



**THE WORKERS' COMPENSATION  
RATING AND INSPECTION BUREAU**

**MASSACHUSETTS  
WORKERS' COMPENSATION  
INSURANCE RATE FILING**

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**Volume 1 of 3**

<b>Section I</b>	<b>Rate Recommendation</b>
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***Recommended Effective Date: September 1, 2012***  
***Filing Date: March 1, 2012***



**THE WORKERS' COMPENSATION  
RATING AND INSPECTION BUREAU**

March 1, 2012

The Honorable Joseph G. Murphy  
Commissioner of Insurance  
Massachusetts Division of Insurance  
1000 Washington Street, Suite 810  
Boston MA 02118-6200

Dear Commissioner Murphy:

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 19.3%. Our Cost Containment filing is attached as Volume 3 of the filing.

We propose the manual rates to be effective 12:01 A.M., September 1, 2012, and to apply to each risk as of the first normal anniversary rating date following that effective date.

Sincerely,

A handwritten signature in blue ink that reads "Paul F. Meagher".

Paul F. Meagher  
President

# MASSACHUSETTS WORKERS' COMPENSATION

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**COMMONWEALTH OF MASSACHUSETTS  
DIVISION OF INSURANCE**

**Docket No. 12-**

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*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 SEPTEMBER 1, 2012**

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**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 September 1, 2012.

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 30 cities in the U.S., and, through our international network, Milliman Global, is affiliated with similar firms in more than 20 countries worldwide. Our U.S. employees number over 1,800, 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 an internal rate of return (IRR) model to derive the underwriting profit provision proposed by the WCRIBMA this year. 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 I offer in Section VII-B and in the accompanying Appendix, 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 five principal reasons for this.

First, we have not reflected the true cost of policyholder dividends in the IRR model. 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 as such in the IRR. 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 weight attributed to debt capital in the WCRIBMA's calculation of the weighted average cost of capital is higher than would generally be expected, due to the precipitous declines in equity values in the recent past for firms in the financial services sectors. Any increase in the debt share reduces the overall cost of capital which acts to lower the proposed rates; had the expected debt share been used, the required rate change would have been higher.

Fourth, 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.

Finally, the WCRIBMA's IRR model treats all premium balances as admitted assets, even though the premium collection pattern indicates that some premium balances are more than 90 days past due and hence are non-admitted assets. Had the model correctly reflected non-admitted premium balances, the amount of surplus would have been greater and hence the required rate change would have been higher as well.

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.

Pre-Filed Direct Testimony  
David Appel

Lastly, 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 24<sup>th</sup> day of February 2012 under the pains and penalties of perjury.

A handwritten signature in cursive script, 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	<b>MILLIMAN, INC.</b> Principal & Director - Economics Consulting  Responsible for the formation, development and management of a national consulting practice in insurance economics.
1980 to 1989	<b>NATIONAL COUNCIL ON COMPENSATION INSURANCE</b> 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	<b>RUTGERS UNIVERSITY</b>
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 Certified ARIAS Arbitrator and Umpire Member: AAA Panel of Neutrals 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

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, 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. 12-

*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 SEPTEMBER 1, 2012

**PRE-FILED DIRECT TESTIMONY OF THOMAS V. DALEY**

The Workers' Compensation Rating and Inspection Bureau of Massachusetts ("WCRIBMA") submits the following direct testimony of Thomas V. Daley in support of its application for a general rate revision to be effective on and after September 1, 2012.

Q. Please state your full name.

A. Thomas V. Daley.

Q. What are your professional qualifications?

A. I am presently employed as Director and Actuary at the National Council on Compensation Insurance, Inc. ("NCCI"). At NCCI, I am currently responsible for Individual Risk Rating research and production activities and for producing the rate filings in the states of Arizona and Arkansas. I have a B.S. degree in Mathematics from the Pennsylvania State University and I am an Associate of the Casualty Actuarial Society. I have been working as an actuary on the workers' compensation line since 1991. My curriculum vitae is attached to this testimony.

In recent years I have been responsible for both applied research and implementation of a new methodology for class ratemaking for all of the states in which

NCCI makes loss cost or rate filings on behalf of the workers' compensation insurance industry. I am the author of "Class Ratemaking for Workers Compensation: NCCI's New Methodology," Casualty Actuarial Society *E-Forum*, Winter 2009. My paper describes the NCCI's new class ratemaking methodology. A copy of my paper is attached to this testimony.

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

A. My role was limited to a review of the class ratemaking methodology used by the WCRIBMA in Section IX of its filing.

Q. Are you familiar with the class ratemaking methodology 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 class ratemaking methodology used in the WCRIBMA's current filing satisfies the statutory standard?

A. Yes.

Q. What is your opinion?

A. It is my professional opinion that the methodology used by the WCRIBMA to calculate class rates is actuarially sound and – assuming that the underlying overall rate indication is reasonable – produces results that are reasonable and not unfairly discriminatory. (I have not reviewed and have no opinion about the overall rate indication proposed by the WCRIBMA, the experience rating plan values being proposed in this rate filing, the expense or loss constants, or the expected excess loss methodology underlying the WCRIBMA class rates.) The WCRIBMA's class ratemaking method closely mirrors the class ratemaking methodology used by NCCI. The NCCI's method has been approved in 36 of the 37 states and in the District of Columbia where NCCI develops class rates. NCCI does not use the methodology in one state, Texas, because the Texas statistical plan did not require the reporting of injured body part, a data element that is required by our method.

Q. Are you aware of any differences between the class ratemaking method used by the WCRIBMA in this rate filing and the class ratemaking method used by NCCI in all states except Texas?

A. Yes.

Q. What are these differences?

A. There are two slight differences. First, in allocating excess losses between indemnity losses and medical losses, both the NCCI and the WCRIBMA first allocate on a pro rata basis, using limited indemnity and limited medical losses as weights. NCCI then transfers 40% of the indemnity excess losses to medical losses to reflect the fact that roughly 70% of excess dollars are associated with medical losses in NCCI states.

Because medical losses are a smaller proportion of total losses in Massachusetts than they are in the NCCI states, the WCRIBMA transfers only 30% of indemnity excess losses to medical excess losses.

Second, when developing losses from fifth report to ultimate, NCCI uses loss development factors based on losses limited to each state's aggregate ratemaking large loss limit used in its overall loss cost indication, which vary by state. The WCRIBMA uses loss development factors based on losses limited to \$500,000.

Q. In your professional opinion, are the modifications to NCCI's class ratemaking methodology made by the WCRIBMA reasonable?

A. Yes. The transfer of a smaller proportion of the indemnity excess losses to medical losses is reasonable because Massachusetts experience is different than the experience in the NCCI states. The use of development factors based on losses limited to \$500,000 is reasonable because the WCRIBMA adds an estimate for ultimate losses in excess of \$500,000 to their estimate of ultimate losses limited to \$500,000 to arrive at the desired quantity, an estimate of ultimate unlimited losses.

Q. Are there any other differences in the ways in which WCRIBMA and NCCI derives class rates that you would like to comment upon?

A. Yes. For some time there are have been some additional technical differences in the ways in which WCRIBMA and NCCI calculate class rates. These differences include the following:

- NCCI includes the experience of large deductible policies in its class data; WCRIBMA does not.

- WCRIBMA produces relativities to industry group averages for each class code prior to applying the same three-way credibility procedure that NCCI applies to its class partial pure premiums
- WCRIBMA produces pitch factors for use in determining its countrywide relativities; NCCI does not.
- WCRIBMA applies an investment income offset within its secondary conversion factors for adjusting the data; NCCI does not.
- The WCRIBMA industry group differential methodology is very similar to NCCI's methodology, but not identical: WCRIBMA uses uncapped rate level factors, and NCCI applies wage trends that vary by industry group
- For classes within an industry group, WCRIBMA applies maximum and minimum rate changes equal to the benefit change plus one-half the experience change plus or minus 20%; NCCI applies different swing limits than WCRIBMA.
- WCRIBMA proposes to limit the increase in average rates for any class to \$15.00 and to limit average rates to no more than \$90.00 per \$100.00 of payroll for any class.

These minor technical differences in the approaches taken by WCRIBMA and NCCI have existed in the past and do not alter my professional opinion that the rates as filed by the WCRIBMA are reasonable, not excessive, and not unfairly discriminatory.

Q. Do you have any other comments you would like to add?

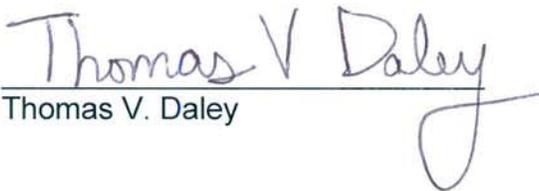
A. Yes. I have not reviewed and have no opinion about the other WCRIBMA ratemaking methodology used to determine the proposed rates for the "Special

Pre-Filed Direct Testimony  
Tom Daley

Classes" referenced in Section IX, Subsection A – Summary of the WCRIBMA's rate filing.

Q. Thank you.

Signed this 27th day of February 2012 under the pains and penalties of perjury.

  
Thomas V. Daley

## Thomas V. Daley, ACAS, MAAA

Thomas Daley is an Associate of the Casualty Actuarial Society (ACAS) and a member of the American Academy of Actuaries. He is currently a Director and Actuary for the Actuarial and Economic Services Division at NCCI Holdings, Inc.

Prior to joining NCCI in 1991, Thomas held a variety of actuarial positions in pricing and reserving at Travelers Insurance Company in Hartford, CT. At NCCI, he has held lead positions in Residual Market reserving, ratemaking research, and in his current role at NCCI, he leads the individual risk rating research and production activities at NCCI. Thomas has authored several papers published by the CAS, and also has state rate filing responsibilities for a few NCCI states.

Tom is a former officer of the Casualty Actuaries of the Southeast, and is currently a mentor for the Actuarial Foundation. He received his BS degree in mathematics and actuarial science from the Pennsylvania State University.

# Class Ratemaking for Workers Compensation: NCCI's New Methodology

Tom Daley, ACAS, MAAA

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## Abstract:

For the first time in many years, NCCI is revising the methodology used to determine class relativities in workers compensation loss cost filings.

This paper will describe the new methodology NCCI has developed, and reveal the research approach and analyses underlying the modifications NCCI will be implementing to several key class ratemaking components. The paper will discuss in detail how the traditional areas of class ratemaking were modified, namely loss development, limiting large claims and applying expected excess provisions, updating credibility standards, and the derivation of industry group differentials.

The paper will also focus on the new NCCI class ratemaking approach from an educational perspective for actuaries who are just becoming familiar with workers compensation. Exhibits are provided in Appendix B illustrating the stepwise derivation of a loss cost for a classification from beginning to end.

**Keywords:** workers compensation; NCCI ratemaking; NCCI loss cost filings; class ratemaking; loss development by part of body; expected excess by hazard group.

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## 1. INTRODUCTION

NCCI has recently modified the methodology used to determine class relativities for workers compensation insurance. The last time the class relativity methodology was modified took place in 1993. At that time, NCCI implemented the following changes: a) the number of policy periods used in determining pure premiums for each class was increased from three to five, b) the underlying class credibility formulas were modified, and c) the number of industry groups used for targeting class loss cost changes was increased from three to five.

Some of my colleagues would jokingly quip that the number of people who understood these changes increased from three to five. So the primary motivation of this paper is to document the new NCCI class ratemaking methodology and the research analyses supporting it. Many of my colleagues at NCCI made very significant contributions to the overall success of this huge undertaking, and are duly mentioned in the acknowledgement. This could not have been possible without their valuable insights and support.

## **1.1 Research Context**

The focus of this research is to document the various analyses and research approach used to support the modifications being implemented within the NCCI class ratemaking methodology. Current CAS literature that addresses some of the same issues include “Workers Compensation Ratemaking” by Sholom Feldblum, and “Workers Compensation Classification Credibilities” by Howard C. Mahler.

## **1.2 Objective**

This paper updates the CAS literature on workers compensation ratemaking techniques, with particular attention to recent modifications in the NCCI class ratemaking methodology for handling large claims, improving the predictive ability of class loss development factors, and the approach used for updating certain other important components such as industry group differentials and credibility standards. To address its absence in the current CAS literature, this paper also provides a detailed stepwise illustration of the new workers compensation class ratemaking methodology. The methodology supporting the aggregate change in a state’s overall indicated loss cost level will not be addressed in this paper. The new methodology for determining the seven hazard groups and the methodology for determining the expected excess loss factors also will not be addressed in this paper.

## **1.3 Outline**

The remainder of the paper proceeds as follows. Section 2 will discuss the reasons and impetus for the changes made, the thought process NCCI has followed, the specific class ratemaking methodology changes being implemented, and the supporting research analyses and results. Section 3 contains two appendices of exhibits: Appendix A contains the supporting research exhibits and Appendix B contains exhibits that illustrate the new methodology for calculating the loss cost for a class code from beginning to end.

## **2. BACKGROUND AND METHODS**

There were three motivational factors underlying the research approach that NCCI followed in making some recent significant changes to its class ratemaking methodologies. They were:

- To improve the predictive ability and adequacy of loss costs by class code.

- To provide year-to-year stability of loss cost changes by class code.
- To explore the potential of new data elements that NCCI began collecting in the 1996 Unit Report Expansion (URE), and try to utilize them accordingly.

## **2.1 Availability of New URE Data Elements**

Many of the NCCI states approved the collection of the URE data elements in 1996. Thus, the first complete policy period available in most states is policy year 1997. Furthermore, some states did not approve the collection of URE data in their state for a few more years (the last state was approved as late as January 1, 2002). Thus, in a few states, the database is less complete historically, adding further to the challenges of our research agenda.

The following is a list of some, but not all, of the new URE data elements to be reported to NCCI by carriers and available to the NCCI actuaries:

- Paid ALAE (case reserves were optional)
- Paid losses separate from “paid + case” losses
- Injured part of body
- Nature of injury
- Cause of injury
- Deductible reimbursement amounts
- Lump sum indicator
- Etc.

More recently, effective with policy period 1999 and subsequent, carriers began mandatory reporting beyond a 5<sup>th</sup> report for all WCSP unit data and URE data elements on all open claims, up to and including a 10<sup>th</sup> report.

## **2.1 Overview of the Methodology Changes**

Several significant changes to the NCCI class ratemaking are currently being targeted for implementation in 2009. The majority of changes are contained in the following six areas:

1. Loss development factors (LDF) will be derived using claim characteristics such as injured body part, the open and closed claim status at 1<sup>st</sup> report, and the injury type category.

2. The loss development triangles are being expanded from five reports out to 10 reports (eventually).
3. Large claims will be capped at \$500,000 and expected excess factors (derived from the new seven hazard group mapping by class code) will be used to calculate ultimate losses.
4. Serious and non-serious pure premium components will no longer exist. There will only be indemnity and medical components.
5. The computation of the industry group differentials was slightly modified.
6. The full credibility standards for indicated and national pure premiums were slightly modified.

Each of these six major areas will be discussed in this paper, some in much more depth than others, and a summary of the analyses underlying the decisions will be presented.

## **2.2 Background: The Current Loss Development Approach**

It is important to understand the nuances of the former approach to gain a better appreciation for the changes NCCI is now implementing and the reasoning behind the changes being made. The source data used is the NCCI Workers Compensation Statistical Plan (WCSP) data. The previous approach used by NCCI to generate loss development factors for class ratemaking was to segregate the dollars of loss generated from claims into two loss development categories. They were a) the serious grouping and b) the non-serious grouping. An arbitrary dollar value, referred to as the critical value, which varied significantly by state, was determined for each loss cost filing. All permanent partial claims whose indemnity dollar amount, as measured on a “paid + case” basis, exceeded the critical value were categorized to be included in the serious grouping, and referred to as major permanent partial claims. Four loss development triangles were compiled from the dollars of losses associated with these claims. The four triangles compiled were indemnity and medical, and each had a serious and non-serious component. The serious grouping consisted of all fatalities, all permanent total claims, and the major permanent partial claims (i.e. those claims whose indemnity dollar amounts exceeded the critical value). The non-serious grouping consisted of all temporary total claims, the remaining minor permanent partial claims, and the medical-only claims. Examples of each of the serious and non-serious loss development triangles for a large state are shown in Exhibit 1.

WCSP “paid + case” loss data is reported by carriers to NCCI at five different reports for open

claims. The losses are evaluated @18, @30, @42, @54, and @66 months, respectively. A tail factor was applied to the serious loss development triangles only, and was derived from NCCI financial call data used in the overall aggregate loss cost indication for the state. It was assumed that all loss development beyond the 5<sup>th</sup> report was inherently due to serious claims only. In order to balance to the financial data tail, a significantly large tail factor was applied to the serious losses to generate a 5<sup>th</sup>-to-ultimate, while a tail factor of unity was applied to the non-serious losses. An illustration of the derivation of the tail factor is also found in Exhibit 1.

The current loss development approach had four shortcomings, which made its serious and non-serious loss development groupings less than optimal. The key shortcomings were:

1. As claims matured, many claims would “cross over” the critical value at subsequent reports, and therefore be reassigned into the serious grouping, and thus, distort the predictive ability of the loss development factors in the serious and non-serious triangles.
2. Severity was not a good indicator of the propensity of a claim to develop in the future.
3. The medical dollar amount was ignored in determining whether or not a claim was categorized as serious or non-serious.
4. No distinction between serious and non-serious loss dollars was made within the medical loss triangles from 1<sup>st</sup> through 5<sup>th</sup> report. The only distinction between serious and non-serious medical was that a 5<sup>th</sup>-to-ultimate medical tail factor was applied to the medical loss dollars associated with the serious lost-time claims.

### **2.3 The Problem of Critical Value Crossover**

The research approach began as a review of the critical value methodology, which had begun to be used in class ratemaking at NCCI in 1966. A previous attempt years earlier at improving the critical value methodology involved the idea of using an open and closed claim indicator, and only applying loss development to open claims. Although that idea was not embraced at the time, a better variation of it will be introduced to the reader later in the paper.

Exhibit 2 demonstrates the distorting impact that critical value “crossover” inflicts on a dataset of permanent partial claims countrywide. Claims below the critical value are deemed minor while those that exceed it are deemed major. Various link ratios were computed for comparison from 1<sup>st</sup> report to 4<sup>th</sup> report. The true distortion of critical value “crossover” is illustrated by the second and third rows of the indemnity and medical sections of Exhibit 2. These rows consist of claims where the

status changed from major to minor, and vice versa, between the 1<sup>st</sup> and 4<sup>th</sup> reports. Columns (4) and (5) on Exhibit 2 provide a stark contrast of the distortion critical value crossover can inflict on the predictive nature of a link ratio.

Although not illustrated in Exhibit 2, a “natural crossover” of claims moving between injury types may provide similar distortions to link ratios as claims evolve over time. It is common in workers compensation for a temporary total claim to eventually evolve into a permanent partial claim, or a medical-only claim at 1<sup>st</sup> report to potentially become a lost-time claim at subsequent reports. The manner in which NCCI’s actuaries address natural crossover will be presented later in this paper. One of the goals of the new methodology was to try to mitigate “crossover” in order to generate loss development factors that were more predictive.

## **2.4 How We Solved the Crossover Problem**

A fresh approach was begun by investigating a new field, the injured part of body, that NCCI began collecting on its Unit Report Expansion starting with policies effective in 1996. NCCI actuaries soon began researching to see if the injured body part provided any causal relationship upon predicting whether or not a claim’s loss dollar amount developed upward at later reports. The initial approach NCCI took to research its loss development methodology proceeded as follows:

1. Extract a large volume of claims containing claim-specific information such as injury type, report level, injured body part, and associated dollars of incurred loss.
2. Review the impact that critical value “crossover” (illustrated earlier) and injury type “crossover” may have upon loss development factors.
3. Determine if claim severity is an indicator of the propensity of a claim to develop.
4. Analyze the injured body part to determine if it could provide value as a predictor of a claims’ propensity to develop (or not develop).
5. Group the body part and injury type combinations into those more likely to develop and those not likely to develop so that the groupings are more predictive than the serious and non-serious groupings.
6. Update NCCI’s Actuarial Committee and incorporate their feedback.

Note that at the outset, the impact of the claim status (open or closed) was not considered. As the main thrust of the initial research was analyzing body part and injury type combinations, and

mitigating the crossover problem, claim status was not incorporated until much later. How claim status was incorporated into the research will be described later on in the paper. Exhibits 2 through 9 reveal the initial research findings outlined in the steps above.

The analysis of the distortion to link ratios that “cross over” caused provided valuable insight. True loss development can best be determined if claims are not allowed to migrate across different development groups to the extent possible. As claims were moving over the critical value and across the injury types, a solution was posed as to how to research whether or not the injured body part was a determining characteristic of loss development. The solution was to “lock down” the entire dataset of claims being studied at each link ratio. Thus, the exact same set of claims were observed at adjacent reports, such as 1<sup>st</sup> to 2<sup>nd</sup>, and the loss development measured accordingly. Note, the set of claims used to observe the loss development from 2<sup>nd</sup> to 3<sup>rd</sup> report could be a different set of claims than those observed at 1<sup>st</sup> to 2<sup>nd</sup> report.

This approach was the key to determining which injured body parts developed more or less than others, and as you will later read, it also helped NCCI determine that two other key claim characteristics (claim status at 1<sup>st</sup> report and injury type) can also be associated with more or less dollars of loss development.

#### **2.4.1 How Was the Injured Body Part Approach Determined?**

Two new loss development triangle groupings were envisioned. The first was a grouping of claims whose injured body parts, and associated dollars of loss, were likely to develop upwards over time. The second grouping would consist of claims whose injured body parts, and associated dollars of loss, were not-likely-to-develop upwards over time. Grouping body parts together made sense as there were 55 body part codes in the WCSP, and credible volume at a state level by injured part of body was a concern. Loss development between the two groups would have to be compared relative to one another, as the losses in some states develop significantly more than others. For example, a back claim filed in a state having a lot of attorney involvement and longer durations would be expected to develop more than a similar back claim in a state with little or no attorney involvement and shorter durations. (As an example of duration, many states have time limits for benefits, such as 300 weeks or 425 weeks for permanent partial claims.)

The next step was to determine which of the 55 body part categories would be mapped into the likely-to-develop and not-likely-to-develop. A listing of all the body part codes and the grouping to which they were mapped is shown in Exhibit 6. One drawback in using the NCCI WCSP data for

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determining loss development in a long-term line of insurance like workers compensation is that only five reports of losses are provided to NCCI by carriers, yet much of the loss development can and does take place beyond the 5<sup>th</sup> report. At times, certain analyses only used four reports of data simply because the 5<sup>th</sup> and final report was not yet reported to NCCI as the body part code was introduced in 1996 for the first time.

Two different analyses were completed for body part grouping. The result of the first analysis is shown in Exhibit 3. This analysis measured loss development dollars by fixing the set of claims from 1<sup>st</sup> through 4<sup>th</sup> report (at the time, 5<sup>th</sup> report was unavailable), quantifying the observed loss development per claim as follows:

$$\frac{(\text{Reported Losses @4}^{\text{th}} - \text{Reported Losses @1}^{\text{st}})}{\text{Number of claims}}$$

This approach provided an initial insight into which body parts developed more than others. Exhibit 3 shows that the following general areas of body parts contributed the largest amount of development per case: back, head, neck, multiple body, and internal organs. The downside of using this approach as the only measure for making body part decisions is that much loss development in workers compensation happens beyond 5<sup>th</sup> report, and until recently, carriers did not report WCSP data beyond the 5<sup>th</sup>. (Starting in 2005, NCCI began collecting 6<sup>th</sup> reports of open claims, and will eventually collect up to a 10<sup>th</sup> report. This expansion will be used to extend the class loss development triangles out beyond the 5<sup>th</sup> report, and eventually to a 10<sup>th</sup>).

Thus, a second measure was considered to fine-tune the decision making for determining groupings of body parts into likely-to-develop and not-likely-to-develop categories. The second measure was to determine what percentage of claims, sorted by body part, remained open at 5<sup>th</sup> report. Exhibits 4 and 5 illustrate these results for countrywide permanent partial and temporary total claims, respectively. Those body parts having a higher percentage of open claims at the 5<sup>th</sup> report were assumed to be more likely to develop.

Actuarial judgment also played a role in the final decisions to determine into which groupings the various body parts were ultimately placed. Some consideration was given to the fact that certain body parts are considered scheduled injuries in states having scheduled permanent partial injuries. Body parts like toes, fingers, hands, feet, arms, and legs are often mandated a pre-determined dollar amount in statutory benefit schedules, and therefore, are not likely to develop upward. Exhibit 6 summarizes the grouping to which each body part has been mapped.

## **2.4.2 How Was the Injury Type Considered?**

More refinements to the grouping logic were researched after the body part mappings were completed. The first characteristic considered was the claim's injury type. In workers compensation, different levels of indemnity benefits are paid based upon the injury type. The injury types are: fatal (F), permanent total (PT), permanent partial (PP), temporary total (TT), and medical only (MO).

Two injury types initially examined in depth were TT and PP, as this is where the majority of claims and dollars of loss resides. Once the body parts were mapped to the likely-to-develop (L) and not-likely-to-develop (N) groupings, a few different tests were performed. The first was whether or not severity was a good indicator of the likelihood of a claim developing and the second was a test to see if the groupings of body parts produced link ratios that were larger for the L grouping than the N grouping. The second test would substantiate the mapping of body parts to the L and N groupings.

Exhibit 7 shows results for both tests, again on a countrywide basis. A critical value of \$26,000 was selected.<sup>1</sup> The claims were fixed at each adjacent link ratio to eliminate both critical value and natural "crossover" and to allow us to observe the development pattern that resulted. The results shown on Exhibit 7 clearly illustrated three key observations: 1) claim severity itself is not a predictor of higher loss development, as evidenced that claims below \$26,000 developed much greater for TT than those which began at a value greater than \$26,000, 2) the medical pattern behaved differently than indemnity, in that the ldf from 1<sup>st</sup> to 5<sup>th</sup> was about the same whether above or below the \$26,000, and 3) claims within the L grouping developed significantly more than claims in the N grouping for both PP and TT, as evidenced by the much higher link ratios.

At this point in the research process, the feedback from NCCI's Actuarial Committee was positive, and the Committee requested to see what the new groupings and their new development pattern would look like by state as compared to serious and non-serious loss development factors (LDF). Exhibits 8 (indemnity) and 9 (medical) provide the support for LDF comparisons for two states, identified only as a large state and a small state. Note the characteristics of the serious and non-serious development factors: "crossover" generates very large serious factors and very low non-serious factors. At the same time, relative to the serious and non-serious LDF, the likely-to-develop (L) and not-likely-to-develop (N) are much different: L produces LDF patterns that are much lower

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<sup>1</sup> \$26,000 was an indemnity dollar amount determined arbitrarily assuming a typical weekly indemnity benefit of \$500 per week for 52 weeks.

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than serious while N is much higher than the non-serious LDF. As will be shown later on in this paper, class equity is affected in that class codes with more serious losses, such as contracting codes, will experience reduced loss costs under the new loss development methodology while classes with more non-serious losses (office and clerical) will experience increased loss costs due solely to the change in loss development methodology. (Other components of the new methodology do provide an offsetting impact. The expected excess provision is a good example as it is greater for contracting codes than it is for office and clerical.)

Also note that for Exhibit 9, the previous methodology only provided a total LDF for medical from 1<sup>st</sup> to 5<sup>th</sup>. Under the new methodology, an improvement is generated in that LDFs are bifurcated into two homogeneous groupings with distinctly different loss development patterns; that is, L and N. This refinement should improve class equity.

Exhibits 8 and 9 show LDFs on an unlimited basis and on a limited (@ \$500K) basis. This is because unlimited factors are used in the previous class ratemaking methodology. The new class ratemaking enhancements include limiting individual claims at \$500K. Thus, a portion of the difference in the magnitude of LDF from previous to new methodology is due solely to a loss limitation being applied to the new NCCI class loss development methodology.

It is important to note that Exhibits 8 and 9 are illustrating LDF patterns using the following loss development groupings of claims:

$$\text{Likely (L)} = \text{Fatal} + \text{PT} + \text{PP-L} + \text{TT-L} \quad (2.1)$$

$$\text{Not Likely (N)} = \text{PP-N} + \text{TT-N} + \text{MO} \quad (2.2)$$

$$\text{Serious} = \text{Fatal} + \text{PT} + \text{Major PP} \quad (2.3)$$

$$\text{Non-Serious} = \text{Minor PP} + \text{TT} + \text{MO} \quad (2.4)$$

Because most fatal and permanent total claims are open at the 5<sup>th</sup> report, it was quickly decided to put them into the L grouping. This also coincided well with the previous serious grouping. The reasoning used for assigning medical-only claims to the N grouping was that almost all of them close out quickly, and thus, are unlikely to develop further.

The injury types that provided the NCCI actuaries with the biggest challenges were the permanent partial and temporary total claims. In most states, these two injury types comprise between 70% and 80% of all loss dollars incurred. These claims also are intricately connected as

many temporary total claims evolve into permanent partial claims as injured workers reach a point in time referred to as maximum medical improvement. It was for these reasons that the research on injured body part focused on these two injury types for the most part. The L and N groupings would also benefit from a fairly even distribution of loss volume if each of these injury types were assigned to either the L or the N, based on injured body part.

It was at this point in the research that some other NCCI colleagues were becoming heavily involved in the class ratemaking research, and began asking questions and probing into the details underlying the assignment of claims into the L and N groupings. The team started investigating injury type loss development patterns closely for the large state/small state analysis, and started questioning if other URE data elements could be used to further refine the L and N groupings. Some NCCI actuaries thought the fatal claims should be N and not L. Others thought temporary total claims should all be assigned to the N grouping. Others felt the disparity between the magnitude of the LDF for the L and N groupings was not large enough. So more research was conducted to try to resolve the issue of what is the optimal loss development grouping.

### **2.4.3 The Final Refinements to the Loss Development Groupings**

Staff explored other URE data elements to determine if their presence could better determine the likelihood that a claim might develop upward. Some of the data elements explored were claims including ALAE, the nature of injury, and the cause of injury. None of these provided any solutions. However, there was one data element that was clearly connected with the propensity of a claim to develop (or not). And that was the open or closed claim status. The majority of development was coming from claims that were open at 1<sup>st</sup> report. It seemed so logical. Almost all actuaries, and non-actuaries, would agree that closed claims are not likely to develop (note that there are a small percentage of claims that do close and reopen in workers compensation). So the research continued.

A new countrywide (all NCCI states) data extract was created for policy years 1999 through 2002 at each available report level, and for 1999, that now encompassed six reports of data. Dollars of loss were compiled for each policy year and state as follows:

- By injury type at each report level
- By the claim status open (O) or closed (C) at first report and each subsequent report level

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- By the body part category L or N
- Losses were limited at \$500,000
- Indemnity and medical aggregated separately
- Only states and years in URE format (Oregon did not approve URE until 1-1-02.)

The loss dollars were aggregated countrywide. Claims having an injured body part that was assigned to the L grouping were referred to as “likely” body parts. Similarly, claims having an injured body part that was assigned to the N grouping were referred to as “not-likely” body parts.<sup>2</sup> All claims were “locked down” at each report level to examine the impact of true loss development, and therefore, not allowed to move across subcategories. Once “locked down” at the initial report, no claims were allowed to enter or leave the group throughout the entire observed development timeframe (i.e. 1<sup>st</sup> through 6<sup>th</sup> report or 2<sup>nd</sup> through 6<sup>th</sup> report). This is a different variation of the “lock down” than that used earlier in the initial research of injured part of body, where the set of claims was the same only for adjacent reports for determining a link ratio. The loss dollars were segregated into the following four subcategories and the LDF were computed:

- LO — “likely” body part and claim open at 1<sup>st</sup> report
- LC — “likely” body part and claim closed at 1<sup>st</sup> report
- NO — “not-likely” body part and claim open at 1<sup>st</sup> report
- NC — “not-likely” body part and claim closed at 1<sup>st</sup> report

Exhibits 10 and 11 display a myriad of LDF combinations that have become the heart and soul of the new loss development proposal. Every injury type is broken out into the four subcategories and for policy years 1999 and 2000, the LDF are illustrated from 1<sup>st</sup> – 6<sup>th</sup> and 1<sup>st</sup> - 5<sup>th</sup>, respectively. The LDF patterns provided NCCI with remarkable evidence suggesting further refinements to the loss develop groupings should be made. Several key observations and conclusions generated from the analysis illustrated on Exhibits 10 and 11 follow. Specifically, for permanent partial (PP), temporary total (TT), and medical-only (MO) claims:

1. Losses from claims in the L body part categories consistently develop much more than

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<sup>2</sup> In the future, NCCI may rename the “likely” body parts as Part of Body Group A and the “not-likely” body parts as Part of Body Group B to differentiate the body part assignments from the loss development groupings.

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its N counterpart. Thus, the body part assignments are sound.

2. Claims that were open (O) at 1<sup>st</sup> report develop much more than the closed (C) claims do. Thus, the combination of L and O at 1<sup>st</sup> report generates the largest LDF by far.
3. Focus on the arrows on Exhibit 10 for TTLC and PPLC. Claims that were L and closed (C) at 1<sup>st</sup> report align more closely with the TT-N and PP-N grouping. Thus, by moving claims having the combination of L and C at 1<sup>st</sup> report into the N grouping further refines the LDF patterns.
4. Exhibit 11, Option 1 demonstrates that a greater differentiation in LDF magnitude occurs when the likely closed (LC) claims were removed from PP and TT and placed in the N grouping. This is seen by a comparison of Option 1 relative to the grouping labeled “current” in the row above it. (Thus, within option 1,  $L = \text{Fatal} + \text{PT} + \text{PPLO} + \text{TTLO}$ .)
5. Although similar LDF patterns were observed for MO, it was decided to keep all MO claims in the N grouping for two reasons: a) only 1% of all losses shift, and b) some carriers may report their entire inventory of MO claims as closed claims when reporting WCSP data to NCCI, which could be problematic.
6. Claims from the permanent total (PT) and fatal injury types do not demonstrate the same pattern of loss development characteristics. That is, the L and N body part categories do not discern loss development patterns as it does in other injury types. The LDF behave in the opposite manner (i.e.,  $L < N$ ). Also, the opposite behavior happens with the open and closed claim status LDF ( $C > O$ ).

The results of the last observation suggested that even more research should be conducted on the development patterns of fatal and PT claims. Natural “crossover” across injury types further complicates the analysis so three groups of fatal and PT claims were created and the LDF observed:

- Those claims which remained within the injury type across all report levels
- Those claims that moved into the fatal and PT injury types after initially being reported as another injury type at 1<sup>st</sup> report
- Those claims that migrated out of the injury type at later reports after initially being reported as fatal and PT at 1<sup>st</sup> report

In this analysis, the injury type of claims were observed at 6<sup>th</sup> report for PY 1999 and 5<sup>th</sup>

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report for PY 2000. Assuming the most recent reported injury type is the best observation for these PT and fatal claims, we then observed the injury type of these claims at 1<sup>st</sup> report. Exhibit 12 shows the loss development patterns for the three groups of fatal claims while Exhibit 13 shows the same for the PT claims. Several key observations, conclusions, and reasoning follow that were generated from the analysis illustrated on Exhibits 12 and 13. And, importantly, the debate over whether fatal claims should be placed in the L or N grouping was resolved.

1<sup>st</sup> observation: Fatal claims (at 6<sup>th</sup> or 5<sup>th</sup> report), which were reported initially as a fatality at 1<sup>st</sup> report, distinctly developed downward from 1<sup>st</sup> through 6<sup>th</sup> (and 5<sup>th</sup>) report (see top section of Exhibit 12).

**Conclusion #1: Move fatal claims at 1<sup>st</sup> report into the N grouping, and no longer assign them as likely-to-develop.**

Reasoning: This one makes practical sense because only the dependents, if any, of the deceased worker receive benefits and these benefits are defined streams of payments over time in most states. A few states pay a predetermined lump sum of money to beneficiaries. Also, there is no need for carriers to estimate case reserves for future medical costs when the injured worker dies.

2<sup>nd</sup> observation: Claims that become fatalities at subsequent reports (2<sup>nd</sup> through 6<sup>th</sup>) developed significantly upward from 1<sup>st</sup> to 6<sup>th</sup> (and 5<sup>th</sup>) report (see middle section of Exhibit 12).

**Conclusion #2: Claims that become fatalities at subsequent reports (2<sup>nd</sup> through 6<sup>th</sup> and eventually 10<sup>th</sup> report) will continue to be categorized in the L grouping.**

Reasoning: Claims of this nature were observed within all injury types, and conditions subsequently worsened to the point where the injured worker died. Large amounts of upward loss development dollars were observed, and medical costs become very large in many of these claims over time.

Note at the bottom of Exhibit 12 a small amount of claims reported as fatalities at the 1<sup>st</sup> report actually moved to other injury types at subsequent reports. Upon investigating several of them, it was concluded that compensability was actually an issue. In other words, some claims were contested as to whether or not the death was due to work-related causes. In a few other instances, the initial injury type was simply misreported and corrected. As a group, this small number of claims did develop downwards and will be assigned to the N grouping.

Now refer back to Exhibit 11, Option 2. It demonstrates that a greater differentiation in

LDF magnitude occurs, particularly for indemnity, when the fatal claims at 1<sup>st</sup> report were removed from the L grouping and placed in the N grouping. This is seen by a comparison of Option 2 relative to the groupings labeled “current” and Option 1 in the rows above it. (Thus, within option 2,  $L = \text{Fatal} - \text{Fatal @1}^{\text{st}} + \text{PT} + \text{PPLO} + \text{TTLO}$ .)

3rd observation: An overwhelming number of PT claims (at 6<sup>th</sup> or 5<sup>th</sup> report), which were reported initially as other injury types at 1<sup>st</sup> report, developed significantly upward from 1<sup>st</sup> through 6<sup>th</sup> (and 5<sup>th</sup>) report (see middle section of Exhibit 13).

**Conclusion #3: Categorize all PT claims, regardless of the report, into the L grouping.**

Reasoning: Many PT claims were observed whereby they were initially reported as another injury type, and conditions subsequently worsened to the point where the injured worker became permanently totally disabled. Large amounts of upward loss development dollars were observed, and the medical costs become very large in many of these claims over time. Also, almost all PT claims were open at 1st report and were comprised mainly of Group A parts of body (i.e., likely).

It should be noted that a subset of PT claims that stayed within the PT injury type at all reports had a slight downward development (see top of Exhibit 13). After considering moving those out of the L grouping, similar to fatal at 1<sup>st</sup> report, it was decided to be appropriate to keep assigning them to the L grouping, as most were still open at a 6<sup>th</sup> report, and could eventually develop upwards out in the tail if the claimant’s condition worsened in the future.

Thus, Option 2 on Exhibit 11 represents the proposed final L grouping, which excludes fatalities at 1<sup>st</sup> report, and includes all PT claims. The equation is as follows:

$$L = \text{Fatal} - \text{Fatal @1}^{\text{st}} + \text{PT} + \text{PPLO} + \text{TTLO}. \quad (2.5)$$

#### **2.4.4 What about the Tail Factor?**

The tail factor in workers compensation presents a formidable challenge to NCCI actuaries. In aggregate ratemaking, in order to determine a state’s overall indicated change in loss cost or rate level, a tail factor is estimated separately for indemnity and medical and attached currently at a 19<sup>th</sup> report. NCCI financial call data is used as the source. However, only five reports of the WCSP data,

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which is the basis for class relativities, was required to be reported to NCCI by its affiliated carriers. This has changed recently. Beginning with policy year 1999, NCCI is now collecting up to 10 reports of open claims.

For class ratemaking, in order to maintain consistency for a state's class relativities, the financial tail factor is used as a starting point. NCCI actuaries assume that 100% of loss development beyond the 5<sup>th</sup> report is due to development on the serious claims, and 0% due to development on non-serious claims. A 5<sup>th</sup> – ultimate LDF is computed from the state financial data, referred to below as  $Fin5U$ . Thus, the following formula is used for indemnity losses to determine the class ratemaking 5<sup>th</sup> – ultimate LDF, referred to below as  $Class5U_I$ . It is applied to serious losses at 5<sup>th</sup> report.

$$Class5U_I = [SER\$_I + (SER\$_I + NS\$_I) * (Fin5U_I - 1.000)] / SER\$_I. \quad (2.6)$$

Where,

$SER\$_I$  = two years of limited “paid+case” serious indemnity loss dollars on-leveled and developed to 5<sup>th</sup> report for the state;

$NS\$_I$  = two years of limited “paid+case” non-serious indemnity loss dollars on-leveled and developed to 5<sup>th</sup> report for the state;

$Class5U_I$  = unlimited 5<sup>th</sup> – ultimate indemnity (I) tail factor applied to serious losses at 5<sup>th</sup> report for each class code. No tail is applied to non-serious losses;

$Fin5U_I$  = Unlimited statewide financial data 5<sup>th</sup> – ultimate tail factor for indemnity (I).

The same exact approach is also used to determine a 5<sup>th</sup> – ultimate tail factor for medical losses, but is not shown here. Only the subscript would change from (I) to (M). Also note that although individual claims are limited in the current NCCI ratemaking at five times the state's serious average cost per case, loss development factors are unlimited. By rearranging the formula, the following is derived:

$$Class5U_I = Fin5U_I + [(NS\$_I / SER\$_I) * (Fin5U_I - 1.000)] \quad (2.7)$$

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Note that the magnitude of the class tail factor is inversely proportional to the percentage of serious losses in a state relative to the non-serious losses. The lower the percentage of serious losses, the higher the class ratemaking tail factor that is applied to the serious losses. Again, recall Exhibits 8 and 9, and how much higher the serious LDF-to-ultimate towered above the likely-to-develop LDF-to-ultimate in the bar charts. A good portion of that phenomenon is due to the pro rata share of serious and non-serious losses in a state. States with lower percentages of serious losses relative to non-serious generally have a much higher serious tail factor applied, all else equal. As you will see shortly, the new class ratemaking loss development methodology will modify that phenomenon of a highly leveraged tail factor.

The tail factor under the new methodology starts with a similar formula to determine the class ratemaking 5<sup>th</sup> – ultimate LDF, referred to below as Class5U. The notation is analogous except the likely-to-develop (L) and the not-likely-to-develop (N) groupings are substituted for serious and non-serious. From an analysis of other states, initial indications are that the pro rata share for L and N is closer to 50% than for serious and non-serious.

The previous methodology assumed that all loss development in the tail beyond 5<sup>th</sup> report is due to serious claims only. This implies that 100% of the tail loss dollars were applied to serious and 0% applied to non-serious. NCCI is modifying this assumption to be that a percentage of tail development,  $y$ , will be applied to the N grouping dollars of loss and  $(1-y)$  will be applied to the L grouping dollars of loss. This practicality allows a portion of tail development to be applied to the not-likely-to-develop losses. Thus, two new class ratemaking tail factors could be applied at 5<sup>th</sup> report, one for L and one for N. The formulas are as follows:

$$\text{Class5U}_{L,1} = [L\$_1 + (1-y)*(L\$_1 + NL\$_1)* (\text{Fin5U}_1 - 1.000)] / L\$_1. \quad (2.8)$$

$$\text{Class5U}_{N,1} = [NL\$_1 + y*(L\$_1 + NL\$_1)* (\text{Fin5U}_1 - 1.000)] / NL\$_1. \quad (2.9)$$

Where,

$L\$_1$  = two years of limited likely-to-develop “paid+case” indemnity loss dollars on-leveled and developed to 5<sup>th</sup> report for the state.

$NL\$_1$  = two years of limited not-likely-to-develop “paid+case” indemnity loss dollars on-leveled and developed to 5<sup>th</sup> report for the state.

$\text{Class5U}_{L,1}$  = a likely-to-develop 5<sup>th</sup> – ultimate indemnity (L) tail factor applied to likely-to-

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develop losses at 5<sup>th</sup> report for each class code. It is limited at state threshold T.

$Class5UL_{N,I}$  = A not-likely-to-develop 5<sup>th</sup> – ultimate indemnity (I) tail factor applied to not-likely-to-develop losses at 5<sup>th</sup> report for each class code. It is limited at state threshold T.

$Fin5U_I$  = Limited (at T) statewide financial data 5<sup>th</sup> – ultimate tail factor for indemnity (I).

$y$  = percentage between 0% and 100% used to allocate a portion of tail development dollars to the not-likely-to-develop grouping.

Note that the new methodology uses limited loss development dollars (all claims are limited at \$500K at all report levels). The previous methodology only limited loss dollars at the latest report, while LDF were unlimited. The same exact approach is also used to determine a 5<sup>th</sup> – ultimate tail factor for medical losses, but is not shown here. Only the subscript would change from (I) to (M).

As NCCI collects URE data out to a 10<sup>th</sup> report,  $y$  could vary in magnitude as the tail attachment moves out toward 10<sup>th</sup> report. For example, at 5<sup>th</sup> report,  $y$  may be a higher percentage than what  $y$  would be at 10<sup>th</sup> report. It is also a consideration worth noting that  $y$  could vary between indemnity and medical. Based on very recent research observing actual WCSP loss development patterns through 7<sup>th</sup> report, NCCI is initially using a value of 20% for  $y$  for both indemnity and medical for all tail attachment points out to 10<sup>th</sup> report. Thus, 80% of the total dollars of tail development will be assigned to the likely-to-develop loss triangle, and 20% of the dollars to the not-likely triangle. NCCI will revisit this assumption when more WCSP unit reports are available through 10<sup>th</sup> report.

The formulas above may be written in a more general form to account for the various tail attachment points that may be used in the future. Let each tail attachment point be time  $t$ ,  $t = 5,6,7,8,9,10$ . Then the formulas above may be rewritten as follows:

$$\text{Class } tU_{L,I} = [L\$_t + (1-y)*(L\$_t + NL\$_t)* (Fin } tU_t - 1.000)] / L\$_t \quad (2.10)$$

$$\text{Class } tU_{N,I} = [NL\$_t + y*(L\$_t + NL\$_t)* (Fin } tU_t - 1.000)] / NL\$_t \quad (2.11)$$

Where,

$L\$_t$  = two years of limited likely-to-develop “paid+case” indemnity loss dollars on-leveled and developed to  $t^{\text{th}}$  report for the state.

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$NL_{\$}_t$  = two years of limited not-likely-to-develop “paid+case” indemnity loss dollars on-leveled and developed to  $t^{\text{th}}$  report for the state.

*Class  $tU_{L,I}$*  = A likely-to-develop  $t^{\text{th}}$  – ultimate indemnity (I) tail factor applied to likely-to-develop losses at  $t^{\text{th}}$  report for each class code. It is limited at state threshold T.

*Class  $tU_{N,I}$*  = A not-likely-to-develop  $t^{\text{th}}$  – ultimate indemnity (I) tail factor applied to not-likely-to-develop losses at  $t^{\text{th}}$  report for each class code. It is limited at state threshold T.

*Fin  $tU_I$*  = Limited (at T) statewide financial data  $t^{\text{th}}$  – ultimate tail factor for indemnity (I).

$y$  = percentage between 0% and 100% used to allocate a portion of tail development dollars to the not-likely-to-develop grouping.

$t$  = time  $t$  representing the report level of WCSP data at which the attachment point for the class ratemaking tail is applied.  $t = 5,6,7,8,9,10$

One improvement in the revised tail factor is the distribution of losses between L and N are more evenly distributed than the previous serious and non-serious distribution. This should help temper the leverage on the LDF in the new methodology. The tail factor is an area that warrants continued research, and should improve as 10 reports of data are analyzed.

#### **2.4.5 Summary of the New Loss Development Proposal**

Table 1 summarizes all of the decisions that were researched, discussed, and made by NCCI up to this point in the paper. It introduces the Part of Body Group A and Group B terminology to refer to parts of body that are assigned to the likely-to-develop (L) and the not-likely-to-develop groupings (N), respectively. POB Group A consists of claims that have a greater potential to develop upward over time such as injuries to the back, head, shoulders, trunk, and multiple body parts. POB Group B consists of all others.

Under NCCI's new loss development methodology, claim dollars will be assigned to one of four development categories (listed below). The assignment will be a function of three claim characteristics: (1) injury type, (2) part of body, and (3) claim status (open vs. closed).

- Medical — Likely-to-develop
- Medical — Not-Likely-to-Develop
- Indemnity — Likely-to-Develop
- Indemnity — Not-Likely-to-Develop

Table 1

Injury Type	Claim Status	Part of Body	LDF Grouping
<b><u>1st Report</u></b>			
Fatal	Open	Group A	Not Likely
"	Open	Group B	Not Likely
"	Closed	Group A	Not Likely
"	Closed	Group B	Not Likely
Permanent Total (PT)	Open	Group A	Likely
"	Open	Group B	Likely
"	Closed	Group A	Likely
"	Closed	Group B	Likely
Permanent Partial (PPD)	Open	Group A	Likely
"	Open	Group B	Not Likely
"	Closed	Group A	Not Likely
"	Closed	Group B	Not Likely
Temporary Total (TT)	Open	Group A	Likely
"	Open	Group B	Not Likely
"	Closed	Group A	Not Likely
"	Closed	Group B	Not Likely
Medical Only (MO)	Open	Group A	Not Likely
"	Open	Group B	Not Likely
"	Closed	Group A	Not Likely
"	Closed	Group B	Not Likely

At subsequent reports (2<sup>nd</sup> through 10<sup>th</sup>), as noted above, only changes in injury type will be monitored for the purpose of assigning claims to development grouping. The claim status (open vs. closed) and body part, both evaluated at 1<sup>st</sup> report, will be used for the purpose of determining the development category, regardless of what is reported on a subsequent report.

The term “arising” refers to claims for which there is no 1<sup>st</sup> report that are reported as of 2<sup>nd</sup> report or subsequent. For the purpose of assigning claims to a development category, these claims will be assumed to be open at 1<sup>st</sup> report. The body part will be based upon the initial report submitted to NCCI. The injury type will be monitored at all reports.

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Note the new loss development methodology will significantly reduce, but not completely eliminate, instances of crossover. The following list provides a few common examples of how crossover may still occur under the new methodology in certain injury types:

- Medical Only (MO) — MO claims in POB Group A, open at 1<sup>st</sup> report, which become any other injury type at a later report, will move from N to L. Another example is a lost-time claim, open at 1<sup>st</sup> report and in POB Group A, which closes as a medical only. This claim would move from L to N.
- Temporary Total (TT) — Crossover would occur on TT claims that evolve into a PT or fatality at a later report that were originally categorized in the N grouping.
- Permanent Partial (PP) — Crossover would occur on PP claims that evolve into a PT or fatality at a later report that were originally categorized in the N grouping.

These examples represent the most common crossover examples. A few other less likely (no pun intended) cases could be conjured as well.

Exhibits 23a through 23f illustrate the loss development pattern of the new loss development methodology for a “test” state. Note this is a different state than the triangles illustrated in exhibit 1 for a “large” state. The reader should be able to discern the differences in the loss development patterns and the magnitude and derivation of the tail factor.

#### **2.4.6 Advantages and Disadvantages of the New Loss Development Groupings**

The most important advantage the new loss development methodology provides is better, more predictive loss development factors. Expanding the triangles out to 10<sup>th</sup> report should also improve the predictive ability. Much crossover has been mitigated due to the elimination of the critical value, and the new data element combination of body part, injury type, and claim status has improved the LDF groupings. Most importantly, class equity should improve as the class codes with more head, back, trunk, multiple body, etc., types of injuries will be charged more than class codes with other less complex injuries, all else equal. Thus, loss costs should be more predictive in the future.

The use of injured body part in conjunction with the open and closed claim status also adds

a practical sense of logic to it all that most regulators and insurance industry actuaries and non-actuaries should readily understand.

About the only disadvantage the new methodology has is that as claims evolve over time, and change injury types, some crossover from one grouping to another can still occur on occasion.

## **2.5 Lower Loss Limits, Expected Excess, and the New Seven Hazard Groups**

The previous class ratemaking methodology limited large claims for a class code at a loss limit equal to five times the state's serious average cost per case. For the NCCI states, these limits ranged from \$300,000 to about \$1M during the 2006 filing season. A multi-claim occurrence was capped at twice the single claim limit. The claims underlying the loss development factors were unlimited. It should also be noted that the excess dollars removed from the individual class codes were distributed to the industry group to which the class code belonged. Thus, the indicated losses used within the industry group differential calculations were put back on an unlimited basis by deriving an unlimited-to-limited ratio for each industry group. In summary, the previous class ratemaking methodology limited large claims on a class code basis and in most other aspects of the ratemaking, unlimited loss dollars were used.

The new ratemaking methodology is changing much of that. The most noteworthy changes are as follows:

1. Standardizing the single claim loss limit for class codes across NCCI states to be \$500,000 (and the multi-claim occurrence to be three times the single claim limit).
2. Basing loss development factors on claims limited at \$500,000.
3. Use of a multiplicative factor based on excess ratios to estimate the expected losses excess of \$500K using excess ratios from the new seven hazard group mapping.
4. Removing the unlimited-to-limited ratio from the class and industry group differential calculations, and replacing it with expected excess.

This section of the paper will discuss and summarize the analyses and reasoning underlying these decisions.

### **2.5.1 Applying the Loss Limitations to Individual Claims**

In workers compensation ratemaking, losses are separately analyzed by type of benefit; namely,

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indemnity and medical losses. NCCI uses proportional capping to allocate limited claim amounts. This method of capping large claims for class ratemaking remains similar under the new methodology. The WCSP losses used in class ratemaking are “paid+case”. Limited loss amounts for claims above the threshold will be allocated to indemnity and medical in the proportion that their values contribute to the total unlimited value of the claim and the threshold. In order to understand the mechanics of how claims are limited, the following hypothetical illustrative example is included:

Illustration 1: A \$1.5M single claim has pierced the threshold on a “paid+case” basis; State threshold = \$500K:

<b>UNLIMITED LOSSES (\$000s)</b>	<b>Paid</b>	<b>Case</b>	<b>Total</b>
Indemnity	100	200	300
Medical	300	900	1,200
Total	400	1,100	1,500

In this situation, the resultant limited amounts are as follows:

<b>LIMITED LOSSES (\$000s)</b>	<b>Total</b>
Indemnity	100
Medical	400
Total	500

In Illustration 1, the formula for limited “paid+case” amounts for indemnity and medical are:

$$\text{Limited Indemnity} = (300 / 1,500) \times 0.5\text{M} = 100.$$

$$\text{Limited Medical} = (1,200 / 1,500) \times 0.5\text{M} = 400.$$

Note that the NCCI procedure for capping large claims in the financial data is different than for class ratemaking. The financial data procedure uses a “paid first-case reserve second” approach that uses proportional capping. Although an illustration of the multi-claim occurrence capping is not

included here, proportional capping amongst the claims is applied. The threshold was changed to be three times the single claim limit mainly because the previous single claim limit (i.e., five times the state's serious average cost per case) times two is about \$1.5M on average across NCCI states. With the change of the single claim limit to 0.5M, the choice of three times the single claim limit kept the multi-claim cap approximately the same as in the past.

## **2.5.2 Application of the Excess Ratios**

Adjusted per claim excess ratios will be used in calculating unlimited ultimate losses from limited ultimate losses. Excess losses are defined as the sum of the excess portion of claims above a given per claim threshold. NCCI produces proposed excess ratios with each loss cost or rate filing.

The excess ratio,  $XS_T$ , for a given threshold  $T$ , is defined as:

$$XS_T = \frac{\text{Expected Excess Losses Above Threshold } T}{\text{Expected Total Unlimited Losses}} \quad (2.12)$$

The threshold  $T$  is proposed to be \$500,000 in all states for class ratemaking claim limitations. The ratio of excess losses to total unlimited losses is at an ultimate value. The excess ratio applied is on a per claim basis and varies by state. This differs from an excess loss factor as excess loss factors are on a per occurrence basis, and also may include a provision for expenses. For a more detailed discussion of the methodology underlying NCCI excess ratios, see the Fall 2006 *CAS Forum* paper by Engl and Corro titled, "The 2004 NCCI Excess Loss Factors" [1].

The adjusted, per claim excess ratio is applied as a factor,  $1 / (1 - XS_{500K})$ , to limited (@500K) ultimate losses that have been developed, on-leveled, and trended to the midpoint of the proposed filing effective period. Similarly, the excess ratio applied has also been trended to the midpoint of the proposed filing effective period. Within each policy period in the experience period, the same factor  $1 / (1 - XS_{500K})$  is applied to both indemnity and medical losses, since the size-of-loss distributions are on a combined indemnity and medical basis.

NCCI uses five policy periods as the experience period for each class code. Excess ratios are not adjusted when applied to different experience period years for purposes of calculating pure premiums for class ratemaking. Therefore, in a given filing, the same excess ratio factor is applied to each of the five years in the experience period. NCCI considered de-trending the threshold as is

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done in the state's overall indicated loss cost level change. By de-trending the threshold in the loss development history, the proportion of losses above the threshold is preserved. But unlike the aggregate ratemaking, where thresholds are de-trended 20 years, and the impact of de-trending can be significant, the impact of de-trending across the five policy periods used in class ratemaking resulted in a negligible impact on class relativities. Practically speaking, it would add a lot of complication to de-trend the five policy periods for little or no added value. For this reason, NCCI chose not to de-trend in its class ratemaking.

For many years, the excess ratios were determined for each of the four hazard groups in each state: that is, hazard groups I, II, III, and IV. The vast majority of classes were assigned to HG II and III. In 2006, NCCI filed a countrywide item-filing, B-1403, which was successfully approved in all NCCI states and adopted by other independent bureau states as well. Based upon an analysis of countrywide excess ratios by class code, an entirely new mapping of class codes to seven hazard groups was implemented in 2007. This item-filing is referred to as the NCCI Hazard Group Remapping. One of the advantages that the new mapping provides is a much more uniform distribution of class codes across the hazard groups.

The seven new hazard groups are referred to as A, B, C, D, E, F, and G. Class codes having the highest excess ratios were mapped to G and may be considered the most hazardous classes. Class codes having the lowest excess ratios were mapped to hazard group A and may be considered the least hazardous classes. As you will soon see, the new hazard groups will be used to provide an excellent refinement for use in the future class ratemaking. This is because excess ratios are now produced for every state for all seven hazard groups. For a more detailed discussion of the methodology underlying the NCCI hazard group mapping, see the paper by NCCI staff titled, "NCCI's 2007 Hazard Group Mapping" submitted for publication [2].

#### **2.5.3 Simulation and Expected Excess**

The factor  $1 / (1 - XS_{500K})$  was selected by NCCI for use in the new class ratemaking to derive expected unlimited ultimate losses by class code based on limited (@500K) ultimate losses. It was selected after reviewing results from 16 different potential capping and excess spreading alternatives analyzed using a Monte Carlo simulation technique. Some alternatives used expected excess while others used actual excess. Other alternatives capped individual claims at three different

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loss limits: \$300K, \$500K, and \$1.0M. One alternative used unlimited losses. Exhibit 14 illustrates all of the options considered and analyzed.

The simulation approach of testing the alternatives was completed as follows:

1. Five years of simulated losses were produced for every class code in two large states and two small states.
2. The claim counts were based on actual national incidence rates for the class code. A Poisson distribution was assumed with lambda equal to the national incidence rate by injury type multiplied by actual payroll for the class in each state.
3. The new excess ratio loss distributions by injury type by state (per Corro and Engl) were used for determining the average cost per case. In determining the state distributions, each class was scaled to the state's average cost per case adjusted for hazard group.
4. One hundred different simulation trials by class code were produced. Each simulation generates five years of unlimited loss data for the given class.
5. The simulated claims' loss data was then modified by the specific capping alternative to provide modified expected unlimited losses.
6. The performance of each alternative was assessed using four overall metrics. Two of the metrics measured loss cost adequacy and two measured loss cost stability across the 100 simulation trials.

The following are the four metrics that were used to assess the success of the various alternatives for limiting claims and allocating the excess.

Adequacy Metric 1: Desired range [-0.25, +0.25]

$$\frac{\overline{L}^{(k)} - \mu}{\mu} \quad (2.13)$$

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Where,

$L_n$  = 5 years of simulated losses for the  $n$ th trial whereby  $n = [1, 2, \dots, 100]$

$L_n^{(k)}$  = 5 years of simulated losses for the  $n$ th trial whereby the losses were capped as in alternative  $k$  for limiting losses and allocating the excess (see Exhibit 14 for alternatives).

$\mu$  = hypothetical mean expected losses for a class code based on simulated frequency and actual severity times actual class payroll for that state.

$\bar{L}^{(k)}$  = the average losses for a specific class code over  $N$  simulations for alternative  $k$ .

Mathematically, it equals:

$$\bar{L}^{(k)} = \left( \sum_{n=1}^N L_n^{(k)} \right) / N. \quad (2.14)$$

Adequacy Metric 2: Desired range [0, +0.50]

$$= \sum_{n=1}^N \left| L_n^{(k)} - \mu \right| / 100\mu. \quad (2.15)$$

This metric differs from the first in that the high and low values cannot cancel out due to the absolute value.

Stability Metric 1: Desired range [0, +0.10]

$$CV_c^{(k)} = \frac{\text{standard deviation}}{\text{mean}} = \frac{\sqrt{\frac{\sum_{n=1}^N (L_{n,c}^{(k)} - \bar{L}_c^{(k)})^2}{N}}}{\bar{L}_c^{(k)}} \quad (2.16)$$

Where,

$CV_c^{(k)}$  = the coefficient of variation for class code  $c$  under alternative  $k$ .

$L_{n,c}^{(k)}$  = 5 years of simulated losses for the  $n$ th trial for class  $c$  whereby the losses were capped as in alternative  $k$  for limiting losses and allocating the excess.

$\bar{L}_c^{(k)}$  = average of simulated losses for alternative  $k$  over all simulations

Thus, stability metric 1 is the coefficient of variation for a specific class under the conditions of alternative  $k$  for capping claims and allocating the excess.

Stability Metric 2: Desired range [0, +0.50]

$$\frac{\sum_{n,m} \frac{|L_{n,c}^{(k)} - L_{m,c}^{(k)}|}{u_c}}{N(N-1)} \quad (2.17)$$

Where,

$L_{n,c}^{(k)}$  = 5 years of simulated losses for the  $n$ th trial for class  $c$  whereby the losses were capped as in alternative  $k$  for limiting losses and allocating the excess.

$L_{m,c}^{(k)}$  = 5 years of simulated losses for the  $m$ th trial for class  $c$  whereby the losses were capped as in alternative  $k$  for limiting losses and allocating the excess.

$\mu_c$  = hypothetical mean expected losses for a class code based on simulated frequency and actual severity times actual class payroll for that state.

For the performance measurement of stability metric 2, the average absolute change in losses for a class is computed across all combinations of the 100 simulations for each alternative  $k$ .

#### **2.5.4 Choosing the Final Alternative**

Exhibits 15a) and 15b) were included to provide an illustrative example of the type of exhibits that were generated and observed for all four of the metrics for each state studied. Several statistics were analyzed such as minimum and maximum values, the classes which comprised these outliers, and various different percentile levels such as the 90th, 10th, and the median. It was noted which capping and excess-spreading alternatives were succeeding the most and which ones were not succeeding. For example, on Exhibit 14a) alternative  $k = 0$ , which uses unlimited losses, performed most poorly as measured by the stability metric 1. Alternatives 11 and 12, which use expected excess, performed the best. Exhibits similar to 15b) were produced for each alternative so that we understood how many classes were changing within an industry group and by how much. This exhibit shows a drill down on Alternative 12 for adequacy metric 1. Outlier classes were sometimes reviewed, and often a class that performed poorly was a very small volume class. Typically, the outlier class had no losses for almost all of the simulation trials but a few. This is a real-life challenge that the various credibility formulae attempt to address. For the sake of brevity, the author has only chosen but a few examples simply to illustrate for the reader the type of analyses that were completed to select between alternatives for capping and allocating excess.

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The final two loss limits NCCI considered were \$300,000 and \$500,000. The \$1M loss limit was eliminated based on class stability considerations. It would have increased the loss limit significantly in most states. The expected excess at \$300,000 was very significant upon reviewing the results of indicated pure premiums by class code in states with high excess ratios. The choice of the \$500,000 limit provided a nice balance between allowing a significant amount of actual loss experience of the class code into the pure premium calculation combined with less reliance on the expected excess provision. It was significantly lower than the loss limit used today, namely that based on five times the state serious average cost per case (SACC). Test results also revealed that actual excess losses were closer to expected excess losses at \$500,000 than the lower loss limit. It also aligned well with the fact that the 95th percentile of all countrywide large claims over a five year period was 2.5 times the SACC, one-half of the previous loss limitation. NCCI decided to target the 95<sup>th</sup> percentile, or approximately \$500,000. Another practical consideration was that the loss limit coincides with the loss limit on the NCCI Large Loss Call #31. The choice of loss limit will be reviewed in the future upon review of the results of the new methodology, and may be updated for inflation periodically.

After reviewing the results of indicated pure premiums derived under the best performing alternatives for several states, Alternative 11 was chosen by NCCI to be the methodology for allocating the excess losses (over \$500K) on a class code basis. The main reasons for this decision were:

1. Alternative 11 performed very well on the four metrics.
2. The use of the multiplicative excess factor,  $1 / (1 - XS_{500K})$ , is consistent with the methodology used for determining the overall statewide indicated loss cost change.
3. Given two class codes of similar size within the same hazard group in a state, the class with greater primary losses would receive a greater proportional share of excess losses under alternative 11.
4. After application of the three-way credibility procedure, alternative 11 produced very similar results compared to the other leading alternatives.

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One final adjustment was made to the multiplicative excess factor methodology. Recall that the NCCI excess ratios are produced on a combined indemnity and medical basis. This implies that the excess split of losses into indemnity and medical under Alternative 11 is equivalent to the primary split of indemnity and medical. As varying amounts of credibility will be applied separately for indemnity and medical in the new class ratemaking methodology, a refinement was needed to account for the fact that the majority of excess loss in workers compensation is due to the medical component.

One more analysis was prepared to study this and the result is shown in Exhibit 16. This analysis shows only claims excess of \$500,000 and the indemnity and medical split of primary and excess dollars. Note the results show an approximate split of the excess dollars to be around 71% medical. Similar results were derived using WCSP data.

NCCI decided it was desirable to apply the  $1 / (1 - XS_{500K})$  factor to indemnity and medical primary losses by class code initially to preserve the correct total excess dollar amount. An adjustment is then made to transfer 40% of the total excess dollars produced within the indemnity pure premium component to the medical pure premium component. The practical reasons for transferring 40% of the indemnity excess dollars include the following considerations:

- It preserves state and class differences as it is a function of the actual primary indemnity and medical split.
- It achieves the desired higher proportion of medical excess (i.e., close to the 70% figure across all states combined).
- It never results in a medical excess provision percentage that falls below the medical primary provision percentage for any class or state.
- It mirrors the reality that more of the excess dollars are medical.

### **2.5.5 Implications on the Industry Group (IG) Differential Methodology**

NCCI is maintaining its IG differential methodology, and it will look very similar to how it is done under the current methodology. The value that the IG differential calculation adds to class ratemaking is:

- It reflects wage trend differences by industry group.
- The industry group rate change is applied to determine the present-on-rate-level pure premiums, which are important for low credibility class codes.
- It was the point where losses were brought to an unlimited basis in the previous methodology.

The majority of the calculation will look the same as before. Oversimplified, the IG differential is a ratio of five years of indicated losses from WCSP data to five years of expected losses, both brought to the proposed level. As a result of the methodology changes discussed to this point, a few changes had to be addressed within the calculations. They were:

1. The unlimited-to-limited ratio by IG was removed.
2. The new loss development groupings were applied to bring indicated losses to an ultimate level limited at \$500K.
3. The ultimate losses limited at \$500K will be brought to an expected unlimited level via the multiplicative excess factor and transfer of 40% of the indemnity excess to medical.
4. The full credibility standard was changed to 12,000 lost-time cases. It previously ranged from 7,000 to 11,000 by IG. This will be discussed further in the credibility section of the paper.

An example of the IG differential exhibit is found in Appendix B, which displays the calculation of a loss cost for a class code under the new methodology.

## **2.6 New Credibility Standards**

It was mentioned early in the paper that in 1993 NCCI modified the credibility formulas

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used in the class ratemaking. This is because changes were made to the experience period and number of industry groups, both going from three to five. The past formulas were derived using a limited fluctuation approach. The full approach is quite involved and a full expose may be found in NCCI Actuarial Committee Agenda, dated June 7, 1993 (ACT-93-7) [3]. This paper will present a very high-level overview of the past approach, and the challenges NCCI faced updating the credibility standards this time around.

The new class ratemaking approach is adding stabilizing features that, all else equal, suggest the full credibility standards should be modified to provide more credibility on pure premiums. Those features include:

- a lower loss limit of \$500K should reduce class fluctuations
- less volatile loss development factors due to reduced crossover and the introduction of a \$500K loss limit
- less variance in excess losses by using expected excess factors

There was also a change within the new class ratemaking that may suggest reduced credibility on pure premiums:

- Eliminating the serious and non-serious pure premiums and creating a more heterogeneous indemnity pure premium.

The challenge NCCI faced was how to modify the full credibility standards, and by how much, for the changes being made without having the benefit of being able to observe the results of the new methodology over a substantial period of time.

#### **2.6.1 Background of Previous Class Credibility Formulae**

The previous methodology determined full credibility standards in 1993 based on the actual variability of indicated pure premiums over five successive rate revisions as measured by a

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coefficient of variation ( $CV$ ). The rate revisions were all brought to a common level of the latest revision. An average of the expected number of claims ( $N$ ) for each class over the five revisions was computed by dividing its expected losses by its average cost per case in that revision.

Next, the expected number of claims by class was plotted on the  $x$ -axis versus the  $CV$  on the  $y$ -axis and regression statistics observed for several states. At the end, the following model was used:

$$\ln CV = a \ln N + b \quad (2.18)$$

Where,

$CV$  = coefficient of variation of indicated pure premiums over five rate revisions

$N$  = expected number of claims

$N_f$  = full credibility standard

Rearranging the formula and exponentiating, the partial credibility  $z$ , assigned to the indicated pure premium in order to limit variability to an acceptable amount is:

$$Z = CV \text{ acceptable} / CV \text{ actual} = (N_f^a e^b / N^a e^b) = [N / N_f]^{-a} \quad (2.19)$$

The acceptable value for the  $CV$  was .10, chosen so as to limit the fluctuation of the pure premiums to within +/- 25% (NCCI swing limits) 95% of the time. The exponent,  $a$ , was computed as the slope of the regression line, and was determined to be approximately -0.4 using 95% confidence intervals. Thus, the final formula used today for all NCCI states is:

$$Z = [N / N_f]^{0.4} \quad (2.20)$$

The table below provides the full credibility standards previously in effect for the state class indicated pure premiums.

Table 1: Indicated Pure Premiums

<b>Partial Pure Premium</b>	<b>Full Credibility Standard <math>N_f</math></b>
Serious	125
Non-Serious	350
Medical	750

The value  $N_f$  is applied to the average cost per case for each partial pure premium to derive a full credibility standard (FCS) of expected losses used across all class codes in each state's loss cost filing. The numerator of the class credibility formula is the class expected losses determined by the payroll for a class times its underlying pure premium. One unusual nuance was that the medical partial pure premium FCS used the non-serious indemnity average cost per case. This is being changed, as will soon be described in this paper.

### **2.6.3 Class Credibility Changes for the State Indicated Pure Premium**

The new methodology is eliminating the critical value which helped determine the serious and non-serious partial pure premiums. The new methodology is reducing the number of pure premiums to two: indemnity and medical. So the question was raised as to what credibility to assign to each, given the observed results of the new methodology were not available.

As mentioned earlier, there were stabilizing changes being put in place for the new ratemaking, and a countering influence from the added heterogeneity of the indemnity pure premium. Thus, the decision was made to compute new credibility standards that maintained approximately the same credibility as was applied in the previous ratemaking. Longer term, after five years of the new methodology can be observed, new regressions of the fluctuations of indicated pure premiums can be calculated.

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NCCI ran the same regression methodology for six states of various sizes using more recent data under the previous ratemaking methodology. But a new twist was added. Revised indicated full credibility standards were derived for serious, non-serious, and for the new combined indemnity pure premium. Over time, the indicated FCS was significantly higher using the recent data. See Exhibit 17 for the results. NCCI actuaries then assumed that the stabilizing forces of the new methodology would offset the need to move to the higher indicated FCS of the regressions. From Exhibit 17, new indicated standards were derived and a ratio of current to indicated was computed. For indemnity, that ratio was 61%, which was then applied to the indication of 1,397 to derive 850 after rounding. For medical, the ratio of 56% was applied to 719 to derive a rounded value of 400.

Table 2: Indicated Pure Premiums-New Methodology

<b>Partial Pure Premium</b>	<b>New Full Credibility Standard <math>N_f</math></b>
Indemnity	850
Medical	400

Note that  $N_f$  will still be multiplied by the state average cost per case to determine expected losses. However, for medical, the medical average cost per case will be used in lieu of the non-serious average cost per case. This more appropriately indexes the medical FCS over time. The medical average cost per case is computed using total medical dollars of loss (including medical-only losses) divided by lost-time claim counts, similar to the calculations NCCI computes in most other areas.

The regressions indicated that the 0.4 power rule is still appropriate. The remaining credibility decisions include maintaining the 0.4 power rule shown earlier and the three-way credibility weighting procedure between the indicated, national, and present-on-rate-level pure premiums. In no case is the national credibility permitted to exceed 50% of the complement of the state credibility.

**2.6.4 Class Credibility Changes for the National Pure Premium**

The credibility decisions for national pure premiums followed a very similar path. As background, the FCS for national pure premiums, also derived in 1993, use the actual number of lost-time claims, not expected claims and expected losses.

Without going through more detailed calculations, the table below provides the full credibility standards previously in effect for the national pure premiums.

Table 3: National Pure Premiums

<b>Partial Pure Premium</b>	<b>Full Credibility Standard <math>N_f</math> Actual # of Lost-Time Claims</b>
Serious	175
Non-Serious	500
Medical	1,000

Table 4: National Pure Premiums: New Methodology

<b>Partial Pure Premium</b>	<b>Full Credibility Standard <math>N_f</math> Actual # of Lost-Time Claims</b>
Indemnity	1,150
Medical	1,000

Revised national pure premium full credibility standards were derived for serious, non-serious, and a combined indemnity pure premium. The indicated FCS for the national using the

### *Class Ratemaking for Workers Compensation: NCCI's New Methodology*

regressions was significantly higher using the recent data, just as with the state indicated pure premium. See Exhibit 18 for the results. Similarly, NCCI actuaries then assumed that the stabilizing forces of the new methodology would offset the need to move to the higher indicated FCS of the regressions. From Exhibit 18, the new indicated national standards were derived and a ratio of current to indicated was computed. For indemnity, that ratio was 54%, which was then applied to the indication of 2,127 to derive 1,150 after rounding. For medical, the ratio of 65% was applied to 1548 to derive a rounded value of 1,000.

The final step was to ensure that on average, a state's overall credibility was remaining similar in magnitude after the changes to the new FCS. Exhibits 19 and 20 show the average credibility across the six states tested for indemnity and medical, respectively. The top 50 classes were also excluded to ensure the credibility of small volume classes was not changing much as well. These results showed that both state indicated pure premium and national pure premium credibility were approximately the same, which was the objective.

#### **2.6.5 Industry Group Credibility Changes**

The full credibility standard was changed to 12,000 lost-time cases in the new methodology, uniform for all industry groups. It previously ranged from 7,000 to 11,000 by IG. The previous FCS was based on the following square root rule where the probability,  $p$ , of the IG differential being within  $k= +/- .075$  was 95%:

$$Z = \text{Min} [(N_i / N_{f,i})^{0.5}, 100\%] \quad (2.21)$$

Where,

$Z_{i,s}$  = the credibility assigned to industry group  $i$  within state  $s$

$N_i$  = the actual number of lost-time claims for industry group  $i$

$N_{f,i}$  = full credibility standard for industry group  $i$

Much of the theory underlying the square root rule is described in Gary Venter's "Limited Fluctuations" approach, found in the "Credibility" chapter of *Foundations of Casualty Actuarial Science* [4]. The previous full credibility standards are in the table below.

Table 5: Previous FCS for IG Differentials

<b>Industry Group</b>	<b>Full Credibility Standard <math>N_f</math></b>
Manufacturing	10,000
Contracting	8,000
Office & Clerical	7,000
Goods & Services	9,000
Miscellaneous	11,000

To the extent that an industry group's number of lost-time claims was less than the FCS, a value for  $z_{i,s}$  is computed using the square root rule, whereby  $0 \leq z_{i,s} \leq 1$ . The complement of credibility,  $1 - z_{i,s}$ , is assigned unity, or no change. In practice, the IG differential is judgmentally tempered to be between [.90, 1.10].

The new FCS of 12,000 was based on an analysis of five successive years of five IG differential fluctuations across 36 states. Exhibit 21 displays the results of applying various values of  $p$  and  $k$ , and the FCS that was indicated within each combination. The final selection by NCCI was to continue to use the same  $p$  and  $k$  (i.e., 95% and  $k = +/- .075$ ). This resulted in 12,000 lost-time claims. Although this put a little less weight on the state's IG differentials than the past methodology did, this was deemed appropriate given the volatility observed within an industry group in successive filings in the sample of data.

## **2.7 The Impact of the Methodology Changes**

One of the last steps in the process was to test the results of two states, a large and a small state, to determine the impact that all of the methodology changes had on class loss costs. Each major change was measured individually and naturally, the final results were observed in a cumulative manner. The results were determined by class and by industry group. The targeted aggregate statewide overall change was the same for both the previous and new methodologies. The national and present on-rate-level pure premiums were based on the previous methodology. Only the indicated pure premiums reflected the new methodology because at this time, it was not possible to construct national pure premiums using the new methodology.

Exhibit 22a illustrates the observed results for the large state, which has many class codes receiving 100% credibility for the indicated pure premium. Focus on the two industry groups contracting and office and clerical. Key observations include:

- Column (2) of Exhibit 22a shows the new loss development methodology produced lower LDFs for classes that have a propensity to have serious claims, such as contractors, than for office and clerical.
- The expected excess provision in column (3) offsets the loss development to a degree by applying a higher multiplicative expected excess provision to contractors than the provision applied to office and clerical.
- The count of class codes in Exhibit 22b shows that the majority of all classes in the large state changed between +/- 7.5% from the previous to new methodologies.
- The change in credibility methodology had a very small impact.

These were only a few of many other results which were explored. Other analyses included a review of the change in indicated pure premiums only, which were more volatile than final loss costs, the imposition of swing limits, and a drill down on class codes with larger changes than normal. NCCI plans on testing more states in the future prior to implementation.

## **2.8 The Pros and Cons of the Methodology Changes**

Implementing large modifications to class ratemaking brings with it many positive enhancements including more stability from year to year on a class code level. Long-term loss cost adequacy should also be improved by some of the innovations leveraged from the expected excess from the new seven hazard group mapping and the new loss development methodology. The use of new data elements like injured body part helps to invigorate the methodologies.

The cons to making such a large number of changes will be the challenge of explaining the new methodology to regulatory entities, and obtaining their buy-in, as the loss costs underlying the new methodology, although very much improved, may generate unpalatable premium changes in the year of implementation for certain regulators and the employers within their jurisdictions.

## **2.9 Possible Future Enhancements to NCCI Class Ratemaking**

The credibility formulas are a ripe area for further research. Once several rate revisions have been observed under the new methodology, much more work can be done to derive new standards and revisit the three-way credibility formula. Other areas include revisiting the body part mappings after NCCI collects 10 reports of WCSP data, as well as the tail factor. Other areas that will need continuous monitoring over time include the loss limit, and the transfer of a percentage of excess dollars from indemnity to medical, and the groupings of likely-to-develop and not-likely-to-develop.

Although the analysis is not presented in this paper, the potential use of allocated loss adjustment expense (defense and cost containment expense) was explored thoroughly. The observed result was that the value that it would add to class relativities was minimal relative to issues its inclusion may create, particularly with experience rating modifier calculations.

## **3. CONCLUSIONS**

This paper documents several important changes that are being implemented in the class ratemaking process used to determine workers compensation loss cost and rate changes by class. The changes NCCI is implementing support the long-term goals of adequacy and stability of loss costs and rates, and help to consistently estimate class relativities from state to state in the

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ratemaking methodology.

This paper also serves to provide an illustration of the derivation of a loss cost for a class code in workers compensation using NCCI's new methodology.

## Acknowledgment

The author acknowledges the work of Jim Davis, who was project leader for much of the project, and helped present the results of this work with me. The author also acknowledges the contributions to this paper by Pam Barlow and Chris Poteet for their innovative efforts on the body part loss development research. The author also acknowledges excellent contributions to this paper by Jon Evans and Chris Poteet for the credibility research presented in the paper. I would also like to thank Damon Raben and Delano Brown for their critique of our research along the way, and helping to implement it, and to Dan Corro for the creative simulation work on excess. Finally, much appreciation to Barbara Ferns for her assistance with exhibits.

## 5. REFERENCES

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- [2] NCCI Staff, "NCCI's 2007 Hazard Group Mapping" submitted for publication.
- [3] NCCI Actuarial Committee Agenda, ACT-93-7, June 7, 1993.
- [4] Venter, Gary, "Credibility," Chapter in *Foundations of Casualty Actuarial Science*, 1st Ed. (Casualty Actuarial Society: New York, 1990).

## Abbreviations and notations

AY — accident year

C — refers to a claim closed at 1<sup>st</sup> report

CAS — Casualty Actuarial Society

Class  $tU_{L,I}$  = A likely-to-develop  $t^{\text{th}}$  – ultimate indemnity ( $I$ ) tail factor applied to likely-to-develop losses at  $t^{\text{th}}$  report for each class code. It is limited at state threshold  $T$ .

Class  $tU_{N,I}$  = A not-likely-to-develop  $t^{\text{th}}$  – ultimate indemnity ( $I$ ) tail factor applied to not-likely-to-develop losses at  $t^{\text{th}}$  report for each class code. It is limited at state threshold  $T$ .

$CV_c^{(k)}$  — the coefficient of variation for class  $c$  under alternative ( $k$ )

CV — coefficient of variation of indicated pure premiums based upon five successive rate revisions

DSR — Designated Statistical Reporting level of NCCI

FCS — full credibility standard

Fa — claims reported within the fatal injury type

Fin  $tU_I$  = Limited (at  $T$ ) statewide financial data  $t^{\text{th}}$  – ultimate tail factor for indemnity ( $I$ )

HG — hazard group

IG — industry group

$k$  — acceptable tolerance around a mean value

L — reference to likely-to-develop grouping

LC — "likely" body part and claim closed at 1<sup>st</sup> report

LDF — loss development factors

LO — "likely" body part and claim open at 1<sup>st</sup> report

$L\$_t$  = two years of limited likely-to-develop "paid+case" indemnity loss dollars on-leveled and developed to  $t^{\text{th}}$  report for the state

$L_n$  = five years of simulated losses for the  $n^{\text{th}}$  trial whereby  $n = [1, 2, \dots, 100]$

$\bar{L}^{(k)}$  = the average losses for a specific class code over  $N$  simulations for alternative  $k$

$\bar{L}_c^{(k)}$  = the average of simulated losses for alternative  $k$  over all simulations

$L_m^{(k)}$  — five years of simulated losses for the  $m^{\text{th}}$  trial for class  $c$  whereby the losses were capped as in alternative  $k$

$L_m^{(k)c}$  — five years of simulated losses for the  $m^{\text{th}}$  trial for class  $c$  whereby the losses were capped as in alternative  $k$ .

M — \$millions

MO — claims reported within the medical-only injury type

N = the expected number of lost-time claims for a class

$N_f$  = full credibility standard

$N_{\beta i}$  = full credibility standard for industry group  $i$

$N_i$  = the actual number of lost-time claims for industry group  $i$

N — reference to the not-likely-to-develop grouping in terms of loss development.

NC — "not-likely" body part and claim closed at 1<sup>st</sup> report

NCCI — National Council on Compensation Insurance, Inc.

$NL\$_t$  = two years of limited not-likely-to-develop "paid+case" indemnity loss dollars on-leveled and developed to  $t^{\text{th}}$  report for the state

NO — "not-likely" body part and claim open at 1<sup>st</sup> report

$N\$_5I$  = two years of limited "paid+case" non-serious indemnity loss dollars on-leveled and developed to 5<sup>th</sup> report for the state

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O — refers to a claim open at 1 <sup>st</sup> report	$T$ — dollar threshold for capping large claims
$p$ — probability	TT — claims reported within the temporary total injury type
POB — the injured part of body as reported on the claim	$\mu$ = hypothetical mean expected losses for a class code based on simulated frequency and severity times actual class payroll for that state
POB Group A — claims with a greater potential to develop upward	URE — Unit Report Expansion
POB Group B — claims with less potential to develop upward	WCSP — NCCI's Workers Compensation Statistical Plan
PP — claims reported within the permanent partial injury type	$XS_T$ — Per Claim adjusted excess ratio at threshold $T$
PT — claims reported within the permanent total injury type	$y$ = percentage between 0% and 100% used to allocate a portion of tail development dollars to the not-likely-to-develop grouping
PY — policy year	$\tilde{\kappa}$ — partial credibility assigned to a pure premium
SACC — state serious average cost per case	$Z_i, s$ = the credibility assigned to industry group $i$ within state $s$
$SER_s$ = two years of limited “paid+case” serious indemnity loss dollars on-leveled and developed to the 5 <sup>th</sup> report for the state	
$t$ = time $t$ representing the report level of WCSP data at which the attachment point for the class ratemaking tail is applied. $t = 5,6,7,8,9,10$	

### **Biography of the Author**

Tom Daley is Director and Actuary at NCCI, Inc. He is currently responsible for both applied research and implementation of the new methodologies in class ratemaking for all NCCI states, as well as handling state actuary loss cost and rate filing duties in several other states. He has a B.S. degree in Mathematics from the Pennsylvania State University. He is an Associate of the CAS and a Member of the American Academy of Actuaries.

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### Appendix B: Derivation of a Loss Cost for a Class Code

**UNLIMITED INDEMNITY LOSS**

Exhibit 1a

**DEVELOPMENT**

**Serious**

**Large State**

**1st Report Start:** 1/1/2003

**1st Report End:** 12/31/2003

PY Data	1st Report	2nd Report	3rd Report	4th Report	5th Report
1/98-12/98			460,401,442	535,321,008	574,106,684
1/99-12/99		340,191,451	489,175,745	560,465,442	592,806,690
1/00-12/00	141,410,721	312,882,740	450,176,823	526,656,041	
1/1-12/1	128,481,157	295,773,844	438,063,233		
1/2-12/2	108,611,922	260,153,546			
1/3-12/3	105,915,019				

Link Ratios	1:2	2:3	3:4	4:5
1/98-12/98			1.163	1.072
1/99-12/99		1.438	1.146	1.058
1/00-12/00	2.213	1.439	1.170	
1/1-12/1	2.302	1.481		
1/2-12/2	2.395			

AVERAGE DEV.	1:2	2:3	3:4	4:5
2 Year Averages	2.349	1.460	1.158	1.065

2 YR. DEV. TO ULT.	1:U	2:U	3:U	4:U	5:U
Unadjusted	5.082	2.164	1.482	1.280	1.202

**UNLIMITED INDEMNITY LOSS**

**DEVELOPMENT**

**Non-Serious**

**Large State**

**1st Report Start:** 1/1/2003

**1st Report End:** 12/31/2003

PY Data	1st Report	2nd Report	3rd Report	4th Report	5th Report
1/98-12/98			437,508,261	432,646,920	431,589,463
1/99-12/99		507,462,094	503,838,453	499,819,176	498,146,055
1/00-12/00	513,724,388	580,792,681	577,827,036	573,577,900	
1/1-12/1	491,994,692	545,990,644	542,748,392		
1/2-12/2	484,992,408	535,107,606			
1/3-12/3	454,969,833				

Link Ratios	1:2	2:3	3:4	4:5
1/98-12/98			0.989	0.998
1/99-12/99		0.993	0.992	0.997
1/00-12/00	1.131	0.995	0.993	
1/1-12/1	1.110	0.994		
1/2-12/2	1.103			

AVERAGE DEV.	1:2	2:3	3:4	4:5
2 Year Averages	1.107	0.995	0.993	0.998

2 YR. DEV. TO ULT.	1:U	2:U	3:U	4:U	5:U
Unadjusted	1.092	0.986	0.991	0.998	1.000

Source: NCCI WCSP Data

**SERIOUS DEVELOPMENT  
TO ULTIMATE  
Unlimited Indemnity  
(using 2-year average development)**

Exhibit 1b

	(1)	(2)	(3)	(4)
FIRST REPOR 1/3-12/3	Incurred Losses	Development 1:5	Amendment Factor	Modified Losses (1)x((2)x(3))
Fatal	13,262,549	4.228	1.098	61,564,752
Permanent To Major	22,327,493	4.228	0.752	70,979,100
Minor	70,324,977	4.228	0.907	269,696,287
Temporary To	135,337,672	1.092	0.907	133,984,295
Medical Only	319,632,161	1.092	0.983	342,965,309
Contract Medical				

	(5)	(6)	(7)	(8)
SECOND REP 1/2-12/2	Incurred Losses	Development 2:5	Amendment Factor	Modified Losses (5)x((6)x(7))
Fatal	11,800,628	1.800	1.258	26,716,622
Permanent To Major	57,888,155	1.800	0.569	59,277,471
Minor	190,464,763	1.800	0.807	276,745,301
Temporary To	182,412,684	0.986	0.807	145,200,496
Medical Only	352,694,922	0.986	0.960	334,002,091
Contract Medical				

**CALCULATION OF SERIOUS FIFTH-TO-ULTIMATE**

(9) Combined Serious Losses	764,979,533
(10) Combined Non-Serious Losses	956,152,191
(11) Combined Total Losses	1,721,131,724
(12) Financial Data Fifth-to-Ultimate Development Factors	1.090
(13) Fifth-to-Ultimate Loss Development (13) = ((12)-1)x(11)	154,901,855
(14) Fifth-to-Ultimate Serious Loss Development Factors (14) = ((9)+(13))/(9)	1.202

Source: NCCI WCSP Data

**UNLIMITED MEDICAL LOSS  
DEVELOPMENT  
Total Medical**

**Large State**

**1st Report Start:** 1/1/2003  
**1st Report End:** 12/31/2003

PY Data	1st Report	2nd Report	3rd Report	4th Report	5th Report
1/98-12/98			1,074,507,205	1,121,412,973	1,151,169,235
1/99-12/99		1,079,216,508	1,170,231,395	1,227,727,033	1,264,629,064
1/00-12/00	970,315,928	1,161,418,120	1,243,492,848	1,303,639,595	
1/1-12/1	977,360,304	1,142,236,135	1,243,998,714		
1/2-12/2	1,016,625,606	1,187,960,564			
1/3-12/3	1,037,743,388				

Link Ratios	1:2	2:3	3:4	4:5
1/98-12/98			1.044	1.027
1/99-12/99		1.084	1.049	1.030
1/00-12/00	1.197	1.071	1.048	
1/1-12/1	1.169	1.089		
1/2-12/2	1.169			

AVERAGE DEV.	1:2	2:3	3:4	4:5
2 Year Averages	1.169	1.080	1.049	1.029

**Serious Development for  
Ratemaking**

	1:U	2:U	3:U	4:U	5:U
2-Year Unadjusted	3.431	2.935	2.718	2.592	2.519

**Serious = Total Medical development to 5th report x Serious Medical 5th to Ultimate Tail Factor**

**NonSerious Development for  
Ratemaking**

	1:U	2:U	3:U	4:U	5:U
2-Year Unadjusted	1.362	1.165	1.079	1.029	1.000

**Non-Serious = Total Medical development to 5th report**

Exhibit 1d

**SERIOUS DEVELOPMENT  
TO ULTIMATE**

***Unlimited Medical***

**Large State**

***(using 2-year average development)***

	(1)	(2)	(3)	(4)
<b>FIRST REPORT 1/3-12/3</b>	<b>Incurred Losses</b>	<b>Development 1:5</b>	<b>Amendment Factor</b>	<b>Modified Losses (1)x((2)x(3))</b>
Fatal	3,769,846	1.362	1.008	5,175,999
<b>Permanent Total</b>	56,418,886	1.362	1.008	77,463,130
Major	92,132,869	1.362	1.008	126,498,429
Minor	202,853,463	1.362	1.008	278,517,805
<b>Temporary Total</b>	520,564,524	1.362	1.008	714,735,091
<b>Medical Only</b>	161,960,455	1.362	1.008	222,371,705
<b>Contract Medical</b>	43,345	1.362	1.008	59,513

	(5)	(6)	(7)	(8)
<b>SECOND REPORT 1/2-12/2</b>	<b>Incurred Losses</b>	<b>Development 2:5</b>	<b>Amendment Factor</b>	<b>Modified Losses (5)x((6)x(7))</b>
Fatal	4,270,256	1.165	0.973	4,842,470
<b>Permanent Total</b>	91,136,323	1.165	0.973	103,348,590
Major	185,339,531	1.165	0.973	210,175,028
Minor	248,061,494	1.165	0.973	281,301,734
<b>Temporary Total</b>	507,060,323	1.165	0.973	575,006,406
<b>Medical Only</b>	152,090,873	1.165	0.973	172,471,050
<b>Contract Medical</b>	1,764	1.165	0.973	2,000

**CALCULATION OF SERIOUS FIFTH-TO-ULTIMATE**

<b>(9) Combined Serious Losses</b>	527,503,646
<b>(10) Combined Non-Serious Losses</b>	2,244,465,304
<b>(11) Combined Total Losses</b>	2,771,968,950
<b>(12) Financial Data Fifth-to-Ultimate Development Factors</b>	1.289
<b>(13) Fifth-to-Ultimate Loss Development</b>	801,099,027
<b>(13) = ((12)-1)x(11)</b>	
<b>(14) Fifth-to-Ultimate Serious Loss Development Factors</b>	2.519
<b>(14) = ((9)+(13))/(9)</b>	

Source: NCCI WCSP Data

**Illustration of Critical Value "Crossover"  
Permanent Partial Claims Only**

Policy Year 1997  
Countrywide - NCCI States

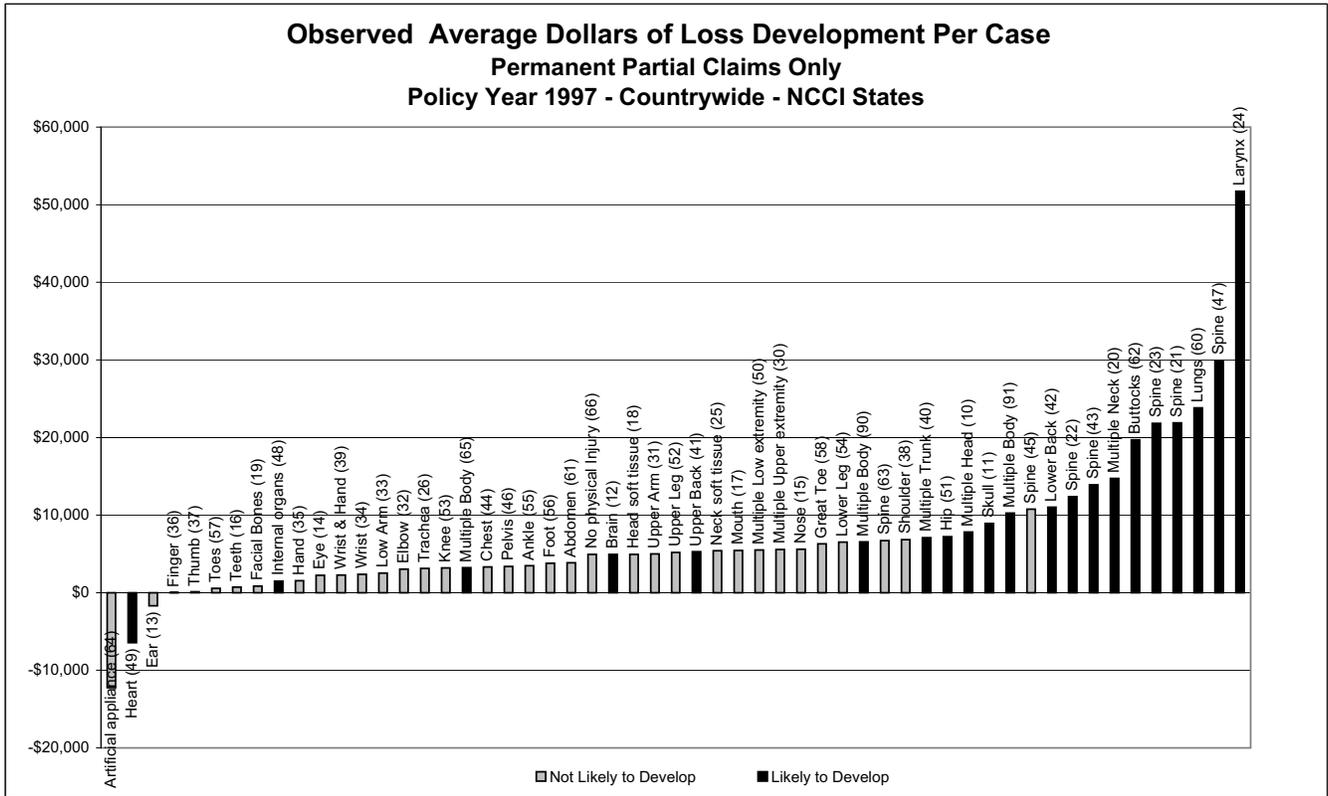
Status of Claim @ 1st	Status of Claim @ 4th	(1) Indemnity \$ @ 1st	(2) Indemnity \$ @ 4th	(3) (2)/(1) Indemnity Link Ratio	(4) Link Ratio Based on Status @ 1st	(5) Link Ratio Incl. Crossover
Major	Major	613,981,619	820,980,453	1.337	1.156	2.033 *
Major	minor	149,179,971	60,947,235	0.409		
minor	Major	207,820,368	730,279,392	3.514	1.339	0.859 **
minor	minor	1,186,650,173	1,137,543,165	0.959		

Status of Claim @ 1st	Status of Claim @ 4th	(1) Medical \$ @ 1st	(2) Medical \$ @ 4th	(3) (2)/(1) Medical Link Ratio	(4) Link Ratio Based on Status @ 1st	(5) Link Ratio Incl. Crossover
Major	Major	420,359,014	500,436,333	1.190	1.100	1.743
Major	minor	92,457,889	63,417,464	0.686		
minor	Major	211,613,060	393,182,703	1.858	1.075	0.833
minor	minor	1,154,460,758	1,074,742,398	0.931		

\* 2.033=(820,980,453+730,279,392)/(613,981,619+149,179,971)

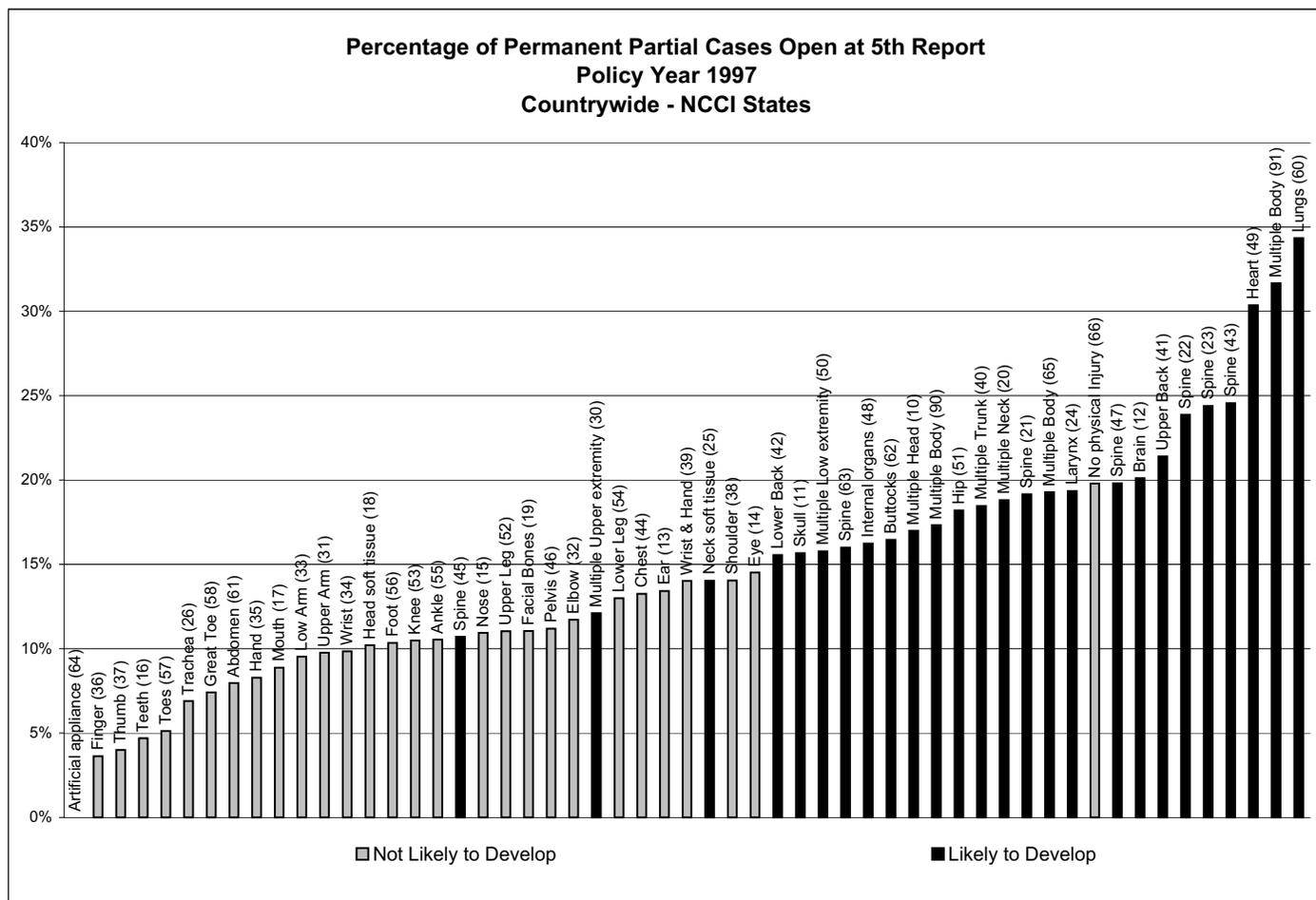
\*\* 0.859=(60,947,235+1,137,543,165)/(207,820,368+1,186,650,173)

Range of Critical Values across NCCI states = [\$20K, \$90K]



Source: NCCI WCSP Data  
 (##) - Part of Body code

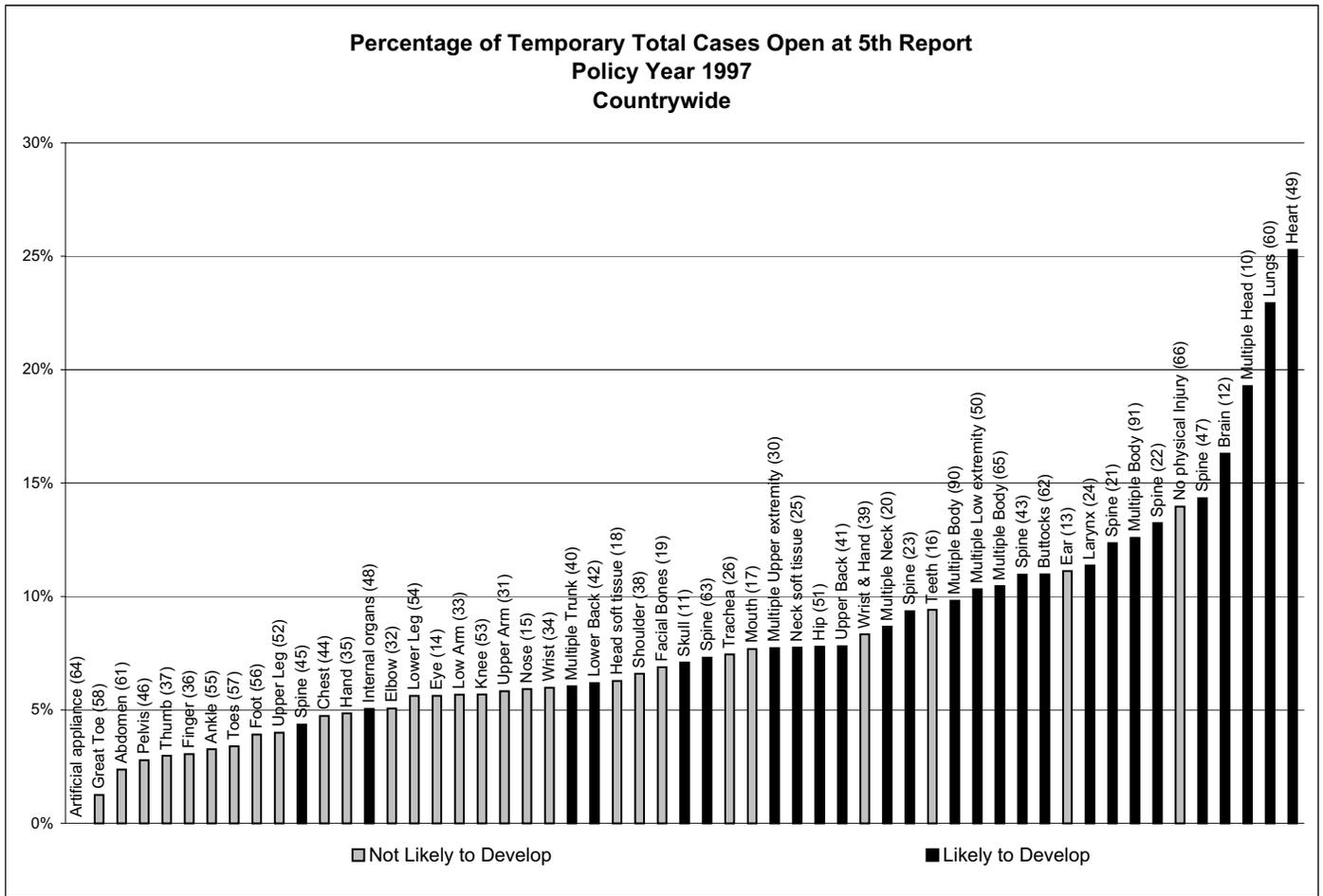
Permanent Partial Cases Open at 5th Report Policy Year 1997 Countrywide		
Injured Body Part (code)	Cases	% Open @ 5th Report
Artificial appliance (64)	4	0.0%
Finger (36)	14,638	3.6%
Thumb (37)	3,427	4.0%
Teeth (16)	234	4.7%
Toes (57)	975	5.1%
Trachea (26)	29	6.9%
Great Toe (58)	108	7.4%
Abdomen (61)	640	8.0%
Hand (35)	9,314	8.3%
Mouth (17)	214	8.9%
Low Arm (33)	4,502	9.5%
Upper Arm (31)	11,259	9.8%
Wrist (34)	12,583	9.9%
Head soft tissue (18)	1,009	10.2%
Foot (56)	5,073	10.3%
Knee (53)	20,363	10.5%
Ankle (55)	5,680	10.5%
Spine (45)	299	10.7%
Nose (15)	265	10.9%
Upper Leg (52)	797	11.0%
Facial Bones (19)	344	11.0%
Pelvis (46)	1,072	11.2%
Elbow (32)	4,095	11.7%
Multiple Upper extremity (30)	5,123	12.1%
Lower Leg (54)	3,787	13.0%
Chest (44)	1,245	13.3%
Ear (13)	939	13.4%
Wrist & Hand (39)	778	14.0%
Neck soft tissue (25)	798	14.0%
Shoulder (38)	4,843	14.0%
Eye (14)	1,240	14.5%
Lower Back (42)	32,287	15.6%
Skull (11)	862	15.7%
Multiple Low extremity (50)	1,914	15.8%
Spine (63)	150	16.0%
Internal organs (48)	930	16.2%
Buttocks (62)	79	16.5%
Multiple Head (10)	1,607	17.0%
Multiple Body (90)	17,372	17.3%
Hip (51)	1,505	18.2%
Multiple Trunk (40)	2,768	18.5%
Multiple Neck (20)	1,930	18.8%
Spine (21)	402	19.2%
Multiple Body (65)	830	19.3%
Larynx (24)	31	19.4%
No physical Injury (66)	96	19.8%
Spine (47)	202	19.8%
Brain (12)	348	20.1%
Upper Back (41)	3,309	21.4%
Spine (22)	905	23.9%
Spine (23)	82	24.4%
Spine (43)	2,154	24.6%
Heart (49)	168	30.4%
Multiple Body (91)	300	31.7%
Lungs (60)	201	34.3%
<b>TOTAL</b>	<b>186,109</b>	



Source: NCCI WCSP Data

Casualty Actuarial Society E-Forum, Winter 2009

<b>Temporary Total Cases Open at 5th Report Policy Year 1997 Countrywide</b>		
<b>Injured Body Part</b>	<b>Cases</b>	<b>% Open @ 5th Report</b>
Artificial appliance (64)	5	0.0%
Great Toe (58)	320	1.3%
Abdomen (61)	5,100	2.4%
Pelvis (46)	6,792	2.8%
Thumb (37)	8,026	3.0%
Finger (36)	28,496	3.1%
Ankle (55)	22,323	3.3%
Toes (57)	5,030	3.4%
Foot (56)	17,922	3.9%
Upper Leg (52)	3,402	4.0%
Spine (45)	1,355	4.4%
Chest (44)	7,675	4.7%
Hand (35)	23,433	4.8%
Internal organs (48)	7,210	5.0%
Elbow (32)	8,709	5.1%
Lower Leg (54)	10,306	5.6%
Eye (14)	4,550	5.6%
Low Arm (33)	10,379	5.7%
Knee (53)	38,104	5.7%
Upper Arm (31)	24,281	5.8%
Nose (15)	895	5.9%
Wrist (34)	23,847	6.0%
Multiple Trunk (40)	9,064	6.0%
Lower Back (42)	107,245	6.2%
Head soft tissue (18)	2,532	6.3%
Shoulder (38)	6,514	6.6%
Facial Bones (19)	683	6.9%
Skull (11)	2,495	7.1%
Spine (63)	465	7.3%
Trachea (26)	94	7.4%
Mouth (17)	468	7.7%
Multiple Upper extremity (30)	8,815	7.7%
Neck soft tissue (25)	2,337	7.7%
Hip (51)	3,966	7.8%
Upper Back (41)	10,139	7.8%
Wrist & Hand (39)	924	8.3%
Multiple Neck (20)	4,544	8.7%
Spine (23)	171	9.4%
Teeth (16)	361	9.4%
Multiple Body (90)	47,079	9.8%
Multiple Low extremity (50)	5,011	10.3%
Multiple Body (65)	2,484	10.5%
Spine (43)	1,268	11.0%
Buttocks (62)	255	11.0%
Ear (13)	953	11.1%
Larynx (24)	132	11.4%
Spine (21)	866	12.4%
Multiple Body (91)	993	12.6%
Spine (22)	1,027	13.2%
No physical Injury (66)	222	14.0%
Spine (47)	300	14.3%
Brain (12)	675	16.3%
Multiple Head (10)	5,108	19.3%
Lungs (60)	340	22.9%
Heart (49)	352	25.3%
<b>TOTAL</b>	<b>486,042</b>	



**URE WORKERS COMPENSATION STATISTICAL PLAN  
Part of Body—Injury Codes and Descriptions**

<b>Code*</b>		<b>Narrative Description</b>
<b>I.</b>	<b>Head</b>	
10	Multiple Head Injury	Any combination of Head injuries
11	Skull	
12	Brain	
13	Ear(s)	Includes: Hearing, Inside Eardrum
14	Eye(s)	Includes: Optic Nerves, Vision, Eyelids
15	Nose	Includes: Nasal Passage, Sinus, Sense of Smell
16	Teeth	
17	Mouth	Includes: Lips, Tongue, Throat, Taste
18	Soft tissue	
19	Facial Bones	Includes: Jaw
<b>II.</b>	<b>Neck</b>	
20	Multiple Neck Injury	Any combination of Neck injuries
21	Vertebrae	Includes: Spinal Column Bone, "Cervical Segment"
22	Disc	Includes: Spinal Column cartilage, "Cervical Segment"
23	Spinal Cord	Includes: Nerve Tissue, "Cervical Segment"
24	Larynx	Includes: Cartilage and Vocal Cords
25	Soft Tissue	Other than Larynx or Trachea
26	Trachea	
<b>III.</b>	<b>Upper Extremities</b>	
30	Multiple Upper Extremities	Any combination of Upper Extremity injuries, excluding Hands and Wrists combined
31	Upper Arm	Humerus and Corresponding Muscles, excluding Clavicle and Scapula
32	Elbow	Radial Head
33	Lower Arm	Forearm—Radius, Ulna and Corresponding Muscles
34	Wrist	Carpals and Corresponding Muscles
35	Hand	Metacarpals and Corresponding Muscles - excluding Wrist or Fingers
36	Finger(s)	Other than Thumb and Corresponding Muscles
37	Thumb	
38	Shoulder(s)	Armpit, Rotator Cuff, Trapezius, Clavicle, Scapula
39	Wrist(s) & Hand(s)	
<b>IV.</b>	<b>Trunk</b>	
40	Multiple Trunk	Any combination of Trunk injuries
41	Upper Back Area	(Thoracic Area) Upper Back Muscles, excluding Vertebrae, Disc, Spinal Cord
42	Lower Back Area	(Lumbar Area and Lumbo Sacral) Lower Back Muscles, excluding Sacrum, Coccyx, Pelvis, Vertebrae, Disc, Spinal

\* Shaded areas are part of body codes considered "likely to develop."

**URE WORKERS COMPENSATION STATISTICAL PLAN  
Part of Body—Injury Codes and Descriptions**

<b>Code*</b>		<b>Narrative Description</b>
		Cord
43	Disc	Spinal Column Cartilage other than Cervical Segment
44	Chest	Including Ribs, Sternum, Soft Tissue
45	Sacrum and Coccyx	Final Nine Vertebrae - Fused
46	Pelvis	
47	Spinal Cord	Nerve Tissue other than Cervical Segment
48	Internal Organs	Other than Heart and Lungs
49	Heart	
60	Lungs	
61	Abdomen	Excluding Injury to Internal Organs Including Groin
62	Buttocks	Soft Tissue
63	Lumbar and/or Sacral Vertebrae (Vertebra NOC Trunk)	Bone Portion of the Spinal Column
<b>V.</b>	<b>Lower Extremities</b>	
50	Multiple Lower Extremities	Any combination of Lower Extremity injuries
51	Hip	
52	Upper Leg	Femur and Corresponding Muscles
53	Knee	Patella
54	Lower Leg	Tibia, Fibula and Corresponding Muscles
55	Ankle	Tarsals
56	Foot	Metatarsals, Heel, Achilles Tendon and Corresponding Muscles - excluding Ankle or Toes
57	Toes	
58	Great Toe	
<b>VI.</b>	<b>Multiple Body Parts</b>	
64	Artificial Appliance	Braces, etc.
65	Insufficient Info to Properly Identify - Unclassified	Insufficient information to identify part affected
66	No Physical Injury	Mental Disorder
90	Multiple Body Parts (Including Body Systems & Body Parts)	Applies when more than one Major Body Part has been affected, such as an Arm and a Leg and Multiple Internal Organs
91	Body Systems and Multiple Body Systems	Applies when functioning of an Entire Body System has been affected without specific injury to any other part, as in the case of Poisoning, Corrosive Action, Inflammation, Affecting Internal Organs, Damage to Nerve Centers, etc.; does NOT apply when the systemic damage results from an External Injury affecting an External Part such as a Back Injury that includes damage to the Nerves of the Spinal Cord

\* Shaded areas are part of body codes considered "likely to develop."

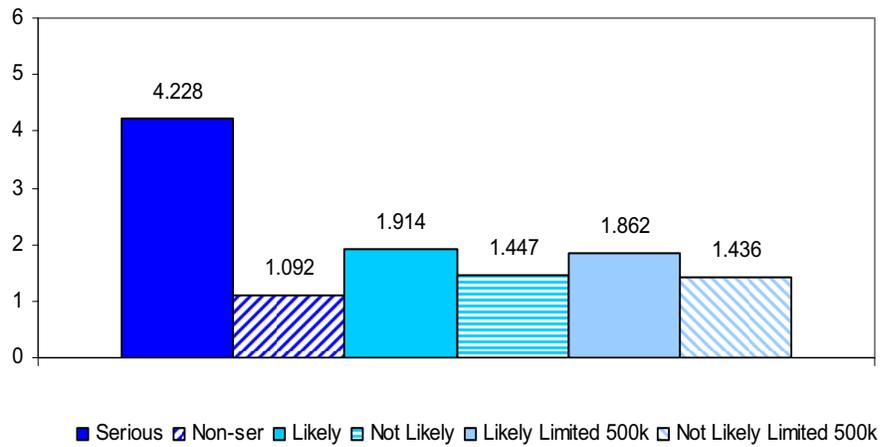
**Loss Development on a fixed set of claims  
Policy Year 1997  
Countrywide**

Cumulative 1st to 5th report \*

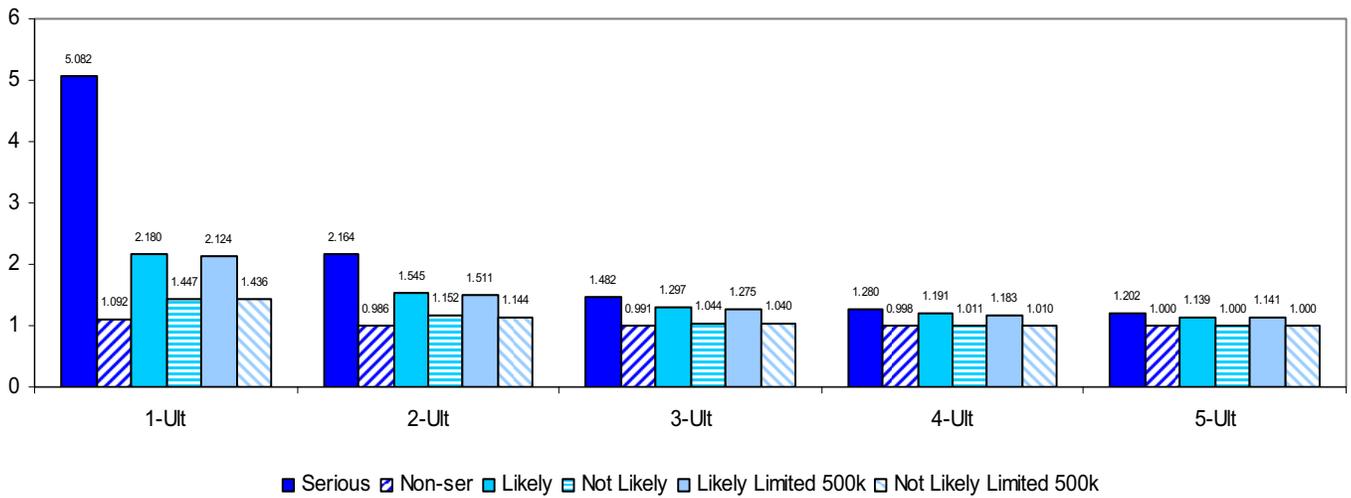
	ind_dev	med_dev
PP-L	1.387	1.183
PP-N	1.234	1.028
TT-L<=26K	1.797	1.170
TT-N<=26K	1.373	1.014
TT-L>26K	1.226	1.168
TT-N>26K	1.084	0.953
TT-L	1.522	1.170
TT-N	1.271	1.001
TT<=26K	1.548	1.080
TT>26K	1.162	1.083

\* Loss development factors exclude all crossover.

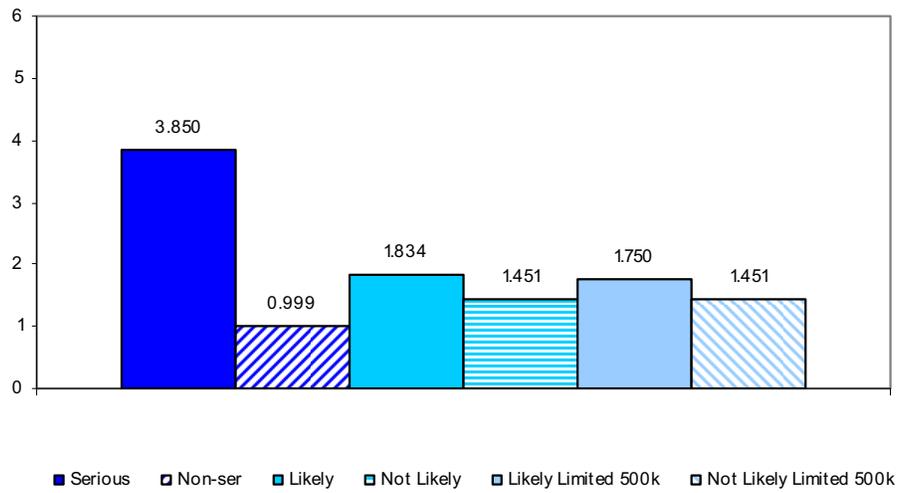
### Large State Indemnity Loss Development 1st to 5th



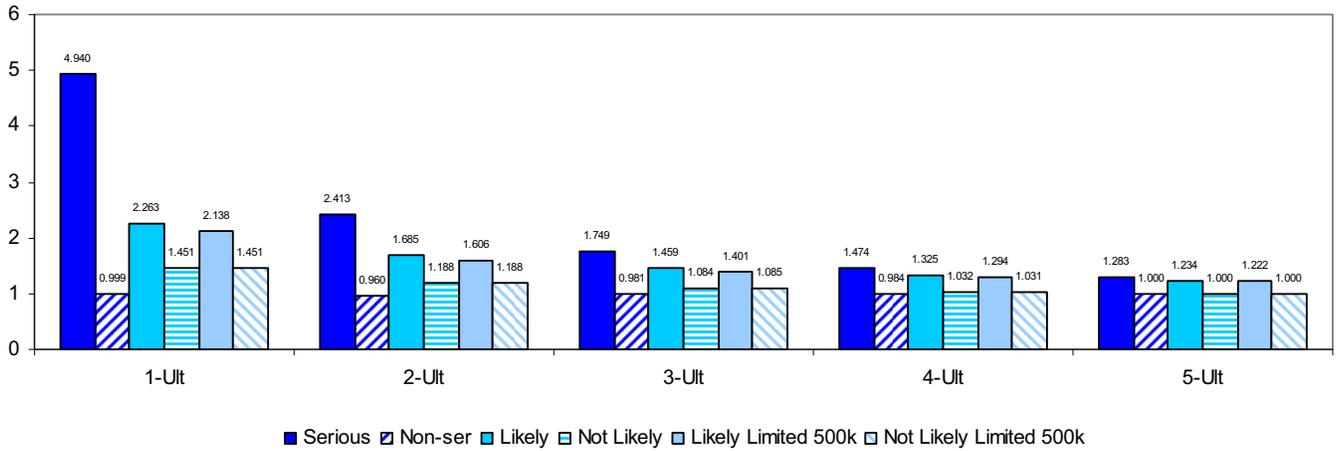
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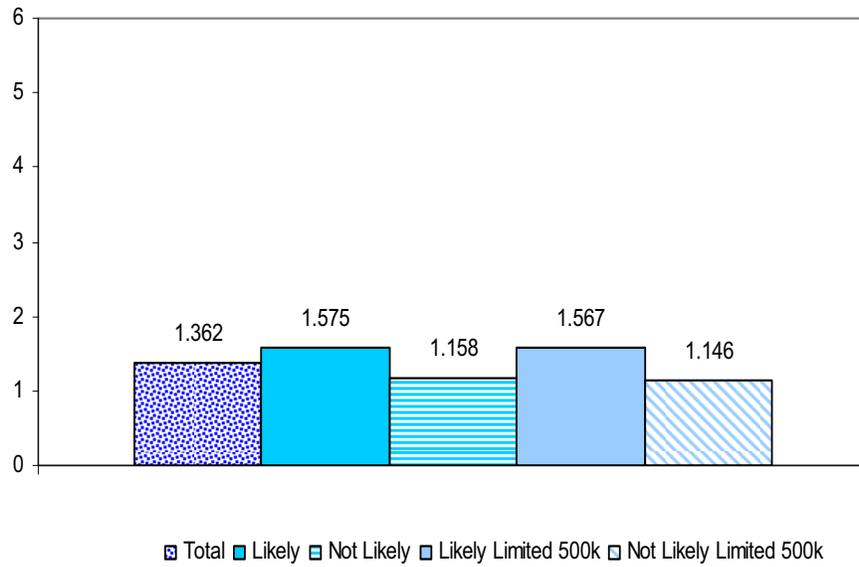
### Small State Indemnity Loss Development 1st to 5th



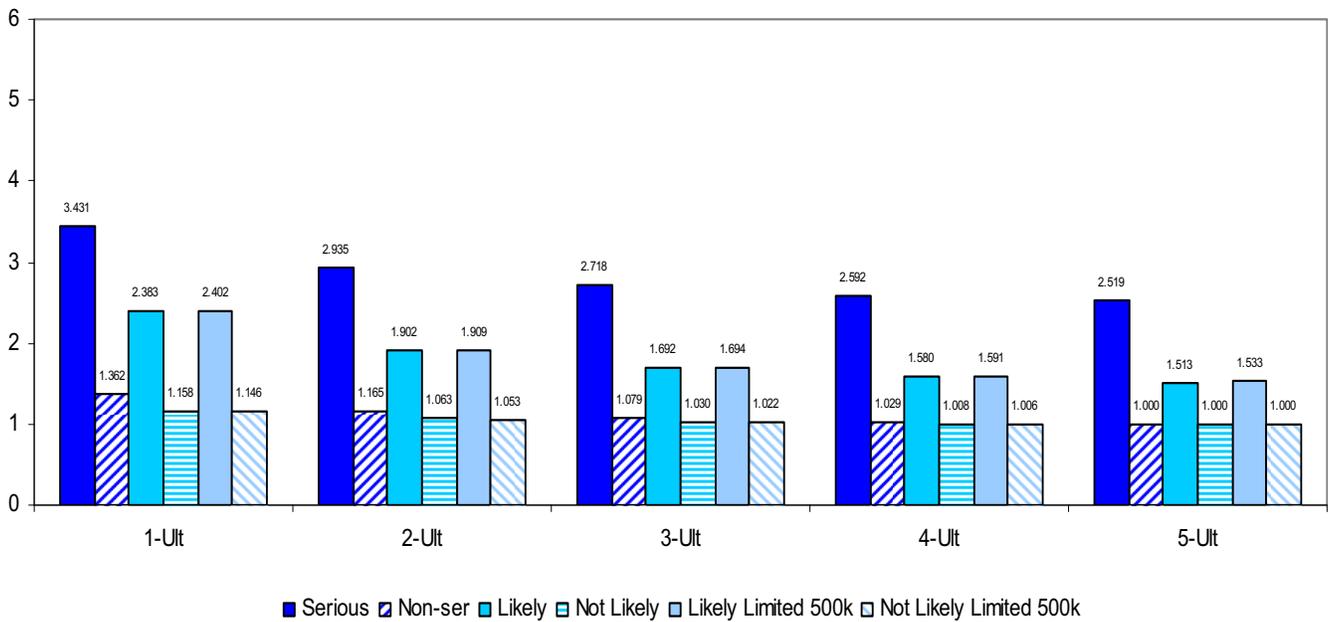
### Small State Indemnity Loss Development

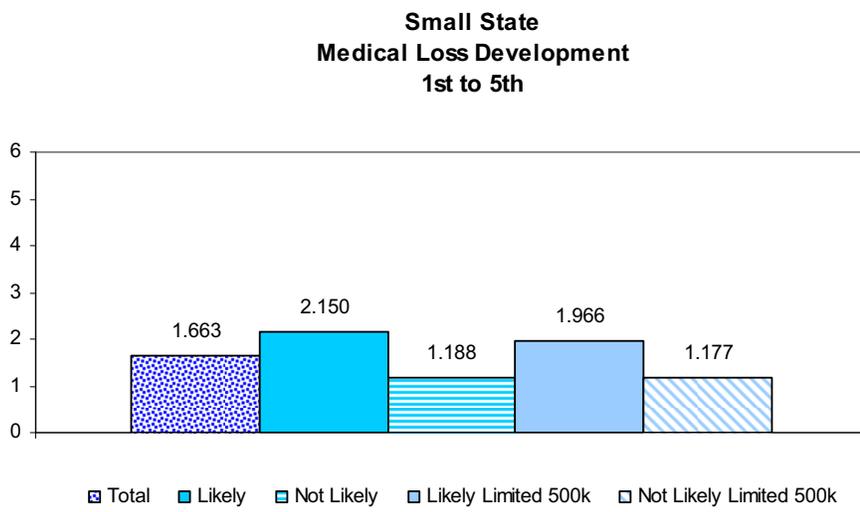


### Large State Medical Loss Development 1st to 5th

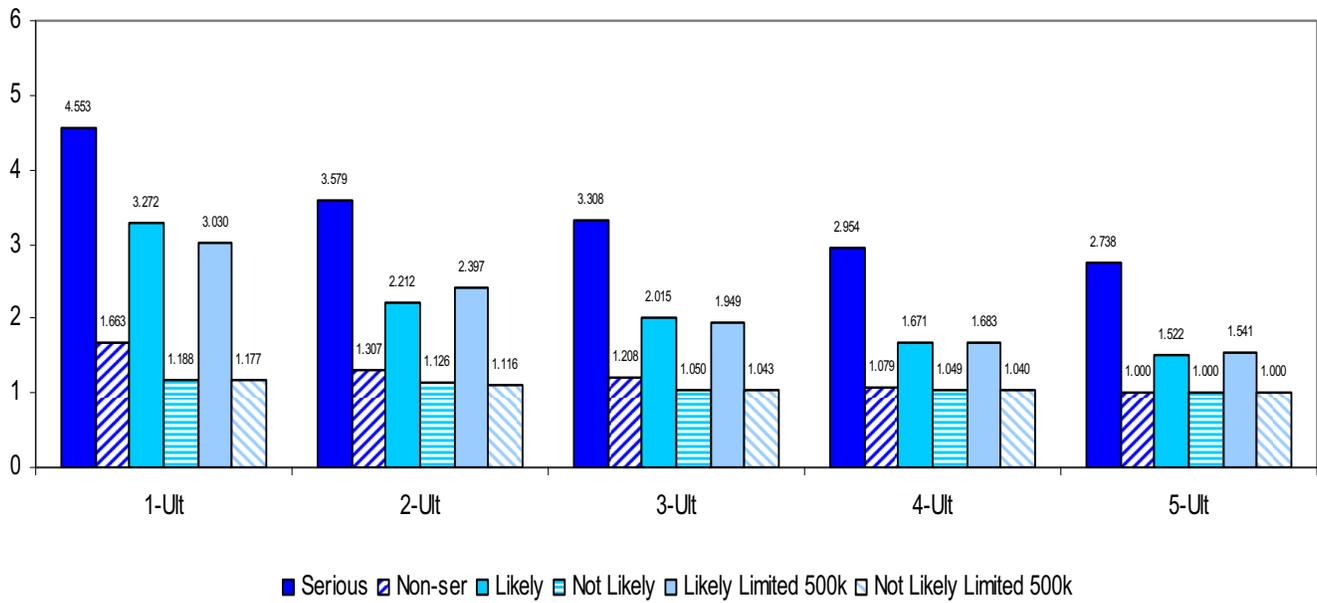


### Large State Medical Loss Development





### Small State Medical Loss Development



**ANALYSIS OF LOSS DEVELOPMENT  
BY INJURY TYPE, PART OF BODY TYPE, AND OPEN/CLOSED (at 1st report)  
STATISTICAL PLAN DATA - CLASS RATEMAKING**

**Summary Results**

**Analysis of Claim Status:**

Claims Locked at 1st		Development 1st to x (1:x) -- Limited Incurred Losses					
Injury Type		Ind 1999	Ind 2000	Med 1999	Med 2000	I+M 1999	I+M 2000
Category	Description	1:6	1:5	1:6	1:5	1:6	1:5
TTLO	TT Likely Body Part, Open at 1st	1.680	1.670	1.268	1.277	1.467	1.467
TTLC	TT Likely Body Part, Closed at 1st	1.196	1.184	1.125	1.116	1.158	1.147
TTNO	TT Not Likely Body Part, Open at 1st	1.475	1.465	1.089	1.085	1.267	1.260
TTNC	TT Not Likely Body Part, Closed at 1st	1.140	1.124	1.085	1.074	1.108	1.095
TTL	TT Likely Body Part	1.577	1.569	1.235	1.241	1.398	1.398
TTN	TT Not Likely Body Part	1.378	1.370	1.088	1.082	1.218	1.212
PPLO	PP Likely Body Part, Open at 1st	1.483	1.494	1.252	1.266	1.375	1.388
PPLC	PP Likely Body Part, Closed at 1st	1.100	1.064	1.125	1.101	1.110	1.078
PPNO	PP Not Likely Body Part, Open at 1st	1.325	1.324	1.047	1.058	1.188	1.192
PPNC	PP Not Likely Body Part, Closed at 1st	1.068	1.061	1.071	1.063	1.069	1.062
PPL	PP Likely Body Part	1.425	1.428	1.237	1.246	1.339	1.345
PPN	PP Not Likely Body Part	1.270	1.268	1.052	1.059	1.163	1.165
MoLO	Mo Likely Body Part, Open at 1st	---	---	>1.552	1.592	2.629	2.822
MoLC	Mo Likely Body Part, Closed at 1st	---	---	>1.204	1.175	1.428	1.379
MoNO	Mo Not Likely Body Part, Open at 1st	---	---	1.188	1.265	1.914	2.082
MoNC	Mo Not Likely Body Part, Closed at 1st	---	---	1.111	1.118	1.232	1.230
MoL	Mo Likely Body Part	---	---	1.270	1.252	1.668	1.645
MoN	Mo Not Likely Body Part	---	---	1.120	1.135	1.318	1.333
FaLO	Fa Likely Body Part, Open at 1st	0.884	0.914	0.710	0.829	0.868	0.906
FaLC	Fa Likely Body Part, Closed at 1st	1.047	1.089	1.051	0.997	1.047	1.073
FaNO	Fa Not Likely Body Part, Open at 1st	0.948	0.933	0.847	0.994	0.928	0.942
FaNC	Fa Not Likely Body Part, Closed at 1st	1.018	0.999	1.095	1.018	1.040	1.004
FaL	Fa Likely Body Part	0.899	0.926	0.750	0.852	0.885	0.919
FaN	Fa Not Likely Body Part	0.953	0.937	0.875	0.996	0.937	0.947
PTLO	PT Likely Body Part, Open at 1st	0.895	0.900	0.942	0.966	0.922	0.937
PTLC	PT Likely Body Part, Closed at 1st	0.994	0.989	0.984	1.008	0.990	0.997
PTNO	PT Not Likely Body Part, Open at 1st	0.937	0.960	0.957	0.873	0.948	0.915
PTNC	PT Not Likely Body Part, Closed at 1st	1.015	0.981	1.048	0.985	1.029	0.983
PTL	PT Likely Body Part	0.904	0.906	0.944	0.967	0.926	0.940
PTN	PT Not Likely Body Part	0.949	0.962	0.967	0.882	0.958	0.920

Notes: Injury Type Category = Injury Type + Body Part category + Claim Status at 1st

Injury Types:  
 Fa = Fatal  
 PT = Permanent Total  
 PP = Permanent Partial  
 TT = Temporary Total  
 Mo = Medical Only

Body Part Categories:  
 N = Not likely body part  
 L = Likely body part

Claim Status:  
 C = Closed at 1st  
 O = Open at 1st

Data: All NCCI ratemaking states  
 Excludes carriers not reporting in URE format  
 Applies the single claim loss limitation at \$500K

**ANALYSIS OF LOSS DEVELOPMENT  
BY INJURY TYPE, PART OF BODY TYPE, AND OPEN/CLOSED (at 1st report)  
STATISTICAL PLAN DATA - CLASS RATEMAKING**

**Summary Results**

**Analysis of Development Combinations:**

**Claims Locked at 1st**

Development 1st to x (1:x) -- Limited Incurred Losses

Options	Devel. Category	Injury Type Categories Included	Ind	Ind	Med	Med	I+M	I+M	I+M	%	I+M	%
			1999	2000	1999	2000	1999	2000	1999	Total \$	2000	Total \$
			1:6	1:5	1:6	1:5	1:6	1:5	\$M	Move	\$M	Move
Current	Likely	Fa + PT + PPL + TTL	1.443	1.444	1.221	1.229	1.337	1.341	4,977		5,128	
	Not Likely	All Other	1.459	1.454	1.105	1.106	1.242	1.241	5,594		5,771	
Opt 1	Likely	Fa + PT + PPLO + TTLO	1.500	1.504	1.242	1.253	1.377	1.385	4,127	-8%	4,264	-8%
	Not Likely	All Other	1.409	1.402	1.107	1.106	1.229	1.225	6,444		6,635	
Opt 2	Likely	Fa -Fa1 + PT + PPLO + TTLO	1.556	1.561	1.247	1.258	1.403	1.411	3,918	-10%	4,041	-10%
	Not Likely	All Other	1.375	1.369	1.105	1.105	1.218	1.216	6,654		6,859	
Opt 3	Likely	Fa -Fa1 + PT + PPLO + TTLO + MoLO	1.601	1.609	1.259	1.270	1.428	1.438	4,000	-9%	4,120	-9%
	Not Likely	All Other	1.343	1.335	1.096	1.095	1.201	1.197	6,572		6,780	
Opt 4	Likely	All Injury Types LO	1.554	1.560	1.258	1.271	1.410	1.420	4,130	-8%	4,263	-8%
	Not Likely	All Other	1.367	1.359	1.097	1.095	1.208	1.203	6,442		6,637	
Opt 5	Likely	All injury types LO, -Fa1	1.609	1.616	1.262	1.275	1.434	1.444	3,952	-10%	4,071	-10%
	Not Likely	All Other	1.340	1.332	1.095	1.094	1.199	1.195	6,619		6,829	

**Claims Not Locked**

-- Includes Crossover and Arisings on Subs

Development 1st to x (1:x) -- Limited Incurred Losses

Options	Devel. Category	Injury Type Categories Included	Ind	Ind	Med	Med	I+M	I+M	I+M	I+M
			1999	2000	1999	2000	1999	2000	1999	2000
			1:6	1:5	1:6	1:5	1:6	1:5	\$M	\$M
Current	Likely	Fa + PT + PPL + TTL	1.694	1.678	1.394	1.384	1.550	1.538	4,977	5,128
	Not Likely	All Other	1.411	1.426	1.096	1.106	1.218	1.230	5,594	5,771
Opt 1	Likely	Fa + PT + PPLO + TTLO	1.771	1.757	1.426	1.419	1.607	1.596	4,127	4,264
	Not Likely	All Other	1.394	1.402	1.113	1.118	1.226	1.233	6,444	6,635
Opt 2	Likely	Fa -Fa1 + PT + PPLO + TTLO	1.832	1.826	1.426	1.421	1.631	1.625	3,918	4,041
	Not Likely	All Other	1.375	1.377	1.114	1.119	1.223	1.227	6,654	6,859

Notes: Injury Type Category = Injury Type + Body Part category + Claim Status at 1st

**Injury Types:**

- Fa = Fatal
- PT = Permanent Total
- PP = Permanent Partial
- TT = Temporary Total
- Mo = Medical Only

**Body Part Categories:**

- N = Not likely body part
- L = Likely body part

**Claim Status:**

- C = Closed at 1st
- O = Open at 1st

Fa1 = Fatal at 1st

LO = Likely body part, open at 1st

Data: All NCCI ratemaking states  
Excludes carriers not reporting in URE format  
Applies the single claim loss limitation at \$500K

**ANALYSIS OF LOSS DEVELOPMENT  
BY INJURY TYPE, PART OF BODY, AND OPEN/CLOSED (at 1st report)  
STATISTICAL PLAN DATA - CLASS RATEMAKING**

Summary - Fatal and PT Development

**FATAL  
PY 1999**

Category at 1st	Category at 6th	Ind+Med at 1st	Ind+Med at 6th	Ind+Med Development	Ind+Med Injury Type Development
<b>Stays in Injury Type</b>					
FaLO	FaL	172,831,898	149,614,886	-23,217,012	-23,217,012
FaLC	FaL	18,522,409	19,393,256	870,847	870,847
FaNO	FaN	11,940,325	11,054,696	-885,629	-885,629
FaNC	FaN	1,101,646	1,140,701	39,055	39,055
<b>Total Fa to Fa</b>		<b>204,396,278</b>	<b>181,203,539</b>	<b>-23,192,739</b>	<b>-23,192,739</b>

