819,835	3,034,606	3,844,211	17,367,850	5,067	3,323	8,390

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	5.326	5.535	.
(14) Massachusetts Credibility:	0.640	1.000	.
(15) Countrywide Pure Premium:	4.853	2.443	7.296
(16) Countrywide Indicated Relativity:	5.060	4.000	.
(17) Countrywide Credibility:	0.180	0.000	.
(18) Countrywide Lost-Time Claims:	4168.0	.	.
(19) Pure Premium Underlying Present Rate:	4.343	3.350	7.693
(20) Relativity to Underlying Present Rate:	5.606	6.219	.
(21) Credibility to Underlying Relativity:	0.180	0.000	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	5.329	5.535	.
(24) Balanced Formula Relativity:	5.300	5.539	5.393

Class(es): 8350 GASOLINE OR OIL DEALER & DRIVERS		Effective: 7/1/2016							Goods and Services		
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	1,615,768	15	263	2,538,506	2,904,689	1,324,444	1,759,576	8,527,215	3,369	1,909	5,277
2010	1,595,316	20	286	3,621,163	3,290,457	1,176,851	2,202,277	10,290,746	4,332	2,118	6,451
2011	1,541,332	13	283	1,441,765	3,064,745	478,611	2,013,218	6,998,340	2,924	1,617	4,540
2012	1,556,325	16	233	2,422,109	1,753,815	1,576,085	1,622,037	7,374,046	2,683	2,055	4,738
2013	1,576,917	15	261	1,715,040	2,319,373	868,519	1,759,298	6,662,230	2,558	1,666	4,225
MA Total:	7,885,658	79	1,326	11,738,583	13,333,078	5,424,510	9,356,406	39,852,578	3,179	1,874	5,054

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.342	3.122	.
(14) Massachusetts Credibility:	0.920	1.000	.
(15) Countrywide Pure Premium:	3.181	1.424	4.605
(16) Countrywide Indicated Relativity:	3.317	2.332	.
(17) Countrywide Credibility:	0.040	0.000	.
(18) Countrywide Lost-Time Claims:	3724.0	.	.
(19) Pure Premium Underlying Present Rate:	2.834	1.597	4.432
(20) Relativity to Underlying Present Rate:	3.658	2.966	.
(21) Credibility to Underlying Relativity:	0.040	0.000	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	3.354	3.122	.
(24) Balanced Formula Relativity:	3.336	3.125	3.254

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Section IX - Classification Pricing
 Subsection G - Class Relativities
 7/1/2016

Section IX - G
 Exhibit 165

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services		
8380 AUTOMOBILE SERVICE OR REPAIR CENTER & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	7,345,174	45	1,144	4,089,098	8,864,828	1,640,940	5,669,735	20,264,601	1,764	0.995	2,759
2010	7,449,414	49	1,116	6,167,533	9,331,517	2,693,838	6,566,365	24,759,252	2,081	1.243	3,324
2011	7,521,975	39	1,016	3,144,469	7,796,340	2,248,953	5,520,788	18,710,550	1,455	1.033	2,487
2012	7,720,143	37	1,063	4,507,785	6,226,543	2,202,923	4,998,234	17,935,486	1,390	0.933	2,323
2013	7,894,866	38	1,059	4,249,782	10,387,645	1,761,164	5,675,785	22,074,376	1,854	0.942	2,796
MA Total:	37,931,571	208	5,398	22,158,667	42,606,872	10,547,818	28,430,907	103,744,264	1,707	1.028	2,735

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.795	1.712	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	1.460	0.820	2.280
(16) Countrywide Indicated Relativity:	1.522	1.343	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	26476	.	.
(19) Pure Premium Underlying Present Rate:	1.342	0.878	2.219
(20) Relativity to Underlying Present Rate:	1.732	1.629	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	1.795	1.712	.
(24) Balanced Formula Relativity:	1.785	1.713	1.757

Class(es):		Effective: 7/1/2016							Goods and Services		
8381 GASOLINE STATION-RETAIL-SELF SERVICE											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	191,038	1	14	39,817	112,524	33,871	31,700	217,912	0.797	0.343	1,141
2010	188,907	2	12	206,867	21,013	94,072	63,905	385,857	1,206	0.836	2,043
2011	199,767	1	8	123,684	147,799	256,809	81,787	610,080	1,359	1.695	3,054
2012	201,975	1	14	69,053	63,791	18,741	130,524	282,109	0,658	0,739	1,397
2013	173,663	0	8	0	213,624	0	188,683	402,308	1,230	1,086	2,317
MA Total:	955,350	5	56	439,421	558,752	403,493	496,600	1,898,266	1,045	0,942	1,987

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.098	1.569	.
(14) Massachusetts Credibility:	0.240	0.410	.
(15) Countrywide Pure Premium:	0.882	0.564	1.445
(16) Countrywide Indicated Relativity:	0.919	0.923	.
(17) Countrywide Credibility:	0.380	0.300	.
(18) Countrywide Lost-Time Claims:	522.00	.	.
(19) Pure Premium Underlying Present Rate:	0.769	0.709	1.477
(20) Relativity to Underlying Present Rate:	0.992	1.316	.
(21) Credibility to Underlying Relativity:	0.380	0.290	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	0.990	1.302	.
(24) Balanced Formula Relativity:	0.985	1.303	1.108

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services		
8385 BUS CO: GARAGE EMPLOYEES											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	306,592	2	42	532,811	276,468	189,845	190,028	1,189,152	2,640	1,239	3,879
2010	427,004	3	70	14,882	401,799	6,309	229,396	652,387	0,976	0,552	1,528
2011	427,907	3	66	283,092	195,063	229,118	224,192	931,465	1,117	1,059	2,177
2012	435,207	5	81	378,929	835,519	133,804	442,099	1,790,351	2,791	1,323	4,114
2013	413,497	0	76	0	276,873	0	233,249	510,121	0,670	0,564	1,234
MA Total:	2,010,206	13	335	1,209,715	1,985,722	559,076	1,318,963	5,073,476	1,590	0,934	2,524

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.671	1.556	.
(14) Massachusetts Credibility:	0.400	0.570	.
(15) Countrywide Pure Premium:	1.203	0.685	1.888
(16) Countrywide Indicated Relativity:	1.255	1.121	.
(17) Countrywide Credibility:	0.300	0.220	.
(18) Countrywide Lost-Time Claims:	1161.0	.	.
(19) Pure Premium Underlying Present Rate:	1.376	0.784	2.160
(20) Relativity to Underlying Present Rate:	1.776	1.455	.
(21) Credibility to Underlying Relativity:	0.300	0.210	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	1.578	1.439	.
(24) Balanced Formula Relativity:	1.569	1.440	1.519

Class(es):		Effective: 7/1/2016							Goods and Services		
8392 AUTOMOBILE STORAGE GARAGE OR PARKING STATION & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	511,913	2	78	416,534	296,151	304,392	205,773	1,222,851	1,392	0,997	2,389
2010	624,438	8	76	213,637	173,441	154,902	137,670	679,651	0,620	0,469	1,088
2011	518,028	4	53	405,040	136,570	82,184	80,745	704,539	1,046	0,315	1,360
2012	516,285	3	42	144,855	87,394	71,171	74,683	378,103	0,450	0,283	0,732
2013	509,926	3	44	90,785	34,020	32,942	51,369	209,116	0,245	0,165	0,410
MA Total:	2,680,591	20	293	1,270,851	727,576	645,591	550,241	3,194,258	0,746	0,446	1,192

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.784	0.743	.
(14) Massachusetts Credibility:	0.340	0.540	.
(15) Countrywide Pure Premium:	1.036	0.692	1.728
(16) Countrywide Indicated Relativity:	1.081	1.133	.
(17) Countrywide Credibility:	0.330	0.230	.
(18) Countrywide Lost-Time Claims:	1312.0	.	.
(19) Pure Premium Underlying Present Rate:	0.694	0.504	1.198
(20) Relativity to Underlying Present Rate:	0.895	0.936	.
(21) Credibility to Underlying Relativity:	0.330	0.230	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	0.918	0.877	.
(24) Balanced Formula Relativity:	0.914	0.878	0.900

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Calculation of Class Relativities

Class(es): 8393 AUTOMOBILE BODY REPAIR		Effective: 7/1/2016							Goods and Services		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	1,670,700	12	200	1,850,171	1,618,116	907,012	742,393	5,117,692	2,076	0,987	3,063
2010	1,749,314	8	197	1,173,851	799,864	398,548	853,373	3,225,636	1,128	0,716	1,844
2011	2,018,078	7	191	646,457	1,433,421	278,251	754,170	3,112,299	1,031	0,512	1,542
2012	1,996,860	6	195	1,052,950	1,318,171	198,534	1,064,926	3,634,581	1,187	0,633	1,820
2013	2,044,454	9	153	1,177,945	2,000,804	465,857	769,018	4,413,624	1,555	0,604	2,159
MA Total:	9,479,406	42	936	5,901,374	7,170,376	2,248,203	4,183,880	19,503,833	1,379	0,679	2,057

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.450	1.130	.
(14) Massachusetts Credibility:	0.630	0.900	.
(15) Countrywide Pure Premium:	1.111	0.495	1.606
(16) Countrywide Indicated Relativity:	1.159	0.810	.
(17) Countrywide Credibility:	0.190	0.050	.
(18) Countrywide Lost-Time Claims:	2771.0	.	.
(19) Pure Premium Underlying Present Rate:	0.921	0.519	1.440
(20) Relativity to Underlying Present Rate:	1.188	0.963	.
(21) Credibility to Underlying Relativity:	0.180	0.050	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	1.347	1.106	.
(24) Balanced Formula Relativity:	1.340	1.107	1.250

Class(es): 8601 ARCHITECT OR ENGINEER-CONSULTING		Effective: 7/1/2016							Office and Clerical		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	9,303,462	0	184	0	687,777	0	1,780,264	2,468,041	0.074	0.191	0.265
2010	11,200,321	6	195	773,296	1,102,821	132,793	742,019	2,750,930	0.168	0.078	0.246
2011	12,664,594	5	196	783,781	764,817	328,549	687,470	2,564,618	0.122	0.080	0.203
2012	13,049,671	7	160	653,412	909,514	389,989	823,643	2,776,559	0.120	0.093	0.213
2013	13,448,982	1	148	109,406	834,558	30,752	748,152	1,722,867	0.070	0.058	0.128
MA Total:	59,667,029	19	883	2,319,895	4,299,487	882,083	4,781,549	12,283,015	0.111	0.095	0.206

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.321	1.652	.
(14) Massachusetts Credibility:	0.600	0.900	.
(15) Countrywide Pure Premium:	0.146	0.089	0.235
(16) Countrywide Indicated Relativity:	2.147	1.797	.
(17) Countrywide Credibility:	0.200	0.050	.
(18) Countrywide Lost-Time Claims:	2700.0	.	.
(19) Pure Premium Underlying Present Rate:	0.125	0.082	0.207
(20) Relativity to Underlying Present Rate:	1.871	1.613	.
(21) Credibility to Underlying Relativity:	0.200	0.050	.
(22) Industry Group Converted Pure Premium:	0.084	0.057	0.141
(23) Formula Relativity:	1.596	1.657	.
(24) Balanced Formula Relativity:	1.591	1.658	1.618

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services		
8710 FIELD BONDED WAREHOUSING - ALL EMP & CLERICAL											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	7,005	0	1	0	676,999	0	231,969	908,968	96,644	33,114	129,76
2010	7,275	0	0	0	0	0	0	0	0,000	0,000	0,000
2011	7,206	0	0	0	0	0	0	0	0,000	0,000	0,000
2012	6,724	0	0	0	0	0	0	0	0,000	0,000	0,000
2013	8,440	0	0	0	0	0	0	0	0,000	0,000	0,000
MA Total:	36,651	0	1	0	676,999	0	231,969	908,968	18,472	6,329	24,801

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	19.418	10.543	.
(14) Massachusetts Credibility:	0.090	0.130	.
(15) Countrywide Pure Premium:	1.677	0.785	2.462
(16) Countrywide Indicated Relativity:	1.749	1.285	.
(17) Countrywide Credibility:	0.240	0.250	.
(18) Countrywide Lost-Time Claims:	31.000	.	.
(19) Pure Premium Underlying Present Rate:	1.595	1.115	2.711
(20) Relativity to Underlying Present Rate:	2.059	2.070	.
(21) Credibility to Underlying Relativity:	0.670	0.620	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	3.547	2.975	.
(24) Balanced Formula Relativity:	3.528	2.978	3.315

Class(es):		Effective: 7/1/2016							Goods and Services		
8720 INSPECTION OF RISKS FOR INSURANCE OR VALUATION PURPOSES NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	1,379,548	2	39	57,844	75,219	65,462	130,638	329,162	0,096	0,142	0,239
2010	1,433,843	4	48	87,359	328,906	29,344	413,182	858,791	0,290	0,309	0,599
2011	1,513,452	3	60	20,393	468,406	23,614	292,133	804,546	0,323	0,209	0,532
2012	1,571,659	6	43	826,445	638,313	274,112	218,329	1,957,199	0,932	0,313	1,245
2013	1,709,054	7	58	166,388	126,046	170,096	240,794	703,324	0,171	0,240	0,412
MA Total:	7,607,557	22	248	1,158,429	1,636,889	562,628	1,295,076	4,653,022	0,367	0,244	0,612

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.386	0.407	.
(14) Massachusetts Credibility:	0.420	0.610	.
(15) Countrywide Pure Premium:	0.761	0.388	1.149
(16) Countrywide Indicated Relativity:	0.794	0.635	.
(17) Countrywide Credibility:	0.290	0.200	.
(18) Countrywide Lost-Time Claims:	1011.0	.	.
(19) Pure Premium Underlying Present Rate:	0.414	0.245	0.659
(20) Relativity to Underlying Present Rate:	0.534	0.455	.
(21) Credibility to Underlying Relativity:	0.290	0.190	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	0.547	0.462	.
(24) Balanced Formula Relativity:	0.544	0.462	0.512

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Office and Clerical		
8721 REAL ESTATE APPRAISAL CO - OUTSIDE EMPLOYEES											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	220,261	0	3	0	22,576	0	10,528	33,104	0.102	0.048	0.150
2010	241,311	0	2	0	0	0	767	767	0.000	0.003	0.003
2011	273,309	1	2	138,183	19,792	612,602	2,095	772,672	0.578	2.249	2.827
2012	288,802	0	3	0	251,578	0	51,567	303,146	0.871	0.179	1.050
2013	275,574	2	1	30,002	0	35,866	39	65,907	0.109	0.130	0.239
MA Total:	1,299,258	3	11	168,185	293,946	648,468	64,997	1,175,595	0.356	0.549	0.905

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	4.235	9.555	.
(14) Massachusetts Credibility:	0.120	0.280	.
(15) Countrywide Pure Premium:	0.132	0.066	0.197
(16) Countrywide Indicated Relativity:	1.933	1.333	.
(17) Countrywide Credibility:	0.340	0.360	.
(18) Countrywide Lost-Time Claims:	77.000	.	.
(19) Pure Premium Underlying Present Rate:	0.108	0.198	0.306
(20) Relativity to Underlying Present Rate:	1.610	3.899	.
(21) Credibility to Underlying Relativity:	0.540	0.360	.
(22) Industry Group Converted Pure Premium:	0.084	0.057	0.141
(23) Formula Relativity:	2.035	4.559	.
(24) Balanced Formula Relativity:	2.028	4.562	3.057

Class(es):		Effective: 7/1/2016							Office and Clerical		
8742 SALESPERSONS, COLLECTORS OR MESSENGERS-OUTSIDE											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	73,824,928	30	488	2,236,518	4,267,737	957,925	3,406,970	10,869,149	0.088	0.059	0.147
2010	80,720,805	33	589	3,232,908	3,257,981	1,268,359	3,438,119	11,197,367	0.080	0.058	0.139
2011	86,361,430	31	492	4,676,760	2,869,512	1,841,559	2,954,234	12,342,065	0.087	0.056	0.143
2012	89,690,431	28	532	2,469,605	2,756,997	1,284,885	2,775,434	9,286,921	0.058	0.045	0.104
2013	96,666,461	33	491	5,181,723	3,632,179	2,625,755	3,318,669	14,758,326	0.091	0.061	0.153
MA Total:	427,264,055	155	2,592	17,797,513	16,784,406	7,978,483	15,893,427	58,453,828	0.081	0.056	0.137

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.964	0.972	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	0.106	0.069	0.175
(16) Countrywide Indicated Relativity:	1.555	1.401	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	15197	.	.
(19) Pure Premium Underlying Present Rate:	0.073	0.052	0.125
(20) Relativity to Underlying Present Rate:	1.096	1.024	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	0.084	0.057	0.141
(23) Formula Relativity:	0.964	0.972	.
(24) Balanced Formula Relativity:	0.960	0.973	0.965

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services			
8745 NEWS AGENT OR DISTRIB OF MAGAZINE-NOT RETAIL & SALES,DR												
Converted Unlimited Losses												
Amount												
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	119,586	3	35	369,112	420,246	223,951	348,028	1,361,337	6,601	4,783	11,384	
2010	108,460	1	34	1,174	72,146	66	41,460	114,847	0,676	0,383	1,059	
2011	153,402	3	37	127,831	386,441	111,390	256,527	882,189	3,352	2,398	5,751	
2012	130,178	1	36	69,030	773,822	16,353	348,944	1,208,149	6,475	2,806	9,281	
2013	123,885	3	33	1,179,730	189,967	752,919	173,212	2,295,828	11,056	7,476	18,532	
MA Total:	635,512	11	175	1,746,878	1,842,621	1,104,680	1,168,171	5,862,350	5,648	3,576	9,225	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	5.938	5.957	.
(14) Massachusetts Credibility:	0.280	0.440	.
(15) Countrywide Pure Premium:	2.120	1.693	3.812
(16) Countrywide Indicated Relativity:	2.210	2.772	.
(17) Countrywide Credibility:	0.360	0.280	.
(18) Countrywide Lost-Time Claims:	375.00	.	.
(19) Pure Premium Underlying Present Rate:	1.831	1.280	3.111
(20) Relativity to Underlying Present Rate:	2.363	2.377	.
(21) Credibility to Underlying Relativity:	0.360	0.280	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	3.309	4.063	.
(24) Balanced Formula Relativity:	3.291	4.066	3.591

Class(es):		Effective: 7/1/2016							Goods and Services			
8747 DISPLAY SHOWROOMS - ALL TYPES												
Converted Unlimited Losses												
Amount												
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2009	25,058	0	0	0	0	0	0	0	0,000	0,000	0,000	
2010	57,096	0	2	0	5,558	0	660	6,218	0,097	0,012	0,109	
2011	73,931	0	3	0	0	0	2,587	2,587	0,000	0,035	0,035	
2012	103,461	0	3	0	309	0	1,118	1,427	0,003	0,011	0,014	
2013	137,333	1	1	285,368	1,991	27,227	597	315,182	2,092	0,203	2,295	
MA Total:	396,878	1	9	285,368	7,858	27,227	4,963	325,415	0,739	0,081	0,820	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.777	0.135	.
(14) Massachusetts Credibility:	0.130	0.210	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	0.536	0.596	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	0.418	0.323	0.741
(20) Relativity to Underlying Present Rate:	0.540	0.600	.
(21) Credibility to Underlying Relativity:	0.870	0.790	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	0.570	0.503	.
(24) Balanced Formula Relativity:	0.567	0.503	0.542

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Calculation of Class Relativities

Class(es): 8748 AUTOMOBILE SALESPERSONS		Effective: 7/1/2016							Office and Clerical		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	2,289,314	2	76	85,792	174,683	53,045	166,329	479,849	0.114	0.096	0.210
2010	2,473,798	6	94	523,966	1,113,978	207,235	708,871	2,554,051	0.662	0.370	1.032
2011	2,538,678	3	101	441,320	604,909	137,320	419,095	1,602,644	0.412	0.219	0.631
2012	2,598,735	4	85	617,294	357,847	393,770	310,102	1,679,013	0.375	0.271	0.646
2013	2,762,292	6	93	942,984	136,847	263,768	260,673	1,604,271	0.391	0.190	0.581
MA Total:	12,662,816	21	449	2,611,355	2,388,265	1,055,138	1,865,070	7,919,828	0.395	0.231	0.625

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	4.701	4.013	.
(14) Massachusetts Credibility:	0.430	0.670	.
(15) Countrywide Pure Premium:	0.198	0.136	0.334
(16) Countrywide Indicated Relativity:	2.903	2.770	.
(17) Countrywide Credibility:	0.290	0.170	.
(18) Countrywide Lost-Time Claims:	1604.0	.	.
(19) Pure Premium Underlying Present Rate:	0.263	0.188	0.451
(20) Relativity to Underlying Present Rate:	3.934	3.689	.
(21) Credibility to Underlying Relativity:	0.280	0.160	.
(22) Industry Group Converted Pure Premium:	0.084	0.057	0.141
(23) Formula Relativity:	3.965	3.750	.
(24) Balanced Formula Relativity:	3.951	3.752	3.870

Class(es): 8800 MAILING OR ADDRESSING CO & CLERICAL		Effective: 7/1/2016							Office and Clerical		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	524,749	0	20	0	221,440	0	141,193	362,633	0.422	0.269	0.691
2010	504,123	2	22	193,229	29,791	193,582	54,042	470,644	0.442	0.491	0.934
2011	425,567	3	19	280,829	200,066	23,135	88,243	592,274	1.130	0.262	1.392
2012	412,929	2	21	178,631	56,071	63,943	72,209	370,854	0.568	0.330	0.898
2013	412,556	2	13	310,992	64,893	83,742	68,172	527,800	0.911	0.368	1.279
MA Total:	2,279,924	9	95	963,682	572,262	364,402	423,860	2,324,205	0.674	0.346	1.019

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	8.021	6.016	.
(14) Massachusetts Credibility:	0.290	0.480	.
(15) Countrywide Pure Premium:	0.509	0.377	0.886
(16) Countrywide Indicated Relativity:	7.467	7.656	.
(17) Countrywide Credibility:	0.360	0.260	.
(18) Countrywide Lost-Time Claims:	807.00	.	.
(19) Pure Premium Underlying Present Rate:	0.546	0.441	0.987
(20) Relativity to Underlying Present Rate:	8.160	8.673	.
(21) Credibility to Underlying Relativity:	0.350	0.260	.
(22) Industry Group Converted Pure Premium:	0.084	0.057	0.141
(23) Formula Relativity:	7.870	7.133	.
(24) Balanced Formula Relativity:	7.843	7.137	7.557

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Office and Clerical		
8803 AUDITORS, ACCOUNTANT OR FACTORY COST OR OFF SYSTEMZR-TRAV											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	21,910,541	1	52	14,589	32,449	40,847	138,558	226,443	0.002	0.008	0.010
2010	27,405,360	1	45	8,868	136,575	31,227	258,338	435,009	0.005	0.011	0.016
2011	29,095,311	2	50	15,846	65,609	35,764	328,595	445,815	0.003	0.013	0.015
2012	31,689,653	5	63	445,246	83,045	330,302	220,588	1,079,181	0.017	0.017	0.034
2013	29,162,815	3	46	195,734	144,449	110,572	179,198	629,953	0.012	0.010	0.022
MA Total:	139,263,680	12	256	680,284	462,127	548,712	1,125,278	2,816,401	0.008	0.012	0.020

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.098	0.209	.
(14) Massachusetts Credibility:	0.370	0.580	.
(15) Countrywide Pure Premium:	0.023	0.017	0.040
(16) Countrywide Indicated Relativity:	0.343	0.341	.
(17) Countrywide Credibility:	0.320	0.210	.
(18) Countrywide Lost-Time Claims:	827.00	.	.
(19) Pure Premium Underlying Present Rate:	0.016	0.012	0.028
(20) Relativity to Underlying Present Rate:	0.245	0.227	.
(21) Credibility to Underlying Relativity:	0.310	0.210	.
(22) Industry Group Converted Pure Premium:	0.084	0.057	0.141
(23) Formula Relativity:	0.222	0.240	.
(24) Balanced Formula Relativity:	0.221	0.241	0.229

Class(es):		Effective: 7/1/2016							Office and Clerical		
8810 CLERICAL OFFICE EMPLOYEES NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	362,747,904	72	1,796	4,318,357	5,675,268	2,813,373	6,332,182	19,139,180	0.028	0.025	0.053
2010	402,280,266	84	1,941	7,782,178	8,322,665	2,969,600	7,664,066	26,738,509	0.040	0.026	0.066
2011	433,693,152	88	1,717	6,832,817	6,749,126	3,160,080	6,982,072	23,724,095	0.031	0.023	0.055
2012	441,061,294	84	1,752	8,902,953	9,285,365	3,492,641	8,098,502	29,779,461	0.041	0.026	0.068
2013	461,228,290	65	1,781	7,192,986	9,875,761	3,747,113	9,149,761	29,965,621	0.037	0.028	0.065
MA Total:	2,101,010,905	393	8,987	35,029,292	39,908,185	16,182,806	38,226,582	129,346,866	0.036	0.026	0.062

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.425	0.451	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	0.047	0.035	0.082
(16) Countrywide Indicated Relativity:	0.684	0.710	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	45778	.	.
(19) Pure Premium Underlying Present Rate:	0.028	0.024	0.052
(20) Relativity to Underlying Present Rate:	0.418	0.466	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	0.084	0.057	0.141
(23) Formula Relativity:	0.425	0.451	.
(24) Balanced Formula Relativity:	0.423	0.451	0.434

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Office and Clerical		
8820 ATTORNEY-ALL EMP & CLERICAL, MESSENGERS, DR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	22,991,147	6	82	528,646	700,128	135,063	588,316	1,952,154	0.053	0.031	0.085
2010	23,377,280	7	93	527,191	497,105	428,608	424,440	1,877,345	0.044	0.036	0.080
2011	23,158,152	0	83	0	559,604	0	271,084	830,689	0.024	0.012	0.036
2012	24,999,908	4	69	33,532	665,980	34,929	686,042	1,420,483	0.028	0.029	0.057
2013	24,846,780	1	73	128,450	1,162,442	89,666	614,620	1,995,177	0.052	0.028	0.080
MA Total:	119,373,266	18	400	1,217,820	3,585,260	688,266	2,584,502	8,075,848	0.040	0.027	0.068

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.479	0.477	.
(14) Massachusetts Credibility:	0.510	0.740	.
(15) Countrywide Pure Premium:	0.046	0.034	0.079
(16) Countrywide Indicated Relativity:	0.669	0.684	.
(17) Countrywide Credibility:	0.250	0.130	.
(18) Countrywide Lost-Time Claims:	1959.0	.	.
(19) Pure Premium Underlying Present Rate:	0.042	0.026	0.068
(20) Relativity to Underlying Present Rate:	0.635	0.502	.
(21) Credibility to Underlying Relativity:	0.240	0.130	.
(22) Industry Group Converted Pure Premium:	0.084	0.057	0.141
(23) Formula Relativity:	0.564	0.507	.
(24) Balanced Formula Relativity:	0.562	0.507	0.540

Class(es):		Effective: 7/1/2016							Goods and Services		
8829 CONVALESCENT OR NURSING HOME-ALL EMPLOYEES											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	8,814,298	47	2,225	3,847,932	6,569,197	1,333,900	4,320,432	16,071,461	1.182	0.641	1.823
2010	9,584,712	48	2,271	4,309,791	7,439,902	1,451,624	4,830,512	18,031,830	1.226	0.655	1.881
2011	10,254,345	51	2,265	4,703,963	9,763,791	1,329,721	6,105,811	21,903,287	1.411	0.725	2.136
2012	9,492,031	46	1,921	3,075,392	7,193,453	1,391,653	4,530,955	16,191,454	1.082	0.624	1.706
2013	9,892,951	45	1,798	3,666,109	6,644,805	1,410,078	4,445,585	16,166,577	1.042	0.592	1.634
MA Total:	48,038,337	237	10,480	19,603,188	37,611,148	6,916,977	24,233,296	88,364,608	1.191	0.648	1.839

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.252	1.080	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	1.135	0.708	1.844
(16) Countrywide Indicated Relativity:	1.184	1.160	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	23411	.	.
(19) Pure Premium Underlying Present Rate:	0.980	0.590	1.570
(20) Relativity to Underlying Present Rate:	1.265	1.096	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	1.252	1.080	.
(24) Balanced Formula Relativity:	1.245	1.081	1.182

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services		
8831 PET GROOMING & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		Total	MA Indicated Pure Premiums		
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	2,375,825	5	518	147,490	564,896	81,546	765,075	1,559,007	0.300	0.356	0.656
2010	2,514,995	5	615	275,074	414,835	119,027	1,090,675	1,899,611	0.274	0.481	0.755
2011	2,456,372	3	553	326,453	214,423	305,776	798,149	1,644,801	0.220	0.449	0.670
2012	2,573,336	5	513	426,103	370,200	397,037	766,849	1,960,189	0.309	0.452	0.762
2013	2,744,497	6	612	407,591	1,190,962	147,933	1,248,866	2,995,352	0.582	0.509	1.091
MA Total:	12,665,026	24	2,811	1,582,711	2,755,316	1,051,319	4,669,613	10,058,960	0.343	0.452	0.794

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.360	0.752	.
(14) Massachusetts Credibility:	0.490	0.970	.
(15) Countrywide Pure Premium:	0.508	0.489	0.997
(16) Countrywide Indicated Relativity:	0.530	0.801	.
(17) Countrywide Credibility:	0.260	0.020	.
(18) Countrywide Lost-Time Claims:	4055.0	.	.
(19) Pure Premium Underlying Present Rate:	0.355	0.473	0.828
(20) Relativity to Underlying Present Rate:	0.458	0.878	.
(21) Credibility to Underlying Relativity:	0.250	0.010	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	0.429	0.755	.
(24) Balanced Formula Relativity:	0.426	0.755	0.554

Class(es):		Effective: 7/1/2016							Office and Clerical		
8832 PHYSICIAN & CLERICAL											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		Total	MA Indicated Pure Premiums		
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	46,494,780	32	1,170	3,289,788	4,293,128	781,275	2,655,601	11,019,792	0.163	0.074	0.237
2010	47,620,258	30	1,159	3,148,249	4,228,255	1,530,358	3,112,614	12,019,476	0.155	0.097	0.252
2011	49,044,725	41	1,135	4,947,573	5,329,554	2,408,502	3,562,045	16,247,673	0.210	0.122	0.331
2012	49,467,282	34	1,284	4,183,420	5,481,698	1,460,257	3,740,992	14,866,368	0.195	0.105	0.301
2013	53,532,893	42	1,311	4,678,875	4,028,873	1,796,905	3,485,852	13,990,505	0.163	0.099	0.261
MA Total:	246,159,939	179	6,059	20,247,905	23,361,508	7,977,297	16,557,104	68,143,814	0.177	0.100	0.277

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.109	1.734	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	0.112	0.075	0.187
(16) Countrywide Indicated Relativity:	1.648	1.512	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	13573	.	.
(19) Pure Premium Underlying Present Rate:	0.120	0.074	0.194
(20) Relativity to Underlying Present Rate:	1.798	1.447	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	0.084	0.057	0.141
(23) Formula Relativity:	2.109	1.734	.
(24) Balanced Formula Relativity:	2.102	1.735	1.953

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Office and Clerical		
8833 HOSPITAL: PROFESSIONAL EMPLOYEES											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	6,629,755	19	776	2,831,186	2,232,155	998,079	1,971,153	8,032,572	0.764	0.448	1.212
2010	7,441,766	20	917	2,156,601	2,384,829	851,038	1,675,394	7,067,862	0.610	0.339	0.950
2011	7,861,032	27	851	1,642,671	2,798,542	769,453	2,460,357	7,671,024	0.565	0.411	0.976
2012	7,939,565	16	925	1,773,836	3,541,466	454,711	2,695,963	8,465,976	0.669	0.397	1.066
2013	7,835,265	22	780	1,992,407	5,879,151	704,883	2,647,701	11,224,141	1.005	0.428	1.433
MA Total:	37,707,383	104	4,249	10,396,701	16,836,144	3,778,165	11,450,568	42,461,576	0.722	0.404	1.126

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	8.599	7.027	.
(14) Massachusetts Credibility:	0.890	1.000	.
(15) Countrywide Pure Premium:	0.340	0.230	0.570
(16) Countrywide Indicated Relativity:	4.991	4.666	.
(17) Countrywide Credibility:	0.060	0.000	.
(18) Countrywide Lost-Time Claims:	18707	.	.
(19) Pure Premium Underlying Present Rate:	0.542	0.338	0.880
(20) Relativity to Underlying Present Rate:	8.098	6.647	.
(21) Credibility to Underlying Relativity:	0.050	0.000	.
(22) Industry Group Converted Pure Premium:	0.084	0.057	0.141
(23) Formula Relativity:	8.357	7.027	.
(24) Balanced Formula Relativity:	8.329	7.032	7.802

Class(es):		Effective: 7/1/2016							Goods and Services		
8835 NURSING-HOME HEALTH, PUBLIC & TRAVELING-ALL EMPLOYEES											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	4,890,831	31	775	1,464,925	2,651,448	723,305	1,616,734	6,456,412	0.842	0.478	1.320
2010	5,351,925	44	697	2,932,002	2,511,331	1,329,814	1,799,791	8,572,939	1.017	0.585	1.602
2011	5,908,500	36	697	3,872,876	2,993,182	1,778,135	2,190,247	10,834,440	1.162	0.672	1.834
2012	6,705,204	44	772	3,656,989	4,361,612	1,015,539	2,402,038	11,436,178	1.196	0.510	1.706
2013	7,471,845	61	828	6,111,887	6,010,997	2,503,083	2,843,496	17,469,464	1.622	0.716	2.338
MA Total:	30,328,306	216	3,769	18,038,680	18,528,570	7,349,876	10,852,306	54,769,433	1.206	0.600	1.806

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.267	1.000	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	1.175	0.637	1.811
(16) Countrywide Indicated Relativity:	1.225	1.042	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	16190	.	.
(19) Pure Premium Underlying Present Rate:	0.945	0.538	1.484
(20) Relativity to Underlying Present Rate:	1.220	0.999	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	1.267	1.000	.
(24) Balanced Formula Relativity:	1.261	1.000	1.160

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Office and Clerical		
8868 COLLEGE: PROFESSIONAL EMPLOYEES & CLERICAL											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	33,117,439	73	3,614	5,857,850	7,992,349	2,312,416	8,341,233	24,503,848	0.418	0.322	0.740
2010	34,860,570	120	3,868	6,557,115	9,439,075	3,307,292	8,962,536	28,266,018	0.459	0.352	0.811
2011	35,539,461	88	3,433	6,024,645	8,685,751	2,827,537	8,549,931	26,087,864	0.414	0.320	0.734
2012	35,476,025	75	3,079	4,050,747	9,657,805	2,212,911	7,989,919	23,911,382	0.386	0.288	0.674
2013	36,971,082	78	3,135	4,846,427	9,134,580	2,042,593	7,892,211	23,915,809	0.378	0.269	0.647
MA Total:	175,964,578	434	17,129	27,336,782	44,909,560	12,702,749	41,735,829	126,684,920	0.411	0.309	0.720

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	4.888	5.383	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	0.099	0.094	0.193
(16) Countrywide Indicated Relativity:	1.457	1.911	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	16563	.	.
(19) Pure Premium Underlying Present Rate:	0.333	0.287	0.620
(20) Relativity to Underlying Present Rate:	4.981	5.637	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	0.084	0.057	0.141
(23) Formula Relativity:	4.888	5.383	.
(24) Balanced Formula Relativity:	4.872	5.386	5.081

Class(es):		Effective: 7/1/2016							Goods and Services		
9014 BUILDINGS - OPERATION BY CONTRACTORS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	4,295,004	21	445	3,095,901	3,878,563	1,741,605	2,287,110	11,003,179	1.624	0.938	2.562
2010	4,904,706	40	662	3,500,697	3,190,009	1,562,574	2,036,489	10,289,769	1.364	0.734	2.098
2011	5,148,824	53	534	5,932,879	5,691,116	2,003,767	3,605,904	17,233,666	2.258	1.090	3.347
2012	5,194,137	37	521	3,323,249	4,444,236	1,268,404	3,623,620	12,659,510	1.495	0.942	2.437
2013	5,564,774	27	465	3,163,140	5,704,426	1,167,046	3,105,820	13,140,432	1.594	0.768	2.361
MA Total:	25,107,445	178	2,627	19,015,867	22,908,350	7,743,397	14,658,944	64,326,557	1.670	0.892	2.562

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.755	1.486	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	1.471	0.926	2.397
(16) Countrywide Indicated Relativity:	1.534	1.516	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	17528	.	.
(19) Pure Premium Underlying Present Rate:	1.207	0.743	1.950
(20) Relativity to Underlying Present Rate:	1.558	1.380	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	1.755	1.486	.
(24) Balanced Formula Relativity:	1.746	1.487	1.646

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services		
9015 BUILDINGS-OPERATION BY OWNER OR LESSEE											
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	5,038,625	39	810	5,528,950	5,017,687	1,745,504	3,169,142	15,461,281	2,093	0,975	3,069
2010	5,162,878	35	832	4,277,963	4,685,259	1,431,249	2,952,859	13,347,330	1,736	0,849	2,585
2011	5,290,656	29	823	3,746,259	6,227,234	1,542,170	3,567,292	15,082,955	1,885	0,966	2,851
2012	5,350,735	37	837	4,489,200	5,247,575	1,487,284	3,809,106	15,033,165	1,820	0,990	2,810
2013	5,570,194	24	781	2,685,900	7,190,758	943,605	4,815,930	15,636,192	1,773	1,034	2,807
MA Total:	26,413,089	164	4,083	20,728,271	28,368,512	7,149,811	18,314,329	74,560,924	1,859	0,964	2,823

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.954	1.606	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	1.654	0.947	2.601
(16) Countrywide Indicated Relativity:	1.725	1.551	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	14375	.	.
(19) Pure Premium Underlying Present Rate:	1.484	0.900	2.384
(20) Relativity to Underlying Present Rate:	1.916	1.670	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	1.954	1.606	.
(24) Balanced Formula Relativity:	1.944	1.607	1.813

Class(es):		Effective: 7/1/2016							Goods and Services		
9016 AMUSEMENT PARK OR EXHIBITION OPERATION & DR											
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	470,345	1	96	289,908	376,195	255,189	255,678	1,176,970	1,416	1,086	2,502
2010	480,960	0	96	0	75,850	0	250,615	326,465	0,158	0,521	0,679
2011	539,494	3	103	156,633	651,423	613,436	400,728	1,822,220	1,498	1,880	3,378
2012	558,122	0	98	0	209,861	0	408,011	617,872	0,376	0,731	1,107
2013	595,955	5	102	265,468	226,339	568,823	211,406	1,272,037	0,825	1,309	2,134
MA Total:	2,644,875	9	495	712,009	1,539,668	1,437,448	1,526,439	5,215,564	0,851	1,121	1,972

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.895	1.867	.
(14) Massachusetts Credibility:	0.360	0.650	.
(15) Countrywide Pure Premium:	1.028	0.848	1.876
(16) Countrywide Indicated Relativity:	1.072	1.388	.
(17) Countrywide Credibility:	0.320	0.180	.
(18) Countrywide Lost-Time Claims:	2047.0	.	.
(19) Pure Premium Underlying Present Rate:	0.780	0.826	1.607
(20) Relativity to Underlying Present Rate:	1.007	1.534	.
(21) Credibility to Underlying Relativity:	0.320	0.170	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	0.988	1.724	.
(24) Balanced Formula Relativity:	0.982	1.725	1.270

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Miscellaneous		
9019 BRIDGE OR VEHICULAR TUNNEL OPERATION & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	12,921	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	18,182	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	18,613	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	25,615	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	37,338	1	0	730,866	0	87,954	0	818,819	19,574	2,356	21,930
MA Total:	112,668	1	0	730,866	0	87,954	0	818,819	6,487	0,781	7,268

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.298	0.500	.
(14) Massachusetts Credibility:	0.110	0.130	.
(15) Countrywide Pure Premium:	0.768	0.767	1.535
(16) Countrywide Indicated Relativity:	0.297	0.542	.
(17) Countrywide Credibility:	0.230	0.250	.
(18) Countrywide Lost-Time Claims:	30.000	.	.
(19) Pure Premium Underlying Present Rate:	0.949	0.351	1.300
(20) Relativity to Underlying Present Rate:	0.407	0.253	.
(21) Credibility to Underlying Relativity:	0.660	0.620	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	0.590	0.357	.
(24) Balanced Formula Relativity:	0.583	0.357	0.502

Class(es):		Effective: 7/1/2016							Goods and Services		
9033 HOUSING AUTHORITY & CLERICAL, SALES, DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	552,009	6	90	1,032,857	944,566	472,182	438,567	2,888,172	3,582	1,650	5,232
2010	96,753	0	15	0	0	0	12,544	12,544	0,000	0,130	0,130
2011	212,743	2	40	481,364	369,820	244,049	151,408	1,246,641	4,001	1,859	5,860
2012	206,506	1	39	54,443	144,807	103,295	115,740	418,284	0,965	1,061	2,026
2013	213,437	1	41	513	325,182	23,623	144,767	494,085	1,526	0,789	2,315
MA Total:	1,281,448	10	225	1,569,177	1,784,374	843,149	863,026	5,059,726	2,617	1,331	3,948

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.751	2.218	.
(14) Massachusetts Credibility:	0.370	0.500	.
(15) Countrywide Pure Premium:	1.112	0.642	1.755
(16) Countrywide Indicated Relativity:	1.160	1.052	.
(17) Countrywide Credibility:	0.320	0.250	.
(18) Countrywide Lost-Time Claims:	811.00	.	.
(19) Pure Premium Underlying Present Rate:	1.812	0.883	2.695
(20) Relativity to Underlying Present Rate:	2.339	1.639	.
(21) Credibility to Underlying Relativity:	0.310	0.250	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	2.114	1.782	.
(24) Balanced Formula Relativity:	2.103	1.783	1.979

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services		
9040 HOSPITAL: ALL OTHER EMPLOYEES											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	608,165	4	264	184,749	882,108	77,951	325,676	1,470,484	1,754	0,664	2,418
2010	669,225	5	238	359,430	649,157	184,047	409,711	1,602,345	1,507	0,887	2,394
2011	737,191	4	233	233,039	763,254	317,464	576,092	1,889,849	1,351	1,212	2,564
2012	652,922	8	185	574,600	1,059,576	243,517	580,026	2,457,718	2,503	1,261	3,764
2013	620,889	6	190	247,232	1,109,898	197,307	605,100	2,159,536	2,186	1,292	3,478
MA Total:	3,288,391	27	1,110	1,599,050	4,463,992	1,020,285	2,496,605	9,579,932	1,844	1,069	2,913

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.938	1.781	.
(14) Massachusetts Credibility:	0.460	0.680	.
(15) Countrywide Pure Premium:	1.573	1.077	2,650
(16) Countrywide Indicated Relativity:	1.640	1.763	.
(17) Countrywide Credibility:	0.270	0.160	.
(18) Countrywide Lost-Time Claims:	6855.0	.	.
(19) Pure Premium Underlying Present Rate:	1.217	0.756	1,972
(20) Relativity to Underlying Present Rate:	1.571	1.403	.
(21) Credibility to Underlying Relativity:	0.270	0.160	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1,552
(23) Formula Relativity:	1.759	1.718	.
(24) Balanced Formula Relativity:	1.749	1.719	1,738