**Moves into Injury Type**

PTLO	FaL	5,948,628	5,110,187	-838,441	5,110,187
TTLO	FaL	12,678,675	16,950,679	4,272,004	16,950,679
MoLO	FaL	213,376	1,369,657	1,156,281	1,369,657
PPLO	FaL	13,519,287	15,965,816	2,446,529	15,965,816
----	FaL	0	12,583,421	12,583,421	12,583,421
----	FaN	0	1,366,094	1,366,094	1,366,094
TTLC	FaL	339,998	520,788	180,790	520,788
MoLC	FaL	23,952	979,881	955,929	979,881
PPLC	FaL	265,121	226,770	-38,351	226,770
TTNO	FaN	1,265,655	1,498,696	233,041	1,498,696
MoNO	FaN	30,028	938,698	908,670	938,698
PPNO	FaN	1,321,388	2,025,430	704,042	2,025,430
TTNC	FaN	37,411	55,284	17,873	55,284
MoNC	FaN	6,722	38,582	31,860	38,582
PPNC	FaN	53,961	71,656	17,695	71,656
<b>Total Other to Fa</b>		<b>35,704,202</b>	<b>59,701,639</b>	<b>23,997,437</b>	<b>59,701,639</b>

Other LO to Fa		32,359,966	39,396,339	7,036,373	39,396,339
Arising to Fa		0	13,949,515	13,949,515	13,949,515
All other to Fa		3,344,236	6,355,785	3,011,549	6,355,785

**Moves out of Injury Type**

FaLO	PTL	597,761	954,391	356,630	-597,761
FaLO	TTL	3,373,971	3,034,733	-339,238	-3,373,971
FaLO	MoL	254,232	32,821	-221,411	-254,232
FaLO	PPL	208,664	205,713	-2,951	-208,664
FaLC	PTL	2,888	2,888	0	-2,888
FaLC	TTL	33,168	58,565	25,397	-33,168
FaLC	MoL	21,257	1,255	-20,002	-21,257
FaNO	TTN	383,884	403,289	19,405	-383,884
FaNO	MoN	6,500	0	-6,500	-6,500
FaNO	PPN	183,853	155,381	-28,472	-183,853
FaNC	TTN	18,617	22,089	3,472	-18,617
FaNC	PPN	5,650	8,364	2,714	-5,650
<b>Total Fa to Other</b>		<b>5,090,445</b>	<b>4,879,489</b>	<b>-210,956</b>	<b>-5,090,445</b>

**Locked Injury Type Development**

		<b>209,486,723</b>	<b>186,083,028</b>	<b>-23,403,695</b>	<b>0.888</b>
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**Cross Over Injury Type Development**

		<b>209,486,723</b>	<b>240,905,178</b>	<b>31,418,454</b>	<b>1.150</b>
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**FATAL  
PY 2000**

Category at 1st	Category at 5th	Ind+Med at 1st	Ind+Med at 5th	Ind+Med Development	Ind+Med Injury Type Development
<b>Stays in Injury Type</b>					
FaLO	FaL	186,762,580	169,522,620	-17,239,960	-17,239,960
FaLC	FaL	15,910,070	17,079,627	1,169,557	1,169,557
FaNO	FaN	13,298,124	12,123,076	-1,175,048	-1,175,048
FaNC	FaN	1,058,062	1,060,164	2,102	2,102
<b>Total Fa to Fa</b>		<b>217,028,836</b>	<b>199,785,487</b>	<b>-17,243,349</b>	<b>-17,243,349</b>

**Moves into Injury Type**

PTLO	FaL	3,966,358	3,819,262	-147,096	3,819,262
TTLO	FaL	6,169,446	7,229,697	1,060,251	7,229,697
MoLO	FaL	61,485	1,180,318	1,118,833	1,180,318
PPLO	FaL	8,128,178	7,374,389	-753,789	7,374,389
----	FaL	0	11,867,836	11,867,836	11,867,836
----	FaN	0	1,623,951	1,623,951	1,623,951
TTLC	FaL	583,054	826,786	243,732	826,786
MoLC	FaL	92,349	463,387	371,038	463,387
PPLC	FaL	5,000	5,000	0	5,000
PTNO	FaN	1,390,720	1,000,000	-390,720	1,000,000
TTNO	FaN	1,431,739	1,560,824	129,085	1,560,824
MoNO	FaN	45,319	961,661	916,342	961,661
PPNO	FaN	768,723	1,238,737	470,014	1,238,737
TTNC	FaN	54,585	235,528	180,943	235,528
MoNC	FaN	15,095	78,620	63,525	78,620
<b>Total Other to Fa</b>		<b>22,712,051</b>	<b>39,465,996</b>	<b>16,753,945</b>	<b>39,465,996</b>

Other LO to Fa		18,325,467	19,603,666	1,278,199	19,603,666
Arising to Fa		0	13,491,787	13,491,787	13,491,787
All other to Fa		4,386,584	6,370,543	1,983,959	6,370,543

**Moves out of Injury Type**

FaLO	PTL	1,238,018	1,105,647	-132,371	-1,238,018
FaLO	TTL	1,500,046	1,697,990	197,944	-1,500,046
FaLO	MoL	579,712	25,285	-554,427	-579,712
FaLO	PPL	2,088,289	1,717,273	-371,016	-2,088,289
FaLC	TTL	5,536	11,236	5,700	-5,536
FaLC	MoL	2,591	2,553	-38	-2,591
FaLC	PPL	239,984	240,284	300	-239,984
FaNO	TTN	292,945	687,510	394,565	-292,945
FaNO	MoN	55,505	3,478	-52,027	-55,505
FaNO	PPN	306,629	334,433	27,804	-306,629
FaNC	TTN	23,176	25,341	2,165	-23,176
<b>Total Fa to Other</b>		<b>6,332,431</b>	<b>5,851,030</b>	<b>-481,401</b>	<b>-6,332,431</b>

**Locked Injury Type Development**

		<b>223,361,267</b>	<b>205,636,517</b>	<b>-17,724,750</b>	<b>0.921</b>
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**Cross Over Injury Type Development**

		<b>223,361,267</b>	<b>239,251,483</b>	<b>15,890,216</b>	<b>1.071</b>
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Notes: Injury Type Category = Injury Type + Body Part category + Claim Status at 1st

Injury Types: Fa = Fatal  
PT = Permanent Total  
PP = Permanent Partial  
TT = Temporary Total  
Mo = Medical Only  
LO = Likely body part, open at 1st

Body Part Categories: N = Not likely body part  
L = Likely body part

Claim Status: C = Closed at 1st  
O = Open at 1st

Data: All NCCI ratemaking states  
Excludes carriers not reporting in URE format  
Applies the single claim loss limitation at \$500K

**ANALYSIS OF LOSS DEVELOPMENT  
BY INJURY TYPE, PART OF BODY, AND OPEN/CLOSED (at 1st report)  
STATISTICAL PLAN DATA - CLASS RATEMAKING**

Summary - Fatal and PT Development

**PERMANENT TOTAL  
PY 1999**

Category at 1st	Category at 6th	Ind+Med at 1st	Ind+Med at 6th	Ind+Med Development	Ind+Med Injury Type Development
<b>Stays in Injury Type</b>					
PTLO	PTL	83,291,688	81,330,910	-1,960,778	-1,960,778
PTLC	PTL	7,474,144	7,494,083	19,939	19,939
PTNO	PTN	24,646,111	24,954,711	308,600	308,600
PTNC	PTN	4,647,731	4,751,566	103,835	103,835
<b>Total PT to PT</b>		<b>120,059,674</b>	<b>118,531,270</b>	<b>-1,528,404</b>	<b>-1,528,404</b>

**Moves into Injury Type**

FaLO	PTL	597,761	954,391	356,630	954,391
TTLO	PTL	58,296,074	180,949,875	122,653,801	180,949,875
MoLO	PTL	1,350,219	12,210,680	10,860,461	12,210,680
PPLO	PTL	90,115,408	271,054,396	180,938,988	271,054,396
----	PTL	0	38,971,217	38,971,217	38,971,217
----	PTN	0	17,518,210	17,518,210	17,518,210
FaLC	PTL	2,888	2,888	0	2,888
TTLC	PTL	779,756	4,115,315	3,335,559	4,115,315
MoLC	PTL	50,962	6,193,259	6,142,297	6,193,259
PPLC	PTL	503,709	3,619,431	3,115,722	3,619,431
TTNO	PTN	27,315,144	94,919,491	67,604,347	94,919,491
MoNO	PTN	218,603	4,241,846	4,023,243	4,241,846
PPNO	PTN	35,247,948	111,113,846	75,865,898	111,113,846
TTNC	PTN	452,656	2,778,277	2,325,621	2,778,277
MoNC	PTN	38,566	2,329,502	2,290,936	2,329,502
PPNC	PTN	679,326	3,250,047	2,570,721	3,250,047
<b>Total Other to PT</b>		<b>215,649,020</b>	<b>754,222,671</b>	<b>538,573,651</b>	<b>754,222,671</b>
Other LO to PT		150,359,462	465,169,342	314,809,880	465,169,342
Arising to PT		0	56,489,427	56,489,427	56,489,427
All other to PT		65,289,558	232,563,902	167,274,344	232,563,902

**Moves out of Injury Type**

PTLO	FaL	5,948,628	5,110,187	-838,441	-5,948,628
PTLO	TTL	4,953,081	3,961,440	-991,641	-4,953,081
PTLO	MoL	1,363,527	27,013	-1,336,514	-1,363,527
PTLO	PPL	16,564,439	12,898,826	-3,665,613	-16,564,439
PTLC	TTL	336,156	193,243	-142,913	-336,156
PTLC	MoL	5,760	5,756	-4	-5,760
PTLC	PPL	237,237	278,250	41,013	-237,237
PTNO	TTN	2,660,188	2,452,291	-207,897	-2,660,188
PTNO	MoN	155,104	51,436	-103,668	-155,104
PTNO	PPN	7,046,099	5,241,309	-1,804,790	-7,046,099
PTNC	TTN	187,636	201,725	14,089	-187,636
PTNC	MoN	9,936	7,836	-2,100	-9,936
PTNC	PPN	19,788	44,490	24,702	-19,788
<b>Total PT to Other</b>		<b>39,487,579</b>	<b>30,473,802</b>	<b>-9,013,777</b>	<b>-39,487,579</b>

**Locked Injury Type Development**

<b>159,547,253</b>	<b>149,005,072</b>	<b>-10,542,181</b>
		<b>0.934</b>

**Cross Over Injury Type Development**

<b>159,547,253</b>	<b>872,753,941</b>	<b>713,206,688</b>
		<b>5.470</b>

**PERMANENT TOTAL  
PY2000**

Category at 1st	Category at 5th	Ind+Med @1st	Ind+Med @5th	Ind+Med Development	Ind+Med Injury Type Development
<b>Stays in Injury Type</b>					
PTLO	PTL	76,210,396	80,732,133	4,521,737	4,521,737
PTLC	PTL	5,739,227	5,690,608	-48,619	-48,619
PTNO	PTN	25,918,704	25,534,009	-384,695	-384,695
PTNC	PTN	3,480,736	3,415,996	-64,740	-64,740
<b>Total PT to PT</b>		<b>111,349,063</b>	<b>115,372,746</b>	<b>4,023,683</b>	<b>4,023,683</b>

**Moves into Injury Type**

FaLO	PTL	1,238,018	1,105,647	-132,371	1,105,647
TTLO	PTL	54,534,730	162,970,263	108,435,533	162,970,263
MoLO	PTL	271,881	9,962,765	9,690,884	9,962,765
PPLO	PTL	81,150,562	241,413,195	160,262,633	241,413,195
----	PTL	0	35,827,796	35,827,796	35,827,796
----	PTN	0	17,544,736	17,544,736	17,544,736
TTLC	PTL	679,688	3,055,005	2,375,317	3,055,005
MoLC	PTL	57,968	5,425,783	5,367,815	5,425,783
PPLC	PTL	1,045,229	1,387,697	342,468	1,387,697
TTNO	PTN	21,615,791	77,574,737	55,958,946	77,574,737
MoNO	PTN	65,919	3,759,852	3,693,933	3,759,852
PPNO	PTN	35,776,820	109,426,819	73,649,999	109,426,819
TTNC	PTN	919,653	2,442,629	1,522,976	2,442,629
MoNC	PTN	25,279	1,874,535	1,849,256	1,874,535
PPNC	PTN	162,571	1,232,692	1,070,121	1,232,692
<b>Total Other to PT</b>		<b>197,544,109</b>	<b>675,004,151</b>	<b>477,460,042</b>	<b>675,004,151</b>
Other LO to PT		137,195,191	415,451,870	278,256,679	415,451,870
Arising to PT		0	53,372,532	53,372,532	53,372,532
All other to PT		60,348,918	206,179,749	145,830,831	206,179,749

**Moves out of Injury Type**

PTLO	FaL	3,966,358	3,819,262	-147,096	-3,966,358
PTLO	TTL	6,349,440	4,749,108	-1,600,332	-6,349,440
PTLO	MoL	1,892,978	1,092,058	-800,920	-1,892,978
PTLO	PPL	27,503,897	18,239,496	-9,264,401	-27,503,897
PTLC	TTL	210,089	243,128	33,039	-210,089
PTLC	PPL	151,118	148,666	-2,452	-151,118
PTNO	FaN	1,390,720	1,000,000	-390,720	-1,390,720
PTNO	TTN	3,649,969	2,458,285	-1,191,684	-3,649,969
PTNO	MoN	605,065	81,494	-523,571	-605,065
PTNO	PPN	7,684,122	6,825,909	-858,213	-7,684,122
PTNC	TTN	126,692	128,622	1,930	-126,692
PTNC	MoN	934	417	-517	-934
PTNC	PPN	65,145	64,953	-192	-65,145
<b>Total PT to Other</b>		<b>53,596,527</b>	<b>38,851,398</b>	<b>-14,745,129</b>	<b>-53,596,527</b>

**Locked Injury Type Development**

<b>164,945,590</b>	<b>154,224,144</b>	<b>-10,721,446</b>
		<b>0.935</b>

**Cross Over Injury Type Development**

<b>164,945,590</b>	<b>790,376,898</b>	<b>625,431,308</b>
		<b>4.792</b>

Notes: Injury Type Category = Injury Type + Body Part category + Claim Status at 1st

Injury Types: Fa = Fatal, PT = Permanent Total, PP = Permanent Partial, TT = Temporary Total, Mo = Medical Only, LO = Likely body part, open at 1st  
 Body Part Categories: N = Not likely body part, L = Likely body part  
 Claim Status: C = Closed at 1st, O = Open at 1st

Data: All NCCI ratemaking states, Excludes carriers not reporting in URE format, Applies the single claim loss limitation at \$500K

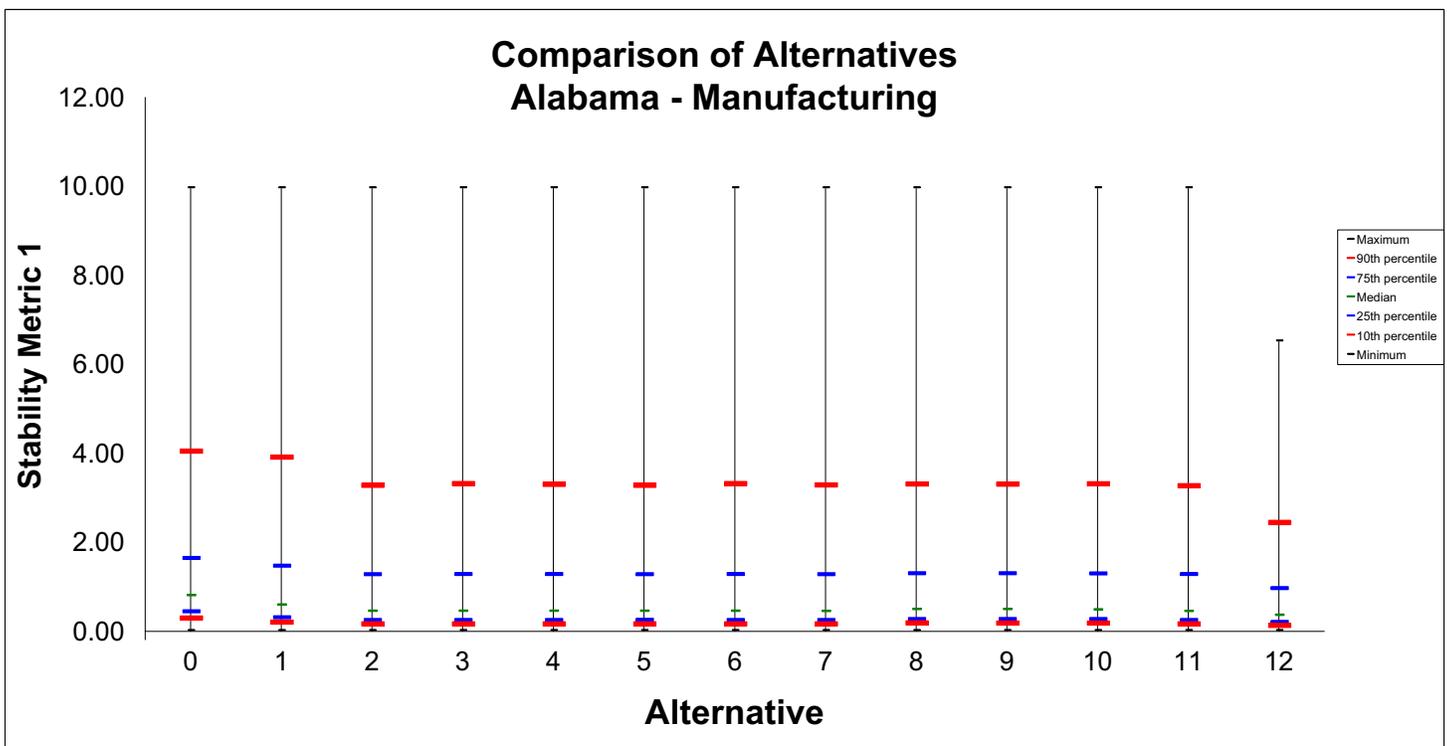
**Alternatives for Limiting Losses and Allocating Excess**

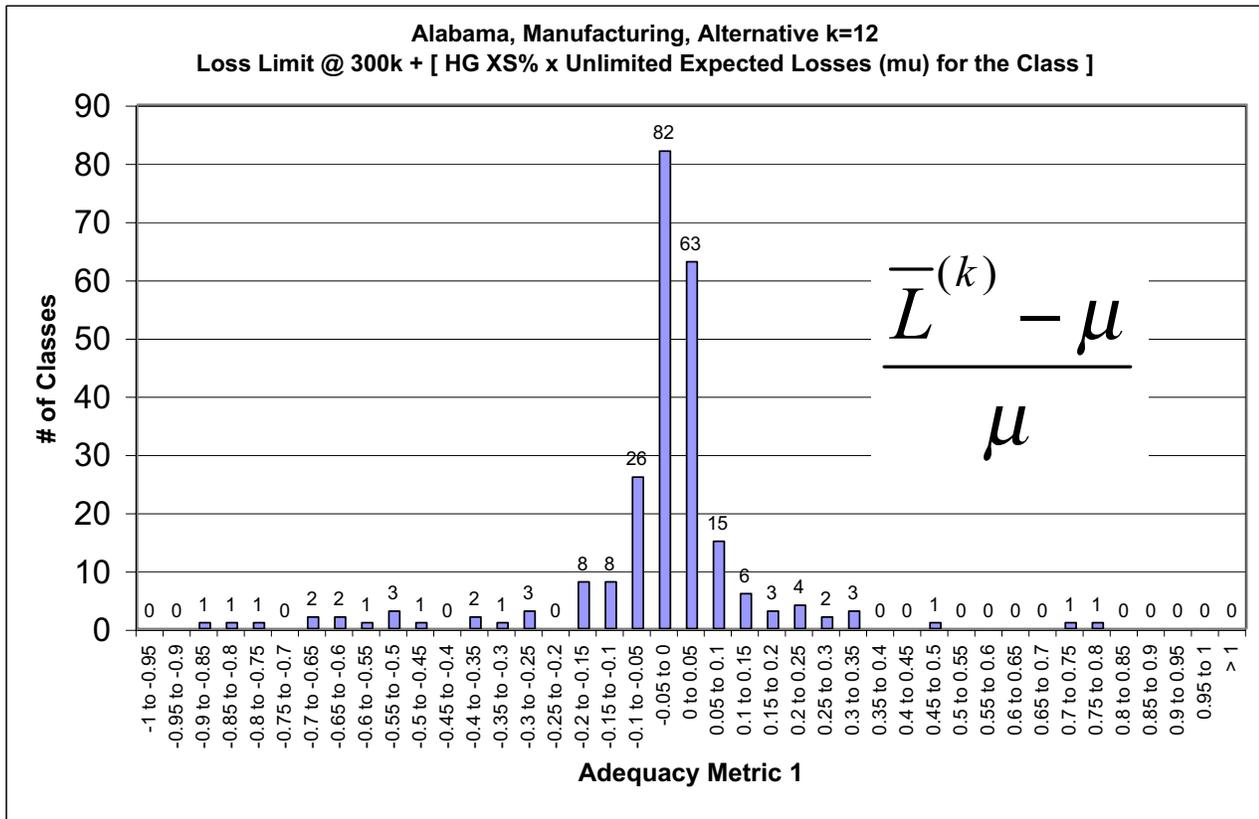
<b>Alt k =</b>	<b>Limit</b>	<b>Using Actual Excess</b>
0	Unlimited	
1	\$1M	Allocates Actual IG Excess Uniformly by Class Within the IG
2	\$300k	Allocates Actual IG Excess Uniformly by Class Within the IG
3	\$300k	Allocates Actual HG Excess Uniformly by Class Within the HG
4	\$300k	Same as k=3 with factor to balance to IG Unlimited Losses
5	\$300k	Allocates Actual IG Excess by Class Within IG Using Limited Losses x XS% / (1-XS%)
6	\$300k	Allocates HG Actual Excess by Class Within HG Using Limited Losses x XS% / (1-XS%)
7	\$300k	Allocates Actual State Excess by Class Using Limited Losses x XS% / (1-XS%)
<b>Alt k =</b>	<b>Limit</b>	<b>Using Actual Excess</b>
8	\$300k	Allocates Actual IG Excess by Class Within IG Using Unlimited Losses x XS%
9	\$300k	Allocates Actual HG Excess by Class Within HG Using Unlimited Losses x XS%
10	\$300k	Allocates Actual State Excess by Class Using Unlimited Losses x XS%
13	Vary by Class* \$100k, \$300k, \$1M	Allocates Actual State Excess by Class Using Unlimited Losses x XS%
<b>Alt k =</b>	<b>Limit</b>	<b>Using Expected Excess</b>
11	\$300k	Limited Actual Losses x 1 / (1- XS%)
12	\$300k	Limited Losses + HG XS% x Unlimited Expected Losses (i.e. Mu)
14	Vary by Class* \$100k, \$300k, \$1M	Limited Actual Losses x 1 / (1- XS%)
15	Vary by Class* \$100k, \$300k, \$1M	Limited Losses + HG XS% x Unlimited Expected Losses (i.e. Mu)

Note: Alt 3 and Alt 6 are equivalent

Legend: IG - Industry Group  
 HG - Hazard Group  
 XS - per claim adjusted excess ratio

\* Alts 13 - 15 proposed three loss limits: 100K for small classes, 300K for medium-size classes & \$1M for large classes





desired range (-.25, 0, .25)

min	-0.864
unweighted average	-0.031
weighted average	-0.007
max	0.766

**Analysis of the Indemnity and Medical Excess (XS) Split**  
Call #31 Data as of 12-31-04 for all NCCI States

PY	Primary Ind.	Primary Med.	XS Ind.	XS Med.	XS Split		Claim Count
					Ind.	Med.	
<b>Prior</b>	169,816,166	139,683,834	70,279,751	182,840,412	<b>27.8%</b>	<b>72.2%</b>	619
<b>1982</b>	13,995,376	14,004,624	8,619,005	13,163,124	<b>39.6%</b>	<b>60.4%</b>	56
<b>1983</b>	62,784,206	65,715,794	39,612,997	119,661,433	<b>24.9%</b>	<b>75.1%</b>	257
<b>1984</b>	174,613,643	172,386,357	124,779,440	258,040,159	<b>32.6%</b>	<b>67.4%</b>	694
<b>1985</b>	189,175,924	179,824,076	127,426,362	269,832,016	<b>32.1%</b>	<b>67.9%</b>	738
<b>1986</b>	231,461,635	228,538,365	139,680,186	284,920,944	<b>32.9%</b>	<b>67.1%</b>	920
<b>1987</b>	251,592,143	251,907,857	164,604,780	340,891,816	<b>32.6%</b>	<b>67.4%</b>	1,007
<b>1988</b>	266,459,073	290,040,927	183,851,067	409,875,986	<b>31.0%</b>	<b>69.0%</b>	1,113
<b>1989</b>	263,077,846	281,922,154	177,611,338	370,323,060	<b>32.4%</b>	<b>67.6%</b>	1,090
<b>1990</b>	250,790,173	284,709,827	155,166,315	386,803,697	<b>28.6%</b>	<b>71.4%</b>	1,071
<b>1991</b>	211,153,813	258,346,187	126,792,831	374,456,842	<b>25.3%</b>	<b>74.7%</b>	939
<b>1992</b>	213,866,898	244,633,102	120,914,845	331,330,704	<b>26.7%</b>	<b>73.3%</b>	917
<b>1993</b>	177,959,200	215,040,800	112,139,690	298,596,771	<b>27.3%</b>	<b>72.7%</b>	786
<b>1994</b>	178,857,458	212,142,542	108,183,294	324,031,769	<b>25.0%</b>	<b>75.0%</b>	782
<b>1995</b>	166,982,566	223,017,434	101,467,025	308,899,713	<b>24.7%</b>	<b>75.3%</b>	780
<b>1996</b>	211,737,505	248,762,495	128,285,636	313,703,083	<b>29.0%</b>	<b>71.0%</b>	921
<b>1997</b>	235,761,313	279,738,687	148,148,864	430,926,448	<b>25.6%</b>	<b>74.4%</b>	1,031
<b>1998</b>	270,545,487	311,954,513	174,634,718	435,518,901	<b>28.6%</b>	<b>71.4%</b>	1,165
<b>1999</b>	279,735,890	312,764,110	183,062,743	429,648,973	<b>29.9%</b>	<b>70.1%</b>	1,185
<b>2000</b>	282,319,912	306,680,088	181,576,108	365,938,213	<b>33.2%</b>	<b>66.8%</b>	1,178
<b>2001</b>	244,889,269	281,610,731	161,786,219	410,967,203	<b>28.2%</b>	<b>71.8%</b>	1,053
<b>2002</b>	177,579,023	249,920,977	129,992,203	404,432,908	<b>24.3%</b>	<b>75.7%</b>	855
<b>2003</b>	133,019,301	215,480,699	112,305,448	425,846,975	<b>20.9%</b>	<b>79.1%</b>	697
<b>2004</b>	56,015,676	79,484,324	44,337,439	111,049,945	<b>28.5%</b>	<b>71.5%</b>	271
<b>Total</b>	<b>4,714,189,497</b>	<b>5,348,310,503</b>	<b>3,025,258,303</b>	<b>7,601,701,096</b>	<b>28.5%</b>	<b>71.5%</b>	<b>20,125</b>

Note: Claims < \$500,000 are excluded from the analysis.

## Proposal for State Indicated Pure Premium Full Credibility Standards

	Current	Indicated <sup>1</sup>	Current/ Indicated
Serious	125	244	51%
Non-serious	350	491	71%
Combined Indemnity	--	1,397	--
Medical (non-serious severity)	750	1,341	56%
Medical (medical severity)	--	719	--

	Selection Proposal	Selection Proposal / Indication
Combined Indemnity	<b>850</b>	61%
Medical (non-serious severity)	750	56%
Medical (medical severity)	<b>400</b>	56%

Note: 1. From p=95%, k=25% regression results averaged across all 6 states.

## Proposal for National Pure Premium Full Credibility Standards (actual lost-time claims)

	Current	Indicated <sup>1</sup>	Current/ Indicated
Serious	175	271	65%
Non-serious	500	1,132	44%
Combined Indemnity	--	2,127	--
Medical	1000	1,548	65%
	Selection Proposal		Selection Proposal / Indication
Combined Indemnity	<b>1,150</b>		54%
Medical	<b>1,000</b>		65%

Note: 1. From p=95%, k=25% regression results averaged across all 6 states.

# Comparison Of Current And Proposed Indemnity Statewide Credibility

## Comparison Of Current And Proposed Indemnity Statewide Credibility

	Statewide Credibility		Statewide Credibility (excluding 50 largest classes)	
	Current Average	Proposal Average <sup>1</sup>	Current Average	Proposal Average <sup>1</sup>
<b>State</b>				
IA	73%	78%	53%	51%
IL	90%	93%	75%	80%
NC	80%	81%	59%	56%
CO	77%	82%	58%	55%
MO	83%	85%	67%	62%
TN	82%	82%	60%	55%
<b>National</b>				
IA	13%	11%	23%	24%
IL	6%	4%	14%	10%
NC	10%	10%	21%	22%
CO	11%	9%	21%	22%
MO	9%	8%	17%	19%
TN	10%	10%	21%	23%

Note: 1. Assuming state Nf = 850 and national Nf = 1150.

# Comparison Of Current And Proposed Medical Statewide Credibility

## Comparison Of Current And Proposed Medical Statewide Credibility

State	Statewide Credibility		Statewide Credibility (excluding 50 largest classes)	
	Current Average	Proposal Average <sup>1</sup>	Current Average	Proposal Average <sup>1</sup>
<b>State</b>				
IA	90%	88%	74%	68%
IL	96%	96%	89%	91%
NC	93%	89%	83%	73%
CO	90%	90%	72%	73%
MO	91%	92%	76%	80%
TN	91%	89%	76%	72%
<b>National</b>				
IA	5%	6%	13%	16%
IL	2%	2%	5%	5%
NC	4%	6%	9%	14%
CO	5%	5%	14%	14%
MO	5%	4%	12%	10%
TN	5%	6%	13%	15%

Note: 1. Assuming state Nf = 400 and national Nf = 1000.

**Selection for IG Differential  
FCS = 12,000**

Industry Group Claim Counts	Updated Square Root									
	p	90%	90%	90%	98%	98%	98%	<b>95%</b>	95%	95%
	k	0.075	0.050	0.025	0.075	0.050	0.025	<b>0.075</b>	0.050	0.025
Nf	8,417	18,939	75,755	16,837	37,883	151,533	<b>11,951</b>	26,890	107,561	
1,000		34%	23%	11%	24%	16%	8%	29%	19%	10%
2,000		49%	32%	16%	34%	23%	11%	41%	27%	14%
4,000		69%	46%	23%	49%	32%	16%	58%	39%	19%
8,000		97%	65%	32%	69%	46%	23%	82%	55%	27%
16,000		100%	92%	46%	97%	65%	32%	100%	77%	39%
32,000		100%	100%	65%	100%	92%	46%	100%	100%	55%
64,000		100%	100%	92%	100%	100%	65%	100%	100%	77%
State	Using Typical Average Industry Group Claim Counts									
Maine		69%	46%	23%	49%	32%	16%	58%	39%	19%
Vermont		73%	49%	24%	52%	34%	17%	61%	41%	20%
Alabama		100%	92%	46%	97%	65%	32%	100%	77%	39%
Illinois		100%	100%	95%	100%	100%	67%	100%	100%	80%

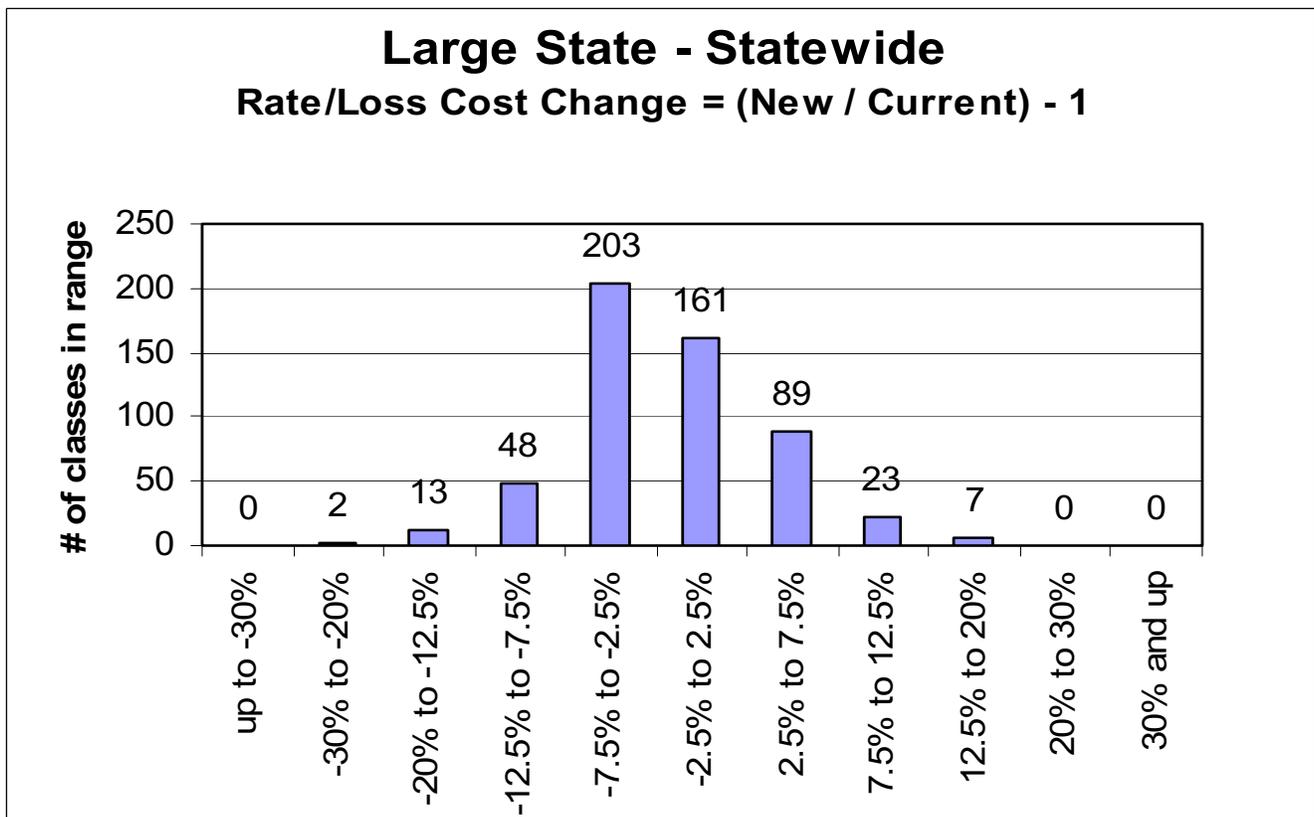
**Large State**

Impact of New Loss Development and Expected Excess by Industry Group

	(1)	(2)	(3)	(4)	(5)
			(1)x(2)	(3) / Tot(3)	(4)-1
Industry Group	Wtd Change in LDFs	Wtd Change in Excess	Predicted Chg by IG	Normalized Predicted Chg by IG	Predicted %Chg by IG
Manufacturing	0.923	1.090	1.006	0.949	-5.1%
Contracting	0.892	1.170	1.043	0.984	-1.6%
Office & Clerical	0.975	1.101	1.073	1.012	1.2%
Goods & Services	0.988	1.096	1.083	1.021	2.1%
Miscellaneous	0.933	1.134	1.059	0.998	-0.2%
State Total	0.949	1.118	1.060	1.0000	0.0%

All five industry groups received IG credibility equal to 100% for Large state.

## All Classes – Final After Swing Limits



LIMITED INDEMNITY LOSS

Test State

04/01/08

Exhibit 23a

DEVELOPMENT

Likely

1st Report Start: 2/1/2004  
1st Report End: 1/31/2005

PY Data	1st Report	2nd Report	3rd Report	4th Report	5th Report	6th Report	7th Report	8th Report	9th Report	10th Report
2/91-1/92	0	0	0	0	0	0	0	0	0	0
2/92-1/93	0	0	0	0	0	0	0	0	0	0
2/93-1/94	0	0	0	0	0	0	0	0	0	0
2/94-1/95	0	0	0	0	0	0	0	0	0	0
2/95-1/96	0	0	0	0	0	0	0	0	0	0
2/96-1/97	0	0	0	0	0	0	0	0	0	0
2/97-1/98	0	0	0	0	0	0	0	0	0	0
2/98-1/99	0	0	0	0	0	0	0	0	0	0
2/99-1/00	60,996,530	92,218,325	117,039,686	132,422,739	140,802,919	144,380,191				
2/00-1/01	61,249,048	95,369,132	116,456,223	128,043,912	132,466,081					
2/01-1/02	63,330,710	101,332,628	120,907,703	131,065,662						
2/02-1/03	64,002,100	96,832,704	115,101,791							
2/03-1/04	62,441,089	97,204,707								
2/04-1/05	63,908,035									

Link Ratios	1:2	2:3	3:4	4:5	5:6	6:7	7:8	8:9	9:10
2/91-1/92									
2/92-1/93									
2/93-1/94									
2/94-1/95									
2/95-1/96									
2/96-1/97									
2/97-1/98									
2/98-1/99									
2/99-1/00	1.512	1.269	1.131	1.063	1.025				
2/00-1/01	1.557	1.221	1.100	1.035					
2/01-1/02	1.600	1.193	1.084						
2/02-1/03	1.513	1.189							
2/03-1/04	1.557								

AVERAGE DEV.	1:2	2:3	3:4	4:5	5:6	6:7	7:8	8:9	9:10
2 Year Averages	1.535	1.191	1.092	1.049					
3 Year Averages	1.557	1.201	1.105						
4 Year Averages	1.557	1.218							
5 Year Averages	1.548								
5 Yr Ex-Hi Lo Avgs	1.542								

AVG DEV. TO 5TH	1:5	2:5	3:5	4:5	5th:Ult
2 Year Averages	2.095	1.365	1.146	1.049	1.090
3 Year Averages					
4 Year Averages					
5 Year Averages					
5 Yr Ex-Hi Lo Avgs					

AVG DEV. TO ULT.	1:U	2:U	3:U	4:U	5:U
2 Year Averages	2.281	1.486	1.248	1.143	1.090
3 Year Averages					
4 Year Averages					
5 Year Averages					
5 Yr Ex-Hi Lo Avgs					

Averaging Method

(Use '6' for 5 Yr Ex-HiLo)

2	2	2	2	2	2	2	2	2	2
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Selected Average Development	1:2	2:3	3:4	4:5	5th:Ult
	1.535	1.191	1.092	1.049	1.090

LIMITED INDEMNITY LOSS

Test State

04/01/08

Exhibit 23b

DEVELOPMENT

Not-Likely

1st Report Start: 2/1/2004  
1st Report End: 1/31/2005

PY Data	1st Report	2nd Report	3rd Report	4th Report	5th Report	6th Report	7th Report	8th Report	9th Report	10th Report
2/91-1/92	0	0	0	0	0	0	0	0	0	0
2/92-1/93	0	0	0	0	0	0	0	0	0	0
2/93-1/94	0	0	0	0	0	0	0	0	0	0
2/94-1/95	0	0	0	0	0	0	0	0	0	0
2/95-1/96	0	0	0	0	0	0	0	0	0	0
2/96-1/97	0	0	0	0	0	0	0	0	0	0
2/97-1/98	0	0	0	0	0	0	0	0	0	0
2/98-1/99	0	0	0	0	0	0	0	0	0	0
2/99-1/00	92,600,271	117,560,761	133,963,360	141,479,415	146,067,806	147,360,667				
2/00-1/01	95,374,095	116,001,514	131,138,809	138,472,791	141,250,877					
2/01-1/02	97,129,731	122,748,458	135,195,013	139,317,464						
2/02-1/03	95,563,495	115,415,827	126,594,218							
2/03-1/04	90,843,197	109,219,366								
2/04-1/05	96,958,872									

Link Ratios	1:2	2:3	3:4	4:5	5:6	6:7	7:8	8:9	9:10
2/91-1/92									
2/92-1/93									
2/93-1/94									
2/94-1/95									
2/95-1/96									
2/96-1/97									
2/97-1/98									
2/98-1/99									
2/99-1/00	1.270	1.140	1.056	1.032	1.009				
2/00-1/01	1.216	1.130	1.056	1.020					
2/01-1/02	1.264	1.101	1.030						
2/02-1/03	1.208	1.097							
2/03-1/04	1.202								

AVERAGE DEV.	1:2	2:3	3:4	4:5	5:6	6:7	7:8	8:9	9:10
2 Year Averages	1.205	1.099	1.043	1.026					
3 Year Averages	1.225	1.109	1.047						
4 Year Averages	1.223	1.117							
5 Year Averages	1.232								
5 Yr Ex-Hi Lo Avgs	1.229								

AVG DEV. TO 5TH	1:5	2:5	3:5	4:5	5th:Ult
2 Year Averages	1.417	1.176	1.070	1.026	1.030
3 Year Averages					
4 Year Averages					
5 Year Averages					
5 Yr Ex-Hi Lo Avgs					

AVG DEV. TO ULT.	1:U	2:U	3:U	4:U	5:U
2 Year Averages	1.459	1.211	1.102	1.057	1.030
3 Year Averages					
4 Year Averages					
5 Year Averages					
5 Yr Ex-Hi Lo Avgs					

Averaging Method

(Use '6' for 5 Yr Ex-HiLo)

2	2	2	2	2	2	2	2	2	2
---	---	---	---	---	---	---	---	---	---

Selected Average Development	1:2	2:3	3:4	4:5	5th:Ult
	1.205	1.099	1.043	1.026	1.030

**LIKELY DEVELOPMENT  
TO ULTIMATE**

Test State

Exhibit 23c

04/01/08

**Limited Indemnity - Combined**  
(using 2-year average development)

	(1) Limited Incurred Losses	(2) Development 1:5	(3) Amendment Factor	(4) Modified Losses (1)x((2)x(3))
<b>FIRST REPORT 2/04-1/05</b>				
Fatal-Likely	0	2.095	1.045	0
Fatal-Not Likely	10,269,396	1.417	1.045	15,208,975
Permanent Total	4,413,333	2.095	1.046	9,669,613
Perm. Partial-Likely	42,468,001	2.095	1.025	91,178,798
Perm. Partial-Not Likely	53,963,071	1.417	1.025	78,354,379
Temp. Total-Likely	17,026,701	2.095	1.046	37,305,502
Temp. Total-Not Likely	32,726,405	1.417	1.046	48,500,532

	(5) Limited Incurred Losses	(6) Development 2:5	(7) Amendment Factor	(8) Modified Losses (5)x((6)x(7))
<b>SECOND REPORT 2/03-1/04</b>				
Fatal-Likely	1,299,643	1.365	1.051	1,864,988
Fatal-Not Likely	8,017,542	1.176	1.051	9,909,682
Permanent Total	11,441,423	1.365	1.052	16,429,883
Perm. Partial-Likely	71,430,014	1.365	1.029	100,359,170
Perm. Partial-Not Likely	70,091,621	1.176	1.029	84,810,861
Temp. Total-Likely	13,033,627	1.365	1.052	18,716,288
Temp. Total-Not Likely	31,110,203	1.176	1.052	38,483,321

**CALCULATION OF LIKELY 5TH-TO-ULTIMATE**

(9) Combined Likely Losses	275,524,242
(10) Combined Not-Likely Losses	275,267,750
(11) Combined Total Losses	550,791,992
(12) Financial Data 5th-to-Ultimate Development Factors	1.060
(13) 5th-to-Ultimate Loss Development (13) = {(12)-1}x(11)	33,047,520
(14) % of Loss Development attributable to Not-Likely Losses at 5th rpt	0.250
(15) 5th-to-Ultimate Likely Loss Development Factors (15) = {(9)+ [1-(14)]x(13)}/(9)	1.090
(16) 5th-to-Ultimate Not-Likely Loss Development Factors (16) = {(10)+ (14)x(13)}/(10)	1.030

**LIMITED MEDICAL LOSS DEVELOPMENT**  
**Likely**

Test State

04/01/08

Exhibit 23d

1st Report Start: 2/1/2004  
1st Report End: 1/31/2005

PY Data	1st Report	2nd Report	3rd Report	4th Report	5th Report	6th Report	7th Report	8th Report	9th Report	10th Report
2/91-1/92	0	0	0	0	0	0	0	0	0	0
2/92-1/93	0	0	0	0	0	0	0	0	0	0
2/93-1/94	0	0	0	0	0	0	0	0	0	0
2/94-1/95	0	0	0	0	0	0	0	0	0	0
2/95-1/96	0	0	0	0	0	0	0	0	0	0
2/96-1/97	0	0	0	0	0	0	0	0	0	0
2/97-1/98	0	0	0	0	0	0	0	0	0	0
2/98-1/99	0	0	0	0	0	0	0	0	0	0
2/99-1/00	75,200,873	90,059,436	100,912,427	109,486,363	115,848,096	120,187,414				
2/00-1/01	71,384,912	88,432,334	97,351,469	102,016,362	104,712,638					
2/01-1/02	82,626,918	100,990,563	107,850,140	114,019,998						
2/02-1/03	86,723,140	101,434,110	109,735,237							
2/03-1/04	88,194,204	104,765,903								
2/04-1/05	97,105,237									

Link Ratios	1:2	2:3	3:4	4:5	5:6	6:7	7:8	8:9	9:10
2/91-1/92									
2/92-1/93									
2/93-1/94									
2/94-1/95									
2/95-1/96									
2/96-1/97									
2/97-1/98									
2/98-1/99									
2/99-1/00	1.198	1.121	1.085	1.058	1.037				
2/00-1/01	1.239	1.101	1.048	1.026					
2/01-1/02	1.222	1.068	1.057						
2/02-1/03	1.170	1.082							
2/03-1/04	1.188								

AVERAGE DEV.	1:2	2:3	3:4	4:5	5:6	6:7	7:8	8:9	9:10
2 Year Averages	1.179	1.075	1.053	1.042					
3 Year Averages	1.193	1.084	1.063						
4 Year Averages	1.205	1.093							
5 Year Averages	1.203								
5 Yr Ex-Hi Lo Avgs	1.203								

AVG DEV. TO 5TH	1:5	2:5	3:5	4:5	5th:Ult
2 Year Averages	1.390	1.179	1.097	1.042	1.647
3 Year Averages					
4 Year Averages					
5 Year Averages					
5 Yr Ex-Hi Lo Avgs					

AVG DEV. TO ULT.	1:U	2:U	3:U	4:U	5:U
2 Year Averages	2.291	1.943	1.807	1.716	1.647
3 Year Averages					
4 Year Averages					
5 Year Averages					
5 Yr Ex-Hi Lo Avgs					

Averaging Method  
(Use '6' for 5 Yr Ex-HiLo)

2	2	2	2	2	2	2	2	2	2
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Selected Average Development	1:2	2:3	3:4	4:5	5th:Ult
	1.179	1.075	1.053	1.042	1.647

**LIMITED MEDICAL LOSS  
DEVELOPMENT  
Not-Likely**

Test State

04/01/08

Exhibit 23e

1st Report Start: 2/1/2004  
1st Report End: 1/31/2005

PY Data	1st Report	2nd Report	3rd Report	4th Report	5th Report	6th Report	7th Report	8th Report	9th Report	10th Report
2/91-1/92	0	0	0	0	0	0	0	0	0	0
2/92-1/93	0	0	0	0	0	0	0	0	0	0
2/93-1/94	0	0	0	0	0	0	0	0	0	0
2/94-1/95	0	0	0	0	0	0	0	0	0	0
2/95-1/96	0	0	0	0	0	0	0	0	0	0
2/96-1/97	0	0	0	0	0	0	0	0	0	0
2/97-1/98	0	0	0	0	0	0	0	0	0	0
2/98-1/99	0	0	0	0	0	0	0	0	0	0
2/99-1/00	153,833,071	168,754,862	175,377,809	179,794,298	181,687,652	185,095,079				
2/00-1/01	161,733,484	171,565,896	177,139,040	179,298,295	181,208,310					
2/01-1/02	172,959,433	185,061,442	188,700,978	189,239,144						
2/02-1/03	184,611,262	192,918,145	195,760,677							
2/03-1/04	181,237,908	188,403,055								
2/04-1/05	193,744,461									

Link Ratios	1:2	2:3	3:4	4:5	5:6	6:7	7:8	8:9	9:10
2/91-1/92									
2/92-1/93									
2/93-1/94									
2/94-1/95									
2/95-1/96									
2/96-1/97									
2/97-1/98									
2/98-1/99									
2/99-1/00	1.097	1.039	1.025	1.011	1.019				
2/00-1/01	1.061	1.032	1.012	1.011					
2/01-1/02	1.070	1.020	1.003						
2/02-1/03	1.045	1.015							
2/03-1/04	1.040								

AVERAGE DEV.	1:2	2:3	3:4	4:5	5:6	6:7	7:8	8:9	9:10
2 Year Averages	1.043	1.018	1.008	1.011					
3 Year Averages	1.052	1.022	1.013						
4 Year Averages	1.054	1.027							
5 Year Averages	1.063								
5 Yr Ex-Hi Lo Avgs	1.059								

AVG DEV. TO 5TH	1:5	2:5	3:5	4:5	5th:Ult
2 Year Averages	1.082	1.037	1.019	1.011	1.138
3 Year Averages					
4 Year Averages					
5 Year Averages					
5 Yr Ex-Hi Lo Avgs					

AVG DEV. TO ULT.	1:U	2:U	3:U	4:U	5:U
2 Year Averages	1.232	1.181	1.160	1.151	1.138
3 Year Averages					
4 Year Averages					
5 Year Averages					
5 Yr Ex-Hi Lo Avgs					

Averaging Method  
(Use '6' for 5 Yr Ex-HiLo)

2	2	2	2	2	2	2	2	2	2
---	---	---	---	---	---	---	---	---	---

Selected Average Development	1:2	2:3	3:4	4:5	5th:Ult
	1.043	1.018	1.008	1.011	1.138

**LIKELY DEVELOPMENT  
TO ULTIMATE**

Test State

Exhibit 23f

04/01/08

**Limited Medical - Combined**  
(using 2-year average development)

	(1) Limited Incurred Losses	(2) Development 1:5	(3) Amendment Factor	(4) Modified Losses (1)x((2)x(3))
<b>FIRST REPORT 2/04-1/05</b>				
Fatal-Likely	0	1.390	1.000	0
Fatal-Not Likely	1,434,476	1.082	1.000	1,552,103
Permanent Total	7,075,471	1.390	1.000	9,834,905
Perm. Partial-Likely	53,804,199	1.390	1.000	74,787,837
Perm. Partial-Not Likely	66,844,773	1.082	1.000	72,326,044
Temp. Total-Likely	36,225,567	1.390	1.000	50,353,538
Temp. Total-Not Likely	68,052,815	1.082	1.000	73,633,146
Medical Only	57,388,896	1.082	1.000	62,094,785
Contract Medical	23,501	1.082	1.000	25,428

	(5) Limited Incurred Losses	(6) Development 2:5	(7) Amendment Factor	(8) Modified Losses (5)x((6)x(7))
<b>SECOND REPORT 2/03-1/04</b>				
Fatal-Likely	225,002	1.179	1.000	265,277
Fatal-Not Likely	660,108	1.037	1.000	684,532
Permanent Total	10,473,697	1.179	1.000	12,348,489
Perm. Partial-Likely	66,975,353	1.179	1.000	78,963,941
Perm. Partial-Not Likely	67,728,416	1.037	1.000	70,234,367
Temp. Total-Likely	27,091,851	1.179	1.000	31,941,292
Temp. Total-Not Likely	62,029,074	1.037	1.000	64,324,150
Medical Only	57,984,300	1.037	1.000	60,129,719
Contract Medical	1,157	1.037	1.000	1,200

**CALCULATION OF LIKELY 5TH-TO-ULTIMATE**

(9) Combined Likely Losses	258,495,279
(10) Combined Not-Likely Losses	405,005,474
(11) Combined Total Losses	663,500,753
(12) Financial Data 5th-to-Ultimate Development Factors	1.336
(13) 5th-to-Ultimate Loss Development (13) = {(12)-1}x(11)	222,936,253
(14) % of Loss Development attributable to Not-Likely Losses at 5th rpt	0.250
(15) 5th-to-Ultimate Likely Loss Development Factors (15) = {(9)+ [1-(14)]x(13)}/(9)	1.647
(16) 5th-to-Ultimate Not-Likely Loss Development Factors (16) = {(10)+ (14)x(13)}/(10)	1.138

Appendix B  
New Class Ratemaking: Indicated Pure Premiums  
NCCI State

Exhibit 1

**Step 1: Start with 5 policy periods of Limited Losses and Payroll (00's)**

Class Code 1234

Hazard Group C

IG: Goods & Services

Current Loss Cost = 4.00

PY	Report	Payroll	Actual Limited Losses
1/00 thru 12/00	5	50,000,000	800,000
1/01 thru 12/01	4	53,200,000	690,000
1/02 thru 12/02	3	57,700,000	750,000
1/03 thru 12/03	2	61,000,000	730,000
1/04 thru 12/04	1	64,995,000	700,000

Notes:

- a) The losses for each policy period are comprised of finer subcategories (see Step 2)
- b) Individual claims are limited at \$500,000.
- c) The loss cost in this NCCI state includes loss adjustment expense (LAE).

Appendix B  
New Class Ratemaking: Indicated Pure Premiums  
NCCI State

Exhibit 2

**Step 2: Adjust Limited Losses to Midpoint of Proposed Effective Date**

Use Primary Conversion Factors (PCF varies by report)

Class	HG	Report	Actual Limited Losses	Dev't Group	LDF	Other PCF	Adjusted Limited Losses
1234	C	5	75,000	Fatal-L	1.400	0.95	99,750
1234	C	5	45,000	Fatal-N	1.100	0.95	47,025
1234	C	5	200,000	Permanent Total	1.400	0.99	277,200
1234	C	5	40,000	Permanent Partial-L	1.400	1.01	56,560
1234	C	5	20,000	Permanent Partial-N	1.100	1.01	22,220
1234	C	5	10,000	Temporary Total-L	1.400	0.94	13,160
1234	C	5	9,000	Temporary Total-N	1.100	0.94	9,306
1234	C	5	360,000	Medical-L	1.750	1.15	724,500
1234	C	5	41,000	Medical-N	1.250	1.15	58,938
			800,000				
1234	C	4	40,000	Fatal-L	1.480	0.96	56,832
1234	C	4	30,000	Fatal-N	1.125	0.96	32,400
1234	C	4	170,000	Permanent Total	1.480	0.98	246,568
1234	C	4	40,000	Permanent Partial-L	1.125	1.02	45,900
1234	C	4	45,000	Permanent Partial-N	1.125	1.02	51,638
1234	C	4	40,000	Temporary Total-L	1.480	0.94	55,648
1234	C	4	27,000	Temporary Total-N	1.125	0.94	28,553
1234	C	4	222,000	Medical-L	1.900	1.15	485,070
1234	C	4	76,000	Medical-N	1.300	1.15	113,620
			690,000				
1234	C	3	5,000	Fatal-L	1.550	0.97	7,518
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.

Notes:

- a) The LDF is shown separately from the PCF for illustrative purposes only, and will be included in the PCF.
- b) The Other PCF includes the LR trend to proposed level midpoint and benefit on-level factors.
- c) Adjusted Limited Losses = Actual Limited Losses \* LDF \* Other PCF
- d) The medical has similar injury type components plus medical only and contract medical, and is condensed simply for illustrative purposes.

Appendix B

Exhibit 3

New Class Ratemaking: Indicated Pure Premiums  
NCCI State

**Step 3: Compute Expected Excess Losses @\$500,000**

Use State Adjusted Per Claim Excess Ratios (vary by hazard group)

Class	HG	Report	Dev't Group	Adjusted Limited Losses	XS Ratio	XS Factor	Unadjusted XS Losses
1234	C	5	Fatal-L	99,750	0.194	1.241	24,009
1234	C	5	Fatal-N	47,025	0.194	1.241	11,319
1234	C	5	Permanent Total	277,200	0.194	1.241	66,721
1234	C	5	Permanent Partial-L	56,560	0.194	1.241	13,614
1234	C	5	Permanent Partial-N	22,220	0.194	1.241	5,348
1234	C	5	Temporary Total-L	13,160	0.194	1.241	3,168
1234	C	5	Temporary Total-N	9,306	0.194	1.241	2,240
1234	C	5	Medical-L	724,500	0.194	1.241	174,383
1234	C	5	Medical-N	58,938	0.194	1.241	14,186
1234	C	4	Fatal-L	56,832	0.194	1.241	13,679
1234	C	4	Fatal-N	32,400	0.194	1.241	7,799
1234	C	4	Permanent Total	246,568	0.194	1.241	59,348
1234	C	4	Permanent Partial-L	45,900	0.194	1.241	11,048
1234	C	4	Permanent Partial-N	51,638	0.194	1.241	12,429
1234	C	4	Temporary Total-L	55,648	0.194	1.241	13,394
1234	C	4	Temporary Total-N	28,553	0.194	1.241	6,872
1234	C	4	Medical-L	485,070	0.194	1.241	116,754
1234	C	4	Medical-N	113,620	0.194	1.241	27,348
1234	C	3	Fatal-L	7,518	0.194	1.241	1,809
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Notes:

- a) The adjusted per claim excess ratio (XS ratio) is indemnity and medical combined.
- b) The XS Factor =  $[ 1.0 / (1.0 - XS Ratio) ]$
- c) Unadjusted XS Losses =  $(XS factor - 1.0) * Adjusted Limited Losses$
- d) The medical has similar injury type components plus medical only and contract medical, and is

**Appendix B**  
**New Class Ratemaking: Indicated Pure Premiums**  
**NCCI State**

**Step 4: Transfer 40% of Expected Excess Losses from Indemnity to Medical**

Class	HG	Report	Unadjusted XS Losses	Dev't Group	Adjusted XS Losses
			Indemnity	Indemnity	Indemnity
1234	C	5	107,511	Likely	64,507
1234	C	5	18,907	Not Likely	11,344
Total	C	5	126,418	Total	75,851
			Medical	Medical	Medical
1234	C	5	174,383	Likely	217,388
1234	C	5	14,186	Not Likely	21,749
Total	C	5	188,569	Total	239,137
			314,987		314,987
			Indemnity	Indemnity	Indemnity
1234	C	4	97,469	Likely	58,481
1234	C	4	27,100	Not Likely	16,260
Total	C	4	124,569	Total	74,741
			Medical	Medical	Medical
1234	C	4	116,754	Likely	155,741
1234	C	4	27,348	Not Likely	38,188
Total	C	4	144,102	Total	193,929
			268,670		268,670
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

Notes:

- a) The indemnity adjusted XS losses = .60 \* unadjusted XS losses for indemnity (see exception in (c) ).
- b) The medical adjusted XS losses = unadjusted med. XS loss + 40% unadjusted indemnity XS loss (exception in (c) )
- c) If the unadjusted medical XS losses = \$0 (for L or NL), transfer \$0 excess to medical (L or NL).
- d) At each report for each class code, adjusted XS loss = unadjusted XS loss for indemnity and medical combined.
- e) Adjusted XS loss is allocated to all remaining non-zero injury type/dev't group combinations based on its share of adjusted losses at each report.

Appendix B  
 New Class Ratemaking: Indicated Pure Premiums  
 NCCI State

Exhibit 5

**Step 5: Combine Adjusted Limited Losses with Adjusted XS Losses**  
 Then Apply Secondary Conversion Factors (SCF vary by report)

Class	Report	Dev't Group	Adjusted Limited Losses	Adjusted XS Losses	SCF	Expected Unlimited Losses
1234	5	Fatal-L	99,750	14,406	1.220	139,270
1234	5	Fatal-N	47,025	6,791	1.220	65,656
1234	5	Permanent Total	277,200	40,032	1.220	387,023
1234	5	Permanent Partial-L	56,560	8,168	1.220	78,968
1234	5	Permanent Partial-N	22,220	3,209	1.220	31,023
1234	5	Temporary Total-L	13,160	1,901	1.220	18,374
1234	5	Temporary Total-N	9,306	1,344	1.220	12,993
1234	5	Medical-L	724,500	217,388	1.220	1,149,103
1234	5	Medical-N	58,938	21,749	1.220	98,437
				314,987		
1234	4	Fatal-L	56,832	8,207	1.180	76,747
1234	4	Fatal-N	32,400	4,679	1.180	43,753
1234	4	Permanent Total	246,568	35,609	1.180	332,968
1234	4	Permanent Partial-L	45,900	6,629	1.180	61,984
1234	4	Permanent Partial-N	51,638	7,457	1.180	69,732
1234	4	Temporary Total-L	55,648	8,037	1.180	75,148
1234	4	Temporary Total-N	28,553	4,123	1.180	38,558
1234	4	Medical-L	485,070	155,741	1.180	756,157
1234	4	Medical-N	113,620	38,188	1.180	179,133
				268,670		
.	.	.	.	.	.	.
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.	.	.	.	.	.	.

Notes:

- a) The medical is condensed for illustrative purposes, but has similar injury type components plus medical only and contract medical.
- b) The SCF includes: the aggregate statewide loss cost change, the factor to adjust for proposed IG differential, proposed loss-based expense the balancing of indicated to expected losses, and misc. premium adjustments (a few states).
- c) Secondary conversion factors vary by report and industry group.
- d) Expected Unlimited Losses = (Adjusted Limited Losses + Adjusted XS Losses) \* SCF

Appendix B  
New Class Ratemaking: Indicated Pure Premiums  
NCCI State

Exhibit 6

**Step 6: Organize Expected Unlimited Losses (a.k.a. Converted Losses) into Indemnity and Medical Components**  
Compute Indicated Pure Premiums

CLASS 1234		Class Code Description							
Industry Group: Goods and Services Hazard Group C		CONVERTED LOSSES							
POLICY PERIOD	PAYROLL	INDEMNITY LIKELY		INDEMNITY NOT-LIKELY		MED LIKELY	MED NOT-LIKELY	TOTAL	TOTAL
		CASES	AMOUNT	CASES	AMOUNT	AMOUNT	AMOUNT	AMOUNT	PURE PREM.
1/00 thru 12/00	50,000,000	19	623,636	40	109,672	1,149,103	98,437	1,980,848	3.96
1/01 thru 12/01	53,200,000	17	546,847	50	152,043	756,157	179,133	1,634,180	3.07
1/02 thru 12/02	57,700,000	20	500,000	65	400,000	800,000	700,000	2,400,000	4.16
1/03 thru 12/03	61,000,000	18	310,000	57	300,000	1,150,000	850,000	2,610,000	4.28
1/04 thru 12/04	64,995,000	12	300,000	60	450,000	720,000	1,100,000	2,570,000	3.95
5 YR. TOTAL	286,895,000	86	2,280,482	272	1,411,715	4,575,261	2,927,570	11,195,028	3.90
		INDEMNITY				MEDICAL			
		CRED.	PURE PREM.*	CRED.	PURE PREM.*			PURE PREM.*	
Indicated Pure Premium		66%	1.287	77%	2.615			3.90	

Notes:

- a) The indemnity and medical components replace the former serious, non-serious, and medical partial pure premiums.
- b) Indemnity and Medical credibilities are derived in Step 7.

Appendix B  
New Class Ratemaking: Indicated Pure Premiums  
NCCI State

Exhibit 7

**Step 7: Derive Expected Losses for Class 1234 for the Indemnity and Medical Components**  
Compute Credibility for each Component

**Background:**

Credibility Formula used for all classes		Full Credibility Standards (all classes)
$Z = [N / N_f]^{0.4}$		$N_f$ : 850 Indemnity
		$N_f$ : 400 Medical
*Pure premium underlying current loss cost for 1234 =		1.70 Indemnity
*Pure premium underlying current loss cost for 1234 =		2.10 Medical
* Adjusted to proposed level via changes in trend, benefits, and experience.		
Average Cost per Case for NCCI state: SACC =		\$16,000 Indemnity
		SACC = \$28,500 Medical

Expected Losses for class code 1234= (5 years payroll in '00s ) x Underlying PP

<sup>c)</sup> Full Credibility Standard (all classes) expected losses =  $N_f \times \text{SACC}$

**Calculations:**

Indemnity					
N= Expected Losses for class code 1234=			2,868,950	X	1.70
N= Expected Losses for class code 1234=			4,877,215		
Medical					
N=Expected Losses for class code 1234=			2,868,950	X	2.10
N=Expected Losses for class code 1234=			6,024,795		
<sup>c)</sup> Indemnity $N_f$	=	16,000	X	850	= 13,600,000
<sup>c)</sup> Medical $N_f$	=	28,500	X	400	= 11,400,000
Indemnity Z	=	66.35%			
Medical Z	=	77.48%			

**Notes:**

- a) Credibility is rounded to nearest whole number percentage.
- b) The SACC for medical includes all medical loss dollars (i.e. incl. med.-only dollars) divided by lost-time claims.
- c) The Full Credibility Standard is also adjusted by a statewide balancing factor of 5 years of indicated-to-expected losses. This calculation assumes that the statewide balancing factor is unity for this state.

Appendix B  
New Class Ratemaking: National Pure Premiums  
NCCI State

**Step 8: Derive National Pure Premiums for Class 1234 \***

1. Compute a payroll-weighted average of the new revision indicated pure premiums across all classes in the reviewed state using reviewed states' payroll (5 years).
2. Compute Step 1 for indemnity and medical separately.
3. For all other NCCI states, compute a payroll-weighted average of derived-by-formula pure premiums (3 years) for each state using all classes in common with the reviewed state.
4. Compute Step 3 using the reviewed state payroll (5 years) for indemnity and medical separately.
5. Compute adjustment factor k for each state for indemnity and medical:  $k = (\text{step 2} / \text{step 4})$ .
6. Adjust each state's losses by class code (3 years) to reviewed state level by multiplying by k.
7. Compute national pure premiums  $n_c$  (for indemnity and medical separately) for each class code c.

$$n_c = \frac{\text{3 years other states' losses (adjusted to reviewed state level)}}{\text{3 years other states' payroll (in 00's) for class c}}$$

Final adjustment: balance the national pure premiums to the indicated pure premiums in the reviewed state.

8. For each industry group (IG), compute the total indicated pure premium. Do this by extending 5 years of reviewed state payroll by the reviewed state indicated pure premiums.
9. For each industry group (IG), compute the total adjusted unbalanced national pure premium. Do this by extending 5 years of reviewed state payroll by the adjusted unbalanced national pure premiums.
10. Compute balancing factor  $B_{IG}$  for each IG, where  $B_{IG} = (\text{step 8} / \text{step 9})$ .
11. Compute final balanced national pure premiums for reviewed state for each class c:  $N_c = B_{IG} \times n_c$

\* For a numerical illustration of the national pure premium calculation, refer to:  
Boor, J.A. , "The Complement of Credibility," PCAS LXXXIII, 1996, pp 14-18

Appendix B  
New Class Ratemaking: Present-On-Rate-Level Pure Premiums  
NCCI State

Exhibit 9

**Step 9: Derive Present-On-Rate-Level (PORL) Pure Premium for Class 1234**

Pure premium underlying current loss cost for 1234 = \$1.70 Indemnity  
 Pure premium underlying current loss cost for 1234 = \$2.10 Medical

Apply separate adjustment factors for the indemnity and medical components to adjust to the proposed level of the loss cost filing.

	<u>Indemnity</u>	<u>Medical</u>	<u>Total</u>
1. PP underlying current loss cost:	\$1.70	\$2.10	
<u>Adjustments:</u>			
2. Change in Proposed LR Trend:	0.990	1.010	
3. Proposed Change in Benefits:	1.005	0.980	
4. Proposed Change in LBE:	1.000	1.000	
5. Proposed Change in Off-Balance:	0.990	0.990	
6. Proposed SW Experience Change	1.010	1.010	
7. Adjusted IG Differential:	1.021	1.021	
8. Miscellaneous factors	1.000	1.000	
9. Product of Step 2. through Step 8.	1.016	1.010	
10. Present On-Rate-Level Pure Premium: (The Product of Step 1 and Step 9)	1.727	2.122	3.849

Notes:

- a) The PP underlying the current loss cost includes LAE (if any), the test correction factor, and applied swing limits
- b) The PP underlying the current loss cost excludes the manual to standard premium ratio.
- c) No loss development adjustment is necessary as the value is already at an ultimate level.
- d) All adjustments are for a one-year timespan
- e) Change in loss-based expenses (LBE) is change in LAE and change in any other Loss based assessments.
- f) Proposed change in off-balance is current M/E / proposed M/E for the IG where class 1234 resides.



Appendix B  
 New Class Ratemaking: Derived By Formula Pure Premiums  
 NCCI State

Exhibit 11

**Step 11: Apply Three-way Credibility Formula to the Indemnity and Medical Components**  
 Compute the Derived By Formula Pure Premium

CLASS 1234		Class Code Description							
Industry Group: Goods and Services Hazard Group C		CONVERTED LOSSES						TOTAL	
		INDEMNITY LIKELY		INDEMNITY NOT-LIKELY		MED LIKELY	MED NOT-LIKELY	AMOUNT	PURE PREM.
POLICY PERIOD	PAYROLL	CASES	AMOUNT	CASES	AMOUNT	AMOUNT	AMOUNT	AMOUNT	PURE PREM.
5	50,000,000	19	623,636	40	109,672	1,149,103	98,437	1,980,848	3.96
4	53,200,000	17	546,847	50	152,043	756,157	179,133	1,634,180	3.07
3	57,700,000	20	500,000	65	400,000	800,000	700,000	2,400,000	4.16
2	61,000,000	18	310,000	57	300,000	1,150,000	850,000	2,610,000	4.28
1	64,995,000	12	300,000	60	450,000	720,000	1,100,000	2,570,000	3.95
5 YR. TOTAL	286,895,000	86	2,280,482	272	1,411,715	4,575,261	2,927,570	11,195,028	3.90
		INDEMNITY				MEDICAL			TOTAL
		CRED.	PURE PREM.*		CRED.	PURE PREM.*		PURE PREM.*	
Indicated Pure Premium		66%	1.287		77%	2.615		3.90	
Pure Premium Indicated by National		17%	1.200		11%	2.800		4.00	
Pure Premium Present on Rate Level		17%	1.727		12%	2.122		3.85	
Pure Premium Derived by Formula			1.345			2.579		3.92	

Appendix B  
New Class Ratemaking: Final Loss Cost / Rate Calculation  
NCCI State

Exhibit 12

**Step 12: Compute the final proposed loss cost by adjusting pure premium derived by formula**

Current Loss Cost for Class 1234 = 4.00

	<u>Indemnity</u>	<u>Medical</u>	<u>Total</u>
1 Indicated Pure Premium	1.287	2.615	3.90
2 Pure Premium Indicated by National Relativity	1.200	2.800	4.00
3 Pure Premium Present on Rate Level	1.727	2.122	3.85
4 State Credibilities	66%	77%	xxx
5 National Credibilities	17%	11%	xxx
6 Residual Credibilities = 100% - (4) - (5)	17%	12%	xxx
7 Derived by Formula Pure Premiums = (1) x (4) + (2) x (5) + (3) x (6)	1.345	2.579	3.92
8 Test Correction Factor	0.9963	0.9963	xxx
9 Underlying Pure Premiums = (7) x (8) *	1.341	2.569	3.91
10 Ratio of Manual to Standard Premium			1.063
11 Target Cost Ratio (TCR)			1.00
12 Loss Cost = (9) x (10) / (11)			4.16
13 Loss Cost Within Swing Limits			4.16
Current Loss Cost x Swing Limits			
a) Lower bound = .75 x 4.00			
b) Upper bound = 1.25 x 4.00			
14 Pure Premiums Underlying Proposed Loss Cost* ((14TOT) / (9TOT)) x (9) ; (14TOT) = (13) x (11) / (10))	1.341	2.569	3.91
15 Disease, PAP, and/or Miscellaneous Loadings			0.00
16 Final Proposed Loss Cost			4.16

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

Notes:

- a) The swing limits are applied as +/- 25% change around the IG change in most states.
- b) The test correction factor is computed by IG to redistribute premium for classes exceeding swing limits.
- c) The TCR is the fraction of the adequate premium dollar accounting for losses and loss-based expenses.

Appendix B  
New Class Ratemaking: Derivation of Industry Group Differentials  
NCCI State

Exhibit 13

II. Derivation Of Industry Group Differentials

a) INDUSTRY GROUP WAGE TREND ADJUSTMENT

Industry Group	(1) Converted Indicated Indemnity Losses*	(2) Converted Indicated Medical Losses*	(3) Converted Indicated Total Losses*	(4) CPS Average Weekly Wage Trends**	(5) Wage Trend Differential	(6) Medical Loss Wage Trend Adjustments	(7) Normalized Medical Loss Wage Trend Adjustments
I	321,604,662	247,834,851	569,439,513	1.130	0.979	0.991	0.990
II	542,740,889	488,814,443	1,031,555,332	1.100	1.005	1.002	1.001
III	242,098,488	248,912,602	491,011,090	1.099	1.006	1.003	1.002
IV	488,290,147	467,545,456	955,835,603	1.091	1.014	1.007	1.006
V	361,406,704	241,602,904	603,009,608	1.123	0.985	0.994	0.993
VI	0	0	0	0.000	1.000	1.000	0.999
ALL	1,956,140,889	1,694,710,257	3,650,851,146	1.106		1.001	1.000

\* These expected unlimited losses are at ultimate, on-level, include the proposed experience and loss based expense changes and any miscellaneous premium adjustments (excludes trend).  
\*\* These CPS average weekly wage trends were fit to CPS average weekly wages based on the \$150k payroll cap.

b) EXPECTED LOSSES

Industry Group	(8) Latest Year CURRENT Manual Pure Premium*	(9) Five Year CURRENT Manual Pure Premium*	(10) Five Year PROPOSED Manual Pure Premium*	(11) Current Ratio of Manual to Standard Premium	(12) Proposed Ratio of Manual to Standard Premium	(13) Latest Year CURRENT Expected Losses** (8) x (11) / (12)	(14) Five Year CURRENT Expected Losses** (9) x (11) / (12)	(15) Five Year PROPOSED Expected Losses** (10) x (11) / (12)	(16) Current / Proposed (9) / (10)	(17) Adjustment to Proposed for Current Ratelivities (16) / 0.975
I	119,092,461	559,793,421	574,558,035	1.088	1.072	120,869,960	568,148,546	583,133,528	0.974	0.999
II	240,949,465	1,051,366,791	1,076,899,697	1.096	1.077	245,200,198	1,069,914,580	1,095,897,928	0.976	1.001
III	104,805,551	464,202,966	476,975,093	1.109	1.086	107,025,190	474,034,153	487,076,776	0.973	0.998
IV	240,216,710	1,035,955,411	1,065,551,933	1.052	1.063	237,730,930	1,025,235,271	1,054,525,525	0.972	0.997
V	145,206,659	614,567,457	627,887,892	1.092	1.089	145,606,677	616,260,480	629,617,611	0.979	1.004
VI	0	0	0	1.000	1.000	0	0	0	0.000	0.000
ALL	850,270,846	3,725,886,046	3,821,872,651			856,432,955	3,753,593,030	3,850,251,368	0.975	1.000

\* The CURRENT pure premiums are payroll extended underlying pure premiums. The PROPOSED pure premiums are adjusted to include the proposed experience, trend, benefit and loss based expense changes as well as any miscellaneous premium adjustments.  
\*\* The CURRENT expected losses are payroll extended underlying pure premium adjusted by the change in off-balance by industry group. The PROPOSED pure premiums are further adjusted to include the proposed experience, trend, benefit and loss based expense changes as well as any miscellaneous premium adjustments.

c) INDUSTRY GROUP DIFFERENTIALS

Industry Group	(18) Converted Indicated Balanced Losses*	(19) Five Year Ind to Exp Ratios (w/o Wage Trend) (18) / [(15) x (17)]	(20) Indicated Differentials (w/o Wage Trend) (19) / 0.818	(21) Five Year Ind to Exp Ratios (w/ Wage Trend) (19) x (7)	(22) Lost-Time Cases	(23) Full Standard for Credibility Lost-Time Cases	(24) Credibility Minimum of 1.00 and [(23) / (24)] ^ 0.50	(25) Credibility Weighted Ind to Exp Ratios (25) x (21) + [1 - (25) x (21) Total	(26) Normalized Credibility Weighted Ind to Exp Ratios (aka IG Differentials)	(27) Final Industry Group Differentials
I	478,573,006	0.822	1.005	0.814	12,088	12,000	1.00	0.814	0.996	0.996
II	877,674,956	0.800	0.978	0.801	15,366	12,000	1.00	0.801	0.980	0.980
III	424,625,861	0.874	1.068	0.876	9,648	12,000	0.90	0.870	1.065	1.065
IV	869,514,555	0.827	1.011	0.832	27,209	12,000	1.00	0.832	1.018	1.018
V	497,494,959	0.787	0.962	0.781	10,494	12,000	0.94	0.783	0.958	0.958
VI	0	1.000	1.000	1.000	0	12,000	0.00	1.000	1.000	1.000
ALL	3,147,883,337	0.818		0.817				0.817		1.000

\* These expected unlimited losses are at ultimate, on-level, trended, and include the proposed experience and loss based expense changes as well as any miscellaneous premium adjustments. These losses have also been balanced to the proposed level via the balancing factors.

COMMONWEALTH OF MASSACHUSETTS  
DIVISION OF INSURANCE

Docket No. 12-

*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 SEPTEMBER 1, 2012

**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 September 1, 2012.

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 Actuary at the WCRIBMA. My educational background includes a Bachelors degree in Biology from College of the Holy Cross. I am a Fellow of the Casualty Actuarial Society. 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 dealt with 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).

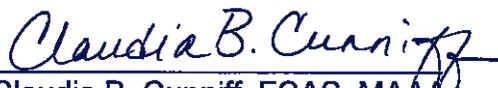
Q. Have you explained the basis of your derivation of each of the ratemaking factors that you are sponsoring in the text and accompanying exhibits found in the WCRIBMA's filing?

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 27th day of February 2012 under the pains and penalties of perjury.

  
Claudia B. Cunniff, FCAS, MAAA

**Claudia B. Cunniff, FCAS, MAAA**

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

**PROFESSIONAL EXPERIENCE:**

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

2/00 – present

**Vice President and Actuary**

8/01 – 9/03

**Actuary**

10/03 – present

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:**

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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. 12-

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*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 SEPTEMBER 1, 2012

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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 September 1, 2012.

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 working as an actuary on 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 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 with our two outside consulting experts, David Appel and Tom Daley, in putting the filing together. 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 (Miscellaneous Rating Values), XII (Retrospective Rating), XIII (Data) and XIV (Cost Containment). I also sponsor Section VII (Profit), to the extent that it is not sponsored by Dr. Appel. To the best of my knowledge, information and belief, the data and calculations underlying the filing are complete and accurate, and the narrative statements offered in support of the filing 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 19.3% for workers' compensation, effective September 1, 2011.

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 fall within a range of reasonableness. Accordingly, I recommend that the Commissioner approve the WCRIBMA's filing.

Q. Has the WCRIBMA explained in the text and accompanying exhibits found in the 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 this section of the filing. I reviewed the cost containment surveys for the ten participating companies and contacted them about any questions the WCRIBMA had. I also reviewed all additional supporting material that was submitted by the companies and included it in the filing.

In addition to compiling these ten survey responses, I also obtained updated data and information from the Fraud Bureau of Massachusetts, which 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 we submit in our 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 we have submitted this year should lead the Commissioner to make the same finding that was made in the decision on 9/1/99 rates: that "there are acceptable 'cost control programs and techniques' presently in place which satisfy the statutory requirements."

Signed this 28 day of February 2012 under the pains and penalties of perjury.

  
Robert McCarthy, FCAS, CFA, MAAA

# Robert McCarthy, FCAS, CFA

101 Arch St ♦ Boston, MA 02110

E-mail: [rmccarthy@wcribma.org](mailto:rmccarthy@wcribma.org)

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## PROFESSIONAL EXPERIENCE

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WCRIBMA, Boston, MA

(Mar 2004 – Current)

Vice President & Actuary responsible for the management of the Actuarial and Financial Aggregate Services departments. Manage the process of the preparation of the workers' compensation rate filing 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.

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## EDUCATION

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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. 11-**

***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 SEPTEMBER 1, 2012**

**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 September 1, 2012.

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).

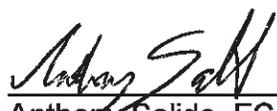
Q. Have you explained the basis of your derivation of each of the ratemaking factors in the text and accompanying exhibits found in Sections VIII (F-Class), IX (Classification), and X (Experience Rating)?

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 29<sup>th</sup> day of February, 2012 under the pains and penalties of perjury.

  
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Anthony Salido, FCAS, MAAA

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

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**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

## **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 19.3% for policies effective on and after September 1, 2012. The rates for workers' compensation insurance were most recently revised two years ago, when a rate decrease of 2.4% took effect on September 1, 2010. If the WCRIBMA's filing is approved, the cumulative rate decrease since 1991 – when the most recent reform legislation was enacted – would still be more than 58%.

The WCRIBMA and its member carriers acknowledge that they are seeking a significant increase in average rates. The industry recognizes that employers would rather have predictable, incremental changes in the rates they pay for workers' compensation insurance over time, rather than abrupt increases after years of artificially stabilized rates. The insurance industry wants this, too. However, the modest rate increases the WCIBMA sought in 2008 (2.3%), 2010 (4.5%) and 2011 (6.6%) led to either rate decreases or no rate change at all. In fact, rates have not increased since 2001, when an increase of only 1% took effect. Our inability to obtain any rate relief in recent years has unfortunately made a large increase necessary this year.

There are three main drivers of the proposed rate increase. First: the actual experience of insurers writing workers' compensation coverage in Massachusetts has continued to deteriorate. Reported losses, both before and after development, are higher than they were last year. Second: for the first time in seven years, the predicted

net trend in loss ratios (which takes account of changes in claim frequency and claim severity relative to changes in wage levels) is positive, reflecting reasonable expectations that the costs of claims will rise faster than wages. Third: workers' compensation insurers have less opportunity than they have had in the past to offset underwriting losses with investment income. Current yields on U.S. Treasury securities remain at historically low levels that have not been experienced for the past 50 years.

For purposes of calculating the overall rate indication for 2012 rates, the WCRIBMA's filing follows essentially the same approach we have used each year since making our filing for 2005 rates. Methodological consistency over time contributes to unbiased rates. By reflecting actual experience in the same way each year, a consistent methodology will self-correct over time for the inevitable deviations between actuarial projections, which must be the basis for prospective rate filings, and actual experience, once known. A rate that may turn out, in retrospect, to be "too low" or "too high" in one year will tend to be balanced out by compensating deviations in future years as accumulating experience is reflected in the rates.

With respect to class ratemaking, the WCRIBMA is using a new method that we introduced in last year's filing. The WCRIBMA's method closely mirrors the methodology developed by the National Council on Compensation Insurance ("NCCI") and approved by state insurance regulators for use in loss cost and rate filings in 36 of the 37 NCCI states and the District of Columbia since 2009.<sup>1</sup>

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<sup>1</sup> The remaining 12 states include four states with monopolistic state funds (North Dakota, Ohio, Washington and Wyoming) and two states (Michigan, an independent bureau state, and Texas, an NCCI state) that do not have the data necessary to adopt NCCI's new method.

In making its rate filings, the WCRIBMA must rely on the experience reported by the insurance industry in Massachusetts. Over the past several years, on its own initiative and in response to concerns raised by the Division of Insurance, the WCRIBMA has intensified its efforts to ensure that the data collected from its members are sufficiently reliable for use in ratemaking. The WCRIBMA uses two major types of data reported by its member insurers to compile the industry's actual loss experience in the Massachusetts market: "Aggregate Financial" data and "Unit Statistical Plan" (or "Schedule Z") data. An enormous number of insurance transactions are captured in these two databases. The WCRIBMA uses a comprehensive set of editing techniques, including those approved by the Commissioner of Insurance ("Commissioner") in 2006, to verify the reliability of these data. These techniques continue to improve as additional edits and reconciliations are added to the editing process. Many WCRIBMA members have responded to the increased scrutiny of their reported data by improving their understanding of and compliance with the Massachusetts Workers' Compensation Statistical Plan.

In reviewing our filing, the Commissioner should be mindful of the environment in which our member carriers operate today. Massachusetts provides some of the highest benefits to injured workers, but now has some of the lowest workers' compensation insurance rates in the country. Low yields persist on fixed income securities, the primary investment vehicle for insurance carriers. The costs of medical care (especially pharmaceutical costs) continue to rise, and the effectiveness of "return to work" programs continues to be hampered by the economic downturn. The Massachusetts

Residual Market, one of the largest in the country, is growing and now provides workers' compensation coverage to one in four employers in Massachusetts. The Residual Market is the third largest provider of workers' compensation coverage in the state.

The WCRIBMA urges the Commissioner to approve its rate filing, which calls for a 19.3% increase in average rates, to ensure that rates are adequate and to encourage a robust, competitive market for workers' compensation insurance in Massachusetts.

### **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 deals with 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, David Appel of Milliman, Inc. and Thomas Daley of NCCI is included with this 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. In preparing this filing, the WCRIBMA has continued the efforts it began several years ago to simplify its filings and the methods it uses to make rates and to avoid unnecessary complexity and needless change.

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 2008 data and the other from policy year 2009 data. Policy year 2008 data consist of premium and loss experience generated by policies written during 2008. Policy year 2009 data consist of premium and loss experience generated by policies written during 2009. 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 they 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 9/1/12-8/31/13). 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 is an integrated series of adjustments to 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.

**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 2008 and policy year 2009 losses have not yet all been settled, the WCRIBMA looks at past settlement patterns to estimate ultimate values. Workers' compensation payments may reflect claims for either (or both) medical and indemnity (wage loss and survivor) 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. In this filing the WCRIBMA again uses aggregate industry losses as the source of loss development factors.

Next, losses are adjusted to current benefit levels, and 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 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.

### **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**

The underwriting profit provision is calculated in Section VII using an internal rate of return (“IRR”) 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. To implement the IRR model, the WCRIBMA first determines the cost of capital (or target rate of return) for workers’ compensation insurers. The cost of capital represents the rate of return required by investors who assume the risk of investment in the insurance industry. The WCRIBMA then uses the internal rate of return model to derive 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 considerable exposure to the benefits and risks that apply under the United States Longshore and Harbor Workers Act, known as the F-Classes.

### **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. In Section X, the WCRIBMA is recommending an update to the “Table of Weighting Values” and the “Table of Ballast Values” to reflect a higher average cost per claim. 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 recommended revisions to the Massachusetts Construction Classification Premium Adjustment Program. 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.

**Cost Containment**

The WCRIBMA’s cost containment filing once again includes the responses of ten representative carriers to a survey of cost containment practices. 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.

# I 000010

Section I - Rate Recommendation  
 Subsection A - Introduction  
 9/1/2012

Section I - A  
 Exhibit 1

## RATE INDICATION SUMMARY

<b>Statewide Rate Change Summary</b>		
<i>Indication Effective Date: 9/1/2012</i>		
(1)	Indicated Rate Change Based on Policy Year 2008 Data (Section I-B, Exhibit 1)	19.9%
(2)	Indicated Rate Change Based on Policy Year 2009 Data (Section I-B, Exhibit 1)	18.6%
(3)	Average Indicated Rate Change = [ (1) + (2) ] / 2.0	19.3%

<b>Expense Constants</b>		
	Current	Recommended
(4)	\$338	\$338
(5)	\$250	\$250
(6)	\$159	\$159
(7)	\$64	\$64

Calculation of Indicated Rate Change

	Policy Year <u>2008</u>	Policy Year <u>2009</u>
(1) Standard Earned Premium plus Adjusted ARAP Premium (Section III-A)	854,030,834	815,767,805
(2) Composite Adjustment Factor (Section III-A)	1.034	1.017
(3) Adjusted Standard Earned Premium plus Adjusted ARAP = [ (1) x (2) ]	882,976,202	829,743,679
(4) Cumulative Premium Development Factor to Ultimate (Section III-A)	1.001	0.998
(5) Rate On-Level Factor (Section III-D)	0.969	0.976
(6) Factor to Remove Expense Constant (Section VI-I, Page 2)	0.951	0.951
(7) Adjusted On-Level Standard Earned Premium plus Adjusted ARAP at Ultimate = [ (3) x (4) x (5) x (6) ]	814,908,041	768,865,362
(8) Annual Wage Trend (Section V-A)	0.020	0.020
(9) Wage Trend Factor to 9/1/2013 (based on Section V-A)	1.096	1.075
(10) Standard Earned Premium plus ARAP Projected to Prospective Effective Period = [ (7) x (9) ]	893,508,363	826,559,986
(11) Average Incurred Losses Projected to Prospective Effective Period (Section I-C Exhibit I, Page 1 Item (26), Page 2 Item (26))	624,151,792	566,377,355
(12) Loss Ratio Projected to Prospective Effective Period = [ (11) / (10) ]	0.699	0.685
(13) Factor to Remove the Large Deductible Contribution to the Residual Market Subsidy (Section I-D)	0.999	0.999
(14) Loss Adjustment Expense Factor (Section VI-K)	1.192	1.192
(15) Fixed Expense Ratio (Section VI-B)	0.057	0.064
(16) Indicated Policy Year Loss, LAE, and Fixed Expense Ratio = { [ (12) x (14) ] + (15) } x (13)	0.889	0.880
(17) Commission and Other Acquisition Expense Ratio (Section VI-J)	0.122	0.122
(18) Premium Tax Ratio (Section VI-A)	0.022	0.022
(19) Premium Discount Ratio (Section VI-H)	0.046	0.046
(20) Variable Expense Ratio = [ (17) + (18) + (19) ]	0.190	0.190
(21) Underwriting Profit Provision (Section VII-B)	0.068	0.068
(22) Permissible Loss, LAE, and Fixed Expense Ratio = [ 1.0 - (20) - (21) ]	0.742	0.742
(23) Indicated Rate Change = [ (16) / (22) ] - 1.0	<b>19.9%</b>	<b>18.6%</b>
(24) Overall Indicated Rate Change = [ (23) PY2008 + (23) PY2009 ] / 2.0		<b>19.3%</b>

Incurred Losses Projected to the Prospective Effective Period  
 Policy Year 2008

	<u>Paid Method</u>	<u>Paid + Case Method</u>
<b>Indemnity Losses</b>		
(1) Indemnity Losses at Latest Month - Industry Total (Section II-A)	194,481,320	271,101,949
(2) Indemnity Loss Development Factor to 252 Months (Section II-B)	1.720	1.206
(3) Tail Factor 252 Months to Ultimate (Section II-C)	1.041	1.013
(4) Factor to Adjust for Escalated Benefits (Section II-D)	1.033	1.008
(5) Estimated Ultimate Indemnity Loss = [ (1) x (2) x (3) x (4) ]	359,749,962	333,787,993
(6) Annual Indemnity Loss Trend (Section V-A)	0.020	0.020
(7) Indemnity Loss Trend Factor to 9/1/2013	1.098	1.098
(8) Estimated Indemnity Losses Trended = [ (5) x (7) ]	395,142,947	366,626,783
(9) Estimated Benefit Change Factor Prior to 1/1/2012 (Section IV-A)	1.013	1.013
(10) On Level Losses = [ (8) x (9) ]	400,423,097	371,525,883
(11) Estimated Benefit Change Factor Subsequent to 1/1/2012 (Section IV-A)	1.007	1.007
(12) Incurred Losses Projected to Prospective Effective Period = [ (10) x (11) ]	403,206,373	374,108,298
<b>Medical Losses</b>		
(13) Medical Losses at Latest Month - Industry Total (Section II-A)	137,725,514	178,115,994
(14) Medical Loss Development Factor to 252 Months (Section II-B)	1.281	1.110
(15) Tail Factor 252 Months to Ultimate (Section II-C)	1.104	1.077
(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) ]	194,703,543	212,789,424
(18) Annual Medical Loss Trend (Section V-A)	0.026	0.026
(19) Medical Loss Trend Factor to 9/1/2013	1.128	1.128
(20) Estimated Medical Losses Trended = [ (17) x (19) ]	219,688,869	240,095,620
(21) Estimated Benefit Change Factor Prior to 1/1/2012 (Section IV-A)	1.024	1.024
(22) On Level Losses = [ (20) x (21) ]	225,042,436	245,946,477
(23) Estimated Benefit Change Factor Subsequent to 1/1/2012 (Section IV-A)	1.000	1.000
(24) Incurred Losses Projected to Prospective Effective Period = [ (22) x (23) ]	225,042,436	245,946,477
<b>Total Combined Medical and Indemnity Losses</b>		
(25) Total Estimated Ultimate Losses Trended and On Level = [ (12) + (24) ]	628,248,809	620,054,775
(26) Average Incurred Losses Projected to Prospective Effective Period	624,151,792	

Incurred Losses Projected to the Prospective Effective Period  
 Policy Year 2009

	<u>Paid Method</u>	<u>Paid + Case Method</u>
<b>Indemnity Losses</b>		
(1) Indemnity Losses at Latest Month - Industry Total (Section II-A)	98,085,962	194,347,787
(2) Indemnity Loss Development Factor to 252 Months (Section II-B)	3.003	1.563
(3) Tail Factor 252 Months to Ultimate (Section II-C)	1.041	1.013
(4) Factor to Adjust for Escalated Benefits (Section II-D)	1.033	1.008
(5) Estimated Ultimate Indemnity Loss = [ (1) x (2) x (3) x (4) ]	316,868,297	310,159,260
(6) Annual Indemnity Loss Trend (Section V-A)	0.020	0.020
(7) Indemnity Loss Trend Factor to 9/1/2013	1.077	1.077
(8) Estimated Indemnity Losses Trended = [ (5) x (7) ]	341,116,555	333,894,110
(9) Estimated Benefit Change Factor Prior to 1/1/2012 (Section IV-A)	1.009	1.009
(10) On Level Losses = [ (8) x (9) ]	344,291,937	337,002,259
(11) Estimated Benefit Change Factor Subsequent to 1/1/2012 (Section IV-A)	1.007	1.007
(12) Incurred Losses Projected to Prospective Effective Period = [ (10) x (11) ]	346,685,053	339,344,707
<b>Medical Losses</b>		
(13) Medical Losses at Latest Month - Industry Total (Section II-A)	106,668,566	172,494,900
(14) Medical Loss Development Factor to 252 Months (Section II-B)	1.622	1.155
(15) Tail Factor 252 Months to Ultimate (Section II-C)	1.104	1.077
(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) ]	190,952,634	214,602,610
(18) Annual Medical Loss Trend (Section V-A)	0.026	0.026
(19) Medical Loss Trend Factor to 9/1/2013	1.100	1.100
(20) Estimated Medical Losses Trended = [ (17) x (19) ]	209,956,028	235,959,623
(21) Estimated Benefit Change Factor Prior to 1/1/2012 (Section IV-A)	1.002	1.002
(22) On Level Losses = [ (20) x (21) ]	210,337,080	236,387,870
(23) Estimated Benefit Change Factor Subsequent to 1/1/2012 (Section IV-A)	1.000	1.000
(24) Incurred Losses Projected to Prospective Effective Period = [ (22) x (23) ]	210,337,080	236,387,870
<b>Total Combined Medical and Indemnity Losses</b>		
(25) Total Estimated Ultimate Losses Trended and On Level = [ (12) + (24) ]	557,022,133	575,732,576
(26) Average Incurred Losses Projected to Prospective Effective Period	566,377,355	

## 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 voluntary market risks, excluding large deductibles, and residual markets risks. However, large deductible policies are subject to the assigned risk assessment. Consequently, the WCRIBMA must estimate the residual market subsidy that is 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 <b>no</b> 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 the Total Voluntary Assessable Premium
$d$	- $Q_{rm} / Q_{vol}$

Assuming no residual market subsidy paid by anyone other than  $w_{vol}$ :

# I 000015

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

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 follow:

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

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):

$$(12) Q_{oa-1} = 1.0 - (1 - u) w_{rm} (Q_{rm} - Q_{oa-1})$$

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

### Calculation of the “d”

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

Let's 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
- $V_{rm}$  - Residual Market Variable Expenses Ratio
- $P$  - Profit provision relative to the sum of Standard Premium plus ARAP

# I 000017

$w_{vol}$  - 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:

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

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

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

# I 000018

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. The resulting adjustment factor is **0.999**.

# I 000019

Section I - Rate Recommendation  
 Subsection D - Reflecting the Impact of Large Deductibles  
 9/1/2012

Section I - D  
 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	74.2%		
(2)	Fixed Expense Ratio	6.1%		
(3)	Permissible Loss and LAE Ratio = [ (1) - (2) ]	68.1%		
(4)	Loss Ratio Differential, r	1.166		
(5)	Market Weight - $w_x$		13%	87%
(6)	Implied Permissible Loss and LAE Ratio		0.777	0.666
(7)	Implied Permissible Loss, LAE, and Fixed Expense Ratio		0.837	0.727
(8)	Implied Permissible Loss, LAE, and Fixed Expense Ratio Differential	1.152		
(9)	Variable Expense Ratio	19.0%	11.6%	20.2%
(10)	Underwriting Profit Provision	6.82%		
(11)	Implied Rate Factor Equivalent		1.027	0.995
(12)	Implied Rate Differential, d	1.031		
(13)	Residual Market Rate equivalent, $Q_{rm}$	1.027		
(14)	Proportion of Total Voluntary Assessable Premium Not from Large Deductibles, u	0.786		
(15)	Factor to Remove the Large Deductible Contribution to the Residual Market Subsidy	<b>0.999</b>		

**Notes**

- (1): Section VI-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,  $w_{vol} = 1.0 - (5) w_{rm}$
- (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 <sub>m</sub> / LR <sub>vol</sub> = (7) / (10) (11)
	Standard Earned Premium plus ARAP (2)	Paid Losses and Case Reserves (3)	Paid + Case Loss Ratio = (3) / (2) (4)	Standard Earned Premium Plus ARAP (5)	Paid Losses and Case Reserves (6)	Paid + Case Loss Ratio = (6) / (5) (7)	Standard Earned Premium Plus ARAP (8)	Paid Losses and Case Reserves (9)	Paid + Case Loss Ratio = (9) / (8) (10)	
2003	986	506	51.3%	205	103	50.0%	780	403	51.7%	0.967
2004	972	553	56.9%	231	149	64.6%	741	404	54.6%	1.185
2005	1,005	540	53.8%	231	128	55.3%	773	412	53.3%	1.037
2006	1,065	510	47.8%	207	103	49.9%	859	407	47.4%	1.053
2007	1,040	510	49.0%	169	91	54.1%	872	419	48.0%	1.126
2008	853	449	52.7%	125	75	60.0%	728	374	51.4%	1.167
2009	814	367	45.1%	110	61	55.5%	704	306	43.4%	1.278
(12) Average Last 2 Years				117	68	57.9%	716	340	47.5%	1.219
(13) Average All Years				183	101	55.6%	780	389	49.9%	1.112
(14) Selected Loss Ratio Differential										<b>1.166</b>

Notes:  
 Data as of 12/31/2010 from Aggregate Financial Database, excluding large deductible policies.

1 000020

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)
2009	810	48	50	110	196	617	0.142	0.759
2010	805	35	40	100	152	658	0.126	0.813
Selected	808	41	45	105	174	638	0.134	0.786

Note:  
 Refers to the prospective effective period from 9/1/2012 through 9/1/2013.  
 (2),(3),(4),(5),(6): Massachusetts Workers' Compensation Assigned Risk Pool Special Bulletins  
 (2),(3),(4),(5),(6),(7): Selected based on two-year average of Calendar Year 2009 and 2010.

I 000021

**INSOLVENCY FUND IMPACT ON MANUAL RATES****Background**

We calculate a loading for the recoupment of the Massachusetts Insurers' Insolvency Fund ("Fund") assessments in this Section I-E. The calculation of the Insolvency Fund factor this year is made in the same way as in past filings and the result flows through to Section IX-K. Although it is not considered part of the indicated change in average rates, the Insolvency Fund loading is significant in the determination of final manual rates.

Section IX-A displays the proposed manual rates and rating values for this filing. Proposed manual rates are determined by initially loading the proposed average rates to offset the impacts of the application of merit rating, experience rating and construction credits, and subsequently loading for recoupment of Insolvency Fund assessments. We continue to calculate these offsets in Section IX-K.

**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 the 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 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 assessed carriers on October 21, 2010 and November 16, 2011. The loading shown in this filing provides for the recoupment of the portion of these assessments that is attributable to the workers' compensation line and that has not yet been recouped. The loading for the recoupment of the 2010 and 2011 insolvency fund assessments is 0.0007 (Section I-E, Exhibit 1, Page 1).

# I 000024

Section I - Rate Recommendation  
Subsection E - Calculation of Loading for Recoupment of Insolvency Fund Assessments  
9/1/2012

Section I-E  
Exhibit 1

## Loading for Recoupment of Insolvency Fund Assessments

### Unanticipated Insolvency Assessment Recoupments

(1)	Estimated Written Premium for the Policy Period beginning 9/1/11 and ending 8/31/12, absent Insolvency loads	947,234,024
(2)	Unanticipated Insolvency Assessment Recoupment Rate (As a % of premium absent insolvency loads)	0.02%
(3)	Unanticipated Insolvency Assessment Recoupments	187,422
(4)	Interest Adjustment Factor	1.008
(5)	Adjusted Unanticipated Insolvency Assessment Recoupments	188,990

### Net Assessments

(6)	Amounts Sufficient to Recoup Assessment	976,806
(7)	Net Assessments = (6) - (5)	787,816

### Loading for Recoupment

(8)	Estimated Written Premium in the Prospective Effective Period, absent insolvency loads	1,131,470,633
(9)	Indicated Loading for Recoupment of Insolvency Fund Assessments	<b>0.07%</b>

#### Notes:

(1): Exhibit 2 Page 1.

(3) = (1) x (2)

(4): 0.8% is the risk-free rate of interest, shown in Section VII-H, 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): Exhibit 2 Page 2.

(7) = (6) - (5)

(8): Exhibit 2 Page 1.

(9) = (7) / [ (7) + (8) ]

# I 000025

Section I - Rate Recommendation  
Subsection E - Calculation of Loading for Recoupment of Insolvency Fund Assessments  
9/1/2012

Section I-E  
Exhibit 2  
Page 1

## Expected Workers' Compensation Written Premium in Prospective Effective Period

(1)	2010 Calendar Year Written Premium, absent insolvency loads	944,686,635
(2)	Estimated Exposure Growth Factor from Calendar Year 2010 to Policy Period beginning 9/1/11 and ending 8/31/12	1.003
(3)	Rate Change from Calendar Year 2010 Written to the Policy Period beginning 9/1/11 and ending 8/31/12	0.0%
(4)	Estimated Written Premium for the Policy Period beginning 9/1/11 and ending 8/31/12, absent Insolvency Loads = (1) x (2) x [ 1.0 + (3) ]	947,234,024
(5)	Estimated Exposure Growth Factor from the Policy Period beginning 9/1/11 and ending 8/31/12 to the Prospective Effective Period	1.002
(6)	Average Indicated Rate Change	19.3%
(7)	Estimated Written Premium in Prospective Effective Period, absent insolvency loads. = (4) x (5) x [ 1.0 + (6) ]	1,131,470,633

### Notes:

- (1): Adjusted to remove any loading for recoupment of insolvency fund assessments.
- (2): Assumes a 0.2% (from Section VI-G) compounded for 1.67 years (20 months).
- (3): The 9/1/11 rate change was 0.0%.
- (5): Assumes a 0.2% annual change (from Section VI-G) compounded for 1.00 years (12 months).
- (6): Section I-A, Exhibit 1.

# I 000026

## Insolvency Fund Assessments Yet to Be Reflected in the Rates by Workers' Compensation Carriers

Assessment Base Year (1)	Workers' Compensation Calendar Year Written Premium (2)	Assessment Base (3)	Percentage Charged to Workers' Compensation = (2) / (3) (4)	10/21/2010		11/16/2011	
				Assessment (5)	Assessment Charged to Workers' Compensation = (4) x (5) (6)	Assessment (7)	Assessment Charged to Workers' Compensation = (4) x (7) (8)
1988	1,192,120,104	6,766,445,953	17.62%				
1989	1,303,051,741	6,692,131,638	19.47%				
1990	1,364,830,026	6,755,551,749	20.20%				
1991	1,436,058,443	6,868,646,572	20.91%				
1992	1,309,252,255	6,888,088,844	19.01%				
1993	1,395,560,326	7,233,247,733	19.29%	(93,794)	(18,096)	(93,233)	(17,721)
1994	1,175,326,757	7,224,575,261	16.27%	(311,412)	(50,662)		
1995	1,043,750,298	7,139,153,644	14.62%				
1996	981,758,872	6,855,906,608	14.32%				
1997	914,971,260	6,781,202,666	13.49%				
1998	896,280,476	6,877,677,561	13.03%				
1999	852,073,429	6,979,043,413	12.21%	(4,500,000)	(549,406)		
2000	873,456,717	7,642,598,776	11.43%				
2001	877,204,341	8,497,773,752	10.32%	(2,690,466)	(277,730)	(7,000,000)	(722,593)
2002	1,270,355,928	9,481,535,538	13.40%				
2003	1,248,676,750	10,132,906,831	12.32%	(3,000,000)	(369,690)		
2004	1,222,962,359	10,622,095,111	11.51%	(3,000,000)	(345,401)		
2005	1,335,681,276	10,811,968,884	12.35%				
2006	1,355,363,793	10,785,092,254	12.57%			(397,395)	(49,941)
2007	1,318,054,939	10,488,212,970	12.57%				
2008	1,018,962,508	10,169,468,938	10.02%				
2009	969,294,389	9,681,198,602	10.01%	18,000,000	1,802,184		
2010	944,881,049	9,850,724,906	9.59%			14,750,000	1,414,819
(9)	Estimated Total Assessment Charged to Workers' Compensation Carriers				191,198		624,565
(10)	Interest Adjustment Factor				1.022		1.014
(11)	Interested-Adjusted Assessment = (9) x (10)				195,478		633,231
(12)	Adjusted Total Assessments = sum (9)					828,709	
(13)	Premium Discount					4.6%	
(14)	Premium Tax Rate					2.2%	
(15)	Commission Rate					8.4%	
(16)	Amounts Sufficient to Recoup Assessment = (12) / [ 1.0 - (13) - (14) - (15) ]					976,806	

**Notes:**

1988 was the first year that Workers' Compensation was included in the assessment. Base Years 2001 and prior based on a compilation of Statutory Page 14s. Assessment Base Years 2002 and beyond from Guaranty Fund Management Services.

(2),(3): Information from Guaranty Fund Management Services.

(5),(7): Information from Guaranty Fund Management Services, see Page 3.

(9) = Sum (6); Sum (8)

(10): 0.8% is the risk-free rate of interest, shown in Section VII-H, compounded from the expected payment date of the assessment to the average date the assessment will be recouped or returned.

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

(14): Section VI-A, Exhibit 1.

(15): The average commission is 8.0%, consistent with Section VI-J, Exhibit 1.

Since the average premium discount is 4.6% (Section VI-H, Exhibit 1), the average commission as a percent of net premium is  $8.0\% / (1.0 - 4.6\%) = 8.4\%$ . The assessments of each insurer are in the proportion that the net direct written premiums of the insurer for the calendar year preceding the assessment bears to the net direct written premiums of all insurers for the calendar year preceding the assessment. MGL. Ch. 175D.

Insolvency Fund Assessments Yet to Be Reflected in the Rates

Assessment Date	Insolvent Company	Assessment by Base Year										
		1992	1993	1994	1999	2001	2003	2004	2006	2009	2010	
<b>10/21/2010</b>	Abington Mutual Insurance Company			(311,412)								
	Eastern Casualty Insurance Company										15,000,000	
	Employers Casualty		(93,794)									
	Miix Insurance Company											3,000,000
	New England Fidelity Insurance Company					(700,542)						
	PHICO Insurance Company					(1,989,924)	(3,000,000)	(3,000,000)				
	Trust Insurance Company				(4,500,000)							
<b>10/21/2010 Total</b>			<b>(93,794)</b>	<b>(311,412)</b>	<b>(4,500,000)</b>	<b>(2,690,466)</b>	<b>(3,000,000)</b>	<b>(3,000,000)</b>			<b>18,000,000</b>	
<b>11/16/2011</b>	Atlantic Mutual Insurance Company											750,000
	Centennial Insurance Company											2,000,000
	Eastern Casualty Insurance Company											10,000,000
	Miix Insurance Company											2,000,000
	Shelby Insurance Company								(397,395)			
	Trust Insurance Company					(7,000,000)						
	Warwick Insurance Company	(93,233)										
<b>11/16/2011 Total</b>		<b>(93,233)</b>				<b>(7,000,000)</b>			<b>(397,395)</b>			<b>14,750,000</b>

Notes:  
 The assessment base year is the year of written premium prior to the year of assessment.

I 000027

**LOSS DEVELOPMENT**

“The 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 is an actuarial method of estimating the ultimate settlement value of losses based on “reported losses”<sup>1</sup> 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 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.

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<sup>1</sup> In this filing, the term “reported losses” refers to either paid losses or paid losses plus case reserves.

In this section of the Filing, reported losses for policy years 2008 and 2009 are developed to their estimated ultimate levels using the same basic method employed by the Commissioner in the 2003 Rate Decision and by the WCRIBMA in our 2005, 2007, 2008, 2010, and 2011 rate filings. 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.

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. This would weigh in favor of using only the most recent data. As in prior filings, our selected age-to-age development factors are the unweighted averages of the latest two indicated age-to-age link ratios.

The 2008 policy year and 2009 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.

As in the five previous rate filings, the WCRIBMA has calculated ultimate losses based on aggregate industry-wide loss development data. This method is easy to understand and consistent with customary, well-accepted ratemaking practices. 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.

As in past years, 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.

In this filing, 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. 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

## II 000004

Section II - Loss Development  
Subsection A - Summary  
9/1/2012

Section II - A  
Page 4

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 FACTOR**

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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. 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 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. It 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).

We used the same method employed by the Commissioner in the 2003 Rate Decision and by the WCRIBMA in our 2005, 2007, 2008, 2010, and 2011 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 1989 had the same level of ultimate losses as policy year 1989 – 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 denominator, the tail factor will be distorted. This is not a problem for the age-to-age link ratios used through 252 months of development which only use the data for a given policy year in the calculation. 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 1989, into individual policy year components, and then adjusts each policy year individually based on its estimated contribution to the aggregate development.

In this filing, we used the same method employed by the Commissioner in the 2003 Rate Decision and by the WCRIBMA in our 2005, 2007, 2008, 2010, and 2011 rate filings. 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.

## II 000008

Section II - Loss Development  
 Subsection A - Summary  
 9/1/2012

Section II - A  
 Exhibit 1

### Summary of Estimated Ultimate Losses

#### Paid Loss Development Method

Policy Year (1)	Benefit Type (2)	Paid Losses at 12/31/10 (3)	Cumulative Factors from Latest Month to 252 Months (4)	Tail Factor from 252 Months to Ultimate (5)	Factor to Adjust for Escalated Benefits (6)	Estimated Ultimate Losses (7)
2008	Indemnity	194,481,320	1.720	1.041	1.033	359,749,962
2008	Medical	137,725,514	1.281	1.104	1.000	194,703,543
2008	Total	332,206,834				554,453,505
2009	Indemnity	98,085,962	3.003	1.041	1.033	316,868,297
2009	Medical	106,668,566	1.622	1.104	1.000	190,952,634
2009	Total	204,754,528				507,820,931

#### Paid Plus Case Loss Development Method

Policy Year (8)	Benefit Type (9)	Paid Plus Case Losses at 12/31/10 (10)	Cumulative Factors from Latest Month to 252 Months (11)	Tail Factor from 252 Months to Ultimate (12)	Factor to Adjust for Escalated Benefits (13)	Estimated Ultimate Losses (14)
2008	Indemnity	271,101,949	1.206	1.013	1.008	333,787,993
2008	Medical	178,115,994	1.110	1.077	1.000	212,789,424
2008	Total	449,217,943				546,577,417
2009	Indemnity	194,347,787	1.563	1.013	1.008	310,159,260
2009	Medical	172,494,900	1.155	1.077	1.000	214,602,610
2009	Total	366,842,687				524,761,869

**Notes:**

- (3), (10): Aggregate Financial Data.
- (4), (11): Section II - B, Exhibit 1.
- (5): Section II - C, Exhibit 1, Page 1.
- (6): Section II - D, Exhibit 1, Page 1.
- (7) = (3) x (4) x (5) x (6)
- (12): Section II - C, Exhibit 2, Page 1.
- (13): Section II - D, Exhibit 2, Page 1.
- (14) = (10) x (11) x (12) x (13)

Policy Year Aggregate Financial Data  
 Summary of Loss Development Factors  
 Industrywide

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
<b>(1) Indemnity Paid Losses</b>																			
2 Year Average	1.746	1.300	1.126	1.062	1.029	1.020	1.009	1.008	1.005	1.006	1.010	1.003	1.002	1.004	1.003	1.001	1.001	1.001	1.001
Cumulative Factor to 252	3.003	1.720	1.322	1.174	1.106	1.075	1.054	1.045	1.036	1.031	1.025	1.015	1.012	1.010	1.007	1.004	1.003	1.003	1.001
<b>(2) Medical Paid Losses</b>																			
2 Year Average	1.266	1.074	1.040	1.013	1.011	1.010	1.015	1.008	1.013	1.013	1.009	1.008	1.008	1.008	1.005	1.004	1.002	1.004	1.005
Cumulative Factor to 252	1.622	1.281	1.192	1.146	1.131	1.118	1.107	1.091	1.082	1.068	1.054	1.045	1.037	1.028	1.020	1.015	1.011	1.009	1.005
<b>(3) Indemnity Paid Plus Case Losses</b>																			
2 Year Average	1.296	1.099	1.045	1.021	1.000	1.005	1.000	0.997	1.004	1.006	1.008	1.002	1.002	1.002	0.998	1.002	1.000	1.000	1.002
Cumulative Factor to 252	1.563	1.206	1.098	1.051	1.029	1.029	1.024	1.024	1.028	1.023	1.017	1.009	1.007	1.005	1.003	1.005	1.003	1.002	1.002
<b>(4) Medical Paid Plus Case Losses</b>																			
2 Year Average	1.041	1.017	1.026	1.003	0.989	1.010	1.000	0.994	1.006	1.021	1.014	1.005	1.004	1.003	0.999	1.009	1.003	0.997	1.003
Cumulative Factor to 252	1.155	1.110	1.091	1.063	1.060	1.071	1.060	1.060	1.066	1.060	1.037	1.023	1.018	1.014	1.012	1.012	1.003	1.000	1.003

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

600000 II

## II 000010

Section II - Loss Development  
 Subsection B - Policy Year Data  
 9/1/2012

Section II - B  
 Exhibit 2  
 Page 1

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

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	
2007	64,620	114,047	1.765	1997	137,617	137,957	1.002
2008	68,994	119,218	1.728	1998	167,092	169,972	1.017
Average			1.746	Average			1.010
	36	48			156	168	
2006	109,059	141,524	1.298	1996	138,391	138,762	1.003
2007	114,047	148,639	1.303	1997	137,957	138,339	1.003
Average			1.300	Average			1.003
	48	60			168	180	
2005	149,602	166,260	1.111	1995	146,189	146,475	1.002
2006	141,524	161,404	1.140	1996	138,762	138,944	1.001
Average			1.126	Average			1.002
	60	72			180	192	
2004	181,335	191,661	1.057	1994	140,396	140,861	1.003
2005	166,260	177,528	1.068	1995	146,475	147,021	1.004
Average			1.062	Average			1.004
	72	84			192	204	
2003	180,542	186,392	1.032	1993	171,394	171,583	1.001
2004	191,661	196,427	1.025	1994	140,861	141,423	1.004
Average			1.029	Average			1.003
	84	96			204	216	
2002	199,683	203,538	1.019	1992	215,435	215,694	1.001
2003	186,392	190,178	1.020	1993	171,583	171,768	1.001
Average			1.020	Average			1.001
	96	108			216	228	
2001	200,300	201,885	1.008	1991	340,005	340,044	1.000
2002	203,538	205,480	1.010	1992	215,694	215,904	1.001
Average			1.009	Average			1.001
	108	120			228	240	
2000	206,839	208,613	1.009	1990	493,618	494,375	1.002
2001	201,885	203,517	1.008	1991	340,044	340,445	1.001
Average			1.008	Average			1.001
	120	132			240	252	
1999	187,421	188,382	1.005	1990	494,375	495,000	1.001
2000	208,613	209,790	1.006	Average			1.001
Average			1.005				
	132	144					
1998	166,172	167,092	1.006				
1999	188,382	189,462	1.006				
Average			1.006				

Notes:  
 Losses from Aggregate Financial Data.

# II 000011

Section II - Loss Development  
 Subsection B - Policy Year Data  
 9/1/2012

Section II - B  
 Exhibit 2  
 Page 2

## Policy Year Aggregate Financial Data Calculation of Medical Paid Loss Development Factors Industrywide

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	
2007	75,644	96,152	1.271	1997	68,372	68,772	1.006
2008	71,454	90,136	1.261	1998	85,126	86,180	1.012
Average			1.266	Average			1.009
	36	48			156	168	
2006	84,928	91,566	1.078	1996	68,372	69,058	1.010
2007	96,152	102,939	1.071	1997	68,772	69,148	1.005
Average			1.074	Average			1.008
	48	60			168	180	
2005	94,896	98,715	1.040	1995	64,345	64,736	1.006
2006	91,566	95,240	1.040	1996	69,058	69,796	1.011
Average			1.040	Average			1.008
	60	72			180	192	
2004	104,104	105,684	1.015	1994	72,961	73,564	1.008
2005	98,715	99,866	1.012	1995	64,736	65,228	1.008
Average			1.013	Average			1.008
	72	84			192	204	
2003	105,547	106,499	1.009	1993	78,388	78,706	1.004
2004	105,684	107,115	1.014	1994	73,564	73,987	1.006
Average			1.011	Average			1.005
	84	96			204	216	
2002	108,055	109,292	1.011	1992	99,166	99,569	1.004
2003	106,499	107,507	1.009	1993	78,706	79,016	1.004
Average			1.010	Average			1.004
	96	108			216	228	
2001	102,940	104,280	1.013	1991	124,689	124,628	1.000
2002	109,292	111,049	1.016	1992	99,569	100,085	1.005
Average			1.015	Average			1.002
	108	120			228	240	
2000	99,208	100,134	1.009	1990	147,151	147,947	1.005
2001	104,280	104,943	1.006	1991	124,628	124,969	1.003
Average			1.008	Average			1.004
	120	132			240	252	
1999	96,840	98,314	1.015	1990	147,947	148,645	1.005
2000	100,134	101,268	1.011	Average			1.005
Average			1.013				
	132	144					
1998	84,175	85,126	1.011				
1999	98,314	99,767	1.015				
Average			1.013				

Notes:  
 Losses from Aggregate Financial Data.

## II 000012

Section II - Loss Development  
 Subsection B - Policy Year Data  
 9/1/2012

Section II - B  
 Exhibit 3  
 Page 1

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

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	
2007	125,622	162,014	1.290	1997	140,009	140,439	1.003
2008	127,644	166,278	1.303	1998	171,323	173,701	1.014
Average			1.296	Average			1.008
	36	48			156	168	
2006	155,930	170,811	1.095	1996	141,341	141,657	1.002
2007	162,014	178,480	1.102	1997	140,439	140,722	1.002
Average			1.099	Average			1.002
	48	60			168	180	
2005	180,737	186,328	1.031	1995	149,537	149,760	1.001
2006	170,811	180,838	1.059	1996	141,657	141,994	1.002
Average			1.045	Average			1.002
	60	72			180	192	
2004	202,532	206,150	1.018	1994	143,663	143,447	0.998
2005	186,328	190,698	1.023	1995	149,760	150,661	1.006
Average			1.021	Average			1.002
	72	84			192	204	
2003	199,383	197,438	0.990	1993	174,474	174,583	1.001
2004	206,150	208,363	1.011	1994	143,447	142,711	0.995
Average			1.000	Average			0.998
	84	96			204	216	
2002	212,566	212,690	1.001	1992	217,459	217,935	1.002
2003	197,438	199,182	1.009	1993	174,583	174,929	1.002
Average			1.005	Average			1.002
	96	108			216	228	
2001	211,362	211,606	1.001	1991	345,450	345,204	0.999
2002	212,690	212,405	0.999	1992	217,935	218,224	1.001
Average			1.000	Average			1.000
	108	120			228	240	
2000	213,508	213,350	0.999	1990	500,337	500,619	1.001
2001	211,606	210,289	0.994	1991	345,204	344,982	0.999
Average			0.997	Average			1.000
	120	132			240	252	
1999	194,866	195,459	1.003	1990	500,619	501,837	1.002
2000	213,350	214,619	1.006	Average			1.002
Average			1.004				
	132	144					
1998	169,930	171,323	1.008				
1999	195,459	196,052	1.003				
Average			1.006				

Notes:  
 Losses from Aggregate Financial Data.

# II 000013

Section II - Loss Development  
 Subsection B - Policy Year Data  
 9/1/2012

Section II - B  
 Exhibit 3  
 Page 2

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

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	
2007	120,211	122,998	1.023	1997	74,978	75,503	1.007
2008	107,273	113,665	1.060	1998	108,640	110,986	1.022
Average			1.041	Average			1.014
	36	48			156	168	
2006	107,492	109,290	1.017	1996	77,957	78,719	1.010
2007	122,998	125,233	1.018	1997	75,503	75,499	1.000
Average			1.017	Average			1.005
	48	60			168	180	
2005	112,002	115,420	1.031	1995	71,801	71,065	0.990
2006	109,290	111,578	1.021	1996	78,719	80,118	1.018
Average			1.026	Average			1.004
	60	72			180	192	
2004	128,333	128,202	0.999	1994	83,772	84,358	1.007
2005	115,420	116,305	1.008	1995	71,065	70,926	0.998
Average			1.003	Average			1.003
	72	84			192	204	
2003	126,906	124,276	0.979	1993	85,262	84,939	0.996
2004	128,202	128,150	1.000	1994	84,358	84,552	1.002
Average			0.989	Average			0.999
	84	96			204	216	
2002	131,306	133,912	1.020	1992	107,201	107,081	0.999
2003	124,276	124,366	1.001	1993	84,939	86,555	1.019
Average			1.010	Average			1.009
	96	108			216	228	
2001	132,673	132,489	0.999	1991	134,631	134,470	0.999
2002	133,912	134,129	1.002	1992	107,081	107,846	1.007
Average			1.000	Average			1.003
	108	120			228	240	
2000	133,808	132,703	0.992	1990	160,909	161,164	1.002
2001	132,489	132,105	0.997	1991	134,470	133,583	0.993
Average			0.994	Average			0.997
	120	132			240	252	
1999	115,242	115,791	1.005	1990	161,164	161,624	1.003
2000	132,703	133,650	1.007	Average			1.003
Average			1.006				
	132	144					
1998	108,271	108,640	1.003				
1999	115,791	120,327	1.039				
Average			1.021				

Notes:  
 Losses from Aggregate Financial Data.

# II 000014

## Paid Loss Tail Factors

### Indemnity 252nd Month to Ultimate Loss Tail Development Factor

(1) Valuation Date [Y]	12/31/2006	12/31/2007	12/31/2008	12/31/2009	12/31/2010
(2) Prior to Policy Year 1990 at [Y]	4,594,424,425	4,604,910,749	4,612,354,195	4,619,250,956	4,626,867,333
(3) Prior to Policy Year 1990 at [Y] - 1 yr	4,587,303,158	4,594,424,425	4,604,910,749	4,612,354,195	4,619,250,956
(4) Difference = (2) - (3)	7,121,267	10,486,324	7,443,446	6,896,761	7,616,377
(5) Policy Year 1990 at [Y]	491,835,179	492,857,844	493,618,216	494,374,570	494,999,566
(6) Ratio = (4) / (5)	0.014	0.021	0.015	0.014	0.015
(7) Growth Factor	2.700	2.700	2.700	2.700	2.700
(8) Product = (6) x (7)	0.039	0.057	0.041	0.038	0.042
(9) Factor to Ultimate = 1.000 + (8)	1.039	1.057	1.041	1.038	1.042
(10) Month [M]	204	216	228	240	252
(11) Factor to Ultimate = (9)	1.039	1.057	1.041	1.038	1.042
(12) Factor from [252] to [M]	0.996	0.997	0.997	0.999	1.000
(13) Indicated [252] to Ultimate Tail Factor = (11) x (12)	1.035	1.054	1.038	1.036	1.042
(14) Five Year Average					1.041

### Medical 252nd Month to Ultimate Loss Tail Development Factor

(15) Valuation Date [Y]	12/31/2006	12/31/2007	12/31/2008	12/31/2009	12/31/2010
(16) Prior to Policy Year 1990 at [Y]	1,347,392,371	1,352,837,758	1,357,689,900	1,365,735,351	1,371,946,075
(17) Prior to Policy Year 1990 at [Y] - 1 yr	1,341,290,665	1,347,392,371	1,352,837,758	1,357,689,900	1,365,735,351
(18) Difference = (16) - (17)	6,101,706	5,445,387	4,852,142	8,045,451	6,210,724
(19) Policy Year 1990 at [Y]	145,441,592	146,425,389	147,151,269	147,946,590	148,645,465
(20) Ratio = (18) / (19)	0.042	0.037	0.033	0.054	0.042
(21) Growth Factor	2.700	2.700	2.700	2.700	2.700
(22) Product = (20) x (21)	0.113	0.100	0.089	0.147	0.113
(23) Factor to Ultimate = 1.000 + (22)	1.113	1.100	1.089	1.147	1.113
(24) Month [M]	204	216	228	240	252
(25) Factor to Ultimate = (23)	1.113	1.100	1.089	1.147	1.113
(26) Factor from [252] to [M]	0.985	0.989	0.991	0.995	1.000
(27) Indicated [252] to Ultimate Tail Factor = (25) x (26)	1.097	1.088	1.080	1.141	1.113
(28) Five Year Average					1.104

**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 000015

Section II - Loss Development  
 Subsection C - Tail Factor Calculation  
 9/1/2012

Section II - C  
 Exhibit 1  
 Page 2

### Growth Factor Adjustment Paid Losses

Policy Year (1)	On-Level Annual Growth Factor (2)	On-Level Cumulative Growth Factor (3)	Relative Volume of Losses (4)	Quarters in Report Interval (5)	Percent Development for Report Interval (6)	Prior to 1990 Dollar Development (7)	On-Level Prior to 1990 Dollar Development (8)
<b>1990</b>			<b>1,000,000</b>				
1989	1.139	1.139	877,958	85 - 88	0.374%	3,284	3,740
1988	1.045	1.191	839,872	89 - 92	0.359%	3,016	3,591
1987	1.244	1.481	675,109	93 - 96	0.344%	2,323	3,441
1986	1.218	1.804	554,237	97 - 100	0.329%	1,824	3,291
1985	1.287	2.322	430,660	101 - 104	0.314%	1,353	3,142
1984	1.162	2.698	370,649	105 - 108	0.299%	1,109	2,992
1983	1.218	3.286	304,286	109 - 112	0.284%	865	2,842
1982	1.110	3.647	274,194	113 - 116	0.269%	738	2,693
1981	0.989	3.608	277,165	117 - 120	0.254%	705	2,543
1980	1.090	3.931	254,372	121 - 124	0.239%	609	2,394
1979	1.208	4.751	210,495	125 - 128	0.224%	472	2,244
1978	1.134	5.389	185,566	129 - 132	0.209%	389	2,094
1977	1.248	6.728	148,631	133 - 136	0.194%	289	1,945
1976	1.259	8.473	118,028	137 - 140	0.180%	212	1,795
1975	1.137	9.630	103,840	141 - 144	0.165%	171	1,646
1974	1.055	10.165	98,380	145 - 148	0.150%	147	1,496
1973	1.133	11.515	86,842	149 - 152	0.135%	117	1,346
1972	1.037	11.940	83,752	153 - 156	0.120%	100	1,197
1971	1.054	12.580	79,489	157 - 160	0.105%	83	1,047
1970	1.152	14.495	68,989	161 - 164	0.090%	62	898
1969	1.082	15.679	63,781	165 - 168	0.075%	48	748
1968	1.052	16.489	60,646	169 - 172	0.060%	36	598
1967	1.049	17.305	57,786	173 - 176	0.045%	26	449
1966	1.124	19.460	51,388	177 - 180	0.030%	15	299
1965	1.139	22.157	45,133	181 - 184	0.015%	7	150
						18,000	48,622
<b>(9) Indicated Growth Factor:</b>							<b>2.701</b>
<b>(10) Selected Growth Factor:</b>							<b>2.700</b>

**Notes:**

Assume 1990 losses of \$1,000,000. This produces a tail of 1.80% = \$18,000 / \$1,000,000 (with no growth).

However, putting Prior to 1990 Losses on-level produces a tail of 4.86% = 2.701 x 1.80%.

A growth factor of 2.700 has been selected.

(2): Based on year to year changes of incurred losses from Annual Statement.

(3): Cumulative product of (2), beginning at top of column.

(4) = \$1,000,000 / (3).

The equivalent of what \$1,000,000 of losses in PY1990 would be in each prior policy year (1965-1989) given the on-level cumulative growth factors in (3).

(5): Quarters that correspond to the policy years.

(6): Estimated % paid loss emergence during the quarters displayed in (5).

(7) = (4) x (6)

(8) = (3) x (7)

(9) = [ Sum of (8) ] / [ Sum of (7) ]

# II 000016

## Paid Plus Case Loss Tail Factors

### Indemnity 252nd Month to Ultimate Loss Tail Development Factor

(1) Valuation Date [Y]	12/31/2006	12/31/2007	12/31/2008	12/31/2009	12/31/2010
(2) Prior to Policy Year 1990 at [Y]	4,667,368,844	4,672,595,636	4,672,878,075	4,679,753,426	4,684,547,012
(3) Prior to Policy Year 1990 at [Y] - 1 yr	4,667,722,130	4,667,368,844	4,672,595,636	4,672,878,075	4,679,753,426
(4) Difference = (2) - (3)	(353,286)	5,226,792	282,439	6,875,351	4,793,586
(5) Policy Year 1990 at [Y]	501,164,602	501,112,425	500,337,172	500,618,511	501,836,755
(6) Ratio = (4) / (5)	(0.001)	0.010	0.001	0.014	0.010
(7) Growth Factor	2.350	2.350	2.350	2.350	2.350
(8) Product = (6) x (7)	(0.002)	0.025	0.001	0.032	0.022
(9) Factor to Ultimate = 1.000 + (8)	0.998	1.025	1.001	1.032	1.022
(10) Month [M]	204	216	228	240	252
(11) Factor to Ultimate = (9)	0.998	1.025	1.001	1.032	1.022
(12) Factor from [252] to [M]	0.995	0.997	0.998	0.998	1.000
(13) Indicated [252] to Ultimate Tail Factor = (11) x (12)	0.994	1.022	0.999	1.030	1.022
(14) Five Year Average					1.013

### Medical 252nd Month to Ultimate Loss Tail Development Factor

(15) Valuation Date [Y]	12/31/2006	12/31/2007	12/31/2008	12/31/2009	12/31/2010
(16) Prior to Policy Year 1990 at [Y]	1,428,766,895	1,433,606,674	1,435,560,681	1,436,546,521	1,445,731,209
(17) Prior to Policy Year 1990 at [Y] - 1 yr	1,418,107,943	1,428,766,895	1,433,606,674	1,435,560,681	1,436,546,521
(18) Difference = (16) - (17)	10,658,952	4,839,779	1,954,007	985,840	9,184,688
(19) Policy Year 1990 at [Y]	159,261,910	160,818,850	160,908,508	161,164,314	161,624,267
(20) Ratio = (18) / (19)	0.067	0.030	0.012	0.006	0.057
(21) Growth Factor	2.350	2.350	2.350	2.350	2.350
(22) Product = (20) x (21)	0.157	0.071	0.029	0.014	0.134
(23) Factor to Ultimate = 1.000 + (22)	1.157	1.071	1.029	1.014	1.134
(24) Month [M]	204	216	228	240	252
(25) Factor to Ultimate = (23)	1.157	1.071	1.029	1.014	1.134
(26) Factor from [252] to [M]	0.988	0.997	1.000	0.997	1.000
(27) Indicated [252] to Ultimate Tail Factor = (25) x (26)	1.143	1.067	1.028	1.011	1.134
(28) Five Year Average					1.077

**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 000017

Section II - Loss Development  
 Subsection C - Tail Factor Calculation  
 9/1/2012

Section II - C  
 Exhibit 2  
 Page 2

### Growth Factor Adjustment Paid Plus Case Losses

Policy Year (1)	On-Level Annual Growth Factor (2)	On-Level Cumulative Growth Factor (3)	Relative Volume of Losses (4)	Quarters in Report Interval (5)	Percent Development for Report Interval (6)	Prior to 1990 Dollar Development (7)	On-Level Prior to 1990 Dollar Development (8)
<b>1990</b>			<b>1,000,000</b>				
1989	1.139	1.139	877,958	85 - 88	0.247%	2,165	2,466
1988	1.045	1.191	839,872	89 - 92	0.234%	1,967	2,342
1987	1.244	1.481	675,109	93 - 96	0.222%	1,498	2,219
1986	1.218	1.804	554,237	97 - 100	0.210%	1,162	2,096
1985	1.287	2.322	430,660	101 - 104	0.197%	850	1,973
1984	1.162	2.698	370,649	105 - 108	0.185%	685	1,849
1983	1.218	3.286	304,286	109 - 112	0.173%	525	1,726
1982	1.110	3.647	274,194	113 - 116	0.160%	439	1,603
1981	0.989	3.608	277,165	117 - 120	0.148%	410	1,479
1980	1.090	3.931	254,372	121 - 124	0.136%	345	1,356
1979	1.208	4.751	210,495	125 - 128	0.123%	260	1,233
1978	1.134	5.389	185,566	129 - 132	0.111%	206	1,110
1977	1.248	6.728	148,631	133 - 136	0.099%	147	986
1976	1.259	8.473	118,028	137 - 140	0.086%	102	863
1975	1.137	9.630	103,840	141 - 144	0.074%	77	740
1974	1.055	10.165	98,380	145 - 148	0.062%	61	616
1973	1.133	11.515	86,842	149 - 152	0.049%	43	493
1972	1.037	11.940	83,752	153 - 156	0.037%	31	370
1971	1.054	12.580	79,489	157 - 160	0.025%	20	247
1970	1.152	14.495	68,989	161 - 164	0.012%	9	123
						11,000	25,891
<b>(9) Indicated Growth Factor:</b>							<b>2.354</b>
<b>(10) Selected Growth Factor:</b>							<b>2.350</b>

**Notes:**

Assume 1990 losses of \$1,000,000. This produces a tail of 1.10% = \$11,000 / \$1,000,000 (with no growth).

However, putting Prior to 1990 Losses on-level produces a tail of 2.59% = 2.354 x 1.10%.

A growth factor of 2.350 has been selected.

(2): Based on year to year changes of incurred losses from Annual Statement.

(3): Cumulative product of (2), beginning at top of column.

(4) = \$1,000,000 / (3).

The equivalent of what \$1,000,000 of losses in PY1990 would be in each prior policy year (1970-1989) given the on-level cumulative growth factors in (3).

(5): Quarters that correspond to the policy years.

(6): Estimated % paid plus case loss emergence during the quarters displayed in (5).

(7) = (4) x (6)

(8) = (3) x (7)

(9) = [ Sum of (8) ] / [ Sum of (7) ]

**LOSS DEVELOPMENT****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 our loss data predate the law change 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 1989 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 1988 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 used in our 2003, 2005, 2007, 2008, 2010, and 2011 rate filings. 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.

**II 000019**

Section II - Loss Development  
 Subsection D - Adjustment for Escalation of Benefits  
 9/1/2012

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	1.073	1.071	1.068	1.066	1.064
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	1.029	1.027	1.026	1.025	1.023

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	<b>1.044</b>	<b>1.043</b>	<b>1.042</b>	<b>1.041</b>	<b>1.039</b>

Selected Differential in Indemnity Loss Development at Month 288 1.033

Notes:

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

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

## II 000020

Section II - Loss Development  
 Subsection D - Adjustment for Escalation of Benefits  
 9/1/2012

Section II - D  
 Exhibit 1  
 Page 2

### 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	1.67%
Escalated	Permanent Total	1,668,738	409,709	448,697	488,350	528,641	569,759	4.09%
Escalated	Other Indemnity							55.84%
Escalated	Total Indemnity							61.60%
Unescalated	Fatal	465,615	239,708	250,218	260,195	269,862	279,221	0.89%
Unescalated	Permanent Total	824,906	336,400	359,427	381,858	403,713	424,987	2.02%
Unescalated	Other Indemnity							55.84%
Unescalated	Total Indemnity							58.75%

Escalated or Unescalated (6)	Injury Type (7)	Estimated Losses at Month					
		Ultimate (8)	168	180	192 (9)	204	216
Escalated	Fatal	1,674	551	585	619	653	688
Escalated	Permanent Total	4,092	1,005	1,100	1,197	1,296	1,397
Escalated	Other Indemnity	55,838	55,838	55,838	55,838	55,838	55,838
Escalated	Total Indemnity	61,604	57,394	57,524	57,655	57,788	57,923
Unescalated	Fatal	891	459	479	498	516	534
Unescalated	Permanent Total	2,023	825	881	936	990	1,042
Unescalated	Other Indemnity	55,838	55,838	55,838	55,838	55,838	55,838
Unescalated	Total Indemnity	58,752	57,122	57,198	57,272	57,344	57,414

**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 000021

Section II - Loss Development  
 Subsection D - Adjustment for Escalation of Benefits  
 9/1/2012

Section II - D  
 Exhibit 2  
 Page 1

### 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	1.027	1.025	1.024	1.023	1.021
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	1.010	1.009	1.009	1.008	1.007

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	<b>1.017</b>	<b>1.016</b>	<b>1.015</b>	<b>1.014</b>	<b>1.014</b>

Selected Differential in Indemnity Loss Development at Month 288 1.008

Notes:

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

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

## II 000022

Section II - Loss Development  
 Subsection D - Adjustment for Escalation of Benefits  
 9/1/2012

Section II - D  
 Exhibit 2  
 Page 2

### 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	1.67%
Escalated	Permanent Total	1,668,738	1,193,905	1,219,988	1,245,595	1,270,688	1,295,221	4.09%
Escalated	Other Indemnity							55.84%
Escalated	Total Indemnity							61.60%
Unescalated	Fatal	465,615	384,035	388,719	393,217	397,535	401,676	0.89%
Unescalated	Permanent Total	824,906	658,201	668,658	678,696	688,321	697,538	2.02%
Unescalated	Other Indemnity							55.84%
Unescalated	Total Indemnity							58.75%

Escalated or Unescalated (6)	Injury Type (7)	Estimated Losses at Month					
		Ultimate (8)	168	180	192 (9)	204	216
Escalated	Fatal	1,674	1,227	1,249	1,271	1,293	1,314
Escalated	Permanent Total	4,092	2,928	2,992	3,054	3,116	3,176
Escalated	Other Indemnity	55,838	55,838	55,838	55,838	55,838	55,838
Escalated	Total Indemnity	61,604	59,992	60,079	60,164	60,247	60,328
Unescalated	Fatal	891	735	744	752	760	768
Unescalated	Permanent Total	2,023	1,614	1,640	1,664	1,688	1,710
Unescalated	Other Indemnity	55,838	55,838	55,838	55,838	55,838	55,838
Unescalated	Total Indemnity	58,752	58,187	58,221	58,255	58,287	58,317

**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) ]

## 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 2008 and policy year 2009 are calculated in Section III-A.

Policy years 2008 and 2009 earned standard and adjusted ARAP premiums are used in the indication and are brought to the current rate level in Section III.

**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 premium adjustments. However, industry-wide policy year earned standard and ARAP premium historically develops upward 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

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**

Premium development factors are estimated in this filing using the same methodology we have used since 2007. The WCRIBMA utilized premium development factors based on the average of the latest two age-to-age development factors, also known as link ratios. 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.

**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 adjust the impact of these programs to the level anticipated in the current rates.

Adjustment factors applicable to policy year 2008 and policy year 2009 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 premium collected under ARAP. An adjustment for the ARAP offset is included to reflect the fact that the ARAP surcharges during policy year 2008 and policy year 2009 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 2008 and policy year 2009 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 2008 and policy year 2009 premiums so that the one-time loadings for recoupment of Insolvency Fund assessments are excluded.