Class(es):		Effective: 7/1/2016							Goods and Services		
9052 HOTEL: ALL OTHER EMPLOYEES & SALES, DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	4,468,866	27	749	1,670,690	2,635,361	671,304	1,965,985	6,943,340	0,964	0,590	1,554
2010	5,749,609	38	854	2,264,954	3,589,854	1,297,822	2,399,352	9,551,981	1,018	0,643	1,661
2011	6,369,585	30	856	2,860,392	3,205,255	1,233,262	2,589,111	9,888,019	0,952	0,600	1,552
2012	6,242,325	22	828	1,634,474	5,135,095	853,495	3,136,765	10,759,828	1,084	0,639	1,724
2013	6,181,163	30	685	1,979,489	3,770,006	1,288,239	2,347,950	9,385,684	0,930	0,588	1,518
MA Total:	29,011,549	147	3,972	10,409,999	18,335,570	5,344,121	12,439,163	46,528,853	0,991	0,613	1,604

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.042	1.021	.
(14) Massachusetts Credibility:	0.880	1.000	.
(15) Countrywide Pure Premium:	1.052	0.732	1,785
(16) Countrywide Indicated Relativity:	1.097	1.199	.
(17) Countrywide Credibility:	0.060	0.000	.
(18) Countrywide Lost-Time Claims:	19323	.	.
(19) Pure Premium Underlying Present Rate:	0.690	0.504	1,193
(20) Relativity to Underlying Present Rate:	0.890	0.935	.
(21) Credibility to Underlying Relativity:	0.060	0.000	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1,552
(23) Formula Relativity:	1.036	1.021	.
(24) Balanced Formula Relativity:	1.030	1.022	1,027

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services		
9058 HOTEL: RESTAURANT EMPLOYEES											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	1,813,750	3	343	99,508	666,742	65,313	677,115	1,508,678	0.422	0.409	0.832
2010	2,062,162	7	387	692,875	1,412,776	265,462	856,367	3,227,479	1.021	0.544	1.565
2011	2,463,837	8	427	464,417	939,471	230,141	892,028	2,526,057	0.570	0.455	1.025
2012	2,415,769	9	449	689,829	2,329,320	195,320	1,268,176	4,482,645	1.250	0.606	1.856
2013	2,294,521	7	416	816,210	1,065,529	305,866	1,036,383	3,223,989	0.820	0.585	1.405
MA Total:	11,050,039	34	2,022	2,762,839	6,413,838	1,062,102	4,730,069	14,968,848	0.830	0.524	1.355

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.873	0.873	.
(14) Massachusetts Credibility:	0.600	0.950	.
(15) Countrywide Pure Premium:	0.709	0.486	1.195
(16) Countrywide Indicated Relativity:	0.740	0.795	.
(17) Countrywide Credibility:	0.200	0.030	.
(18) Countrywide Lost-Time Claims:	4797.0	.	.
(19) Pure Premium Underlying Present Rate:	0.690	0.504	1.193
(20) Relativity to Underlying Present Rate:	0.890	0.935	.
(21) Credibility to Underlying Relativity:	0.200	0.020	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	0.850	0.872	.
(24) Balanced Formula Relativity:	0.845	0.873	0.856

Class(es):		Effective: 7/1/2016							Goods and Services		
9060 CLUB-COUNTRY, GOLF, FISHING OR YACHT & CLERICAL											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	2,730,228	5	317	385,767	462,574	124,343	922,520	1,895,204	0.311	0.383	0.694
2010	2,797,517	2	302	38,068	573,299	36,401	782,770	1,430,539	0.219	0.293	0.511
2011	2,799,388	4	329	272,953	1,122,794	154,930	905,401	2,456,078	0.499	0.379	0.877
2012	2,918,163	1	324	253,525	609,002	167,282	726,057	1,755,866	0.296	0.306	0.602
2013	2,997,216	4	325	374,884	1,463,534	140,317	1,384,600	3,363,335	0.613	0.509	1.122
MA Total:	14,242,511	16	1,597	1,325,197	4,231,203	623,274	4,721,349	10,901,022	0.390	0.375	0.765

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.410	0.625	.
(14) Massachusetts Credibility:	0.540	0.910	.
(15) Countrywide Pure Premium:	0.661	0.479	1.140
(16) Countrywide Indicated Relativity:	0.689	0.785	.
(17) Countrywide Credibility:	0.230	0.050	.
(18) Countrywide Lost-Time Claims:	5101.0	.	.
(19) Pure Premium Underlying Present Rate:	0.401	0.359	0.760
(20) Relativity to Underlying Present Rate:	0.518	0.666	.
(21) Credibility to Underlying Relativity:	0.230	0.040	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	0.499	0.635	.
(24) Balanced Formula Relativity:	0.496	0.635	0.550

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services		
9061 CLUB NOC & CLERICAL											
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	660,236	1	32	40,242	17,318	21,998	40,246	119,804	0.087	0.094	0.181
2010	678,106	1	45	33	348,185	7,595	352,149	707,962	0.514	0.531	1.044
2011	711,020	2	46	91,002	200,135	18,137	176,902	486,176	0.409	0.274	0.684
2012	727,289	4	40	174,183	34,800	121,625	107,946	438,553	0.287	0.316	0.603
2013	744,752	1	41	2,401	225,278	1,392	240,928	469,998	0.306	0.325	0.631
MA Total:	3,521,403	9	204	307,860	825,715	170,747	918,171	2,222,493	0.322	0.309	0.631

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.338	0.515	.
(14) Massachusetts Credibility:	0.310	0.500	.
(15) Countrywide Pure Premium:	0.618	0.407	1.024
(16) Countrywide Indicated Relativity:	0.644	0.666	.
(17) Countrywide Credibility:	0.350	0.250	.
(18) Countrywide Lost-Time Claims:	755.00	.	.
(19) Pure Premium Underlying Present Rate:	0.414	0.316	0.729
(20) Relativity to Underlying Present Rate:	0.534	0.586	.
(21) Credibility to Underlying Relativity:	0.340	0.250	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	0.512	0.571	.
(24) Balanced Formula Relativity:	0.509	0.571	0.533

Class(es):		Effective: 7/1/2016							Goods and Services		
9063 YMCA, YWCA, YMHA OR YWHA, INSTITUTION-ALL EMPLOYEES & CLERICAL											
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	4,216,639	10	340	641,587	1,622,413	191,576	1,438,145	3,893,720	0.537	0.386	0.923
2010	4,430,057	9	322	1,012,161	710,694	760,500	917,501	3,400,856	0.389	0.379	0.768
2011	4,606,477	11	305	1,105,105	509,418	459,400	876,639	2,950,561	0.350	0.290	0.641
2012	4,812,971	7	283	389,292	1,557,107	152,697	1,026,471	3,125,567	0.404	0.245	0.649
2013	5,109,085	4	323	191,725	1,364,100	329,588	1,266,944	3,152,357	0.305	0.312	0.617
MA Total:	23,175,229	41	1,573	3,339,869	5,763,731	1,893,761	5,525,699	16,523,061	0.393	0.320	0.713

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.413	0.533	.
(14) Massachusetts Credibility:	0.560	0.980	.
(15) Countrywide Pure Premium:	0.404	0.335	0.739
(16) Countrywide Indicated Relativity:	0.421	0.548	.
(17) Countrywide Credibility:	0.220	0.010	.
(18) Countrywide Lost-Time Claims:	3159.0	.	.
(19) Pure Premium Underlying Present Rate:	0.281	0.260	0.540
(20) Relativity to Underlying Present Rate:	0.362	0.482	.
(21) Credibility to Underlying Relativity:	0.220	0.010	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	0.404	0.533	.
(24) Balanced Formula Relativity:	0.401	0.533	0.452

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Calculation of Class Relativities

Class(es): 9079 RESTAURANT NOC		Effective: 7/1/2016							Goods and Services		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	17,648,474	57	2,718	3,755,116	6,188,400	1,740,704	5,956,245	17,640,466	0.563	0.436	1.000
2010	20,821,858	57	3,061	4,773,780	6,602,828	1,972,191	5,964,203	19,313,002	0.546	0.381	0.928
2011	22,103,153	60	3,267	3,814,136	8,768,804	2,541,919	8,335,687	23,460,546	0.569	0.492	1.061
2012	23,147,469	71	3,170	4,064,866	7,785,187	2,059,000	7,541,297	21,450,351	0.512	0.415	0.927
2013	25,554,487	67	3,263	3,940,481	9,564,907	2,072,817	8,535,067	24,113,272	0.528	0.415	0.944
MA Total:	109,275,441	312	15,479	20,348,379	38,910,127	10,386,632	36,332,500	105,977,638	0.542	0.428	0.970

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.570	0.712	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	0.563	0.478	1.041
(16) Countrywide Indicated Relativity:	0.587	0.783	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	2844.0	.	.
(19) Pure Premium Underlying Present Rate:	0.473	0.400	0.873
(20) Relativity to Underlying Present Rate:	0.610	0.742	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	0.570	0.712	.
(24) Balanced Formula Relativity:	0.567	0.713	0.623

Class(es): 9089 BILLIARD HALL		Effective: 7/1/2016							Goods and Services		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	7,416	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	7,043	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	4,637	0	1	0	0	0	612	612	0.000	0.132	0.132
2012	4,286	0	1	0	0	0	629	629	0.000	0.147	0.147
2013	5,382	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	28,764	0	2	0	0	0	1,242	1,242	0.000	0.043	0.043

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.072	.
(14) Massachusetts Credibility:	0.050	0.080	.
(15) Countrywide Pure Premium:	0.279	0.438	0.717
(16) Countrywide Indicated Relativity:	0.291	0.717	.
(17) Countrywide Credibility:	0.180	0.190	.
(18) Countrywide Lost-Time Claims:	15.000	.	.
(19) Pure Premium Underlying Present Rate:	0.520	0.400	0.920
(20) Relativity to Underlying Present Rate:	0.671	0.743	.
(21) Credibility to Underlying Relativity:	0.770	0.730	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	0.569	0.684	.
(24) Balanced Formula Relativity:	0.566	0.685	0.612

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Calculation of Class Relativities

Class(es): 9093 BOWLING LANE		Effective: 7/1/2016							Goods and Services		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	114,470	0	10	0	4,862	0	26,996	31,858	0.042	0.236	0.278
2010	133,296	0	10	0	121,048	0	22,415	143,463	0.908	0.168	1.076
2011	154,199	1	22	2,756	84,242	8,371	265,476	360,845	0.564	1.776	2.340
2012	154,528	0	19	0	13,202	0	32,270	45,473	0.085	0.209	0.294
2013	173,484	1	20	39,774	30,260	35,796	25,707	131,537	0.404	0.355	0.758
MA Total:	729,976	2	81	42,530	253,615	44,167	372,863	713,175	0.406	0.571	0.977

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.426	0.952	.
(14) Massachusetts Credibility:	0.170	0.310	.
(15) Countrywide Pure Premium:	0.622	0.558	1.181
(16) Countrywide Indicated Relativity:	0.649	0.915	.
(17) Countrywide Credibility:	0.420	0.350	.
(18) Countrywide Lost-Time Claims:	431.00	.	.
(19) Pure Premium Underlying Present Rate:	0.417	0.469	0.886
(20) Relativity to Underlying Present Rate:	0.538	0.871	.
(21) Credibility to Underlying Relativity:	0.410	0.340	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	0.566	0.911	.
(24) Balanced Formula Relativity:	0.563	0.912	0.698

Class(es): 9101 COLLEGE: ALL OTHER EMPLOYEES		Effective: 7/1/2016							Goods and Services		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	1,448,373	15	574	916,171	953,769	460,613	1,157,743	3,488,296	1.291	1.117	2.408
2010	1,540,431	12	411	702,899	752,647	227,849	982,940	2,666,335	0.945	0.786	1.731
2011	1,476,172	15	565	993,352	1,358,250	558,070	1,332,752	4,242,425	1.593	1.281	2.874
2012	1,422,310	15	584	1,118,110	1,340,435	582,424	1,626,849	4,667,818	1.729	1.553	3.282
2013	1,490,861	10	503	564,353	1,416,687	296,520	1,016,491	3,294,052	1.329	0.881	2.209
MA Total:	7,378,147	67	2,637	4,294,885	5,821,789	2,125,476	6,116,775	18,358,926	1.371	1.117	2.488

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.441	1.861	.
(14) Massachusetts Credibility:	0.690	1.000	.
(15) Countrywide Pure Premium:	1.568	1.123	2.691
(16) Countrywide Indicated Relativity:	1.635	1.839	.
(17) Countrywide Credibility:	0.160	0.000	.
(18) Countrywide Lost-Time Claims:	14652	.	.
(19) Pure Premium Underlying Present Rate:	1.441	1.086	2.527
(20) Relativity to Underlying Present Rate:	1.860	2.016	.
(21) Credibility to Underlying Relativity:	0.150	0.000	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	1.535	1.861	.
(24) Balanced Formula Relativity:	1.527	1.862	1.657

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Miscellaneous		
9102 PARK NOC- ALL EMPLOYEES & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	206.734	0	34	0	396.891	0	166.364	563.255	1.920	0.805	2.725
2010	224.518	0	24	0	23.158	0	67.316	90.474	0.103	0.300	0.403
2011	172.769	0	23	0	229.557	0	243.529	473.086	1.329	1.410	2.738
2012	188.062	0	24	0	37.798	0	50.404	88.201	0.201	0.268	0.469
2013	190.603	0	31	0	345.578	0	227.850	573.429	1.813	1.195	3.008
MA Total:	982.686	0	136	0	1,032.981	0	755.464	1,788.445	1.051	0.769	1.820

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.372	0.492	.
(14) Massachusetts Credibility:	0.280	0.450	.
(15) Countrywide Pure Premium:	1.547	1.144	2.692
(16) Countrywide Indicated Relativity:	0.599	0.809	.
(17) Countrywide Credibility:	0.360	0.280	.
(18) Countrywide Lost-Time Claims:	6952.0	.	.
(19) Pure Premium Underlying Present Rate:	1.180	0.873	2.053
(20) Relativity to Underlying Present Rate:	0.506	0.630	.
(21) Credibility to Underlying Relativity:	0.360	0.270	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	0.502	0.618	.
(24) Balanced Formula Relativity:	0.496	0.617	0.539

Class(es):		Effective: 7/1/2016							Miscellaneous		
9154 THEATER NOC: ALL OTHER EMPLOYEES											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	624.879	1	67	191.969	664.990	63.233	497.475	1,417.667	1.371	0.897	2.269
2010	662.274	3	92	888.765	313.624	118.801	207.689	1,528.879	1.816	0.493	2.309
2011	661.207	1	100	145.969	1,264.799	420.204	737.300	2,568.272	2.134	1.751	3.884
2012	621.645	2	83	286.543	473.936	56.625	347.514	1,164.618	1.223	0.650	1.873
2013	682.379	0	90	0	224.673	0	415.054	639.728	0.329	0.608	0.937
MA Total:	3,252.384	7	432	1,513.246	2,942.023	658.863	2,205.032	7,319.165	1.370	0.881	2.250

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.485	0.564	.
(14) Massachusetts Credibility:	0.370	0.580	.
(15) Countrywide Pure Premium:	0.843	0.616	1.459
(16) Countrywide Indicated Relativity:	0.326	0.435	.
(17) Countrywide Credibility:	0.320	0.210	.
(18) Countrywide Lost-Time Claims:	1344.0	.	.
(19) Pure Premium Underlying Present Rate:	0.717	0.497	1.213
(20) Relativity to Underlying Present Rate:	0.307	0.358	.
(21) Credibility to Underlying Relativity:	0.310	0.210	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	0.379	0.493	.
(24) Balanced Formula Relativity:	0.375	0.492	0.417

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Office and Clerical		
9156 THEATER NOC: PLAYERS, ENTERTAINERS OR MUSICIANS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	447,841	0	70	0	98,772	0	191,558	290,330	0.221	0.428	0.648
2010	487,696	0	61	0	91,229	0	115,765	206,994	0.187	0.237	0.424
2011	496,728	0	102	0	599,582	0	371,660	971,242	1.207	0.748	1.955
2012	300,754	0	77	0	209,105	0	321,778	530,883	0.695	1.070	1.765
2013	332,223	1	76	15,095	252,685	23,765	321,069	612,614	0.806	1.038	1.844
MA Total:	2,065,242	1	386	15,095	1,251,373	23,765	1,321,830	2,612,064	0.613	0.652	1.265

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	7.301	11.337	.
(14) Massachusetts Credibility:	0.280	0.460	.
(15) Countrywide Pure Premium:	0.697	0.557	1.255
(16) Countrywide Indicated Relativity:	10.232	11.311	.
(17) Countrywide Credibility:	0.360	0.270	.
(18) Countrywide Lost-Time Claims:	779.00	.	.
(19) Pure Premium Underlying Present Rate:	0.537	0.449	0.986
(20) Relativity to Underlying Present Rate:	8.035	8.820	.
(21) Credibility to Underlying Relativity:	0.360	0.270	.
(22) Industry Group Converted Pure Premium:	0.084	0.057	0.141
(23) Formula Relativity:	8.620	10.651	.
(24) Balanced Formula Relativity:	8.591	10.657	9.430

Class(es):		Effective: 7/1/2016							Miscellaneous		
9178 ATHLETIC TEAM OR PARK: NON-CONTACT SPORTS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	8,115	1	11	49,504	246,571	5,636	17,812	319,522	36.483	2.889	39.372
2010	16,012	2	32	102,857	216,061	5,626	173,704	498,248	19.918	11.200	31.118
2011	12,877	1	30	69,812	83,535	103,187	208,973	465,507	11.909	24.242	36.152
2012	16,194	0	34	0	155,091	0	145,287	300,378	9.577	8.972	18.549
2013	17,397	0	47	0	271,022	0	339,846	610,868	15.579	19.535	35.114
MA Total:	70,594	4	154	222,173	972,280	114,449	885,622	2,194,523	16.920	14.166	31.086

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	5.994	9.066	.
(14) Massachusetts Credibility:	0.140	0.320	.
(15) Countrywide Pure Premium:	1.582	2.528	4.110
(16) Countrywide Indicated Relativity:	0.613	1.786	.
(17) Countrywide Credibility:	0.430	0.340	.
(18) Countrywide Lost-Time Claims:	528.00	.	.
(19) Pure Premium Underlying Present Rate:	2.615	5.101	7.716
(20) Relativity to Underlying Present Rate:	1.121	3.680	.
(21) Credibility to Underlying Relativity:	0.430	0.340	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	1.585	4.760	.
(24) Balanced Formula Relativity:	1.565	4.750	2.700

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Miscellaneous		
9179 ATHLETIC TEAM OR PARK: CONTACT SPORTS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	37,523	3	53	59,535	249,222	2,049	103,106	413,912	8,228	2,802	11,031
2010	30,982	5	19	449,367	467,890	30,794	80,325	1,028,376	29,607	3,587	33,193
2011	28,259	0	50	0	749,859	0	300,632	1,050,491	26,535	10,638	37,173
2012	28,133	4	59	1,314,514	620,413	190,841	249,708	2,375,476	68,779	15,660	84,439
2013	29,955	2	100	212,241	62,953	272,266	649,397	1,196,856	9,187	30,768	39,955
MA Total:	154,852	14	281	2,035,657	2,150,337	495,950	1,383,168	6,065,112	27,032	12,135	39,167

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	9.576	7.766	.
(14) Massachusetts Credibility:	0.340	0.470	.
(15) Countrywide Pure Premium:	5.429	3.359	8.787
(16) Countrywide Indicated Relativity:	2.103	2.373	.
(17) Countrywide Credibility:	0.330	0.270	.
(18) Countrywide Lost-Time Claims:	1108.0	.	.
(19) Pure Premium Underlying Present Rate:	11.562	6.190	17.752
(20) Relativity to Underlying Present Rate:	4.958	4.466	.
(21) Credibility to Underlying Relativity:	0.330	0.260	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	5.586	5.452	.
(24) Balanced Formula Relativity:	5.518	5.440	5.490

Class(es):		Effective: 7/1/2016							Miscellaneous		
9180 AMUSEMENT DEVICE OPERATION NOC-NOT TRAV & DR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	129,290	0	37	0	87,160	0	121,043	208,203	0.674	0.936	1.610
2010	146,701	0	39	0	8,277	0	95,911	104,188	0.056	0.654	0.710
2011	143,095	0	30	0	37,297	0	170,043	207,340	0.261	1.188	1.449
2012	156,423	0	42	0	402,353	0	378,990	781,343	2.572	2.423	4.995
2013	185,482	0	41	0	143,902	0	291,326	435,229	0.776	1.571	2.346
MA Total:	760,992	0	189	0	678,989	0	1,057,313	1,736,302	0.892	1.389	2.282

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.316	0.889	.
(14) Massachusetts Credibility:	0.280	0.510	.
(15) Countrywide Pure Premium:	2.358	2.539	4.897
(16) Countrywide Indicated Relativity:	0.913	1.794	.
(17) Countrywide Credibility:	0.360	0.250	.
(18) Countrywide Lost-Time Claims:	2038.0	.	.
(19) Pure Premium Underlying Present Rate:	1.546	1.526	3.072
(20) Relativity to Underlying Present Rate:	0.663	1.101	.
(21) Credibility to Underlying Relativity:	0.360	0.240	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	0.656	1.166	.
(24) Balanced Formula Relativity:	0.648	1.164	0.832

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Miscellaneous		
9182 ATHLETIC TEAM OR PARK: OPERATIONS & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	136.834	3	37	60.736	53.806	188.564	344.536	647.641	0.837	3.896	4.733
2010	207.168	1	61	417	244.019	119	226.079	470.634	1.180	1.092	2.272
2011	206.857	2	52	16.030	378.979	19.449	100.285	514.743	1.910	0.579	2.488
2012	190.867	5	63	312.115	188.367	162.375	176.202	839.057	2.622	1.774	4.396
2013	247.268	3	83	281.564	587.024	92.452	302.000	1,263.039	3.513	1.595	5.108
MA Total:	988.994	14	296	670.861	1,452.194	462.958	1,149.102	3,735.116	2.147	1.630	3.777

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.760	1.043	.
(14) Massachusetts Credibility:	0.280	0.600	.
(15) Countrywide Pure Premium:	1.015	0.850	1.866
(16) Countrywide Indicated Relativity:	0.393	0.601	.
(17) Countrywide Credibility:	0.360	0.200	.
(18) Countrywide Lost-Time Claims:	407.00	.	.
(19) Pure Premium Underlying Present Rate:	1.152	1.812	2.963
(20) Relativity to Underlying Present Rate:	0.494	1.307	.
(21) Credibility to Underlying Relativity:	0.360	0.200	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	0.532	1.008	.
(24) Balanced Formula Relativity:	0.526	1.005	0.697

Class(es):		Effective: 7/1/2016							Goods and Services		
9220 CEMETERY OPERATION & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	194.428	2	29	171.758	65.474	75.318	91.165	403.714	1.220	0.856	2.076
2010	191.884	0	34	0	43.660	0	66.771	110.431	0.228	0.348	0.576
2011	186.692	1	31	5.970	14.987	2.229	71.498	94.684	0.112	0.395	0.507
2012	191.140	1	32	125.765	223.864	51.493	170.549	571.672	1.829	1.162	2.991
2013	197.407	0	31	0	150.490	0	167.046	317.536	0.762	0.846	1.609
MA Total:	961.551	4	157	303.493	498.475	129.040	567.029	1,498.036	0.834	0.724	1.558

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.877	1.206	.
(14) Massachusetts Credibility:	0.310	0.460	.
(15) Countrywide Pure Premium:	2.508	1.605	4.112
(16) Countrywide Indicated Relativity:	2.615	2.628	.
(17) Countrywide Credibility:	0.350	0.270	.
(18) Countrywide Lost-Time Claims:	689.00	.	.
(19) Pure Premium Underlying Present Rate:	1.550	0.939	2.489
(20) Relativity to Underlying Present Rate:	2.000	1.743	.
(21) Credibility to Underlying Relativity:	0.340	0.270	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	1.867	1.735	.
(24) Balanced Formula Relativity:	1.857	1.736	1.810

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 Subsection G - Class Relativities
 7/1/2016

Section IX - G
 Exhibit 188

Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Miscellaneous		
9402 STREET CLEANING & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	588,440	8	80	1,769,023	822,499	546,453	1,006,374	4,144,349	4,404	2,639	7,043
2010	703,087	2	74	162,789	1,637,728	25,228	797,921	2,623,666	2,561	1,171	3,732
2011	595,947	5	80	522,112	1,075,203	243,156	516,243	2,356,714	2,680	1,274	3,955
2012	654,717	7	80	572,050	1,033,056	205,044	592,401	2,402,552	2,452	1,218	3,670
2013	756,290	4	65	292,173	764,758	253,585	467,416	1,777,934	1,398	0,953	2,351
MA Total:	3,298,480	26	379	3,318,148	5,333,245	1,273,466	3,380,356	13,305,215	2,623	1,411	4,034

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.929	0.903	.
(14) Massachusetts Credibility:	0.620	0.870	.
(15) Countrywide Pure Premium:	3.167	1.774	4.941
(16) Countrywide Indicated Relativity:	1.227	1.254	.
(17) Countrywide Credibility:	0.190	0.070	.
(18) Countrywide Lost-Time Claims:	2134.0	.	.
(19) Pure Premium Underlying Present Rate:	2.450	1.362	3.813
(20) Relativity to Underlying Present Rate:	1.051	0.983	.
(21) Credibility to Underlying Relativity:	0.190	0.060	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	1.009	0.932	.
(24) Balanced Formula Relativity:	0.996	0.930	0.973

Class(es):		Effective: 7/1/2016							Miscellaneous		
9403 GARBAGE, ASHES OR REFUSE COLLECTION & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	886,749	10	248	915,102	3,616,577	398,978	1,824,112	6,754,769	5,110	2,507	7,617
2010	996,202	15	273	2,307,706	3,427,179	715,367	1,902,131	8,352,384	5,757	2,627	8,384
2011	1,042,246	14	272	1,645,888	3,812,540	478,664	2,177,619	8,114,712	5,237	2,549	7,786
2012	970,964	17	210	4,799,075	2,065,588	1,800,210	1,442,218	10,107,092	7,070	3,339	10,409
2013	1,056,446	16	270	2,615,273	4,535,021	1,048,889	2,412,866	10,612,048	6,768	3,277	10,045
MA Total:	4,952,607	72	1,273	12,283,044	17,456,906	4,442,108	9,758,946	43,941,004	6,005	2,867	8,872

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.127	1.835	.
(14) Massachusetts Credibility:	0.920	1.000	.
(15) Countrywide Pure Premium:	4.191	2.334	6.526
(16) Countrywide Indicated Relativity:	1.623	1.649	.
(17) Countrywide Credibility:	0.040	0.000	.
(18) Countrywide Lost-Time Claims:	7167.0	.	.
(19) Pure Premium Underlying Present Rate:	4.504	2.590	7.094
(20) Relativity to Underlying Present Rate:	1.931	1.869	.
(21) Credibility to Underlying Relativity:	0.040	0.000	.
(22) Industry Group Converted Pure Premium:	2.823	1.563	4.385
(23) Formula Relativity:	2.099	1.835	.
(24) Balanced Formula Relativity:	2.074	1.831	1.987

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services		
9410 MUNICIPAL, TOWN, COUNTY OR STATE EMP NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	123,587	4	43	668,475	237,051	435,112	129,925	1,470,564	7,327	4,572	11,899
2010	137,457	0	0	0	0	0	0	0	0,000	0,000	0,000
2011	66,924	0	25	0	25,634	0	45,680	71,315	0,383	0,683	1,066
2012	50,758	0	26	0	9,023	0	30,450	39,472	0,178	0,600	0,778
2013	52,205	1	9	71,883	5,220	114,813	4,258	196,175	1,477	2,281	3,758
MA Total:	430,931	5	103	740,358	276,929	549,925	210,313	1,777,526	2,361	1,764	4,125

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.482	2.939	.
(14) Massachusetts Credibility:	0.180	0.340	.
(15) Countrywide Pure Premium:	0.989	0.596	1.585
(16) Countrywide Indicated Relativity:	1.032	0.976	.
(17) Countrywide Credibility:	0.410	0.330	.
(18) Countrywide Lost-Time Claims:	1020.0	.	.
(19) Pure Premium Underlying Present Rate:	0.921	0.990	1.910
(20) Relativity to Underlying Present Rate:	1.188	1.838	.
(21) Credibility to Underlying Relativity:	0.410	0.330	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	1.357	1.928	.
(24) Balanced Formula Relativity:	1.350	1.929	1.574

Class(es):		Effective: 7/1/2016							Manufacturing		
9501 SIGN PAINTING OR LETTERING-INSIDE & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	273,041	0	32	0	5,474	0	31,303	36,777	0,020	0,115	0,135
2010	299,492	0	32	0	86,993	0	240,011	327,004	0,290	0,801	1,092
2011	298,839	3	44	436,543	130,385	240,062	125,736	932,727	1,897	1,224	3,121
2012	301,368	2	29	136,151	149,483	39,307	82,133	407,074	0,948	0,403	1,351
2013	303,823	1	25	124,339	324,899	39,979	218,061	707,278	1,479	0,849	2,328
MA Total:	1,476,562	6	162	697,033	697,234	319,348	697,244	2,410,859	0,944	0,688	1,633

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.874	1.070	.
(14) Massachusetts Credibility:	0.310	0.550	.
(15) Countrywide Pure Premium:	1.391	0.884	2.275
(16) Countrywide Indicated Relativity:	1.420	1.558	.
(17) Countrywide Credibility:	0.350	0.230	.
(18) Countrywide Lost-Time Claims:	995.00	.	.
(19) Pure Premium Underlying Present Rate:	1.017	0.952	1.969
(20) Relativity to Underlying Present Rate:	1.146	1.586	.
(21) Credibility to Underlying Relativity:	0.340	0.220	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.158	1.296	.
(24) Balanced Formula Relativity:	1.142	1.287	1.196

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services		
9519 HOUSEHOLD APPLIANCES-ELECTRICAL-INSTALL, SERV OR REPAIR & DR											
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	706,040	3	93	265,782	1,074,222	195,538	740,750	2,276,292	1,898	1,326	3,224
2010	716,880	5	110	221,888	694,655	133,660	490,402	1,540,606	1,279	0,871	2,149
2011	780,309	13	145	1,989,655	386,298	823,524	520,042	3,719,519	3,045	1,722	4,767
2012	776,971	5	114	1,144,322	767,165	665,713	594,620	3,171,820	2,460	1,622	4,082
2013	871,242	8	107	1,317,808	957,090	409,518	587,881	3,272,297	2,611	1,145	3,756
MA Total:	3,851,442	34	569	4,939,454	3,879,430	2,227,953	2,933,696	13,980,533	2,290	1,340	3,630

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.407	2.232	.
(14) Massachusetts Credibility:	0.520	0.810	.
(15) Countrywide Pure Premium:	2.084	1.111	3.195
(16) Countrywide Indicated Relativity:	2.173	1.820	.
(17) Countrywide Credibility:	0.240	0.100	.
(18) Countrywide Lost-Time Claims:	1886.0	.	.
(19) Pure Premium Underlying Present Rate:	1.364	0.986	2.350
(20) Relativity to Underlying Present Rate:	1.760	1.831	.
(21) Credibility to Underlying Relativity:	0.240	0.090	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	2.196	2.155	.
(24) Balanced Formula Relativity:	2.184	2.157	2.173

Class(es):		Effective: 7/1/2016							Manufacturing		
9521 HOUSE FURNISHINGS INSTALLATION-NOC											
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	192,689	1	26	34,842	249,437	17,340	183,118	484,738	1,475	1,040	2,516
2010	202,716	0	32	0	367,520	0	178,067	545,587	1,813	0,878	2,691
2011	236,535	0	16	0	24,430	0	74,929	99,359	0,103	0,317	0,420
2012	181,798	1	14	14,743	56,794	23,323	262,474	357,334	0,393	1,572	1,966
2013	210,179	1	13	573,837	76,699	127,227	46,822	824,586	3,095	0,828	3,923
MA Total:	1,023,917	3	101	623,423	774,880	167,890	745,410	2,311,603	1,366	0,892	2,258

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.264	1.386	.
(14) Massachusetts Credibility:	0.320	0.420	.
(15) Countrywide Pure Premium:	2.435	1.221	3.657
(16) Countrywide Indicated Relativity:	2.486	2.153	.
(17) Countrywide Credibility:	0.340	0.290	.
(18) Countrywide Lost-Time Claims:	440.00	.	.
(19) Pure Premium Underlying Present Rate:	1.549	0.733	2.282
(20) Relativity to Underlying Present Rate:	1.745	1.222	.
(21) Credibility to Underlying Relativity:	0.340	0.290	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	1.843	1.561	.
(24) Balanced Formula Relativity:	1.818	1.550	1.718

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Calculation of Class Relativities

Class(es): 9522 UPHOLSTERING		Effective: 7/1/2016							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	111,785	0	7	0	67,936	0	32,336	100,273	0.608	0.289	0.897
2010	137,699	1	34	1,587	48,341	2,833	51,970	104,731	0.363	0.398	0.761
2011	140,205	0	10	0	39,595	0	33,737	73,332	0.282	0.241	0.523
2012	149,857	0	11	0	287,464	0	105,707	393,171	1.918	0.705	2.624
2013	139,673	0	13	0	95,636	0	52,426	148,061	0.685	0.375	1.060
MA Total:	679,219	1	75	1,587	538,972	2,833	276,176	819,567	0.796	0.411	1.207

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.737	0.638	.
(14) Massachusetts Credibility:	0.210	0.300	.
(15) Countrywide Pure Premium:	1.074	0.621	1.695
(16) Countrywide Indicated Relativity:	1.097	1.095	.
(17) Countrywide Credibility:	0.400	0.350	.
(18) Countrywide Lost-Time Claims:	1411.0	.	.
(19) Pure Premium Underlying Present Rate:	0.851	0.476	1.327
(20) Relativity to Underlying Present Rate:	0.959	0.792	.
(21) Credibility to Underlying Relativity:	0.390	0.350	.
(22) Industry Group Converted Pure Premium:	1.080	0.644	1.724
(23) Formula Relativity:	0.967	0.852	.
(24) Balanced Formula Relativity:	0.954	0.846	0.914

Class(es): 9533 SCAFFOLDING: SCAFFOLD INST, RPR OR REMOVAL- BUILT UP FROM GROUN		Effective: 7/1/2016							Construction		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	48,116	2	10	64,348	298,047	15,162	106,265	483,822	7,532	2,524	10,055
2010	25,698	0	5	0	213,063	0	93,241	306,304	8,291	3,628	11,919
2011	82,588	1	13	1,380	873,452	1,067	412,230	1,288,129	10,593	5,004	15,597
2012	59,998	0	6	0	588,480	0	253,222	841,702	9,808	4,221	14,029
2013	63,543	1	6	275,635	376,905	550,760	79,684	1,282,983	10,269	9,921	20,191
MA Total:	279,943	4	40	341,363	2,349,947	566,989	944,642	4,202,940	9,614	5,400	15,014

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.108	3.473	.
(14) Massachusetts Credibility:	0.370	0.430	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	2.939	1.826	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	8.019	2.694	10.713
(20) Relativity to Underlying Present Rate:	3.085	1.944	.
(21) Credibility to Underlying Relativity:	0.630	0.570	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	3.094	2.601	.
(24) Balanced Formula Relativity:	3.143	2.610	2.965

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Construction		
9534 MOBILE CRANE & HOIST SERV CONTR-NOC-ALL OP -INCL YRD EMP &DR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	186,595	0	16	0	171,785	0	298,512	470,297	0.921	1,600	2,520
2010	209,656	2	14	962,593	854,934	505,691	223,031	2,546,248	8,669	3,476	12,145
2011	215,120	2	11	645,772	257,431	163,646	207,507	1,274,357	4,199	1,725	5,924
2012	237,878	1	15	542,157	1,198,564	217,868	401,300	2,359,890	7,318	2,603	9,921
2013	268,741	1	14	503,386	133,822	663,114	469,921	1,770,243	2,371	4,216	6,587
MA Total:	1,117,989	6	70	2,653,908	2,616,536	1,550,319	1,600,271	8,421,035	4,714	2,818	7,532

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.524	1.812	.
(14) Massachusetts Credibility:	0.460	0.620	.
(15) Countrywide Pure Premium:	2.860	1.298	4.158
(16) Countrywide Indicated Relativity:	0.922	0.834	.
(17) Countrywide Credibility:	0.270	0.190	.
(18) Countrywide Lost-Time Claims:	422.00	.	.
(19) Pure Premium Underlying Present Rate:	3.533	1.730	5.263
(20) Relativity to Underlying Present Rate:	1.359	1.248	.
(21) Credibility to Underlying Relativity:	0.270	0.190	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	1.317	1.519	.
(24) Balanced Formula Relativity:	1.338	1.525	1.400

Class(es):		Effective: 7/1/2016							Construction		
9545 BILL POSTING & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2010	796	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	2,021	0	3	0	6,119	0	10,361	16,480	3.028	5.127	8.155
2012	1,712	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	1,243	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	5,772	0	3	0	6,119	0	10,361	16,480	1.060	1.795	2.855

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.343	1.154	.
(14) Massachusetts Credibility:	0.050	0.060	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	0.757	0.711	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	2.065	1.049	3.115
(20) Relativity to Underlying Present Rate:	0.795	0.757	.
(21) Credibility to Underlying Relativity:	0.950	0.940	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	0.772	0.781	.
(24) Balanced Formula Relativity:	0.784	0.784	0.784

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Construction		
9549 ADVERTISING CO & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	14,260	0	1	0	0	0	267	267	0.000	0.019	0.019
2010	21,199	0	0	0	0	0	0	0	0.000	0.000	0.000
2011	26,286	1	4	248,197	340	30,408	7,358	286,304	9,455	1,437	10,892
2012	28,834	2	5	304,845	23,877	40,745	22,713	392,180	11,400	2,201	13,601
2013	29,325	0	8	0	22,816	0	7,403	30,219	0,778	0,252	1,030
MA Total:	119,905	3	18	553,042	47,034	71,153	37,741	708,970	5,005	0,908	5,913

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.618	0.584	.
(14) Massachusetts Credibility:	0.150	0.230	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	0.749	0.889	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	2.043	1.312	3.355
(20) Relativity to Underlying Present Rate:	0.786	0.947	.
(21) Credibility to Underlying Relativity:	0.850	0.770	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	0.911	0.863	.
(24) Balanced Formula Relativity:	0.925	0.866	0.906

Class(es):		Effective: 7/1/2016							Construction		
9552 SIGN MFG-ERECTION, REPAIR OR MAINT & SHOP, DR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	110,918	0	22	0	693,635	0	116,727	810,363	6,254	1,052	7,306
2010	113,025	3	21	279,053	92,908	77,452	156,577	605,990	3,291	2,071	5,362
2011	120,889	0	19	0	371,765	0	184,716	556,481	3,075	1,528	4,603
2012	121,174	2	21	101,624	142,630	219,065	135,250	598,570	2,016	2,924	4,940
2013	129,690	0	23	0	191,533	0	132,740	324,274	1,477	1,024	2,500
MA Total:	595,695	5	106	380,677	1,492,472	296,517	726,011	2,895,677	3,144	1,717	4,861

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.016	1.104	.
(14) Massachusetts Credibility:	0.390	0.480	.
(15) Countrywide Pure Premium:	4.453	2.372	6.825
(16) Countrywide Indicated Relativity:	1.435	1.524	.
(17) Countrywide Credibility:	0.180	0.190	.
(18) Countrywide Lost-Time Claims:	15.000	.	.
(19) Pure Premium Underlying Present Rate:	4.224	1.744	5.968
(20) Relativity to Underlying Present Rate:	1.625	1.258	.
(21) Credibility to Underlying Relativity:	0.430	0.330	.
(22) Industry Group Converted Pure Premium:	3.094	1.555	4.649
(23) Formula Relativity:	1.354	1.235	.
(24) Balanced Formula Relativity:	1.375	1.239	1.330

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Calculation of Class Relativities

Class(es):		Effective: 7/1/2016							Goods and Services		
9586 BARBER SHOP, BEAUTY PARLOR, HAIR STYLING SALON											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	3,599,982	5	79	365,098	102,342	479,376	132,387	1,079,204	0.130	0.170	0.300
2010	3,729,412	4	78	369,135	334,490	89,183	329,487	1,122,296	0.189	0.112	0.301
2011	3,982,505	4	80	139,554	481,948	46,500	268,341	936,343	0.156	0.079	0.235
2012	4,211,729	1	74	83,892	540,108	49,355	206,480	879,836	0.148	0.061	0.209
2013	4,398,386	3	70	36,937	152,026	54,485	166,914	410,361	0.043	0.050	0.093
MA Total:	19,922,015	17	381	994,616	1,610,915	718,900	1,103,609	4,428,040	0.131	0.091	0.222

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.137	0.152	.
(14) Massachusetts Credibility:	0.470	0.670	.
(15) Countrywide Pure Premium:	0.315	0.186	0.501
(16) Countrywide Indicated Relativity:	0.329	0.305	.
(17) Countrywide Credibility:	0.270	0.170	.
(18) Countrywide Lost-Time Claims:	1991.0	.	.
(19) Pure Premium Underlying Present Rate:	0.205	0.120	0.324
(20) Relativity to Underlying Present Rate:	0.264	0.222	.
(21) Credibility to Underlying Relativity:	0.260	0.160	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	0.222	0.189	.
(24) Balanced Formula Relativity:	0.221	0.190	0.209

Class(es):		Effective: 7/1/2016							Goods and Services		
9620 FUNERAL DIRECTOR & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2009	567,515	0	14	0	134,375	0	76,759	211,133	0.237	0.135	0.372
2010	604,410	1	9	17,805	34,355	45,225	25,530	122,915	0.086	0.117	0.203
2011	615,306	2	16	218,770	51,849	117,239	74,616	462,474	0.440	0.312	0.752
2012	602,442	2	9	151,471	24,039	46,568	51,431	273,508	0.291	0.163	0.454
2013	669,063	3	9	105,488	126,159	72,371	199,941	503,958	0.346	0.407	0.753
MA Total:	3,058,736	8	57	493,533	370,776	281,403	428,277	1,573,989	0.283	0.232	0.515

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.297	0.386	.
(14) Massachusetts Credibility:	0.260	0.410	.
(15) Countrywide Pure Premium:	0.464	0.313	0.777
(16) Countrywide Indicated Relativity:	0.484	0.512	.
(17) Countrywide Credibility:	0.370	0.300	.
(18) Countrywide Lost-Time Claims:	460.00	.	.
(19) Pure Premium Underlying Present Rate:	0.313	0.226	0.539
(20) Relativity to Underlying Present Rate:	0.404	0.420	.
(21) Credibility to Underlying Relativity:	0.370	0.290	.
(22) Industry Group Converted Pure Premium:	0.951	0.600	1.552
(23) Formula Relativity:	0.406	0.434	.
(24) Balanced Formula Relativity:	0.404	0.434	0.415

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Section IX - Classification Pricing
Subsection H - Industry Group Rate Change and Rate Level Factors
7/1/2016

Section IX - H
Exhibit 1

Calculation of Industry Group Rate Change and Limits

	Industry Group				
	Manufacturing	Construction	Office & Clerical	Goods & Services	Miscellaneous
(1) Industry Group Differential	0.987	0.992	1.020	1.004	1.003
(2) Experience and Benefit Level Change - Overall	6.4%	6.4%	6.4%	6.4%	6.4%
(3) Target Rate Change = (1) x [1.000 + (2)] - 1.000	5.0%	5.5%	8.6%	6.9%	6.7%
(4) Maximum Rate Change = (3) + 20.0%	25.0%	25.5%	28.6%	26.9%	26.7%
(5) Minimum Rate Change = (3) - 20.0%	-15.0%	-14.5%	-11.4%	-13.1%	-13.3%
(6) Present Average Rate	2.034	5.438	0.162	1.797	5.050
(7) Uncapped Rate Level Factor = [1.000 + (3)] x (6)	2.135	5.739	0.176	1.921	5.387
(8) Capped Rate Level Factor	2.193	5.756	0.181	1.929	5.444

In addition, the WCRIBMA is limiting the increase in average rates for any class to \$15.00 and no average rate shall exceed \$90.00 per \$100.00 of payroll.