**On-Level Adjustment**

The reported premium should be brought to the current rate level. Since the beginning of the historical period, there has been a 1.0% rate decrease (effective 9/1/2008) and a 2.4% rate decrease (effective 9/1/2010). Workers' compensation premium is not written evenly throughout the year, and a disproportionate number of policies are effective on January 1 or July 1. To take this into account, the on-level factors 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 determine 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  
 9/1/2012

Section III - A  
 Exhibit 1

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

Policy Year	Premiums Evaluated at Month (in 000's):		Premium Development Factors
	24	36	
2007	671,280	673,363	1.003
2008	590,746	585,167	0.991
Average			0.997
	36	48	
2006	681,824	681,605	1.000
2007	673,363	673,835	1.001
Average			1.000
	48	60	
2005	629,641	631,306	1.003
2006	681,605	681,564	1.000
Average			1.001
	Premium Development Factors From:		
	24-36	36-48	48-60
2 Yr average	0.997	1.000	1.001
Cumulative	<b>0.998</b>	<b>1.001</b>	1.001

Summary Exhibit

	Policy Year as of 12/31/2010	
	2008	2009
(1) Standard Earned Premium plus Adjusted ARAP Premium	854,030,834	815,767,805
(2) Adjustment for Experience and Merit Rating, ARAP, and Construction Credit Off-balance	1.011	1.017
(3) Adjustment Factor to Remove the Impact of Loading for Recoupment of Insolvency Fund Assessments	1.022	1.001
(4) Composite Adjustment Factor = (2) x (3)	1.034	1.017
(5) Adjusted Standard Earned Premium plus ARAP = (1) x (4)	882,976,202	829,743,679
(6) Cumulative Premium Development Factor to Ultimate (see above)	1.001	0.998
(7) Rate On-Level Factor	0.969	0.976
(8) Factor to Remove Expense Constant	0.951	0.951
(9) Adjusted On-Level Earned Premium at Ultimate = (5) x (6) x (7) x (8)	814,908,041	768,865,362

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 60 months.
- (7): Section III-D, Exhibit 1
- (8): Section VI-I, Exhibit 2.

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)				2008 (9)	2009 (10)	2008 (11)	2009 (12)	2010 (13)
9/1/2007	1.000	0.880	-0.027	0.120	0.997	0.046	-0.034	28.5%	100.0%	72.5%	19.4%	
9/1/2008	1.000	0.880	-0.027	0.120	0.997	0.045	-0.036			4.9%	80.6%	94.9%
9/1/2010	1.000	0.860	-0.020	0.140	0.997	0.049	-0.053					5.1%

	Policy Year		Calendar Year Earned		
	2008	2009	2008	2009	2010
(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	0.046	0.045	0.049	0.045	0.045
(16) Percentage of Premium for CCPAP Eligible Classes	0.339	0.319	0.350	0.329	0.329
(17) Weighted Average Construction Credit anticipated in rates	-0.012	-0.011	-0.011	-0.012	-0.012
(18) Combined Weighted Average impact anticipated in rates = (14) x [ 1.0 + (15) ] x [ 1.0 + (17) ]	1.030	1.030	1.034	1.030	1.029
(19) Manual Premium	806,003,840	772,910,214	891,693,047	789,457,027	
(20) Standard Earned Premium at DSR Level, excluding Expense Constants	781,655,827	746,920,420	865,103,386	764,288,124	
(21) ARAP Premium	37,974,613	34,188,197	48,319,323	36,081,405	
(22) Adjustment Factor to Adjust from Company Level to DSR Level Premium	1.037	1.053	1.032	1.060	
(23) Standard Earned Premium plus Adjusted ARAP = (20) + [ (21) x (22) ]	821,039,195	782,904,696	914,960,984	802,527,092	
(24) Combined Actual impact = (23) / (19)	1.019	1.013	1.026	1.017	1.017
(25) Adjustment for Experience and Merit Rating, ARAP, and Construction Credit Off-balance = (18) / (24)	<b>1.011</b>	<b>1.017</b>	<b>1.008</b>	<b>1.013</b>	<b>1.012</b>

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 2010 uses CY 2009 values  
 (22): from Section III-B, Exhibit 2.

III 000007

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

	Policy Year valued as of 12/31/2010		Calendar Years		
	2008	2009	2008	2009	2010
(1) Aggregate Financial: Standard Earned Premium at DSR Level	814,775,861	780,208,783	904,937,418	828,697,391	774,680,445
(2) Aggregate Financial: Standard Earned Premium at Company Level	785,631,085	741,266,311	877,017,024	781,939,654	733,337,603
(3) Aggregate Financial: ARAP Premium	37,850,811	33,784,169	44,777,343	35,098,027	34,630,328
(4) Adjustment Factor to Adjust from Company Level to DSR Level Premium = (1) / (2)	1.037	1.053	1.032	1.060	1.056
(5) Adjusted ARAP Premium = (3) x (4)	39,254,973	35,559,022	46,202,858	37,196,788	36,582,657
(6) Standard Earned Premium plus adjusted ARAP Premium = (1) + (5)	854,030,834	815,767,805	951,140,276	865,894,179	811,263,102

Notes:

(1),(2),(3): Aggregate Financial Policy Year Calls

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		
		2008 (3)	2009 (4)	2008 (5)	2009 (6)	2010 (7)
9/1/2005	2.33%			22.6%		
9/1/2007	-3.11%	71.5%		72.5%	19.4%	
9/1/2008	-0.06%	28.5%	100.0%	4.9%	80.6%	94.9%
9/1/2010	0.02%					5.1%

Policy Year		Calendar Year Earned		
2008	2009	2008	2009	2010

(8) Weighted Average Loading for Recoupment of Insolvency Fund Assessment in the Rates = Sum [ (2) x (3) through (7) ]	-0.022	-0.001	-0.017	-0.007	-0.001
(9) Adjustment Factor to Remove the Impact of Loading for Recoupment of Insolvency Fund Assessments = [ 1.0 - (8) ]	<b>1.022</b>	<b>1.001</b>	<b>1.017</b>	<b>1.007</b>	<b>1.001</b>

- 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 000010

Section III - Premiums  
 Subsection D - Rate On-Level Factors  
 9/1/2012

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	
				2008 (5)	2009 (6)
9/1/2005		1.000	0.803		
9/1/2007	0.831	0.831	0.966	71.5%	100.0%
9/1/2008	0.990	0.823	0.976	28.5%	
9/1/2010	0.976	0.803	1.000		

Policy Year	
2008	2009
0.969	0.976

(7) Rate On-Level Factor  
 = Sum [ (4) x (5) through (6) ]

**Notes:**

(4): (3)<sub>latest rate level effective date</sub> / (3).

(5),(6): From Exhibit 2.

# III 000011

Section III - Premiums  
 Subsection D - Premium On-Level Factors  
 9/1/2012

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)
		9/1/2007 (3)	9/1/2008 (4)	9/1/2010 (5)	
2008	1	150,726,139			150,726,139
2008	2	60,994,090			60,994,090
2008	3	62,099,539			62,099,539
2008	4	78,560,088			78,560,088
2008	5	61,497,081			61,497,081
2008	6	65,555,364			65,555,364
2008	7	83,797,040			83,797,040
2008	8	51,424,428			51,424,428
2008	9		63,519,817		63,519,817
2008	10		64,754,408		64,754,408
2008	11		50,906,589		50,906,589
2008	12		65,997,206		65,997,206
2008	Total	614,653,770	245,178,020		859,831,790

2009	1		139,159,116		139,159,116
2009	2		58,616,876		58,616,876
2009	3		60,052,847		60,052,847
2009	4		73,778,599		73,778,599
2009	5		55,899,525		55,899,525
2009	6		63,131,445		63,131,445
2009	7		80,350,564		80,350,564
2009	8		50,147,229		50,147,229
2009	9		61,005,572		61,005,572
2009	10		60,003,010		60,003,010
2009	11		47,971,819		47,971,819
2009	12		69,463,560		69,463,560
2009	Total		819,580,161		819,580,161

2010	1		142,220,478		142,220,478
2010	2		59,910,809		59,910,809
2010	3		61,373,909		61,373,909
2010	4		75,401,517		75,401,517
2010	5		57,129,103		57,129,103
2010	6		64,520,098		64,520,098
2010	7		82,118,163		82,118,163
2010	8		51,250,310		51,250,310
2010	9			60,851,371	60,851,371
2010	10			59,851,221	59,851,221
2010	11			47,850,501	47,850,501
2010	12			69,287,962	69,287,962
2010	Total		593,924,388	237,841,054	831,765,442

Rate Level Effective Date (7)	Policy Year Weights		
	2008 (8)	2009 (9)	2010 (10)
9/1/2007	71.5%		
9/1/2008	28.5%	100.0%	71.4%
9/1/2010			28.6%

**Notes:**

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

(3),(4),(5): From Unit Statistical Plan Data. PY 2010 estimated from PY 2009 data.

(8),(9),(10) = [ PY Total of (3), (4) or (5) ] / [ PY Total of (6) ]

# III 000012

Section III - Premiums  
 Subsection D - Premium On-Level Factors  
 9/1/2012

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)
			9/1/2005 (4)	9/1/2007 (5)	9/1/2008 (6)	
2006	12	2008	1,160			1,160
2007	1	2008	1,923,156			1,923,156
2007	2	2008	7,412,106			7,412,106
2007	3	2008	15,023,958			15,023,958
2007	4	2008	26,061,188			26,061,188
2007	5	2008	28,254,289			28,254,289
2007	6	2008	38,704,365			38,704,365
2007	7	2008	53,188,417			53,188,417
2007	8	2008	39,293,507			39,293,507
2007	9	2008		45,370,427		45,370,427
2007	10	2008		53,078,551		53,078,551
2007	11	2008		46,342,816		46,342,816
2007	12	2008		74,720,009		74,720,009
2008	1	2008		149,190,816		149,190,816
2008	2	2008		54,911,993		54,911,993
2008	3	2008		50,816,554		50,816,554
2008	4	2008		58,302,255		58,302,255
2008	5	2008		40,509,520		40,509,520
2008	6	2008		37,317,347		37,317,347
2008	7	2008		41,551,706		41,551,706
2008	8	2008		20,710,935		20,710,935
2008	9	2008			19,802,856	19,802,856
2008	10	2008			15,357,071	15,357,071
2008	11	2008			7,482,816	7,482,816
2008	12	2008			2,604,870	2,604,870
Total		2008	209,862,146	672,822,929	45,247,613	927,932,688

2007	12	2009				0
2008	1	2009		1,495,738		1,495,738
2008	2	2009		6,075,954		6,075,954
2008	3	2009		11,281,795		11,281,795
2008	4	2009		20,264,624		20,264,624
2008	5	2009		20,996,543		20,996,543
2008	6	2009		28,259,937		28,259,937
2008	7	2009		42,282,443		42,282,443
2008	8	2009		30,738,667		30,738,667
2008	9	2009			43,752,578	43,752,578
2008	10	2009			49,440,284	49,440,284
2008	11	2009			43,461,339	43,461,339
2008	12	2009			63,449,167	63,449,167
2009	1	2009			137,779,824	137,779,824
2009	2	2009			52,807,262	52,807,262
2009	3	2009			48,840,851	48,840,851
2009	4	2009			54,671,400	54,671,400
2009	5	2009			36,733,586	36,733,586
2009	6	2009			35,506,940	35,506,940
2009	7	2009			40,140,292	40,140,292
2009	8	2009			20,199,736	20,199,736
2009	9	2009			18,813,800	18,813,800
2009	10	2009			14,120,038	14,120,038
2009	11	2009			7,046,221	7,046,221
2009	12	2009			2,701,613	2,701,613
Total		2009		161,395,701	669,464,931	830,860,633

Rate Level Effective Date (8)	Calendar Year Earned Weights	
	2008 (9)	2009 (10)
9/1/2005	22.6%	
9/1/2007	72.5%	19.4%
9/1/2008	4.9%	80.6%

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) ]

# III 000013

Section III - Premiums  
 Subsection D - Premium On-Level Factors  
 9/1/2012

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)
			9/1/2007 (4)	9/1/2008 (5)	9/1/2010 (6)	
2008	12	2010		0		0
2009	1	2010		1,430,070		1,430,070
2009	2	2010		5,824,866		5,824,866
2009	3	2010		11,225,383		11,225,383
2009	4	2010		19,127,320		19,127,320
2009	5	2010		19,177,098		19,177,098
2009	6	2010		27,639,203		27,639,203
2009	7	2010		40,233,466		40,233,466
2009	8	2010		29,957,359		29,957,359
2009	9	2010		42,204,083		42,204,083
2009	10	2010		45,894,414		45,894,414
2009	11	2010		40,932,874		40,932,874
2009	12	2010		66,772,581		66,772,581
2010	1	2010		140,786,518		140,786,518
2010	2	2010		53,966,103		53,966,103
2010	3	2010		49,909,536		49,909,536
2010	4	2010		55,865,829		55,865,829
2010	5	2010		37,537,418		37,537,418
2010	6	2010		36,283,005		36,283,005
2010	7	2010		41,016,048		41,016,048
2010	8	2010		20,641,483		20,641,483
2010	9	2010			18,763,642	18,763,642
2010	10	2010			14,082,332	14,082,332
2010	11	2010			7,027,548	7,027,548
2010	12	2010			2,694,433	2,694,433
	Total	2010		786,424,655	42,567,956	828,992,611

Rate Level Effective Date (8)	Calendar Year Earned Weights
9/1/2007	
9/1/2008	94.9%
9/1/2010	5.1%

Notes:

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

(4),(5),(6): From Unit Statistical Plan Data. PY 2010 based on PY 2009 data subject to adjustments for rate level, exposure growth, and wage changes.

(9) = [CY Total of (4), (5) or (6)] / [CY Total of (7)]

# III 000014

Section III - Premiums  
 Subsection E - Premium Adjustment Factors  
 9/1/2012

Section III - E  
 Exhibit 1

## Calculation of Premium Adjustment Factor PY 2009 to Prospective Effective Period 9/1/2012 - 8/31/2013

(1)	Wage Trend from PY 2009 to Prospective Effective Period 9/1/2012 - 8/31/2013	1.092
(2)	Exposure Growth	1.006
(3)	Rate On-Level Factor	0.976
(4)	Overall Indicated Rate Change for Policies Effective 9/1/2012	1.193
(5)	Adjustment Factor to Balance Experience Rating, ARAP, and Construction Credits	1.017
(6)	Impact of Change in Indicated Loading for Recoupment of Insolvency Fund Assessments	1.001
(7)	Adjustment Factor = (1) x (2) x (3) x (4) x (5) x (6)	1.302
(8)	<b>Selected Factor</b>	<b>1.30</b>

**Notes:**

(1):	Statewide Average Weekly Wage for PY 2009 (Section V-G, Exhibit 2)	1,101.70
	Statewide Average Weekly Wage for 10/1/2011, based on data period 4/1/10 to 4/1/11 (Section V-G, Exhibit 2)	1,135.82
	Statewide Average Weekly Wage at 9/1/2013 (using wage trend of 2.0%, Section V-A, Exhibit 3)	1,203.12
(2):	Exposure growth from PY 2009 to Prospective Effective Period 9/1/2012 - 8/31/2013 (Section VI-G, Exhibit 1)	
(3):	Section III-D Exhibit 1.	
(5):	Exhibit 2.	
(6):	PY 2009 factor to load for Recoupment of Insolvency Fund (Section III-C, Exhibit 1: [ 1.0 + (8) ]).	0.999
	Policy Effective factor to load for Recoupment of Insolvency Fund Assessments (Section I-E, Exhibit 1, Page 1).	1.001

# III 000015

Section III - Premiums  
Subsection E - Premium Adjustment Factors  
9/1/2012

Section III - E  
Exhibit 2

## Factor to Balance Experience Rating, ARAP, and Construction Credit

### Beginning Period - PY 2009

(1)	Anticipated Impact on Manual Rates of Experience Rating, ARAP, and Construction Credits	1.030
(2)	Actual Impact on Manual Rates of Experience Rating, ARAP, and Construction Credits	1.013
(3)	Ratio of Anticipated to Actual = (1) / (2)	1.017

### Ending Period - Prospective Effective Period 9/1/2012 - 8/31/2013

(4)	Anticipated Impact on Manual Rates of Experience Rating, ARAP, and Construction Credits	1.057
(5)	Actual is Assumed to be equal to the Anticipated, Since the Actual Impact has yet to be Determined	1.057
(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)	1.017

### Notes:

(1),(2): PY 2009, 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 2008 and 2009 to the January 1, 2012 benefit level, and additional adjustments to bring losses from the January 1, 2012 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 1<sup>st</sup> 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 2011 and projected for 2012 and 2013. 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. Most indemnity benefits are 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, 2011, and the projected SAWW changes of October 1, 2012 and October 1, 2013. 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, which are a function of the SAWW, and burial payments, which are not a function of the SAWW. Expected dependent survivor payments are valued on page 1. The NCCI provided 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. For simplicity, we have used values from the 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 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 weight them 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 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**

All historical data used in the Massachusetts rate filing are shown in Section IV-D, along with the derivation of the SAWW. The WCRIBMA utilizes both historical DCI data and NCCI data.

**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 adjustments 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 from NCCI's Annual Statistical Bulletin.

# IV 000007

Section IV - Benefit Change Adjustments  
 Subsection A - Summary  
 9/1/2012

Section IV - A  
 Exhibit 1

## Benefit Level Adjustment Factors

### All Injury Types

Time Period		Indemnity						Medical	Total
Beginning Period	Ending Period	Injury Type 1	Injury Type 2	Injury Type 3	Injury Type 4	Injury Type 5	All Injury Types	All Injury Types	All Injury Types
1/1/2012	Prosp. Eff. Period						1.007	1.000	
PY 2008	1/1/2012						1.013	1.024	
PY 2009	1/1/2012						1.009	1.002	
PY 2001	10/1/2011	1.034	1.050	1.091	1.091	1.027		1.101	
PY 2002	10/1/2011	1.032	1.046	1.086	1.086	1.025		1.072	
PY 2003	10/1/2011	1.032	1.047	1.086	1.086	1.026		1.046	
PY 2004	10/1/2011	1.029	1.042	1.077	1.077	1.023		1.036	
PY 2005	10/1/2011	1.023	1.034	1.062	1.062	1.019	1.047	1.032	
PY 2006	10/1/2011						1.036	1.032	
PY 2007	10/1/2011						1.025	1.032	
PY 2008	10/1/2011						1.013	1.024	
PY 2009	10/1/2011						1.009	1.002	
PY 2001	Prosp. Eff. Period	1.037	1.055	1.101	1.101	1.029		1.101	
PY 2002	Prosp. Eff. Period	1.035	1.052	1.095	1.095	1.028		1.072	
PY 2003	Prosp. Eff. Period	1.035	1.052	1.095	1.095	1.028		1.046	
PY 2004	Prosp. Eff. Period	1.032	1.047	1.086	1.086	1.026		1.036	
PY 2005	Prosp. Eff. Period	1.027	1.039	1.071	1.071	1.021		1.032	
PY 2006	Prosp. Eff. Period	1.022	1.031	1.055	1.055	1.017		1.032	
PY 2007	Prosp. Eff. Period	1.016	1.023	1.040	1.040	1.013		1.032	
PY 2008	Prosp. Eff. Period	1.010	1.015	1.026	1.026	1.008		1.024	
PY 2009	Prosp. Eff. Period	1.008	1.012	1.021	1.021	1.006		1.002	
PY 2007	9/1/2008	1.008	1.011	1.019	1.019	1.007		1.026	
PY 2008	9/1/2009	1.002	1.002	1.004	1.004	1.001		1.024	
PY 2009	9/1/2010	1.001	1.002	1.004	1.004	1.001		1.002	
9/1/2008	Prosp. Eff. Period								1.012
9/1/2009	Prosp. Eff. Period								1.011
9/1/2010	Prosp. Eff. Period								1.008
10/1/2009	Prosp. Eff. Period								1.010
Prior Eff. Period (using benefit level projections from prior filing)	Prosp. Eff. Period						1.004	1.000	1.003

Note:  
 10/1/2009, 10/1/2011 and 1/1/2012 refer to points in time. All other time periods refer to Policy Years.  
 Example: PY 2001 to Prosp. Eff. Period for Indemnity Injury Type 4 = 1.101 = 1.229 / 1.116

Benefit Level Changes and Weights

Injury Type Total Indemnity																					
Date of Change	10/1/1998	10/1/1999	9/1/2000	10/1/2000	10/1/2001	10/1/2002	12/1/2002	10/1/2003	9/1/2004	10/1/2004	10/1/2005	10/1/2006	10/1/2007	10/1/2008	4/1/2009	10/1/2009	10/1/2010	10/1/2011	10/1/2012	10/1/2013	Weighted Average Benefit Level
Benefit Level Change	1.000	1.018	1.000	1.030	1.015	0.998	1.000	1.000	1.000	1.009	1.011	1.011	1.011	1.012	1.000	1.000	0.998	1.011	1.005	1.005	
Cumulative Benefit Level Change	1.000	1.018	1.018	1.049	1.064	1.062	1.062	1.062	1.062	1.072	1.083	1.095	1.107	1.121	1.121	1.121	1.119	1.131	1.137	1.142	
Time Period																					
PY 2001				0.334	0.639	0.023	0.004														1.059
PY 2002					0.339	0.145	0.490	0.027													1.063
PY 2003							0.347	0.607	0.020	0.026											1.062
PY 2004								0.280	0.062	0.630	0.028										1.069
PY 2005										0.336	0.635	0.029									1.080
PY 2006											0.341	0.632	0.027								1.092
PY 2007												0.343	0.630	0.027							1.104
PY 2008													0.350	0.417	0.208	0.025					1.116
PY 2009														0.055	0.290	0.629	0.026				1.121
9/1/2008													0.004	0.180	0.426	0.391					1.121
9/1/2009															0.004	0.602	0.394				1.120
9/1/2010																0.004	0.602	0.395			1.123
Prosp. Eff. Period																		0.004	0.602	0.394	1.139
10/1/2009																1.000					1.121
10/1/2011																		1.000			1.131
1/1/2012																		1.000			1.131

Indemnity All Injury Types - Average Benefit Level for Current Policy Period, Estimated at 9/1/2010 (using benefit level projections from prior filing).

Date of Change	10/1/1998	10/1/1999	9/1/2000	10/1/2000	10/1/2001	10/1/2002	12/1/2002	10/1/2003	9/1/2004	10/1/2004	10/1/2005	10/1/2006	10/1/2007	10/1/2008	4/1/2009	10/1/2009	10/1/2010	10/1/2011	10/1/2012	Weighted Average Benefit Level
Benefit Level Change	1.000	1.018	1.000	1.030	1.015	0.998	1.000	1.000	1.000	1.009	1.011	1.011	1.011	1.012	1.000	1.000	1.009	1.009	1.000	
Cumulative Level Change	1.000	1.018	1.018	1.049	1.064	1.062	1.062	1.062	1.062	1.072	1.083	1.095	1.107	1.121	1.121	1.121	1.131	1.141	1.141	

Medical All Injury Types - Average Benefit Level for Current Policy Period, Estimated at 9/1/2010 (using benefit level projections from prior filing).

Date of Change	10/1/1998	10/1/1999	9/1/2000	10/1/2000	10/1/2001	10/1/2002	12/1/2002	10/1/2003	9/1/2004	10/1/2004	10/1/2005	10/1/2006	10/1/2007	10/1/2008	4/1/2009	10/1/2009	10/1/2010	10/1/2011	10/1/2012	Weighted Average Benefit Level
Benefit Level Change	1.000	1.000	1.031	1.000	1.000	1.000	1.052	1.000	1.014	1.000	1.000	1.000	1.000	1.000	1.032	1.000	1.000	1.000	1.000	
Cumulative Level Change	1.000	1.000	1.031	1.031	1.031	1.031	1.085	1.085	1.100	1.100	1.100	1.100	1.100	1.100	1.135	1.135	1.135	1.135	1.135	

All Injury Types - Average Benefit Level for Current Policy Period, Estimated at 9/1/2010 (using benefit level projections from prior filing).

Date of Change	10/1/1998	10/1/1999	9/1/2000	10/1/2000	10/1/2001	10/1/2002	12/1/2002	10/1/2003	9/1/2004	10/1/2004	10/1/2005	10/1/2006	10/1/2007	10/1/2008	4/1/2009	10/1/2009	10/1/2010	10/1/2011	10/1/2012	Weighted Average Benefit Level
Benefit Level Change	1.000	1.012	1.010	1.021	1.009	0.999	1.020	1.000	1.005	1.006	1.007	1.007	1.007	1.007	1.013	1.000	1.005	1.005	1.000	
Cumulative Level Change	1.000	1.012	1.022	1.044	1.053	1.052	1.073	1.073	1.078	1.085	1.092	1.100	1.108	1.115	1.130	1.130	1.136	1.141	1.141	

Index Factors for All Injury Types

Time Period	Indemnity					All Injury Types	Medical All Injury Types	Total All Injury Types
	Injury Type 1	Injury Type 2	Injury Type 3	Injury Type 4	Injury Type 5			
PY 2001	1.076	1.049	1.072	1.116	1.027	1.059	1.031	1.050
PY 2002	1.078	1.052	1.078	1.122	1.029	1.063	1.059	1.063
PY 2003	1.078	1.052	1.078	1.122	1.028	1.062	1.085	1.073
PY 2004	1.081	1.057	1.087	1.132	1.031	1.069	1.096	1.081
PY 2005	1.087	1.065	1.102	1.148	1.035	1.080	1.100	1.090
PY 2006	1.092	1.073	1.119	1.165	1.039	1.092	1.100	1.098
PY 2007	1.098	1.082	1.135	1.181	1.044	1.104	1.100	1.105
PY 2008	1.105	1.090	1.151	1.198	1.049	1.116	1.108	1.116
PY 2009	1.107	1.093	1.156	1.204	1.051	1.121	1.133	1.129
9/1/2008	1.107	1.094	1.157	1.204	1.051	1.121	1.129	1.127
9/1/2009	1.107	1.093	1.156	1.203	1.051	1.120	1.135	1.130
9/1/2010	1.108	1.096	1.161	1.208	1.052	1.123	1.135	1.132
Prosp. Eff. Period	1.116	1.106	1.180	1.229	1.057	1.139	1.135	1.142
10/1/2009	1.107	1.093	1.157	1.204	1.051	1.121	1.135	1.130
10/1/2011	1.112	1.101	1.170	1.218	1.055	1.131	1.135	1.137
1/1/2012	1.112	1.101	1.170	1.218	1.055	1.131	1.135	1.137

Notes:  
 10/1/2009, 10/1/2011 and 1/1/2012 refer to points in time. All other time periods refer to Policy Years.  
 Index Factors for All Injury Types Table is a Excel Data Table that repeats the calculation of the Weighted Average Benefit Level for all Injury Types.

# IV 000009

Section IV - Benefit Change Adjustments  
 Subsection A - Summary  
 9/1/2012

Section IV - A  
 Exhibit 3

## Historical and Estimated Benefit Level Changes

Effective Date (1)	Indemnity						Medical	Total
	Injury Type 1 (2)	Injury Type 2 (3)	Injury Type 3 (4)	Injury Type 4 (5)	Injury Type 5 (6)	All Injury Types (7)	All Injury Types (8)	All Injury Types (9)
10/1/1998	1.9%	1.1%	1.6%	2.8%	0.6%	1.3%	0.0%	0.9%
10/1/1999	2.7%	1.5%	2.2%	3.9%	0.8%	1.8%	0.0%	1.2%
9/1/2000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.1%	1.0%
10/1/2000	4.2%	2.5%	3.4%	5.9%	1.5%	3.0%	0.0%	2.1%
10/1/2001	0.8%	1.2%	2.2%	2.2%	0.6%	1.5%	0.0%	0.9%
10/1/2002	-0.1%	-0.1%	-0.3%	-0.3%	-0.1%	-0.2%	0.0%	-0.1%
12/1/2002	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.2%	2.0%
10/1/2003	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%
9/1/2004	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%	0.5%
10/1/2004	0.5%	0.7%	1.2%	1.2%	0.4%	0.9%	0.0%	0.6%
10/1/2005	0.5%	0.8%	1.5%	1.5%	0.4%	1.1%	0.0%	0.7%
10/1/2006	0.5%	0.7%	1.5%	1.5%	0.4%	1.1%	0.0%	0.7%
10/1/2007	0.6%	0.9%	1.4%	1.4%	0.5%	1.1%	0.0%	0.7%
10/1/2008	0.6%	0.8%	1.5%	1.5%	0.5%	1.2%	0.0%	0.7%
4/1/2009	0.0%	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%	0.0%
10/1/2010	-0.1%	-0.1%	-0.2%	-0.2%	-0.1%	-0.2%	0.0%	-0.1%
10/1/2011	0.6%	0.8%	1.4%	1.4%	0.4%	1.1%	0.0%	0.7%
10/1/2012	0.2%	0.3%	0.6%	0.6%	0.2%	0.5%	0.0%	0.3%
10/1/2013	0.2%	0.3%	0.6%	0.6%	0.2%	0.5%	0.0%	0.3%

**Notes:**

Historical changes are from Section IV-A, Exhibit 3 of the 9/1/2011 filing.

Estimated changes for 10/1/2012 and 10/1/2013 use projected SAWW values for 10/1/2012 and 10/1/2013 .

Determination of the Monetary Cost and Effect of Amendments on Fatal Benefits

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 10/1/2011		Effects of SAWW Change of 10/1/2012		Effects of SAWW Change of 10/1/2013	
						10/1/2010 Cost (7)	10/1/2011 Cost (8)	10/1/2011 Cost (9)	10/1/2012 Cost (10)	10/1/2012 Cost (11)	10/1/2013 Cost (12)
None	204	0	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx
Spouse, No Children	212	1	40	$\bar{a}_{40:\text{Life}}$	30.53	210,474,502	211,721,091	215,394,387	215,938,327	219,684,844	220,239,627
Spouse with Children	407	1	38	$\bar{a}_{38:\text{Life}}$	30.55	404,336,037	406,730,819	413,787,474	414,832,421	422,029,738	423,095,514
Child(ren)		1.9	10	$a_{416}$	6.87						
Orphan, No Sibling	21	1	13	$\bar{a}_{13:5}$	4.82	3,291,570	3,311,066	3,368,512	3,377,018	3,435,609	3,444,285
Orphan with Sibling(s)	15	2.5	12	$a_{312}$	5.79	2,824,273	2,841,000	2,890,291	2,897,590	2,947,863	2,955,307
Other Dependents (No Spouse)	141	1.7	58	$\bar{a}_{58:\text{Life}}$	22.08	21,470,329	21,470,329	21,470,622	21,470,622	21,470,922	21,470,922
(13) Total Survivor Benefits	1,000					642,396,711	646,074,305	656,911,285	658,515,978	669,568,976	671,205,655
(14) Cost of Burial (1,000 cases)						4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000
(15) Total Monetary Cost [ = (13) + (14) ]						646,396,711	650,074,305	660,911,285	662,515,978	673,568,976	675,205,655
(16) Fatal Benefit Change Factors							1.006		1.002		1.002

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 9/1/2011).
- Annuity certain values assume the same discount rate used in the derivation of the Pension Tables contained in the *Massachusetts Workers' Compensation Statistical Plan*.
- (7), (9), (11) =  $52 \times (2) \times (6) \times$  [ Page 2, (14) ] for Spouses and Orphans and =  $52 \times (2) \times (3) \times (6) \times$  [ Page 2, (30) ] for All Others Dependents
- (8), (10), (12) =  $52 \times (2) \times (6) \times$  [ Page 2, (15) ] for Spouses and Orphans and =  $52 \times (2) \times (3) \times (6) \times$  [ Page 2, (31) ] for All Others Dependents

IV 000010

# IV 000011

## Determination of the Average Weekly Survivor Benefit for Fatalities

### Fatal: Spouse and Orphans - Effective 10/1/2010

(1)	Nominal Rate of Compensation Based on Gross Wages ("Comp. Rate")	66.67%
(2)	Min Weekly Compensation	110.00
(3)	Max Weekly Compensation	1,088.06
(4)	Average Injured Worker WeeklyWage ("AIWWW") for 12 months starting 10/1/2011	967.60

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%	93.89	110.00
165.00 - 1,632.09	Actual Wage x Comp. Rate	0.15	1.70	91.18%	82.70%	877.64	585.09
1,632.09 - over	Statutory Maximum	1.70	over	8.40%	17.26%	1,987.34	1,088.06

(12) Average Weekly Benefit **625.36**

(13) Starting date of 12 month period for AIWWW	Effects of SAWW Change		
	10/1/2011	10/1/2012	10/1/2013
(14) Benefits Effective	10/1/2010	10/1/2011	10/1/2012
Average Weekly Benefits	<b>625.36</b>	639.98	652.73
(15) Benefits Effective	10/1/2011	10/1/2012	10/1/2013
Average Weekly Benefits	629.07	641.60	654.38
(16) Fatal: Spouse and Orphans Benefit Change Factors	1.006	1.003	1.003

### Fatal: All Others - Effective 10/1/2010

(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 WeeklyWage ("AIWWW") for 12 months starting 10/1/2011	967.60

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%	46.57	31.05
120.00 - over	Statutory Maximum	0.10	over	99.82%	99.99%	969.22	80.00

(28) Average Weekly Benefit **79.91**

(29) Starting date of 12 month period for AIWWW	Effects of SAWW Change		
	10/1/2011	10/1/2012	10/1/2013
(30) Benefits Effective	10/1/2010	10/1/2011	10/1/2012
Average Weekly Benefits	<b>79.91</b>	79.91	79.92
(31) Benefits Effective	10/1/2011	10/1/2012	10/1/2013
Average Weekly Benefits	79.91	79.91	79.92
(32) Fatal: All Others Benefit Change Factors	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  
 9/1/2012

Section IV-B  
 Exhibit 2

## Determination of the Average Weekly Benefit for Permanent Totals

### Permanent Total - Effective 10/1/2010

(1)	Nominal Rate of Compensation Based on Gross Wages ("Comp. Rate")	66.67%
(2)	Min Weekly Compensation	217.61
(3)	Max Weekly Compensation	1,088.06
(4)	Average Injured Worker Weekly Wage ("AIWW") for 12 months starting 10/1/2011	967.60

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)	Workers (8)	Wages (9)		
0.00	326.42	0.00	0.35	5.07%	1.29%	246.01	217.61
326.42	1,632.09	0.35	1.70	86.53%	81.46%	910.85	607.23
1,632.09	over	1.70	over	8.40%	17.26%	1,987.34	1,088.06

(12) Average Weekly Benefit **627.88**

	Effects of SAWW Change		
	10/1/2011	10/1/2012	10/1/2013
(13) Starting date of 12 month period for AIWW	10/1/2011	10/1/2012	10/1/2013
(14) Benefits Effective	10/1/2010	10/1/2011	10/1/2012
Average Weekly Wage Loss Benefit	<b>627.88</b>	642.82	655.64
(15) Benefits Effective	10/1/2011	10/1/2012	10/1/2013
Average Weekly Wage Loss Benefit	632.07	644.67	657.52
(16) Permanent Total Wage Loss Benefit Change Factors	1.007	1.003	1.003
(17) Specific Injury Benefits			
SAWW Effect on Specific Injury Benefits	1.044	1.020	1.020
(18) Benefit Proportions Associated with Permanent Total Claims			
(a) Permanent Total Wage Loss Benefits	96.50%	96.50%	96.50%
(b) Specific Injury Benefits	3.50%	3.50%	3.50%
(19) Permanent Total Benefit Change Factors	1.008	1.003	1.003
= [(16) x (18a)] + [(17) x (18b)]			

**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 10/1/2011 = SAWW 10/1/2011 / SAWW 10/1/2010 = 1.044 = 1,135.82 / 1,088.06
- (18): Estimated Average Schedule Benefit compared to Average Indemnity Cost per Claim.  
 DCI data for Permanent Total Claims in Massachusetts.



# IV 000014

Section IV - Benefit Change Adjustments  
 Subsection B - Effects of SAWW Change  
 9/1/2012

Section IV-B  
 Exhibit 4

## Determination of the Average Weekly Benefit for Temporary Totals

### Temporary Total - Effective 10/1/2010

(1)	Nominal Rate of Compensation Based on Gross Wages ("Comp. Rate")	60.00%
(2)	Min Weekly Compensation	217.61
(3)	Max Weekly Compensation	1,088.06
(4)	Average Injured Worker Weekly Wage ("AIWWW") for 12 months starting 10/1/2011	967.60

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    217.61	Actual Wage	0.00	0.20	0.93%	0.13%	137.87	137.87
217.61    362.69	Statutory Minimum	0.20	0.35	4.14%	1.16%	270.18	217.61
362.69    1,813.43	Actual Wage x Comp. Rate	0.35	1.85	89.60%	86.88%	938.21	562.93
1,813.43    over	Statutory Maximum	1.85	over	5.33%	11.83%	2,147.72	1,088.06

(12) Average Weekly Benefit **572.68**

Effects of SAWW Change			
	10/1/2011	10/1/2012	10/1/2013
(13) Starting date of 12 month period for AIWW	10/1/2011	10/1/2012	10/1/2013
(14) Benefits Effective Average Weekly Benefits	10/1/2010 <b>572.68</b>	10/1/2011 585.56	10/1/2012 597.23
(15) Benefits Effective Average Weekly Benefits	10/1/2011 575.19	10/1/2012 586.66	10/1/2013 598.35
(16) Temporary Total Benefit Change Factors	1.004	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

	10/1/2010	10/1/2011	10/1/2012	10/1/2013
(1) Fatal				
% Rate of Compensation	66.67%	66.67%	66.67%	66.67%
Minimum Weekly Benefit				
Widow/Orphan	\$110.00	\$110.00	\$110.00	\$110.00
Others	\$0.00	\$0.00	\$0.00	\$0.00
Maximum Weekly Benefit				
Widow/Orphan	\$1,088.06	\$1,135.82	<b>\$1,158.46</b>	<b>\$1,181.55</b>
Others	\$80.00	\$80.00	\$80.00	\$80.00
Each Additional Child	\$6.00, if benefit under \$150.00			
Maximum Aggregate Payable	250 x SAWW	250 x SAWW	250 x SAWW	250 x SAWW
Burial Allowance	\$4,000	\$4,000	\$4,000	\$4,000
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
(2) Total Disability				
Permanent Total				
% Rate of Compensation	66.67%	66.67%	66.67%	66.67%
Minimum Weekly Benefit	\$217.61	\$227.16	<b>\$231.69</b>	<b>\$236.31</b>
Maximum Weekly Benefit	\$1,088.06	\$1,135.82	<b>\$1,158.46</b>	<b>\$1,181.55</b>
Duration	Lifetime	Lifetime	Lifetime	Lifetime
Cost of Living Adjustment - benefits increase annually by:	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%
Minimum Weekly Benefit	\$217.61	\$227.16	\$231.69	\$236.31
Maximum Weekly Benefit	\$1,088.06	\$1,135.82	\$1,158.46	\$1,181.55
Waiting Period/Retroactive After	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%
Minimum Weekly Benefit	\$0.00	\$0.00	\$0.00	\$0.00
Maximum Weekly Benefit	\$816.05	\$851.87	\$868.85	\$886.16
(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
Non-Scheduled Injuries	32 x SAWW	32 x SAWW	32 x SAWW	32 x SAWW
Disfigurement				
Maximum Benefit	\$15,000	\$15,000	\$15,000	\$15,000
Benefit	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 000016

Section IV - Benefit Change Adjustments  
 Subsection D - Massachusetts Data  
 9/1/2012

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  
 9/1/2012

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	<b>204</b>	<b>0</b>	N/A
Spouse, No Children	<b>212</b>	<b>1</b>	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
<b>Spouse with Children</b>	<b>407</b>	<b>1</b>	38
<b>Summary</b>		<b>1.9</b>	10
<b>Orphan, No Sibling</b>	<b>21</b>	<b>1</b>	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
<b>Orphans with Sibling(s)</b>	<b>15</b>	<b>2.5</b>	12
<b>Summary</b>			
Other Dependents (No Spouse)	41	1	62
1 Parent			
2 Parents	91	2	58
Sibling	7	1	37
Other	2	2	31
<b>Other Dependents</b>	<b>141</b>	<b>1.7</b>	58
<b>Summary</b>			

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 (5)	Actual and Projected SAWW (6)	AIWWW Period (7)	Effective AIWWW (8)
10/1/2010	4/1/09 to 4/1/10	10/1/2009	1,088.06		1,088.06		
10/1/2011	4/1/10 to 4/1/11	10/1/2010	1,135.82		1,135.82	10/1/11 to 10/1/12	967.60
10/1/2012	4/1/11 to 4/1/12	10/1/2011		1.020	1,158.46	10/1/12 to 10/1/13	986.88
10/1/2013	4/1/12 to 4/1/13	10/1/2012		1.020	1,181.55	10/1/13 to 10/1/14	1,006.55

Notes:

(4): Section V-G, Exhibit 2.

(5): 2% Estimated Annual Trend in SAWW, Section V-A, Exhibit 1.

(6) For SAWW Effective Date 10/1/2010 & 10/1/2011, (6) = (4)

For SAWW Effective Date 10/1/2012 & 10/1/2013, (6) = (5) x (6 from Prior Period)

(8): For the AIWWW Period 10/1/11 to 10/1/12, (8) is the product of .827 and the average of the SAWWs effective 10/1/2012 and 10/1/2013, respectively.

For the AIWWW Periods 10/1/12 to 10/1/13 and 10/1/13 to 10/1/14, (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  
 9/1/2012

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)	
<b>Average Wage Loss for Major Permanent Partial Claimants</b>						
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
<b>(6) Selected Average Wage Loss for Major Permanent Partial Claimants</b>						<b>0.62</b>

<b>Average Wage Loss for Minor Permanent Partial Claimants</b>						
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
<b>(7) Selected Average Wage Loss for Minor Permanent Partial Claimants</b>						<b>0.62</b>

**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 10/1/2011 (4)	On-level Losses at Fifth Report = (3) x (4) (5)	Losses at Fifth Report (6)	Benefit On-Level Factor to 10/1/2011 (7)	On-level Losses at Fifth Report = (6) x (7) (8)		
1	2001	1,238,016	1.034	1,279,914	10,029,715	1.034	10,369,149	11,649,063	
1	2002	2,031,199	1.032	2,095,697	10,981,784	1.032	11,330,498	13,426,196	
1	2003	629,606	1.032	649,733	5,092,924	1.032	5,255,734	5,905,467	
1	2004	828,432	1.029	852,104	4,953,963	1.029	5,095,522	5,947,626	
1	2005	3,905,032	1.023	3,996,497	9,690,411	1.023	9,917,383	13,913,880	
Total 1		8,632,285		8,873,946	40,748,797		41,968,286	50,842,232	1.76%
2	2001	19,418,131	1.050	20,388,962	0	1.050	0	20,388,962	
2	2002	18,093,110	1.046	18,934,389	0	1.046	0	18,934,389	
2	2003	24,570,890	1.047	25,717,343	0	1.047	0	25,717,343	
2	2004	30,160,406	1.042	31,421,656	0	1.042	0	31,421,656	
2	2005	22,055,501	1.034	22,802,563	0	1.034	0	22,802,563	
Total 2		114,298,038		119,264,913	0		0	119,264,913	4.13%
3	2001	104,207,597	1.091	113,737,599	91,841,910	1.091	100,241,044	213,978,643	
3	2002	106,865,348	1.086	116,016,534	91,630,446	1.086	99,477,024	215,493,557	
3	2003	115,537,165	1.086	125,440,535	80,552,995	1.086	87,457,666	212,898,201	
3	2004	121,402,652	1.077	130,717,047	95,994,613	1.077	103,359,623	234,076,669	
3	2005	114,465,424	1.062	121,535,518	93,352,853	1.062	99,118,904	220,654,421	
Total 3		562,478,186		607,447,232	453,372,817		489,654,260	1,097,101,492	37.96%
4	2001	11,682,533	1.091	12,750,925	24,608,773	1.091	26,859,297	39,610,222	
4	2002	11,846,119	1.086	12,860,536	22,646,281	1.086	24,585,547	37,446,083	
4	2003	10,602,770	1.086	11,511,596	21,525,972	1.086	23,371,090	34,882,685	
4	2004	9,821,301	1.077	10,574,822	20,551,387	1.077	22,128,154	32,702,976	
4	2005	8,024,296	1.062	8,519,926	20,275,321	1.062	21,527,650	30,047,577	
Total 4		51,977,019		56,217,805	109,607,734		118,471,738	174,689,543	6.04%
5	2001	24,582,924	1.027	25,239,342	55,281,905	1.027	56,758,054	81,997,396	
5	2002	22,290,523	1.025	22,854,585	54,280,759	1.025	55,654,336	78,508,921	
5	2003	22,090,463	1.026	22,654,759	52,967,532	1.026	54,320,575	76,975,334	
5	2004	22,376,839	1.023	22,888,049	52,379,401	1.023	53,576,035	76,464,084	
5	2005	25,876,491	1.019	26,361,478	57,859,794	1.019	58,944,224	85,305,702	
Total 5		117,217,240		119,998,214	272,769,391		279,253,224	399,251,438	13.81%
(11) Total Indemnity		854,602,768		911,802,110	876,498,739		929,347,508	1,841,149,618	63.70%

- (12) Aggregate Financial Policy Year Call, Indemnity Fifth to Ultimate Development Factor Paid + Case 1.043
- (13) Tail Development Attributed to Likely to Develop Claims 0.8
- (14) Percentage Likely to Develop 0.495
- (15) Indemnity Likely to Develop - Loss Development Factor from 5th Report to Ultimate =  $1.0 + \{ [(12) - 1.0] \times (13) \} / (14)$  1.070
- (16) Indemnity Not Likely to Develop - Loss Development Factor from 5th Report to Ultimate =  $1.0 + \{ [(12) - 1.0] \times [1.0 - (13)] \} / [1.0 - (14)]$  1.017

IV 000020

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 10/1/2011 (4)	On-level Losses at Fifth Report = (3) x (4) (5)	Losses at Fifth Report (6)	Benefit On-Level Factor to 10/1/2011 (7)	On-level Losses at Fifth Report = (6) x (7) (8)		
1	2001	1,148,591	1.101	1,264,198	282,460	1.101	310,890	1,575,088	
1	2002	507,265	1.072	543,829	413,158	1.072	442,939	986,768	
1	2003	8,370	1.046	8,753	175,673	1.046	183,713	192,466	
1	2004	61,768	1.036	63,992	94,146	1.036	97,536	161,529	
1	2005	319,781	1.032	330,014	550,716	1.032	568,339	898,353	
Total 1		2,045,775		2,210,787	1,516,153		1,603,417	3,814,204	0.13%
2	2001	12,507,905	1.101	13,766,845	0	1.101	0	13,766,845	
2	2002	13,061,072	1.072	14,002,521	0	1.072	0	14,002,521	
2	2003	19,332,955	1.046	20,217,770	0	1.046	0	20,217,770	
2	2004	18,915,438	1.036	19,596,598	0	1.036	0	19,596,598	
2	2005	21,133,992	1.032	21,810,280	0	1.032	0	21,810,280	
Total 2		84,951,362		89,394,014	0		0	89,394,014	3.09%
3	2001	43,268,536	1.101	47,623,580	30,380,223	1.101	33,438,039	81,061,619	
3	2002	46,807,395	1.072	50,181,296	28,422,420	1.072	30,471,122	80,652,418	
3	2003	49,554,805	1.046	51,822,790	24,220,454	1.046	25,328,956	77,151,746	
3	2004	63,248,200	1.036	65,525,819	31,336,644	1.036	32,465,102	97,990,921	
3	2005	46,937,879	1.032	48,439,891	29,966,068	1.032	30,924,982	79,364,873	
Total 3		249,816,815		263,593,376	144,325,809		152,628,202	416,221,578	14.40%
4	2001	6,373,568	1.101	7,015,077	12,913,601	1.101	14,213,375	21,228,452	
4	2002	7,386,113	1.072	7,918,508	13,098,057	1.072	14,042,172	21,960,679	
4	2003	7,199,403	1.046	7,528,900	12,934,649	1.046	13,526,632	21,055,531	
4	2004	6,331,886	1.036	6,559,902	12,272,087	1.036	12,714,015	19,273,917	
4	2005	4,382,956	1.032	4,523,211	12,623,977	1.032	13,027,944	17,551,155	
Total 4		31,673,926		33,545,598	63,842,371		67,524,137	101,069,735	3.50%
5	2001	11,017,484	1.101	12,126,411	37,889,798	1.101	41,703,464	53,829,875	
5	2002	12,839,308	1.072	13,764,772	43,763,620	1.072	46,918,124	60,682,896	
5	2003	12,843,821	1.046	13,431,647	43,117,520	1.046	45,090,888	58,522,535	
5	2004	11,770,690	1.036	12,194,562	43,457,163	1.036	45,022,091	57,216,653	
5	2005	15,719,897	1.032	16,222,934	45,771,678	1.032	47,236,372	63,459,305	
Total 5		64,191,200		67,740,325	213,999,779		225,970,939	293,711,264	10.16%
6	2001	0	1.101	0	25,849,236	1.101	28,451,001	28,451,001	
6	2002	0	1.072	0	26,882,908	1.072	28,820,642	28,820,642	
6	2003	0	1.046	0	27,795,969	1.046	29,068,113	29,068,113	
6	2004	0	1.036	0	27,635,651	1.036	28,630,833	28,630,833	
6	2005	0	1.032	0	29,003,592	1.032	29,931,707	29,931,707	
Total 6		0		0	137,167,356		144,902,296	144,902,296	5.01%
(11) Total Medical		432,679,078		456,484,100	560,851,468		592,628,991	1,049,113,091	36.30%
(12) Total Medical & Indemnity		1,287,281,846		1,368,286,210	1,437,350,207		1,521,976,499	2,890,262,709	
(13) Medical Only fraction of Total Medical									13.81%

- (14) Aggregate Financial Policy Year Call, Medical Fifth to Ultimate Development Factor Paid + Case 1.141
- (15) Tail Development Attributed to Likely to Develop Claims 0.8
- (16) Percentage Likely to Develop 0.435
- (17) Medical Likely to Develop - Loss Development Factor from 5th Report to Ultimate =  $1.0 + \{ [(12) - 1.0] \times (13) \} / (14)$  1.259
- (18) Medical Not Likely to Develop - Loss Development Factor from 5th Report to Ultimate =  $1.0 + \{ [(12) - 1.0] \times [1.0 - (13)] \} / [1.0 - (14)]$  1.050
- (19) Indemnity Likely Weight at 5th Report 31.55%
- (20) Indemnity Not Likely Weight at 5th Report 32.15%
- (21) Medical Likely Weight at 5th Report 15.79%
- (22) Medical Not Likely Weight at 5th Report 20.50%

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)		
1	2001	1,279,914	1.070	1,368,985	10,369,149	1.017	10,546,145	11,915,130	
1	2002	2,095,697	1.070	2,241,540	11,330,498	1.017	11,523,903	13,765,444	
1	2003	649,733	1.070	694,949	5,255,734	1.017	5,345,446	6,040,395	
1	2004	852,104	1.070	911,404	5,095,522	1.017	5,182,499	6,093,903	
1	2005	3,996,497	1.070	4,274,619	9,917,383	1.017	10,086,667	14,361,287	
Total 1		8,873,946		9,491,498	41,968,286		42,684,661	52,176,158	1.67%
2	2001	20,388,962	1.070	21,807,862	0	1.017	0	21,807,862	
2	2002	18,934,389	1.070	20,252,062	0	1.017	0	20,252,062	
2	2003	25,717,343	1.070	27,507,053	0	1.017	0	27,507,053	
2	2004	31,421,656	1.070	33,608,338	0	1.017	0	33,608,338	
2	2005	22,802,563	1.070	24,389,429	0	1.017	0	24,389,429	
Total 2		119,264,913		127,564,744	0		0	127,564,744	4.09%
3	2001	113,737,599	1.070	121,652,776	100,241,044	1.017	101,952,102	223,604,877	
3	2002	116,016,534	1.070	124,090,305	99,477,024	1.017	101,175,040	225,265,345	
3	2003	125,440,535	1.070	134,170,137	87,457,666	1.017	88,950,519	223,120,656	
3	2004	130,717,047	1.070	139,813,850	103,359,623	1.017	105,123,913	244,937,762	
3	2005	121,535,518	1.070	129,993,364	99,118,904	1.017	100,810,807	230,804,171	
Total 3		607,447,232		649,720,432	489,654,260		498,012,379	1,147,732,811	36.82%
4	2001	12,750,925	1.070	13,638,282	26,859,297	1.017	27,317,769	40,956,051	
4	2002	12,860,536	1.070	13,755,521	24,585,547	1.017	25,005,208	38,760,729	
4	2003	11,511,596	1.070	12,312,706	23,371,090	1.017	23,770,021	36,082,727	
4	2004	10,574,822	1.070	11,310,741	22,128,154	1.017	22,505,869	33,816,610	
4	2005	8,519,926	1.070	9,112,841	21,527,650	1.017	21,895,115	31,007,956	
Total 4		56,217,805		60,130,090	118,471,738		120,493,983	180,624,073	5.79%
5	2001	25,239,342	1.070	26,995,788	56,758,054	1.017	57,726,882	84,722,669	
5	2002	22,854,585	1.070	24,445,072	55,654,336	1.017	56,604,323	81,049,395	
5	2003	22,654,759	1.070	24,231,339	54,320,575	1.017	55,247,797	79,479,135	
5	2004	22,888,049	1.070	24,480,864	53,576,035	1.017	54,490,548	78,971,412	
5	2005	26,361,478	1.070	28,196,014	58,944,224	1.017	59,950,368	88,146,382	
Total 5		119,998,214		128,349,076	279,253,224		284,019,917	412,368,994	13.23%
(11) Total Indemnity		911,802,110		975,255,840	929,347,508		945,210,940	1,920,466,780	61.60%

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)		
1	2001	1,264,198	1.259	1,591,800	310,890	1.050	326,404	1,918,204	
1	2002	543,829	1.259	684,756	442,939	1.050	465,042	1,149,798	
1	2003	8,753	1.259	11,021	183,713	1.050	192,881	203,902	
1	2004	63,992	1.259	80,575	97,536	1.050	102,403	182,979	
1	2005	330,014	1.259	415,533	568,339	1.050	596,700	1,012,233	
Total 1		2,210,787		2,783,686	1,603,417		1,683,430	4,467,116	0.14%
2	2001	13,766,845	1.259	17,334,359	0	1.050	0	17,334,359	
2	2002	14,002,521	1.259	17,631,108	0	1.050	0	17,631,108	
2	2003	20,217,770	1.259	25,456,966	0	1.050	0	25,456,966	
2	2004	19,596,598	1.259	24,674,824	0	1.050	0	24,674,824	
2	2005	21,810,280	1.259	27,462,155	0	1.050	0	27,462,155	
Total 2		89,394,014		112,559,412	0		0	112,559,412	3.61%
3	2001	47,623,580	1.259	59,964,666	33,438,039	1.050	35,106,649	95,071,316	
3	2002	50,181,296	1.259	63,185,183	30,471,122	1.050	31,991,679	95,176,862	
3	2003	51,822,790	1.259	65,252,051	25,328,956	1.050	26,592,911	91,844,962	
3	2004	65,525,819	1.259	82,506,058	32,465,102	1.050	34,085,161	116,591,219	
3	2005	48,439,891	1.259	60,992,514	30,924,982	1.050	32,468,187	93,460,701	
Total 3		263,593,376		331,900,474	152,628,202		160,244,587	492,145,061	15.79%
4	2001	7,015,077	1.259	8,832,951	14,213,375	1.050	14,922,644	23,755,596	
4	2002	7,918,508	1.259	9,970,495	14,042,172	1.050	14,742,898	24,713,393	
4	2003	7,528,900	1.259	9,479,925	13,526,632	1.050	14,201,632	23,681,556	
4	2004	6,559,902	1.259	8,259,823	12,714,015	1.050	13,348,464	21,608,287	
4	2005	4,523,211	1.259	5,695,347	13,027,944	1.050	13,678,059	19,373,406	
Total 4		33,545,598		42,238,541	67,524,137		70,893,697	113,132,238	3.63%
5	2001	12,126,411	1.259	15,268,826	41,703,464	1.050	43,784,532	59,053,358	
5	2002	13,764,772	1.259	17,331,749	46,918,124	1.050	49,259,411	66,591,161	
5	2003	13,431,647	1.259	16,912,299	45,090,888	1.050	47,340,994	64,253,293	
5	2004	12,194,562	1.259	15,354,638	45,022,091	1.050	47,268,763	62,623,402	
5	2005	16,222,934	1.259	20,426,915	47,236,372	1.050	49,593,540	70,020,455	
Total 5		67,740,325		85,294,427	225,970,939		237,247,241	322,541,668	10.35%
6	2001	0	1.259	0	28,451,001	1.050	29,870,750	29,870,750	
6	2002	0	1.259	0	28,820,642	1.050	30,258,837	30,258,837	
6	2003	0	1.259	0	29,068,113	1.050	30,518,657	30,518,657	
6	2004	0	1.259	0	28,630,833	1.050	30,059,556	30,059,556	
6	2005	0	1.259	0	29,931,707	1.050	31,425,346	31,425,346	
Total 6		0		0	144,902,296		152,133,146	152,133,146	4.88%
(11) Total Medical		456,484,100		574,776,541	592,628,991		622,202,101	1,196,978,642	38.40%
(12) Total Medical & Indemnity		1,368,286,210		1,550,032,381	1,521,976,499		1,567,413,042	3,117,445,422	
(13) Medical Only fraction of Total Medical									12.71%

Ind & Med N/L Weights at Ult	
Indemnity Likely	31.28%
Indemnity Not Likely	30.32%
Medical Likely	18.44%
Medical Not Likely	19.96%

IV 000023

USL&HW Benefit Level Factors

All Injury Types

Time Period		Indemnity					Medical	Total	
Beginning Period	Ending Period	Injury Type 1	Injury Type 2	Injury Type 3	Injury Type 4	Injury Type 5	All Injury Types	All Injury Types	
PY 2005	Prosp. Eff. Period	1.054	1.034	1.009	1.009	1.034		1.000	
PY 2006	Prosp. Eff. Period	1.048	1.032	1.008	1.008	1.032		1.000	
PY 2007	Prosp. Eff. Period	1.041	1.028	1.007	1.007	1.028		1.000	
PY 2008	Prosp. Eff. Period	1.029	1.021	1.006	1.006	1.021		1.000	
PY 2009	Prosp. Eff. Period	1.020	1.016	1.005	1.005	1.016		1.000	
9/1/2008	Prosp. Eff. Period							1.006	
9/1/2009	Prosp. Eff. Period							1.005	
9/1/2010	Prosp. Eff. Period							1.004	
10/1/2009	Prosp. Eff. Period							1.005	
Prior Eff. Period (using benefit level projections from prior filing)	Prosp. Eff. Period						1.006	1.000	1.005

IV 000024

Notes:

10/1/2009 refers to a point in time. All other time periods refer to Policy Years.

Example:  $PY\ 2009\ to\ Prosp.\ Eff.\ Period\ for\ Indemnity\ Injury\ Type\ 4 = 1.005 = 1.010 / 1.005$

where 1.010 is the Index Factor of Prosp. Eff. Period and 1.005 is the Index Factor of PY 2009 for Indemnity Injury Type 4, from Exhibit 2.

USL&HW Benefit Level Changes and Weights

Injury Type 1											
Benefit Level Change	10/1/2004	10/1/2005	10/1/2006	10/1/2007	10/1/2008	10/1/2009	10/1/2010	10/1/2011	10/1/2012	10/1/2013	Weighted Average Benefit Level
Benefit Level Change	1.009	1.003	1.006	1.009	1.011	1.009	1.002	1.006	1.006	1.006	
Cumulative Benefit Level Change	1.009	1.012	1.018	1.027	1.039	1.048	1.050	1.056	1.063	1.069	
Time Period											
PY 2005	0.364	0.632	0.005								<b>1.011</b>
PY 2006		0.232	0.753	0.015							<b>1.017</b>
PY 2007			0.378	0.614	0.008						<b>1.024</b>
PY 2008				0.254	0.735	0.011					<b>1.036</b>
PY 2009					0.276	0.711	0.012				<b>1.045</b>
9/1/2008				0.001	0.466	0.533					<b>1.044</b>
9/1/2009					0.001	0.470	0.529				<b>1.049</b>
9/1/2010						0.001	0.470	0.530			<b>1.053</b>
Prosp. Eff. Period								0.001	0.470	0.529	<b>1.066</b>
10/1/2009						1.000					<b>1.048</b>

Indemnity All Injury Types - Average Benefit Level for Current Policy Period, Estimated at 9/1/2010 (using benefit level projections from prior filing).

Date of Change	10/1/2004	10/1/2005	10/1/2006	10/1/2007	10/1/2008	10/1/2009	10/1/2010	10/1/2011	10/1/2012	Weighted Average Benefit Level
Benefit Level Change	1.000	1.000	1.002	1.003	1.002	1.003	1.003	1.003	1.000	
Cumulative Level Change	1.000	1.000	1.002	1.005	1.007	1.010	1.013	1.016	1.016	<b>1.015</b>

Medical All Injury Types - Average Benefit Level for Current Policy Period, Estimated at 9/1/2010 (using benefit level projections from prior filing).

Date of Change	10/1/2004	10/1/2005	10/1/2006	10/1/2007	10/1/2008	10/1/2009	10/1/2010	10/1/2011	10/1/2012	Weighted Average Benefit Level
Benefit Level Change	1.000	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	<b>1.000</b>

All Injury Types - Average Benefit Level for Current Policy Period, Estimated at 9/1/2010 (using benefit level projections from prior filing).

Date of Change	10/1/2004	10/1/2005	10/1/2006	10/1/2007	10/1/2008	10/1/2009	10/1/2010	10/1/2011	10/1/2012	Weighted Average Benefit Level
Benefit Level Change	1.000	1.000	1.001	1.002	1.001	1.001	1.001	1.001	1.000	
Cumulative Level Change	1.000	1.000	1.001	1.003	1.004	1.005	1.006	1.007	1.007	<b>1.007</b>

Index Factors for All Injury Types

Time Period	Indemnity						Medical	Total
	Injury Type 1	Injury Type 2	Injury Type 3	Injury Type 4	Injury Type 5	All Injury Types	All Injury Types	
PY 2005	<b>1.011</b>	1.006	1.001	1.001	1.006	1.002	1.001	
PY 2006	<b>1.017</b>	1.008	1.002	1.002	1.008	1.004	1.002	
PY 2007	<b>1.024</b>	1.012	1.003	1.003	1.012	1.006	1.003	
PY 2008	<b>1.036</b>	1.019	1.004	1.004	1.019	1.008	1.005	
PY 2009	<b>1.045</b>	1.024	1.005	1.005	1.024	1.011	1.006	
9/1/2008	<b>1.044</b>	1.023	1.005	1.005	1.023	1.011	1.006	
9/1/2009	<b>1.049</b>	1.026	1.005	1.005	1.026	1.013	1.006	
9/1/2010	<b>1.053</b>	1.030	1.006	1.006	1.030	1.015	1.007	
Prosp. Eff. Period	<b>1.066</b>	1.040	1.010	1.010	1.040	1.021	1.011	
10/1/2009	<b>1.048</b>	1.025	1.005	1.005	1.025	1.012	1.006	

Notes:

10/1/2009 refers to a point in time. All other 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  
 9/1/2012

Section IV - F  
 Exhibit 3

## USL&HW Historical and Estimated Benefit Level Changes

Effective Date (1)	Indemnity						Medical	Total
	Injury Type 1 (2)	Injury Type 2 (3)	Injury Type 3 (4)	Injury Type 4 (5)	Injury Type 5 (6)	All Injury Types (7)	All Injury Types (8)	All Injury Types (9)
10/1/2003	0.8%	0.4%	0.1%	0.1%	0.4%	0.2%	0.0%	0.1%
10/1/2004	0.9%	0.5%	0.1%	0.1%	0.5%	0.2%	0.0%	0.1%
10/1/2005	0.3%	0.1%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%
10/1/2006	0.6%	0.3%	0.1%	0.1%	0.3%	0.2%	0.0%	0.1%
10/1/2007	0.9%	0.5%	0.1%	0.1%	0.5%	0.3%	0.0%	0.2%
10/1/2008	1.1%	0.6%	0.1%	0.1%	0.6%	0.2%	0.0%	0.1%
10/1/2009	0.9%	0.5%	0.1%	0.1%	0.5%	0.3%	0.0%	0.1%
10/1/2010	0.2%	0.2%	0.0%	0.0%	0.2%	0.1%	0.0%	0.0%
10/1/2011	0.6%	0.5%	0.2%	0.2%	0.5%	0.3%	0.0%	0.2%
10/1/2012	0.6%	0.5%	0.2%	0.2%	0.5%	0.3%	0.0%	0.2%
10/1/2013	0.6%	0.5%	0.2%	0.2%	0.5%	0.3%	0.0%	0.2%

**Notes:**

Values prior to 10/1/2011 are from NCCI's Annual Statistical Bulletin, 2011 Edition.

Values for 10/1/2011 are from NCCI.

Changes for 10/1/2012 & 10/1/2013 are assumed to be the same as 10/1/2011.

**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 September 1, 2012, basic principles of ratemaking require that historical losses and premiums be adjusted to the levels expected during the prospective rate period. The trend factors we use represent the expected change from the experience period (in this filing, policy years 2008 and 2009) to September 1, 2013, 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 otherwise-quantifiable 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 0.0% per year for indemnity losses, and 0.6% per year for medical losses. The indicated trend factors and their key components are summarized in Section V-A Exhibit 1.

Indemnity Net Trend	0.0%
Medical Net Trend	0.6%

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 ranging from 4.7% to 5.4% for indemnity and medical benefits, respectively. We are projecting downward movement in claim frequency per worker week, at a pace of 2.5% annually for lost time claims and 2.7% for medical claims. Finally, we are projecting an increase of 2.0% annually in average wages.

Trend	Indemnity		Medical
Severity	4.7%		5.4%
Frequency	-2.5%		-2.7%
SAWW		2.0%	
Net	0.0%		0.6%

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.

We have used the same method that we introduced in the 2005 filing and subsequently used in the 2007, 2008, 2010, and 2011 filings. This method was developed in response to the criticisms of the econometric trend method used in the WCRIBMA's 2003 filing. The WCRIBMA has not used econometric models to calculate the net trend this year because no econometric model has been validated or found to be superior for ratemaking purposes. We do, however, intend to continue our research in this area. In the meantime, we have continued to rely on a model that although not capable of projecting turning points in claim frequency, claim severity or wage trends, will be well-behaved, unbiased and effective in estimating overall trends, from one year to the next and over time, if applied consistently. Our methodology both produces a result that should be accepted for rate-setting this year and provides a precedent that should be accepted by the Commissioner for use in the future.

The WCRIBMA recommends that the calculation of trend factors be based upon 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 historical trends is an exponential least squares regression fit to the most recent five years of Massachusetts Unit Statistical Plan Data. The results of these regressions indicate an annual rate of change for each component. Second, we tested the credibility of these indicated trends on the basis of the consistency between the historical data and the fitted exponential curve. Using a methodology from the actuarial literature,<sup>1</sup> 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 five year data should be given less than 100% weight, we complemented the five year 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 indication. The five year trend indications, the credibilities

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<sup>1</sup> Venter, Gary, "Classical Partial Credibility with Application to Trend," *PCAS LXXIII*, 1986, pp. 27-51.

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they have been assigned, and the complementary trend indications are summarized in Exhibits 1 through 3 of Section V-A for claim cost, claim frequency, and average weekly wage, respectively.

	Empirical Trend	Credibility	Complement of Credibility	Selected Trend
<b>Severity</b>				
Indemnity	5.0%	81%	3.2%	4.7%
Medical on Lost Time	6.0%	60%	5.3%	5.7%
Medical Only	2.7%	52%	4.2%	3.4%
<b>Frequency</b>				
Lost Time Claims	-2.2%	83%	-4.0%	-2.5%
Medical	-3.7%	82%	-4.3%	-3.8%
<b>Average Weekly Wage</b>	1.7%	84%	3.7%	2.0%

Any trending method that relies on fitting linear or exponential curves to the historical data as the basis for projecting trend rates – whether that method is applied to cost components or to final loss ratios – will, by its nature, not only fail to predict turning points, but also will respond slowly when turning points first emerge in the experience. Discussions in prior hearings, and in other venues, reveal the difficulty of forecasting the timing and degree of turning points for any economic or social phenomenon. By blending indications from short term and long term movements, as in the case of frequency and wages, or state-specific and nationwide trends, as in severity, the WCRIBMA has used a method that continues to provide a reasonable balance between stability and responsiveness. If used consistently over time, this methodology should mitigate the trend

volatility that could result from the application of significantly different judgments (about turning points, for example) from one year to the next. In short, the trend methodology presented in this filing not only provides an appropriate and reasonable basis for selecting trend factors for present rate-setting purposes, but it is also a methodology that will produce reasonable and unbiased results in future years if applied on a consistent basis.

We recommend that the Commissioner accept the WCRIBMA's net trend factors and that the Commissioner explicitly endorse the WCRIBMA's methodology so that the parties can narrow the scope of disputed issues in future years.

### **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 five years of Massachusetts data (Row (1)), applying the credibility parameter that is based on how well the indicated trend fits the underlying data (Row (2)), and applying the complement of the credibility to the trend indications that are based on broader or longer data series (Row (3)). 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 an exponential fit to the most recent five years of Massachusetts data. This exponential method yields fitted values for each year 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 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 latest five years of 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 five years of data.

The specific steps and calculations that implement Venter's procedure to calculate the credibility assigned to the five year Massachusetts trend (Row (1)) are detailed in Exhibits 2 and 3 of Section V-A, in Rows numbered (3) through (11). 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 five years ( $n=5$ ) of Massachusetts data, and  $n-2$  is an adjustment for degrees of freedom. Row (4), denoted "t," is the 95<sup>th</sup> percentile of the t-distribution with  $n-2=3$  degrees of freedom. We use the 95<sup>th</sup> 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 five-year fitted value, and the credibility procedure assigns 100% to the indicated five-year trend. If the ratio in Row (9) is greater than the selected error tolerance, then the credibility

assigned to the five-year trend must be less than 100%. Specifically, it 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 the fitted trend based on five years of 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 five-year 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 Massachusetts five-year frequency and average weekly wage trends. We judgmentally selected fifteen years of data to calculate the long-term Massachusetts trends because we were concerned that data older than fifteen years could not easily be placed on a consistent level with the more recent data.

Finally, Section V-A Exhibits 2 and 3 Row (12) calculate the credibility-weighted annual trend, which is:

Credibility-weighted annual trend =

$$\begin{aligned} & [Z] \times [\text{indicated annual trend based on 5-year Massachusetts data}] \\ & + [1.0 \text{ minus } Z] \times [\text{indicated annual trend based on complementary data}], \end{aligned}$$

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 used Unit Statistical Plan Data, as we did in the last five filings. 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 may be reported in a batch for an individual employer and policy period).

We have Unit Statistical Plan Data for policies written through December 2009. As in the 2010 and 2011 Filings, the Unit Statistical Plan Data used in this trend analysis have been compiled on a “policy year” basis. Policy year 2009, for example, includes all policies with inception dates between January 1, 2009 and December 31, 2009. For policy year 2009, the average policy inception date is assumed to be July 1, 2009 and the average accident date is assumed to be January 1, 2010.

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 very 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 that 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, and 66 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 fifth-report maturity as the older, more mature policy years.

Unit Statistical Plan Data have historically been compiled out to fifth-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 fifth-report. While we could have used other data sources to derive development factors from fifth-report to ultimate, the same (or very similar) fifth-to-ultimate development factors would

likely apply to all policy years, and thus not have produced a different trend indication. In the interest of not adding unnecessary complexity to the filing, we opted to use the data for all policy years at fifth-report.

**Overview of:****Section V-B – Claim Count Development****Section V-C – Indemnity Loss Development****Section V-D – Medical Loss Development**

Section V-B documents the calculation of historical claim counts developed to fifth-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 fifth-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 fifth-report basis. We have developed indemnity losses separately from medical, and medical only losses separately from lost time medical. In all cases we have used the two most recent years of data to calculate the development factors.

For purposes of the trend calculations, we have only developed the claim counts and loss dollars to fifth-report, not to ultimate, because the Unit Statistical

Plan Data for some of the years included in our analysis do not provide information to estimate tail factors beyond fifth-report.

After the losses and claim counts are developed to fifth-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 fifth-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. 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 fifth-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 fifth-report.

The reported Unit Statistical Plan Data reflect the statutory benefit provisions that applied to each individual claim. Thus, claims from the 2005 policy year were handled and reported based on the benefits in effect at that

time. Similarly, claims from the 2009 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. But we do not want this trend to affect the data, because the statutory benefit changes are specifically addressed in another section of the filing. 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 five year fitted Massachusetts trends.

### **Section V-E – Payroll Development and Worker-Weeks**

Section V-E documents the estimation of worker weeks that underlie the Unit Statistical Plan Data for each year. The resulting estimate of worker weeks 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 state 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 fifth-report, divided by

(b) the state average weekly wage corresponding to the same period.

As with claim counts and frequency, we have only developed the payrolls to fifth-report, not to ultimate, because the Unit Statistical Plan Data for all the years included in our analysis does not provide information to estimate tail factors beyond fifth-report.

The state average weekly wage is based on Massachusetts wage data compiled by the Division 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 time periods for which the Massachusetts wage data are compiled do not correspond to the policy periods we are analyzing; we use a weighted average of several wage data periods to correspond to the policy periods, as detailed in the footnotes in Section V-E. The underlying Massachusetts average wage series is documented in Section V-G.

**Section V-F – Adjustment Factor for Class Mix; On-Level Factors**

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* manual rates, weighted by each year's payrolls by classification. For example, using the 2009 distribution of payrolls by classification, the weighted average of the current rates is \$0.902, while using the 1995 distribution of payrolls by classification against the same current rates produces an average rate of \$1.092. Since the manual rate in each classification is based on the workers' compensation claims experience within that classification, this movement in average rates indicates, not surprisingly, 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 simplifying 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.

**Trend Summary**

		Indemnity		Medical				SAWW
		Severity	Frequency	Lost Time Medical		Medical Only		
				Severity	Frequency	Severity	Frequency	
(1)	5 Yr MA Trend	5.0%	-2.2%	6.0%	-2.2%	2.7%	-3.7%	1.7%
(2)	Credibility - 5 Yr MA Trend (Z)	81%	83%	60%	83%	52%	82%	84%
(3)	Complement of Credibility	3.2%	-4.0%	5.3%	-4.0%	4.2%	-4.3%	3.7%
(4)	Credibility Weighted Trend	4.7%	-2.5%	5.7%	-2.5%	3.4%	-3.8%	2.0%
				Lost Time Medical		Medical Only		
(5)	Medical Loss Trend			3.1%		-0.5%		
(6)	Fraction of Total Medical			87.3%		12.7%		
(7)	Total Medical Loss Trend			2.6%				
		Indemnity		Medical				
(8)	Total Loss Trend	2.0%		2.6%				
(9)	SAWW Trend	2.0%		2.0%				
(10)	Total Net Trend	0.0%		0.6%				

Notes:

- (1),(2),(3): Exhibits 2,3.
- (4) =  $[(1) \times (2)] + \{(3) \times [1.0 - (2)]\}$
- (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 =  $1.0 - \text{Medical Only}$
- (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): Exhibit 3.
- (10) =  $\{[1.0 + (8)] / [1.0 + (9)]\} - 1.0$

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Severity Trend Calculation

Policy Year	Indemnity			Lost Time Medical			Medical Only		
	Massachusetts Severity	5 Year Exponential Fit	Difference Squared	Massachusetts Severity	5 Year Exponential Fit	Difference Squared	Massachusetts Severity	5 Year Exponential Fit	Difference Squared
2005	21,626	21,447	32,097	10,642	10,696	2,873	724	741	280
2006	22,694	22,518	30,963	11,575	11,341	54,492	767	760	49
2007	22,931	23,643	506,952	11,990	12,026	1,268	799	781	337
2008	24,937	24,825	12,689	12,312	12,751	193,398	815	801	200
2009	26,325	26,065	67,893	13,831	13,521	96,470	801	823	481
(1)	<b>5 Yr MA Trend</b>		<b>5.0%</b>	<b>Lost Time Medical</b>		<b>6.0%</b>	<b>Medical Only</b>		
(2)	n		5			5			5
(3)	s		465.69			340.83			21.18
(4)	t		2.35			2.35			2.35
(5)	m		5.67			5.67			5.67
(6)	[1 + 1/n + 12 x m^2/(n^3-n)]^0.5		2.10			2.10			2.10
(7)	Confidence Interval		2,302			1,685			104.71
(8)	Projected Severity		31,168			16,762			906
(9)	CI/Projected Severity		0.07			0.10			0.12
(10)	<b>Credibility - 5 Yr MA Trend (Z)</b>		<b>81%</b>			<b>60%</b>			<b>52%</b>
NCCI Annual Statistical Bulletin	CW Indemnity Severity			CW Lost Time ("LT") Medical Severity			CW Medical Only Severity		
	Indemnity Severity	CW Indemnity On-Level Factors	On-Level Indemnity Severity	LT Medical Severity	CW LT Medical On-Level Factors	On-Level LT Medical Severity	MO Medical Severity	CW MO Medical On-Level Factors	On-Level MO Medical Severity
2007	17,589	1.079	18,976	19,452	1.054	20,510	846	1.054	892
2008	17,905	1.078	19,298	20,997	1.049	22,016	889	1.049	932
2009	18,740	1.069	20,026	22,211	1.045	23,220	923	1.045	965
2010	19,681	1.048	20,633	23,105	1.039	24,006	969	1.039	1007
2011	20,927	1.031	21,567	24,807	1.029	25,522	1,026	1.029	1056
(11)	<b>Complement of Credibility (Annual Countrywide Severity Trend)</b>		<b>3.2%</b>			<b>5.3%</b>			<b>4.2%</b>
(12)	<b>Credibility Weighted Severity Trend</b>		<b>4.7%</b>			<b>5.7%</b>			<b>3.4%</b>

Notes:

Massachusetts Severity data from Sections V-C and V-D; Countrywide ("CW") Severity data from NCCI.

(1): 5 Yr MA Trend from five-year exponential fit to MA Claim Severities.

(2): Number of data points used in the exponential fitting of on the MA Claim 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 3 (= n - 2) degrees of freedom.

(5): Number of years between midpoint of data and projected point.

(7) = (3) x (4) x (6)

(8): MA Claim 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 five-year exponential fit to on-level countrywide severities.

V 000021

Calculation of Frequency and Statewide Average Weekly Wage Trend

Policy Year	Lost Time Frequency			Medical Only Frequency			Statewide Average Weekly Wage			
	Adjusted Claim Frequency	5 Year Exponential Fit	Difference Squared	Adjusted Claim Frequency	5 Year Exponential Fit	Difference Squared	Data Period	SAWW	5 Year Exponential Fit	Difference Squared
2005	191.63	189.99	2.71	460.52	459.62	0.82	4/1/06 to 4/1/07	1,043.54	1,055.34	139.31
2006	183.15	185.74	6.74	438.23	442.74	20.38	4/1/07 to 4/1/08	1,093.27	1,072.87	416.25
2007	183.19	181.60	2.53	433.21	426.48	45.20	4/1/08 to 4/1/09	1,094.70	1,090.68	16.13
2008	175.82	177.54	2.95	407.39	410.82	11.79	4/1/09 to 4/1/10	1,088.06	1,108.80	429.96
2009	174.70	173.58	1.26	396.15	395.74	0.17	4/1/10 to 4/1/11	1,135.82	1,127.21	74.17
(1)	<b>5 Yr MA Trend</b>		<b>-2.2%</b>			<b>-3.7%</b>				<b>1.7%</b>
(2)	n		5			5				5
(3)	s		2.32			5.11				18.94
(4)	t		2.35			2.35				2.35
(5)	m		5.67			5.67				4.92
(6)	[1 + 1/n + 12 x m^2/(n^3-n)]^0.5		2.10			2.10				1.90
(7)	Confidence Interval		11.48			25.26				84.76
(8)	Projected Value Prospective Period		159.78			345.00				1,182.68
(9)	CI/Projected Frequency		0.07			0.07				0.07
(10)	<b>Credibility - 5 Yr MA Trend (Z)</b>		<b>83%</b>			<b>82%</b>				<b>84%</b>
(11)	<b>Complement of Credibility</b>		<b>-4.0%</b>			<b>-4.3%</b>				<b>3.7%</b>
(12)	<b>Credibility Weighted Frequency Trend</b>		<b>-2.5%</b>			<b>-3.8%</b>				<b>2.0%</b>

Notes:

Frequencies are from Section V-B, Exhibits 1 and 2, SAWW is from Section V-G, Exhibit 2.

(1): 5 Yr MA Trend from five-year exponential fit to Adjusted Claim Frequencies or the SAWW.

(2): Number of data points used in the exponential fitting of the Adjusted Claim Frequencies or the SAWW.

(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 3 (= n - 2) degrees of freedom.

(5): Number of years between midpoint of data and projected point.

(7) = (3) x (4) x (6)

(8): Frequency, SAWW projected to policy effective period using exponential fit to data.

(9) = (7) / (8)

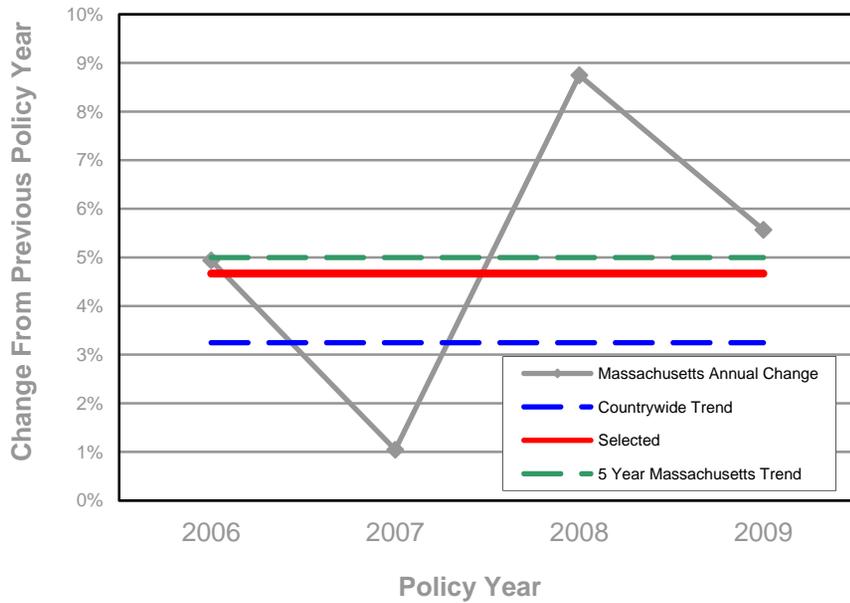
(10): The credibility is the ratio of the target value, k, to the quotient of the confidence interval and the projected frequency, capped at 100%. Numerically, (10) = the minimum of k / (9) and 100%.

(11): Complement of credibility is based on a fifteen-year exponential fit to Adjusted Claim Frequencies or the SAWW.

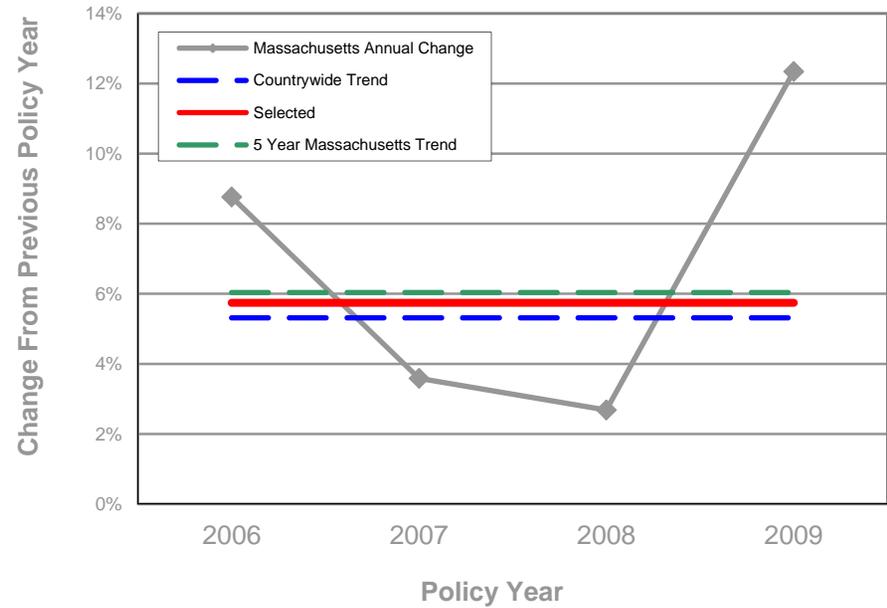
(12) = [(1) x (10)] + [(11) x [1.0 - (10)]]

V 000022

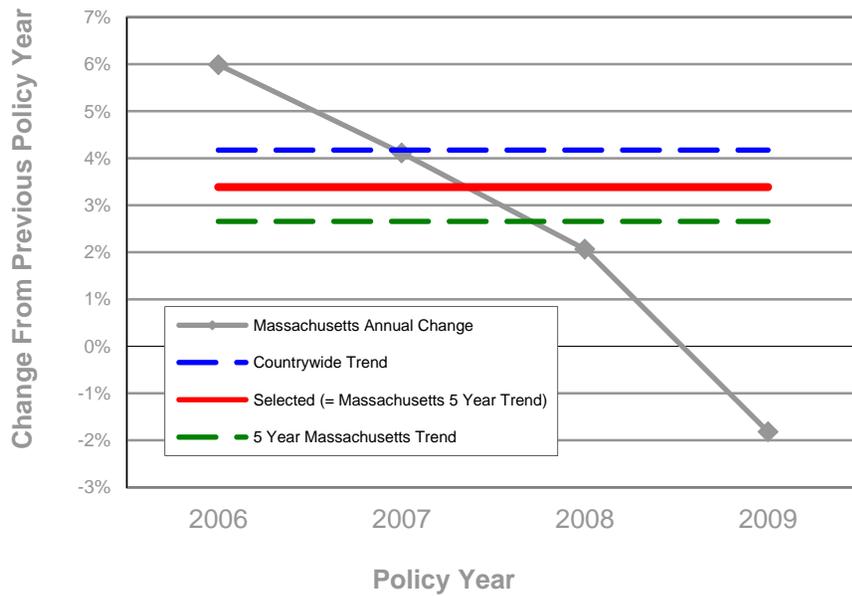
**Indemnity Severity Trend**



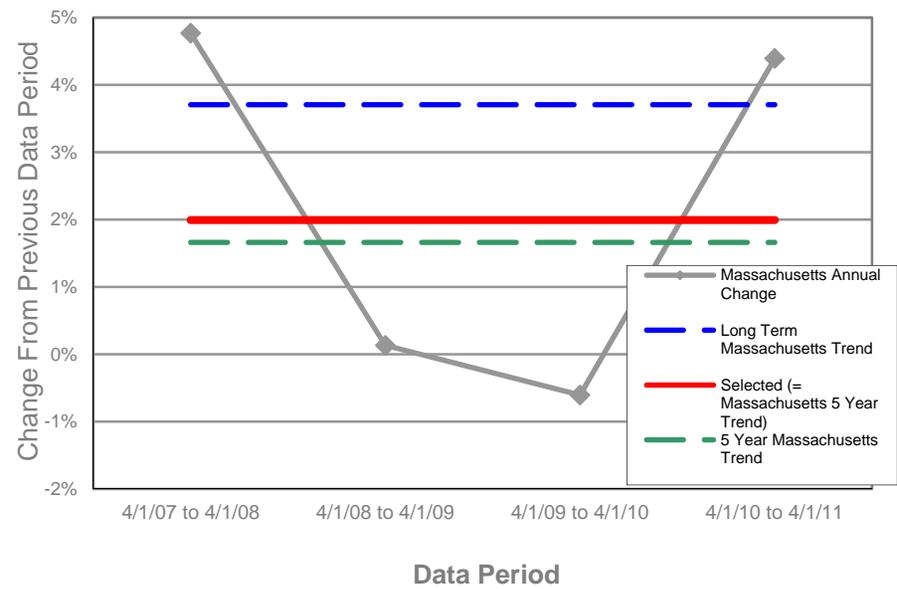
**Lost Time Medical Severity Trend**



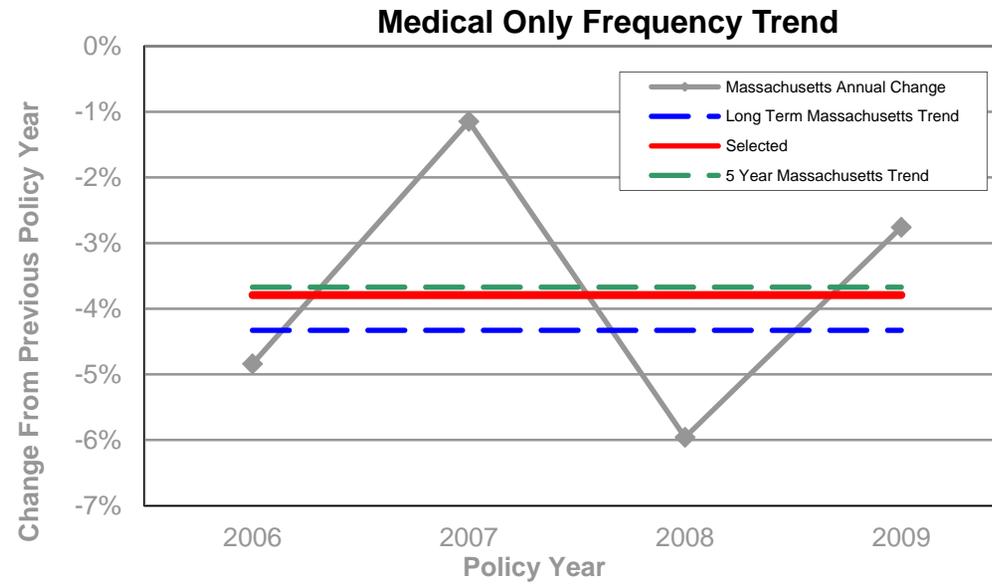
**Medical Only Severity Trend**



**SAWW Trend**



V 000023



Lost Time Reported Claim Counts

Policy Year (1)	Lost Time Reported Claim Counts Age of Development					Developed to Fifth 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						
	(2)										
1995					24,792	24,792	71.13	348.53	0.826	287.89	
1996					25,320	25,320	76.53	330.86	0.856	283.15	
1997					25,125	25,125	78.59	319.72	0.851	272.06	
1998					25,563	25,563	78.77	324.52	0.818	265.39	
1999					25,096	25,096	79.57	315.39	0.826	260.51	
2000					24,343	24,343	82.59	294.73	0.847	249.62	
2001	20,830	21,134	21,294	21,313	21,328	21,328	78.51	271.64	0.849	230.50	
2002	20,263	20,620	20,673	20,710	20,722	20,722	77.64	266.90	0.838	223.53	
2003	18,955	19,145	19,208	19,245	19,282	19,282	76.57	251.81	0.819	206.11	
2004	17,502	17,739	17,788	17,841	17,865	17,865	74.64	239.36	0.826	197.72	
2005	16,772	17,058	17,134	17,170	17,194	17,194	76.71	224.14	0.855	191.63	
2006	15,485	15,761	15,861	15,906		15,928	78.92	201.83	0.907	183.15	
2007	15,219	15,555	15,654			15,714	81.19	193.54	0.946	183.19	
2008	13,902	14,163				14,308	80.04	178.75	0.984	175.82	
2009	12,959					13,360	76.47	174.70	1.000	174.70	
	Age-to-Age Development Factors										
	18 - 30	30 - 42	42 - 54	54 - 66							
2 Yr Weighted Average	1.021	1.006	1.002	1.001							
Selected	1.021	1.006	1.002	1.001							
Cumulative	1.031	1.010	1.004	1.001							
								15 Year Lost Time Frequency Trend			<b>-4.0%</b>

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 000025

Medical Only Reported Claim Counts

Policy Year (1)	Medical Only Reported Claim Counts Age of Development					Developed to Fifth 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						
	(2)										
1995					59,310	59,310	71.13	833.78	0.826	688.71	
1996					61,537	61,537	76.53	804.12	0.856	688.16	
1997					61,605	61,605	78.59	783.92	0.851	667.08	
1998					62,514	62,514	78.77	793.62	0.818	649.00	
1999					61,282	61,282	79.57	770.14	0.826	636.14	
2000					59,728	59,728	82.59	723.16	0.847	612.48	
2001	51,381	52,989	53,427	53,541	53,573	53,573	78.51	682.33	0.849	578.99	
2002	48,046	49,884	50,136	50,187	50,224	50,224	77.64	646.88	0.838	541.77	
2003	44,133	45,333	45,557	45,594	45,612	45,612	76.57	595.67	0.819	487.56	
2004	41,854	42,827	42,925	42,978	42,987	42,987	74.64	575.96	0.826	475.75	
2005	40,420	41,189	41,300	41,315	41,320	41,320	76.71	538.64	0.855	460.52	
2006	37,326	38,007	38,082	38,105		38,111	78.92	482.93	0.907	438.23	
2007	36,575	37,090	37,137			37,161	81.19	457.70	0.946	433.21	
2008	32,719	33,076				33,151	80.04	414.17	0.984	407.39	
2009	29,850					30,294	76.47	396.15	1.000	396.15	
	Age-to-Age Development Factors										
	18 - 30	30 - 42	42 - 54	54 - 66							
2 Yr Weighted Average	1.013	1.002	1.000	1.000							
Selected	1.013	1.002	1.000	1.000							
Cumulative	1.015	1.002	1.001	1.000							
								15 Year Medical Only Frequency Trend			<b>-4.3%</b>

V 000026

Notes:  
 Development factors are claim count weighted averages from latest two years.  
 (4): Section V-E, Exhibit 1.  
 (6): Section V-F, Exhibit 1.

Indemnity Paid + Case Losses (in 000's)

Policy Year (1)	Indemnity Paid + Case Losses (in 000's) Age of Development					Developed to Fifth Report (3)
	18	30	42	54	66	
	(2)					
2004	201,885	278,974	317,958	342,523	358,392	358,392
2005	204,328	275,988	312,594	341,141	355,029	355,029
2006	191,074	270,943	310,648	334,348		348,901
2007	199,101	276,642	310,905			351,635
2008	197,529	274,258				352,088
2009	195,420					348,456

Age-to-Age Development Factors

	18 - 30	30 - 42	42 - 54	54 - 66
2 Yr Weighted Average	1.389	1.135	1.084	1.044
Selected	1.389	1.135	1.084	1.044
Cumulative	1.783	1.284	1.131	1.044

Policy Year (4)	Indemnity On-Level Factor (5)	On-Level Indemnity Losses (in 000's) Developed to Fifth Report = (3) x (5) (6)	Developed Claim Counts (7)	Severity = 1,000 x (6) / (7) (8)
2005	1.047	371,841	17,194	21,626
2006	1.036	361,473	15,928	22,694
2007	1.025	360,344	15,714	22,931
2008	1.013	356,793	14,308	24,937
2009	1.009	351,699	13,360	26,325

Notes:

Development factors are loss weighted average from latest two years.

(5): Section IV-A, Exhibit 1.

(7): Section V-B, Exhibit 1.

Lost Time Medical Paid + Case Losses (in 000's)

Policy Year (1)	Lost Time Medical Paid + Case Losses (in 000's)					Developed to Fifth Report (3)
	Age of Development					
	18	30	42	54	66	
			(2)			
2004	143,406	158,178	172,226	181,453	187,321	187,321
2005	138,505	149,214	160,558	169,782	177,308	177,308
2006	140,640	153,975	166,421	172,080		178,643
2007	151,245	164,012	168,205			182,568
2008	137,409	150,551				171,958
2009	148,185					184,447

Age-to-Age Development Factors

	18 - 30	30 - 42	42 - 54	54 - 66
2 Yr Weighted Average	1.090	1.052	1.046	1.038
Selected	1.090	1.052	1.046	1.038
Cumulative	1.245	1.142	1.085	1.038

Policy Year (4)	Medical On-Level Factor (5)	On-Level Lost Time Medical Losses (in 000's) Developed to Fifth Report = (3) x (5) (6)	Developed Claim Counts (7)	Severity = 1,000 x (6) / (7) (8)
2005	1.032	182,982	17,194	10,642
2006	1.032	184,359	15,928	11,575
2007	1.032	188,410	15,714	11,990
2008	1.024	176,148	14,308	12,312
2009	1.002	184,782	13,360	13,831

Notes:

Development factors are loss weighted average from latest two years.

(5): Section IV-A, Exhibit 1.

(7): Section V-B, Exhibit 1.

**Medical Only Paid + Case Losses (in 000's)**

Policy Year (1)	Medical Only Paid + Case Losses (in 000's) Age of Development					Developed to Fifth Report (3)
	18	30	42	54	66	
	(2)					
2004	26,408	27,750	27,661	27,504	27,614	27,614
2005	28,292	28,888	28,930	29,082	28,990	28,990
2006	27,940	28,402	28,435	28,331		28,340
2007	28,170	28,658	28,736			28,770
2008	25,962	26,309				26,391
2009	23,770					24,212

**Age-to-Age Development Factors**

	18 - 30	30 - 42	42 - 54	54 - 66
2 Yr Weighted Average	1.015	1.002	1.001	1.000
Selected	1.015	1.002	1.001	1.000
Cumulative	1.019	1.003	1.001	1.000

Policy Year (4)	Medical On-Level Factor (5)	On-Level Medical Only Losses (in 000's) Developed to Fifth Report = (3) x (5) (6)	Developed Claim Counts (7)	Severity = 1,000 x (6) / (7) (8)
2005	1.032	29,917	41,320	724
2006	1.032	29,247	38,111	767
2007	1.032	29,690	37,161	799
2008	1.024	27,034	33,151	815
2009	1.002	24,256	30,294	801

Notes:  
 Development factors are loss weighted average from latest two years.  
 (5): Section IV-A, Exhibit 1.  
 (7): Section V-B, Exhibit 2.

Worker Weeks by Policy Year

Policy Year (1)	Payroll (in millions of dollars) Age of Development					Developed to Fifth Report (3)	Smoothed State Average Weekly Wage (4)	Estimated Million Worker-Weeks = (3) / (4) (6)
	18	30	42	54	66			
	(2)							
1995					43,656	43,656	613.72	71.13
1996					49,107	49,107	641.69	76.53
1997					53,094	53,094	675.62	78.59
1998					56,661	56,661	719.31	78.77
1999					61,776	61,776	776.35	79.57
2000					68,908	68,908	834.31	82.59
2001					68,447	68,447	871.77	78.51
2002					68,948	68,948	888.04	77.64
2003					69,077	69,077	902.11	76.57
2004				69,481	69,462	69,462	930.69	74.64
2005			74,380	74,401	74,392	74,392	969.75	76.71
2006		79,750	79,905	79,894		79,879	1,012.18	78.92
2007	84,188	84,462	85,519			85,508	1,053.18	81.19
2008	85,763	85,853				86,475	1,080.36	80.04
2009	82,997					83,778	1,095.54	76.47

Age-to-Age Development Factors

	18 - 30	30 - 42	42 - 54	54 - 66
2 Yr Weighted Average	1.002	1.007	1.000	1.000
Selected	1.002	1.007	1.000	1.000
Cumulative	1.009	1.007	1.000	1.000

Notes:

Development factors are payroll weighted average from latest two years.

(5): Section V-G, Exhibit 2. The smoothed SAWW is the average of the policy year SAWW with the two preceding policy year SAWWs.

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 000030

# V 000031

Section V - Trend  
Subsection F - Calculation of Class Mix Adjustment Factor  
9/1/2012

Section V - F  
Exhibit 1

## Class Mix Adjustment Factors

Policy Year (1)	Average Manual Rates Based on Rates Effective 9/1/11 (2)	Class Mix Adjustment Factor = 0.902 / (2) (3)
1995	1.092	0.826
1996	1.054	0.856
1997	1.060	0.851
1998	1.103	0.818
1999	1.092	0.826
2000	1.065	0.847
2001	1.063	0.849
2002	1.077	0.838
2003	1.102	0.819
2004	1.092	0.826
2005	1.055	0.855
2006	0.994	0.907
2007	0.953	0.946
2008	0.917	0.984
2009	0.902	1.000

Notes:

(2): Current rates (Effective 9/1/11) averaged over class payrolls (excluding large deductibles) by Policy Year.

(3): Adjustment to 2009 Policy Year level.

# V 000032

Section V - Trend  
 Subsection G - External Data  
 9/1/2012

Section V - G  
 Exhibit 1

Periods from which NCCI Data is Taken

State	Annual Statistical Bulletin - Weights					Annual Statistical Bulletin - Policy Period Beginning Dates					
	2007	2008	2009	2010	2011	2007	2008	2009	2010	2011	
Alabama	1.9%	1.8%	1.8%	1.7%	1.7%	5/1/2003	5/1/2004	5/1/2005	5/1/2006	5/1/2007	
Alaska	0.9%	0.7%	0.8%	0.9%	0.7%	4/1/2003	4/1/2004	4/1/2005	4/1/2006	4/1/2007	
Arizona	2.7%	2.7%	3.1%	3.1%	2.6%	3/1/2003	3/1/2004	3/1/2005	3/1/2006	3/1/2007	
Arkansas	0.8%	0.7%	0.7%	0.8%	0.7%	2/1/2003	2/1/2004	2/1/2005	2/1/2006	2/1/2008	
Colorado	2.8%	2.9%	3.2%	3.0%	3.2%	3/1/2003	3/1/2004	3/1/2005	3/1/2006	3/1/2007	
Connecticut	2.4%	2.7%	2.6%	2.8%	3.2%	8/1/2003	8/1/2004	8/1/2005	8/1/2006	8/1/2007	
District Of Columbia	0.3%	0.3%	0.5%	0.4%	0.4%	2/1/2003	2/1/2004	2/1/2005	2/1/2006	2/1/2007	
Florida	12.4%	12.0%	11.6%	9.8%	9.5%	1/1/2003	1/1/2004	1/1/2005	1/1/2006	1/1/2007	
Georgia	4.8%	5.2%	4.9%	5.2%	5.4%	7/1/2003	7/1/2004	7/1/2005	7/1/2006	7/1/2007	
Hawaii	0.8%	0.7%	0.6%	0.7%	0.7%	6/1/2003	6/1/2004	6/1/2005	6/1/2006	6/1/2007	
Idaho	0.7%	0.9%	1.2%	1.1%	1.0%	7/1/2003	7/1/2004	7/1/2005	7/1/2006	7/1/2007	
Illinois	9.0%	9.8%	10.3%	11.7%	12.3%	4/1/2003	4/1/2004	4/1/2005	4/1/2006	4/1/2007	
Indiana	2.5%	2.5%	2.8%	2.8%	2.8%	7/1/2003	7/1/2004	7/1/2005	7/1/2006	7/1/2007	
Iowa	1.8%	2.1%	2.0%	2.1%	2.4%	3/1/2003	3/1/2004	3/1/2005	3/1/2006	3/1/2007	
Kansas	1.4%	1.5%	1.7%	1.7%	1.7%	7/1/2003	7/1/2004	7/1/2005	7/1/2006	7/1/2007	
Kentucky	2.6%	2.8%	2.9%	2.2%	2.3%	5/1/2003	5/1/2004	5/1/2005	5/1/2006	5/1/2007	
Louisiana	2.3%	2.2%	2.6%	2.5%	2.8%	9/1/2003	9/1/2004	9/1/2005	9/1/2006	9/1/2007	
Maine	1.3%	1.0%	0.9%	0.8%	0.9%	6/1/2003	6/1/2004	6/1/2005	6/1/2006	6/1/2007	
Maryland	2.7%	3.0%	2.9%	2.9%	2.8%	4/1/2003	4/1/2004	4/1/2005	4/1/2006	4/1/2007	
Mississippi	1.3%	1.4%	1.2%	1.3%	1.1%	9/1/2003	9/1/2004	9/1/2005	9/1/2006	9/1/2007	
Missouri	3.7%	3.1%	3.1%	3.2%	3.3%	7/1/2003	7/1/2004	7/1/2005	7/1/2006	7/1/2007	
Montana	1.0%	1.3%	1.5%	1.6%	1.3%	1/1/2003	1/1/2004	1/1/2005	1/1/2006	1/1/2008	
Nebraska	1.3%	1.1%	1.3%	1.2%	1.2%	8/1/2003	8/1/2004	8/1/2005	8/1/2006	8/1/2007	
Nevada	1.1%	1.4%	1.4%	1.6%	1.6%	1/1/2003	1/1/2004	1/1/2005	1/1/2006	1/1/2007	
New Hampshire	1.2%	1.3%	1.2%	1.1%	1.0%	4/1/2003	4/1/2004	4/1/2005	4/1/2006	4/1/2007	
New Mexico	0.7%	0.9%	0.8%	0.9%	1.1%	7/1/2003	7/1/2004	7/1/2005	7/1/2006	7/1/2007	
North Carolina	5.0%	6.1%	6.0%	5.3%	5.7%	1/1/2003	1/1/2004	1/1/2005	1/1/2006	1/1/2007	
Oklahoma	2.6%	3.0%	3.0%	3.2%	3.6%	6/1/2003	6/1/2004	6/1/2005	6/1/2006	6/1/2007	
Oregon	2.6%	2.9%	2.7%	2.4%	2.5%	1/1/2003	1/1/2004	1/1/2005	1/1/2006	1/1/2007	
Rhode Island	0.5%	0.5%	0.7%	0.7%	0.7%	1/1/2003	1/1/2004	1/1/2005	1/1/2006	1/1/2007	
South Carolina	2.6%	2.7%	2.9%	2.6%	2.8%	5/1/2003	5/1/2004	5/1/2005	5/1/2006	5/1/2007	
South Dakota	0.3%	0.4%	0.5%	0.6%	0.6%	1/1/2003	1/1/2004	1/1/2005	1/1/2006	1/1/2008	
Tennessee	4.0%	3.6%	3.8%	3.8%	3.8%	6/1/2003	6/1/2004	6/1/2005	6/1/2006	6/1/2007	
Texas	13.0%	9.1%	7.3%	8.2%	7.5%	1/1/2003	1/1/2004	1/1/2005	1/1/2006	1/1/2007	
Utah	1.0%	1.1%	1.2%	1.6%	1.5%	7/1/2003	7/1/2004	7/1/2005	7/1/2006	7/1/2007	
Vermont	0.5%	0.6%	0.6%	0.6%	0.5%	7/1/2003	7/1/2004	7/1/2005	7/1/2006	7/1/2007	
Virginia	3.4%	3.9%	3.8%	3.8%	3.4%	2/1/2003	2/1/2004	2/1/2005	2/1/2006	2/1/2007	
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%						
						Policy Period Start Date	3/25/2003	3/27/2004	3/30/2005	4/1/2006	4/13/2007
						Average Earned Date	3/25/2004	3/27/2005	3/30/2006	4/1/2007	4/13/2008
						Years	1.00	2.00	3.01	4.02	5.05

Notes:  
 Weights are derived from data obtained from NCCI that underlies the NCCI Annual Statistical Bulletins.

# V 000033

Section V - Trend  
 Subsection G - External Data  
 9/1/2012

Section V - G  
 Exhibit 2

## Summary of Statewide Average Weekly Wage (SAWW) Data

Date Promulgated by DUA (1)	Period of Data Used by DUA (2)	SAWW (3)
10/1/93	4/1/92 to 4/1/93	565.94
10/1/94	4/1/93 to 4/1/94	585.66
10/1/95	4/1/94 to 4/1/95	604.03
10/1/96	4/1/95 to 4/1/96	631.03
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
<b>15 Year Exponential Fit, Trend =</b>		<b>3.7%</b>

Policy Year (4)	SAWW (5)
1993	590.21
1994	611.05
1995	639.90
1996	674.14
1997	712.84
1998	770.97
1999	845.24
2000	886.71
2001	883.36
2002	894.05
2003	928.90
2004	969.11
2005	1,011.25
2006	1,056.18
2007	1,092.12
2008	1,092.79
2009	1,101.70

Notes:

(5):  $SAWW \text{ for Policy Year } i = [ 0.03125 \times SAWW \text{ during period } 4/1/(i-1) \text{ to } 4/1/i ] + [ 0.6875 \times SAWW \text{ during period } 4/1/i \text{ to } 4/1/(i+1) ] + [ 0.28125 \times SAWW \text{ during period } 4/1/(i+1) \text{ to } 4/1/(i+2) ]$

The DUA is the Department of Unemployment Assistance; previously this data was compiled by the DET (Division of Employment and Training).

**EXPENSES**

In this filing, the WCRIBMA has used the same general methods to calculate expenses as it used in its filing for September 1, 2011 rates.

**Fixed Expenses**

The provision for fixed expenses has three components: general expenses, Pool expenses, and other taxes.

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 industry-wide 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 past filings, general expenses relating to Boards and Bureaus were estimated using the actual WCRIBMA expenses taken from WCRIBMA Financial Statements and 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 (2011) 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).

### **Expense Trends**

Fixed expenses are 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 proposed effective 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 VI-F, Exhibit 1). Index

## VI 000003

values are not available for the proposed effective period of the rates, however, so a projection needs to be 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	Average Weekly Earnings of Massachusetts Private Fire, Marine, and Casualty Insurance Employees. This series is provided on an annual basis.
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 2010 serving as the base. We then combine the indices using the weights shown in Section VI-E, Exhibit 1 for calendar year 2010 and weights from prior filings for all other years to derive the expense trend shown in Section VI-F. 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.

### **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.

The provision for commission expenses is calculated by taking the ratios of reported commission expenses to reported written premium for each of the latest three calendar years. A three-year average is used to derive the commission expense ratio (Section VI-J, Exhibit 3).

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 years to determine the other acquisition expense ratio (Section VI-J, Exhibit 2).

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. However, for interstate-rated risks, the parameter estimate of Massachusetts premium relative to countywide premium is no longer assumed to be a constant 40% for all policies. As in

the September 1, 2011 rate filing, the Massachusetts portion of the interstate-rated premium is based on actual historical rating data.

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-H, 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-H, 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 proposes to treat incidental income as a negative expense item and to offset 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 2008, 2009, and 2010. This year, the selected net effect of including both incidental income and EBUP is zero (Section VI-J, 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.

The business of reinsurance is not a charitable endeavor. 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-J, 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. The WCRIBMA is continuing to study expenses by size of risk and expects in future years to make expense constant recommendations that reflect the results of its on-going study.

### **Loss Adjustment Expense**

The loss adjustment expense (“LAE”) provision is calculated using a three-year average ratio of LAE to losses (Section VI-K). 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. 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-L, Exhibit 1, Page 1).

# VI 000008

Section VI - Expenses  
Subsection A - Summary  
9/1/2012

Section VI - A  
Exhibit 1

## Loss Ratios Underlying the Proposed Rates

	<u>As a % of Standard Premium plus Adjusted ARAP</u>
(1) Commission and Other Acquisition Expense Ratio	12.2%
(2) Average Premium Discount as a % of Standard Premium + ARAP	4.6%
(3) Premium Tax Ratio = 2.28% x [ 1.0 - (2) ]	2.2%
(4) Variable Expense Ratio = (1) + (2) + (3)	19.0%
(5) Underwriting Profit Provision	6.8%
(6) Permissible Loss, LAE, and Fixed Expense Ratio = 1.0 - [ (4) + (5) ]	74.2%
(7) Fixed Expense Ratio	5.1%
(8) Expected Loss and Loss Adjustment Expense Ratio = (6) - (7)	69.1%
(9) Total Loss Adjustment Expense Ratio (LAE / Loss)	19.2%
(10) Expected Loss Ratio without Loss Adjustment Expense = (8) / [ 1.0 + (9) ]	58.0%

### Notes:

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

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

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

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

(7): Section VI-B, Exhibit 1. The Average Fixed Expense Ratio, 6.1%, is divided by [1.0 + indicated rate change], 19.3%, to give the Fixed Expense Ratio underlying the rates.

(9): Section VI-K, 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 2008			Projected to PY 2009		
				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)
2008	32,426,559	1,735,649	34,162,208	1.002	1.001	34,263,024	1.018	1.002	34,870,186
2009	38,558,136	1,364,667	39,922,803	0.998	0.999	39,805,515	1.014	1.001	40,510,894
2010	36,345,675	1,358,959	37,704,635	0.971	0.998	36,517,171	0.986	0.999	37,164,278
Average			37,263,215			36,861,904			37,515,120

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 9/1/2013 (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)
2008	36,861,904	4,243,719	41,105,622	1.243	51,112,990	891,395,593	5.7%
2009	37,515,120	4,318,920	41,834,039	1.224	51,195,643	804,140,456	6.4%
Average							6.1%

- Notes:
- (2): Exhibit 2, Page 1.
  - (3): Exhibit 2, Page 3.
  - (5): Section VI-F, Exhibit 1.
  - (6): 0.2% annual growth in worker-weeks, from Section VI-G, Exhibit 1; 0.5 years from CY 2008 to PY 2008, -0.5 years from CY 2009 to PY 2008, -1.5 years from CY 2010 to PY 2008.
  - (8): Section VI-F, Exhibit 1.
  - (6): 0.2% annual growth in worker-weeks, from Section VI-G, Exhibit 1; 0.5 years from CY 2008 to PY 2009, -0.5 years from CY 2009 to Y 2009, -1.5 years from CY 2010 to PY 2009.
  - (13): Section VI-C, Exhibit 1.
  - (15): Section VI-F, 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.

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# VI 000010

Section VI - Expenses  
 Subsection B - Fixed Expenses  
 9/1/2012

Section VI - B  
 Exhibit 2  
 Page 1

## General Expense Exclusive of Proposed Expense Constant

	Calendar Year		
	2008	2009	2010
(1) Standard Earned Premium Including Expense Constant Premium	903,407,372	812,153,883	748,915,725
(2) ARAP Premium at Company Level	44,776,357	34,504,383	31,743,886
(3) Adjustment Factor to Adjust from Company Level to DSR Level Premium	1.032	1.060	1.056
(4) Standard Earned Premium plus Adjusted ARAP = (1) + [ (2) x (3) ]	949,609,213	848,721,529	782,449,213
(5) Adjustment for Experience and Merit Rating, ARAP, and Construction Credit Off-balance	1.008	1.013	1.012
(6) Adjustment Factor to Remove the Impact of Loading for Recoupment of Insolvency Fund Assessments	1.017	1.007	1.001
(7) Adjusted Standard Earned Premium plus ARAP = (4) x (5) x (6)	973,665,730	865,220,341	792,620,031
(8) Ratio of Adjusted General Expense to Adjusted Standard Earned Premium plus ARAP	5.0%	6.3%	6.7%
(9) General Expenses = (7) x (8)	48,814,058	54,911,292	53,153,817
(10) Expense Constant Premium	39,574,582	38,030,922	38,057,776
(11) General Expense Portion of Expense Constant	51.0%	51.0%	51.0%
(12) Average Expense Constant in Effect	250.85	242.60	242.77
(13) Proposed Average Expense Constant	253.93	253.93	253.93
(14) Expense Trend Factor - Calendar Year XXXX to 9/1/13, the midpoint of the Prospective Effective Period	1.246	1.241	1.207
(15) Trend Factor to Adjust Proposed Average Expense Constant to Calendar Year XXXX = 1.0 / (14)	0.802	0.806	0.828
(16) Detrended Proposed Average Expense Constant = (13) x (15)	203.78	204.65	210.35
(17) Adjusted General Expenses Generated by the Expense Constant = [ (10) x (11) ] x [ (16) / (12) ]	16,387,498	16,353,156	16,808,142
(18) General Expenses Exclusive of Expense Constant Premium = (9) - (17)	32,426,559	38,558,136	36,345,675

**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 VI-F, Exhibit 1.

# VI 000011

Section VI - Expenses  
 Subsection B - Fixed Expenses  
 9/1/2012

Section VI - B  
 Exhibit 2  
 Page 2

## Calculation of General Expense

	Calendar Year		
	2008	2009	2010
(1) Standard Earned Premium Including Expense Constant Premium	1,085,655,944	966,249,797	894,316,989
(2) ARAP Premium at Company Level	50,830,933	38,193,602	35,473,671
(3) Adjustment Factor to Adjust from Company Level to DSR Level Premium	1.032	1.060	1.056
(4) Standard Earned Premium plus Adjusted ARAP = (1) + [ (2) x (3) ]	1,138,105,112	1,006,727,266	931,790,533
(5) Adjustment for Experience, Merit, ARAP and CCPAP Off-Balance	1.008	1.013	1.012
(6) Adjustment for Insolvency Fund Recoupment	1.017	1.007	1.001
(7) Adjusted Standard Earned Premium plus ARAP = (4) x (5) x (6)	1,166,936,809	1,026,297,647	943,902,594
(8) Actual WCRIBMA Expenses	11,830,453	11,888,987	12,283,738
(9) General Expenses (excluding Boards & Bureaus Expenses)	46,673,116	53,245,092	51,015,225
(10) Adjusted General Expense = (8) + (9)	58,503,569	65,134,079	63,298,963
(11) Ratio of Adjusted General Expense to Adjusted Standard Earned Premium plus ARAP (including expense constants) = (10) / (7)	5.0%	6.3%	6.7%

**Notes:**

- (1),(2): Aggregate Financial Reconciliation Report Calls, Calendar Years 2008 - 2010, 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 2008 - 2010.

# VI 000012

Section VI - Expenses  
 Subsection B - Fixed Expenses  
 9/1/2012

Section VI-B  
 Exhibit 2  
 Page 3

## Calculation of Pool Expense

	Calendar Year		
	2008	2009	2010
(1) Administrative Expenses	582,202	474,280	521,682
(2) Other Expense Allowances	-	-	-
(3) Workers' Compensation Bureau Pool Expenses	2,005,196	1,821,894	2,000,000
(4) Total Pool Expenses = (1) + (2) + (3)	2,587,398	2,296,174	2,521,682
(5) Target Pool Participation Ratios for Excluded Companies	0.146	0.244	0.314
(6) Total Pool Expenses, excluding 1 company = (4) x [ 1.0 - (5) ]	2,208,479	1,736,434	1,729,171
(7) " u " -- Proportion of Assessable Premium Not from Large Deductibles	0.786	0.786	0.786
(8) Total Pool Expenses for Non-Large Deductibles = (6) x (7)	1,735,649	1,364,667	1,358,959

**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 000013

Section VI - Expenses  
Subsection B - Fixed Expenses  
9/1/2012

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, 2011 Form 63-23P.

2.28% is Premium Tax as % of Net Premium.

# VI 000014

Section VI - Expenses  
 Subsection C - Other Taxes  
 9/1/2012

Section VI - C  
 Exhibit 1

## Calculation of Other Taxes

(1)	2010 Standard Earned Premium Including Expense Constant Premium	748,915,725	
(2)	2010 ARAP Premium at Company Level	31,743,886	
(3)	Adjustment Factor to Adjust from Company Level to DSR Level Premium	1.056	
(4)	2010 Standard Earned Premium plus Adjusted ARAP = (1) + [ (2) x (3) ]	782,449,213	
(5)	Calendar Year 2010 Other Tax Allowance	0.56%	
(6)	Calendar Year 2010 Other Taxes = (4) x (5)	4,381,716	
		<u>PY2008</u>	<u>PY2009</u>
(7)	Other Tax Trend Factor from CY 2010 to PY XXXX	0.971	0.986
(8)	Annual Exposure Growth	0.2%	0.2%
(9)	Trend Length	-1.5	-0.5
(10)	Provision for Other Taxes = (6) x (7) x { [ 1.0 + (8) ] ^ (9) }	4,243,719	4,318,920

**Notes:**

(1),(2): Aggregate Financial Policy Year Call.

(3): Section III-B, Exhibit 2.

(5): 2011 Best's Aggregates and Averages. Page 649.

(7): Section VI-F, Exhibit 1.

Section VI-G, Exhibit 1

(9): -1.5 years from CY 2010 to PY 2008, -0.5 years from CY 2010 to PY 2009.

# VI 000015

Section VI - Expenses  
 Subsection D - Expense Constant  
 9/1/2012

Section VI - D  
 Exhibit 1

## Calculation of Expense Constant

Standard Premium Ranges		PY 2009 Adjusted Policy Count	Adjusted Policy Distribution	Current Expense Constant	Trend Factor from 9/1/12 to 9/1/13	Selected Trend Factor	Calculated Expense Constant = (5) x (7)		
Unadjusted	Adjusted							(1)	(2)
Less than \$200	Less Than \$154	54,978	35%	\$159.00	1.046	1.000	\$159.00		
\$200 to \$1,000	\$154 to \$769	37,547	24%	\$250.00	1.046	1.000	\$250.00		
\$1,000 or more	\$769 or more	63,844	41%	\$338.00	1.046	1.000	\$338.00		
Total		156,369	100%	\$253.93			\$253.93		

**Notes:**

Unit Statistical Plan Data PY 2009 (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, 1.30, from Section III-E, Exhibit 1.

(4) = (3) / Total (3)

TOTAL (5) = (5) weighted by (4)

# VI 000016

Section VI - Expenses  
 Subsection E- Expense Trends  
 9/1/2012

Section VI - E  
 Exhibit 1

## Calendar Year 2010 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	7.55%	63.2%		
Payroll Taxes	0.50%	4.2%	Average Weekly Earnings Covered Employment and Wages; Private Fire, Marine, Casualty Massachusetts	80.3%
Employee Relations	1.55%	13.0%		
Travel & Travel Items	0.43%	3.6%	Food Away From Home-CPI-US Private Transportation-CPI-US	1.8% 1.8%
Postage & Telephone	0.47%	3.9%	Postage-CPI-US Telephone-CPI-US	2.0% 2.0%
Equipment	1.28%	10.7%	Office & Stores Machines & Equipment-PPI	10.7%
Printing & Stationery	0.17%	1.4%	Paper-PPI	1.4%
<b>Total</b>	<b>11.95%</b>	<b>100.0%</b>		<b>100.0%</b>

**Notes:**

(2): 2011 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)

# VI 000017

### 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)
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

Economic Indices, Normalized to Calendar Year 2010 Index of 100							
Calendar Year (9)	Average Weekly Earnings (10)	Food (11)	Private Transportation (12)	Phone (13)	Postage (14)	Machines & Equipment (15)	Paper (16)
2004	72.47	82.85	83.91	94.04	83.30	93.55	82.04
2005	82.94	85.45	89.98	93.06	83.30	95.12	87.64
2006	80.36	88.02	93.79	93.94	87.73	94.79	91.93
2007	90.31	91.25	95.90	96.36	89.89	94.71	92.97
2008	96.13	95.32	101.71	98.45	92.93	100.91	101.21
2009	96.55	98.75	91.67	100.25	97.42	102.07	98.63
2010	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)
2004	79.9%	2.1%	2.1%	1.8%	1.8%	10.4%	1.8%
2005	80.2%	2.1%	2.1%	2.1%	2.1%	9.4%	1.9%
2006	80.5%	2.2%	2.2%	2.0%	2.0%	9.2%	1.9%
2007	79.8%	2.1%	2.1%	2.0%	2.0%	10.0%	2.0%
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%

Time Interval (25)	Time Index (26)	Expense Trend Index (27)	Expense Trend Factors		
			PY2008 (28)	PY2009 (29)	9/1/2013 (30)
CY2004	7/1/2004	75.89			
CY2005	7/1/2005	84.60			
CY2006	7/1/2006	82.79			
CY2007	7/1/2007	91.05			
CY2008	7/1/2008	96.88	1.002	1.018	1.246
CY2009	7/1/2009	97.29	0.998	1.014	1.241
CY2010	7/1/2010	100.00	0.971	0.986	1.207
PY2008	1/1/2009	97.09			1.243
PY2009	1/1/2010	98.65			1.224
9/1/2012	9/1/2013	115.39			1.046
9/1/2013	9/1/2014	120.72			

**Notes:**

- (2): Average Weekly Earnings, Covered Employment and Wages, Private Fire, Marine, and Casualty Insurers - Massachusetts Unadjusted for Seasonality  
Years CY2004 - CY2010: 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 VI-E, Exhibit 1, for Calendar Year 2010. Prior Filings for all other years.
- (25): 9/1/12 and 9/1/13 are time intervals comparable to a policy year but starting on September 1 instead of January 1.
- (26): Midpoint of the time interval used for determination of Expense Trend Index exponential trend rate of 4.6%.
- (27): Calendar Years - Average of (10) through (16) weighted by (18) through (24)  
PY2008 - Average of indices for CY2008 and CY2009.  
PY2009 - Average of indices for CY2009 and CY2010.  
The exponential trend rate derived from an exponential regression of the Expense Trend Index for CY2004 - CY2010 is applied to the CY2010 Expense Trend Index value to derive the Expense Trend Index values for 9/1/2012 and 9/1/2013.
- (28) = [ (27) for PY2008 ] / (27)
- (29) = [ (27) for PY2009 ] / (27)
- (30) = [ (27) for 9/1/2013 ] / (27)

# VI 000018

Section VI - Expenses  
 Subsection G - Exposure Growth  
 9/1/2012

Section VI - G  
 Exhibit 1

## 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)
1995	71.13		
1996	76.53		
1997	78.59		
1998	78.77		
1999	79.57		
2000	82.59		
2001	78.51		
2002	77.64		
2003	76.57		
2004	74.64		
2005	76.71	78.52	3.27
2006	78.92	78.58	0.11
2007	81.19	78.65	6.48
2008	80.04	78.71	1.78
2009	76.47	78.77	5.28

15 Year Million Worker-Weeks Trend

**0.2%**

(5)	<b>5 Yr MA Trend</b>	<b>0.1%</b>
(6)	n	5
(7)	s	2.38
(8)	t	2.35
(9)	m	5.67
(10)	$[1 + 1/n + 12 \times m^2 / (n^3 - n)]^{.5}$	2.10
(11)	Confidence Interval	11.74
(12)	Projected	79.00
(13)	CI / Projected	0.15
(14)	<b>Credibility - 5 Yr MA Trend (Z)</b>	<b>40%</b>
(15)	<b>Complement of Credibility</b>	<b>0.2%</b>
(16)	<b>Credibility-Weighted Overall Exposure Growth</b>	<b>0.2%</b>

**Notes:**

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

(5): 5 Yr MA Trend from five-year exponential fit to estimated million worker-weeks.

(6): Number of data points used in the exponential fitting of the 5 Yr MA 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) ] }

# VI 000019

Section VI - Expenses  
Subsection H - Expenses Net of Premium Discount  
9/1/2012

Section VI - H  
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	7.1%	3.6%
(2) Percentage of Voluntary Written Premium by Discount Type	57.3%	42.7%
(3) Weighted Average Premium Discount as a % of Standard Premium in Voluntary Market = (1) weighted by (2)	<hr/>	
	5.6%	
(4) Voluntary Market Share	88.4%	
(5) Average Premium Discount in Total Market = (3) x (4)	5.0%	
(6) Average ARAP Surcharge for Prospective Effective Period as a % of Standard Premium	6.9%	
(7) Average Premium Discount as a % of Standard Premium + ARAP = (5) / [ 1.0 + (6) ]	<b>4.6%</b>	

### Notes:

(1): Type "A" - Exhibit 2, Total (10).

Type "B" - Exhibit 3, Total (10).

(2): Exhibit 4.

(4): Special Bulletin 12-23-11. Market Share is estimated using Standard Premium plus ARAP.

(6): Section IX-K, Exhibit 3.

# VI 000020

Section VI - Expenses  
 Subsection H - Expenses Net of Premium Discount  
 9/1/2012

Section VI - H  
 Exhibit 2

## Average Premium Discount Voluntary Market Risks - Type "A" Discounts

Intrastate Intervals					
Layer of Standard Premium (1)	Standard Premium Ranges - PY 2009				Total = [ Sum of (2) ] (3)
	0 - 10,000	10,000 - 200,000	200,000 - 1,750,000	1,750,000 & Over	
	(2)				
0 - 10,000	76,516,474	61,320,000	1,790,000	0	139,626,474
10,000 - 200,000		143,733,392	34,010,000	0	177,743,392
200,000 - 1,750,000			31,753,200	0	31,753,200
1,750,000 - & Over				0	0
Total	76,516,474	205,053,392	67,553,200	0	349,123,066

Interstate Intervals					
Layer of Standard Premium (4)	Standard Premium Ranges - PY 2009				Total Premium in Layer (6)
	0 - 10,000	10,000 - 200,000	200,000 - 1,750,000	1,750,000 & Over	
	(5)				
0 - 10,000	1,160,215	9,071,383	1,994,780	107,952	12,334,330
10,000 - 200,000		42,660,927	37,900,817	2,051,089	82,612,833
200,000 - 1,750,000			47,507,560	16,732,569	64,240,129
1,750,000 - & Over				32,404,594	32,404,594
Total	1,160,215	51,732,310	87,403,157	51,296,204	191,591,886

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	151,960,804	28.1%	0.0%
10,000 - 200,000	260,356,225	48.2%	9.1%
200,000 - 1,750,000	95,993,329	17.8%	11.3%
1,750,000 - & Over	32,404,594	6.0%	12.3%
Total	540,714,952	100.0%	<b>7.1%</b>

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.