Notes:

- (1): Exhibit 2.
- (2): Indicated Rate Change, from Section I-A, Exhibit 1.
- (6): Rates by class consistent with the 04/01/14 stipulation, weighted by five years of exposure.
- (8): Proposed average uncapped rates are capped by an iterative process using rate levels to determine if the required change is achieved.

Calculation of Massachusetts Industry Group Differentials
 Excluding Large Deductibles

Industry Group (1)	Expected Losses (2)	Converted Unlimited Losses (3)	Industry Group Differential = (3) / (2) (4)	Lost-Time Cases (5)	Full Standard for Credibility Lost-Time Cases (6)	Credibility (7)	Credibility Weighted (8)	Balanced Industry Group Differential = (8) / 1.176 (9)
Manufacturing	426,109,070	493,821,493	1.159	10,059	12,000	0.916	1.160	0.987
Construction	967,615,751	1,128,647,176	1.166	12,013	12,000	1.000	1.166	0.992
Office & Clerical	394,436,625	473,740,741	1.201	10,935	12,000	0.955	1.200	1.020
Goods & Services	992,654,583	1,172,618,160	1.181	29,056	12,000	1.000	1.181	1.004
Miscellaneous	450,280,924	531,097,206	1.179	9,463	12,000	0.888	1.179	1.003
All	3,231,096,953	3,799,924,776	1.176			1.000	1.176	1.000

Notes:

(2): Five Years of Exposure x Pure Premium Underlying Present Rate from Section IX - F.

(3): Section IX - C. Goods and Services includes Per Capita classes.

(7) = $\text{Min} (1.0 , [(5)/(6)]^{0.5})$

(8) = $[(7) \times (4)] + [(1.0 - (7)) \times (4) \text{ Total}]$

(8) Total = $\text{sum} [(2) \times (8)] / (2) \text{ Total}$

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Section IX - Classification Pricing
 Subsection I - Average Uncapped Rates
 7/1/2016

Section IX - I
 Exhibit 1

Calculation of Average Uncapped Rates All Industry Groups

Class (1)	Balanced Formula Relativity			Uncapped Rate Level Factor (6)	Proposed Average Uncapped Rate (7)
	Indemnity (2)	Medical (4)	Total (5)		
0005	1.429	1.336	1.393	1.921	2.68
0008	1.294	1.512	1.378	1.921	2.65
0016	2.437	2.521	2.469	1.921	4.74
0034	2.232	2.826	2.462	1.921	4.73
0035	1.195	1.485	1.307	1.921	2.51
0036	2.232	2.826	2.462	1.921	4.73
0037	1.294	1.512	1.378	1.921	2.65
0042	2.293	2.407	2.337	1.921	4.49
0046	1.012	1.154	1.067	1.921	2.05
0050	1.283	1.024	1.197	5.739	6.87
0079	1.851	2.848	2.237	1.921	4.30
0083	2.051	2.564	2.249	1.921	4.32
0106	2.137	3.560	2.644	5.387	14.24
0113	2.232	2.826	2.462	1.921	4.73
0170	2.232	2.826	2.462	1.921	4.73
0251	0.652	0.618	0.640	5.387	3.45
0908	108.723	80.679	97.872	1.921	94.00
0909	136.190	252.407	181.156	1.921	173.98
0912	136.190	252.407	181.156	1.921	347.96
0913	108.723	80.679	97.872	1.921	187.99
0917	1.784	2.252	1.965	1.921	3.77
0918	0.383	0.246	0.330	1.921	0.63
1430	3.036	1.975	2.640	2.135	5.64
1438	1.676	1.541	1.625	2.135	3.47
1463	4.792	4.104	4.535	2.135	9.68
1624	0.905	1.004	0.940	5.387	5.07
1655	0.792	0.852	0.813	5.387	4.38
1701	1.736	1.343	1.589	2.135	3.39
1710	0.905	1.004	0.940	5.387	5.07
1747	1.548	1.307	1.458	2.135	3.11
1748	1.472	1.846	1.611	2.135	3.44
1852	3.570	1.846	2.927	2.135	6.25
1853	0.933	0.577	0.800	2.135	1.71
1860	1.031	0.895	0.980	2.135	2.09
1924	1.007	0.949	0.985	2.135	2.10
1925	1.610	7.052	3.642	2.135	7.78
2001	1.750	1.686	1.726	2.135	3.69
2002	1.153	1.464	1.269	2.135	2.71
2003	1.750	1.686	1.726	2.135	3.69
2014	1.795	1.697	1.758	2.135	3.75
2021	1.422	1.366	1.401	2.135	2.99
2039	1.645	1.499	1.591	2.135	3.40

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Section IX - Classification Pricing
 Subsection I - Average Uncapped Rates
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Section IX - I
 Exhibit 1

Calculation of Average Uncapped Rates All Industry Groups

Class (1)	Balanced Formula Relativity			Uncapped Rate Level Factor (6)	Proposed Average Uncapped Rate (7)
	Indemnity (2)	Medical (4)	Total (5)		
2041	1.385	1.283	1.347	2.135	2.88
2070	2.120	1.944	2.054	2.135	4.39
2081	1.741	2.737	2.113	2.135	4.51
2089	1.551	1.443	1.511	2.135	3.23
2095	1.814	1.617	1.740	2.135	3.72
2101	1.551	1.443	1.511	2.135	3.23
2111	1.120	1.043	1.091	2.135	2.33
2114	1.551	1.443	1.511	2.135	3.23
2115	2.021	2.343	2.141	2.135	4.57
2121	0.681	0.786	0.720	2.135	1.54
2130	0.969	0.889	0.939	2.135	2.01
2131	1.185	1.168	1.179	2.135	2.52
2143	0.878	1.011	0.927	2.135	1.98
2150	2.514	2.604	2.547	2.135	5.44
2156	2.823	2.525	2.711	2.135	5.79
2157	2.140	1.834	2.026	2.135	4.33
2172	1.315	0.758	1.107	2.135	2.36
2174	1.757	1.569	1.687	2.135	3.60
2211	3.586	3.427	3.526	2.135	7.53
2220	1.332	1.515	1.401	2.135	2.99
2260	3.731	3.043	3.474	2.135	7.42
2286	1.332	1.515	1.401	2.135	2.99
2288	1.683	1.621	1.660	2.135	3.54
2302	1.332	1.515	1.401	2.135	2.99
2305	1.860	1.684	1.794	2.135	3.83
2362	0.760	0.848	0.793	2.135	1.69
2380	1.191	1.255	1.215	2.135	2.59
2402	1.083	1.093	1.087	2.135	2.32
2413	1.723	1.874	1.779	2.135	3.80
2416	1.334	1.181	1.277	2.135	2.73
2417	2.013	1.445	1.801	2.135	3.85
2501	1.006	1.056	1.025	2.135	2.19
2503	0.552	0.557	0.554	2.135	1.18
2534	1.006	1.056	1.025	2.135	2.19
2570	2.957	3.425	3.132	2.135	6.69
2576	0.963	0.902	0.940	2.135	2.01
2578	0.963	0.902	0.940	2.135	2.01
2585	1.630	1.635	1.632	2.135	3.48
2586	0.841	0.812	0.830	2.135	1.77
2587	2.243	2.721	2.428	1.921	4.66
2623	2.403	2.544	2.456	2.135	5.24
2640	0.859	0.779	0.829	2.135	1.77

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Calculation of Average Uncapped Rates All Industry Groups

Class (1)	Balanced Formula Relativity			Uncapped Rate Level Factor (6)	Proposed Average Uncapped Rate (7)
	Indemnity (2)	Medical (4)	Total (5)		
2651	0.859	0.779	0.829	2.135	1.77
2660	0.791	1.018	0.876	2.135	1.87
2683	0.838	0.827	0.834	2.135	1.78
2688	1.202	1.214	1.207	2.135	2.58
2702	3.177	3.107	3.152	5.387	16.98
2710	3.191	3.959	3.478	2.135	7.43
2731	1.690	1.723	1.702	2.135	3.63
2741	3.463	3.013	3.295	2.135	7.04
2747	2.775	2.809	2.788	2.135	5.95
2790	0.871	0.849	0.863	2.135	1.84
2802	2.230	2.236	2.232	2.135	4.77
2835	0.957	0.948	0.954	2.135	2.04
2836	1.040	0.993	1.023	2.135	2.18
2841	2.067	1.546	1.872	2.135	4.00
2883	1.583	1.518	1.558	2.135	3.33
2923	0.767	0.791	0.776	2.135	1.66
2942	0.850	0.949	0.887	2.135	1.89
3018	1.861	1.484	1.720	2.135	3.67
3022	1.785	1.688	1.749	2.135	3.73
3027	2.060	2.874	2.364	2.135	5.05
3028	1.370	1.375	1.372	2.135	2.93
3030	3.040	3.058	3.047	2.135	6.51
3040	2.955	2.548	2.803	2.135	5.99
3041	2.300	2.548	2.393	2.135	5.11
3042	3.470	2.440	3.085	2.135	6.59
3064	1.378	1.531	1.435	2.135	3.06
3066	1.378	1.531	1.435	2.135	3.06
3076	1.112	1.243	1.161	2.135	2.48
3081	2.391	2.472	2.421	2.135	5.17
3082	2.391	2.472	2.421	2.135	5.17
3085	2.329	2.036	2.220	2.135	4.74
3110	3.859	4.623	4.144	2.135	8.85
3111	1.023	1.175	1.080	2.135	2.31
3113	0.658	0.693	0.671	2.135	1.43
3114	1.134	1.292	1.193	2.135	2.55
3118	0.902	0.666	0.814	2.135	1.74
3119	0.377	0.469	0.411	2.135	0.88
3120	0.864	0.540	0.743	2.135	1.59
3122	0.795	0.967	0.859	2.135	1.83
3127	0.475	0.640	0.537	2.135	1.15
3131	0.709	0.805	0.744	2.135	1.59
3132	1.608	1.858	1.701	2.135	3.63

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Calculation of Average Uncapped Rates All Industry Groups

Class (1)	Balanced Formula Relativity			Uncapped Rate Level Factor (6)	Proposed Average Uncapped Rate (7)
	Indemnity (2)	Medical (4)	Total (5)		
3145	0.775	0.814	0.790	2.135	1.69
3146	0.886	0.894	0.889	2.135	1.90
3169	1.372	1.514	1.425	2.135	3.04
3179	0.612	0.507	0.573	2.135	1.22
3180	1.319	1.360	1.335	2.135	2.85
3188	0.817	0.781	0.804	2.135	1.72
3200	1.147	1.184	1.161	2.135	2.48
3220	1.946	1.325	1.714	2.135	3.66
3227	1.372	1.514	1.425	2.135	3.04
3241	1.007	0.949	0.985	2.135	2.10
3255	1.310	1.193	1.267	2.135	2.70
3257	1.382	1.172	1.304	2.135	2.78
3270	1.006	1.075	1.032	2.135	2.20
3300	1.898	2.105	1.975	2.135	4.22
3315	1.828	1.788	1.813	2.135	3.87
3336	2.311	1.614	2.051	2.135	4.38
3365	1.323	1.198	1.281	5.739	7.35
3372	1.102	1.375	1.204	2.135	2.57
3373	1.877	1.640	1.788	2.135	3.82
3381	1.299	1.270	1.288	2.135	2.75
3383	0.740	0.673	0.715	2.135	1.53
3385	0.399	0.360	0.385	2.135	0.82
3400	1.372	1.514	1.425	2.135	3.04
3507	1.443	1.321	1.398	2.135	2.98
3515	1.250	1.400	1.306	2.135	2.79
3548	0.858	0.788	0.832	2.135	1.78
3558	0.379	0.647	0.479	2.135	1.02
3559	0.858	0.788	0.832	2.135	1.78
3571	0.471	0.437	0.458	2.135	0.98
3574	0.858	0.788	0.832	2.135	1.78
3612	0.929	1.000	0.956	2.135	2.04
3620	2.186	3.576	2.705	2.135	5.78
3629	0.858	0.788	0.832	2.135	1.78
3632	0.858	0.788	0.832	2.135	1.78
3634	0.842	0.767	0.814	2.135	1.74
3635	1.305	1.593	1.412	2.135	3.02
3638	0.858	0.788	0.832	2.135	1.78
3642	0.589	0.459	0.540	2.135	1.15
3643	0.851	0.719	0.802	2.135	1.71
3647	0.943	0.913	0.932	2.135	1.99
3648	0.631	0.738	0.671	2.135	1.43
3681	0.405	0.423	0.412	2.135	0.88

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Calculation of Average Uncapped Rates All Industry Groups

Class (1)	Balanced Formula Relativity			Uncapped Rate Level Factor (6)	Proposed Average Uncapped Rate (7)
	Indemnity (2)	Medical (4)	Total (5)		
3685	0.331	0.307	0.322	2.135	0.69
3724	0.914	0.917	0.915	5.739	5.25
3726	1.694	1.127	1.504	5.739	8.63
3807	1.372	1.514	1.425	2.135	3.04
3808	1.514	1.406	1.474	2.135	3.15
3821	2.355	2.205	2.297	1.921	4.41
3826	2.355	2.752	2.504	2.135	5.35
3830	0.858	0.788	0.832	2.135	1.78
3841	0.626	0.725	0.663	2.135	1.42
4000	0.905	0.809	0.871	5.387	4.69
4021	1.858	2.107	1.951	2.135	4.17
4024	1.537	1.367	1.474	2.135	3.15
4034	3.132	3.522	3.278	2.135	7.00
4036	1.267	0.909	1.133	2.135	2.42
4038	1.685	1.484	1.610	2.135	3.44
4053	0.875	0.943	0.900	2.135	1.92
4061	0.902	0.951	0.921	2.135	1.97
4062	0.902	0.951	0.921	2.135	1.97
4112	0.336	0.300	0.322	2.135	0.69
4113	0.875	0.943	0.900	2.135	1.92
4114	1.123	0.951	1.059	2.135	2.26
4130	1.690	1.659	1.679	2.135	3.58
4133	0.897	0.800	0.861	2.135	1.84
4150	0.345	0.308	0.331	2.135	0.71
4239	1.267	1.261	1.265	2.135	2.70
4243	1.874	1.670	1.798	2.135	3.84
4244	1.239	1.312	1.266	2.135	2.70
4250	1.038	1.251	1.118	2.135	2.39
4251	1.258	0.946	1.141	2.135	2.44
4273	1.034	1.042	1.037	2.135	2.21
4279	1.007	1.058	1.026	2.135	2.19
4282	0.381	0.379	0.380	2.135	0.81
4283	1.015	0.921	0.980	2.135	2.09
4299	0.937	0.950	0.942	2.135	2.01
4301	2.794	2.408	2.650	2.135	5.66
4304	2.158	2.997	2.471	2.135	5.28
4307	0.844	0.898	0.864	2.135	1.85
4308	1.647	0.399	1.181	2.135	2.52
4350	0.313	0.251	0.290	2.135	0.62
4351	0.436	0.373	0.412	2.135	0.88
4352	1.006	0.672	0.881	2.135	1.88
4360	0.421	0.396	0.411	2.135	0.88

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Section IX - Classification Pricing
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Calculation of Average Uncapped Rates All Industry Groups

Class (1)	Balanced Formula Relativity			Uncapped Rate Level Factor (6)	Proposed Average Uncapped Rate (7)
	Indemnity (2)	Medical (4)	Total (5)		
4361	4.370	4.752	4.525	0.176	0.80
4362	0.352	0.334	0.345	1.921	0.66
4410	1.476	1.212	1.377	2.135	2.94
4417	2.338	1.938	2.188	2.135	4.67
4432	0.518	0.528	0.522	2.135	1.11
4439	1.734	1.803	1.760	2.135	3.76
4452	1.759	1.589	1.695	2.135	3.62
4459	1.351	1.426	1.379	2.135	2.94
4470	0.990	0.860	0.942	2.135	2.01
4484	1.076	1.022	1.056	2.135	2.25
4493	1.251	1.299	1.269	2.135	2.71
4511	0.158	0.161	0.159	1.921	0.31
4512	0.062	0.076	0.068	1.921	0.13
4557	0.997	0.941	0.976	2.135	2.08
4558	0.665	0.705	0.680	2.135	1.45
4561	1.734	1.803	1.760	2.135	3.76
4583	1.985	1.485	1.798	2.135	3.84
4611	0.368	0.321	0.350	2.135	0.75
4635	2.316	2.533	2.397	2.135	5.12
4653	1.059	0.938	1.014	2.135	2.16
4665	3.224	3.130	3.189	2.135	6.81
4692	0.350	0.245	0.311	2.135	0.66
4693	0.472	0.454	0.465	2.135	0.99
4720	0.898	0.999	0.936	2.135	2.00
4740	0.601	0.541	0.579	2.135	1.24
4741	1.193	0.834	1.059	2.135	2.26
4771	4.904	1.285	3.553	2.135	7.59
4777	1.985	1.485	1.798	2.135	3.84
4825	0.335	0.355	0.342	2.135	0.73
4828	0.520	0.430	0.486	2.135	1.04
4829	0.520	0.430	0.486	2.135	1.04
4902	0.850	0.949	0.887	2.135	1.89
4923	0.421	0.396	0.411	2.135	0.88
5020	0.983	0.716	0.894	5.739	5.13
5022	1.831	1.675	1.779	5.739	10.21
5037	4.518	3.443	4.158	5.739	23.86
5040	11.923	8.675	10.836	5.739	62.19
5057	4.894	4.560	4.782	5.739	27.44
5059	3.252	3.107	3.203	5.739	18.38
5069	3.252	3.107	3.203	5.739	18.38
5102	1.209	0.953	1.123	5.739	6.45
5146	1.332	1.420	1.361	5.739	7.81

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Calculation of Average Uncapped Rates All Industry Groups

Class (1)	Balanced Formula Relativity			Uncapped Rate Level Factor (6)	Proposed Average Uncapped Rate (7)
	Indemnity (2)	Medical (4)	Total (5)		
5160	0.627	0.463	0.572	5.739	3.28
5183	0.658	0.582	0.633	5.739	3.63
5188	1.010	0.850	0.957	5.739	5.49
5190	0.470	0.497	0.479	5.739	2.75
5191	0.525	0.520	0.523	1.921	1.00
5192	1.758	1.614	1.703	1.921	3.27
5213	2.919	2.669	2.835	5.739	16.27
5215	1.043	1.022	1.036	5.739	5.95
5221	1.250	1.224	1.242	5.739	7.13
5222	2.116	1.927	2.053	5.739	11.78
5223	0.784	0.798	0.788	5.739	4.52
5348	1.022	0.749	0.931	5.739	5.34
5402	1.363	1.656	1.461	5.739	8.38
5403	2.129	1.795	2.017	5.739	11.58
5437	0.999	1.040	1.013	5.739	5.81
5443	0.724	0.746	0.731	5.739	4.20
5445	1.388	1.022	1.265	5.739	7.26
5462	1.530	1.178	1.412	5.739	8.10
5472	1.818	1.466	1.700	5.739	9.76
5473	1.828	1.985	1.880	5.739	10.79
5474	1.009	1.095	1.038	5.739	5.95
5478	1.184	0.914	1.094	5.739	6.28
5479	1.507	1.881	1.632	5.739	9.37
5480	0.906	0.743	0.851	5.739	4.89
5506	1.260	1.251	1.257	5.739	7.21
5507	1.327	1.553	1.402	5.739	8.05
5508	1.283	1.024	1.197	5.739	6.87
5509	0.666	0.713	0.681	5.739	3.91
5538	0.781	0.767	0.776	5.739	4.45
5545	6.412	7.659	6.829	5.739	39.19
5547	2.265	2.893	2.475	5.739	14.20
5606	0.334	0.362	0.343	5.739	1.97
5610	1.507	1.163	1.392	5.739	7.99
5645	1.384	1.694	1.488	5.739	8.54
5651	1.384	1.694	1.488	5.739	8.54
5701	3.913	6.138	4.657	5.739	26.73
5703	2.843	2.213	2.632	5.739	15.11
5705	2.529	2.364	2.473	5.739	14.20
6003	2.085	1.588	1.919	5.739	11.01
6005	1.283	1.024	1.197	5.739	6.87
6204	1.368	1.101	1.279	5.739	7.34
6217	0.815	0.863	0.831	5.739	4.77

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Calculation of Average Uncapped Rates All Industry Groups

Class (1)	Balanced Formula Relativity			Uncapped Rate Level Factor (6)	Proposed Average Uncapped Rate (7)
	Indemnity (2)	Medical (4)	Total (5)		
6229	0.841	0.829	0.837	5.739	4.80
6233	0.876	0.574	0.775	5.739	4.45
6251	1.410	0.676	1.165	5.739	6.68
6252	1.904	1.876	1.894	5.739	10.87
6306	1.933	1.710	1.859	5.739	10.67
6319	0.774	0.917	0.822	5.739	4.72
6325	0.870	0.893	0.878	5.739	5.04
6400	1.096	1.108	1.100	5.739	6.31
6504	1.551	1.443	1.511	2.135	3.23
6834	0.487	0.533	0.503	5.387	2.71
6836	0.782	0.946	0.840	5.387	4.53
7219	2.085	1.793	1.981	5.387	10.67
7230	2.084	1.992	2.051	5.387	11.05
7231	2.104	1.830	2.006	5.387	10.81
7360	1.105	1.184	1.133	5.387	6.10
7370	0.751	0.870	0.794	5.387	4.28
7380	1.256	1.189	1.232	5.387	6.64
7382	0.701	0.849	0.754	5.387	4.06
7403	0.934	1.302	1.065	5.387	5.74
7405	0.299	0.316	0.305	5.387	1.64
7420	2.083	0.880	1.655	5.387	8.91
7421	0.378	0.248	0.332	5.387	1.79
7422	0.378	0.248	0.332	5.387	1.79
7425	0.669	0.306	0.540	5.387	2.91
7431	0.378	0.248	0.332	5.387	1.79
7502	0.443	0.435	0.440	5.387	2.37
7515	0.334	0.633	0.441	5.387	2.37
7520	0.652	0.618	0.640	5.387	3.45
7538	1.173	0.957	1.100	5.739	6.32
7539	0.274	0.234	0.260	5.387	1.40
7580	0.627	0.779	0.681	5.387	3.67
7590	0.766	0.708	0.746	5.387	4.02
7600	0.869	0.689	0.805	5.387	4.34
7601	0.946	1.068	0.987	5.739	5.66
7610	3.118	2.182	2.737	0.176	0.48
7704	0.854	1.070	0.931	5.387	5.02
7720	0.344	0.353	0.347	5.387	1.87
7855	1.016	0.818	0.950	5.739	5.45
8001	0.954	1.224	1.058	1.921	2.03
8002	0.815	0.969	0.874	1.921	1.68
8006	0.786	0.866	0.817	1.921	1.57
8008	0.468	0.447	0.460	1.921	0.88

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Section IX - Classification Pricing
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 Exhibit 1

Calculation of Average Uncapped Rates All Industry Groups

Class (1)	Balanced Formula Relativity			Uncapped Rate Level Factor (6)	Proposed Average Uncapped Rate (7)
	Indemnity (2)	Medical (4)	Total (5)		
8010	0.796	0.836	0.811	1.921	1.56
8013	0.225	0.252	0.235	1.921	0.45
8017	0.583	0.651	0.610	1.921	1.17
8018	1.805	1.587	1.721	1.921	3.31
8021	1.698	1.677	1.690	1.921	3.25
8031	1.283	1.077	1.203	1.921	2.31
8032	0.912	0.835	0.882	1.921	1.69
8033	1.019	1.230	1.101	1.921	2.11
8034	1.942	1.632	1.822	1.921	3.50
8039	0.613	0.772	0.674	1.921	1.30
8044	1.985	2.702	2.262	1.921	4.35
8046	1.090	1.262	1.157	1.921	2.22
8048	1.666	1.350	1.543	1.921	2.96
8050	0.816	0.858	0.832	1.921	1.60
8058	1.240	1.636	1.394	1.921	2.68
8103	1.608	1.421	1.536	1.921	2.95
8105	4.312	3.459	3.982	1.921	7.65
8106	3.520	3.685	3.584	1.921	6.88
8107	1.491	1.495	1.493	1.921	2.87
8111	1.542	1.458	1.509	1.921	2.90
8116	1.491	1.495	1.493	1.921	2.87
8203	3.537	3.813	3.644	1.921	7.00
8204	2.145	1.963	2.074	1.921	3.98
8215	2.330	2.573	2.424	1.921	4.66
8227	0.884	1.091	0.953	5.739	5.47
8232	3.701	3.866	3.765	1.921	7.23
8233	3.439	3.607	3.504	1.921	6.73
8235	2.471	2.466	2.469	1.921	4.74
8263	2.347	2.769	2.510	1.921	4.82
8264	3.449	3.021	3.283	1.921	6.31
8265	3.439	3.607	3.504	1.921	6.73
8279	2.833	3.672	3.157	1.921	6.06
8291	2.407	2.313	2.371	1.921	4.55
8292	1.628	1.369	1.527	1.921	2.93
8293	5.300	5.539	5.393	1.921	10.36
8350	3.336	3.125	3.254	1.921	6.25
8380	1.785	1.713	1.757	1.921	3.38
8381	0.985	1.303	1.108	1.921	2.13
8385	1.569	1.440	1.519	1.921	2.92
8392	0.914	0.878	0.900	1.921	1.73
8393	1.340	1.107	1.250	1.921	2.40
8500	3.439	3.607	3.504	1.921	6.73

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Calculation of Average Uncapped Rates All Industry Groups

Class (1)	Balanced Formula Relativity			Uncapped Rate Level Factor (6)	Proposed Average Uncapped Rate (7)
	Indemnity (2)	Medical (4)	Total (5)		
8601	1.591	1.658	1.618	0.176	0.28
8710	3.528	2.978	3.315	1.921	6.37
8719	3.528	2.978	3.315	1.921	6.37
8720	0.544	0.462	0.512	1.921	0.98
8721	2.028	4.562	3.057	0.176	0.54
8742	0.960	0.973	0.965	0.176	0.17
8745	3.291	4.066	3.591	1.921	6.90
8747	0.567	0.503	0.542	1.921	1.04
8748	3.951	3.752	3.870	0.176	0.68
8800	7.843	7.137	7.557	0.176	1.33
8803	0.221	0.241	0.229	0.176	0.04
8810	0.423	0.451	0.434	0.176	0.08
8820	0.562	0.507	0.540	0.176	0.09
8829	1.245	1.081	1.182	1.921	2.27
8831	0.426	0.755	0.554	1.921	1.06
8832	2.102	1.735	1.953	0.176	0.34
8833	8.329	7.032	7.802	0.176	1.37
8835	1.261	1.000	1.160	1.921	2.23
8868	4.872	5.386	5.081	0.176	0.89
8901	0.423	0.451	0.434	0.176	0.08
9014	1.746	1.487	1.646	1.921	3.16
9015	1.944	1.607	1.813	1.921	3.48
9016	0.982	1.725	1.270	1.921	2.44
9019	0.583	0.357	0.502	5.387	2.70
9033	2.103	1.783	1.979	1.921	3.80
9040	1.749	1.719	1.738	1.921	3.34
9052	1.030	1.022	1.027	1.921	1.97
9058	0.845	0.873	0.856	1.921	1.64
9060	0.496	0.635	0.550	1.921	1.06
9061	0.509	0.571	0.533	1.921	1.02
9063	0.401	0.533	0.452	1.921	0.87
9079	0.567	0.713	0.623	1.921	1.20
9089	0.566	0.685	0.612	1.921	1.18
9093	0.563	0.912	0.698	1.921	1.34
9101	1.527	1.862	1.657	1.921	3.18
9102	0.496	0.617	0.539	5.387	2.90
9154	0.375	0.492	0.417	5.387	2.24
9156	8.591	10.657	9.430	0.176	1.66
9178	1.565	4.750	2.700	5.387	14.55
9179	5.518	5.440	5.490	5.387	29.58
9180	0.648	1.164	0.832	5.387	4.48
9182	0.526	1.005	0.697	5.387	3.75

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Calculation of Average Uncapped Rates All Industry Groups

Class (1)	Balanced Formula Relativity			Uncapped Rate Level Factor (6)	Proposed Average Uncapped Rate (7)
	Indemnity (2)	Medical (4)	Total (5)		
9186	0.648	1.164	0.832	5.387	4.48
9220	1.857	1.736	1.810	1.921	3.48
9402	0.996	0.930	0.973	5.387	5.24
9403	2.074	1.831	1.987	5.387	10.71
9410	1.350	1.929	1.574	1.921	3.02
9501	1.142	1.287	1.196	2.135	2.55
9505	1.142	1.287	1.196	2.135	2.55
9519	2.184	2.157	2.173	1.921	4.17
9521	1.818	1.550	1.718	2.135	3.67
9522	0.954	0.846	0.914	2.135	1.95
9533	3.143	2.610	2.965	5.739	17.01
9534	1.338	1.525	1.400	5.739	8.04
9545	0.784	0.784	0.784	5.739	4.50
9549	0.925	0.866	0.906	5.739	5.20
9552	1.375	1.239	1.330	5.739	7.63
9553	1.375	1.239	1.330	5.739	7.63
9586	0.221	0.190	0.209	1.921	0.40
9620	0.404	0.434	0.415	1.921	0.80

Notes:

(2), (3), (4), (5): Section IX - G.

(6): Section IX - H, Exhibit 1.

(7) = (5) x (6)

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Section IX - Classification Pricing
Subsection J - Average Rates and Proposed Premium Change
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Section IX - J
Exhibit 1

Comparison of Average Rates All Industry Groups

Class (1)	Present Average Capped Rate (2)	Proposed Average Uncapped Rate (3)	Proposed Average Capped Rate (4)
0005	2.72	2.68	2.69
0008	2.56	2.65	2.66
0016	4.03	4.74	4.76
0034	4.01	4.73	4.75
0035	2.17	2.51	2.52
0036	4.01	4.73	4.75
0037	2.56	2.65	2.66
0042	4.30	4.49	4.51
0046	2.67	2.05	2.32
0050	6.25	6.87	6.89
0079	2.71	4.30	3.44
0083	5.31	4.32	4.61
0106	16.54	14.24	14.39
0113	4.01	4.73	4.75
0170	4.01	4.73	4.75
0251	3.62	3.45	3.48
0908	88.68	94.00	94.42
0909	154.93	173.98	174.76
0912	309.86	347.96	349.52
0913	177.36	187.99	188.83
0917	2.93	3.77	3.71
0918	0.68	0.63	0.64
1430	10.72	5.64	9.11
1438	3.15	3.47	3.56
1463	8.66	9.68	9.94
1624	5.59	5.07	5.12
1655	5.73	4.38	4.97
1701	4.43	3.39	3.77
1710	5.59	5.07	5.12
1747	3.71	3.11	3.20
1748	3.01	3.44	3.53
1852	6.90	6.25	6.42
1853	1.62	1.71	1.75
1860	2.41	2.09	2.15
1924	2.40	2.10	2.16
1925	3.99	7.78	4.99
2001	3.39	3.69	3.79
2002	3.41	2.71	2.90
2003	3.39	3.69	3.79
2014	3.49	3.75	3.85
2021	3.03	2.99	3.07
2039	2.56	3.40	3.20
2041	2.34	2.88	2.93
2070	3.90	4.39	4.50
2081	3.58	4.51	4.47
2089	2.30	3.23	2.87
2095	3.88	3.72	3.82
2101	2.30	3.23	2.87

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Section IX - J
Exhibit 1

Comparison of Average Rates All Industry Groups

Class (1)	Present Average Capped Rate (2)	Proposed Average Uncapped Rate (3)	Proposed Average Capped Rate (4)
2111	2.42	2.33	2.39
2114	2.30	3.23	2.87
2115	3.50	4.57	4.37
2121	1.97	1.54	1.67
2130	2.46	2.01	2.09
2131	2.16	2.52	2.58
2143	2.82	1.98	2.39
2150	5.45	5.44	5.59
2156	7.21	5.79	6.12
2157	5.23	4.33	4.44
2172	1.89	2.36	2.37
2174	4.15	3.60	3.70
2211	5.79	7.53	7.23
2220	3.26	2.99	3.07
2260	6.16	7.42	7.62
2286	3.26	2.99	3.07
2288	2.45	3.54	3.06
2302	3.26	2.99	3.07
2305	2.28	3.83	2.85
2362	2.17	1.69	1.84
2380	2.64	2.59	2.66
2402	2.80	2.32	2.38
2413	3.25	3.80	3.90
2416	2.97	2.73	2.80
2417	3.31	3.85	3.95
2501	2.17	2.19	2.25
2503	1.01	1.18	1.21
2534	2.17	2.19	2.25
2570	4.50	6.69	5.62
2576	2.95	2.01	2.51
2578	2.95	2.01	2.51
2585	3.19	3.48	3.58
2586	1.56	1.77	1.82
2587	2.85	4.66	3.61
2623	3.96	5.24	4.95
2640	2.24	1.77	1.90
2651	2.24	1.77	1.90
2660	1.90	1.87	1.92
2683	1.96	1.78	1.83
2688	2.54	2.58	2.65
2702	16.67	16.98	17.16
2710	6.76	7.43	7.63
2731	4.28	3.63	3.73
2741	5.52	7.04	6.90
2747	7.07	5.95	6.11
2790	2.06	1.84	1.89
2802	4.12	4.77	4.89
2835	2.04	2.04	2.09

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Comparison of Average Rates All Industry Groups

Class (1)	Present Average Capped Rate (2)	Proposed Average Uncapped Rate (3)	Proposed Average Capped Rate (4)
2836	2.93	2.18	2.49
2841	3.60	4.00	4.10
2883	3.34	3.33	3.42
2923	1.81	1.66	1.70
2942	2.06	1.89	1.94
3018	3.17	3.67	3.77
3022	3.58	3.73	3.83
3027	4.35	5.05	5.18
3028	3.96	2.93	3.36
3030	7.58	6.51	6.68
3040	7.36	5.99	6.26
3041	4.45	5.11	5.25
3042	5.31	6.59	6.63
3064	2.74	3.06	3.15
3066	2.74	3.06	3.15
3076	2.43	2.48	2.55
3081	7.52	5.17	6.39
3082	7.52	5.17	6.39
3085	4.49	4.74	4.87
3110	7.66	8.85	9.09
3111	2.35	2.31	2.37
3113	2.00	1.43	1.70
3114	3.30	2.55	2.81
3118	2.00	1.74	1.78
3119	0.94	0.88	0.90
3120	1.78	1.59	1.63
3122	2.38	1.83	2.03
3127	0.82	1.15	1.02
3131	1.95	1.59	1.66
3132	3.10	3.63	3.73
3145	1.77	1.69	1.73
3146	1.93	1.90	1.95
3169	3.96	3.04	3.36
3179	1.55	1.22	1.31
3180	2.64	2.85	2.93
3188	3.13	1.72	2.66
3200	2.91	2.48	2.55
3220	2.30	3.66	2.88
3227	3.96	3.04	3.36
3241	2.40	2.10	2.16
3255	3.17	2.70	2.78
3257	2.80	2.78	2.86
3270	2.30	2.20	2.26
3300	6.50	4.22	5.52
3315	3.04	3.87	3.79
3336	3.30	4.38	4.12
3365	9.10	7.35	7.78
3372	2.29	2.57	2.64

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Comparison of Average Rates All Industry Groups

Class (1)	Present Average Capped Rate (2)	Proposed Average Uncapped Rate (3)	Proposed Average Capped Rate (4)
3373	4.05	3.82	3.92
3381	3.09	2.75	2.82
3383	1.28	1.53	1.57
3385	0.79	0.82	0.84
3400	3.96	3.04	3.36
3507	3.08	2.98	3.06
3515	2.66	2.79	2.86
3548	1.78	1.78	1.82
3558	0.72	1.02	0.89
3559	1.78	1.78	1.82
3571	1.14	0.98	1.00
3574	1.78	1.78	1.82
3612	1.80	2.04	2.10
3620	5.84	5.78	5.93
3629	1.78	1.78	1.82
3632	1.78	1.78	1.82
3634	1.74	1.74	1.78
3635	3.57	3.02	3.10
3638	1.78	1.78	1.82
3642	1.08	1.15	1.18
3643	1.55	1.71	1.76
3647	2.58	1.99	2.19
3648	1.61	1.43	1.47
3681	0.75	0.88	0.90
3685	0.75	0.69	0.71
3724	5.15	5.25	5.26
3726	14.51	8.63	12.41
3807	3.96	3.04	3.36
3808	3.53	3.15	3.23
3821	4.64	4.41	4.43
3826	2.80	5.35	3.50
3830	1.78	1.78	1.82
3841	1.67	1.42	1.45
4000	4.62	4.69	4.74
4021	4.00	4.17	4.28
4024	2.90	3.15	3.23
4034	5.40	7.00	6.75
4036	2.63	2.42	2.49
4038	2.23	3.44	2.79
4053	1.89	1.92	1.97
4061	2.77	1.97	2.36
4062	2.77	1.97	2.36
4112	0.64	0.69	0.71
4113	1.89	1.92	1.97
4114	2.46	2.26	2.32
4130	4.67	3.58	3.97
4133	1.85	1.84	1.89
4150	0.94	0.71	0.80

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Comparison of Average Rates All Industry Groups

Class (1)	Present Average Capped Rate (2)	Proposed Average Uncapped Rate (3)	Proposed Average Capped Rate (4)
4239	3.16	2.70	2.77
4243	3.21	3.84	3.94
4244	3.54	2.70	3.01
4250	1.97	2.39	2.45
4251	1.81	2.44	2.27
4273	2.87	2.21	2.44
4279	3.38	2.19	2.87
4282	0.83	0.81	0.83
4283	2.74	2.09	2.33
4299	2.00	2.01	2.06
4301	4.80	5.66	5.81
4304	3.64	5.28	4.54
4307	1.49	1.85	1.86
4308	1.10	2.52	1.38
4350	0.59	0.62	0.64
4351	1.01	0.88	0.90
4352	1.04	1.88	1.30
4360	1.21	0.88	1.03
4361	0.55	0.80	0.71
4362	0.66	0.66	0.67
4410	4.22	2.94	3.59
4417	4.91	4.67	4.80
4432	1.18	1.11	1.14
4439	2.83	3.76	3.54
4452	3.27	3.62	3.72
4459	2.84	2.94	3.02
4470	2.67	2.01	2.27
4484	2.28	2.25	2.32
4493	3.08	2.71	2.78
4511	0.33	0.31	0.31
4512	0.14	0.13	0.13
4557	1.71	2.08	2.14
4558	1.64	1.45	1.49
4561	2.83	3.76	3.54
4583	3.05	3.84	3.82
4611	1.47	0.75	1.25
4635	3.49	5.12	4.37
4653	2.92	2.16	2.48
4665	7.95	6.81	6.99
4692	0.61	0.66	0.68
4693	0.92	0.99	1.02
4720	1.77	2.00	2.05
4740	1.16	1.24	1.27
4741	3.11	2.26	2.64
4771	10.63	7.59	9.03
4777	3.05	3.84	3.82
4825	0.70	0.73	0.75
4828	1.19	1.04	1.07

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Comparison of Average Rates All Industry Groups

Class (1)	Present Average Capped Rate (2)	Proposed Average Uncapped Rate (3)	Proposed Average Capped Rate (4)
4829	1.19	1.04	1.07
4902	2.06	1.89	1.94
4923	1.21	0.88	1.03
5020	5.88	5.13	5.14
5022	9.93	10.21	10.24
5037	22.12	23.86	23.93
5040	56.23	62.19	62.37
5057	31.04	27.44	27.53
5059	31.04	18.38	26.55
5069	31.04	18.38	26.55
5102	6.48	6.45	6.47
5146	5.55	7.81	6.97
5160	3.96	3.28	3.39
5183	3.30	3.63	3.64
5188	4.30	5.49	5.39
5190	2.78	2.75	2.76
5191	1.09	1.00	1.01
5192	3.80	3.27	3.30
5213	17.74	16.27	16.32
5215	5.02	5.95	5.96
5221	6.49	7.13	7.15
5222	9.05	11.78	11.36
5223	5.02	4.52	4.54
5348	6.01	5.34	5.36
5402	10.81	8.38	9.25
5403	10.00	11.58	11.61
5437	4.92	5.81	5.83
5443	4.96	4.20	4.24
5445	7.53	7.26	7.28
5462	9.01	8.10	8.13
5472	9.10	9.76	9.79
5473	11.86	10.79	10.82
5474	5.29	5.95	5.97
5478	4.86	6.28	6.11
5479	8.09	9.37	9.40
5480	4.87	4.89	4.90
5506	7.18	7.21	7.23
5507	7.33	8.05	8.07
5508	6.25	6.87	6.89
5509	3.23	3.91	3.92
5538	5.38	4.45	4.60
5545	32.22	39.19	39.31
5547	16.06	14.20	14.25
5606	1.69	1.97	1.98
5610	5.64	7.99	7.08
5645	8.17	8.54	8.56
5651	8.17	8.54	8.56
5701	22.41	26.73	26.81

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Comparison of Average Rates All Industry Groups

Class (1)	Present Average Capped Rate (2)	Proposed Average Uncapped Rate (3)	Proposed Average Capped Rate (4)
5703	25.13	15.11	21.50
5705	10.49	14.20	13.17
6003	12.15	11.01	11.05
6005	6.25	6.87	6.89
6204	9.14	7.34	7.81
6217	4.52	4.77	4.78
6229	4.52	4.80	4.82
6233	3.97	4.45	4.46
6251	6.12	6.68	6.70
6252	8.14	10.87	10.21
6306	7.91	10.67	9.93
6319	4.72	4.72	4.73
6325	4.55	5.04	5.05
6400	6.63	6.31	6.33
6504	2.30	3.23	2.87
6834	2.86	2.71	2.74
6836	2.80	4.53	3.55
7219	9.52	10.67	10.78
7230	7.18	11.05	9.09
7231	7.28	10.81	9.23
7360	6.30	6.10	6.17
7370	4.92	4.28	4.32
7380	6.46	6.64	6.71
7382	4.18	4.06	4.10
7403	5.16	5.74	5.80
7405	1.42	1.64	1.66
7420	6.75	8.91	8.55
7421	2.16	1.79	1.87
7422	2.16	1.79	1.87
7425	3.70	2.91	3.21
7431	2.16	1.79	1.87
7502	3.60	2.37	3.12
7515	2.43	2.37	2.40
7520	3.62	3.45	3.48
7538	5.60	6.32	6.33
7539	1.36	1.40	1.41
7580	2.84	3.67	3.60
7590	5.96	4.02	5.16
7600	3.71	4.34	4.38
7601	5.60	5.66	5.68
7610	0.21	0.48	0.27
7704	2.08	5.02	2.63
7720	1.98	1.87	1.89
7855	5.80	5.45	5.47
8001	1.68	2.03	2.04
8002	2.14	1.68	1.86
8006	1.64	1.57	1.58
8008	0.73	0.88	0.89

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Comparison of Average Rates All Industry Groups

Class (1)	Present Average Capped Rate (2)	Proposed Average Uncapped Rate (3)	Proposed Average Capped Rate (4)
8010	1.55	1.56	1.57
8013	0.46	0.45	0.45
8017	1.17	1.17	1.18
8018	3.04	3.31	3.32
8021	2.94	3.25	3.26
8031	2.57	2.31	2.32
8032	1.59	1.69	1.70
8033	2.02	2.11	2.12
8034	3.92	3.50	3.52
8039	1.52	1.30	1.32
8044	3.69	4.35	4.37
8046	2.48	2.22	2.23
8048	3.07	2.96	2.98
8050	1.64	1.60	1.61
8058	2.70	2.68	2.69
8103	3.11	2.95	2.96
8105	4.67	7.65	5.92
8106	7.28	6.88	6.91
8107	3.74	2.87	3.25
8111	3.14	2.90	2.91
8116	3.74	2.87	3.25
8203	5.89	7.00	7.03
8204	5.12	3.98	4.45
8215	3.38	4.66	4.29
8227	4.09	5.47	5.13
8232	4.97	7.23	6.31
8233	8.26	6.73	7.18
8235	4.37	4.74	4.76
8263	6.56	4.82	5.70
8264	5.37	6.31	6.34
8265	8.26	6.73	7.18
8279	5.02	6.06	6.09
8291	4.64	4.55	4.57
8292	3.63	2.93	3.15
8293	9.52	10.36	10.40
8350	6.12	6.25	6.28
8380	2.82	3.38	3.39
8381	1.93	2.13	2.14
8385	3.12	2.92	2.93
8392	1.42	1.73	1.74
8393	1.99	2.40	2.41
8500	8.26	6.73	7.18
8601	0.30	0.28	0.29
8710	2.51	6.37	3.18
8719	2.51	6.37	3.18
8720	0.95	0.98	0.99
8721	0.19	0.54	0.25
8742	0.17	0.17	0.17

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Comparison of Average Rates All Industry Groups

Class (1)	Present Average Capped Rate (2)	Proposed Average Uncapped Rate (3)	Proposed Average Capped Rate (4)
8745	3.77	6.90	4.79
8747	1.08	1.04	1.05
8748	0.51	0.68	0.66
8800	0.87	1.33	1.12
8803	0.05	0.04	0.04
8810	0.09	0.08	0.08
8820	0.10	0.09	0.10
8829	2.17	2.27	2.28
8831	1.15	1.06	1.07
8832	0.25	0.34	0.32
8833	1.23	1.37	1.41
8835	2.05	2.23	2.24
8868	0.70	0.89	0.90
8901	0.09	0.08	0.08
9014	2.69	3.16	3.18
9015	3.13	3.48	3.50
9016	1.81	2.44	2.30
9019	3.41	2.70	2.96
9033	4.39	3.80	3.82
9040	2.77	3.34	3.35
9052	1.65	1.97	1.98
9058	1.65	1.64	1.65
9060	1.06	1.06	1.06
9061	1.01	1.02	1.03
9063	0.75	0.87	0.87
9079	1.21	1.20	1.20
9089	1.27	1.18	1.18
9093	1.23	1.34	1.35
9101	3.49	3.18	3.20
9102	2.58	2.90	2.93
9154	1.38	2.24	1.75
9156	1.26	1.66	1.62
9178	16.66	14.55	14.70
9179	26.56	29.58	29.89
9180	4.58	4.48	4.53
9182	3.89	3.75	3.79
9186	4.58	4.48	4.53
9220	3.44	3.48	3.49
9402	5.66	5.24	5.30
9403	8.94	10.71	10.82
9410	2.23	3.02	2.84
9501	2.79	2.55	2.62
9505	2.79	2.55	2.62
9519	2.90	4.17	3.68
9521	4.03	3.67	3.77
9522	1.75	1.95	2.00
9533	19.68	17.01	17.06
9534	5.83	8.04	7.31

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Exhibit 1

Comparison of Average Rates All Industry Groups

Class (1)	Present Average Capped Rate (2)	Proposed Average Uncapped Rate (3)	Proposed Average Capped Rate (4)
9545	4.26	4.50	4.51
9549	4.82	5.20	5.21
9552	8.29	7.63	7.65
9553	8.29	7.63	7.65
9586	0.45	0.40	0.40
9620	0.75	0.80	0.80

Notes:

(2) = (4) from Section IX - J, Exhibit 1 of the 04/01/2014 stipulation.

(3): Section IX - I.

(4): Total Balanced Formula Relativity (from Section IX - I, Exhibit 1) x Capped Rate Level Factors and subject to maximum and minimum caps (from Section IX - H, Exhibit 1.)

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Section IX - Classification Pricing
Subsection J - Average Rates and Proposed Premium Change
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Section IX - J
Exhibit 2

Summary of Proposed Premium Change All Industry Groups

Industry Group (1)	Present Premium (2)	Proposed Premium (3)	Proposed Change (4)	Target Change (5)	Capped Rate Level Factor (6)
Manufacturing	582,618,204	611,624,511	5.0%	5.0%	2.193
Construction	1,320,439,426	1,393,424,615	5.5%	5.5%	5.756
Office & Clerical	542,268,759	588,676,141	8.6%	8.6%	0.181
Goods & Services	1,361,372,778	1,454,940,802	6.9%	6.9%	1.929
Miscellaneous	611,611,300	652,430,241	6.7%	6.7%	5.444
All Groups	4,418,310,467	4,701,096,310	6.4%		

Notes:

(2) = Exposure x Present Average Rates from Exhibit 1.

(3) = Exposure x Proposed Average Capped Rates from Exhibit 1.

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

(5): Section IX - H, Exhibit 1.

(6): Section IX - H, Exhibit 1. Proposed average uncapped rates are capped by an iterative process using rate levels to determine if the required change is achieved.

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Section IX - Classification Pricing
Subsection K - Adjustments to Derive Final Manual Rates
7/1/2016

Section IX - K
Exhibit 1

Calculation of Proposed Manual Rates

The proposed manual rates in Section IX - A, Exhibit 1 are derived from the proposed average capped rates in Section IX - J, Exhibit 1 as follows:

$$\text{Proposed Manual Rate} = [\text{Proposed Average Rate} / (\text{Factor 1} \times \text{Factor 2} \times \text{Factor 3})] \times [1.000 / (1.000 - \text{Factor 4})]$$

(1)	Factor 1 =	0.968	The offset for Merit Rating and Average Experience Modification
(2)	Factor 2 =	1.052	The offset for ARAP
(3)	Factor 3 =	0.958	For eligible classes, the offset for the Construction Classification Premium Adjustment Program
(4)	Factor 4 =	-0.0022	The loading from the filing of recoupment of amounts paid to the Insolvency Fund

Notes:

- (1): Exhibit 2.
- (2): Exhibit 3.
- (3): Exhibit 4.
- (4): Exhibit 5, Page 1.

Offset for Experience & Merit Rating

Policy Year (1)	Age (2)	Rating Category (3)	Number of Policies (4)	% of Policies = (4) / Total (4) (5)	Manual Premium (6)	% of Manual = (6) / Total (6) (7)	Standard Premium (8)	Historical Average Mod = (8) / (6) (9)	Selected Average Mod (10)
2009	66	Non Rated	71,575	40%	17,991,492	2%	17,988,955	1.000	
		Merit Rated	75,350	42%	137,175,356	17%	134,507,139	0.981	
		Intrastate Rated	17,688	10%	378,026,433	47%	381,381,275	1.009	
		Interstate Rated	15,089	8%	271,300,652	34%	257,971,634	0.951	
		Total	179,702	100%	804,493,933	100%	791,849,003	0.984	
2010	54	Non Rated	76,846	41%	19,446,994	2%	19,441,191	1.000	
		Merit Rated	76,109	41%	139,291,657	16%	136,541,823	0.980	
		Intrastate Rated	18,079	10%	403,355,955	46%	408,500,269	1.013	
		Interstate Rated	15,448	8%	311,569,823	36%	296,442,403	0.951	
		Total	186,482	100%	873,664,429	100%	860,925,686	0.985	
2011	42	Non Rated	78,315	41%	18,887,061	2%	18,885,489	1.000	
		Merit Rated	75,684	40%	139,468,376	15%	136,698,750	0.980	
		Intrastate Rated	18,303	10%	406,164,423	44%	423,307,077	1.042	
		Interstate Rated	17,202	9%	353,821,066	39%	340,122,693	0.961	
		Total	189,504	100%	918,340,926	100%	919,014,009	1.001	
2012	30	Non Rated	85,000	43%	20,260,853	2%	20,258,951	1.000	
		Merit Rated	76,967	39%	142,965,257	15%	140,003,067	0.979	
		Intrastate Rated	18,682	9%	415,356,867	44%	428,725,097	1.032	
		Interstate Rated	18,050	9%	369,639,050	39%	351,054,379	0.950	
		Total	198,699	100%	948,222,027	100%	940,041,494	0.991	
2013	18	Non Rated	88,278	43%	21,030,844	2%	21,028,896	1.000	
		Merit Rated	78,843	38%	147,246,492	15%	144,124,831	0.979	
		Intrastate Rated	19,669	10%	434,345,928	43%	446,472,083	1.028	
		Interstate Rated	19,023	9%	402,570,604	40%	374,044,621	0.929	
		Total	205,813	100%	1,005,193,868	100%	985,670,431	0.981	
Total		Non Rated	400,014	42%	97,617,244	2%	97,603,482	1.000	1.000
		Merit Rated	382,953	40%	706,147,138	16%	691,875,610	0.980	0.980
		Intrastate Rated	92,421	10%	2,037,249,606	45%	2,088,385,801	1.025	1.000
		Interstate Rated	84,812	9%	1,708,901,195	38%	1,619,635,730	0.948	0.924
		Total	960,200	100%	4,549,915,183	100%	4,497,500,623	0.988	0.968

Notes:

Unit Statistical Plan data, excluding Large Deductibles and SIGs.

Non Rated, Merit Rated and Intrastate Rated categories are estimated based on manual premium.

(10): Set to 1.000 for Non Rated and Intrastate Rated. Average Interstate Rated mod adjusted by ratio of average interstate mod adjusted with MA actual losses equal to MA expected losses to average interstate mod. Total of (10) calculated as weighted average of (10) using (6).

IX 000299

Section IX - Classification Pricing
 Subsection K - Adjustments to Derive Final Manual Rates
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Section IX - K
 Exhibit 3

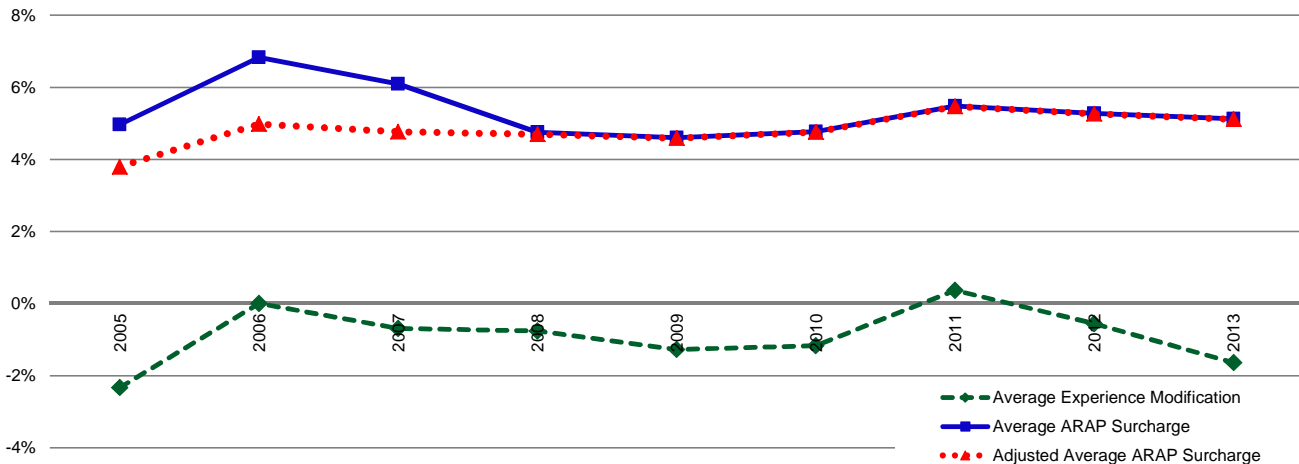
Offset for ARAP Estimate of Average ARAP Surcharge for Prospective Effective Period

Historical Average Experience Modification and ARAP Surcharge

Policy Year (1)	Manual Premium (2)	Standard Premium (3)	ARAP Premium (4)	Adjusted ARAP Premium (5)	Average ARAP Surcharge =(4) / (3) (6)	Average Experience Modification =(3) / (2) - 1.000 (7)	Adjusted Average ARAP Surcharge =(5) / [(3)+(4)-(5)] (8)
2005	1,026,437,295	1,002,528,513	49,807,902	38,486,929	5.0%	-2.3%	3.8%
2006	1,031,565,700	1,031,637,783	70,457,323	52,270,936	6.8%	0.0%	5.0%
2007	996,554,922	989,659,602	60,294,905	47,767,939	6.1%	-0.7%	4.8%
2008	831,849,797	825,540,573	39,209,431	38,814,926	4.7%	-0.8%	4.7%
2009	802,103,348	791,849,003	36,429,335	36,350,690	4.6%	-1.3%	4.6%
2010	871,101,143	860,925,686	41,071,742	40,984,794	4.8%	-1.2%	4.8%
2011	915,618,912	919,014,009	50,389,563	50,280,063	5.5%	0.4%	5.5%
2012	945,333,717	940,041,494	49,592,635	49,475,432	5.3%	-0.6%	5.3%
2013	1,002,110,960	985,670,431	50,489,295	50,386,566	5.1%	-1.6%	5.1%

Regression of Average ARAP Surcharge on Average Experience Modification

(9) R-Squared	0.595
(10) Slope	0.451
(11) Intercept	0.052
(12) Projected Average ARAP Surcharge = (11)	0.052



Notes:

(2)-(4): Unit Statistical Plan data, excluding Large Deductibles and SIGs. ARAP adjusted from company level to DSR level.
 (5): (4) adjusted to maximum ARAP surcharge factor of 1.25.

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Section IX - Classification Pricing
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Section IX - K
Exhibit 4

Construction Class Premium Adjustment Program

Policy Year (1)	Manual Premium for Eligible Class Codes (2)	Construction Credit (3)	Percent (4)
2012	300,940,336	17,613,478	4.3%
2013	327,001,432	18,576,392	4.2%
(5) Selected Average Credit for Eligible Class Codes in Prospective Effective Period			4.2%

Note:

(2),(3): Unit Statistical Plan data, excluding Large Deductibles and SIGs.

(4): $[(3) / (2)] \times$ ratio of the average proposed structure credit to the existing structure credit.

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Section IX - Classification Pricing
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Exhibit 5
Page 1

Loading for Recoupment of Insolvency Fund Assessments

Unanticipated Insolvency Assessment Recoupments

(1)	Estimated Written Premium for the Policy Period beginning 4/1/15 and ending 6/30/16, absent Insolvency loads	1,596,575,394
(2)	Unanticipated Insolvency Assessment Recoupment Rate (As a % of premium absent insolvency loads)	0.19%
(3)	Unanticipated Insolvency Assessment Recoupments	3,033,493
(4)	Interest Adjustment Factor	1.013
(5)	Adjusted Unanticipated Insolvency Assessment Recoupments	3,072,322

Net Assessments

(6)	Amount Sufficient to Recoup Assessment	0
(7)	Net Assessments	(3,072,322)

Loading for Recoupment

(8)	Estimated Written Premium in the Prospective Effective Period, absent insolvency loads	1,389,122,801
(9)	Indicated Loading for Recoupment of Insolvency Fund Assessments	-0.22%

Notes:

(1): consistent with Page 2.

(2): loading for insolvency fund in 04/01/2014 effective rates.

(3) = (1) x (2)

(4): 1.1% is the risk-free rate of interest, shown in Section VII-J, Exhibit 1, Page 1 compounded from the expected collection date of the unanticipated insolvency assessment recoupments to the average date the assessment will be recouped or returned.

(5) = (3) x (4)

(6): No Assessments in 2014 or 2015.

(7) = (6) - (5)

(8): Page 2.

(9) = (7) / [(7) + (8)]

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Exhibit 5
Page 2

Expected Workers' Compensation Written Premium in Prospective Effective Period

(1)	2014 Calendar Year Written Premium, absent insolvency loads	1,224,684,265
(2)	Estimated Exposure Growth Factor from Calendar Year 2014 to Policy Period ending 6/30/16	1.039
(3)	Rate Change from Calendar Year 2014 Written to the Policy Period ending 6/30/16	0.0%
(4)	Estimated Written Premium for the Policy Period ending 6/30/16, absent Insolvency Loads = (1) x (2) x [1.0 + (3)]	1,272,286,799
(5)	Estimated Exposure Growth Factor from the Policy Period ending 6/30/16 to the Prospective Effective Period	1.026
(6)	Average Indicated Rate Change	6.4%
(7)	Estimated Written Premium in Prospective Effective Period, absent insolvency loads = (4) x (5) x [1.0 + (6)]	1,389,122,801

Notes:

- (1): Adjusted to remove any loading for recoupment of insolvency fund assessments.
- (2): Assumes a 2.6% (from Section V-H, Exhibit 3).
- (3): The 4/1/14 rate change was 0.0%.
- (5): Assumes a 2.6% annual change (from Section V-H, Exhibit 3) compounded for 1 year.
- (6): Section I-A, Exhibit 1.

IX 000303

Pricing Example for Class 2660 Boot Or Shoe Mfg Noc

Calculation of MA Indicated Relativity:

(A). Limited Losses (Unit Statistical Plan data, excluding Large Deductibles)									
	Policy Year	Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
		Indemnity	2009	0	0	0	0	0	
2010	0		0	0	0	0	0	62	0
2011	0		0	0	0	55,116	0	0	0
2012	0		0	0	0	7,424	0	2,636	0
2013	0		0	0	0	0	0	1,519	0
Medical	2009	0	0	0	0	0	0	0	2,183
	2010	0	0	0	0	0	0	2,712	4,851
	2011	0	0	0	0	64,187	0	0	2,537
	2012	0	0	0	0	2,766	0	1,349	1,153
	2013	0	0	0	0	0	0	7,015	0

(B). Primary Conversion Factors (Section IX - B, Exhibit 1, Page 1)									
	Policy Year	Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
		Indemnity	2009	0.969	0.972	0.968	0.989	0.992	
2010	1.015		1.013	1.013	1.036	1.034	0.999	0.996	0.000
2011	1.068		1.052	1.065	1.085	1.069	1.052	1.037	0.000
2012	1.276		1.200	1.270	1.289	1.211	1.259	1.184	0.000
2013	1.835		1.562	1.825	1.847	1.573	1.811	1.542	0.000
Medical	2009	0.910	0.960	0.910	0.910	0.960	0.910	0.960	0.745
	2010	0.944	1.007	0.944	0.944	1.007	0.944	1.007	0.760
	2011	0.949	0.985	0.949	0.949	0.985	0.949	0.985	0.807
	2012	0.994	0.968	0.994	0.994	0.968	0.994	0.968	0.863
	2013	1.101	0.989	1.101	1.101	0.989	1.101	0.989	0.904

(C). Converted Limited Losses [(A) x (B)]									
	Policy Year	Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
		Indemnity	2009	0	0	0	0	0	
2010	0		0	0	0	0	0	62	0
2011	0		0	0	0	58,914	0	0	0
2012	0		0	0	0	8,990	0	3,120	0
2013	0		0	0	0	0	0	2,342	0
Medical	2009	0	0	0	0	0	0	0	1,625
	2010	0	0	0	0	0	0	2,731	3,686
	2011	0	0	0	0	63,212	0	0	2,048
	2012	0	0	0	0	2,678	0	1,306	995
	2013	0	0	0	0	0	0	6,937	0

IX 000304

Section IX - Classification Pricing
 Subsection L - Pricing Example
 7/1/2016

Section IX - L
 Exhibit 1
 Page 2

Pricing Example for Class 2660 Boot Or Shoe Mfg Noc

Calculation of MA Indicated Relativity:

		(D). Unadjusted Excess Losses [(Excess Factor -1.0) x (C)]							
Policy Year		Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2009	0	0	0	0	0	0	0	0
	2010	0	0	0	0	0	0	8	0
	2011	0	0	0	0	7,356	0	0	0
	2012	0	0	0	0	1,122	0	390	0
	2013	0	0	0	0	0	0	292	0
Medical	2009	0	0	0	0	0	0	0	203
	2010	0	0	0	0	0	0	341	460
	2011	0	0	0	0	7,893	0	0	256
	2012	0	0	0	0	334	0	163	124
	2013	0	0	0	0	0	0	866	0

		(E). Adjusted Excess Losses							
Policy Year		Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2009	0	0	0	0	0	0	0	0
	2010	0	0	0	0	0	0	5	0
	2011	0	0	0	0	5,149	0	0	0
	2012	0	0	0	0	786	0	273	0
	2013	0	0	0	0	0	0	205	0
Medical	2009	0	0	0	0	0	0	0	203
	2010	0	0	0	0	0	0	343	460
	2011	0	0	0	0	10,099	0	0	256
	2012	0	0	0	0	671	0	280	124
	2013	0	0	0	0	0	0	954	0

		(F). Secondary Conversion Factors				
		Fatal	Permanent	Permanent Partial	Temporary Total	Medical
Indemnity		1.043	1.000	1.224	1.232	0.000
Medical		1.200	0.999	1.223	1.231	1.200

		(G). Converted Unlimited Losses							
Policy Year		Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2009	0	0	0	0	0	0	0	0
	2010	0	0	0	0	0	0	83	0
	2011	0	0	0	0	78,439	0	0	0
	2012	0	0	0	0	11,969	0	4,178	0
	2013	0	0	0	0	0	0	3,137	0
Medical	2009	0	0	0	0	0	0	0	2,194
	2010	0	0	0	0	0	0	3,783	4,975
	2011	0	0	0	0	89,693	0	0	2,765
	2012	0	0	0	0	4,098	0	1,952	1,343
	2013	0	0	0	0	0	0	9,711	0

		(H). Total					
Policy Year	Exposure	Indemnity			Medical		
		LD	NLD	LD	NLD	LD	NLD
2009	33,512	0	0	0	0	2,194	
2010	38,376	0	83	0	8,759		
2011	43,694	0	78,439	0	92,458		
2012	48,173	0	16,147	0	7,393		
2013	44,048	0	3,137	0	9,711		
Total	207,803	0	97,805	0	120,515		

	Indemnity	Medical
(I). Indicated Pure Premium	0.471	0.580
(J). Manufacturing Industry Group Pure Premium	1.080	0.644
(K). MA Indicated Relativity	0.436	0.901

Notes:

(E): Indemnity Adjusted Excess Losses = Indemnity Unadjusted Excess Losses x 0.7

Medical Adjusted Excess Losses = Medical Unadjusted Excess Losses + 0.3 x Indemnity Unadjusted Excess Losses

(F): Section IX-B, Exhibit 1, Page 3.

(G) = [(C) + (E)] x (F)

(I) = Total Losses / Total Exposure

(J): Industry Group Pure Premium from Section IX - C, Exhibit 1, Page 2.

(K) = (I) / (J)

IX 000305

Pricing Example for Class 2660 Boot Or Shoe Mfg Noc

Calculation of Countrywide Relativity

State (1)	State Code (2)	Losses				Lost-Time Claims		Payroll (9)
		Indemnity		Medical		Likely (7)	Not-Likely (8)	
		Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)			
Alabama	1	0	0	0	0	0	0	0
Arizona	2	0	1,544	0	23,440	0	1	4,723,750
Arkansas	3	5,111	36,564	25,811	249,095	1	14	40,894,282
Colorado	5	0	0	0	1,104	0	0	2,168,734
Connecticut	6	0	0	0	0	0	0	76,924
D.C.	8	0	0	0	0	0	0	0
Florida	9	0	29,015	0	52,015	0	5	3,971,082
Georgia	10	0	34,400	0	47,101	0	2	1,489,359
Idaho	11	0	0	0	0	0	0	1,030,943
Illinois	12	255,381	175,871	196,029	146,669	14	11	15,504,804
Indiana	13	0	0	0	4,885	0	0	2,667,118
Iowa	14	0	0	0	0	0	0	535,553
Kansas	15	0	0	0	0	0	0	0
Kentucky	16	0	2,459	0	21,703	0	3	5,746,854
Louisiana	17	0	0	0	0	0	0	0
Maine	18	71,757	394,447	60,052	1,290,701	2	37	106,182,553
Maryland	19	0	0	0	0	0	0	28,756
Minnesota	22	0	2,849	0	22,698	0	1	4,758,447
Mississippi	23	0	0	0	0	0	0	0
Missouri	24	215,784	390,322	313,659	760,094	10	55	68,532,223
Montana	25	0	13,889	0	80,711	0	2	565,333
Nebraska	26	0	0	0	0	0	0	897,406
Nevada	27	0	0	0	0	0	0	105,728
New Hampshire	28	0	25,017	0	27,520	0	5	1,344,989
New Mexico	30	0	0	0	0	0	0	132,093
North Carolina	32	0	160,818	0	100,694	0	10	10,226,668
Oklahoma	35	0	0	0	0	0	0	0
Oregon	36	0	204,486	0	300,987	0	15	34,365,706
Rhode Island	38	0	0	0	0	0	0	59,526
South Carolina	39	0	0	0	1,445	0	0	5,858,310
South Dakota	40	0	0	0	0	0	0	0
Tennessee	41	0	95,353	0	296,184	0	16	15,397,304
Utah	43	0	0	0	988	0	0	281,679
Vermont	44	0	0	0	0	0	0	14,695
Virginia	45	0	3,424	0	14,136	0	1	8,801,783
West Virginia	47	0	0	0	0	0	0	0
Hawaii	52	0	0	0	0	0	0	1,746,370
Alaska	54	0	0	0	0	0	0	0
Total		548,033	1,570,458	595,551	3,442,170	27	178	338,108,972

Note:
 (3) - (9): Data are total for latest three policy years. See Section IX-D, Exhibit 3.

IX 000306

Section IX - Classification Pricing
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 7/1/2016

Section IX - L
 Exhibit 2
 Page 2

Pricing Example for Class 2660 Boot Or Shoe Mfg Noc

Calculation of Countrywide Relativity

State (1)	State Code (2)	Manufacturing Pitch Factors		Pure Premiums, on MA Level		Total (7)
		Indemnity (3)	Medical (4)	Indemnity (5)	Medical (6)	
Alabama	1	2.211	0.443	0.000	0.000	
Arizona	2	3.091	0.540	0.101	0.268	
Arkansas	3	3.500	0.790	0.357	0.531	
Colorado	5	1.376	0.500	0.000	0.025	
Connecticut	6	0.639	0.292	0.000	0.000	
D.C.	8	0.465	0.345	0.000	0.000	
Florida	9	1.879	0.462	1.373	0.605	
Georgia	10	1.411	0.747	3.260	2.362	
Idaho	11	1.635	0.383	0.000	0.000	
Illinois	12	0.790	0.375	2.197	0.829	
Indiana	13	3.694	0.705	0.000	0.129	
Iowa	14	0.988	0.316	0.000	0.000	
Kansas	15	1.422	0.424	0.000	0.000	
Kentucky	16	2.521	0.791	0.108	0.299	
Louisiana	17	1.371	0.465	0.000	0.000	
Maine	18	1.099	0.531	0.482	0.675	
Maryland	19	1.279	0.595	0.000	0.000	
Minnesota	22	1.252	0.559	0.075	0.267	
Mississippi	23	1.451	0.521	0.000	0.000	
Missouri	24	1.391	0.465	1.230	0.729	
Montana	25	0.526	0.203	1.292	2.897	
Nebraska	26	1.704	0.473	0.000	0.000	
Nevada	27	1.045	0.171	0.000	0.000	
New Hampshire	28	1.580	0.267	2.938	0.547	
New Mexico	30	1.644	0.511	0.000	0.000	
North Carolina	32	1.236	0.671	1.944	0.661	
Oklahoma	35	0.878	0.383	0.000	0.000	
Oregon	36	1.614	0.631	0.960	0.553	
Rhode Island	38	0.487	0.544	0.000	0.000	
South Carolina	39	1.060	0.673	0.000	0.017	
South Dakota	40	3.125	0.522	0.000	0.000	
Tennessee	41	1.646	0.469	1.020	0.903	
Utah	43	4.652	0.733	0.000	0.257	
Vermont	44	1.105	0.455	0.000	0.000	
Virginia	45	3.033	0.651	0.118	0.105	
West Virginia	47	1.348	0.579	0.000	0.000	
Hawaii	52	1.224	0.500	0.000	0.000	
Alaska	54	1.098	0.218	0.000	0.000	
(8)	Average of (5), (6) weighted by Payroll from Page 1, respectively			0.799	0.621	1.420
(9)	CW Manufacturing Pure Premium			0.965	0.558	1.523
(10)	CW Relativity = (8) / (9)			0.828	1.112	0.932
(11)	CW Relativity, balanced to unity			0.816	1.094	

Notes:

(3), (4) = (MA Total Unlimited Losses) / [(State Pure Premium) x (MA Total Exposure)] for Industry Code 1. See Section IX - D, Exhibit 2.

(5) = 100 x [State Indemnity Losses / State Payroll] x (3), where State Indemnity Losses and State Payroll from page 1.

(6) = 100 x [State Medical Losses / State Payroll] x (4), where State Medical Losses and State Payroll from page 1.

(9) = (8) weighted by MA five year Manufacturing Exposure

(11): Relativities balanced to unity (weighted by MA exposure) over Manufacturing Industry Group.

IX 000307

Section IX - Classification Pricing
 Subsection L - Pricing Example
 7/1/2016

Section IX - L
 Exhibit 3

Pricing Example for Class 2660 Boot Or Shoe Mfg Noc

Calculation of Credibility and Balanced Formula Relativity:

- (1) MA Indicated Relativity
- (2) Countrywide Indicated Relativity
- (3) Relativity to Underlying Present Rate

Injury Type	
Indemnity	Medical
0.436	0.901
0.816	1.094
0.899	1.020

Calculation of MA Credibility:

The MA Credibilities are calculated using the formula $Z=(E / F)^{0.4}$ where E are expected losses for that injury type.

- (4) Adopted Relativity
- (5) Industry Group Pure Premium Underlying Present Rate Factor
- (6) Pure Premium Underlying Present Rate = (4) x (5)
- (7) Expected Losses = (6) x [(Total Exposure from Exhibit 1)]
- (8) Full Credibility Standards
- (9) MA Credibility = Minimum of {100%, [(7) / (8)]^{0.4}}

Injury Type	
Indemnity	Medical
0.885	1.005
0.901	0.609
0.798	0.612
165,754	127,163
27,200,000	6,400,000
13%	21%

Calculation of Countrywide Credibility

The Countrywide Credibilities are calculated using the formula $Z=(E / F)^{0.4}$ where E are the countrywide claim counts for that injury type. The countrywide credibility is limited to no more than half of the complement of the credibility assigned to the Massachusetts data.

- (10) Countrywide Lost-Time Claims
- (11) Countrywide Claim Count Standard
- (12) Countrywide Credibility = Minimum of {[(10) / (11)]^{0.4}, 0.5 x [100% - (9)]}
- (13) Credibility to Underlying Present Rate = 100% - (9) - (12)
- (14) Formula Relativity = [(1) x (9)] + [(2) x (12)] + [(3) x (13)]
- (15) Off Balance Factor

Injury Type	
Indemnity	Medical
205	205
1,150	1,000
44%	40%
43%	39%
0.802	1.025
1.014	1.007

- (16) Balanced Formula Relativity

Injury Type		
Indemnity	Medical	Total
0.791	1.018	0.876

Notes:

- (1): Exhibit 1, Page 2.
- (2): Exhibit 2, Page 2.
- (3): Relativity of (6) to Industry Group average, using 5 year Schedule Z exposure as weights.
- (4): Section IX-F, Exhibit 1.
- (5): Section IX-E, Exhibit 1.
- (8), (11): Section IX-D, Exhibit 1, Page 1.
- (10): Exhibit 2, Page 1.
- (15): Factor to balance Formula relativities across industry group to unity using 5 year Schedule Z exposure by injury type.
- (16) = (14) / (15) , Total Balanced Formula Relativity is the weighted average of Partial Relativities using the MA Industry Group Pure Premium as weights.

IX 000308

Section IX - Classification Pricing
Subsection L - Pricing Example
7/1/2016

Section IX - L
Exhibit 4

Pricing Example for Class 2660 Boot Or Shoe Mfg Noc

Calculation of Proposed Average Rate and Proposed Manual Rate:

(1) Total Balanced Formula Relativity	0.876
(2) Capped Rate Level Factor	2.193
(3) Proposed Average Capped Rate = (1) x (2)	1.92
(4) Offset for Merit Rating	0.968
(5) Offset for ARAP	1.052
(6) Offset for Construction Classification Premium Adjustment Program	1.000
(7) Provision for Insolvency Fund Assessment Recoupment	-0.0022
(8) Proposed Manual Rate = {(3) / [(4) x (5) x (6)]} x {1.000 / [1.000 - (7)]}	1.88
(9) Minimum Premium	225
(10) Loss Constant	0
(11) Expected Loss Rate	0.86
(12) D-Ratio	0.18

Notes:

(1): Exhibit 3.

(2): Section IX-H, Exhibit 1. Proposed average uncapped rates are capped by an iterative process using rate levels to determine if the required change is achieved. Class 2660 is in the Manufacturing Industry Group.

(4), (5), (6), (7): Section IX-K, Exhibit 1. Class 2660 is not eligible for the Construction Credit program.

(9) = {[(8) x 35.0] + (10) + Expense Constant} subject to a maximum of \$500

Where Expense Constant = 159 if (8) x 35 + (10) < 200

= 250 if (8) x 35 + (10) >= 200 and < 1000.

= 338 if (8) x 35 + (10) >= 1000.

(10): No loss constant for Manufacturing classes, \$50 for Construction classes, \$20 for all other classes.

(11) = (3) x Ratio of Experience Rating ELR to Average Rate, from Section X - A, Exhibit 1. Class 2660 is in Hazard Group B.

(12): See text of Section X for an explanation of the calculation of D-Ratios.

EXPERIENCE RATING

Experience rating is a procedure that uses past insurance experience for individual policyholders to predict their future losses. In this procedure, the manual rate for the risk is adjusted by an experience rating modification that serves to increase or decrease the rate for individual policyholders depending on whether that policyholder's past experience has been worse or better than expected.

The experience rating modification for an insured is determined by comparing actual past losses to expected losses. This section of the filing develops elements used in the derivation of Expected Loss Rates (ELRs) and D-Ratios, which are needed for the calculation of experience rating modifications.

Section X-A - Expected Loss Rates

Generally, an insured's experience rating modification is based on its exposure and loss experience for the last three completed policies for which the WCRIBMA has received data. For the purpose of experience rating, we must derive expected losses on a comparable basis for each of those three policy periods. These calculations are detailed in Section X-A and Section X-E.

Expected Losses for an insured are derived by multiplying the ELR for each applicable class by the reported exposure (typically payroll in hundreds) for each class. The proposed ELRs are displayed in Section X-E. The ELR for each class is the product of the proposed average capped rate for that class (as shown in Section IX-J) and the

Ratio of Experience Rating ELR to Average Rate (as calculated in Section X-A) for the hazard group containing the classification. We use the Ratio of Experience Rating ELR to Average Rate to remove the allowances for underwriting profit and expenses (including loss adjustment expenses) from the capped rate, and then adjust the remaining pure premiums to a level comparable to that of the losses entering the experience rating calculation itself. The Ratio of Experience Rating ELR to Average Rate is a composite factor that incorporates elements relating to expenses (Exhibit 1), trend (Exhibit 1), loss limitations (Exhibit 2 & 3), benefit level differences (Exhibit 1), loss development (Exhibits 4 & 5) and investment income (Exhibit 6).

Section X-B - Calculation of D-Ratios

The second task of Section X is to determine the portion of the expected loss that is considered primary. Primary losses are defined as the first \$5,000 of loss per claim. The experience rating formula splits losses into primary losses and excess losses (the loss amount above the primary loss subject to a maximum). In calculating the experience rating modification, primary losses are given more weight than excess losses because primary losses are more predictive than excess losses for purposes of estimating an insured's prospective loss experience.

The D-Ratio is defined as the portion of expected losses that is expected to be primary. In experience rating, multiplication of a risk's expected losses by the appropriate D-Ratio gives the expected primary losses to which the risk's actual primary losses are compared. The proposed D-Ratios are displayed in Section X-E.

The procedure used here for the calculation of D-Ratios is the same general methodology as used in all of the WCRIBMA's filings since 2001. The general methodology is as follows. First, the WCRIBMA calculates partial D-Ratios for indemnity and medical losses from detailed loss data (Section X-B). The loss data is taken from Unit Statistical Plan Data for the three most recent policy years, and is adjusted for law amendment changes and severity trend to the level corresponding with the losses that will be used in experience rating. Indemnity and medical partial D-Ratios are calculated separately.

We calculate final D-Ratios by class as a weighted average of the partial D-Ratios using the formula:

$$"D" \text{ Ratio} = \frac{[(P_i)(D_i) + (P_m)(D_m)]}{[P_i + P_m]}$$

where P_i and P_m are the proposed partial pure premiums for indemnity and medical. D_i and D_m represent the associated partial D-Ratios. The resulting D-Ratios by classification are shown in Section X-E.

Section X-C – Expected Loss Rates for F-Class

The calculations for F-Class rates differ from the state classifications because F-Classes are subject to different benefit provisions than the state classifications. Changes in F-Class rates include a separate calculation for the Ratio of Experience

Rating ELR to Average Rate, shown in Section-X-C, by excluding the loss based assessment from the federal indemnity losses. Additionally, the law factors and loss development factors are weighted by losses to reflect that F-Class benefits can be paid either under state or federal laws. The remaining calculations mirror the calculations for the state classifications from Section X-A.

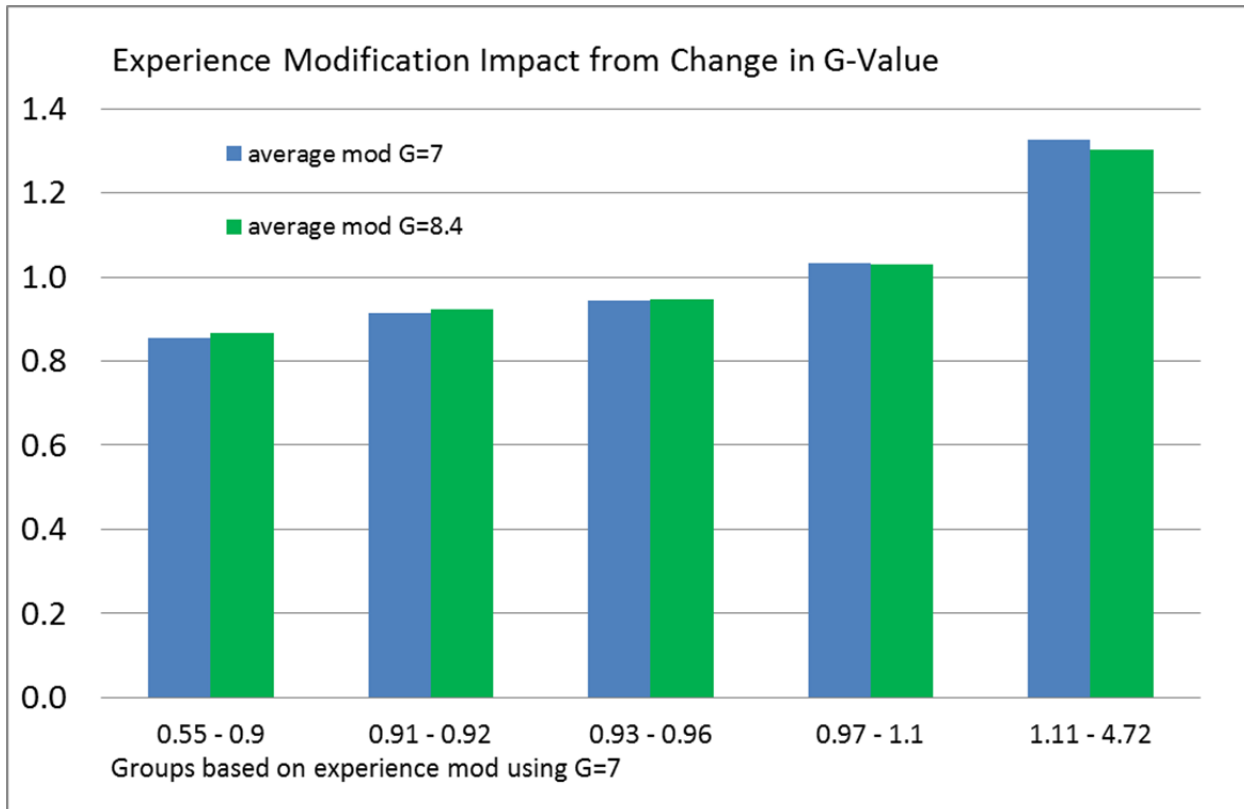
Section X-D – State Reference Point

The experience rating plan recognizes that the loss experience of large insureds is more predictive than the loss experience of small insureds for purposes of predicting future loss experience. Large insureds are expected to have a larger number of claims than small insureds, and a larger number of expected claims effectively provides a larger sample size from which to estimate future loss experience. Consistent with the law of large numbers, as the number of expected claims increases the predictive value of the loss experience increases. When calculating an experience modification in accordance with the rules in the experience rating plan, the predictive value assigned to actual loss experience is based on expected loss dollars instead of expected claim counts. Consequently, increases in claims severity result in higher predictive value being assigned to actual loss experience, all else being equal. In other words, despite no change in sample size (the expected number of claims), the predictive value is deemed to have increased if claims severity increases. To account for this, certain parameters used within the experience rating plan, including the G-Value used to derive the Weighting and Ballast tables, need periodic updates to adjust for changes in claims severity.

X 000005

In this filing, the WCRIBMA began with the estimation of the state average cost per claim (SACC) expected during the prospective effective period for the proposed new rates. The WCRIBMA used the most recent three years of Unit Statistical Plan data and the estimated severity trend factors found in Section V to estimate the SACC. The SACC is then used to derive the State Reference Point, which in turn is used to derive the G-Value needed for updating the Weighting and Ballast tables.¹ The State Reference Point is also used to calculate the State Accident Limitation. The SACC, the selected State Reference Point, and the resulting G-Value are all updated in Section X-D. The WCRIBMA tempered its selection of the State Reference Point to limit the proposed increase in the G-Value to 20%. The current G-Value of 7.0, set in 1991, would be replaced with a value of 8.4. To see how the change in G-Value would impact insureds, we reviewed the impact by experience mod ranges. The chart below shows 2013 intrastate experience modifications grouped into quintiles based on experience modifications using a G-Value of 7.0. The chart compares the average experience modifications using G-Values of 7.0 and 8.4. Increasing the G-Value decreases the amount of credibility an insured's actual experience receives. As shown in the chart below, when the G-Value was increased from 7.0 to 8.4, the groups with an average credit mod saw their average mod increase slightly towards 1.00 and the groups with an average debit mod saw their average mod decrease slightly towards 1.00.

¹ An explanation of the derivation of the various parameters used in experience rating can be found in a paper authored by Gillam, William R. "Workers Compensation Experience Rating: What Every Actuary Should Know" PCAS LXXIX, 1992, P.215-239.



The proposed new Weighting and Ballast tables are shown in Section X-E. The WCRIBMA intends to routinely file updates to these experience rating parameters in future rate filings.

Section X-E – Manual Page

The proposed revised manual pages are shown in Section X-E.