# VI 000021

Section VI - Expenses  
 Subsection H - Expenses Net of Premium Discount  
 9/1/2012

Section VI - H  
 Exhibit 3

## Average Premium Discount Voluntary Market Risks - Type "B" Discounts

Intrastate Intervals					
Layer of Standard Premium (1)	Standard Premium Ranges - PY 2009				Total = [ Sum of (2) ] (3)
	0 - 10,000	10,000 - 200,000	200,000 - 1,750,000	1,750,000 & Over	
	(2)				
0 - 10,000	70,551,858	38,160,000	630,000	10,000	109,351,858
10,000 - 200,000		65,850,221	11,970,000	190,000	78,010,221
200,000 - 1,750,000			7,932,669	1,550,000	9,482,669
1,750,000 - & Over				1,432,184	1,432,184
Total	70,551,858	104,010,221	20,532,669	3,182,184	198,276,932

Interstate Intervals					
Layer of Standard Premium (4)	Standard Premium Ranges - PY 2009				Total Premium in Layer (6)
	0 - 10,000	10,000 - 200,000	200,000 - 1,750,000	1,750,000 & Over	
	(5)				
0 - 10,000	1,082,333	6,679,514	1,063,607	70,188	8,895,642
10,000 - 200,000		27,181,498	20,208,532	1,333,569	48,723,599
200,000 - 1,750,000			28,478,449	10,879,113	39,357,562
1,750,000 - & Over				19,449,999	19,449,999
Total	1,082,333	33,861,012	49,750,588	31,732,869	116,426,802

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	118,247,500	37.6%	0.0%
10,000 - 200,000	126,733,820	40.3%	5.1%
200,000 - 1,750,000	48,840,231	15.5%	6.5%
1,750,000 - & Over	20,882,183	6.6%	7.5%
Total	314,703,734	100.0%	<b>3.6%</b>

**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.

# VI 000022

Section VI - Expenses  
 Subsection H - Expenses Net of Premium Discount  
 9/1/2012

Section VI - H  
 Exhibit 4

Calendar Year 2010 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 (\$000) (4)	Residual Market Written Premium (\$000) (5)	Adjusted Voluntary Written Premium		
					Total Written Premium (\$000) (6)	Type A Written Premium (\$000) (7)	Type B Written Premium (\$000) (8)
33758	Associated Industries of Massachusetts Mutual Insurance Company	A	49,060	16,628	32,432	32,432	0
23841	New Hampshire Insurance Company	B	41,261	0	41,261	0	41,261
19445	National Union Fire Insurance Company of Pittsburgh, Pa.	B	35,855	0	35,855	0	35,855
29459	Twin City Fire Insurance Company	B	33,278	0	33,278	0	33,278
25658	The Travelers Indemnity Company	B	31,943	7,815	24,128	0	24,128
42404	Liberty Insurance Corporation	A	27,570	0	27,570	27,570	0
44326	Atlantic Charter Insurance Company	A	25,349	4,704	20,645	20,645	0
23035	Liberty Mutual Fire Insurance Company	A	24,074	14,328	9,746	9,746	0
19429	The Insurance Company of the State of Pennsylvania	A	23,626	0	23,626	23,626	0
23043	Liberty Mutual Insurance Company	B	21,498	14,698	6,800	0	6,800
23809	Granite State Insurance Company	B	18,418	18,367	51	0	51
12886	Massachusetts Employers Insurance Company	A	17,856	0	17,856	17,856	0
25674	Travelers Property Casualty Company of America	B	17,186	6,864	10,322	0	10,322
11104	Associated Employers Insurance Company	B	13,710	0	13,710	0	13,710
11984	Independence Casualty Insurance Company	A	12,802	0	12,802	12,802	0
25666	The Travelers Indemnity Company of America	B	12,163	0	12,163	0	12,163
23817	Illinois National Insurance Company	B	12,041	0	12,041	0	12,041
37478	Hartford Insurance Company of the Midwest	B	11,668	0	11,668	0	11,668
29424	Hartford Casualty Insurance Company	B	11,579	0	11,579	0	11,579
31470	NorGUARD Insurance Company	A	10,151	0	10,151	10,151	0
25682	The Travelers Indemnity Company of Connecticut	B	9,924	0	9,924	0	9,924
19410	Commerce and Industry Insurance Company	B	9,852	0	9,852	0	9,852
24198	Peerless Insurance Company	A	9,439	0	9,439	9,439	0
30104	Hartford Underwriters Insurance Company	A	9,358	6,420	2,938	2,938	0
19682	Hartford Fire Insurance Company	B	9,293	0	9,293	0	9,293
25615	The Charter Oak Fire Insurance Company	B	8,831	0	8,831	0	8,831
19801	Argonaut Insurance Company	A	7,969	0	7,969	7,969	0
42376	Technology Insurance Company, Inc.	A	7,956	0	7,956	7,956	0
41360	Arbella Protection Insurance Company	A	7,466	0	7,466	7,466	0
19038	Travelers Casualty and Surety Company	B	7,402	0	7,402	0	7,402
31325	Acadia Insurance Company	A	7,257	2,227	5,030	5,030	0
20508	Valley Forge Insurance Company	A	7,063	0	7,063	7,063	0
20281	Federal Insurance Company	A	6,515	0	6,515	6,515	0
11045	Excelsior Insurance Company	A	6,142	0	6,142	6,142	0
26042	Wausau Underwriters Insurance Company	A	5,884	0	5,884	5,884	0
21261	Electric Insurance Company	A	5,450	0	5,450	5,450	0
42390	AmGUARD Insurance Company	A	5,425	0	5,425	5,425	0
18023	Star Insurance Company	A	5,050	0	5,050	5,050	0
14788	NGM Insurance Company	A	4,966	0	4,966	4,966	0
28258	Continental Indemnity Company	A	4,933	0	4,933	4,933	0
13803	Farm Family Casualty Insurance Company	A	4,901	0	4,901	4,901	0
23965	Norfolk and Dedham Mutual Fire Insurance Company	A	4,706	0	4,706	4,706	0
11030	MEMIC Indemnity Company	B	4,547	0	4,547	0	4,547
25224	Great Divide Insurance Company	A	4,390	0	4,390	4,390	0
20443	Continental Casualty Company	B	4,338	1,900	2,438	0	2,438
24171	The Netherlands Insurance Company	A	4,168	0	4,168	4,168	0
21458	Employers Insurance Company of Wausau	A	3,962	0	3,962	3,962	0
21113	United States Fire Insurance Company	A	3,762	0	3,762	3,762	0
25623	The Phoenix Insurance Company	B	3,705	0	3,705	0	3,705
20494	Transportation Insurance Company	B	3,652	0	3,652	0	3,652
24139	Old Republic General Insurance Corporation	A	3,617	0	3,617	3,617	0
25844	Union Insurance Company	A	3,537	0	3,537	3,537	0
10804	Continental Western Insurance Company	A	3,469	0	3,469	3,469	0
14702	EastGUARD Insurance Company	A	3,463	0	3,463	3,463	0
10017	Arbella Indemnity Insurance Company	A	3,387	0	3,387	3,387	0

# VI 000023

Section VI - Expenses  
 Subsection H - Expenses Net of Premium Discount  
 9/1/2012

Section VI - H  
 Exhibit 4

Calendar Year 2010 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 (\$000) (4)	Residual Market Written Premium (\$000) (5)	Adjusted Voluntary Written Premium		
					Total Written Premium (\$000) (6)	Type A Written Premium (\$000) (7)	Type B Written Premium (\$000) (8)
15059	Public Service Mutual Insurance Company	A	3,090	0	3,090	3,090	0
22292	The Hanover Insurance Company	A	3,015	0	3,015	3,015	0
13374	Arrow Mutual Liability Insurance Company	B	2,949	0	2,949	0	2,949
20478	National Fire Insurance Company of Hartford	A	2,922	0	2,922	2,922	0
32620	National Interstate Insurance Company	A	2,823	0	2,823	2,823	0
21784	Firemen's Insurance Company of Washington, D.C.	A	2,768	0	2,768	2,768	0
10664	Endeavour Insurance Company	B	2,693	0	2,693	0	2,693
31534	Citizens Insurance Company of America	A	2,650	0	2,650	2,650	0
16551	Savers Property and Casualty Insurance Company	A	2,584	795	1,789	1,789	0
26069	Wausau Business Insurance Company	A	2,565	0	2,565	2,565	0
12262	Pennsylvania Manufacturers' Association Insurance Company	A	2,528	0	2,528	2,528	0
12777	Chubb Indemnity Insurance Company	A	2,480	0	2,480	2,480	0
11150	Arch Insurance Company	A	2,428	0	2,428	2,428	0
25011	Wesco Insurance Company	A	2,287	0	2,287	2,287	0
25984	Graphic Arts Mutual Insurance Company	A	2,165	0	2,165	2,165	0
20230	Central Mutual Insurance Company (OH)	B	2,092	0	2,092	0	2,092
20346	Pacific Indemnity Company	A	1,968	0	1,968	1,968	0
20222	All America Insurance Company	A	1,923	0	1,923	1,923	0
22357	Hartford Accident and Indemnity Company	A	1,900	0	1,900	1,900	0
24988	Sentry Insurance a Mutual Company	A	1,890	0	1,890	1,890	0
12475	Republic-Franklin Insurance Company	A	1,835	0	1,835	1,835	0
20648	The Employers' Fire Insurance Company	A	1,775	0	1,775	1,775	0
13706	Dorchester Mutual Insurance Company	A	1,749	0	1,749	1,749	0
40177	Paramount Insurance Company	A	1,724	0	1,724	1,724	0
25976	Utica Mutual Insurance Company	A	1,715	0	1,715	1,715	0
39926	Selective Insurance Company of the Southeast	A	1,677	0	1,677	1,677	0
26182	Harleysville Worcester Insurance Company	A	1,634	0	1,634	1,634	0
24147	Old Republic Insurance Company	A	1,478	0	1,478	1,478	0
21105	The North River Insurance Company	A	1,409	0	1,409	1,409	0
19259	Selective Insurance Company of South Carolina	A	1,402	0	1,402	1,402	0
28460	Sentry Casualty Company	A	1,397	0	1,397	1,397	0
13935	Federated Mutual Insurance Company	A	1,396	0	1,396	1,396	0
36064	The Hanover American Insurance Company	A	1,379	0	1,379	1,379	0
13083	New Hampshire Employers Insurance Company	A	1,325	0	1,325	1,325	0
19380	American Home Assurance Company	B	1,298	0	1,298	0	1,298
12904	Tokio Marine & Nichido Fire Insurance Co., Ltd. (United States Branch)	A	1,274	0	1,274	1,274	0
33600	LM Insurance Corporation	A	1,267	-6	1,273	1,273	0
15563	SeaBright Insurance Company	A	1,177	0	1,177	1,177	0
23329	Merchants Mutual Insurance Company	A	1,081	0	1,081	1,081	0
22306	Massachusetts Bay Insurance Company	A	990	0	990	990	0
20362	Mitsui Sumitomo Insurance Company of America	A	981	0	981	981	0
20303	Great Northern Insurance Company	A	975	0	975	975	0
20621	OneBeacon America Insurance Company	A	890	0	890	890	0
13978	Florists' Mutual Insurance Company	A	855	0	855	855	0
20427	American Casualty Company of Reading, Pennsylvania	A	765	0	765	765	0
21180	Sentry Select Insurance Company	A	725	0	725	725	0
21172	Vanliner Insurance Company	A	721	0	721	721	0
15067	Quincy Mutual Fire Insurance Company	A	708	0	708	708	0
12416	Protective Insurance Company	A	706	0	706	706	0
18767	Church Mutual Insurance Company	B	703	0	703	0	703
20397	Vigilant Insurance Company	A	666	0	666	666	0
24414	General Casualty Company of Wisconsin	A	636	0	636	636	0
10665	Ameritrust Insurance Corporation	A	589	0	589	589	0
23442	Patriot General Insurance Company	A	526	0	526	526	0
21857	The American Insurance Company	A	515	0	515	515	0

# VI 000024

Section VI - Expenses  
 Subsection H - Expenses Net of Premium Discount  
 9/1/2012

Section VI - H  
 Exhibit 4

Calendar Year 2010 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 (\$000) (4)	Residual Market Written Premium (\$000) (5)	Adjusted Voluntary Written Premium		
					Total Written Premium (\$000) (6)	Type A Written Premium (\$000) (7)	Type B Written Premium (\$000) (8)
13714	Pharmacists Mutual Insurance Company	A	509	0	509	509	0
15105	Safety National Casualty Corporation	A	500	0	500	500	0
10687	Utica National Assurance Company	A	498	0	498	498	0
37885	XL Specialty Insurance Company	A	463	0	463	463	0
11149	Maine Employers' Mutual Insurance Company	B	451	0	451	0	451
19704	American States Insurance Company	A	443	0	443	443	0
24074	The Ohio Casualty Insurance Company	A	426	0	426	426	0
21873	Fireman's Fund Insurance Company	A	411	0	411	411	0
37893	Ullico Casualty Company	A	410	0	410	410	0
22136	Great American Insurance Company of New York	A	403	0	403	403	0
21865	Associated Indemnity Corporation	B	399	0	399	0	399
28886	TRANSGUARD INSURANCE COMPANY OF AMERICA INC.	A	379	0	379	379	0
25887	United States Fidelity and Guaranty Company	A	369	0	369	369	0
10800	Premier Group Insurance Company	B	363	0	363	0	363
11126	Sompo Japan Insurance Company of America	A	363	0	363	363	0
23582	Harleysville Insurance Company	A	350	0	350	350	0
29939	Main Street America Assurance Company	A	344	0	344	344	0
13943	Fitchburg Mutual Insurance Company	A	340	0	340	340	0
26832	Great American Alliance Insurance Company	A	340	0	340	340	0
23434	Middlesex Insurance Company	A	337	0	337	337	0
35696	Harleysville Preferred Insurance Company	A	330	0	330	330	0
22322	Greenwich Insurance Company	A	310	0	310	310	0
33588	The First Liberty Insurance Corporation	A	307	0	307	307	0
21970	OneBeacon Insurance Company	A	297	-1	298	298	0
23108	Lumbermen's Underwriting Alliance	B	282	0	282	0	282
21415	Employers Mutual Casualty Company	A	260	0	260	260	0
24449	Regent Insurance Company	A	239	0	239	239	0
42552	NOVA Casualty Company	A	226	0	226	226	0
14982	Penn Millers Insurance Company	A	219	0	219	219	0
10120	Everest National Insurance Company	A	218	0	218	218	0
26425	Wausau General Insurance Company	A	217	0	217	217	0
18333	Peerless Indemnity Insurance Company	A	204	0	204	204	0
28304	Federated Service Insurance Company	A	198	0	198	198	0
44300	Tower Insurance Company of New York	A	181	0	181	181	0
10677	The Cincinnati Insurance Company	A	180	0	180	180	0
19690	American Economy Insurance Company	A	176	0	176	176	0
14168	Harleysville Mutual Insurance Company	A	166	0	166	166	0
41238	Trans Pacific Insurance Company	A	125	0	125	125	0
19070	The Standard Fire Insurance Company	A	124	0	124	124	0
19399	AIU Insurance Company	B	111	0	111	0	111
10166	Accident Fund Insurance Company of America	A	98	0	98	98	0
36234	Preferred Professional Insurance Company	A	90	0	90	90	0
21881	National Surety Corporation	A	83	0	83	83	0
23337	American European Insurance Company	A	82	0	82	82	0
24554	XL Insurance America, Inc.	A	80	0	80	80	0
19720	American Alternative Insurance Corporation	A	77	0	77	77	0
10642	Cherokee Insurance Company	A	77	0	77	77	0
31895	American Interstate Insurance Company	A	70	0	70	70	0
41840	Allmerica Financial Benefit Insurance Company	A	65	0	65	65	0
40517	Advantage Workers Compensation Insurance Company	A	65	0	65	65	0
12297	Petroleum Casualty Company	A	64	0	64	64	0
35408	Imperium Insurance Company	B	57	0	57	0	57
12901	Merchants Preferred Insurance Company	A	56	0	56	56	0
35289	The Continental Insurance Company	A	55	0	55	55	0
19488	Amerisure Insurance Company	B	49	0	49	0	49

# VI 000025

Section VI - Expenses  
 Subsection H - Expenses Net of Premium Discount  
 9/1/2012

Section VI - H  
 Exhibit 4

Calendar Year 2010 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 (\$000) (4)	Residual Market Written Premium (\$000) (5)	Adjusted Voluntary Written Premium		
					Total Written Premium (\$000) (6)	Type A Written Premium (\$000) (7)	Type B Written Premium (\$000) (8)
12866	T.H.E. Insurance Company	B	49	0	49	0	49
15032	GuideOne Mutual Insurance Company	A	47	0	47	47	0
11123	Safety First Insurance Company	A	41	0	41	41	0
23396	Amerisure Mutual Insurance Company	B	39	0	39	0	39
25143	State Farm Fire and Casualty Company	A	37	0	37	37	0
43478	Utica National Insurance Company of Texas	A	33	0	33	33	0
40045	StarNet Insurance Company	A	32	0	32	32	0
11371	Great West Casualty Company	A	29	0	29	29	0
13269	Zenith Insurance Company	A	26	0	26	26	0
24066	American Fire and Casualty Company	A	26	0	26	26	0
19984	ACIG Insurance Company	B	26	0	26	0	26
23612	Midwest Employers Casualty Company	A	22	0	22	22	0
36463	Discover Property & Casualty Insurance Company	A	21	0	21	21	0
10205	Mountain Valley Indemnity Company	A	19	0	19	19	0
26344	Great American Assurance Company	A	17	0	17	17	0
16691	Great American Insurance Company	A	16	0	16	16	0
27073	NIPPONKOA Insurance Company Limited (United States Branch)	B	13	0	13	0	13
10510	Carolina Casualty Insurance Company	B	11	0	11	0	11
12305	Accident Fund National Insurance Company	A	8	0	8	8	0
29874	North American Specialty Insurance Company	A	7	0	7	7	0
21423	Union Insurance Company of Providence	A	7	0	7	7	0
44393	West American Insurance Company	A	6	0	6	6	0
12831	State National Insurance Company, Inc.	A	4	0	4	4	0
14990	Pennsylvania National Mutual Casualty Insurance Company	B	3	0	3	0	3
21849	American Automobile Insurance Company	A	3	0	3	3	0
34690	Property and Casualty Insurance Company of Hartford	A	2	0	2	2	0
12304	Accident Fund General Insurance Company	A	2	0	2	2	0
25879	Fidelity and Guaranty Insurance Underwriters, Inc.	A	2	0	2	2	0
24082	Ohio Security Insurance Company	A	2	0	2	2	0
13331	Motorists Commercial Mutual Insurance Company	A	2	0	2	2	0
18538	BancInsure, Inc.	A	2	0	2	2	0
42650	OneBeacon Midwest Insurance Company	A	1	0	1	1	0
29157	United Wisconsin Insurance Company	A	1	0	1	1	0
15024	Preferred Mutual Insurance Company	A	0	0	0	0	0
12572	Selective Insurance Company of America	A	0	0	0	0	0
36307	The Gray Insurance Company	B	0	0	0	0	0
24775	St. Paul Guardian Insurance Company	A	0	0	0	0	0
19828	Argonaut-Midwest Insurance Company	A	0	0	0	0	0
24791	St. Paul Mercury Insurance Company	A	0	0	0	0	0
34789	21st Century Centennial Insurance Company	A	0	0	0	0	0
24899	Alea North America Insurance Company	A	0	0	0	0	0
38237	American Country Insurance Company	A	0	0	0	0	0
16624	Darwin National Assurance Company	A	0	0	0	0	0
24503	Blue Ridge Insurance Company	A	0	0	0	0	0
24295	Providence Washington Insurance Company	A	0	0	0	0	0
10212	Allmerica Financial Alliance Insurance Company	A	0	0	0	0	0
25054	Hudson Insurance Company	A	0	0	0	0	0
20052	National Liability & Fire Insurance Company	A	0	0	0	0	0
25127	State Auto Property and Casualty Insurance Company	A	0	0	0	0	0
20982	COUNTRY Casualty Insurance Company	B	0	0	0	0	0
25135	State Automobile Mutual Insurance Company	A	0	0	0	0	0
37303	Redland Insurance Company	A	0	0	0	0	0
44784	Fairfield Insurance Company	A	0	0	0	0	0
38911	Berkley National Insurance Company	A	0	0	0	0	0
24325	York Insurance Company	A	0	0	0	0	0

# VI 000026

Section VI - Expenses  
 Subsection H - Expenses Net of Premium Discount  
 9/1/2012

Section VI - H  
 Exhibit 4

Calendar Year 2010 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 (\$000) (4)	Residual Market Written Premium (\$000) (5)	Adjusted Voluntary Written Premium		
					Total Written Premium (\$000) (6)	Type A Written Premium (\$000) (7)	Type B Written Premium (\$000) (8)
24017	The Beacon Mutual Insurance Company	B	0	0	0	0	0
25496	Torus National Insurance Company	A	0	0	0	0	0
31003	Tri-State Insurance Company of Minnesota	A	0	0	0	0	0
18619	Platte River Insurance Company	A	0	0	0	0	0
19860	Argonaut Great Central Insurance Company	A	0	0	0	0	0
11445	United National Casualty Insurance Company	A	0	0	0	0	0
32280	Commercial Casualty Insurance Company	A	0	0	0	0	0
11512	Employers Compensation Insurance Company	A	0	0	0	0	0
33014	Transport Insurance Company	A	0	0	0	0	0
19046	Travelers Casualty Insurance Company of America	A	0	0	0	0	0
21962	Pennsylvania General Insurance Company	A	0	0	0	0	0
19062	The Automobile Insurance Company of Hartford, Connecticut	A	0	0	0	0	0
22489	Highlands Insurance Company	A	0	0	0	0	0
10069	Housing Authority Property Insurance, A Mutual Company	B	0	0	0	0	0
36170	Travelers Casualty Company of Connecticut	A	0	0	0	0	0
25763	Seaton Insurance Company	A	0	0	0	0	0
13986	Frankenmuth Mutual Insurance Company	A	0	0	0	0	0
19224	St. Paul Protective Insurance Company	A	0	0	0	0	0
10022	Countryway Insurance Company	A	0	0	0	0	0
10499	CorePointe Insurance Company	A	0	0	0	0	0
38369	The Northern Assurance Company of America	A	0	0	0	0	0
19232	Allstate Insurance Company	A	0	0	0	0	0
38970	Markel Insurance Company	B	0	0	0	0	0
19240	Allstate Indemnity Company	A	0	0	0	0	0
12725	New England Mutual Insurance Company	A	0	0	0	0	0
11551	Endurance Reinsurance Corporation of America	A	0	0	0	0	0
14613	Montgomery Mutual Insurance Company	A	0	0	0	0	0
26018	Vermont Mutual Insurance Company	A	0	0	0	0	0
30830	Arch Indemnity Insurance Company	A	0	0	0	0	0
11835	PARIS RE America Insurance Company	B	0	0	0	0	0
31194	Travelers Casualty and Surety Company of America	A	0	0	0	0	0
15586	Preserver Insurance Company	A	0	0	0	0	0
31348	Crum & Forster Indemnity Company	B	0	0	0	0	0
10062	Covenant Insurance Company	A	0	0	0	0	0
19879	Security National Insurance Company	A	0	0	0	0	0
26085	Warner Insurance Company	A	0	0	0	0	0
32271	California Indemnity Insurance Company	A	0	0	0	0	0
23876	MAPFRE Insurance Company	A	0	0	0	0	0
32603	Berkley Insurance Company	A	0	0	0	0	0
23914	Northwestern National Insurance Company	A	0	0	0	0	0
32778	Washington International Insurance Company	A	0	0	0	0	0
20532	Clarendon National Insurance Company	A	0	0	0	0	0
20044	Berkshire Hathaway Homestate Insurance Company	A	0	0	0	0	0
20990	COUNTRY Mutual Insurance Company	B	0	0	0	0	0
20095	Bituminous Casualty Corporation	A	0	0	0	0	0
43702	North American Lumber Insurance Company	A	0	0	0	0	0
34754	The Commerce Insurance Company	B	0	0	0	0	0
10794	Companion Commercial Insurance Company	A	0	0	0	0	0
14737	Plymouth Rock Assurance Corporation	B	0	0	0	0	0
10502	Meridian Citizens Mutual Insurance Company	A	0	0	0	0	0
20109	Bituminous Fire & Marine Insurance Company	B	0	0	0	0	0
27120	Trumbull Insurance Company	A	0	0	0	0	0
36137	Travelers Commercial Insurance Company	A	0	0	0	0	0
27154	Atlantic Specialty Insurance Company	A	0	0	0	0	0
22730	Allied World Reinsurance Company	A	0	0	0	0	0

# VI 000027

Section VI - Expenses  
 Subsection H - Expenses Net of Premium Discount  
 9/1/2012

Section VI - H  
 Exhibit 4

Calendar Year 2010 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 (\$000) (4)	Residual Market Written Premium (\$000) (5)	Adjusted Voluntary Written Premium		
					Total Written Premium (\$000) (6)	Type A Written Premium (\$000) (7)	Type B Written Premium (\$000) (8)
27847	Insurance Company of the West	A	0	0	0	0	0
36455	Northbrook Indemnity Company	A	0	0	0	0	0
28223	Nationwide Agribusiness Insurance Company	B	0	0	0	0	0
36684	Riverport Insurance Company	A	0	0	0	0	0
12190	American Pet Insurance Company	A	0	0	0	0	0
21830	New England Insurance Company	A	0	0	0	0	0
10936	Seneca Insurance Company, Inc.	A	0	0	0	0	0
12513	Professional Liability Insurance Company of America	A	0	0	0	0	0
11000	Sentinel Insurance Company, Ltd.	A	0	0	0	0	0
38318	Republic Insurance Company	A	0	0	0	0	0
10641	Endurance American Insurance Company	A	0	0	0	0	0
38512	Rampart Insurance Company	A	0	0	0	0	0
40282	Travelers Commercial Casualty Company	B	0	0	0	0	0
38962	Genesis Insurance Company	A	0	0	0	0	0
40398	American Fuji Fire and Marine Insurance Company	A	0	0	0	0	0
39357	MetLife Insurance Company of Connecticut	A	0	0	0	0	0
20613	American Employers' Insurance Company	A	0	0	0	0	0
23795	21st Century Pacific Insurance Company	B	0	0	0	0	0
41483	Farmington Casualty Company	A	0	0	0	0	0
24732	General Insurance Company of America	A	0	0	0	0	0
16608	New York Marine And General Insurance Company	A	0	0	0	0	0
14923	Patrons Mutual Insurance Company of Connecticut	A	0	0	0	0	0
14974	Pennsylvania Lumbermens Mutual Insurance Company	A	0	0	0	0	0
10052	Chubb National Insurance Company	A	0	0	0	0	0
41769	Athena Assurance Company	A	0	0	0	0	0
41750	St. Paul Medical Liability Insurance Company	A	0	0	0	0	0
41939	Liberty Northwest Insurance Corporation	A	0	0	0	0	0
11255	Caterpillar Insurance Company	B	0	0	0	0	0
10340	Stonington Insurance Company	B	0	0	0	0	0
42048	Diamond State Insurance Company	A	0	0	0	0	0
29580	Berkley Regional Insurance Company	A	0	0	0	0	0
11231	Generali (United States Branch)	A	0	0	0	0	0
29700	North American Elite Insurance Company	A	0	0	0	0	0
13730	Selective Insurance Company of New York	A	0	0	0	0	0
14486	Liberty Mutual Mid-Atlantic Insurance Company	A	0	0	0	0	0
10014	Affiliated FM Insurance Company	B	0	0	0	0	0
26433	Harco National Insurance Company	B	0	0	0	0	0
21750	Pilgrim Insurance Company	B	0	0	0	0	0
12157	Companion Property and Casualty Insurance Company	A	0	0	0	0	0
11024	Strathmore Insurance Company	A	0	0	0	0	0
26921	Everest Reinsurance Company	A	0	0	0	0	0
26077	Lancer Insurance Company	A	0	0	0	0	0
22195	Insurance Company of Greater New York	A	0	0	0	0	0
Total			760,622	94,741	665,881	381,794	284,087

Percentage of Voluntary written premium electing Type A Discount: 57.3%  
 Percentage of Voluntary written premium electing Type B Discount: 42.7%

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 000028

Section VI - Expenses  
Subsection I - Expense Constant Offset  
9/1/2012

Section VI - I  
Exhibit 1

## Calculation of Expense Constant as Percent of Premium for Prospective Effective Period

(1) Expense Constant Offset for Policy Year 2009	0.951
(2) Expense Constant as Percent of Premium for Policy Year 2009 = 1.0 - (1)	4.9%
(3) Calculated Expense Constant for Policy Year 2009	\$239.86
(4) Factor to Bring Policy Year 2009 Premium to Premium Level of Prospective Effective Period	1.30
(5) Estimated Expense Constant for Prospective Effective Period	\$253.93
(6) Expense Constant as Percent of Premium for Prospective Effective Period = { (2) x [ (5) / (3) ] } / { [ (1) x (4) ] + [ (2) x ( (5) / (3) ) ] }	4.1%

### Notes:

- (1): Exhibit 2.
- (3): Based on Unit Statistical Plan Data
- (4): Section III-E, Exhibit 1.
- (5): Section D, Exhibit 1.

# VI 000029

Section VI - Expenses  
 Subsection I - Expense Constant Offset  
 9/1/2012

Section VI - I  
 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)
2008	776,739,827	37,974,613	1.037	42,046,937	0.951
2009	741,852,303	34,188,197	1.053	40,055,226	0.951

### 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)
2009	729,182,530	32,771,621	1.053	39,617,180	0.951

**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 2009 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 000030

Section VI - Expenses  
Subsection J - Acquisition Expenses  
9/1/2012

Section VI - J  
Exhibit 1

## Provision for Commission and Other Acquisition Expense including Frictional Reinsurance Expenses

(1)	Other Acquisition and Field Supervision Expense Ratio, Excluding Expense Constants	3.2%
(2)	Average Commission Ratio, Excluding Expense Constants	8.0%
(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)	<b>12.2%</b>

### Notes:

(1): Exhibit 2.

(2): Exhibit 3.

(3): Exhibit 4, Page 1.

(4): Exhibit 5.

# VI 000031

Section VI - Expenses  
 Subsection J - Acquisition Expenses  
 9/1/2012

Section VI - J  
 Exhibit 2

## Calculation of Other Acquisition Expense

	Calendar Year		
	2008	2009	2010
(1) Standard Earned Premium Including Expense Constant Premium	1,085,655,944	966,249,797	894,316,989
(2) ARAP Premium at Company Level	50,830,933	38,193,602	35,473,671
(3) Adjustment Factor to Adjust from Company Level to DSR Level Premium	1.032	1.060	1.056
(4) Standard Earned Premium plus Adjusted ARAP = (1) + [ (2) x (3) ]	1,138,105,112	1,006,727,266	931,790,533
(5) Adjustment for Experience and Merit Rating, ARAP, and Construction Credit Off-balance	1.008	1.013	1.012
(6) Adjustment Factor to Remove the Impact of Loading for Recoupment of Insolvency Fund Assessments	1.017	1.007	1.001
(7) Adjusted Standard Earned Premium plus ARAP = (4) x (5) x (6)	1,166,936,809	1,026,297,647	943,902,594
(8) Other Acquisition, Field Supervision, Collection Expenses for Home Office and Branch Office, excluding Commissions	50,983,021	53,345,050	51,317,388
(9) Other Acquisition Expense Ratio = (8) / (7)	4.4%	5.2%	5.4%
(10) Three Year Average		5.0%	
(11) Expense Constant as Percent of Premium for Prospective Effective Period		4.1%	
(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)		1.9%	
(14) Other Acquisition and Field Supervision Expense Ratio, Excluding Expense Constants = [ (10) - (13) ] / [ 1.0 - (11) ]		<b>3.2%</b>	

**Notes:**

- (1), (2): Aggregate Financial Reconciliation Report Calls, Calendar Years 2008 - 2010.  
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 2008 - 2010.
- (11): Section VI-I, Exhibit 1.
- (12): Section VI-B, Exhibit 3.

# VI 000032

Section VI - Expenses  
Subsection J - Acquisition Expenses  
9/1/2012

Section VI - J  
Exhibit 3

## Calculation of Average Commission Rate

	Calendar Year		
	2008	2009	2010
(1) Direct Written Premium	790,415,999	724,065,450	787,112,707
(2) Total Commissions for Agents and Brokers	61,272,256	54,992,983	59,650,735
(3) Average Commission Rate = (2) / (1)	7.8%	7.6%	7.6%
(4) Three Year Average		7.6%	
(5) Expense Constant as Percent of Premium for Prospective Effective Period		4.1%	
(6) Average Commission Ratio, Excluding Expense Constants = (5) / [ 1.0 - (4) ]		<b>8.0%</b>	

### Notes:

(1): Annual Statement Exhibit of Premium and Losses, Calendar Years 2008 - 2010.

(2): Aggregate Financial Expense Calls, Calendar Years 2008 - 2010.

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

# VI 000033

Section VI - Expenses  
 Subsection J - Acquisition Expenses  
 9/1/2012

Section VI - J  
 Exhibit 4  
 Page 1

## 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)
1996	22.3%	3.8%	2.6%	0.4%	29.1%
1997	20.7%	4.1%	2.9%	0.2%	27.9%
1998	21.1%	4.8%	3.3%	0.2%	29.4%
1999	18.3%	3.8%	2.7%	0.2%	25.0%
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%
(7) Average	19.1%	4.2%	3.4%	0.4%	27.1%
(8) Estimated Ceding Commission & Brokerage Rate for Workers' Compensation Non-Proportional Reinsurance	15.7%				
(9) Adjusted Average = (7) - (8)	3.4%	4.2%	3.4%	0.4%	11.4%
(10) Estimated % of Direct Premium Ceded for Workers' Compensation Non-Proportional Reinsurance					12.5%
(11) Implied Frictional Reinsurance Expenses Relative to Direct Premiums (as a %) = Total (9) x (10)					1.43%
(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 1997 - 2011.

(8): Page 2, (10).

(10): Page 2, (11).

Estimate of Ceding Commission & Brokerage Rate for Workers' Compensation Non-Proportional Reinsurance

Calendar Year (1)	Written Premiums (000's)			Ratio of Commission & Brokerage Incurred to Written Premium		Commission & Brokerage Expenses Incurred (000's)		
	Direct (2)	Net (3)	Direct - Net = (2) - (3) (4)	Direct (5)	Net (6)	Direct = (2) x (5) (7)	Net = (3) x (6) (8)	Direct - Net = (7) - (8) (9)
1996	30,046,302	27,714,978	2,331,324	0.064	0.068	1,922,963	1,884,619	38,345
1997	29,775,890	27,583,106	2,192,784	0.069	0.063	2,054,536	1,737,736	316,801
1998	29,136,120	25,683,152	3,452,968	0.077	0.060	2,243,481	1,540,989	702,492
1999	29,524,205	24,653,790	4,870,415	0.082	0.064	2,420,985	1,577,843	843,142
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
Total	606,763,459	530,771,199	75,992,260	0.075	0.063	45,373,658	33,423,203	11,950,455

- (10) Estimated Ceding Commission & Brokerage Rate for Workers' Compensation Non-Proportional Reinsurance  
 = Total (9) / Total (4) 15.7%
- (11) Estimated % of Direct Premium Ceded for Workers' Compensation Non-Proportional Reinsurance  
 = Total (4) / Total (2) 12.5%

Notes:

(2), (3), (5), (6): Insurance Expense Exhibit database - By Line Underwriting Experience from Best's Aggregates & Averages for Workers' Comp Editions 1997 - 2011.

VI 000034

# VI 000035

Section VI - Expenses  
 Subsection J - Acquisition Expenses  
 9/1/2012

Section VI - J  
 Exhibit 5

## Effect of Incidental Income and Earned but Uncollected Premium

	Calendar Year		
	2008	2009	2010
(1) Standard Earned Premium Including Expense Constant Premium	1,085,655,944	966,249,797	894,316,989
(2) ARAP Premium at Company Level	50,830,933	38,193,602	35,473,671
(3) Adjustment Factor to Adjust from Company Level to DSR Level Premium	1.032	1.060	1.056
(4) Standard Earned Premium plus Adjusted ARAP = (1) + [ (2) x (3) ]	1,138,105,112	1,006,727,266	931,790,533
(5) Adjustment for Experience and Merit Rating, ARAP, and Construction Credit Off-balance	1.008	1.013	1.012
(6) Adjustment Factor to Remove the Impact of Loading for Recoupment of Insolvency Fund Assessments	1.017	1.007	1.001
(7) Adjusted Standard Earned Premium plus ARAP = (4) x (5) x (6)	1,166,936,809	1,026,297,647	943,902,594
(8) Earned But Uncollected Premium ("EBUP")	15,766,342	11,918,752	13,584,775
(9) Incidental Income	1,173,727	1,981,980	1,847,547
(10) Net Effect of Incidental Income and EBUP Expense = [ (8) - (9) ] / (7)	1.3%	1.0%	1.2%
<hr/>			
(11) Three Year Average		1.2%	
(12) Expense Constant as Percent of Premium for Prospective Effective Period		4.1%	
(13) Effect of Incidental Income and EBUP Expense, Exclusive of Expense Constants = (11) / [ 1.0 - (12) ]		1.2%	
(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 2008 - 2010.  
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-I, Exhibit 1.

# VI 000036

Section VI - Expenses  
 Subsection K - Loss Adjustment Expense  
 9/1/2012

Section VI - K  
 Exhibit 1

## Total Loss Adjustment Expense ("LAE") Ratio

		Calendar Year		
		2008	2009	2010
(1)	Direct Incurred Losses	565,682,074	536,346,427	553,327,014
(2)	Direct Incurred Defense and Cost Containment Expense	64,428,207	68,820,617	56,786,887
(3)	Defense and Cost Containment Expense Ratio = (2) / (1)	11.4%	12.8%	10.3%
(4)	Three Year Average Defense and Cost Containment Expense Ratio = Average of (3)	11.5%		
(5)	Direct Incurred Adjusting and Other Expense	40,137,296	51,993,414	46,980,981
(6)	Adjusting and Other Expense Ratio = (5) / (1)	7.1%	9.7%	8.5%
(7)	Factor to Adjust the Direct AO Expense Ratio to a Full Coverage AO Expense Ratio	0.917	0.914	0.923
(8)	Adjusted Adjusting and Other Expense Ratio = (6) x (7)	6.5%	8.9%	7.8%
(9)	Three Year Average Adjusted Adjusting and Other Expense Ratio = Average of (8)	7.7%		
(10)	Total Loss Adjustment Expense Ratio (LAE / Loss) = (4) + (9)	<b>19.2%</b>		

**Notes:**

(1),(2),(5): Aggregate Financial Calendar Year Expense Data Calls, 2008 - 2010.

(7): Section VI-L, Exhibit 1, Page 1.

# VI 000037

Section VI - Expenses  
 Subsection L - Adjustment for Large Deductible Policies  
 9/1/2012

Section VI - L  
 Exhibit 1  
 Page 1

## Adjustment to the Adjusting and Other Expense Provision

	Calendar Year		
	2008	2009	2010
(1) Average Premium Reduction Factor for Large Deductible Policies	0.864	0.860	0.878
(2) Loss Elimination Ratio (LER) for Large Deductible Policies = (1) x 1.103	95.3%	94.9%	96.9%
(3) Market Share (Standard Premium Basis) of Large Deductible Policies	16.2%	16.7%	14.7%
(4) LER for Full Coverage plus Large Deductible Policies = [ (2) x (3) ] + { 0.0 x [ 1.0 - (3) ] }	15.4%	15.8%	14.2%
(5) Factor to Adjust the Direct Losses to Full Coverage Losses = 1.0 / [ 1.0 - (4) ]	1.182	1.188	1.166
(6) Factor to Adjust the Direct AO Expense to Full Coverage AO Expense = 1.0 / { 1.0 - [ 0.5 x (4) ] }	1.083	1.086	1.077
(7) Factor to Adjust the Direct AO Expense Ratio to a Full Coverage AO Expense Ratio = (6) / (5)	0.917	0.914	0.923

Notes:

- (1),(3): Exhibit 2.
- (2): 1.103 from Exhibit 1, Page 2.
- (6): Assumes 50% of Adjusting & Other expense varies directly with losses.

# VI 000038

Section VI - Expenses  
 Subsection L - Adjustment for Large Deductible Policies  
 9/1/2012

Section VI - L  
 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	11.3%
(2)	Premium Discount Ratio	5.5%
(3)	Premium Tax Ratio = 2.28% x [ 1.0 - (2) ]	2.2%
(4)	IRR Profit Provision	0.0%
(5)	Insolvency Fund Assessment	0.0%
(6)	Residual Market Subsidy (Retrospectively-rated policies)	0.2%
(7)	Variable Expense Ratio = (1) + (2) + (3) + (4) + (5) + (6)	19.3%
(8)	Expected Loss Ratio without LAE	63.7%
(9)	Defense and Cost Containment Expense ("DCC")	6.9%
(10)	Adjusting and Other Expenses ("AO")	5.1%
(11)	Variable Adjusting and Other Expenses = 0.5 x (10)	2.6%
(12)	Portion of Expected Loss + LAE Ratio that varies with deductible (ELARD) = (8) + (9) + (11)	73.1%
(13)	LER / D = [ 1.0 - (7) ] / (12)	1.103

D = Average Premium Reduction Factor for Large Deductible Policies

LER = Loss Elimination Ratio

ELARD = Loss + DCC + ( 1/2 x AO )

$D = [ LER \times ELARD ] / [ 100\% - (Variable Expense) ]$

$LER = D \times [ 1.0 - (Variable Expense) ] / LER \times ( 1.0 + DCC + 1/2 \times AO )$

**Notes:**

Values approved for rates effective 9/1/10.

(9) = 10.8% x (8), ratio of DCC to Losses from the 9/1/10 filing.

(10) = 8.1% x (8), ratio of AO to Losses from the 9/1/10 filing.

# VI 000039

Section VI - Expenses  
 Subsection L - Adjustment for Large Deductible Policies  
 9/1/2012

Section VI - L  
 Exhibit 2

## Average Large Deductible Premium Reduction Factor and Large Deductible Market Share

		Policy Year												
		2007	2008	2009	2010*									
(1)	Standard Earned Premium Excluding Large Deductible Policies	979,025,101	813,119,377	759,628,658	456,547,396									
(2)	Earned Premium Net of Deductible Credit for Large Deductible Policies	22,834,715	23,859,955	20,185,980	7,344,516									
(3)	Standard Earned Premium for Large Deductible Policies	184,883,501	159,964,419	154,620,206	64,967,476									
(4)	Standard Earned Premium for All Policies = (1) + (3)	1,163,908,602	973,083,796	914,248,864	521,514,872									
(5)	Average Premium Reduction Factor for Large Deductible Policies = 1.0 - [ (2) / (3) ]	0.876	0.851	0.869	0.887									
(6)	Market Share (Standard Premium Basis) of Large Deductible Policies = (3) / (4)	15.9%	16.4%	16.9%	12.5%									
		<table border="1" style="width: 100%; border-collapse: collapse; margin: 5px auto;"> <thead> <tr> <th colspan="3" style="text-align: center;">Calendar Year</th> </tr> <tr> <th style="text-align: center;">2008</th> <th style="text-align: center;">2009</th> <th style="text-align: center;">2010</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">0.864</td> <td style="text-align: center;">0.860</td> <td style="text-align: center;">0.878</td> </tr> </tbody> </table>				Calendar Year			2008	2009	2010	0.864	0.860	0.878
Calendar Year														
2008	2009	2010												
0.864	0.860	0.878												
(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		16.2%	16.7%	14.7%									

**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 2010 is an incomplete Policy Year, valued as of 12/31/2010

## UNDERWRITING PROFIT PROVISION

### Background

For many years prior to 2003, workers' compensation rate filings in Massachusetts utilized the Myers-Cohn (M-C) model to establish underwriting profit provisions. In the 2003 filing, however, the WCRIBMA relied on a different approach, known as the internal rate of return (IRR) model. The Commissioner approved the use of the IRR in her decision on 2003 rates.<sup>1</sup> The WCRIBMA continues to rely on an IRR model in this filing.

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.<sup>2</sup> 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 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

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<sup>1</sup> See, for example, 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."

<sup>2</sup> 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.

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.<sup>3</sup> 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 equity invested in support of the insurance transaction. Dr. Appel has performed the following analyses 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.
2. He has assisted the WCRIBMA in developing a discounted cash flow model (the IRR model) to estimate the underwriting profit factor required to yield the indicated fair rate of return.

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<sup>3</sup> 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).

3. He has utilized the WCRIBMA's cost of capital and IRR models, using assumptions and cash flow patterns specific to Massachusetts workers' compensation insurance, to derive an underwriting profit factor that is consistent with the current cost of capital. This is the underwriting profit factor used in this rate filing.

Dr. Appel's role in preparing the present rate filing is consistent with the work he has performed since the 2005 filing. Dr. Appel assisted the WCRIBMA's staff in designing its models, reviewed the programming and implementation of the design, and tested the model's output for reasonableness.

In this filing, the calculated underwriting profit provision is 6.82%. Section VII-A, Exhibit 1, summarizes this calculation. The IRR model 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.

### **VII-B and VII-C – Internal Rate of Return and Cost of Capital**

In Section VII-B we present the IRR model we have constructed and implemented with Dr. Appel's assistance, along with the exhibits generated by the model. In Section VII-C we present the cost of capital analysis developed with Dr. Appel's assistance, 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). In the 2010 filing as well as in this 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 ValueLine 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.

**VII-D – Leverage Ratio**

In this filing, the amount of surplus is estimated using a total reserve to surplus ratio, as was 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 (2011 ed.). We estimate this ratio by using an average of five years of data for loss and LAE reserves, plus unearned premium reserves. The calculation of the ratio is shown in Exhibit 1.

**VII-E - 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

## VII 000005

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-F - Expense Flows and Weights**

The expense flows used by the WCRIBMA this year are weighted averages of separately determined flows for commissions, premium and other taxes, general expenses, other acquisition expenses, loss and loss adjustment expenses, premium discount and reinsurance expenses. In the current filing, separate policy year 2008 and

policy year 2009 weights are calculated for general expenses, miscellaneous and other taxes, and loss and loss adjustment expenses. The average of the two policy year weights is used in the IRR model.

The resulting expense flows appear in Table II-A of the IRR display (Section VII-B, Exhibit 2, Page 1). All flows in the IRR model have been converted to a policy year basis from their original form as single policy flows.

### **General Expense**

The results of a study of general expense flow patterns were reported in the 1977 filing. General expenses were divided into general administration, audit, inspection and bureau expenses. A time line was constructed to indicate a particular type of expenditure's distance from the effective date of a typical policy. Expenses by cost center, including home and field office expenses, were analyzed to establish how the pattern of such expenses relates to the effective date of a policy. The combination of all such expense patterns resulted in the overall general expense pattern listed in Exhibit 2.

### **Other Acquisition Expense**

The distribution of other acquisition costs was estimated from the same time pattern study that was used for general expenses. Marketing, field offices and services, billing and collection, policy issuance and advertising expenses were examined to observe their timing relative to the issuance of a policy. The combination of all such expense patterns resulted in the other acquisition expense pattern listed in Exhibit 2.

**Premium and Other Taxes**

The premium tax liability for any individual policy is assumed to be incurred and paid during the first quarter of the policy term. The payment pattern for other taxes, which remains unchanged, was estimated from the same time pattern study that was used for general expenses.

**Commissions and Premium Discount**

We assume that the commission and premium discount flow patterns coincide with the paid premium flow.

**Reinsurance Expenses**

As in the last filing we are including a provision to reflect the frictional costs of reinsurance to insurers. We assume that the reinsurance expense flow pattern coincides with the earned premium flow.

**Loss Adjustment Expense**

The Defense and Cost Containment Expense (DCC) flow is assumed to have the same pattern as the loss flow as shown in Section VII-F, Exhibit 3. 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 weights given to each of these flows have been calculated from data in Section VI-D, Exhibit 1.

### **Expense Flow Weights**

The weights used to combine the various expense flow patterns into final expense flows are calculated using the expense provisions from Section VI.

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-G - Loss Flows**

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. The combined loss flow used in the profit model, which reflects a weighted average of the medical and indemnity flows, appears in Table II-A of the IRR display (Section VII-B, Exhibit 2, Page 1). The aggregated flow on a single policy basis is shown in Exhibit 1.

**Medical Loss Flow**

The flow for medical losses is based on Accident Year Financial Aggregate Data (see Exhibit 2, Page 2). The estimate of ultimate medical losses for each accident year is calculated using a medical tail factor from Section II.

We compute the loss development factors from the averages of the latest two year link ratios for each reporting interval until the 21st report. Beyond that report, the selected percentage of paid to ultimate has been distributed evenly. We calculate the percentage of losses paid by taking one over the loss development factors to ultimate. The resulting medical loss flow is shown in Exhibit 1.

**Indemnity Loss Flow**

The flow for indemnity losses has been derived from the financial aggregate data using a method identical to the method we used for medical losses except that the

indemnity losses have been adjusted for escalation of benefits (see Exhibit 2, Page 1).

The indemnity financial aggregate data and loss flows are shown in Exhibit 2, Page 3.

Exhibit 1 shows the final combined medical and indemnity loss flow.

## **VII-H - Portfolio Rate of Return**

### **Portfolio Composition**

For many years prior to 2005, the mix of securities in the insurance industry asset portfolio was based on data compiled by the Federal Reserve Bank (known as the Federal Reserve Flow of Funds data). A more complete (and more reliable) source for this information, however, is 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. Not only are these data compiled directly from insurer annual statements, but they also contain substantially more detail on the mix and maturity of bonds than does the Flow of Funds data. Hence this is a preferred source for estimating the mix of securities in the insurer asset portfolio.

We begin our calculation of the portfolio rate of return by assigning weights to each of eight 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); and preferred stocks. We assign weights using data from Best's Aggregates and Averages Property Casualty, 2011 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 IRR used this year (and in the filings from 2005 to present), the WCRIBMA has relied on yields average over the last 3 months.

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.

**Market Risk Premium**

We use market returns from 1926-2011 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-C, these are the same risk premiums used to calculate the cost of capital, which is required for internal consistency in the rate filing.) The calculation, shown on Exhibit 4, uses data drawn from the 2011 Ibbotson & Associates *Year Book* and SBBi December 2011 Year End Report.

**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. The pre-tax average investment expense carried to Section VII-H, Exhibit 1, Page 1 is 0.40%.

**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

stock sales. The interest rate used in calculating the present value of the taxes is the weighted average cost of capital from Section VII-C, Exhibit 1 as opposed to the risk free rate we used in the 2005 rate filing. 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 – 2011. 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 24.86% on capital gains, we derive an overall average tax rate of 21.06% (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 1.85%.

# VII 000014

Section VII - Profit  
Subsection A - Summary  
9/1/2012

Section VII - A  
Exhibit 1

## Summary Exhibit

(1) IRR Profit Provision	6.82%
Cost of Capital:	
(2) Equity DCF	10.72%
(3) Equity CAPM	8.80%
(4) Debt Cost	6.48%
(5) Debt / Equity Ratios	27% / 73%
(6) Weighted Cost of Capital	8.86%
Portfolio Rate of Return:	
(7) Investment Expense	0.40%
(8) Pretax Return on Assets	2.25%
(9) Tax Rate	20.35%
(10) After-Tax Return on Assets	1.85%
Leverage Ratio:	
(11) Reserves to Surplus	1.97

### Notes:

- (1): Section VII-B, Exhibit 1.
- (2) - (6): Section VII-C, Exhibit 1.
- (7): Section VII-H, Exhibit 5.
- (8) - (10): Section VII-H, Exhibit 1, page 1.
- (11): Section VII-D, Exhibit 1.

## INTERNAL RATE OF RETURN MODEL

### Internal Rate of Return (IRR) Model: General Considerations

The objective of this analysis is to estimate the profit provision to be included in Massachusetts workers' compensation rates. Once the fair rate of return has been estimated, one needs to determine the underwriting profit provision that will yield a total return on equity (including both underwriting and investment income) equal to the fair return. The internal rate of return (IRR) methodology, applied to the Massachusetts workers' compensation insurance transaction, is used for this purpose.

In general, the IRR model estimates the cash flows attributable to an investment decision, and then calculates the rate of return embodied in those cash flows. As applied to insurance, the IRR model estimates the cash flows attributable to the sale of insurance coverage, and calculates the rate of return they will produce. 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. Furthermore, many insurers rely on precisely this model to estimate the expected rate of return associated with alternative insurance transactions.

The IRR methodology has several features that make it particularly appealing for use in rate regulation.

1. An IRR analysis is prospective, and therefore consistent with both actuarial principles and regulatory standards.

Discounted cash flow models, such as the IRR, attempt to estimate the rate of return attributable to the 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. While this is no doubt an interesting question, it is not directly related to the primary economic issue in rate regulation – the return on the policies sold under a set of proposed rates.

2. An IRR analysis accounts for all investment income on both policyholder and investor supplied funds.

One crucial aspect of the IRR is its ability to account for investment income in ratemaking. In essence the intention is to 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. This investment income is then used as an offset against premium requirements.

The IRR model accounts for all such income based on the investment yields insurers can expect to earn when the investible funds are received. Moreover, it accounts for all the income that will be earned by the investment of funds provided by, or on behalf of, future policyholders.

3. An IRR analysis accounts 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 the comparison of alternative investment opportunities.

Virtually every textbook on modern financial theory recommends 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. An IRR analysis accounts 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 the IRR model.

The IRR model focuses 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 rates will apply. To calculate the rate of return, the IRR follows 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:

1. Premiums
2. Losses
3. Loss Adjustment Expenses
4. Other Expenses
5. Taxes
6. Investment Income
7. Surplus

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 for the first six years and yearly after that, to calculate the final flow of funds to and from the equity of the insurer. In essence it is an estimate of the "cash in, cash out" attributable to the policies sold at a given rate. 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.

## VII 000019

Although the model may appear complex, the underlying concepts are quite straightforward. Furthermore, the general ideas behind discounted cash flow models are common to a wide range of financial analyses. A very simple example illustrates these concepts.

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:

<u>Year</u>	<u>Cash Flow</u>
1	\$55.00
2	\$48.40
3	\$39.90

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:

<u>Year</u>	<u>Cash Flow</u>	<u>Present Value at 10% interest</u>
0	-\$120.00	-\$120.00
1	\$55.00	\$ 50.00
2	\$48.40	\$ 40.00
3	\$39.90	\$ 30.00
Total	\$23.30	0

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 earnings 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 IRR for Massachusetts Workers' Compensation Insurance**

The implementation of the IRR in this filing is designed to set an appropriate underwriting profit to be included in the rates. The IRR model is used to find the underwriting profit factor that would produce a rate of return equal to the current cost of capital. To the extent that the profit factor is set too high, the estimated IRR will exceed the cost of capital, while if the profit factor is set too low, the IRR will fall short of the cost of capital.

In the context of insurance ratemaking, it is appropriate to use the cost of capital as the “target” rate of return in the IRR. 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 a tendency to restrict underwriting and withdraw capacity from the market. Thus, from the regulatory perspective, setting an underwriting profit that yields a rate of return equal to the cost of capital balances the interests of insurers and policyholders.

This section of the filing contains a series of spreadsheets that portray the cash flows arising from the sale of Massachusetts workers' compensation insurance policies

during the coming year, the year the approved rates will be in effect. As can be seen from the first page of the exhibits to this Section VII-B, the rates are set such that with a model underwriting profit of 6.82%, insurers can expect to earn a return of 8.86%, exactly equal to the cost of capital.

The WCRIBMA estimated the IRR with the most recent available data. The model reflects the cash flows arising from a policy year of activity, which in this context is defined as the financial transactions associated with the block of policies sold during a given calendar year. The policy year is the relevant period of analysis for the insurers subject to the approved rates, because for Massachusetts workers' compensation insurers, all the policies sold during the coming year will be at these rates.

The IRR analysis displayed in the exhibits to this Section VII-B is composed of seven tables, as follows.

Table I identifies the WCRIBMA's assumptions concerning the net loss and expense provisions, investment income yield, and the operating characteristics of insurers.

Table II provides the cash flow patterns and amounts for premium collection, payment of losses, and expenses calculated by the WCRIBMA. The cash flow patterns for a single policy were converted to a policy year basis.

For Tables III through VII, all values are derived from previous calculations in the model, with the exception of the tax credits in Table IV, which rely on IRS discount factors and an accident year payment pattern for discounting, as required by law.

Table III presents the flow of premiums available to pay expenses after accounting for loss, loss adjustment expense, and unearned premium reserves.

Table IV presents the tax credits and liabilities arising from the insurance operations, with special attention to the implications of the Tax Reform Act of 1986. (The details supporting the discounting of each accident year's losses are provided in Tables IV-A through IV-C.)

Table V presents the funds from the underwriting operation after accounting for reserves, payment of expenses, and income tax liabilities and credits.

Table VI derives the amount of funds available for investment. These funds include the funds held in loss, loss adjustment expense, and unearned premium reserves, less non-cash assets, plus the surplus that supports the liabilities in this analysis.

Table VII presents the net cash flow to and from investors attributable to Massachusetts workers' compensation insurance operations. This net cash flow is the sum of the funds from the underwriting operation, income expected from the investment of reserves and surplus, and the flow of surplus to and from this business.

### **Additional IRR Issues**

In the course of the 2003 rate hearing, a number of issues arose relating to the specific implementation of the IRR model for workers' compensation ratemaking in Massachusetts. In addition, the WCRIBMA has made several changes in the model to make it more internally consistent.

**Deferred Tax Assets:** Under the statutory accounting rules applicable to property casualty insurers, insurers may establish a balance sheet asset relating to the tax credits that will emerge in the future as a result of the loss discounting and revenue acceleration provisions of the 1986 Tax Reform Act. The IRR model used in this filing appropriately reflects those deferred tax assets.

**Tax Credits on Debt:** Because the WCRIBMA has considered debt in determining the cost of capital, the IRR model also reflects the tax deductions attributable to the interest payments on debt.

### **IRR Results**

As shown in Table I of this Section, given the assumptions in the filing regarding losses, expenses, investment yields and cash flow patterns, if the model underwriting profit is set to 6.82%, 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 8.86%. Since the underwriting profit provision is set specifically 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.

VII 000024

Section VII - Profit  
 Subsection B - Internal Rate of Return Model  
 9/1/2012

Section VII-B  
 Exhibit 1

Internal Rate of Return Analysis

INTERNAL RATE OF RETURN ANALYSIS WCRIB OF MA		
TABLE I: ASSUMPTIONS AND INTERNAL RATE OF RETURN		
ASSUMPTIONS		
(1)	LOSS AND LAE RATIO	69.10%
(2)	COMMISSIONS	7.96%
(3)	GENERAL EXPENSES	4.54%
(4)	OTHER ACQUISITION EXPENSES	3.24%
(5)	PREMIUM TAXES	2.17%
(6)	MISCELLANEOUS AND OTHER TAXES	0.52%
(7)	REINSURANCE EXPENSES	1.00%
(8)	PREMIUM DISCOUNT	4.64%
(9)	PROFIT	6.82%
(10)	INVESTMENT INCOME	
	(A) PRE-TAX RETURN ON ASSETS	2.25%
	(B) POST-TAX RETURN ON ASSETS	1.85%
(11)	LOSS RESERVE TO SURPLUS RATIO	1.97
(12)	PREMIUMS WRITTEN	1,000
(13)	COLLECTED PREMIUM	1,000
(14)	FEDERAL DISCOUNT RATE FOR TAXES	3.46%
	<b>PROFIT PROVISION</b>	<b>6.82%</b>
	<b>INTERNAL RATE OF RETURN</b>	<b>8.86%</b>

Notes:

(1) - (8): Section VII-F, Exhibit 1 (average of the two policy years).

(1), (3), (6) are divided by (1.0 + Rate Change).

(9) = 1.0 - [ (1) + (2) + (3) + (4) + (5) + (6) + (7) + (8) ]

(10): From Section VII-H, Exhibit 1, Page1.

(11): From Section VII-D, Exhibit 1.

(14): Current Rate specified in IRS regulations (Internal Revenue Bulletin: 2011-46)

# VII 000025

## INTERNAL RATE OF RETURN ANALYSIS WCRIB OF MA

**TABLE II-A: CASH FLOW PATTERNS**

TIME INTERVAL		PREMIUM WRITTEN (3)	PREMIUM COLLECTED (4)	LOSS + LAE PAYOUT (5)	COMMISS. & BROKER. (6)	GENERAL EXPENSES (7)	OTHER ACQ. EXPENSES (8)	PREMIUM TAXES (9)	MISC. AND OTHER TAXES (10)	REINS. EXPENSES (11)	PREMIUM DISCOUNT (12)
FROM (1)	TO (2)										
09/01/11	11/30/11		0.00%	0.00%	0.00%	0.11%	0.22%	0.00%	0.11%	0.00%	0.00%
12/01/11	02/29/12		0.00%	0.00%	0.00%	0.37%	1.17%	0.00%	0.48%	0.00%	0.00%
03/01/12	05/31/12		0.00%	0.00%	0.00%	2.20%	3.47%	0.00%	2.35%	0.00%	0.00%
06/01/12	08/31/12		0.54%	0.00%	0.54%	7.00%	10.13%	0.00%	7.67%	0.00%	0.54%
09/01/12	11/30/12	20.78%	5.24%	0.67%	5.24%	12.76%	19.72%	10.90%	14.51%	2.72%	5.24%
12/01/12	02/28/13	32.14%	13.31%	2.24%	13.31%	16.43%	23.48%	25.92%	18.25%	9.14%	13.31%
03/01/13	05/31/13	23.32%	19.91%	4.02%	19.91%	16.89%	21.16%	27.99%	18.04%	16.43%	19.91%
06/01/13	08/31/13	23.75%	21.49%	5.43%	21.49%	13.72%	13.05%	23.97%	13.58%	22.19%	21.49%
09/01/13	11/30/13		16.70%	6.17%	16.70%	10.65%	4.60%	11.23%	9.11%	22.14%	16.70%
12/01/13	02/28/14		9.71%	6.35%	9.71%	8.41%	1.25%	0.00%	6.65%	15.56%	9.71%
03/01/14	05/31/14		5.42%	6.78%	5.42%	6.31%	0.92%	0.00%	5.03%	9.00%	5.42%
06/01/14	08/31/14		2.88%	6.87%	2.88%	3.68%	0.59%	0.00%	2.98%	2.81%	2.88%
09/01/14	11/30/14		2.14%	6.59%	2.14%	1.36%	0.22%	0.00%	1.14%	0.00%	2.14%
12/01/14	02/28/15		1.47%	5.76%	1.47%	0.11%	0.00%	0.00%	0.11%	0.00%	1.47%
03/01/15	05/31/15		0.76%	5.07%	0.76%	0.00%	0.00%	0.00%	0.00%	0.00%	0.76%
06/01/15	08/31/15		0.33%	4.24%	0.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.33%
09/01/15	11/30/15		0.09%	3.69%	0.09%	0.00%	0.00%	0.00%	0.00%	0.00%	0.09%
12/01/15	02/29/16		0.00%	3.24%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
03/01/16	05/31/16		0.00%	2.81%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
06/01/16	08/31/16		0.00%	2.37%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
09/01/16	11/30/16		0.00%	2.06%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
12/01/16	02/28/17		0.00%	1.81%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
03/01/17	05/31/17		0.00%	1.61%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
06/01/17	08/31/17		0.00%	1.36%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
09/01/17	11/30/17		0.00%	1.18%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
12/01/17	02/28/18		0.00%	1.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
03/01/18	05/31/18		0.00%	0.84%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
06/01/18	08/31/18		0.00%	0.67%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
09/01/18	08/31/19		0.00%	1.99%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
09/01/19	08/31/20		0.00%	1.32%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
09/01/20	08/31/21		0.00%	0.84%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
09/01/21	08/31/22		0.00%	0.81%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
09/01/22	08/31/23		0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
09/01/23	08/31/24		0.00%	0.62%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
09/01/24	08/31/25		0.00%	0.68%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
09/01/25	08/31/26		0.00%	0.56%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
09/01/26	08/31/27		0.00%	0.34%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
09/01/27	08/31/28		0.00%	0.38%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
09/01/28	08/31/29		0.00%	0.34%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
09/01/29	08/31/30		0.00%	0.21%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
09/01/30	08/31/31		0.00%	0.13%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
09/01/31	08/31/32		0.00%	0.16%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
09/01/32	08/31/33		0.00%	0.21%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
09/01/33	08/31/34		0.00%	0.38%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
09/01/34	08/31/35		0.00%	0.55%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
09/01/35	08/31/36		0.00%	0.55%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
09/01/36	08/31/37		0.00%	0.55%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
09/01/37	08/31/38		0.00%	0.55%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
09/01/38	08/31/39		0.00%	0.55%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
09/01/39	08/31/40		0.00%	0.55%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
09/01/40	08/31/41		0.00%	0.55%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
09/01/41	08/31/42		0.00%	0.55%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
09/01/42	08/31/43		0.00%	0.55%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
09/01/43	08/31/44		0.00%	0.55%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
09/01/44	08/31/45		0.00%	0.55%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
09/01/45	08/31/46		0.00%	0.55%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
09/01/46	08/31/47		0.00%	0.55%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
09/01/47	08/31/48		0.00%	0.27%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<b>TOTAL</b>		100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

**Notes:**

- (3): Unit Statistical Plan Data; premium is adjusted to a common rate level.
- (4): The premium collection pattern for a single policy from Section VII-E, Exhibit 1, converted to a full policy year basis.
- (5): The loss and LAE payout pattern for a single policy from Section VII-F, Exhibit 3, converted to a full policy year basis.
- (6): We assume that commissions and brokerage have the same payment pattern as premium collected.
- (7)-(10): Single policy patterns from Section VII-F, Exhibit 2, converted to a full policy year basis.
- (11): We assume that the reinsurance expense pattern coincides with the earned premium flow.
- (12): We assume that premium discount payment pattern coincides with premium collected.

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Section VII - Profit  
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Section VII-B  
 Exhibit 2  
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INTERNAL RATE OF RETURN ANALYSIS WCRIB OF MA										
TIME INTERVAL		PREMIUM COLLECTED (3)	LOSS + LAE PAYOUT (4)	COMMISS. & BROKER. (5)	GENERAL EXPENSES (6)	OTHER ACQ. EXPENSES (7)	PREMIUM TAXES (8)	MISC. AND OTHER TAXES (9)	REINS. EXPENSES (10)	PREMIUM DISCOUNT (11)
FROM (1)	TO (2)									
9/1/2011	11/30/2011	0.00	0.00	0.00	0.05	0.07	0.00	0.01	0.00	0.00
12/1/2011	2/29/2012	0.00	0.00	0.00	0.17	0.38	0.00	0.02	0.00	0.00
3/1/2012	5/31/2012	0.00	0.00	0.00	1.00	1.12	0.00	0.12	0.00	0.00
6/1/2012	8/31/2012	5.45	0.00	0.43	3.18	3.28	0.00	0.40	0.00	0.25
9/1/2012	11/30/2012	52.38	4.60	4.17	5.80	6.39	2.37	0.76	0.27	2.43
12/1/2012	2/28/2013	133.14	15.44	10.60	7.47	7.60	5.64	0.95	0.91	6.17
3/1/2013	5/31/2013	199.13	27.76	15.86	7.68	6.85	6.09	0.94	1.64	9.23
6/1/2013	8/31/2013	214.89	37.50	17.12	6.24	4.23	5.21	0.71	2.22	9.96
9/1/2013	11/30/2013	166.98	42.65	13.30	4.84	1.49	2.44	0.48	2.21	7.74
12/1/2013	2/28/2014	97.10	43.88	7.73	3.82	0.41	0.00	0.35	1.56	4.50
3/1/2014	5/31/2014	54.17	46.82	4.31	2.87	0.30	0.00	0.26	0.90	2.51
6/1/2014	8/31/2014	28.83	47.45	2.30	1.67	0.19	0.00	0.16	0.28	1.34
9/1/2014	11/30/2014	21.41	45.54	1.71	0.62	0.07	0.00	0.06	0.00	0.99
12/1/2014	2/28/2015	14.70	39.80	1.17	0.05	0.00	0.00	0.01	0.00	0.68
3/1/2015	5/31/2015	7.60	35.03	0.61	0.00	0.00	0.00	0.00	0.00	0.35
6/1/2015	8/31/2015	3.30	29.32	0.26	0.00	0.00	0.00	0.00	0.00	0.15
9/1/2015	11/30/2015	0.92	25.50	0.07	0.00	0.00	0.00	0.00	0.00	0.04
12/1/2015	2/29/2016	0.00	22.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3/1/2016	5/31/2016	0.00	19.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6/1/2016	8/31/2016	0.00	16.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/1/2016	11/30/2016	0.00	14.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12/1/2016	2/28/2017	0.00	12.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3/1/2017	5/31/2017	0.00	11.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6/1/2017	8/31/2017	0.00	9.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/1/2017	11/30/2017	0.00	8.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12/1/2017	2/28/2018	0.00	6.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3/1/2018	5/31/2018	0.00	5.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6/1/2018	8/31/2018	0.00	4.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/1/2018	8/31/2019	0.00	13.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/1/2019	8/31/2020	0.00	9.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/1/2020	8/31/2021	0.00	5.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/1/2021	8/31/2022	0.00	5.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/1/2022	8/31/2023	0.00	5.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/1/2023	8/31/2024	0.00	4.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/1/2024	8/31/2025	0.00	4.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/1/2025	8/31/2026	0.00	3.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/1/2026	8/31/2027	0.00	2.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/1/2027	8/31/2028	0.00	2.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/1/2028	8/31/2029	0.00	2.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/1/2029	8/31/2030	0.00	1.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/1/2030	8/31/2031	0.00	0.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/1/2031	8/31/2032	0.00	1.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/1/2032	8/31/2033	0.00	1.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/1/2033	8/31/2034	0.00	2.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/1/2034	8/31/2035	0.00	3.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/1/2035	8/31/2036	0.00	3.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/1/2036	8/31/2037	0.00	3.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/1/2037	8/31/2038	0.00	3.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/1/2038	8/31/2039	0.00	3.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/1/2039	8/31/2040	0.00	3.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/1/2040	8/31/2041	0.00	3.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/1/2041	8/31/2042	0.00	3.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/1/2042	8/31/2043	0.00	3.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/1/2043	8/31/2044	0.00	3.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/1/2044	8/31/2045	0.00	3.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/1/2045	8/31/2046	0.00	3.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/1/2046	8/31/2047	0.00	3.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/1/2047	8/31/2048	0.00	1.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>TOTAL</b>		<b>1,000.00</b>	<b>691.03</b>	<b>79.65</b>	<b>45.45</b>	<b>32.38</b>	<b>21.74</b>	<b>5.23</b>	<b>10.00</b>	<b>46.35</b>

**Notes:**

- (3) = Table I, (13) x Table II-A, (4)
- (4) = Table I, (1) x Table I, (12) x Table II-A, (5)
- (5) = Table I, (2) x Table I, (12) x Table II-A, (6)
- (6) = Table I, (3) x Table I, (13) x Table II-A, (7)
- (7) = Table I, (4) x Table I, (13) x Table II-A, (8)
- (8) = Table I, (5) x Table I, (13) x Table II-A, (9)
- (9) = Table I, (6) x Table I, (13) x Table II-A, (10)
- (10) = Table I, (7) x Table I, (13) x Table II-A, (11)
- (11) = Table I, (8) x Table I, (12) x Table II-A, (12)

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Section VII - Profit  
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Section VII-B  
 Exhibit 3

INTERNAL RATE OF RETURN ANALYSIS WCRI OF MA								
TABLE III: CASH FLOW NET OF LOSS, LOSS ADJUSTMENT EXPENSE AND UNEARNED PREMIUM RESERVES								
TIME INTERVAL		CUMULATIVE PREMIUM COLLECTED (3)	PREMIUM BALANCES (4)	NON-CASH ASSETS (incl. deferred tax) (5)	LOSSES INCURRED (6)	UNEARNED PREMIUMS (7)	TOTAL PREM NET OF RESERVES (8)	PREMIUM NET OF RESERVES (9)
FROM (1)	TO (2)							
9/1/2011	11/30/2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12/1/2011	2/29/2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3/1/2012	5/31/2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6/1/2012	8/31/2012	5.45	(5.45)	(5.45)	0.00	0.00	0.00	0.00
9/1/2012	11/30/2012	57.83	150.01	165.68	18.82	180.60	24.09	24.09
12/1/2012	2/28/2013	190.97	338.29	355.89	81.99	410.61	54.26	30.17
3/1/2013	5/31/2013	390.09	372.39	390.73	195.52	479.53	105.76	51.51
6/1/2013	8/31/2013	604.99	395.02	414.10	348.89	495.12	175.08	69.32
9/1/2013	11/30/2013	771.97	228.03	247.86	501.89	273.70	244.24	69.16
12/1/2013	2/28/2014	869.06	130.94	148.39	609.42	118.09	289.94	45.70
3/1/2014	5/31/2014	923.24	76.76	90.28	671.63	28.07	313.81	23.88
6/1/2014	8/31/2014	952.07	47.93	57.51	691.03	0.00	318.55	4.73
9/1/2014	11/30/2014	973.48	26.52	32.16	691.03	0.00	314.61	(3.94)
12/1/2014	2/28/2015	988.18	11.82	15.83	691.03	0.00	312.99	(1.62)
3/1/2015	5/31/2015	995.78	4.22	7.77	691.03	0.00	312.53	(0.46)
6/1/2015	8/31/2015	999.08	0.92	4.01	691.03	0.00	312.06	(0.46)
9/1/2015	11/30/2015	1,000.00	0.00	2.63	691.03	0.00	311.60	(0.46)
12/1/2015	2/29/2016	1,000.00	0.00	2.29	691.03	0.00	311.26	(0.34)
3/1/2016	5/31/2016	1,000.00	0.00	2.01	691.03	0.00	310.98	(0.28)
6/1/2016	8/31/2016	1,000.00	0.00	1.73	691.03	0.00	310.70	(0.28)
9/1/2016	11/30/2016	1,000.00	0.00	1.45	691.03	0.00	310.42	(0.28)
12/1/2016	2/28/2017	1,000.00	0.00	1.26	691.03	0.00	310.23	(0.19)
3/1/2017	5/31/2017	1,000.00	0.00	1.11	691.03	0.00	310.08	(0.15)
6/1/2017	8/31/2017	1,000.00	0.00	0.95	691.03	0.00	309.93	(0.15)
9/1/2017	11/30/2017	1,000.00	0.00	0.80	691.03	0.00	309.77	(0.15)
12/1/2017	2/28/2018	1,000.00	0.00	0.78	691.03	0.00	309.75	(0.03)
3/1/2018	5/31/2018	1,000.00	0.00	0.81	691.03	0.00	309.79	0.04
6/1/2018	8/31/2018	1,000.00	0.00	0.85	691.03	0.00	309.82	0.04
9/1/2018	8/31/2019	1,000.00	0.00	0.74	691.03	0.00	309.71	(0.11)
9/1/2019	8/31/2020	1,000.00	0.00	0.71	691.03	0.00	309.68	(0.04)
9/1/2020	8/31/2021	1,000.00	0.00	0.85	691.03	0.00	309.83	0.15
9/1/2021	8/31/2022	1,000.00	0.00	0.87	691.03	0.00	309.84	0.02
9/1/2022	8/31/2023	1,000.00	0.00	0.80	691.03	0.00	309.77	(0.07)
9/1/2023	8/31/2024	1,000.00	0.00	0.78	691.03	0.00	309.75	(0.02)
9/1/2024	8/31/2025	1,000.00	0.00	0.73	691.03	0.00	309.70	(0.05)
9/1/2025	8/31/2026	1,000.00	0.00	0.68	691.03	0.00	309.65	(0.05)
9/1/2026	8/31/2027	1,000.00	0.00	0.33	691.03	0.00	309.30	(0.35)
9/1/2027	8/31/2028	1,000.00	0.00	0.06	691.03	0.00	309.03	(0.27)
9/1/2028	8/31/2029	1,000.00	0.00	0.01	691.03	0.00	308.98	(0.05)
9/1/2029	8/31/2030	1,000.00	0.00	0.01	691.03	0.00	308.98	(0.00)
9/1/2030	8/31/2031	1,000.00	0.00	0.01	691.03	0.00	308.98	0.00
9/1/2031	8/31/2032	1,000.00	0.00	0.01	691.03	0.00	308.98	0.00
9/1/2032	8/31/2033	1,000.00	0.00	0.02	691.03	0.00	308.99	0.01
9/1/2033	8/31/2034	1,000.00	0.00	0.02	691.03	0.00	308.99	0.01
9/1/2034	8/31/2035	1,000.00	0.00	0.02	691.03	0.00	308.99	0.00
9/1/2035	8/31/2036	1,000.00	0.00	0.02	691.03	0.00	308.99	0.00
9/1/2036	8/31/2037	1,000.00	0.00	0.02	691.03	0.00	308.99	0.00
9/1/2037	8/31/2038	1,000.00	0.00	0.02	691.03	0.00	308.99	0.00
9/1/2038	8/31/2039	1,000.00	0.00	0.02	691.03	0.00	308.99	0.00
9/1/2039	8/31/2040	1,000.00	0.00	0.02	691.03	0.00	308.99	0.00
9/1/2040	8/31/2041	1,000.00	0.00	0.02	691.03	0.00	308.99	0.00
9/1/2041	8/31/2042	1,000.00	0.00	0.02	691.03	0.00	308.99	0.00
9/1/2042	8/31/2043	1,000.00	0.00	0.02	691.03	0.00	308.99	0.00
9/1/2043	8/31/2044	1,000.00	0.00	0.02	691.03	0.00	308.99	0.00
9/1/2044	8/31/2045	1,000.00	0.00	0.02	691.03	0.00	308.99	0.00
9/1/2045	8/31/2046	1,000.00	0.00	0.02	691.03	0.00	308.99	(0.00)
9/1/2046	8/31/2047	1,000.00	0.00	0.01	691.03	0.00	308.98	(0.01)
9/1/2047	8/31/2048	1,000.00	0.00	0.00	691.03	0.00	308.97	(0.01)

Notes:

- (3) = Table II-B, (3), cumulative
- (4) = Table II-A, (3), cumulative x Table I, (13) - Table III, (3)
- (5) = Table III, (4) + Table IV, (14) for different time intervals
- (6) = Table I, (1) x Table I, (12) x earned premium, cumulative
- (7) = Table II-A, (3), cumulative x Table I, (12) - earned premium, cumulative
- (8) = (3) + (5) - (6) - (7)
- (9) = (8) current period - (8) previous period

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INTERNAL RATE OF RETURN ANALYSIS WCRIB OF MA													
TABLE IV: TAX CREDITS AVAILABLE FROM UNDERWRITING OPERATIONS													
TIME INTERVAL		PREMIUM WRITTEN (3)	CHANGE IN UNEARNED PREMIUMS (4)	EXPENSES (5)	LOSSES PAID			CHANGE IN DISCOUNTED LOSSES			DEBT INTEREST (12)	TAX CREDITS (13)	DEFERRED TAX ASSET (14)
FROM (1)	TO (2)				ACCIDENT YEAR 1 (6)	ACCIDENT YEAR 2 (7)	ACCIDENT YEAR 3 (8)	ACCIDENT YEAR 1 (9)	ACCIDENT YEAR 2 (10)	ACCIDENT YEAR 3 (11)			
1/1/2011	12/31/2011	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00
1/1/2012	12/31/2012	288.85	239.58	43.96	5.07	0.00	0.00	25.43	0.00	0.00	0.45	(7.80)	17.10
1/1/2013	12/31/2013	711.15	(32.55)	161.57	9.03	118.36	0.00	(8.09)	347.16	0.00	5.14	(36.40)	20.08
1/1/2014	12/31/2014	0.00	(207.04)	32.44	6.94	142.09	46.22	(6.25)	(126.82)	85.00	4.11	6.33	4.33
1/1/2015	12/31/2015	0.00	0.00	2.59	3.88	83.82	34.90	(3.45)	(75.65)	(31.15)	2.59	6.14	2.47
1/1/2016	12/31/2016	0.00	0.00	0.00	2.20	46.72	19.53	(1.97)	(41.74)	(17.67)	1.77	3.09	1.36
1/1/2017	12/31/2017	0.00	0.00	0.00	1.16	26.88	10.95	(1.01)	(24.27)	(9.82)	1.32	1.82	0.75
1/1/2018	12/31/2018	0.00	0.00	0.00	0.65	12.97	6.11	(0.49)	(11.51)	(5.58)	1.07	1.12	0.90
1/1/2019	12/31/2019	0.00	0.00	0.00	0.43	8.58	3.09	(0.33)	(6.42)	(2.77)	0.97	1.24	0.66
1/1/2020	12/31/2020	0.00	0.00	0.00	0.27	5.37	2.08	(0.16)	(4.14)	(1.54)	0.88	0.97	0.73
1/1/2021	12/31/2021	0.00	0.00	0.00	0.29	3.53	1.31	(0.16)	(1.89)	(1.00)	0.82	1.01	0.92
1/1/2022	12/31/2022	0.00	0.00	0.00	0.27	4.82	1.07	(0.15)	(2.79)	(0.60)	0.77	1.18	0.85
1/1/2023	12/31/2023	0.00	0.00	0.00	0.21	3.61	1.26	(0.09)	(1.85)	(0.71)	0.72	1.10	0.77
1/1/2024	12/31/2024	0.00	0.00	0.00	0.24	2.87	0.93	(0.13)	(1.24)	(0.45)	0.68	1.01	0.78
1/1/2025	12/31/2025	0.00	0.00	0.00	0.17	4.10	0.89	(0.07)	(2.42)	(0.44)	0.63	1.01	0.71
1/1/2026	12/31/2026	0.00	0.00	0.00	0.12	1.76	0.96	(0.02)	(0.29)	(0.52)	0.60	0.92	0.67
1/1/2027	12/31/2027	0.00	0.00	0.00	0.13	1.83	0.47	(0.13)	(0.32)	(0.06)	0.57	0.87	0.16
1/1/2028	12/31/2028	0.00	0.00	0.00	0.11	2.06	0.53	(0.11)	(2.03)	(0.12)	0.55	0.35	0.01
1/1/2029	12/31/2029	0.00	0.00	0.00	0.07	1.42	0.52	(0.07)	(1.39)	(0.51)	0.53	0.20	0.01
1/1/2030	12/31/2030	0.00	0.00	0.00	0.04	0.84	0.34	(0.04)	(0.82)	(0.33)	0.52	0.19	0.00
1/1/2031	12/31/2031	0.00	0.00	0.00	0.06	0.57	0.20	(0.06)	(0.56)	(0.20)	0.51	0.18	0.01
1/1/2032	12/31/2032	0.00	0.00	0.00	0.07	1.05	0.20	(0.07)	(1.04)	(0.19)	0.50	0.18	0.01
1/1/2033	12/31/2033	0.00	0.00	0.00	0.14	1.11	0.30	(0.14)	(1.09)	(0.30)	0.48	0.18	0.02
1/1/2034	12/31/2034	0.00	0.00	0.00	0.19	2.72	0.44	(0.18)	(2.68)	(0.44)	0.46	0.18	0.02
1/1/2035	12/31/2035	0.00	0.00	0.00	0.19	2.82	0.79	(0.18)	(2.77)	(0.77)	0.43	0.17	0.02
1/1/2036	12/31/2036	0.00	0.00	0.00	0.19	2.82	0.79	(0.18)	(2.77)	(0.77)	0.40	0.16	0.02
1/1/2037	12/31/2037	0.00	0.00	0.00	0.19	2.82	0.79	(0.18)	(2.77)	(0.77)	0.36	0.15	0.02
1/1/2038	12/31/2038	0.00	0.00	0.00	0.19	2.82	0.79	(0.18)	(2.77)	(0.77)	0.33	0.14	0.02
1/1/2039	12/31/2039	0.00	0.00	0.00	0.19	2.82	0.79	(0.18)	(2.77)	(0.77)	0.29	0.13	0.02
1/1/2040	12/31/2040	0.00	0.00	0.00	0.19	2.82	0.79	(0.18)	(2.77)	(0.77)	0.26	0.11	0.02
1/1/2041	12/31/2041	0.00	0.00	0.00	0.19	2.82	0.79	(0.18)	(2.77)	(0.77)	0.23	0.10	0.02
1/1/2042	12/31/2042	0.00	0.00	0.00	0.19	2.82	0.79	(0.18)	(2.77)	(0.77)	0.19	0.09	0.02
1/1/2043	12/31/2043	0.00	0.00	0.00	0.19	2.82	0.79	(0.18)	(2.77)	(0.77)	0.16	0.08	0.02
1/1/2044	12/31/2044	0.00	0.00	0.00	0.19	2.82	0.79	(0.18)	(2.77)	(0.77)	0.12	0.07	0.02
1/1/2045	12/31/2045	0.00	0.00	0.00	0.19	2.82	0.79	(0.18)	(2.77)	(0.77)	0.09	0.05	0.02
1/1/2046	12/31/2046	0.00	0.00	0.00	0.19	2.82	0.79	(0.18)	(2.77)	(0.77)	0.06	0.04	0.02
1/1/2047	12/31/2047	0.00	0.00	0.00	0.07	2.82	0.79	(0.07)	(2.77)	(0.77)	0.03	0.03	0.00
1/1/2048	12/31/2048	0.00	0.00	0.00	0.00	0.16	0.56	0.00	(0.16)	(0.55)	0.01	0.01	0.00

**Notes:**

- (3) = Table I, (12) x Percentage of Premium written in corresponding year
- (4) = Table I, (12) x (unearned premium at end of year i - unearned premium at end of year i-1)
- (5) = Table II-B [ (5) + (6) + (7) + (8) + (9) + (10) + (11) ] for each CY
- (6), (7), (8) = Table I, (1) x Table I, (13) x Loss and LAE Payout (from Section VII-F, Exhibit 3) for each CY
- (9) = Table IV-A, (8)
- (10) = Table IV-B, (8)
- (11) = Table IV-C, (8)
- (12) = [ ( Table VI, (8), current + Table VI, (8), previous ) / 2 ] x [ debt share x ( (1 + debt cost)^length of time period - 1 ) ] for each CY  
 where debt share = 27% and debt cost = 6.48% from Section VII-C, Exhibit 5 and Section VII-C, Exhibit 4, respectively.
- (13) = - 0.35 x [ (3) - 0.8 x (4) - (5) - (6) - (7) - (8) - (9) - (10) - (11) - (12) ]
- (14) = 0.35 x { Table IV, (4), cumulative x 0.2 + [Table IV-A, (10) + Table IV-B, (10) + Table IV-C, (10)] for subsequent time interval }

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INTERNAL RATE OF RETURN ANALYSIS WCRIB OF MA										
Table IV-A : DERIVATION OF DISCOUNTED LOSS RESERVES										
ACCIDENT YEAR 1										
TIME INTERVAL		DISCOUNT FACTOR (3)	UNDISCOUNTED		DISCOUNTED		CHANGE IN DISCOUNTED LOSSES (8)	PAID LOSSES (9)	PAID + CHANGE IN DISCOUNTED LOSSES AY1 (10)	
FROM (1)	TO (2)		UNPAID LOSSES BEG OF YEAR (4)	UNPAID LOSSES END OF YEAR (5)	UNPAID LOSSES BEG OF YEAR (6)	UNPAID LOSSES END OF YEAR (7)				
1/1/2012	12/31/2012	0.8777	0.00	28.98	0.00	25.43	25.43			
1/1/2013	12/31/2013	0.8693	28.98	19.95	25.43	17.34	(8.09)	9.03	0.94	
1/1/2014	12/31/2014	0.8529	19.95	13.01	17.34	11.09	(6.25)	6.94	0.69	
1/1/2015	12/31/2015	0.8375	13.01	9.13	11.09	7.65	(3.45)	3.88	0.43	
1/1/2016	12/31/2016	0.8192	9.13	6.93	7.65	5.68	(1.97)	2.20	0.23	
1/1/2017	12/31/2017	0.8085	6.93	5.77	5.68	4.67	(1.01)	1.16	0.15	
1/1/2018	12/31/2018	0.8155	5.77	5.12	4.67	4.18	(0.49)	0.65	0.16	
1/1/2019	12/31/2019	0.8190	5.12	4.69	4.18	3.84	(0.33)	0.43	0.10	
1/1/2020	12/31/2020	0.8343	4.69	4.42	3.84	3.69	(0.16)	0.27	0.12	
1/1/2021	12/31/2021	0.8546	4.42	4.13	3.69	3.53	(0.16)	0.29	0.13	
1/1/2022	12/31/2022	0.8763	4.13	3.87	3.53	3.39	(0.15)	0.27	0.12	
1/1/2023	12/31/2023	0.8996	3.87	3.66	3.39	3.29	(0.09)	0.21	0.11	
1/1/2024	12/31/2024	0.9249	3.66	3.42	3.29	3.16	(0.13)	0.24	0.11	
1/1/2025	12/31/2025	0.9526	3.42	3.24	3.16	3.09	(0.07)	0.17	0.10	
1/1/2026	12/31/2026	0.9831	3.24	3.13	3.09	3.08	(0.02)	0.12	0.10	
1/1/2027	12/31/2027	0.9831	3.13	3.00	3.08	2.95	(0.13)	0.13	0.00	
1/1/2028	12/31/2028	0.9831	3.00	2.89	2.95	2.84	(0.11)	0.11	0.00	
1/1/2029	12/31/2029	0.9831	2.89	2.82	2.84	2.77	(0.07)	0.07	0.00	
1/1/2030	12/31/2030	0.9831	2.82	2.78	2.77	2.73	(0.04)	0.04	0.00	
1/1/2031	12/31/2031	0.9831	2.78	2.72	2.73	2.67	(0.06)	0.06	0.00	
1/1/2032	12/31/2032	0.9831	2.72	2.65	2.67	2.60	(0.07)	0.07	0.00	
1/1/2033	12/31/2033	0.9831	2.65	2.50	2.60	2.46	(0.14)	0.14	0.00	
1/1/2034	12/31/2034	0.9831	2.50	2.32	2.46	2.28	(0.18)	0.19	0.00	
1/1/2035	12/31/2035	0.9831	2.32	2.13	2.28	2.09	(0.18)	0.19	0.00	
1/1/2036	12/31/2036	0.9831	2.13	1.94	2.09	1.91	(0.18)	0.19	0.00	
1/1/2037	12/31/2037	0.9831	1.94	1.76	1.91	1.73	(0.18)	0.19	0.00	
1/1/2038	12/31/2038	0.9831	1.76	1.57	1.73	1.54	(0.18)	0.19	0.00	
1/1/2039	12/31/2039	0.9831	1.57	1.38	1.54	1.36	(0.18)	0.19	0.00	
1/1/2040	12/31/2040	0.9831	1.38	1.19	1.36	1.17	(0.18)	0.19	0.00	
1/1/2041	12/31/2041	0.9831	1.19	1.01	1.17	0.99	(0.18)	0.19	0.00	
1/1/2042	12/31/2042	0.9831	1.01	0.82	0.99	0.81	(0.18)	0.19	0.00	
1/1/2043	12/31/2043	0.9831	0.82	0.63	0.81	0.62	(0.18)	0.19	0.00	
1/1/2044	12/31/2044	0.9831	0.63	0.45	0.62	0.44	(0.18)	0.19	0.00	
1/1/2045	12/31/2045	0.9831	0.45	0.26	0.44	0.26	(0.18)	0.19	0.00	
1/1/2046	12/31/2046	0.9831	0.26	0.07	0.26	0.07	(0.18)	0.19	0.00	
1/1/2047	12/31/2047	0.9831	0.07	0.00	0.07	0.00	(0.07)	0.07	0.00	
1/1/2048	12/31/2048	0.9831	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

**Notes:**

- (3): Discount factors specified in IRS regulations (Internal Revenue Bulletin: 2011-46).
- (4) = (5) in previous period
- (5) = Table IV, (6), Total - Table IV, (6), cumulative
- (6) = (7) in previous period
- (7) = (3) x (5)
- (8) = (7) - (6)
- (9) = (4) - (5)
- (10) = (8) + (9)

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INTERNAL RATE OF RETURN ANALYSIS WCRIB OF MA									
Table IV-B : DERIVATION OF DISCOUNTED LOSS RESERVES									
ACCIDENT YEAR 2									
TIME INTERVAL		DISCOUNT FACTOR	UNDISCOUNTED		DISCOUNTED		CHANGE IN DISCOUNTED LOSSES	PAID LOSSES	PAID + CHANGE IN DISCOUNTED LOSSES AY2
			BEG OF YEAR	END OF YEAR	BEG OF YEAR	END OF YEAR			
FROM (1)	TO (2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1/1/2012	12/31/2012	N/A	0.00	0.00	0.00	0.00	0.00		0.00
1/1/2013	12/31/2013	0.8777	0.00	395.56	0.00	347.16	347.16		0.00
1/1/2014	12/31/2014	0.8693	395.56	253.47	347.16	220.34	(126.82)	142.09	15.27
1/1/2015	12/31/2015	0.8529	253.47	169.64	220.34	144.69	(75.65)	83.82	8.18
1/1/2016	12/31/2016	0.8375	169.64	122.93	144.69	102.96	(41.74)	46.72	4.98
1/1/2017	12/31/2017	0.8192	122.93	96.05	102.96	78.69	(24.27)	26.88	2.61
1/1/2018	12/31/2018	0.8085	96.05	83.08	78.69	67.17	(11.51)	12.97	1.46
1/1/2019	12/31/2019	0.8155	83.08	74.50	67.17	60.76	(6.42)	8.58	2.17
1/1/2020	12/31/2020	0.8190	74.50	69.13	60.76	56.62	(4.14)	5.37	1.23
1/1/2021	12/31/2021	0.8343	69.13	65.59	56.62	54.72	(1.89)	3.53	1.64
1/1/2022	12/31/2022	0.8546	65.59	60.78	54.72	51.94	(2.79)	4.82	2.03
1/1/2023	12/31/2023	0.8763	60.78	57.16	51.94	50.09	(1.85)	3.61	1.77
1/1/2024	12/31/2024	0.8996	57.16	54.30	50.09	48.85	(1.24)	2.87	1.62
1/1/2025	12/31/2025	0.9249	54.30	50.20	48.85	46.43	(2.42)	4.10	1.68
1/1/2026	12/31/2026	0.9526	50.20	48.44	46.43	46.14	(0.29)	1.76	1.47
1/1/2027	12/31/2027	0.9831	48.44	46.61	46.14	45.82	(0.32)	1.83	1.51
1/1/2028	12/31/2028	0.9831	46.61	44.55	45.82	43.79	(2.03)	2.06	0.03
1/1/2029	12/31/2029	0.9831	44.55	43.13	43.79	42.40	(1.39)	1.42	0.02
1/1/2030	12/31/2030	0.9831	43.13	42.29	42.40	41.58	(0.82)	0.84	0.01
1/1/2031	12/31/2031	0.9831	42.29	41.72	41.58	41.02	(0.56)	0.57	0.01
1/1/2032	12/31/2032	0.9831	41.72	40.67	41.02	39.98	(1.04)	1.05	0.02
1/1/2033	12/31/2033	0.9831	40.67	39.56	39.98	38.89	(1.09)	1.11	0.02
1/1/2034	12/31/2034	0.9831	39.56	36.84	38.89	36.22	(2.68)	2.72	0.05
1/1/2035	12/31/2035	0.9831	36.84	34.02	36.22	33.44	(2.77)	2.82	0.05
1/1/2036	12/31/2036	0.9831	34.02	31.20	33.44	30.67	(2.77)	2.82	0.05
1/1/2037	12/31/2037	0.9831	31.20	28.38	30.67	27.90	(2.77)	2.82	0.05
1/1/2038	12/31/2038	0.9831	28.38	25.55	27.90	25.12	(2.77)	2.82	0.05
1/1/2039	12/31/2039	0.9831	25.55	22.73	25.12	22.35	(2.77)	2.82	0.05
1/1/2040	12/31/2040	0.9831	22.73	19.91	22.35	19.58	(2.77)	2.82	0.05
1/1/2041	12/31/2041	0.9831	19.91	17.09	19.58	16.80	(2.77)	2.82	0.05
1/1/2042	12/31/2042	0.9831	17.09	14.27	16.80	14.03	(2.77)	2.82	0.05
1/1/2043	12/31/2043	0.9831	14.27	11.45	14.03	11.26	(2.77)	2.82	0.05
1/1/2044	12/31/2044	0.9831	11.45	8.63	11.26	8.48	(2.77)	2.82	0.05
1/1/2045	12/31/2045	0.9831	8.63	5.81	8.48	5.71	(2.77)	2.82	0.05
1/1/2046	12/31/2046	0.9831	5.81	2.98	5.71	2.93	(2.77)	2.82	0.05
1/1/2047	12/31/2047	0.9831	2.98	0.16	2.93	0.16	(2.77)	2.82	0.05
1/1/2048	12/31/2048	0.9831	0.16	0.00	0.16	0.00	(0.16)	0.16	0.00

- Notes:
- (3): Discount factors specified in IRS regulations (Internal Revenue Bulletin: 2011-46).
  - (4) = (5) in previous period
  - (5) = Table IV, (7), Total - Table IV, (7), cumulative
  - (6) = (7) in previous period
  - (7) = (3) x (5)
  - (8) = (7) - (6)
  - (9) = (4) - (5)
  - (10) = (8) + (9)

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INTERNAL RATE OF RETURN ANALYSIS WCRIB OF MA									
Table IV-C: DERIVATION OF DISCOUNTED LOSS RESERVES									
ACCIDENT YEAR 3									
TIME INTERVAL		DISCOUNT FACTOR (3)	UNDISCOUNTED		DISCOUNTED		CHANGE IN DISCOUNTED LOSSES (8)	PAID LOSSES (9)	PAID + CHANGE IN DISCOUNTED LOSSES AY3 (10)
			UNPAID LOSSES BEG OF YEAR (4)	UNPAID LOSSES END OF YEAR (5)	UNPAID LOSSES BEG OF YEAR (6)	UNPAID LOSSES END OF YEAR (7)			
FROM (1)	TO (2)								
1/1/2012	12/31/2012	N/A	0.00	0.00	0.00	0.00	0.00		0.00
1/1/2013	12/31/2013	N/A	0.00	0.00	0.00	0.00	0.00		0.00
1/1/2014	12/31/2014	0.8777	0.00	96.85	0.00	85.00	85.00		0.00
1/1/2015	12/31/2015	0.8693	96.85	61.96	85.00	53.86	(31.15)	34.90	3.75
1/1/2016	12/31/2016	0.8529	61.96	42.43	53.86	36.19	(17.67)	19.53	1.86
1/1/2017	12/31/2017	0.8375	42.43	31.48	36.19	26.36	(9.82)	10.95	1.13
1/1/2018	12/31/2018	0.8192	31.48	25.37	26.36	20.78	(5.58)	6.11	0.53
1/1/2019	12/31/2019	0.8085	25.37	22.28	20.78	18.01	(2.77)	3.09	0.32
1/1/2020	12/31/2020	0.8155	22.28	20.20	18.01	16.47	(1.54)	2.08	0.54
1/1/2021	12/31/2021	0.8190	20.20	18.89	16.47	15.47	(1.00)	1.31	0.31
1/1/2022	12/31/2022	0.8343	18.89	17.82	15.47	14.87	(0.60)	1.07	0.47
1/1/2023	12/31/2023	0.8546	17.82	16.56	14.87	14.15	(0.71)	1.26	0.54
1/1/2024	12/31/2024	0.8763	16.56	15.64	14.15	13.70	(0.45)	0.93	0.47
1/1/2025	12/31/2025	0.8996	15.64	14.74	13.70	13.26	(0.44)	0.89	0.45
1/1/2026	12/31/2026	0.9249	14.74	13.78	13.26	12.75	(0.52)	0.96	0.45
1/1/2027	12/31/2027	0.9526	13.78	13.31	12.75	12.68	(0.06)	0.47	0.40
1/1/2028	12/31/2028	0.9831	13.31	12.78	12.68	12.57	(0.12)	0.53	0.42
1/1/2029	12/31/2029	0.9831	12.78	12.26	12.57	12.05	(0.51)	0.52	0.01
1/1/2030	12/31/2030	0.9831	12.26	11.92	12.05	11.72	(0.33)	0.34	0.01
1/1/2031	12/31/2031	0.9831	11.92	11.72	11.72	11.52	(0.20)	0.20	0.00
1/1/2032	12/31/2032	0.9831	11.72	11.52	11.52	11.33	(0.19)	0.20	0.00
1/1/2033	12/31/2033	0.9831	11.52	11.22	11.33	11.03	(0.30)	0.30	0.01
1/1/2034	12/31/2034	0.9831	11.22	10.77	11.03	10.59	(0.44)	0.44	0.01
1/1/2035	12/31/2035	0.9831	10.77	9.99	10.59	9.82	(0.77)	0.79	0.01
1/1/2036	12/31/2036	0.9831	9.99	9.20	9.82	9.05	(0.77)	0.79	0.01
1/1/2037	12/31/2037	0.9831	9.20	8.42	9.05	8.28	(0.77)	0.79	0.01
1/1/2038	12/31/2038	0.9831	8.42	7.63	8.28	7.50	(0.77)	0.79	0.01
1/1/2039	12/31/2039	0.9831	7.63	6.85	7.50	6.73	(0.77)	0.79	0.01
1/1/2040	12/31/2040	0.9831	6.85	6.06	6.73	5.96	(0.77)	0.79	0.01
1/1/2041	12/31/2041	0.9831	6.06	5.28	5.96	5.19	(0.77)	0.79	0.01
1/1/2042	12/31/2042	0.9831	5.28	4.49	5.19	4.42	(0.77)	0.79	0.01
1/1/2043	12/31/2043	0.9831	4.49	3.71	4.42	3.64	(0.77)	0.79	0.01
1/1/2044	12/31/2044	0.9831	3.71	2.92	3.64	2.87	(0.77)	0.79	0.01
1/1/2045	12/31/2045	0.9831	2.92	2.13	2.87	2.10	(0.77)	0.79	0.01
1/1/2046	12/31/2046	0.9831	2.13	1.35	2.10	1.33	(0.77)	0.79	0.01
1/1/2047	12/31/2047	0.9831	1.35	0.56	1.33	0.55	(0.77)	0.79	0.01
1/1/2048	12/31/2048	0.9831	0.56	0.00	0.55	0.00	(0.55)	0.56	0.01

**Notes:**

- (3): Discount factors specified in IRS regulations (Internal Revenue Bulletin: 2011-46).
- (4) = (5) in previous period
- (5) = Table IV, (8), Total - Table IV, (8), cumulative
- (6) = (7) in previous period
- (7) = (3) x (5)
- (8) = (7) - (6)
- (9) = (4) - (5)
- (10) = (8) + (9)

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Section VII - Profit  
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Section VII-B  
 Exhibit 5

INTERNAL RATE OF RETURN ANALYSIS WCRIB OF MA						
Table V: NET CASH FLOWS FROM UNDERWRITING						
TIME INTERVAL		PREMIUM FLOWS NET OF RESERVES (3)	TAX CREDITS (4)	EXPENSES (5)	NET CASH FLOW FROM UNDERWRITING (6)	
FROM (1)	TO (2)					
9/1/2011	11/30/2011	0.00	0.06	0.13		(0.06)
12/1/2011	2/29/2012	0.00	(1.28)	0.57		(1.85)
3/1/2012	5/31/2012	0.00	(1.95)	2.24		(4.19)
6/1/2012	8/31/2012	0.00	(1.95)	7.55		(9.50)
9/1/2012	11/30/2012	24.09	(1.95)	22.19		(0.04)
12/1/2012	2/28/2013	30.17	(6.72)	39.35		(15.90)
3/1/2013	5/31/2013	51.51	(9.10)	48.29		(5.89)
6/1/2013	8/31/2013	69.32	(9.10)	45.68		14.53
9/1/2013	11/30/2013	69.16	(9.10)	32.50		27.56
12/1/2013	2/28/2014	45.70	(1.98)	18.37		25.36
3/1/2014	5/31/2014	23.88	1.58	11.15		14.31
6/1/2014	8/31/2014	4.73	1.58	5.93		0.38
9/1/2014	11/30/2014	(3.94)	1.58	3.45		(5.80)
12/1/2014	2/28/2015	(1.62)	1.55	1.91		(1.98)
3/1/2015	5/31/2015	(0.46)	1.53	0.96		0.11
6/1/2015	8/31/2015	(0.46)	1.53	0.42		0.66
9/1/2015	11/30/2015	(0.46)	1.53	0.12		0.96
12/1/2015	2/29/2016	(0.34)	1.03	0.00		0.69
3/1/2016	5/31/2016	(0.28)	0.77	0.00		0.49
6/1/2016	8/31/2016	(0.28)	0.77	0.00		0.49
9/1/2016	11/30/2016	(0.28)	0.77	0.00		0.49
12/1/2016	2/28/2017	(0.19)	0.56	0.00		0.37
3/1/2017	5/31/2017	(0.15)	0.45	0.00		0.30
6/1/2017	8/31/2017	(0.15)	0.45	0.00		0.30
9/1/2017	11/30/2017	(0.15)	0.45	0.00		0.30
12/1/2017	2/28/2018	(0.03)	0.34	0.00		0.31
3/1/2018	5/31/2018	0.04	0.28	0.00		0.32
6/1/2018	8/31/2018	0.04	0.28	0.00		0.32
9/1/2018	8/31/2019	(0.11)	1.20	0.00		1.09
9/1/2019	8/31/2020	(0.04)	1.06	0.00		1.02
9/1/2020	8/31/2021	0.15	1.00	0.00		1.15
9/1/2021	8/31/2022	0.02	1.13	0.00		1.14
9/1/2022	8/31/2023	(0.07)	1.13	0.00		1.05
9/1/2023	8/31/2024	(0.02)	1.04	0.00		1.02
9/1/2024	8/31/2025	(0.05)	1.01	0.00		0.96
9/1/2025	8/31/2026	(0.05)	0.95	0.00		0.90
9/1/2026	8/31/2027	(0.35)	0.89	0.00		0.53
9/1/2027	8/31/2028	(0.27)	0.52	0.00		0.26
9/1/2028	8/31/2029	(0.05)	0.25	0.00		0.20
9/1/2029	8/31/2030	(0.00)	0.19	0.00		0.19
9/1/2030	8/31/2031	0.00	0.18	0.00		0.19
9/1/2031	8/31/2032	0.00	0.18	0.00		0.18
9/1/2032	8/31/2033	0.01	0.18	0.00		0.19
9/1/2033	8/31/2034	0.01	0.18	0.00		0.19
9/1/2034	8/31/2035	0.00	0.18	0.00		0.18
9/1/2035	8/31/2036	0.00	0.17	0.00		0.17
9/1/2036	8/31/2037	0.00	0.15	0.00		0.15
9/1/2037	8/31/2038	0.00	0.14	0.00		0.14
9/1/2038	8/31/2039	0.00	0.13	0.00		0.13
9/1/2039	8/31/2040	0.00	0.12	0.00		0.12
9/1/2040	8/31/2041	0.00	0.11	0.00		0.11
9/1/2041	8/31/2042	0.00	0.09	0.00		0.09
9/1/2042	8/31/2043	0.00	0.08	0.00		0.08
9/1/2043	8/31/2044	0.00	0.07	0.00		0.07
9/1/2044	8/31/2045	0.00	0.06	0.00		0.06
9/1/2045	8/31/2046	(0.00)	0.05	0.00		0.05
9/1/2046	8/31/2047	(0.01)	0.03	0.00		0.02
9/1/2047	8/31/2048	(0.01)	0.02	0.00		0.01

Notes:

- (3) = Table III, (9)
- (4) = Based on Table IV, (13).
- (5) = Table II-B, [(5) + (6) + (7) + (8) + (9) + (10) + (11)]
- (6) = (3) + (4) - (5)

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Section VII - Profit  
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Section VII-B  
 Exhibit 6

INTERNAL RATE OF RETURN ANALYSIS WCRIB OF MA							
Table VI: DERIVATION OF INVESTED CASH LEVELS							
TIME INTERVAL		LOSS AND LOSS ADJ. RESERVES (3)	UNEARNED PREMIUM RESERVES (4)	NON-CASH ASSETS (5)	INVESTABLE FUND (6)	RESERVE/ SURPLUS RATIO (7)	FUNDS IN SURPLUS ACCOUNT (8)
FROM (1)	TO (2)						
9/1/2011	11/30/2011	0.00	0.00	0.00	0.00	0.00	0.00
12/1/2011	2/29/2012	0.00	0.00	0.00	0.00	0.00	0.00
3/1/2012	5/31/2012	0.00	0.00	0.00	0.00	0.00	0.00
6/1/2012	8/31/2012	0.00	0.00	(5.45)	5.45	0.00	0.00
9/1/2012	11/30/2012	14.22	180.60	165.68	29.14	1.97	98.79
12/1/2012	2/28/2013	61.94	410.61	355.89	116.66	1.97	239.63
3/1/2013	5/31/2013	147.72	479.53	390.73	236.53	1.97	318.07
6/1/2013	8/31/2013	263.58	495.12	414.10	344.60	1.97	384.73
9/1/2013	11/30/2013	373.93	273.70	247.86	399.78	1.97	328.41
12/1/2013	2/28/2014	437.58	118.09	148.39	407.29	1.97	281.78
3/1/2014	5/31/2014	452.97	28.07	90.28	390.76	1.97	243.93
6/1/2014	8/31/2014	424.92	0.00	57.51	367.41	1.97	215.47
9/1/2014	11/30/2014	379.38	0.00	32.16	347.22	1.97	192.38
12/1/2014	2/28/2015	339.58	0.00	15.83	323.75	1.97	172.20
3/1/2015	5/31/2015	304.55	0.00	7.77	296.77	1.97	154.43
6/1/2015	8/31/2015	275.22	0.00	4.01	271.22	1.97	139.56
9/1/2015	11/30/2015	249.72	0.00	2.63	247.09	1.97	126.63
12/1/2015	2/29/2016	227.33	0.00	2.29	225.04	1.97	115.28
3/1/2016	5/31/2016	207.89	0.00	2.01	205.88	1.97	105.42
6/1/2016	8/31/2016	191.54	0.00	1.73	189.81	1.97	97.13
9/1/2016	11/30/2016	177.30	0.00	1.45	175.85	1.97	89.91
12/1/2016	2/28/2017	164.79	0.00	1.26	163.53	1.97	83.56
3/1/2017	5/31/2017	153.69	0.00	1.11	152.58	1.97	77.93
6/1/2017	8/31/2017	144.31	0.00	0.95	143.35	1.97	73.18
9/1/2017	11/30/2017	136.19	0.00	0.80	135.38	1.97	69.06
12/1/2017	2/28/2018	129.29	0.00	0.78	128.52	1.97	65.56
3/1/2018	5/31/2018	123.48	0.00	0.81	122.67	1.97	62.62
6/1/2018	8/31/2018	118.87	0.00	0.85	118.02	1.97	60.28
9/1/2018	8/31/2019	105.09	0.00	0.74	104.35	1.97	53.29
9/1/2019	8/31/2020	96.00	0.00	0.71	95.29	1.97	48.68
9/1/2020	8/31/2021	90.22	0.00	0.85	89.36	1.97	45.75
9/1/2021	8/31/2022	84.60	0.00	0.87	83.73	1.97	42.90
9/1/2022	8/31/2023	78.94	0.00	0.80	78.14	1.97	40.03
9/1/2023	8/31/2024	74.67	0.00	0.78	73.89	1.97	37.87
9/1/2024	8/31/2025	69.95	0.00	0.73	69.22	1.97	35.47
9/1/2025	8/31/2026	66.08	0.00	0.68	65.39	1.97	33.51
9/1/2026	8/31/2027	63.75	0.00	0.33	63.43	1.97	32.33
9/1/2027	8/31/2028	61.12	0.00	0.06	61.06	1.97	30.99
9/1/2028	8/31/2029	58.80	0.00	0.01	58.79	1.97	29.82
9/1/2029	8/31/2030	57.34	0.00	0.01	57.33	1.97	29.07
9/1/2030	8/31/2031	56.43	0.00	0.01	56.42	1.97	28.61
9/1/2031	8/31/2032	55.32	0.00	0.01	55.31	1.97	28.05
9/1/2032	8/31/2033	53.85	0.00	0.02	53.83	1.97	27.30
9/1/2033	8/31/2034	51.19	0.00	0.02	51.17	1.97	25.96
9/1/2034	8/31/2035	47.40	0.00	0.02	47.38	1.97	24.04
9/1/2035	8/31/2036	43.61	0.00	0.02	43.58	1.97	22.11
9/1/2036	8/31/2037	39.81	0.00	0.02	39.79	1.97	20.19
9/1/2037	8/31/2038	36.02	0.00	0.02	36.00	1.97	18.26
9/1/2038	8/31/2039	32.23	0.00	0.02	32.20	1.97	16.34
9/1/2039	8/31/2040	28.43	0.00	0.02	28.41	1.97	14.42
9/1/2040	8/31/2041	24.64	0.00	0.02	24.62	1.97	12.49
9/1/2041	8/31/2042	20.85	0.00	0.02	20.82	1.97	10.57
9/1/2042	8/31/2043	17.05	0.00	0.02	17.03	1.97	8.65
9/1/2043	8/31/2044	13.26	0.00	0.02	13.24	1.97	6.72
9/1/2044	8/31/2045	9.46	0.00	0.02	9.44	1.97	4.80
9/1/2045	8/31/2046	5.67	0.00	0.02	5.65	1.97	2.88
9/1/2046	8/31/2047	1.88	0.00	0.01	1.87	1.97	0.95
9/1/2047	8/31/2048	0.00	0.00	0.00	0.00	1.97	0.00

Notes:

(3) = Table III, (6) - [ Table II-A, (5), cumulative x Table I, (1) x Table I, (13) ]

(4) = Table III, (7)

(5) = Table III, (5)

(6) = The maximum value of [ (3) + (4) - (5) ] or 0

(7) = Table I, (11)

(8) = [ (3) + (4) ] / (7)

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Section VII-B  
 Exhibit 7

INTERNAL RATE OF RETURN ANALYSIS WCRIB OF MA							
Table VII: NOMINAL CASH FLOWS TO INVESTORS							
TIME INTERVAL		NET CASH FLOW FROM UNDERWRITING (3)	CASH POST-TAX INCOME (4)	NET FLOW FOR SURPLUS ACCOUNT (5)	SURPLUS POST-TAX INCOME (6)	NET CASH FLOW (7)	
FROM (1)	TO (2)						
9/1/2011	11/30/2011	(0.06)	0.00	0.00	0.00	(0.06)	
12/1/2011	2/29/2012	(1.85)	0.00	0.00	0.00	(1.85)	
3/1/2012	5/31/2012	(4.19)	0.00	0.00	0.00	(4.19)	
6/1/2012	8/31/2012	(9.50)	0.02	0.00	0.00	(9.47)	
9/1/2012	11/30/2012	(0.04)	0.13	(98.79)	0.45	(98.26)	
12/1/2012	2/28/2013	(15.90)	0.52	(140.84)	1.07	(155.14)	
3/1/2013	5/31/2013	(5.89)	1.08	(78.45)	1.46	(81.79)	
6/1/2013	8/31/2013	14.53	1.58	(66.66)	1.76	(48.78)	
9/1/2013	11/30/2013	27.56	1.81	56.32	1.49	87.18	
12/1/2013	2/28/2014	25.36	1.83	46.63	1.26	75.08	
3/1/2014	5/31/2014	14.31	1.79	37.85	1.12	55.07	
6/1/2014	8/31/2014	0.38	1.68	28.46	0.99	31.51	
9/1/2014	11/30/2014	(5.80)	1.57	23.09	0.87	19.74	
12/1/2014	2/28/2015	(1.98)	1.45	20.18	0.77	20.42	
3/1/2015	5/31/2015	0.11	1.36	17.76	0.71	19.95	
6/1/2015	8/31/2015	0.66	1.24	14.87	0.64	17.41	
9/1/2015	11/30/2015	0.96	1.12	12.93	0.57	15.58	
12/1/2015	2/29/2016	0.69	1.02	11.35	0.52	13.58	
3/1/2016	5/31/2016	0.49	0.94	9.86	0.48	11.78	
6/1/2016	8/31/2016	0.49	0.87	8.29	0.44	10.10	
9/1/2016	11/30/2016	0.49	0.80	7.22	0.41	8.92	
12/1/2016	2/28/2017	0.37	0.73	6.34	0.37	7.82	
3/1/2017	5/31/2017	0.30	0.70	5.63	0.36	6.99	
6/1/2017	8/31/2017	0.30	0.66	4.76	0.34	6.05	
9/1/2017	11/30/2017	0.30	0.61	4.12	0.31	5.35	
12/1/2017	2/28/2018	0.31	0.58	3.49	0.29	4.68	
3/1/2018	5/31/2018	0.32	0.56	2.95	0.29	4.12	
6/1/2018	8/31/2018	0.32	0.54	2.34	0.28	3.47	
9/1/2018	8/31/2019	1.09	1.93	6.99	0.98	10.99	
9/1/2019	8/31/2020	1.02	1.76	4.61	0.90	8.30	
9/1/2020	8/31/2021	1.15	1.65	2.93	0.84	6.57	
9/1/2021	8/31/2022	1.14	1.55	2.85	0.79	6.33	
9/1/2022	8/31/2023	1.05	1.44	2.87	0.74	6.11	
9/1/2023	8/31/2024	1.02	1.37	2.16	0.70	5.26	
9/1/2024	8/31/2025	0.96	1.27	2.39	0.65	5.28	
9/1/2025	8/31/2026	0.90	1.21	1.97	0.62	4.69	
9/1/2026	8/31/2027	0.53	1.17	1.18	0.60	3.48	
9/1/2027	8/31/2028	0.26	1.13	1.34	0.57	3.30	
9/1/2028	8/31/2029	0.20	1.08	1.18	0.55	3.00	
9/1/2029	8/31/2030	0.19	1.06	0.74	0.54	2.53	
9/1/2030	8/31/2031	0.19	1.04	0.46	0.53	2.22	
9/1/2031	8/31/2032	0.18	1.02	0.56	0.52	2.29	
9/1/2032	8/31/2033	0.19	0.99	0.75	0.50	2.43	
9/1/2033	8/31/2034	0.19	0.94	1.35	0.48	2.96	
9/1/2034	8/31/2035	0.18	0.87	1.92	0.44	3.42	
9/1/2035	8/31/2036	0.17	0.81	1.92	0.41	3.31	
9/1/2036	8/31/2037	0.15	0.73	1.92	0.37	3.18	
9/1/2037	8/31/2038	0.14	0.66	1.92	0.34	3.07	
9/1/2038	8/31/2039	0.13	0.59	1.92	0.30	2.95	
9/1/2039	8/31/2040	0.12	0.53	1.92	0.27	2.83	
9/1/2040	8/31/2041	0.11	0.45	1.92	0.23	2.71	
9/1/2041	8/31/2042	0.09	0.38	1.92	0.20	2.60	
9/1/2042	8/31/2043	0.08	0.31	1.92	0.16	2.48	
9/1/2043	8/31/2044	0.07	0.25	1.92	0.12	2.36	
9/1/2044	8/31/2045	0.06	0.17	1.92	0.09	2.24	
9/1/2045	8/31/2046	0.05	0.10	1.92	0.05	2.13	
9/1/2046	8/31/2047	0.02	0.03	1.92	0.02	2.00	
9/1/2047	8/31/2048	0.01	0.00	0.95	0.00	0.96	

**Notes:**

- (3) = Table V, (6)
- (4) = Table VI, (6) x { [ 1.0 + Table I, (10B) ] ^ length of time period - 1.0 }
- (5) = - (Table VI, (8), current - Table VI, (8), previous)
- (6) = Table VI, (8) x { [ 1.0 + Table I, (10B) ] ^ length of time period - 1.0 }
- (7) = (3) + (4) + (5) + (6)

## 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.<sup>1</sup> 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.<sup>2</sup> 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.** 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

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<sup>1</sup> Insurance operating companies typically carry no debt on their balance sheets; that is, the capital of the operating companies is all equity capital.

<sup>2</sup> See, for example, page 52: "We agree that estimates of the cost of capital should reflect debt/equity financing at the holding company level."

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.

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.

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 this filing, consistent with the 2010 and 2011 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 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 98 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 9.76% for bearing the risk of underwriting property/casualty insurance, as shown below.

DCF	10.72 %
CAPM	8.80%
Average	9.76%

Given these results, the WCRIBMA has used a cost of equity capital of 9.76% as the best estimate of the required equity return for the average risk activity in which property/casualty insurers are engaged.

**Debt.** To conform to the 2003 Commissioner’s decision, the WCRIBMA also requested Dr. Appel to calculate the cost of debt capital for property/casualty insurers, as well as the share of debt in their capital structure. For this group of 98 insurers, the average interest cost on long term debt is 6.48%, and the share of non-equity capital in the

corporate capital structure is 27%. Thus, the weighted average cost of capital is 8.86%, as shown below:

$$(27\% \times 6.48\%) + (73\% \times 9.76\%) = 8.86\%$$

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' 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 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, the WCRIBMA has made no attempt to quantify the difference in risk, nor has such additional risk been reflected in its estimate of the cost of capital used in deriving the underwriting profit provision, making its provision conservative.

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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****A. 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

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.

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.

## **B. 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).

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:

$$P_0 = [D_1/(1+k)] + [D_2/(1+k)^2] + [D_3/(1+k)^3] + \dots$$

where  $P_0$  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. If dividends are expected to grow at a constant annual rate,  $g$ , in the future, then the dividend in time period  $i$  is simply the current dividend,  $D_0$ , times the growth factor  $(1+g)^i$ . It can be shown, by suitable mathematical manipulation, that the DCF can be characterized by

$$k = (D_1 / P_0) + g,$$

where  $D_1/P_0$  is the dividend yield expected in the first year and  $g$  is the expected growth rate in dividends. It can also be shown that even if the investor expects to sell the security at some later date, the price at that time will be equal to present value of future dividend flows. Therefore any expected future capital gain will be impounded in the current estimates of future dividends.

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 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,  $\beta$  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 market as a whole. This implies that if the market as a whole goes up (down) by 10% this stock has a tendency to go up (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 - 2011 a diversified portfolio of common stocks earned an annual return which averaged 8.15 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 8.15 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 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.

### **C. 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 North American and Canadian companies that provides the annual and quarterly income statement, balance sheet, cash flows, and supplemental data items on most publicly held 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. Compustat files also contain information on aggregates, industry segments, banks, market prices, dividends, and earnings. 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 January 2012.

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 are multiplied by  $1.0 + 0.5 \times \text{Dividend Growth Rate}$  (derived in Section VII-C Exhibit 2, Page 1)<sup>3</sup>.

To estimate the 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

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<sup>3</sup> 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.

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 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 for the sample of property/casualty insurers are contained in summary form in section VII-C, Exhibit 2, Page 1 of the filing, with the details of the calculations contained in Exhibit 2, Page 2. These DCF models indicate that the current property/casualty insurance cost of equity capital averages 10.72%.

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To illustrate the calculation, consider the model shown in section VII-C, Exhibit 2, Page 1. In this model, the first-year dividend yield is 2.33%, and the expected growth rate in dividends is 8.39%. Accordingly, the required rate of return (k) in this DCF model is equal to:

$$k = (D_1 / P_0) + g, \text{ or}$$
$$10.72\% = 2.33\% + 8.39\%$$

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,  $\beta$  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 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 98 property/casualty insurers, the beta coefficient for this sample of companies ranges from 0.03 to 2.87, and averages 1.04. This is shown on Section VII-C, 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 October through December 2011. 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 0.01%, while the yields on 5- and 20-year Treasuries averaged 0.95% and 2.75% 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 8.80%.

To illustrate this calculation, consider the results for the short term CAPM below:

$$K = r_f + (\beta \times r_d) , \text{ or}$$
$$8.44\% = 0.01\% + (1.04 \times 8.15\%)$$

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 8.80% 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 9.76%, 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 requested that Dr. Appel estimate 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.<sup>4</sup> The details of these calculations are contained in Section VII-C, Exhibits 4 and 5. As these exhibits show, debt accounts for approximately 27% of insurer capital, while common equity accounts for 73% of capital. (WCRIBMA notes that the percentage of debt in the capital structure remains higher than has been traditional for property casualty insurers. For at least the last decade through 2009, debt was consistently in the range of 15% - 20% of total capital while equity constituted the remaining 80% - 85%. However, in 2011 that proportion increased significantly, to 25%, and has risen yet again this year. Although the most recent several years appear to be

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<sup>4</sup> 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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anomalous, Dr. Appel has not made any adjustments in the debt share which would result in a higher weighted average cost of capital and a higher profit provision.)

Given the equity cost, as shown above, of 9.76%, and the debt cost estimated in Exhibit 4 of 6.48%, the weighted average cost of capital is 8.86%, as shown below:

$$(27\% \times 6.48\%) + (73\% \times 9.76\%) = 8.86\%$$

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Exhibit 1

### Cost of Capital: Summary Exhibit for Property-Casualty Insurance Companies

(1) Discounted Cash Flow (from Exhibit 2, page 1)	10.72%
(2) Capital Asset Pricing Model (from Exhibit 3, page 1)	<u>8.80%</u>
(3) Cost of Equity { = [ (1) + (2) ] / 2.0 }	9.76%
(4) Cost of Debt (from Exhibit 4)	6.48%
(5) Capital Structure (from Exhibit 5):	
(a) Equity	73%
(b) Debt	27%
(6) Weighted Average Cost of Capital { = [ (3) x (5a) ] + [ (4) x (5b) ] }	8.86%

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## Cost of Capital Estimate using Discounted Cash Flow Analysis

DCF Cost of Capital:  $K = D_1 / P_0 + g$

where:

K = cost of capital

$D_1 / P_0$  = estimated dividend yield to be declared the next 12 months

g = dividend growth rate

(1) Estimated Dividend Yield (from Page 2)	2.33
(2) Growth Forecast { = [ (a) + (b) ] / 2.0 }	6.83
(a) Dividend Component [ = Page 2, average of columns (3) through (5) ]	7.87
(b) Earnings Component [ = Page 2, average of columns (6) through (8) ]	5.78
(3) Fundamental Analysis [ = (a) + (b) ]	9.95
(a) Retention to book [ = Page 2, average of columns (9) through (11) ]	10.33
(b) Stock issuance factor [ = Page 2, column (15) ]	-0.38
(4) Dividend Growth Rate { = [ (2) + (3) ] / 2.0 }	8.39
(5) Cost of Capital [ = (1) + (4) ]	<b>10.72</b>

Discounted Cash Flow 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						2011	2014 - 2016	2014 - 2016	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)
21ST CENTURY HOLDING CO	Nil	31.73	8.12	NA	NA	NA	NA	20.51	16.81	NA	NA	NA	NA	NA
ACE LTD	2.70	10.50	7.50	8.00	13.00	17.50	10.00	11.73	13.84	7.50	337.00	337.00	0.73	0.00
ACMAT CORP -CL A	Nil	NA	NA	NA	NA	NA	NA	7.19	6.28	NA	NA	NA	NA	NA
AFFIRMATIVE INS HOLDINGS INC	Nil	NA	NA	NA	NA	NA	10.00	5.66	2.70	NA	NA	NA	NA	NA
ALLEGHANY CORP	Nil	NA	NA	Nil	NA	NA	NA	6.50	6.50	5.50	9.00	9.00	0.83	0.00
ALLIANZ SE -ADR	7.12	NA	-6.65	NA	4.32	8.84	7.40	6.80	9.22	NA	NA	NA	NA	NA
ALLIED WORLD ASSURANCE CO AG	2.71	NA	NA	NA	NA	NA	-9.00	16.52	16.52	NA	NA	NA	NA	NA
ALLSTATE CORP	3.10	6.50	2.00	-0.50	-1.00	-2.00	10.00	9.15	10.84	8.50	475.00	400.00	1.05	-0.21
ALTERRA CAPITAL HOLDINGS LTD	2.47	NA	56.66	NA	41.46	-5.58	8.50	10.77	15.62	NA	NA	NA	NA	NA
AMERICAN FINANCIAL GROUP INC	1.90	-2.00	10.00	6.00	15.00	19.00	8.00	8.92	12.18	8.00	98.00	95.00	0.75	0.19
AMERICAN INTERNATIONAL GROUP	Nil	NA	NA	NA	NA	NA	10.00	11.21	12.72	NA	NA	NA	NA	NA
AMERICAN NATIONAL INSURANCE	4.39	1.03	0.78	NA	NA	NA	NA	4.11	3.78	NA	NA	NA	NA	NA
AMERICAN OVERSEAS GROUP LTD	Nil	NA	NA	NA	NA	NA	13.00	14.49	19.48	NA	NA	NA	NA	NA
AMERICAN SAFETY INS HLDG LTD	Nil	NA	NA	NA	11.38	-1.04	15.00	8.28	8.30	NA	NA	NA	NA	NA
AMERISAFE INC	Nil	NA	NA	NA	NA	NA	10.00	15.25	18.12	NA	NA	NA	NA	NA
AMTRUST FINANCIAL SERVICES	1.46	NA	NA	NA	NA	NA	14.67	17.17	17.28	NA	NA	NA	NA	NA
ARCH CAPITAL GROUP LTD	Nil	NA	NA	NA	NA	6.50	6.23	17.31	18.60	NA	NA	NA	NA	NA
ARGO GROUP INTL HOLDINGS LTD	1.77	NA	NA	NA	NA	NA	10.00	9.49	5.46	NA	NA	NA	NA	NA
ASPEN INSURANCE HOLDINGS LTD	2.36	NA	8.06	NA	NA	28.47	15.00	10.31	9.57	NA	NA	NA	NA	NA
ASSURANT INC	1.83	NA	18.25	NA	NA	5.07	10.33	9.39	10.86	NA	NA	NA	NA	NA
ASSURED GUARANTY LTD	1.43	NA	13.98	NA	NA	-10.80	12.00	8.45	6.87	NA	NA	NA	NA	NA
ATLANTIC AMERICAN CORP	Nil	NA	NA	NA	NA	NA	NA	6.26	6.73	NA	NA	NA	NA	NA
AXA -ADR	8.10	7.81	17.03	NA	-1.51	-3.77	19.80	5.61	4.94	NA	NA	NA	NA	NA
AXIS CAPITAL HOLDINGS LTD	3.13	NA	14.36	NA	NA	10.24	10.67	12.34	13.24	NA	NA	NA	NA	NA
BALDWIN & LYONS -CL B	4.58	16.04	2.00	NA	2.38	-8.50	8.00	5.07	7.38	NA	NA	NA	NA	NA
BERKLEY (W R) CORP	1.00	9.50	14.00	8.50	34.50	5.00	9.50	15.24	14.76	12.50	135.00	130.00	1.35	-0.33
BERKSHIRE HATHAWAY	Nil	NA	NA	Nil	24.00	25.00	NA	NA	NA	NA	2475.50	2470.00	1.25	-0.01
CHUBB CORP	2.30	8.00	12.00	5.00	11.50	13.00	7.92	10.88	12.06	7.50	275.00	250.00	1.10	-0.24
CINCINNATI FINANCIAL CORP	5.40	9.50	8.50	1.50	4.50	-9.00	5.00	3.52	3.18	NMF	162.00	162.00	0.94	0.00
CITIZENS INC	Nil	NA	NA	NA	NA	-11.00	NA	5.95	7.61	NA	NA	NA	NA	NA
CNA FINANCIAL CORP	1.50	NA	NA	37.00	-1.00	NA	5.00	6.70	8.36	7.00	269.00	269.00	0.90	0.00
DONEGAL GROUP INC	2.81	8.32	10.50	NA	2.95	-12.00	5.00	5.92	4.96	NA	NA	NA	NA	NA
EASTERN INSURANCE HLDGS INC	2.09	NA	NA	NA	NA	NA	12.00	4.50	5.95	NA	NA	NA	NA	NA
EMC INSURANCE GROUP INC	4.05	1.89	3.70	NA	23.90	-1.12	5.00	8.64	10.01	NA	NA	NA	NA	NA
EMPLOYERS HOLDINGS INC	1.46	NA	NA	NA	NA	NA	10.00	18.68	18.68	NA	NA	NA	NA	NA
ENDURANCE SPECIALTY HOLDINGS	3.27	NA	7.09	NA	NA	23.61	10.50	12.95	12.82	NA	NA	NA	NA	NA
ERIE INDEMNITY CO -CL A	2.70	14.00	12.00	6.00	2.00	-5.00	7.00	9.79	7.44	13.50	48.00	45.00	3.52	-4.03
EVEREST RE GROUP LTD	2.38	23.82	36.85	NA	8.41	13.28	10.00	10.91	11.91	NA	NA	NA	NA	NA
FAIRFAX FINANCIAL HOLDINGS	2.42	NA	39.85	NA	NA	NA	15.00	13.35	14.59	NA	NA	NA	NA	NA
FIDELITY NATIONAL FINANCIAL	3.14	NA	2.76	NA	NA	-29.90	10.00	5.26	5.26	NA	NA	NA	NA	NA
FIRST ACCEPTANCE CORP	Nil	NA	NA	NA	NA	NA	NA	6.78	7.53	NA	NA	NA	NA	NA
FLAGSTONE REINSURANCE HLD SA	2.01	NA	NA	NA	NA	NA	10.00	14.32	14.32	NA	NA	NA	NA	NA
GENWORTH FINANCIAL INC	Nil	NA	NA	NA	NA	NA	5.00	6.49	5.91	NA	NA	NA	NA	NA
GLOBAL INDEMNITY PLC	Nil	NA	NA	NA	NA	-37.00	10.00	10.00	10.43	NA	NA	NA	NA	NA
GREENLIGHT CAPITAL RE LTD	Nil	NA	NA	NA	NA	9.44	10.00	15.37	16.38	NA	NA	NA	NA	NA
HALLMARK FINANCIAL SERVICES	Nil	NA	NA	NA	21.88	NA	15.00	8.50	8.50	NA	NA	NA	NA	NA
HANOVER INSURANCE GROUP INC	3.40	12.00	NA	13.00	-3.00	12.50	15.00	6.36	7.50	8.00	45.00	45.00	1.07	0.00

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Discounted Cash Flow 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						2011	2014 - 2016	2014 - 2016	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)
HARLEYSVILLE GROUP INC	2.71	12.78	20.50	NA	2.78	28.50	8.00	6.26	7.55	NA	NA	NA	NA	NA
HARTFORD FINANCIAL SERVICES	2.56	-1.69	-7.38	NA	NA	NA	9.50	9.56	10.60	NA	NA	NA	NA	NA
HCC INSURANCE HOLDINGS INC	2.30	15.00	18.50	6.00	13.00	12.50	8.50	10.51	11.38	9.00	105.00	100.00	1.30	-0.36
HILLTOP HOLDINGS INC	Nil	NA	NA	NA	NA	-35.10	3.00	40.13	40.13	NA	NA	NA	NA	NA
HOMEOWNERS CHOICE INC	7.80	NA	NA	NA	NA	NA	NA	18.14	18.14	NA	NA	NA	NA	NA
HORACE MANN EDUCATORS CORP	3.95	-1.71	-5.39	NA	1.38	3.81	8.00	7.11	9.49	NA	NA	NA	NA	NA
INFINITY PROPERTY & CAS CORP	1.35	NA	19.00	NA	62.72	1.00	10.00	11.71	9.74	NA	NA	NA	NA	NA
KEMPER CORP/DE	3.42	-0.92	-5.27	NA	-7.27	-11.10	8.50	6.27	5.67	NA	NA	NA	NA	NA
KINGSTONE COS INC	3.48	NA	NA	NA	NA	13.08	NA	32.89	20.83	NA	NA	NA	NA	NA
KINGSWAY FINANCIAL SVCS INC	Nil	NA	NA	NA	NA	NA	10.00	13.14	12.24	NA	NA	NA	NA	NA
LOEWS CORP	0.69	4.12	4.56	NA	-1.34	13.23	NA	11.04	13.17	NA	NA	NA	NA	NA
MAIDEN HOLDINGS LTD	3.81	NA	NA	NA	NA	NA	12.00	5.32	5.32	NA	NA	NA	NA	NA
MARKEL CORP	Nil	NA	NA	Nil	18.00	13.00	10.67	9.30	11.14	6.50	10.00	10.00	1.51	0.00
MBIA INC	Nil	NA	NA	NA	NA	NA	10.00	10.51	11.54	NA	NA	NA	NA	NA
MEADOWBROOK INS GROUP INC	1.95	NA	NA	NA	NA	12.96	10.00	7.86	8.93	NA	NA	NA	NA	NA
MERCURY GENERAL CORP	5.40	11.00	9.00	1.50	-0.50	-10.00	4.50	6.74	4.83	5.50	54.80	54.80	1.57	0.00
METLIFE INC	2.47	17.52	12.91	NA	5.02	-14.80	9.77	9.66	10.40	NA	NA	NA	NA	NA
MGIC INVESTMENT CORP/WI	Nil	NA	NA	NA	NA	NA	5.00	14.94	11.16	NA	NA	NA	NA	NA
MONTPELIER RE HOLDINGS	2.46	NA	-34.80	NA	NA	NA	-0.60	16.75	18.07	NA	NA	NA	NA	NA
NATIONAL INTERSTATE CORP	1.67	NA	NA	NA	NA	2.50	9.30	19.74	13.22	NA	NA	NA	NA	NA
NATIONAL SEC GROUP INC	4.76	0.36	-3.70	NA	-12.30	-23.70	NA	4.99	5.80	NA	NA	NA	NA	NA
NAVIGATORS GROUP INC	Nil	NA	NA	NA	19.97	15.71	11.00	8.17	10.27	NA	NA	NA	NA	NA
OLD REPUBLIC INTL CORP	7.70	10.50	10.00	1.50	NA	NA	10.00	7.96	4.50	5.50	259.50	260.00	1.13	0.01
ONEBEACON INSURANCE GROUP	6.15	NA	NA	NA	NA	NA	5.00	11.18	11.18	NA	NA	NA	NA	NA
PARTNERRE LTD	3.89	7.12	7.18	NA	15.42	17.48	8.68	12.78	14.39	NA	NA	NA	NA	NA
PLATINUM UNDERWRITERS HLDG	0.98	NA	0.00	NA	NA	53.47	9.00	11.39	14.37	NA	NA	NA	NA	NA
PMI GROUP INC	Nil	NA	NA	NA	NA	NA	10.00	13.02	11.25	NA	NA	NA	NA	NA
PROASSURANCE CORP	1.31	NA	NA	NA	14.46	25.18	10.00	11.18	14.51	NA	NA	NA	NA	NA
PROGRESSIVE CORP-OHIO	2.10	27.00	NMF	15.00	12.50	-10.00	10.33	20.96	20.23	14.50	615.00	575.00	1.95	-1.58
PROTECTIVE LIFE CORP	2.96	2.67	-2.43	NA	-1.54	-10.70	9.07	8.18	8.69	NA	NA	NA	NA	NA
RADIAN GROUP INC	0.44	-9.68	-23.00	NA	NA	NA	12.00	14.03	14.15	NA	NA	NA	NA	NA
RENAISSANCERE HOLDINGS LTD	1.46	7.74	5.92	NA	17.26	30.74	4.98	19.31	22.44	NA	NA	NA	NA	NA
RLI CORP	1.70	14.50	16.00	4.50	13.50	12.50	7.50	10.62	12.60	7.00	21.00	16.00	1.10	-0.66
SAFETY INSURANCE GROUP INC	5.21	NA	29.50	NA	-8.48	1.50	15.00	10.54	9.58	NA	NA	NA	NA	NA
SCOR SE -ADR	7.01	-23.30	-0.61	NA	-22.10	NA	NA	9.45	7.50	NA	NA	NA	NA	NA
SEABRIGHT HOLDINGS INC	3.23	NA	NA	NA	NA	-10.50	2.00	10.54	10.25	NA	NA	NA	NA	NA
SELECTIVE INS GROUP INC	3.10	6.00	8.00	2.50	6.00	-4.00	7.57	6.89	7.02	6.00	54.50	55.00	1.04	0.01
STATE AUTO FINANCIAL CORP	5.83	19.04	25.00	NA	-29.80	-59.50	20.00	9.85	7.73	NA	NA	NA	NA	NA
SWISS RE LTD -ADR	Nil	0.96	11.20	NA	-42.80	-37.40	NA	7.67	7.71	NA	NA	NA	NA	NA
TOKIO MARINE HOLDINGS -ADR	2.96	14.42	20.83	NA	NA	NA	2.40	4.40	2.93	NA	NA	NA	NA	NA
TOWER GROUP INC	3.85	NA	47.00	NA	NA	20.50	19.00	14.51	12.56	NA	NA	NA	NA	NA
TRANSATLANTIC HOLDINGS INC	1.68	11.83	14.83	NA	4.18	10.51	7.00	8.40	9.44	NA	NA	NA	NA	NA
TRAVELERS COS INC	3.00	2.50	5.00	6.50	6.00	19.50	5.45	8.19	11.58	8.50	405.00	360.00	1.10	-0.29
TRIPLE-S MANAGEMENT CORP	Nil	NA	NA	NA	NA	9.66	11.05	10.61	10.89	NA	NA	NA	NA	NA
UNICO AMERICAN CORP	Nil	NA	NA	NA	-1.63	-4.64	NA	8.46	7.52	NA	NA	NA	NA	NA
UNITED FIRE & CAS CO	3.54	5.74	7.00	NA	-10.00	NA	8.00	9.27	9.40	NA	NA	NA	NA	NA
UNITED INSURANCE HOLDINGS CO	4.73	NA	NA	NA	NA	NA	NA	28.96	28.96	NA	NA	NA	NA	NA

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Discounted Cash Flow Analysis: Parameter Estimation

		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						2011	2014 - 2016	2014 - 2016	Stock Issuance
Property/Casualty Insurance Companies (1)	Dividend Yield (2)	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)
UNIVERSAL INSURANCE HLDGS	9.69	NA	NA	NA	38.62	NA	NA	35.86	34.76	NA	NA	NA	NA	NA
VALIDUS HOLDINGS LTD	3.31	NA	NA	NA	NA	NA	9.50	16.24	16.24	NA	NA	NA	NA	NA
WHITE MTNS INS GROUP LTD	0.23	3.15	-9.71	NA	-20.60	-35.30	8.00	11.31	8.68	NA	NA	NA	NA	NA
XL GROUP PLC	2.10	-9.50	-20.00	-1.00	-5.00	NA	10.00	8.71	10.96	6.50	320.00	320.00	0.69	0.00
Average	2.33	7.46	9.04	7.12	6.29	1.86	9.20	11.34	11.48	8.17	308.67	298.14	1.24	-0.38

Notes:

Sources: Value Line Investment Survey, Part 3, The Ratings & Reports, Dec. 16, 2011  
 Value Line Investment Survey, Part 2, Small and Mid Cap Edition, Dec. 9, 2011  
 Compustat Database (Version as of 12/31/2011)  
<http://finance.yahoo.com> (data available on February 1, 2012)

All companies with Nil values pay no dividends.

NMF = Not a Meaningful Figure

(2): The dividend yields needed for the DCF Analysis relate dividends at time 1,  $D_1$ , to stock prices at time 0,  $P_0$ . 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,  $D_0$ , to stock price at time zero,  $P_0$ .  $D_1$  is estimated from  $D_0$  as follows:

$$D_1 = D_0 \times [ 1.0 + ( 0.5 \times \text{Dividend Growth Rate} ) ] \quad \text{where Dividend Growth Rate} = 8.39\% \text{ from Page 1.}$$

(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 2011 and midyear 2014.