Calculation of ELR Factors

Unit Report / Policy Effective Dates (1)	Hazard Group (2)	Permissible Loss Ratio (3)	Exp Rating LER by Hazard Group (4)	Law Factor (5)	Loss Trend / Payroll Trend (6)	Loss Development to 10th Report (7)	Loss Development from 10th Report to Ult (8)	Investment Income Offset (9)	Ratio of Exp Rating ELR to Average Rate (10)
1st Report 7/1/2014 to 6/30/2015	A	0.613	0.024	1.009	0.963	1.488	1.042	1.018	0.390
	B	0.613	0.062	1.009	0.963	1.517	1.051	1.014	0.366
	C	0.613	0.082	1.009	0.963	1.536	1.057	1.013	0.352
	D	0.613	0.118	1.009	0.963	1.537	1.055	1.014	0.338
	E	0.613	0.229	1.009	0.963	1.560	1.055	0.992	0.298
	F	0.613	0.224	1.009	0.963	1.554	1.055	1.001	0.298
	G	0.613	0.348	1.009	0.963	1.547	1.045	0.967	0.263
2nd Report 7/1/2013 to 6/30/2014	A	0.613	0.029	1.014	0.945	1.177	1.042	1.018	0.498
	B	0.613	0.073	1.014	0.945	1.200	1.051	1.014	0.464
	C	0.613	0.097	1.014	0.945	1.214	1.057	1.013	0.444
	D	0.613	0.139	1.014	0.945	1.215	1.055	1.014	0.423
	E	0.613	0.270	1.014	0.945	1.234	1.055	0.992	0.361
	F	0.613	0.264	1.014	0.945	1.229	1.055	1.001	0.363
	G	0.613	0.410	1.014	0.945	1.223	1.045	0.967	0.305
3rd Report 7/1/2012 to 6/30/2013	A	0.613	0.030	1.016	0.927	1.061	1.042	1.018	0.561
	B	0.613	0.078	1.016	0.927	1.081	1.051	1.014	0.521
	C	0.613	0.103	1.016	0.927	1.094	1.057	1.013	0.498
	D	0.613	0.148	1.016	0.927	1.095	1.055	1.014	0.473
	E	0.613	0.287	1.016	0.927	1.112	1.055	0.992	0.399
	F	0.613	0.280	1.016	0.927	1.107	1.055	1.001	0.400
	G	0.613	0.435	1.016	0.927	1.102	1.045	0.967	0.330
1st - 3rd Report Average	A								0.483
	B								0.450
	C								0.431
	D								0.411
	E								0.353
	F								0.354
	G								0.299

Notes:

- (1): Unit Stat Reports used to experience rate a policy taking effect during the prospective effective period.
- (3): Section VI-J, Exhibit 1, (10).
- (4): Exhibit 2, (10) - (12).
- (5): Section IV-A, Exhibit 1.
- (6): Section V-A, Exhibit 1. Net Trend applied from USR policy effective period to prospective effective period.
- (7): Exhibit 4, Page 1, (6).
- (8): Exhibit 5, Page 1, (7).
- (9): Exhibit 6, (7).
- (10) = { (3) x [1.0 - (4)] } / [(5) x (6) x (7) x (8) x (9)]

X 000007

Loss Elimination Ratios for Losses in Excess of Experience Rating Caps
 By Hazard Group

Hazard Group	Adjusted Total Losses	Adjusted Excess Losses	Implied Loss Elimination Ratio = (3) / (2)	Expected Losses	Expected Losses Wgtd LER	Balanced LER Differential	Selected LER Differential
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A	61,863,756	1,743,221	0.028	81,591,586	0.028	0.16	0.16
B	217,172,714	15,733,978	0.072	270,391,540	0.072	0.41	0.41
C	406,971,213	38,804,374	0.095	526,615,181	0.095	0.54	0.54
D	192,811,531	26,526,825	0.138	242,969,945	0.138	0.78	0.78
E	298,037,582	79,440,240	0.267	380,170,885	0.267	1.51	1.51
F	343,307,164	89,435,359	0.261	468,335,242	0.261	1.48	1.48
G	62,943,933	25,479,226	0.405	83,306,845	0.405	2.29	2.29
Total	1,583,107,893	277,163,221	0.175	2,053,381,226	0.177	1.00	1.00

Loss Elimination Ratio by Hazard Group

Hazard Group	First Report	Second Report	Third Report
(9)	(10)	(11)	(12)
A	0.024	0.029	0.030
B	0.062	0.073	0.078
C	0.082	0.097	0.103
D	0.118	0.139	0.148
E	0.229	0.270	0.287
F	0.224	0.264	0.280
G	0.348	0.410	0.435
Total	0.152	0.179	0.190

Notes:

- (2): Unit Statistical Plan losses, PYs 2011 - 2013. Adjusted by factors from Section X - B, Exhibit 1, Page 2.
- (3): Adjusted losses above per claim limit of \$210,000
- (5): PYs 2011 - 2013, exposure times pure premium underlying present rates.
- (6): Total = (6) Weighted by (5)
- (7) = (6) / [Total for (6)]
- (10) - (12) = [Exhibit 3, (5)] x (8)

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Loss Elimination Ratio
 Factor to Reflect the State Accident Limitation of \$210,000

Report (1)	Injury Type (2)	Adjusted Total Losses (3)	Adjusted Excess Losses (4)	Loss Elimination Ratio = (4) / (3) (5)
1st	Fatal	9,939,515	5,615,109	0.565
1st	Permanent Total	30,397,104	27,912,663	0.918
1st	Permanent Partial	166,836,780	22,737,350	0.136
1st	Temporary Total	227,529,047	13,884,844	0.061
1st	Medical Only	27,647,462	0	0.000
1st	Total	462,349,908	70,149,966	0.152
2nd	Fatal	8,809,141	5,498,021	0.624
2nd	Permanent Total	43,998,923	34,991,392	0.795
2nd	Permanent Partial	269,074,263	39,186,123	0.146
2nd	Temporary Total	190,632,417	16,770,141	0.088
2nd	Medical Only	26,233,228	0	0.000
2nd	Total	538,747,973	96,445,676	0.179
3rd	Fatal	8,426,195	3,987,195	0.473
3rd	Permanent Total	40,912,750	27,800,214	0.680
3rd	Permanent Partial	325,624,686	63,875,927	0.196
3rd	Temporary Total	180,172,775	14,904,243	0.083
3rd	Medical Only	26,873,607	0	0.000
3rd	Total	582,010,012	110,567,579	0.190

Notes:

Unit Statistical Plan losses have been adjusted by multiplying by law amendment changes and severity trend factors from Section X - B, Exhibit 1, Page 2.

(4): Adjusted losses above per claim limit of \$210,000

X 000010

Section X - Experience Rating
 Subsection A - Expected Loss Rates
 7/1/2016

Section X - A
 Exhibit 4
 Page 1

Hazard Group Development Factors to Tenth Report

Development to 10th Report (1)	Hazard Group (2)	Losses at Latest Report (3)	Selected Relativity (4)	Balanced Relativity = (4) / TT(4) (5)	Selected Dev. Factor to 10th Report (6)
1st to 10th	A	17,426,123	0.966	0.966	1.488
1st to 10th	B	56,603,339	0.985	0.984	1.517
1st to 10th	C	111,613,561	0.997	0.997	1.536
1st to 10th	D	56,730,007	0.998	0.997	1.537
1st to 10th	E	90,658,710	1.013	1.012	1.560
1st to 10th	F	97,298,887	1.009	1.008	1.554
1st to 10th	G	11,359,742	1.004	1.004	1.547
1st to 10th	Total	441,690,369	1.000	1.000	1.541
2nd to 10th	A	19,623,646	0.966	0.966	1.177
2nd to 10th	B	71,952,945	0.985	0.985	1.200
2nd to 10th	C	128,865,777	0.997	0.997	1.214
2nd to 10th	D	57,185,022	0.998	0.998	1.215
2nd to 10th	E	86,155,193	1.013	1.013	1.234
2nd to 10th	F	121,836,531	1.009	1.009	1.229
2nd to 10th	G	29,646,812	1.004	1.004	1.223
2nd to 10th	Total	515,265,926	1.000	1.000	1.218
3rd to 10th	A	22,055,652	0.966	0.966	1.061
3rd to 10th	B	78,872,075	0.985	0.985	1.081
3rd to 10th	C	148,195,032	0.997	0.997	1.094
3rd to 10th	D	70,169,144	0.998	0.998	1.095
3rd to 10th	E	107,784,931	1.013	1.013	1.112
3rd to 10th	F	108,694,596	1.009	1.009	1.107
3rd to 10th	G	19,088,004	1.004	1.005	1.102
3rd to 10th	Total	554,859,434	1.000	1.000	1.097

Notes:

(3): See Exhibit 4 Pages 3-5.

(4): See Page 2 for State Classifications for selection. The entry in the "Total" row is the weighted average using incurred losses at latest report in column (3) as the weights.

(6) = (5) x (Total LDF from page (3) - (5))

Hazard Group Reported Loss Development Relativities to Tenth Report

Relativities for State Classification Rates

Hazard Group (1)	Development			Average Relativity (5)	Selected (6)
	3rd Report to 10th Report (2)	2nd Report to 10th Report (3)	1st Report to 10th Report (4)		
A	0.985	0.976	0.938	0.966	0.966
B	0.995	0.984	0.974	0.985	0.985
C	0.999	0.997	0.994	0.997	0.997
D	1.000	1.000	0.992	0.998	0.998
E	1.002	1.009	1.026	1.013	1.013
F	1.003	1.011	1.012	1.009	1.009
G	1.011	0.994	1.007	1.004	1.004

Relativities for F-Class Rates

Hazard Group (7)	Development			Average Relativity (11)	Selected (12)
	3rd Report to 10th Report (8)	2nd Report to 10th Report (9)	1st Report to 10th Report (10)		
C	0.998	0.992	0.985	0.992	0.992
E	1.001	1.005	1.016	1.007	1.007
F	1.001	1.007	1.002	1.003	1.003
G	1.009	0.990	0.998	0.999	0.999

Notes:

(2) - (4): Pages 3 through 5. = [(12) for Hazard Group] / [(12) for Hazard Groups A-G Total]

(5): Average of (2) - (4)

(8) - (10): Pages 3 through 5. = [(12) for Hazard Group] / [(12) for Hazard Groups C,E,F,G Total]

(11): Average of (8) - (10)

X 000011

Loss Development of Schedule Z to Tenth Report by Hazard Group

Policy Year 2013 at 18 Months
 First Report to Tenth Report

Hazard Group	Indemnity Losses Likely To Develop		Indemnity Losses Not Likely To Develop		Medical Losses Likely To Develop		Medical Losses Not Likely To Develop		Total Losses		
	Reported Losses	Losses Developed to 10th Report	Reported Losses	Losses Developed to 10th Report	Reported Losses	Losses Developed to 10th Report	Reported Losses	Losses Developed to 10th Report	Total Reported Losses =(2)+(4)+(6)+(8) (10)	Total Developed Losses =(3)+(5)+(7)+(9) (11)	Develop. Factor = (11) / (10) (12)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
A	2,035,663	4,352,098	5,758,149	9,872,826	1,579,203	2,285,679	8,053,108	8,664,335	17,426,123	25,174,938	1.445
B	9,905,480	20,806,301	18,563,461	31,746,565	6,075,709	8,675,922	22,058,689	23,735,968	56,603,339	84,964,755	1.501
C	21,275,778	44,775,290	38,356,837	65,267,882	14,298,275	20,412,601	37,682,671	40,551,785	111,613,561	171,007,558	1.532
D	9,274,493	19,662,047	21,832,858	37,490,740	5,486,953	7,893,227	20,135,703	21,671,119	56,730,007	86,717,133	1.529
E	17,873,137	38,604,750	27,546,457	47,798,497	23,350,670	33,351,671	21,888,446	23,544,377	90,658,710	143,299,295	1.581
F	18,107,738	37,990,321	34,095,846	58,273,366	20,267,475	28,734,149	24,827,828	26,719,088	97,298,887	151,716,924	1.559
G	1,271,615	2,755,371	5,841,215	10,131,909	498,761	713,659	3,748,151	4,030,319	11,359,742	17,631,257	1.552
A, B, C, D, E, F, G	79,743,904	168,946,178	151,994,823	260,581,785	71,557,046	102,066,907	138,394,596	148,916,990	441,690,369	680,511,860	1.541
C, E, F, G	58,528,268	124,125,733	105,840,355	181,471,654	58,415,181	83,212,080	88,147,096	94,845,568	310,930,900	483,655,035	1.556

Notes:

(2), (4), (6), (8): Unit Statistical Plan Data.

(3), (5), (7), (9): Unit Statistical Plan Data x Loss Development Factors to 10th report from Exhibit 5, Pages 5 and 6.

X 000012

Loss Development of Schedule Z to Tenth Report by Hazard Group

Policy Year 2012 at 30 Months
 Second Report to Tenth Report

Hazard Group	Indemnity Losses Likely To Develop		Indemnity Losses Not Likely To Develop		Medical Losses Likely To Develop		Medical Losses Not Likely To Develop		Total Losses		
	Reported Losses	Losses Developed to 10th Report	Reported Losses	Losses Developed to 10th Report	Reported Losses	Losses Developed to 10th Report	Reported Losses	Losses Developed to 10th Report	Total Reported Losses =(2)+(4)+(6)+(8)	Total Developed Losses =(3)+(5)+(7)+(9)	Develop. Factor = (11) / (10)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
A	3,223,865	4,550,675	7,232,785	9,101,632	1,790,353	2,088,221	7,376,643	7,580,596	19,623,646	23,321,125	1.188
B	12,696,881	17,844,439	27,899,185	35,225,293	7,402,630	8,599,334	23,954,249	24,607,382	71,952,945	86,276,448	1.199
C	29,493,623	41,422,638	47,943,670	60,314,245	13,587,905	15,768,622	37,840,579	38,944,467	128,865,777	156,449,972	1.214
D	14,305,867	20,133,635	19,508,998	24,531,452	7,301,988	8,487,624	16,068,169	16,539,900	57,185,022	69,692,612	1.219
E	20,537,041	28,970,266	33,074,741	42,008,986	11,495,401	13,396,648	21,048,010	21,561,955	86,155,193	105,937,855	1.230
F	31,470,491	44,224,672	40,233,554	50,757,643	27,416,124	31,719,175	22,716,362	23,366,148	121,836,531	150,067,639	1.232
G	5,154,664	7,254,399	6,946,864	8,785,795	14,334,358	16,566,651	3,210,926	3,300,725	29,646,812	35,907,570	1.211
A, B, C, D, E, F, G	116,882,432	164,400,724	182,839,797	230,725,047	83,328,759	96,626,276	132,214,938	135,901,174	515,265,926	627,653,220	1.218
C, E, F, G	86,655,819	121,871,975	128,198,829	161,866,669	66,833,788	77,451,097	84,815,877	87,173,295	366,504,313	448,363,036	1.223

Notes:

(2), (4), (6), (8): Unit Statistical Plan Data.

(3), (5), (7), (9): Unit Statistical Plan Data x Loss Development Factors to 10th report from Exhibit 5, Pages 5 and 6.

X 000013

Loss Development of Schedule Z to Tenth Report by Hazard Group

Policy Year 2011 at 42 Months
 Third Report to Tenth Report

Hazard Group	Indemnity Losses Likely To Develop		Indemnity Losses Not Likely To Develop		Medical Losses Likely To Develop		Medical Losses Not Likely To Develop		Total Losses		
	Reported Losses	Losses Developed to 10th Report	Reported Losses	Losses Developed to 10th Report	Reported Losses	Losses Developed to 10th Report	Reported Losses	Losses Developed to 10th Report	Total Reported Losses =(2)+(4)+(6)+(8)	Total Developed Losses =(3)+(5)+(7)+(9)	Develop. Factor = (11) / (10)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
A	3,801,826	4,477,358	7,919,334	8,802,451	2,405,659	2,574,188	7,928,833	7,987,072	22,055,652	23,841,068	1.081
B	18,364,717	21,632,678	28,426,351	31,615,276	9,350,812	10,005,821	22,730,195	22,894,860	78,872,075	86,148,636	1.092
C	38,587,496	45,456,193	53,628,949	59,591,138	16,809,833	17,987,288	39,168,754	39,491,522	148,195,032	162,526,141	1.097
D	17,383,555	20,483,293	25,696,085	28,602,719	10,119,502	10,825,299	16,970,002	17,107,692	70,169,144	77,019,003	1.098
E	28,171,635	33,192,021	33,457,429	37,271,694	26,175,918	28,007,780	19,979,949	20,090,139	107,784,931	118,561,634	1.100
F	25,445,509	29,975,233	45,862,705	51,015,227	14,822,080	15,854,138	22,564,302	22,749,057	108,694,596	119,593,655	1.100
G	5,642,137	6,646,735	8,026,847	8,945,778	2,063,302	2,207,908	3,355,718	3,372,645	19,088,004	21,173,067	1.109
A, B, C, D, E, F, G	137,396,875	161,863,511	203,017,700	225,844,283	81,747,106	87,462,422	132,697,753	133,692,986	554,859,434	608,863,203	1.097
C, E, F, G	97,846,777	115,270,182	140,975,930	156,823,838	59,871,133	64,057,115	85,068,723	85,703,363	383,762,563	421,854,497	1.099

Notes:

(2), (4), (6), (8): Unit Statistical Plan Data.

(3), (5), (7), (9): Unit Statistical Plan Data x Loss Development Factors to 10th report from Exhibit 5, Pages 5 and 6.

X 000014

Loss Development Factors From 10th to Ultimate

Hazard Group	Losses Developed to 10th Report				Indicated Development Factor to Ultimate	Balanced Selected Factor
	Indemnity		Medical			
	Likely to Develop	Not Likely to Develop	Likely to Develop	Not Likely to Develop		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
A	13,380,131	27,776,909	6,948,088	24,232,002	1.042	1.042
B	60,283,417	98,587,134	27,281,077	71,238,210	1.051	1.051
C	131,654,121	185,173,265	54,168,511	118,987,774	1.057	1.057
D	60,278,975	90,624,911	27,206,150	55,318,712	1.055	1.055
E	100,767,038	127,079,176	74,756,100	65,196,471	1.055	1.055
F	112,190,226	160,046,236	76,307,462	72,834,293	1.055	1.055
G	16,656,504	27,863,482	19,488,218	10,703,689	1.045	1.045
TOTAL	495,210,413	717,151,115	286,155,606	418,511,150	1.054	1.054

Notes:

(2) - (5): Exhibit 4, Pages 3-5.

(6): Weighted Average of Development Factors from Page 2.

(Likely to Dev. Ind. 1.183, Not Likely to Dev. Ind.1.032, Likely to Dev. Med. 0.973, Not Likely to Dev. Med. 0.995)

(7): Factors are balanced to the total development factor from Page 2.

X 000015

X 000016

Section X - Experience Rating
 Subsection A - Expected Loss Rates
 7/1/2016

Section X - A
 Exhibit 5
 Page 2

Calculation of Development Category Development Factors from 10th to Ultimate

Policy Year (1)	Unit Stat Plan Losses Developed to 10th Rept. (2)	Aggregate Financial Develop. Factor 10th to Ult. (3)	Differential in Loss Development (4)	Unit Stat Plan Losses Adjusted to Financial Agg. Ult. Loss Level = (2) x (3) x (4) (5)	Development Factor 10th to Ult. = (5) / (2) (6)
Indemnity					
2013	429,527,963	1.067	1.025	469,758,631	1.094
2012	395,125,770	1.067	1.025	432,134,243	1.094
2011	387,707,794	1.067	1.025	424,021,481	1.094
Total	1,212,361,527			1,325,914,356	1.094
Medical					
2013	250,983,897	0.986	1.000	247,557,393	0.986
2012	232,527,449	0.986	1.000	229,352,918	0.986
2011	221,155,409	0.986	1.000	218,136,132	0.986
Total	704,666,756			695,046,443	0.986
Ind.+ Med.					
2013	680,511,860			717,316,025	1.054
2012	627,653,220			661,487,162	1.054
2011	608,863,203			642,157,613	1.055
Total	1,917,028,283			2,020,960,799	1.054

(7)	Unit Stat Plan Indem. Losses Developed to 10th Report (8)	Development Factor 10th to Ult. (9)	(10)	Unit Stat Plan Med. Losses Developed to 10th Report (11)	Development Factor 10th to Ult. (12)
a. Likely to Develop	495,210,413	1.183	a. Likely to Develop	286,155,606	0.973
b. Not Likely to Develop	717,151,115	1.032	b. Not Likely to Develop	418,511,150	0.995
c. Total	1,212,361,527	1.094	c. Total	704,666,756	0.986

Notes:

(2): Page 4.

(3): Page 3.

(4): Page 11.

(8),(11): Page 4.

(9), (12): Likely to Develop Factor = 1 + (Total Losses/Likely to Develop Losses) x ("Appropriate Column 6 Factor" - 1) x 0.8

(9), (12): Not Likely to Develop Factor = 1 + (Total Losses/Not Likely to Develop Losses) x ("Appropriate Column 6 Factor" - 1) x (1 - 0.8)

X 000017

Section X - Experience Rating
Subsection A - Expected Loss Rates
7/1/2016

Section X - A
Exhibit 5
Page 3

Calculation of Development Factor from USR at 10th report to Aggregate Financial Ultimate Level

	<u>Indemnity</u>	<u>Medical</u>
(1) PY2013 Paid + Case Losses Developed to 10th report		
(a) Remainder of Industry	370,153,936	225,518,355
(b) AIG	59,374,027	25,465,543
(c) Total	429,527,963	250,983,898
(2) Development Factor based on Paid + Case 132 Months to Ult.		
(a) Remainder of Industry	1.045	1.054
(b) AIG	1.031	1.055
(c) Weighted Average	1.043	1.054
(3) Est. Ultimate Losses (Prior to Escalation Adj.) based on Paid + Case Develop. Method		
(a) PY2012	404,776,545	231,806,051
(b) PY2013	447,606,910	249,261,632
(c) Average	426,191,728	240,533,841
(4) Est. Ultimate Losses (Prior to Escalation Adj.) based on Paid Develop. Method		
(a) PY2012	425,417,338	208,023,641
(b) PY2013	465,682,378	211,381,562
(c) Average	445,549,858	209,702,602
(5) Ratio of Est. Ultimate Losses based on average of Paid and Paid + Case indications to Est. Ultimate Losses based on Paid + Case = { [(3c) + (4c)] / 2.000 } / (3c)	1.023	0.936
(6) Development Factor to bring Unit Statistical Plan Data 10th report to Aggregate Financial Ultimate Level = (2c) x (5)	1.067	0.986

Notes:

- (1): Unit Statistical Plan Losses and LDFs from Pages 5 and 6.
- (2): 132 Months to 252 Months LDF from Section II-B, Exhibit 1, Pages 1 and 2.
 x 252 Months to Ult LDF from Section II-C, Exhibit 2, Page 1.
- (3),(4): Section II-A, Exhibit 1.

Losses Developed to 10th Report

Policy Year (1)	Loss Development Category (2)	Paid + Case			
		Reported Schedule Z Losses		Losses Developed to 10th Report	
		Indemnity (3)	Medical (4)	Indemnity (5)	Medical (6)
2013	Likely	79,743,904	71,557,046	168,946,178	102,066,907
2013	Not Likely	151,994,823	138,394,596	260,581,785	148,916,990
2013	TOTALS	231,738,727	209,951,642	429,527,963	250,983,897
2012	Likely	116,882,432	83,328,759	164,400,724	96,626,276
2012	Not Likely	182,839,797	132,214,938	230,725,047	135,901,174
2012	TOTALS	299,722,229	215,543,697	395,125,770	232,527,449
2011	Likely	137,396,875	81,747,106	161,863,511	87,462,422
2011	Not Likely	203,017,700	132,697,753	225,844,283	133,692,986
2011	TOTALS	340,414,575	214,444,859	387,707,794	221,155,409

Notes:

(3),(4): Sum of Unit Statistical Plan Data.

(5),(6): Unit Statistical Plan Data x Loss Development Factors to 10th report from Exhibit 5, Pages 5 and 6.

X 000018

X 000019

Section X - Experience Rating
 Subsection A - Expected Loss Rates
 7/1/2016

Section X - A
 Exhibit 5
 Page 5

Summary of Development Factors Remainder of Industry

		Likely to Develop								
		Development Factors From:								
		18-30	30-42	42-54	54-66	66-78	78-90	90-102	102-114	114-126
		<u>(1) Indemnity Paid + Case Losses</u>								
2Yr Weighted Average		1.480	1.190	1.094	1.035	1.011	1.017	1.002	1.011	0.999
Cumulative		2.073	1.401	1.177	1.076	1.040	1.029	1.012	1.010	0.999
		<u>(2) Medical Paid + Case Losses</u>								
2Yr Weighted Average		1.219	1.080	1.022	0.994	1.019	1.038	0.988	1.001	1.006
Cumulative		1.409	1.156	1.070	1.047	1.053	1.033	0.995	1.007	1.006
		Not-Likely to Develop								
		Development Factors From:								
		18-30	30-42	42-54	54-66	66-78	78-90	90-102	102-114	114-126
		<u>(3) Indemnity Paid + Case Losses</u>								
2Yr Weighted Average		1.340	1.131	1.061	1.014	1.012	1.009	1.003	1.001	1.003
Cumulative		1.677	1.252	1.107	1.043	1.028	1.016	1.007	1.004	1.003
		<u>(4) Medical Paid + Case Losses</u>								
2Yr Weighted Average		1.043	1.018	1.005	0.999	1.001	1.001	1.006	1.000	1.002
Cumulative		1.077	1.033	1.014	1.009	1.010	1.009	1.008	1.002	1.002

Notes:
 (1),(2): Page 7.
 (3),(4): Page 9.

X 000020

Section X - Experience Rating
 Subsection A - Expected Loss Rates
 7/1/2016

Section X - A
 Exhibit 5
 Page 6

Summary of Development Factors AIG

		Likely to Develop								
		Development Factors From:								
		18-30	30-42	42-54	54-66	66-78	78-90	90-102	102-114	114-126
		(1) Indemnity Paid + Case Losses								
5Yr Weighted Average		1.682	1.227	1.097	1.035	1.020	0.999	1.010	1.002	1.009
Cumulative		2.438	1.449	1.181	1.077	1.040	1.020	1.020	1.011	1.009
		(2) Medical Paid + Case Losses								
5Yr Weighted Average		1.339	1.132	1.030	1.046	0.992	0.965	1.058	0.978	1.002
Cumulative		1.620	1.210	1.069	1.038	0.992	1.000	1.037	0.980	1.002
		Not-Likely to Develop								
		Development Factors From:								
		18-30	30-42	42-54	54-66	66-78	78-90	90-102	102-114	114-126
		(3) Indemnity Paid + Case Losses								
5Yr Weighted Average		1.499	1.169	1.077	1.038	1.005	1.002	1.011	0.998	1.001
Cumulative		1.995	1.331	1.139	1.057	1.018	1.013	1.010	0.999	1.001
		(4) Medical Paid + Case Losses								
5Yr Weighted Average		1.081	1.016	1.009	0.991	0.991	0.997	0.993	0.998	0.997
Cumulative		1.070	0.991	0.975	0.967	0.976	0.985	0.988	0.995	0.997

Notes:
 (1),(2): Page 8.
 (3),(4): Page 10.

X 000021

Section X - Experience Rating
 Subsection A - Expected Loss Rates
 7/1/2016

Section X - A
 Exhibit 5
 Page 7

Calculation of Likely to Develop Development Factors Remainder of Industry

Policy Year	Likely to Develop					
	Unlimited Indemnity Paid + Case Losses			Unlimited Medical Paid + Case Losses		
	Evaluated at month		Link Ratio	Evaluated at month		Link Ratio
	18	30		18	30	
2012	66,083,682	98,911,662	1.497	63,821,201	75,388,222	1.181
2011	56,158,224	81,994,802	1.460	40,731,403	52,064,931	1.278
Weighted Average			1.480			1.219
	30	42		30	42	
2011	85,986,609	101,060,061	1.175	53,996,547	58,581,096	1.085
2010	80,062,130	96,579,947	1.206	56,828,273	61,068,068	1.075
Weighted Average			1.190			1.080
	42	54		42	54	
2010	100,423,775	106,884,388	1.064	63,192,239	62,649,530	0.991
2009	94,072,186	105,817,481	1.125	52,216,244	55,348,655	1.060
Weighted Average			1.094			1.022
	54	66		54	66	
2009	110,781,786	113,847,099	1.028	56,627,207	56,155,925	0.992
2008	101,510,433	105,772,734	1.042	47,288,444	47,136,131	0.997
Weighted Average			1.035			0.994
	66	78		66	78	
2008	106,930,343	106,768,909	0.998	47,620,193	46,904,363	0.985
2007	100,633,840	103,132,470	1.025	55,842,890	58,571,449	1.049
Weighted Average			1.011			1.019
	78	90		78	90	
2007	109,098,798	110,556,643	1.013	59,827,544	63,596,824	1.063
2006	102,748,655	104,838,408	1.020	53,004,312	53,561,153	1.011
Weighted Average			1.017			1.038
	90	102		90	102	
2006	105,710,037	106,153,344	1.004	54,830,977	54,387,492	0.992
2005	97,708,574	97,719,047	1.000	52,069,780	51,260,120	0.984
Weighted Average			1.002			0.988
	102	114		102	114	
2005	97,719,047	98,575,003	1.009	51,260,120	51,905,660	1.013
2004	116,142,482	117,590,854	1.012	62,591,799	62,075,754	0.992
Weighted Average			1.011			1.001
	114	126		114	126	
2004	118,279,628	117,304,573	0.992	62,241,023	62,545,410	1.005
2003	114,378,450	115,095,429	1.006	59,134,088	59,500,601	1.006
Weighted Average			0.999			1.006

Note:
 Unit Statistical Plan Data, Excluding Large Deductible Policies.

Calculation of Likely to Develop Development Factors
 AIG

Likely to Develop						
Policy Year	Unlimited Indemnity Paid + Case Losses			Unlimited Medical Paid + Case Losses		
	Evaluated at month		Link Ratio	Evaluated at month		Link Ratio
	18	30		18	30	
2012	7,780,547	12,602,807	1.620	4,701,318	6,023,410	1.281
2011	14,703,036	23,437,482	1.594	11,079,616	15,999,454	1.444
2010	13,905,078	23,105,417	1.662	7,733,192	9,201,798	1.190
2009	10,299,002	19,573,964	1.901	8,016,511	12,370,999	1.543
2008	16,723,619	27,950,936	1.671	10,231,782	12,310,438	1.203
Weighted Average			1.682			1.339
	30	42		30	42	
2011	23,981,911	31,108,643	1.297	16,156,833	21,324,838	1.320
2010	23,570,653	30,857,293	1.309	9,235,111	10,076,019	1.091
2009	19,840,180	24,174,338	1.218	12,428,543	12,536,450	1.009
2008	29,042,726	33,937,333	1.169	12,378,904	13,810,001	1.116
2007	38,443,577	45,381,373	1.180	16,126,546	17,340,481	1.075
Weighted Average			1.227			1.132
	42	54		42	54	
2010	31,461,730	32,560,130	1.035	10,128,568	10,184,787	1.006
2009	24,903,177	26,563,238	1.067	12,828,935	12,728,009	0.992
2008	34,243,400	37,073,292	1.083	13,992,966	14,349,163	1.025
2007	46,816,243	52,806,238	1.128	17,518,329	17,625,433	1.006
2006	57,902,858	65,260,305	1.127	31,775,698	33,949,677	1.068
Weighted Average			1.097			1.030
	54	66		54	66	
2009	28,125,466	27,947,734	0.994	13,492,389	14,572,121	1.080
2008	38,280,253	39,574,493	1.034	14,818,151	14,481,027	0.977
2007	53,781,573	55,627,219	1.034	18,107,012	18,185,729	1.004
2006	65,593,571	67,460,124	1.028	33,401,845	33,594,571	1.006
2005	73,862,240	78,214,112	1.059	32,322,665	36,482,080	1.129
Weighted Average			1.035			1.046
	66	78		66	78	
2008	41,083,915	41,496,522	1.010	14,771,159	14,856,286	1.006
2007	56,620,596	57,962,086	1.024	18,551,879	18,707,337	1.008
2006	68,408,466	69,727,497	1.019	33,691,464	33,814,317	1.004
2005	77,071,584	77,594,191	1.007	36,224,197	34,997,684	0.966
2004	71,063,961	73,715,041	1.037	37,684,726	37,386,901	0.992
Weighted Average			1.020			0.992
	78	90		78	90	
2007	57,962,086	58,081,456	1.002	18,707,337	17,882,641	0.956
2006	71,451,291	71,089,422	0.995	35,055,303	34,871,857	0.995
2005	79,009,734	78,754,628	0.997	38,087,642	37,566,583	0.986
2004	73,514,923	73,945,057	1.006	37,414,850	35,448,011	0.947
2003	64,080,397	63,949,632	0.998	28,101,527	26,028,151	0.926
Weighted Average			0.999			0.965
	90	102		90	102	
2006	71,104,829	71,574,598	1.007	34,894,961	42,151,973	1.208
2005	79,558,167	80,568,925	1.013	38,070,562	38,897,879	1.022
2004	73,705,769	75,161,243	1.020	35,426,519	37,204,331	1.050
2003	63,671,888	63,509,066	0.997	25,936,014	23,728,677	0.915
2002	42,520,824	42,915,662	1.009	17,514,058	18,721,030	1.069
Weighted Average			1.010			1.058
	102	114		102	114	
2005	81,889,519	82,005,312	1.001	39,467,706	37,300,669	0.945
2004	77,999,342	78,512,434	1.007	38,293,202	38,019,290	0.993
2003	63,137,675	63,032,039	0.998	23,577,444	23,679,737	1.004
2002	42,751,729	43,047,874	1.007	18,803,315	18,047,859	0.960
2001	29,529,731	29,307,080	0.992	10,470,156	10,675,353	1.020
Weighted Average			1.002			0.978
	114	126		114	126	
2004	78,512,434	79,613,128	1.014	38,019,290	37,931,577	0.998
2003	63,613,511	63,738,773	1.002	23,863,252	24,036,357	1.007
2002	43,693,717	43,746,989	1.001	18,147,059	17,703,010	0.976
2001	27,737,646	27,877,488	1.005	10,273,199	10,876,309	1.059
2000	20,874,548	21,506,668	1.030	7,786,195	7,723,066	0.992
Weighted Average			1.009			1.002

Note:
 Unit Statistical Plan Data, Excluding Large Deductible Policies.

Calculation of Not-Likely to Develop Development Factors
 Remainder of Industry

Not-Likely to Develop						
Policy Year	Unlimited Indemnity Paid + Case Losses			Unlimited Medical Paid + Case Losses		
	Evaluated at month		Link Ratio	Evaluated at month		Link Ratio
	18	30		18	30	
2012	121,388,876	164,657,310	1.356	114,199,947	119,303,938	1.045
2011	117,189,137	154,997,171	1.323	109,567,558	114,035,366	1.041
Weighted Average			1.340			1.043
	30	42		30	42	
2011	151,005,364	170,928,264	1.132	112,103,750	112,897,622	1.007
2010	131,944,664	149,202,275	1.131	100,913,775	104,059,724	1.031
Weighted Average			1.131			1.018
	42	54		42	54	
2010	145,358,447	154,352,779	1.062	101,935,553	102,702,948	1.008
2009	142,612,413	151,270,354	1.061	101,112,838	101,283,631	1.002
Weighted Average			1.061			1.005
	54	66		54	66	
2009	146,306,049	146,089,764	0.999	100,005,079	100,121,417	1.001
2008	133,000,762	137,104,752	1.031	91,720,217	91,469,141	0.997
Weighted Average			1.014			0.999
	66	78		66	78	
2008	135,947,143	136,959,479	1.007	90,985,079	89,758,317	0.987
2007	132,890,403	135,192,010	1.017	94,650,107	96,024,095	1.015
Weighted Average			1.012			1.001
	78	90		78	90	
2007	129,225,682	130,520,474	1.010	94,768,000	94,367,380	0.996
2006	121,492,878	122,383,555	1.007	83,584,288	84,203,943	1.007
Weighted Average			1.009			1.001
	90	102		90	102	
2006	121,511,926	122,398,737	1.007	82,934,119	82,905,685	1.000
2005	124,284,943	124,055,885	0.998	81,724,067	82,663,083	1.011
Weighted Average			1.003			1.006
	102	114		102	114	
2005	124,055,885	124,168,624	1.001	82,663,083	82,719,343	1.001
2004	125,403,068	125,532,995	1.001	83,794,154	83,721,173	0.999
Weighted Average			1.001			1.000
	114	126		114	126	
2004	124,844,221	125,174,112	1.003	83,555,904	83,713,090	1.002
2003	127,184,805	127,712,642	1.004	87,966,573	88,211,196	1.003
Weighted Average			1.003			1.002

Note:
 Unit Statistical Plan Data, Excluding Large Deductible Policies.

Calculation of Not-Likely to Develop Development Factors
 AIG

Not-Likely to Develop						
Policy Year	Unlimited Indemnity Paid + Case Losses			Unlimited Medical Paid + Case Losses		
	Evaluated at month		Link Ratio	Evaluated at month		Link Ratio
	18	30		18	30	
2012	15,631,934	23,550,450	1.507	13,839,617	14,828,127	1.071
2011	21,667,673	32,574,890	1.503	19,733,936	21,354,957	1.082
2010	24,337,100	38,360,821	1.576	22,387,324	24,116,954	1.077
2009	21,260,206	30,895,324	1.453	20,307,061	21,471,240	1.057
2008	29,530,441	43,096,320	1.459	26,431,763	29,215,231	1.105
Weighted Average			1.499			1.081
	30	42		30	42	
2011	32,030,461	37,317,607	1.165	21,197,578	21,641,303	1.021
2010	37,895,585	43,188,018	1.140	24,083,641	24,959,993	1.036
2009	30,629,108	37,286,323	1.217	21,413,696	21,760,619	1.016
2008	42,004,530	49,477,486	1.178	29,146,765	28,495,109	0.978
2007	39,413,551	45,494,234	1.154	30,118,573	31,099,714	1.033
Weighted Average			1.169			1.016
	42	54		42	54	
2010	42,583,581	44,676,497	1.049	24,907,444	24,886,270	0.999
2009	36,557,484	37,386,041	1.023	21,468,134	22,270,628	1.037
2008	49,171,419	52,451,238	1.067	28,312,144	27,840,699	0.983
2007	44,059,364	48,834,047	1.108	30,921,866	30,747,453	0.994
2006	42,618,878	48,264,706	1.132	30,218,570	31,265,676	1.035
Weighted Average			1.077			1.009
	54	66		54	66	
2009	35,823,813	36,624,843	1.022	21,506,248	20,881,570	0.971
2008	51,244,277	52,426,680	1.023	27,371,711	27,198,046	0.994
2007	47,858,712	50,145,467	1.048	30,265,874	30,062,012	0.993
2006	47,931,440	48,501,232	1.012	31,813,508	31,473,365	0.989
2005	51,285,433	55,445,972	1.081	36,199,827	36,173,492	0.999
Weighted Average			1.038			0.991
	66	78		66	78	
2008	50,917,258	51,260,330	1.007	26,907,914	26,862,882	0.998
2007	49,152,090	49,059,200	0.998	29,695,862	29,461,926	0.992
2006	47,552,890	47,704,170	1.003	31,376,472	30,968,073	0.987
2005	56,588,500	56,422,248	0.997	36,431,375	35,784,610	0.982
2004	47,647,590	48,695,980	1.022	30,222,549	30,093,416	0.996
Weighted Average			1.005			0.991
	78	90		78	90	
2007	49,059,200	49,046,109	1.000	29,461,926	29,331,886	0.996
2006	45,980,376	45,955,784	0.999	29,727,087	29,622,040	0.996
2005	55,006,705	54,591,423	0.992	32,694,652	32,966,640	1.008
2004	48,896,098	49,107,899	1.004	30,065,467	29,499,810	0.981
2003	36,006,876	36,755,127	1.021	21,390,941	21,514,014	1.006
Weighted Average			1.002			0.997
	90	102		90	102	
2006	45,940,377	46,126,493	1.004	29,598,936	29,342,802	0.991
2005	53,787,884	53,803,611	1.000	32,462,661	32,243,768	0.993
2004	49,347,187	50,065,661	1.015	29,521,302	29,722,208	1.007
2003	37,032,871	37,902,364	1.023	21,606,151	21,329,896	0.987
2002	32,011,222	32,664,678	1.020	17,834,803	17,428,871	0.977
Weighted Average			1.011			0.993
	102	114		102	114	
2005	52,483,017	52,425,207	0.999	31,673,941	31,739,957	1.002
2004	47,227,562	47,442,232	1.005	28,633,337	28,820,474	1.007
2003	38,273,755	37,703,446	0.985	21,481,129	21,564,692	1.004
2002	32,828,611	33,146,591	1.010	17,346,586	17,074,243	0.984
2001	22,215,947	21,913,185	0.986	10,574,849	10,332,466	0.977
Weighted Average			0.998			0.998
	114	126		114	126	
2004	47,442,232	47,628,451	1.004	28,820,474	28,702,755	0.996
2003	37,121,974	37,191,827	1.002	21,381,177	21,285,684	0.996
2002	32,500,748	32,240,915	0.992	16,975,043	17,069,364	1.006
2001	23,482,619	23,442,211	0.998	10,734,620	10,770,305	1.003
2000	21,258,325	21,520,779	1.012	8,858,206	8,658,611	0.977
Weighted Average			1.001			0.997

Note:
 Unit Statistical Plan Data, Excluding Large Deductible Policies.

Escalation Adjustment for Indemnity Losses Only

Loss Development Method (1)	Policy Year (2)	Differential in Loss Development (3)
Paid Plus Case	2013	1.008
	2012	1.008
	2011	1.008
Paid	2013	1.042
	2012	1.042
	2011	1.042
Average of Paid and Paid Plus Case	2013	1.025
	2012	1.025
	2011	1.025

Notes:

(3): Section II-D, Exhibit 1, Page 1 and Exhibit 2, Page 1.

X 000025

X 000026

Section X - Experience Rating
 Subsection A - Expected Loss Rates
 7/1/2016

Section X - A
 Exhibit 6

Investment Income Offset

Hazard Code (1)	Injury Type (2)	Indemnity		Medical		Total Investment Income Offset (7)
		Developed Losses at Ultimate (3)	Investment Income Offset (4)	Developed Losses at Ultimate (5)	Investment Income Offset (6)	
A	Fatal	521,580	0.869	61,718	1.000	
A	Permanent Total	524,123	0.833	482,603	0.833	
A	Permanent Partial	20,990,264	1.020	8,930,153	1.020	
A	Temporary Total	22,458,499	1.026	14,653,093	1.025	
A	Medical Only	0		6,743,763	1.000	
A	TOTAL	44,494,466	1.019	30,871,332	1.015	1.018
B	Fatal	4,494,519	0.869	187,914	1.000	
B	Permanent Total	5,072,513	0.833	1,744,267	0.833	
B	Permanent Partial	90,012,246	1.020	34,379,450	1.020	
B	Temporary Total	73,477,927	1.026	43,079,535	1.025	
B	Medical Only	0		18,035,340	1.000	
B	TOTAL	173,057,205	1.013	97,426,507	1.015	1.014
C	Fatal	7,501,854	0.869	147,137	1.000	
C	Permanent Total	12,856,402	0.833	4,123,056	0.833	
C	Permanent Partial	178,135,104	1.020	61,183,961	1.020	
C	Temporary Total	148,352,274	1.026	78,097,054	1.025	
C	Medical Only	0		27,547,589	1.000	
C	TOTAL	346,845,635	1.013	171,098,796	1.015	1.013
D	Fatal	3,549,539	0.869	121,204	1.000	
D	Permanent Total	5,641,833	0.833	1,241,384	0.833	
D	Permanent Partial	93,898,409	1.020	38,450,621	1.020	
D	Temporary Total	61,745,154	1.026	33,131,235	1.025	
D	Medical Only	0		8,569,258	1.000	
D	TOTAL	164,834,935	1.013	81,513,702	1.017	1.014
E	Fatal	7,435,899	0.869	90,187	1.000	
E	Permanent Total	17,966,757	0.833	36,997,943	0.833	
E	Permanent Partial	131,561,522	1.020	49,230,326	1.020	
E	Temporary Total	93,388,937	1.026	40,674,468	1.025	
E	Medical Only	0		10,615,249	1.000	
E	TOTAL	250,353,116	1.005	137,608,173	0.970	0.992
F	Fatal	8,676,181	0.869	490,887	1.000	
F	Permanent Total	18,764,751	0.833	23,563,451	0.833	
F	Permanent Partial	166,932,166	1.020	67,419,812	1.020	
F	Temporary Total	103,515,655	1.026	47,961,503	1.025	
F	Medical Only	0		7,281,630	1.000	
F	TOTAL	297,888,753	1.006	146,717,283	0.990	1.001
G	Fatal	3,443,788	0.869	132,847	1.000	
G	Permanent Total	5,212,483	0.833	14,956,065	0.833	
G	Permanent Partial	24,526,086	1.020	6,435,152	1.020	
G	Temporary Total	15,277,403	1.026	7,206,192	1.025	
G	Medical Only	0		881,950	1.000	
G	TOTAL	48,459,759	0.991	29,612,206	0.926	0.967

Notes:

(3),(5): From Exhibit 4, Pages 3-5, Developed to Ultimate.

(4),(6): Section IX-B, Exhibit 4.

(7) = Average of (4) and (6) weighted by (3) and (5).

Calculation of Statewide Partial "D" Ratios by Benefit Type

Benefit Type (1)	Adjusted Primary Losses (2)	Adjusted Total Losses (3)	Partial D-Ratio = (2) / (3) (4)
Indemnity	86,748,129	779,900,245	0.111
Medical	145,060,931	526,044,427	0.276

Notes:

Data at the individual claim level for PYs 2011 - 2013 have been adjusted by the factors shown on Page 2. The Adjusted Primary Losses are capped at \$5,000 per claim. The Adjusted Total Losses are capped at \$210,000 per claim. If losses are capped, the proportions for capped indemnity and capped medical losses are consistent with the proportions for unlimited indemnity and unlimited medical.

X 000027

Severity Trend and State Benefit Level Adjustment Factors

Policy Year	Indemnity By Injury Type				Medical by Injury Type				
	Fatal	Permanent Total	Permanent Partial	Temporary Total	Fatal	Permanent Total	Permanent Partial	Temporary Total	Medical Only
(1) Severity Trend Factors									
2011	1.039	1.039	1.039	1.039	1.046	1.046	1.046	1.046	1.046
2012	1.039	1.039	1.039	1.039	1.046	1.046	1.046	1.046	1.046
2013	1.039	1.039	1.039	1.039	1.046	1.046	1.046	1.046	1.046
(2) State Benefit Level Adjustment Factors									
2011	1.006	1.009	1.015	1.004	1.000	1.000	1.000	1.000	1.000
2012	1.004	1.004	1.008	1.003	1.000	1.000	1.000	1.000	1.000
2013	1.012	1.007	1.012	1.004	1.000	1.000	1.000	1.000	1.000
(3) Combined Severity Trend and State Benefit Level Adjustment Factors									
2011	1.045	1.048	1.054	1.044	1.046	1.046	1.046	1.046	1.046
2012	1.043	1.044	1.047	1.042	1.046	1.046	1.046	1.046	1.046
2013	1.051	1.046	1.051	1.043	1.046	1.046	1.046	1.046	1.046

Notes:

(1): Exhibit 2.

(2): Section IV-A, Exhibit 1. PY 2011 to CPY 2012_07. PY 2012 to CPY 2013_07. PY 2013 to CPY 2014_07.

(3) = (1) x (2)

X 000028

Severity Trend Factors

Schedule Z Policy Year (1)			Policy Effective Period (2)		
01/01/2013	-	12/31/2013	07/01/2014	-	06/30/2015
01/01/2012	-	12/31/2012	07/01/2013	-	06/30/2014
01/01/2011	-	12/31/2011	07/01/2012	-	06/30/2013

Avg Acc Date	Avg Acc Date
12/30/2012	06/30/2014

(3) Indemnity Severity Trend	2.6%
(4) Medical Severity Trend	3.1%
(5) Trend Period Length = Years between (1) and (2)	1.497
(6) Indemnity Trend Factor = [1.000 + (3)] ^ (5)	1.039
(7) Medical Trend Factor = [1.000 + (4)] ^ (5)	1.046

Notes:

(3),(4): Section V-A Exhibit 1.

Medical Severity Trend is a weighted average using Injury Type Weights at Ultimate from Section IV.

X 000029

Calculation of ELR Factors

Unit Report / Policy Effective Dates (1)	Hazard Group (2)	Permissible Loss and LBA Ratio (3)	Weighted LBA (4)	Exp Rating LER by Hazard Group (5)	Law Factor (6)	Loss Trend / Payroll Trend (7)	Loss Development to Ultimate Report (8)	Investment Income Offset (9)	Ratio of Exp Rating ELR to Average Rate (10)
1st Report	C	0.613	0.061	0.082	1.006	0.963	1.767	1.013	0.306
7/1/2014	E	0.613	0.061	0.229	1.006	0.963	1.779	0.992	0.260
to	F	0.613	0.061	0.224	1.006	0.963	1.776	1.001	0.260
6/30/2015	G	0.613	0.061	0.348	1.006	0.963	1.772	0.967	0.227
2nd Report	C	0.613	0.061	0.097	1.007	0.945	1.295	1.013	0.417
7/1/2013	E	0.613	0.061	0.270	1.007	0.945	1.299	0.992	0.343
to	F	0.613	0.061	0.264	1.007	0.945	1.298	1.001	0.343
6/30/2014	G	0.613	0.061	0.410	1.007	0.945	1.297	0.967	0.285
3rd Report	C	0.613	0.061	0.103	1.009	0.927	1.180	1.013	0.463
7/1/2012	E	0.613	0.061	0.287	1.009	0.927	1.183	0.992	0.375
to	F	0.613	0.061	0.280	1.009	0.927	1.182	1.001	0.375
6/30/2013	G	0.613	0.061	0.435	1.009	0.927	1.181	0.967	0.305
1st - 3rd Report Average	C E F G								0.395 0.326 0.326 0.272

Notes:

- (1): Unit Stat Reports used to experience rate a policy taking effect during the prospective effective period.
- (3), (5), (7) , (9): Section X-A, Exhibit 1.
- (4): Loss Based Assessment weighted by federal indemnity losses as a % of losses.
- (6): State Factors from Section IV-A, Exhibit 1 and Federal Factors from Section IV-F, Exhibit 1 weighted by Adjusted Reported Losses from Section VIII-C, Exhibit 1, Pages 2 and 4.
- (8): Exhibit 2.
- (10) = $[(3) / \{ 1.0 + (4) \}] \times [1.0 - (5)] / [(6) \times (7) \times (8) \times (9)]$

X 000030

X 000031

Section X - Experience Rating
 Subsection C - Expected Loss Rates for F-Class
 7/1/2016

Section X - C
 Exhibit 2

Hazard Group Development Factors to Ultimate

Development to Ultimate (1)	Hazard Group (2)	Losses at Latest Report (3)	Selected Relativity (4)	Balanced Relativity = (4) / TT(4) (5)	Selected Dev. Factor to Ultimate (6)
1st	C	111,613,561	0.992	0.992	1.767
1st	E	90,658,710	1.007	1.007	1.779
1st	F	97,298,887	1.003	1.003	1.776
1st	G	11,359,742	0.999	0.999	1.772
1st	Total	310,930,900	1.000	1.000	1.773
2nd	C	128,865,777	0.992	0.992	1.295
2nd	E	86,155,193	1.007	1.007	1.299
2nd	F	121,836,531	1.003	1.004	1.298
2nd	G	29,646,812	0.999	0.999	1.297
2nd	Total	366,504,313	1.000	1.000	1.297
3rd	C	148,195,032	0.992	0.992	1.180
3rd	E	107,784,931	1.007	1.008	1.183
3rd	F	108,694,596	1.003	1.004	1.182
3rd	G	19,088,004	0.999	0.999	1.181
3rd	Total	383,762,563	1.000	1.000	1.181

Notes:

(3): See Section X-A, Exhibit 4, Page 1.

(4): See Section X-A, Exhibit 4, Page 2 for F-Classes for selection. The entry in the "Total" row is the weighted average using incurred losses at latest report in column (3) as the weights.

(6) = 1.00 + (5) x (Total LDF from Exhibit 3 - 1.00)

Loss Development Factors For Use in Calculation of Reciprocals

Report (1)	Benefit Type (2)	Injury Type (3)	State Loss Development Factor to Ultimate (4)	Federal Loss Development Factor to Ultimate (5)	Average Loss Development Factor to Ultimate (6)	Distribution of Ultimate Losses (7)	Adjusted Distribution = (7) / (6) (8)	LDF to Ultimate to Derive ELR = TT(7) / TT(8) (9)
1st	Indemnity	Likely to Develop	2.454	2.773	2.773	32.0%	11.5%	
1st	Indemnity	Not Likely to Develop	1.731	1.760	1.760	32.7%	18.6%	
1st	Medical	Likely to Develop	1.371	1.758	1.758	14.5%	8.3%	
1st	Medical	Not Likely to Develop	1.072	1.152	1.152	20.7%	18.0%	
1st	Total					100.0%	56.4%	1.773
2nd	Indemnity	Likely to Develop	1.658	1.521	1.521	32.0%	21.0%	
2nd	Indemnity	Not Likely to Develop	1.292	1.234	1.234	32.7%	26.5%	
2nd	Medical	Likely to Develop	1.124	1.435	1.435	14.5%	10.1%	
2nd	Medical	Not Likely to Develop	1.028	1.069	1.069	20.7%	19.4%	
2nd	Total					100.0%	77.1%	1.297
3rd	Indemnity	Likely to Develop	1.393	1.270	1.270	32.0%	25.2%	
3rd	Indemnity	Not Likely to Develop	1.142	1.119	1.119	32.7%	29.2%	
3rd	Medical	Likely to Develop	1.041	1.346	1.346	14.5%	10.8%	
3rd	Medical	Not Likely to Develop	1.009	1.068	1.068	20.7%	19.4%	
3rd	Total					100.0%	84.7%	1.181

Notes:

(4): Section X-A, Exhibit 5, Page 5 and Section X-A, Exhibit 5, Page 2.

(5): Section VIII-E, Exhibit 1, Page 1.

(6): Average of (4) and (5) weighted by % of Total Reported Losses from Section VIII-C, Exhibit 1 Page 2 and Page 4.

Federal losses are 100.0% of total reported indemnity losses and 100.0% of total reported medical losses.

(7): Section IV-E, Exhibit 2, Pages 1 and 2.

X 000032

X 000033

Section X - Experience Rating
Subsection D - State Reference Point
7/1/2016

Section X - D
Exhibit 1

State Reference Point

Report (1)	Policy Year (2)	Reported Claims (3)	Reported Losses (4)	Average Claim Cost = (4) / (3) (5)
1st	2013	43,313	441,690,369	10,198
2nd	2012	43,950	515,265,926	11,724
3rd	2011	46,200	554,859,434	12,010
Total		133,463	1,511,815,729	11,328
(6)	Indicated State Reference Point = [Total (5)] x 250			2,831,900
(7)	Average Annual Severity Trend			2.76%
(8)	Length of Trending Period in Years			1.497
(9)	Trend Factor = [1.000 + (7)] ^ (8)			1.042
(10)	Trended State Reference Point = (6) x (9)			2,949,718
(11)	Selected State Reference Point			2,100,000
(12)	G = (11) / 250,000			8.40
(13)	State Per Claim Accident Limitation = (11) x 0.1			210,000
(14)	Multiple State Claim Accident Limitation = (13) x 2			420,000

Notes:

(3), (4): Unit Statistical Plan Data, Excluding Large Deductible Policies.

(7): Credibility Weighted Severity Trends from Section V-A, Exhibit 1 weighted by Injury Type Weights at Ultimate from Section IV-E, Exhibit 2.

(8): Section X-B, Exhibit 2.

EXPERIENCE RATING PLAN MANUAL

MASSACHUSETTS

Proposed Effective July 1, 2016

TABLE OF EXPECTED LOSS RATES AND DISCOUNT RATIOS

CLASS CODE	EXP LOSS RATE	DISC RATIO	CLASS CODE	EXP LOSS RATE	DISC RATIO	CLASS CODE	EXP LOSS RATE	DISC RATIO	CLASS CODE	EXP LOSS RATE	DISC RATIO	CLASS CODE	EXP LOSS RATE	DISC RATIO
0005	1.16	.17	2089	1.24	.17	2802	2.01	.17	3365	2.75	.16	4239	0.98	.17
0008	1.09	.18	2095	1.64	.17	2835	1.01	.17	3372	1.08	.18	4243	1.70	.17
0016	1.68	.18	2101	1.29	.17	2836	1.20	.17	3373	1.69	.17	4244	1.30	.17
0034	2.05	.18	2105	(a)	(a)	2841	1.85	.16	3381	1.22	.17	4250	1.06	.18
0035	1.13	.18	2111	1.08	.17	2883	1.47	.17	3383	0.71	.17	4251	0.98	.16
0036	2.05	.18	2114	1.29	.17	2923	0.77	.17	3385	0.38	.17	4273	1.05	.17
0037	1.09	.18	2115	1.54	.18	2942	0.94	.18	3400	1.38	.18	4279	1.24	.17
0042	1.85	.18	2121	0.72	.18	3018	1.33	.16	3507	1.32	.17	4282	0.38	.17
0046	1.00	.18	2130	0.90	.17	3022	1.73	.17	3515	1.23	.18	4283	1.01	.17
0050	2.97	.16	2131	1.11	.17	3027	1.83	.19	3548	0.79	.17	4299	0.93	.17
0059D	.	.	2143	1.08	.18	3028	1.45	.17	3558	0.39	.19	4301	2.61	.17
0065D	.	.	2150	2.41	.17	3030	2.36	.17	3559	0.79	.17	4304	1.87	.19
0066D	.	.	2156	2.64	.17	3040	2.21	.17	3571	0.45	.17	4307	0.90	.18
0067D	.	.	2157	1.91	.17	3041	2.26	.18	3574	0.82	.17	4308	0.62	.13
0079	1.21	.19	2172	0.97	.15	3042	2.73	.16	3612	0.86	.18	4350	0.27	.16
0083	1.99	.18	2174	1.66	.17	3064	1.36	.18	3620	2.09	.19	4351	0.39	.17
0106	5.10	.19	2211	2.55	.17	3066	1.36	.18	3629	0.82	.17	4352	0.58	.16
0113	2.05	.18	2220	1.32	.18	3076	1.15	.18	3632	0.75	.17	4360	0.46	.17
0170	2.05	.18	2260	2.69	.16	3081D	2.26	.17	3634	0.80	.17	4361	0.32	.18
0251	1.50	.17	2286	1.38	.18	3082D	2.26	.17	3635	1.33	.18	4362	0.29	.17
0771	.	.	2288	1.38	.17	3085D	1.72	.17	3638	0.82	.17	4410	1.55	.17
0908	40.69	.16	2302	1.32	.18	3110	3.92	.18	3642	0.51	.16	4417	2.16	.17
0909	78.64	.20	2305	1.17	.17	3111	1.02	.18	3643	0.76	.17	4432	0.55	.17
0912	157.28	.20	2362	0.79	.18	3113	0.73	.17	3647	0.90	.17	4439	1.25	.17
0913	81.39	.16	2380	1.15	.17	3114	1.21	.18	3648	0.66	.18	4452	1.60	.17
0917	1.67	.18	2402	0.84	.17	3118	0.80	.16	3681	0.41	.17	4459	1.30	.17
0918	0.27	.16	2413	1.68	.18	3119	0.44	.18	3685	0.32	.17	4470	0.98	.17
1430	3.22	.16	2416	1.21	.17	3120	0.79	.16	3724	1.86	.17	4484	1.00	.17
1438	1.26	.17	2417	1.70	.16	3122	0.91	.18	3726	3.71	.15	4493	1.20	.17
1463	3.52	.17	2501	0.97	.17	3127	0.44	.18	3807	1.51	.18	4511	0.13	.18
1624D	1.81	.17	2503	0.55	.17	3131	0.71	.18	3808	1.33	.17	4512	0.06	.18
1655	1.75	.17	2534	1.01	.17	3132	1.61	.18	3821	1.82	.17	4557	0.96	.17
1701	1.33	.16	2570	2.53	.18	3145	0.75	.17	3826	1.51	.18	4558	0.64	.17
1710D	1.81	.17	2576	1.13	.17	3146	0.84	.17	3830	0.75	.17	4561	1.53	.17
1747	1.13	.17	2578	1.08	.17	3169	1.45	.18	3841	0.63	.18	4583	1.35	.16
1748	1.25	.18	2585	1.61	.17	3179	0.59	.17	4000	1.68	.17	4611	0.56	.17
1852	1.92	.15	2586	0.78	.17	3180	1.32	.17	4021	1.51	.18	4635	1.31	.18
1853	0.72	.16	2587	1.63	.18	3188	1.20	.17	4024	1.14	.17	4653	1.12	.17
1860	0.97	.17	2623	2.04	.17	3200	1.10	.17	4034	2.38	.18	4665	2.47	.17
1924	0.97	.17	2640	0.78	.17	3220	1.24	.16	4036	0.88	.16	4692	0.31	.16
1925	2.05	.23	2651	0.86	.17	3223	(a)	(a)	4038	1.35	.17	4693	0.44	.17
2001	1.70	.17	2660	0.86	.18	3227	1.51	.18	4053	0.85	.18	4720	0.88	.18
2002	1.30	.18	2683	0.82	.17	3241	0.93	.17	4061	1.06	.17	4740	0.45	.17
2003	1.63	.17	2688	1.19	.17	3255	1.34	.17	4062	1.02	.17	4741	1.14	.16
2014	1.36	.17	2702	5.13	.17	3257	1.23	.17	4112	0.30	.17	4771	2.70	.13
2021	1.26	.17	2710	2.70	.18	3270	0.98	.18	4113	0.85	.18	4777	1.14	.16
2039	1.44	.17	2731	1.32	.17	3300	2.38	.18	4114	1.00	.17	4825	0.26	.17
2041	1.32	.17	2741	3.33	.17	3305	(a)	(a)	4130	1.71	.17	4828	0.44	.17
2070	1.94	.17	2747	2.95	.17	3315	1.71	.17	4133	0.85	.17	4829	0.38	.17
2081	1.93	.19	2790	0.85	.17	3336	1.46	.16	4150	0.38	.17	4902	0.88	.18

(a) Expected Loss Rates and Discount Ratios for each individual risk must be obtained by Home Office from the WCRIBMA
 D Supplement Disease Loading

Proposed Effective July 1, 2016

TABLE OF EXPECTED LOSS RATES AND DISCOUNT RATIOS

CLASS CODE	EXP LOSS RATE	DISC RATIO	CLASS CODE	EXP LOSS RATE	DISC RATIO	CLASS CODE	EXP LOSS RATE	DISC RATIO	CLASS CODE	EXP LOSS RATE	DISC RATIO	CLASS CODE	EXP LOSS RATE	DISC RATIO
4923	0.44	.17	6204	2.77	.16	7580	1.27	.18	8385	1.03	.17	9178	7.10	.21
5020	1.82	.16	6217	1.69	.17	7590	2.12	.17	8392	0.75	.17	9179	13.45	.17
5022	3.62	.16	6229	1.71	.17	7600	1.55	.16	8393	1.04	.17	9180	1.60	.19
5037	7.16	.16	6233	1.58	.15	7601	2.01	.17	8500	2.53	.18	9182	1.63	.20
5040	18.65	.16	6251D	2.37	.14	7610	0.11	.16	8601	0.12	.18	9186	1.60	.19
5057	8.23	.16	6252D	3.05	.17	7704	0.93	.18	8709F	1.56	.18	9220	1.44	.17
5059	7.94	.16	6306	3.52	.16	7720	0.67	.17	8710	1.12	.17	9402	1.87	.17
5069	7.94	.16	6319	1.67	.17	7855	1.93	.16	8719	0.95	.17	9403	3.83	.17
5102	2.29	.16	6325	1.79	.17	8001	0.92	.18	8720	0.35	.17	9410	1.22	.19
5146	2.46	.17	6400	2.60	.17	8002	0.80	.18	8721	0.09	.21	9501	1.08	.18
5160	1.20	.16	6504	1.29	.17	8006	0.68	.18	8726F	2.10	.19	9505	1.08	.18
5183	1.29	.16	6801F	2.83	.19	8008	0.40	.17	8742	0.06	.18	9519	1.30	.17
5188	1.90	.16	6811	2.41	.19	8010	0.70	.18	8745	1.97	.18	9521	1.33	.17
5190	0.97	.17	6824F	3.71	.19	8013	0.20	.18	8747	0.47	.17	9522	0.86	.17
5191	0.44	.17	6826F	3.55	.17	8017	0.53	.18	8748	0.27	.18	9533	6.04	.16
5192	1.42	.17	6834	1.13	.17	8018	1.49	.17	8800	0.54	.17	9534	2.59	.17
5213	5.78	.16	6836	1.25	.18	8021	1.41	.17	8803	0.01	.18	9545	1.59	.17
5215	2.45	.17	6843F	4.20	.16	8031	1.00	.17	8810	0.03	.18	9549	1.84	.16
5221	2.52	.17	6854	3.58	.16	8032	0.77	.17	8820	0.04	.17	9552	2.70	.16
5222	4.02	.16	6872F	5.69	.18	8033	0.92	.18	8824	0.89	.17	9553	2.71	.16
5223	1.60	.17	6874F	5.06	.17	8034	1.52	.17	8826	0.89	.17	9586	0.19	.17
5348	1.89	.16	6882	4.85	.18	8039	0.59	.18	8829	0.98	.17	9620	0.33	.18
5402	4.16	.17	6884	4.31	.17	8044	1.79	.19	8831	0.46	.20	9545	1.59	.17
5403	4.11	.16	7133	(a)	(a)	8046	0.96	.18	8832	0.14	.17	9549	1.84	.16
5437	2.06	.17	7219	3.82	.16	8048	1.34	.17	8833	0.61	.17	9552	2.70	.16
5443	1.83	.17	7230	3.74	.17	8050	0.72	.18	8835	0.96	.17	9553	2.71	.16
5445	2.58	.16	7231	3.79	.16	8058	1.16	.19	8837	(a)	(a)	9586	0.19	.17
5462	2.87	.16	7309F	5.49	.17	8103	1.22	.17	8868	0.41	.18	9620	0.33	.18
5472	2.93	.16	7313F	4.49	.14	8105	2.67	.17	8901	0.03	.18			
5473	3.24	.17	7317F	4.29	.16	8106	2.44	.18	9014	1.37	.17			
5474	2.11	.17	7327F	9.82	.17	8107	1.15	.17	9015	1.51	.17			
5478	2.16	.16	7350F	6.08	.17	8111	1.26	.17	9016	0.99	.20			
5479	3.86	.17	7360	2.18	.17	8116	1.40	.17	9019	1.04	.15			
5480	1.73	.16	7370	1.86	.18	8203	3.03	.18	9033	1.65	.17			
5506	2.16	.17	7380	2.76	.17	8204	1.57	.17	9040	1.51	.17			
5507	2.86	.17	7382	1.77	.18	8215	1.51	.18	9044	0.80	.15			
5508D	2.43	.16	7403	2.05	.18	8227	1.53	.17	9052	0.89	.17			
5509	1.39	.17	7405i	0.59	.17	8232	2.23	.18	9058	0.80	.18			
5538	1.62	.17	7420	2.56	.14	8233	2.53	.18	9060	0.48	.18			
5545	11.75	.17	7421*	0.66	.15	8235	2.05	.17	9061	0.50	.18			
5547	4.26	.18	7422	0.56	.15	8263	2.34	.18	9062	0.50	.18			
5606	0.70	.17	7425	0.96	.14	8264	2.24	.17	9063	0.39	.19			
5610	3.05	.16	7431j	0.56	.15	8265	2.54	.18	9077F	2.03	.21			
5645	3.03	.17	7445k	.	.	8279	2.16	.19	9079	0.58	.18			
5651	3.03	.17	7453l	.	.	8291	1.88	.17	9089	0.53	.18			
5701	8.02	.18	7502	1.10	.17	8292	1.36	.17	9093	0.61	.19			
5703	7.59	.16	7515	0.72	.20	8293	3.67	.18	9101	1.44	.18			
5705	4.65	.16	7520	1.50	.17	8350	2.22	.17	9102	1.26	.18			
6003	3.90	.16	7538	1.89	.16	8380	1.39	.17	9154	0.75	.18			
6005	2.43	.16	7539	0.50	.16	8381	0.88	.19	9156	0.66	.19			

(a) Expected Loss Rates and Discount Ratios for each individual risk must be obtained by Home Office from the WCRIBMA
 F Expected Loss Rates and Discount Ratios for risks covered under the United States Longshore and Harbor Workers' Compensation Act.
 D Supplement Disease Loading

EXPERIENCE RATING PLAN MANUAL

Proposed Effective July 1, 2016

TABLE OF WEIGHTING VALUES

Expected Losses	Weighting Values	Expected Losses	Weighting Values	Expected Losses	Weighting Values
0 - 1,759	0.04	497,645 - 536,929	0.24	2,051,397 - 2,217,863	0.44
1,760 - 7,111	0.05	536,930 - 578,301	0.25	2,217,864 - 2,403,506	0.45
7,112 - 12,577	0.06	578,302 - 621,935	0.26	2,403,507 - 2,611,844	0.46
12,578 - 51,611	0.07	621,936 - 668,025	0.27	2,611,845 - 2,847,310	0.47
51,612 - 75,129	0.08	668,026 - 716,787	0.28	2,847,311 - 3,115,573	0.48
75,130 - 97,557	0.09	716,788 - 768,462	0.29	3,115,574 - 3,423,999	0.49
97,558 - 120,036	0.10	768,463 - 823,321	0.30	3,424,000 - 3,782,339	0.50
120,037 - 142,957	0.11	823,322 - 881,671	0.31	3,782,340 - 4,203,779	0.51
142,958 - 166,519	0.12	881,672 - 943,856	0.32	4,203,780 - 4,706,596	0.52
166,520 - 190,855	0.13	943,857 - 1,010,271	0.33	4,706,597 - 5,316,880	0.53
190,856 - 246,070	0.14	1,010,272 - 1,081,363	0.34	5,316,881 - 6,073,210	0.54
246,071 - 242,254	0.15	1,081,364 - 1,157,646	0.35	6,073,211 - 7,035,138	0.55
242,255 - 269,494	0.16	1,157,647 - 1,239,711	0.36	7,035,139 - 8,299,690	0.56
269,495 - 297,877	0.17	1,239,712 - 1,328,243	0.37	8,299,691 - 10,036,335	0.57
297,878 - 327,494	0.18	1,328,244 - 1,424,039	0.38	10,036,336 - 12,570,121	0.58
327,495 - 358,437	0.19	1,424,040 - 1,528,032	0.39	12,570,122 - 16,613,386	0.59
358,438 - 390,810	0.20	1,528,033 - 1,641,323	0.40	16,613,387 - 24,087,288	0.60
390,811 - 424,721	0.21	1,641,324 - 1,765,218	0.41	24,087,289 - 42,575,339	0.61
424,722 - 460,289	0.22	1,765,219 - 1,901,280	0.42	42,575,340 - 164,596,405	0.62
460,290 - 497,644	0.23	1,901,281 - 2,051,396	0.43	164,596,406 - 999,999,999	0.63

- | | |
|--|-----------|
| (a) State Per Claim Accident Limitation | \$210,000 |
| (b) State Multiple Claim Accident Limitation | \$420,000 |
| (c) U.S. Longshore and Harbor Workers' Act Per Claim Accident Limitation | \$130,000 |
| (d) U.S. Longshore and Harbor Workers' Act Multiple Claim Accident Limitation | \$260,000 |
| (e) Employers Liability Accident Limitation | \$55,000 |
| (f) USL&HW Act-Expected Loss Factor-Non-F Classes | 17.4% |
| (g) Cap on Modifications = $1 + (0.00005) [(Expected Losses) + (2) (Expected Losses) / (8.4)]$ | |

Proposed Effective July 1, 2016

TABLE OF BALLAST VALUES

Expected Losses	Ballast Values	Expected Losses	Ballast Values	Expected Losses	Ballast Values
0 - 45,182	21,000	1,449,849 - 1,491,824	168,000	2,919,423 - 2,961,416	315,000
45,183 - 77,762	25,200	1,491,825 - 1,533,801	172,200	2,961,417 - 3,003,410	319,200
77,763 - 115,198	29,400	1,533,802 - 1,575,780	176,400	3,003,411 - 3,045,404	323,400
115,199 - 154,690	33,600	1,575,781 - 1,617,760	180,600	3,045,405 - 3,087,399	327,600
154,691 - 195,142	37,800	1,617,761 - 1,659,741	184,800	3,087,400 - 3,129,393	331,800
195,143 - 236,102	42,000	1,659,742 - 1,701,723	189,000	3,129,394 - 3,171,388	336,000
236,103 - 277,359	46,200	1,701,724 - 1,743,705	193,200	3,171,389 - 3,213,383	340,200
277,360 - 318,803	50,400	1,743,706 - 1,785,689	197,400	3,213,384 - 3,255,378	344,400
318,804 - 360,371	54,600	1,785,690 - 1,827,673	201,600	3,255,379 - 3,297,373	348,600
360,372 - 402,027	58,800	1,827,674 - 1,869,658	205,800	3,297,374 - 3,339,369	352,800
402,028 - 443,746	63,000	1,869,659 - 1,911,643	210,000	3,339,370 - 3,381,364	357,000
443,747 - 485,512	67,200	1,911,644 - 1,953,630	214,200	3,381,365 - 3,423,360	361,200
485,513 - 527,315	71,400	1,953,631 - 1,995,616	218,400	3,423,361 - 3,465,355	365,400
527,316 - 569,147	75,600	1,995,617 - 2,037,604	222,600	3,465,356 - 3,507,351	369,600
569,148 - 611,001	79,800	2,037,605 - 2,079,592	226,800	3,507,352 - 3,549,347	373,800
611,002 - 652,874	84,000	2,079,593 - 2,121,580	231,000	3,549,348 - 3,591,343	378,000
652,875 - 694,762	88,200	2,121,581 - 2,163,569	235,200	3,591,344 - 3,633,339	382,200
694,763 - 736,662	92,400	2,163,570 - 2,205,558	239,400	3,633,340 - 3,675,335	386,400
736,663 - 778,574	96,600	2,205,559 - 2,247,547	243,600	3,675,336 - 3,717,331	390,600
778,575 - 820,494	100,800	2,247,548 - 2,289,537	247,800	3,717,332 - 3,759,327	394,800
820,495 - 862,422	105,000	2,289,538 - 2,331,528	252,000	3,759,328 - 3,801,324	399,000
862,423 - 904,356	109,200	2,331,529 - 2,373,518	256,200	3,801,325 - 3,843,320	403,200
904,357 - 946,296	113,400	2,373,519 - 2,415,509	260,400	3,843,321 - 3,885,317	407,400
946,297 - 988,242	117,600	2,415,510 - 2,457,501	264,600	3,885,318 - 3,927,313	411,600
988,243 - 1,030,191	121,800	2,457,502 - 2,499,492	268,800	3,927,314 - 3,969,310	415,800
1,030,192 - 1,072,145	126,000	2,499,493 - 2,541,484	273,000	3,969,311 - 4,011,307	420,000
1,072,146 - 1,114,102	130,200	2,541,485 - 2,583,476	277,200		
1,114,103 - 1,156,062	134,400	2,583,477 - 2,625,469	281,400		
1,156,063 - 1,198,025	138,600	2,625,470 - 2,667,461	285,600		
1,198,026 - 1,239,991	142,800	2,667,462 - 2,709,454	289,800		
1,239,992 - 1,281,958	147,000	2,709,455 - 2,751,447	294,000		
1,281,959 - 1,323,928	151,200	2,751,448 - 2,793,441	298,200		
1,323,929 - 1,365,900	155,400	2,793,442 - 2,835,434	302,400		
1,365,901 - 1,407,873	159,600	2,835,435 - 2,877,428	306,600		
1,407,874 - 1,449,848	163,800	2,877,429 - 2,919,422	310,800		

Note: For Expected Losses (E) greater than \$4,011,307, the Ballast Value is calculated using the formula:

$$\text{Ballast} = (0.1E + 2,500GE / (E + 700G))$$

Round to the nearest whole dollar. G is equal to the Statewide Average Cost Per Case / 1,000.
 In Massachusetts G = 8,400 / 1,000 = 8.4

XI 000001

Miscellaneous Rating Values

In this section, we discuss recommended modifications to various miscellaneous rating values, including the following:

- Massachusetts Benefits Deductible Program Credits
- Massachusetts Benefits Claim and Aggregate Deductible Program Credits
- Class 9178 (Athletic Team or Park: Non-Contact Sports) minimum and maximum individual payroll limitations
- Class 9179 (Athletic Team or Park: Contact Sports) minimum and maximum individual payroll limitations
- Class 9186 (Amusement Device Operator Carnival or Circus Traveling – All Employees & Drivers) maximum individual payroll limitation
- Executive Officer minimum and maximum individual payroll limitations

Section XI-B – Massachusetts Benefits Deductible Program Credits

The Massachusetts Benefits Deductible Program allows insureds to elect a per claim deductible applicable to the sum of medical and indemnity losses. Deductible levels of \$500, \$1,000, \$2,000, \$2,500 and \$5,000 are offered to every employer. Insureds that elect a deductible obtain a premium reduction reflective of the percentage of losses expected to be retained by the insured as a consequence of the deductible. Higher deductibles should be associated with larger premium credits because an insured's expected retained losses increase as the deductible level increases.

Section XI-B, Exhibit 1 displays Loss Elimination Ratios and Premium Credits for the available deductible levels. The premium credits have been calculated with the following considerations:

- The deductible will apply to the sum of indemnity and medical losses.
- The database used is Unit Statistical Report data from policy years 2009, 2008, 2007, 2006, and 2005 at fifth report. Each loss is multiplied by appropriate trend, law amendment and development factors. Claim costs are trended to 7/1/2017, the average accident date (assuming the proposed small deductible credits will be in effect for one year starting 7/1/2016). These factors are shown in Section XI-D, Exhibit 1 and they are taken directly from other sections of the filing.
- Each claim is then layered by size of loss to calculate loss elimination ratios (LER).
- The WCRIBMA used the same formula as in the last Massachusetts Benefits Deductible Program filing to calculate the premium credit. This is formula (8) in

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“Fundamentals of Individual Risk Rating”, 1992, Part III by William R. Gillam and Richard H. Snader:

$$\frac{\text{Premium Credit}}{\text{Credit}} = \frac{\text{LER} \times \text{SF} \times \text{ELR}}{1.0 - \text{VEL}}$$

LER - Loss Elimination Ratio (Section XI-B, Exhibit 1)

ELR - Expected Loss Ratio (Section VI-A, Exhibit 1)

VEL - Variable Expense Load (sum of the variable expense ratio from Section VI-A, Exhibit 1 and the IRR Profit Provision from Section VII-A, Exhibit 1)

SF - Safety Factor (based on the 2007 Stipulation)

The safety factor is warranted for a number of reasons. First, insureds that elect a small deductible are more likely to benefit from having the deductible than an insured chosen at random. This is referred to as adverse selection and is exacerbated by the requirement in Massachusetts (211 CMR 113.00) mandating that all risks be offered a policy with a deductible. Second, unlike personal auto or health insurance where the insurance company pays claims net of any applicable deductible, workers' compensation insurers must pay the entire amount of the claim and then seek reimbursement of the deductible from the insured. This creates credit risk and, unfortunately, some insureds default on their obligation to reimburse their insurance carrier. Additionally, the exposure insured by the insurance carrier is more risky if the policyholder has opted for a deductible because the policyholder retains the less risky portion of the total losses.

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Section XI - Miscellaneous Rating Values
Subsection B - Massachusetts Benefits Deductible Program Credits
7/1/2016

Section XI-B
Exhibit 1

Massachusetts Benefits Deductible Program Premium Credits

Deductible Level (1)	Loss Elimination Ratio (2)	Expected Loss Ratio (3)	Safety Factor (4)	Variable Expense Ratio (5)	Underwriting Profit Provision (6)	Premium Credit (7)
500	2.7%	0.613	0.90	0.198	0.020	1.9%
1,000	4.4%	0.613	0.90	0.198	0.020	3.1%
2,000	6.7%	0.613	0.90	0.198	0.020	4.8%
2,500	7.7%	0.613	0.90	0.198	0.020	5.4%
5,000	11.3%	0.613	0.90	0.198	0.020	8.0%

Notes:

(2): Based on Unit Statistical Data

(3): Section VI-A, Exhibit 1.

(4) = 0.9 from 9/1/2007 Stipulation.

(5): Section VI-A, Exhibit 1.

(6): Section VII-B, Exhibit 1.

(7) = [(2) x (3) x (4)] / [1.0 - (5) - (6)]

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Section XI-C – Massachusetts Benefits Claim and Aggregate Deductible Program

Credits

The Massachusetts Benefits Claim and Aggregate Deductible Program allows insureds to elect a per claim deductible applicable to the sum of medical and indemnity losses. However, unlike the Massachusetts Benefits Deductible Program, the losses retained by the insured are subject to a maximum, the aggregate limit. Only one deductible option is available with the Massachusetts Benefits Claim and Aggregate Deductible Program. Insureds may elect a \$2,500 deductible with an aggregate limit equal to the greater of \$10,000 or 5% of the “Basis for the Aggregate Limit at Policy Inception” which is defined in the Massachusetts Workers Compensation and Employers Liability Insurance Manual (“Massachusetts Manual”) as manual premium subject to any applicable merit or experience rating.

Section XI-C, Exhibit 1 shows the pricing of the \$2,500 per claim deductible subject to an aggregate limit. In the exhibit, the WCRIBMA estimates how much less of a credit is appropriate given the limitation on the insured’s retained losses. For the Massachusetts Benefits Deductible Program, a credit of 5.4% is estimated for a \$2,500 per claim deductible (not subject to an aggregate limit). The 5.4% will serve as the basis for the calculation of the credit factors applicable to the Massachusetts Benefits Claim and Aggregate Deductible Program.

The impact of the aggregate limit on retained losses will vary with the premium size for an insured. Consistent with the law of large numbers, the loss experience for smaller policies is more volatile than for larger policies. Hence, proportionately “smaller insureds”

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have either very low or very high loss ratios when compared to “larger insureds.” Consequently, smaller insureds are less apt to benefit from an aggregate limit. In this section, factors are derived to modify the credit proposed for a \$2,500 deductible without an applicable aggregate limit. These vary by premium size to reflect the differential benefits of the aggregate limit for different size insureds. As in the prior Massachusetts Benefits Claim and Aggregate Deductible Program filing, the selection of the adjustment factor is based on the results of a simulation model shown in Section XI-C, Exhibit 2.

The simulation model does the following for each simulated insured:

- Assumes the insured has an expected claim frequency of N.
- Simulates the number of claims for the insured by generating a random number from a Poisson distribution with mean N.
- For each simulated claim, selects at random an actual loss amount from those reported in policy years 2009, 2008, 2007, 2006, and 2005 at 5th report. Loss amounts are adjusted for trend, development and law changes.
- Applies the per claim deductible to each claim to estimate the retained losses prior to application of the aggregate limit.
- Summarizes the simulated retained losses.
- Applies the aggregate limit to the sum of the simulated retained losses.

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Section XI - Miscellaneous Rating Values
 Subsection C - Massachusetts Benefits Claim and Aggregate Deductible Program Credits
 7/1/2016

Section XI-C
 Exhibit 1

Massachusetts Benefits Claim and Aggregate Deductible Program Premium Credit for \$2,500 Per Claim Deductible with Aggregate Limit

Estimated Annual Standard Premium (1)	Expected Number of Claims Per Year = Midpoint of (1) / \$24,877 (2)	Aggregate Limit (3)	Selected Adjustment Factor for Aggregate Limit (4)	Premium Credit = (4) x 5.4% (5)
0 - 75,000	1.5	\$10,000	0.98	5.3%
75,000 - 100,000	3.5	\$10,000	0.96	5.2%
100,000 - 125,000	4.5	\$10,000	0.94	5.1%
125,000 - 150,000	5.5	\$10,000	0.92	5.0%
150,000 - 200,000	7.0	\$10,000	0.89	4.8%
Over 200,000	8 or more	5% of the 'Basis for the Aggregate Limit at Policy Inception'	0.84	4.5%

Notes:

- (2): Based on \$24,877 in standard premium (no ARAP) per expected claim.
- (4): Selected based on the simulation results shown in Exhibit 2.
- (5): The 5.4% is based on the \$2,500 per claim deductible without any aggregate limit, from Section XI-B, Exhibit 1.

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Section XI - Miscellaneous Rating Values
 Subsection C - Massachusetts Benefits Claim and Aggregate Deductible Program Credits
 7/1/2016

Section XI-C
 Exhibit 2

Results of Simulation Model

Expected Number of Claims Per Year (1)	Number of Simulated Risks (2)	LER with No Aggregate Limit (3)	LER with \$10,000 Aggregate Limit (4)	LER with 5% of the Basis for Aggregate Limit (5)	Ratio of LERs (\$10,000 limit) = (4) / (3) (6)	Ratio of LERs (5% limit) = (5) / (3) (7)
1	1,000,000	7.66%	7.66%	3.84%	1.00	0.50
2	1,000,000	7.71%	7.70%	5.13%	1.00	0.67
3	1,000,000	7.69%	7.62%	5.58%	0.99	0.73
4	1,000,000	7.69%	7.49%	5.87%	0.97	0.76
5	1,000,000	7.63%	7.25%	6.03%	0.95	0.79
6	1,000,000	7.63%	7.00%	6.18%	0.92	0.81
7	1,000,000	7.65%	6.70%	6.31%	0.88	0.82
8	1,000,000	7.67%	6.38%	6.42%	0.83	0.84
9	1,000,000	7.68%	6.03%	6.51%	0.79	0.85
10	1,000,000	7.66%	5.65%	6.55%	0.74	0.86
12	1,000,000	7.65%	4.96%	6.65%	0.65	0.87
14	1,000,000	7.66%	4.37%	6.74%	0.57	0.88
16	1,000,000	7.65%	3.86%	6.80%	0.50	0.89
18	1,000,000	7.66%	3.45%	6.86%	0.45	0.90
20	1,000,000	7.66%	3.12%	6.92%	0.41	0.90
25	1,000,000	7.66%	2.49%	7.00%	0.33	0.91
30	1,000,000	7.67%	2.08%	7.07%	0.27	0.92
40	1,000,000	7.66%	1.56%	7.16%	0.20	0.93
50	1,000,000	7.66%	1.25%	7.22%	0.16	0.94
75	1,000,000	7.65%	0.83%	7.32%	0.11	0.96
100	1,000,000	7.65%	0.62%	7.37%	0.08	0.96
150	1,000,000	7.66%	0.42%	7.45%	0.05	0.97
200	1,000,000	7.65%	0.31%	7.48%	0.04	0.98
300	1,000,000	7.65%	0.21%	7.53%	0.03	0.98
400	1,000,000	7.66%	0.16%	7.56%	0.02	0.99
500	1,000,000	7.66%	0.12%	7.58%	0.02	0.99

Notes:

(5): The Aggregate Limit is based on the average claim severity of the simulated losses, \$16,037 and the permissible loss ratio of 0.613. One claim is assumed to be expected for each \$24,877 of standard premium.