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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 ( $\beta$ ) (4)	Estimated Cost of Capital (K) (5)
Short-Term	0.01	8.15	1.04	8.44
Intermediate-Term	0.95	7.15	1.04	8.35
Long-Term	2.75	6.62	1.04	9.60
Average	1.24	7.30	1.04	<b>8.80</b>

Notes:

(2): Section VII-H, Exhibit 2, page 3

Short-Term = average yield on 1-month U.S. Treasury Constant Maturities (line (3))

Intermediate-Term = average yield on 5-year U.S. Treasury (line (9))

Long-Term = average yield on 20-year U.S. Treasury (line (12))

(3): Section VII-H, 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>
21ST CENTURY HOLDING CO	0.72
ACE LTD	0.85
ACMAT CORP -CL A	0.03
AFFIRMATIVE INS HOLDINGS INC	1.15
ALLEGHANY CORP	0.80
ALLIANZ SE -ADR	1.56
ALLIED WORLD ASSURANCE CO AG	0.75
ALLSTATE CORP	1.10
ALTERRA CAPITAL HOLDINGS LTD	1.00
AMERICAN FINANCIAL GROUP INC	1.05
AMERICAN INTERNATIONAL GROUP	2.64
AMERICAN NATIONAL INSURANCE	1.21
AMERICAN OVERSEAS GROUP LTD	1.77
AMERICAN SAFETY INS HLDG LTD	1.06
AMERISAFE INC	0.80
AMTRUST FINANCIAL SERVICES	1.05
ARCH CAPITAL GROUP LTD	0.65
ARGO GROUP INTL HOLDINGS LTD	0.70
ASPEN INSURANCE HOLDINGS LTD	0.82
ASSURANT INC	1.25
ASSURED GUARANTY LTD	1.94
ATLANTIC AMERICAN CORP	1.05
AXA -ADR	1.86
AXIS CAPITAL HOLDINGS LTD	0.93
BALDWIN & LYONS -CL B	0.55
BERKLEY (W R) CORP	0.70
BERKSHIRE HATHAWAY	0.75
CHUBB CORP	0.85
CINCINNATI FINANCIAL CORP	0.95
CITIZENS INC	0.76
CNA FINANCIAL CORP	1.30
DONEGAL GROUP INC	0.50
EASTERN INSURANCE HLDGS INC	0.96
EMC INSURANCE GROUP INC	0.75
EMPLOYERS HOLDINGS INC	0.90
ENDURANCE SPECIALTY HOLDINGS	0.85
ERIE INDEMNITY CO -CL A	0.70
EVEREST RE GROUP LTD	0.73
FAIRFAX FINANCIAL HOLDINGS	0.63
FIDELITY NATIONAL FINANCIAL	0.68
FIRST ACCEPTANCE CORP	0.61
FLAGSTONE REINSURANCE HLD SA	0.75
GENWORTH FINANCIAL INC	2.40
GLOBAL INDEMNITY PLC	0.90
GREENLIGHT CAPITAL RE LTD	0.88
HALLMARK FINANCIAL SERVICES	0.80
HANOVER INSURANCE GROUP INC	0.80
HARLEYSVILLE GROUP INC	0.60
HARTFORD FINANCIAL SERVICES	2.33
HCC INSURANCE HOLDINGS INC	0.85
HILLTOP HOLDINGS INC	0.56
HOMEOWNERS CHOICE INC	0.76
HORACE MANN EDUCATORS CORP	1.26
INFINITY PROPERTY & CAS CORP	0.70
KEMPER CORP/DE	1.30

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## Capital Asset Pricing Model - Beta Coefficient

<u>Property/Casualty Insurance Companies</u>	<u>Beta Coefficients</u>
KINGSTONE COS INC	0.94
KINGSWAY FINANCIAL SVCS INC	1.34
LOEWS CORP	1.17
MAIDEN HOLDINGS LTD	0.65
MARKEL CORP	0.85
MBIA INC	2.03
MEADOWBROOK INS GROUP INC	0.92
MERCURY GENERAL CORP	0.70
METLIFE INC	1.64
MGIC INVESTMENT CORP/WI	2.54
MONTPELIER RE HOLDINGS	0.80
NATIONAL INTERSTATE CORP	0.85
NATIONAL SEC GROUP INC	0.91
NAVIGATORS GROUP INC	0.47
OLD REPUBLIC INTL CORP	1.05
ONEBEACON INSURANCE GROUP	0.75
PARTNERRE LTD	0.73
PLATINUM UNDERWRITERS HLDG	0.79
PMI GROUP INC	2.87
PROASSURANCE CORP	0.61
PROGRESSIVE CORP-OHIO	0.95
PROTECTIVE LIFE CORP	2.30
RADIAN GROUP INC	2.28
RENAISSANCERE HOLDINGS LTD	0.70
RLI CORP	0.80
SAFETY INSURANCE GROUP INC	0.70
SCOR SE -ADR	0.95
SEABRIGHT HOLDINGS INC	0.75
SELECTIVE INS GROUP INC	0.90
STATE AUTO FINANCIAL CORP	0.90
SWISS RE LTD -ADR	1.76
TOKIO MARINE HOLDINGS -ADR	0.82
TOWER GROUP INC	0.75
TRANSATLANTIC HOLDINGS INC	0.93
TRAVELERS COS INC	0.85
TRIPLE-S MANAGEMENT CORP	0.98
UNICO AMERICAN CORP	0.65
UNITED FIRE & CAS CO	0.95
UNITED INSURANCE HOLDINGS CO	0.88
UNIVERSAL INSURANCE HLDGS	1.10
VALIDUS HOLDINGS LTD	0.62
WHITE MTNS INS GROUP LTD	0.95
XL GROUP PLC	1.55
Average	1.04

Sources: Value Line Investment Survey, Part 3, The Ratings & Reports, Dec. 16, 2011  
Value Line Investment Survey, Part 2, Small and Mid Cap Edition, Dec. 9, 2011  
Compustat Database (Version as of 12/31/2011)

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 Exhibit 4

## Average Cost of Long-Term Debt for Property-Casualty Insurance Companies

Property/Casualty Insurance Companies (1)	Long-Term Interest \$ in millions (2)	Long-Term Debt \$ in millions (3)	Yield =(2) / (3) (4)
21ST CENTURY HOLDING CO	0.0	0.0	NA
ACE LTD	225.0	3,360.0	6.70%
ACMAT CORP -CL A	0.3	7.1	4.26%
AFFIRMATIVE INS HOLDINGS INC	22.8	193.1	11.80%
ALLEGHANY CORP	0.0	0.0	NA
ALLIANZ SE -ADR	1,774.1	20,371.9	8.71%
ALLIED WORLD ASSURANCE CO AG	40.2	797.7	5.04%
ALLSTATE CORP	315.0	5,907.0	5.33%
ALTERRA CAPITAL HOLDINGS LTD	28.3	440.5	6.42%
AMERICAN FINANCIAL GROUP INC	0.0	0.0	NA
AMERICAN INTERNATIONAL GROUP	7,859.0	89,738.0	8.76%
AMERICAN NATIONAL INSURANCE	0.0	12.5	0.00%
AMERICAN OVERSEAS GROUP LTD	0.9	59.7	1.54%
AMERICAN SAFETY INS HLDG LTD	2.7	39.2	6.83%
AMERISAFE INC	1.5	36.1	4.29%
AMTRUST FINANCIAL SERVICES	12.9	299.1	4.31%
ARCH CAPITAL GROUP LTD	30.0	300.0	10.00%
ARGO GROUP INTL HOLDINGS LTD	22.9	311.5	7.35%
ASPEN INSURANCE HOLDINGS LTD	16.5	498.8	3.31%
ASSURANT INC	60.6	977.2	6.21%
ASSURED GUARANTY LTD	99.6	1,021.0	9.76%
ATLANTIC AMERICAN CORP	2.6	41.2	6.33%
AXA -ADR	647.5	13,870.1	4.67%
AXIS CAPITAL HOLDINGS LTD	55.9	994.1	5.62%
BALDWIN & LYONS -CL B	0.0	0.0	NA
BERKLEY (W R) CORP	95.0	1,501.8	6.33%
BERKSHIRE HATHAWAY	NA	NA	NA
CHUBB CORP	240.0	3,975.0	6.04%
CINCINNATI FINANCIAL CORP	50.0	790.0	6.33%
CITIZENS INC	0.0	0.0	NA
CNA FINANCIAL CORP	155.0	2,538.0	6.11%
DONEGAL GROUP INC	0.8	55.5	1.44%
EASTERN INSURANCE HLDGS INC	0.0	0.0	NA
EMC INSURANCE GROUP INC	0.9	43.4	2.07%
EMPLOYERS HOLDINGS INC	5.7	0.0	NA
ENDURANCE SPECIALTY HOLDINGS	34.8	528.4	6.58%
ERIE INDEMNITY CO -CL A	0.0	0.0	NA
EVEREST RE GROUP LTD	55.8	818.1	6.82%
FAIRFAX FINANCIAL HOLDINGS	195.4	2,570.5	7.60%
FIDELITY NATIONAL FINANCIAL	46.2	779.3	5.93%
FIRST ACCEPTANCE CORP	3.9	41.3	9.52%
FLAGSTONE REINSURANCE HLD SA	10.4	251.1	4.12%
GENWORTH FINANCIAL INC	457.0	8,181.0	5.59%
GLOBAL INDEMNITY PLC	7.0	121.0	5.80%
GREENLIGHT CAPITAL RE LTD	0.0	0.0	NA
HALLMARK FINANCIAL SERVICES	4.6	59.5	7.73%
HANOVER INSURANCE GROUP INC	73.5	901.6	8.15%
HARLEYSVILLE GROUP INC	6.1	118.5	5.12%
HARTFORD FINANCIAL SERVICES	508.0	6,527.0	7.78%
HCC INSURANCE HOLDINGS INC	0.0	0.0	NA
HILLTOP HOLDINGS INC	9.0	138.4	6.48%
HOMEOWNERS CHOICE INC	0.0	0.0	NA
HORACE MANN EDUCATORS CORP	14.0	199.7	6.99%
INFINITY PROPERTY & CAS CORP	10.8	194.7	5.55%
KEMPER CORP/DE	34.4	614.5	5.60%
KINGSTONE COS INC	0.3	0.0	NA
KINGSWAY FINANCIAL SVCS INC	14.8	140.8	10.53%
LOEWS CORP	540.0	8,830.0	6.12%
MAIDEN HOLDINGS LTD	37.5	215.2	17.43%

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## Average Cost of Long-Term Debt for Property-Casualty Insurance Companies

Property/Casualty Insurance Companies (1)	Long-Term Interest \$ in millions (2)	Long-Term Debt \$ in millions (3)	Yield =(2) / (3) (4)
MARKEL CORP	0.0	0.0	NA
MBIA INC	384.0	15,710.4	2.44%
MEADOWBROOK INS GROUP INC	9.5	104.8	9.02%
MERCURY GENERAL CORP	0.0	0.0	NA
METLIFE INC	1,550.0	34,669.0	4.47%
MGIC INVESTMENT CORP/WI	98.6	959.6	10.27%
MONTPELIER RE HOLDINGS	24.6	327.7	7.51%
NATIONAL INTERSTATE CORP	0.3	20.0	1.47%
NATIONAL SEC GROUP INC	1.2	12.4	9.34%
NAVIGATORS GROUP INC	8.2	114.1	7.17%
OLD REPUBLIC INTL CORP	40.0	912.8	4.38%
ONEBEACON INSURANCE GROUP	29.6	419.6	7.05%
PARTNERRE LTD	44.4	821.0	5.41%
PLATINUM UNDERWRITERS HLDG	19.0	250.0	7.60%
PMI GROUP INC	48.6	566.4	8.59%
PROASSURANCE CORP	3.3	50.8	6.48%
PROGRESSIVE CORP-OHIO	150.0	2,443.9	6.14%
PROTECTIVE LIFE CORP	151.4	2,549.1	5.94%
RADIAN GROUP INC	41.8	1,324.6	3.15%
RENAISSANCERE HOLDINGS LTD	21.8	394.0	5.54%
RLI CORP	0.0	0.0	NA
SAFETY INSURANCE GROUP INC	0.1	0.0	NA
SCOR SE -ADR	61.0	895.7	6.81%
SEABRIGHT HOLDINGS INC	0.6	12.0	4.62%
SELECTIVE INS GROUP INC	18.0	262.4	6.86%
STATE AUTO FINANCIAL CORP	7.1	116.8	6.08%
SWISS RE LTD -ADR	1,094.0	18,427.0	5.94%
TOKIO MARINE HOLDINGS -ADR	0.0	0.0	NA
TOWER GROUP INC	24.1	374.3	6.43%
TRANSATLANTIC HOLDINGS INC	68.3	1,030.5	6.63%
TRAVELERS COS INC	0.0	0.0	NA
TRIPLE-S MANAGEMENT CORP	12.7	164.4	7.70%
UNICO AMERICAN CORP	0.0	0.0	NA
UNITED FIRE & CAS CO	0.0	0.0	NA
UNITED INSURANCE HOLDINGS CO	1.8	17.1	10.36%
UNIVERSAL INSURANCE HLDGS	0.9	21.7	3.97%
VALIDUS HOLDINGS LTD	55.9	536.7	10.41%
WHITE MTNS INS GROUP LTD	57.3	818.8	7.00%
XL GROUP PLC	210.0	2,281.3	9.21%
Average			6.48%

Sources: Value Line Investment Survey, Part 3, The Ratings & Reports, Dec. 16, 2011  
 Value Line Investment Survey, Part 2, Small and Mid Cap Edition, Dec. 9, 2011  
 Compustat Database (Version as of 12/31/2011)

Capital Structure Ratios of Property-Casualty Insurance Companies

Property/Casualty Insurance Companies (1)	Total Debt \$ in millions (2)	L-T Debt \$ in millions (3)	S-T Debt =(2) - (3) (4)	Preferred Stock \$ in millions (5)	Total Non-equity Cap =(3) + (4) + (5) (6)	Common Equity \$ in millions (7)	Common Equity Weight =(7) / [(6) + (7)] (8)	Debt Weight =1.0 - (8) (9)
21ST CENTURY HOLDING CO	7.4	0.0	7.4	0.0	7.4	23.5	0.76	0.24
ACE LTD	4,610.0	3,360.0	1,250.0	309.0	4,919.0	23,618.1	0.83	0.17
ACMAT CORP -CL A	8.6	7.1	1.4	0.0	8.6	34.2	0.80	0.20
AFFIRMATIVE INS HOLDINGS INC	198.1	193.1	5.0	0.0	198.1	8.2	0.04	0.96
ALLEGHANY CORP	0.0	0.0	0.0	0.0	0.0	2,443.9	1.00	0.00
ALLIANZ SE -ADR	24,099.2	20,371.9	3,727.3	0.0	24,099.2	43,326.1	0.64	0.36
ALLIED WORLD ASSURANCE CO AG	797.7	797.7	0.0	0.0	797.7	2,397.0	0.75	0.25
ALLSTATE CORP	5,907.0	5,907.0	0.0	0.0	5,907.0	13,851.7	0.70	0.30
ALTERRA CAPITAL HOLDINGS LTD	440.5	440.5	0.0	0.0	440.5	2,622.1	0.86	0.14
AMERICAN FINANCIAL GROUP INC	937.0	0.0	937.0	0.0	937.0	3,642.1	0.80	0.20
AMERICAN INTERNATIONAL GROUP	108,400.0	89,738.0	18,662.0	48,983.0	157,383.0	16,130.8	0.09	0.91
AMERICAN NATIONAL INSURANCE	60.1	12.5	47.6	0.0	60.1	1,958.7	0.97	0.03
AMERICAN OVERSEAS GROUP LTD	59.7	59.7	0.0	0.0	59.7	22.4	0.27	0.73
AMERICAN SAFETY INS HLDG LTD	39.2	39.2	0.0	0.0	39.2	225.9	0.85	0.15
AMERISAFE INC	36.1	36.1	0.0	0.0	36.1	426.4	0.92	0.08
AMTRUST FINANCIAL SERVICES	660.4	299.1	361.3	0.0	660.4	1,414.7	0.68	0.32
ARCH CAPITAL GROUP LTD	300.0	300.0	0.0	325.0	625.0	5,198.5	0.89	0.11
ARGO GROUP INTL HOLDINGS LTD	311.5	311.5	0.0	0.0	311.5	806.3	0.72	0.28
ASPEN INSURANCE HOLDINGS LTD	498.8	498.8	0.0	0.0	498.8	1,868.5	0.79	0.21
ASSURANT INC	977.2	977.2	0.0	0.0	977.2	4,188.1	0.81	0.19
ASSURED GUARANTY LTD	1,052.9	1,021.0	31.9	0.0	1,052.9	2,414.4	0.70	0.30
ATLANTIC AMERICAN CORP	41.2	41.2	0.0	0.1	41.3	43.8	0.51	0.49
AXA -ADR	15,301.8	13,870.1	1,431.7	0.0	15,301.8	30,254.2	0.66	0.34
AXIS CAPITAL HOLDINGS LTD	994.1	994.1	0.0	500.0	1,494.1	3,592.1	0.71	0.29
BALDWIN & LYONS -CL B	15.0	0.0	15.0	0.0	15.0	322.9	0.96	0.04
BERKLEY (W R) CORP	1,744.7	1,501.8	242.9	0.0	1,744.7	4,714.9	0.73	0.27
BERKSHIRE HATHAWAY	NA	NA	NA	NA	NA	NA	NA	NA
CHUBB CORP	3,975.0	3,975.0	0.0	0.0	3,975.0	19,248.1	0.83	0.17
CINCINNATI FINANCIAL CORP	894.0	790.0	104.0	0.0	894.0	4,936.9	0.85	0.15
CITIZENS INC	0.0	0.0	0.0	0.0	0.0	481.5	1.00	0.00
CNA FINANCIAL CORP	2,638.0	2,538.0	100.0	0.0	2,638.0	7,203.1	0.73	0.27
DONEGAL GROUP INC	56.1	55.5	0.6	0.0	56.1	362.1	0.87	0.13
EASTERN INSURANCE HLDGS INC	0.0	0.0	0.0	0.0	0.0	125.3	1.00	0.00
EMC INSURANCE GROUP INC	43.4	43.4	0.0	0.0	43.4	265.9	0.86	0.14
EMPLOYERS HOLDINGS INC	132.0	0.0	132.0	0.0	132.0	704.9	0.84	0.16
ENDURANCE SPECIALTY HOLDINGS	528.4	528.4	0.0	8.0	536.4	1,806.1	0.77	0.23
ERIE INDEMNITY CO -CL A	0.0	0.0	0.0	0.0	0.0	0.0	NA	NA
EVEREST RE GROUP LTD	868.1	818.1	50.0	0.0	868.1	4,576.9	0.84	0.16
FAIRFAX FINANCIAL HOLDINGS	2,570.9	2,570.5	0.4	934.7	3,505.6	8,820.2	0.72	0.28

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Capital Structure Ratios of Property-Casualty Insurance Companies

Property/Casualty Insurance Companies (1)	Total Debt \$ in millions (2)	L-T Debt \$ in millions (3)	S-T Debt =(2) - (3) (4)	Preferred Stock \$ in millions (5)	Total Non-equity Cap =(3) + (4) + (5) (6)	Common Equity \$ in millions (7)	Common Equity Weight =(7) / [(6) + (7)] (8)	Debt Weight =1.0 - (8) (9)
FIDELITY NATIONAL FINANCIAL	952.0	779.3	172.7	0.0	952.0	3,564.3	0.79	0.21
FIRST ACCEPTANCE CORP	41.4	41.3	0.1	0.0	41.4	66.0	0.61	0.39
FLAGSTONE REINSURANCE HLD SA	251.1	251.1	0.0	0.0	251.1	568.6	0.69	0.31
GENWORTH FINANCIAL INC	8,883.0	8,181.0	702.0	0.0	8,883.0	3,207.5	0.27	0.73
GLOBAL INDEMNITY PLC	121.3	121.0	0.3	0.0	121.3	602.1	0.83	0.17
GREENLIGHT CAPITAL RE LTD	999.8	0.0	999.8	0.0	999.8	862.9	0.46	0.54
HALLMARK FINANCIAL SERVICES	59.5	59.5	0.0	0.0	59.5	140.7	0.70	0.30
HANOVER INSURANCE GROUP INC	901.6	901.6	0.0	0.0	901.6	1,568.2	0.63	0.37
HARLEYSVILLE GROUP INC	118.5	118.5	0.0	0.0	118.5	1,529.9	0.93	0.07
HARTFORD FINANCIAL SERVICES	6,989.0	6,527.0	462.0	556.0	7,545.0	7,223.9	0.49	0.51
HCC INSURANCE HOLDINGS INC	493.8	0.0	493.8	0.0	493.8	2,928.8	0.86	0.14
HILLTOP HOLDINGS INC	138.4	138.4	0.0	0.0	138.4	477.4	0.78	0.22
HOMEOWNERS CHOICE INC	0.0	0.0	0.0	0.0	0.0	49.7	1.00	0.00
HORACE MANN EDUCATORS CORP	237.7	199.7	38.0	0.0	237.7	543.7	0.70	0.30
INFINITY PROPERTY & CAS CORP	194.7	194.7	0.0	0.0	194.7	707.5	0.78	0.22
KEMPER CORP/DE	614.5	614.5	0.0	0.0	614.5	1,783.8	0.74	0.26
KINGSTONE COS INC	1.5	0.0	1.5	0.0	1.5	13.8	0.90	0.10
KINGSWAY FINANCIAL SVCS INC	140.8	140.8	0.0	0.0	140.8	27.1	0.16	0.84
LOEWS CORP	9,477.0	8,830.0	647.0	0.0	9,477.0	15,607.7	0.62	0.38
MAIDEN HOLDINGS LTD	291.4	215.2	76.2	0.0	291.4	631.7	0.68	0.32
MARKEL CORP	1,271.8	0.0	1,271.8	0.0	1,271.8	3,988.3	0.76	0.24
MBIA INC	17,080.7	15,710.4	1,370.3	0.0	17,080.7	2,315.1	0.12	0.88
MEADOWBROOK INS GROUP INC	118.7	104.8	13.9	0.0	118.7	568.6	0.83	0.17
MERCURY GENERAL CORP	138.0	0.0	138.0	0.0	138.0	2,501.7	0.95	0.05
METLIFE INC	46,696.0	34,669.0	12,027.0	1.0	46,697.0	30,738.4	0.40	0.60
MGIC INVESTMENT CORP/WI	1,037.0	959.6	77.4	0.0	1,037.0	747.7	0.42	0.58
MONTPELIER RE HOLDINGS	327.7	327.7	0.0	0.0	327.7	1,145.9	0.78	0.22
NATIONAL INTERSTATE CORP	20.0	20.0	0.0	0.0	20.0	477.5	0.96	0.04
NATIONAL SEC GROUP INC	12.9	12.4	0.5	0.0	12.9	21.6	0.63	0.37
NAVIGATORS GROUP INC	114.1	114.1	0.0	0.0	114.1	750.6	0.87	0.13
OLD REPUBLIC INTL CORP	912.8	912.8	0.0	0.0	912.8	2,403.8	0.72	0.28
ONEBEACON INSURANCE GROUP	419.6	419.6	0.0	0.0	419.6	1,453.1	0.78	0.22
PARTNERRE LTD	821.0	821.0	0.0	20.8	841.8	4,493.8	0.84	0.16
PLATINUM UNDERWRITERS HLDG	250.0	250.0	0.0	0.0	250.0	1,287.9	0.84	0.16
PMI GROUP INC	616.2	566.4	49.8	0.0	616.2	4.4	0.01	0.99
PROASSURANCE CORP	51.1	50.8	0.3	0.0	51.1	2,454.7	0.98	0.02
PROGRESSIVE CORP-OHIO	2,443.9	2,443.9	0.0	0.0	2,443.9	12,108.5	0.83	0.17
PROTECTIVE LIFE CORP	2,620.7	2,549.1	71.5	0.0	2,620.7	1,932.7	0.42	0.58
RADIAN GROUP INC	1,484.9	1,324.6	160.3	0.0	1,484.9	311.3	0.17	0.83

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Capital Structure Ratios of Property-Casualty Insurance Companies

Property/Casualty Insurance Companies (1)	Total Debt \$ in millions (2)	L-T Debt \$ in millions (3)	S-T Debt =(2) - (3) (4)	Preferred Stock \$ in millions (5)	Total Non-equity Cap =(3) + (4) + (5) (6)	Common Equity \$ in millions (7)	Common Equity Weight =(7) / [(6) + (7)] (8)	Debt Weight =1.0 - (8) (9)
RENAISSANCERE HOLDINGS LTD	610.9	394.0	216.9	550.0	1,160.9	4,024.2	0.78	0.22
RLI CORP	100.0	0.0	100.0	0.0	100.0	1,536.0	0.94	0.06
SAFETY INSURANCE GROUP INC	0.0	0.0	0.0	0.0	0.0	610.0	1.00	0.00
SCOR SE -ADR	895.7	895.7	0.0	0.0	895.7	4,251.3	0.83	0.17
SEABRIGHT HOLDINGS INC	12.0	12.0	0.0	0.0	12.0	160.0	0.93	0.07
SELECTIVE INS GROUP INC	262.4	262.4	0.0	0.0	262.4	961.3	0.79	0.21
STATE AUTO FINANCIAL CORP	116.8	116.8	0.0	0.0	116.8	545.0	0.82	0.18
SWISS RE LTD -ADR	29,225.0	18,427.0	10,798.0	0.0	29,225.0	18,106.0	0.38	0.62
TOKIO MARINE HOLDINGS -ADR	0.0	0.0	0.0	0.0	0.0	0.0	NA	NA
TOWER GROUP INC	374.3	374.3	0.0	0.0	374.3	836.8	0.69	0.31
TRANSATLANTIC HOLDINGS INC	1,030.5	1,030.5	0.0	0.0	1,030.5	3,406.9	0.77	0.23
TRAVELERS COS INC	6,604.0	0.0	6,604.0	68.0	6,672.0	24,423.8	0.79	0.21
TRIPLE-S MANAGEMENT CORP	181.6	164.4	17.2	0.0	181.6	576.9	0.76	0.24
UNICO AMERICAN CORP	0.0	0.0	0.0	0.0	0.0	64.3	1.00	0.00
UNITED FIRE & CAS CO	0.0	0.0	0.0	0.0	0.0	528.6	1.00	0.00
UNITED INSURANCE HOLDINGS CO	18.2	17.1	1.2	0.0	18.2	46.5	0.72	0.28
UNIVERSAL INSURANCE HLDGS	46.2	21.7	24.5	0.3	46.5	141.0	0.75	0.25
VALIDUS HOLDINGS LTD	536.7	536.7	0.0	0.0	536.7	3,087.0	0.85	0.15
WHITE MTNS INS GROUP LTD	818.8	818.8	0.0	0.0	818.8	3,716.1	0.82	0.18
XL GROUP PLC	2,281.3	2,281.3	0.0	71.9	2,353.2	6,336.6	0.73	0.27
Average							<b>0.73</b>	<b>0.27</b>

Notes:

Sources: Value Line Investment Survey, Part 3, The Ratings & Reports, Dec. 16, 2011  
 Value Line Investment Survey, Part 2, Small and Mid Cap Edition, Dec. 9, 2011  
 Compustat Database (Version as of 12/31/2011)  
 (7) = (outstanding shares) \* (one month average share price)  
 One month (Dec 1, 2010 - Dec 31, 2011) average share price from  
 Compustat Database (Version as of 12/31/2011)

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# VII 000070

Section VII - Profit  
Subsection D - Leverage Ratio  
9/1/2012

Section VII - D  
Exhibit 1

## Losses & LAE and Unearned Premium Reserves to Surplus Ratio (In Millions)

Year (1)	Losses & LAE Reserves (2)	Unearned Premium Reserves (3)	Year-End Surplus (4)	Ratio = [ (2) + (3) ] / (4) (5)
2006	247,970	71,555	156,652	2.04
2007	254,098	73,059	170,124	1.92
2008	252,072	70,559	152,055	2.12
2009	250,735	68,958	168,943	1.89
2010	251,435	68,713	169,994	1.88
Average				<b>1.97</b>

Notes:

(2), (4): Best's Aggregates and Averages, 2011 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 SpecialCall

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)		
09/01/11	11/30/11	0.0%	0.0%	30.1%	0.1%	0.0%	51.8%	0.0%	0.0%	18.1%	0.0%
12/01/11	02/29/12	0.0%	0.0%	30.1%	0.0%	0.0%	51.8%	0.2%	0.0%	18.1%	0.0%
03/01/12	05/31/12	0.1%	0.0%	30.1%	0.1%	0.0%	51.8%	0.0%	0.0%	18.1%	0.0%
06/01/12	08/31/12	11.2%	11.2%	30.1%	2.7%	2.7%	51.8%	1.1%	1.0%	18.1%	4.9%
09/01/12	11/30/12	38.1%	38.1%	30.1%	34.5%	34.5%	51.8%	37.8%	37.8%	18.1%	36.2%
12/01/12	02/28/13	22.6%	22.6%	30.1%	26.0%	26.0%	51.8%	22.4%	22.4%	18.1%	24.3%
03/01/13	05/31/13	15.4%	15.4%	30.1%	20.5%	20.5%	51.8%	20.1%	20.1%	18.1%	18.9%
06/01/13	08/31/13	4.0%	4.0%	30.1%	5.7%	5.7%	51.8%	7.4%	7.5%	18.1%	5.5%
09/01/13	11/30/13	2.2%	2.2%	30.1%	1.8%	1.8%	51.8%	3.1%	3.0%	18.1%	2.1%
12/01/13	02/28/14	2.8%	2.8%	30.1%	4.0%	4.0%	51.8%	5.6%	5.6%	18.1%	3.9%
03/01/14	05/31/14	1.9%	1.9%	30.1%	2.2%	2.2%	51.8%	1.9%	1.9%	18.1%	2.1%
06/01/14	08/31/14	1.1%	1.1%	30.1%	1.2%	1.5%	51.8%	0.2%	0.5%	18.1%	1.2%
09/01/14	11/30/14	0.1%	0.7%	30.1%	0.2%	1.1%	51.8%	0.0%	0.2%	18.1%	0.8%
12/01/14	02/28/15	0.0%	0.0%	30.1%	0.1%	0.0%	51.8%	0.1%	0.0%	18.1%	0.0%
03/01/15	05/31/15	0.0%	0.0%	30.1%	0.0%	0.0%	51.8%	0.1%	0.0%	18.1%	0.0%
06/01/15	08/31/15	0.0%	0.0%	30.1%	0.0%	0.0%	51.8%	0.0%	0.0%	18.1%	0.0%
09/01/15	11/30/15	0.2%	0.0%	30.1%	0.2%	0.0%	51.8%	0.0%	0.0%	18.1%	0.0%
12/01/15	02/29/16	0.2%	0.0%	30.1%	0.4%	0.0%	51.8%	0.0%	0.0%	18.1%	0.0%
03/01/16	05/31/16	0.1%	0.0%	30.1%	0.3%	0.0%	51.8%	0.0%	0.0%	18.1%	0.0%
Total											100.0%

Notes:

(5), (8), (11) are calculated using Unit Statistical Plan data for PY 2009.

(3), (6), (9) are from the premium collection special call.

(12) = [(4) x (5)] + [(7) x (8)] + [(10) x (11)]

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## VII 000072

Section VII - Profit  
 Subsection F - Expense Flows and Weights  
 9/1/2012

Section VII - F  
 Exhibit 1

### Cash Flow Weights

Item of Expense Allowance (% of Standard Premium plus ARAP)	Policy Year		Average
	2008	2009	
(1) Expected Losses	69.8%	68.5%	69.1%
(2) Expected Loss Adjustment Expense:	13.4%	13.2%	13.3%
(a) Defense and Cost Containment Expense	8.0%	7.9%	7.9%
(b) Adjusting and Other Expense	5.4%	5.3%	5.3%
(3) Expected Losses + LAE [= (1) + (2) ]	83.2%	81.6%	82.4%
(4) Fixed Expenses	5.7%	6.4%	6.0%
(a) General Expenses	5.1%	5.7%	5.4%
(b) Miscellaneous and Other Taxes	0.6%	0.7%	0.6%
(5) Variable Expenses [= (5a) + (5b) + (5c) ]	19.0%	19.0%	19.0%
(a) Total Acquisition	12.2%	12.2%	12.2%
(i) Commissions	8.0%	8.0%	8.0%
(ii) Other Acquisition	3.2%	3.2%	3.2%
(iii) Reinsurance Expenses	1.0%	1.0%	1.0%
(iv) Incidental Income and Earned but Uncollected Premium	0.0%	0.0%	0.0%
(b) Premium Tax	2.2%	2.2%	2.2%
(c) Premium Discount	4.6%	4.6%	4.6%
(6) Total Expenses [= (4) + (5) ]	24.7%	25.4%	25.1%

**Notes:**

- (1): Policy Year 2008 and Policy Year 2009 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. For example  $0.698 = 0.699 \times 0.999$ .
- (2): Expected LAE = Expected Losses  $\times$  0.192 where 0.192 is the LAE ratio calculated in VI-K, Exhibit 1.
- (2a), (2b): Loss Adjustment Expense split between DCC and AO is  $0.598 = 0.115 / 0.192$  and  $0.402 = 1 - 0.598$  where 0.115 is three year average ratio of DCC to loss from Section VI-K, Exhibit 1, line (4) and LAE ratio = 0.192 from Section VI-K, Exhibit 1, line (10).
- (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 2008 Fixed Expenses split between General Expenses and Other Taxes based on \$36,861,904 General Expenses and \$4,243,719 Other Taxes. Policy Year 2009 General Expenses split based on \$37,515,120 General Expenses and \$4,318,920 Other Taxes. See VI-B, Exhibit 1, columns (12) & (13).
- (5a): Section VI-J, Exhibit 1.
- (5b), (5c): Section VI-A, Exhibit 1.

**VII 000073**

Section VII - Profit  
 Subsection F - Expense Flows and Weights  
 9/1/2012

Section VII - F  
 Exhibit 2

Payment Patterns for General, Other Acquisition, and Taxes  
 Assuming Single Policy Written 9/1/2012

Time Interval		Distribution (%)			
From (1)	To (2)	General Expense (3)	Other Acquisition (4)	Premium Tax (5)	Other Tax (6)
09/01/11	11/30/11	0.01	0.02	0.00	0.01
12/01/11	02/29/12	0.01	0.06	0.00	0.02
03/01/12	05/31/12	0.15	0.12	0.00	0.14
06/01/12	08/31/12	0.23	0.44	0.00	0.29
09/01/12	11/30/12	0.21	0.30	1.00	0.23
12/01/12	02/28/13	0.10	0.02	0.00	0.08
03/01/13	05/31/13	0.09	0.01	0.00	0.07
06/01/13	08/31/13	0.09	0.01	0.00	0.07
09/01/13	11/30/13	0.10	0.02	0.00	0.08
12/01/13	02/28/14	0.01	0.00	0.00	0.01
Total		1.00	1.00	1.00	1.00

Notes:

(3): 1977 Filing, Exhibit 20.

(4), (6): 1977 Filing, Exhibit 21.

# VII 000074

Section VII - Profit  
 Subsection F - Expense Flows and Weights  
 9/1/2012

Section VII - F  
 Exhibit 3

## Single Policy Loss and Loss Adjustment Expense Flow

Time Interval		Earned Premium (3)	Loss Flow (4)	DCC Flow (5) = (4)	AO Flow (6) = [(3) + (4)] / 2.0	Loss and LAE Flow (7)
From (1)	To (2)					
09/01/11	11/30/11	0.0000	0.0000	0.0000	0.0000	0.0000
12/01/11	02/29/12	0.0000	0.0000	0.0000	0.0000	0.0000
03/01/12	05/31/12	0.0000	0.0000	0.0000	0.0000	0.0000
06/01/12	08/31/12	0.0000	0.0000	0.0000	0.0000	0.0000
09/01/12	11/30/12	0.2500	0.0548	0.0548	0.1524	0.0611
12/01/12	02/28/13	0.2500	0.0548	0.0548	0.1524	0.0611
03/01/13	05/31/13	0.2500	0.0548	0.0548	0.1524	0.0611
06/01/13	08/31/13	0.2500	0.0548	0.0548	0.1524	0.0611
09/01/13	11/30/13	0.0000	0.0719	0.0719	0.0360	0.0696
12/01/13	02/28/14	0.0000	0.0719	0.0719	0.0360	0.0696
03/01/14	05/31/14	0.0000	0.0719	0.0719	0.0360	0.0696
06/01/14	08/31/14	0.0000	0.0719	0.0719	0.0360	0.0696
09/01/14	11/30/14	0.0000	0.0403	0.0403	0.0202	0.0390
12/01/14	02/28/15	0.0000	0.0403	0.0403	0.0202	0.0390
03/01/15	05/31/15	0.0000	0.0403	0.0403	0.0202	0.0390
06/01/15	08/31/15	0.0000	0.0403	0.0403	0.0202	0.0390
09/01/15	11/30/15	0.0000	0.0225	0.0225	0.0112	0.0217
12/01/15	02/29/16	0.0000	0.0225	0.0225	0.0112	0.0217
03/01/16	05/31/16	0.0000	0.0225	0.0225	0.0112	0.0217
06/01/16	08/31/16	0.0000	0.0225	0.0225	0.0112	0.0217
09/01/16	11/30/16	0.0000	0.0130	0.0130	0.0065	0.0125
12/01/16	02/28/17	0.0000	0.0130	0.0130	0.0065	0.0125
03/01/17	05/31/17	0.0000	0.0130	0.0130	0.0065	0.0125
06/01/17	08/31/17	0.0000	0.0130	0.0130	0.0065	0.0125
09/01/17	11/30/17	0.0000	0.0061	0.0061	0.0031	0.0059
12/01/17	02/28/18	0.0000	0.0061	0.0061	0.0031	0.0059
03/01/18	05/31/18	0.0000	0.0061	0.0061	0.0031	0.0059
06/01/18	08/31/18	0.0000	0.0061	0.0061	0.0031	0.0059
09/01/18	08/31/19	0.0000	0.0168	0.0168	0.0084	0.0163
09/01/19	08/31/20	0.0000	0.0104	0.0104	0.0052	0.0101
09/01/20	08/31/21	0.0000	0.0069	0.0069	0.0034	0.0067
09/01/21	08/31/22	0.0000	0.0099	0.0099	0.0049	0.0095
09/01/22	08/31/23	0.0000	0.0071	0.0071	0.0036	0.0069
09/01/23	08/31/24	0.0000	0.0057	0.0057	0.0028	0.0055
09/01/24	08/31/25	0.0000	0.0084	0.0084	0.0042	0.0081
09/01/25	08/31/26	0.0000	0.0032	0.0032	0.0016	0.0031
09/01/26	08/31/27	0.0000	0.0037	0.0037	0.0019	0.0036
09/01/27	08/31/28	0.0000	0.0042	0.0042	0.0021	0.0040
09/01/28	08/31/29	0.0000	0.0028	0.0028	0.0014	0.0027
09/01/29	08/31/30	0.0000	0.0016	0.0016	0.0008	0.0016
09/01/30	08/31/31	0.0000	0.0011	0.0011	0.0006	0.0011
09/01/31	08/31/32	0.0000	0.0022	0.0022	0.0011	0.0021
09/01/32	08/31/33	0.0000	0.0022	0.0022	0.0011	0.0022
09/01/33	08/31/34	0.0000	0.0057	0.0057	0.0028	0.0055
09/01/34	08/31/35	0.0000	0.0057	0.0057	0.0028	0.0055
09/01/35	08/31/36	0.0000	0.0057	0.0057	0.0028	0.0055
09/01/36	08/31/37	0.0000	0.0057	0.0057	0.0028	0.0055
09/01/37	08/31/38	0.0000	0.0057	0.0057	0.0028	0.0055
09/01/38	08/31/39	0.0000	0.0057	0.0057	0.0028	0.0055
09/01/39	08/31/40	0.0000	0.0057	0.0057	0.0028	0.0055
09/01/40	08/31/41	0.0000	0.0057	0.0057	0.0028	0.0055
09/01/41	08/31/42	0.0000	0.0057	0.0057	0.0028	0.0055
09/01/42	08/31/43	0.0000	0.0057	0.0057	0.0028	0.0055
09/01/43	08/31/44	0.0000	0.0057	0.0057	0.0028	0.0055
09/01/44	08/31/45	0.0000	0.0057	0.0057	0.0028	0.0055
09/01/45	08/31/46	0.0000	0.0057	0.0057	0.0028	0.0055
09/01/46	08/31/47	0.0000	0.0057	0.0057	0.0028	0.0055
(8) Relative Weights			1.0000	0.1149	0.0773	

**Notes:**

- (4): Section VII-G, Exhibit 1. Annual values divided by 4.0 for first 7 years.
- (7): Loss and LAE flow = ( 1.000 x (4) + 0.1149 x (5) + 0.0773 x (6) ) / ( 1.000 + 0.1149 + 0.0773 )
- (8): DCC relative weight = 1.000 x 0.192 x 0.598; AO relative weight = 1.000 x 0.192 x 0.402  
 where 0.192 is the LAE factor calculated in Section VI-K, Exhibit 1 and 0.598, 0.402  
 are the DCC and AO relative weights from Section VI-K, Exhibit 1.

Loss Payment Pattern

Age In Months (1)	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)
12	6.772	14.77%	14.77%	3.001	33.32%	33.32%	21.92%
24	2.399	41.68%	26.91%	1.537	65.08%	31.76%	28.78%
36	1.598	62.57%	20.89%	1.359	73.60%	8.52%	16.12%
48	1.336	74.84%	12.27%	1.293	77.33%	3.73%	8.98%
60	1.221	81.89%	7.05%	1.257	79.55%	2.22%	5.18%
72	1.172	85.30%	3.41%	1.243	80.46%	0.91%	2.45%
84	1.145	87.37%	2.07%	1.227	81.52%	1.06%	1.68%
96	1.129	88.54%	1.17%	1.214	82.36%	0.84%	1.04%
108	1.123	89.04%	0.50%	1.200	83.35%	0.99%	0.69%
120	1.111	89.98%	0.94%	1.185	84.41%	1.06%	0.99%
132	1.105	90.48%	0.50%	1.170	85.45%	1.04%	0.71%
144	1.101	90.86%	0.38%	1.158	86.32%	0.87%	0.57%
156	1.090	91.75%	0.89%	1.148	87.09%	0.76%	0.84%
168	1.089	91.87%	0.12%	1.140	87.74%	0.65%	0.32%
180	1.087	92.02%	0.16%	1.131	88.45%	0.71%	0.37%
192	1.083	92.34%	0.31%	1.123	89.04%	0.59%	0.42%
204	1.080	92.56%	0.22%	1.119	89.40%	0.36%	0.28%
216	1.079	92.65%	0.09%	1.115	89.68%	0.28%	0.16%
228	1.078	92.73%	0.08%	1.113	89.84%	0.17%	0.11%
240	1.077	92.84%	0.11%	1.108	90.23%	0.39%	0.22%
252	1.076	92.97%	0.13%	1.104	90.60%	0.37%	0.22%
264			0.50%			0.67%	0.57%
276			0.50%			0.67%	0.57%
288			0.50%			0.67%	0.57%
300			0.50%			0.67%	0.57%
312			0.50%			0.67%	0.57%
324			0.50%			0.67%	0.57%
336			0.50%			0.67%	0.57%
348			0.50%			0.67%	0.57%
360			0.50%			0.67%	0.57%
372			0.50%			0.67%	0.57%
384			0.50%			0.67%	0.57%
396			0.50%			0.67%	0.57%
408			0.50%			0.67%	0.57%
420			0.50%			0.67%	0.57%
Total			100.00%			100.00%	100.00%

Notes:

(2), (5): Exhibit 2, Page 1.

(8): Medical and Indemnity flows weighted by 61% Indemnity and 39% Medical.

Weights are calculated using data for Incurred Losses Projected to Prospective Effective Period from Section I, Exhibit 1, Pages 1 and 2.

Accident Year Financial Aggregate Data  
 Summary of Loss Development Factors  
 Industrywide

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			
<u>(1) Indemnity Paid Losses</u>																							
2 Yr Average	2.822	1.501	1.196	1.094	1.042	1.024	1.013	1.006	1.011	1.006	1.004	1.010	1.001	1.002	1.003	1.002	1.001	1.001	1.001	1.001	1.041	1.033	
Cumulative	6.772	2.399	1.598	1.336	1.221	1.172	1.145	1.129	1.123	1.111	1.105	1.101	1.090	1.089	1.087	1.083	1.080	1.079	1.078	1.077	1.076	1.033	
<u>(2) Medical Paid Losses</u>																							
2 Yr Average	1.953	1.131	1.051	1.029	1.011	1.013	1.010	1.012	1.013	1.012	1.010	1.009	1.008	1.008	1.007	1.004	1.003	1.002	1.004	1.004	1.104	1.000	
Cumulative	3.001	1.537	1.359	1.293	1.257	1.243	1.227	1.214	1.200	1.185	1.170	1.158	1.148	1.140	1.131	1.123	1.119	1.115	1.113	1.108	1.104	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.

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Section VII - Profit  
 Subsection G - Loss Flows  
 9/1/2012

Section VII - G  
 Exhibit 2  
 Page 2

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

Accident Year	Losses evaluated at Month:		Link Ratio	Accident Year	Losses evaluated at Month:		Link Ratio
	12	24			132	144	
2009	41,773	81,839	1.959	1999	91,685	92,929	1.014
2008	45,638	88,870	1.947	1998	78,255	78,791	1.007
Average			1.953	Average			1.010
	24	36			144	156	
2008	88,870	101,051	1.137	1998	78,791	79,458	1.008
2007	84,836	95,418	1.125	1997	64,937	65,538	1.009
Average			1.131	Average			1.009
	36	48			156	168	
2007	95,418	100,245	1.051	1997	65,538	66,059	1.008
2006	86,356	90,743	1.051	1996	68,699	69,186	1.007
Average			1.051	Average			1.008
	48	60			168	180	
2006	90,743	92,995	1.025	1996	69,186	69,825	1.009
2005	98,106	101,293	1.032	1995	66,589	67,052	1.007
Average			1.029	Average			1.008
	60	72			180	192	
2005	101,293	102,431	1.011	1995	67,052	67,517	1.007
2004	108,824	110,092	1.012	1994	74,244	74,711	1.006
Average			1.011	Average			1.007
	72	84			192	204	
2004	110,092	111,416	1.012	1994	74,711	75,091	1.005
2003	111,081	112,670	1.014	1993	85,348	85,606	1.003
Average			1.013	Average			1.004
	84	96			204	216	
2003	112,670	113,891	1.011	1993	85,606	85,880	1.003
2002	104,282	105,303	1.010	1992	104,068	104,384	1.003
Average			1.010	Average			1.003
	96	108			216	228	
2002	105,303	106,712	1.013	1992	104,384	104,782	1.004
2001	99,154	100,217	1.011	1991	138,755	138,739	1.000
Average			1.012	Average			1.002
	108	120			228	240	
2001	100,217	101,266	1.010	1991	138,739	139,294	1.004
2000	100,498	102,006	1.015	1990	149,951	150,637	1.005
Average			1.013	Average			1.004
	120	132			240	252	
2000	102,006	103,267	1.012	1990	150,637	151,260	1.004
1999	90,570	91,685	1.012	Average			1.004
Average			1.012				



# VII 000079

Section VII - Profit  
 Subsection H - Portfolio Rate of Return  
 9/1/2012

Section VII - H  
 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	7.17%	0.01%	35.00%	0.01%
Governments	13.46%	0.84%	35.00%	0.54%
States & Territories	12.22%	1.59%	5.25%	1.50%
Special Revenue	22.39%	1.66%	5.25%	1.57%
Industrials	25.56%	1.58%	35.00%	1.03%
Common Stocks	16.94%	8.54%	21.06%	6.74%
Real Estate	0.83%	3.95%	35.00%	2.57%
Preferred Stocks	1.43%	6.24%	14.18%	5.35%
(6) Total	100.00%	2.65%	20.35%	2.11%
(7) Investment Expenses		0.40%	35.00%	0.26%
(8) Portfolio Rate of Return		2.25%	17.74%	<b>1.85%</b>

**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).

Common stock return:  $r_f + b \times \text{MRP}$  with  $b=1.00$  and three horizons. MRP from Exhibit 4 and  $r_f$  from Exhibit 2, page 3, line (4) for short-term, line (9) for intermediate-term and line (12) for long-term horizon.  
 $8.54\% = \text{average} ( 8.15\% + 0.01\%, 7.15\% + 0.95\%, 6.62\% + 2.75\% )$

Real Estate: 3 month treasury rate, 0.01% Exhibit 2, page 3, line (4) plus the real estate differential, 3.94% from Ibbotson and Siegel, "Real Estate Returns: A Comparison with Other Investments".

Preferred Stock return: yield on A rated preferred stock from Mergent Bond Record (Exhibit 2, page 3, line (17)).

(4): Governments and Other taxable bonds taxed at Federal Tax Rate of 0.35.

Tax rate for Tax Exempt Bonds =  $0.15 \times 0.35$

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.

(5) = (3) x [ 1.0 - (4) ]

(7): Exhibit 5.

(8) = (6) - (7)

## VII 000080

Section VII - Profit  
 Subsection H - Portfolio Rate of Return  
 9/1/2012

Section VII - H  
 Exhibit 1  
 Page 2

### Asset Distribution for Property-Casualty Industry

Assets (1)	Net Admitted Assets (\$000) (2)	Share = (2) / (5) (3)	Adjusted Share = (3) / (6) (4)
Cash and Short Term Investments	88,825,880	6.62%	7.17%
Bonds:	912,341,007	68.01%	73.63%
Governments			13.46%
States & Territories			12.22%
Special Revenue			22.39%
Industrials			25.56%
Common Stocks	209,964,210	15.65%	16.94%
Real Estate	10,271,761	0.77%	0.83%
Preferred Stocks	17,693,934	1.32%	1.43%
Other Invested Assets	102,298,265	7.63%	

(5) Total 1,341,395,057 100.00% 100.00%

(6) Total excluding Other Invested Assets 92.37%

**Notes:**

Source: Best's Aggregates and Averages, 2011 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.

(4): The Adjusted Share for Bonds in total is 73.63%. This is allocated to the subcategories (Governments, States & Territories, Special Revenue and Industrials) by multiplying 73.63% by the adjusted bond weights from Exhibit 3.

# VII 000081

## 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	3.90%	0.55%	1.96%	4.39%
3	8.26%	6.30%	11.44%	16.21%
7	3.81%	5.74%	8.18%	10.85%
15	1.51%	3.41%	5.60%	1.31%
25	0.80%	0.59%	3.24%	1.95%
Total	18.29%	16.59%	30.41%	34.71%

As of	Term to Maturity in years	Yield Data			
		Governments	States and Territories	Special Revenue	Industrials
Oct-11	0.5	0.05%	0.17%	0.18%	0.30%
	3	0.47%	0.68%	0.67%	0.98%
	7	1.62%	1.96%	1.93%	2.55%
	15	2.51%	3.07%	3.04%	3.46%
	25	3.00%	3.80%	3.81%	3.97%
Nov-11	0.5	0.05%	0.16%	0.17%	0.28%
	3	0.39%	0.60%	0.58%	0.90%
	7	1.45%	1.82%	1.77%	2.42%
	15	2.37%	2.98%	2.94%	3.34%
	25	2.87%	3.73%	3.76%	3.86%
Dec-11	0.5	0.05%	0.13%	0.12%	0.25%
	3	0.39%	0.51%	0.54%	0.89%
	7	1.43%	1.61%	1.71%	2.40%
	15	2.33%	2.72%	2.85%	3.33%
	25	2.83%	3.56%	3.66%	3.88%
Oct-11	All	Weighted Yields			
		0.90%	1.71%	1.75%	1.65%
		0.81%	1.61%	1.65%	1.56%
		0.80%	1.44%	1.59%	1.54%
		<b>0.84%</b>	<b>1.59%</b>	<b>1.66%</b>	<b>1.58%</b>

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 Oct-11, States and Territories:  
 $1.71 = (0.17 \times 0.55 + 0.68 \times 6.3 + 1.96 \times 5.74 + 3.07 \times 3.41 + 3.8 \times 0.59) / 16.59$

# VII 000082

Section VII - Profit  
 Subsection H - Portfolio Rate of Return  
 9/1/2012

Section VII - H  
 Exhibit 2  
 Page 2

## Calculation of Yield Data

Term to Maturity in Years	Oct-11	Nov-11	Dec-11	Formulas used to derive the yields (reference to data on page 3)
<b>Governments</b>				
0.5	0.05%	0.05%	0.05%	=(5)
3	0.47%	0.39%	0.39%	=(8)
7	1.62%	1.45%	1.43%	=(10)
10	2.15%	2.01%	1.98%	=(11)
20	2.87%	2.72%	2.67%	=(12)
30	3.13%	3.02%	2.98%	=(13)
<b>States and Territories</b>				
0.5	0.17%	0.16%	0.13%	=(5) + 9.5/9.0 x [ (25) - (6) ] - 0.5/9.0 x [ (26) - (11) ]
3	0.68%	0.60%	0.51%	=(8) + 7.0/9.0 x [ (25) - (6) ] + 2.0/9.0 x [ (26) - (11) ]
7	1.96%	1.82%	1.61%	=(10) + 1.0/3.0 x [ (25) - (6) ] + 2.0/3.0 x [ (26) - (11) ]
10	2.59%	2.50%	2.21%	=(26)
20	3.55%	3.46%	3.24%	=(12) + 0.5 x [ (26) - (11) ] + 0.5 x [ (27) - (13) ]
30	4.05%	4.00%	3.89%	=(27)
<b>Special Revenue</b>				
0.5	0.18%	0.17%	0.12%	=(5) + 29.5/29.0 x [ (25) - (6) ] - 0.5/29.0 x [ (24) - (13) ]
3	0.67%	0.58%	0.54%	=(8) + 27.0/29.0 x [ (25) - (6) ] + 2.0/29.0 x [ (24) - (13) ]
7	1.93%	1.77%	1.71%	=(10) + 23.0/29.0 x [ (25) - (6) ] + 6.0/29.0 x [ (24) - (13) ]
10	2.54%	2.43%	2.35%	=(11) + 20.0/29.0 x [ (25) - (6) ] + 9.0/29.0 x [ (24) - (13) ]
20	3.54%	3.45%	3.35%	=(12) + 10.0/29.0 x [ (25) - (6) ] + 19.0/29.0 x [ (24) - (13) ]
30	4.08%	4.06%	3.97%	=(24)
<b>Industrial</b>				
0.5	0.30%	0.28%	0.25%	=(5) + 26.0/27.0 x [ (1) - (2) ] + 1.0/27.0 x [ (19) - (10) ]
3	0.98%	0.90%	0.89%	=(8) + 16.0/27.0 x [ (1) - (2) ] + 11.0/27.0 x [ (19) - (10) ]
7	2.55%	2.42%	2.40%	=(19)
10	3.09%	2.98%	2.97%	=(11) + 20.0/23.0 x [ (19) - (10) ] + 3.0/23.0 x [ (15) - (13) ]
20	3.83%	3.70%	3.70%	=(12) + 10.0/23.0 x [ (19) - (10) ] + 13.0/23.0 x [ (15) - (13) ]
30	4.11%	4.01%	4.06%	=(15)

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 Exhibit 2  
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## Yield Data

	Oct-11	Nov-11	Dec-11	Average
<b>FEDERAL RESERVE STATISTICAL RELEASE</b>				
Commercial Paper				
(1) 3-month	0.24%	0.21%	0.18%	0.21%
U.S. Govt Securities - Secondary Market				
(2) 3-month	0.02%	0.01%	0.01%	0.01%
Treasury Constant Maturities				
(3) 1-month	0.01%	0.01%	0.00%	0.01%
(4) 3-month	0.02%	0.01%	0.01%	0.01%
(5) 6-month	0.05%	0.05%	0.05%	0.05%
(6) 1-year	0.11%	0.11%	0.12%	0.11%
(7) 2-year	0.28%	0.25%	0.26%	0.26%
(8) 3-year	0.47%	0.39%	0.39%	0.42%
(9) 5-year	1.06%	0.91%	0.89%	0.95%
(10) 7-year	1.62%	1.45%	1.43%	1.50%
(11) 10-year	2.15%	2.01%	1.98%	2.05%
(12) 20-year	2.87%	2.72%	2.67%	2.75%
(13) 30-year	3.13%	3.02%	2.98%	3.04%
Corporate Bonds - Moody's Seasoned				
(14) Conventional Mortgages	4.07%	3.99%	3.96%	4.01%
<b>MERGENT BOND RECORD</b>				
Long-Term Corporate Bond Yields (avg maturity at least 20 yrs)				
(15) Aa Industrial	4.11%	4.01%	4.06%	4.06%
(16) Aa Public Utility	4.21%	3.92%	4.00%	4.04%
<b>YAHOO</b>				
(17) Preferred Stock	6.59%	6.01%	6.10%	6.24%
<b>S&amp;P's CREDIT WEEK</b>				
Aa Industrial				
(18) 5-year to maturity	1.99%	1.97%	1.95%	1.97%
(19) 7-year to maturity ( = (18) + 0.4 x [ (20) - (18) ] )	2.55%	2.42%	2.40%	2.46%
(20) 10-year to maturity	3.40%	3.10%	3.08%	3.19%
(21) 30-year to maturity ( = (15) )	4.11%	4.01%	4.06%	4.06%
A Public Utility				
(22) 7-year to maturity ( = [ (19) / (21) ] x (23) ] )	2.62%	2.37%	2.37%	2.45%
(23) 30-year to maturity ( = (16) )	4.21%	3.92%	4.00%	4.04%
<b>VALUE LINE INVESTMENT SURVEY (Part II)</b>				
Municipal Bond Yields				
Bond Buyer Indexes				
(24) 20-Bond Index (GOs)	4.08%	4.06%	3.97%	4.04%
General Obligation Bonds (GOs)				
(25) 1-year Aaa	0.25%	0.24%	0.21%	0.23%
(26) 10-year Aaa	2.59%	2.50%	2.21%	2.43%
(27) 25/30-year Aaa	4.05%	4.00%	3.89%	3.98%

Note:

Sources: Various issues of Federal Reserve Statistical Release, H.15 , Mergent Bond Record, Standard & Poor's Credit Week and Value Line Investment Survey, Part II, and <http://finance.yahoo.com>.

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 Exhibit 3

## Bond Distribution by Class and by Maturity for Property-Casualty Industry

### 2010 Industry Totals (\$000)

Term to Maturity in Years	Governments	States and Territories	Special Revenue	Industrials	Other Bonds	Total Bonds
0.5	35,793,902	5,065,860	17,947,955	40,310,022	5,107,909	104,225,649
3	75,786,067	57,812,405	104,948,155	148,760,608	698,273	388,005,508
7.5	34,972,683	52,622,735	75,066,503	99,517,181	359,584	262,538,686
15	13,837,826	31,260,927	51,352,562	11,989,332	607,891	109,048,538
25	7,379,139	5,454,282	29,708,911	17,905,645	2,270,114	62,718,091
Total	167,769,617	152,216,209	279,024,086	318,482,788	9,043,771	926,536,472

### % 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	3.86%	0.55%	1.94%	4.35%	0.55%	11.25%
3	8.18%	6.24%	11.33%	16.06%	0.08%	41.88%
7.5	3.77%	5.68%	8.10%	10.74%	0.04%	28.34%
15	1.49%	3.37%	5.54%	1.29%	0.07%	11.77%
25	0.80%	0.59%	3.21%	1.93%	0.25%	6.77%
Total	18.11%	16.43%	30.11%	34.37%	0.98%	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	3.90%	0.55%	1.96%	4.39%	10.80%
3	8.26%	6.30%	11.44%	16.21%	42.21%
7.5	3.81%	5.74%	8.18%	10.85%	28.58%
15	1.51%	3.41%	5.60%	1.31%	11.82%
25	0.80%	0.59%	3.24%	1.95%	6.59%
Total	18.29%	16.59%	30.41%	34.71%	100.00%

Notes:

Source: Best's Aggregates and Averages - Property-Casualty, 2011, pages 199-200.  
 Bonds less than a year adjusted to remove cash and short term investments.

Market Risk Premium

Year	Large Company Stocks Total Returns	Long-Term Government Bonds Income Returns	Interm.-Term Government Bonds Income Returns	Short - Term Total Returns	Long Term Risk Premium = (2) - (3)	Interm. Term Risk Premium = (2) - (4)	Short Term Risk Premium = (2) - (5)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(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	4.19	4.15	3.93	8.26	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	Large Company Stocks Total Returns	Long-Term Government Bonds Income Returns	Interm.-Term Government Bonds Income Returns	Short - Term Total Returns	Long Term Risk Premium = (2) - (3)	Interm. Term Risk Premium = (2) - (4)	Short Term Risk Premium = (2) - (5)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(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
Average	11.77	5.15	4.62	3.62	6.62	7.15	8.15

**Long-Term Market Risk Premium 6.62**  
**Intermediate-Term Market Risk Premium 7.15**  
**Short-Term Market Risk Premium 8.15**

Notes:

- Sources: SBBI, 2011 Valuation Yearbook from Ibbotson Associates and SBBI December 2011 Year End Report for Year 2011 values.  
 (2): Table B-1: Large Company Stocks, Total Returns, pages 164-165.  
 (3): Table B-7: Long Term Government Bonds Income Returns, page 176-177.  
 (4): Table B-11: Intermediate Term Government Bonds, Income Returns, pages 184-185.  
 (5): Table B-14: US Treasury Bills, Total Returns, pages 190-191.

Investment Expense to Invested Assets Ratio

Calendar Year	Total Investment Expense Incurred (\$000) (1)	Interest Expense (\$000) (2)	Depreciation of Real Estate (\$000) (3)	Aggregate Write-ins (\$000) (4)	Total Deductions = (1) + (2) + (3) + (4) (5)	Total Cash and Invested Assets (\$000) (6)	Ratio = (5) / (6) (7)
2001	2,401,142	975,916	363,182	513,466	4,253,706	781,730,299	0.54%
2002	2,282,667	1,009,027	377,121	667,290	4,336,105	848,344,235	0.51%
2003	2,618,719	650,543	381,157	524,392	4,174,811	967,703,877	0.43%
2004	2,510,188	666,498	380,398	578,543	4,135,627	1,086,486,764	0.38%
2005	2,583,504	790,938	390,271	598,809	4,363,522	1,170,135,319	0.37%
2006	2,738,201	780,924	400,014	654,734	4,573,873	1,264,555,809	0.36%
2007	2,829,153	1,549,136	419,219	655,075	5,452,583	1,330,400,451	0.41%
2008	2,799,958	1,174,734	454,098	281,611	4,710,401	1,246,387,298	0.38%
2009	2,811,669	1,286,304	444,840	216,379	4,759,192	1,302,970,319	0.37%
2010	3,065,150	1,189,192	449,041	197,863	4,901,246	1,359,025,844	0.36%
Average	2,664,035	1,007,321	405,934	488,816	4,566,107	1,135,774,022	0.40%

Notes:

Source: Best's Aggregates and Averages.

(1) - (4): Exhibit of Net Investment Income, page 150 (calendar year 2010).

(6): Exhibit of Assets, page 140 (calendar year 2010).

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%
Average	4.10%	7.42%

	Dividend	Capital Gains
(4) Weights	35.56%	64.44%
(5) Tax Rate	14.18%	24.86%
(6) Common Stock Tax Rate		<b>21.06%</b>

Notes:

Sources: SBBI, 2011 Valuation Yearbook from Ibbotson Associates and  
 SBBI December 2011 Year End Report for Year 2011 values.

(2): Table B-2: Large Company Stocks, Income Returns, pages 166-167.

(3): Table B-3: Large Company Stocks, Capital Appreciation Returns, pages 168-169.

(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) Interest Rate used in calculating the present value	8.86%
(3) Marginal Tax Rate	35.00%
(4) Annual Expected Capital Gains Rate	7.42%

Year (5)	Investment Basis (6) <sub>t-1</sub> 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) <sub>t-1</sub> - (9) <sub>t-1</sub> (7)	End of Year (7) x [1.0 + (4)] (8)				
0	1,000,000.00	1,000,000.00	1,074,227.91	386,722.05	26,722.05	9,352.72	8,964.01
1	640,000.00	687,505.86	738,537.98	265,873.67	35,473.67	12,415.79	10,931.20
2	409,600.00	472,664.31	507,749.19	182,789.71	35,333.71	12,366.80	10,001.84
3	262,144.00	324,959.48	349,080.54	125,669.00	31,297.16	10,954.00	8,138.13
4	167,772.16	223,411.55	239,994.92	86,398.17	26,000.19	9,100.07	6,210.48
5	107,374.18	153,596.75	164,997.91	59,399.25	20,744.54	7,260.59	4,551.78
6	68,719.48	105,598.66	113,437.03	40,837.33	16,098.32	5,634.41	3,244.79
7	43,980.47	72,599.70	77,988.62	28,075.90	12,242.94	4,285.03	2,266.84
8	28,147.50	49,912.72	53,617.64	19,302.35	9,169.25	3,209.24	1,559.55
9	18,014.40	34,315.29	36,862.44	13,270.48	6,785.29	2,374.85	1,060.14
10	11,529.22	23,591.96	25,343.14	9,123.53	4,973.01	1,740.55	713.74
11	7,378.70	16,219.61	17,423.56	6,272.48	3,616.15	1,265.65	476.76
12	4,722.37	11,151.08	11,978.80	4,312.37	2,612.32	914.31	316.38
13	3,022.31	7,666.43	8,235.49	2,964.78	1,876.74	656.86	208.79
14	1,934.28	5,270.72	5,661.95	2,038.30	1,341.96	469.69	137.14
15	1,237.94	3,623.65	3,892.62	1,401.34	955.69	334.49	89.72
16	792.28	2,491.28	2,676.20	963.43	678.21	237.37	58.49
17	507.06	1,712.77	1,839.90	662.37	479.82	167.94	38.01
18	324.52	1,177.54	1,264.95	455.38	338.55	118.49	24.64
19	207.69	809.56	869.66	313.08	238.31	83.41	15.93
20	132.92	556.58	597.89	597.89	464.97	162.74	28.55
Total					237,442.86	83,105.00	59,036.89

(13) Implied Tax Rate on Capital Gains 24.86%

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 - C, Exhibit 1.
- (4): Page 1.
- (10) Year 20 : All remaining capital gains are assumed realized in year 20.
- (12) = (11) x { [ 1.0 + (2) ]<sup>t</sup> - [ (5) + 0.5 ] }
- (13) = (12) Total / (10) Total

060000 IIA

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	17.98%	16.44%	15.13%	14.02%	13.07%	12.25%	11.54%	10.93%	10.40%	9.93%	9.52%	9.17%
	0.15	19.57%	18.21%	17.03%	16.00%	15.09%	14.30%	13.59%	12.97%	12.42%	11.92%	11.48%	11.08%
	0.20	21.04%	19.87%	18.82%	17.88%	17.05%	16.30%	15.63%	15.02%	14.46%	13.96%	13.50%	13.08%
	0.25	22.28%	21.27%	20.35%	19.52%	18.77%	18.08%	17.45%	16.87%	16.33%	15.84%	15.39%	14.96%
	0.30	23.25%	22.39%	21.59%	20.86%	20.19%	19.56%	18.98%	18.45%	17.94%	17.47%	17.04%	16.63%
	0.35	24.00%	23.26%	22.58%	21.93%	21.34%	20.78%	20.25%	19.76%	19.29%	18.85%	18.44%	18.05%
	0.40	24.59%	23.95%	23.36%	22.79%	22.26%	21.76%	21.29%	20.84%	20.42%	20.01%	19.63%	19.27%
	0.45	25.05%	24.50%	23.98%	23.49%	23.02%	22.57%	22.15%	21.75%	21.36%	20.99%	20.64%	20.31%
	0.50	25.43%	24.95%	24.50%	24.06%	23.65%	23.25%	22.87%	22.51%	22.16%	21.83%	21.51%	21.20%
	0.55	25.74%	25.32%	24.92%	24.54%	24.18%	23.83%	23.49%	23.16%	22.85%	22.55%	22.26%	21.98%
	0.60	26.00%	25.64%	25.29%	24.95%	24.63%	24.32%	24.02%	23.73%	23.45%	23.18%	22.91%	22.66%
	0.65	26.22%	25.90%	25.60%	25.30%	25.02%	24.74%	24.48%	24.22%	23.97%	23.73%	23.49%	23.26%
0.70	26.41%	26.13%	25.87%	25.61%	25.36%	25.12%	24.88%	24.65%	24.43%	24.21%	24.00%	23.80%	



**THE WORKERS' COMPENSATION  
RATING AND INSPECTION BUREAU**

**MASSACHUSETTS  
WORKERS' COMPENSATION  
INSURANCE RATE FILING**

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**Volume 2 of 3**

<b>Section VIII</b>	<b>F-Class Rate Recommendation</b>
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***Recommended Effective Date: September 1, 2012***  
***Filing Date: March 1, 2012***

# 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 tempering year-to-year variations, this section of the filing recommends that average rates for F-Class classifications be increased by 20.0% for the policy period beginning September 1, 2012. Because there is relatively little exposure in the F-Classes, the impact of the proposed increase in rates for the F-Classes on the overall premiums to be paid in Massachusetts for workers' compensation coverage is less than 0.1%.

**Overall Rate Indication**

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

## VIII 000002

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 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 18.6% of incurred indemnity losses covered under the USL&HW Act.

### **Calculation of Adjusted Standard Earned Premium**

To derive an indicated loss ratio, the premiums from policy years 2005 - 2009 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 2005 - 2009 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. Moreover, indemnity and medical loss data are adjusted separately because of differences in loss development and trend. 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 were 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. 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.

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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 19.2% 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 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 \$23,800,000 and \$6,800,000 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 benefit change and half the experience change (see Section VIII-H). This is similar to the method used by NCCI and the same as 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**

Section VIII-I contains a sample rate calculation for Class 6872, Ship Repair Conversion. 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

## VIII 000007

Section VIII – Rate Recommendation  
Subsection A – F-Class Rate Recommendation  
9/1/2012

Section VIII-A  
Page 7

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 9/1/2010 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 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 1.111. The calculation is shown in Section VIII-K.

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Section VIII - F-Class Recommendation  
Subsection A - Indicated Rate Change  
9/1/2012

Section VIII-A  
Exhibit 1

### F-Class Rate Review Overall Indicated Rate Change

(1)	5-Year Adjusted Standard Plus ARAP Earned Premium	16,078,783
(2)	5-Year Adjusted Losses, LAE, and LBA	16,748,166
(3)	5-Year Adjusted Loss, LAE, and LBA Ratio = (2) / (1)	104.2%
(4)	Fixed Expense Ratio	6.1%
(5)	Indicated Policy Year 9/1/2012 Loss, LAE, Fixed Expense Ratio = (3) + (4)	110.2%
(6)	Variable Expense Ratio	19.0%
(7)	Profit and Contingencies	6.8%
(8)	Permissible Loss, LAE, LBA, and Fixed Expense Ratio = 1.000 - [ (6) + (7) ]	74.2%
(9)	Indicated Average Rate Change = [ (5) / (8) ] - 1.000	<b>48.6%</b>
(10)	Selected Average Rate Change	<b>20.0%</b>

Notes:

(1): Section VIII-B, Exhibit 1.

(2): Section VIII-C, Exhibit 1, Page 2 and 4.

(4): Average of Fixed Expense Ratios for 2 PYs from Section VI-B, Exhibit 1.

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

(7): Section VI-A, Exhibit 1.

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Section VIII - F-Class Recommendation  
Subsection B - Adjusted Premium  
9/1/2012

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)
2005	5,475,980	1.000	0.997	1.049	5,727,070
2006	2,714,720	1.000	0.997	1.049	2,838,637
2007	2,977,802	1.000	0.997	1.049	3,113,939
2008	2,011,453	1.007	0.997	1.049	2,118,939
2009	2,159,907	1.009	0.997	1.049	2,280,198
Total	15,339,862				16,078,783

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 9/1/2010 Stipulation.

(5): The offset for ARAP from the 9/1/2010 Stipulation.

(6) = (2) x (3) x (4) x (5)

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Section VIII - F-Class Recommendation  
 Subsection C - Adjusted Losses  
 9/1/2012

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				
	2005	2006	2007	2008	2009
Fatal	0	0	0	0	0
Permanent Total	0	164,360	468,898	13,721	0
Major Permanent Partial	1,681,644	1,085,828	220,642	161,780	0
Minor Permanent Partial	113,250	44,791	78,078	50,579	20,074
Temporary Total	224,365	46,706	107,967	54,667	163,788
<b>Medical</b>					
Fatal	0	0	0	0	0
Permanent Total	0	335,640	31,102	4,026	0
Major Permanent Partial	602,637	306,342	299,534	36,120	0
Minor Permanent Partial	298,241	25,340	124,574	61,550	24,000
Temporary Total	73,239	87,216	86,895	71,778	156,170
Medical Only	30,904	53,926	37,073	15,805	18,327

(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				
	2005	2006	2007	2008	2009
Fatal	0	0	0	0	0
Permanent Total	0	329,754	939,446	31,899	0
Major Permanent Partial	3,519,077	2,106,700	458,239	439,702	0
Minor Permanent Partial	209,197	97,774	158,447	129,294	52,389
Temporary Total	443,850	91,181	237,716	127,224	474,274
<b>Medical</b>					
Fatal	0	0	0	0	0
Permanent Total	0	856,343	122,986	11,525	0
Major Permanent Partial	1,909,643	818,225	572,129	113,232	0
Minor Permanent Partial	571,003	66,964	246,120	136,611	44,736
Temporary Total	187,954	178,642	193,927	154,112	341,082
Medical Only	40,743	72,006	50,731	23,912	31,766

Note:

(B): Exhibit G.

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Section VIII - F-Class Recommendation  
 Subsection C - Adjusted Losses  
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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	0.896
Permanent Total	0.868
Major Permanent Partial	1.010
Minor Permanent Partial	1.022
Temporary Total	1.015
<b>Medical</b>	
Fatal	1.000
Permanent Total	0.870
Major Permanent Partial	1.013
Minor Permanent Partial	1.024
Temporary Total	1.018
Medical Only	1.000

### (D). Adjusted Losses

Indemnity	Policy Year				
	2005	2006	2007	2008	2009
Fatal	0	0	0	0	0
Permanent Total	0	379,773	1,081,944	36,737	0
Major Permanent Partial	3,483,060	2,085,138	453,549	435,201	0
Minor Permanent Partial	204,665	95,655	155,014	126,493	51,254
Temporary Total	437,087	89,792	234,094	125,286	467,048
<b>Medical</b>					
Fatal	0	0	0	0	0
Permanent Total	0	984,113	141,336	13,244	0
Major Permanent Partial	1,886,029	808,107	565,054	111,832	0
Minor Permanent Partial	557,430	65,372	240,270	133,364	43,673
Temporary Total	184,692	175,541	190,561	151,437	335,162
Medical Only	40,743	72,006	50,731	23,912	31,766
Adjusted Losses, LAE, LBA	16,748,166				

#### Notes:

(C): Section IX - B, Exhibit 4.

(D) = (B) / (C)

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Section VIII - F-Class Recommendation  
 Subsection C - Adjusted Losses  
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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				
	2005	2006	2007	2008	2009
Fatal	0	0	0	0	0
Permanent Total	0	0	0	0	0
Major Permanent Partial	0	0	0	0	0
Minor Permanent Partial	0	0	0	0	0
Temporary Total	0	0	0	0	0
<b>Medical</b>					
Fatal	0	0	0	0	0
Permanent Total	0	0	0	0	0
Major Permanent Partial	0	0	0	0	0
Minor 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				
	2005	2006	2007	2008	2009
Fatal	0	0	0	0	0
Permanent Total	0	0	0	0	0
Major Permanent Partial	0	0	0	0	0
Minor Permanent Partial	0	0	0	0	0
Temporary Total	0	0	0	0	0
<b>Medical</b>					
Fatal	0	0	0	0	0
Permanent Total	0	0	0	0	0
Major Permanent Partial	0	0	0	0	0
Minor Permanent Partial	0	0	0	0	0
Temporary Total	0	0	0	0	0
Medical Only	0	0	0	0	0

Notes:

(B): Exhibit G.

# VIII 000013

Section VIII - F-Class Recommendation  
 Subsection C - Adjusted Losses  
 9/1/2012

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	0.896
Permanent Total	0.868
Major Permanent Partial	1.010
Minor Permanent Partial	1.022
Temporary Total	1.015
<b>Medical</b>	
Fatal	1.000
Permanent Total	0.870
Major Permanent Partial	1.013
Minor Permanent Partial	1.024
Temporary Total	1.018
Medical Only	1.000

(D). Adjusted Losses

Indemnity	Policy Year				
	2005	2006	2007	2008	2009
Fatal	0	0	0	0	0
Permanent Total	0	0	0	0	0
Major Permanent Partial	0	0	0	0	0
Minor Permanent Partial	0	0	0	0	0
Temporary Total	0	0	0	0	0
<b>Medical</b>					
Fatal	0	0	0	0	0
Permanent Total	0	0	0	0	0
Major Permanent Partial	0	0	0	0	0
Minor 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 000014

Section VIII - F-Class Recommendation  
Subsection D - Proposed Rates  
9/1/2012

Section VIII-D  
Exhibit 1

## Proposed Rates and Rating Values to be Effective 9/1/2012

Class Code (1)	Manual Rate (2)	Minimum Premium (3)	Loss Constant (4)	Expected Loss Rate (5)	D-Ratio (6)
6801	15.47	500	0	5.47	0.19
6824	12.95	500	0	4.29	0.18
6826	12.39	500	0	4.38	0.19
6843	17.55	500	0	5.55	0.18
6872	44.43	500	0	14.06	0.19
6874	32.90	500	0	10.41	0.17
7309	33.99	500	0	10.75	0.17
7313	18.78	500	0	5.94	0.15
7317	17.94	500	0	5.68	0.16
7327	41.07	500	0	12.99	0.17
7350	21.24	500	0	7.03	0.17
8709	8.33	500	0	2.63	0.18
8726	6.85	490	0	2.42	0.19
9077	5.86	455	0	2.09	0.25

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 000015

Section VIII - F-Class Recommendation  
 Subsection E - Conversion/Excess Loss Factors  
 9/1/2012

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				
	2005	2006	2007	2008	2009
Fatal	1.054	1.048	1.041	1.029	1.020
Permanent Total	1.034	1.032	1.028	1.021	1.016
Major Permanent Partial	1.009	1.008	1.007	1.006	1.005
Minor Permanent Partial	1.009	1.008	1.007	1.006	1.005
Temporary Total	1.034	1.032	1.028	1.021	1.016
<b>Medical</b>					
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				
	2005	2006	2007	2008	2009
Likely	1.126	1.152	1.266	1.542	2.611
Not Likely	1.016	1.028	1.099	1.230	1.595
<b>Medical</b>					
Likely	1.362	1.422	1.489	1.595	1.793
Not Likely	1.056	1.048	1.048	1.079	1.134

### (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				
	2005	2006	2007	2008	2009
All Injury Types	1.020	1.062	1.087	1.042	1.001
<b>Medical</b>					
Lost Time Medical	1.131	1.136	1.134	1.151	1.040
Medical Only	0.796	0.825	0.829	0.864	0.912

### (D). Primary Conversion Factors (PCF)

Indemnity	Policy Year				
	2005	2006	2007	2008	2009
Fatal - LD	1.211	1.283	1.433	1.654	2.666
Fatal - NLD	1.093	1.145	1.244	1.319	1.629
Permanent Total	1.188	1.262	1.414	1.641	2.657
Major Permanent Partial - LD	1.159	1.234	1.386	1.617	2.629
Major Permanent Partial - NLD	1.046	1.101	1.203	1.290	1.606
Minor Permanent Partial - LD	1.159	1.234	1.386	1.617	2.629
Minor Permanent Partial - NLD	1.046	1.101	1.203	1.290	1.606
Temporary Total - LD	1.188	1.262	1.414	1.641	2.657
Temporary Total - NLD	1.072	1.127	1.228	1.309	1.623
<b>Medical</b>					
Lost Time Medical -LD	1.540	1.616	1.688	1.836	1.864
Lost Time Medical -NLD	1.194	1.191	1.188	1.242	1.179
Medical - NLD	0.841	0.864	0.868	0.932	1.034

#### Notes:

- (A): Section IV-F, Exhibit 1.
- (B): NCCI.
- (C): Section IX-B, Exhibit 3.
- (D) = (A) x (B) x (C)

# VIII 000016

Section VIII - F-Class Recommendation  
 Subsection E - Conversion/Excess Loss Factors  
 9/1/2012

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	1.192	1.192

(B). Loss Based Assessments (Special Fund Assessment)

	Indemnity	Medical
Loss Based Assessments	0.186	0.000

(C). Investment Income Offset Factor

The following factor is applied to adjust for investment income.

	Investment Income Offset Factor
<b>Indemnity</b>	
Fatal	0.896
Permanent Total	0.868
Major Permanent Partial	1.010
Minor Permanent Partial	1.022
Temporary Total	1.015
<b>Medical</b>	
Fatal	1.000
Permanent Total	0.870
Major Permanent Partial	1.013
Minor Permanent Partial	1.024
Temporary Total	1.018
Medical Only	1.000

(D). Secondary Conversion Factors (SCF)

<b>Indemnity</b>	
Fatal	1.234
Permanent Total	1.197
Major Permanent Partial	1.393
Minor Permanent Partial	1.409
Temporary Total	1.400
<b>Medical</b>	
Fatal	1.192
Permanent Total	1.037
Major Permanent Partial	1.207
Minor Permanent Partial	1.221
Temporary Total	1.213
Medical Only	1.192

Notes:

- (A): Section VI-A, Exhibit 1.
- (B): NCCI Tax and Assessment Directory.
- (C): Section IX-B, Exhibit 4.
- (D) = [(A) + (B)] x (C)

# VIII 000017

Section VIII - F-Class Recommendation  
 Subsection E - Conversion/Excess Loss Factors  
 9/1/2012

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

Indemnity	Policy Year				
	2005	2006	2007	2008	2009
Fatal - LD	1.041	1.120	1.251	1.377	1.982
Fatal - NLD	1.046	1.113	1.192	1.265	1.603
Permanent Total	1.053	1.130	1.259	1.383	1.989
Major Permanent Partial - LD	1.085	1.156	1.281	1.398	2.007
Major Permanent Partial - NLD	1.091	1.150	1.220	1.284	1.622
Minor Permanent Partial - LD	1.085	1.156	1.281	1.398	2.007
Minor Permanent Partial - NLD	1.091	1.150	1.220	1.284	1.622
Temporary Total - LD	1.035	1.115	1.247	1.374	1.978
Temporary Total - NLD	1.040	1.108	1.188	1.262	1.599
<b>Medical</b>					
Lost Time Medical - LD	1.210	1.239	1.327	1.438	1.437
Lost Time Medical - NLD	1.174	1.187	1.185	1.221	1.135
Medical - NLD	0.827	0.862	0.866	0.917	0.996

### (B). Secondary State Conversion Factors

Indemnity	
Fatal	1.068
Permanent Total	1.035
Major Permanent Partial	1.204
Minor Permanent Partial	1.218
Temporary Total	1.210
<b>Medical</b>	
Fatal	1.192
Permanent Total	1.037
Major Permanent Partial	1.207
Minor Permanent Partial	1.221
Temporary Total	1.213
Medical Only	1.192

**Notes:**

- (A): Section IX-B, Exhibit 1, Page 1.
- (B): Section IX-B, Exhibit 1, Page 2.

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)	Indemnity				Limited Losses				Converted Limited Losses				Total (12)		
		Likely (3)		Not Likely (4)		Likely (5)		Not Likely (6)		Likely (8)		Not Likely (9)			Likely (10)	Not Likely (11)
2005	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	1,277,395	404,249	0	507,668	94,969	2,284,281	1,480,353	422,712	781,732	113,383	2,798,180	356,068	474,490	0	0
	4	0	113,250	0	0	298,241	411,491	0	118,422	0	0	474,490	0	0	0	0
	5	1	224,364	0	0	73,239	297,604	1	240,518	0	0	327,958	87,439	0	0	0
	6	0	0	0	0	30,904	30,904	0	0	0	0	25,989	25,989	0	0	0
2006	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	164,360	0	0	335,640	0	500,000	207,499	0	542,236	0	749,735	0	0	0	0
	3	77,955	1,007,873	0	39,124	267,218	1,392,170	96,186	1,109,718	63,206	318,157	1,587,267	15,670	89,078	0	0
	4	33,249	11,542	0	12,179	13,161	70,131	41,025	12,708	19,675	0	89,078	0	0	0	0
	5	0	46,706	0	0	87,216	133,922	0	52,618	0	103,842	156,460	0	0	0	0
	6	0	0	0	0	53,926	53,926	0	0	0	46,611	46,611	0	0	0	0
2007	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	468,898	0	0	31,102	0	500,000	663,087	0	52,508	0	715,595	0	0	0	0
	3	0	220,642	0	0	299,534	520,176	0	265,497	0	355,918	621,415	0	0	0	0
	4	5,284	72,794	0	12,263	112,311	202,652	7,324	87,592	20,703	133,452	249,071	0	0	0	0
	5	0	107,967	0	0	86,895	194,862	0	132,540	0	103,252	235,792	0	0	0	0
	6	0	0	0	0	37,073	37,073	0	0	0	32,194	32,194	0	0	0	0
2008	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	13,721	0	0	4,026	0	17,747	22,515	0	7,393	0	29,908	0	0	0	0
	3	110,839	50,941	0	6,013	30,107	197,900	179,212	65,700	11,041	37,399	293,352	0	0	0	0
	4	36,487	14,092	0	14,467	47,083	112,129	58,995	18,175	26,565	58,487	162,222	0	0	0	0
	5	0	54,667	0	0	71,778	126,445	0	71,554	0	89,164	160,718	0	0	0	0
	6	0	0	0	0	15,805	15,805	0	0	0	14,733	14,733	0	0	0	0
2009	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	20,074	0	0	24,000	44,074	0	32,234	0	28,295	60,529	0	0	0	0
	5	0	163,788	0	0	156,170	319,958	0	265,812	0	184,121	449,933	0	0	0	0
	6	0	0	0	0	18,327	18,327	0	0	0	18,957	18,957	0	0	0	0
All Years, All Injury		2,188,189	2,512,949	962,482	1,817,957	2,756,197	7,481,577	2,895,800	1,525,059	2,123,131	9,300,187	2,123,131	9,300,187	2,123,131	9,300,187	9,300,187

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)

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						Total (12)	Exposure (13)	
		Indemnity			Medical			Indemnity			Medical					
		Likely (3)	Not Likely (4)	Total (7)	Likely (5)	Not Likely (6)	Total (7)	Likely (8)	Not Likely (9)	Total (10)	Likely (10)	Not Likely (11)	Total (12)			
2005	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	318,133
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	485,408	138,607	574,218	112,515	1,310,748	2,737,414	781,663	1,636,934	272,709	5,428,720					
	4	0	30,069	0	11,459	141,528	0	209,197	0	571,003	780,200					
	5	0	76,602	0	67,465	144,067	2	443,848	0	187,954	631,804					
	6	0	0	0	8,182	8,182	0	0	0	40,743	40,743					
2006	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	179,778
	2	68,039	0	283,158	0	351,197	329,754	0	856,343	0	1,186,097					
	3	31,539	275,396	43,124	253,288	603,347	177,863	1,928,837	128,364	689,861	2,924,925					
	4	13,452	2,216	14,982	4,502	35,152	76,748	21,026	42,328	24,636	164,738					
	5	0	12,529	0	43,388	55,917	0	91,181	0	178,642	269,823					
	6	0	0	0	13,782	13,782	0	0	0	72,006	72,006					
2007	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	198,853
	2	121,901	0	66,033	0	187,934	939,446	0	122,986	0	1,062,432					
	3	0	63,568	0	118,004	181,572	0	458,239	0	572,129	1,030,368					
	4	2,402	15,150	10,727	36,636	64,915	13,702	144,745	38,387	207,734	404,568					
	5	0	37,303	0	56,575	93,878	0	237,716	0	193,927	431,643					
	6	0	0	0	10,354	10,354	0	0	0	50,731	50,731					
2008	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	167,776
	2	4,139	0	3,715	0	7,854	31,899	0	11,525	0	43,424					
	3	58,764	12,078	30,357	14,998	116,197	331,392	108,309	49,977	63,256	552,934					
	4	10,768	3,838	11,391	15,411	41,408	98,282	31,011	46,357	90,254	265,904					
	5	0	19,345	0	37,849	57,194	0	127,224	0	154,112	281,336					
	6	0	0	0	5,323	5,323	0	0	0	23,912	23,912					
2009	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	175,807
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	4,953	0	8,334	13,287	0	52,389	0	44,736	97,125					
	5	0	73,047	0	96,986	170,033	0	474,274	0	341,082	815,356					
	6	0	0	0	7,686	7,686	0	0	0	31,766	31,766					
(14) All Years and Injury Types		796,412	764,701	1,037,705	1,022,737	3,621,555	4,736,502	5,109,659	2,933,201	3,811,193	16,590,555					
(15) Pure Premium							4,553	4,911	2,819	3,663	15,947					

Notes:  
 (3), (4) =  $0.7 \times [\text{Excess Factor} - 1.0] \times \text{Indemnity Converted Limited Losses}$ . Excess Factor from Section IX-B, Exhibit 5 and Indemnity Converted Limited Losses from Page 1, Columns (8) and (9).  
 (5), (6) =  $[\text{Excess Factor} - 1.0] \times \text{Medical Converted Limited Losses} + 0.3 \times [\text{Excess Factor} - 1.0] \times \text{Indemnity Converted Limited Losses}$ . 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 - 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.

Calculation of Manual Premium by Extension of Exposures  
 Federal Industry Group  
 All Classes

Class Code	Exposure By Policy Year					Current Rate	Manual Premium					Total = (7) x (8) (14)
	2005 (2)	2006 (3)	2007 (4)	2008 (5)	2009 (6)		Total (7)	2005 = (2) x (8) (9)	2006 = (3) x (8) (10)	2007 = (4) x (8) (11)	2008 = (5) x (8) (12)	
6801	0	0	0	0	0	12.10	0	0	0	0	0	0
6824	46,262	52,300	54,273	30,981	35,677	10.18	470,947	532,414	552,499	315,387	363,192	2,234,439
6826	6,101	8,223	11,246	21,363	18,412	11.56	70,528	95,058	130,004	246,956	212,843	755,388
6843	0	0	0	0	0	13.73	0	0	0	0	0	0
6872	43,542	32,369	36,719	9,252	12,357	34.76	1,513,520	1,125,146	1,276,352	321,600	429,529	4,666,148
6874	1,095	1,532	483	1,979	1,650	32.64	35,741	50,004	15,765	64,595	53,856	219,961
7309	10,995	6,467	6,675	6,901	6,828	35.39	389,113	228,867	236,228	244,226	241,643	1,340,078
7313	0	0	0	0	0	14.69	0	0	0	0	0	0
7317	84	65	1,010	1,868	3,892	14.04	1,179	913	14,180	26,227	54,644	97,143
7327	42,021	461	403	220	121	32.13	1,350,135	14,812	12,948	7,069	3,888	1,388,851
7350	49,770	10,938	11,213	11,119	11,007	16.61	826,680	181,680	186,248	184,687	182,826	1,562,121
8709	49,341	420	536	8,004	2,265	6.51	321,210	2,734	3,489	52,106	14,745	394,285
8726	68,922	67,003	76,295	76,089	83,598	7.21	496,928	483,092	550,087	548,602	602,742	2,681,449
9077	0	0	0	0	0	4.58	0	0	0	0	0	0
Total	318,133	179,778	198,853	167,776	175,807	4.58	5,475,980	2,714,720	2,977,802	2,011,453	2,159,907	15,339,862

Notes:  
 (2) - (7): Unit Statistical Plan data.

Section VIII - F-Class Recommendation  
Subsection F - Proposed Pure Premium Relativities  
9/1/2012

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)	Benefit Level Change Factor (8)	Trend (9)	Pure Premium Underlying Present Rate Factor = $(3) \times (5) \times (6) \times (7) \times (8) \times (9)$ (10)
Federal	Indemnity	17,488	10,381	0.575	0.757	0.984	1,006	1.001	7,544
	Medical	17,488	7,666	0.425	0.757	0.984	1,000	1.012	5,602
	Total		18,047						

Notes:

- (3): Section VIII-H, Exhibit 1 of the 9/1/2010 Stipulation.
- (4): Based on the most recently filed pure premium relativities for F-Class.
- (6): Section VI-A, Exhibit 1 of the 9/1/2010 Stipulation.
- (7): Change in load from Section VIII-K, Exhibit 1 and the 9/1/2010 Stipulation.
- (8): Weighted average of Section IV-A, Exhibit 1 and Section IV-F, Exhibit 1.
- (9): Section V-A, Exhibit 1.

## VIII 000022

Section VIII - F-Class Recommendation  
Subsection F - Proposed Pure Premium Relativities  
9/1/2012

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	0.783	1.023	5.904	5.728	11.632
6824	0.534	0.514	4.031	2.878	6.909
6826	0.526	0.693	3.968	3.882	7.850
6843	1.115	1.158	8.413	6.485	14.898
6872	2.365	2.946	17.842	16.504	34.346
6874	1.903	1.392	14.359	7.796	22.154
7309	2.073	1.496	15.636	8.380	24.017
7313	1.259	0.755	9.502	4.228	13.730
7317	6.296	3.488	47.497	19.537	67.035
7327	1.859	1.495	14.025	8.377	22.401
7350	0.863	0.852	6.508	4.772	11.280
8709	0.361	0.303	2.726	1.695	4.421
8726	0.371	0.348	2.799	1.951	4.750
9077	0.201	1.116	1.519	6.249	7.768

Notes:

(2), (3): Section VIII-H, Exhibit 2 of the 09/01/2010 Stipulation.

(4), (5) = (2),(3) x Pure Premium Underlying Present Rate Factors from Exhibit

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Section VIII - G  
 Exhibit 1

## Calculation of Class Relativities

Class(es): 6801 BOAT BUILDING - WOOD - NOC & DRIVERS: US ACT									Effective: 9/1/2012			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)			
2005	0	0	0	0	0	0	0	0	0.000	0.000	0.000			
2006	0	0	0	0	0	0	0	0	0.000	0.000	0.000			
2007	0	0	0	0	0	0	0	0	0.000	0.000	0.000			
2008	0	0	0	0	0	0	0	0	0.000	0.000	0.000			
2009	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:	2.591	2.686	5.277
(16) Countrywide Indicated Relativity:	0.335	0.431	.
(17) Countrywide Credibility:	0.140	0.140	.
(18) Countrywide Lost-Time Claims:	8.000	.	.
(19) Pure Premium Underlying Present Rate:	5.904	5.728	11.632
(20) Relativity to Underlying Present Rate:	0.880	1.136	.
(21) Credibility to Underlying Relativity:	0.860	0.860	.
(22) Industry Group Converted Pure Premium:	9.464	6.483	15.947
(23) Formula Relativity:	0.803	1.037	.
(24) Balanced Formula Relativity:	0.792	0.958	0.860

Class(es): 6824 BOAT BUILDING OR REPAIRING & DRIVERS: US ACT									Effective: 9/1/2012			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)			
2005	46.262	0	32	0	19.135	0	37.448	56.583	0.414	0.809	1.223			
2006	52.300	0	10	0	0	0	44.623	44.623	0.000	0.853	0.853			
2007	54.273	0	20	0	56.941	0	48.503	105.444	1.049	0.894	1.943			
2008	30.981	0	7	0	34.069	0	85.976	120.045	1.100	2.775	3.875			
2009	35.677	0	7	0	0	0	8.550	8.550	0.000	0.240	0.240			
MA Total:	219.493	0	76	0	110.145	0	225.100	335.245	0.502	1.026	1.527			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.053	0.158	.
(14) Massachusetts Credibility:	0.270	0.390	.
(15) Countrywide Pure Premium:	7.526	6.870	14.396
(16) Countrywide Indicated Relativity:	0.972	1.101	.
(17) Countrywide Credibility:	0.370	0.310	.
(18) Countrywide Lost-Time Claims:	161.00	.	.
(19) Pure Premium Underlying Present Rate:	4.031	2.878	6.909
(20) Relativity to Underlying Present Rate:	0.601	0.571	.
(21) Credibility to Underlying Relativity:	0.360	0.300	.
(22) Industry Group Converted Pure Premium:	9.464	6.483	15.947
(23) Formula Relativity:	0.590	0.574	.
(24) Balanced Formula Relativity:	0.582	0.531	0.561

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 Exhibit 2

## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							Federal Class Codes		
6826 MARINA & 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)
2005	6,101	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	8,223	0	10	0	30,309	0	41,363	71,672	3,686	5,030	8,716
2007	11,246	0	1	0	0	0	87	87	0.000	0.008	0.008
2008	21,363	1	10	4,186	30,495	7,121	96,808	138,610	1,623	4,865	6,488
2009	18,412	0	5	0	105,757	0	119,405	225,163	5,744	6,485	12,229
<b>MA Total:</b>	<b>65,345</b>	<b>1</b>	<b>26</b>	<b>4,186</b>	<b>166,561</b>	<b>7,121</b>	<b>257,663</b>	<b>435,532</b>	<b>2,613</b>	<b>4,052</b>	<b>6,665</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.276	0.625	.
(14) Massachusetts Credibility:	0.160	0.270	.
(15) Countrywide Pure Premium:	3.251	2.658	5.909
(16) Countrywide Indicated Relativity:	0.420	0.426	.
(17) Countrywide Credibility:	0.230	0.240	.
(18) Countrywide Lost-Time Claims:	29.000	.	.
(19) Pure Premium Underlying Present Rate:	3.968	3.882	7.850
(20) Relativity to Underlying Present Rate:	0.591	0.770	.
(21) Credibility to Underlying Relativity:	0.610	0.490	.
(22) Industry Group Converted Pure Premium:	9.464	6.483	15.947
(23) Formula Relativity:	0.501	0.648	.
(24) Balanced Formula Relativity:	0.494	0.599	0.537

Class(es):		Effective: 9/1/2012							Federal Class Codes		
6843 SHIP BUILDING-IRON OR STEEL-NOC & 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)
2005	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	0	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

	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:	11.101	9.048	20.148
(16) Countrywide Indicated Relativity:	1.434	1.450	.
(17) Countrywide Credibility:	0.500	0.500	.
(18) Countrywide Lost-Time Claims:	468.00	.	.
(19) Pure Premium Underlying Present Rate:	8.413	6.485	14.898
(20) Relativity to Underlying Present Rate:	1.254	1.286	.
(21) Credibility to Underlying Relativity:	0.500	0.500	.
(22) Industry Group Converted Pure Premium:	9.464	6.483	15.947
(23) Formula Relativity:	1.344	1.368	.
(24) Balanced Formula Relativity:	1.325	1.264	1.300

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Section VIII - G  
 Exhibit 3

## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	43,542	4	21	1,252,506	665,543	1,296,443	271,896	3,486,388	44,051	36,019	80,070
2006	32,369	5	24	584,365	963,715	1,027,035	658,052	3,233,167	47,826	52,058	99,884
2007	36,719	1	22	13,702	415,337	38,387	243,004	710,429	11,684	7,663	19,348
2008	9,252	1	17	331,392	82,453	49,977	76,812	540,634	44,730	13,704	58,434
2009	12,357	0	12	0	275,234	0	185,704	460,938	22,273	15,028	37,302
<b>MA Total:</b>	<b>134,239</b>	<b>11</b>	<b>96</b>	<b>2,181,966</b>	<b>2,402,281</b>	<b>2,411,841</b>	<b>1,435,468</b>	<b>8,431,556</b>	<b>34,150</b>	<b>28,660</b>	<b>62,810</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.608	4.421	.
(14) Massachusetts Credibility:	0.400	0.640	.
(15) Countrywide Pure Premium:	10.892	6.622	17.513
(16) Countrywide Indicated Relativity:	1.407	1.061	.
(17) Countrywide Credibility:	0.300	0.180	.
(18) Countrywide Lost-Time Claims:	297.00	.	.
(19) Pure Premium Underlying Present Rate:	17.842	16.504	34.346
(20) Relativity to Underlying Present Rate:	2.659	3.274	.
(21) Credibility to Underlying Relativity:	0.300	0.180	.
(22) Industry Group Converted Pure Premium:	9.464	6.483	15.947
(23) Formula Relativity:	2.663	3.610	.
(24) Balanced Formula Relativity:	2.626	3.335	2.914

Class(es):		Effective: 9/1/2012							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)
2005	1,095	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	1,532	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	483	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	1,979	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	1,650	0	1	0	0	0	6,371	6,371	0.000	3,860	3,860
<b>MA Total:</b>	<b>6,739</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6,371</b>	<b>6,371</b>	<b>0.000</b>	<b>0.945</b>	<b>0.945</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.146	.
(14) Massachusetts Credibility:	0.110	0.140	.
(15) Countrywide Pure Premium:	5.979	6.048	12.027
(16) Countrywide Indicated Relativity:	0.772	0.969	.
(17) Countrywide Credibility:	0.190	0.200	.
(18) Countrywide Lost-Time Claims:	17.000	.	.
(19) Pure Premium Underlying Present Rate:	14.359	7.796	22.154
(20) Relativity to Underlying Present Rate:	2.140	1.546	.
(21) Credibility to Underlying Relativity:	0.700	0.660	.
(22) Industry Group Converted Pure Premium:	9.464	6.483	15.947
(23) Formula Relativity:	1.645	1.235	.
(24) Balanced Formula Relativity:	1.622	1.141	1.426

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 Exhibit 4

## Calculation of Class Relativities

Class(es): 7309 STEVEDORING: NOC - US ACT		Effective: 9/1/2012				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)
2005	10.995	1	1	150.008	13.531	14.308	1.428	179.275	14.874	1.431	16.305
2006	6.467	0	1	0	0	0	686	686	0.000	0.106	0.106
2007	6.675	0	2	0	14.086	0	34.051	48.137	2.110	5.102	7.212
2008	6.901	0	1	0	11.219	0	7.713	18.932	1.626	1.118	2.743
2009	6.828	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>37.866</b>	<b>1</b>	<b>5</b>	<b>150.008</b>	<b>38.837</b>	<b>14.308</b>	<b>43.877</b>	<b>247.029</b>	<b>4.987</b>	<b>1.537</b>	<b>6.524</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.527	0.237	.
(14) Massachusetts Credibility:	0.230	0.290	.
(15) Countrywide Pure Premium:	13.494	11.164	24.657
(16) Countrywide Indicated Relativity:	1.743	1.789	.
(17) Countrywide Credibility:	0.390	0.360	.
(18) Countrywide Lost-Time Claims:	130.00	.	.
(19) Pure Premium Underlying Present Rate:	15.636	8.380	24.017
(20) Relativity to Underlying Present Rate:	2.330	1.662	.
(21) Credibility to Underlying Relativity:	0.380	0.350	.
(22) Industry Group Converted Pure Premium:	9.464	6.483	15.947
(23) Formula Relativity:	1.686	1.295	.
(24) Balanced Formula Relativity:	1.663	1.196	1.473

Class(es): 7313 COAL DOCK OPERATION & STEVEDORING: US ACT		Effective: 9/1/2012				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)
2005	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	0	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

	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:	22.143	5.404	27.547
(16) Countrywide Indicated Relativity:	2.860	0.866	.
(17) Countrywide Credibility:	0.300	0.300	.
(18) Countrywide Lost-Time Claims:	55.000	.	.
(19) Pure Premium Underlying Present Rate:	9.502	4.228	13.730
(20) Relativity to Underlying Present Rate:	1.416	0.839	.
(21) Credibility to Underlying Relativity:	0.700	0.690	.
(22) Industry Group Converted Pure Premium:	9.464	6.483	15.947
(23) Formula Relativity:	1.849	0.847	.
(24) Balanced Formula Relativity:	1.823	0.783	1.400

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 Exhibit 5

## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)	
2005	84	0	0	0	0	0	0	0	0.000	0.000	0.000	
2006	65	0	0	0	0	0	0	0	0.000	0.000	0.000	
2007	1,010	0	1	0	0	0	724	724	0.000	0.717	0.717	
2008	1,868	0	0	0	0	0	0	0	0.000	0.000	0.000	
2009	3,892	0	5	0	65,000	0	41,625	106,625	16,700	10,695	27,395	
<b>MA Total:</b>	<b>6,919</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>65,000</b>	<b>0</b>	<b>42,349</b>	<b>107,349</b>	<b>9,395</b>	<b>6,121</b>	<b>15,516</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.993	0.944	.
(14) Massachusetts Credibility:	0.180	0.210	.
(15) Countrywide Pure Premium:	15.685	5.003	20.688
(16) Countrywide Indicated Relativity:	2.026	0.802	.
(17) Countrywide Credibility:	0.410	0.400	.
(18) Countrywide Lost-Time Claims:	154.00	.	.
(19) Pure Premium Underlying Present Rate:	47.497	19.537	67.035
(20) Relativity to Underlying Present Rate:	7.078	3.875	.
(21) Credibility to Underlying Relativity:	0.410	0.390	.
(22) Industry Group Converted Pure Premium:	9.464	6.483	15.947
(23) Formula Relativity:	3.911	2.030	.
(24) Balanced Formula Relativity:	3.856	1.876	3.051

Class(es):		Effective: 9/1/2012							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)	
2005	42,021	2	29	1,334,903	634,845	326,183	232,115	2,528,046	46,875	13,286	60,161	
2006	461	0	0	0	0	0	0	0	0.000	0.000	0.000	
2007	403	0	0	0	0	0	0	0	0.000	0.000	0.000	
2008	220	0	0	0	0	0	0	0	0.000	0.000	0.000	
2009	121	0	0	0	0	0	0	0	0.000	0.000	0.000	
<b>MA Total:</b>	<b>43,227</b>	<b>2</b>	<b>29</b>	<b>1,334,903</b>	<b>634,845</b>	<b>326,183</b>	<b>232,115</b>	<b>2,528,046</b>	<b>45,567</b>	<b>12,915</b>	<b>58,483</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	4.815	1.992	.
(14) Massachusetts Credibility:	0.230	0.310	.
(15) Countrywide Pure Premium:	53.432	41.318	94.750
(16) Countrywide Indicated Relativity:	6.901	6.622	.
(17) Countrywide Credibility:	0.260	0.280	.
(18) Countrywide Lost-Time Claims:	41.000	.	.
(19) Pure Premium Underlying Present Rate:	14.025	8.377	22.401
(20) Relativity to Underlying Present Rate:	2.090	1.661	.
(21) Credibility to Underlying Relativity:	0.510	0.410	.
(22) Industry Group Converted Pure Premium:	9.464	6.483	15.947
(23) Formula Relativity:	3.967	3.153	.
(24) Balanced Formula Relativity:	3.912	2.913	3.506

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Section VIII - G  
 Exhibit 6

## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	49,770	0	2	0	52,319	0	412,969	465,288	1,051	8,298	9,349
2006	10,938	0	3	0	1,027,091	0	165,285	1,192,376	93,904	15,112	109,02
2007	11,213	1	0	939,446	0	122,986	0	1,062,432	83,785	10,969	94,753
2008	11,119	2	1	125,995	108,309	50,761	63,256	348,321	21,073	10,254	31,327
2009	11,007	0	2	0	16,739	0	7,997	24,737	1,521	0,727	2,247
<b>MA Total:</b>	<b>94,046</b>	<b>3</b>	<b>8</b>	<b>1,065,440</b>	<b>1,204,459</b>	<b>173,747</b>	<b>649,507</b>	<b>3,093,153</b>	<b>24,136</b>	<b>8,754</b>	<b>32,890</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.550	1.350	.
(14) Massachusetts Credibility:	0.230	0.340	.
(15) Countrywide Pure Premium:	9.726	7.074	16.801
(16) Countrywide Indicated Relativity:	1.256	1.134	.
(17) Countrywide Credibility:	0.310	0.330	.
(18) Countrywide Lost-Time Claims:	63.000	.	.
(19) Pure Premium Underlying Present Rate:	6.508	4.772	11.280
(20) Relativity to Underlying Present Rate:	0.970	0.947	.
(21) Credibility to Underlying Relativity:	0.460	0.330	.
(22) Industry Group Converted Pure Premium:	9.464	6.483	15.947
(23) Formula Relativity:	1.422	1.146	.
(24) Balanced Formula Relativity:	1.402	1.058	1.262

Class(es):		Effective: 9/1/2012							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)
2005	49,341	0	2	0	4,198	0	1,602	5,800	0,085	0,032	0,118
2006	420	0	0	0	0	0	0	0	0,000	0,000	0,000
2007	536	0	0	0	0	0	0	0	0,000	0,000	0,000
2008	8,004	0	0	0	0	0	0	0	0,000	0,000	0,000
2009	2,265	0	0	0	0	0	0	0	0,000	0,000	0,000
<b>MA Total:</b>	<b>60,566</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>4,198</b>	<b>0</b>	<b>1,602</b>	<b>5,800</b>	<b>0,069</b>	<b>0,026</b>	<b>0,096</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.007	0.004	.
(14) Massachusetts Credibility:	0.140	0.190	.
(15) Countrywide Pure Premium:	4.988	4.719	9.708
(16) Countrywide Indicated Relativity:	0.644	0.756	.
(17) Countrywide Credibility:	0.280	0.290	.
(18) Countrywide Lost-Time Claims:	47.000	.	.
(19) Pure Premium Underlying Present Rate:	2.726	1.695	4.421
(20) Relativity to Underlying Present Rate:	0.406	0.336	.
(21) Credibility to Underlying Relativity:	0.580	0.520	.
(22) Industry Group Converted Pure Premium:	9.464	6.483	15.947
(23) Formula Relativity:	0.417	0.395	.
(24) Balanced Formula Relativity:	0.411	0.365	0.392

# VIII 000029

Section VIII - F-Class Recommendation  
 Subsection G - Class Relativities  
 9/1/2012

Section VIII - G  
 Exhibit 7

## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							Federal Class Codes		
8726 STEAMSHIP LINE OR AGENCY-PORT EMP: SPRVSRs, 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)
2005	68.922	0	12	0	45.137	0	114.951	160.087	0.655	1.668	2.323
2006	67.003	0	11	0	19.929	0	55.138	75.067	0.297	0.823	1.120
2007	76.295	0	19	0	354.335	0	698.152	1,052.488	4.644	9.151	13.795
2008	76.089	0	3	0	0	0	969	969	0.000	0.013	0.013
2009	83.598	0	2	0	63.932	0	47.931	111.864	0.765	0.573	1.338
<b>MA Total:</b>	<b>371,908</b>	<b>0</b>	<b>47</b>	<b>0</b>	<b>483,333</b>	<b>0</b>	<b>917,141</b>	<b>1,400,474</b>	<b>1.300</b>	<b>2.466</b>	<b>3.766</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.137	0.380	.
(14) Massachusetts Credibility:	0.290	0.410	.
(15) Countrywide Pure Premium:	1.460	1.843	3.302
(16) Countrywide Indicated Relativity:	0.189	0.295	.
(17) Countrywide Credibility:	0.260	0.270	.
(18) Countrywide Lost-Time Claims:	38.000	.	.
(19) Pure Premium Underlying Present Rate:	2.799	1.951	4.750
(20) Relativity to Underlying Present Rate:	0.417	0.387	.
(21) Credibility to Underlying Relativity:	0.450	0.320	.
(22) Industry Group Converted Pure Premium:	9.464	6.483	15.947
(23) Formula Relativity:	0.277	0.360	.
(24) Balanced Formula Relativity:	0.273	0.332	0.297

Class(es):		Effective: 9/1/2012							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)
2005	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	0	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	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:	0.226	1.239	.
(17) Countrywide Credibility:	0.080	0.080	.
(18) Countrywide Lost-Time Claims:	2.000	.	.
(19) Pure Premium Underlying Present Rate:	1.519	6.249	7.768
(20) Relativity to Underlying Present Rate:	0.226	1.239	.
(21) Credibility to Underlying Relativity:	0.920	0.920	.
(22) Industry Group Converted Pure Premium:	9.464	6.483	15.947
(23) Formula Relativity:	0.226	1.239	.
(24) Balanced Formula Relativity:	0.223	1.145	0.598

## VIII 000030

Section VIII - F-Class Recommendation  
Subsection H - Proposed Rates  
9/1/2012

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	20.0%
(3) Target Rate Change = (1) x [ 1.000 + (2) ] - 1.000	20.0%
(4) State Benefit Level Change	0.3%
(5) Federal Benefit Level Change	0.5%
(6) Federal Losses as % of Total Losses	100.0%
(7) Weighted Average Benefit Level Change = [ (5) x (6) ] + { (4) x [ 1.000 - (6) ] }	0.5%
(8) Experience Change - Overall = { [1.000 + (2) ] / [ 1.000 + (7) ] } - 1.000	19.5%
(9) Experience Change - by Group = { (1) x [ 1.000 + (8) ] } - 1.000	19.5%
(10) 1/2 Experience Change - by Group = (9) / 2	9.7%
(11) Maximum Rate Change = (7) + (10) + 20.0%	30.2%
(12) Minimum Rate Change = (7) + (10) - 20.0%	-9.8%
(13) Present Average Rate	15.418
(14) Uncapped Rate Level Factor = [ 1.000 + (3) ] x (13)	18.502
(15) Capped Rate Level Factor	24.574

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.
- (4): Section IV-A, Exhibit 1.
- (5): Section IV-F, Exhibit 1.
- (6): Based on ratio of Federal losses to sum of Federal and State losses from Section VIII-C, Exhibit 1, Page 1 & 3.
- (13): Rates by class consistent with the 09/01/10 stipulation, weighted by five years of exposure.
- (15): Proposed average uncapped rates are capped by an iterative process using rate levels to determine if the required change is achieved.

# VIII 000031

Section VIII - F-Class Recommendation  
 Subsection H - Proposed Rates  
 9/1/2012

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	0.792	0.958	0.860	18.502	15.91
6824	0.582	0.531	0.561	18.502	10.38
6826	0.494	0.599	0.537	18.502	9.93
6843	1.325	1.264	1.300	18.502	24.06
6872	2.626	3.335	2.914	18.502	53.92
6874	1.622	1.141	1.426	18.502	26.39
7309	1.663	1.196	1.473	18.502	27.25
7313	1.823	0.783	1.400	18.502	25.91
7317	3.856	1.876	3.051	18.502	56.46
7327	3.912	2.913	3.506	18.502	64.87
7350	1.402	1.058	1.262	18.502	23.36
8709	0.411	0.365	0.392	18.502	7.26
8726	0.273	0.332	0.297	18.502	5.49
9077	0.223	1.145	0.598	18.502	11.06

Notes:

(2),(3),(4): Section VIII-G.

(5): Exhibit 1.

# VIII 000032

Section VIII - F-Class Recommendation  
Subsection H - Proposed Rates  
9/1/2012

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	12.66	15.91	16.48
6824	10.64	10.38	13.79
6826	12.08	9.93	13.19
6843	14.36	24.06	18.70
6872	36.35	53.92	47.32
6874	34.13	26.39	35.05
7309	37.00	27.25	36.20
7313	15.36	25.91	20.00
7317	14.68	56.46	19.11
7327	33.60	64.87	43.75
7350	17.37	23.36	22.62
8709	6.81	7.26	8.87
8726	7.54	5.49	7.29
9077	4.79	11.06	6.24

Notes:

(2): 09/01/10 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).

# VIII 000033

Section VIII - F-Class Recommendation  
Subsection H - Proposed Rates  
9/1/2012

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	16,040,539	19,248,648	20.0%	20.0%	24.57

Notes:

- (2): Exposure x Current Average Rates.
- (3): Exposure x Proposed Average Rates.
- (4) = [(3) - (2)] / (2)
- (5), (6): Exhibit 1.

# VIII 000034

Pricing Example for Class 6872  
 SHIP REPAIR CONVERSION- ALL OP & DR: US ACT

Calculation of MA Indicated Relativity:

(A). Federal Benefits - Limited Losses (Unit Statistical Plan data, Excluding Large Deductibles)											
	Policy Year	Fatal		Permanent Total	Major Permanent Partial		Minor Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	LD	NLD	
Indemnity	2005	0	0	0	584,472	270,018	0	0	1	71,990	
	2006	0	0	164,360	77,955	450,051	33,249	0	0	22,639	
	2007	0	0	0	0	108,615	5,284	8,063	0	68,159	
	2008	0	0	0	110,839	0	0	0	0	33,894	
	2009	0	0	0	0	0	0	0	0	91,250	
Medical	2005	0	0	0	432,840	61,756	0	0	0	36,012	2,397
	2006	0	0	335,640	39,124	211,010	12,179	0	0	51,369	10,108
	2007	0	0	0	0	42,707	12,263	2,870	0	43,937	10,395
	2008	0	0	0	6,013	0	0	0	0	25,170	8,296
	2009	0	0	0	0	0	0	0	0	69,525	7,956

(B). Federal Benefits Primary Conversion Factors (Section VIII-E, Exhibit 1, Page 1)											
	Policy Year	Fatal		Permanent Total	Major Permanent Partial		Minor Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	LD	NLD	
Indemnity	2005	1.211	1.093	1.188	1.159	1.046	1.159	1.046	1.188	1.072	
	2006	1.283	1.145	1.262	1.234	1.101	1.234	1.101	1.262	1.127	
	2007	1.433	1.244	1.414	1.386	1.203	1.386	1.203	1.414	1.228	
	2008	1.654	1.319	1.641	1.617	1.290	1.617	1.290	1.641	1.309	
	2009	2.666	1.629	2.657	2.629	1.606	2.629	1.606	2.657	1.623	
Medical	2005	1.540	1.194	1.540	1.540	1.194	1.540	1.194	1.540	1.194	0.841
	2006	1.616	1.191	1.616	1.616	1.191	1.616	1.191	1.616	1.191	0.864
	2007	1.688	1.188	1.688	1.688	1.188	1.688	1.188	1.688	1.188	0.868
	2008	1.836	1.242	1.836	1.836	1.242	1.836	1.242	1.836	1.242	0.932
	2009	1.864	1.179	1.864	1.864	1.179	1.864	1.179	1.864	1.179	1.034

(C). Federal Converted Limited Losses (Limited Losses x Primary Conversion Factors)											
	Policy Year	Fatal		Permanent Total	Major Permanent Partial		Minor Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	LD	NLD	
Indemnity	2005	0	0	0	677,335	282,350	0	0	1	77,173	
	2006	0	0	207,500	96,186	495,529	41,025	0	0	25,505	
	2007	0	0	0	0	130,696	7,324	9,702	0	83,672	
	2008	0	0	0	179,212	0	0	0	0	44,364	
	2009	0	0	0	0	0	0	0	0	148,090	
Medical	2005	0	0	0	666,509	73,730	0	0	0	42,994	2,016
	2006	0	0	542,235	63,206	251,234	19,675	0	0	61,161	8,737
	2007	0	0	0	0	50,746	20,703	3,410	0	52,208	9,027
	2008	0	0	0	11,041	0	0	0	0	31,267	7,733
	2009	0	0	0	0	0	0	0	0	81,968	8,229

# VIII 000035

Pricing Example for Class 6872  
 SHIP REPAIR CONVERSION- ALL OP & DR: US ACT

Calculation of MA Indicated Relativity (cont.):

(D). Federal Unadjusted Excess Losses [ (Excess Factor - 1.0) x Converted Limited Losses ]											
Policy Year	Fatal		Permanent Total	Major Permanent Partial		Minor Permanent Partial		Temporary Total		Medical Only	
	LD	NLD		LD	NLD	LD	NLD	LD	NLD		
Indemnity	2005	0	0	0	317,283	132,261	0	0	1	36,150	
	2006	0	0	97,199	45,056	232,120	19,217	0	0	11,947	
	2007	0	0	0	0	61,222	3,431	4,545	0	39,194	
	2008	0	0	0	83,948	0	0	0	0	20,781	
	2009	0	0	0	0	0	0	0	0	69,370	
Medical	2005	0	0	0	312,212	34,537	0	0	0	20,140	944
	2006	0	0	253,999	29,607	117,685	9,217	0	0	28,650	4,093
	2007	0	0	0	0	23,771	9,698	1,597	0	24,456	4,229
	2008	0	0	0	5,172	0	0	0	0	14,646	3,622
	2009	0	0	0	0	0	0	0	0	38,396	3,855

(E). Federal Adjusted Excess Losses											
Policy Year	Fatal		Permanent Total	Major Permanent Partial		Minor Permanent Partial		Temporary Total		Medical Only	
	LD	NLD		LD	NLD	LD	NLD	LD	NLD		
Indemnity	2005	0	0	0	222,098	92,583	0	0	0	25,305	
	2006	0	0	68,039	31,539	162,484	13,452	0	0	8,363	
	2007	0	0	0	0	42,855	2,402	3,181	0	27,436	
	2008	0	0	0	58,764	0	0	0	0	14,547	
	2009	0	0	0	0	0	0	0	0	48,559	
Medical	2005	0	0	0	407,397	74,216	0	0	0	30,985	944
	2006	0	0	283,158	43,124	187,321	14,982	0	0	32,234	4,093
	2007	0	0	0	0	42,137	10,727	2,961	0	36,214	4,229
	2008	0	0	0	30,357	0	0	0	0	20,881	3,622
	2009	0	0	0	0	0	0	0	0	59,207	3,855

(F). Federal Secondary Conversion Factors						
	Fatal	Permanent Total	Major Permanent Partial	Minor Permanent Partial	Temporary Total	Medical Only
Indemnity	1.234	1.197	1.393	1.409	1.400	
Medical	1.192	1.037	1.207	1.221	1.213	1.192

(G). Federal Converted Unlimited Losses											
Policy Year	Fatal		Permanent Total	Major Permanent Partial		Minor Permanent Partial		Temporary Total		Medical Only	
	LD	NLD		LD	NLD	LD	NLD	LD	NLD		
Indemnity	2005	0	0	1,252,504	522,112	0	0	2	143,431		
	2006	0	0	329,755	177,863	916,314	76,748	0	47,402		
	2007	0	0	0	0	241,677	13,702	18,150	0	155,509	
	2008	0	0	0	331,392	0	0	0	0	82,453	
	2009	0	0	0	0	0	0	0	0	275,234	
Medical	2005	0	0	1,296,443	178,603	0	0	0	89,763	3,529	
	2006	0	0	856,342	128,364	529,434	42,328	0	0	113,321	15,297
	2007	0	0	0	0	112,131	38,387	7,781	0	107,287	15,805
	2008	0	0	0	49,977	0	0	0	0	63,273	13,539
	2009	0	0	0	0	0	0	0	0	171,296	14,408

(H). Total Federal Converted Unlimited Losses				
Policy Year	Indemnity		Medical	
	LD	NLD	LD	NLD
2005	1,252,506	665,543	1,296,443	271,896
2006	584,366	963,715	1,027,034	658,052
2007	13,702	415,337	38,387	243,004
2008	331,392	82,453	49,977	76,812
2009	0	275,234	0	185,704
Total	2,181,966	2,402,281	2,411,840	1,435,468

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)



# VIII 000037

## Pricing Example for Class 6872 SHIP REPAIR CONVERSION- ALL OP & DR: US ACT

Calculation of MA Indicated Relativity (cont.):

		(D). State Unadjusted Excess Losses [ (Excess Factor -1.0) x Converted Limited Losses ]									
Policy Year		Fatal		Permanent Total	Major Permanent Partial		Minor Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	LD	NLD	
Indemnity	2005	0	0	0	0	0	0	0	0	0	
	2006	0	0	0	0	0	0	0	0	0	
	2007	0	0	0	0	0	0	0	0	0	
	2008	0	0	0	0	0	0	0	0	0	
	2009	0	0	0	0	0	0	0	0	0	
Medical	2005	0	0	0	0	0	0	0	0	0	0
	2006	0	0	0	0	0	0	0	0	0	0
	2007	0	0	0	0	0	0	0	0	0	0
	2008	0	0	0	0	0	0	0	0	0	0
	2009	0	0	0	0	0	0	0	0	0	0

		(E). State Adjusted Excess Losses									
Policy Year		Fatal		Permanent Total	Major Permanent Partial		Minor Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	LD	NLD	
Indemnity	2005	0	0	0	0	0	0	0	0	0	
	2006	0	0	0	0	0	0	0	0	0	
	2007	0	0	0	0	0	0	0	0	0	
	2008	0	0	0	0	0	0	0	0	0	
	2009	0	0	0	0	0	0	0	0	0	
Medical	2005	0	0	0	0	0	0	0	0	0	0
	2006	0	0	0	0	0	0	0	0	0	0
	2007	0	0	0	0	0	0	0	0	0	0
	2008	0	0	0	0	0	0	0	0	0	0
	2009	0	0	0	0	0	0	0	0	0	0

		(F). Federal Secondary Conversion Factors					
		Fatal	Permanent Total	Major Permanent Partial	Minor Permanent Partial	Temporary Total	Medical Only
Indemnity		1.068	1.035	1.204	1.218	1.210	
Medical		1.192	1.037	1.207	1.221	1.213	1.192

		(G). State Converted Unlimited Losses									
Policy Year		Fatal		Permanent Total	Major Permanent Partial		Minor Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	LD	NLD	
Indemnity	2005	0	0	0	0	0	0	0	0	0	
	2006	0	0	0	0	0	0	0	0	0	
	2007	0	0	0	0	0	0	0	0	0	
	2008	0	0	0	0	0	0	0	0	0	
	2009	0	0	0	0	0	0	0	0	0	
Medical	2005	0	0	0	0	0	0	0	0	0	0
	2006	0	0	0	0	0	0	0	0	0	0
	2007	0	0	0	0	0	0	0	0	0	0
	2008	0	0	0	0	0	0	0	0	0	0
	2009	0	0	0	0	0	0	0	0	0	0

		(H). Total State Converted Unlimited Losses			
Policy Year		Indemnity		Medical	
		LD	NLD	LD	NLD
2005		0	0	0	0
2006		0	0	0	0
2007		0	0	0	0
2008		0	0	0	0
2009		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 VIII-E, Exhibit 1, Page 2.

(G) = [ (C) + (E) ] x (F)

## VIII 000038

Section VIII - F-Class Recommendation  
 Subsection I - Pricing Example  
 9/1/2012

Section VIII-I  
 Exhibit 1  
 Page 5

### Pricing Example for Class 6872 SHIP REPAIR CONVERSION- ALL OP & DR: US ACT

Calculation of MA Indicated Relativity (cont.):

Exposure, Converted Unlimited Losses (Both Federal & State)			
Policy Year (1)	Exposure (2)	Indemnity (3)	Medical (4)
2005	43,542	1,918,048	1,568,339
2006	32,369	1,548,081	1,685,086
2007	36,719	429,039	281,390
2008	9,252	413,845	126,789
2009	12,357	275,234	185,704
Total	134,239	4,584,248	3,847,308
(5)	Indicated Pure Premium	34.150	28.660
(6)	Federal Class Codes Industry Group Pure Premium	9.464	6.483
(7)	MA Indicated Relativity	3.608	4.421

Notes:

- (2): Unit Statistical Plan data, excluding Large Deductibles
- (3), (4): Converted Unlimited Losses from Pages 1 & 2.
- (5): Totals of (3) and (4), divided by Total of (2), respectively.
- (6): Section VIII-F, Exhibit 1, Page 2.
- (7) = (5) / (6)

# VIII 000039

## Pricing Example for Class 6872 SHIP REPAIR CONVERSION- ALL OP & DR: 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	0	11,533	0	25,692	0	2	2,821,755
Arizona	2	0	0	0	0	0	0	56,062
Arkansas	3	0	21,419	0	59,089	0	2	553,214
Colorado	5	0	0	0	0	0	0	31,601
Connecticut	6	208,522	77,912	153,587	70,082	1	2	1,364,387
District of Columbia	8	0	0	0	0	0	0	9,042
Florida	9	1,462,971	229,931	865,112	378,008	6	19	20,242,254
Georgia	10	0	0	0	0	0	0	13,885
Idaho	11	0	0	0	0	0	0	17,420
Illinois	12	1,102,509	59,193	955,746	313,895	1	3	8,823,139
Indiana	13	0	0	0	22,934	0	0	1,676,525
Iowa	14	0	619	0	9,038	0	1	966,641
Kansas	15	0	0	0	0	0	0	61,281
Kentucky	16	0	378	0	264	0	2	3,628,127
Louisiana	17	4,202,067	2,333,616	4,429,008	2,439,007	28	62	197,854,804
Maine	18	0	0	0	5,523	0	0	242,837
Maryland	19	0	64,741	0	42,883	0	1	1,967,313
Minnesota	22	0	0	0	0	0	0	0
Mississippi	23	897,835	102,118	620,467	412,131	5	20	31,000,817
Missouri	24	2,094,394	733,490	1,588,619	511,901	6	15	12,701,113
Montana	25	0	0	0	0	0	0	42,420
Nebraska	26	0	0	0	0	0	0	5,430
Nevada	27	0	0	0	0	0	0	0
New Hampshire	28	0	0	0	2,633	0	0	540,377
New Mexico	30	0	0	0	0	0	0	1,974
North Carolina	32	0	231,885	0	43,339	0	1	672,225
Oklahoma	35	0	0	0	0	0	0	0
Oregon	36	0	127,917	0	166,151	0	9	11,164,776
Rhode Island	38	0	4,817	0	12,323	0	3	1,791,544
South Carolina	39	190,282	16,947	266,406	43,378	3	2	5,829,775
South Dakota	40	0	0	0	0	0	0	0
Tennessee	41	0	57,304	0	128,690	0	2	1,728,140
Utah	43	0	0	0	0	0	0	425
Vermont	44	0	0	0	0	0	0	0
Virginia	45	103,237	902,928	93,906	1,282,949	3	45	53,017,006
Hawaii	52	377,228	574,148	1,434,355	260,074	4	17	12,411,364
Alaska	54	436,866	609,506	521,563	1,226,032	5	27	23,191,279
<b>Total</b>		<b>11,075,911</b>	<b>6,160,402</b>	<b>10,928,769</b>	<b>7,456,016</b>	<b>62</b>	<b>235</b>	<b>394,428,952</b>

Notes:

- (3) - (6): Data are total for latest three policy years.
- (7), (8): Used in calculating countrywide credibilities. See Section IX-D, Exhibit 1, Page 1.

# VIII 000040

Pricing Example for Class 6872  
 SHIP REPAIR CONVERSION- ALL OP & DR: 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	2.934	2.470	1.199	2.249	
Arizona	2	40.131	0.672	0.000	0.000	
Arkansas	3	17.553	2.785	67.960	29.744	
Colorado	5	0.000	0.000	0.000	0.000	
Connecticut	6	1.752	1.642	36.775	26.913	
District of Columbia	8	0.000	0.000	0.000	0.000	
Florida	9	3.492	1.448	29.207	8.890	
Georgia	10	2.248	1.316	0.000	0.000	
Idaho	11	0.000	0.000	0.000	0.000	
Illinois	12	2.482	1.023	32.675	14.721	
Indiana	13	321.637	18.848	0.000	25.783	
Iowa	14	4.196	1.522	0.269	1.423	
Kansas	15	0.000	0.000	0.000	0.000	
Kentucky	16	1.101	0.707	0.011	0.005	
Louisiana	17	1.296	1.332	4.282	4.623	
Maine	18	0.220	0.236	0.000	0.536	
Maryland	19	9.610	10.816	31.626	23.577	
Minnesota	22	0.000	0.000	0.000	0.000	
Mississippi	23	3.866	1.506	12.469	5.016	
Missouri	24	2.186	1.738	48.676	28.750	
Montana	25	0.000	0.000	0.000	0.000	
Nebraska	26	0.000	0.000	0.000	0.000	
Nevada	27	0.000	0.000	0.000	0.000	
New Hampshire	28	227.935	11.429	0.000	5.569	
New Mexico	30	0.000	4.213	0.000	0.000	
North Carolina	32	1.002	1.865	34.563	12.022	
Oklahoma	35	1.582	0.598	0.000	0.000	
Oregon	36	3.851	3.822	4.412	5.687	
Rhode Island	38	4.376	5.349	1.177	3.679	
South Carolina	39	1.036	0.252	3.681	1.339	
South Dakota	40	0.000	0.000	0.000	0.000	
Tennessee	41	5.741	2.740	19.037	20.405	
Utah	43	0.000	0.000	0.000	0.000	
Vermont	44	0.000	0.000	0.000	0.000	
Virginia	45	8.241	1.907	15.639	4.952	
Hawaii	52	1.967	0.756	15.076	10.316	
Alaska	54	2.538	1.150	11.453	8.667	
(8)	Average of (5), (6) weighted by Payroll from Page 1, respectively			10.892	6.622	17.513
(9)	CW Federal Class Codes Pure Premium			7.743	6.239	13.983
(10)	CW Relativity = (8) / (9)			1.407	1.061	1.252
(11)	CW Relativity, balanced to unity			1.407	1.061	

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.

# VIII 000041

Section VIII - F-Class Recommendation  
 Subsection I - Pricing Example  
 9/1/2012

Section VIII-I  
 Exhibit 3

## Pricing Example for Class 6872 SHIP REPAIR CONVERSION- ALL OP & DR: 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
3.608	4.421
1.407	1.061
2.659	3.274

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)]<sup>0.4</sup>}

Injury Type	
Indemnity	Medical
2.365	2.946
7.544	5.602
17.842	16.504
2,395,053	2,215,541
23,800,000	6,800,000
40%	64%

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)]<sup>0.4</sup>, 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
297	297
1,150	1,000
30%	18%
30%	18%
2.663	3.610
1.014	1.082

- (16) Balanced Formula Relativity

Injury Type		
Indemnity	Medical	Total
2.626	3.335	2.914

Notes:

- (1): Exhibit 1, Page 5.
- (2): Exhibit 2, Page 2.
- (3): Relativity 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.

## VIII 000042

Section VIII - F-Class Recommendation  
Subsection I - Pricing Example  
9/1/2012

Section VIII-I  
Exhibit 4

### Pricing Example for Class 6872 SHIP REPAIR CONVERSION- ALL OP & DR: US ACT

Calculation of Proposed Average Rate and Proposed Manual Rate:

(1) Present Average Rate	36.35
(2) Total Balanced Formula Relativity	2.914
(3) Capped Rate Level Factor	24.574
(4) Maximum Average Rate	47.32
(5) Minimum Average Rate	32.78
(6) Proposed Average Capped Rate = (2) x (3), Subject to Caps (4), (5)	47.32
(7) Offset for Merit Rating	0.997
(8) Offset for ARAP	1.069
(9) Offset for Construction Classification Premium Adjustment Program	1.000
(10) Provision for Insolvency Fund Assessment Recoupment	0.0007
(11) Proposed Manual Rate = { (6) / [ (7) x (8) x (9) ] } x { 1.000 / [ 1.000 - (10) ] }	44.43
(12) Minimum Premium	500
(13) Loss Constant	0
(14) Expected Loss Rate	14.06
(15) D-Ratio	0.19

#### Notes:

(1): Section VIII-H, Page 3.

(2): Exhibit 3.

(3): Section 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 6872 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. Class 6872 is not eligible for the Construction Credit program.

(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 6872 is in Hazard Group G.

(15): See text of Section X for an explanation of the calculation of D-Ratios.

## VIII 000043

Section VIII - F-Class Recommendation  
Subsection J - U.S.L.H. & H.W. Coverage Percentage  
9/1/2012

Section VIII-J  
Exhibit 1

### Calculation of USLH & HW Compensation Coverage Percentage

(1)	Benefits Differential Underlying Current USLH & HW Coverage Percentage	1.206
(2)	State Benefit Level Adjustments Since Last Approval	1.010
(3)	Federal Benefit Level Adjustments Since Last Approval	1.005
(4)	Revised Benefits Differential = (1) x [ (3) / (2) ]	1.200
(5)	Federal Indemnity Losses as % of Total Federal Losses	62.8%
(6)	Expected Loss Ratio for State Classes	58.0%
(7)	Fixed Expense Ratio	6.1%
(8)	Special Fund Assessment Rate as % of Federal Indemnity Losses	0.186
(9)	Loss Adjustment Expense Factor (Applies to Losses)	1.192
(10)	USLH & HW Coverage Percentage for Manual Rates	1.292
(11)	USLH & HW Coverage Percentage for Expected Loss Rates	1.184

#### Notes:

(1): Section VIII-J, Exhibit 1 of 9/1/2010 Stipulation.

(2): Total Benefit Level Changes from 10/1/09 to Prospective Period from Section IV-A, Exhibit 1.

(3): Total Benefit Level Changes from 10/1/09 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-A, 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) }

## VIII 000044

Section VIII - F-Class Recommendation  
Subsection K - Federal Tax Multiplier  
9/1/2012

Section VIII-K  
Exhibit 1

### Calculation of Federal Tax Multiplier

(1)	State Tax Multiplier	1.035
(2)	Loading for Taxes and Residual Market Subsidy = $1.0 - [ 1.0 / (1) ]$	3.3%
(3)	Expected Loss Ratio (no LAE)	57.0%
(4)	Federal Special Funds Assessment	18.6%
(5)	Federal Indemnity Losses as % of Total Losses	62.8%
(6)	Loading for Federal Funds Assessment = $(3) \times (4) \times (5)$	6.7%
(7)	Federal Tax Multiplier = $1.0 / [ 1.0 - (2) - (6) ]$	1.111

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 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.

### **Revisions to Class Ratemaking Methodology**

As in the 2011 filing, the WCRIBMA has modified its class ratemaking methodology to incorporate improvements that have been developed and implemented by the National Council of Compensation Insurance (NCCI) – and approved by the regulators -- in the states for which NCCI has developed rates or loss costs effective

10/1/2009 and later. A detailed description of the NCCI's methodology is provided in the paper "Class Ratemaking for Workers Compensation: NCCI's New Methodology" by Tom Daley.

Three major changes to the class ratemaking methodology in this filing involve:

- Loss Limits
- Loss Development
- Class Credibility

**Loss Limits**

Prior to the 2011 filing the WCRIBMA capped each claim at \$200,000. Following NCCI's methodology this year we have capped individual claims at \$500,000 and multi-claimant occurrences at \$1,500,000 (three times the individual claim limit of \$500,000).

**Loss Development**

Prior to the 2011 filing, the WCRIBMA estimated loss development factors separately by injury type for indemnity and medical losses. For fatal and permanent total claims, this method resulted in loss development factors that were not stable over time because of the low volume of claims.

NCCI examined claim characteristics and produced a development framework which assigns claims to one of two categories - Likely-to-Develop and Not-Likely-to-Develop – based on the following information taken from Unit Statistical reports:

- Injury Type
- Claim Status (open vs. closed)
  - As reported in first report
  - If no first report assume open status
- Body Part (as reported in the initial USR for the claim)

Body part codes are assigned to either Group A or Group B. Part of body Group A consists of claims that have a greater potential to develop upward over time such as injuries to the back, head, shoulders, trunk, and those involving multiple body parts. Part of body Group B consists of all other claims. A listing of all the body part codes and the grouping to which they are mapped is shown in Appendix 1.

Consistent with NCCI's new loss development methodology, the WCRIBMA assigned losses to the following four loss development categories:

- Medical – Likely-to-Develop
- Medical – Not-Likely-to-Develop
- Indemnity – Likely-to-Develop
- Indemnity – Not-Likely-to-Develop

The following table summarizes the classification of claims as likely versus not-likely to develop.

**IX 000004**

<b>INJURY TYPE</b>	<b>NOT-LIKELY-TO-DEVELOP</b>	<b>LIKELY-TO-DEVELOP</b>
Fatal	Fatal at First Report	Becomes Fatal after First Report
Permanent Total	N/A	All
Permanent Partial	Closed at First Report or Body Part Group B	Open at First Report and Body Part Group A
Temporary Total	Closed at First Report or Body Part Group B	Open at First Report and Body Part Group A
Medical Only	All	N/A

Prior to the 2011 filing a tail factor derived from the Aggregate Financial database was applied only to those claims classified as serious claims. This implied that no tail loss development is attributable to those claims classified as non-serious claims. NCCI modified this assumption in their new methodology so that 80% of tail loss development is assumed to apply to Likely-to-Develop claims with the remaining 20% of tail development being applied to the Not-Likely-to-Develop claims.

**Class Credibility**

NCCI derived new full credibility standards (FCS). The current three way credibility weighting procedure will remain the same for Indicated, National and Present On-Rate Level pure premiums.

Full Credibility Standards for State Indicated	
Pure Premium	
Indemnity	850
Medical	400

Full Credibility Standards for National Indicated	
Pure Premium	
Indemnity	1,150
Medical	1,000

### **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 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 according to the methodology established in the 9/1/2003 rate decision and used in subsequent filings. 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 2005 through 2009.

### **Adjustment of Massachusetts Data**

We begin this 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. Converted limited losses are the product of the limited losses and the primary conversion factors.

We then apply excess loss factors. Prior to the 2010 filing, the WCRIBMA had relied on a different method of calculating excess loss factors. Indicated serious, non-serious and medical excess loss factors were calculated by adding unity to the quotient of converted excess losses and converted limited losses by hazard group. In this filing as in the 2010 and 2011 filings, the WCRIBMA has followed the NCCI's new 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.

Separately for indemnity and medical losses, a factor (calculated as  $[ 1.0 / (1.0 - \text{Excess Ratio}) ] - 1.0$ ) is applied to converted limited losses by class to derive unadjusted excess losses. Consistent with NCCI's new 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 underlying present relativities. 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 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. 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 9/1/2001 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 new 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 only 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 uncapped rate level factor is the product of the present average rate and the average rate level change by industry group.

Proposed average rates are then subject to several capping mechanisms (Section IX – H, Exhibit 1). Proposed average uncapped rates are capped by an iterative process using rate levels and the 5 most recent years of exposures to determine if the required Industry Group change is achieved. The maximum rate change for a class within an Industry Group is equal to the benefit level change plus 1/2 the experience change plus 20%. The minimum rate change for a class within an industry group equals the benefit level change plus 1/2 the experience change minus 20%. Setting the caps in this manner provides some rate stability over time.

**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 (calculated in Section I – E, Exhibit 1, Page 1), as shown in Section IX - K.

**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 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 proposed maximum of 1.49. The offset factor for ARAP, calculated in Section IX – K, Exhibit 3, is 1.069.

**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

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 0.997 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 2.5% offset to be applied to the eligible classes.

### **Loading for Recoupment of Insolvency Fund Assessments**

Under Massachusetts law, from time to time the Massachusetts Insurers Insolvency Fund (“Fund”) assesses carriers that write policies in Massachusetts on the lines of insurance protected by the Fund to cover the Fund's expenses. Beginning in 1988, workers' compensation insurance was covered by the Fund. The loading included in this filing is a recoupment of the assessments made by the Fund in 2010 and 2011 that have not yet been recouped. The proposed factor is a loading of 0.0007.

### **Pricing Example**

Section IX - L is a sample rate calculation, for Class 0005 – Farm: Nursery Emp & Drivers. 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.
- The manual rates for 6811, 6854, 6882, and 6884 are set at 77.40<sup>1</sup>% 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 84.46%<sup>2</sup> 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.

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<sup>1</sup> 77.40% = 1.0 / Proposed USL&H Coverage Percentage for Manual Rates. Coverage Percentage from Section VIII – J, Exhibit 1.

<sup>2</sup> 84.46% = 1.0 / Proposed USL&H Coverage Percentage for ELRs. Coverage Percentage from Section VIII – J, Exhibit 1.

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- The rate and rating values for 8826 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.

## APPENDIX 1: PART OF BODY MAP

<b><u>Group A</u></b>	<b><u>Group B</u></b>
<ul style="list-style-type: none"> <li>▪ 10 – Multiple Head Injury</li> <li>▪ 11 – Skull</li> <li>▪ 12 – Brain</li> <li>▪ 20 – Multiple Neck Injury</li> <li>▪ 21 – Vertebrae</li> <li>▪ 22 – Disc</li> <li>▪ 23 – Spinal Cord</li> <li>▪ 24 – Larynx</li> <li>▪ 25 – Soft Tissue</li> <li>▪ 30 – Multiple Upper Extremities</li> <li>▪ 40 – Multiple Trunk</li> <li>▪ 41 – Upper Back Area</li> <li>▪ 42 – Lower Back Area</li> <li>▪ 43 – Disc Cord</li> <li>▪ 45 – Sacrum and Coccyx</li> <li>▪ 47 – Spinal Cord</li> <li>▪ 48 – Internal Organs</li> <li>▪ 49 – Heart</li> <li>▪ 50 – Multiple Lower Extremities</li> <li>▪ 51 – Hip</li> <li>▪ 60 – Lungs</li> <li>▪ 62 – Buttocks</li> <li>▪ 63 – Lumbar and/or Sacral Vertebrae</li> <li>▪ 65 – Insufficient Info to Properly Identify – Unclassified</li> <li>▪ 90 – Multiple Body Parts</li> <li>▪ 91 – Body Systems and Multiple Body Systems</li> <li>▪ 99 - Whole Body</li> </ul>	<ul style="list-style-type: none"> <li>▪ 13 – Ear(s)</li> <li>▪ 14 – Eye(s)</li> <li>▪ 15 – Nose</li> <li>▪ 16 – Teeth</li> <li>▪ 17 –Mouth</li> <li>▪ 18 – Soft tissue</li> <li>▪ 19 – Facial Bones</li> <li>▪ 26 – Trachea</li> <li>▪ 31 – Upper Arm</li> <li>▪ 32 – Elbow</li> <li>▪ 33 – Lower Arm</li> <li>▪ 34 – Wrist</li> <li>▪ 35 – Hand</li> <li>▪ 36 – Finger(s)</li> <li>▪ 37 – Thumb</li> <li>▪ 38 – Shoulder(s)</li> <li>▪ 39 – Wrist(s) and Hand(s)</li> <li>▪ 52 – Upper Leg</li> <li>▪ 53 – Knee</li> <li>▪ 54 – Lower Leg</li> <li>▪ 55 – Ankle</li> <li>▪ 56 – Foot</li> <li>▪ 57 – Toes</li> <li>▪ 58 – Great Toe</li> <li>▪ 64 – Artificial Appliance</li> <li>▪ 66 – No Physical Injury</li> </ul>

# IX 000019

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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	2.91	281.	20.	1430	10.07	500.	--	2156	9.96	500.	--	2741	6.31	471.	--
0008	3.01	284.	20.	1438	3.80	292.	--	2157	6.26	469.	--	2747	7.71	500.	--
0016	4.49	336.	20.	1463	9.25	500.	--	2172	2.02	230.	--	2790	2.31	240.	--
0034	4.66	342.	20.	1624D	6.93	500.	20.	2174	4.35	311.	--	2802	5.34	346.	--
0035	2.33	261.	20.	1655	6.28	490.	20.	2211	7.35	500.	--	2835	2.50	247.	--
0036	4.66	342.	20.	1701	5.10	338.	--	2220	3.69	288.	--	2836	3.06	266.	--
0037	3.01	284.	20.	1710D	6.93	500.	20.	2260	7.39	500.	--	2841	4.69	323.	--
0042	4.57	339.	20.	1747	3.49	281.	--	2286	3.69	288.	--	2883	4.16	305.	--
0046	2.52	267.	20.	1748	3.38	277.	--	2288	2.70	254.	--	2923	1.89	225.	--
0050	7.29	500.	50.	1852	7.98	500.	--	2302	3.69	288.	--	2942	2.84	258.	--
0059D	0.33	.	.	1853	1.81	222.	--	2305	2.44	244.	--	3018	2.79	257.	--
0065D	0.14	.	.	1860	2.64	251.	--	2362	2.34	241.	--	3022	4.46	315.	--
0066D	0.12	.	.	1924	2.83	258.	--	2380	2.66	252.	--	3027	5.15	339.	--
0067D	0.12	.	.	1925	4.17	305.	--	2402	2.90	261.	--	3028	3.83	293.	--
0079	2.54	268.	20.	2001	4.02	300.	--	2413	3.71	289.	--	3030	8.66	500.	--
0083	6.60	500.	20.	2002	4.71	324.	--	2416	2.97	263.	--	3040	9.35	500.	--
0106	19.03	500.	20.	2003	4.02	300.	--	2417	3.85	294.	--	3041	4.60	320.	--
0113	4.66	342.	20.	2014	4.64	321.	--	2501	2.65	252.	--	3042	5.67	357.	--
0170	4.66	342.	20.	2021	4.14	304.	--	2503	1.27	203.	--	3064	3.28	274.	--
0251	4.09	322.	20.	2039	2.74	255.	--	2534	2.65	252.	--	3066	3.28	274.	--
‡				2041	3.02	265.	--	2570	4.75	325.	--	3076	3.11	268.	--
‡				2070	4.67	322.	--	2576	3.24	272.	--	3081D	8.67	500.	--
0770b	1.83	.	.	2081	4.09	302.	--	2578	3.24	272.	--	3082D	8.67	500.	--
0773c	4.82	.	.	2089	2.72	254.	--	2585	3.54	283.	--	3085D	4.53	318.	--
0774d	3.53	.	.	2095	4.22	307.	--	2586	1.93	227.	--	3110	7.40	500.	--
0775e	3.01	.	.	2101	2.72	254.	--	2587	3.17	290.	20.	3111	3.14	269.	--
0776f	3.26	.	.	2105	(a)	(a)	(a)	2623	4.25	308.	--	3113	1.99	229.	--
0779g	2.46	.	.	2111	2.82	258.	--	2640	2.34	241.	--	3114	3.55	283.	--
0799h	10.86	.	.	2114	2.72	254.	--	2651	2.34	241.	--	3118	1.99	229.	--
0908	119.00	183.	--	2115	3.71	289.	--	2660	2.33	241.	--	3119	1.05	196.	--
0909	164.00	228.	--	2121	2.08	232.	--	2683	2.54	248.	--	3120	2.10	233.	--
0912	329.00	393.	--	2130	2.92	261.	--	2688	3.06	266.	--	3122	2.24	237.	--
0913	238.00	302.	--	2131	2.83	258.	--	2702	17.60	500.	20.	3127	1.06	196.	--
0917	3.26	293.	20.	2143	3.11	268.	--	2710	7.74	500.	--	3131	1.95	227.	--
0918	0.71	204.	20.	2150	6.56	480.	--	2731	5.12	338.	--	3132	3.31	275.	--

Non-Ratable Code and Rate to be used with the following classifications:

b 4770 d 4774 f 4776 h 4799  
 c 4773 e 4775 g 4779

‡ Class Codes 0400 and 0401 are deleted effective September 1, 2012.