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Section XI - Miscellaneous Rating Values
 Subsection C - Massachusetts Benefits Claim and Aggregate Deductible Program Credits
 7/1/2016

Section XI-C
 Exhibit 3

Law Amendments, Loss Development Factors, and Severity Trend

(1) Law Amendment Factors to Prospective Effective Period

Policy Year	Indemnity Losses				Medical Losses
	Death	Permanent Total	Permanent Partial	Temporary Total	All Injury Types
PY 2005	1.052	1.059	1.106	1.032	1.032
PY 2006	1.047	1.051	1.090	1.028	1.032
PY 2007	1.041	1.042	1.074	1.023	1.032
PY 2008	1.035	1.034	1.059	1.018	1.024
PY 2009	1.033	1.031	1.054	1.016	1.002

(2) Loss Development Factors - Fifth Report to Ultimate

Loss Development Category	Indemnity	Medical
Likely to Develop	1.140	1.115
Not Likely to Develop	1.031	1.018

(3) Severity Trend Factors

We apply three distinct trend factors.

Trend to PY 2009 is based on empirical USR data at 5th report.

Trend from PY 2009 to PY 2013 is based on severities from Section V-A.

Trend from PY 2013 to the Prospective Effective Period is based on the projected severity trends from Section V-A.

Trend Period		Indemnity	Lost Time Medical	Medical Only
From	To			
PY 2005	PY 2009	1.137	1.190	1.094
PY 2006	PY 2009	1.111	1.129	1.030
PY 2007	PY 2009	1.110	1.129	0.987
PY 2008	PY 2009	1.040	1.155	0.972
PY 2009	PY 2013	1.136	1.171	1.137
PY 2013	Prosp. Eff. Period	1.079	1.096	1.089

Notes:

(1): Section IV-A, Exhibit 1.

(2): Section IV-E, Exhibit 1, Pages 1 and 2.

(3): Section V-A, Exhibit 1.

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MASSACHUSETTS WORKERS COMPENSATION AND EMPLOYERS LIABILITY INSURANCE MANUAL	RATES
<i>Proposed Effective July 1, 2016</i>	Page RA-5

MISCELLANEOUS VALUES	
Basis of Premium applicable in accordance with the footnote instructions for Code 7370 - "Taxicab Co.":	
Employee operated vehicles.....	\$98,000.00
Leased or rented vehicles.....	\$65,300.00
Basis of Premium for Sole Proprietors, Partners of Legal Partnerships, Members of Limited Liability Companies or Partners of Limited Liability Partnerships in accordance with Rule IX-B-3-a.....	
Minimum individual payroll for an executive officer per week.....	\$200.00
Maximum individual payroll for an executive officer per week.....	\$1,000.00
Terrorism Insurance Program —Certified Loss:	0.03

BENEFITS DEDUCTIBLE COVERAGE PROGRAM	
Medical and Indemnity Deductible Amount	Premium Reduction Percentage
\$500	1.9%
\$1,000	3.1%
\$2,000	4.8%
\$2,500	5.4%
\$5,000	8.0%

BENEFITS CLAIM AND AGGREGATE DEDUCTIBLE PROGRAM			
Basis for the Aggregate Limit	Claim/Deductible Amount	Aggregate Deductible Amount	Premium Reduction Percentage
\$ 0 to \$75,000	\$2,500	\$10,000	5.3%
\$75,001 to \$100,000	\$2,500	\$10,000	5.2%
\$100,001 to \$125,000	\$2,500	\$10,000	5.1%
\$125,001 to \$150,000	\$2,500	\$10,000	5.0%
\$150,001 to \$200,000	\$2,500	\$10,000	4.8%
over \$200,000	\$2,500	5% of Basis for the Aggregate Limit	4.5%

Expense Constant applicable in accordance with Basic Manual Rule VI-E-2:	
Policies which develop earned Standard Premium of less than \$200.....	\$159
Policies which develop earned Standard Premium of at least \$200 and less than \$1,000.....	\$250
Policies which develop earned Standard Premium of \$1,000 or more.....	\$338

The expense constant for private residence per capita classifications is \$64, up to a maximum of 4.

Premium Discount Percentages—(See Basic Manual Rule VII). The following premium discounts are applicable to Standard Premiums. Note: Premium Discount is not applicable to Assigned Risk policies.

	Type A Discount	Type B Discount
First \$ 10,000.....	0.0%	0.0%
Next 190,000.....	9.1%	5.1%
Next 1,550,000.....	11.3%	6.5%
Over 1,750,000.....	12.3%	7.5%

United States Longshore and Harbor Workers' Compensation Coverage Percentage applicable only in connection with Rule XII-D-3. "U.S. Longshore and Harbor Workers' Compensation Act" of the Basic Manual.....	23.0%
<small>(Multiply a Non-F classification rate by a factor of 1.23)</small>	

EXPERIENCE RATING ELIGIBILITY

A risk is eligible for intrastate experience rating when the payrolls or other exposures developed in the last year or last two years of the experience period produced a subject premium of at least \$11,000. If more than two years, an average annual premium of at least \$5,500 is required. The Experience Rating Plan Manual should be referenced for the latest eligibility amounts by state.

- Notes:
- Benefit Deductible Coverage Program - Section XI-B, Exhibit 1.
 - Benefit Claim and Aggregate Deductible Program - Section XI-C, Exhibit 1.
 - Expense Constant - Section VI-D, Exhibit 1.
 - Expense Constant for private residences - Section I-A, Exhibit 1.
 - USL&H factor - Section VIII-J, Exhibit 1.

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Section XI-D – Executive Officer Minimum and Maximum Individual Payroll

Limitations

Individual payroll limitations for executive officers have not changed since 1990 while the statewide average weekly wage has more than doubled. The WCRIBMA proposes to adopt a method (analogous to the one used to calculate the basis of premium for sole proprietors) whereby executive officer payroll limitations would be adjusted annually to reflect changes in the statewide average weekly wage (SAWW). As statewide average weekly wages change over time, both the maximum and minimum weekly payroll limitations applicable to executive officers would automatically adjust.¹

Beginning with the SAWW effective October 1, 2016 and annually thereafter, the WCRIBMA is proposing to revise the executive officer payroll limitations as follows:

$$UMAX_{NEW} = UMAX_{OLD} \times (SAWW_{NEW} / SAWW_{OLD})$$

$$UMIN_{NEW} = UMIN_{OLD} \times (SAWW_{NEW} / SAWW_{OLD})$$

where $UMAX_{NEW}$ is the new unrounded maximum weekly payroll limitation for executive officers

$UMAX_{OLD}$ is the prior year's unrounded maximum weekly payroll limitation for executive officers

¹ Indemnity benefits are subject to caps that are a function of the SAWW; as weekly wages increase so do benefits. On March 24, 2015, the benefit cap for burial expense was changed from \$4,000 to eight times the SAWW so it will automatically adjust over time. Payroll caps should similarly automatically adjust over time.

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UMIN_{NEW} is the new unrounded minimum weekly payroll limitation for executive officers

UMIN_{OLD} is the prior year's unrounded minimum weekly payroll limitation for executive officers

SAWW_{NEW} is the new statewide average weekly wage

SAWW_{OLD} is the prior year's statewide average weekly wage

Impacted manual pages will be revised annually to reflect the values calculated above rounded to the nearest ten dollars. The unrounded values will then be used in the following year's calculations.

The purpose of this proposal is to stop the executive officer weekly payroll caps from getting any smaller relative to the SAWW. Currently the maximum weekly payroll for an executive officer is \$1,000, less than 80% of the \$1,256.47 SAWW effective October 1, 2015.

The WCRIBMA, when estimating the overall rate indication, trends all premiums for expected wage growth. Therefore, implicit in the rate indication are increases for all payroll limitations. In the 2012 rate filing, the WCRIBMA unsuccessfully proposed increasing the maximum executive officer weekly payroll cap from \$1,000 to four times the SAWW. Ms. During the 2012 rate proceeding, Dee Dee Mays, one of the SRB's expert witnesses, recommended that the WCRIBMA instead "begin increasing the payroll caps from their current levels to adjusted levels based on the projected changes in the State Average Weekly Wage during the time that the new rates will be in effect." The WCRIBMA's

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proposal substantively follows this recommendation, with two refinements. First, instead of attempting to projecting wage trends, the WCRIBMA will make use of the prior year's change in the SAWW. Second, instead of routinely filing for changes in the executive officer payroll limitations in future rate filings, the WCRIBMA is seeking approval in this filing to annually update executive officer payroll limitations in a manner similar to the current process for updating the basis of premium for sole proprietors.

A circular will be posted on the WCRIBMA's website each October to announce the change to the executive officer payroll limitations. The present and proposed classification phraseology is displayed below.

<p align="center">Present Phraseology Part Two – Classifications</p>	<p align="center">Proposed Phraseology Part Two – Classifications</p>
<p>RULE IX - SPECIAL CONDITIONS OR OPERATIONS AFFECTING COVERAGE AND PREMIUM</p> <p>A. EXECUTIVE OFFICERS</p> <p>1. Definition Executive officers of a corporation or an association are the president, vice president, secretary, treasurer, clerk or any other officer appointed in accordance with the charter or bylaws of such entity.</p> <p>2. Law and Status Executive officers of a corporation or an association are covered under M.G.L. Chapter 152, as amended. Executive officers have the same status as employees under the policy.</p> <p><u>Exceptions to A. 2. above</u> Corporate officers or directors who own at least 25% of the issued and outstanding shares of a corporation may elect to be excluded from coverage, pursuant to M.G.L. c. 152, § 1(4) as amended by Chapter 169 of the Acts of 2002. Remuneration of excluded corporate officers or directors shall not be included in premium determination.</p> <p>To exclude coverage for qualifying corporate officers or directors that have elected and been approved in accordance with 452 CMR 8.06, attach the Partners, Officers and Others Exclusion Endorsement (WC 00 03 08).</p> <p>3. Premium Determination Premium for executive officers shall be based on their total payroll, subject to the following limitations and the requirements of Rule V-F.</p> <p>a. The minimum individual payroll for an executive officer is \$200 per week.</p> <p>b. The maximum individual payroll for an executive officer is \$1,000 per week.</p> <p>c. The payroll limitations in a. and b. apply to the average weekly payroll of each executive officer for the number of weeks the officer was employed during the policy period.</p>	<p>RULE IX - SPECIAL CONDITIONS OR OPERATIONS AFFECTING COVERAGE AND PREMIUM</p> <p>A. EXECUTIVE OFFICERS</p> <p>1. Definition Executive officers of a corporation or an association are the president, vice president, secretary, treasurer, clerk or any other officer appointed in accordance with the charter or bylaws of such entity.</p> <p>2. Law and Status Executive officers of a corporation or an association are covered under M.G.L. Chapter 152, as amended. Executive officers have the same status as employees under the policy.</p> <p><u>Exceptions to A. 2. above</u> Corporate officers or directors who own at least 25% of the issued and outstanding shares of a corporation may elect to be excluded from coverage, pursuant to M.G.L. c. 152, § 1(4) as amended by Chapter 169 of the Acts of 2002. Remuneration of excluded corporate officers or directors shall not be included in premium determination.</p> <p>To exclude coverage for qualifying corporate officers or directors that have elected and been approved in accordance with 452 CMR 8.06, attach the Partners, Officers and Others Exclusion Endorsement (WC 00 03 08).</p> <p>3. Premium Determination Premium for executive officers shall be based on their total payroll, subject to the following limitations and the requirements of Rule V-F.</p> <p>a. The minimum individual payroll for an executive officer is \$200 \$XXX per week.</p> <p>b. The maximum individual payroll for an executive officer is \$1,000 \$XXX per week.</p> <p>c. The payroll limitations in a. and b. apply to the average weekly payroll of each executive officer for the number of weeks the officer was employed during the policy period.</p>

<p align="center">Present Phraseology Part Two – Classifications</p>	<p align="center">Proposed Phraseology Part Two – Classifications</p>
<p>4. Spouses of Individuals, Co-Partners or Corporate Officers If a spouse of an individual proprietor, or a member of a co-partnership, or of an officer of a corporation is employed by such entity to perform work in connection with the operations of the employer covered by the policy, the actual payroll of such spouse, as indicated by the insured’s records, subject to a minimum individual payroll of \$200 per week, shall be included in the basis of premium computation. If the records fail to disclose payroll, the minimum specified above shall be included as payroll.</p> <p>5. Elected or Appointed Officers of a City or Town If under the provisions of Section 69 of M.G.L. Chapter 152, as amended by Chapter 401 of the Acts of 1966, an elected or appointed officer of a city or town has been designated as included within the term “laborers, workmen and mechanics,” the actual payroll of such officer shall be included in the basis of premium computation, subject to a minimum individual payroll of \$200 per week and a maximum individual payroll of \$1,000 per week.</p> <p>6. Assignment of Payroll Payroll shall be assigned to the classification that applies to the principal operations in which the executive officer is engaged. Exceptions to A.6. above</p> <p>a. Payroll of an executive officer who regularly and frequently engages in duties which are ordinarily performed by a superintendent, foreman or worker shall be assigned to the governing classification.</p> <p>b. Payroll of an executive officer who performs construction, erection or stevedoring operations shall be divided and assigned to the classifications which apply to the different types of operations of the executive officer, subject to the requirements of Rule IV-E.2.</p> <p>c. An executive officer may either receive a salary from only one or from several corporations insured under one policy. In other instances, several policies may be issued to cover several corporations and an executive officer may receive a salary from each of these corporations.</p>	<p>4. Spouses of Individuals, Co-Partners or Corporate Officers If a spouse of an individual proprietor, or a member of a co-partnership, or of an officer of a corporation is employed by such entity to perform work in connection with the operations of the employer covered by the policy, the actual payroll of such spouse, as indicated by the insured’s records, subject to a minimum individual payroll of \$200 \$XXX per week, shall be included in the basis of premium computation. If the records fail to disclose payroll, the minimum specified above shall be included as payroll.</p> <p>5. Elected or Appointed Officers of a City or Town If under the provisions of Section 69 of M.G.L. Chapter 152, as amended by Chapter 401 of the Acts of 1966, an elected or appointed officer of a city or town has been designated as included within the term “laborers, workmen and mechanics,” the actual payroll of such officer shall be included in the basis of premium computation, subject to a minimum individual payroll of \$200 \$XXX per week and a maximum individual payroll of \$1,000 \$XXX per week.</p> <p>6. Assignment of Payroll Payroll shall be assigned to the classification that applies to the principal operations in which the executive officer is engaged. Exceptions to A.6. above</p> <p>a. Payroll of an executive officer who regularly and frequently engages in duties which are ordinarily performed by a superintendent, foreman or worker shall be assigned to the governing classification.</p> <p>b. Payroll of an executive officer who performs construction, erection or stevedoring operations shall be divided and assigned to the classifications which apply to the different types of operations of the executive officer, subject to the requirements of Rule IV-E.2.</p> <p>c. An executive officer may either receive a salary from only one or from several corporations insured under one policy. In other instances, several policies may be issued to cover several corporations and an executive officer may receive a salary from each of these corporations.</p>

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Present Phraseology Part Two – Classifications	Proposed Phraseology Part Two – Classifications
<p>Where it is permissible to include more than one corporation on a single policy and such corporations are insured by a single carrier, whether under one or more policies, the several corporations shall be considered as a unit with respect to the application of the executive officers rule. In all other cases the rule shall apply on a policy basis.</p> <p>7. Flight Duties Payroll of an executive officer who is a pilot or member of the flying crew of an aircraft used in the insured's business shall be assigned as follows:</p> <ul style="list-style-type: none">a. For each week during which the executive officer did not perform flight duties, assign the officer's payroll as provided in Rule IX-A-6.b. For each week during which the executive officer performed flight duties, assign the officer's payroll for that week to Code 7421 - Aviation - Flying Crew. If an executive officer's non-flying duties in such a week are subject to a higher rated classification, that higher rated classification shall be assigned in that week. <p>Rules 7.a. and b. apply on the basis of the pilot's log book required under Federal regulations or other verifiable records.</p> <p>If Code 7421 – Aviation - Flying Crew - applies and verifiable records are not maintained to indicate those weeks during which flying is performed by executive officers, their payroll shall be assigned to the highest rated classification which applies to any of their operations.</p>	<p>Where it is permissible to include more than one corporation on a single policy and such corporations are insured by a single carrier, whether under one or more policies, the several corporations shall be considered as a unit with respect to the application of the executive officers rule. In all other cases the rule shall apply on a policy basis.</p> <p>7. Flight Duties Payroll of an executive officer who is a pilot or member of the flying crew of an aircraft used in the insured's business shall be assigned as follows:</p> <ul style="list-style-type: none">a. For each week during which the executive officer did not perform flight duties, assign the officer's payroll as provided in Rule IX-A-6.b. For each week during which the executive officer performed flight duties, assign the officer's payroll for that week to Code 7421 - Aviation - Flying Crew. If an executive officer's non-flying duties in such a week are subject to a higher rated classification, that higher rated classification shall be assigned in that week. <p>Rules 7.a. and b. apply on the basis of the pilot's log book required under Federal regulations or other verifiable records.</p> <p>If Code 7421 – Aviation - Flying Crew - applies and verifiable records are not maintained to indicate those weeks during which flying is performed by executive officers, their payroll shall be assigned to the highest rated classification which applies to any of their operations.</p>

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Section XI-E – Class 9186 (Amusement Device Operator Carnival or Circus Traveling – All Employees & Drivers) Maximum Individual Payroll Limitations

In the September 1, 1999 rate filing class codes 9180 and 9186 were combined for purposes of ratemaking. In the 2012 rate filing, the WCRB recommended that the payroll limitation for class code 9186 be eliminated so that the exposure base for class code 9186 would coincide with the exposure base for class code 9180, unlimited payroll, correcting an oversight from the 1999 revision. That recommendation was not adopted. In this rate filing, the WCRIBMA is proposing an alternative change that, while it will not eliminate the inequity created by the capping of payrolls for only one of two class codes that are grouped for class ratemaking purposes, will help to lessen the scope of this inequity. For policy year 2013, class code 9186 generated manual premiums of \$103,239 from thirty-four policies.

The WCRIBMA proposes to adopt a method (analogous to the one used to calculate the basis of premium for sole proprietors) whereby the payroll limitation for class code 9186 would be adjusted annually to reflect any change in the statewide average weekly wage (SAWW). As statewide average weekly wages change over time, the payroll limitation for class code 9186 would automatically adjust.

Beginning with the SAWW effective October 1, 2016 and annually thereafter, the WCRIBMA is proposing to revise the payroll limitation for class code 9186 as follows:

$$CMAX_{NEW} = CMAX_{OLD} \times (SAWW_{NEW} / SAWW_{OLD})$$

where $CMAX_{NEW}$ is the new payroll limitation for class code 9186

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CMAX_{OLD} is the prior year’s unrounded payroll limitation for class code 9186

SAWW_{NEW} is the new statewide average weekly wage

SAWW_{OLD} is the prior year’s statewide average weekly wage

Impacted manual pages will be revised annually to reflect the value calculated above rounded to the nearest ten dollars. The unrounded value will then be used in the following year’s calculations.

The WCRIBMA, when estimating the overall rate indication, trends all premiums for expected wage growth. Therefore, implicit in the rate indication are increases for all payroll limitations. A circular will be posted on the WCRIBMA’s website each October to announce the change to the payroll limitation for class code 9186. The present and proposed classification phraseology is displayed below.

Present Phraseology Part Two – Classifications	Proposed Phraseology Part Two – Classifications
AMUSEMENT DEVICE OPERATOR, CARNIVAL OR CIRCUS TRAVELING – ALL EMPLOYEES & DRIVERS..... ...9186 <i>The entire remuneration of all employees shall be included in computing premium, subject, however, to a maximum of an average of \$300 per week per employee.</i>	AMUSEMENT DEVICE OPERATOR, CARNIVAL OR CIRCUS TRAVELING – ALL EMPLOYEES & DRIVERS..... ...9186 <i>The entire remuneration of all employees shall be included in computing premium, subject, however, to a maximum of an average of \$300 \$XXX per week per employee.</i>

XI 000019

Section XI-F – Class 9178 (Athletic Team or Park: Non-Contact Sports) & Class 9179 (Athletic Team or Park: Contact Sports) Minimum and Maximum Individual Payroll

Limitations

For class codes 9178 and 9179, the weekly payroll per individual employee used to calculate premium is subject to a maximum of an average of \$300 per week per employee. This limit has remained unchanged since at least 1980. The WCRIBMA proposes to adopt a method (analogous to the one used to calculate the basis of premium for sole proprietors) that annually adjusts the maximum weekly payroll per individual employee by the change in the statewide average weekly wage. As statewide average weekly wages change over time, the maximum weekly payroll per individual employee applicable to class codes 9178 and 9179 would automatically adjust. For policy year 2013, class code 9178 generated manual premiums of \$567,601 from eleven policies while class code 9179 generated manual premiums of \$928,792 on ten policies.

For purposes of calculating premiums, a minimum payroll of \$500 per employee per season also exists for class codes 9178 and 9179. This value has remained unchanged since at least 1979. A minimum payroll is not necessary for class codes 9178 and 9179. Moreover, the existing minimum is at such a low level in relation to current wage levels in Massachusetts that it has little to no impact on premium. The WCRIBMA is recommending the elimination of the minimum payroll of \$500 per employee per season for class codes 9178 and 9179.

XI 000020

Beginning with the SAWW effective October 1, 2016 and annually thereafter, the WCRIBMA is proposing to revise the payroll limitation for class codes 9178 and 9179 as follows:

$$S_{MAX_{NEW}} = S_{MAX_{OLD}} \times (S_{AWW_{NEW}} / S_{AWW_{OLD}})$$

where $S_{MAX_{NEW}}$ is the new payroll limitation for class codes 9178 and 9179

$S_{MAX_{OLD}}$ is the prior year's unrounded payroll limitation for class codes 9178 and 9179

$S_{AWW_{NEW}}$ is the new statewide average weekly wage

$S_{AWW_{OLD}}$ is the prior year's statewide average weekly wage

Impacted manual pages will be revised annually to reflect the value calculated above rounded to the nearest ten dollars. The unrounded value will then be used in the following year's calculations.

The WCRIBMA, when estimating the overall rate indication, trends all premiums for expected wage growth. Therefore, implicit in the rate indication are increases for all payroll limitations. A circular will be posted on the WCRIBMA's website each October to announce the change to the payroll limitation for class codes 9178 and 9179. The present and proposed classification phraseologies are displayed below.

XI 000021

Present Phraseology Part Two – Classifications	Proposed Phraseology Part Two – Classifications
<p>ATHLETIC TEAM OR PARK:</p> <p>CONTACT SPORTS.....9179 <i>Applies to players, coaches, managers or umpires and includes all players on salary list of insured, whether regularly played or not. Contact sports include football, hockey and roller derbies.</i></p> <p><i>The entire remuneration of all employees shall be included in computing premium, subject, however, to a minimum of \$500 per employee per season and a maximum of an average of \$300 per week per employee.</i></p> <p>NON-CONTACT SPORTS 9178 <i>Applies to players, coaches, managers or umpires and includes all players on salary list of insured, whether regularly played or not. Non-contact sports include baseball, basketball, and soccer.</i></p> <p><i>The entire remuneration of all employees shall be included in computing premium, subject, however, to a minimum of \$500 per employee per season and a maximum of an average of \$300 per week per employee.</i></p>	<p>ATHLETIC TEAM OR PARK: <u>ATHELETIC SPORTS OR PARK:</u></p> <p>CONTACT SPORTS.....9179 <i>Applies to players, coaches, managers, <u>trainers, equipment managers</u> or umpires sports officials and includes all players on salary list of insured, whether regularly played or not. Contact sports include, <u>but are not limited to</u>, football, hockey and roller derbies derby.</i></p> <p><i>The entire remuneration of all employees must be included in computing premium, subject, however, to a minimum of \$500 per employee per season and a maximum average weekly wage per employee equal to of an average of \$300 \$XXX per week per employee. <u>This classification is not applicable for amateur, youth, or recreational sports, in which the athletes are generally not paid. Refer to Code 9063 for these risks.</u></i></p> <p>NON-CONTACT SPORTS.....9178 <i>Applies to players, coaches, managers, <u>trainers, equipment managers,</u> or umpires sports officials and includes all players on salary list of insured, whether regularly played or not. Noncontact sports include, <u>but are not limited to</u>, baseball, basketball, and soccer.</i></p> <p><i>The entire remuneration of all employees must be included in computing premium, subject, however, to a minimum of \$500 per employee per season and a maximum average weekly wage per employee equal to of an average of \$300 \$XXX per week per employee. <u>This classification is not applicable for amateur, youth, or recreational sports, in which the athletes are generally not paid. Refer to Code 9063 for these risks.</u></i></p>

RETROSPECTIVE RATING PLANS

The NCCI's Retrospective Rating Plan has been adopted for use in Massachusetts since 1936. Retrospective rating plans adjust the premium of a policy to reflect an insured's loss experience during the effective period of the policy. At the simplest level, an insured's retrospective premium is determined by the formula $R = [B + (c \times L)] \times t$, where:

R = Retrospective Premium, subject to minimum and maximum amounts

B = Basic Premium

c = Loss Conversion Factor, generally reflecting loss adjustment expense

L = Actual Incurred Loss during the effective policy period

t = Tax Multiplier

The basic premium provides for the expenses of carriers. It also includes a net insurance charge, which is intended to compensate for the possibility that the otherwise-indicated retrospective premium will exceed the maximum permissible premium amount. Similarly, there is a savings resulting from the possibility that the otherwise-indicated retrospective premium will be less than the permissible minimum premium amount. The net insurance charge is the difference between the charge for the maximum and the savings from the minimum.

XII 000002

The calculations in this section appear in Sections XII-A, XII-B and XII-C and are similar to those used by the Commissioner in her 2003 decision. . This year, consistent with the 2011, 2012 and 2014 filing, the WCRIBMA includes miscellaneous taxes in the Tax Multiplier.

Section XII-A displays the calculation of the parameters needed for retrospective rating. Insureds electing to purchase a retrospectively rated policy may choose one of two options that differ as to their treatment of allocated loss adjustment expenses (“ALAE”). Option one, the traditional approach, is designed so that expected ALAE is primarily recovered through the application of the loss conversion factor to losses (Exhibit 3). Option two uses the sum of losses and ALAE, as opposed to only losses, in its calculation of retrospective premium and therefore, the loss conversion factor is smaller (Exhibit 4).

Section XII-B calculates the revised provision for the residual market subsidy.

Section XII-C displays the tables of expense ratios corresponding to the parameters calculated in Section XII-A.

Section XII-D displays the recommended Table of Expected Loss Ranges and

Section XII-E presents the calculation of hazard group differentials.

Section XII-F presents an update of the Excess Loss Factors.

Expected Loss Ranges and State and Hazard Groups

Retrospective premiums are calculated subject to a maximum and minimum premium. If an insured incurs losses high enough to cap its premium at the maximum, the insurer collects insufficient premium for that account. If an insured has unusually low losses, it pays the minimum premium. The net insurance charge is the difference between the charge for the maximum and the savings from the minimum.

XII 000003

The Table of Insurance Charges contains the excess ratios needed to quantify the insurance charge and savings described above. The ratio of actual losses to expected losses, the entry ratio, is used to look up the values in the Table of Insurance Charges. The charges depend not only on the maximum and minimum subject losses, but also on the size of the insured. The variation in the loss ratios, and in turn the charges, of the larger employers that expect many losses should be much lower than the variation for smaller employers. Insurance Charges are inversely proportional to risk size. Retrospectively rated risks are categorized into expected loss ranges which dictate which column to use from the Table of Insurance Charges when calculating a retrospectively rated risk's insurance charge.

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

**MASSACHUSETTS
 RR1**

Proposed Effective July 1, 2016

1. Hazard Group Differentials

A	B	C	D	E	F	G
1.87	1.49	1.32	1.10	0.90	0.73	0.59

2. Tax Multipliers

a. State (non-F Classes)	1.026*
b. Federal Classes, or non-F classes where rate is increased by the USL&HW Act Percentage	1.067*

* Includes 0.1% residual market subsidy provision and -0.22% insolvency fund assessment provision

3. Expected Loss Ratio

0.613

Expected Loss and Allocated Loss Adjustment Expense Ratio (ALAE Option)

0.675

4. Loss Conversion Factor

1.200

Loss Conversion Factor for Allocated Loss Adjustment Expense Option (ALAE Option)

1.089

5. Table of Expense Ratios Excluding Taxes and Including Profit

Type A Company

Massachusetts
 Effective July 1, 2016

Type B Company

Massachusetts
 Effective July 1, 2016

Table of Expense Ratios Excluding Allocated Loss Adjustment Expense and Taxes and Including Profit (ALAE Option)

Type A Company

Massachusetts
 Effective July 1, 2016

Type B Company

Massachusetts
 Effective July 1, 2016

6. 2013—Table of Expected Loss Ranges

April 1, 2014

7a.

Excess Loss Factors

(Applicable to New and Renewal Policies)

<u>Per Accident Limitation</u>	<u>Hazard Groups</u>						
	A	B	C	D	E	F	G
\$25,000	0.388	0.413	0.436	0.456	0.475	0.504	0.535
30,000	0.370	0.396	0.420	0.442	0.462	0.491	0.526
35,000	0.355	0.381	0.406	0.429	0.450	0.480	0.517
40,000	0.341	0.367	0.393	0.418	0.439	0.470	0.509
50,000	0.316	0.343	0.370	0.397	0.419	0.451	0.495
75,000	0.268	0.295	0.324	0.356	0.378	0.411	0.464
100,000	0.232	0.259	0.288	0.322	0.345	0.377	0.437
125,000	0.204	0.229	0.258	0.294	0.316	0.348	0.413
150,000	0.181	0.204	0.233	0.269	0.291	0.322	0.391
175,000	0.162	0.183	0.211	0.248	0.268	0.298	0.370
200,000	0.147	0.165	0.193	0.229	0.248	0.277	0.352
250,000	0.121	0.137	0.162	0.198	0.215	0.241	0.319
300,000	0.103	0.116	0.139	0.173	0.188	0.213	0.290
500,000	0.061	0.069	0.085	0.111	0.121	0.139	0.209
1,000,000	0.028	0.032	0.040	0.055	0.060	0.070	0.116
2,000,000	0.012	0.014	0.018	0.025	0.028	0.033	0.058
3,000,000	0.008	0.009	0.011	0.016	0.017	0.021	0.037
4,000,000	0.005	0.006	0.008	0.011	0.012	0.015	0.027
5,000,000	0.004	0.005	0.006	0.008	0.009	0.011	0.021

XII 000005

**MASSACHUSETTS
 RR2**

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

Proposed Effective July 1, 2016

**7b. ALAE Option Excess Loss and Allocated Loss Adjustment Expense Factors
 (Applicable to New and Renewal Policies)**

Per Accident Limitation	Hazard Groups						
	A	B	C	D	E	F	G
\$25,000	0.437	0.464	0.489	0.510	0.531	0.562	0.594
30,000	0.419	0.446	0.472	0.495	0.517	0.549	0.585
35,000	0.402	0.430	0.457	0.482	0.504	0.537	0.576
40,000	0.387	0.416	0.443	0.470	0.492	0.526	0.568
50,000	0.360	0.390	0.419	0.448	0.471	0.506	0.553
75,000	0.308	0.339	0.370	0.403	0.428	0.464	0.520
100,000	0.269	0.299	0.331	0.368	0.393	0.429	0.492
125,000	0.238	0.266	0.299	0.338	0.362	0.398	0.467
150,000	0.213	0.239	0.272	0.311	0.335	0.370	0.443
175,000	0.192	0.216	0.248	0.288	0.311	0.345	0.423
200,000	0.174	0.196	0.227	0.268	0.290	0.322	0.403
250,000	0.146	0.164	0.193	0.233	0.253	0.283	0.367
300,000	0.124	0.140	0.166	0.205	0.223	0.251	0.337
500,000	0.074	0.084	0.103	0.134	0.146	0.167	0.247
1,000,000	0.035	0.039	0.049	0.067	0.073	0.086	0.140
2,000,000	0.015	0.018	0.022	0.031	0.035	0.041	0.071
3,000,000	0.009	0.011	0.014	0.019	0.022	0.025	0.046
4,000,000	0.007	0.007	0.010	0.014	0.015	0.018	0.033
5,000,000	0.005	0.006	0.007	0.010	0.012	0.014	0.026

8. Retrospective Development Factors

With Loss Limit				Without Loss Limit			
1st	2nd	3rd	4th & Subsequent	1st	2nd	3rd	4th & Subsequent
<u>Adj.</u>	<u>Adj.</u>	<u>Adj.</u>	<u>Adj.</u>	<u>Adj.</u>	<u>Adj.</u>	<u>Adj.</u>	<u>Adj.</u>
0.11	0.07	0.05	0.00	0.14	0.09	0.06	0.00

9. State Special Classifications by Hazard Group

All Massachusetts Hazard Group assignments can be found in Appendix G of the 2008 Edition of the Massachusetts Workers' Compensation & Employers Liability Insurance Manual.

XII 000006

Section XII - Retrospective Rating
Subsection A - Expenses
7/1/2016

Section XII - A
Exhibit 3

Expense Provisions Underlying the Proposed Retrospective Rating Plans

Total Expenses:

(1) Commission and Other Acquisition Expenses	12.6%
(2) Fixed Expenses	4.3%
(3) Premium Discount	5.0%
(4) Underwriting Profit Provision	<u>2.0%</u>
(5) Total Expenses Excluding Taxes and Assessments (= (1) + (2) + (3) + (4))	23.9%
(6) Current Premium Tax Rate	2.28%
(7) Miscellaneous Taxes	0.40%
(8) Retro Provision for the Residual Market Subsidy	0.10%
(9) Insolvency Fund Assessment	<u>-0.22%</u>
(10) Tax Multiplier (= $1.0 / \{ 1.0 - [(6) + (7) + (8) + (9)] \}$)	1.026
(11) Expected Loss and LAE Ratio (adjusted for Residual Market Subsidy) (= $[1.0 / (10)] - (5)$)	73.5%
(12) Loss Adjustment Expense (as percentage of losses)	20.0%
(13) Loss Conversion Factor (= $1.0 + (12)$)	1.200
(14) Expected Loss without LAE (= $(11) / (13)$)	61.3%
(15) Expenses excluding Premium Taxes but including LAE (= $(5) + [(12) \times (14)]$)	36.2%

Notes:

- (1): Section VI-A, Exhibit 1, line (1).
- (2): Section VI-J, Exhibit 1, line (7), less the provision for miscellaneous taxes, see line (7) below.
- (3): Section VI-J, Exhibit 1, line (2).
- (4): Section VII-A, Exhibit 1, line (14).
- (6): Section VI-B, Exhibit 3, line (2).
- (7): Section VI-B, Exhibit 1, the average of the results of columns (13) x (15) / (17).
- (8): Section XII-B, Exhibit 1, line (3).
- (9): Section IX-K, Exhibit 5, page 1, line (9).
- (12): Section VI-J, Exhibit 1, line (9).

XII 000007

Section XII - Retrospective Rating
Subsection A - Expenses
7/1/2016

Section XII - A
Exhibit 4

Expense Provisions Underlying the ALAE Option of the Recommended Retrospective Rating Plans

(1) Expected Loss without Defense and Cost Containment Expense (as percentage of Standard Premium plus ARAP)	61.3%
(2) Provision for ALAE Expenses (as percentage of losses)	10.1%
(3) Expected Loss plus ALAE Ratio (= (1) x [1.0 + (2)])	67.5%
(4) Loss Adjustment Expense (as percentage of losses)	20.0%
(5) Loss Conversion Factor (= [1.0 + (4)] / [1.0 + (2)])	1.089
(6) Tax Multiplier	1.026
(7) Expenses excluding Premium Taxes but including LAE (as percentage of Standard Premium plus ARAP)	36.2%
(8) Expenses including all AO Expenses but excluding ALAE Expenses and Premium Taxes (= (7) - [(1) x (2)])	30.0%

Notes:

(1): Exhibit 3, line (14)

(2): Section VI-H, Exhibit 1, line (5), DCC assumed a proxy for ALAE.

(4), (6), (7): Exhibit 3, lines (12), (10) and (15) respectively.

XII 000008

Section XII - Retrospective Rating
Subsection B - Residual Market Subsidy
7/1/2016

Section XII - B
Exhibit 1

Calculation of the Provision for the Residual Market Subsidy

(1) Voluntary Market Implied Rate Factor Equivalent	0.999
(2) Factor to Take into Account Basic Premium	0.800
(3) Retro Provision for the Residual Market Subsidy	0.10%

Notes:

(1): Section I-D, Exhibit 1, page 1.

(2): From the filing for the provision for the Residual Market Subsidy effective 1/1/89.

(3) = $[1.0 - (1)] \times (2)$

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

**MASSACHUSETTS
 RR5**

Proposed Effective July 1, 2016

TABLE OF EXPENSE RATIOS—EXCLUDING TAXES AND INCLUDING PROFIT

TYPE A COMPANY—MASSACHUSETTS

Standard Premium		Expense Ratio	Standard Premium		Expense Ratio	Standard Premium		Expense Ratio
From	To		From	To		From	To	
0	10,057	0.362	18,030	18,404	0.322	96,471	108,243	0.282
10,058	10,172	0.361	18,405	18,793	0.321	108,244	123,290	0.281
10,173	10,290	0.360	18,794	19,200	0.320	123,291	143,194	0.280
10,291	10,411	0.359	19,201	19,625	0.319	143,195	170,764	0.279
10,412	10,534	0.358	19,626	20,069	0.318	170,765	201,878	0.278
10,535	10,661	0.357	20,070	20,534	0.317	201,879	210,072	0.277
10,662	10,791	0.356	20,535	21,021	0.316	210,073	218,960	0.276
10,792	10,924	0.355	21,022	21,531	0.315	218,961	228,633	0.275
10,925	11,060	0.354	21,532	22,066	0.314	228,634	239,200	0.274
11,061	11,200	0.353	22,067	22,629	0.313	239,201	250,791	0.273
11,201	11,343	0.352	22,630	23,222	0.312	250,792	263,563	0.272
11,344	11,490	0.351	23,223	23,846	0.311	263,564	277,705	0.271
11,491	11,641	0.350	23,847	24,505	0.310	277,706	293,451	0.270
11,642	11,795	0.349	24,506	25,201	0.309	293,452	311,090	0.269
11,796	11,954	0.348	25,202	25,938	0.308	311,091	330,985	0.268
11,955	12,118	0.347	25,939	26,720	0.307	330,986	353,599	0.267
12,119	12,286	0.346	26,721	27,550	0.306	353,600	379,530	0.266
12,287	12,458	0.345	27,551	28,433	0.305	379,531	409,564	0.265
12,459	12,636	0.344	28,434	29,375	0.304	409,565	444,761	0.264
12,637	12,818	0.343	29,376	30,381	0.303	444,762	486,576	0.263
12,819	13,006	0.342	30,382	31,458	0.302	486,577	537,069	0.262
13,007	13,200	0.341	31,459	32,615	0.301	537,070	599,255	0.261
13,201	13,399	0.340	32,616	33,860	0.300	599,256	677,728	0.260
13,400	13,605	0.339	33,861	35,204	0.299	677,729	779,850	0.259
13,606	13,817	0.338	35,205	36,660	0.298	779,851	918,209	0.258
13,818	14,035	0.337	36,661	38,240	0.297	918,210	1,116,250	0.257
14,036	14,261	0.336	38,241	39,963	0.296	1,116,251	1,423,211	0.256
14,262	14,494	0.335	39,964	41,849	0.295	1,423,212	1,795,356	0.255
14,495	14,735	0.334	41,850	43,921	0.294	1,795,357	1,953,078	0.254
14,736	14,984	0.333	43,922	46,209	0.293	1,953,079	2,141,181	0.253
14,985	15,241	0.332	46,210	48,749	0.292	2,141,182	2,369,378	0.252
15,242	15,508	0.331	48,750	51,584	0.291	2,369,379	2,652,017	0.251
15,509	15,784	0.330	51,585	54,770	0.290	2,652,018	3,011,221	0.250
15,785	16,070	0.329	54,771	58,374	0.289	3,011,222	3,482,974	0.249
16,071	16,366	0.328	58,375	62,487	0.288	3,482,975	4,130,002	0.248
16,367	16,674	0.327	62,488	67,223	0.287	4,130,003	5,072,270	0.247
16,675	16,993	0.326	67,224	72,736	0.286	5,072,271	6,571,593	0.246
16,994	17,325	0.325	72,737	79,234	0.285	6,571,594	9,329,243	0.245
17,326	17,670	0.324	79,235	87,006	0.284	9,329,244	16,074,700	0.244
17,671	18,029	0.323	87,007	96,470	0.283	16,074,701	OVER	0.243

Table based on the following discounts:

Standard Premium	Discount
First 10,000	0.0%
Next 190,000	9.1%
Next 1,550,000	11.3%
Over 1,750,000	12.3%

Expected Loss Ratio

0.613

Tax Multiplier

1.026

**MASSACHUSETTS
 RR6**

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

Proposed Effective July 1, 2016

TABLE OF EXPENSE RATIOS—EXCLUDING TAXES AND INCLUDING PROFIT

TYPE B COMPANY—MASSACHUSETTS

Standard Premium		Expense Ratio	Standard Premium		Expense Ratio	Standard Premium		Expense Ratio
From	To		From	To		From	To	
0	- 10,102	0.362	19,720	- 20,534	0.337	232,886	- 251,005	0.312
10,103	- 10,311	0.361	20,535	- 21,419	0.336	251,006	- 272,182	0.311
10,312	- 10,530	0.360	21,420	- 22,383	0.335	272,183	- 297,261	0.310
10,531	- 10,757	0.359	22,384	- 23,439	0.334	297,262	- 327,431	0.309
10,758	- 10,995	0.358	23,440	- 24,598	0.333	327,432	- 364,417	0.308
10,996	- 11,244	0.357	24,599	- 25,879	0.332	364,418	- 410,823	0.307
11,245	- 11,504	0.356	25,880	- 27,300	0.331	410,824	- 470,772	0.306
11,505	- 11,777	0.355	27,301	- 28,887	0.330	470,773	- 551,207	0.305
11,778	- 12,063	0.354	28,888	- 30,669	0.329	551,208	- 664,792	0.304
12,064	- 12,363	0.353	30,670	- 32,686	0.328	664,793	- 837,339	0.303
12,364	- 12,678	0.352	32,687	- 34,987	0.327	837,340	- 1,130,851	0.302
12,679	- 13,010	0.351	34,988	- 37,636	0.326	1,130,852	- 1,741,189	0.301
13,011	- 13,360	0.350	37,637	- 40,719	0.325	1,741,190	- 1,913,563	0.300
13,361	- 13,728	0.349	40,720	- 44,352	0.324	1,913,564	- 2,112,905	0.299
13,729	- 14,118	0.348	44,353	- 48,697	0.323	2,112,906	- 2,358,608	0.298
14,119	- 14,531	0.347	48,698	- 53,985	0.322	2,358,609	- 2,668,975	0.297
14,532	- 14,969	0.346	53,986	- 60,563	0.321	2,668,976	- 3,073,401	0.296
14,970	- 15,433	0.345	60,564	- 68,966	0.320	3,073,402	- 3,622,280	0.295
15,434	- 15,928	0.344	68,967	- 80,075	0.319	3,622,281	- 4,409,833	0.294
15,929	- 16,455	0.343	80,076	- 95,452	0.318	4,409,834	- 5,634,985	0.293
16,456	- 17,019	0.342	95,453	- 118,138	0.317	5,634,986	- 7,802,775	0.292
17,020	- 17,622	0.341	118,139	- 154,968	0.316	7,802,776	- 12,681,292	0.291
17,623	- 18,270	0.340	154,969	- 203,504	0.315	12,681,293	- OVER	0.290
18,271	- 18,967	0.339	203,505	- 217,206	0.314			
18,968	- 19,719	0.338	217,207	- 232,885	0.313			

Table based on the following discounts:

Standard Premium	Discount
First	10,000 0.0%
Next	190,000 5.1%
Next	1,550,000 6.5%
Over	1,750,000 7.5%

Expected Loss Ratio

0.613

Tax Multiplier

1.026

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

**MASSACHUSETTS
 RR7**

Proposed Effective July 1, 2016

**TABLE OF EXPENSE RATIOS—EXCLUDING ALLOCATED LOSS ADJUSTMENT EXPENSE
 AND TAXES AND INCLUDING PROFIT**

TYPE A COMPANY—MASSACHUSETTS

Standard Premium		Expense Ratio	Standard Premium		Expense Ratio	Standard Premium		Expense Ratio
From	To		From	To		From	To	
0	10,057	0.300	18,030	18,404	0.260	96,471	108,243	0.220
10,058	10,172	0.299	18,405	18,793	0.259	108,244	123,290	0.219
10,173	10,290	0.298	18,794	19,200	0.258	123,291	143,194	0.218
10,291	10,411	0.297	19,201	19,625	0.257	143,195	170,764	0.217
10,412	10,534	0.296	19,626	20,069	0.256	170,765	201,878	0.216
10,535	10,661	0.295	20,070	20,534	0.255	201,879	210,072	0.215
10,662	10,791	0.294	20,535	21,021	0.254	210,073	218,960	0.214
10,792	10,924	0.293	21,022	21,531	0.253	218,961	228,633	0.213
10,925	11,060	0.292	21,532	22,066	0.252	228,634	239,200	0.212
11,061	11,200	0.291	22,067	22,629	0.251	239,201	250,791	0.211
11,201	11,343	0.290	22,630	23,222	0.250	250,792	263,563	0.210
11,344	11,490	0.289	23,223	23,846	0.249	263,564	277,705	0.209
11,491	11,641	0.288	23,847	24,505	0.248	277,706	293,451	0.208
11,642	11,795	0.287	24,506	25,201	0.247	293,452	311,090	0.207
11,796	11,954	0.286	25,202	25,938	0.246	311,091	330,985	0.206
11,955	12,118	0.285	25,939	26,720	0.245	330,986	353,599	0.205
12,119	12,286	0.284	26,721	27,550	0.244	353,600	379,530	0.204
12,287	12,458	0.283	27,551	28,433	0.243	379,531	409,564	0.203
12,459	12,636	0.282	28,434	29,375	0.242	409,565	444,761	0.202
12,637	12,818	0.281	29,376	30,381	0.241	444,762	486,576	0.201
12,819	13,006	0.280	30,382	31,458	0.240	486,577	537,069	0.200
13,007	13,200	0.279	31,459	32,615	0.239	537,070	599,255	0.199
13,201	13,399	0.278	32,616	33,860	0.238	599,256	677,728	0.198
13,400	13,605	0.277	33,861	35,204	0.237	677,729	779,850	0.197
13,606	13,817	0.276	35,205	36,660	0.236	779,851	918,209	0.196
13,818	14,035	0.275	36,661	38,240	0.235	918,210	1,116,250	0.195
14,036	14,261	0.274	38,241	39,963	0.234	1,116,251	1,423,211	0.194
14,262	14,494	0.273	39,964	41,849	0.233	1,423,212	1,795,356	0.193
14,495	14,735	0.272	41,850	43,921	0.232	1,795,357	1,953,078	0.192
14,736	14,984	0.271	43,922	46,209	0.231	1,953,079	2,141,181	0.191
14,985	15,241	0.270	46,210	48,749	0.230	2,141,182	2,369,378	0.190
15,242	15,508	0.269	48,750	51,584	0.229	2,369,379	2,652,017	0.189
15,509	15,784	0.268	51,585	54,770	0.228	2,652,018	3,011,221	0.188
15,785	16,070	0.267	54,771	58,374	0.227	3,011,222	3,482,974	0.187
16,071	16,366	0.266	58,375	62,487	0.226	3,482,975	4,130,002	0.186
16,367	16,674	0.265	62,488	67,223	0.225	4,130,003	5,072,270	0.185
16,675	16,993	0.264	67,224	72,736	0.224	5,072,271	6,571,593	0.184
16,994	17,325	0.263	72,737	79,234	0.223	6,571,594	9,329,243	0.183
17,326	17,670	0.262	79,235	87,006	0.222	9,329,244	16,074,700	0.182
17,671	18,029	0.261	87,007	96,470	0.221	16,074,701	OVER	0.181

Table based on the following discounts:

Standard Premium	Discount	
First	10,000	0.0%
Next	190,000	9.1%
Next	1,550,000	11.3%
Over	1,750,000	12.3%

Expected Loss and Allocated Loss Adjustment
 Expense Ratio (ALAE Option)

0.675

Tax Multiplier

1.026

XII 000012

MASSACHUSETTS	RETROSPECTIVE RATING PLAN MANUAL
RR8	STATE SPECIAL RATING VALUES
<i>Proposed Effective July 1, 2016</i>	

**TABLE OF EXPENSE RATIOS—EXCLUDING ALLOCATED LOSS ADJUSTMENT EXPENSE
 AND TAXES AND INCLUDING PROFIT**

TYPE B COMPANY—MASSACHUSETTS

Standard Premium		Expense Ratio	Standard Premium		Expense Ratio	Standard Premium		Expense Ratio
From	To		From	To		From	To	
0	- 10,102	0.300	19,720	- 20,534	0.275	232,886	- 251,005	0.250
10,103	- 10,311	0.299	20,535	- 21,419	0.274	251,006	- 272,182	0.249
10,312	- 10,530	0.298	21,420	- 22,383	0.273	272,183	- 297,261	0.248
10,531	- 10,757	0.297	22,384	- 23,439	0.272	297,262	- 327,431	0.247
10,758	- 10,995	0.296	23,440	- 24,598	0.271	327,432	- 364,417	0.246
10,996	- 11,244	0.295	24,599	- 25,879	0.270	364,418	- 410,823	0.245
11,245	- 11,504	0.294	25,880	- 27,300	0.269	410,824	- 470,772	0.244
11,505	- 11,777	0.293	27,301	- 28,887	0.268	470,773	- 551,207	0.243
11,778	- 12,063	0.292	28,888	- 30,669	0.267	551,208	- 664,792	0.242
12,064	- 12,363	0.291	30,670	- 32,686	0.266	664,793	- 837,339	0.241
12,364	- 12,678	0.290	32,687	- 34,987	0.265	837,340	- 1,130,851	0.240
12,679	- 13,010	0.289	34,988	- 37,636	0.264	1,130,852	- 1,741,189	0.239
13,011	- 13,360	0.288	37,637	- 40,719	0.263	1,741,190	- 1,913,563	0.238
13,361	- 13,728	0.287	40,720	- 44,352	0.262	1,913,564	- 2,112,905	0.237
13,729	- 14,118	0.286	44,353	- 48,697	0.261	2,112,906	- 2,358,608	0.236
14,119	- 14,531	0.285	48,698	- 53,985	0.260	2,358,609	- 2,668,975	0.235
14,532	- 14,969	0.284	53,986	- 60,563	0.259	2,668,976	- 3,073,401	0.234
14,970	- 15,433	0.283	60,564	- 68,966	0.258	3,073,402	- 3,622,280	0.233
15,434	- 15,928	0.282	68,967	- 80,075	0.257	3,622,281	- 4,409,833	0.232
15,929	- 16,455	0.281	80,076	- 95,452	0.256	4,409,834	- 5,634,985	0.231
16,456	- 17,019	0.280	95,453	- 118,138	0.255	5,634,986	- 7,802,775	0.230
17,020	- 17,622	0.279	118,139	- 154,968	0.254	7,802,776	- 12,681,292	0.229
17,623	- 18,270	0.278	154,969	- 203,504	0.253	12,681,293	- OVER	0.228
18,271	- 18,967	0.277	203,505	- 217,206	0.252			
18,968	- 19,719	0.276	217,207	- 232,885	0.251			

Table based on the following discounts:

Standard Premium	Discount
First 10,000	0.0%
Next 190,000	5.1%
Next 1,550,000	6.5%
Over 1,750,000	7.5%

Expected Loss and Allocated Loss Adjustment
 Expense Ratio (ALAE Option)

0.675

Tax Multiplier

1.026

NATIONAL COUNCIL ON COMPENSATION INSURANCE, INC.

R-1411
 PAGE 27

ITEM R-1411—2015 UPDATE TO THE RETROSPECTIVE RATING PLAN HAZARD GROUP DIFFERENTIALS AND MANUAL RULES

**EXHIBIT 2
 DEVELOPMENT OF MICHIGAN HAZARD GROUP DIFFERENTIALS
 FOR HAZARD GROUPS A TO G**

- Step 1.** Five years of historical experience is trended, on-leveled, and developed to estimate the severities for each hazard group.
- Step 2.** The severities are weighted with the countrywide severities by hazard group using a credibility that is based on the number of claims in the state's experience period. For this purpose, 155,000 claims are regarded as fully credible and the square root rule is used to compute partial credibilities.
- Step 3.** Credibility weighted severities for each hazard group are produced. A countrywide average severity is calculated by taking the weighted average of the state severities using claim counts as weights.
- Step 4.** The differentials are calculated by dividing the countrywide severity by the individual state hazard group severities.

Step 1			
Severities	<u>Hazard Group</u>	<u>Michigan</u>	<u>Countrywide</u>
	A	30,107	37,531
	B	38,183	46,430
	C	40,959	51,328
	D	48,634	60,901
	E	56,197	71,019
	F	66,667	86,222
	G	76,865	99,379
Step 2	Claim Count =	85,363	
	Credibility =	$(85,363 / 155,000)^{0.5} = 0.742$	
Step 3			
Credibility Weighted Severities	<u>Hazard Group</u>	<u>Michigan</u>	
	A	32,022	= (0.742)(30,107) + (0.258)(37,531)
	B	40,317	
	C	43,633	
	D	51,798	
	E	60,019	
	F	71,710	
	G	82,671	
	Countrywide Overall:	60,093	
Step 4			
Differentials	<u>Hazard Group</u>	<u>Differentials</u>	
	A	1.88	= 60,093 / 32,022
	B	1.49	
	C	1.38	
	D	1.16	
	E	1.00	
	F	0.84	
	G	0.73	

Note: The underlying data source for the above calculations is NCCI's *Statistical Plan for Workers Compensation and Employers Liability Insurance (Statistical Plan)*, excluding medical-only claims. The *Statistical Plan* data for each state is adjusted accordingly, as reflected in the data underlying the Excess Loss Factor (ELF) calculation.

XII 000014

Section XII - Retrospective Rating
 Subsection E - State Hazard Group Relativities
 7/1/2016

Section XII - E
 Exhibit 1

Development of State Hazard Group Differentials

Step 1, Severities:

Hazard Group (1)	Massachusetts Severities (2)	Countrywide Severities (3)	Massachusetts Overall Severity Split Using CW Severity Relativities = Overall (2) x (3) / Overall (3) (4)
A	25,625	37,531	32,972
B	34,251	46,430	40,790
C	41,807	51,328	45,093
D	51,923	60,901	53,504
E	73,778	71,019	62,393
F	91,090	86,222	75,749
G	146,030	99,379	87,308
Overall	52,794	60,093	52,794

Step 2, Credibility:

(5) Massachusetts Claim Count =	43,669
(6) Requirement for Full Credibility =	155,000
(7) Massachusetts Credibility = = [(5) / (6)] ^{0.5}	0.53

Step 3, Credibility Weighted Severities:

Hazard Group (8)	Massachusetts Credibility Weighted Severities (9)
A	31,211
B	39,966
C	46,274
D	56,136
E	72,483
F	88,806
G	124,141

Step 4, Relativities:

Hazard Group (10)	Indicated Relativities = Overall (3) / (9) (11)	Indicated Relativities Based on MA Severity Split Using CW Relativities = Overall (3) / (4) (12)	Average of the Two Indicated Relativities = [(11) + (12)] / 2.0 (13)	Selected Hazard Group Differential (14)
A	1.93	1.82	1.87	1.87
B	1.50	1.47	1.49	1.49
C	1.30	1.33	1.32	1.32
D	1.07	1.12	1.10	1.10
E	0.83	0.96	0.90	0.90
F	0.68	0.79	0.73	0.73
G	0.48	0.69	0.59	0.59

Notes:

(2), (5): Lost Time Claim Data for Policy Years 2013 at 1st report, 2012 at 2nd report, 2011 at 3rd report, adjusted for trend, law amendments and development factors. Factors are shown on Section XI-A, Exhibit 2.

(3), (6): Section XII - D, Exhibit 1 (NCCI's Item R-1411, Page 27.)

(9) = [(2) x (7)] + { (3) x [1.0 - (7)] }

EXCESS LOSS FACTORS

This Section proposes new Excess Loss Factors (ELFs) to be effective July 1, 2016. The proposed ELFs for the seven hazard groups¹ are shown in Exhibit 1, page 1. Exhibit 1, page 2 shows the Excess Loss and ALAE Expense Factors for the seven hazard groups.

The proposed ELFs in Exhibit 1, page 1 are the selected Excess Ratios in Exhibit 3, page 1 times 61.3%, the proposed Expected Loss Ratio (without LAE) underlying the Retrospective Rating Plans from Section XII-A, Exhibit 3. Generally, the excess loss factor for a limit is the product of an excess ratio and a permissible loss ratio.

Exhibit 3, page 3 shows the Excess Ratios based on the data used in the September 1, 2008 filing adjusted for trend. Exhibit 3, page 2 shows the Excess Ratios for higher limits estimated by curve fitting. Exhibit 4 displays the parameters of the mixed Pareto-Exponential distribution and a calculation of excess factors for different entry ratios.

Analysis from September 1, 2008 Filing

The Excess Ratios calculated in this filing use the same data set and fitted curves used in September 1, 2008 filing, with an adjustment for trend. On-level adjusted Schedule Z data for composite policy years 00/01, 99/00, 98/97, 96/97, and 95/96 at fifth report are used, and the Pareto-Exponential parameters from the September 1, 2008 filing are also used. An adjustment factor for trend and benefit changes from September 1, 2008 to the July 1, 2016 proposed effective date is shown on Exhibit 5. Rather than applying the factor to the data itself, the trend and benefit adjustment is

¹ The seven hazard groups are denoted using the letters A, B, C, D, E, F, and G. Hazard group A has the lowest expected claim severity while hazard group G has the highest expected claim severity.

made by dividing the limits, including the truncation point, by the trend and adjustment factor. Using the adjusted limits and truncation point and the on-level adjusted data from September 1, 2008, the excess ratios are estimated using the same methodology underlying the 2010 and 2014 filing.

Estimation of Excess Ratios

For each hazard group this fitted curve, scaled to the observed mean, is used in Exhibit 3 to estimate the excess ratios for the data truncated and shifted at \$150,000.

The excess ratios for accident limits less than or equal to \$150,000 are determined directly from the data, as has been done in the past. For accident limits L above \$150,000 the excess ratio is estimated from the product of (Empirical Excess Ratio at \$150,000, $R(150,000)$) x (Excess Ratio estimated from mixed Pareto-Exponential curve for $L - \$150,000$). (See the Appendix). The former is shown in Exhibit 3, page 3, the latter in Exhibit 3, page 2, while the product is in Exhibit 3, page 1. For accident limits of \$150,000 or less, the estimated excess ratio is equal to the observed excess ratio.

This method thus provides a smooth transition from relying on data for lower accident limits to relying on a fitted curve to provide some of the information at higher accident limits. It is important to note that even at higher accident limits an important contribution to the excess ratio is $R(150,000)$, which is calculated directly from the data.

Calculation of Excess Loss Factors with ALAE Expenses

XII 000017

The calculation of the Excess Loss Factors including ALAE expenses follows the same general methodology outlined above. The assumption is made that ALAE expenses are proportional to the underlying losses. Let x be the factor to load losses for ALAE expenses. For an accident limit of L , the excess ratio is computed at a limit of L / x . The Excess Loss Factors are derived by multiplying this excess ratio by 67.5%, the expected loss and defense and cost containment ratio (from Section XII-A, Exhibit 4), which is a proxy for the expected loss and ALAE ratio.

APPENDIX – EXCESS LOSS FACTORS

Excess Ratios, Truncated and Shifted Data

Let $f(x)$ be the size of loss probability density function. Then the excess ratio for limit L is given by:

$$R(x) = \frac{\int_L^\infty (x - L) f(x) dx}{\int_0^\infty x f(x) dx}$$

$$= \frac{\text{average dollars of loss excess of } L}{\text{average size of loss}}$$

$$= \frac{\text{total dollars of loss excess of } L}{\text{total dollars of loss}}$$

Assume we have a truncation point of T. Assume we look at the size of loss distribution for the data truncated and shifted at T. So for a loss $x > T$, we instead look at $x - T$. Then the excess ratio for the truncated and shifted data for ground up limit $L > T$ can be written as

$$\hat{R}(L - T)$$

Assume we were computing the (observed) excess ratio for a \$500,000 accident limit, for hazard group 3 data

$$R(\$500,000) = \frac{\text{HG3 Losses Excess of } \$500,000}{\text{Total HG3 Losses}}$$

We can also express this in terms of the data truncated and shifted at \$150,000 as follows:

$$R(\$500,000) = \frac{\text{HG3 Losses Excess of } \$500,000}{\text{HG3 Losses Excess of } \$150,000} \times \frac{\text{HG3 Losses Excess of } \$150,000}{\text{Total HG3 Losses}}$$

The second term is the excess ratio at \$150,000, $R(\$150,000)$, while the first term is $\hat{R}(\$350,000)$ = excess ratio at \$350,000 for the data truncated and shifted at \$150,000.

Thus

$$R(\$500,000) = \hat{R}(\$350,000) \times R(\$150,000).$$

In general, for limits $L > \$150,000$

$$R(L) = \hat{R}(L - \$150,000) \times R(\$150,000).$$

In the methodology we used, $\hat{R}(L - \$150,000)$ is estimated via a curve fit to the data truncated and shifted at \$150,000, while $R(\$150,000)$ is estimated from the data.

Excess Ratios, Mixed Distributions

Let a (mixed) distribution be a weighted average of two other distributions:

$$f(x) = pg(x) + (1-p)h(x).$$

Then the mean is a weighted average of the two means:

$$\begin{aligned} m_f &= \int_0^\infty x f(x) d(x) = \int_0^\infty x \{pg(x) + (1-p) h(x)\} dx \\ &= p \int_0^\infty xg(x) dx + (1-p) \int_0^\infty x h(x) dx \\ &= pm_g + (1-p) m_h. \end{aligned}$$

The excess ratio for limit L is given by:

$$\begin{aligned} R_f(L) &= \frac{\int_L^\infty (x - L) f(x) dx}{\int_0^\infty x f(x) dx} \\ &= \frac{p \int_L^\infty (x - L)g(x)dx + (1-p) \int_L^\infty (x - L)h(x)dx}{pm_g + (1-p)m_h} \end{aligned}$$

XII 000020

$$= \frac{pm_g R_g(L) + (1-p)m_h R_h(L)}{pm_g + (1-p)m_h}$$

So the excess ratio for a mixed distribution is a weighted average of the excess ratios for the individual distributions, with weights equal to the product of the mean of each distribution times the weight in the mixture of each distribution.

For example, for the mixed Pareto-Exponential distribution with parameters:

$p = 0.7344$, $s = 2.3285$, $b = 1.4950$, $\theta = 0.6270$ (weight to Pareto, Pareto Shape, Pareto Scale, Exponential scale), at an entry ratio of 2, the excess ratio is computed as follows:

$$\text{Excess Ratio for Pareto} = \left(1 + \frac{x}{b}\right)^{1-s} = \left(1 + \frac{2}{1.4950}\right)^{1-2.3285} = 0.3236$$

$$\text{Excess Ratio for Exponential} = e^{-x/\theta} = e^{-2/0.6270} = 0.0412$$

$$\text{Mean for Pareto} = \frac{b}{s-1} = \frac{1.4950}{2.3285-1} = 1.1253$$

$$\text{Mean for Exponential} = \theta = 0.6270$$

Excess Ratio for Pareto-Exponential distribution at entry ratio 2

$$= \frac{(0.7344)(1.1253)(0.3236) + (1-0.7344)(0.6270)(0.0412)}{(0.7344)(1.1253) + (1-0.7344)(0.6270)} = 0.2763$$

This matches the value shown on Exhibit 4.

PARETO DISTRIBUTION

$$F(x;s,b) = 1 - \left(1 + \frac{x}{b}\right)^{-s}$$

$$f(x;s,b) = \frac{s}{b} \left(1 + \frac{x}{b}\right)^{-(s+1)}$$

$$E(X^y) = \frac{b^y \Gamma(y+1) \Gamma(s-y)}{\Gamma(s)}, \quad -1 < y < s$$

If y is an integer N ,

$$E(X^N) = \frac{b^N N!}{\prod_{i=1}^N (s-i)}, \quad N < s$$

$$\text{Mean} = \frac{b}{s-1}$$

$$\text{Variance} = \frac{b^2 s}{(s-1)^2 (s-2)}$$

$$\text{Coefficient of Variation} = \sqrt{\frac{s}{s-2}}, \quad s > 2$$

$$\text{Skewness} = \frac{2(s+1)}{s-3} \sqrt{\frac{s-2}{s}}, \quad s > 3$$

$$\text{Excess Ratio} = R(x) = \left(1 + \frac{x}{b}\right)^{1-s}$$

$$\text{Mean Residual Life} = e(x) = \frac{b+x}{s-1}$$

Note: s is the shape parameter, b is the scale parameter.

EXPONENTIAL DISTRIBUTION

$$F(x; \theta) = 1 - e^{-x/\theta}$$

$$f(x; \theta) = \frac{1}{\theta} e^{-x/\theta}$$

$$E(X^y) = \theta^y \Gamma(1 + y), \quad y > -1$$

If y is an integer N ,

$$E(X^N) = \theta^N N!, \quad N > -1$$

$$\text{Mean} = \theta$$

$$\text{Variance} = \theta^2$$

$$\text{Coefficient of Variation} = 1$$

$$\text{Skewness} = 2$$

$$\text{Excess ratio} = R(x) = e^{-x/\theta}$$

$$\text{Mean Residual Life} = e(x) = \theta$$

Note: θ is the scale parameter.

XII 000023

Section XII - Retrospective Rating
 Subsection F - Excess Loss Factors
 7/1/2016

Section XII - F
 Exhibit 1
 Page 1

Excess Loss Factors Proposed to be Effective 07/01/2016

Accident Limit	Hazard Group						
	A	B	C	D	E	F	G
\$25,000	0.388	0.413	0.436	0.456	0.475	0.504	0.535
\$30,000	0.370	0.396	0.420	0.442	0.462	0.491	0.526
\$35,000	0.355	0.381	0.406	0.429	0.450	0.480	0.517
\$40,000	0.341	0.367	0.393	0.418	0.439	0.470	0.509
\$50,000	0.316	0.343	0.370	0.397	0.419	0.451	0.495
\$75,000	0.268	0.295	0.324	0.356	0.378	0.411	0.464
\$100,000	0.232	0.259	0.288	0.322	0.345	0.377	0.437
\$125,000	0.204	0.229	0.258	0.294	0.316	0.348	0.413
\$150,000	0.181	0.204	0.233	0.269	0.291	0.322	0.391
\$175,000	0.162	0.183	0.211	0.248	0.268	0.298	0.370
\$200,000	0.147	0.165	0.193	0.229	0.248	0.277	0.352
\$250,000	0.121	0.137	0.162	0.198	0.215	0.241	0.319
\$300,000	0.103	0.116	0.139	0.173	0.188	0.213	0.290
\$500,000	0.061	0.069	0.085	0.111	0.121	0.139	0.209
\$1,000,000	0.028	0.032	0.040	0.055	0.060	0.070	0.116
\$2,000,000	0.012	0.014	0.018	0.025	0.028	0.033	0.058
\$3,000,000	0.008	0.009	0.011	0.016	0.017	0.021	0.037
\$4,000,000	0.005	0.006	0.008	0.011	0.012	0.015	0.027
\$5,000,000	0.004	0.005	0.006	0.008	0.009	0.011	0.021

Notes:

Exhibit 3, page 1 times the Expected Loss Ratio without LAE of 61.3% from Section XII-A, Exhibit 3.

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Section XII - Retrospective Rating
 Subsection F - Excess Loss Factors
 7/1/2016

Section XII - F
 Exhibit 1
 Page 2

Excess Loss and ALAE Factors Proposed to be Effective 07/01/2016

Accident Limit	Hazard Group						
	A	B	C	D	E	F	G
\$25,000	0.437	0.464	0.489	0.510	0.531	0.562	0.594
\$30,000	0.419	0.446	0.472	0.495	0.517	0.549	0.585
\$35,000	0.402	0.430	0.457	0.482	0.504	0.537	0.576
\$40,000	0.387	0.416	0.443	0.470	0.492	0.526	0.568
\$50,000	0.360	0.390	0.419	0.448	0.471	0.506	0.553
\$75,000	0.308	0.339	0.370	0.403	0.428	0.464	0.520
\$100,000	0.269	0.299	0.331	0.368	0.393	0.429	0.492
\$125,000	0.238	0.266	0.299	0.338	0.362	0.398	0.467
\$150,000	0.213	0.239	0.272	0.311	0.335	0.370	0.443
\$175,000	0.192	0.216	0.248	0.288	0.311	0.345	0.423
\$200,000	0.174	0.196	0.227	0.268	0.290	0.322	0.403
\$250,000	0.146	0.164	0.193	0.233	0.253	0.283	0.367
\$300,000	0.124	0.140	0.166	0.205	0.223	0.251	0.337
\$500,000	0.074	0.084	0.103	0.134	0.146	0.167	0.247
\$1,000,000	0.035	0.039	0.049	0.067	0.073	0.086	0.140
\$2,000,000	0.015	0.018	0.022	0.031	0.035	0.041	0.071
\$3,000,000	0.009	0.011	0.014	0.019	0.022	0.025	0.046
\$4,000,000	0.007	0.007	0.010	0.014	0.015	0.018	0.033
\$5,000,000	0.005	0.006	0.007	0.010	0.012	0.014	0.026

Excess Loss Factors Effective 9/1/2008

Accident Limit	Hazard Group						
	A	B	C	D	E	F	G
\$25,000	0.382	0.409	0.436	0.460	0.482	0.514	0.552
\$30,000	0.362	0.390	0.417	0.444	0.466	0.499	0.541
\$35,000	0.344	0.373	0.401	0.429	0.451	0.485	0.531
\$40,000	0.328	0.357	0.386	0.415	0.438	0.472	0.521
\$50,000	0.299	0.329	0.359	0.391	0.414	0.449	0.503
\$75,000	0.246	0.275	0.306	0.342	0.366	0.401	0.464
\$100,000	0.208	0.233	0.265	0.303	0.326	0.360	0.430
\$125,000	0.179	0.201	0.232	0.271	0.292	0.325	0.400
\$150,000	0.156	0.176	0.205	0.244	0.264	0.294	0.374
\$175,000	0.137	0.155	0.183	0.221	0.239	0.266	0.350
\$200,000	0.122	0.138	0.164	0.201	0.217	0.243	0.329
\$250,000	0.098	0.112	0.135	0.169	0.183	0.205	0.291
\$300,000	0.081	0.092	0.113	0.144	0.156	0.176	0.260
\$500,000	0.046	0.053	0.066	0.088	0.095	0.108	0.177
\$1,000,000	0.020	0.024	0.030	0.042	0.045	0.051	0.093
\$2,000,000	0.009	0.010	0.013	0.019	0.020	0.023	0.045
\$3,000,000	0.005	0.006	0.008	0.011	0.012	0.014	0.028
\$4,000,000	0.004	0.004	0.006	0.008	0.009	0.010	0.020
\$5,000,000	0.003	0.003	0.004	0.006	0.006	0.007	0.015

Note:
 9/1/2008 Stipulation. Section XII-F, Exhibit 1, Page 1.

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Section XII - Retrospective Rating
 Subsection F - Excess Loss Factors
 7/1/2016

Section XII - F
 Exhibit 3
 Page 1

Estimated Excess Ratios Based on Adjusted Data and Curves Fit to Data Truncated and Shifted at \$150,000

Accident Limit	Hazard Group						
	A	B	C	D	E	F	G
\$25,000	0.633	0.673	0.711	0.745	0.776	0.822	0.873
\$30,000	0.605	0.646	0.686	0.722	0.754	0.802	0.858
\$35,000	0.579	0.622	0.663	0.701	0.734	0.784	0.844
\$40,000	0.556	0.600	0.642	0.682	0.716	0.767	0.832
\$50,000	0.516	0.560	0.604	0.649	0.683	0.736	0.808
\$75,000	0.437	0.482	0.529	0.581	0.617	0.671	0.757
\$100,000	0.378	0.422	0.470	0.526	0.563	0.616	0.713
\$125,000	0.333	0.373	0.422	0.480	0.516	0.568	0.673
\$150,000	0.296	0.333	0.380	0.440	0.475	0.525	0.638
\$175,000	0.265	0.299	0.345	0.405	0.438	0.487	0.604
\$200,000	0.239	0.270	0.314	0.374	0.405	0.452	0.574
\$250,000	0.198	0.224	0.265	0.323	0.350	0.394	0.520
\$300,000	0.167	0.189	0.227	0.282	0.307	0.347	0.473
\$500,000	0.099	0.112	0.139	0.181	0.198	0.228	0.341
\$1,000,000	0.046	0.052	0.066	0.089	0.098	0.115	0.190
\$2,000,000	0.020	0.023	0.030	0.041	0.046	0.054	0.095
\$3,000,000	0.012	0.014	0.018	0.026	0.028	0.034	0.061
\$4,000,000	0.009	0.010	0.013	0.018	0.020	0.024	0.044
\$5,000,000	0.006	0.007	0.010	0.014	0.015	0.018	0.034

Note:

For Accident Limit $L \leq \$150,000$ excess ratios are from Page 3. For Accident Limit $L > \$150,000$ excess ratios are from Page 2 times the estimated excess ratio at $L = \$150,000$ (See Appendix).

Fitted Excess Ratios Based on Losses Truncated and Shifted to \$150,000

Accident Limit	Hazard Group													
	A		B		C		D		E		F		G	
	Entry Ratio	Excess Ratio	Entry Ratio	Excess Ratio	Entry Ratio	Excess Ratio	Entry Ratio	Excess Ratio	Entry Ratio	Excess Ratio	Entry Ratio	Excess Ratio	Entry Ratio	Excess Ratio
\$175,000	0.112	0.897	0.111	0.898	0.100	0.907	0.084	0.921	0.082	0.922	0.077	0.927	0.054	0.948
\$200,000	0.224	0.809	0.221	0.811	0.200	0.827	0.168	0.851	0.165	0.854	0.155	0.861	0.107	0.900
\$250,000	0.447	0.670	0.443	0.672	0.399	0.696	0.336	0.734	0.329	0.738	0.310	0.751	0.215	0.816
\$300,000	0.671	0.566	0.664	0.569	0.599	0.596	0.504	0.641	0.493	0.646	0.464	0.661	0.322	0.743
\$500,000	1.565	0.335	1.550	0.338	1.398	0.364	1.176	0.411	1.151	0.417	1.083	0.433	0.751	0.535
\$1,000,000	3.801	0.155	3.764	0.157	3.395	0.173	2.855	0.203	2.796	0.207	2.631	0.219	1.824	0.298
\$2,000,000	8.273	0.069	8.192	0.070	7.389	0.078	6.214	0.094	6.085	0.096	5.726	0.103	3.971	0.149
\$3,000,000	12.745	0.042	12.620	0.042	11.383	0.048	9.573	0.058	9.375	0.060	8.822	0.064	6.117	0.096
\$4,000,000	17.217	0.029	17.048	0.029	15.376	0.033	12.932	0.041	12.664	0.042	11.917	0.045	8.264	0.069
\$5,000,000	21.689	0.022	21.476	0.022	19.370	0.025	16.291	0.031	15.953	0.032	15.012	0.034	10.410	0.053

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Notes:

Entry Ratio = ([Limit] - [\$150,000 Truncation Point]) / [Average Size of Data Truncated and Shifted to \$150,000]

For the seven Hazard Groups, the detrended average sizes are \$167,938 for HGA, \$169,601 for HGB, \$188,043 for HGC, \$223,581 for HGD, \$228,322 for HGE, \$242,636 for HGF and \$349,897 for HGG.

Excess Ratio is computed for a Mixed Pareto - Exponential distribution with parameters: 0.7344, 2.3285, 1.4950, 0.6270 (weight to Pareto, Pareto Shape, Pareto Scale, Exponential Scale).

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Section XII - Retrospective Rating
 Subsection F - Excess Loss Factors
 7/1/2016

Section XII - F
 Exhibit 3
 Page 3

Excess Ratios Based on Adjusted Data

Accident Limit	Hazard Group						
	A	B	C	D	E	F	G
\$25,000	0.633	0.673	0.711	0.745	0.776	0.822	0.873
\$30,000	0.605	0.646	0.686	0.722	0.754	0.802	0.858
\$35,000	0.579	0.622	0.663	0.701	0.734	0.784	0.844
\$40,000	0.556	0.600	0.642	0.682	0.716	0.767	0.832
\$50,000	0.516	0.560	0.604	0.649	0.683	0.736	0.808
\$75,000	0.437	0.482	0.529	0.581	0.617	0.671	0.757
\$100,000	0.378	0.422	0.470	0.526	0.563	0.616	0.713
\$125,000	0.333	0.373	0.422	0.480	0.516	0.568	0.673
\$150,000	0.296	0.333	0.380	0.440	0.475	0.525	0.638
\$175,000	0.266	0.299	0.346	0.405	0.438	0.487	0.605
\$200,000	0.240	0.271	0.316	0.375	0.405	0.451	0.575
\$250,000	0.198	0.226	0.267	0.325	0.349	0.391	0.523
\$300,000	0.168	0.193	0.231	0.287	0.304	0.341	0.479
\$500,000	0.100	0.116	0.145	0.194	0.190	0.212	0.357
\$1,000,000	0.047	0.048	0.077	0.122	0.092	0.103	0.229
\$2,000,000	0.017	0.021	0.043	0.087	0.042	0.048	0.127
\$3,000,000	0.006	0.015	0.033	0.077	0.028	0.029	0.079
\$4,000,000	0.001	0.013	0.027	0.072	0.023	0.019	0.054
\$5,000,000	0.000	0.012	0.024	0.068	0.020	0.014	0.035

Notes:

Unit Statistical Plan Data for Composite Policy Years 00/01, 99/00, 98/99, 97/98, 96/97, 95/96 at fifth report, adjusted for trend, law amendments and development factors using factors from Section XI-C, Exhibit 1.

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Section XII - Retrospective Rating
 Subsection F - Excess Loss Factors
 7/1/2016

Section XII - F
 Exhibit 4

Mixed Pareto-Exponential Distribution

Parameters:

Pareto shape = s	2.3285
Pareto scale = b	1.4950
Exponential scale = θ	0.6270
Weight to Pareto = p	0.7344
Mean =	1.0000
Variance =	5.5243
Coefficient of Variation =	2.3504
Skewness =	18.0452
Pareto Mean = $b / (s - 1.0)$	1.1253
Exponential Mean = θ	0.6270

Entry Ratio	Excess Ratio	Entry Ratio	Excess Ratio
0.1	0.9067	11	0.0496
0.2	0.8263	12	0.0448
0.3	0.7567	13	0.0407
0.4	0.6960	14	0.0372
0.5	0.6428	15	0.0343
0.6	0.5960	20	0.0241
0.7	0.5546	25	0.0183
0.8	0.5178	30	0.0145
0.9	0.4849	35	0.0119
1.0	0.4555	40	0.0101
1.25	0.3941	45	0.0087
1.5	0.3460	50	0.0076
1.75	0.3075	55	0.0067
2.0	0.2763	60	0.0060
2.50	0.2286	65	0.0054
3.0	0.1942	70	0.0049
3.5	0.1682	75	0.0045
4.0	0.1479	80	0.0041
4.5	0.1316	85	0.0038
5.0	0.1183	90	0.0035
6.0	0.0978	95	0.0033
7.0	0.0828	100	0.0031
8.0	0.0714		
9.0	0.0625		
10.0	0.0554		

Notes:
 See the Appendix for a sample calculation of an excess ratio.

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Section XII - Retrospective Rating
 Subsection F - Excess Loss Factors
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Section XII - F
 Exhibit 5

Total Severity Trend & Benefit Change Adjustment

	Indemnity	Lost Time Medical	Medical Only	Total
(1) PY 9/1/2008 Average Severity	25,795	12,260	798	
(2) PY 2013 Average Severity	29,747	15,098	898	
(3) Annual Severity Trend - From PY 2013 to Prospective Effective Period	2.6%	3.1%	2.9%	
(4) Trend Factor from PY 9/1/2008 to Prospective Effective Period = $[(2)/(1)] \times [1.000 + (3)]^{3.5}$	1.261	1.371	1.242	
(5) Injury Type Weight at Ultimate	64.74%	30.50%	4.77%	
(6) Total Severity Trend Factor from PY 9/1/2008 to Prospective Effective Period = (4) Weighted by (5)				1.294
(7) Total Benefit Level Change Factor from PY 9/1/2008 to Prospective Effective Period				1.029
(8) Combined Trend and Benefit Factor from PY 9/1/2008 to Prospective Effective Period = (6) x (7)				1.332

Notes:

- (1),(2) : From Section V-A, Exhibit 2. PY9/1/2008 is a weighted average of PY2008 and PY2009. = $(1/3) \times \text{PY2008} + (2/3) \times \text{PY2009}$
- (3): From Section V-A, Exhibit 1.
- (5): From Section IV-E, Exhibit 2.
- (7): From Section IV-A, Exhibit 1.

Data

The WCRIBMA systematically reviews the Aggregate Financial and Unit Statistical Report (“USR”) data submitted to the WCRIBMA by its members. Aggregate Financial data, the basis for the overall rate indication, is collected electronically. The application used to collect Aggregate Financial data, MAFDRA, contains both data validations and data edits. The data validations check individual fields against valid codes and values.

Aggregate Financial data is also subject to a multitude of edits that compare the data reported for a given field to other data elements reported to the WCRIBMA. Edits are characterized as either basic or actuarial. Basic edits identify circumstances where something is obviously wrong. For example, if losses are reported for a policy year, a basic edit failure would occur if no premiums were reported for that same policy year. Actuarial edits identify circumstances that appear to be anomalous but may in fact be correct. Data flagged by actuarial edits require either an explanation or a correction.

Aggregate Financial data used in ratemaking are carefully reviewed by the WCRIBMA’s actuarial staff for purposes of ratemaking. Actuarial staff review, by individual data reporter, loss development factors, premium development factors, and expense ratios to identify anomalies that would have a material impact on the overall rate indication. Data reporters whose data are deemed to be outliers are asked to explain the anomaly or provide a correction if needed. Actuarial staff also provides diagnostic reports to the larger writers of workers’ compensation in Massachusetts.

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Carriers review these reports and indicate to the WCRIBMA whether or not the diagnostic reports align with their expectations.

USR data, the basis for the WCRIBMA's trend estimates and class rates, are collected electronically using a system called Spectrum. Like Aggregate Financial data, USR data are subject to a multitude of validations and edits. Additionally, the WCRIBMA's actuarial staff extracts the USR data from Spectrum and maps the data into data marts used by the actuarial staff. As part of the process to load the data into the actuarial data marts, the data are again subject to a number of validations. Records that fail validation are flagged for explanation or correction by the carrier who submitted the data.

In 2005 the Commissioner ordered the WCRIBMA to develop a number of reconciliations that compare Aggregate Financial data to USR data. In 2006 the Commissioner approved changes to the Massachusetts Workers' Compensation Statistical Plan that call for the WCRIBMA to annually conduct a series of mandated reconciliations and compare the results of the reconciliation process to tolerances defined within the Massachusetts Workers' Compensation Statistical Plan. Carriers whose data fell outside of tolerance are required to provide an explanation for why the data are correct as reported or they are required to submit corrections. Carriers who do not comply are subject to potential further review by an independent audit firm if the Commissioner deems it to be necessary.

The mandated reconciliations have been extremely helpful to the WCRIBMA's data collection efforts. The WCRIBMA has extended the reconciliation process to

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include a number of fields not mandated by the Massachusetts Workers' Compensation Statistical Plan, namely claim counts, All Risk Adjustment Program surcharges, and Massachusetts Construction Classification Premium Adjustment Program credits. Data reporters have been very responsive to questions generated by these non-mandated reconciliations.

In preparation for this rate filing, WCRIBMA actuarial staff assessed the available data to determine what it deemed suitable for ratemaking. As a consequence, the Aggregate Financial data for several carriers were excluded from certain sections of the filing or excluded from use in the rate filing entirely.

Aggregate Financial data from Praetorian Insurance Company were excluded from the estimation of loss development factors and premium development factors. For purposes of Aggregate Financial data reporting, Redland Insurance Company, and Praetorian Insurance Company began submitting consolidated data beginning with the 2010 year end valuation. Prior to that, Redland Insurance Company had been exempt from filing Aggregate Financial data (consistent with the terms outlined in the Massachusetts Worker's Compensation Statistical Plan) for one of the valuation dates contained in the development triangles. Therefore, the consolidated data for one of the valuation dates used in the development triangle are necessarily understated and the use of the data from these companies in the loss development calculations would be inappropriate. The exclusion of data from Praetorian Insurance Company from the estimation of loss development factors and premium development factors has no material impact on the rate indication.

Aggregate Financial data from Travelers Group was excluded from the estimation of premium development factors and expenses. Travelers Group, in response to questions about premium development anomalies identified by the WCRIBMA, indicated the anomalies the WCRIBMA was questioning likely relate to legacy systems and would not affect more recent policy year premiums. However, the estimation of premium development factors in this filing makes use of policy years whose reported Aggregate Financial premium may have been distorted by legacy systems at Travelers Group. The exclusion of data from Travelers Group from the estimation of premium development factors has no material impact on the rate indication.

Adjusting and other expenses reported by Travelers are outliers. For calendar years 2012, 2013, and 2014, Travelers Group has continued to report negative values for adjusting and other expenses on their Insurance Expense Exhibits. Had the WCRIBMA not excluded the data of the Travelers Group from expenses, the rate indication would have been lower.

As discussed in the Introduction, development factors for AIG have consistently differed from the development factors for the remainder of the industry. In and of itself, this is not problematic. However, AIG has also seen large changes in market share over time which, coupled with their atypical development factors, create distortions in our development triangles. Had AIG's market share remained constant overtime, no adjustment would be needed. With respect to loss development, AIG's losses were developed independently from the remainder of the industry. With respect to estimating

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premium development factors, AIG's premiums were excluded and this has no material impact on the rate indication.

Aggregate Financial data from Zurich Insurance Group was excluded from the estimation of premium development factors because the data for certain valuation points appeared anomalous. The exclusion of data from Zurich Insurance Group from the estimation of premium development factors has no material impact on the rate indication.

Aggregate Financial data from the Ace Group was not used in the expense section of this filing. Expense ratios for the Ace Group have historically been outliers when compared to the balance of the industry. This appears to be a result of the high concentration of large deductible policies in Ace Group's book of business. Had the WCRIBMA not excluded Ace Group's Aggregate Financial data from the estimation of expense ratios, the rate indication would have been slightly lower.