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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
3145	2.32	240.	--	3642	1.36	207.	--	4304	4.24	307.	--	4799h	40.86	500.	--
3146	2.32	240.	--	3643	1.85	224.	--	4307	1.64	216.	--	4825	0.75	185.	--
3169	4.23	307.	--	3647	2.79	257.	--	4308	1.18	200.	--	4828	1.47	210.	--
3179	1.85	224.	--	3648	1.75	220.	--	4350	0.72	184.	--	4829	1.47	210.	--
3180	3.51	282.	--	3681	0.90	191.	--	4351	1.22	202.	--	4902	2.84	258.	--
3188	3.58	284.	--	3685	0.90	191.	--	4352	1.36	207.	--	4923	1.49	211.	--
3200	3.02	265.	--	3724	5.12	479.	50.	4360	1.49	211.	--	5020	7.77	500.	50.
3220	2.46	245.	--	3726	16.46	500.	50.	4361	0.61	200.	20.	5022	12.51	500.	50.
3223	(a)	(a)	(a)	3807	4.23	307.	--	4362	0.81	207.	20.	5037	29.25	500.	50.
3227	4.23	307.	--	3808	4.59	320.	--	4410	5.09	337.	--	5040	66.02	500.	50.
3241	2.83	258.	--	3821	5.17	451.	20.	4417	5.84	454.	--	5057	30.38	500.	50.
3255	3.62	286.	--	3826	2.99	264.	--	4432	1.58	214.	--	5059	30.38	500.	50.
3257	3.46	280.	--	3830	1.99	229.	--	4439	3.02	265.	--	5069	30.38	500.	50.
3270	2.46	245.	--	3841	2.08	232.	--	4452	3.80	292.	--	5102	8.57	500.	50.
3300	6.51	478.	--	4000	4.93	352.	20.	4459	3.83	293.	--	5146	6.43	500.	50.
3305	(a)	(a)	(a)	4021	4.93	332.	--	4470	3.07	266.	--	5160	3.84	343.	50.
3315	3.44	279.	--	4024	4.01	299.	--	4484	2.75	255.	--	5183	3.89	345.	50.
‡				4034	6.10	464.	--	4493	3.60	285.	--	5188	5.14	480.	50.
3336	4.08	302.	--	4036	3.47	280.	--	4511	0.38	192.	20.	5190	3.20	321.	50.
3365	9.59	500.	50.	4038	2.48	246.	--	4512	0.17	185.	20.	5191	1.13	219.	20.
3372	2.76	256.	--	4053	2.35	241.	--	4557	1.91	226.	--	5192	3.77	311.	20.
3373	4.64	321.	--	4061	2.90	261.	--	4558	1.92	226.	--	5213	16.26	500.	50.
3381	3.75	290.	--	4062	2.90	261.	--	4561	3.02	265.	--	5215	6.06	500.	50.
3383	1.45	210.	--	4112	0.82	188.	--	4583	3.66	287.	--	5221	7.76	500.	50.
3385	1.02	195.	--	4113	2.35	241.	--	4611	1.52	212.	--	5222	10.82	500.	50.
3400	4.23	307.	--	4114	3.11	268.	--	4635	3.74	290.	--	5223	6.06	500.	50.
3507	4.25	308.	--	4130	6.36	473.	--	4653	2.74	255.	--	5348	6.94	500.	50.
3515	3.07	266.	--	4133	2.05	231.	--	4665	9.93	500.	--	5402	9.91	500.	50.
3548	1.99	229.	--	4150	0.98	193.	--	4692	0.72	184.	--	5403	11.84	500.	50.
3558	0.76	186.	--	4239	3.08	267.	--	4693	1.22	202.	--	5437	5.69	499.	50.
3559	1.99	229.	--	4243	3.81	292.	--	4720	2.20	236.	--	5443	4.81	468.	50.
3571	1.22	202.	--	4244	4.50	317.	--	4740	1.09	197.	--	5445	8.49	500.	50.
3574	1.99	229.	--	4250	2.04	230.	--	4741	3.30	275.	--	5462	10.15	500.	50.
3612	2.40	243.	--	4251	2.19	236.	--	4770b	12.21	500.	--	5472	10.89	500.	50.
3620	6.12	464.	--	4273	3.14	269.	--	4773c	23.54	500.	--	5473	11.43	500.	50.
3629	1.99	229.	--	4279	3.71	289.	--	4774d	20.00	500.	--	5474	6.33	500.	50.
3632	1.99	229.	--	4282	0.89	190.	--	4775e	18.51	500.	--	5478	5.82	500.	50.
3634	2.01	229.	--	4283	3.30	275.	--	4776f	17.11	500.	--	5479	8.11	500.	50.
3635	4.38	312.	--	4299	2.39	243.	--	4777	3.66	287.	--	5480	5.82	500.	50.
3638	1.99	229.	--	4301	5.13	339.	--	4779g	13.94	500.	--	5506	7.61	500.	50.

For Non-Ratable portion of Rate, refer to:

b	0770	d	0774	f	0776	h	0799
c	0773	e	0775	g	0779		

‡ Class Code 3334 is deleted effective September 1, 2012.

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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
5507	7.64	500.	50.	7230	8.11	500.	20.	8018	3.61	305.	20.	8709F	8.33	500.	--
5508D	7.47	500.	50.	7231	8.23	500.	20.	8021	3.01	284.	20.	8710	2.79	277.	20.
5509	4.27	358.	50.	7309F	33.99	500.	--	8031	2.87	279.	20.	8719	2.79	277.	20.
5538	6.17	500.	50.	7313F	18.78	500.	--	8032	1.91	246.	20.	8720	1.13	219.	20.
5545	38.54	500.	50.	7317F	17.94	500.	--	8033	2.23	257.	20.	8721	0.21	186.	20.
5547	21.24	500.	50.	7327F	41.07	500.	--	8034	4.00	319.	20.	8726F	6.85	490.	--
5606	1.97	278.	50.	7350F	21.24	500.	--	8039	1.49	231.	20.	8742	0.19	186.	20.
5610	6.75	500.	50.	7360	6.44	495.	20.	8044	3.72	309.	20.	8745	4.20	326.	20.
5645	10.30	500.	50.	7370	5.39	459.	20.	8046	3.03	285.	20.	8747	1.16	220.	20.
5651	10.30	500.	50.	7380	6.88	500.	20.	8048	3.12	288.	20.	8748	0.57	199.	20.
5701	20.48	500.	50.	7382	4.31	330.	20.	8050	1.82	243.	20.	8800	0.96	213.	20.
5703	23.17	500.	50.	7403	4.87	349.	20.	8058	3.06	286.	20.	8803	0.04	180.	20.
5705	12.95	500.	50.	7405i	1.21	235.	20.	8103	3.64	306.	20.	8810	0.09	182.	20.
6003	11.14	500.	50.	7420	7.63	500.	20.	8105	4.37	332.	20.	8820	0.10	183.	20.
6005	7.47	500.	50.	7421*	2.16	255.	20.	8106	9.15	500.	20.	8824	1.78	241.	20.
6204	12.02	500.	50.	7422	2.16	255.	20.	8107	3.98	318.	20.	8826	1.78	241.	20.
6217	5.41	489.	50.	7425	4.24	327.	20.	8111	3.29	294.	20.	8829	2.28	259.	20.
6229	5.41	489.	50.	7431j	1.62	255.	20.	8116	3.98	318.	20.	8831	1.33	226.	20.
6233	4.75	466.	50.	7445k	0.40	.	.	8203	5.66	468.	20.	8832	0.28	189.	20.
6251D	7.45	500.	50.	7453l	0.54	.	.	8204	6.08	483.	20.	8833	1.37	227.	20.
6252D	9.13	500.	50.	7502	4.27	328.	20.	8215	3.26	293.	20.	8835	2.22	257.	20.
6306	9.47	500.	50.	7515	2.33	261.	20.	8227	4.89	471.	50.	8837	(a)	(a)	(a)
6319	6.05	500.	50.	7520	4.09	322.	20.	8232	5.52	463.	20.	8868	0.78	206.	20.
6325	5.45	491.	50.	7538	6.64	500.	50.	8233	7.79	500.	20.	8901	0.09	182.	20.
6400	7.18	500.	50.	7539	1.53	233.	20.	8235	4.50	337.	20.	9014	2.81	277.	20.
6504	2.72	254.	--	7580	2.66	272.	20.	8263	7.60	500.	20.	9015	3.49	301.	20.
6801F	15.47	500.	--	7590	6.29	490.	20.	8264	5.98	479.	20.	9016	1.98	248.	20.
6811	11.97	500.	20.	7600	4.19	326.	20.	8265	7.79	500.	20.	9019	3.29	294.	20.
6824F	12.95	500.	--	7601	6.64	500.	50.	8279	5.58	465.	20.	9033	4.83	348.	20.
6826F	12.39	500.	--	7610	0.23	187.	20.	8291	4.45	335.	20.	9040	3.21	291.	20.
6834	3.17	290.	20.	7704	2.35	261.	20.	8292	3.89	315.	20.	9052	1.78	241.	20.
6836	3.16	290.	20.	7720	2.24	257.	20.	8293	10.60	500.	20.	9058	1.78	241.	20.
6843F	17.55	500.	--	7855	6.25	500.	50.	8350	7.35	500.	20.	9060	1.21	221.	20.
6854	13.58	500.	20.	8001	1.87	244.	20.	8380	3.06	286.	20.	9061	1.12	218.	20.
6872F	44.43	500.	--	8002	2.58	269.	20.	8381	2.15	254.	20.	9063	0.82	208.	20.
6874F	32.90	500.	--	8006	1.95	247.	20.	8385	3.78	311.	20.	9077F	5.86	455.	--
6882	34.39	500.	20.	8008	0.81	207.	20.	8392	1.58	234.	20.	9079	1.36	227.	20.
6884	25.46	500.	20.	8010	1.78	241.	20.	8393	2.24	257.	20.	‡			
7133	(a)	(a)	(a)	8013	0.55	198.	20.	8500	7.79	500.	20.	9089	1.38	227.	20.
7219	10.76	500.	20.	8017	1.37	227.	20.	8601	0.31	190.	20.	9093	1.09	217.	20.

\*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:

j 7445                      j 7453

Non-Ratable Code and Rate to be used with:

k 7405                      l 7431

‡ Class Code 9088 is deleted effective September 1, 2012.

**IX 000022**

Section IX - Classification Pricing  
 Subsection A - Summary  
 9/1/2012

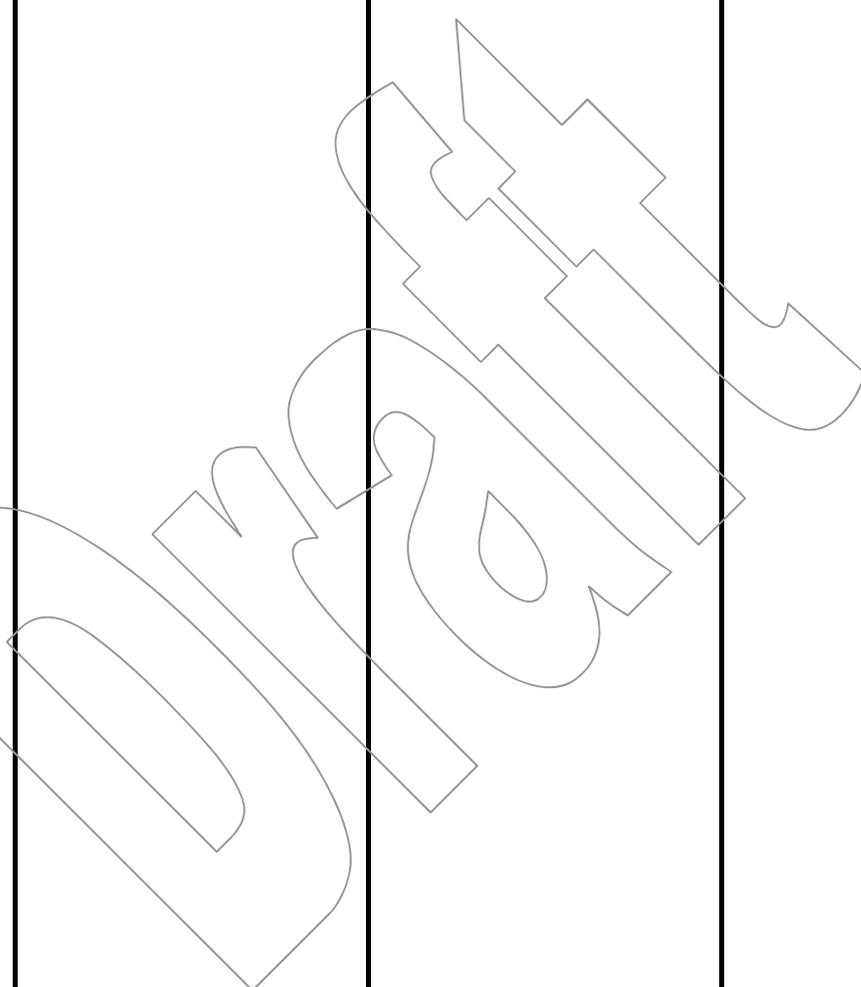
Section IX - A  
 Exhibit 1  
 Page 4

**MASSACHUSETTS WORKERS COMPENSATION AND EMPLOYERS LIABILITY INSURANCE MANUAL** **RATES**

Draft *Proposed Effective September 1, 2012* 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
9101	4.06	321.	20.												
9102	2.92	281.	20.												
9154	1.55	233.	20.												
9156	1.33	226.	20.												
9178	16.06	500.	20.												
9179	31.12	500.	20.												
9180	5.18	451.	20.												
9182	4.39	333.	20.												
9186	5.18	451.	20.												
9220	3.98	318.	20.												
9402	5.81	473.	20.												
9403	10.10	500.	20.												
9410	2.49	266.	20.												
9501	2.97	263.	--												
9505	2.97	263.	--												
9519	3.23	292.	20.												
9521	4.16	305.	--												
9522	2.42	244.	--												
9533	19.07	500.	50.												
9534	6.97	500.	50.												
9545	4.66	463.	50.												
9549	6.21	500.	50.												
9552	10.69	500.	50.												
9553	10.69	500.	50.												
9586	0.52	197.	20.												
9620	0.84	208.	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	2.637	1.334	0.598	0.691	1.090
	Medical	2.637	0.897	0.402	0.691	0.733
	Total		2.231			
Construction	Indemnity	6.638	3.532	0.635	0.691	2.912
	Medical	6.638	2.031	0.365	0.691	1.675
	Total		5.564			
Office and Clerical	Indemnity	0.189	0.089	0.560	0.691	0.073
	Medical	0.189	0.070	0.440	0.691	0.058
	Total		0.158			
Goods and Services	Indemnity	2.203	1.072	0.580	0.691	0.883
	Medical	2.203	0.776	0.420	0.691	0.640
	Total		1.848			
Miscellaneous	Indemnity	6.331	3.229	0.603	0.691	2.637
	Medical	6.331	2.128	0.397	0.691	1.738
	Total		5.357			

Notes:

- (3): Section IX - H, Exhibit 1.
- (4): Section IX - C, Exhibits 1-5, page 2.
- (6): Section VI - A, Exhibit 1.

# IX 000024

## 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				
	2005	2006	2007	2008	2009
Fatal	1.027	1.022	1.016	1.010	1.008
Permanent Total	1.039	1.031	1.023	1.015	1.012
Major Permanent Partial	1.071	1.055	1.040	1.026	1.021
Minor Permanent Partial	1.071	1.055	1.040	1.026	1.021
Temporary Total	1.021	1.017	1.013	1.008	1.006

Medical					
All Injury Types	1.032	1.032	1.032	1.024	1.002

### (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				
	2005	2006	2007	2008	2009
Likely	0.993	1.032	1.133	1.308	1.963
Not Likely	0.998	1.026	1.079	1.202	1.587

Medical					
Likely	1.037	1.057	1.134	1.219	1.380
Not Likely	1.006	1.012	1.012	1.036	1.090

### (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				
	2005	2006	2007	2008	2009
All Injury Types	1.020	1.062	1.087	1.042	1.001

Medical					
Lost Time Medical	1.131	1.136	1.134	1.151	1.040
Medical Only	0.796	0.825	0.829	0.864	0.912

### (D). Primary Conversion Factors (PCF)

Indemnity	Policy Year				
	2005	2006	2007	2008	2009
Fatal - LD	1.041	1.120	1.251	1.377	1.982
Fatal - NLD	1.046	1.113	1.192	1.265	1.603
Permanent Total	1.053	1.130	1.259	1.383	1.989
Major Permanent Partial - LD	1.085	1.156	1.281	1.398	2.007
Major Permanent Partial - NLD	1.091	1.150	1.220	1.284	1.622
Minor Permanent Partial - LD	1.085	1.156	1.281	1.398	2.007
Minor Permanent Partial - NLD	1.091	1.150	1.220	1.284	1.622
Temporary Total - LD	1.035	1.115	1.247	1.374	1.978
Temporary Total - NLD	1.040	1.108	1.188	1.262	1.599

Medical					
Lost Time Medical -LD	1.210	1.239	1.327	1.438	1.437
Lost Time Medical -NLD	1.174	1.187	1.185	1.221	1.135
Medical - NLD	0.827	0.862	0.866	0.917	0.996

**Notes:**

(A): Section IV - A, Exhibit 1.

(B): Development to 5th report (Exhibit 2, Page 1) x Development from 5th to ultimate. The 5th 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

(D) = (A) x (B) x (C)

**IX 000025**

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	1.192	1.192

(B). Investment Income Offset Factor

The following factor is applied to adjust for investment income.

	Investment Income Offset Factor
<b>Indemnity</b>	
Fatal	0.896
Permanent Total	0.868
Major Permanent Partial	1.010
Minor Permanent Partial	1.022
Temporary Total	1.015
<b>Medical</b>	
Fatal	1.000
Permanent Total	0.870
Major Permanent Partial	1.013
Minor Permanent Partial	1.024
Temporary Total	1.018
Medical Only	1.000

(C). Secondary Conversion Factors

The factors above are combined multiplicatively, resulting in the following conversion factors.

<b>Indemnity</b>	
Fatal	1.068
Permanent Total	1.035
Major Permanent Partial	1.204
Minor Permanent Partial	1.218
Temporary Total	1.210
<b>Medical</b>	
Fatal	1.192
Permanent Total	1.037
Major Permanent Partial	1.207
Minor Permanent Partial	1.221
Temporary Total	1.213
Medical Only	1.192

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 000026

Section IX - Classification Pricing  
 Subsection B - Conversion/Excess Loss Factors  
 9/1/2012

Section IX - B  
 Exhibit 2  
 Page 1

## Summary of Development Factors

Likely to Develop				
Development Factors From:				
	18-30	30-42	42-54	54-66
<u>(1) Indemnity Losses</u>				
2 Yr Average	1.501	1.155	1.098	1.039
Cumulative	1.976	1.317	1.140	1.039
<u>(2) Medical Losses</u>				
2 Yr Average	1.132	1.075	1.073	1.019
Cumulative	1.331	1.176	1.093	1.019
<u>(3) Claim Counts</u>				
2 Yr Average	1.023	1.010	1.006	1.002
Cumulative	1.041	1.018	1.008	1.002
Not-Likely to Develop				
Development Factors From:				
	18-30	30-42	42-54	54-66
<u>(4) Indemnity Losses</u>				
2 Yr Average	1.321	1.114	1.052	1.027
Cumulative	1.590	1.204	1.081	1.027
<u>(5) Medical Losses</u>				
2 Yr Average	1.052	1.023	1.000	1.006
Cumulative	1.083	1.030	1.006	1.006
<u>(6) Claim Counts</u>				
2 Yr Average	1.020	1.006	1.002	1.001
Cumulative	1.029	1.009	1.003	1.001

**Notes:**

(1), (2), (3): Page 2.

(4), (5), (6): Page 3.

# IX 000027

Section IX - Classification Pricing  
 Subsection B - Conversion/Excess Loss Factors  
 9/1/2012

Section IX - B  
 Exhibit 2  
 Page 2

## Calculation of Likely to Develop Development Factors

Likely to Develop									
Policy Year	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	
2008	68,029,308	101,361,653	1.490	42,616,138	48,779,528	1.145	1,551	1,583	1.021
2007	71,334,349	107,790,342	1.511	46,601,462	52,170,873	1.120	1,813	1,859	1.025
Average			1.501			1.132			1.023
	30	42		30	42		30	42	
2007	111,016,279	126,397,017	1.139	53,544,628	55,588,852	1.038	1,905	1,933	1.015
2006	116,233,144	136,145,159	1.171	54,516,055	60,631,154	1.112	2,148	2,159	1.005
Average			1.155			1.075			1.010
	42	54		42	54		42	54	
2006	139,897,914	150,896,045	1.079	62,018,679	65,813,340	1.061	2,187	2,206	1.009
2005	135,651,669	151,578,378	1.117	63,538,445	68,939,742	1.085	2,367	2,375	1.003
Average			1.098			1.073			1.006
	54	66		54	66		54	66	
2005	155,440,861	160,297,257	1.031	70,414,060	71,285,653	1.012	2,394	2,399	1.002
2004	161,034,029	168,431,685	1.046	73,076,889	74,938,860	1.025	2,662	2,666	1.002
Average			1.039			1.019			1.002

Note:  
 Unit Statistical Plan data, excluding Large Deductibles.

# IX 000028

Section IX - Classification Pricing  
 Subsection B - Conversion/Excess Loss Factors  
 9/1/2012

Section IX - B  
 Exhibit 2  
 Page 3

## Calculation of Not-Likely to Develop Development Factors

Not-Likely to Develop									
Indemnity Losses			Medical Losses				Claim Counts		
Policy Year	Evaluated at month		Link Ratio	Evaluated at month		Link Ratio	Evaluated at month		Link Ratio
	18	30		18	30		18	30	
2008	125,939,411	164,896,921	1.309	117,212,959	122,553,027	1.046	12,358	12,588	1.019
2007	120,072,450	159,961,080	1.332	116,189,274	122,997,253	1.059	13,412	13,704	1.022
Average			1.321			1.052			1.020
	30	42		30	42		30	42	
2007	156,735,144	174,679,120	1.114	121,623,497	124,299,359	1.022	13,658	13,729	1.005
2006	147,842,968	164,539,140	1.113	114,397,017	117,175,617	1.024	13,627	13,715	1.006
Average			1.114			1.023			1.006
	42	54		42	54		42	54	
2006	160,786,386	170,520,367	1.061	115,788,091	116,328,685	1.005	13,687	13,713	1.002
2005	165,188,575	172,385,203	1.044	115,156,128	114,633,507	0.995	14,782	14,810	1.002
Average			1.052			1.000			1.002
	54	66		54	66		54	66	
2005	168,522,720	173,460,389	1.029	113,159,189	113,568,000	1.004	14,791	14,810	1.001
2004	171,537,393	175,875,828	1.025	113,817,871	114,856,830	1.009	15,186	15,206	1.001
Average			1.027			1.006			1.001

Note:  
 Unit Statistical Plan data, excluding Large Deductibles.

# IX 000029

Section IX - Classification Pricing  
 Subsection B - Conversion/Excess Loss Factors  
 9/1/2012

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						
2005	1,011.25	21,626	10,642	724	191.63	460.52
2006	1,056.18	22,694	11,575	767	183.15	438.23
2007	1,092.12	22,931	11,990	799	183.19	433.21
2008	1,092.79	24,937	12,312	815	175.82	407.39
2009	1,101.70	26,325	13,831	801	174.70	396.15

(2) Trend to PY 2009						
2005	1.089	1.217	1.300	1.106	0.912	0.860
2006	1.043	1.160	1.195	1.043	0.954	0.904
2007	1.009	1.148	1.154	1.002	0.954	0.914
2008	1.008	1.056	1.123	0.982	0.994	0.972
2009	1.000	1.000	1.000	1.000	1.000	1.000

(3) Projected Trend from PY 2009 to Prospective Effective Period						
Selected Annual Trend	2.0%	4.7%	5.7%	3.4%	-2.5%	-3.8%
Trend Factor	1.075	1.182	1.227	1.130	0.911	0.868

(4) Trend Factors from PY 2009 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
2005	1.171	1.439	1.595	1.249	0.830	0.747
2006	1.121	1.371	1.467	1.179	0.869	0.785
2007	1.084	1.357	1.416	1.132	0.869	0.794
2008	1.084	1.248	1.379	1.109	0.905	0.844
2009	1.075	1.182	1.227	1.130	0.911	0.868

**Notes:**

(1): Weekly Wage from Section V-G, Exhibit 2.

Indemnity Severity from Section V-C, Exhibit 1.

Lost Time Medical Severity from Section V-D, Exhibit 1.

Medical Only Severity from Section V-D, Exhibit 2.

Lost Time Claim Frequency from Section V-B, Exhibit 1.

Medical Only Claim Frequency from Section V-B, Exhibit 2.

(2) = (1) / (1) for Policy Year 2009

(3): Selected Annual Trend from Section V-A, Exhibit 1.

Trend Factor = ( 1.0 + Selected Annual Trend ) ^ Trend Period, where Trend Period extends from the midpoint of PY 2009 to midpoint of policy effective period 9/1/2012 - 8/31/2013, which is 3.667 years.

(4) = (2) x (3)

**IX 000030**

Section IX - Classification Pricing  
 Subsection B - Conversion/Excess Loss Factors  
 9/1/2012

Section IX - B  
 Exhibit 4

Calculation of Investment Income Offset Factor

Indemnity

Injury Type (1)	Loss Flow Discounted at 0.67% Post-Chapter 398 (2)	Injury Type Weights At Ultimate (3)	Investment Income Offset Factor (4)
Fatal	0.873	1.67%	0.896
Permanent Total	0.846	4.09%	0.868
Major Permanent Partial	0.984	36.82%	1.010
Minor Permanent Partial	0.996	5.79%	1.022
Temporary Total	0.989	13.23%	1.015
Total Indemnity			0.974

Medical

Injury Type (5)	Loss Flow Discounted at 0.67% Post-Chapter 398 (6)	Injury Type Weights At Ultimate (7)	Investment Income Offset Factor (8)
Fatal	0.873	0.14%	1.000
Permanent Total	0.846	3.61%	0.870
Major Permanent Partial	0.984	15.79%	1.013
Minor Permanent Partial	0.996	3.63%	1.024
Temporary Total	0.989	10.35%	1.018
Medical Only		4.88%	1.000
Total Medical			0.972

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 - H, Exhibit 1, Page 1) times the complement of the federal tax rate on investment income (Section VII-H, Exhibit 1, Page 1) [0.84% x (1.000 - 20.35%)] = 0.67%

(3): Section IV - E, Exhibit 2, page 1.

(4)= (2) / 0.974, which is the weighted average of (2) and (3).

(7): Section IV - E, Exhibit 2, page 2.

(8)= (6) / 0.972, 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.

# IX 000031

Section IX - Classification Pricing  
Subsection B - Conversion/Excess Loss Factors  
9/1/2012

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	0.090	1.099
B	0.102	1.114
C	0.127	1.145
D	0.166	1.199
E	0.180	1.220
F	0.208	1.263
G	0.319	1.468

**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				
		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)	
2005	1	182,169	567,427	32,254	104,963	886,813	189,552	593,435	39,029	123,201	945,217
	2	5,374,397	0	2,425,619	0	7,800,016	5,657,467	0	2,935,139	0	8,592,606
	3	12,434,135	12,403,899	4,083,412	3,655,546	32,576,992	13,493,275	13,529,118	4,941,164	4,290,704	36,254,261
	4	1,206,824	4,919,051	638,154	3,044,455	9,808,484	1,309,621	5,365,283	772,203	3,573,434	11,020,541
	5	4,855,966	9,667,655	3,095,985	7,502,821	25,122,427	5,025,763	10,056,735	3,746,320	8,806,449	27,635,267
	6	0	0	0	4,917,418	4,917,418	0	0	0	4,065,619	4,065,619
2006	1	322,380	228,104	276	298	551,058	361,002	253,942	342	354	615,640
	2	3,451,029	0	1,849,683	0	5,300,712	3,900,449	0	2,291,484	0	6,191,933
	3	10,499,796	14,286,958	4,089,450	4,822,721	33,698,925	12,142,909	16,426,391	5,066,224	5,723,951	39,359,475
	4	1,045,259	4,795,222	728,690	2,902,379	9,471,550	1,208,832	5,513,293	902,739	3,444,751	11,069,615
	5	4,442,636	8,809,646	1,854,594	7,569,976	22,676,852	4,953,177	9,764,772	2,297,568	8,984,590	26,000,107
	6	0	0	0	5,060,802	5,060,802	0	0	0	4,360,536	4,360,536
2007	1	0	314,626	0	0	314,626	0	374,902	0	0	374,902
	2	1,686,699	0	349,459	0	2,036,158	2,124,037	0	463,642	0	2,587,679
	3	10,576,728	15,493,214	5,066,168	5,047,360	36,183,470	13,547,252	18,903,071	6,721,508	5,978,951	45,150,782
	4	1,499,917	4,497,185	855,028	2,685,353	9,537,483	1,921,176	5,486,958	1,134,403	3,180,988	11,723,525
	5	3,644,336	8,579,545	1,560,980	7,273,279	21,058,140	4,543,421	10,188,725	2,071,021	8,615,707	25,418,874
	6	0	0	0	4,551,943	4,551,943	0	0	0	3,940,718	3,940,718
2008	1	0	476,557	0	68,913	545,470	0	602,785	0	84,171	686,956
	2	634,623	0	397,777	0	1,032,400	877,742	0	571,836	0	1,449,578
	3	9,275,745	11,560,076	3,881,346	4,457,119	29,174,286	12,970,731	14,848,552	5,579,743	5,444,000	38,843,026
	4	1,243,405	4,024,939	966,209	3,153,247	9,387,800	1,738,714	5,169,907	1,389,002	3,851,428	12,149,051
	5	2,302,834	6,800,974	1,651,063	6,496,839	17,251,710	3,163,385	8,581,601	2,373,534	7,935,348	22,053,868
	6	0	0	0	4,210,978	4,210,978	0	0	0	3,859,543	3,859,543
2009	1	0	756,134	0	12,699	768,833	0	1,211,732	0	14,414	1,226,146
	2	327,643	0	51,445	0	379,088	651,817	0	73,950	0	725,767
	3	2,582,759	5,938,587	1,675,439	3,188,621	13,385,406	5,182,502	9,634,598	2,408,376	3,619,136	20,844,612
	4	486,752	2,328,571	416,794	1,764,348	4,996,465	976,705	3,777,808	599,125	2,002,564	7,356,202
	5	3,751,031	8,106,345	2,612,867	8,153,008	22,623,251	7,419,326	12,963,845	3,755,891	9,253,797	33,392,859
	6	0	0	0	3,531,474	3,531,474	0	0	0	3,516,629	3,516,629
(13) All Years, All Injury Types		81,827,063	124,554,715	38,282,692	94,176,560	338,841,030	103,358,855	153,247,453	50,134,243	104,670,983	411,411,534

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 000032

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		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)
2005	1	15,071	75,075	10,892	54,444	155,482	218,445	713,667	59,506	211,752	1,203,370	49,254,964
	2	544,415	0	652,566	0	1,196,981	6,418,985	0	3,721,308	0	10,140,293	
	3	1,473,228	1,467,762	1,417,752	1,283,780	5,642,522	18,024,552	18,061,136	7,674,733	6,727,982	50,488,403	
	4	140,958	561,426	170,654	768,906	1,641,944	1,767,380	7,221,075	1,151,251	5,302,103	15,441,809	
	5	524,883	1,070,157	772,948	1,800,009	4,167,997	6,718,742	13,468,471	5,482,121	12,866,215	38,535,549	
	6	0	0	0	620,672	620,672	0	0	0	5,586,059	5,586,059	
2006	1	37,182	25,860	15,985	11,134	90,161	425,080	298,702	19,461	13,694	756,937	51,454,422
	2	463,283	0	536,028	0	999,311	4,516,488	0	2,932,807	0	7,449,295	
	3	1,345,115	1,771,794	1,389,715	1,627,645	6,134,269	16,243,981	21,916,551	7,791,833	8,872,822	54,825,187	
	4	132,110	587,666	194,404	782,967	1,697,147	1,633,797	7,433,381	1,339,639	5,162,147	15,568,964	
	5	507,716	1,014,430	550,832	1,808,759	3,881,737	6,610,102	13,047,613	3,455,265	13,092,925	36,205,905	
	6	0	0	0	665,860	665,860	0	0	0	5,991,463	5,991,463	
2007	1	0	57,607	0	24,689	82,296	0	461,724	0	29,429	491,153	53,030,307
	2	189,288	0	142,299	0	331,587	2,394,306	0	628,507	0	3,022,813	
	3	1,454,708	2,085,496	1,647,115	1,854,944	7,042,263	18,067,254	25,277,082	10,100,298	9,454,921	62,899,555	
	4	197,674	593,662	252,848	763,294	1,807,478	2,581,596	7,408,599	1,693,868	4,816,064	16,500,127	
	5	451,599	1,065,459	489,282	1,765,619	3,771,959	6,046,189	13,622,551	3,105,787	12,593,119	35,367,646	
	6	0	0	0	596,334	596,334	0	0	0	5,408,166	5,408,166	
2008	1	0	49,044	0	30,810	79,854	0	695,859	0	137,057	832,916	51,927,383
	2	85,164	0	118,606	0	203,770	996,614	0	716,153	0	1,712,767	
	3	1,492,430	1,640,672	1,553,689	1,546,069	6,232,860	17,418,365	19,858,405	8,609,515	8,436,487	54,322,772	
	4	182,569	548,036	286,279	827,538	1,844,422	2,340,882	6,966,716	2,045,559	5,713,131	17,066,288	
	5	316,753	903,567	478,578	1,588,651	3,287,549	4,212,509	11,481,257	3,459,769	11,553,133	30,706,668	
	6	0	0	0	586,655	586,655	0	0	0	5,299,868	5,299,868	
2009	1	0	105,577	0	47,274	152,851	0	1,406,291	0	73,532	1,479,823	49,357,995
	2	66,376	0	39,205	0	105,581	743,334	0	117,369	0	860,703	
	3	579,002	1,063,972	627,018	1,031,011	3,301,003	6,938,730	12,884,567	3,663,492	5,612,378	29,099,167	
	4	104,062	409,409	137,072	488,727	1,139,270	1,316,801	5,101,687	898,914	3,041,926	10,359,328	
	5	797,070	1,369,951	894,633	1,997,486	5,059,140	9,945,482	17,350,247	5,641,342	13,648,424	46,585,495	
	6	0	0	0	530,059	530,059	0	0	0	4,823,653	4,823,653	
(14) All Years, All Injury Types		11,100,656	16,466,622	12,378,400	23,103,336	63,049,014	135,579,614	204,675,581	74,308,497	154,468,450	569,032,142	255,025,071
(15) Pure Premium							0.532	0.803	0.291	0.606	2.231	

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 2.  
 (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 000033

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)	
2005	1	45,971	1,834,910	5,740	135,964	2,022,585	47,834	1,919,014	6,946	159,588	2,133,382
	2	4,139,108	0	2,465,099	0	6,604,207	4,357,116	0	2,982,911	0	7,340,027
	3	44,444,441	37,497,792	16,883,389	10,087,054	108,912,676	48,230,222	40,899,405	20,429,873	11,839,697	121,399,197
	4	1,484,246	4,502,894	938,992	2,739,833	9,665,965	1,610,674	4,911,374	1,136,234	3,215,884	10,874,166
	5	5,654,317	17,588,125	3,261,190	11,689,241	38,192,873	5,852,030	18,295,968	3,946,228	13,720,267	41,814,493
	6	0	0	0	5,378,318	5,378,318	0	0	0	4,446,681	4,446,681
2006	1	200,001	1,994,949	0	105,141	2,300,091	223,962	2,220,924	0	124,789	2,569,675
	2	3,875,860	0	1,158,991	0	5,034,851	4,380,605	0	1,435,819	0	5,816,424
	3	39,428,937	39,140,094	14,920,131	12,669,740	106,158,902	45,599,169	45,001,217	18,483,839	15,037,355	124,121,580
	4	1,378,330	3,061,596	722,579	1,885,639	7,048,144	1,594,025	3,520,062	895,169	2,238,012	8,247,268
	5	6,884,011	17,567,077	2,822,765	11,990,198	39,264,051	7,675,112	19,471,669	3,496,989	14,230,826	44,874,596
	6	0	0	0	4,858,861	4,858,861	0	0	0	4,186,537	4,186,537
2007	1	280,676	1,736,983	115,314	283,880	2,416,853	351,105	2,069,753	152,992	336,275	2,910,125
	2	3,992,381	0	1,966,092	0	5,958,473	5,027,550	0	2,608,500	0	7,636,050
	3	38,168,336	35,739,058	13,813,148	11,872,596	99,593,138	48,888,091	43,604,765	18,326,511	14,063,920	124,883,287
	4	1,244,935	3,854,108	1,021,475	2,534,016	8,654,534	1,594,581	4,702,348	1,355,236	3,001,719	10,653,884
	5	4,961,137	16,277,541	2,781,039	10,313,749	34,333,466	6,185,087	19,330,558	3,689,727	12,217,356	41,422,728
	6	0	0	0	4,799,702	4,799,702	0	0	0	4,155,208	4,155,208
2008	1	899,467	1,110,900	210,533	141,833	2,362,733	1,238,581	1,405,147	302,658	173,238	3,119,624
	2	1,928,045	0	761,219	0	2,689,264	2,666,665	0	1,094,313	0	3,760,978
	3	23,108,839	33,677,314	8,857,331	11,950,570	77,594,054	32,314,226	43,257,446	12,733,118	14,596,625	102,901,415
	4	1,283,849	4,290,635	1,122,159	3,426,375	10,123,018	1,795,269	5,511,185	1,613,193	4,185,031	13,104,678
	5	4,597,229	12,707,016	2,092,809	9,180,075	28,577,129	6,315,177	16,033,960	3,008,580	11,212,696	36,570,413
	6	0	0	0	3,817,722	3,817,722	0	0	0	3,499,107	3,499,107
2009	1	0	1,797,428	0	163,988	1,961,416	0	2,880,444	0	186,129	3,066,573
	2	705,874	0	684,171	0	1,390,045	1,404,273	0	983,469	0	2,387,742
	3	7,156,454	17,004,769	3,863,399	8,350,544	36,375,166	14,359,966	27,588,060	5,553,481	9,478,004	56,979,511
	4	844,675	2,802,449	1,055,961	2,599,204	7,302,289	1,694,904	4,546,615	1,517,901	2,950,139	10,709,559
	5	9,337,236	15,874,275	5,309,491	13,651,367	44,172,369	18,468,523	25,386,488	7,632,180	15,494,524	66,981,715
	6	0	0	0	3,064,754	3,064,754	0	0	0	3,051,871	3,051,871
(13) All Years, All Injury Types		206,044,355	270,059,913	86,833,017	147,690,364	710,627,649	261,874,747	332,556,402	113,385,867	167,801,478	875,618,494

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 000034

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)	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)
2005	1	15,685	382,237	9,976	201,732	609,630	67,810	2,456,698	20,170	430,694	2,975,372	49,516,538
	2	781,009	0	1,198,511	0	1,979,520	5,317,991	0	4,337,135	0	9,655,126	
	3	9,355,547	7,835,014	9,604,590	6,615,689	33,410,840	69,352,051	58,692,138	36,249,334	22,274,261	186,567,784	
	4	317,031	884,237	482,933	1,216,708	2,900,909	2,348,707	7,061,346	1,977,043	5,412,302	16,799,398	
	5	1,132,094	3,248,493	1,580,586	4,904,452	10,865,625	8,453,885	26,078,347	6,704,328	22,592,808	63,829,368	
	6	0	0	0	1,149,852	1,149,852	0	0	0	6,671,068	6,671,068	
2006	1	36,189	481,253	15,509	249,853	782,804	277,723	2,884,705	18,487	446,574	3,627,489	49,519,973
	2	741,563	0	675,736	0	1,417,299	5,301,475	0	2,190,188	0	7,491,663	
	3	8,700,531	8,464,214	8,777,640	7,598,361	33,540,746	65,394,552	64,389,820	32,902,551	27,319,605	190,006,528	
	4	293,205	647,163	366,615	860,333	2,167,316	2,299,392	5,077,327	1,540,668	3,783,154	12,700,541	
	5	1,346,550	3,400,599	1,467,874	5,074,136	11,289,159	10,920,210	27,685,583	6,022,652	23,417,980	68,046,425	
	6	0	0	0	1,064,062	1,064,062	0	0	0	6,258,714	6,258,714	
2007	1	56,052	410,640	64,202	263,018	793,912	434,660	2,647,941	258,896	714,358	4,055,855	51,010,908
	2	1,026,567	0	1,155,868	0	2,182,435	6,266,049	0	3,904,551	0	10,170,600	
	3	9,313,487	8,269,109	9,134,702	7,355,437	34,072,735	70,093,686	62,473,066	33,143,616	25,851,550	191,561,918	
	4	309,645	880,997	483,183	1,171,396	2,845,221	2,320,100	6,802,722	2,244,754	5,095,474	16,463,050	
	5	1,104,001	3,561,500	1,419,972	4,766,782	10,852,255	8,823,028	27,709,538	6,198,345	20,602,693	63,333,604	
	6	0	0	0	1,085,903	1,085,903	0	0	0	6,247,405	6,247,405	
2008	1	235,084	349,277	170,777	194,854	949,992	1,573,209	1,872,934	564,334	438,765	4,449,242	47,585,365
	2	497,908	0	504,287	0	1,002,195	3,275,352	0	1,658,131	0	4,933,483	
	3	5,977,068	8,346,771	5,930,758	7,604,684	27,859,281	46,115,209	62,148,310	22,525,893	26,795,309	157,584,721	
	4	337,646	981,608	625,481	1,492,060	3,436,795	2,598,735	7,910,789	2,733,475	6,931,866	20,174,865	
	5	1,128,487	2,915,156	1,316,907	4,125,352	9,485,902	9,010,132	22,936,830	5,247,054	18,605,894	55,799,910	
	6	0	0	0	900,358	900,358	0	0	0	5,244,162	5,244,162	
2009	1	0	611,663	0	307,618	919,281	0	3,727,994	0	588,547	4,316,541	42,024,824
	2	207,642	0	310,272	0	517,914	1,668,342	0	1,341,919	0	3,010,261	
	3	2,748,384	5,465,063	2,788,050	5,096,313	16,097,810	20,604,034	39,806,742	10,067,600	17,590,103	88,068,479	
	4	314,122	842,613	524,079	1,170,486	2,851,300	2,447,788	6,566,211	2,493,307	5,031,383	16,538,689	
	5	3,413,358	4,520,423	3,559,713	5,949,018	17,442,512	26,486,776	36,200,619	13,576,380	26,012,194	102,275,969	
	6	0	0	0	787,433	787,433	0	0	0	4,576,451	4,576,451	
(14) All Years, All Injury Types		49,388,855	62,498,030	52,168,221	71,205,890	235,260,996	371,450,896	475,129,660	197,920,811	288,933,314	1,333,434,681	239,657,608
(15) Pure Premium							1.550	1.983	0.826	1.206	5.564	

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 2.  
 (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 000035

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	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)
2005	1	818,976	432,804	181,024	4,115	1,436,919	852,168	452,642	219,049	4,830	1,528,689
	2	1,149,459	0	514,163	0	1,663,622	1,210,001	0	622,167	0	1,832,168
	3	7,908,156	7,489,380	2,977,407	2,291,521	20,666,464	8,581,773	8,168,780	3,602,834	2,689,676	23,043,063
	4	934,252	1,966,567	585,933	1,325,920	4,812,672	1,013,832	2,144,964	709,013	1,556,301	5,424,110
	5	4,418,809	6,766,876	2,784,581	6,020,111	19,990,377	4,573,320	7,039,212	3,369,503	7,066,116	22,048,151
	6	0	0	0	5,326,153	5,326,153	0	0	0	4,403,552	4,403,552
2006	1	0	507,637	0	10,585	518,222	0	565,139	0	12,563	577,702
	2	3,073,946	0	821,784	0	3,895,730	3,474,260	0	1,018,069	0	4,492,329
	3	9,774,446	5,772,640	4,449,105	2,178,400	22,174,591	11,304,049	6,637,077	5,511,784	2,585,481	26,038,391
	4	1,249,638	1,901,468	1,000,446	1,574,129	5,725,681	1,445,194	2,186,208	1,239,405	1,868,289	6,739,096
	5	2,794,925	6,521,996	1,960,247	6,063,501	17,340,669	3,116,114	7,229,099	2,428,457	7,196,598	19,970,268
	6	0	0	0	5,322,121	5,322,121	0	0	0	4,585,696	4,585,696
2007	1	0	364,534	0	2,439	366,973	0	434,371	0	2,889	437,260
	2	824,908	0	448,147	0	1,273,055	1,038,795	0	594,576	0	1,633,371
	3	7,994,886	9,303,751	3,364,837	3,350,303	24,013,777	10,240,287	11,351,387	4,464,277	3,968,668	30,024,619
	4	931,186	2,222,515	749,259	1,967,474	5,870,434	1,192,714	2,711,662	994,075	2,330,610	7,229,061
	5	3,454,335	7,264,038	1,406,146	7,352,908	19,477,427	4,306,546	8,632,676	1,865,596	8,708,985	23,513,803
	6	0	0	0	5,660,992	5,660,992	0	0	0	4,900,846	4,900,846
2008	1	405,034	635,125	7,500	154,778	1,202,437	557,739	803,352	10,782	189,049	1,560,922
	2	580,798	0	187,328	0	768,126	803,298	0	269,299	0	1,072,597
	3	7,191,807	8,011,923	3,512,151	2,499,656	21,215,537	10,056,658	10,291,062	5,048,996	3,053,121	28,449,837
	4	968,807	2,492,325	971,373	2,419,399	6,851,904	1,354,730	3,201,313	1,396,426	2,955,094	8,907,563
	5	3,869,128	6,704,954	2,099,870	6,763,700	19,437,652	5,314,991	8,460,441	3,018,730	8,261,296	25,055,458
	6	0	0	0	5,509,728	5,509,728	0	0	0	5,049,903	5,049,903
2009	1	0	413,707	0	33,000	446,707	0	662,981	0	37,456	700,437
	2	19,263	0	30,811	0	50,074	38,322	0	44,290	0	82,612
	3	3,695,284	3,482,745	1,578,732	1,561,615	10,318,376	7,414,867	5,650,308	2,269,364	1,772,458	17,106,997
	4	489,562	1,784,562	507,016	1,783,846	4,564,986	982,343	2,895,223	728,815	2,024,694	6,631,075
	5	4,771,791	8,081,716	3,745,645	9,518,029	26,117,181	9,438,333	12,924,458	5,384,213	10,803,117	38,550,121
	6	0	0	0	5,352,064	5,352,064	0	0	0	5,329,566	5,329,566
(13) All Years, All Injury Types		67,319,396	82,121,263	33,883,505	84,046,487	267,370,651	88,310,334	102,442,355	44,809,720	91,356,854	326,919,263

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 000036

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	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)	
2005	1	86,779	46,094	69,057	20,457	222,387	1,002,371	532,425	343,423	30,142	1,908,361	505,264,167
	2	105,252	0	123,155	0	228,407	1,361,295	0	773,077	0	2,134,372	
	3	978,243	860,366	999,414	773,502	3,611,525	11,513,379	10,874,037	5,554,567	4,179,795	32,121,778	
	4	99,814	228,088	142,452	338,470	808,824	1,356,861	2,891,316	1,039,659	2,313,562	7,601,398	
	5	500,221	735,922	732,554	1,357,310	3,326,007	6,141,233	9,411,359	4,976,021	10,218,079	30,746,692	
	6	0	0	0	651,062	651,062	0	0	0	6,025,100	6,025,100	
2006	1	0	57,310	0	26,064	83,374	0	664,495	0	46,043	710,538	557,181,639
	2	378,106	0	329,176	0	707,282	3,987,222	0	1,397,415	0	5,384,637	
	3	1,177,830	719,504	1,312,918	684,341	3,894,593	15,032,254	8,859,724	8,236,901	3,946,429	36,075,308	
	4	152,555	224,760	260,708	376,042	1,014,065	1,946,689	2,937,512	1,831,674	2,740,383	9,456,258	
	5	305,582	772,154	477,391	1,387,374	2,942,501	4,141,768	9,685,063	3,524,952	10,412,830	27,764,613	
	6	0	0	0	676,093	676,093	0	0	0	6,272,052	6,272,052	
2007	1	0	63,304	0	27,764	91,068	0	531,292	0	36,539	567,831	600,180,637
	2	109,651	0	166,596	0	276,247	1,188,649	0	789,518	0	1,978,167	
	3	1,068,384	1,143,377	1,082,453	1,058,656	4,352,870	13,619,329	15,047,773	6,694,486	6,067,601	41,429,189	
	4	125,334	274,758	216,730	461,195	1,078,017	1,605,903	3,638,640	1,478,422	3,408,862	10,131,827	
	5	462,815	908,734	481,292	1,688,942	3,541,783	5,773,041	11,549,335	2,846,904	12,613,258	32,782,538	
	6	0	0	0	723,054	723,054	0	0	0	6,703,689	6,703,689	
2008	1	56,796	98,682	25,910	79,229	260,617	656,046	962,966	43,736	319,787	1,982,535	608,180,653
	2	81,802	0	74,234	0	156,036	916,084	0	356,326	0	1,272,410	
	3	1,054,733	1,113,802	1,202,733	930,404	4,301,672	13,381,739	13,735,176	7,545,366	4,807,815	39,470,096	
	4	143,531	331,460	276,171	591,185	1,342,347	1,825,475	4,304,315	2,042,282	4,330,093	12,502,165	
	5	579,530	890,919	714,252	1,622,890	3,807,591	7,134,984	11,319,291	4,528,313	11,990,061	34,972,649	
	6	0	0	0	741,032	741,032	0	0	0	6,902,795	6,902,795	
2009	1	0	67,513	0	34,383	101,896	0	779,838	0	85,632	865,470	585,626,704
	2	3,839	0	8,069	0	11,908	43,637	0	54,308	0	97,945	
	3	776,045	580,108	671,381	502,396	2,529,930	9,864,529	7,503,454	3,549,257	2,745,578	23,662,818	
	4	103,496	300,814	153,210	432,147	989,667	1,322,982	3,894,037	1,076,974	2,999,863	9,293,856	
	5	986,570	1,375,359	1,212,315	2,206,013	5,780,257	12,618,753	17,309,117	8,001,951	15,780,789	53,710,610	
	6	0	0	0	768,900	768,900	0	0	0	7,269,372	7,269,372	
(14) All Years, All Injury Types		9,336,908	10,793,028	10,732,171	18,158,905	49,021,012	116,434,223	136,431,165	66,685,532	132,246,149	451,797,069	2,856,433,799
(15) Pure Premium							0.041	0.048	0.023	0.046	0.158	

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 2.  
 (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 000037

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)	
2005	1	1,260,797	1,692,848	27,497	6,303	2,987,445	1,311,896	1,770,441	33,272	7,398	3,123,007
	2	5,192,878	0	3,333,816	0	8,526,694	5,466,388	0	4,034,110	0	9,500,498
	3	25,585,740	22,799,833	11,343,954	6,610,232	66,339,759	27,765,135	24,868,120	13,726,838	7,758,771	74,118,864
	4	3,480,324	6,916,033	1,815,004	4,248,703	16,460,064	3,776,778	7,543,421	2,196,259	4,986,923	18,503,381
	5	8,429,236	16,283,951	4,446,499	14,949,067	44,108,753	8,723,979	16,939,307	5,380,520	17,546,494	48,590,300
	6	0	0	0	10,822,319	10,822,319	0	0	0	8,947,668	8,947,668
2006	1	908,590	824,193	7,411	44,916	1,785,110	1,017,441	917,552	9,181	53,310	1,997,484
	2	3,915,438	0	2,353,762	0	6,269,200	4,425,337	0	2,915,964	0	7,341,301
	3	29,830,096	20,514,094	13,657,415	7,304,987	71,306,592	34,498,206	23,586,023	16,919,520	8,670,082	83,673,831
	4	3,064,624	6,527,148	1,759,595	3,775,945	15,127,312	3,544,207	7,504,571	2,179,878	4,481,562	17,710,218
	5	7,491,474	16,271,227	3,618,174	15,729,163	43,110,038	8,352,383	18,035,325	4,482,383	18,668,498	49,538,589
	6	0	0	0	10,404,400	10,404,400	0	0	0	8,964,736	8,964,736
2007	1	143,717	378,001	11,580	23,769	557,067	179,779	450,418	15,364	28,156	673,717
	2	1,631,829	0	829,385	0	2,461,214	2,054,940	0	1,100,381	0	3,155,321
	3	19,981,543	21,468,018	8,123,051	8,847,678	58,420,290	25,593,453	26,192,853	10,777,209	10,480,693	73,044,208
	4	3,354,182	6,965,553	1,649,746	4,481,581	16,451,062	4,296,220	8,498,582	2,188,791	5,308,746	20,292,339
	5	6,577,843	15,276,806	3,785,187	16,228,244	41,868,080	8,200,647	18,144,061	5,021,974	19,223,237	50,589,919
	6	0	0	0	11,173,802	11,173,802	0	0	0	9,673,407	9,673,407
2008	1	18,560	1,280,690	15,820	168,096	1,483,166	25,557	1,619,911	22,743	205,315	1,873,526
	2	680,555	0	653,015	0	1,333,570	941,271	0	938,761	0	1,880,032
	3	19,818,532	23,703,550	9,430,823	9,987,884	62,940,789	27,713,229	30,446,461	13,557,557	12,199,368	83,916,615
	4	3,007,427	8,965,967	1,994,557	6,590,127	20,558,078	4,205,433	11,516,501	2,867,334	8,049,291	26,638,559
	5	8,593,696	16,775,534	4,296,070	16,327,043	45,992,343	11,805,093	21,167,695	6,175,942	19,942,122	59,090,852
	6	0	0	0	10,442,500	10,442,500	0	0	0	9,571,002	9,571,002
2009	1	0	1,945,160	0	126,602	2,071,762	0	3,117,190	0	143,696	3,260,886
	2	156,895	0	464,746	0	621,641	312,129	0	668,054	0	980,183
	3	8,450,860	12,952,807	5,385,470	5,831,046	32,620,183	16,957,290	21,014,270	7,741,397	6,618,333	52,331,290
	4	1,377,195	5,376,211	1,462,782	4,288,031	12,504,219	2,763,446	8,722,214	2,102,690	4,866,985	18,455,335
	5	13,060,204	22,259,369	9,254,792	21,985,061	66,559,426	25,832,343	35,597,671	13,303,391	24,953,402	99,686,807
	6	0	0	0	9,644,618	9,644,618	0	0	0	9,604,077	9,604,077
(13) All Years, All Injury Types		176,012,235	229,176,993	89,720,151	200,042,117	694,951,496	229,762,580	287,652,587	118,359,513	220,953,272	856,727,952

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 000038

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)	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)	
2005	1	149,141	197,856	68,758	86,093	501,848	1,559,728	2,101,253	121,620	111,441	3,894,042	121,426,374
	2	543,618	0	772,046	0	1,315,664	6,220,392	0	4,985,133	0	11,205,525	
	3	3,142,442	2,822,270	3,488,620	2,386,333	11,839,665	37,222,805	33,348,263	20,777,761	12,244,377	103,593,206	
	4	388,223	782,041	488,290	1,035,346	2,693,900	5,074,619	10,143,705	3,277,900	7,353,336	25,849,560	
	5	996,018	1,801,150	1,336,359	3,391,052	7,524,579	11,765,504	22,684,260	8,147,942	25,398,393	67,996,099	
	6	0	0	0	1,285,566	1,285,566	0	0	0	12,198,014	12,198,014	
2006	1	148,868	85,054	66,173	42,399	342,494	1,245,092	1,070,331	89,821	114,085	2,519,329	122,765,676
	2	447,348	0	638,526	0	1,085,874	5,043,258	0	3,686,856	0	8,730,114	
	3	3,966,042	2,661,894	4,425,738	2,529,923	13,583,597	46,323,502	31,611,055	25,762,118	13,517,563	117,214,238	
	4	346,829	780,129	469,142	997,012	2,593,112	4,740,821	10,094,040	3,234,518	6,689,472	24,758,851	
	5	939,036	1,901,035	1,112,841	3,602,190	7,555,102	11,246,736	24,131,833	6,787,315	27,015,568	69,181,452	
	6	0	0	0	1,277,888	1,277,888	0	0	0	12,209,208	12,209,208	
2007	1	16,415	31,232	10,252	16,583	74,482	209,448	514,185	30,534	53,329	807,496	132,679,247
	2	237,103	0	279,367	0	516,470	2,372,278	0	1,431,130	0	3,803,408	
	3	2,865,800	2,862,798	2,876,568	2,836,603	11,441,769	34,274,223	34,992,483	16,479,081	16,072,973	101,818,760	
	4	423,913	869,499	499,110	1,146,914	2,939,436	5,750,988	11,414,026	3,281,992	7,882,518	28,329,524	
	5	871,533	1,926,054	1,164,207	3,713,173	7,674,967	10,981,359	24,293,736	7,504,177	27,823,126	70,602,398	
	6	0	0	0	1,352,643	1,352,643	0	0	0	13,143,052	13,143,052	
2008	1	4,698	180,854	7,986	103,142	296,680	32,300	1,922,404	36,629	367,681	2,359,014	132,421,543
	2	99,018	0	202,361	0	301,379	1,076,706	0	1,183,616	0	2,260,322	
	3	3,063,784	3,314,377	3,407,992	3,284,704	13,070,857	37,065,563	40,659,062	20,476,140	18,688,109	116,888,874	
	4	416,252	1,178,655	596,364	1,659,835	3,851,106	5,631,040	15,467,721	4,229,260	11,855,078	37,183,099	
	5	1,322,783	2,209,177	1,493,984	3,906,095	8,932,039	15,890,550	28,296,378	9,304,041	28,929,197	82,420,166	
	6	0	0	0	1,345,794	1,345,794	0	0	0	13,012,820	13,012,820	
2009	1	0	327,808	0	157,735	485,543	0	3,677,703	0	359,305	4,037,008	133,925,889
	2	41,207	0	95,145	0	136,352	365,705	0	791,620	0	1,157,325	
	3	1,919,432	2,387,000	2,033,263	2,093,358	8,433,053	22,733,731	28,182,763	11,797,277	10,514,355	73,228,126	
	4	298,912	920,456	454,207	1,124,052	2,797,627	3,731,163	11,748,585	3,122,033	7,315,201	25,916,982	
	5	2,702,529	3,860,074	3,126,623	5,443,829	15,133,055	34,539,844	47,761,361	19,930,509	36,873,512	139,105,226	
	6	0	0	0	1,353,126	1,353,126	0	0	0	13,060,986	13,060,986	
(14) All Years, All Injury Types		25,350,944	31,099,413	29,113,922	46,171,388	131,735,667	305,097,355	384,115,147	176,469,023	322,802,699	1,188,484,224	643,218,729
(15) Pure Premium							0.474	0.597	0.274	0.502	1.848	

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 2.  
 (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 000039

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 (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)	
2005	1	786,507	1,191,842	9,110	17,392	2,004,851	818,383	1,246,471	11,024	20,414	2,096,292
	2	1,671,152	0	1,268,901	0	2,940,053	1,759,172	0	1,535,443	0	3,294,615
	3	15,722,004	7,561,350	6,061,009	2,677,125	32,021,488	17,061,205	8,247,278	7,334,170	3,142,280	35,784,933
	4	880,572	1,829,928	403,658	956,943	4,071,101	955,579	1,995,930	488,449	1,123,214	4,563,172
	5	1,925,220	7,096,500	1,739,744	5,258,236	16,019,700	1,992,539	7,382,102	2,105,190	6,171,864	17,651,695
	6	0	0	0	2,497,844	2,497,844	0	0	0	2,065,165	2,065,165
2006	1	275,369	958,773	64,893	130,629	1,429,664	308,359	1,067,377	80,393	155,039	1,611,168
	2	3,479,433	0	1,267,708	0	4,747,141	3,932,552	0	1,570,503	0	5,503,055
	3	13,798,322	8,179,556	5,109,478	2,344,978	29,432,334	15,957,621	9,404,422	6,329,889	2,783,189	34,475,121
	4	926,308	1,268,988	631,448	806,245	3,632,989	1,071,266	1,459,015	782,271	956,909	4,269,461
	5	2,359,423	5,812,859	1,067,706	4,529,319	13,769,307	2,630,565	6,443,079	1,322,730	5,375,720	15,772,094
	6	0	0	0	2,615,496	2,615,496	0	0	0	2,253,588	2,253,588
2007	1	953,151	1,383,521	982,491	2,197	3,321,360	1,192,323	1,648,575	1,303,513	2,602	4,147,013
	2	1,616,559	0	666,049	0	2,282,608	2,035,710	0	883,676	0	2,919,386
	3	12,299,068	10,798,298	4,803,675	4,301,065	32,202,106	15,753,319	13,174,864	6,373,246	5,094,912	40,396,341
	4	699,057	1,673,960	386,603	1,033,467	3,793,087	895,390	2,042,377	512,923	1,224,214	4,674,904
	5	2,898,048	6,931,772	1,828,021	6,222,263	17,880,104	3,613,018	8,231,896	2,425,316	7,370,705	21,640,935
	6	0	0	0	2,507,847	2,507,847	0	0	0	2,171,099	2,171,099
2008	1	0	217,807	0	104	217,911	0	275,498	0	127	275,625
	2	526,095	0	151,834	0	677,929	727,638	0	218,274	0	945,912
	3	9,183,828	9,782,879	3,840,451	3,677,587	26,484,745	12,842,199	12,565,799	5,520,954	4,491,866	35,420,818
	4	769,677	2,077,002	524,692	1,673,463	5,044,834	1,076,277	2,667,843	754,286	2,043,996	6,542,402
	5	3,099,438	6,512,416	2,100,211	5,770,330	17,482,395	4,257,673	8,217,493	3,019,221	7,047,977	22,542,364
	6	0	0	0	2,322,854	2,322,854	0	0	0	2,128,996	2,128,996
2009	1	0	1,206,131	0	75,217	1,281,348	0	1,932,869	0	85,373	2,018,242
	2	0	0	0	0	0	0	0	0	0	0
	3	2,518,117	3,643,864	1,134,872	2,264,821	9,561,674	5,052,792	5,911,702	1,631,333	2,570,609	15,166,436
	4	592,261	1,147,683	971,947	1,020,072	3,731,963	1,188,417	1,861,969	1,397,135	1,157,798	5,605,319
	5	3,655,028	7,328,673	3,167,080	6,357,210	20,507,991	7,229,438	11,720,174	4,552,550	7,215,537	30,717,699
	6	0	0	0	2,149,668	2,149,668	0	0	0	2,140,632	2,140,632
(13) All Years, All Injury Types		80,634,637	86,603,802	38,181,581	61,212,372	266,632,392	102,351,435	107,496,733	50,152,489	68,793,825	328,794,482

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 000040

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)	
2005	1	150,450	229,149	67,374	103,568	550,541	1,034,277	1,575,297	93,450	147,786	2,850,810	17,757,391
	2	287,348	0	446,892	0	734,240	2,118,160	0	2,056,156	0	4,174,316	
	3	2,699,604	1,280,503	2,787,268	1,259,304	8,026,679	23,798,461	11,474,557	12,215,814	5,312,381	52,801,213	
	4	135,316	300,457	155,264	377,433	968,470	1,329,141	2,797,907	785,989	1,832,326	6,745,363	
	5	285,279	1,100,555	565,857	1,809,207	3,760,898	2,757,168	10,267,775	3,240,127	9,681,477	25,946,547	
	6	0	0	0	400,096	400,096	0	0	0	2,938,592	2,938,592	
2006	1	56,688	177,132	45,408	110,035	389,263	389,705	1,328,574	149,955	315,969	2,184,203	17,464,977
	2	609,390	0	613,451	0	1,222,841	4,700,938	0	2,265,283	0	6,966,221	
	3	2,519,370	1,510,131	2,493,416	1,282,350	7,805,267	22,252,324	13,144,682	10,649,064	4,906,799	50,952,869	
	4	140,712	214,842	214,250	294,768	864,572	1,476,668	2,039,421	1,216,776	1,528,329	6,261,194	
	5	368,694	952,361	428,259	1,554,141	3,303,455	3,630,432	8,951,760	2,124,046	8,406,303	23,112,541	
	6	0	0	0	422,194	422,194	0	0	0	3,189,533	3,189,533	
2007	1	214,352	356,882	363,825	153,521	1,088,580	1,501,694	2,140,923	1,987,467	186,098	5,816,182	17,664,003
	2	323,057	0	362,896	0	685,953	2,441,339	0	1,292,994	0	3,734,333	
	3	2,457,853	2,087,138	2,479,984	2,108,426	9,133,401	21,932,192	18,380,429	10,685,182	8,693,886	59,691,689	
	4	123,436	301,689	154,632	391,306	971,063	1,241,333	2,855,999	815,102	1,972,589	6,885,023	
	5	502,510	1,197,183	701,955	2,056,989	4,458,637	4,981,613	11,413,365	3,793,552	11,436,311	31,624,841	
	6	0	0	0	417,055	417,055	0	0	0	3,085,079	3,085,079	
2008	1	0	39,764	0	17,075	56,839	0	336,558	0	20,505	357,063	18,075,011
	2	109,442	0	93,094	0	202,536	866,383	0	322,963	0	1,189,346	
	3	2,063,457	1,935,369	2,149,624	1,852,913	8,001,363	17,951,271	17,464,136	9,257,809	7,657,671	52,330,887	
	4	146,293	396,231	203,623	605,179	1,351,326	1,489,574	3,733,254	1,169,631	3,234,706	9,627,165	
	5	607,044	1,239,504	881,133	2,066,744	4,794,425	5,888,464	11,447,158	4,731,343	11,056,657	33,123,622	
	6	0	0	0	420,060	420,060	0	0	0	3,038,474	3,038,474	
2009	1	0	303,655	0	148,459	452,114	0	2,387,598	0	278,728	2,666,326	18,699,631
	2	0	0	0	0	0	0	0	0	0	0	
	3	779,408	904,919	669,735	969,426	3,323,488	7,023,872	8,209,436	2,777,215	4,272,555	22,283,078	
	4	174,560	280,744	378,683	374,172	1,208,159	1,660,644	2,610,672	2,168,316	1,870,573	8,310,205	
	5	1,101,260	1,800,615	1,501,629	2,312,687	6,716,191	10,083,837	16,366,148	7,344,052	11,558,259	45,352,296	
	6	0	0	0	418,286	418,286	0	0	0	3,050,230	3,050,230	
(14) All Years, All Injury Types		15,855,523	16,608,823	17,758,252	21,925,394	72,147,992	140,549,490	148,925,649	81,142,286	109,671,816	480,289,241	89,661,014
(15) Pure Premium							1.568	1.661	0.905	1.223	5.357	

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 2.  
 (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  
 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)	Not-Likely (11)	
2005	1	3,094,420	5,719,831	255,625	268,737	9,338,613	3,219,833	5,982,003	309,320	315,431	9,826,587
	2	17,526,994	0	10,007,598	0	27,534,592	18,450,144	0	12,109,770	0	30,559,914
	3	106,094,476	87,752,254	41,349,171	25,321,478	260,517,379	115,131,610	95,712,701	50,034,879	29,721,128	290,600,318
	4	7,986,218	20,134,473	4,381,741	12,315,854	44,818,286	8,666,484	21,960,972	5,302,158	14,455,756	50,385,370
	5	25,283,548	57,403,107	15,327,999	45,419,476	143,434,130	26,167,631	59,713,324	18,547,761	53,311,190	157,739,906
	6	0	0	0	28,942,052	28,942,052	0	0	0	23,928,685	23,928,685
2006	1	1,706,340	4,513,656	72,580	291,569	6,584,145	1,910,764	5,024,934	89,916	346,055	7,371,669
	2	17,795,706	0	7,451,928	0	25,247,634	20,113,203	0	9,231,839	0	29,345,042
	3	103,331,597	87,893,342	42,225,579	29,320,826	262,771,344	119,501,954	101,055,130	52,311,256	34,800,058	307,668,398
	4	7,664,159	17,554,422	4,842,758	10,944,337	41,005,676	8,863,524	20,183,149	5,999,462	12,989,523	48,035,658
	5	23,972,469	54,982,805	11,323,486	45,882,157	136,160,917	26,727,351	60,943,944	14,028,127	54,456,232	156,155,654
	6	0	0	0	28,261,680	28,261,680	0	0	0	24,351,093	24,351,093
2007	1	1,377,544	4,177,665	1,109,385	312,285	6,976,879	1,723,207	4,978,019	1,471,869	369,922	8,543,017
	2	9,752,376	0	4,259,132	0	14,011,508	12,281,032	0	5,650,775	0	17,931,807
	3	89,020,561	92,802,339	35,170,879	33,419,002	250,412,781	114,022,402	113,226,940	46,662,751	39,587,144	313,499,237
	4	7,729,277	19,213,321	4,662,111	12,701,891	44,306,600	9,900,081	23,441,927	6,185,428	15,046,277	54,573,713
	5	21,535,699	54,329,702	11,361,373	47,390,443	134,617,217	26,848,719	64,527,916	15,073,634	56,135,990	162,586,259
	6	0	0	0	28,694,286	28,694,286	0	0	0	24,841,278	24,841,278
2008	1	1,323,061	3,721,079	233,853	533,724	5,811,717	1,821,877	4,706,693	336,183	651,900	7,516,653
	2	4,350,116	0	2,151,173	0	6,501,289	6,016,614	0	3,092,483	0	9,109,097
	3	68,578,751	86,735,742	29,522,102	32,572,816	217,409,411	95,897,043	111,409,320	42,440,368	39,784,980	289,531,711
	4	7,273,165	21,850,868	5,578,990	17,262,611	51,965,634	10,170,423	28,066,749	8,020,241	21,084,840	67,342,253
	5	22,462,325	49,500,894	12,240,023	44,537,987	128,741,229	30,856,319	62,461,190	17,596,007	54,399,439	165,312,955
	6	0	0	0	26,303,782	26,303,782	0	0	0	24,108,551	24,108,551
2009	1	0	6,118,560	0	411,506	6,530,066	0	9,805,216	0	467,068	10,272,284
	2	1,209,675	0	1,231,173	0	2,440,848	2,406,541	0	1,769,763	0	4,176,304
	3	24,403,474	43,022,772	13,637,912	21,196,647	102,260,805	48,967,417	69,798,938	19,603,951	24,058,540	162,428,846
	4	3,790,445	13,439,476	4,414,500	11,455,501	33,099,922	7,605,815	21,803,829	6,345,666	13,002,180	48,757,490
	5	34,575,290	61,650,378	24,089,875	59,664,675	179,980,218	68,387,963	98,592,636	34,628,225	67,720,377	269,329,201
	6	0	0	0	23,742,578	23,742,578	0	0	0	23,642,775	23,642,775
(13) All Years, All Injury		611,837,686	792,516,686	286,900,946	587,167,900	2,278,423,218	785,657,951	983,395,530	376,841,832	653,576,412	2,799,471,725

Notes:  
 (4) - (12): Total of Section IX - C, Page 1 of Exhibits 1 through 5.

IX 000042

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		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)		
2005	1	417,126	930,411	226,057	466,294	2,039,888	3,882,631	7,379,340	638,169	931,815	12,831,955	52,919,150
	2	2,261,642	0	3,193,170	0	5,454,812	21,436,823	0	15,872,809	0	37,309,632	
	3	17,649,064	14,265,915	18,297,644	12,318,608	62,531,231	159,911,248	132,450,131	82,472,209	50,738,796	425,572,384	
	4	1,081,342	2,756,249	1,439,593	3,736,863	9,014,047	11,876,708	30,115,349	8,231,842	22,213,629	72,437,528	
	5	3,438,495	7,956,277	4,988,304	13,262,030	29,645,106	35,836,532	81,910,212	28,550,539	80,756,972	227,054,255	
	6	0	0	0	4,107,248	4,107,248	0	0	0	33,418,833	33,418,833	
2006	1	278,927	826,609	143,075	439,485	1,688,096	2,337,600	6,246,807	277,724	936,365	9,798,496	53,366,942
	2	2,639,690	0	2,792,917	0	5,432,607	23,549,381	0	12,472,549	0	36,021,930	
	3	17,708,888	15,127,537	18,399,427	13,722,620	64,958,472	165,246,613	139,921,832	85,342,467	58,563,218	449,074,130	
	4	1,065,411	2,454,560	1,505,119	3,311,122	8,336,212	12,097,367	27,581,681	9,163,275	19,903,485	68,745,808	
	5	3,467,578	8,040,579	4,037,197	13,426,600	28,971,954	36,549,248	83,501,852	21,914,230	82,345,606	224,310,936	
	6	0	0	0	4,106,097	4,106,097	0	0	0	33,920,970	33,920,970	
2007	1	286,819	919,665	438,279	485,575	2,130,338	2,145,802	6,296,065	2,276,897	1,019,753	11,738,517	55,176,109
	2	1,885,666	0	2,107,026	0	3,992,692	14,662,621	0	8,046,700	0	22,709,321	
	3	17,160,232	16,447,918	17,220,822	15,214,066	66,043,038	157,986,684	156,170,833	77,102,663	66,140,931	457,401,111	
	4	1,180,002	2,920,605	1,606,503	3,934,105	9,641,215	13,499,920	32,119,986	9,514,138	23,175,507	78,309,551	
	5	3,392,458	8,658,930	4,256,708	13,991,505	30,299,601	36,605,230	88,588,525	23,448,765	85,068,507	233,711,027	
	6	0	0	0	4,174,989	4,174,989	0	0	0	34,587,391	34,587,391	
2008	1	296,578	717,621	204,673	425,110	1,643,982	2,261,555	5,790,721	644,699	1,283,795	9,980,770	54,188,938
	2	873,334	0	992,582	0	1,865,916	7,131,139	0	4,237,189	0	11,368,328	
	3	13,651,472	16,350,991	14,244,796	15,218,774	59,466,033	131,932,147	153,865,089	68,414,723	66,385,391	420,597,350	
	4	1,226,291	3,435,990	1,987,918	5,175,797	11,825,996	13,885,706	38,382,795	12,220,207	32,064,874	96,553,582	
	5	3,954,597	8,158,323	4,884,854	13,309,732	30,307,506	42,136,639	85,480,914	27,270,520	82,134,942	237,023,015	
	6	0	0	0	3,993,899	3,993,899	0	0	0	33,498,119	33,498,119	
2009	1	0	1,416,216	0	695,469	2,111,685	0	11,979,424	0	1,385,744	13,365,168	49,357,995
	2	319,064	0	452,691	0	771,755	2,821,018	0	2,305,216	0	5,126,234	
	3	6,802,271	10,401,062	6,789,447	9,692,504	33,685,284	67,164,896	96,586,962	31,854,841	40,734,969	236,341,668	
	4	995,152	2,754,036	1,647,251	3,589,584	8,986,023	10,479,378	29,921,192	9,759,544	20,258,946	70,419,060	
	5	9,000,787	12,926,422	10,294,913	17,909,033	50,131,155	93,674,692	134,987,492	54,494,234	103,873,178	387,029,596	
	6	0	0	0	3,857,804	3,857,804	0	0	0	32,780,692	32,780,692	
(14) All Years, All Injury Types		111,032,886	137,465,916	122,150,966	180,564,913	551,214,681	1,069,111,578	1,349,277,202	596,526,149	1,008,122,428	4,023,037,357	265,009,134
(15) Pure Premium							4.034	5.091	2.251	3.804	15.181	

Notes:

(3) - (12): 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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Exhibit 1  
Page 1

## MA Full Credibility Standard and Partial Credibility

		Indemnity	Medical
(1)	Average Claim Cost (See Page 2)	28,000	17,000
(2)	Claims	850	400
(3)	Full Credibility Standard =(1) x (2)	23,800,000	6,800,000

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.

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 Page 2

## Selection of Average Massachusetts Claim Costs

Policy Year 2009

	Injury Type					
	1	2	3	4	5	6
	Indemnity					
(1) Losses Developed to Ultimate	16,066,085	5,135,336	133,678,259	31,427,385	184,514,722	
(2) On-Level Factor	1.008	1.012	1.021	1.021	1.006	
(3) On-Level Ultimate Losses = (1) x (2)	16,197,928	5,196,725	136,443,443	32,077,472	185,644,122	
	Medical					
(4) Losses Developed to Ultimate	569,373	13,002,904	52,354,145	20,578,462	110,496,223	27,301,065
(5) On-Level Factor	1.002	1.002	1.002	1.002	1.002	1.002
(6) On-Level Ultimate Losses = (4) x (5)	570,406	13,026,503	52,449,164	20,615,810	110,696,764	27,350,614
	Claim Count					
(7) Claim Count Developed to Fifth Report	27	11	800	1,147	11,495	
<b>Summary:</b>						
(8) Ultimate Losses						Indemnity 375,559,690
(9) Ultimate Claim Count						13,480
(10) Average Claim Cost = (8) / (9)						27,860
(11) Selected Average Claim Cost						28,000
(12) Ultimate Losses						Medical 224,709,261
(13) Ultimate Claim Count						13,480
(14) Average Claim Cost = (12) / (13)						16,670
(15) Selected Average Claim Cost						17,000

**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 (3)
- (12) = Sum of (6)

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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)
Alabama	1	Manufacturing	1	2.406	0.502
		Construction	2	2.940	0.616
		Office and Clerical	3	1.672	0.404
		Goods and Services	9	2.136	0.472
		Miscellaneous	0	3.027	0.711
Arizona	2	Manufacturing	1	4.309	0.831
		Construction	2	2.824	0.642
		Office and Clerical	3	1.777	0.471
		Goods and Services	9	2.505	0.607
		Miscellaneous	0	2.571	0.653
Arkansas	3	Manufacturing	1	2.998	0.879
		Construction	2	3.527	0.885
		Office and Clerical	3	2.713	0.758
		Goods and Services	9	3.202	0.831
		Miscellaneous	0	4.518	1.201
Colorado	5	Manufacturing	1	1.641	0.746
		Construction	2	1.846	0.965
		Office and Clerical	3	1.141	0.594
		Goods and Services	9	1.339	0.700
		Miscellaneous	0	1.835	1.045
Connecticut	6	Manufacturing	1	0.675	0.357
		Construction	2	0.930	0.497
		Office and Clerical	3	0.394	0.296
		Goods and Services	9	0.826	0.463
		Miscellaneous	0	0.814	0.520
D.C.	8	Manufacturing	1	1.159	1.047
		Construction	2	2.056	1.513
		Office and Clerical	3	1.821	1.918
		Goods and Services	9	1.488	1.542
		Miscellaneous	0	1.055	1.279
Florida	9	Manufacturing	1	1.857	0.513
		Construction	2	2.140	0.582
		Office and Clerical	3	1.069	0.321
		Goods and Services	9	1.964	0.544
		Miscellaneous	0	2.485	0.713
Georgia	10	Manufacturing	1	1.624	0.794
		Construction	2	1.220	0.591
		Office and Clerical	3	1.319	0.703
		Goods and Services	9	1.394	0.721
		Miscellaneous	0	1.662	0.845
Idaho	11	Manufacturing	1	1.528	0.535
		Construction	2	1.953	0.638
		Office and Clerical	3	1.190	0.297
		Goods and Services	9	1.586	0.493
		Miscellaneous	0	2.121	0.678

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 Subsection D - Credibility/Countrywide Data  
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 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	0.711	0.439
		Construction	2	0.797	0.563
		Office and Clerical	3	0.821	0.625
		Goods and Services	9	0.843	0.503
		Miscellaneous	0	0.905	0.618
Indiana	13	Manufacturing	1	3.650	0.722
		Construction	2	4.326	1.007
		Office and Clerical	3	2.460	0.557
		Goods and Services	9	3.801	0.715
		Miscellaneous	0	4.169	0.924
Iowa	14	Manufacturing	1	1.156	0.496
		Construction	2	1.516	0.761
		Office and Clerical	3	0.518	0.257
		Goods and Services	9	1.280	0.548
		Miscellaneous	0	1.491	0.839
Kansas	15	Manufacturing	1	1.474	0.646
		Construction	2	2.419	0.906
		Office and Clerical	3	1.112	0.502
		Goods and Services	9	1.612	0.707
		Miscellaneous	0	2.555	0.962
Kentucky	16	Manufacturing	1	1.901	0.701
		Construction	2	2.117	0.651
		Office and Clerical	3	1.139	0.461
		Goods and Services	9	1.904	0.587
		Miscellaneous	0	2.035	0.793
Louisiana	17	Manufacturing	1	1.307	0.673
		Construction	2	1.886	0.839
		Office and Clerical	3	0.563	0.297
		Goods and Services	9	1.481	0.635
		Miscellaneous	0	1.263	0.697
Maine	18	Manufacturing	1	1.069	0.498
		Construction	2	1.324	0.638
		Office and Clerical	3	0.694	0.282
		Goods and Services	9	1.088	0.556
		Miscellaneous	0	1.633	0.810
Maryland	19	Manufacturing	1	1.943	1.050
		Construction	2	1.704	0.776
		Office and Clerical	3	0.855	0.583
		Goods and Services	9	1.529	0.809
		Miscellaneous	0	1.497	0.896
Minnesota	22	Manufacturing	1	1.793	0.798
		Construction	2	1.904	0.872
		Office and Clerical	3	1.315	0.528
		Goods and Services	9	1.791	0.709
		Miscellaneous	0	2.565	1.004
Mississippi	23	Manufacturing	1	1.867	0.627
		Construction	2	2.088	0.749
		Office and Clerical	3	1.024	0.330
		Goods and Services	9	1.735	0.618
		Miscellaneous	0	1.557	0.665

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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	1.907	0.712
		Construction	2	2.306	0.841
		Office and Clerical	3	1.058	0.525
		Goods and Services	9	1.816	0.669
		Miscellaneous	0	2.221	0.866
Montana	25	Manufacturing	1	0.904	0.293
		Construction	2	1.091	0.329
		Office and Clerical	3	0.613	0.151
		Goods and Services	9	0.884	0.250
		Miscellaneous	0	1.481	0.493
Nebraska	26	Manufacturing	1	1.873	0.561
		Construction	2	1.902	0.641
		Office and Clerical	3	0.932	0.361
		Goods and Services	9	1.906	0.522
		Miscellaneous	0	2.197	0.703
Nevada	27	Manufacturing	1	1.417	0.739
		Construction	2	1.877	1.003
		Office and Clerical	3	0.514	0.335
		Goods and Services	9	1.495	0.723
		Miscellaneous	0	1.510	0.896
New Hampshire	28	Manufacturing	1	1.821	0.284
		Construction	2	1.710	0.363
		Office and Clerical	3	1.219	0.247
		Goods and Services	9	1.353	0.287
		Miscellaneous	0	2.147	0.455
New Mexico	30	Manufacturing	1	1.458	0.515
		Construction	2	2.370	0.815
		Office and Clerical	3	0.817	0.274
		Goods and Services	9	1.715	0.593
		Miscellaneous	0	2.097	0.695
North Carolina	32	Manufacturing	1	1.422	0.908
		Construction	2	1.242	0.626
		Office and Clerical	3	0.744	0.570
		Goods and Services	9	1.182	0.702
		Miscellaneous	0	1.212	0.772
Oklahoma	35	Manufacturing	1	0.717	0.590
		Construction	2	1.027	0.696
		Office and Clerical	3	0.291	0.249
		Goods and Services	9	0.590	0.461
		Miscellaneous	0	0.827	0.664
Oregon	36	Manufacturing	1	1.620	0.729
		Construction	2	1.647	0.769
		Office and Clerical	3	1.573	0.621
		Goods and Services	9	1.445	0.644
		Miscellaneous	0	1.840	0.924

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 Exhibit 2

## Countrywide Classification Experience: Pitch Factors

State (1)	State Code (2)	Industry Group (3)	Industry Code (4)	Indemnity (5)	Medical (6)
Rhode Island	38	Manufacturing	1	0.821	0.959
		Construction	2	1.092	1.101
		Office and Clerical	3	0.512	0.707
		Goods and Services	9	0.758	0.848
		Miscellaneous	0	1.006	1.199
South Carolina	39	Manufacturing	1	1.030	0.780
		Construction	2	1.134	0.684
		Office and Clerical	3	0.548	0.453
		Goods and Services	9	1.069	0.782
		Miscellaneous	0	1.267	0.928
South Dakota	40	Manufacturing	1	2.417	0.528
		Construction	2	2.000	0.465
		Office and Clerical	3	0.980	0.305
		Goods and Services	9	2.616	0.570
		Miscellaneous	0	3.885	0.878
Tennessee	41	Manufacturing	1	1.371	0.502
		Construction	2	1.732	0.566
		Office and Clerical	3	0.977	0.415
		Goods and Services	9	1.637	0.560
		Miscellaneous	0	2.178	0.829
Utah	43	Manufacturing	1	3.002	0.903
		Construction	2	3.592	0.788
		Office and Clerical	3	1.572	0.277
		Goods and Services	9	3.058	0.709
		Miscellaneous	0	3.185	0.952
Vermont	44	Manufacturing	1	0.881	0.450
		Construction	2	1.464	0.679
		Office and Clerical	3	0.349	0.248
		Goods and Services	9	0.797	0.530
		Miscellaneous	0	1.283	0.616
Virginia	45	Manufacturing	1	2.899	0.862
		Construction	2	2.790	0.812
		Office and Clerical	3	2.312	0.771
		Goods and Services	9	2.540	0.753
		Miscellaneous	0	2.878	0.998
Hawaii	52	Manufacturing	1	1.145	0.866
		Construction	2	2.063	1.497
		Office and Clerical	3	0.707	0.570
		Goods and Services	9	1.275	0.991
		Miscellaneous	0	1.723	1.138
Alaska	54	Manufacturing	1	2.155	0.426
		Construction	2	2.555	0.472
		Office and Clerical	3	0.660	0.118
		Goods and Services	9	1.687	0.320
		Miscellaneous	0	2.906	0.485

**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 - 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	5/1/2008	- 4/30/2009	5/1/2007	- 4/30/2008	5/1/2006	- 4/30/2007
Arizona	2	3/1/2008	- 2/28/2009	3/1/2007	- 2/29/2008	3/1/2006	- 2/28/2007
Arkansas	3	2/1/2008	- 1/31/2009	2/1/2007	- 1/31/2008	2/1/2006	- 1/31/2007
Colorado	5	3/1/2008	- 2/28/2009	3/1/2007	- 2/29/2008	3/1/2006	- 2/28/2007
Connecticut	6	8/1/2008	- 7/31/2009	8/1/2007	- 7/31/2008	8/1/2006	- 7/31/2007
D.C.	8	2/1/2008	- 1/31/2009	2/1/2007	- 1/31/2008	2/1/2006	- 1/31/2007
Florida	9	1/1/2008	- 12/31/2008	1/1/2007	- 12/31/2007	1/1/2006	- 12/31/2006
Georgia	10	7/1/2008	- 6/30/2009	7/1/2007	- 6/30/2008	7/1/2006	- 6/30/2007
Idaho	11	7/1/2008	- 6/30/2009	7/1/2007	- 6/30/2008	7/1/2006	- 6/30/2007
Illinois	12	4/1/2008	- 3/31/2009	4/1/2007	- 3/31/2008	4/1/2006	- 3/31/2007
Indiana	13	7/1/2008	- 6/30/2009	7/1/2007	- 6/30/2008	7/1/2006	- 6/30/2007
Iowa	14	3/1/2008	- 2/28/2009	3/1/2007	- 2/29/2008	3/1/2006	- 2/28/2007
Kansas	15	7/1/2008	- 6/30/2009	7/1/2007	- 6/30/2008	7/1/2006	- 6/30/2007
Kentucky	16	5/1/2008	- 4/30/2009	5/1/2007	- 4/30/2008	5/1/2006	- 4/30/2007
Louisiana	17	9/1/2008	- 8/31/2009	9/1/2007	- 8/31/2008	9/1/2006	- 8/31/2007
Maine	18	6/1/2008	- 5/31/2009	6/1/2007	- 5/31/2008	6/1/2006	- 5/31/2007
Maryland	19	4/1/2008	- 3/31/2009	4/1/2007	- 3/31/2008	4/1/2006	- 3/31/2007
Minnesota	22	1/1/2008	- 12/31/2008	1/1/2007	- 12/31/2007	1/1/2006	- 12/31/2006
Mississippi	23	9/1/2008	- 8/31/2009	9/1/2007	- 8/31/2008	9/1/2006	- 8/31/2007
Missouri	24	7/1/2008	- 6/30/2009	7/1/2007	- 6/30/2008	7/1/2006	- 6/30/2007
Montana	25	1/1/2008	- 12/31/2008	1/1/2007	- 12/31/2007	1/1/2006	- 12/31/2006
Nebraska	26	8/1/2008	- 7/31/2009	8/1/2007	- 7/31/2008	8/1/2006	- 7/31/2007
Nevada	27	1/1/2008	- 12/31/2008	1/1/2007	- 12/31/2007	1/1/2006	- 12/31/2006
New Hampshire	28	4/1/2008	- 3/31/2009	4/1/2007	- 3/31/2008	4/1/2006	- 3/31/2007
New Mexico	30	7/1/2008	- 6/30/2009	7/1/2007	- 6/30/2008	7/1/2006	- 6/30/2007
North Carolina	32	1/1/2008	- 12/31/2008	1/1/2007	- 12/31/2007	1/1/2006	- 12/31/2006
Oklahoma	35	6/1/2008	- 5/31/2009	6/1/2007	- 5/31/2008	6/1/2006	- 5/31/2007
Oregon	36	1/1/2008	- 12/31/2008	1/1/2007	- 12/31/2007	1/1/2006	- 12/31/2006
Rhode Island	38	1/1/2008	- 12/31/2008	1/1/2007	- 12/31/2007	1/1/2006	- 12/31/2006
South Carolina	39	5/1/2008	- 4/30/2009	5/1/2007	- 4/30/2008	5/1/2006	- 4/30/2007
South Dakota	40	1/1/2008	- 12/31/2008	1/1/2007	- 12/31/2007	1/1/2006	- 12/31/2006
Tennessee	41	6/1/2008	- 5/31/2009	6/1/2007	- 5/31/2008	6/1/2006	- 5/31/2007
Utah	43	7/1/2008	- 6/30/2009	7/1/2007	- 6/30/2008	7/1/2006	- 6/30/2007
Vermont	44	7/1/2008	- 6/30/2009	7/1/2007	- 6/30/2008	7/1/2006	- 6/30/2007
Virginia	45	2/1/2008	- 1/31/2009	2/1/2007	- 1/31/2008	2/1/2006	- 1/31/2007
Hawaii	52	6/1/2008	- 5/31/2009	6/1/2007	- 5/31/2008	6/1/2006	- 5/31/2007
Alaska	54	4/1/2008	- 3/31/2009	4/1/2007	- 3/31/2008	4/1/2006	- 3/31/2007

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	2.427	1.121	0.515	0.757	1.004	1.001	0.951
	Medical	2.427	1.054	0.485	0.757	1.000	1.012	0.901
	Total		2.175					
Construction	Indemnity	5.565	2.717	0.542	0.757	1.004	1.001	2.294
	Medical	5.565	2.295	0.458	0.757	1.000	1.012	1.953
	Total		5.012					
Office and Clerical	Indemnity	0.163	0.075	0.469	0.757	1.004	1.001	0.058
	Medical	0.163	0.085	0.531	0.757	1.000	1.012	0.066
	Total		0.160					
Goods and Services	Indemnity	1.880	0.846	0.492	0.757	1.004	1.001	0.704
	Medical	1.880	0.872	0.508	0.757	1.000	1.012	0.731
	Total		1.718					
Miscellaneous	Indemnity	5.137	2.345	0.505	0.757	1.004	1.001	1.973
	Medical	5.137	2.298	0.495	0.757	1.000	1.012	1.948
	Total		4.643					

Notes:

- (3): Section IX - H, Exhibit 1 of 09/01/10 stipulation.
- (4): Section IX - C, Page 2 of Exhibits 1-5 of 09/01/10 stipulation.
- (6): Section VI - A, Exhibit 1 of 09/01/10 stipulation.
- (7): Section IV - A, Exhibit 1.
- (8): Net Indemnity and Medical Trends from Section V - A, Exhibit 1.

IX 000051

**IX 000052**

Section IX - Classification Pricing  
 Subsection F - Underlying Pure Premiums  
 9/1/2012

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	4.074	1.814	3.874	1.634	5.508
1438	1.234	1.342	1.173	1.210	2.383
1463	4.719	3.771	4.487	3.398	7.885
1701	2.676	1.646	2.545	1.483	4.027
1747	1.680	1.791	1.598	1.613	3.211
1748	1.465	1.347	1.393	1.214	2.607
1852	4.451	1.920	4.233	1.730	5.963
1853	0.958	0.545	0.911	0.491	1.402
1860	1.264	1.177	1.202	1.060	2.262
1924	1.178	1.061	1.120	0.956	2.076
1925	1.887	1.844	1.795	1.661	3.456
2001	1.376	1.393	1.308	1.255	2.563
2002	2.185	2.799	2.078	2.522	4.599
2003	1.376	1.393	1.308	1.255	2.563
2014	1.676	1.579	1.594	1.422	3.017
2021	1.935	1.453	1.840	1.309	3.150
2039	1.351	1.036	1.285	0.933	2.218
2041	1.134	1.041	1.079	0.938	2.017
2070	1.825	1.786	1.735	1.610	3.345
2081	1.548	1.805	1.473	1.626	3.099
2089	1.116	1.028	1.061	0.926	1.988
2095	1.936	1.685	1.841	1.518	3.359
2101	1.116	1.028	1.061	0.926	1.988
2111	1.178	1.101	1.120	0.992	2.112
2114	1.116	1.028	1.061	0.926	1.988
2115	1.491	1.289	1.418	1.161	2.579
2121	0.914	0.849	0.869	0.765	1.634
2130	1.295	0.992	1.231	0.894	2.125
2131	1.001	1.019	0.952	0.918	1.870
2143	1.482	1.142	1.409	1.029	2.438
2150	2.625	2.444	2.496	2.202	4.699
2156	4.359	4.418	4.145	3.980	8.125
2157	2.727	2.140	2.594	1.928	4.522
2172	1.045	0.729	0.994	0.656	1.650
2174	1.846	1.183	1.755	1.066	2.821
2211	2.434	2.671	2.314	2.406	4.721
2220	1.464	1.585	1.393	1.428	2.821
2260	3.112	1.845	2.959	1.663	4.622
2286	1.464	1.585	1.393	1.428	2.821
2288	0.882	0.944	0.839	0.851	1.690
2302	1.464	1.585	1.393	1.428	2.821
2305	0.953	0.687	0.906	0.619	1.526
2362	0.991	1.035	0.942	0.932	1.874
2380	1.081	1.401	1.028	1.262	2.290
2402	1.467	1.138	1.395	1.025	2.421
2413	1.689	1.335	1.606	1.203	2.810
2416	1.355	1.421	1.289	1.280	2.569
2417	1.360	1.238	1.294	1.116	2.409

**IX 000053**

Section IX - Classification Pricing  
 Subsection F - Underlying Pure Premiums  
 9/1/2012

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	1.063	0.964	1.011	0.868	1.879
2503	0.432	0.522	0.411	0.470	0.881
2534	1.063	0.964	1.011	0.868	1.879
2570	1.948	2.160	1.852	1.946	3.798
2576	1.465	1.289	1.393	1.161	2.554
2578	1.465	1.289	1.393	1.161	2.554
2585	1.224	1.171	1.164	1.055	2.219
2586	0.732	0.646	0.696	0.582	1.278
2623	1.802	1.475	1.713	1.329	3.042
2640	1.118	0.971	1.063	0.875	1.938
2651	1.118	0.971	1.063	0.875	1.938
2660	0.760	1.020	0.723	0.919	1.643
2683	0.938	0.892	0.892	0.804	1.696
2688	1.199	1.056	1.140	0.951	2.091
2710	2.801	2.679	2.664	2.413	5.078
2731	2.012	1.987	1.914	1.791	3.705
2741	3.021	2.115	2.873	1.905	4.778
2747	3.443	3.157	3.274	2.844	6.119
2790	0.881	1.048	0.838	0.944	1.782
2802	1.924	1.925	1.830	1.734	3.564
2835	0.886	1.023	0.843	0.922	1.765
2836	1.653	1.070	1.572	0.964	2.536
2841	1.576	1.811	1.499	1.632	3.130
2883	1.518	1.610	1.444	1.451	2.895
2923	0.915	0.776	0.870	0.700	1.570
2942	0.937	1.311	0.891	1.181	2.073
3018	1.189	1.231	1.131	1.109	2.239
3022	1.632	1.719	1.552	1.549	3.101
3027	1.885	2.189	1.792	1.972	3.765
3028	1.607	2.105	1.529	1.897	3.426
3030	3.282	3.821	3.121	3.443	6.564
3040	3.586	2.849	3.411	2.567	5.978
3041	2.282	1.606	2.170	1.447	3.618
3042	5.018	2.552	4.772	2.299	7.071
3064	1.309	1.248	1.244	1.124	2.369
3066	1.309	1.248	1.244	1.124	2.369
3076	1.181	1.090	1.123	0.982	2.105
3081	3.321	3.720	3.158	3.352	6.510
3082	3.321	3.720	3.158	3.352	6.510
3085	2.039	2.165	1.939	1.950	3.890
3110	3.327	3.846	3.164	3.465	6.629
3111	1.192	1.313	1.134	1.183	2.317
3113	0.931	0.941	0.886	0.848	1.734
3114	1.543	1.546	1.467	1.393	2.860
3118	0.931	0.941	0.886	0.848	1.734
3119	0.459	0.491	0.436	0.443	0.879
3120	0.994	0.658	0.945	0.593	1.538
3122	1.140	1.103	1.084	0.993	2.078

**IX 000054**

Section IX - Classification Pricing  
 Subsection F - Underlying Pure Premiums  
 9/1/2012

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	0.367	0.423	0.349	0.381	0.731
3131	1.005	0.814	0.955	0.733	1.688
3132	1.047	1.197	0.995	1.078	2.074
3145	0.838	0.917	0.797	0.826	1.623
3146	1.002	0.791	0.953	0.713	1.666
3169	1.658	2.051	1.577	1.848	3.425
3179	0.798	0.641	0.759	0.578	1.337
3180	1.254	1.213	1.193	1.093	2.286
3188	1.754	1.617	1.668	1.457	3.125
3200	1.240	1.487	1.179	1.340	2.519
3220	0.852	0.811	0.810	0.730	1.540
3227	1.658	2.051	1.577	1.848	3.425
3241	1.178	1.061	1.120	0.956	2.076
3255	1.418	1.548	1.348	1.395	2.743
3257	1.305	1.522	1.241	1.371	2.612
3270	0.920	0.736	0.875	0.663	1.538
3300	3.310	2.745	3.148	2.473	5.621
3315	1.332	1.162	1.267	1.047	2.314
3336	1.285	1.481	1.222	1.334	2.556
3372	1.023	1.068	0.973	0.962	1.935
3373	1.751	1.373	1.666	1.237	2.903
3381	1.413	1.477	1.344	1.331	2.675
3383	0.611	0.584	0.581	0.526	1.107
3385	0.395	0.406	0.376	0.366	0.742
3400	1.658	2.051	1.577	1.848	3.425
3507	1.644	1.714	1.563	1.544	3.108
3515	1.189	1.299	1.131	1.171	2.302
3548	0.791	0.874	0.752	0.787	1.539
3558	0.348	0.482	0.331	0.434	0.765
3559	0.791	0.874	0.752	0.787	1.539
3571	0.541	0.522	0.515	0.471	0.985
3574	0.791	0.874	0.752	0.787	1.539
3612	0.855	0.824	0.813	0.743	1.556
3620	2.050	2.173	1.950	1.958	3.908
3629	0.791	0.874	0.752	0.787	1.539
3632	0.791	0.874	0.752	0.787	1.539
3634	0.899	0.726	0.855	0.655	1.509
3635	1.588	2.035	1.510	1.834	3.344
3638	0.791	0.874	0.752	0.787	1.539
3642	0.540	0.375	0.514	0.338	0.852
3643	0.798	0.641	0.759	0.578	1.337
3647	1.215	1.195	1.155	1.077	2.232
3648	0.671	0.836	0.639	0.753	1.391
3681	0.344	0.355	0.327	0.320	0.647
3685	0.344	0.355	0.327	0.320	0.647
3807	1.658	2.051	1.577	1.848	3.425
3808	1.631	1.816	1.551	1.636	3.187
3826	2.020	2.174	1.921	1.959	3.880

**IX 000055**

Section IX - Classification Pricing  
 Subsection F - Underlying Pure Premiums  
 9/1/2012

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	0.791	0.874	0.752	0.787	1.539
3841	0.782	0.784	0.744	0.706	1.450
4021	2.051	2.251	1.950	2.028	3.979
4024	1.624	1.073	1.544	0.967	2.511
4034	2.378	2.479	2.261	2.233	4.495
4036	1.534	1.078	1.459	0.971	2.430
4038	1.156	0.891	1.099	0.803	1.902
4053	0.989	0.825	0.941	0.743	1.684
4061	1.234	2.192	1.173	1.975	3.148
4062	1.234	2.192	1.173	1.975	3.148
4112	0.308	0.244	0.293	0.220	0.512
4113	0.989	0.825	0.941	0.743	1.684
4114	1.252	1.037	1.191	0.935	2.126
4130	2.232	2.474	2.123	2.229	4.352
4133	0.803	0.926	0.763	0.834	1.598
4150	0.490	0.382	0.466	0.344	0.810
4239	1.583	1.360	1.506	1.225	2.731
4243	1.404	1.190	1.336	1.072	2.408
4244	1.520	1.801	1.445	1.623	3.068
4250	0.869	0.664	0.826	0.598	1.424
4251	0.869	0.758	0.827	0.683	1.510
4273	1.187	1.501	1.129	1.352	2.481
4279	1.432	1.737	1.362	1.565	2.927
4282	0.292	0.314	0.278	0.283	0.561
4283	1.363	1.197	1.296	1.079	2.375
4299	0.969	0.896	0.921	0.807	1.728
4301	2.806	2.421	2.668	2.181	4.849
4304	1.691	1.708	1.608	1.539	3.147
4307	0.606	0.607	0.576	0.547	1.123
4308	1.654	0.393	1.573	0.354	1.927
4350	0.305	0.243	0.290	0.219	0.509
4351	0.535	0.389	0.509	0.351	0.860
4352	0.414	0.561	0.394	0.505	0.899
4360	0.559	0.447	0.531	0.403	0.935
4410	1.951	1.999	1.856	1.801	3.657
4417	2.338	2.250	2.224	2.027	4.251
4432	0.523	0.580	0.497	0.522	1.020
4439	1.091	1.142	1.038	1.029	2.067
4452	1.247	1.329	1.186	1.197	2.383
4459	1.216	1.445	1.156	1.302	2.458
4470	1.247	1.251	1.186	1.127	2.313
4484	1.002	1.134	0.952	1.022	1.974
4493	1.281	1.609	1.218	1.450	2.668
4557	0.670	0.618	0.637	0.557	1.194
4558	0.808	0.723	0.769	0.651	1.420
4561	1.091	1.142	1.038	1.029	2.067
4583	1.649	1.192	1.568	1.074	2.642
4611	0.751	0.674	0.715	0.607	1.322

**IX 000056**

Section IX - Classification Pricing  
 Subsection F - Underlying Pure Premiums  
 9/1/2012

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	1.498	1.570	1.425	1.414	2.839
4653	0.674	0.532	0.641	0.480	1.121
4665	3.558	4.002	3.383	3.605	6.989
4692	0.275	0.244	0.262	0.219	0.481
4693	0.468	0.511	0.445	0.460	0.905
4720	0.784	0.873	0.745	0.786	1.532
4740	0.485	0.387	0.461	0.349	0.810
4741	1.839	1.247	1.749	1.124	2.873
4770	8.218	1.259	7.815	1.134	8.949
4773	16.714	2.363	15.895	2.129	18.024
4774	13.713	2.195	13.041	1.978	15.019
4775	41.651	40.258	39.610	36.273	75.883
4776	12.339	1.207	11.734	1.087	12.822
4777	1.649	1.192	1.568	1.074	2.642
4779	9.934	2.420	9.447	2.181	11.628
4799	30.264	4.641	28.781	4.182	32.963
4825	0.308	0.279	0.292	0.251	0.544
4828	0.562	0.467	0.534	0.420	0.955
4829	0.562	0.467	0.534	0.420	0.955
4902	0.937	1.311	0.891	1.181	2.073
4923	0.559	0.447	0.531	0.403	0.935
6504	1.116	1.028	1.061	0.926	1.988
9501	1.158	1.462	1.101	1.317	2.419
9505	1.158	1.462	1.101	1.317	2.419
9521	2.052	1.702	1.951	1.534	3.485
9522	0.939	0.814	0.893	0.733	1.626

## Notes:

(2), (3): Section IX - I of 09/01/2010 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 = 0.951, Medical = 0.901).

**IX 000057**

Section IX - Classification Pricing  
 Subsection F - Underlying Pure Premiums  
 9/1/2012

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	1.111	1.017	2.548	1.986	4.534
3365	1.695	1.747	3.888	3.412	7.300
3724	0.881	0.903	2.022	1.765	3.786
3726	3.248	2.289	7.451	4.471	11.922
5020	1.074	1.154	2.464	2.253	4.718
5022	2.033	1.690	4.663	3.300	7.963
5037	5.244	2.917	12.030	5.697	17.728
5040	11.309	8.482	25.943	16.565	42.508
5057	6.403	5.225	14.689	10.205	24.895
5059	6.403	5.225	14.689	10.205	24.895
5069	6.403	5.225	14.689	10.205	24.895
5102	1.355	1.070	3.109	2.090	5.199
5146	0.993	0.897	2.277	1.751	4.028
5160	0.767	0.736	1.760	1.438	3.198
5183	0.605	0.642	1.387	1.254	2.641
5188	0.790	0.669	1.811	1.308	3.119
5190	0.483	0.531	1.108	1.037	2.144
5213	3.744	2.884	8.589	5.633	14.222
5215	0.909	0.995	2.084	1.943	4.027
5221	1.145	1.066	2.626	2.082	4.708
5222	1.604	1.477	3.680	2.885	6.565
5223	0.909	0.995	2.084	1.943	4.027
5348	1.046	1.017	2.399	1.987	4.386
5402	1.517	2.069	3.481	4.040	7.521
5403	1.679	1.694	3.853	3.309	7.161
5437	1.021	0.822	2.342	1.606	3.948
5443	0.871	0.886	1.999	1.729	3.729
5445	1.457	1.086	3.343	2.122	5.464
5462	1.688	1.719	3.872	3.357	7.229
5472	2.155	2.187	4.944	4.270	9.214
5473	2.421	2.025	5.555	3.954	9.509
5474	0.884	0.928	2.028	1.813	3.841
5478	0.976	0.661	2.238	1.290	3.529
5479	1.354	1.416	3.106	2.765	5.871
5480	0.927	0.719	2.127	1.405	3.532
5506	1.260	1.245	2.891	2.431	5.323
5507	1.300	1.198	2.981	2.340	5.322
5508	1.111	1.017	2.548	1.986	4.534
5509	0.578	0.615	1.325	1.200	2.525
5538	0.992	1.044	2.275	2.040	4.315
5545	4.570	6.615	10.483	12.920	23.403
5547	2.613	3.549	5.994	6.931	12.925
5606	0.275	0.304	0.630	0.594	1.223
5610	1.072	0.837	2.459	1.634	4.093
5645	1.403	1.708	3.219	3.336	6.555
5651	1.403	1.708	3.219	3.336	6.555
5701	3.058	4.485	7.015	8.760	15.775
5703	5.904	3.379	13.545	6.600	20.144

**IX 000058**

Section IX - Classification Pricing  
 Subsection F - Underlying Pure Premiums  
 9/1/2012

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	2.119	1.821	4.861	3.556	8.416
6003	2.707	1.810	6.210	3.534	9.744
6005	1.111	1.017	2.548	1.986	4.534
6204	1.733	1.699	3.976	3.319	7.295
6217	0.761	0.786	1.745	1.536	3.281
6229	0.761	0.786	1.745	1.536	3.281
6233	0.750	0.572	1.721	1.118	2.839
6251	1.318	0.764	3.023	1.491	4.514
6252	1.522	1.236	3.491	2.413	5.904
6306	1.493	1.421	3.425	2.775	6.200
6319	0.910	0.810	2.087	1.583	3.669
6325	0.825	0.933	1.894	1.822	3.715
6400	1.127	1.402	2.586	2.739	5.325
7538	1.124	1.065	2.579	2.080	4.659
7601	1.124	1.065	2.579	2.080	4.659
7855	1.241	0.740	2.846	1.446	4.292
8227	0.696	0.918	1.596	1.793	3.389
9533	3.642	2.093	8.355	4.087	12.442
9534	1.141	0.701	2.617	1.369	3.986
9545	0.765	0.686	1.755	1.339	3.094
9549	0.814	1.124	1.866	2.196	4.062
9552	1.595	1.532	3.659	2.993	6.652
9553	1.595	1.532	3.659	2.993	6.652

## Notes:

(2), (3): Section IX - I of 09/01/2010 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 = 2.294, Medical = 1.953).

# IX 000059

Section IX - Classification Pricing  
Subsection F - Underlying Pure Premiums  
9/1/2012

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	3.233	3.013	0.187	0.199	0.386
7610	1.250	1.102	0.073	0.073	0.145
8601	1.655	1.719	0.096	0.113	0.209
8721	1.093	1.064	0.063	0.070	0.134
8742	0.976	0.944	0.057	0.062	0.119
8748	2.938	2.853	0.170	0.188	0.359
8800	5.380	5.200	0.312	0.343	0.655
8803	0.282	0.217	0.016	0.014	0.031
8810	0.549	0.556	0.032	0.037	0.069
8820	0.592	0.524	0.034	0.035	0.069
8832	1.474	1.351	0.085	0.089	0.175
8833	7.695	6.281	0.446	0.415	0.861
8868	3.700	4.453	0.215	0.294	0.509
8901	0.549	0.556	0.032	0.037	0.069
9156	5.753	8.274	0.334	0.546	0.880

Notes:

(2), (3): Section IX - I of 09/01/2010 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 = 0.058, Medical = 0.066).

**IX 000060**

Section IX - Classification Pricing  
 Subsection F - Underlying Pure Premiums  
 9/1/2012

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	1.445	1.699	1.017	1.242	2.260
0008	1.309	1.308	0.921	0.956	1.878
0016	1.686	2.216	1.187	1.620	2.807
0034	1.470	2.582	1.035	1.888	2.923
0035	1.150	1.163	0.810	0.850	1.660
0036	1.470	2.582	1.035	1.888	2.923
0037	1.309	1.308	0.921	0.956	1.878
0042	2.229	2.268	1.569	1.658	3.227
0046	1.037	1.070	0.730	0.782	1.512
0079	1.079	0.804	0.760	0.588	1.347
0083	2.625	3.160	1.848	2.310	4.158
0113	1.470	2.582	1.035	1.888	2.923
0170	1.470	2.582	1.035	1.888	2.923
0908	54.978	50.139	38.704	36.652	75.356
0909	52.456	97.031	36.929	70.930	107.859
0912	104.913	194.063	73.859	141.860	215.719
0913	109.955	100.279	77.408	73.304	150.712
0917	1.394	1.440	0.981	1.053	2.034
0918	0.407	0.199	0.287	0.145	0.432
2587	1.425	1.337	1.003	0.977	1.980
3821	2.461	2.044	1.733	1.494	3.227
4362	0.369	0.356	0.259	0.260	0.520
4511	0.190	0.201	0.134	0.147	0.281
4512	0.081	0.081	0.057	0.059	0.116
5191	0.562	0.528	0.396	0.386	0.781
5192	2.322	1.849	1.634	1.351	2.986
8001	0.855	0.966	0.602	0.706	1.308
8002	1.131	1.396	0.796	1.021	1.817
8006	0.716	0.980	0.504	0.717	1.220
8008	0.346	0.359	0.243	0.262	0.506
8010	0.788	0.916	0.555	0.670	1.224
8013	0.256	0.247	0.180	0.181	0.361
8017	0.577	0.701	0.406	0.512	0.919
8018	1.767	1.735	1.244	1.268	2.512
8021	1.489	1.481	1.048	1.083	2.131
8031	1.495	1.439	1.052	1.052	2.104
8032	0.816	0.868	0.575	0.634	1.209
8033	1.018	1.095	0.716	0.801	1.517
8034	2.238	2.087	1.575	1.526	3.101
8039	0.795	1.005	0.559	0.734	1.294
8044	1.707	1.862	1.202	1.361	2.563
8046	1.164	1.472	0.820	1.076	1.896
8048	1.957	1.689	1.378	1.235	2.612
8050	0.873	0.998	0.614	0.730	1.344
8058	1.331	1.634	0.937	1.195	2.131
8103	1.737	1.597	1.223	1.168	2.391

# IX 000061

Section IX - Classification Pricing  
 Subsection F - Underlying Pure Premiums  
 9/1/2012

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	2.586	2.495	1.821	1.824	3.645
8106	3.462	4.754	2.437	3.475	5.912
8107	1.995	2.430	1.405	1.776	3.181
8111	1.898	1.820	1.336	1.331	2.667
8116	1.995	2.430	1.405	1.776	3.181
8203	3.449	2.972	2.428	2.172	4.600
8204	3.293	1.955	2.319	1.429	3.748
8215	1.878	1.539	1.322	1.125	2.447
8232	2.440	2.499	1.717	1.827	3.544
8233	4.222	5.543	2.972	4.052	7.025
8235	2.168	2.069	1.526	1.512	3.038
8263	4.541	3.893	3.197	2.846	6.043
8264	2.675	2.532	1.883	1.851	3.734
8265	4.222	5.543	2.972	4.052	7.025
8279	2.260	2.039	1.591	1.491	3.082
8291	2.274	2.347	1.601	1.716	3.317
8292	2.078	2.215	1.463	1.619	3.082
8293	4.727	4.504	3.328	3.292	6.621
8350	3.415	3.005	2.404	2.196	4.601
8380	1.436	1.296	1.011	0.947	1.959
8381	0.979	0.897	0.689	0.656	1.345
8385	1.983	1.711	1.396	1.251	2.647
8392	0.765	0.613	0.539	0.448	0.987
8393	1.216	0.887	0.856	0.649	1.505
8500	4.222	5.543	2.972	4.052	7.025
8710	1.221	1.208	0.859	0.883	1.743
8719	1.221	1.208	0.859	0.883	1.743
8720	0.655	0.477	0.461	0.349	0.809
8745	1.822	1.836	1.283	1.342	2.625
8747	0.577	0.701	0.406	0.512	0.919
8829	1.197	1.097	0.843	0.802	1.645
8831	0.415	0.867	0.292	0.634	0.926
8835	1.204	1.066	0.848	0.779	1.627
9014	1.398	1.223	0.984	0.894	1.878
9015	1.584	1.455	1.115	1.063	2.179
9016	0.857	0.900	0.604	0.658	1.262
9033	3.018	2.193	2.125	1.603	3.728
9040	1.677	1.603	1.181	1.172	2.353
9052	0.793	0.866	0.559	0.633	1.192
9058	0.793	0.866	0.559	0.633	1.192
9060	0.558	0.697	0.393	0.509	0.902
9061	0.510	0.562	0.359	0.411	0.770
9063	0.301	0.445	0.212	0.325	0.537
9079	0.549	0.642	0.386	0.470	0.856
9089	0.651	0.719	0.458	0.526	0.984
9093	0.461	0.643	0.325	0.470	0.795

# IX 000062

Section IX - Classification Pricing  
Subsection F - Underlying Pure Premiums  
9/1/2012

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	1.741	1.793	1.226	1.311	2.536
9220	2.048	1.842	1.442	1.347	2.788
9410	0.960	1.205	0.676	0.881	1.557
9519	1.442	1.372	1.015	1.003	2.018
9586	0.269	0.238	0.190	0.174	0.364
9620	0.470	0.388	0.331	0.284	0.615

Notes:

(2), (3): Section IX - I of 09/01/2010 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 = 0.704, Medical = 0.731).

**IX 000063**

Section IX - Classification Pricing  
 Subsection F - Underlying Pure Premiums  
 9/1/2012

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	2.503	3.455	4.938	6.730	11.668
0251	0.677	0.601	1.336	1.172	2.507
1624	1.146	1.019	2.260	1.986	4.246
1655	1.032	1.459	2.036	2.843	4.878
1710	1.146	1.019	2.260	1.986	4.246
2702	3.146	2.939	6.207	5.725	11.931
4000	1.060	0.896	2.092	1.745	3.837
6834	0.592	0.615	1.168	1.199	2.367
6836	0.478	0.511	0.943	0.996	1.939
7219	1.776	1.587	3.503	3.091	6.594
7230	1.304	1.148	2.573	2.237	4.810
7231	1.345	1.364	2.654	2.657	5.311
7360	1.109	1.129	2.187	2.198	4.386
7370	0.791	1.083	1.560	2.109	3.670
7380	1.201	1.121	2.369	2.183	4.552
7382	0.806	0.857	1.591	1.669	3.260
7403	0.787	1.138	1.552	2.217	3.769
7405	0.327	0.311	0.644	0.606	1.250
7420	1.629	0.746	3.214	1.453	4.667
7421	0.545	0.272	1.075	0.530	1.604
7422	0.545	0.272	1.075	0.530	1.604
7425	1.025	0.568	2.021	1.107	3.128
7431	0.545	0.272	1.075	0.530	1.604
7502	0.696	0.862	1.374	1.679	3.053
7515	0.463	0.462	0.913	0.900	1.813
7520	0.677	0.601	1.336	1.172	2.507
7539	0.266	0.214	0.524	0.416	0.940
7580	0.473	0.532	0.934	1.035	1.969
7590	1.453	1.116	2.866	2.174	5.040
7600	0.686	0.625	1.353	1.217	2.569
7704	0.285	0.324	0.562	0.632	1.194
7720	0.344	0.358	0.678	0.696	1.375
9019	0.427	0.240	0.842	0.468	1.310
9102	0.440	0.472	0.869	0.919	1.788
9154	0.233	0.256	0.459	0.498	0.958
9178	0.889	3.426	1.754	6.674	8.429
9179	5.082	4.640	10.027	9.038	19.065
9180	0.536	1.088	1.058	2.119	3.177
9182	0.535	0.842	1.055	1.639	2.695
9186	0.536	1.088	1.058	2.119	3.177
9402	0.988	1.011	1.948	1.970	3.919
9403	1.626	1.647	3.207	3.207	6.415

**Notes:**

(2), (3): Section IX - I of 09/01/2010 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 = 1.973, Medical = 1.948).

## IX 000064

Section IX - Classification Pricing  
 Subsection G - Class Relativities  
 9/1/2012

Section IX - G

## A-Sheet Table of Contents

Class	To find the A-Sheet for:		Look at the A-Sheet for:	
		Description	Class	Exhibit
0005	FARM: NURSERY EMP & DRIVERS		0005	Section IX - G, Exhibit 1
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
0037	FARM: FIELD CROPS & DRIVERS		0008	Section IX - G, Exhibit 1
0042	LANDSCAPE GARDENING & DRIVERS		0042	Section IX - G, Exhibit 3
0046	FERTILIZER OR PESTICIDE APPLICATION-COMM OR DOMESTIC, DRIVERS		0046	Section IX - G, Exhibit 4
0050	FARM MACHINERY OPERATION-BY CONTRACTOR & DRIVERS		0050	Section IX - G, Exhibit 4
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
0113	FARM: FISH HATCHERY & DRIVERS		0034	Section IX - G, Exhibit 2
0170	FARM: ANIMAL RAISING & DRIVERS		0034	Section IX - G, Exhibit 2
0251	IRRIGATION WORKS OPERATION & DRIVERS		0251	Section IX - G, Exhibit 6
0908	DOMESTIC WORKERS-INSIDE-OCCASIONAL-NOC		0908	Section IX - G, Exhibit 7
0909	DOMESTIC WORKERS-OUTSIDE-OCCASIONAL-INCL OCCASNL PRIV CHAUFF		0909	Section IX - G, Exhibit 7
0912	DOMESTIC WORKERS-OUTSIDE-INCL PRIVATE CHAUFFERS		0909	Section IX - G, Exhibit 7
0913	DOMESTIC WORKERS-INSIDE-NOC		0908	Section IX - G, Exhibit 7
0917	DOMESTIC SERVICE CONTRACTOR-INSIDE		0917	Section IX - G, Exhibit 8
0918	DOMESTIC WORKERS-INSIDE-PHYSICAL ASSISTANCE		0918	Section IX - G, Exhibit 8
1430	SMELTING, SINTERING OR REFINING-LEAD & DRIVERS		1430	Section IX - G, Exhibit 9
1438	SMELTING, SINTERING OR REFINING-METALS-NOT IRON OR LEAD-NOC & D		1438	Section IX - G, Exhibit 9
1463	ASPHALT WORKS & DRIVERS		1463	Section IX - G, Exhibit 10
1624	QUARRY NOC & DRIVERS		1624	Section IX - G, Exhibit 10
1655	LIME MFG-QUARRY-SURFACE & DRIVERS		1655	Section IX - G, Exhibit 11
1701	CEMENT MFG		1701	Section IX - G, Exhibit 11
1710	STONE CRUSHING & DRIVERS		1624	Section IX - G, Exhibit 10
1747	EMERY WORKS & DRIVERS		1747	Section IX - G, Exhibit 12
1748	ABRASIVE WHEEL MFG & DRIVERS		1748	Section IX - G, Exhibit 12
1852	ASBESTOS GOODS MFG		1852	Section IX - G, Exhibit 13
1853	MICA GOODS MFG & MICA PREPARING		1853	Section IX - G, Exhibit 13
1860	ABRASIVE PAPER OR CLOTH PREPARATION		1860	Section IX - G, Exhibit 14
1924	WIRE DRAWING OR CABLE MFG-NOT IRON OR STEEL		1924	Section IX - G, Exhibit 14
1925	DIE CASTING MFG		1925	Section IX - G, Exhibit 15
2001	CRACKER MFG		2001	Section IX - G, Exhibit 15
2002	MACARONI MFG		2002	Section IX - G, Exhibit 16
2003	BAKERY & DRIVERS, ROUTE SUPERVISORS		2001	Section IX - G, Exhibit 15
2014	GRAIN MILLING		2014	Section IX - G, Exhibit 16
2021	SUGAR REFINING-ALL OPERATIONS & DRIVERS		2021	Section IX - G, Exhibit 17
2039	ICE CREAM MFG & DRIVERS		2039	Section IX - G, Exhibit 17
2041	CONFECTION MFG		2041	Section IX - G, Exhibit 18
2070	CREAMERY OR DAIRY & ROUTE SUPERVISORS, DRIVERS		2070	Section IX - G, Exhibit 18
2081	BUTCHERING		2081	Section IX - G, Exhibit 19
2089	PACKING HOUSE- ALL OPERATIONS		2089	Section IX - G, Exhibit 19
2095	MEAT PRODUCTS MFG-NOC		2095	Section IX - G, Exhibit 20
2101	FISH CURING		2089	Section IX - G, Exhibit 19
2111	CANNERY NOC		2111	Section IX - G, Exhibit 20
2114	OYSTERMEN		2089	Section IX - G, Exhibit 19
2115	SEAFOOD PRODUCTS MFG-NOC		2115	Section IX - G, Exhibit 21
2121	BREWERY & DRIVERS		2121	Section IX - G, Exhibit 21
2130	SPIRITUOUS LIQUOR DISTILLERY		2130	Section IX - G, Exhibit 22
2131	SPIRITUOUS LIQUOR BOTTLING		2131	Section IX - G, Exhibit 22
2143	FRUIT JUICE MFG		2143	Section IX - G, Exhibit 23
2150	ICE MFG		2150	Section IX - G, Exhibit 23
2156	BOTTLING-NOT CARBONATED LIQUIDS OR SPIRIT LIQRS & RTE SUP,DR		2156	Section IX - G, Exhibit 24
2157	BOTTLING NOC & ROUTE SUPERVISORS, DRIVERS		2157	Section IX - G, Exhibit 24
2172	CIGARETTE MFG		2172	Section IX - G, Exhibit 25
2174	TOBACCO REHANDLING OR WAREHOUSING		2174	Section IX - G, Exhibit 25
2211	COTTON BATTING,WADDING OR WASTE MFG		2211	Section IX - G, Exhibit 26
2220	YARN OR THREAD MFG-COTTON		2220	Section IX - G, Exhibit 26
2260	WOOL COMBING OR SCOURING		2260	Section IX - G, Exhibit 27
2286	WOOL SPINNING & WEAVING		2220	Section IX - G, Exhibit 26
2288	FELTING MFG		2288	Section IX - G, Exhibit 27
2302	SILK THREAD OR YARN MFG		2220	Section IX - G, Exhibit 26
2305	TEXTILE FIBER MFG-SYNTHETIC		2305	Section IX - G, Exhibit 28

## IX 000065

Section IX - Classification Pricing  
 Subsection G - Class Relativities  
 9/1/2012

Section IX - G

## A-Sheet Table of Contents

Class	To find the A-Sheet for:		Class	Look at the A-Sheet for:	
		Description			Exhibit
2362	KNIT GOODS MFG NOC		2362	Section IX - G, Exhibit 28	
2380	WEBBING MFG		2380	Section IX - G, Exhibit 29	
2402	CARPET OR RUG MFG NOC		2402	Section IX - G, Exhibit 29	
2413	TEXTILE - BLEACHING, DYEING, MERCERZNG, FINISH		2413	Section IX - G, Exhibit 30	
2416	YARN OR THREAD DYEING OR FINISHING		2416	Section IX - G, Exhibit 30	
2417	CLOTH PRINTING		2417	Section IX - G, Exhibit 31	
2501	CLOTHING MFG		2501	Section IX - G, Exhibit 31	
2503	DRESSMAKING OR TAILORING-CUSTOM EXCLUSIVELY		2503	Section IX - G, Exhibit 32	
2534	FEATHER OR FLOWER MFG-ARTIFICIAL		2501	Section IX - G, Exhibit 31	
2570	MATTRESS OR BOX SPRING MFG		2570	Section IX - G, Exhibit 32	
2576	CANVAS GOODS MFG NOC-SHOP		2576	Section IX - G, Exhibit 33	
2578	BAG OR SACK MFG-CLOTH		2576	Section IX - G, Exhibit 33	
2585	LAUNDRY NOC & ROUTE SUPERVISORS, DRIVERS		2585	Section IX - G, Exhibit 33	
2586	CLEANING OR DYEING & ROUTE SUPERVISORS, DRIVERS		2586	Section IX - G, Exhibit 34	
2587	TOWEL OR TOILET SUPPLY CO & RTE SUPERVISORS, DR		2587	Section IX - G, Exhibit 34	
2623	TANNING		2623	Section IX - G, Exhibit 35	
2640	LEATHER EMBOSSING		2640	Section IX - G, Exhibit 35	
2651	SHOE STOCK MFG		2640	Section IX - G, Exhibit 35	
2660	BOOT OR SHOE MFG NOC		2660	Section IX - G, Exhibit 36	
2683	LUGGAGE MFG		2683	Section IX - G, Exhibit 36	
2688	LEATHER GOODS MFG NOC		2688	Section IX - G, Exhibit 37	
2702	LOGGING OR LUMBERING & DRIVERS		2702	Section IX - G, Exhibit 37	
2710	SAWMILLS		2710	Section IX - G, Exhibit 38	
2731	PLANING OR MOLDING MILL		2731	Section IX - G, Exhibit 38	
2741	COOPERAGE STOCK MFG		2741	Section IX - G, Exhibit 39	
2747	COOPERAGE ASSEMBLY		2747	Section IX - G, Exhibit 39	
2790	PATTERN MAKING NOC		2790	Section IX - G, Exhibit 40	
2802	CARPENTRY-SHOP ONLY & DRIVERS		2802	Section IX - G, Exhibit 40	
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Section IX - Classification Pricing  
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Section IX - G

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Section IX - Classification Pricing  
 Subsection G - Class Relativities  
 9/1/2012

Section IX - G  
 Exhibit 1

## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	140,390	1	83	515	144,032	4,397	151,854	300,798	1,030	1,113	2,143
2006	137,462	1	50	2,054	71,826	5,284	135,472	214,636	0,537	1,024	1,561
2007	137,782	1	54	51,241	343,052	92,219	274,119	760,631	2,862	2,659	5,521
2008	137,121	1	29	11,773	14,513	467	32,935	59,689	0,192	0,244	0,435
2009	124,736	0	22	0	72,154	0	87,010	159,164	0,578	0,698	1,276
<b>MA Total:</b>	<b>677,492</b>	<b>4</b>	<b>238</b>	<b>65,583</b>	<b>645,578</b>	<b>102,367</b>	<b>681,391</b>	<b>1,494,919</b>	<b>1,050</b>	<b>1,157</b>	<b>2,207</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.980	1.490	.
(14) Massachusetts Credibility:	0.240	0.430	.
(15) Countrywide Pure Premium:	1.368	1.098	2.466
(16) Countrywide Indicated Relativity:	1.291	1.421	.
(17) Countrywide Credibility:	0.380	0.290	.
(18) Countrywide Lost-Time Claims:	1967.0	.	.
(19) Pure Premium Underlying Present Rate:	1.017	1.242	2.260
(20) Relativity to Underlying Present Rate:	1.490	1.746	.
(21) Credibility to Underlying Relativity:	0.380	0.280	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	1.292	1.542	.
(24) Balanced Formula Relativity:	1.287	1.541	1.393

Class(es):		Effective: 9/1/2012							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)
2005	219,525	1	35	7,636	23,826	6,424	44,755	82,641	0,143	0,233	0,376
2006	207,506	2	44	89,630	104,610	677,814	189,780	1,061,835	0,936	4,181	5,117
2007	227,509	1	54	35,580	180,215	23,631	223,026	462,451	0,949	1,084	2,033
2008	225,547	0	48	0	146,893	0	197,901	344,794	0,651	0,877	1,529
2009	229,400	1	42	159,635	222,813	57,168	171,693	611,308	1,667	0,998	2,665
<b>MA Total:</b>	<b>1,109,487</b>	<b>5</b>	<b>223</b>	<b>292,481</b>	<b>678,356</b>	<b>765,037</b>	<b>827,155</b>	<b>2,563,028</b>	<b>0,875</b>	<b>1,435</b>	<b>2,310</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.817	1.849	.
(14) Massachusetts Credibility:	0.280	0.480	.
(15) Countrywide Pure Premium:	1.671	1.284	2.956
(16) Countrywide Indicated Relativity:	1.577	1.663	.
(17) Countrywide Credibility:	0.360	0.260	.
(18) Countrywide Lost-Time Claims:	3807.0	.	.
(19) Pure Premium Underlying Present Rate:	0.921	0.956	1.878
(20) Relativity to Underlying Present Rate:	1.349	1.344	.
(21) Credibility to Underlying Relativity:	0.360	0.260	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	1.282	1.669	.
(24) Balanced Formula Relativity:	1.277	1.668	1.441

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Subsection G - Class Relativities  
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Section IX - G  
Exhibit 2

## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	62,514	1	16	33,144	44,681	154,746	75,652	308,223	1,245	3,686	4,930
2006	57,533	1	12	7,162	64,040	3,003	44,776	118,981	1,238	0,830	2,068
2007	60,686	0	11	0	5,864	0	19,728	25,592	0,097	0,325	0,422
2008	60,378	1	13	10,905	22,225	108,133	69,675	210,939	0,549	2,945	3,494
2009	72,517	1	15	80,006	12,410	90,587	56,913	239,916	1,274	2,034	3,308
<b>MA Total:</b>	<b>313,628</b>	<b>4</b>	<b>67</b>	<b>131,218</b>	<b>149,220</b>	<b>356,468</b>	<b>266,744</b>	<b>903,649</b>	<b>0.894</b>	<b>1.987</b>	<b>2.881</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.834	2.560	.
(14) Massachusetts Credibility:	0.190	0.350	.
(15) Countrywide Pure Premium:	2.991	2.083	5.075
(16) Countrywide Indicated Relativity:	2.822	2.697	.
(17) Countrywide Credibility:	0.410	0.330	.
(18) Countrywide Lost-Time Claims:	1169.0	.	.
(19) Pure Premium Underlying Present Rate:	1.187	1.620	2.807
(20) Relativity to Underlying Present Rate:	1.738	2.278	.
(21) Credibility to Underlying Relativity:	0.400	0.320	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	2.011	2.515	.
(24) Balanced Formula Relativity:	2.003	2.513	2.217

Class(es):		Effective: 9/1/2012							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)
2005	97,676	3	21	432,568	31,086	307,609	43,732	814,995	4,747	3,597	8,344
2006	98,025	1	33	67,582	86,293	783,616	351,654	1,289,146	1,570	11,581	13,151
2007	104,821	2	45	38,995	115,518	4,004	172,420	330,937	1,474	1,683	3,157
2008	100,033	2	28	733,528	111,647	172,490	93,145	1,110,810	8,449	2,655	11,104
2009	101,926	0	29	0	213,974	0	197,181	411,155	2,099	1,935	4,034
<b>MA Total:</b>	<b>502,482</b>	<b>8</b>	<b>156</b>	<b>1,272,674</b>	<b>558,518</b>	<b>1,267,718</b>	<b>858,133</b>	<b>3,957,042</b>	<b>3,644</b>	<b>4,231</b>	<b>7,875</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.401	5.450	.
(14) Massachusetts Credibility:	0.220	0.450	.
(15) Countrywide Pure Premium:	1.930	1.408	3.338
(16) Countrywide Indicated Relativity:	1.821	1.823	.
(17) Countrywide Credibility:	0.390	0.280	.
(18) Countrywide Lost-Time Claims:	2729.0	.	.
(19) Pure Premium Underlying Present Rate:	1.035	1.888	2.923
(20) Relativity to Underlying Present Rate:	1.515	2.654	.
(21) Credibility to Underlying Relativity:	0.390	0.270	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	2.050	3.680	.
(24) Balanced Formula Relativity:	2.041	3.677	2.728

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 Subsection G - Class Relativities  
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 Exhibit 3

## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	364,895	2	113	66,691	359,130	53,727	348,962	828,510	1,167	1,104	2,271
2006	353,479	2	109	145,943	347,127	35,985	187,311	716,367	1,395	0,632	2,027
2007	378,779	2	90	191,580	364,634	49,491	211,534	817,239	1,468	0,689	2,158
2008	394,144	3	100	189,601	63,954	80,209	163,335	497,099	0,643	0,618	1,261
2009	351,714	5	61	416,359	16,032	179,296	73,419	685,106	1,229	0,719	1,948
<b>MA Total:</b>	<b>1,843,012</b>	<b>14</b>	<b>473</b>	<b>1,010,174</b>	<b>1,150,876</b>	<b>398,708</b>	<b>984,562</b>	<b>3,544,321</b>	<b>1,173</b>	<b>0,751</b>	<b>1,923</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.094	0.967	.
(14) Massachusetts Credibility:	0.330	0.560	.
(15) Countrywide Pure Premium:	1.264	0.929	2.193
(16) Countrywide Indicated Relativity:	1.193	1.202	.
(17) Countrywide Credibility:	0.340	0.220	.
(18) Countrywide Lost-Time Claims:	1392.0	.	.
(19) Pure Premium Underlying Present Rate:	0.810	0.850	1.660
(20) Relativity to Underlying Present Rate:	1.185	1.195	.
(21) Credibility to Underlying Relativity:	0.330	0.220	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	1.158	1.069	.
(24) Balanced Formula Relativity:	1.153	1.068	1.118

Class(es):		Effective: 9/1/2012							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)
2005	3,274,008	29	930	2,598,220	4,326,897	1,430,825	3,186,641	11542583	2,115	1,410	3,526
2006	3,410,222	47	843	4,749,444	3,759,640	2,422,015	3,915,410	14846508	2,495	1,858	4,354
2007	3,588,396	25	793	2,553,950	4,441,924	1,566,271	4,202,141	12764285	1,950	1,608	3,557
2008	3,596,348	38	788	4,737,177	4,915,188	3,221,019	4,113,371	16986755	2,684	2,039	4,723
2009	3,428,385	21	643	2,242,968	5,920,110	1,502,523	4,407,794	14073396	2,381	1,724	4,105
<b>MA Total:</b>	<b>17297358</b>	<b>160</b>	<b>3,997</b>	<b>16881759</b>	<b>23363759</b>	<b>10142654</b>	<b>19825356</b>	<b>70213528</b>	<b>2,327</b>	<b>1,733</b>	<b>4,059</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.171	2.232	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	2.469	1.822	4.291
(16) Countrywide Indicated Relativity:	2.330	2.359	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	7491.0	.	.
(19) Pure Premium Underlying Present Rate:	1.569	1.658	3.227
(20) Relativity to Underlying Present Rate:	2.298	2.330	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	2.171	2.232	.
(24) Balanced Formula Relativity:	2.163	2.231	2.191

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Section IX - Classification Pricing  
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Section IX - G  
Exhibit 4

## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	67,146	2	22	145,284	15,908	102,470	43,453	307,114	2,401	2,173	4,574
2006	71,381	1	15	1,517	21,540	1,107	92,601	116,764	0,323	1,313	1,636
2007	69,553	0	18	0	54,927	0	36,402	91,328	0,790	0,523	1,313
2008	75,094	0	13	0	4,413	0	16,080	20,493	0,059	0,214	0,273
2009	83,208	0	15	0	86,531	0	94,293	180,824	1,040	1,133	2,173
<b>MA Total:</b>	<b>366,382</b>	<b>3</b>	<b>83</b>	<b>146,801</b>	<b>183,318</b>	<b>103,576</b>	<b>282,828</b>	<b>716,524</b>	<b>0,901</b>	<b>1,055</b>	<b>1,956</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.841	1.359	.
(14) Massachusetts Credibility:	0.170	0.280	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	1.061	1.092	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	0.730	0.782	1.512
(20) Relativity to Underlying Present Rate:	1.069	1.100	.
(21) Credibility to Underlying Relativity:	0.830	0.720	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	1.030	1.172	.
(24) Balanced Formula Relativity:	1.026	1.172	1.087

Class(es):		Effective: 9/1/2012							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)
2005	12,188	0	2	0	6,080	0	7,054	13,134	0,499	0,579	1,078
2006	16,824	0	1	0	6,571	0	10,850	17,421	0,391	0,645	1,036
2007	22,713	0	3	0	4,397	0	4,529	8,926	0,194	0,199	0,393
2008	20,391	0	6	0	0	0	7,257	7,257	0,000	0,356	0,356
2009	14,948	0	5	0	298,331	0	92,852	391,182	19,958	6,212	26,170
<b>MA Total:</b>	<b>87,063</b>	<b>0</b>	<b>17</b>	<b>0</b>	<b>315,379</b>	<b>0</b>	<b>122,542</b>	<b>437,921</b>	<b>3,622</b>	<b>1,408</b>	<b>5,030</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.025	0.693	.
(14) Massachusetts Credibility:	0.150	0.230	.
(15) Countrywide Pure Premium:	4.910	3.143	8.054
(16) Countrywide Indicated Relativity:	1.443	1.596	.
(17) Countrywide Credibility:	0.430	0.390	.
(18) Countrywide Lost-Time Claims:	1035.0	.	.
(19) Pure Premium Underlying Present Rate:	2.548	1.986	4.534
(20) Relativity to Underlying Present Rate:	1.127	1.026	.
(21) Credibility to Underlying Relativity:	0.420	0.380	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	1.248	1.172	.
(24) Balanced Formula Relativity:	1.272	1.177	1.237

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Section IX - G  
Exhibit 5

## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	196,279	0	17	0	6,842	0	16,152	22,994	0.035	0.082	0.117
2006	136,657	1	18	145,361	6,238	22,241	24,203	198,043	1.109	0.340	1.449
2007	124,016	0	21	0	57,358	0	42,444	99,802	0.462	0.342	0.805
2008	141,264	0	37	0	82,556	0	125,120	207,675	0.584	0.886	1.470
2009	146,088	1	23	55,236	57,318	141,381	66,514	320,449	0.770	1.423	2.194
<b>MA Total:</b>	<b>744,304</b>	<b>2</b>	<b>116</b>	<b>200,597</b>	<b>210,311</b>	<b>163,622</b>	<b>274,432</b>	<b>848,962</b>	<b>0.552</b>	<b>0.589</b>	<b>1.141</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.515	0.758	.
(14) Massachusetts Credibility:	0.220	0.330	.
(15) Countrywide Pure Premium:	1.843	1.569	3.412
(16) Countrywide Indicated Relativity:	1.739	2.032	.
(17) Countrywide Credibility:	0.390	0.340	.
(18) Countrywide Lost-Time Claims:	126.00	.	.
(19) Pure Premium Underlying Present Rate:	0.760	0.588	1.347
(20) Relativity to Underlying Present Rate:	1.112	0.826	.
(21) Credibility to Underlying Relativity:	0.390	0.330	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	1.225	1.214	.
(24) Balanced Formula Relativity:	1.220	1.213	1.217

Class(es):		Effective: 9/1/2012							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)
2005	48,979	0	19	0	18,119	0	59,275	77,394	0.370	1.210	1.580
2006	48,022	2	11	195,611	46,569	76,778	50,836	369,794	5.043	2.657	7.700
2007	48,919	1	17	118,612	119,622	733,872	126,936	1,099,043	4.870	17.597	22.467
2008	45,677	0	11	0	15,031	0	35,151	50,182	0.329	0.770	1.099
2009	51,044	0	8	0	1,197	0	8,564	9,761	0.023	0.168	0.191
<b>MA Total:</b>	<b>242,641</b>	<b>3</b>	<b>66</b>	<b>314,223</b>	<b>200,538</b>	<b>810,650</b>	<b>280,763</b>	<b>1,606,174</b>	<b>2.121</b>	<b>4.498</b>	<b>6.620</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.980	5.795	.
(14) Massachusetts Credibility:	0.200	0.370	.
(15) Countrywide Pure Premium:	2.774	2.200	4.974
(16) Countrywide Indicated Relativity:	2.617	2.849	.
(17) Countrywide Credibility:	0.400	0.320	.
(18) Countrywide Lost-Time Claims:	3379.0	.	.
(19) Pure Premium Underlying Present Rate:	1.848	2.310	4.158
(20) Relativity to Underlying Present Rate:	2.706	3.247	.
(21) Credibility to Underlying Relativity:	0.400	0.310	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	2.525	4.062	.
(24) Balanced Formula Relativity:	2.515	4.060	3.164

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)	
2005	191.331	3	97	804.675	1,781.023	466.452	1,026.795	4,078.945	13.514	7.805	21.319	
2006	201.507	2	92	165.765	306.884	46.862	464.467	983.978	2.346	2.538	4.883	
2007	225.057	4	89	604.965	1,973.016	986.844	2,371.784	5,936.610	11.455	14.923	26.378	
2008	270.764	6	108	397.679	993.240	275.596	883.211	2,549.726	5.137	4.280	9.417	
2009	281.168	9	112	985.200	1,189.980	2,253.774	1,808.113	6,237.066	7.736	14.446	22.183	
<b>MA Total:</b>	<b>1,169,828</b>	<b>24</b>	<b>498</b>	<b>2,958,284</b>	<b>6,244,143</b>	<b>4,029,528</b>	<b>6,554,370</b>	<b>19786325</b>	<b>7.866</b>	<b>9.047</b>	<b>16.914</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.437	4.251	.
(14) Massachusetts Credibility:	0.570	1.000	.
(15) Countrywide Pure Premium:	8.073	5.764	13.837
(16) Countrywide Indicated Relativity:	2.664	2.909	.
(17) Countrywide Credibility:	0.220	0.000	.
(18) Countrywide Lost-Time Claims:	2874.0	.	.
(19) Pure Premium Underlying Present Rate:	4.938	6.730	11.668
(20) Relativity to Underlying Present Rate:	2.534	3.485	.
(21) Credibility to Underlying Relativity:	0.210	0.000	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	2.507	4.251	.
(24) Balanced Formula Relativity:	2.455	4.185	3.142

Class(es):		Effective: 9/1/2012							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)	
2005	131.474	1	31	33.371	177.510	36.291	87.275	334.447	1.604	0.940	2.544	
2006	131.961	3	26	190.947	38.681	122.711	52.518	404.857	1.740	1.328	3.068	
2007	131.304	1	20	57.857	20.415	228.531	23.199	330.001	0.596	1.917	2.513	
2008	178.563	3	40	313.807	956.068	73.754	594.528	1,938.157	7.112	3.743	10.854	
2009	238.004	2	41	69.144	360.301	51.415	286.908	767.768	1.804	1.422	3.226	
<b>MA Total:</b>	<b>811.306</b>	<b>10</b>	<b>158</b>	<b>665.126</b>	<b>1,552,975</b>	<b>512,702</b>	<b>1,044,428</b>	<b>3,775,231</b>	<b>2.734</b>	<b>1.919</b>	<b>4.653</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.847	0.902	.
(14) Massachusetts Credibility:	0.290	0.460	.
(15) Countrywide Pure Premium:	1.999	1.464	3.463
(16) Countrywide Indicated Relativity:	0.659	0.739	.
(17) Countrywide Credibility:	0.360	0.270	.
(18) Countrywide Lost-Time Claims:	2118.0	.	.
(19) Pure Premium Underlying Present Rate:	1.336	1.172	2.507
(20) Relativity to Underlying Present Rate:	0.685	0.607	.
(21) Credibility to Underlying Relativity:	0.350	0.270	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	0.723	0.778	.
(24) Balanced Formula Relativity:	0.708	0.766	0.731

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 Exhibit 7

## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)	
2005	2,534	5	29	972,057	48,963	323,174	40,094	1,384,288	402.89	143.34	546.23	
2006	2,458	0	26	0	265,471	0	223,044	488,515	108.01	90.751	198.77	
2007	2,441	2	14	113,815	1,699	128,288	49,609	293,411	47.314	72.865	120.18	
2008	2,664	0	16	0	215,492	0	117,149	332,641	80.887	43.973	124.86	
2009	2,613	0	6	0	454,853	0	105,244	560,096	174.10	40.284	214.39	
<b>MA Total:</b>	<b>12,710</b>	<b>7</b>	<b>91</b>	<b>1,085,872</b>	<b>986,478</b>	<b>451,462</b>	<b>535,140</b>	<b>3,058,951</b>	<b>163.05</b>	<b>77.623</b>	<b>240.67</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	152.17	100.00	.
(14) Massachusetts Credibility:	0.280	0.450	.
(15) Countrywide Pure Premium:	152.30	99.442	251.74
(16) Countrywide Indicated Relativity:	112.57	102.33	.
(17) Countrywide Credibility:	0.360	0.280	.
(18) Countrywide Lost-Time Claims:	454.00	.	.
(19) Pure Premium Underlying Present Rate:	77.408	73.304	150.71
(20) Relativity to Underlying Present Rate:	113.35	103.05	.
(21) Credibility to Underlying Relativity:	0.360	0.270	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	123.94	101.48	.
(24) Balanced Formula Relativity:	123.44	101.41	114.18

Class(es):		Effective: 9/1/2012							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)	
2005	419	0	18	0	35,595	0	77,226	112,821	85.013	184.44	269.46	
2006	430	0	16	0	74,860	0	54,806	129,666	174.30	127.60	301.90	
2007	390	1	11	95,150	24,381	49,551	82,992	252,074	306.57	339.94	646.51	
2008	401	0	13	0	26,157	0	178,005	204,162	65.237	443.96	509.19	
2009	365	0	6	0	439	0	8,605	9,044	1.203	23.599	24.802	
<b>MA Total:</b>	<b>2,004</b>	<b>1</b>	<b>64</b>	<b>95,150</b>	<b>161,432</b>	<b>49,551</b>	<b>401,634</b>	<b>707,767</b>	<b>128.05</b>	<b>225.18</b>	<b>353.23</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	119.51	290.10	.
(14) Massachusetts Credibility:	0.130	0.280	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	107.41	198.04	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	73.859	141.86	215.72
(20) Relativity to Underlying Present Rate:	108.15	199.42	.
(21) Credibility to Underlying Relativity:	0.870	0.720	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	109.62	224.81	.
(24) Balanced Formula Relativity:	109.18	224.66	157.69

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 Exhibit 8

## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	193.162	9	65	120.824	265.257	59.039	240.097	685.217	1.999	1.549	3.547
2006	233.784	4	50	109.260	207.519	17.072	115.710	449.562	1.355	0.568	1.923
2007	225.888	2	44	21.107	44.427	3.100	72.532	141.166	0.290	0.335	0.625
2008	296.083	6	47	159.736	329.856	88.065	448.504	1,026.161	1.654	1.812	3.466
2009	278.106	6	39	359.426	228.524	924.820	157.218	1,669.988	2.114	3.891	6.005
MA Total:	1,227.023	27	245	770.352	1,075.582	1,092,097	1,034,062	3,972,093	1.504	1.733	3.237

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.404	2.232	.
(14) Massachusetts Credibility:	0.300	0.510	.
(15) Countrywide Pure Premium:	2.190	1.619	3.809
(16) Countrywide Indicated Relativity:	2.066	2.096	.
(17) Countrywide Credibility:	0.350	0.250	.
(18) Countrywide Lost-Time Claims:	661.00	.	.
(19) Pure Premium Underlying Present Rate:	0.981	1.053	2.034
(20) Relativity to Underlying Present Rate:	1.437	1.480	.
(21) Credibility to Underlying Relativity:	0.350	0.240	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	1.647	2.018	.
(24) Balanced Formula Relativity:	1.640	2.016	1.798

Class(es):		Effective: 9/1/2012							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)
2005	2,624.651	11	47	407.970	395.876	235.882	191.509	1,231.237	0.306	0.163	0.469
2006	2,720.539	9	49	446.386	603.939	114.839	238.570	1,403.734	0.386	0.130	0.516
2007	3,347.161	6	53	210.161	471.405	37.421	352.669	1,071.657	0.204	0.117	0.320
2008	3,695.467	9	72	545.510	1,493.394	282.304	527.734	2,848.942	0.552	0.219	0.771
2009	3,993.168	8	58	796.415	568.299	260.113	261.792	1,886.618	0.342	0.131	0.472
MA Total:	16380987	43	279	2,406.442	3,532.913	930,559	1,572.275	8,442.188	0.363	0.153	0.515

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.338	0.197	.
(14) Massachusetts Credibility:	0.520	0.660	.
(15) Countrywide Pure Premium:	0.727	0.389	1.116
(16) Countrywide Indicated Relativity:	0.686	0.504	.
(17) Countrywide Credibility:	0.130	0.140	.
(18) Countrywide Lost-Time Claims:	7.000	.	.
(19) Pure Premium Underlying Present Rate:	0.287	0.145	0.432
(20) Relativity to Underlying Present Rate:	0.420	0.204	.
(21) Credibility to Underlying Relativity:	0.350	0.200	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	0.412	0.241	.
(24) Balanced Formula Relativity:	0.411	0.241	0.339

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## Calculation of Class Relativities

Class(es): 1430 SMELTING, SINTERING OR REFINING-LEAD & DRIVERS									Effective: 9/1/2012			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)			
2005	0	0	0	0	0	0	0	0	0.000	0.000	0.000			
2006	0	0	0	0	0	0	0	0	0.000	0.000	0.000			
2007	0	0	0	0	0	0	0	0	0.000	0.000	0.000			
2008	0	0	0	0	0	0	0	0	0.000	0.000	0.000			
2009	0	0	0	0	0	0	0	0	0.000	0.000	0.000			
<b>MA Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>.</b>	<b>.</b>	<b>.</b>			

	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:	3.485	2.718	6.203
(16) Countrywide Indicated Relativity:	3.016	3.483	.
(17) Countrywide Credibility:	0.350	0.370	.
(18) Countrywide Lost-Time Claims:	85.000	.	.
(19) Pure Premium Underlying Present Rate:	3.874	1.634	5.508
(20) Relativity to Underlying Present Rate:	4.086	1.819	.
(21) Credibility to Underlying Relativity:	0.650	0.630	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	3.711	2.434	.
(24) Balanced Formula Relativity:	3.716	2.434	3.201

Class(es): 1438 SMELTING, SINTERING OR REFINING-METALS-NOT IRON OR LEAD-NOC & D									Effective: 9/1/2012			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)			
2005	60.855	1	11	74.560	2.321	27.518	11.331	115.729	1.263	0.638	1.902			
2006	65.450	0	17	0	26.938	0	63.785	90.722	0.412	0.975	1.386			
2007	72.675	0	5	0	19.956	0	31.572	51.529	0.275	0.434	0.709			
2008	64.885	1	5	14.950	34.940	26.866	16.108	92.864	0.769	0.662	1.431			
2009	53.641	1	5	88.431	0	88.681	8.111	185.223	1.649	1.804	3.453			
<b>MA Total:</b>	<b>317.506</b>	<b>3</b>	<b>43</b>	<b>177.941</b>	<b>84.155</b>	<b>143.064</b>	<b>130.907</b>	<b>536.067</b>	<b>0.825</b>	<b>0.863</b>	<b>1.688</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.619	0.962	.
(14) Massachusetts Credibility:	0.190	0.320	.
(15) Countrywide Pure Premium:	2.494	1.534	4.027
(16) Countrywide Indicated Relativity:	2.158	1.965	.
(17) Countrywide Credibility:	0.410	0.340	.
(18) Countrywide Lost-Time Claims:	826.00	.	.
(19) Pure Premium Underlying Present Rate:	1.173	1.210	2.383
(20) Relativity to Underlying Present Rate:	1.237	1.346	.
(21) Credibility to Underlying Relativity:	0.400	0.340	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.497	1.434	.
(24) Balanced Formula Relativity:	1.499	1.433	1.473

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## Calculation of Class Relativities

Class(es): 1463 ASPHALT WORKS & DRIVERS		Effective: 9/1/2012							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)
2005	57,120	0	16	0	48,517	0	39,342	87,859	0.849	0.689	1.538
2006	57,847	2	11	702,877	66,954	184,708	65,251	1,019,790	13,308	4,321	17,629
2007	52,019	1	8	170,440	252,363	105,479	60,602	588,885	8,128	3,193	11,321
2008	64,098	0	14	0	245,005	0	93,189	338,194	3,822	1,454	5,276
2009	63,581	1	14	466,007	81,719	83,307	108,926	739,958	8,615	3,023	11,638
<b>MA Total:</b>	<b>294,663</b>	<b>4</b>	<b>63</b>	<b>1,339,324</b>	<b>694,558</b>	<b>373,494</b>	<b>367,310</b>	<b>2,774,685</b>	<b>6.902</b>	<b>2.514</b>	<b>9.416</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	5.173	2.803	.
(14) Massachusetts Credibility:	0.310	0.460	.
(15) Countrywide Pure Premium:	6.844	3.673	10.517
(16) Countrywide Indicated Relativity:	5.924	4.706	.
(17) Countrywide Credibility:	0.350	0.270	.
(18) Countrywide Lost-Time Claims:	946.00	.	.
(19) Pure Premium Underlying Present Rate:	4.487	3.398	7.885
(20) Relativity to Underlying Present Rate:	4.732	3.781	.
(21) Credibility to Underlying Relativity:	0.340	0.270	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	5.286	3.581	.
(24) Balanced Formula Relativity:	5.293	3.580	4.604

Class(es): 1624 QUARRY NOC & DRIVERS		Effective: 9/1/2012							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)
2005	478,190	6	97	1,115,379	1,115,122	637,495	793,364	3,661,361	4.664	2.992	7.657
2006	451,791	6	69	756,941	870,829	429,934	711,507	2,769,211	3.603	2.526	6.129
2007	413,815	5	68	1,728,692	987,137	640,389	630,014	3,986,232	6.563	3.070	9.633
2008	427,595	2	69	704,521	816,117	157,364	659,290	2,337,293	3.556	1.910	5.466
2009	350,419	4	56	259,923	392,837	205,816	376,737	1,235,314	1.863	1.662	3.525
<b>MA Total:</b>	<b>2,121,811</b>	<b>23</b>	<b>359</b>	<b>4,565,457</b>	<b>4,182,043</b>	<b>2,070,998</b>	<b>3,170,912</b>	<b>13,989,410</b>	<b>4.123</b>	<b>2.470</b>	<b>6.593</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.277	1.161	.
(14) Massachusetts Credibility:	0.530	0.830	.
(15) Countrywide Pure Premium:	2.590	1.586	4.176
(16) Countrywide Indicated Relativity:	0.855	0.800	.
(17) Countrywide Credibility:	0.240	0.090	.
(18) Countrywide Lost-Time Claims:	1459.0	.	.
(19) Pure Premium Underlying Present Rate:	2.260	1.986	4.246
(20) Relativity to Underlying Present Rate:	1.160	1.028	.
(21) Credibility to Underlying Relativity:	0.230	0.080	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	1.149	1.118	.
(24) Balanced Formula Relativity:	1.125	1.100	1.115

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 Exhibit 11

## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							Miscellaneous		
1655 LIME MFG-QUARRY-SURFACE & 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)
2005	441	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	451	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	284	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	540	0	1	0	1,219	0	1,190	2,409	2,257	2,203	4,460
2009	470	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>2,186</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1,219</b>	<b>0</b>	<b>1,190</b>	<b>2,409</b>	<b>0.558</b>	<b>0.544</b>	<b>1.102</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.173	0.256	.
(14) Massachusetts Credibility:	0.030	0.060	.
(15) Countrywide Pure Premium:	2.400	1.222	3.622
(16) Countrywide Indicated Relativity:	0.792	0.617	.
(17) Countrywide Credibility:	0.290	0.300	.
(18) Countrywide Lost-Time Claims:	50.000	.	.
(19) Pure Premium Underlying Present Rate:	2.036	2.843	4.878
(20) Relativity to Underlying Present Rate:	1.045	1.472	.
(21) Credibility to Underlying Relativity:	0.680	0.640	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	0.945	1.143	.
(24) Balanced Formula Relativity:	0.926	1.125	1.005

Class(es):		Effective: 9/1/2012							Manufacturing		
1701 CEMENT 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)
2005	533	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	521	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	664	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	35	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	0	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>1,753</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	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:	2.248	1.281	3.529
(16) Countrywide Indicated Relativity:	1.945	1.642	.
(17) Countrywide Credibility:	0.490	0.480	.
(18) Countrywide Lost-Time Claims:	541.00	.	.
(19) Pure Premium Underlying Present Rate:	2.545	1.483	4.027
(20) Relativity to Underlying Present Rate:	2.684	1.650	.
(21) Credibility to Underlying Relativity:	0.480	0.480	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	2.241	1.580	.
(24) Balanced Formula Relativity:	2.244	1.580	1.977

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## Calculation of Class Relativities

Class(es): 1747 EMERY WORKS & DRIVERS		Effective: 9/1/2012							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)
2005	44,397	0	18	0	5,821	0	16,814	22,634	0.131	0.379	0.510
2006	47,442	0	13	0	8,577	0	33,656	42,232	0.181	0.709	0.890
2007	48,472	0	20	0	23,232	0	31,304	54,535	0.479	0.646	1.125
2008	13,761	0	6	0	27,398	0	10,022	37,420	1.991	0.728	2.719
2009	34,407	0	1	0	0	0	702	702	0.000	0.020	0.020
<b>MA Total:</b>	<b>188,480</b>	<b>0</b>	<b>58</b>	<b>0</b>	<b>65,027</b>	<b>0</b>	<b>92,497</b>	<b>157,524</b>	<b>0.345</b>	<b>0.491</b>	<b>0.836</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.259	0.547	.
(14) Massachusetts Credibility:	0.170	0.290	.
(15) Countrywide Pure Premium:	1.106	0.639	1.744
(16) Countrywide Indicated Relativity:	0.957	0.819	.
(17) Countrywide Credibility:	0.290	0.310	.
(18) Countrywide Lost-Time Claims:	53.000	.	.
(19) Pure Premium Underlying Present Rate:	1.598	1.613	3.211
(20) Relativity to Underlying Present Rate:	1.685	1.795	.
(21) Credibility to Underlying Relativity:	0.540	0.400	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.232	1.131	.
(24) Balanced Formula Relativity:	1.233	1.130	1.192

Class(es): 1748 ABRASIVE WHEEL MFG & DRIVERS		Effective: 9/1/2012							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)
2005	85,970	0	24	0	73,065	0	50,268	123,333	0.850	0.585	1.435
2006	65,982	0	23	0	24,238	0	66,519	90,757	0.367	1.008	1.375
2007	64,055	1	7	106,776	239,937	6,108	210,241	563,062	5.413	3.378	8.790
2008	40,627	0	6	0	9,027	0	13,229	22,256	0.222	0.326	0.548
2009	28,696	0	4	0	9,580	0	20,976	30,556	0.334	0.731	1.065
<b>MA Total:</b>	<b>285,330</b>	<b>1</b>	<b>64</b>	<b>106,776</b>	<b>355,847</b>	<b>6,108</b>	<b>361,233</b>	<b>829,964</b>	<b>1.621</b>	<b>1.287</b>	<b>2.909</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.215	1.435	.
(14) Massachusetts Credibility:	0.190	0.300	.
(15) Countrywide Pure Premium:	1.172	1.043	2.214
(16) Countrywide Indicated Relativity:	1.014	1.336	.
(17) Countrywide Credibility:	0.340	0.350	.
(18) Countrywide Lost-Time Claims:	75.000	.	.
(19) Pure Premium Underlying Present Rate:	1.393	1.214	2.607
(20) Relativity to Underlying Present Rate:	1.469	1.351	.
(21) Credibility to Underlying Relativity:	0.470	0.350	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.266	1.371	.
(24) Balanced Formula Relativity:	1.268	1.371	1.309

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							Manufacturing		
1852 ASBESTOS 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)
2005	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	2	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	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:	0.837	0.958	1.795
(16) Countrywide Indicated Relativity:	0.724	1.227	.
(17) Countrywide Credibility:	0.140	0.140	.
(18) Countrywide Lost-Time Claims:	8.000	.	.
(19) Pure Premium Underlying Present Rate:	4.233	1.730	5.963
(20) Relativity to Underlying Present Rate:	4.464	1.926	.
(21) Credibility to Underlying Relativity:	0.860	0.860	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	3.941	1.828	.
(24) Balanced Formula Relativity:	3.946	1.828	3.094

Class(es):		Effective: 9/1/2012							Manufacturing		
1853 MICA GOODS MFG & MICA PREPARING											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2005	327	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	462	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	1,230	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	1,447	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	1,535	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>5,001</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	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:	0.030	0.095	0.124
(16) Countrywide Indicated Relativity:	0.026	0.121	.
(17) Countrywide Credibility:	0.090	0.100	.
(18) Countrywide Lost-Time Claims:	3.000	.	.
(19) Pure Premium Underlying Present Rate:	0.911	0.491	1.402
(20) Relativity to Underlying Present Rate:	0.960	0.547	.
(21) Credibility to Underlying Relativity:	0.880	0.860	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.847	0.482	.
(24) Balanced Formula Relativity:	0.849	0.482	0.701

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 Exhibit 14

## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	994	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	1,414	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	835	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	2,048	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	1,258	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>6,549</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	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:	0.843	0.484	1.327
(16) Countrywide Indicated Relativity:	0.730	0.620	.
(17) Countrywide Credibility:	0.270	0.280	.
(18) Countrywide Lost-Time Claims:	43.000	.	.
(19) Pure Premium Underlying Present Rate:	1.202	1.060	2.262
(20) Relativity to Underlying Present Rate:	1.268	1.180	.
(21) Credibility to Underlying Relativity:	0.690	0.660	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.072	0.952	.
(24) Balanced Formula Relativity:	1.073	0.952	1.024

Class(es):		Effective: 9/1/2012							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)
2005	136.691	1	24	10.485	102.797	9.548	73.737	196.567	0.829	0.609	1.438
2006	150.264	1	25	315.455	28.466	182.007	81.847	607.774	2.289	1.756	4.045
2007	147.520	1	22	112.760	47.606	37.005	79.214	276.585	1.087	0.788	1.875
2008	143.480	0	17	0	47.201	0	44.733	91.935	0.329	0.312	0.641
2009	131.852	0	15	0	52.097	0	45.601	97.698	0.395	0.346	0.741
<b>MA Total:</b>	<b>709.807</b>	<b>3</b>	<b>103</b>	<b>438.700</b>	<b>278.167</b>	<b>228.560</b>	<b>325.132</b>	<b>1,270.558</b>	<b>1.010</b>	<b>0.780</b>	<b>1.790</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.757	0.870	.
(14) Massachusetts Credibility:	0.260	0.400	.
(15) Countrywide Pure Premium:	1.553	0.967	2.520
(16) Countrywide Indicated Relativity:	1.344	1.239	.
(17) Countrywide Credibility:	0.370	0.300	.
(18) Countrywide Lost-Time Claims:	565.00	.	.
(19) Pure Premium Underlying Present Rate:	1.120	0.956	2.076
(20) Relativity to Underlying Present Rate:	1.181	1.064	.
(21) Credibility to Underlying Relativity:	0.370	0.300	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.131	1.039	.
(24) Balanced Formula Relativity:	1.133	1.039	1.095

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## Calculation of Class Relativities

Class(es): 1925 DIE CASTING MFG		Effective: 9/1/2012							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)
2005	2,456	0	1	0	0	0	813	813	0.000	0.331	0.331
2006	2,631	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	3,667	0	1	0	0	0	80	80	0.000	0.022	0.022
2008	3,396	0	1	0	0	0	956	956	0.000	0.282	0.282
2009	3,205	0	2	0	0	0	1,112	1,112	0.000	0.347	0.347
<b>MA Total:</b>	<b>15,354</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2,961</b>	<b>2,961</b>	<b>0.000</b>	<b>0.193</b>	<b>0.193</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.215	.
(14) Massachusetts Credibility:	0.070	0.110	.
(15) Countrywide Pure Premium:	1.801	1.376	3.177
(16) Countrywide Indicated Relativity:	1.559	1.763	.
(17) Countrywide Credibility:	0.470	0.450	.
(18) Countrywide Lost-Time Claims:	774.00	.	.
(19) Pure Premium Underlying Present Rate:	1.795	1.661	3.456
(20) Relativity to Underlying Present Rate:	1.893	1.849	.
(21) Credibility to Underlying Relativity:	0.460	0.440	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.603	1.631	.
(24) Balanced Formula Relativity:	1.605	1.630	1.615

Class(es): 2001 CRACKER MFG		Effective: 9/1/2012							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)
2005	1,373,053	9	328	855,651	1,633,403	446,188	1,050,988	3,986,230	1.813	1.090	2.903
2006	1,559,569	11	349	839,900	1,975,071	319,602	1,328,328	4,462,901	1.805	1.057	2.862
2007	1,552,200	18	357	1,266,232	1,847,317	1,427,459	1,499,939	6,040,947	2.006	1.886	3.892
2008	1,558,891	18	398	1,516,519	2,089,259	1,842,369	1,453,879	6,902,025	2.313	2.114	4.428
2009	1,696,404	10	376	544,862	2,347,246	476,554	1,861,200	5,229,862	1.705	1.378	3.083
<b>MA Total:</b>	<b>7,740,117</b>	<b>66</b>	<b>1,808</b>	<b>5,023,163</b>	<b>9,892,296</b>	<b>4,512,172</b>	<b>7,194,333</b>	<b>26,621,965</b>	<b>1.927</b>	<b>1.512</b>	<b>3.439</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.444	1.686	.
(14) Massachusetts Credibility:	0.710	1.000	.
(15) Countrywide Pure Premium:	1.920	1.247	3.168
(16) Countrywide Indicated Relativity:	1.662	1.599	.
(17) Countrywide Credibility:	0.150	0.000	.
(18) Countrywide Lost-Time Claims:	5903.0	.	.
(19) Pure Premium Underlying Present Rate:	1.308	1.255	2.563
(20) Relativity to Underlying Present Rate:	1.380	1.396	.
(21) Credibility to Underlying Relativity:	0.140	0.000	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.468	1.686	.
(24) Balanced Formula Relativity:	1.470	1.686	1.557

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## Calculation of Class Relativities

Class(es): 2002 MACARONI MFG		Effective: 9/1/2012							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)
2005	6.955	1	3	287.765	1.205	87.074	4.188	380.231	41.547	13.121	54.668
2006	6.627	1	0	303.774	0	252.310	0	556.084	45.841	38.075	83.916
2007	12.017	0	1	0	0	0	970	970	0.000	0.081	0.081
2008	9.075	0	2	0	29.758	0	45.286	75.044	3.279	4.990	8.269
2009	9.395	0	2	0	0	0	371	371	0.000	0.040	0.040
<b>MA Total:</b>	<b>44,069</b>	<b>2</b>	<b>8</b>	<b>591,538</b>	<b>30,963</b>	<b>339,385</b>	<b>50,814</b>	<b>1,012,700</b>	<b>14,126</b>	<b>8,854</b>	<b>22,980</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	10.587	9.870	.
(14) Massachusetts Credibility:	0.110	0.190	.
(15) Countrywide Pure Premium:	1.243	0.972	2.216
(16) Countrywide Indicated Relativity:	1.076	1.246	.
(17) Countrywide Credibility:	0.440	0.410	.
(18) Countrywide Lost-Time Claims:	145.00	.	.
(19) Pure Premium Underlying Present Rate:	2.078	2.522	4.599
(20) Relativity to Underlying Present Rate:	2.191	2.806	.
(21) Credibility to Underlying Relativity:	0.450	0.400	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	2.624	3.509	.
(24) Balanced Formula Relativity:	2.627	3.508	2.982

Class(es): 2014 GRAIN MILLING		Effective: 9/1/2012							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)
2005	5.673	0	2	0	0	0	4.072	4.072	0.000	0.718	0.718
2006	6.568	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	5.890	0	1	0	18.647	0	19.270	37.917	3.166	3.272	6.438
2008	4.996	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	3.417	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>26,544</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>18,647</b>	<b>0</b>	<b>23,342</b>	<b>41,989</b>	<b>0.702</b>	<b>0.879</b>	<b>1,582</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.527	0.980	.
(14) Massachusetts Credibility:	0.080	0.130	.
(15) Countrywide Pure Premium:	2.471	1.740	4.211
(16) Countrywide Indicated Relativity:	2.139	2.230	.
(17) Countrywide Credibility:	0.460	0.440	.
(18) Countrywide Lost-Time Claims:	1209.0	.	.
(19) Pure Premium Underlying Present Rate:	1.594	1.422	3.017
(20) Relativity to Underlying Present Rate:	1.681	1.583	.
(21) Credibility to Underlying Relativity:	0.460	0.430	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.799	1.789	.
(24) Balanced Formula Relativity:	1.802	1.789	1.797

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	1.456	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	1.746	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	1.953	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	1.897	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	1.721	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>8.773</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	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:	2.157	1.522	3.679
(16) Countrywide Indicated Relativity:	1.867	1.950	.
(17) Countrywide Credibility:	0.480	0.460	.
(18) Countrywide Lost-Time Claims:	290.00	.	.
(19) Pure Premium Underlying Present Rate:	1.840	1.309	3.150
(20) Relativity to Underlying Present Rate:	1.941	1.457	.
(21) Credibility to Underlying Relativity:	0.470	0.460	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.808	1.567	.
(24) Balanced Formula Relativity:	1.811	1.567	1.713

Class(es):		Effective: 9/1/2012							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)
2005	66.032	1	28	8.351	104.194	3.257	81.906	197.708	1.704	1.290	2.994
2006	57.039	0	18	0	16.562	0	26.721	43.283	0.290	0.468	0.759
2007	54.557	0	13	0	95.907	0	47.085	142.992	1.758	0.863	2.621
2008	30.268	1	10	70.649	8.350	43.987	30.728	153.713	2.610	2.468	5.078
2009	30.340	0	4	0	46.199	0	33.903	80.102	1.523	1.117	2.640
<b>MA Total:</b>	<b>238.235</b>	<b>2</b>	<b>73</b>	<b>79.000</b>	<b>271.211</b>	<b>47.244</b>	<b>220.343</b>	<b>617.798</b>	<b>1.470</b>	<b>1.123</b>	<b>2.593</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.102	1.252	.
(14) Massachusetts Credibility:	0.180	0.250	.
(15) Countrywide Pure Premium:	1.026	0.576	1.602
(16) Countrywide Indicated Relativity:	0.888	0.738	.
(17) Countrywide Credibility:	0.410	0.380	.
(18) Countrywide Lost-Time Claims:	361.00	.	.
(19) Pure Premium Underlying Present Rate:	1.285	0.933	2.218
(20) Relativity to Underlying Present Rate:	1.355	1.039	.
(21) Credibility to Underlying Relativity:	0.410	0.370	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.118	0.978	.
(24) Balanced Formula Relativity:	1.119	0.978	1.062

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							Manufacturing		
2041 CONFECTION 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)
2005	186,784	3	30	177,759	267,943	65,171	134,149	645,022	2,386	1,067	3,453
2006	194,233	2	37	68,915	53,787	28,203	77,187	228,092	0,632	0,543	1,174
2007	308,887	3	70	201,393	393,957	83,486	219,596	898,433	1,927	0,981	2,909
2008	202,347	2	27	166,923	169,945	103,712	114,609	555,190	1,665	1,079	2,744
2009	204,539	1	30	6,203	86,372	3,886	64,191	160,651	0,453	0,333	0,785
<b>MA Total:</b>	<b>1,096,790</b>	<b>11</b>	<b>194</b>	<b>621,193</b>	<b>972,005</b>	<b>284,457</b>	<b>609,732</b>	<b>2,487,387</b>	<b>1,453</b>	<b>0,815</b>	<b>2,268</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.089	0.909	.
(14) Massachusetts Credibility:	0.300	0.470	.
(15) Countrywide Pure Premium:	1.660	1.108	2.768
(16) Countrywide Indicated Relativity:	1.436	1.421	.
(17) Countrywide Credibility:	0.350	0.270	.
(18) Countrywide Lost-Time Claims:	943.00	.	.
(19) Pure Premium Underlying Present Rate:	1.079	0.938	2.017
(20) Relativity to Underlying Present Rate:	1.138	1.044	.
(21) Credibility to Underlying Relativity:	0.350	0.260	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.227	1.082	.
(24) Balanced Formula Relativity:	1.229	1.082	1.170

Class(es):		Effective: 9/1/2012							Manufacturing		
2070 CREAMERY OR DAIRY & 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)
2005	152,710	2	22	406,894	48,316	490,277	32,078	977,566	2,981	3,421	6,401
2006	147,316	2	34	115,529	204,723	30,519	259,066	609,837	2,174	1,966	4,140
2007	125,323	0	20	0	89,202	0	132,557	221,759	0,712	1,058	1,769
2008	125,909	1	19	15,606	156,623	619	124,054	296,903	1,368	0,990	2,358
2009	137,227	0	13	0	3,630	0	11,038	14,668	0,026	0,080	0,107
<b>MA Total:</b>	<b>688,485</b>	<b>5</b>	<b>108</b>	<b>538,029</b>	<b>502,494</b>	<b>521,415</b>	<b>558,794</b>	<b>2,120,733</b>	<b>1,511</b>	<b>1,569</b>	<b>3,080</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.133	1.749	.
(14) Massachusetts Credibility:	0.300	0.480	.
(15) Countrywide Pure Premium:	2.701	1.546	4.247
(16) Countrywide Indicated Relativity:	2.338	1.981	.
(17) Countrywide Credibility:	0.350	0.260	.
(18) Countrywide Lost-Time Claims:	3183.0	.	.
(19) Pure Premium Underlying Present Rate:	1.735	1.610	3.345
(20) Relativity to Underlying Present Rate:	1.830	1.791	.
(21) Credibility to Underlying Relativity:	0.350	0.260	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.799	1.820	.
(24) Balanced Formula Relativity:	1.801	1.820	1.809

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## Calculation of Class Relativities

Class(es): 2081 BUTCHERING		Effective: 9/1/2012							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)
2005	3,870	0	3	0	148	0	5,869	6,017	0.038	1,517	1,555
2006	3,915	0	1	0	0	0	1,181	1,181	0.000	0.302	0.302
2007	4,399	0	2	0	0	0	1,065	1,065	0.000	0.242	0.242
2008	9,485	0	4	0	0	0	2,467	2,467	0.000	0.260	0.260
2009	12,462	0	8	0	66	0	3,879	3,945	0.005	0.311	0.317
<b>MA Total:</b>	<b>34,130</b>	<b>0</b>	<b>18</b>	<b>0</b>	<b>215</b>	<b>0</b>	<b>14,460</b>	<b>14,675</b>	<b>0.006</b>	<b>0.424</b>	<b>0.430</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.005	0.472	.
(14) Massachusetts Credibility:	0.090	0.150	.
(15) Countrywide Pure Premium:	1.806	1.806	3.612
(16) Countrywide Indicated Relativity:	1.563	2.315	.
(17) Countrywide Credibility:	0.460	0.430	.
(18) Countrywide Lost-Time Claims:	699.00	.	.
(19) Pure Premium Underlying Present Rate:	1.473	1.626	3.099
(20) Relativity to Underlying Present Rate:	1.553	1.810	.
(21) Credibility to Underlying Relativity:	0.450	0.420	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.418	1.826	.
(24) Balanced Formula Relativity:	1.420	1.826	1.583

Class(es): 2089 PACKING HOUSE- ALL OPERATIONS		Effective: 9/1/2012							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)
2005	695,690	7	210	539,020	776,195	308,253	485,604	2,109,072	1,891	1,141	3,032
2006	771,062	3	221	254,655	710,899	314,418	618,612	1,898,583	1,252	1,210	2,462
2007	868,944	4	231	116,919	668,501	96,235	553,440	1,435,096	0.904	0.748	1,652
2008	861,248	5	215	357,158	986,459	184,829	708,672	2,237,119	1,560	1,037	2,598
2009	874,039	1	202	12,923	535,613	10,118	564,179	1,122,832	0.628	0.657	1,285
<b>MA Total:</b>	<b>4,070,984</b>	<b>20</b>	<b>1,079</b>	<b>1,280,676</b>	<b>3,677,667</b>	<b>913,853</b>	<b>2,930,507</b>	<b>8,802,703</b>	<b>1,218</b>	<b>0,944</b>	<b>2,162</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.913	1.053	.
(14) Massachusetts Credibility:	0.510	0.790	.
(15) Countrywide Pure Premium:	1.402	1.034	2.436
(16) Countrywide Indicated Relativity:	1.213	1.325	.
(17) Countrywide Credibility:	0.250	0.110	.
(18) Countrywide Lost-Time Claims:	9014.0	.	.
(19) Pure Premium Underlying Present Rate:	1.061	0.926	1.988
(20) Relativity to Underlying Present Rate:	1.119	1.031	.
(21) Credibility to Underlying Relativity:	0.240	0.100	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.038	1.080	.
(24) Balanced Formula Relativity:	1.039	1.080	1.056

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Section IX - G  
 Exhibit 20

## Calculation of Class Relativities

Class(es): 2095 MEAT PRODUCTS MFG-NOC		Effective: 9/1/2012							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)
2005	325.624	1	87	128.750	461.663	32.874	258.860	882.147	1.813	0.896	2.709
2006	334.751	1	77	89.218	791.999	59.207	428.632	1,369.056	2.632	1.457	4.090
2007	380.864	2	91	460.478	257.714	243.122	189.903	1,151.216	1.886	1.137	3.023
2008	376.384	3	70	291.568	479.191	120.976	274.578	1,166.313	2.048	1.051	3.099
2009	373.433	9	74	770.943	421.506	300.497	359.733	1,852.680	3.193	1.768	4.961
<b>MA Total:</b>	<b>1,791,057</b>	<b>16</b>	<b>399</b>	<b>1,740,957</b>	<b>2,412,073</b>	<b>756,676</b>	<b>1,511,707</b>	<b>6,421,413</b>	<b>2.319</b>	<b>1.267</b>	<b>3.585</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.738	1.412	.
(14) Massachusetts Credibility:	0.450	0.690	.
(15) Countrywide Pure Premium:	1.684	1.383	3.067
(16) Countrywide Indicated Relativity:	1.457	1.773	.
(17) Countrywide Credibility:	0.280	0.160	.
(18) Countrywide Lost-Time Claims:	2787.0	.	.
(19) Pure Premium Underlying Present Rate:	1.841	1.518	3.359
(20) Relativity to Underlying Present Rate:	1.941	1.689	.
(21) Credibility to Underlying Relativity:	0.270	0.150	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.714	1.511	.
(24) Balanced Formula Relativity:	1.716	1.511	1.634

Class(es): 2111 CANNERY NOC		Effective: 9/1/2012							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)
2005	16.559	0	8	0	2.050	0	4.817	6.867	0.124	0.291	0.415
2006	11.781	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	6.657	0	1	0	75.740	0	13.047	88.787	11.377	1.960	13.337
2008	8.421	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	7.224	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>50,643</b>	<b>0</b>	<b>9</b>	<b>0</b>	<b>77,790</b>	<b>0</b>	<b>17,864</b>	<b>95,654</b>	<b>1.536</b>	<b>0.353</b>	<b>1.889</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.151	0.393	.
(14) Massachusetts Credibility:	0.090	0.140	.
(15) Countrywide Pure Premium:	1.211	0.960	2.170
(16) Countrywide Indicated Relativity:	1.048	1.230	.
(17) Countrywide Credibility:	0.460	0.430	.
(18) Countrywide Lost-Time Claims:	934.00	.	.
(19) Pure Premium Underlying Present Rate:	1.120	0.992	2.112
(20) Relativity to Underlying Present Rate:	1.181	1.104	.
(21) Credibility to Underlying Relativity:	0.450	0.430	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.117	1.058	.
(24) Balanced Formula Relativity:	1.119	1.058	1.094

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	228.710	5	59	181.976	154.395	37.007	168.619	541.997	1.471	0.899	2.370
2006	228.657	3	50	235.056	200.855	122.807	146.057	704.775	1.906	1.176	3.082
2007	246.373	1	42	17.410	448.736	996	271.523	738.664	1.892	1.106	2.998
2008	255.183	2	55	35.659	400.600	5.983	556.399	998.641	1.710	2.204	3.913
2009	242.312	2	47	111.858	311.018	118.612	276.006	817.495	1.745	1.629	3.374
<b>MA Total:</b>	<b>1,201,235</b>	<b>13</b>	<b>253</b>	<b>581,958</b>	<b>1,515,604</b>	<b>285,404</b>	<b>1,418,605</b>	<b>3,801,572</b>	<b>1.746</b>	<b>1.419</b>	<b>3.165</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.309	1.581	.
(14) Massachusetts Credibility:	0.350	0.530	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	1.468	1.269	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	1.418	1.161	2.579
(20) Relativity to Underlying Present Rate:	1.496	1.292	.
(21) Credibility to Underlying Relativity:	0.650	0.470	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.430	1.445	.
(24) Balanced Formula Relativity:	1.432	1.445	1.437

Class(es):		Effective: 9/1/2012							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)
2005	40.017	0	6	0	0	0	4.658	4.658	0.000	0.116	0.116
2006	39.300	0	4	0	8.420	0	22.390	30.810	0.214	0.570	0.784
2007	50.270	0	4	0	62.461	0	38.409	100.870	1.243	0.764	2.007
2008	50.271	0	3	0	589	0	6.802	7.391	0.012	0.135	0.147
2009	55.503	0	6	0	138.858	0	67.300	206.158	2.502	1.213	3.714
<b>MA Total:</b>	<b>235,361</b>	<b>0</b>	<b>23</b>	<b>0</b>	<b>210,328</b>	<b>0</b>	<b>139,559</b>	<b>349,887</b>	<b>0.894</b>	<b>0.593</b>	<b>1.487</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.670	0.661	.
(14) Massachusetts Credibility:	0.150	0.230	.
(15) Countrywide Pure Premium:	0.966	0.552	1.518
(16) Countrywide Indicated Relativity:	0.836	0.707	.
(17) Countrywide Credibility:	0.430	0.390	.
(18) Countrywide Lost-Time Claims:	374.00	.	.
(19) Pure Premium Underlying Present Rate:	0.869	0.765	1.634
(20) Relativity to Underlying Present Rate:	0.917	0.851	.
(21) Credibility to Underlying Relativity:	0.420	0.380	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.845	0.751	.
(24) Balanced Formula Relativity:	0.846	0.751	0.808

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							Manufacturing		
2130 SPIRITUOUS LIQUOR DISTILLERY											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2005	1,295	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	4,905	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	4,756	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	2,510	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	3,125	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>16,591</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	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:	1.319	1.116	2.435
(16) Countrywide Indicated Relativity:	1.142	1.430	.
(17) Countrywide Credibility:	0.470	0.460	.
(18) Countrywide Lost-Time Claims:	255.00	.	.
(19) Pure Premium Underlying Present Rate:	1.231	0.894	2.125
(20) Relativity to Underlying Present Rate:	1.298	0.995	.
(21) Credibility to Underlying Relativity:	0.470	0.450	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.147	1.106	.
(24) Balanced Formula Relativity:	1.148	1.105	1.131

Class(es):		Effective: 9/1/2012							Manufacturing		
2131 SPIRITUOUS LIQUOR BOTTLING											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2005	35,656	0	18	0	16,005	0	35,214	51,218	0.449	0.988	1.436
2006	39,658	0	12	0	5,929	0	10,577	16,506	0.150	0.267	0.416
2007	39,188	0	13	0	1,113	0	37,376	38,489	0.028	0.954	0.982
2008	37,476	0	8	0	76,700	0	36,082	112,782	2.047	0.963	3.009
2009	38,613	0	4	0	9,692	0	6,915	16,607	0.251	0.179	0.430
<b>MA Total:</b>	<b>190,592</b>	<b>0</b>	<b>55</b>	<b>0</b>	<b>109,440</b>	<b>0</b>	<b>126,163</b>	<b>235,603</b>	<b>0.574</b>	<b>0.662</b>	<b>1.236</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.430	0.738	.
(14) Massachusetts Credibility:	0.140	0.230	.
(15) Countrywide Pure Premium:	1.679	1.020	2.698
(16) Countrywide Indicated Relativity:	1.453	1.307	.
(17) Countrywide Credibility:	0.430	0.390	.
(18) Countrywide Lost-Time Claims:	170.00	.	.
(19) Pure Premium Underlying Present Rate:	0.952	0.918	1.870
(20) Relativity to Underlying Present Rate:	1.004	1.021	.
(21) Credibility to Underlying Relativity:	0.430	0.380	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.117	1.068	.
(24) Balanced Formula Relativity:	1.118	1.067	1.098

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 Exhibit 23

## Calculation of Class Relativities

Class(es): 2143 FRUIT JUICE MFG		Effective: 9/1/2012							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)
2005	50,899	0	14	0	43,861	0	21,658	65,519	0.862	0.426	1.287
2006	52,333	0	10	0	652	0	5,851	6,502	0.012	0.112	0.124
2007	42,266	0	8	0	0	0	9,086	9,086	0.000	0.215	0.215
2008	33,441	0	7	0	11,644	0	22,856	34,500	0.348	0.683	1.032
2009	58,958	0	7	0	0	0	6,752	6,752	0.000	0.115	0.115
<b>MA Total:</b>	<b>237,897</b>	<b>0</b>	<b>46</b>	<b>0</b>	<b>56,156</b>	<b>0</b>	<b>66,203</b>	<b>122,360</b>	<b>0.236</b>	<b>0.278</b>	<b>0.514</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.177	0.310	.
(14) Massachusetts Credibility:	0.180	0.260	.
(15) Countrywide Pure Premium:	1.828	1.209	3.037
(16) Countrywide Indicated Relativity:	1.582	1.549	.
(17) Countrywide Credibility:	0.410	0.370	.
(18) Countrywide Lost-Time Claims:	164.00	.	.
(19) Pure Premium Underlying Present Rate:	1.409	1.029	2.438
(20) Relativity to Underlying Present Rate:	1.486	1.145	.
(21) Credibility to Underlying Relativity:	0.410	0.370	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.290	1.077	.
(24) Balanced Formula Relativity:	1.291	1.077	1.205

Class(es): 2150 ICE MFG		Effective: 9/1/2012							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)
2005	6,835	0	5	0	24,349	0	6,239	30,588	3.562	0.913	4.475
2006	5,564	0	2	0	70,958	0	41,207	112,165	12.753	7.406	20.160
2007	8,394	0	3	0	184,045	0	119,566	303,611	21.925	14.244	36.169
2008	7,593	0	4	0	6,691	0	12,767	19,459	0.881	1.681	2.563
2009	9,318	0	1	0	9,387	0	21,976	31,363	1.007	2.358	3.366
<b>MA Total:</b>	<b>37,704</b>	<b>0</b>	<b>15</b>	<b>0</b>	<b>295,430</b>	<b>0</b>	<b>201,755</b>	<b>497,185</b>	<b>7.835</b>	<b>5.351</b>	<b>13.186</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	5.873	5.965	.
(14) Massachusetts Credibility:	0.110	0.170	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	2.584	2.406	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	2.496	2.202	4.699
(20) Relativity to Underlying Present Rate:	2.632	2.451	.
(21) Credibility to Underlying Relativity:	0.890	0.830	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	2.989	3.048	.
(24) Balanced Formula Relativity:	2.993	3.048	3.015

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## Calculation of Class Relativities

Class(es): 2156 BOTTLING-NOT CARBONATED LIQUIDS OR SPIRIT LIQRS & RTE SUP,DR									Effective: 9/1/2012 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)
2005	66,083	5	49	636,355	1,341,501	250,280	843,804	3,071,940	29,930	16,556	46,486
2006	75,748	2	16	281,502	229,741	99,338	79,215	689,797	6,749	2,357	9,106
2007	76,562	1	18	48,047	197,829	4,013	82,955	332,843	3,211	1,136	4,347
2008	65,672	1	8	74,729	127,164	7,142	97,676	306,711	3,074	1,596	4,670
2009	63,573	0	11	0	71,147	0	42,028	113,175	1,119	0,661	1,780
<b>MA Total:</b>	<b>347,638</b>	<b>9</b>	<b>102</b>	<b>1,040,633</b>	<b>1,967,382</b>	<b>360,772</b>	<b>1,145,679</b>	<b>4,514,466</b>	<b>8,653</b>	<b>4,333</b>	<b>12,986</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	6.485	4.831	.
(14) Massachusetts Credibility:	0.330	0.530	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	4.291	4.349	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	4.145	3.980	8.125
(20) Relativity to Underlying Present Rate:	4.371	4.429	.
(21) Credibility to Underlying Relativity:	0.670	0.470	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	5.069	4.642	.
(24) Balanced Formula Relativity:	5.076	4.641	4.901

Class(es): 2157 BOTTLING NOC & ROUTE SUPERVISORS, DRIVERS									Effective: 9/1/2012 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)
2005	193,355	1	50	151,397	499,524	99,741	236,577	987,239	3,366	1,739	5,106
2006	353,965	10	216	535,448	517,279	308,961	599,332	1,961,020	2,974	2,566	5,540
2007	255,032	2	151	118,472	1,025,843	41,873	534,764	1,720,953	4,487	2,261	6,748
2008	266,945	3	113	550,214	564,516	306,744	396,349	1,817,823	4,176	2,634	6,810
2009	278,436	1	89	52,682	162,245	17,868	159,285	392,079	0,772	0,636	1,408
<b>MA Total:</b>	<b>1,347,733</b>	<b>17</b>	<b>619</b>	<b>1,408,213</b>	<b>2,769,407</b>	<b>775,188</b>	<b>1,926,306</b>	<b>6,879,114</b>	<b>3,100</b>	<b>2,004</b>	<b>5,104</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.323	2.234	.
(14) Massachusetts Credibility:	0.460	0.680	.
(15) Countrywide Pure Premium:	3.232	1.717	4.948
(16) Countrywide Indicated Relativity:	2.797	2.200	.
(17) Countrywide Credibility:	0.270	0.160	.
(18) Countrywide Lost-Time Claims:	6066.0	.	.
(19) Pure Premium Underlying Present Rate:	2.594	1.928	4.522
(20) Relativity to Underlying Present Rate:	2.735	2.146	.
(21) Credibility to Underlying Relativity:	0.270	0.160	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	2.562	2.215	.
(24) Balanced Formula Relativity:	2.566	2.214	2.424

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## Calculation of Class Relativities

Class(es): 2172 CIGARETTE MFG		Effective: 9/1/2012							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)
2005	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	48	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	262	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>310</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	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:	1.533	0.620	2.153
(16) Countrywide Indicated Relativity:	1.326	0.795	.
(17) Countrywide Credibility:	0.500	0.490	.
(18) Countrywide Lost-Time Claims:	435.00	.	.
(19) Pure Premium Underlying Present Rate:	0.994	0.656	1.650
(20) Relativity to Underlying Present Rate:	1.048	0.730	.
(21) Credibility to Underlying Relativity:	0.490	0.490	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.177	0.747	.
(24) Balanced Formula Relativity:	1.178	0.747	1.005

Class(es): 2174 TOBACCO REHANDLING OR WAREHOUSING		Effective: 9/1/2012							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)
2005	1	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	0	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	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:	2.410	1.216	3.626
(16) Countrywide Indicated Relativity:	2.086	1.558	.
(17) Countrywide Credibility:	0.330	0.350	.
(18) Countrywide Lost-Time Claims:	71.000	.	.
(19) Pure Premium Underlying Present Rate:	1.755	1.066	2.821
(20) Relativity to Underlying Present Rate:	1.851	1.186	.
(21) Credibility to Underlying Relativity:	0.670	0.650	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.929	1.316	.
(24) Balanced Formula Relativity:	1.931	1.316	1.684

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	223	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	276	0	1	0	0	0	506	506	0.000	1.832	1.832
2009	55	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>555</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>506</b>	<b>506</b>	<b>0.000</b>	<b>0.913</b>	<b>0.913</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	1.018	.
(14) Massachusetts Credibility:	0.020	0.030	.
(15) Countrywide Pure Premium:	3.140	3.963	7.103
(16) Countrywide Indicated Relativity:	2.717	5.079	.
(17) Countrywide Credibility:	0.300	0.320	.
(18) Countrywide Lost-Time Claims:	57.000	.	.
(19) Pure Premium Underlying Present Rate:	2.314	2.406	4.721
(20) Relativity to Underlying Present Rate:	2.441	2.678	.
(21) Credibility to Underlying Relativity:	0.680	0.650	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	2.475	3.396	.
(24) Balanced Formula Relativity:	2.478	3.396	2.847

Class(es):		Effective: 9/1/2012							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)
2005	145,966	0	53	0	374,129	0	278,569	652,698	2,563	1,908	4,472
2006	108,466	1	38	116,498	313,131	56,845	144,088	630,562	3,961	1,852	5,813
2007	99,406	1	35	181,863	15,883	57,660	36,745	292,151	1,989	0,950	2,939
2008	103,578	1	31	4,985	167,079	15,755	216,071	403,891	1,661	2,238	3,899
2009	79,627	1	13	72,545	23,773	42,827	31,942	171,087	1,210	0,939	2,149
<b>MA Total:</b>	<b>537,043</b>	<b>4</b>	<b>170</b>	<b>375,890</b>	<b>893,995</b>	<b>173,087</b>	<b>707,416</b>	<b>2,150,389</b>	<b>2,365</b>	<b>1,640</b>	<b>4,004</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.772	1.828	.
(14) Massachusetts Credibility:	0.250	0.420	.
(15) Countrywide Pure Premium:	1.123	0.836	1.960
(16) Countrywide Indicated Relativity:	0.972	1.072	.
(17) Countrywide Credibility:	0.380	0.290	.
(18) Countrywide Lost-Time Claims:	1202.0	.	.
(19) Pure Premium Underlying Present Rate:	1.393	1.428	2.821
(20) Relativity to Underlying Present Rate:	1.469	1.589	.
(21) Credibility to Underlying Relativity:	0.370	0.290	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.356	1.539	.
(24) Balanced Formula Relativity:	1.358	1.539	1.431

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## Calculation of Class Relativities

Class(es): 2260 WOOL COMBING OR SCOURING		Effective: 9/1/2012							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)
2005	1,511	0	1	0	0	0	794	794	0.000	0.526	0.526
2006	2,871	0	1	0	797	0	693	1,491	0.278	0.242	0.519
2007	3,249	1	1	78,505	0	35,755	193	114,453	24,162	11,064	35,226
2008	2,619	0	2	0	152	0	1,826	1,978	0.058	0.697	0.755
2009	1,312	0	2	0	121,847	0	54,698	176,545	92,863	41,686	134,55
<b>MA Total:</b>	<b>11,564</b>	<b>1</b>	<b>7</b>	<b>78,505</b>	<b>122,796</b>	<b>35,755</b>	<b>58,204</b>	<b>295,260</b>	<b>17,408</b>	<b>8,125</b>	<b>25,534</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	13.048	9.058	.
(14) Massachusetts Credibility:	0.070	0.100	.
(15) Countrywide Pure Premium:	8.784	4.580	13.364
(16) Countrywide Indicated Relativity:	7.603	5.869	.
(17) Countrywide Credibility:	0.090	0.100	.
(18) Countrywide Lost-Time Claims:	3.000	.	.
(19) Pure Premium Underlying Present Rate:	2.959	1.663	4.622
(20) Relativity to Underlying Present Rate:	3.121	1.850	.
(21) Credibility to Underlying Relativity:	0.840	0.800	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	4.219	2.973	.
(24) Balanced Formula Relativity:	4.225	2.972	3.721

Class(es): 2288 FELTING MFG		Effective: 9/1/2012							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)
2005	117,406	0	24	0	11,472	0	55,891	67,363	0.098	0.476	0.574
2006	114,050	0	19	0	16,660	0	40,603	57,263	0.146	0.356	0.502
2007	101,597	0	20	0	180,315	0	68,636	248,951	1.775	0.676	2,450
2008	74,914	1	18	6,098	17,443	35,076	35,042	93,658	0.314	0.936	1,250
2009	72,874	0	11	0	148,921	0	65,564	214,485	2,044	0.900	2,943
<b>MA Total:</b>	<b>480,841</b>	<b>1</b>	<b>92</b>	<b>6,098</b>	<b>374,812</b>	<b>35,076</b>	<b>265,735</b>	<b>681,720</b>	<b>0.792</b>	<b>0.626</b>	<b>1,418</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.594	0.697	.
(14) Massachusetts Credibility:	0.200	0.320	.
(15) Countrywide Pure Premium:	1.827	1.024	2,851
(16) Countrywide Indicated Relativity:	1.581	1.312	.
(17) Countrywide Credibility:	0.400	0.340	.
(18) Countrywide Lost-Time Claims:	144.00	.	.
(19) Pure Premium Underlying Present Rate:	0.839	0.851	1,690
(20) Relativity to Underlying Present Rate:	0.885	0.947	.
(21) Credibility to Underlying Relativity:	0.400	0.340	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2,231
(23) Formula Relativity:	1.105	0.991	.
(24) Balanced Formula Relativity:	1.107	0.991	1,060

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## Calculation of Class Relativities

Class(es): 2305 TEXTILE FIBER MFG-SYNTHETIC		Effective: 9/1/2012							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)
2005	18,790	0	5	0	0	0	2,082	2,082	0.000	0.111	0.111
2006	2,130	1	0	55,211	0	12,651	0	67,861	25.921	5.939	31.860
2007	23,960	0	3	0	0	0	2,553	2,553	0.000	0.107	0.107
2008	34,166	2	9	143,889	0	130,713	9,797	284,399	4.211	4.113	8.324
2009	47,206	0	6	0	321,830	0	98,763	420,593	6.818	2.092	8.910
<b>MA Total:</b>	<b>126,252</b>	<b>3</b>	<b>23</b>	<b>199,100</b>	<b>321,830</b>	<b>143,364</b>	<b>113,196</b>	<b>777,489</b>	<b>4.126</b>	<b>2.032</b>	<b>6.158</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.093	2.265	.
(14) Massachusetts Credibility:	0.120	0.170	.
(15) Countrywide Pure Premium:	1.347	0.868	2.215
(16) Countrywide Indicated Relativity:	1.166	1.112	.
(17) Countrywide Credibility:	0.440	0.420	.
(18) Countrywide Lost-Time Claims:	885.00	.	.
(19) Pure Premium Underlying Present Rate:	0.906	0.619	1.526
(20) Relativity to Underlying Present Rate:	0.956	0.689	.
(21) Credibility to Underlying Relativity:	0.440	0.410	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.304	1.135	.
(24) Balanced Formula Relativity:	1.306	1.135	1.237

Class(es): 2362 KNIT GOODS MFG NOC		Effective: 9/1/2012							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)
2005	26,679	0	5	0	0	0	4,036	4,036	0.000	0.151	0.151
2006	29,202	0	8	0	15,878	0	49,063	64,941	0.544	1.680	2.224
2007	22,978	1	5	69,431	11,480	23,448	17,274	121,633	3.521	1.772	5.294
2008	12,800	0	5	0	4,148	0	6,560	10,709	0.324	0.513	0.837
2009	11,685	0	2	0	7,582	0	10,667	18,250	0.649	0.913	1.562
<b>MA Total:</b>	<b>103,343</b>	<b>1</b>	<b>25</b>	<b>69,431</b>	<b>39,090</b>	<b>23,448</b>	<b>87,600</b>	<b>219,568</b>	<b>1.050</b>	<b>1.075</b>	<b>2.125</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.787	1.198	.
(14) Massachusetts Credibility:	0.110	0.180	.
(15) Countrywide Pure Premium:	0.850	0.645	1.494
(16) Countrywide Indicated Relativity:	0.735	0.826	.
(17) Countrywide Credibility:	0.450	0.410	.
(18) Countrywide Lost-Time Claims:	224.00	.	.
(19) Pure Premium Underlying Present Rate:	0.942	0.932	1.874
(20) Relativity to Underlying Present Rate:	0.994	1.037	.
(21) Credibility to Underlying Relativity:	0.440	0.410	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.855	0.980	.
(24) Balanced Formula Relativity:	0.856	0.980	0.906

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## Calculation of Class Relativities

Class(es): 2380 WEBBING MFG		Effective: 9/1/2012							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)
2005	78,464	1	17	63,273	80,524	16,355	63,426	223,578	1,833	1,017	2,849
2006	70,392	0	20	0	24,681	0	25,535	50,216	0,351	0,363	0,713
2007	65,280	0	17	0	14,114	0	24,198	38,312	0,216	0,371	0,587
2008	62,716	0	7	0	90,822	0	49,317	140,139	1,448	0,786	2,234
2009	64,172	0	7	0	17,577	0	18,561	36,138	0,274	0,289	0,563
<b>MA Total:</b>	<b>341,025</b>	<b>1</b>	<b>68</b>	<b>63,273</b>	<b>227,718</b>	<b>16,355</b>	<b>181,038</b>	<b>488,384</b>	<b>0.853</b>	<b>0.579</b>	<b>1.432</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.640	0.645	.
(14) Massachusetts Credibility:	0.190	0.330	.
(15) Countrywide Pure Premium:	1.126	1.077	2.203
(16) Countrywide Indicated Relativity:	0.975	1.380	.
(17) Countrywide Credibility:	0.410	0.340	.
(18) Countrywide Lost-Time Claims:	262.00	.	.
(19) Pure Premium Underlying Present Rate:	1.028	1.262	2.290
(20) Relativity to Underlying Present Rate:	1.084	1.405	.
(21) Credibility to Underlying Relativity:	0.400	0.330	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.955	1.146	.
(24) Balanced Formula Relativity:	0.956	1.145	1.032

Class(es): 2402 CARPET OR RUG MFG NOC		Effective: 9/1/2012							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)
2005	4,323	0	1	0	876	0	663	1,539	0,203	0,153	0,356
2006	4,735	0	0	0	0	0	0	0	0,000	0,000	0,000
2007	6,978	0	3	0	0	0	1,153	1,153	0,000	0,165	0,165
2008	3,027	0	1	0	0	0	855	855	0,000	0,283	0,283
2009	2,322	0	1	0	1,744	0	1,964	3,708	0,751	0,846	1,597
<b>MA Total:</b>	<b>21,385</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>2,620</b>	<b>0</b>	<b>4,635</b>	<b>7,255</b>	<b>0.123</b>	<b>0.217</b>	<b>0.339</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.092	0.242	.
(14) Massachusetts Credibility:	0.070	0.100	.
(15) Countrywide Pure Premium:	1.182	0.907	2.088
(16) Countrywide Indicated Relativity:	1.023	1.162	.
(17) Countrywide Credibility:	0.470	0.450	.
(18) Countrywide Lost-Time Claims:	394.00	.	.
(19) Pure Premium Underlying Present Rate:	1.395	1.025	2.421
(20) Relativity to Underlying Present Rate:	1.471	1.141	.
(21) Credibility to Underlying Relativity:	0.460	0.450	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.164	1.060	.
(24) Balanced Formula Relativity:	1.166	1.060	1.123

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	149,270	2	68	125,127	561,825	37,097	272,782	996,831	4,602	2,076	6,678
2006	107,672	0	26	0	1,060	0	46,396	47,456	0,010	0,431	0,441
2007	291,206	2	66	30,614	197,728	16,037	184,605	428,985	0,784	0,689	1,473
2008	233,229	2	56	286,532	348,964	141,097	211,370	987,963	2,725	1,511	4,236
2009	255,835	2	69	59,661	580,780	50,305	769,534	1,460,280	2,503	3,205	5,708
<b>MA Total:</b>	<b>1,037,212</b>	<b>8</b>	<b>285</b>	<b>501,934</b>	<b>1,690,357</b>	<b>244,537</b>	<b>1,484,687</b>	<b>3,921,515</b>	<b>2,114</b>	<b>1,667</b>	<b>3,781</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.584	1.858	.
(14) Massachusetts Credibility:	0.350	0.510	.
(15) Countrywide Pure Premium:	0.991	0.796	1.787
(16) Countrywide Indicated Relativity:	0.858	1.020	.
(17) Countrywide Credibility:	0.330	0.250	.
(18) Countrywide Lost-Time Claims:	410.00	.	.
(19) Pure Premium Underlying Present Rate:	1.606	1.203	2.810
(20) Relativity to Underlying Present Rate:	1.694	1.339	.
(21) Credibility to Underlying Relativity:	0.320	0.240	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.380	1.524	.
(24) Balanced Formula Relativity:	1.382	1.524	1.439

Class(es):		Effective: 9/1/2012							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)
2005	16,714	0	6	0	11,030	0	6,153	17,183	0,660	0,368	1,028
2006	15,798	0	7	0	9,955	0	7,785	17,740	0,630	0,493	1,123
2007	17,300	0	4	0	61,720	0	24,579	86,298	3,568	1,421	4,988
2008	17,162	0	1	0	7,203	0	20,396	27,599	0,420	1,188	1,608
2009	13,894	0	0	0	0	0	0	0	0,000	0,000	0,000
<b>MA Total:</b>	<b>80,867</b>	<b>0</b>	<b>18</b>	<b>0</b>	<b>89,907</b>	<b>0</b>	<b>58,913</b>	<b>148,820</b>	<b>1,112</b>	<b>0,729</b>	<b>1,840</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.833	0.812	.
(14) Massachusetts Credibility:	0.110	0.190	.
(15) Countrywide Pure Premium:	0.957	0.734	1.691
(16) Countrywide Indicated Relativity:	0.828	0.941	.
(17) Countrywide Credibility:	0.290	0.310	.
(18) Countrywide Lost-Time Claims:	53.000	.	.
(19) Pure Premium Underlying Present Rate:	1.289	1.280	2.569
(20) Relativity to Underlying Present Rate:	1.359	1.424	.
(21) Credibility to Underlying Relativity:	0.600	0.500	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.147	1.158	.
(24) Balanced Formula Relativity:	1.149	1.158	1.153

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## Calculation of Class Relativities

Class(es): 2417 CLOTH PRINTING		Effective: 9/1/2012							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)
2005	133,518	0	28	0	446,763	0	134,604	581,367	3,346	1,008	4,354
2006	124,530	0	38	0	46,220	0	79,646	125,866	0,371	0,640	1,011
2007	107,184	2	20	263,909	97,450	115,631	81,139	558,128	3,371	1,836	5,207
2008	52,081	1	10	294,650	42,619	25,869	28,203	391,341	6,476	1,038	7,514
2009	70,291	1	16	743,334	259,403	117,369	107,485	1,227,591	14,266	3,199	17,465
<b>MA Total:</b>	<b>487,602</b>	<b>4</b>	<b>112</b>	<b>1,301,893</b>	<b>892,455</b>	<b>258,868</b>	<b>431,078</b>	<b>2,884,294</b>	<b>4,500</b>	<b>1,415</b>	<b>5,915</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.373	1.577	.
(14) Massachusetts Credibility:	0.230	0.360	.
(15) Countrywide Pure Premium:	1.175	0.660	1.834
(16) Countrywide Indicated Relativity:	1.017	0.845	.
(17) Countrywide Credibility:	0.290	0.310	.
(18) Countrywide Lost-Time Claims:	54,000	.	.
(19) Pure Premium Underlying Present Rate:	1.294	1.116	2.409
(20) Relativity to Underlying Present Rate:	1.364	1.242	.
(21) Credibility to Underlying Relativity:	0.480	0.330	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.725	1.240	.
(24) Balanced Formula Relativity:	1.728	1.239	1.531

Class(es): 2501 CLOTHING MFG		Effective: 9/1/2012							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)
2005	1,205,429	6	243	244,528	1,221,994	143,461	748,422	2,358,404	1,217	0,740	1,956
2006	1,094,489	7	201	513,790	1,146,465	265,978	755,792	2,682,025	1,517	0,934	2,450
2007	984,730	5	162	488,000	1,022,826	90,169	594,193	2,195,187	1,534	0,695	2,229
2008	1,043,567	8	141	643,776	447,836	395,441	392,543	1,879,597	1,046	0,755	1,801
2009	906,908	3	138	641,776	889,924	700,262	681,226	2,913,188	1,689	1,523	3,212
<b>MA Total:</b>	<b>5,235,124</b>	<b>29</b>	<b>885</b>	<b>2,531,870</b>	<b>4,729,045</b>	<b>1,595,312</b>	<b>3,172,176</b>	<b>12,028,402</b>	<b>1,387</b>	<b>0,911</b>	<b>2,298</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.040	1.015	.
(14) Massachusetts Credibility:	0.550	0.850	.
(15) Countrywide Pure Premium:	1.137	0.864	2.001
(16) Countrywide Indicated Relativity:	0.984	1.108	.
(17) Countrywide Credibility:	0.230	0.080	.
(18) Countrywide Lost-Time Claims:	3248.0	.	.
(19) Pure Premium Underlying Present Rate:	1.011	0.868	1.879
(20) Relativity to Underlying Present Rate:	1.066	0.966	.
(21) Credibility to Underlying Relativity:	0.220	0.070	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.033	1.019	.
(24) Balanced Formula Relativity:	1.034	1.019	1.028

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## Calculation of Class Relativities

Class(es): 2503 DRESSMAKING OR TAILORING-CUSTOM EXCLUSIVELY									Effective: 9/1/2012			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)			
2005	65,089	1	2	477,534	0	146,467	961	624,962	7,337	2,265	9,602			
2006	65,561	0	1	0	0	0	501	501	0,000	0,008	0,008			
2007	62,087	0	5	0	2,391	0	10,541	12,932	0,039	0,170	0,208			
2008	52,947	0	3	0	0	0	1,706	1,706	0,000	0,032	0,032			
2009	41,521	0	0	0	0	0	0	0	0,000	0,000	0,000			
<b>MA Total:</b>	<b>287,206</b>	<b>1</b>	<b>11</b>	<b>477,534</b>	<b>2,391</b>	<b>146,467</b>	<b>13,709</b>	<b>640,101</b>	<b>1,671</b>	<b>0,558</b>	<b>2,229</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.252	0.622	.
(14) Massachusetts Credibility:	0.120	0.210	.
(15) Countrywide Pure Premium:	0.689	0.487	1.176
(16) Countrywide Indicated Relativity:	0.596	0.624	.
(17) Countrywide Credibility:	0.310	0.330	.
(18) Countrywide Lost-Time Claims:	62,000	.	.
(19) Pure Premium Underlying Present Rate:	0.411	0.470	0.881
(20) Relativity to Underlying Present Rate:	0.433	0.523	.
(21) Credibility to Underlying Relativity:	0.570	0.460	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.582	0.577	.
(24) Balanced Formula Relativity:	0.583	0.577	0.581

Class(es): 2570 MATTRESS OR BOX SPRING MFG									Effective: 9/1/2012			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)			
2005	12,852	0	2	0	416	0	308	724	0,032	0,024	0,056			
2006	30,740	0	9	0	234,955	0	171,610	406,565	7,643	5,583	13,226			
2007	25,939	0	5	0	8,224	0	48,242	56,466	0,317	1,860	2,177			
2008	69,673	0	20	0	74,096	0	44,968	119,064	1,063	0,645	1,709			
2009	29,551	0	2	0	2,685	0	1,612	4,298	0,091	0,055	0,145			
<b>MA Total:</b>	<b>168,756</b>	<b>0</b>	<b>38</b>	<b>0</b>	<b>320,377</b>	<b>0</b>	<b>266,740</b>	<b>587,117</b>	<b>1,898</b>	<b>1,581</b>	<b>3,479</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.423	1.762	.
(14) Massachusetts Credibility:	0.180	0.300	.
(15) Countrywide Pure Premium:	2.180	1.265	3.446
(16) Countrywide Indicated Relativity:	1.887	1.621	.
(17) Countrywide Credibility:	0.410	0.350	.
(18) Countrywide Lost-Time Claims:	517,00	.	.
(19) Pure Premium Underlying Present Rate:	1.852	1.946	3.798
(20) Relativity to Underlying Present Rate:	1.953	2.165	.
(21) Credibility to Underlying Relativity:	0.410	0.350	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.831	1.854	.
(24) Balanced Formula Relativity:	1.833	1.854	1.841

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	70,203	2	16	304,046	3,480	62,572	15,477	385,574	4,380	1,112	5,492
2006	77,503	0	16	0	655	0	20,047	20,701	0,008	0,259	0,267
2007	113,711	2	27	167,324	145,597	73,499	110,280	496,701	2,752	1,616	4,368
2008	78,719	0	12	0	6,998	0	9,561	16,559	0,089	0,121	0,210
2009	67,115	0	5	0	10,466	0	41,460	51,926	0,156	0,618	0,774
<b>MA Total:</b>	<b>407,251</b>	<b>4</b>	<b>76</b>	<b>471,370</b>	<b>167,195</b>	<b>136,071</b>	<b>196,825</b>	<b>971,462</b>	<b>1,568</b>	<b>0,817</b>	<b>2,385</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.175	0.911	.
(14) Massachusetts Credibility:	0.220	0.340	.
(15) Countrywide Pure Premium:	1.411	0.638	2.049
(16) Countrywide Indicated Relativity:	1.221	0.818	.
(17) Countrywide Credibility:	0.160	0.160	.
(18) Countrywide Lost-Time Claims:	11.000	.	.
(19) Pure Premium Underlying Present Rate:	1.393	1.161	2.554
(20) Relativity to Underlying Present Rate:	1.469	1.292	.
(21) Credibility to Underlying Relativity:	0.620	0.500	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.365	1.087	.
(24) Balanced Formula Relativity:	1.366	1.087	1.254

Class(es):		Effective: 9/1/2012							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)
2005	478,253	4	137	102,918	274,756	116,980	366,309	860,963	0,790	1,011	1,800
2006	517,891	6	101	563,261	761,096	297,936	672,103	2,294,395	2,557	1,873	4,430
2007	512,029	5	113	680,839	256,085	555,241	201,521	1,693,685	1,830	1,478	3,308
2008	512,758	3	127	31,939	973,768	78,840	1,381,315	2,465,862	1,961	2,848	4,809
2009	698,167	2	143	284,227	423,598	96,687	434,389	1,238,902	1,014	0,761	1,775
<b>MA Total:</b>	<b>2,719,098</b>	<b>20</b>	<b>621</b>	<b>1,663,184</b>	<b>2,689,302</b>	<b>1,145,684</b>	<b>3,055,637</b>	<b>8,553,807</b>	<b>1,601</b>	<b>1,545</b>	<b>3,146</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.200	1.722	.
(14) Massachusetts Credibility:	0.450	0.710	.
(15) Countrywide Pure Premium:	1.809	1.269	3.079
(16) Countrywide Indicated Relativity:	1.566	1.627	.
(17) Countrywide Credibility:	0.280	0.150	.
(18) Countrywide Lost-Time Claims:	3535.0	.	.
(19) Pure Premium Underlying Present Rate:	1.164	1.055	2.219
(20) Relativity to Underlying Present Rate:	1.227	1.175	.
(21) Credibility to Underlying Relativity:	0.270	0.140	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.310	1.631	.
(24) Balanced Formula Relativity:	1.312	1.631	1.440

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							Manufacturing		
2586 CLEANING OR DYEING & 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)
2005	456,540	3	31	148,007	159,325	143,177	191,266	641,776	0.673	0.733	1.406
2006	453,080	2	33	44,695	315,161	8,777	196,458	565,090	0.794	0.453	1.247
2007	454,215	2	36	7,478	203,284	4,680	127,963	343,405	0.464	0.292	0.756
2008	496,187	1	38	229	232,425	2,706	191,451	426,811	0.469	0.391	0.860
2009	491,323	1	37	56,894	245,472	51,907	276,109	630,382	0.615	0.668	1.283
<b>MA Total:</b>	<b>2,351,345</b>	<b>9</b>	<b>175</b>	<b>257,303</b>	<b>1,155,668</b>	<b>211,247</b>	<b>983,247</b>	<b>2,607,465</b>	<b>0.601</b>	<b>0.508</b>	<b>1.109</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.450	0.566	.
(14) Massachusetts Credibility:	0.340	0.530	.
(15) Countrywide Pure Premium:	1.345	0.923	2.268
(16) Countrywide Indicated Relativity:	1.164	1.182	.
(17) Countrywide Credibility:	0.330	0.240	.
(18) Countrywide Lost-Time Claims:	323.00	.	.
(19) Pure Premium Underlying Present Rate:	0.696	0.582	1.278
(20) Relativity to Underlying Present Rate:	0.734	0.648	.
(21) Credibility to Underlying Relativity:	0.330	0.230	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.779	0.733	.
(24) Balanced Formula Relativity:	0.780	0.733	0.761

Class(es):		Effective: 9/1/2012							Goods and Services		
2587 TOWEL OR TOILET SUPPLY CO & RTE SUPERVISORS, 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)
2005	23,520	0	2	0	0	0	3,692	3,692	0.000	0.157	0.157
2006	17,163	0	3	0	0	0	2,080	2,080	0.000	0.121	0.121
2007	25,142	0	1	0	78	0	745	823	0.003	0.030	0.033
2008	29,441	0	1	0	120	0	489	609	0.004	0.017	0.021
2009	31,612	0	4	0	119,747	0	112,817	232,563	3.788	3.569	7.357
<b>MA Total:</b>	<b>126,878</b>	<b>0</b>	<b>11</b>	<b>0</b>	<b>119,945</b>	<b>0</b>	<b>119,823</b>	<b>239,768</b>	<b>0.945</b>	<b>0.944</b>	<b>1.890</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.882	1.217	.
(14) Massachusetts Credibility:	0.120	0.200	.
(15) Countrywide Pure Premium:	2.689	1.644	4.333
(16) Countrywide Indicated Relativity:	2.537	2.129	.
(17) Countrywide Credibility:	0.440	0.400	.
(18) Countrywide Lost-Time Claims:	176.00	.	.
(19) Pure Premium Underlying Present Rate:	1.003	0.977	1.980
(20) Relativity to Underlying Present Rate:	1.469	1.374	.
(21) Credibility to Underlying Relativity:	0.440	0.400	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	1.868	1.644	.
(24) Balanced Formula Relativity:	1.861	1.643	1.769

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## Calculation of Class Relativities

Class(es): 2623 TANNING		Effective: 9/1/2012							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)
2005	4,763	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	5,966	0	1	0	10,989	0	12,080	23,069	1,842	2,025	3,867
2007	6,472	0	2	0	11,482	0	14,520	26,003	1,774	2,244	4,018
2008	4,002	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	1,114	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>22,316</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>22,471</b>	<b>0</b>	<b>26,600</b>	<b>49,071</b>	<b>1.007</b>	<b>1.192</b>	<b>2.199</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.755	1.329	.
(14) Massachusetts Credibility:	0.080	0.110	.
(15) Countrywide Pure Premium:	2.000	1.411	3.410
(16) Countrywide Indicated Relativity:	1.731	1.808	.
(17) Countrywide Credibility:	0.290	0.310	.
(18) Countrywide Lost-Time Claims:	53.000	.	.
(19) Pure Premium Underlying Present Rate:	1.713	1.329	3.042
(20) Relativity to Underlying Present Rate:	1.807	1.479	.
(21) Credibility to Underlying Relativity:	0.630	0.580	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.701	1.564	.
(24) Balanced Formula Relativity:	1.703	1.564	1.647

Class(es): 2640 LEATHER EMBOSSEING		Effective: 9/1/2012							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)
2005	68,076	1	7	42,574	291,614	10,890	57,923	403,001	4,909	1,011	5,920
2006	71,241	0	15	0	84,599	0	43,075	127,675	1,188	0,605	1,792
2007	58,687	0	5	0	1,091	0	6,106	7,197	0,019	0,104	0,123
2008	56,742	0	5	0	0	0	2,323	2,323	0,000	0,041	0,041
2009	52,655	0	5	0	5,082	0	14,027	19,109	0,097	0,266	0,363
<b>MA Total:</b>	<b>307,400</b>	<b>1</b>	<b>37</b>	<b>42,574</b>	<b>382,386</b>	<b>10,890</b>	<b>123,455</b>	<b>559,304</b>	<b>1.382</b>	<b>0.437</b>	<b>1.819</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.036	0.487	.
(14) Massachusetts Credibility:	0.180	0.270	.
(15) Countrywide Pure Premium:	0.839	0.662	1.501
(16) Countrywide Indicated Relativity:	0.726	0.848	.
(17) Countrywide Credibility:	0.330	0.350	.
(18) Countrywide Lost-Time Claims:	72.000	.	.
(19) Pure Premium Underlying Present Rate:	1.063	0.875	1.938
(20) Relativity to Underlying Present Rate:	1.121	0.974	.
(21) Credibility to Underlying Relativity:	0.490	0.380	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.976	0.798	.
(24) Balanced Formula Relativity:	0.977	0.798	0.905

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## Calculation of Class Relativities

Class(es): 2660 BOOT OR SHOE MFG NOC		Effective: 9/1/2012							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)
2005	200,279	0	76	0	62,788	0	144,356	207,144	0.314	0.721	1.034
2006	199,073	1	63	133,213	241,448	84,575	148,693	607,929	1.882	1.172	3.054
2007	35,000	0	7	0	0	0	2,455	2,455	0.000	0.070	0.070
2008	34,856	0	11	0	49,517	0	26,101	75,618	1.421	0.749	2.169
2009	33,512	0	4	0	0	0	2,886	2,886	0.000	0.086	0.086
<b>MA Total:</b>	<b>502,720</b>	<b>1</b>	<b>161</b>	<b>133,213</b>	<b>353,753</b>	<b>84,575</b>	<b>324,490</b>	<b>896,031</b>	<b>0.969</b>	<b>0.814</b>	<b>1.782</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.726	0.907	.
(14) Massachusetts Credibility:	0.190	0.340	.
(15) Countrywide Pure Premium:	1.060	0.888	1.948
(16) Countrywide Indicated Relativity:	0.917	1.138	.
(17) Countrywide Credibility:	0.410	0.330	.
(18) Countrywide Lost-Time Claims:	232.00	.	.
(19) Pure Premium Underlying Present Rate:	0.723	0.919	1.643
(20) Relativity to Underlying Present Rate:	0.763	1.023	.
(21) Credibility to Underlying Relativity:	0.400	0.330	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.819	1.021	.
(24) Balanced Formula Relativity:	0.820	1.021	0.901

Class(es): 2683 LUGGAGE MFG		Effective: 9/1/2012							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)
2005	60,295	0	12	0	2,487	0	14,964	17,451	0.041	0.248	0.289
2006	82,290	0	18	0	167,169	0	46,642	213,811	2.031	0.567	2.598
2007	65,343	0	20	0	228,267	0	206,969	435,236	3.493	3.167	6.661
2008	30,111	0	3	0	146,521	0	54,437	200,957	4.866	1.808	6.674
2009	2,435	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>240,474</b>	<b>0</b>	<b>53</b>	<b>0</b>	<b>544,443</b>	<b>0</b>	<b>323,012</b>	<b>867,455</b>	<b>2.264</b>	<b>1.343</b>	<b>3.607</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.697	1.497	.
(14) Massachusetts Credibility:	0.150	0.240	.
(15) Countrywide Pure Premium:	0.711	0.552	1.263
(16) Countrywide Indicated Relativity:	0.615	0.708	.
(17) Countrywide Credibility:	0.230	0.250	.
(18) Countrywide Lost-Time Claims:	30.000	.	.
(19) Pure Premium Underlying Present Rate:	0.892	0.804	1.696
(20) Relativity to Underlying Present Rate:	0.941	0.895	.
(21) Credibility to Underlying Relativity:	0.620	0.510	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.979	0.993	.
(24) Balanced Formula Relativity:	0.981	0.992	0.985

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## Calculation of Class Relativities

Class(es): 2688 LEATHER GOODS MFG NOC		Effective: 9/1/2012							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)
2005	89,915	0	33	0	11,580	0	33,073	44,652	0.129	0.368	0.497
2006	82,433	0	10	0	34,959	0	15,335	50,294	0.424	0.186	0.610
2007	62,121	0	6	0	11,323	0	26,219	37,543	0.182	0.422	0.604
2008	100,240	5	13	486,456	154,349	267,121	156,080	1,064,007	6.393	4.222	10.615
2009	68,813	1	7	24,897	20,734	38,874	11,626	96,131	0.663	0.734	1.397
<b>MA Total:</b>	<b>403,522</b>	<b>6</b>	<b>69</b>	<b>511,353</b>	<b>232,945</b>	<b>305,995</b>	<b>242,333</b>	<b>1,292,627</b>	<b>1.845</b>	<b>1.359</b>	<b>3.203</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.382	1.515	.
(14) Massachusetts Credibility:	0.210	0.320	.
(15) Countrywide Pure Premium:	1.152	0.874	2.026
(16) Countrywide Indicated Relativity:	0.997	1.120	.
(17) Countrywide Credibility:	0.400	0.340	.
(18) Countrywide Lost-Time Claims:	155.00	.	.
(19) Pure Premium Underlying Present Rate:	1.140	0.951	2.091
(20) Relativity to Underlying Present Rate:	1.202	1.058	.
(21) Credibility to Underlying Relativity:	0.390	0.340	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.158	1.226	.
(24) Balanced Formula Relativity:	1.160	1.225	1.186

Class(es): 2702 LOGGING OR LUMBERING & DRIVERS		Effective: 9/1/2012							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)
2005	44,907	1	7	64,965	99,887	88,161	93,020	346,034	3.671	4.035	7.706
2006	40,751	1	8	10,544	50,823	1,118	41,712	104,197	1.506	1.051	2.557
2007	29,859	1	3	153,388	4,251	16,715	167,588	341,942	5.279	6.172	11.452
2008	25,322	1	9	273,892	3,016	56,330	9,005	342,243	10.936	2.580	13.516
2009	24,689	0	6	0	7,999	0	25,273	33,273	0.324	1.024	1.348
<b>MA Total:</b>	<b>165,528</b>	<b>4</b>	<b>33</b>	<b>502,789</b>	<b>165,977</b>	<b>162,324</b>	<b>336,599</b>	<b>1,167,689</b>	<b>4.040</b>	<b>3.014</b>	<b>7.054</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.251	1.416	.
(14) Massachusetts Credibility:	0.280	0.450	.
(15) Countrywide Pure Premium:	13.217	8.038	21.255
(16) Countrywide Indicated Relativity:	4.361	4.056	.
(17) Countrywide Credibility:	0.360	0.280	.
(18) Countrywide Lost-Time Claims:	2234.0	.	.
(19) Pure Premium Underlying Present Rate:	6.207	5.725	11.931
(20) Relativity to Underlying Present Rate:	3.185	2.965	.
(21) Credibility to Underlying Relativity:	0.360	0.270	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	3.067	2.573	.
(24) Balanced Formula Relativity:	3.003	2.533	2.817

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## Calculation of Class Relativities

Class(es): 2710 SAWMILLS		Effective: 9/1/2012							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)
2005	26.654	0	15	0	8.634	0	44.800	53.434	0.324	1.681	2.005
2006	27.806	0	12	0	7.155	0	12.703	19.858	0.257	0.457	0.714
2007	27.991	0	10	0	212.477	0	201.709	414.186	7.591	7.206	14.797
2008	25.608	0	11	0	20.351	0	77.430	97.780	0.795	3.024	3.818
2009	18.637	0	4	0	0	0	11.966	11.966	0.000	0.642	0.642
<b>MA Total:</b>	<b>126.697</b>	<b>0</b>	<b>52</b>	<b>0</b>	<b>248.616</b>	<b>0</b>	<b>348.607</b>	<b>597.223</b>	<b>1.962</b>	<b>2.751</b>	<b>4.714</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.471	3.067	.
(14) Massachusetts Credibility:	0.180	0.290	.
(15) Countrywide Pure Premium:	3.996	3.053	7.049
(16) Countrywide Indicated Relativity:	3.459	3.912	.
(17) Countrywide Credibility:	0.410	0.360	.
(18) Countrywide Lost-Time Claims:	1912.0	.	.
(19) Pure Premium Underlying Present Rate:	2.664	2.413	5.078
(20) Relativity to Underlying Present Rate:	2.810	2.686	.
(21) Credibility to Underlying Relativity:	0.410	0.350	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	2.835	3.238	.
(24) Balanced Formula Relativity:	2.838	3.237	2.999

Class(es): 2731 PLANING OR MOLDING MILL		Effective: 9/1/2012							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)
2005	55.029	0	23	0	173.437	0	120.632	294.069	3.152	2.192	5.344
2006	57.970	2	22	34.338	22.478	32.269	48.575	137.660	0.980	1.395	2.375
2007	54.681	0	21	0	229.764	0	89.358	319.123	4.202	1.634	5.836
2008	46.727	0	17	0	173.785	0	74.585	248.371	3.719	1.596	5.315
2009	35.264	0	13	0	160.748	0	35.810	196.558	4.558	1.015	5.574
<b>MA Total:</b>	<b>249.671</b>	<b>2</b>	<b>96</b>	<b>34.338</b>	<b>760.212</b>	<b>32.269</b>	<b>368.960</b>	<b>1,195.780</b>	<b>3.182</b>	<b>1.607</b>	<b>4.789</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.385	1.791	.
(14) Massachusetts Credibility:	0.210	0.340	.
(15) Countrywide Pure Premium:	2.078	1.599	3.677
(16) Countrywide Indicated Relativity:	1.799	2.049	.
(17) Countrywide Credibility:	0.400	0.330	.
(18) Countrywide Lost-Time Claims:	1466.0	.	.
(19) Pure Premium Underlying Present Rate:	1.914	1.791	3.705
(20) Relativity to Underlying Present Rate:	2.018	1.993	.
(21) Credibility to Underlying Relativity:	0.390	0.330	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	2.007	1.943	.
(24) Balanced Formula Relativity:	2.010	1.943	1.983

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	0	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>.</b>	<b>.</b>	<b>.</b>

	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:	0.412	0.947	1.359
(16) Countrywide Indicated Relativity:	0.356	1.214	.
(17) Countrywide Credibility:	0.110	0.120	.
(18) Countrywide Lost-Time Claims:	5.000	.	.
(19) Pure Premium Underlying Present Rate:	2.873	1.905	4.778
(20) Relativity to Underlying Present Rate:	3.029	2.120	.
(21) Credibility to Underlying Relativity:	0.890	0.880	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	2.735	2.011	.
(24) Balanced Formula Relativity:	2.739	2.011	2.446

Class(es):		Effective: 9/1/2012							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)
2005	176	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	174	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	34	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	0	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>384</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.020	0.030	.
(15) Countrywide Pure Premium:	0.390	0.444	0.834
(16) Countrywide Indicated Relativity:	0.338	0.569	.
(17) Countrywide Credibility:	0.090	0.100	.
(18) Countrywide Lost-Time Claims:	3.000	.	.
(19) Pure Premium Underlying Present Rate:	3.274	2.844	6.119
(20) Relativity to Underlying Present Rate:	3.453	3.165	.
(21) Credibility to Underlying Relativity:	0.890	0.870	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	3.104	2.811	.
(24) Balanced Formula Relativity:	3.108	2.810	2.988

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## Calculation of Class Relativities

Class(es): 2790 PATTERN MAKING NOC		Effective: 9/1/2012							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)
2005	51,781	0	10	0	202,121	0	150,335	352,456	3,903	2,903	6,807
2006	49,247	0	4	0	5,208	0	7,322	12,530	0,106	0,149	0,254
2007	51,618	0	6	0	0	0	5,185	5,185	0,000	0,100	0,100
2008	40,181	0	6	0	136,210	0	83,892	220,102	3,390	2,088	5,478
2009	35,583	0	8	0	23,621	0	19,602	43,223	0,664	0,551	1,215
<b>MA Total:</b>	<b>228,410</b>	<b>0</b>	<b>34</b>	<b>0</b>	<b>367,160</b>	<b>0</b>	<b>266,336</b>	<b>633,495</b>	<b>1,607</b>	<b>1,166</b>	<b>2,774</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.205	1.300	.
(14) Massachusetts Credibility:	0.150	0.250	.
(15) Countrywide Pure Premium:	0.757	0.550	1.307
(16) Countrywide Indicated Relativity:	0.655	0.705	.
(17) Countrywide Credibility:	0.430	0.380	.
(18) Countrywide Lost-Time Claims:	200.00	.	.
(19) Pure Premium Underlying Present Rate:	0.838	0.944	1.782
(20) Relativity to Underlying Present Rate:	0.884	1.051	.
(21) Credibility to Underlying Relativity:	0.420	0.370	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.834	0.982	.
(24) Balanced Formula Relativity:	0.835	0.981	0.894

Class(es): 2802 CARPENTRY-SHOP ONLY & DRIVERS		Effective: 9/1/2012							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)
2005	1,108,200	10	400	1,150,648	1,749,905	885,825	1,330,774	5,117,152	2,617	2,000	4,618
2006	1,171,627	11	354	1,832,391	2,048,851	818,137	1,464,281	6,163,659	3,313	1,948	5,261
2007	1,215,445	10	308	899,077	2,005,952	641,367	1,379,821	4,926,217	2,390	1,663	4,053
2008	1,100,374	5	284	1,219,012	2,404,233	880,932	1,379,767	5,883,942	3,293	2,054	5,347
2009	949,937	4	239	230,872	1,811,551	145,530	1,423,536	3,611,489	2,150	1,652	3,802
<b>MA Total:</b>	<b>5,545,583</b>	<b>40</b>	<b>1,585</b>	<b>5,332,000</b>	<b>10,020,491</b>	<b>3,371,791</b>	<b>6,978,178</b>	<b>25,702,460</b>	<b>2,768</b>	<b>1,866</b>	<b>4,635</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.075	2.080	.
(14) Massachusetts Credibility:	0.710	1.000	.
(15) Countrywide Pure Premium:	2.417	1.733	4.150
(16) Countrywide Indicated Relativity:	2.092	2.220	.
(17) Countrywide Credibility:	0.150	0.000	.
(18) Countrywide Lost-Time Claims:	6115.0	.	.
(19) Pure Premium Underlying Present Rate:	1.830	1.734	3.564
(20) Relativity to Underlying Present Rate:	1.929	1.930	.
(21) Credibility to Underlying Relativity:	0.140	0.000	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	2.057	2.080	.
(24) Balanced Formula Relativity:	2.060	2.080	2.068

# IX 000111

## Calculation of Class Relativities

Class(es): 2835 BRUSH OR BROOM ASSEMBLY		Effective: 9/1/2012							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)
2005	15.591	0	1	0	0	0	102	102	0.000	0.007	0.007
2006	16.713	0	4	0	6.273	0	6.082	12.355	0.375	0.364	0.739
2007	16.707	0	4	0	0	0	1.412	1.412	0.000	0.085	0.085
2008	16.860	0	1	0	0	0	92	92	0.000	0.005	0.005
2009	15.683	0	1	0	960	0	984	1.945	0.061	0.063	0.124
<b>MA Total:</b>	<b>81,554</b>	<b>0</b>	<b>11</b>	<b>0</b>	<b>7,234</b>	<b>0</b>	<b>8,672</b>	<b>15,906</b>	<b>0.089</b>	<b>0.106</b>	<b>0.195</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.066	0.119	.
(14) Massachusetts Credibility:	0.100	0.170	.
(15) Countrywide Pure Premium:	1.514	0.929	2.443
(16) Countrywide Indicated Relativity:	1.310	1.190	.
(17) Countrywide Credibility:	0.420	0.420	.
(18) Countrywide Lost-Time Claims:	132.00	.	.
(19) Pure Premium Underlying Present Rate:	0.843	0.922	1.765
(20) Relativity to Underlying Present Rate:	0.889	1.026	.
(21) Credibility to Underlying Relativity:	0.480	0.410	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.984	0.941	.
(24) Balanced Formula Relativity:	0.985	0.941	0.967

Class(es): 2836 BRUSH OR BROOM MFG NOC		Effective: 9/1/2012							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)
2005	10.051	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	9.112	0	2	0	0	0	322	322	0.000	0.035	0.035
2007	7.828	0	4	0	8.667	0	7.545	16.212	1.107	0.964	2.071
2008	6.613	0	1	0	0	0	306	306	0.000	0.046	0.046
2009	5.774	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>39.379</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>8,667</b>	<b>0</b>	<b>8,173</b>	<b>16,840</b>	<b>0.220</b>	<b>0.208</b>	<b>0.428</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.165	0.231	.
(14) Massachusetts Credibility:	0.090	0.130	.
(15) Countrywide Pure Premium:	0.997	1.013	2.011
(16) Countrywide Indicated Relativity:	0.863	1.299	.
(17) Countrywide Credibility:	0.300	0.320	.
(18) Countrywide Lost-Time Claims:	57.000	.	.
(19) Pure Premium Underlying Present Rate:	1.572	0.964	2.536
(20) Relativity to Underlying Present Rate:	1.657	1.073	.
(21) Credibility to Underlying Relativity:	0.610	0.550	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.285	1.036	.
(24) Balanced Formula Relativity:	1.287	1.036	1.186

# IX 000112

## Calculation of Class Relativities

Class(es): 2841 WOODENWARE MFG NOC		Effective: 9/1/2012							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)
2005	13,993	0	5	0	21,189	0	24,855	46,045	1,514	1,776	3,291
2006	19,875	1	6	164,900	17,153	79,604	22,369	284,025	9,160	5,131	14,290
2007	16,578	0	4	0	444	0	3,759	4,203	0,027	0,227	0,254
2008	16,559	0	4	0	9,512	0	10,252	19,763	0,574	0,619	1,194
2009	25,299	0	6	0	921,888	0	38,464	960,353	36,440	1,520	37,960
<b>MA Total:</b>	<b>92,303</b>	<b>1</b>	<b>25</b>	<b>164,900</b>	<b>970,186</b>	<b>79,604</b>	<b>99,699</b>	<b>1,314,389</b>	<b>12,297</b>	<b>1,943</b>	<b>14,240</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	9.217	2.165	.
(14) Massachusetts Credibility:	0.130	0.220	.
(15) Countrywide Pure Premium:	1.679	1.502	3.181
(16) Countrywide Indicated Relativity:	1.453	1.925	.
(17) Countrywide Credibility:	0.440	0.390	.
(18) Countrywide Lost-Time Claims:	205.00	.	.
(19) Pure Premium Underlying Present Rate:	1.499	1.632	3.130
(20) Relativity to Underlying Present Rate:	1.580	1.816	.
(21) Credibility to Underlying Relativity:	0.430	0.390	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	2.517	1.935	.
(24) Balanced Formula Relativity:	2.520	1.935	2.285

Class(es): 2883 FURNITURE MFG-WOOD-NOC		Effective: 9/1/2012							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)
2005	535,563	3	188	247,007	726,277	85,154	625,907	1,684,346	1,817	1,328	3,145
2006	513,677	3	138	196,206	1,240,221	79,060	726,205	2,241,692	2,796	1,568	4,364
2007	517,018	5	151	346,203	736,559	177,907	523,428	1,784,097	2,094	1,356	3,451
2008	430,732	2	116	277,176	467,240	429,526	615,511	1,789,453	1,728	2,426	4,154
2009	352,220	3	60	291,947	154,245	135,247	218,684	800,122	1,267	1,005	2,272
<b>MA Total:</b>	<b>2,349,211</b>	<b>16</b>	<b>653</b>	<b>1,358,539</b>	<b>3,324,542</b>	<b>906,894</b>	<b>2,709,735</b>	<b>8,299,710</b>	<b>1,993</b>	<b>1,540</b>	<b>3,533</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.494	1.716	.
(14) Massachusetts Credibility:	0.460	0.760	.
(15) Countrywide Pure Premium:	1.915	1.343	3.258
(16) Countrywide Indicated Relativity:	1.658	1.721	.
(17) Countrywide Credibility:	0.270	0.120	.
(18) Countrywide Lost-Time Claims:	2569.0	.	.
(19) Pure Premium Underlying Present Rate:	1.444	1.451	2.895
(20) Relativity to Underlying Present Rate:	1.523	1.614	.
(21) Credibility to Underlying Relativity:	0.270	0.120	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.546	1.704	.
(24) Balanced Formula Relativity:	1.548	1.704	1.611

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## Calculation of Class Relativities

Class(es): 2923 PIANO MFG		Effective: 9/1/2012							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)
2005	59,741	0	23	0	969	0	9,571	10,540	0.016	0.160	0.176
2006	66,976	0	12	0	28,279	0	20,946	49,225	0.422	0.313	0.735
2007	75,826	0	12	0	1,006	0	9,915	10,920	0.013	0.131	0.144
2008	66,534	0	4	0	0	0	1,885	1,885	0.000	0.028	0.028
2009	54,844	0	4	0	0	0	5,326	5,326	0.000	0.097	0.097
<b>MA Total:</b>	<b>323,922</b>	<b>0</b>	<b>55</b>	<b>0</b>	<b>30,254</b>	<b>0</b>	<b>47,642</b>	<b>77,896</b>	<b>0.093</b>	<b>0.147</b>	<b>0.240</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.070	0.164	.
(14) Massachusetts Credibility:	0.170	0.260	.
(15) Countrywide Pure Premium:	1.043	0.728	1.770
(16) Countrywide Indicated Relativity:	0.902	0.932	.
(17) Countrywide Credibility:	0.420	0.370	.
(18) Countrywide Lost-Time Claims:	145.00	.	.
(19) Pure Premium Underlying Present Rate:	0.870	0.700	1.570
(20) Relativity to Underlying Present Rate:	0.917	0.778	.
(21) Credibility to Underlying Relativity:	0.410	0.370	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.767	0.676	.
(24) Balanced Formula Relativity:	0.768	0.676	0.731

Class(es): 2942 PENCIL, PENHOLDER OR CRAYON MFG		Effective: 9/1/2012							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)
2005	256,812	2	89	12,289	217,282	74,050	424,302	727,923	0.894	1.941	2.834
2006	273,624	6	88	510,609	206,346	168,361	400,082	1,285,398	2.620	2.077	4.698
2007	216,460	1	55	51,103	279,584	19,777	230,782	581,246	1.528	1.158	2.685
2008	238,193	3	50	98,638	214,947	200,078	252,114	765,777	1.317	1.898	3.215
2009	189,577	0	40	0	85,418	0	122,301	207,718	0.451	0.645	1.096
<b>MA Total:</b>	<b>1,174,666</b>	<b>12</b>	<b>322</b>	<b>672,639</b>	<b>1,003,576</b>	<b>462,266</b>	<b>1,429,581</b>	<b>3,568,063</b>	<b>1.427</b>	<b>1.611</b>	<b>3.038</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.070	1.795	.
(14) Massachusetts Credibility:	0.290	0.530	.
(15) Countrywide Pure Premium:	1.290	0.956	2.247
(16) Countrywide Indicated Relativity:	1.117	1.225	.
(17) Countrywide Credibility:	0.360	0.240	.
(18) Countrywide Lost-Time Claims:	635.00	.	.
(19) Pure Premium Underlying Present Rate:	0.891	1.181	2.073
(20) Relativity to Underlying Present Rate:	0.940	1.315	.
(21) Credibility to Underlying Relativity:	0.350	0.230	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.041	1.548	.
(24) Balanced Formula Relativity:	1.042	1.548	1.246

# IX 000114

## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	132,405	0	15	0	0	0	10,462	10,462	0.000	0.079	0.079
2006	143,144	0	32	0	17,765	0	39,599	57,363	0.124	0.277	0.401
2007	167,563	0	26	0	465,962	0	258,571	724,534	2.781	1.543	4.324
2008	114,691	0	13	0	42,780	0	40,207	82,987	0.373	0.351	0.724
2009	103,340	0	13	0	295,307	0	150,316	445,623	2.858	1.455	4.312
<b>MA Total:</b>	<b>661,142</b>	<b>0</b>	<b>99</b>	<b>0</b>	<b>821,814</b>	<b>0</b>	<b>499,156</b>	<b>1,320,970</b>	<b>1.243</b>	<b>0.755</b>	<b>1.998</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.932	0.842	.
(14) Massachusetts Credibility:	0.250	0.410	.
(15) Countrywide Pure Premium:	1.344	0.838	2.182
(16) Countrywide Indicated Relativity:	1.163	1.074	.
(17) Countrywide Credibility:	0.380	0.300	.
(18) Countrywide Lost-Time Claims:	380.00	.	.
(19) Pure Premium Underlying Present Rate:	1.131	1.109	2.239
(20) Relativity to Underlying Present Rate:	1.192	1.234	.
(21) Credibility to Underlying Relativity:	0.370	0.290	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.116	1.025	.
(24) Balanced Formula Relativity:	1.117	1.025	1.080

Class(es):		Effective: 9/1/2012							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)
2005	6,787	0	1	0	0	0	872	872	0.000	0.129	0.129
2006	8,157	0	1	0	0	0	248	248	0.000	0.030	0.030
2007	9,141	0	4	0	99,216	0	66,565	165,781	10.855	7.282	18.137
2008	8,575	0	5	0	0	0	7,436	7,436	0.000	0.867	0.867
2009	7,199	0	2	0	2,374	0	2,239	4,613	0.330	0.311	0.641
<b>MA Total:</b>	<b>39,859</b>	<b>0</b>	<b>13</b>	<b>0</b>	<b>101,590</b>	<b>0</b>	<b>77,361</b>	<b>178,951</b>	<b>2.549</b>	<b>1.941</b>	<b>4.490</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.910	2.164	.
(14) Massachusetts Credibility:	0.090	0.150	.
(15) Countrywide Pure Premium:	1.988	1.300	3.288
(16) Countrywide Indicated Relativity:	1.721	1.666	.
(17) Countrywide Credibility:	0.460	0.430	.
(18) Countrywide Lost-Time Claims:	468.00	.	.
(19) Pure Premium Underlying Present Rate:	1.552	1.549	3.101
(20) Relativity to Underlying Present Rate:	1.637	1.724	.
(21) Credibility to Underlying Relativity:	0.450	0.420	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.700	1.765	.
(24) Balanced Formula Relativity:	1.702	1.764	1.727

# IX 000115

Section IX - Classification Pricing  
 Subsection G - Class Relativities  
 9/1/2012

Section IX - G  
 Exhibit 45

## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	69,925	1	32	130,633	93,242	62,717	78,613	365,205	3,202	2,021	5,223
2006	65,241	2	32	218,882	540,732	96,388	217,146	1,073,148	11,643	4,806	16,449
2007	47,110	0	12	0	19,252	0	18,246	37,498	0,409	0,387	0,796
2008	10,893	0	0	0	0	0	0	0	0,000	0,000	0,000
2009	8,936	0	0	0	0	0	0	0	0,000	0,000	0,000
<b>MA Total:</b>	<b>202,106</b>	<b>3</b>	<b>76</b>	<b>349,515</b>	<b>653,226</b>	<b>159,105</b>	<b>314,005</b>	<b>1,475,850</b>	<b>4,961</b>	<b>2,341</b>	<b>7,302</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.719	2.609	.
(14) Massachusetts Credibility:	0.190	0.320	.
(15) Countrywide Pure Premium:	1.591	0.844	2.435
(16) Countrywide Indicated Relativity:	1.377	1.081	.
(17) Countrywide Credibility:	0.410	0.340	.
(18) Countrywide Lost-Time Claims:	373.00	.	.
(19) Pure Premium Underlying Present Rate:	1.792	1.972	3.765
(20) Relativity to Underlying Present Rate:	1.890	2.195	.
(21) Credibility to Underlying Relativity:	0.400	0.340	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	2.027	1.949	.
(24) Balanced Formula Relativity:	2.030	1.949	1.997

Class(es):		Effective: 9/1/2012							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)
2005	13,032	0	1	0	1,971	0	10,198	12,170	0,151	0,783	0,934
2006	9,157	1	1	22,763	0	34,589	475	57,828	2,486	3,829	6,315
2007	11,730	0	4	0	4,063	0	14,869	18,932	0,346	1,268	1,614
2008	9,846	0	3	0	2,828	0	3,404	6,232	0,287	0,346	0,633
2009	60,630	0	16	0	0	0	17,582	17,582	0,000	0,290	0,290
<b>MA Total:</b>	<b>104,396</b>	<b>1</b>	<b>25</b>	<b>22,763</b>	<b>8,862</b>	<b>34,589</b>	<b>46,529</b>	<b>112,744</b>	<b>0,303</b>	<b>0,777</b>	<b>1,080</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.227	0.866	.
(14) Massachusetts Credibility:	0.140	0.240	.
(15) Countrywide Pure Premium:	1.785	1.261	3.045
(16) Countrywide Indicated Relativity:	1.545	1.615	.
(17) Countrywide Credibility:	0.430	0.380	.
(18) Countrywide Lost-Time Claims:	700.00	.	.
(19) Pure Premium Underlying Present Rate:	1.529	1.897	3.426
(20) Relativity to Underlying Present Rate:	1.612	2.111	.
(21) Credibility to Underlying Relativity:	0.430	0.380	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.389	1.624	.
(24) Balanced Formula Relativity:	1.391	1.624	1.485

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## Calculation of Class Relativities

Class(es): 3030 IRON OR STEEL: FABRICATION: IRON/STEEL WORK-SHOP-STRUCT & DR									Effective: 9/1/2012 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)
2005	105.863	2	57	897.206	124.289	388.342	192.915	1.602.752	9.649	5.491	15.140
2006	126.636	2	51	339.867	116.058	155.222	211.933	823.080	3.600	2.899	6.500
2007	135.298	1	61	93.237	333.814	38.890	520.872	986.813	3.156	4.137	7.294
2008	138.575	1	57	171.526	290.985	38.906	368.203	869.621	3.338	2.938	6.275
2009	82.872	0	24	0	283.317	0	166.627	449.944	3.419	2.011	5.429
<b>MA Total:</b>	<b>589.245</b>	<b>6</b>	<b>250</b>	<b>1,501.836</b>	<b>1,148.463</b>	<b>621.360</b>	<b>1,460.550</b>	<b>4,732.209</b>	<b>4.498</b>	<b>3.533</b>	<b>8.031</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.371	3.939	.
(14) Massachusetts Credibility:	0.360	0.620	.
(15) Countrywide Pure Premium:	3.122	2.115	5.237
(16) Countrywide Indicated Relativity:	2.702	2.710	.
(17) Countrywide Credibility:	0.320	0.190	.
(18) Countrywide Lost-Time Claims:	3062.0	.	.
(19) Pure Premium Underlying Present Rate:	3.121	3.443	6.564
(20) Relativity to Underlying Present Rate:	3.291	3.832	.
(21) Credibility to Underlying Relativity:	0.320	0.190	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	3.131	3.685	.
(24) Balanced Formula Relativity:	3.136	3.684	3.356

Class(es): 3040 IRON OR STEEL: FABRICATION: IRON WORKS-SHOP-ORNAMENTAL & DR									Effective: 9/1/2012 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)
2005	139.026	2	54	333.118	79.493	132.916	209.773	755.300	2.968	2.465	5.433
2006	138.373	2	47	476.467	575.226	220.966	189.757	1.462.415	7.600	2.968	10.569
2007	147.444	4	36	299.711	948.054	130.287	403.786	1.781.839	8.463	3.622	12.085
2008	138.337	3	34	1.181.054	377.196	346.375	316.793	2.221.419	11.264	4.794	16.058
2009	115.471	0	29	0	192.850	0	219.807	412.657	1.670	1.904	3.574
<b>MA Total:</b>	<b>678.651</b>	<b>11</b>	<b>200</b>	<b>2,290.350</b>	<b>2,172.819</b>	<b>830.544</b>	<b>1,339.916</b>	<b>6,633.630</b>	<b>6.577</b>	<b>3.198</b>	<b>9.775</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	4.929	3.565	.
(14) Massachusetts Credibility:	0.390	0.580	.
(15) Countrywide Pure Premium:	3.298	2.061	5.360
(16) Countrywide Indicated Relativity:	2.855	2.642	.
(17) Countrywide Credibility:	0.310	0.210	.
(18) Countrywide Lost-Time Claims:	1842.0	.	.
(19) Pure Premium Underlying Present Rate:	3.411	2.567	5.978
(20) Relativity to Underlying Present Rate:	3.597	2.857	.
(21) Credibility to Underlying Relativity:	0.300	0.210	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	3.886	3.222	.
(24) Balanced Formula Relativity:	3.892	3.222	3.622

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	36,850	1	13	69,282	75,134	23,302	48,214	215,933	3,919	1,941	5,860
2006	33,371	0	10	0	25,289	0	18,789	44,078	0,758	0,563	1,321
2007	40,898	0	9	0	22,042	0	24,335	46,377	0,539	0,595	1,134
2008	39,647	1	11	104,158	9,305	83,772	27,443	224,678	2,862	2,805	5,667
2009	40,744	0	8	0	410	0	8,402	8,812	0,010	0,206	0,216
<b>MA Total:</b>	<b>191,510</b>	<b>2</b>	<b>51</b>	<b>173,440</b>	<b>132,180</b>	<b>107,074</b>	<b>127,183</b>	<b>539,877</b>	<b>1,596</b>	<b>1,223</b>	<b>2,819</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.196	1.364	.
(14) Massachusetts Credibility:	0.200	0.280	.
(15) Countrywide Pure Premium:	2.099	1.446	3.545
(16) Countrywide Indicated Relativity:	1.816	1.853	.
(17) Countrywide Credibility:	0.400	0.360	.
(18) Countrywide Lost-Time Claims:	323.00	.	.
(19) Pure Premium Underlying Present Rate:	2.170	1.447	3.618
(20) Relativity to Underlying Present Rate:	2.289	1.611	.
(21) Credibility to Underlying Relativity:	0.400	0.360	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.881	1.629	.
(24) Balanced Formula Relativity:	1.884	1.628	1.781

Class(es):		Effective: 9/1/2012							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)
2005	6,455	1	0	117,159	0	49,881	0	167,040	18,150	7,727	25,877
2006	6,356	0	1	0	576	0	1,278	1,855	0,091	0,201	0,292
2007	6,951	0	4	0	4,065	0	11,007	15,072	0,585	1,584	2,168
2008	8,638	0	7	0	193,381	0	41,999	235,380	22,388	4,862	27,251
2009	8,393	0	0	0	0	0	0	0	0,000	0,000	0,000
<b>MA Total:</b>	<b>36,793</b>	<b>1</b>	<b>12</b>	<b>117,159</b>	<b>198,022</b>	<b>49,881</b>	<b>54,284</b>	<b>419,347</b>	<b>8,566</b>	<b>2,831</b>	<b>11,398</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	6.421	3.156	.
(14) Massachusetts Credibility:	0.140	0.170	.
(15) Countrywide Pure Premium:	2.504	1.487	3.992
(16) Countrywide Indicated Relativity:	2.168	1.906	.
(17) Countrywide Credibility:	0.430	0.420	.
(18) Countrywide Lost-Time Claims:	216.00	.	.
(19) Pure Premium Underlying Present Rate:	4.772	2.299	7.071
(20) Relativity to Underlying Present Rate:	5.032	2.559	.
(21) Credibility to Underlying Relativity:	0.430	0.410	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	3.995	2.386	.
(24) Balanced Formula Relativity:	4.000	2.386	3.351

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Section IX - Classification Pricing  
 Subsection G - Class Relativities  
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Section IX - G  
 Exhibit 48

## Calculation of Class Relativities

Class(es): 3064 SIGN MFG-METAL		Effective: 9/1/2012							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)
2005	1,293,264	6	331	640,404	1,012,080	322,006	967,363	2,941,853	1,278	0,997	2,275
2006	1,048,832	7	275	433,063	567,261	229,412	808,300	2,038,037	0,954	0,989	1,943
2007	1,068,785	2	258	20,658	1,538,311	4,216	793,478	2,356,662	1,459	0,746	2,205
2008	937,763	4	217	586,975	920,386	127,803	717,470	2,352,634	1,607	0,901	2,509
2009	822,410	6	149	1,245,905	476,536	1,102,564	415,482	3,240,487	2,094	1,846	3,940
<b>MA Total:</b>	<b>5,171,054</b>	<b>25</b>	<b>1,230</b>	<b>2,927,005</b>	<b>4,514,574</b>	<b>1,786,001</b>	<b>3,702,094</b>	<b>129,296,73</b>	<b>1,439</b>	<b>1,061</b>	<b>2,500</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.079	1.183	.
(14) Massachusetts Credibility:	0.590	0.940	.
(15) Countrywide Pure Premium:	2.262	1.587	3.849
(16) Countrywide Indicated Relativity:	1.958	2.034	.
(17) Countrywide Credibility:	0.210	0.030	.
(18) Countrywide Lost-Time Claims:	785.00	.	.
(19) Pure Premium Underlying Present Rate:	1.244	1.124	2.369
(20) Relativity to Underlying Present Rate:	1.312	1.251	.
(21) Credibility to Underlying Relativity:	0.200	0.030	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.310	1.211	.
(24) Balanced Formula Relativity:	1.312	1.210	1.271

Class(es): 3076 FIREPROOF EQUIPMENT MFG		Effective: 9/1/2012							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)
2005	376,777	2	118	374,595	64,466	126,553	154,402	720,016	1,165	0,746	1,911
2006	407,542	3	83	134,897	391,268	58,629	289,099	873,892	1,291	0,853	2,144
2007	412,419	6	112	517,029	201,115	822,772	261,106	1,802,022	1,741	2,628	4,369
2008	432,619	0	110	0	341,685	0	243,595	585,280	0,790	0,563	1,353
2009	310,519	5	92	185,090	78,973	145,609	159,931	569,603	0,850	0,984	1,834
<b>MA Total:</b>	<b>1,939,876</b>	<b>16</b>	<b>515</b>	<b>1,211,610</b>	<b>1,077,506</b>	<b>1,153,564</b>	<b>1,108,133</b>	<b>4,550,813</b>	<b>1,180</b>	<b>1,166</b>	<b>2,346</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.884	1.300	.
(14) Massachusetts Credibility:	0.380	0.600	.
(15) Countrywide Pure Premium:	1.654	1.127	2.780
(16) Countrywide Indicated Relativity:	1.431	1.444	.
(17) Countrywide Credibility:	0.310	0.200	.
(18) Countrywide Lost-Time Claims:	8308.0	.	.
(19) Pure Premium Underlying Present Rate:	1.123	0.982	2.105
(20) Relativity to Underlying Present Rate:	1.185	1.093	.
(21) Credibility to Underlying Relativity:	0.310	0.200	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.147	1.287	.
(24) Balanced Formula Relativity:	1.148	1.287	1.204

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## Calculation of Class Relativities

Class(es): 3081 FOUNDRY-FERROUS-NOC		Effective: 9/1/2012							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)
2005	102,028	3	72	381,906	740,338	135,780	321,731	1,579,755	10,999	4,484	15,484
2006	90,690	2	49	500,028	618,841	244,840	272,313	1,636,022	12,337	5,702	18,040
2007	74,814	0	29	0	153,617	0	73,712	227,329	2,053	0,985	3,039
2008	96,864	4	49	257,589	157,725	177,307	134,085	726,706	4,288	3,215	7,502
2009	86,720	1	19	21,154	54,131	8,747	54,232	138,263	0,868	0,726	1,594
<b>MA Total:</b>	<b>451,116</b>	<b>10</b>	<b>218</b>	<b>1,160,677</b>	<b>1,724,652</b>	<b>566,674</b>	<b>856,072</b>	<b>4,308,076</b>	<b>6,396</b>	<b>3,154</b>	<b>9,550</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	4.794	3.516	.
(14) Massachusetts Credibility:	0.320	0.550	.
(15) Countrywide Pure Premium:	2.599	1.671	4.271
(16) Countrywide Indicated Relativity:	2.250	2.142	.
(17) Countrywide Credibility:	0.340	0.230	.
(18) Countrywide Lost-Time Claims:	1600.0	.	.
(19) Pure Premium Underlying Present Rate:	3.158	3.352	6.510
(20) Relativity to Underlying Present Rate:	3.331	3.730	.
(21) Credibility to Underlying Relativity:	0.340	0.220	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	3.431	3.247	.
(24) Balanced Formula Relativity:	3.436	3.246	3.360

Class(es): 3085 FOUNDRY-NON FERROUS		Effective: 9/1/2012							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)
2005	139,032	2	55	8,436	6,345	3,433	46,621	64,835	0,106	0,360	0,466
2006	144,903	5	60	208,981	69,290	97,625	119,607	495,503	1,920	1,499	3,420
2007	158,062	1	45	155,124	320,506	25,014	286,884	787,527	3,009	1,973	4,982
2008	126,578	1	23	54,412	68,387	57,926	46,762	227,486	0,970	0,827	1,797
2009	121,467	1	26	19,307	523,869	9,213	167,290	719,679	4,472	1,453	5,925
<b>MA Total:</b>	<b>690,042</b>	<b>10</b>	<b>209</b>	<b>446,260</b>	<b>988,397</b>	<b>193,210</b>	<b>667,163</b>	<b>2,295,030</b>	<b>2,079</b>	<b>1,247</b>	<b>3,326</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.558	1.390	.
(14) Massachusetts Credibility:	0.320	0.520	.
(15) Countrywide Pure Premium:	2.100	1.365	3.465
(16) Countrywide Indicated Relativity:	1.818	1.749	.
(17) Countrywide Credibility:	0.340	0.240	.
(18) Countrywide Lost-Time Claims:	1027.0	.	.
(19) Pure Premium Underlying Present Rate:	1.939	1.950	3.890
(20) Relativity to Underlying Present Rate:	2.045	2.171	.
(21) Credibility to Underlying Relativity:	0.340	0.240	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.812	1.663	.
(24) Balanced Formula Relativity:	1.814	1.663	1.754

# IX 000120

## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	9,109	1	4	6,794	5,837	10,298	8,619	31,547	1,387	2,077	3,463
2006	13,869	2	17	33,119	18,298	24,662	19,844	95,924	3,707	3,209	6,916
2007	18,489	1	17	40,777	199,364	18,804	84,887	343,832	12,988	5,608	18,597
2008	23,969	0	10	0	25,397	0	34,031	59,427	1,060	1,420	2,479
2009	11,848	0	12	0	66,132	0	57,589	123,721	5,582	4,861	10,443
<b>MA Total:</b>	<b>77,283</b>	<b>4</b>	<b>60</b>	<b>80,690</b>	<b>315,027</b>	<b>53,764</b>	<b>204,970</b>	<b>654,451</b>	<b>5,120</b>	<b>3,348</b>	<b>8,468</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.838	3.732	.
(14) Massachusetts Credibility:	0.160	0.270	.
(15) Countrywide Pure Premium:	2.056	1.307	3.363
(16) Countrywide Indicated Relativity:	1.780	1.674	.
(17) Countrywide Credibility:	0.420	0.370	.
(18) Countrywide Lost-Time Claims:	396.00	.	.
(19) Pure Premium Underlying Present Rate:	3.164	3.465	6.629
(20) Relativity to Underlying Present Rate:	3.336	3.856	.
(21) Credibility to Underlying Relativity:	0.420	0.360	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	2.763	3.015	.
(24) Balanced Formula Relativity:	2.766	3.015	2.866

Class(es):		Effective: 9/1/2012							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)
2005	78,270	0	25	0	101,191	0	103,138	204,330	1,293	1,318	2,611
2006	83,937	0	28	0	271,831	0	162,507	434,338	3,239	1,936	5,175
2007	107,029	2	15	140,688	1,248	71,911	10,895	224,741	1,326	0,774	2,100
2008	85,991	0	9	0	8,945	0	22,338	31,283	0,104	0,260	0,364
2009	79,361	2	15	152,104	232,094	67,256	136,216	587,669	4,841	2,564	7,405
<b>MA Total:</b>	<b>434,589</b>	<b>4</b>	<b>92</b>	<b>292,792</b>	<b>615,308</b>	<b>139,166</b>	<b>435,094</b>	<b>1,482,360</b>	<b>2,090</b>	<b>1,321</b>	<b>3,411</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.566	1.473	.
(14) Massachusetts Credibility:	0.210	0.360	.
(15) Countrywide Pure Premium:	1.069	0.817	1.886
(16) Countrywide Indicated Relativity:	0.925	1.047	.
(17) Countrywide Credibility:	0.400	0.320	.
(18) Countrywide Lost-Time Claims:	245.00	.	.
(19) Pure Premium Underlying Present Rate:	1.134	1.183	2.317
(20) Relativity to Underlying Present Rate:	1.196	1.316	.
(21) Credibility to Underlying Relativity:	0.390	0.320	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.165	1.287	.
(24) Balanced Formula Relativity:	1.167	1.286	1.215

# IX 000121

## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	1,016,863	7	195	970,543	338,588	274,745	453,235	2,037,111	1,287	0,716	2,003
2006	1,153,815	5	233	307,974	459,240	70,001	525,753	1,362,968	0,665	0,516	1,181
2007	1,265,736	4	236	479,561	1,166,656	136,095	643,245	2,425,556	1,301	0,616	1,916
2008	1,226,073	7	191	361,762	936,519	201,584	632,651	2,132,516	1,059	0,680	1,739
2009	1,018,385	3	142	90,984	316,680	39,254	360,087	807,005	0,400	0,392	0,792
<b>MA Total:</b>	<b>5,680,871</b>	<b>26</b>	<b>997</b>	<b>2,210,824</b>	<b>3,217,682</b>	<b>721,678</b>	<b>2,614,972</b>	<b>8,765,156</b>	<b>0,956</b>	<b>0,587</b>	<b>1,543</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.716	0.655	.
(14) Massachusetts Credibility:	0.540	0.870	.
(15) Countrywide Pure Premium:	1.117	0.748	1.866
(16) Countrywide Indicated Relativity:	0.967	0.959	.
(17) Countrywide Credibility:	0.230	0.070	.
(18) Countrywide Lost-Time Claims:	2304.0	.	.
(19) Pure Premium Underlying Present Rate:	0.886	0.848	1.734
(20) Relativity to Underlying Present Rate:	0.934	0.943	.
(21) Credibility to Underlying Relativity:	0.230	0.060	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.824	0.693	.
(24) Balanced Formula Relativity:	0.825	0.693	0.772

Class(es):		Effective: 9/1/2012							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)
2005	24,325	1	1	130,832	0	100,129	1,644	232,605	5,379	4,184	9,562
2006	24,093	1	5	17,725	9,067	2,823	32,197	61,812	1,112	1,454	2,565
2007	62,462	1	7	54,092	71,385	5,458	35,241	166,177	2,009	0,652	2,660
2008	63,864	0	13	0	179,309	0	58,569	237,879	2,808	0,917	3,725
2009	41,570	0	0	0	0	0	0	0	0,000	0,000	0,000
<b>MA Total:</b>	<b>216,314</b>	<b>3</b>	<b>26</b>	<b>202,649</b>	<b>259,761</b>	<b>108,409</b>	<b>127,652</b>	<b>698,472</b>	<b>2,138</b>	<b>1,091</b>	<b>3,229</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.602	1.216	.
(14) Massachusetts Credibility:	0.180	0.290	.
(15) Countrywide Pure Premium:	1.419	0.871	2.290
(16) Countrywide Indicated Relativity:	1.228	1.116	.
(17) Countrywide Credibility:	0.410	0.360	.
(18) Countrywide Lost-Time Claims:	314.00	.	.
(19) Pure Premium Underlying Present Rate:	1.467	1.393	2.860
(20) Relativity to Underlying Present Rate:	1.547	1.550	.
(21) Credibility to Underlying Relativity:	0.410	0.350	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.426	1.297	.
(24) Balanced Formula Relativity:	1.428	1.297	1.375

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## Calculation of Class Relativities

Class(es): 3119 NEEDLE MFG		Effective: 9/1/2012							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)
2005	56,378	0	15	0	0	0	6,215	6,215	0.000	0.110	0.110
2006	56,231	0	11	0	1,756	0	6,768	8,524	0.031	0.120	0.152
2007	48,166	1	8	113,801	1,809	23,828	8,772	148,210	2.400	0.677	3.077
2008	62,801	0	13	0	3,813	0	10,393	14,206	0.061	0.165	0.226
2009	79,836	0	7	0	11,226	0	28,913	40,140	0.141	0.362	0.503
<b>MA Total:</b>	<b>303,412</b>	<b>1</b>	<b>54</b>	<b>113,801</b>	<b>18,605</b>	<b>23,828</b>	<b>61,062</b>	<b>217,296</b>	<b>0.436</b>	<b>0.280</b>	<b>0.716</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.327	0.312	.
(14) Massachusetts Credibility:	0.130	0.210	.
(15) Countrywide Pure Premium:	0.292	0.218	0.511
(16) Countrywide Indicated Relativity:	0.253	0.280	.
(17) Countrywide Credibility:	0.190	0.200	.
(18) Countrywide Lost-Time Claims:	19.000	.	.
(19) Pure Premium Underlying Present Rate:	0.436	0.443	0.879
(20) Relativity to Underlying Present Rate:	0.460	0.493	.
(21) Credibility to Underlying Relativity:	0.680	0.590	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.403	0.412	.
(24) Balanced Formula Relativity:	0.404	0.412	0.407

Class(es): 3120 RAZOR MFG-SAFETY		Effective: 9/1/2012							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)
2005	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	3,526	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	150	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	2,192	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	9,536	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>15,404</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	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:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	0.979	0.648	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	0.945	0.593	1.538
(20) Relativity to Underlying Present Rate:	0.997	0.659	.
(21) Credibility to Underlying Relativity:	0.950	0.930	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.947	0.613	.
(24) Balanced Formula Relativity:	0.948	0.613	0.814

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## Calculation of Class Relativities

Class(es): 3122 CUTLERY MFG-NOC		Effective: 9/1/2012							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)
2005	139,727	0	30	0	81,706	0	109,113	190,819	0.585	0.781	1.366
2006	78,039	1	21	11,401	18,944	74,818	37,114	142,277	0.389	1.434	1.823
2007	75,412	0	8	0	7,369	0	20,817	28,186	0.098	0.276	0.374
2008	69,635	0	6	0	0	0	4,229	4,229	0.000	0.061	0.061
2009	62,904	0	2	0	230	0	1,501	1,731	0.004	0.024	0.028
<b>MA Total:</b>	<b>425,715</b>	<b>1</b>	<b>67</b>	<b>11,401</b>	<b>108,250</b>	<b>74,818</b>	<b>172,774</b>	<b>367,242</b>	<b>0.281</b>	<b>0.582</b>	<b>0.863</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.211	0.648	.
(14) Massachusetts Credibility:	0.210	0.330	.
(15) Countrywide Pure Premium:	0.665	0.804	1.469
(16) Countrywide Indicated Relativity:	0.575	1.030	.
(17) Countrywide Credibility:	0.290	0.310	.
(18) Countrywide Lost-Time Claims:	54.000	.	.
(19) Pure Premium Underlying Present Rate:	1.084	0.993	2.078
(20) Relativity to Underlying Present Rate:	1.143	1.106	.
(21) Credibility to Underlying Relativity:	0.500	0.360	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.783	0.931	.
(24) Balanced Formula Relativity:	0.784	0.931	0.843

Class(es): 3127 PRECISION MEASURING TOOL MFG-NOC		Effective: 9/1/2012							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)
2005	2,044	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	171,570	1	37	411,460	27,384	18,664	46,238	503,746	2.558	0.378	2.936
2007	205,872	1	36	4,109	17,984	5,496	28,647	56,235	0.107	0.166	0.273
2008	162,931	2	40	133,109	22,067	21,786	53,728	230,690	0.952	0.463	1.416
2009	131,302	0	12	0	3,831	0	13,119	16,950	0.029	0.100	0.129
<b>MA Total:</b>	<b>673,718</b>	<b>4</b>	<b>125</b>	<b>548,677</b>	<b>71,266</b>	<b>45,947</b>	<b>141,731</b>	<b>807,622</b>	<b>0.920</b>	<b>0.279</b>	<b>1.199</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.690	0.311	.
(14) Massachusetts Credibility:	0.160	0.270	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	0.362	0.417	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	0.349	0.381	0.731
(20) Relativity to Underlying Present Rate:	0.368	0.424	.
(21) Credibility to Underlying Relativity:	0.840	0.730	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.420	0.394	.
(24) Balanced Formula Relativity:	0.420	0.394	0.410

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Section IX - Classification Pricing  
 Subsection G - Class Relativities  
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Section IX - G  
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## Calculation of Class Relativities

Class(es): 3131 BUTTON OR FASTENER MFG-METAL		Effective: 9/1/2012							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)
2005	11,390	0	4	0	2,470	0	5,514	7,984	0.217	0.484	0.701
2006	9,632	0	2	0	2,055	0	1,350	3,405	0.213	0.140	0.353
2007	8,918	0	3	0	5,393	0	15,710	21,103	0.605	1.762	2.366
2008	6,522	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	7,341	0	1	0	1,000	0	4,069	5,070	0.136	0.554	0.691
<b>MA Total:</b>	<b>43,803</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>10,918</b>	<b>0</b>	<b>26,643</b>	<b>37,561</b>	<b>0.249</b>	<b>0.608</b>	<b>0.858</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.187	0.678	.
(14) Massachusetts Credibility:	0.080	0.120	.
(15) Countrywide Pure Premium:	0.607	0.581	1.188
(16) Countrywide Indicated Relativity:	0.525	0.745	.
(17) Countrywide Credibility:	0.410	0.430	.
(18) Countrywide Lost-Time Claims:	122.00	.	.
(19) Pure Premium Underlying Present Rate:	0.955	0.733	1.688
(20) Relativity to Underlying Present Rate:	1.007	0.816	.
(21) Credibility to Underlying Relativity:	0.510	0.450	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.744	0.769	.
(24) Balanced Formula Relativity:	0.745	0.769	0.755

Class(es): 3132 NUT OR BOLT MFG		Effective: 9/1/2012							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)
2005	8,073	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	4,223	0	1	0	0	0	484	484	0.000	0.115	0.115
2007	2,786	0	1	0	0	0	357	357	0.000	0.128	0.128
2008	2,811	0	3	0	101,178	0	18,905	120,084	35.992	6.725	42.718
2009	2,397	1	1	85,735	0	33,364	594	119,693	35.770	14.168	49.938
<b>MA Total:</b>	<b>20,289</b>	<b>1</b>	<b>6</b>	<b>85,735</b>	<b>101,178</b>	<b>33,364</b>	<b>20,340</b>	<b>240,617</b>	<b>9.212</b>	<b>2.647</b>	<b>11.859</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	6.905	2.951	.
(14) Massachusetts Credibility:	0.060	0.100	.
(15) Countrywide Pure Premium:	1.551	1.101	2.652
(16) Countrywide Indicated Relativity:	1.342	1.411	.
(17) Countrywide Credibility:	0.470	0.450	.
(18) Countrywide Lost-Time Claims:	217.00	.	.
(19) Pure Premium Underlying Present Rate:	0.995	1.078	2.074
(20) Relativity to Underlying Present Rate:	1.050	1.200	.
(21) Credibility to Underlying Relativity:	0.470	0.450	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.538	1.470	.
(24) Balanced Formula Relativity:	1.540	1.470	1.512

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## Calculation of Class Relativities

Class(es): 3145 SCREW MFG		Effective: 9/1/2012							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)
2005	202.812	1	49	58.118	77.459	64.932	80.550	281.060	0.668	0.717	1.386
2006	209.754	2	36	234.954	69.522	189.166	79.023	572.665	1.452	1.279	2.730
2007	210.311	0	51	0	367.393	0	217.718	585.111	1.747	1.035	2.782
2008	193.166	0	31	0	133.559	0	120.538	254.097	0.691	0.624	1.315
2009	174.565	1	26	42.225	40.195	30.627	75.751	188.799	0.472	0.609	1.082
<b>MA Total:</b>	<b>990.608</b>	<b>4</b>	<b>193</b>	<b>335.297</b>	<b>688.128</b>	<b>284.726</b>	<b>573.581</b>	<b>1,881.732</b>	<b>1.033</b>	<b>0.866</b>	<b>1.900</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.774	0.966	.
(14) Massachusetts Credibility:	0.260	0.430	.
(15) Countrywide Pure Premium:	1.132	0.692	1.824
(16) Countrywide Indicated Relativity:	0.980	0.887	.
(17) Countrywide Credibility:	0.370	0.290	.
(18) Countrywide Lost-Time Claims:	625.00	.	.
(19) Pure Premium Underlying Present Rate:	0.797	0.826	1.623
(20) Relativity to Underlying Present Rate:	0.841	0.919	.
(21) Credibility to Underlying Relativity:	0.370	0.280	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.875	0.930	.
(24) Balanced Formula Relativity:	0.876	0.930	0.898

Class(es): 3146 HARDWARE MFG-NOC		Effective: 9/1/2012							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)
2005	134.318	1	36	108.749	5.057	22.859	22.321	158.986	0.847	0.336	1.184
2006	153.554	1	33	5.979	14.301	51.344	34.095	105.719	0.132	0.556	0.688
2007	113.562	0	24	0	31.598	0	49.572	81.170	0.278	0.437	0.715
2008	90.741	0	21	0	92.211	0	115.395	207.606	1.016	1.272	2.288
2009	84.127	0	13	0	601	0	23.631	24.233	0.007	0.281	0.288
<b>MA Total:</b>	<b>576.303</b>	<b>2</b>	<b>127</b>	<b>114.727</b>	<b>143.769</b>	<b>74.203</b>	<b>245.013</b>	<b>577.713</b>	<b>0.449</b>	<b>0.554</b>	<b>1.002</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.336	0.617	.
(14) Massachusetts Credibility:	0.220	0.330	.
(15) Countrywide Pure Premium:	1.373	0.880	2.253
(16) Countrywide Indicated Relativity:	1.188	1.127	.
(17) Countrywide Credibility:	0.390	0.340	.
(18) Countrywide Lost-Time Claims:	1510.0	.	.
(19) Pure Premium Underlying Present Rate:	0.953	0.713	1.666
(20) Relativity to Underlying Present Rate:	1.005	0.793	.
(21) Credibility to Underlying Relativity:	0.390	0.330	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.929	0.849	.
(24) Balanced Formula Relativity:	0.931	0.849	0.898

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## Calculation of Class Relativities

Class(es): 3169 STOVE MFG		Effective: 9/1/2012							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)
2005	400,936	2	152	21,522	380,347	7,211	330,560	739,641	1,002	0,842	1,845
2006	389,288	5	116	815,561	692,988	594,327	447,398	2,550,275	3,875	2,676	6,551
2007	373,537	3	99	220,694	662,723	173,807	494,888	1,552,112	2,365	1,790	4,155
2008	404,071	1	95	9,084	774,444	23,629	431,594	1,238,752	1,939	1,127	3,066
2009	359,707	1	81	269,155	274,670	118,559	380,639	1,043,023	1,512	1,388	2,900
<b>MA Total:</b>	<b>1,927,538</b>	<b>12</b>	<b>543</b>	<b>1,336,016</b>	<b>2,785,173</b>	<b>917,533</b>	<b>2,085,080</b>	<b>7,123,802</b>	<b>2,138</b>	<b>1,558</b>	<b>3,696</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.602	1.736	.
(14) Massachusetts Credibility:	0.440	0.770	.
(15) Countrywide Pure Premium:	1.637	1.188	2.826
(16) Countrywide Indicated Relativity:	1.417	1.523	.
(17) Countrywide Credibility:	0.280	0.120	.
(18) Countrywide Lost-Time Claims:	6275.0	.	.
(19) Pure Premium Underlying Present Rate:	1.577	1.848	3.425
(20) Relativity to Underlying Present Rate:	1.663	2.057	.
(21) Credibility to Underlying Relativity:	0.280	0.110	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.567	1.746	.
(24) Balanced Formula Relativity:	1.570	1.746	1.640

Class(es): 3179 ELECTRICAL APPARATUS MFG-NOC		Effective: 9/1/2012							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)
2005	1,645,225	14	219	1,371,091	590,370	1,134,872	441,469	3,537,802	1,192	0,958	2,150
2006	2,121,359	11	200	1,209,388	1,410,888	736,573	910,039	4,266,889	1,235	0,776	2,011
2007	2,031,176	7	216	1,268,089	887,992	462,651	524,573	3,143,304	1,061	0,486	1,548
2008	1,721,389	1	159	90,898	552,724	60,839	520,474	1,224,936	0,374	0,338	0,712
2009	1,856,309	3	142	135,061	770,329	83,126	554,271	1,542,787	0,488	0,343	0,831
<b>MA Total:</b>	<b>9,375,458</b>	<b>36</b>	<b>936</b>	<b>4,074,527</b>	<b>4,212,302</b>	<b>2,478,061</b>	<b>2,950,826</b>	<b>13,715,717</b>	<b>0,884</b>	<b>0,579</b>	<b>1,463</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.662	0.645	.
(14) Massachusetts Credibility:	0.620	0.910	.
(15) Countrywide Pure Premium:	1.155	0.735	1.890
(16) Countrywide Indicated Relativity:	0.999	0.942	.
(17) Countrywide Credibility:	0.190	0.050	.
(18) Countrywide Lost-Time Claims:	7071.0	.	.
(19) Pure Premium Underlying Present Rate:	0.759	0.578	1.337
(20) Relativity to Underlying Present Rate:	0.801	0.643	.
(21) Credibility to Underlying Relativity:	0.190	0.040	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.753	0.660	.
(24) Balanced Formula Relativity:	0.754	0.660	0.716

# IX 000127

## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)	
2005	326,720	4	76	614,821	305,516	388,992	180,482	1,489,811	2,817	1,743	4,560	
2006	345,670	4	68	539,153	329,314	361,874	181,379	1,411,721	2,512	1,572	4,084	
2007	358,944	0	68	0	706,947	0	296,498	1,003,444	1,970	0,826	2,796	
2008	157,279	1	31	249,436	208,990	75,127	115,275	648,828	2,915	1,211	4,125	
2009	128,202	0	27	0	116,127	0	82,071	198,198	0,906	0,640	1,546	
<b>MA Total:</b>	<b>1,316,815</b>	<b>9</b>	<b>270</b>	<b>1,403,410</b>	<b>1,666,893</b>	<b>825,993</b>	<b>855,705</b>	<b>4,752,002</b>	<b>2,332</b>	<b>1,277</b>	<b>3,609</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.748	1.424	.
(14) Massachusetts Credibility:	0.340	0.540	.
(15) Countrywide Pure Premium:	1.270	0.998	2.267
(16) Countrywide Indicated Relativity:	1.099	1.278	.
(17) Countrywide Credibility:	0.330	0.230	.
(18) Countrywide Lost-Time Claims:	389.00	.	.
(19) Pure Premium Underlying Present Rate:	1.193	1.093	2.286
(20) Relativity to Underlying Present Rate:	1.258	1.216	.
(21) Credibility to Underlying Relativity:	0.330	0.230	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.372	1.342	.
(24) Balanced Formula Relativity:	1.374	1.342	1.361

Class(es):		Effective: 9/1/2012							Manufacturing			
3188 PLUMBERS SUPPLIES 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)	
2005	10,812	1	2	40,177	114,233	4,471	24,891	183,772	14,281	2,716	16,997	
2006	12,879	0	1	0	0	0	264	264	0,000	0,021	0,021	
2007	16,132	0	3	0	0	0	1,729	1,729	0,000	0,107	0,107	
2008	14,764	0	0	0	0	0	0	0	0,000	0,000	0,000	
2009	18,914	0	5	0	16,368	0	15,459	31,828	0,865	0,817	1,683	
<b>MA Total:</b>	<b>73,500</b>	<b>1</b>	<b>11</b>	<b>40,177</b>	<b>130,601</b>	<b>4,471</b>	<b>42,344</b>	<b>217,593</b>	<b>2,324</b>	<b>0,637</b>	<b>2,960</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.741	0.710	.
(14) Massachusetts Credibility:	0.120	0.190	.
(15) Countrywide Pure Premium:	1.394	0.795	2.189
(16) Countrywide Indicated Relativity:	1.206	1.019	.
(17) Countrywide Credibility:	0.440	0.410	.
(18) Countrywide Lost-Time Claims:	406.00	.	.
(19) Pure Premium Underlying Present Rate:	1.668	1.457	3.125
(20) Relativity to Underlying Present Rate:	1.759	1.621	.
(21) Credibility to Underlying Relativity:	0.440	0.400	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.514	1.201	.
(24) Balanced Formula Relativity:	1.516	1.201	1.389

# IX 000128

## Calculation of Class Relativities

Class(es): 3200 ARMS MFG-SMALL		Effective: 9/1/2012							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)
2005	104,016	0	25	0	16,316	0	47,270	63,586	0.157	0.454	0.611
2006	133,299	1	22	12,937	140,943	9,940	83,604	247,424	1.154	0.702	1.856
2007	131,311	3	39	45,223	1,239	56,839	32,738	136,039	0.354	0.682	1.036
2008	107,681	1	41	15,643	111,526	621	142,312	270,102	1.181	1.327	2.508
2009	92,817	1	24	79,932	37,151	71,510	64,970	253,563	1.261	1.470	2.732
<b>MA Total:</b>	<b>569,124</b>	<b>6</b>	<b>151</b>	<b>153,736</b>	<b>307,174</b>	<b>138,909</b>	<b>370,895</b>	<b>970,714</b>	<b>0.810</b>	<b>0.896</b>	<b>1.706</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.607	0.999	.
(14) Massachusetts Credibility:	0.240	0.420	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	1.221	1.464	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	1.179	1.340	2.519
(20) Relativity to Underlying Present Rate:	1.244	1.491	.
(21) Credibility to Underlying Relativity:	0.760	0.580	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.091	1.284	.
(24) Balanced Formula Relativity:	1.092	1.284	1.169

Class(es): 3220 CAN MFG		Effective: 9/1/2012							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)
2005	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	80	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>80</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.010	0.010	.
(15) Countrywide Pure Premium:	1.470	0.773	2.243
(16) Countrywide Indicated Relativity:	1.272	0.991	.
(17) Countrywide Credibility:	0.500	0.500	.
(18) Countrywide Lost-Time Claims:	420.00	.	.
(19) Pure Premium Underlying Present Rate:	0.810	0.730	1.540
(20) Relativity to Underlying Present Rate:	0.854	0.813	.
(21) Credibility to Underlying Relativity:	0.490	0.490	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.055	0.894	.
(24) Balanced Formula Relativity:	1.056	0.894	0.991

# IX 000129

## Calculation of Class Relativities

Class(es): 3255 WIRE CLOTH MFG		Effective: 9/1/2012							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)
2005	29.409	0	8	0	42.253	0	30.977	73.229	1.437	1.053	2.490
2006	26.353	0	15	0	130.161	0	62.277	192.437	4.939	2.363	7.302
2007	31.692	0	20	0	25.422	0	28.111	53.533	0.802	0.887	1.689
2008	24.679	0	5	0	215.531	0	76.408	291.939	8.733	3.096	11.829
2009	2.614	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>114,747</b>	<b>0</b>	<b>48</b>	<b>0</b>	<b>413,366</b>	<b>0</b>	<b>197,772</b>	<b>611,139</b>	<b>3.602</b>	<b>1.724</b>	<b>5.326</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.700	1.921	.
(14) Massachusetts Credibility:	0.130	0.220	.
(15) Countrywide Pure Premium:	0.812	0.536	1.349
(16) Countrywide Indicated Relativity:	0.703	0.687	.
(17) Countrywide Credibility:	0.260	0.270	.
(18) Countrywide Lost-Time Claims:	38.000	.	.
(19) Pure Premium Underlying Present Rate:	1.348	1.395	2.743
(20) Relativity to Underlying Present Rate:	1.422	1.552	.
(21) Credibility to Underlying Relativity:	0.610	0.510	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.401	1.400	.
(24) Balanced Formula Relativity:	1.403	1.400	1.402

Class(es): 3257 WIRE GOODS MFG - NOC		Effective: 9/1/2012							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)
2005	96.164	2	26	279.094	155.880	275.863	44.587	755.425	4.523	3.332	7.856
2006	110.269	2	44	59.162	18.363	6.670	48.840	133.035	0.703	0.503	1.206
2007	148.064	1	32	69.633	235.683	59.541	72.731	437.588	2.062	0.893	2.955
2008	133.749	2	22	10.860	12.724	35.127	61.040	119.751	0.176	0.719	0.895
2009	178.347	0	24	0	479.274	0	143.446	622.720	2.687	0.804	3.492
<b>MA Total:</b>	<b>666,593</b>	<b>7</b>	<b>148</b>	<b>418,749</b>	<b>901,925</b>	<b>377,201</b>	<b>370,645</b>	<b>2,068,520</b>	<b>1.981</b>	<b>1.122</b>	<b>3.103</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.485	1.251	.
(14) Massachusetts Credibility:	0.260	0.450	.
(15) Countrywide Pure Premium:	1.440	1.063	2.503
(16) Countrywide Indicated Relativity:	1.246	1.362	.
(17) Countrywide Credibility:	0.370	0.280	.
(18) Countrywide Lost-Time Claims:	1238.0	.	.
(19) Pure Premium Underlying Present Rate:	1.241	1.371	2.612
(20) Relativity to Underlying Present Rate:	1.309	1.526	.
(21) Credibility to Underlying Relativity:	0.370	0.270	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.332	1.356	.
(24) Balanced Formula Relativity:	1.333	1.356	1.342

# IX 000130

## Calculation of Class Relativities

Class(es): 3270 EYELET MFG		Effective: 9/1/2012							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)
2005	17,190	1	7	99,399	15,798	13,016	17,675	145,888	6,701	1,785	8,487
2006	15,528	0	12	0	4,983	0	9,541	14,525	0,321	0,614	0,935
2007	14,547	0	9	0	10,039	0	13,437	23,476	0,690	0,924	1,614
2008	12,521	1	3	44,768	68,643	19,746	134,518	267,676	9,057	12,320	21,377
2009	10,527	0	2	0	0	0	291	291	0,000	0,028	0,028
<b>MA Total:</b>	<b>70,314</b>	<b>2</b>	<b>33</b>	<b>144,167</b>	<b>99,463</b>	<b>32,763</b>	<b>175,463</b>	<b>451,855</b>	<b>3,465</b>	<b>2,961</b>	<b>6,426</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.597	3.301	.
(14) Massachusetts Credibility:	0.090	0.140	.
(15) Countrywide Pure Premium:	1.407	0.870	2.277
(16) Countrywide Indicated Relativity:	1.218	1.115	.
(17) Countrywide Credibility:	0.460	0.430	.
(18) Countrywide Lost-Time Claims:	189.00	.	.
(19) Pure Premium Underlying Present Rate:	0.875	0.663	1.538
(20) Relativity to Underlying Present Rate:	0.922	0.738	.
(21) Credibility to Underlying Relativity:	0.450	0.430	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.209	1.259	.
(24) Balanced Formula Relativity:	1.211	1.259	1.230

Class(es): 3300 BED SPRING OR WIRE MATTRESS MFG		Effective: 9/1/2012							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)
2005	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	35	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	0	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>35</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.010	0.010	.
(15) Countrywide Pure Premium:	2.316	1.579	3.895
(16) Countrywide Indicated Relativity:	2.004	2.023	.
(17) Countrywide Credibility:	0.500	0.500	.
(18) Countrywide Lost-Time Claims:	307.00	.	.
(19) Pure Premium Underlying Present Rate:	3.148	2.473	5.621
(20) Relativity to Underlying Present Rate:	3.319	2.752	.
(21) Credibility to Underlying Relativity:	0.490	0.490	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	2.629	2.360	.
(24) Balanced Formula Relativity:	2.632	2.360	2.523

# IX 000131

## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	191,080	1	48	317,435	58,352	237,729	64,769	678,284	1,967	1,583	3,550
2006	189,664	2	62	521,691	70,422	104,755	102,475	799,343	3,122	1,093	4,215
2007	202,484	2	59	493,569	185,501	175,786	169,171	1,024,027	3,354	1,704	5,057
2008	194,736	0	52	0	85,498	0	108,918	194,416	0,439	0,559	0,998
2009	181,246	0	41	0	140,778	0	134,863	275,641	0,777	0,744	1,521
<b>MA Total:</b>	<b>959,210</b>	<b>5</b>	<b>262</b>	<b>1,332,695</b>	<b>540,551</b>	<b>518,269</b>	<b>580,195</b>	<b>2,971,710</b>	<b>1,953</b>	<b>1,145</b>	<b>3,098</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.464	1.277	.
(14) Massachusetts Credibility:	0.300	0.470	.
(15) Countrywide Pure Premium:	2.295	1.362	3.657
(16) Countrywide Indicated Relativity:	1.986	1.746	.
(17) Countrywide Credibility:	0.350	0.270	.
(18) Countrywide Lost-Time Claims:	196.00	.	.
(19) Pure Premium Underlying Present Rate:	1.267	1.047	2.314
(20) Relativity to Underlying Present Rate:	1.336	1.166	.
(21) Credibility to Underlying Relativity:	0.350	0.260	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.602	1.374	.
(24) Balanced Formula Relativity:	1.604	1.374	1.512

Class(es):		Effective: 9/1/2012							Manufacturing		
3336 TYPE FOUNDRY											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2005	6,111	0	1	0	0	0	281	281	0.000	0.046	0.046
2006	6,237	0	3	0	20,487	0	25,700	46,187	3.285	4.120	7.405
2007	5,509	0	2	0	199	0	2,222	2,421	0.036	0.403	0.439
2008	5,105	0	2	0	0	0	863	863	0.000	0.169	0.169
2009	5,555	0	1	0	123,564	0	31,598	155,162	22.245	5.689	27.934
<b>MA Total:</b>	<b>28,516</b>	<b>0</b>	<b>9</b>	<b>0</b>	<b>144,250</b>	<b>0</b>	<b>60,664</b>	<b>204,914</b>	<b>5.059</b>	<b>2.127</b>	<b>7.186</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.791	2.371	.
(14) Massachusetts Credibility:	0.070	0.130	.
(15) Countrywide Pure Premium:	2.201	1.151	3.352
(16) Countrywide Indicated Relativity:	1.905	1.475	.
(17) Countrywide Credibility:	0.470	0.440	.
(18) Countrywide Lost-Time Claims:	325.00	.	.
(19) Pure Premium Underlying Present Rate:	1.222	1.334	2.556
(20) Relativity to Underlying Present Rate:	1.288	1.485	.
(21) Credibility to Underlying Relativity:	0.460	0.430	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.753	1.596	.
(24) Balanced Formula Relativity:	1.756	1.596	1.691

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							Construction		
3365 WELDING OR CUTTING - 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)
2005	119,517	3	47	287,933	276,985	87,530	178,576	831,024	4,727	2,227	6,953
2006	119,208	4	38	192,763	478,641	49,241	235,714	956,359	5,632	2,390	8,023
2007	116,555	3	58	310,142	243,787	160,955	246,431	961,315	4,752	3,495	8,248
2008	108,322	1	34	52,883	480,989	30,929	218,186	782,987	4,929	2,300	7,228
2009	87,961	2	31	377,023	269,641	178,928	148,006	973,598	7,352	3,717	11,068
<b>MA Total:</b>	<b>551,563</b>	<b>13</b>	<b>208</b>	<b>1,220,745</b>	<b>1,750,043</b>	<b>507,583</b>	<b>1,026,913</b>	<b>4,505,284</b>	<b>5,386</b>	<b>2,782</b>	<b>8,168</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.525	1.370	.
(14) Massachusetts Credibility:	0.380	0.600	.
(15) Countrywide Pure Premium:	3.866	2.234	6.100
(16) Countrywide Indicated Relativity:	1.136	1.134	.
(17) Countrywide Credibility:	0.310	0.200	.
(18) Countrywide Lost-Time Claims:	1292.0	.	.
(19) Pure Premium Underlying Present Rate:	3.888	3.412	7.300
(20) Relativity to Underlying Present Rate:	1.720	1.762	.
(21) Credibility to Underlying Relativity:	0.310	0.200	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	1.465	1.401	.
(24) Balanced Formula Relativity:	1.493	1.407	1.462

Class(es):		Effective: 9/1/2012							Manufacturing		
3372 ELECTROPLATING											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2005	466,290	2	110	268,630	554,705	68,712	294,570	1,186,616	1,766	0,779	2,545
2006	488,909	1	110	25,169	886,398	3,498	853,531	1,768,597	1,864	1,753	3,617
2007	534,074	1	87	148,455	455,700	66,960	235,822	906,937	1,131	0,567	1,698
2008	526,428	3	64	376,197	158,508	145,918	223,891	904,514	1,016	0,702	1,718
2009	483,202	2	70	131,724	197,228	71,089	220,241	620,282	0,681	0,603	1,284
<b>MA Total:</b>	<b>2,498,903</b>	<b>9</b>	<b>441</b>	<b>950,176</b>	<b>2,252,539</b>	<b>356,176</b>	<b>1,828,055</b>	<b>5,386,946</b>	<b>1,282</b>	<b>0,874</b>	<b>2,156</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.961	0.974	.
(14) Massachusetts Credibility:	0.400	0.660	.
(15) Countrywide Pure Premium:	1.446	1.109	2.555
(16) Countrywide Indicated Relativity:	1.251	1.421	.
(17) Countrywide Credibility:	0.300	0.170	.
(18) Countrywide Lost-Time Claims:	1064.0	.	.
(19) Pure Premium Underlying Present Rate:	0.973	0.962	1.935
(20) Relativity to Underlying Present Rate:	1.026	1.071	.
(21) Credibility to Underlying Relativity:	0.300	0.170	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.067	1.067	.
(24) Balanced Formula Relativity:	1.069	1.066	1.068

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							Manufacturing			
3373 GALVANIZING OR TINNING - NOT ELECTROLYTIC												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2005	6,029	0	1	0	2,807	0	3,399	6,206	0.466	0.564	1,029	
2006	9,546	0	6	0	26,763	0	5,660	32,424	2.804	0.593	3,397	
2007	9,698	1	1	25,824	0	16,056	837	42,716	2.663	1.742	4,405	
2008	13,271	1	5	45,970	0	41,294	3,151	90,415	3.464	3.349	6,813	
2009	12,775	0	1	0	0	0	1,812	1,812	0.000	0.142	0.142	
<b>MA Total:</b>	<b>51,319</b>	<b>2</b>	<b>14</b>	<b>71,793</b>	<b>29,570</b>	<b>57,350</b>	<b>14,860</b>	<b>173,574</b>	<b>1.975</b>	<b>1.407</b>	<b>3,382</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.480	1.569	.
(14) Massachusetts Credibility:	0.110	0.150	.
(15) Countrywide Pure Premium:	3.686	2.845	6.531
(16) Countrywide Indicated Relativity:	3.190	3.646	.
(17) Countrywide Credibility:	0.420	0.430	.
(18) Countrywide Lost-Time Claims:	131.00	.	.
(19) Pure Premium Underlying Present Rate:	1.666	1.237	2.903
(20) Relativity to Underlying Present Rate:	1.757	1.377	.
(21) Credibility to Underlying Relativity:	0.470	0.420	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	2.328	2.381	.
(24) Balanced Formula Relativity:	2.332	2.381	2.351

Class(es):		Effective: 9/1/2012							Manufacturing			
3381 SILVERWARE 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)	
2005	68,237	0	14	0	107,994	0	171,939	279,933	1.583	2.520	4,102	
2006	59,783	0	18	0	170,802	0	54,146	224,948	2.857	0.906	3,763	
2007	44,590	0	7	0	0	0	6,896	6,896	0.000	0.155	0.155	
2008	40,669	0	9	0	143,962	0	74,759	218,721	3.540	1.838	5,378	
2009	14,226	0	3	0	13,047	0	6,573	19,620	0.917	0.462	1,379	
<b>MA Total:</b>	<b>227,506</b>	<b>0</b>	<b>51</b>	<b>0</b>	<b>435,804</b>	<b>0</b>	<b>314,313</b>	<b>750,117</b>	<b>1.916</b>	<b>1.382</b>	<b>3,297</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.436	1.540	.
(14) Massachusetts Credibility:	0.180	0.290	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	1.392	1.454	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	1.344	1.331	2.675
(20) Relativity to Underlying Present Rate:	1.418	1.481	.
(21) Credibility to Underlying Relativity:	0.820	0.710	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.421	1.498	.
(24) Balanced Formula Relativity:	1.423	1.498	1.453

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## Calculation of Class Relativities

Class(es): 3383 JEWELRY MFG		Effective: 9/1/2012							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)
2005	610.126	1	108	8.113	179.170	27.695	216.916	431.894	0.307	0.401	0.708
2006	582.775	3	93	32.276	547.501	43.469	366.688	989.935	0.995	0.704	1.699
2007	471.571	4	79	115.582	523.284	63.278	232.233	934.378	1.355	0.627	1.981
2008	422.756	0	62	0	75.190	0	219.995	295.184	0.178	0.520	0.698
2009	376.878	0	30	0	130.026	0	47.936	177.962	0.345	0.127	0.472
<b>MA Total:</b>	<b>2,464,106</b>	<b>8</b>	<b>372</b>	<b>155.972</b>	<b>1,455,171</b>	<b>134.442</b>	<b>1,083,768</b>	<b>2,829,353</b>	<b>0.654</b>	<b>0.494</b>	<b>1.148</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.490	0.551	.
(14) Massachusetts Credibility:	0.320	0.520	.
(15) Countrywide Pure Premium:	0.628	0.481	1.109
(16) Countrywide Indicated Relativity:	0.544	0.616	.
(17) Countrywide Credibility:	0.340	0.240	.
(18) Countrywide Lost-Time Claims:	487.00	.	.
(19) Pure Premium Underlying Present Rate:	0.581	0.526	1.107
(20) Relativity to Underlying Present Rate:	0.612	0.585	.
(21) Credibility to Underlying Relativity:	0.340	0.240	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.550	0.575	.
(24) Balanced Formula Relativity:	0.551	0.575	0.560

Class(es): 3385 WATCH MFG		Effective: 9/1/2012							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)
2005	27.084	0	4	0	2.868	0	3.830	6.698	0.106	0.141	0.247
2006	33.264	0	1	0	0	0	77	77	0.000	0.002	0.002
2007	36.363	0	2	0	82.407	0	61.966	144.373	2.266	1.704	3.970
2008	35.744	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	30.763	0	1	0	1.041	0	2.209	3.249	0.034	0.072	0.106
<b>MA Total:</b>	<b>163,217</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>86,316</b>	<b>0</b>	<b>68,081</b>	<b>154,397</b>	<b>0.529</b>	<b>0.417</b>	<b>0.946</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.396	0.465	.
(14) Massachusetts Credibility:	0.090	0.150	.
(15) Countrywide Pure Premium:	0.461	0.236	0.697
(16) Countrywide Indicated Relativity:	0.399	0.303	.
(17) Countrywide Credibility:	0.210	0.220	.
(18) Countrywide Lost-Time Claims:	23.000	.	.
(19) Pure Premium Underlying Present Rate:	0.376	0.366	0.742
(20) Relativity to Underlying Present Rate:	0.396	0.407	.
(21) Credibility to Underlying Relativity:	0.700	0.630	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.397	0.393	.
(24) Balanced Formula Relativity:	0.398	0.393	0.396

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## Calculation of Class Relativities

Class(es): 3507 CONSTRUCTION OR AGRICULTURAL MACHINERY MFG									Effective: 9/1/2012			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)			
2005	67,590	1	34	241,297	245,507	501,912	186,279	1,174,995	7,202	10,182	17,384			
2006	59,081	1	25	189,084	23,707	82,471	48,167	343,429	3,602	2,211	5,813			
2007	47,695	0	19	0	70,463	0	89,253	159,716	1,477	1,871	3,349			
2008	40,212	0	5	0	0	0	4,066	4,066	0.000	0.101	0.101			
2009	32,958	0	5	0	20,742	0	13,349	34,092	0.629	0.405	1.034			
<b>MA Total:</b>	<b>247,535</b>	<b>2</b>	<b>88</b>	<b>430,381</b>	<b>360,420</b>	<b>584,383</b>	<b>341,114</b>	<b>1,716,298</b>	<b>3.195</b>	<b>3.739</b>	<b>6.934</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.394	4.168	.
(14) Massachusetts Credibility:	0.190	0.320	.
(15) Countrywide Pure Premium:	1.750	1.140	2.890
(16) Countrywide Indicated Relativity:	1.515	1.461	.
(17) Countrywide Credibility:	0.410	0.340	.
(18) Countrywide Lost-Time Claims:	5314.0	.	.
(19) Pure Premium Underlying Present Rate:	1.563	1.544	3.108
(20) Relativity to Underlying Present Rate:	1.649	1.719	.
(21) Credibility to Underlying Relativity:	0.400	0.340	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.735	2.415	.
(24) Balanced Formula Relativity:	1.738	2.414	2.010

Class(es): 3515 TEXTILE MACHINERY MFG									Effective: 9/1/2012			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)			
2005	27,275	0	12	0	6,536	0	7,129	13,665	0.240	0.261	0.501			
2006	27,331	0	16	0	30,836	0	54,294	85,130	1.128	1.987	3.115			
2007	27,395	0	11	0	38,501	0	32,356	70,857	1.405	1.181	2.586			
2008	28,650	0	13	0	41,353	0	47,240	88,594	1.443	1.649	3.092			
2009	30,021	0	11	0	42,218	0	42,525	84,744	1.406	1.417	2.823			
<b>MA Total:</b>	<b>140,672</b>	<b>0</b>	<b>63</b>	<b>0</b>	<b>159,445</b>	<b>0</b>	<b>183,545</b>	<b>342,990</b>	<b>1.133</b>	<b>1.305</b>	<b>2.438</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.850	1.454	.
(14) Massachusetts Credibility:	0.130	0.230	.
(15) Countrywide Pure Premium:	1.424	0.776	2.200
(16) Countrywide Indicated Relativity:	1.232	0.995	.
(17) Countrywide Credibility:	0.310	0.330	.
(18) Countrywide Lost-Time Claims:	62,000	.	.
(19) Pure Premium Underlying Present Rate:	1.131	1.171	2.302
(20) Relativity to Underlying Present Rate:	1.193	1.303	.
(21) Credibility to Underlying Relativity:	0.560	0.440	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.160	1.236	.
(24) Balanced Formula Relativity:	1.162	1.236	1.192

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## Calculation of Class Relativities

Class(es): 3548 PRINTING OR BOOKBINDING MACHINE MFG		Effective: 9/1/2012							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)
2005	4,975,570	24	1,012	3,263,307	2,582,642	1,773,066	2,380,637	9,999,653	1,175	0,835	2,010
2006	4,962,727	24	864	2,601,627	2,326,968	1,511,212	2,784,654	9,224,461	0,993	0,866	1,859
2007	5,215,865	15	776	1,546,916	3,118,077	983,214	2,801,844	8,450,051	0,894	0,726	1,620
2008	5,027,679	23	626	2,576,870	3,325,574	1,191,428	2,336,921	9,430,793	1,174	0,702	1,876
2009	4,697,321	11	510	1,261,216	1,732,298	508,742	1,800,211	5,302,468	0,637	0,492	1,129
<b>MA Total:</b>	<b>24879161</b>	<b>97</b>	<b>3,788</b>	<b>11249936</b>	<b>13085560</b>	<b>5,967,663</b>	<b>12104268</b>	<b>42407427</b>	<b>0,978</b>	<b>0,726</b>	<b>1,705</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.733	0.810	.
(14) Massachusetts Credibility:	0.910	1.000	.
(15) Countrywide Pure Premium:	1.075	0.710	1.785
(16) Countrywide Indicated Relativity:	0.930	0.910	.
(17) Countrywide Credibility:	0.050	0.000	.
(18) Countrywide Lost-Time Claims:	20026	.	.
(19) Pure Premium Underlying Present Rate:	0.752	0.787	1.539
(20) Relativity to Underlying Present Rate:	0.793	0.876	.
(21) Credibility to Underlying Relativity:	0.040	0.000	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.745	0.810	.
(24) Balanced Formula Relativity:	0.746	0.810	0.772

Class(es): 3558 BOOT OR SHOE MACHINERY MFG		Effective: 9/1/2012							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)
2005	10,887	0	1	0	0	0	552	552	0.000	0.051	0.051
2006	11,768	0	3	0	204,314	0	48,438	252,752	17,362	4,116	21,478
2007	15,352	0	1	0	0	0	258	258	0.000	0.017	0.017
2008	11,008	0	2	0	0	0	772	772	0.000	0.070	0.070
2009	13,164	0	5	0	0	0	2,494	2,494	0.000	0.189	0.189
<b>MA Total:</b>	<b>62,178</b>	<b>0</b>	<b>12</b>	<b>0</b>	<b>204,314</b>	<b>0</b>	<b>52,513</b>	<b>256,827</b>	<b>3,286</b>	<b>0,845</b>	<b>4,130</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.463	0.941	.
(14) Massachusetts Credibility:	0.060	0.110	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	0.342	0.475	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	0.331	0.434	0.765
(20) Relativity to Underlying Present Rate:	0.349	0.483	.
(21) Credibility to Underlying Relativity:	0.940	0.890	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.476	0.534	.
(24) Balanced Formula Relativity:	0.476	0.534	0.499

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	8,326	0	1	0	0	0	2,214	2,214	0.000	0.266	0.266
2006	8,092	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	5,239	0	1	0	0	0	678	678	0.000	0.129	0.129
2008	5,082	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	4,207	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>30,947</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2,892</b>	<b>2,892</b>	<b>0.000</b>	<b>0.093</b>	<b>0.093</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.104	.
(14) Massachusetts Credibility:	0.050	0.090	.
(15) Countrywide Pure Premium:	0.005	0.028	0.032
(16) Countrywide Indicated Relativity:	0.004	0.036	.
(17) Countrywide Credibility:	0.060	0.060	.
(18) Countrywide Lost-Time Claims:	1.000	.	.
(19) Pure Premium Underlying Present Rate:	0.515	0.471	0.985
(20) Relativity to Underlying Present Rate:	0.543	0.524	.
(21) Credibility to Underlying Relativity:	0.890	0.850	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.483	0.457	.
(24) Balanced Formula Relativity:	0.484	0.457	0.473

Class(es):		Effective: 9/1/2012							Manufacturing		
3612 PUMP 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)
2005	170,008	0	18	0	519,269	0	182,015	701,284	3,054	1,071	4,125
2006	173,395	1	34	204,938	57,989	158,810	72,683	494,420	1,516	1,335	2,851
2007	202,130	0	35	0	220,565	0	99,662	320,227	1,091	0,493	1,584
2008	221,707	1	23	258,613	89,656	34,789	127,429	510,487	1,571	0,732	2,303
2009	144,719	0	16	0	27,085	0	18,272	45,357	0,187	0,126	0,313
<b>MA Total:</b>	<b>911,959</b>	<b>2</b>	<b>126</b>	<b>463,551</b>	<b>914,564</b>	<b>193,599</b>	<b>500,062</b>	<b>2,071,775</b>	<b>1,511</b>	<b>0,761</b>	<b>2,272</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.133	0.848	.
(14) Massachusetts Credibility:	0.250	0.400	.
(15) Countrywide Pure Premium:	1.109	0.763	1.872
(16) Countrywide Indicated Relativity:	0.960	0.978	.
(17) Countrywide Credibility:	0.380	0.300	.
(18) Countrywide Lost-Time Claims:	1625.0	.	.
(19) Pure Premium Underlying Present Rate:	0.813	0.743	1.556
(20) Relativity to Underlying Present Rate:	0.857	0.826	.
(21) Credibility to Underlying Relativity:	0.370	0.300	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.965	0.880	.
(24) Balanced Formula Relativity:	0.966	0.880	0.932

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## Calculation of Class Relativities

Class(es): 3620 BOILERMAKING		Effective: 9/1/2012							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)
2005	119,070	2	49	277,802	492,668	204,876	256,464	1,231,810	6,471	3,875	10,345
2006	130,656	0	54	0	122,526	0	131,029	253,555	0,938	1,003	1,941
2007	114,189	1	36	160,030	325,902	33,078	276,521	795,531	4,256	2,711	6,967
2008	116,661	1	40	29,483	731,812	17,741	428,096	1,207,132	6,526	3,822	10,347
2009	99,805	0	25	0	305,552	0	120,200	425,752	3,061	1,204	4,266
<b>MA Total:</b>	<b>580,381</b>	<b>4</b>	<b>204</b>	<b>467,316</b>	<b>1,978,460</b>	<b>255,696</b>	<b>1,212,309</b>	<b>3,913,781</b>	<b>4,214</b>	<b>2,529</b>	<b>6,743</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.159	2.820	.
(14) Massachusetts Credibility:	0.300	0.490	.
(15) Countrywide Pure Premium:	2.297	1.359	3.656
(16) Countrywide Indicated Relativity:	1.988	1.742	.
(17) Countrywide Credibility:	0.350	0.260	.
(18) Countrywide Lost-Time Claims:	1683.0	.	.
(19) Pure Premium Underlying Present Rate:	1.950	1.958	3.908
(20) Relativity to Underlying Present Rate:	2.056	2.179	.
(21) Credibility to Underlying Relativity:	0.350	0.250	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	2.363	2.379	.
(24) Balanced Formula Relativity:	2.366	2.379	2.371

Class(es): 3634 VALVE MFG		Effective: 9/1/2012							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)
2005	240,350	0	44	0	138,461	0	146,625	285,086	0,576	0,610	1,186
2006	248,814	2	46	114,226	20,882	15,888	60,431	211,428	0,543	0,307	0,850
2007	241,420	3	52	54,419	316,153	12,763	115,435	498,771	1,535	0,531	2,066
2008	231,025	3	27	23,413	107,443	7,993	87,077	225,926	0,566	0,412	0,978
2009	183,161	2	19	135,110	126,123	167,951	54,386	483,570	1,426	1,214	2,640
<b>MA Total:</b>	<b>1,144,771</b>	<b>10</b>	<b>188</b>	<b>327,168</b>	<b>709,062</b>	<b>204,596</b>	<b>463,954</b>	<b>1,704,780</b>	<b>0,905</b>	<b>0,584</b>	<b>1,489</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.678	0.651	.
(14) Massachusetts Credibility:	0.280	0.410	.
(15) Countrywide Pure Premium:	0.959	0.647	1.605
(16) Countrywide Indicated Relativity:	0.830	0.829	.
(17) Countrywide Credibility:	0.360	0.300	.
(18) Countrywide Lost-Time Claims:	888.00	.	.
(19) Pure Premium Underlying Present Rate:	0.855	0.655	1.509
(20) Relativity to Underlying Present Rate:	0.901	0.728	.
(21) Credibility to Underlying Relativity:	0.360	0.290	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.813	0.727	.
(24) Balanced Formula Relativity:	0.814	0.727	0.779

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## Calculation of Class Relativities

Class(es): 3635 GEAR MFG OR GRINDING		Effective: 9/1/2012							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)
2005	190.631	2	90	10.078	408.389	55.273	466.979	940.719	2.195	2.740	4.935
2006	192.832	5	65	561.806	309.500	206.015	246.177	1,323.498	4.518	2.345	6.863
2007	225.603	2	59	390.230	198.848	479.368	149.127	1,217.573	2.611	2.786	5.397
2008	214.142	1	33	361	242.869	1.900	351.997	597.128	1.136	1.653	2.788
2009	183.901	1	41	169.359	87.449	129.688	85.387	471.883	1.396	1.170	2.566
<b>MA Total:</b>	<b>1,007,108</b>	<b>11</b>	<b>288</b>	<b>1,131,835</b>	<b>1,247,055</b>	<b>872,243</b>	<b>1,299,667</b>	<b>4,550,800</b>	<b>2.362</b>	<b>2.157</b>	<b>4.519</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.770	2.404	.
(14) Massachusetts Credibility:	0.330	0.590	.
(15) Countrywide Pure Premium:	1.207	0.796	2.003
(16) Countrywide Indicated Relativity:	1.045	1.021	.
(17) Countrywide Credibility:	0.340	0.210	.
(18) Countrywide Lost-Time Claims:	566.00	.	.
(19) Pure Premium Underlying Present Rate:	1.510	1.834	3.344
(20) Relativity to Underlying Present Rate:	1.592	2.041	.
(21) Credibility to Underlying Relativity:	0.330	0.200	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.465	2.041	.
(24) Balanced Formula Relativity:	1.467	2.040	1.697

Class(es): 3642 BATTERY MFG-DRY		Effective: 9/1/2012							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)
2005	60.120	2	4	190.679	1.049	64.633	5.244	261.605	3.189	1.162	4.351
2006	77.422	1	9	47.522	754	14.229	10.733	73.238	0.624	0.322	0.946
2007	139.062	0	8	0	25.310	0	17.300	42.610	0.182	0.124	0.306
2008	138.486	0	5	0	47.922	0	5.255	53.176	0.346	0.038	0.384
2009	146.316	1	7	13.190	645.491	3.586	218.348	880.614	4.502	1.517	6.019
<b>MA Total:</b>	<b>561.406</b>	<b>4</b>	<b>33</b>	<b>251.391</b>	<b>720.525</b>	<b>82.447</b>	<b>256.880</b>	<b>1,311,243</b>	<b>1.731</b>	<b>0.604</b>	<b>2.336</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.298	0.674	.
(14) Massachusetts Credibility:	0.170	0.240	.
(15) Countrywide Pure Premium:	0.729	0.527	1.256
(16) Countrywide Indicated Relativity:	0.631	0.675	.
(17) Countrywide Credibility:	0.360	0.380	.
(18) Countrywide Lost-Time Claims:	87.000	.	.
(19) Pure Premium Underlying Present Rate:	0.514	0.338	0.852
(20) Relativity to Underlying Present Rate:	0.542	0.376	.
(21) Credibility to Underlying Relativity:	0.470	0.380	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.702	0.561	.
(24) Balanced Formula Relativity:	0.703	0.561	0.646

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## Calculation of Class Relativities

Class(es): 3647 BATTERY MFG-STORAGE		Effective: 9/1/2012							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)
2005	4,103	0	1	0	1,064	0	274	1,339	0.259	0.067	0.326
2006	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	839	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	334	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>5,276</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1,064</b>	<b>0</b>	<b>274</b>	<b>1,339</b>	<b>0.202</b>	<b>0.052</b>	<b>0.254</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.151	0.058	.
(14) Massachusetts Credibility:	0.040	0.060	.
(15) Countrywide Pure Premium:	1.196	0.831	2.028
(16) Countrywide Indicated Relativity:	1.035	1.065	.
(17) Countrywide Credibility:	0.480	0.470	.
(18) Countrywide Lost-Time Claims:	452.00	.	.
(19) Pure Premium Underlying Present Rate:	1.155	1.077	2.232
(20) Relativity to Underlying Present Rate:	1.219	1.198	.
(21) Credibility to Underlying Relativity:	0.480	0.470	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.088	1.067	.
(24) Balanced Formula Relativity:	1.089	1.067	1.080

Class(es): 3648 AUTOMOTIVE LIGHTING, IGNITION APPARATUS MFG NOC		Effective: 9/1/2012							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)
2005	1,720	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	2,479	0	1	0	0	0	1,205	1,205	0.000	0.486	0.486
2007	848	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	257	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	383	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>5,687</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,205</b>	<b>1,205</b>	<b>0.000</b>	<b>0.212</b>	<b>0.212</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.236	.
(14) Massachusetts Credibility:	0.030	0.050	.
(15) Countrywide Pure Premium:	0.761	0.512	1.274
(16) Countrywide Indicated Relativity:	0.659	0.657	.
(17) Countrywide Credibility:	0.490	0.480	.
(18) Countrywide Lost-Time Claims:	466.00	.	.
(19) Pure Premium Underlying Present Rate:	0.639	0.753	1.391
(20) Relativity to Underlying Present Rate:	0.673	0.838	.
(21) Credibility to Underlying Relativity:	0.480	0.470	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.646	0.721	.
(24) Balanced Formula Relativity:	0.647	0.721	0.677

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## Calculation of Class Relativities

Class(es): 3681 TELEVISION, RADIO, TELEPHONE OR TELECOMMUNCTN DEVICE MFG NOC									Effective: 9/1/2012			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)			
2005	8,955,512	26	746	1,704,243	2,505,871	1,416,739	1,946,706	7,573,559	0.470	0.376	0.846			
2006	9,128,448	27	729	2,302,087	2,106,170	1,344,543	1,890,916	7,643,717	0.483	0.354	0.837			
2007	9,900,313	19	657	2,123,322	3,075,190	1,319,392	1,980,825	8,498,729	0.525	0.333	0.858			
2008	10185500	16	564	1,244,446	2,381,403	807,840	1,801,977	6,235,666	0.356	0.256	0.612			
2009	8,984,679	13	474	995,898	2,504,608	888,946	1,977,678	6,367,131	0.390	0.319	0.709			
<b>MA Total:</b>	<b>47154452</b>	<b>101</b>	<b>3,170</b>	<b>8,369,997</b>	<b>12573243</b>	<b>5,777,459</b>	<b>9,598,102</b>	<b>36318801</b>	<b>0.444</b>	<b>0.326</b>	<b>0.770</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.333	0.363	.
(14) Massachusetts Credibility:	0.840	1.000	.
(15) Countrywide Pure Premium:	0.480	0.356	0.835
(16) Countrywide Indicated Relativity:	0.415	0.456	.
(17) Countrywide Credibility:	0.080	0.000	.
(18) Countrywide Lost-Time Claims:	5739.0	.	.
(19) Pure Premium Underlying Present Rate:	0.327	0.320	0.647
(20) Relativity to Underlying Present Rate:	0.345	0.356	.
(21) Credibility to Underlying Relativity:	0.080	0.000	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.340	0.363	.
(24) Balanced Formula Relativity:	0.341	0.363	0.350

Class(es): 3724 MACHINERY OR EQUIPMENT ERECT OR REPAIR NOC &DR									Effective: 9/1/2012			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)			
2005	1,939,949	19	611	1,801,721	3,326,734	638,864	2,623,641	8,390,960	2.644	1.682	4.325			
2006	2,004,481	16	454	1,361,835	3,689,040	1,585,654	2,058,196	8,694,724	2.520	1.818	4.338			
2007	2,124,991	21	428	3,111,817	2,997,335	1,978,165	2,007,197	10,094,514	2.875	1.875	4.750			
2008	2,062,967	12	327	2,261,286	2,483,270	813,302	1,945,392	7,503,250	2.300	1.337	3.637			
2009	1,981,405	8	330	990,996	3,638,120	1,041,425	2,649,964	8,320,504	2.336	1.863	4.199			
<b>MA Total:</b>	<b>10113793</b>	<b>76</b>	<b>2,150</b>	<b>9,527,654</b>	<b>16134499</b>	<b>6,057,410</b>	<b>11284389</b>	<b>43003952</b>	<b>2.537</b>	<b>1.715</b>	<b>4.252</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.718	0.844	.
(14) Massachusetts Credibility:	0.940	1.000	.
(15) Countrywide Pure Premium:	2.857	1.568	4.425
(16) Countrywide Indicated Relativity:	0.840	0.796	.
(17) Countrywide Credibility:	0.030	0.000	.
(18) Countrywide Lost-Time Claims:	8726.0	.	.
(19) Pure Premium Underlying Present Rate:	2.022	1.765	3.786
(20) Relativity to Underlying Present Rate:	0.894	0.911	.
(21) Credibility to Underlying Relativity:	0.030	0.000	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	0.727	0.844	.
(24) Balanced Formula Relativity:	0.741	0.848	0.780

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	55,484	2	8	572,538	26,350	128,916	14,376	742,180	10,794	2,583	13,377
2006	75,635	1	24	636,107	434,711	211,242	364,173	1,646,232	14,158	7,608	21,766
2007	143,043	3	93	832,208	1,557,501	272,394	640,384	3,302,487	16,706	6,381	23,087
2008	36,369	0	16	0	112,014	0	85,148	197,162	3,080	2,341	5,421
2009	28,919	0	8	0	2,959	0	19,498	22,456	0,102	0,674	0,777
<b>MA Total:</b>	<b>339,450</b>	<b>6</b>	<b>149</b>	<b>2,040,853</b>	<b>2,133,534</b>	<b>612,552</b>	<b>1,123,579</b>	<b>5,910,517</b>	<b>12,298</b>	<b>5,115</b>	<b>17,412</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.481	2.518	.
(14) Massachusetts Credibility:	0.410	0.550	.
(15) Countrywide Pure Premium:	3.507	1.696	5.204
(16) Countrywide Indicated Relativity:	1.031	0.861	.
(17) Countrywide Credibility:	0.300	0.230	.
(18) Countrywide Lost-Time Claims:	803.00	.	.
(19) Pure Premium Underlying Present Rate:	7.451	4.471	11.922
(20) Relativity to Underlying Present Rate:	3.296	2.309	.
(21) Credibility to Underlying Relativity:	0.290	0.220	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	2.693	2.091	.
(24) Balanced Formula Relativity:	2.745	2.100	2.510

Class(es):		Effective: 9/1/2012							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)
2005	99,525	2	40	159,953	218,793	326,320	90,879	795,945	3,806	4,192	7,997
2006	124,212	1	64	64,567	74,444	130,309	149,601	418,922	1,119	2,253	3,373
2007	166,326	1	45	104,514	433,571	15,798	217,398	771,281	3,235	1,402	4,637
2008	125,956	0	43	0	7,655	0	72,491	80,146	0,061	0,576	0,636
2009	101,095	1	35	200,945	246,113	72,641	206,984	726,682	4,422	2,766	7,188
<b>MA Total:</b>	<b>617,113</b>	<b>5</b>	<b>227</b>	<b>529,979</b>	<b>980,576</b>	<b>545,068</b>	<b>737,353</b>	<b>2,792,976</b>	<b>2,448</b>	<b>2,078</b>	<b>4,526</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.835	2.317	.
(14) Massachusetts Credibility:	0.280	0.470	.
(15) Countrywide Pure Premium:	1.916	0.963	2.879
(16) Countrywide Indicated Relativity:	1.658	1.234	.
(17) Countrywide Credibility:	0.360	0.270	.
(18) Countrywide Lost-Time Claims:	3493.0	.	.
(19) Pure Premium Underlying Present Rate:	1.551	1.636	3.187
(20) Relativity to Underlying Present Rate:	1.636	1.820	.
(21) Credibility to Underlying Relativity:	0.360	0.260	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.700	1.895	.
(24) Balanced Formula Relativity:	1.702	1.895	1.780

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## Calculation of Class Relativities

Class(es): 3821 AUTOMOBILE DISMANTLING & DRIVERS		Effective: 9/1/2012							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)
2005	186,711	4	44	216,398	174,214	111,644	152,622	654,877	2,092	1,415	3,507
2006	179,321	1	21	38,841	79,466	17,945	136,527	272,779	0,660	0,861	1,521
2007	189,715	4	47	173,883	304,185	289,488	181,870	949,426	2,520	2,485	5,004
2008	157,743	2	46	861,507	258,402	388,641	277,730	1,786,280	7,100	4,224	11,324
2009	169,410	1	43	158,210	94,566	55,352	92,935	401,064	1,492	0,875	2,367
<b>MA Total:</b>	<b>882,901</b>	<b>12</b>	<b>201</b>	<b>1,448,840</b>	<b>910,834</b>	<b>863,070</b>	<b>841,684</b>	<b>4,064,428</b>	<b>2,673</b>	<b>1,931</b>	<b>4,603</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.494	2.488	.
(14) Massachusetts Credibility:	0.330	0.520	.
(15) Countrywide Pure Premium:	2.815	2.097	4.912
(16) Countrywide Indicated Relativity:	2.656	2.716	.
(17) Countrywide Credibility:	0.340	0.240	.
(18) Countrywide Lost-Time Claims:	899.00	.	.
(19) Pure Premium Underlying Present Rate:	1.733	1.494	3.227
(20) Relativity to Underlying Present Rate:	2.537	2.101	.
(21) Credibility to Underlying Relativity:	0.330	0.240	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	2.563	2.449	.
(24) Balanced Formula Relativity:	2.553	2.448	2.509

Class(es): 3826 AIRCRAFT ENGINE MFG		Effective: 9/1/2012							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)
2005	1,200,915	14	168	803,754	3,316,119	370,292	2,583,046	7,073,211	3,431	2,459	5,890
2006	1,847,358	19	288	1,915,536	3,133,033	1,118,251	2,217,547	8,384,367	2,733	1,806	4,539
2007	1,695,927	23	274	2,101,511	2,846,124	1,100,160	1,911,948	7,959,743	2,917	1,776	4,693
2008	1,737,983	18	297	1,158,134	3,688,940	942,048	2,201,298	7,990,420	2,789	1,809	4,598
2009	2,080,754	18	267	3,728,151	3,940,619	1,058,387	2,255,769	10,982,926	3,686	1,593	5,278
<b>MA Total:</b>	<b>8,562,936</b>	<b>92</b>	<b>1,294</b>	<b>9,707,086</b>	<b>16,924,835</b>	<b>4,589,137</b>	<b>11,169,609</b>	<b>42,390,667</b>	<b>3,110</b>	<b>1,840</b>	<b>4,950</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.331	2.051	.
(14) Massachusetts Credibility:	0.860	1.000	.
(15) Countrywide Pure Premium:	0.636	0.290	0.926
(16) Countrywide Indicated Relativity:	0.550	0.371	.
(17) Countrywide Credibility:	0.070	0.000	.
(18) Countrywide Lost-Time Claims:	395.00	.	.
(19) Pure Premium Underlying Present Rate:	1.921	1.959	3.880
(20) Relativity to Underlying Present Rate:	2.026	2.180	.
(21) Credibility to Underlying Relativity:	0.070	0.000	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	2.185	2.051	.
(24) Balanced Formula Relativity:	2.188	2.051	2.133

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	81,180	0	13	0	13,176	0	63,016	76,192	0.162	0.776	0.939
2006	83,346	1	21	128,653	42,875	50,805	57,521	279,855	2.058	1.300	3.358
2007	86,218	1	13	36,166	4,669	27,945	17,052	85,833	0.474	0.522	0.996
2008	69,215	3	10	180,696	0	134,318	16,329	331,344	2.611	2.176	4.787
2009	56,231	0	7	0	66,956	0	16,271	83,226	1.191	0.289	1.480
<b>MA Total:</b>	<b>376,190</b>	<b>5</b>	<b>64</b>	<b>345,516</b>	<b>127,676</b>	<b>213,069</b>	<b>170,189</b>	<b>856,449</b>	<b>1.258</b>	<b>1.019</b>	<b>2.277</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.943	1.136	.
(14) Massachusetts Credibility:	0.170	0.270	.
(15) Countrywide Pure Premium:	0.705	0.558	1.263
(16) Countrywide Indicated Relativity:	0.610	0.715	.
(17) Countrywide Credibility:	0.260	0.280	.
(18) Countrywide Lost-Time Claims:	40,000	.	.
(19) Pure Premium Underlying Present Rate:	0.744	0.706	1.450
(20) Relativity to Underlying Present Rate:	0.784	0.786	.
(21) Credibility to Underlying Relativity:	0.570	0.450	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.766	0.860	.
(24) Balanced Formula Relativity:	0.767	0.860	0.804

Class(es):		Effective: 9/1/2012							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)
2005	407,617	1	58	1,161	514,520	745	258,581	775,007	1.265	0.636	1.901
2006	358,742	5	62	506,016	447,030	154,611	259,050	1,366,707	2.657	1.153	3.810
2007	335,881	3	43	417,490	57,001	70,608	73,182	618,280	1.413	0.428	1.841
2008	301,234	1	34	32,474	458,299	30,035	381,866	902,673	1.629	1.367	2.997
2009	285,882	1	45	345,582	395,126	218,431	287,128	1,246,267	2.591	1.768	4.359
<b>MA Total:</b>	<b>1,689,356</b>	<b>11</b>	<b>242</b>	<b>1,302,723</b>	<b>1,871,976</b>	<b>474,429</b>	<b>1,259,806</b>	<b>4,908,934</b>	<b>1.879</b>	<b>1.027</b>	<b>2.906</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.582	0.482	.
(14) Massachusetts Credibility:	0.470	0.720	.
(15) Countrywide Pure Premium:	3.913	2.590	6.503
(16) Countrywide Indicated Relativity:	1.291	1.307	.
(17) Countrywide Credibility:	0.270	0.140	.
(18) Countrywide Lost-Time Claims:	1289.0	.	.
(19) Pure Premium Underlying Present Rate:	2.092	1.745	3.837
(20) Relativity to Underlying Present Rate:	1.073	0.904	.
(21) Credibility to Underlying Relativity:	0.260	0.140	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	0.901	0.657	.
(24) Balanced Formula Relativity:	0.883	0.646	0.789

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Section IX - Classification Pricing  
 Subsection G - Class Relativities  
 9/1/2012

Section IX - G  
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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	13.886	0	6	0	11.560	0	9.467	21.027	0.833	0.682	1.514
2006	13.618	1	7	8.197	209.613	6.574	84.864	309.248	15.994	6.714	22.709
2007	12.941	0	5	0	3.410	0	6.669	10.079	0.263	0.515	0.779
2008	12.088	0	4	0	6.583	0	22.436	29.019	0.545	1.856	2.401
2009	11.541	0	6	0	0	0	4.309	4.309	0.000	0.373	0.373
<b>MA Total:</b>	<b>64.074</b>	<b>1</b>	<b>28</b>	<b>8.197</b>	<b>231.165</b>	<b>6.574</b>	<b>127.745</b>	<b>373.681</b>	<b>3.736</b>	<b>2.096</b>	<b>5.832</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.800	2.337	.
(14) Massachusetts Credibility:	0.120	0.210	.
(15) Countrywide Pure Premium:	2.916	1.774	4.691
(16) Countrywide Indicated Relativity:	2.524	2.274	.
(17) Countrywide Credibility:	0.440	0.400	.
(18) Countrywide Lost-Time Claims:	456.00	.	.
(19) Pure Premium Underlying Present Rate:	1.950	2.028	3.979
(20) Relativity to Underlying Present Rate:	2.056	2.257	.
(21) Credibility to Underlying Relativity:	0.440	0.390	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	2.351	2.281	.
(24) Balanced Formula Relativity:	2.355	2.280	2.325

Class(es):		Effective: 9/1/2012							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)
2005	1.142	0	1	0	0	0	332	332	0.000	0.290	0.290
2006	1.066	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	6.851	0	1	0	750	0	2.347	3.097	0.109	0.343	0.452
2008	7.098	0	2	0	0	0	2.362	2.362	0.000	0.333	0.333
2009	4.923	0	1	0	0	0	1.228	1.228	0.000	0.249	0.249
<b>MA Total:</b>	<b>21.080</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>750</b>	<b>0</b>	<b>6.269</b>	<b>7.018</b>	<b>0.036</b>	<b>0.297</b>	<b>0.333</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.027	0.331	.
(14) Massachusetts Credibility:	0.070	0.100	.
(15) Countrywide Pure Premium:	2.689	1.707	4.395
(16) Countrywide Indicated Relativity:	2.327	2.187	.
(17) Countrywide Credibility:	0.460	0.450	.
(18) Countrywide Lost-Time Claims:	169.00	.	.
(19) Pure Premium Underlying Present Rate:	1.544	0.967	2.511
(20) Relativity to Underlying Present Rate:	1.628	1.076	.
(21) Credibility to Underlying Relativity:	0.470	0.450	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.838	1.502	.
(24) Balanced Formula Relativity:	1.840	1.501	1.704

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	266.009	2	123	79.048	280.930	15.050	200.534	575.562	1.353	0.810	2.164
2006	279.101	1	127	96.743	198.995	227.150	387.683	910.571	1.060	2.203	3.263
2007	273.304	4	100	456.293	938.118	329.163	627.721	2,351.295	5.102	3.501	8.603
2008	272.949	0	128	0	258.437	0	324.387	582.824	0.947	1.188	2.135
2009	251.380	1	61	675.644	411.344	352.451	302.851	1,742.291	4.324	2.607	6.931
<b>MA Total:</b>	<b>1,342.743</b>	<b>8</b>	<b>539</b>	<b>1,307.728</b>	<b>2,087.823</b>	<b>923.814</b>	<b>1,843.177</b>	<b>6,162.542</b>	<b>2.529</b>	<b>2.061</b>	<b>4.590</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.895	2.297	.
(14) Massachusetts Credibility:	0.440	0.720	.
(15) Countrywide Pure Premium:	3.448	2.207	5.654
(16) Countrywide Indicated Relativity:	2.984	2.828	.
(17) Countrywide Credibility:	0.280	0.140	.
(18) Countrywide Lost-Time Claims:	3392.0	.	.
(19) Pure Premium Underlying Present Rate:	2.261	2.233	4.495
(20) Relativity to Underlying Present Rate:	2.385	2.485	.
(21) Credibility to Underlying Relativity:	0.280	0.140	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	2.337	2.398	.
(24) Balanced Formula Relativity:	2.340	2.397	2.363

Class(es):		Effective: 9/1/2012							Manufacturing		
4036 PLASTERBOARD OR PLASTER BLOCK 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)
2005	60.810	0	4	0	3.103	0	3.620	6.723	0.051	0.060	0.111
2006	61.315	1	6	341.612	24.487	154.612	45.015	565.725	5.971	3.256	9.227
2007	58.662	1	3	224.827	311.277	93.054	64.848	694.006	9.139	2.692	11.831
2008	21.901	0	1	0	0	0	1.645	0.000	0.000	0.075	0.075
2009	6.951	0	1	0	0	0	426	426	0.000	0.061	0.061
<b>MA Total:</b>	<b>209.639</b>	<b>2</b>	<b>15</b>	<b>566.439</b>	<b>338.866</b>	<b>247.666</b>	<b>115.554</b>	<b>1,268.524</b>	<b>4.318</b>	<b>1.733</b>	<b>6.051</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.237	1.931	.
(14) Massachusetts Credibility:	0.180	0.250	.
(15) Countrywide Pure Premium:	1.439	0.813	2.252
(16) Countrywide Indicated Relativity:	1.245	1.042	.
(17) Countrywide Credibility:	0.410	0.380	.
(18) Countrywide Lost-Time Claims:	353.00	.	.
(19) Pure Premium Underlying Present Rate:	1.459	0.971	2.430
(20) Relativity to Underlying Present Rate:	1.539	1.081	.
(21) Credibility to Underlying Relativity:	0.410	0.370	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.724	1.279	.
(24) Balanced Formula Relativity:	1.726	1.278	1.546

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							Manufacturing		
4038 PLASTER STATUARY OR ORNAMENT 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)
2005	30.722	0	3	0	0	0	1.472	1.472	0.000	0.048	0.048
2006	27.784	0	2	0	512	0	1.054	1.566	0.018	0.038	0.056
2007	27.978	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	24.290	0	4	0	176.395	0	84.687	261.082	7.262	3.487	10.749
2009	19.296	0	1	0	0	0	544	544	0.000	0.028	0.028
<b>MA Total:</b>	<b>130.069</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>176.907</b>	<b>0</b>	<b>87.757</b>	<b>264.664</b>	<b>1.360</b>	<b>0.675</b>	<b>2.035</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.019	0.752	.
(14) Massachusetts Credibility:	0.130	0.190	.
(15) Countrywide Pure Premium:	0.900	0.700	1.601
(16) Countrywide Indicated Relativity:	0.779	0.897	.
(17) Countrywide Credibility:	0.320	0.340	.
(18) Countrywide Lost-Time Claims:	68.000	.	.
(19) Pure Premium Underlying Present Rate:	1.099	0.803	1.902
(20) Relativity to Underlying Present Rate:	1.159	0.894	.
(21) Credibility to Underlying Relativity:	0.550	0.470	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.019	0.868	.
(24) Balanced Formula Relativity:	1.021	0.868	0.959

Class(es):		Effective: 9/1/2012							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)
2005	45.730	0	7	0	218	0	7.350	7.568	0.005	0.161	0.165
2006	40.264	0	2	0	0	0	8.107	8.107	0.000	0.201	0.201
2007	41.152	0	4	0	12.837	0	28.261	41.098	0.312	0.687	0.999
2008	37.431	0	5	0	49.575	0	18.595	68.169	1.324	0.497	1.821
2009	38.343	0	3	0	9.067	0	21.031	30.097	0.236	0.548	0.785
<b>MA Total:</b>	<b>202.922</b>	<b>0</b>	<b>21</b>	<b>0</b>	<b>71.697</b>	<b>0</b>	<b>83.344</b>	<b>155.040</b>	<b>0.353</b>	<b>0.411</b>	<b>0.764</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.265	0.458	.
(14) Massachusetts Credibility:	0.150	0.220	.
(15) Countrywide Pure Premium:	1.417	0.886	2.303
(16) Countrywide Indicated Relativity:	1.226	1.136	.
(17) Countrywide Credibility:	0.300	0.320	.
(18) Countrywide Lost-Time Claims:	59.000	.	.
(19) Pure Premium Underlying Present Rate:	0.941	0.743	1.684
(20) Relativity to Underlying Present Rate:	0.992	0.827	.
(21) Credibility to Underlying Relativity:	0.550	0.460	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.953	0.845	.
(24) Balanced Formula Relativity:	0.954	0.845	0.910

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	13,705	0	2	0	0	0	820	820	0.000	0.060	0.060
2006	13,090	0	3	0	3,182	0	2,686	5,868	0.243	0.205	0.448
2007	12,241	0	5	0	0	0	6,493	6,493	0.000	0.530	0.530
2008	13,594	0	2	0	12,933	0	5,996	18,929	0.951	0.441	1.392
2009	17,484	0	2	0	0	0	1,303	1,303	0.000	0.075	0.075
<b>MA Total:</b>	<b>70,114</b>	<b>0</b>	<b>14</b>	<b>0</b>	<b>16,115</b>	<b>0</b>	<b>17,299</b>	<b>33,413</b>	<b>0.230</b>	<b>0.247</b>	<b>0.477</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.172	0.275	.
(14) Massachusetts Credibility:	0.100	0.210	.
(15) Countrywide Pure Premium:	1.093	0.766	1.859
(16) Countrywide Indicated Relativity:	0.946	0.981	.
(17) Countrywide Credibility:	0.450	0.400	.
(18) Countrywide Lost-Time Claims:	335.00	.	.
(19) Pure Premium Underlying Present Rate:	1.173	1.975	3.148
(20) Relativity to Underlying Present Rate:	1.238	2.197	.
(21) Credibility to Underlying Relativity:	0.450	0.390	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.000	1.307	.
(24) Balanced Formula Relativity:	1.001	1.307	1.124

Class(es):		Effective: 9/1/2012							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)
2005	57,419	0	4	0	4,603	0	7,267	11,870	0.080	0.127	0.207
2006	126,191	1	16	674	0	27	3,952	4,653	0.005	0.032	0.037
2007	86,406	0	11	0	7,753	0	15,134	22,887	0.090	0.175	0.265
2008	106,386	0	9	0	11,314	0	30,811	42,125	0.106	0.290	0.396
2009	117,159	0	6	0	12,945	0	32,991	45,935	0.110	0.282	0.392
<b>MA Total:</b>	<b>493,562</b>	<b>1</b>	<b>46</b>	<b>674</b>	<b>36,615</b>	<b>27</b>	<b>90,155</b>	<b>127,471</b>	<b>0.076</b>	<b>0.183</b>	<b>0.258</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.057	0.204	.
(14) Massachusetts Credibility:	0.130	0.190	.
(15) Countrywide Pure Premium:	0.676	0.370	1.046
(16) Countrywide Indicated Relativity:	0.585	0.474	.
(17) Countrywide Credibility:	0.440	0.410	.
(18) Countrywide Lost-Time Claims:	283.00	.	.
(19) Pure Premium Underlying Present Rate:	0.293	0.220	0.512
(20) Relativity to Underlying Present Rate:	0.309	0.244	.
(21) Credibility to Underlying Relativity:	0.430	0.400	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.398	0.331	.
(24) Balanced Formula Relativity:	0.398	0.331	0.371

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## Calculation of Class Relativities

Class(es): 4114 GLASSWARE MFG-NOC		Effective: 9/1/2012							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)
2005	8,967	0	1	0	0	0	314	314	0.000	0.035	0.035
2006	6,016	0	1	0	31,180	0	5,924	37,104	5.183	0.985	6.167
2007	4,827	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	4,268	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	4,442	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>28,520</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>31,180</b>	<b>0</b>	<b>6,238</b>	<b>37,418</b>	<b>1.093</b>	<b>0.219</b>	<b>1.312</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.819	0.244	.
(14) Massachusetts Credibility:	0.070	0.110	.
(15) Countrywide Pure Premium:	1.599	1.031	2.630
(16) Countrywide Indicated Relativity:	1.384	1.321	.
(17) Countrywide Credibility:	0.470	0.450	.
(18) Countrywide Lost-Time Claims:	395.00	.	.
(19) Pure Premium Underlying Present Rate:	1.191	0.935	2.126
(20) Relativity to Underlying Present Rate:	1.256	1.040	.
(21) Credibility to Underlying Relativity:	0.460	0.440	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.285	1.079	.
(24) Balanced Formula Relativity:	1.287	1.079	1.203

Class(es): 4130 GLASS MERCHANT		Effective: 9/1/2012							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)
2005	197,177	5	93	409,877	779,156	295,254	588,295	2,072,581	6.030	4.481	10.511
2006	203,377	5	90	365,876	460,241	187,900	314,969	1,328,985	4.062	2.473	6.535
2007	200,902	5	71	181,949	519,310	111,027	270,717	1,083,002	3.491	1.900	5.391
2008	201,370	3	83	905,460	361,210	241,807	278,754	1,787,230	6.290	2.585	8.875
2009	175,599	0	48	0	118,085	0	167,226	285,310	0.672	0.952	1.625
<b>MA Total:</b>	<b>978,425</b>	<b>18</b>	<b>385</b>	<b>1,863,162</b>	<b>2,238,001</b>	<b>835,987</b>	<b>1,619,960</b>	<b>6,557,109</b>	<b>4.192</b>	<b>2.510</b>	<b>6.702</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.142	2.798	.
(14) Massachusetts Credibility:	0.380	0.630	.
(15) Countrywide Pure Premium:	1.970	1.323	3.293
(16) Countrywide Indicated Relativity:	1.705	1.695	.
(17) Countrywide Credibility:	0.310	0.190	.
(18) Countrywide Lost-Time Claims:	922.00	.	.
(19) Pure Premium Underlying Present Rate:	2.123	2.229	4.352
(20) Relativity to Underlying Present Rate:	2.238	2.481	.
(21) Credibility to Underlying Relativity:	0.310	0.180	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	2.416	2.531	.
(24) Balanced Formula Relativity:	2.420	2.531	2.464

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							Manufacturing		
4133 CATHEDRAL OR ART GLASS WINDOW 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)
2005	15,390	0	5	0	0	0	1,803	1,803	0.000	0.117	0.117
2006	13,619	0	6	0	618	0	7,196	7,814	0.045	0.528	0.574
2007	11,416	0	1	0	0	0	346	346	0.000	0.030	0.030
2008	14,112	0	4	0	4,493	0	6,645	11,138	0.318	0.471	0.789
2009	9,924	0	1	0	0	0	128	128	0.000	0.013	0.013
<b>MA Total:</b>	<b>64,460</b>	<b>0</b>	<b>17</b>	<b>0</b>	<b>5,111</b>	<b>0</b>	<b>16,118</b>	<b>21,230</b>	<b>0.079</b>	<b>0.250</b>	<b>0.329</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.059	0.279	.
(14) Massachusetts Credibility:	0.080	0.140	.
(15) Countrywide Pure Premium:	0.676	1.050	1.726
(16) Countrywide Indicated Relativity:	0.585	1.346	.
(17) Countrywide Credibility:	0.240	0.260	.
(18) Countrywide Lost-Time Claims:	33,000	.	.
(19) Pure Premium Underlying Present Rate:	0.763	0.834	1.598
(20) Relativity to Underlying Present Rate:	0.805	0.929	.
(21) Credibility to Underlying Relativity:	0.680	0.600	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.693	0.946	.
(24) Balanced Formula Relativity:	0.694	0.946	0.795

Class(es):		Effective: 9/1/2012							Manufacturing		
4150 OPTICAL 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)
2005	1,228,000	6	108	640,276	504,552	186,896	218,712	1,550,435	0.932	0.330	1.263
2006	1,352,219	1	128	63,097	793,384	19,728	431,065	1,307,274	0.633	0.333	0.967
2007	1,568,674	2	131	183,649	548,092	44,483	318,861	1,095,086	0.466	0.232	0.698
2008	1,548,880	3	133	327,201	84,691	83,669	220,262	715,823	0.266	0.196	0.462
2009	1,546,987	3	108	204,122	496,778	147,533	339,931	1,188,363	0.453	0.315	0.768
<b>MA Total:</b>	<b>7,244,760</b>	<b>15</b>	<b>608</b>	<b>1,418,345</b>	<b>2,427,497</b>	<b>482,309</b>	<b>1,528,830</b>	<b>5,856,981</b>	<b>0.531</b>	<b>0.278</b>	<b>0.808</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.398	0.309	.
(14) Massachusetts Credibility:	0.460	0.670	.
(15) Countrywide Pure Premium:	0.417	0.279	0.696
(16) Countrywide Indicated Relativity:	0.361	0.357	.
(17) Countrywide Credibility:	0.270	0.170	.
(18) Countrywide Lost-Time Claims:	748.00	.	.
(19) Pure Premium Underlying Present Rate:	0.466	0.344	0.810
(20) Relativity to Underlying Present Rate:	0.492	0.383	.
(21) Credibility to Underlying Relativity:	0.270	0.160	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.413	0.329	.
(24) Balanced Formula Relativity:	0.414	0.329	0.380

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## Calculation of Class Relativities

Class(es): 4239 PAPER MFG		Effective: 9/1/2012							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)
2005	482,817	2	111	285,324	302,555	241,390	275,435	1,104,704	1,218	1,070	2,288
2006	424,314	0	108	0	321,506	0	394,258	715,764	0,758	0,929	1,687
2007	423,674	2	104	159,329	1,021,920	47,250	554,613	1,783,111	2,788	1,421	4,209
2008	418,453	2	85	209,035	444,278	305,903	374,764	1,333,979	1,561	1,627	3,188
2009	421,013	0	52	0	149,953	0	130,495	280,448	0,356	0,310	0,666
<b>MA Total:</b>	<b>2,170,271</b>	<b>6</b>	<b>460</b>	<b>653,688</b>	<b>2,240,212</b>	<b>594,542</b>	<b>1,729,565</b>	<b>5,218,007</b>	<b>1,333</b>	<b>1,071</b>	<b>2,404</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.999	1.194	.
(14) Massachusetts Credibility:	0.450	0.690	.
(15) Countrywide Pure Premium:	1.365	0.690	2.054
(16) Countrywide Indicated Relativity:	1.181	0.884	.
(17) Countrywide Credibility:	0.280	0.160	.
(18) Countrywide Lost-Time Claims:	1715.0	.	.
(19) Pure Premium Underlying Present Rate:	1.506	1.225	2.731
(20) Relativity to Underlying Present Rate:	1.588	1.364	.
(21) Credibility to Underlying Relativity:	0.270	0.150	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.209	1.170	.
(24) Balanced Formula Relativity:	1.211	1.169	1.194

Class(es): 4243 BOX MFG-FOLDING PAPER-NOC		Effective: 9/1/2012							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)
2005	377,546	6	62	390,919	184,903	127,962	147,727	851,511	1,525	0,730	2,255
2006	326,223	2	83	10,975	459,420	12,384	256,252	739,031	1,442	0,823	2,265
2007	324,961	7	95	1,150,393	668,588	819,728	403,417	3,042,125	5,598	3,764	9,362
2008	323,334	0	65	0	644,917	0	397,496	1,042,413	1,995	1,229	3,224
2009	290,765	2	46	209,247	595,576	98,431	358,068	1,261,323	2,768	1,570	4,338
<b>MA Total:</b>	<b>1,642,829</b>	<b>17</b>	<b>351</b>	<b>1,761,534</b>	<b>2,553,404</b>	<b>1,058,505</b>	<b>1,562,960</b>	<b>6,936,404</b>	<b>2,627</b>	<b>1,596</b>	<b>4,222</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.969	1.779	.
(14) Massachusetts Credibility:	0.390	0.580	.
(15) Countrywide Pure Premium:	1.060	0.729	1.789
(16) Countrywide Indicated Relativity:	0.918	0.934	.
(17) Countrywide Credibility:	0.310	0.210	.
(18) Countrywide Lost-Time Claims:	1135.0	.	.
(19) Pure Premium Underlying Present Rate:	1.336	1.072	2.408
(20) Relativity to Underlying Present Rate:	1.409	1.193	.
(21) Credibility to Underlying Relativity:	0.300	0.210	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.475	1.478	.
(24) Balanced Formula Relativity:	1.477	1.478	1.477

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							Manufacturing		
4244 CORRUGATED OR FIBERBOARD CONTAINER 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)
2005	180.188	3	52	410.461	244.770	212.573	223.836	1,091.641	3.636	2.422	6.058
2006	157.124	1	44	11.007	155.902	69.268	176.247	412.423	1.062	1.563	2.625
2007	143.184	0	46	0	356.337	0	244.748	601.085	2.489	1.709	4.198
2008	181.744	2	51	379.023	31.930	587.404	71.467	1,069.824	2.261	3.625	5.886
2009	159.797	0	44	0	621.336	0	353.951	975.287	3.888	2.215	6.103
<b>MA Total:</b>	<b>822.037</b>	<b>6</b>	<b>237</b>	<b>800.491</b>	<b>1,410,274</b>	<b>869,245</b>	<b>1,070,249</b>	<b>4,150,260</b>	<b>2.689</b>	<b>2.359</b>	<b>5.049</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.016	2.630	.
(14) Massachusetts Credibility:	0.300	0.520	.
(15) Countrywide Pure Premium:	1.240	0.930	2.170
(16) Countrywide Indicated Relativity:	1.073	1.192	.
(17) Countrywide Credibility:	0.350	0.240	.
(18) Countrywide Lost-Time Claims:	1027.0	.	.
(19) Pure Premium Underlying Present Rate:	1.445	1.623	3.068
(20) Relativity to Underlying Present Rate:	1.524	1.806	.
(21) Credibility to Underlying Relativity:	0.350	0.240	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.514	2.087	.
(24) Balanced Formula Relativity:	1.516	2.087	1.745

Class(es):		Effective: 9/1/2012							Manufacturing		
4250 PAPER COATING											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2005	657.482	2	107	588.724	281.231	162.689	213.884	1,246.528	1.323	0.573	1.896
2006	746.829	1	117	11.957	315.822	46.547	353.599	727.925	0.439	0.536	0.975
2007	769.298	4	105	624.363	824.031	146.810	595.170	2,190.375	1.883	0.964	2.847
2008	746.487	0	99	0	163.091	0	229.598	392.689	0.218	0.308	0.526
2009	778.123	1	106	59.948	760.840	62.301	560.174	1,443.264	1.055	0.800	1.855
<b>MA Total:</b>	<b>3,698,219</b>	<b>8</b>	<b>534</b>	<b>1,284,992</b>	<b>2,345,016</b>	<b>418,347</b>	<b>1,952,425</b>	<b>6,000,780</b>	<b>0.982</b>	<b>0.641</b>	<b>1.623</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.736	0.715	.
(14) Massachusetts Credibility:	0.440	0.640	.
(15) Countrywide Pure Premium:	1.071	0.681	1.752
(16) Countrywide Indicated Relativity:	0.927	0.872	.
(17) Countrywide Credibility:	0.280	0.180	.
(18) Countrywide Lost-Time Claims:	729.00	.	.
(19) Pure Premium Underlying Present Rate:	0.826	0.598	1.424
(20) Relativity to Underlying Present Rate:	0.871	0.665	.
(21) Credibility to Underlying Relativity:	0.280	0.180	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.827	0.734	.
(24) Balanced Formula Relativity:	0.828	0.734	0.790

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Section IX - Classification Pricing  
 Subsection G - Class Relativities  
 9/1/2012

Section IX - G  
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## Calculation of Class Relativities

Class(es): 4251 STATIONERY MFG		Effective: 9/1/2012							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)
2005	177,941	0	36	0	72,319	0	74,117	146,436	0.406	0.417	0.823
2006	164,745	0	31	0	153,422	0	60,631	214,052	0.931	0.368	1.299
2007	188,026	0	19	0	105,784	0	59,595	165,380	0.563	0.317	0.880
2008	222,104	0	20	0	52,885	0	106,883	159,769	0.238	0.481	0.719
2009	185,919	0	11	0	43,863	0	33,217	77,080	0.236	0.179	0.415
<b>MA Total:</b>	<b>938,734</b>	<b>0</b>	<b>117</b>	<b>0</b>	<b>428,273</b>	<b>0</b>	<b>334,443</b>	<b>762,716</b>	<b>0.456</b>	<b>0.356</b>	<b>0.812</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.342	0.397	.
(14) Massachusetts Credibility:	0.250	0.390	.
(15) Countrywide Pure Premium:	1.472	1.001	2.473
(16) Countrywide Indicated Relativity:	1.274	1.282	.
(17) Countrywide Credibility:	0.380	0.310	.
(18) Countrywide Lost-Time Claims:	510.00	.	.
(19) Pure Premium Underlying Present Rate:	0.827	0.683	1.510
(20) Relativity to Underlying Present Rate:	0.872	0.760	.
(21) Credibility to Underlying Relativity:	0.370	0.300	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.892	0.781	.
(24) Balanced Formula Relativity:	0.893	0.780	0.848

Class(es): 4273 BAG MFG-PAPER OR PLASTIC		Effective: 9/1/2012							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)
2005	62,695	0	20	0	196,379	0	99,344	295,724	3.132	1.585	4.717
2006	53,805	0	12	0	29,830	0	47,001	76,831	0.554	0.874	1.428
2007	48,086	0	15	0	6,473	0	14,402	20,875	0.135	0.300	0.434
2008	40,696	0	7	0	51,858	0	27,756	79,614	1.274	0.682	1.956
2009	37,745	0	9	0	28,515	0	14,574	43,089	0.755	0.386	1.142
<b>MA Total:</b>	<b>243,027</b>	<b>0</b>	<b>63</b>	<b>0</b>	<b>313,055</b>	<b>0</b>	<b>203,078</b>	<b>516,133</b>	<b>1.288</b>	<b>0.836</b>	<b>2.124</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.965	0.931	.
(14) Massachusetts Credibility:	0.170	0.300	.
(15) Countrywide Pure Premium:	1.483	1.002	2.485
(16) Countrywide Indicated Relativity:	1.284	1.284	.
(17) Countrywide Credibility:	0.420	0.350	.
(18) Countrywide Lost-Time Claims:	722.00	.	.
(19) Pure Premium Underlying Present Rate:	1.129	1.352	2.481
(20) Relativity to Underlying Present Rate:	1.191	1.505	.
(21) Credibility to Underlying Relativity:	0.410	0.350	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.192	1.256	.
(24) Balanced Formula Relativity:	1.193	1.255	1.218

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## Calculation of Class Relativities

Class(es): 4279 PAPER GOODS MFG NOC		Effective: 9/1/2012							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)
2005	342,255	2	147	36,176	969,912	38,389	413,419	1,457,896	2,940	1,320	4,260
2006	330,606	1	122	21,212	651,802	10,449	474,264	1,157,727	2,036	1,466	3,502
2007	323,633	4	81	333,814	224,656	170,233	171,866	900,569	1,726	1,057	2,783
2008	285,344	1	60	247,578	334,504	595,743	202,922	1,380,748	2,040	2,799	4,839
2009	331,608	1	59	60,674	269,098	22,382	240,184	592,339	0,994	0,792	1,786
<b>MA Total:</b>	<b>1,613,446</b>	<b>9</b>	<b>469</b>	<b>699,454</b>	<b>2,449,973</b>	<b>837,196</b>	<b>1,502,655</b>	<b>5,489,279</b>	<b>1,952</b>	<b>1,450</b>	<b>3,402</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.463	1.617	.
(14) Massachusetts Credibility:	0.390	0.670	.
(15) Countrywide Pure Premium:	1.331	0.863	2.194
(16) Countrywide Indicated Relativity:	1.152	1.105	.
(17) Countrywide Credibility:	0.310	0.170	.
(18) Countrywide Lost-Time Claims:	1002.0	.	.
(19) Pure Premium Underlying Present Rate:	1.362	1.565	2.927
(20) Relativity to Underlying Present Rate:	1.436	1.742	.
(21) Credibility to Underlying Relativity:	0.300	0.160	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.359	1.550	.
(24) Balanced Formula Relativity:	1.360	1.549	1.436

Class(es): 4282 DRESS PATTERN MFG-PAPER		Effective: 9/1/2012							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)
2005	165	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	71	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	500	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	500	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	515	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>1,751</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	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:	2.301	0.814	3.115
(16) Countrywide Indicated Relativity:	1.992	1.043	.
(17) Countrywide Credibility:	0.170	0.180	.
(18) Countrywide Lost-Time Claims:	14.000	.	.
(19) Pure Premium Underlying Present Rate:	0.278	0.283	0.561
(20) Relativity to Underlying Present Rate:	0.293	0.315	.
(21) Credibility to Underlying Relativity:	0.820	0.800	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.579	0.439	.
(24) Balanced Formula Relativity:	0.580	0.439	0.523

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							Manufacturing		
4283 BUILDING OR ROOFING PAPER OR FELT PREPARATION-NO INSTALLATION											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2005	13	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	86	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	507	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	0	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>605</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	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:	1.504	1.021	2.525
(16) Countrywide Indicated Relativity:	1.302	1.308	.
(17) Countrywide Credibility:	0.410	0.440	.
(18) Countrywide Lost-Time Claims:	125.00	.	.
(19) Pure Premium Underlying Present Rate:	1.296	1.079	2.375
(20) Relativity to Underlying Present Rate:	1.367	1.200	.
(21) Credibility to Underlying Relativity:	0.570	0.540	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.313	1.224	.
(24) Balanced Formula Relativity:	1.315	1.223	1.278

Class(es):		Effective: 9/1/2012							Manufacturing		
4299 PRINTING											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2005	2,476,097	16	566	2,502,564	2,160,043	1,115,544	1,785,759	7,563,910	1,883	1,172	3,055
2006	2,492,453	13	445	1,539,204	2,698,845	481,251	1,675,535	6,394,835	1,700	0,865	2,566
2007	2,674,481	6	350	804,938	1,938,022	209,544	1,421,687	4,374,192	1,026	0,610	1,636
2008	2,465,133	8	266	745,337	1,939,715	196,113	1,173,670	4,054,834	1,089	0,556	1,645
2009	2,171,974	7	279	473,102	1,477,959	118,409	1,132,515	3,201,985	0,898	0,576	1,474
<b>MA Total:</b>	<b>12280138</b>	<b>50</b>	<b>1,906</b>	<b>6,065,144</b>	<b>10214584</b>	<b>2,120,860</b>	<b>7,189,167</b>	<b>25589755</b>	<b>1,326</b>	<b>0,758</b>	<b>2,084</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.994	0.845	.
(14) Massachusetts Credibility:	0.740	1.000	.
(15) Countrywide Pure Premium:	1.047	0.706	1.753
(16) Countrywide Indicated Relativity:	0.906	0.904	.
(17) Countrywide Credibility:	0.130	0.000	.
(18) Countrywide Lost-Time Claims:	6941.0	.	.
(19) Pure Premium Underlying Present Rate:	0.921	0.807	1.728
(20) Relativity to Underlying Present Rate:	0.971	0.898	.
(21) Credibility to Underlying Relativity:	0.130	0.000	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.979	0.845	.
(24) Balanced Formula Relativity:	0.981	0.845	0.926

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## Calculation of Class Relativities

Class(es): 4301 WALLPAPER MFG		Effective: 9/1/2012							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)
2005	6,719	1	2	477,669	2,796	80,131	9,410	570,006	71,513	13,327	84,841
2006	212	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	21	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	154	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>7,106</b>	<b>1</b>	<b>2</b>	<b>477,669</b>	<b>2,796</b>	<b>80,131</b>	<b>9,410</b>	<b>570,006</b>	<b>67,618</b>	<b>12,602</b>	<b>80,220</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	50.681	14.047	.
(14) Massachusetts Credibility:	0.060	0.090	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	2.762	2.383	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	2.668	2.181	4.849
(20) Relativity to Underlying Present Rate:	2.814	2.427	.
(21) Credibility to Underlying Relativity:	0.940	0.910	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	5.686	3.473	.
(24) Balanced Formula Relativity:	5.693	3.472	4.800

Class(es): 4304 NEWSPAPER PUBLISHING		Effective: 9/1/2012							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)
2005	134,312	2	55	111,902	116,489	32,939	149,008	410,338	1,700	1,355	3,055
2006	224,669	4	61	874,848	313,889	337,952	224,919	1,751,609	5,291	2,505	7,796
2007	156,118	1	29	93,980	77,598	17,218	123,820	312,617	1,099	0,903	2,002
2008	254,615	1	38	362,515	132,834	209,368	174,713	879,429	1,945	1,508	3,454
2009	200,291	1	32	27,264	37,718	23,335	82,042	170,359	0,324	0,526	0,851
<b>MA Total:</b>	<b>970,004</b>	<b>9</b>	<b>215</b>	<b>1,470,509</b>	<b>678,529</b>	<b>620,813</b>	<b>754,502</b>	<b>3,524,353</b>	<b>2,215</b>	<b>1,418</b>	<b>3,633</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.661	1.581	.
(14) Massachusetts Credibility:	0.340	0.550	.
(15) Countrywide Pure Premium:	1.776	1.412	3.188
(16) Countrywide Indicated Relativity:	1.537	1.810	.
(17) Countrywide Credibility:	0.330	0.230	.
(18) Countrywide Lost-Time Claims:	2159.0	.	.
(19) Pure Premium Underlying Present Rate:	1.608	1.539	3.147
(20) Relativity to Underlying Present Rate:	1.696	1.713	.
(21) Credibility to Underlying Relativity:	0.330	0.220	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.631	1.662	.
(24) Balanced Formula Relativity:	1.634	1.662	1.645

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## Calculation of Class Relativities

Class(es): 4307 BOOKBINDING		Effective: 9/1/2012							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)
2005	227,731	2	22	249,155	67,608	52,786	25,933	395,483	1,391	0,346	1,737
2006	240,682	0	24	0	32,673	0	41,875	74,548	0,136	0,174	0,310
2007	217,312	0	18	0	102,849	0	93,226	196,075	0,473	0,429	0,902
2008	221,497	2	27	302,672	112,410	108,914	90,585	614,581	1,874	0,901	2,775
2009	202,250	0	18	0	120,692	0	45,781	166,473	0,597	0,226	0,823
<b>MA Total:</b>	<b>1,109,472</b>	<b>4</b>	<b>109</b>	<b>551,827</b>	<b>436,231</b>	<b>161,700</b>	<b>297,401</b>	<b>1,447,160</b>	<b>0.891</b>	<b>0.414</b>	<b>1.304</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.667	0.461	.
(14) Massachusetts Credibility:	0.240	0.380	.
(15) Countrywide Pure Premium:	0.829	0.585	1.414
(16) Countrywide Indicated Relativity:	0.717	0.749	.
(17) Countrywide Credibility:	0.380	0.310	.
(18) Countrywide Lost-Time Claims:	408.00	.	.
(19) Pure Premium Underlying Present Rate:	0.576	0.547	1.123
(20) Relativity to Underlying Present Rate:	0.607	0.608	.
(21) Credibility to Underlying Relativity:	0.380	0.310	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.664	0.596	.
(24) Balanced Formula Relativity:	0.664	0.596	0.637

Class(es): 4308 LINOTYPE OR HAND COMPOSITION		Effective: 9/1/2012							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)
2005	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	104	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	104	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>208</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.010	0.010	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	1.629	0.387	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	1.573	0.354	1.927
(20) Relativity to Underlying Present Rate:	1.659	0.394	.
(21) Credibility to Underlying Relativity:	0.990	0.990	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.642	0.390	.
(24) Balanced Formula Relativity:	1.645	0.390	1.140

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## Calculation of Class Relativities

Class(es): 4350 ELECTROTYPING		Effective: 9/1/2012							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)
2005	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	0	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	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	0.000	0.000
(16) Countrywide Indicated Relativity:	0.300	0.239	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	0.290	0.219	0.509
(20) Relativity to Underlying Present Rate:	0.306	0.243	.
(21) Credibility to Underlying Relativity:	1.000	1.000	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.306	0.243	.
(24) Balanced Formula Relativity:	0.306	0.243	0.281

Class(es): 4351 PHOTOENGRAVING		Effective: 9/1/2012							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)
2005	316.606	2	24	97.085	88.587	30.143	42.564	258.379	0.586	0.230	0.816
2006	294.111	1	26	3.607	119.636	12.400	82.332	217.974	0.419	0.322	0.741
2007	257.810	1	30	624.061	397.920	127.937	151.122	1,301.040	3.964	1.082	5.047
2008	262.276	1	20	10.415	53.713	6.305	26.735	97.168	0.245	0.126	0.370
2009	246.799	0	17	0	72.303	0	54.992	127.295	0.293	0.223	0.516
<b>MA Total:</b>	1,377.602	5	117	735.168	732.158	176.785	357.745	2,001.856	1.065	0.388	1.453

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.798	0.433	.
(14) Massachusetts Credibility:	0.240	0.350	.
(15) Countrywide Pure Premium:	0.343	0.272	0.615
(16) Countrywide Indicated Relativity:	0.297	0.348	.
(17) Countrywide Credibility:	0.240	0.260	.
(18) Countrywide Lost-Time Claims:	34.000	.	.
(19) Pure Premium Underlying Present Rate:	0.509	0.351	0.860
(20) Relativity to Underlying Present Rate:	0.537	0.390	.
(21) Credibility to Underlying Relativity:	0.520	0.390	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.542	0.394	.
(24) Balanced Formula Relativity:	0.543	0.394	0.483

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## Calculation of Class Relativities

Class(es): 4352 ENGRAVING		Effective: 9/1/2012							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)
2005	77,586	0	6	0	217,777	0	83,307	301,083	2,807	1,074	3,881
2006	84,967	0	8	0	17,605	0	28,318	45,923	0,207	0,333	0,540
2007	81,469	0	6	0	0	0	4,282	4,282	0,000	0,053	0,053
2008	76,739	0	5	0	0	0	4,359	4,359	0,000	0,057	0,057
2009	66,594	0	1	0	0	0	13,350	13,350	0,000	0,200	0,200
<b>MA Total:</b>	<b>387,355</b>	<b>0</b>	<b>26</b>	<b>0</b>	<b>235,381</b>	<b>0</b>	<b>133,616</b>	<b>368,997</b>	<b>0.608</b>	<b>0.345</b>	<b>0.953</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.455	0.385	.
(14) Massachusetts Credibility:	0.130	0.240	.
(15) Countrywide Pure Premium:	0.709	0.560	1.269
(16) Countrywide Indicated Relativity:	0.613	0.718	.
(17) Countrywide Credibility:	0.360	0.380	.
(18) Countrywide Lost-Time Claims:	92,000	.	.
(19) Pure Premium Underlying Present Rate:	0.394	0.505	0.899
(20) Relativity to Underlying Present Rate:	0.415	0.562	.
(21) Credibility to Underlying Relativity:	0.510	0.380	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.492	0.579	.
(24) Balanced Formula Relativity:	0.492	0.578	0.527

Class(es): 4360 MOTION PICTURE: DEVLPMNT OF NEGATIVES, PRINTING & ALL SUB OP		Effective: 9/1/2012							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)
2005	220,872	1	4	48,108	251	26,083	537	74,979	0,219	0,121	0,339
2006	194,698	0	9	0	2,898	0	5,206	8,104	0,015	0,027	0,042
2007	167,512	2	7	98,116	60,381	48,248	11,583	218,327	0,946	0,357	1,303
2008	168,996	3	13	410,268	266,791	245,794	140,892	1,063,745	4,006	2,288	6,294
2009	145,841	0	4	0	51,452	0	11,170	62,622	0,353	0,077	0,429
<b>MA Total:</b>	<b>897,919</b>	<b>6</b>	<b>37</b>	<b>556,491</b>	<b>381,773</b>	<b>320,125</b>	<b>169,388</b>	<b>1,427,777</b>	<b>1.045</b>	<b>0.545</b>	<b>1.590</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.783	0.608	.
(14) Massachusetts Credibility:	0.210	0.310	.
(15) Countrywide Pure Premium:	0.596	0.514	1.110
(16) Countrywide Indicated Relativity:	0.516	0.659	.
(17) Countrywide Credibility:	0.400	0.350	.
(18) Countrywide Lost-Time Claims:	261,00	.	.
(19) Pure Premium Underlying Present Rate:	0.531	0.403	0.935
(20) Relativity to Underlying Present Rate:	0.560	0.449	.
(21) Credibility to Underlying Relativity:	0.390	0.340	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.589	0.571	.
(24) Balanced Formula Relativity:	0.590	0.571	0.583

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	1,151,529	4	47	496,717	107,075	163,767	298,671	1,066,231	0.524	0.402	0.926
2006	1,205,196	0	50	0	111,863	0	195,148	307,011	0.093	0.162	0.255
2007	915,309	1	37	161,386	211,807	165,590	183,397	722,181	0.408	0.381	0.789
2008	708,264	2	37	280,116	80,506	296,014	89,186	745,821	0.509	0.544	1.053
2009	716,297	0	25	0	89,162	0	156,404	245,567	0.124	0.218	0.343
<b>MA Total:</b>	<b>4,696,594</b>	<b>7</b>	<b>196</b>	<b>938,219</b>	<b>600,413</b>	<b>625,371</b>	<b>922,807</b>	<b>3,086,810</b>	<b>0.328</b>	<b>0.330</b>	<b>0.657</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.701	4.733	.
(14) Massachusetts Credibility:	0.270	0.450	.
(15) Countrywide Pure Premium:	0.339	0.308	0.647
(16) Countrywide Indicated Relativity:	4.266	4.729	.
(17) Countrywide Credibility:	0.370	0.280	.
(18) Countrywide Lost-Time Claims:	808.00	.	.
(19) Pure Premium Underlying Present Rate:	0.187	0.199	0.386
(20) Relativity to Underlying Present Rate:	3.340	3.096	.
(21) Credibility to Underlying Relativity:	0.360	0.270	.
(22) Industry Group Converted Pure Premium:	0.089	0.070	0.158
(23) Formula Relativity:	3.780	4.290	.
(24) Balanced Formula Relativity:	3.761	4.287	3.993

Class(es):		Effective: 9/1/2012							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)
2005	6,454	0	1	0	0	0	11,122	11,122	0.000	1.723	1.723
2006	6,107	0	1	0	0	0	539	539	0.000	0.088	0.088
2007	12,323	0	1	0	0	0	1,599	1,599	0.000	0.130	0.130
2008	6,366	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	6,773	0	1	0	15,766	0	19,063	34,829	2.328	2.814	5.142
<b>MA Total:</b>	<b>38,024</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>15,766</b>	<b>0</b>	<b>32,323</b>	<b>48,089</b>	<b>0.415</b>	<b>0.850</b>	<b>1.265</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.387	1.095	.
(14) Massachusetts Credibility:	0.040	0.070	.
(15) Countrywide Pure Premium:	0.323	0.281	0.604
(16) Countrywide Indicated Relativity:	0.305	0.363	.
(17) Countrywide Credibility:	0.090	0.100	.
(18) Countrywide Lost-Time Claims:	3.000	.	.
(19) Pure Premium Underlying Present Rate:	0.259	0.260	0.520
(20) Relativity to Underlying Present Rate:	0.380	0.366	.
(21) Credibility to Underlying Relativity:	0.870	0.830	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	0.373	0.417	.
(24) Balanced Formula Relativity:	0.372	0.416	0.391

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	328,989	4	99	1,106,768	272,854	252,259	199,583	1,831,463	4,194	1,373	5,567
2006	308,144	3	105	418,137	1,050,735	94,539	638,987	2,202,398	4,767	2,380	7,147
2007	323,171	5	105	561,539	269,379	253,665	216,883	1,301,465	2,571	1,456	4,027
2008	369,970	6	97	524,614	418,407	201,955	558,380	1,703,356	2,549	2,055	4,604
2009	401,442	1	65	208,009	883,396	37,589	481,654	1,610,649	2,719	1,293	4,012
<b>MA Total:</b>	<b>1,731,715</b>	<b>19</b>	<b>471</b>	<b>2,819,067</b>	<b>2,894,771</b>	<b>840,007</b>	<b>2,095,486</b>	<b>8,649,331</b>	<b>3,300</b>	<b>1,695</b>	<b>4,995</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.473	1.890	.
(14) Massachusetts Credibility:	0.450	0.730	.
(15) Countrywide Pure Premium:	1.719	1.148	2.867
(16) Countrywide Indicated Relativity:	1.488	1.471	.
(17) Countrywide Credibility:	0.280	0.140	.
(18) Countrywide Lost-Time Claims:	2828.0	.	.
(19) Pure Premium Underlying Present Rate:	1.856	1.801	3.657
(20) Relativity to Underlying Present Rate:	1.957	2.004	.
(21) Credibility to Underlying Relativity:	0.270	0.130	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	2.058	1.846	.
(24) Balanced Formula Relativity:	2.061	1.845	1.974

Class(es):		Effective: 9/1/2012							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)
2005	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	0	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	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:	2.729	0.885	3.614
(16) Countrywide Indicated Relativity:	2.362	1.134	.
(17) Countrywide Credibility:	0.100	0.110	.
(18) Countrywide Lost-Time Claims:	4.000	.	.
(19) Pure Premium Underlying Present Rate:	2.224	2.027	4.251
(20) Relativity to Underlying Present Rate:	2.345	2.256	.
(21) Credibility to Underlying Relativity:	0.900	0.890	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	2.347	2.132	.
(24) Balanced Formula Relativity:	2.350	2.132	2.262

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## Calculation of Class Relativities

Class(es): 4432 FOUNTAIN PEN MFG		Effective: 9/1/2012							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)
2005	33,695	0	4	0	762	0	3,740	4,502	0.023	0.111	0.134
2006	37,997	0	9	0	24,492	0	28,640	53,133	0.645	0.754	1.398
2007	42,203	0	8	0	19,738	0	29,946	49,684	0.468	0.710	1.177
2008	42,825	0	7	0	3,137	0	10,679	13,816	0.073	0.249	0.323
2009	42,475	0	4	0	31,150	0	18,706	49,857	0.733	0.440	1.174
<b>MA Total:</b>	<b>199,196</b>	<b>0</b>	<b>32</b>	<b>0</b>	<b>79,280</b>	<b>0</b>	<b>91,712</b>	<b>170,992</b>	<b>0.398</b>	<b>0.460</b>	<b>0.858</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.298	0.513	.
(14) Massachusetts Credibility:	0.110	0.190	.
(15) Countrywide Pure Premium:	0.933	0.572	1.505
(16) Countrywide Indicated Relativity:	0.807	0.733	.
(17) Countrywide Credibility:	0.360	0.380	.
(18) Countrywide Lost-Time Claims:	91.000	.	.
(19) Pure Premium Underlying Present Rate:	0.497	0.522	1.020
(20) Relativity to Underlying Present Rate:	0.524	0.581	.
(21) Credibility to Underlying Relativity:	0.530	0.430	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.601	0.626	.
(24) Balanced Formula Relativity:	0.602	0.626	0.612

Class(es): 4439 LACQUER OR SPIRIT VARNISH MFG		Effective: 9/1/2012							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)
2005	39,427	2	8	295,114	1,116	92,215	9,251	397,695	7.513	2.574	10.087
2006	42,060	0	13	0	15,452	0	22,012	37,464	0.367	0.523	0.891
2007	43,478	0	3	0	7,554	0	17,595	25,149	0.174	0.405	0.578
2008	41,282	1	4	432,896	14,617	531,143	22,561	1,001,216	10.841	13.413	24.253
2009	35,122	0	5	0	489	0	2,006	2,495	0.014	0.057	0.071
<b>MA Total:</b>	<b>201,368</b>	<b>3</b>	<b>33</b>	<b>728,010</b>	<b>39,228</b>	<b>623,357</b>	<b>73,425</b>	<b>1,464,020</b>	<b>3.810</b>	<b>3.460</b>	<b>7.270</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.856	3.857	.
(14) Massachusetts Credibility:	0.150	0.250	.
(15) Countrywide Pure Premium:	1.278	1.360	2.638
(16) Countrywide Indicated Relativity:	1.106	1.743	.
(17) Countrywide Credibility:	0.240	0.250	.
(18) Countrywide Lost-Time Claims:	32.000	.	.
(19) Pure Premium Underlying Present Rate:	1.038	1.029	2.067
(20) Relativity to Underlying Present Rate:	1.094	1.145	.
(21) Credibility to Underlying Relativity:	0.610	0.500	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.361	1.973	.
(24) Balanced Formula Relativity:	1.363	1.972	1.608

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	525.809	7	120	544.803	740.176	228.176	628.123	2,141.278	2.444	1.629	4.072
2006	488.334	0	104	0	465.853	0	344.390	810.242	0.954	0.705	1.659
2007	543.788	5	134	1,109.448	309.784	543.157	281.478	2,243.867	2.610	1.516	4.126
2008	498.552	3	136	223.371	651.946	120.153	529.073	1,524.543	1.756	1.302	3.058
2009	478.303	8	132	1,349.892	571.817	365.597	470.756	2,758.062	4.018	1.749	5.766
<b>MA Total:</b>	<b>2,534.786</b>	<b>23</b>	<b>626</b>	<b>3,227.514</b>	<b>2,739.575</b>	<b>1,257.083</b>	<b>2,253.819</b>	<b>9,477.992</b>	<b>2.354</b>	<b>1.385</b>	<b>3.739</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.764	1.544	.
(14) Massachusetts Credibility:	0.440	0.720	.
(15) Countrywide Pure Premium:	1.574	1.158	2.732
(16) Countrywide Indicated Relativity:	1.362	1.485	.
(17) Countrywide Credibility:	0.280	0.140	.
(18) Countrywide Lost-Time Claims:	2005.0	.	.
(19) Pure Premium Underlying Present Rate:	1.186	1.197	2.383
(20) Relativity to Underlying Present Rate:	1.250	1.333	.
(21) Credibility to Underlying Relativity:	0.280	0.140	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.508	1.506	.
(24) Balanced Formula Relativity:	1.510	1.506	1.508

Class(es):		Effective: 9/1/2012							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)
2005	675.305	6	180	681.797	377.581	437.047	443.847	1,940.271	1.569	1.304	2.873
2006	559.523	5	105	589.860	334.604	435.951	316.948	1,677.363	1.652	1.346	2.998
2007	646.022	5	171	755.490	772.785	370.873	517.867	2,417.016	2.366	1.376	3.741
2008	641.393	7	127	1,001.748	503.589	391.919	444.537	2,341.793	2.347	1.304	3.651
2009	626.690	6	129	758.903	1,241.148	297.249	1,140.402	3,437.702	3.191	2.294	5.485
<b>MA Total:</b>	<b>3,148.933</b>	<b>29</b>	<b>712</b>	<b>3,787.798</b>	<b>3,229.707</b>	<b>1,933.039</b>	<b>2,863.601</b>	<b>11,814.145</b>	<b>2.229</b>	<b>1.523</b>	<b>3.752</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.670	1.698	.
(14) Massachusetts Credibility:	0.470	0.820	.
(15) Countrywide Pure Premium:	1.238	0.834	2.072
(16) Countrywide Indicated Relativity:	1.071	1.069	.
(17) Countrywide Credibility:	0.270	0.090	.
(18) Countrywide Lost-Time Claims:	2181.0	.	.
(19) Pure Premium Underlying Present Rate:	1.156	1.302	2.458
(20) Relativity to Underlying Present Rate:	1.219	1.449	.
(21) Credibility to Underlying Relativity:	0.260	0.090	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.391	1.619	.
(24) Balanced Formula Relativity:	1.393	1.619	1.484

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	403,499	0	88	0	452,452	0	322,929	775,381	1,121	0,800	1,922
2006	292,365	4	93	301,712	837,015	157,094	326,352	1,622,173	3,895	1,654	5,548
2007	313,284	2	94	274,426	631,482	185,294	561,865	1,653,066	2,892	2,385	5,277
2008	341,275	2	42	108,107	84,194	14,301	141,873	348,475	0,563	0,458	1,021
2009	278,845	0	26	0	117,714	0	84,435	202,150	0,422	0,303	0,725
<b>MA Total:</b>	<b>1,629,267</b>	<b>8</b>	<b>343</b>	<b>684,245</b>	<b>2,122,857</b>	<b>356,688</b>	<b>1,437,455</b>	<b>4,601,245</b>	<b>1,723</b>	<b>1,101</b>	<b>2,824</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.291	1.228	.
(14) Massachusetts Credibility:	0.370	0.590	.
(15) Countrywide Pure Premium:	1.216	0.734	1.950
(16) Countrywide Indicated Relativity:	1.052	0.941	.
(17) Countrywide Credibility:	0.320	0.210	.
(18) Countrywide Lost-Time Claims:	586.00	.	.
(19) Pure Premium Underlying Present Rate:	1.186	1.127	2.313
(20) Relativity to Underlying Present Rate:	1.251	1.254	.
(21) Credibility to Underlying Relativity:	0.310	0.200	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.202	1.173	.
(24) Balanced Formula Relativity:	1.204	1.173	1.191

Class(es):		Effective: 9/1/2012							Manufacturing		
4484 PLASTICS MFG: MOLDED 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)
2005	1,830,455	11	486	848,402	1,225,472	857,720	1,078,970	4,010,564	1,133	1,058	2,191
2006	2,006,287	10	433	771,360	1,826,080	614,411	1,527,539	4,739,390	1,295	1,068	2,362
2007	2,002,565	12	339	1,101,542	901,785	276,695	1,012,499	3,292,521	1,000	0,644	1,644
2008	1,884,590	7	328	851,041	1,773,801	245,877	1,796,167	4,666,886	1,393	1,084	2,476
2009	1,626,038	5	230	570,266	2,208,112	994,777	1,141,959	4,915,114	1,709	1,314	3,023
<b>MA Total:</b>	<b>9,349,935</b>	<b>45</b>	<b>1,816</b>	<b>4,142,611</b>	<b>7,935,251</b>	<b>2,989,479</b>	<b>6,557,134</b>	<b>21,624,474</b>	<b>1,292</b>	<b>1,021</b>	<b>2,313</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.968	1.138	.
(14) Massachusetts Credibility:	0.670	1.000	.
(15) Countrywide Pure Premium:	1.404	0.981	2.385
(16) Countrywide Indicated Relativity:	1.215	1.257	.
(17) Countrywide Credibility:	0.170	0.000	.
(18) Countrywide Lost-Time Claims:	8926.0	.	.
(19) Pure Premium Underlying Present Rate:	0.952	1.022	1.974
(20) Relativity to Underlying Present Rate:	1.004	1.137	.
(21) Credibility to Underlying Relativity:	0.160	0.000	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.016	1.138	.
(24) Balanced Formula Relativity:	1.017	1.138	1.066

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## Calculation of Class Relativities

Class(es): 4493 FABRIC COATING OR IMPREGNATING NOC		Effective: 9/1/2012							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)
2005	420.650	2	126	206.644	412.243	61.846	363.975	1,044.708	1.471	1.012	2.484
2006	471.269	2	147	38.565	394.216	15.903	398.277	846.961	0.918	0.879	1.797
2007	420.431	6	115	1,180.806	793.238	357.233	588.453	2,919.729	4.695	2.249	6.945
2008	382.335	4	93	488.637	417.065	222.400	467.516	1,595.618	2.369	1.804	4.173
2009	363.424	2	89	88.501	130.595	117.230	144.539	480.865	0.603	0.720	1.323
<b>MA Total:</b>	<b>2,058,110</b>	<b>16</b>	<b>570</b>	<b>2,003,152</b>	<b>2,147,358</b>	<b>774,611</b>	<b>1,962,760</b>	<b>6,887,880</b>	<b>2.017</b>	<b>1.330</b>	<b>3.347</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.512	1.483	.
(14) Massachusetts Credibility:	0.410	0.720	.
(15) Countrywide Pure Premium:	1.439	0.793	2.232
(16) Countrywide Indicated Relativity:	1.245	1.016	.
(17) Countrywide Credibility:	0.300	0.140	.
(18) Countrywide Lost-Time Claims:	194.00	.	.
(19) Pure Premium Underlying Present Rate:	1.218	1.450	2.668
(20) Relativity to Underlying Present Rate:	1.285	1.613	.
(21) Credibility to Underlying Relativity:	0.290	0.140	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.366	1.436	.
(24) Balanced Formula Relativity:	1.368	1.435	1.395

Class(es): 4511 ANALYTICAL CHEMIST		Effective: 9/1/2012							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)
2005	2,300.851	3	94	276.861	84.495	219.785	233.248	814.389	0.157	0.197	0.354
2006	2,571.661	0	89	0	90.958	0	226.872	317.830	0.035	0.088	0.124
2007	3,810.512	6	98	127.165	342.162	108.978	420.262	998.567	0.123	0.139	0.262
2008	3,801.283	2	80	13.958	456.134	35.088	209.853	715.033	0.124	0.064	0.188
2009	4,735.854	1	109	215.109	202.565	53.651	413.085	884.410	0.088	0.099	0.187
<b>MA Total:</b>	<b>17220161</b>	<b>12</b>	<b>470</b>	<b>633.093</b>	<b>1,176.313</b>	<b>417.502</b>	<b>1,503.320</b>	<b>3,730,229</b>	<b>0.105</b>	<b>0.112</b>	<b>0.217</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.098	0.144	.
(14) Massachusetts Credibility:	0.390	0.670	.
(15) Countrywide Pure Premium:	0.304	0.205	0.509
(16) Countrywide Indicated Relativity:	0.287	0.266	.
(17) Countrywide Credibility:	0.310	0.170	.
(18) Countrywide Lost-Time Claims:	1395.0	.	.
(19) Pure Premium Underlying Present Rate:	0.134	0.147	0.281
(20) Relativity to Underlying Present Rate:	0.196	0.206	.
(21) Credibility to Underlying Relativity:	0.300	0.160	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	0.186	0.174	.
(24) Balanced Formula Relativity:	0.185	0.174	0.181

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	4,989,321	6	102	1,033,524	69,667	304,542	229,206	1,636,940	0.221	0.107	0.328
2006	4,465,523	2	105	119,026	326,384	14,205	178,208	637,823	0.100	0.043	0.143
2007	5,212,411	2	96	90,703	18,130	8,807	120,926	238,567	0.021	0.025	0.046
2008	5,447,553	0	105	0	373,781	0	194,838	568,619	0.069	0.036	0.104
2009	5,808,621	1	96	65,950	227,046	12,605	311,782	617,383	0.050	0.056	0.106
<b>MA Total:</b>	<b>25923429</b>	<b>11</b>	<b>504</b>	<b>1,309,203</b>	<b>1,015,009</b>	<b>340,159</b>	<b>1,034,961</b>	<b>3,699,332</b>	<b>0.090</b>	<b>0.053</b>	<b>0.143</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.084	0.068	.
(14) Massachusetts Credibility:	0.330	0.550	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	0.083	0.083	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	0.057	0.059	0.116
(20) Relativity to Underlying Present Rate:	0.083	0.083	.
(21) Credibility to Underlying Relativity:	0.670	0.450	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	0.084	0.075	.
(24) Balanced Formula Relativity:	0.083	0.075	0.080

Class(es):		Effective: 9/1/2012							Manufacturing		
4557 INK 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)
2005	543,386	4	107	176,189	115,823	208,551	146,792	647,355	0.537	0.654	1.191
2006	557,358	2	74	85,371	229,047	71,013	210,696	596,127	0.564	0.505	1.070
2007	554,980	2	100	497,071	468,196	82,207	491,749	1,539,222	1.739	1.034	2.773
2008	262,434	2	30	61,371	9,345	20,808	33,484	125,007	0.269	0.207	0.476
2009	308,136	1	21	150,059	105,433	142,905	85,667	484,064	0.829	0.742	1.571
<b>MA Total:</b>	<b>2,226,294</b>	<b>11</b>	<b>332</b>	<b>970,061</b>	<b>927,844</b>	<b>525,483</b>	<b>968,387</b>	<b>3,391,776</b>	<b>0.852</b>	<b>0.671</b>	<b>1.524</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.639	0.748	.
(14) Massachusetts Credibility:	0.320	0.510	.
(15) Countrywide Pure Premium:	1.053	0.700	1.753
(16) Countrywide Indicated Relativity:	0.912	0.897	.
(17) Countrywide Credibility:	0.340	0.250	.
(18) Countrywide Lost-Time Claims:	516.00	.	.
(19) Pure Premium Underlying Present Rate:	0.637	0.557	1.194
(20) Relativity to Underlying Present Rate:	0.672	0.620	.
(21) Credibility to Underlying Relativity:	0.340	0.240	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.743	0.754	.
(24) Balanced Formula Relativity:	0.744	0.754	0.748

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## Calculation of Class Relativities

Class(es): 4558 PAINT MFG		Effective: 9/1/2012							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)
2005	84,911	1	12	22,799	43,156	905	16,804	83,665	0.777	0.209	0.985
2006	79,959	0	9	0	9,868	0	10,525	20,392	0.123	0.132	0.255
2007	80,584	0	5	0	4,980	0	25,104	30,084	0.062	0.312	0.373
2008	72,617	0	9	0	53,501	0	65,272	118,773	0.737	0.899	1.636
2009	72,585	0	7	0	60,945	0	30,122	91,067	0.840	0.415	1.255
<b>MA Total:</b>	<b>390,655</b>	<b>1</b>	<b>42</b>	<b>22,799</b>	<b>172,450</b>	<b>905</b>	<b>147,828</b>	<b>343,982</b>	<b>0.500</b>	<b>0.381</b>	<b>0.881</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.375	0.424	.
(14) Massachusetts Credibility:	0.170	0.270	.
(15) Countrywide Pure Premium:	1.027	0.686	1.713
(16) Countrywide Indicated Relativity:	0.889	0.879	.
(17) Countrywide Credibility:	0.420	0.370	.
(18) Countrywide Lost-Time Claims:	559.00	.	.
(19) Pure Premium Underlying Present Rate:	0.769	0.651	1.420
(20) Relativity to Underlying Present Rate:	0.810	0.725	.
(21) Credibility to Underlying Relativity:	0.410	0.360	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.769	0.701	.
(24) Balanced Formula Relativity:	0.770	0.701	0.742

Class(es): 4583 FERTILIZER MFG & DRIVERS		Effective: 9/1/2012							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)
2005	58,154	0	3	0	203	0	5,560	5,763	0.003	0.096	0.099
2006	53,540	0	4	0	2,190	0	4,771	6,962	0.041	0.089	0.130
2007	53,516	1	7	38,099	3,744	11,081	12,493	65,417	0.782	0.441	1.222
2008	49,314	0	4	0	0	0	5,332	5,332	0.000	0.108	0.108
2009	45,919	0	5	0	62,941	0	24,575	87,516	1.371	0.535	1.906
<b>MA Total:</b>	<b>260,443</b>	<b>1</b>	<b>23</b>	<b>38,099</b>	<b>69,078</b>	<b>11,081</b>	<b>52,731</b>	<b>170,988</b>	<b>0.412</b>	<b>0.245</b>	<b>0.657</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.308	0.273	.
(14) Massachusetts Credibility:	0.200	0.280	.
(15) Countrywide Pure Premium:	2.251	1.706	3.957
(16) Countrywide Indicated Relativity:	1.948	2.186	.
(17) Countrywide Credibility:	0.400	0.360	.
(18) Countrywide Lost-Time Claims:	668.00	.	.
(19) Pure Premium Underlying Present Rate:	1.568	1.074	2.642
(20) Relativity to Underlying Present Rate:	1.654	1.195	.
(21) Credibility to Underlying Relativity:	0.400	0.360	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.503	1.294	.
(24) Balanced Formula Relativity:	1.505	1.293	1.420

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## Calculation of Class Relativities

Class(es): 4611 DRUG MEDICINE OR PHARMACEUTICAL PREP-NO MFG OF INGREDIENTS									Effective: 9/1/2012			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)			
2005	317.554	3	54	334.575	8.003	159.312	39.388	541.279	1.079	0.626	1.705			
2006	296.025	3	47	161.308	363.850	31.968	150.679	707.805	1.774	0.617	2.391			
2007	304.832	2	30	164.380	441.198	53.688	150.588	809.855	1.987	0.670	2.657			
2008	418.196	1	37	297.494	30.592	177.637	62.771	568.494	0.785	0.575	1.359			
2009	827.162	0	61	0	92.759	0	106.168	198.927	0.112	0.128	0.240			
<b>MA Total:</b>	<b>2,163.769</b>	<b>9</b>	<b>229</b>	<b>957.757</b>	<b>936.402</b>	<b>422.606</b>	<b>509.593</b>	<b>2,826.359</b>	<b>0.875</b>	<b>0.431</b>	<b>1.306</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.656	0.480	.
(14) Massachusetts Credibility:	0.340	0.520	.
(15) Countrywide Pure Premium:	0.552	0.373	0.925
(16) Countrywide Indicated Relativity:	0.478	0.478	.
(17) Countrywide Credibility:	0.330	0.240	.
(18) Countrywide Lost-Time Claims:	2005.0	.	.
(19) Pure Premium Underlying Present Rate:	0.715	0.607	1.322
(20) Relativity to Underlying Present Rate:	0.754	0.676	.
(21) Credibility to Underlying Relativity:	0.330	0.240	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.630	0.527	.
(24) Balanced Formula Relativity:	0.630	0.526	0.589

Class(es): 4635 OXYGEN OR HYDROGEN MFG & DRIVERS									Effective: 9/1/2012			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)			
2005	80.823	0	13	0	229.363	0	111.498	340.861	2.838	1.380	4.217			
2006	62.429	0	9	0	98.010	0	57.117	155.128	1.570	0.915	2.485			
2007	68.903	1	9	1.592	14.375	4.044	41.392	61.402	0.232	0.659	0.891			
2008	153.099	2	20	177.188	13.375	35.544	111.662	337.769	1.245	0.962	2.206			
2009	82.429	2	16	127.844	279.192	95.613	284.348	786.997	4.938	4.610	9.548			
<b>MA Total:</b>	<b>447.683</b>	<b>5</b>	<b>67</b>	<b>306.623</b>	<b>634.316</b>	<b>135.201</b>	<b>606.017</b>	<b>1,682.158</b>	<b>2.102</b>	<b>1.656</b>	<b>3.757</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.575	1.846	.
(14) Massachusetts Credibility:	0.240	0.390	.
(15) Countrywide Pure Premium:	1.318	0.902	2.220
(16) Countrywide Indicated Relativity:	1.141	1.156	.
(17) Countrywide Credibility:	0.380	0.310	.
(18) Countrywide Lost-Time Claims:	718.00	.	.
(19) Pure Premium Underlying Present Rate:	1.425	1.414	2.839
(20) Relativity to Underlying Present Rate:	1.502	1.574	.
(21) Credibility to Underlying Relativity:	0.380	0.300	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.383	1.550	.
(24) Balanced Formula Relativity:	1.384	1.550	1.451

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## Calculation of Class Relativities

Class(es): 4653 GLUE MFG & DRIVERS		Effective: 9/1/2012							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)
2005	26.109	0	2	0	0	0	1.964	1.964	0.000	0.075	0.075
2006	24.333	0	1	0	0	0	958	958	0.000	0.039	0.039
2007	26.611	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	26.001	0	3	0	2.568	0	36.617	39.185	0.099	1.408	1.507
2009	30.824	0	2	0	0	0	3.944	3.944	0.000	0.128	0.128
<b>MA Total:</b>	<b>133.879</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>2.568</b>	<b>0</b>	<b>43.485</b>	<b>46.052</b>	<b>0.019</b>	<b>0.325</b>	<b>0.344</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.014	0.362	.
(14) Massachusetts Credibility:	0.110	0.150	.
(15) Countrywide Pure Premium:	1.216	0.616	1.832
(16) Countrywide Indicated Relativity:	1.052	0.789	.
(17) Countrywide Credibility:	0.300	0.320	.
(18) Countrywide Lost-Time Claims:	57.000	.	.
(19) Pure Premium Underlying Present Rate:	0.641	0.480	1.121
(20) Relativity to Underlying Present Rate:	0.676	0.534	.
(21) Credibility to Underlying Relativity:	0.590	0.530	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.716	0.590	.
(24) Balanced Formula Relativity:	0.717	0.590	0.666

Class(es): 4665 RENDERING WORKS NOC & DR		Effective: 9/1/2012							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)
2005	38.616	1	13	162.269	421.726	176.059	322.616	1,082.671	15.123	12.914	28.037
2006	37.147	1	13	76.254	2.507	38.487	11.610	128.859	2.120	1.349	3.469
2007	40.903	0	13	0	133.400	0	56.183	189.583	3.261	1.374	4.635
2008	42.606	0	11	0	213.605	0	96.910	310.515	5.014	2.275	7.288
2009	44.738	0	10	0	24.679	0	30.704	55.383	0.552	0.686	1.238
<b>MA Total:</b>	<b>204.010</b>	<b>2</b>	<b>60</b>	<b>238.523</b>	<b>795.918</b>	<b>214.546</b>	<b>518.022</b>	<b>1,767.010</b>	<b>5.071</b>	<b>3.591</b>	<b>8.661</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.800	4.003	.
(14) Massachusetts Credibility:	0.240	0.410	.
(15) Countrywide Pure Premium:	4.296	3.354	7.650
(16) Countrywide Indicated Relativity:	3.718	4.298	.
(17) Countrywide Credibility:	0.380	0.300	.
(18) Countrywide Lost-Time Claims:	310.00	.	.
(19) Pure Premium Underlying Present Rate:	3.383	3.605	6.989
(20) Relativity to Underlying Present Rate:	3.568	4.012	.
(21) Credibility to Underlying Relativity:	0.380	0.290	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	3.681	4.094	.
(24) Balanced Formula Relativity:	3.686	4.093	3.850

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## Calculation of Class Relativities

Class(es): 4692 DENTAL LABORATORY		Effective: 9/1/2012							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)
2005	230,086	0	12	0	21,415	0	24,097	45,512	0.093	0.105	0.198
2006	264,954	1	8	24,871	28,872	28,669	27,523	109,935	0.203	0.212	0.415
2007	267,184	0	10	0	146,294	0	37,894	184,189	0.548	0.142	0.689
2008	278,143	1	7	482,565	183	50,663	3,640	537,051	1.736	0.195	1.931
2009	267,732	0	7	0	974	0	18,447	19,421	0.004	0.069	0.073
<b>MA Total:</b>	<b>1,308,101</b>	<b>2</b>	<b>44</b>	<b>507,437</b>	<b>197,738</b>	<b>79,332</b>	<b>111,601</b>	<b>896,108</b>	<b>0.539</b>	<b>0.146</b>	<b>0.685</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.404	0.163	.
(14) Massachusetts Credibility:	0.180	0.280	.
(15) Countrywide Pure Premium:	0.348	0.219	0.567
(16) Countrywide Indicated Relativity:	0.301	0.281	.
(17) Countrywide Credibility:	0.410	0.360	.
(18) Countrywide Lost-Time Claims:	210.00	.	.
(19) Pure Premium Underlying Present Rate:	0.262	0.219	0.481
(20) Relativity to Underlying Present Rate:	0.276	0.244	.
(21) Credibility to Underlying Relativity:	0.410	0.360	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.309	0.235	.
(24) Balanced Formula Relativity:	0.310	0.234	0.280

Class(es): 4693 PHARMACEUTICAL OR SURGICAL GOODS MFG NOC		Effective: 9/1/2012							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)
2005	205,589	0	11	0	19,922	0	37,753	57,675	0.097	0.184	0.281
2006	216,982	0	12	0	16,187	0	22,689	38,876	0.075	0.105	0.179
2007	252,056	3	18	449,806	291,057	105,746	239,194	1,085,804	2.939	1.369	4.308
2008	688,516	1	14	228,477	10,874	248,476	47,910	535,738	0.348	0.430	0.778
2009	308,732	1	9	43,859	13,838	11,728	12,520	81,945	0.187	0.079	0.265
<b>MA Total:</b>	<b>1,671,873</b>	<b>5</b>	<b>64</b>	<b>722,142</b>	<b>351,879</b>	<b>365,951</b>	<b>360,066</b>	<b>1,800,037</b>	<b>0.642</b>	<b>0.434</b>	<b>1.077</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.481	0.484	.
(14) Massachusetts Credibility:	0.250	0.420	.
(15) Countrywide Pure Premium:	0.534	0.341	0.874
(16) Countrywide Indicated Relativity:	0.462	0.437	.
(17) Countrywide Credibility:	0.380	0.290	.
(18) Countrywide Lost-Time Claims:	859.00	.	.
(19) Pure Premium Underlying Present Rate:	0.445	0.460	0.905
(20) Relativity to Underlying Present Rate:	0.470	0.512	.
(21) Credibility to Underlying Relativity:	0.370	0.290	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.470	0.478	.
(24) Balanced Formula Relativity:	0.470	0.478	0.474

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 Subsection G - Class Relativities  
 9/1/2012

Section IX - G  
 Exhibit 101

## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	142,539	1	33	463,261	45,252	19,050	128,507	656,070	3,568	1,035	4,603
2006	149,344	1	20	13,717	90,703	33,485	40,608	178,513	0,699	0,496	1,195
2007	153,071	0	22	0	5,198	0	18,963	24,161	0,034	0,124	0,158
2008	162,930	0	27	0	59,804	0	114,468	174,272	0,367	0,703	1,070
2009	151,537	0	23	0	24,360	0	74,273	98,632	0,161	0,490	0,651
<b>MA Total:</b>	<b>759,420</b>	<b>2</b>	<b>125</b>	<b>476,978</b>	<b>225,317</b>	<b>52,535</b>	<b>376,817</b>	<b>1,131,648</b>	<b>0,925</b>	<b>0,565</b>	<b>1,490</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.693	0.630	.
(14) Massachusetts Credibility:	0.220	0.380	.
(15) Countrywide Pure Premium:	1.189	0.828	2.017
(16) Countrywide Indicated Relativity:	1.029	1.062	.
(17) Countrywide Credibility:	0.390	0.310	.
(18) Countrywide Lost-Time Claims:	540.00	.	.
(19) Pure Premium Underlying Present Rate:	0.745	0.786	1.532
(20) Relativity to Underlying Present Rate:	0.786	0.875	.
(21) Credibility to Underlying Relativity:	0.390	0.310	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.860	0.840	.
(24) Balanced Formula Relativity:	0.862	0.840	0.853

Class(es):		Effective: 9/1/2012							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)
2005	12,647	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	15,722	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	4,788	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	14,901	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	19,283	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>67,341</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.070	0.100	.
(15) Countrywide Pure Premium:	0.501	0.375	0.876
(16) Countrywide Indicated Relativity:	0.434	0.480	.
(17) Countrywide Credibility:	0.470	0.450	.
(18) Countrywide Lost-Time Claims:	456.00	.	.
(19) Pure Premium Underlying Present Rate:	0.461	0.349	0.810
(20) Relativity to Underlying Present Rate:	0.486	0.388	.
(21) Credibility to Underlying Relativity:	0.460	0.450	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.427	0.391	.
(24) Balanced Formula Relativity:	0.428	0.391	0.413

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 Subsection G - Class Relativities  
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Section IX - G  
 Exhibit 102

## Calculation of Class Relativities

Class(es): 4741 ASPHALT OR TAR DISTILLING OR REFINING & DRIVERS									Effective: 9/1/2012			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)			
2005	1,023	0	1	0	6,042	0	7,375	13,417	5,906	7,209	13,116			
2006	2,085	0	0	0	0	0	0	0	0,000	0,000	0,000			
2007	36,046	1	2	156,344	13,699	63,126	5,426	238,595	4,717	1,902	6,619			
2008	10,781	0	2	0	0	0	899	899	0,000	0,083	0,083			
2009	7,658	0	0	0	0	0	0	0	0,000	0,000	0,000			
<b>MA Total:</b>	<b>57,594</b>	<b>1</b>	<b>5</b>	<b>156,344</b>	<b>19,741</b>	<b>63,126</b>	<b>13,700</b>	<b>252,911</b>	<b>3,057</b>	<b>1,334</b>	<b>4,391</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.292	1.487	.
(14) Massachusetts Credibility:	0.110	0.160	.
(15) Countrywide Pure Premium:	0.890	0.506	1.396
(16) Countrywide Indicated Relativity:	0.770	0.648	.
(17) Countrywide Credibility:	0.420	0.420	.
(18) Countrywide Lost-Time Claims:	129.00	.	.
(19) Pure Premium Underlying Present Rate:	1.749	1.124	2.873
(20) Relativity to Underlying Present Rate:	1.844	1.250	.
(21) Credibility to Underlying Relativity:	0.470	0.420	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.443	1.035	.
(24) Balanced Formula Relativity:	1.444	1.035	1.280

Class(es): 4770 EXPLOSIVES OR AMMUNITION MFG: BAG LOADING-PROPLNT CHRGS & DR									Effective: 9/1/2012			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)			
2005	0	0	0	0	0	0	0	0	0,000	0,000	0,000			
2006	0	0	0	0	0	0	0	0	0,000	0,000	0,000			
2007	0	0	0	0	0	0	0	0	0,000	0,000	0,000			
2008	0	0	0	0	0	0	0	0	0,000	0,000	0,000			
2009	0	0	0	0	0	0	0	0	0,000	0,000	0,000			
<b>MA Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>			

	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:	8.091	1.239	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	7.815	1.134	8.949
(20) Relativity to Underlying Present Rate:	8.242	1.262	.
(21) Credibility to Underlying Relativity:	1.000	1.000	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	8.242	1.262	.
(24) Balanced Formula Relativity:	8.253	1.262	5.442

# IX 000173

## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							Manufacturing		
4773 EXPLOSIVES OR AMMUNITION MFG: HIGH EXPLOSIVES 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)
2005	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	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	0.000	0.000
(16) Countrywide Indicated Relativity:	16.456	2.326	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	15.895	2.129	18.024
(20) Relativity to Underlying Present Rate:	16.763	2.369	.
(21) Credibility to Underlying Relativity:	1.000	1.000	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	16.763	2.369	.
(24) Balanced Formula Relativity:	16.785	2.369	10.989

Class(es):		Effective: 9/1/2012							Manufacturing		
4774 EXPLOSIVES OR AMMUNITION MFG: SMOKELESS PWDR MFG-SNGL BS & 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)
2005	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	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	0.000	0.000
(16) Countrywide Indicated Relativity:	13.501	2.161	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	13.041	1.978	15.019
(20) Relativity to Underlying Present Rate:	13.752	2.201	.
(21) Credibility to Underlying Relativity:	1.000	1.000	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	13.752	2.201	.
(24) Balanced Formula Relativity:	13.770	2.201	9.119

# IX 000174

Section IX - Classification Pricing  
 Subsection G - Class Relativities  
 9/1/2012

Section IX - G  
 Exhibit 104

## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							Manufacturing		
4775 EXPLOSIVES OR AMMUNITION MFG: SHELL CASE LOADING & 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)
2005	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	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	0.033	0.033
(16) Countrywide Indicated Relativity:	0.000	0.043	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	39.610	36.273	75.883
(20) Relativity to Underlying Present Rate:	41.771	40.366	.
(21) Credibility to Underlying Relativity:	1.000	1.000	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	41.771	40.366	.
(24) Balanced Formula Relativity:	41.827	40.359	41.237

Class(es):		Effective: 9/1/2012							Manufacturing		
4776 EXPLOSIVES OR AMMUNITION MFG: PROJCTL,BOMB, MINE,GRENADE &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)
2005	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	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	0.000	0.000
(16) Countrywide Indicated Relativity:	12.148	1.188	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	11.734	1.087	12.822
(20) Relativity to Underlying Present Rate:	12.374	1.210	.
(21) Credibility to Underlying Relativity:	1.000	1.000	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	12.374	1.210	.
(24) Balanced Formula Relativity:	12.391	1.210	7.896

# IX 000175

Section IX - Classification Pricing  
 Subsection G - Class Relativities  
 9/1/2012

Section IX - G  
 Exhibit 105

## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							Manufacturing		
4779 EXPLOSIVES OR AMMUNITION MFG: CAP,PRIMER,FUSE, ASSEMBLY & 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)
2005	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	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:	1.194	1.927	3.122
(16) Countrywide Indicated Relativity:	1.033	2.470	.
(17) Countrywide Credibility:	0.110	0.120	.
(18) Countrywide Lost-Time Claims:	5.000	.	.
(19) Pure Premium Underlying Present Rate:	9.447	2.181	11.628
(20) Relativity to Underlying Present Rate:	9.963	2.427	.
(21) Credibility to Underlying Relativity:	0.890	0.880	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	8.980	2.432	.
(24) Balanced Formula Relativity:	8.992	2.431	6.355

Class(es):		Effective: 9/1/2012							Manufacturing		
4799 EXPLOSIVES OR AMMUNITION MFG: BLACK POWDER 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)
2005	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	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	0.000	0.000
(16) Countrywide Indicated Relativity:	29.796	4.569	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	28.781	4.182	32.963
(20) Relativity to Underlying Present Rate:	30.351	4.654	.
(21) Credibility to Underlying Relativity:	1.000	1.000	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	30.351	4.654	.
(24) Balanced Formula Relativity:	30.392	4.653	20.043

# IX 000176

## Calculation of Class Relativities

Class(es):									Effective: 9/1/2012			Manufacturing		
4825 DRUG, MEDICINE OR PHARM PREP MFG & INCIDENTAL MFG INGREDIENTS														
Converted Unlimited Losses														
Amount														
		Claim Count		Indemnity		Medical		Total	MA Indicated Pure Premiums					
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)			
2005	479,040	2	18	46,315	7,606	11,824	50,715	116,460	0.113	0.131	0.243			
2006	542,355	2	31	137,927	222,328	25,648	158,248	544,151	0.664	0.339	1.003			
2007	616,553	1	50	9,991	77,904	2,791	122,634	213,321	0.143	0.203	0.346			
2008	1,027,145	0	40	0	128,379	0	125,007	253,385	0.125	0.122	0.247			
2009	1,255,879	2	31	298,338	23,770	233,477	89,385	644,971	0.256	0.257	0.514			
<b>MA Total:</b>	<b>3,920,972</b>	<b>7</b>	<b>170</b>	<b>492,572</b>	<b>459,988</b>	<b>273,740</b>	<b>545,989</b>	<b>1,772,288</b>	<b>0.243</b>	<b>0.209</b>	<b>0.452</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.182	0.233	.
(14) Massachusetts Credibility:	0.300	0.460	.
(15) Countrywide Pure Premium:	0.444	0.277	0.721
(16) Countrywide Indicated Relativity:	0.385	0.355	.
(17) Countrywide Credibility:	0.350	0.270	.
(18) Countrywide Lost-Time Claims:	584.00	.	.
(19) Pure Premium Underlying Present Rate:	0.292	0.251	0.544
(20) Relativity to Underlying Present Rate:	0.308	0.280	.
(21) Credibility to Underlying Relativity:	0.350	0.270	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.297	0.279	.
(24) Balanced Formula Relativity:	0.298	0.278	0.290

Class(es):									Effective: 9/1/2012			Manufacturing		
4828 CHEMICAL BLENDING OR MIXING NOC- ALL OPERS & DR														
Converted Unlimited Losses														
Amount														
		Claim Count		Indemnity		Medical		Total	MA Indicated Pure Premiums					
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)			
2005	693,534	5	45	242,733	72,472	76,844	94,729	486,779	0.454	0.247	0.702			
2006	804,024	5	58	572,323	239,521	342,609	183,333	1,337,786	1.010	0.654	1.664			
2007	775,910	3	37	507,578	372,504	391,295	140,204	1,411,581	1.134	0.685	1.819			
2008	608,275	0	23	0	480,289	0	207,390	687,679	0.790	0.341	1.131			
2009	965,246	1	29	143,330	225,380	58,726	134,336	561,772	0.382	0.200	0.582			
<b>MA Total:</b>	<b>3,846,989</b>	<b>14</b>	<b>192</b>	<b>1,465,964</b>	<b>1,390,165</b>	<b>869,475</b>	<b>759,993</b>	<b>4,485,596</b>	<b>0.742</b>	<b>0.424</b>	<b>1.166</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.556	0.472	.
(14) Massachusetts Credibility:	0.380	0.560	.
(15) Countrywide Pure Premium:	0.814	0.515	1.329
(16) Countrywide Indicated Relativity:	0.704	0.660	.
(17) Countrywide Credibility:	0.310	0.220	.
(18) Countrywide Lost-Time Claims:	2068.0	.	.
(19) Pure Premium Underlying Present Rate:	0.534	0.420	0.955
(20) Relativity to Underlying Present Rate:	0.564	0.468	.
(21) Credibility to Underlying Relativity:	0.310	0.220	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	0.605	0.513	.
(24) Balanced Formula Relativity:	0.605	0.513	0.568

# IX 000177

## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	210.122	0	48	0	1,726.114	0	832,861	2,558,974	8,215	3,964	12,179
2006	210.936	3	45	204,695	772,289	71,064	584,280	1,632,327	4,632	3,107	7,738
2007	220.492	2	27	242,192	1,144,469	154,554	323,283	1,864,499	6,289	2,167	8,456
2008	214.929	2	34	801,925	914,677	461,616	342,935	2,521,152	7,987	3,743	11,730
2009	177.963	2	23	200,250	331,830	206,029	172,787	910,896	2,990	2,129	5,118
<b>MA Total:</b>	<b>1,034,443</b>	<b>9</b>	<b>177</b>	<b>1,449,062</b>	<b>4,889,379</b>	<b>893,262</b>	<b>2,256,146</b>	<b>9,487,849</b>	<b>6,127</b>	<b>3,045</b>	<b>9,172</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.735	1.499	.
(14) Massachusetts Credibility:	0.410	0.650	.
(15) Countrywide Pure Premium:	4.117	1.940	6.057
(16) Countrywide Indicated Relativity:	1.210	0.985	.
(17) Countrywide Credibility:	0.300	0.180	.
(18) Countrywide Lost-Time Claims:	449.00	.	.
(19) Pure Premium Underlying Present Rate:	2.464	2.253	4.718
(20) Relativity to Underlying Present Rate:	1.090	1.164	.
(21) Credibility to Underlying Relativity:	0.290	0.170	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	1.390	1.349	.
(24) Balanced Formula Relativity:	1.417	1.355	1.395

Class(es):		Effective: 9/1/2012							Construction		
5022 MASONRY 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)
2005	1,085,499	33	253	6,860,700	3,470,693	3,793,940	1,616,683	15,742,016	9,518	4,984	14,502
2006	1,081,583	26	210	4,990,095	4,262,735	1,860,730	2,008,025	13,121,585	8,555	3,577	12,132
2007	994,916	14	168	3,510,150	3,457,152	1,056,560	1,325,292	9,349,153	7,003	2,394	9,397
2008	974,582	9	131	1,463,866	1,981,361	932,396	1,194,744	5,572,366	3,535	2,183	5,718
2009	771,838	10	99	2,177,948	3,300,032	662,318	1,524,804	7,665,101	7,097	2,834	9,931
<b>MA Total:</b>	<b>4,908,418</b>	<b>92</b>	<b>861</b>	<b>19,002,759</b>	<b>16,471,973</b>	<b>8,305,943</b>	<b>7,669,547</b>	<b>51,450,222</b>	<b>7,227</b>	<b>3,255</b>	<b>10,482</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.046	1.602	.
(14) Massachusetts Credibility:	0.980	1.000	.
(15) Countrywide Pure Premium:	4.566	2.520	7.086
(16) Countrywide Indicated Relativity:	1.342	1.280	.
(17) Countrywide Credibility:	0.010	0.000	.
(18) Countrywide Lost-Time Claims:	8526.0	.	.
(19) Pure Premium Underlying Present Rate:	4.663	3.300	7.963
(20) Relativity to Underlying Present Rate:	2.063	1.704	.
(21) Credibility to Underlying Relativity:	0.010	0.000	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	2.039	1.602	.
(24) Balanced Formula Relativity:	2.079	1.609	1.907

# IX 000178

## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							Construction		
5037 PAINTING: METAL STRUCTURES-OVER 2 STORIES IN HEIGHT & 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)
2005	7,160	3	4	864,893	26,005	200,234	29,183	1,120,315	124.43	32,042	156.47
2006	5,423	1	0	652,375	0	392,527	0	1,044,903	120.30	72,382	192.68
2007	6,085	0	2	0	0	0	41,903	41,903	0.000	6,886	6.886
2008	11,609	0	1	0	0	0	14,026	14,026	0.000	1,208	1.208
2009	35,246	3	2	948,036	254,439	1,148,237	103,912	2,454,624	34.117	35,526	69.644
<b>MA Total:</b>	<b>65,523</b>	<b>7</b>	<b>9</b>	<b>2,465,304</b>	<b>280,444</b>	<b>1,740,998</b>	<b>189,025</b>	<b>4,675,771</b>	<b>41.905</b>	<b>29,456</b>	<b>71.361</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	11.863	14.500	.
(14) Massachusetts Credibility:	0.260	0.310	.
(15) Countrywide Pure Premium:	15.296	6.035	21.330
(16) Countrywide Indicated Relativity:	4.495	3.064	.
(17) Countrywide Credibility:	0.290	0.310	.
(18) Countrywide Lost-Time Claims:	54.000	.	.
(19) Pure Premium Underlying Present Rate:	12.030	5.697	17.728
(20) Relativity to Underlying Present Rate:	5.322	2.943	.
(21) Credibility to Underlying Relativity:	0.450	0.380	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	6.783	6.563	.
(24) Balanced Formula Relativity:	6.916	6.592	6.797

Class(es):		Effective: 9/1/2012							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)
2005	95,406	8	140	741,695	3,582,486	229,223	1,173,548	5,726,952	45.324	14,703	60.027
2006	79,577	5	113	1,219,228	2,438,418	402,098	1,043,531	5,103,274	45.964	18,166	64.130
2007	70,894	6	70	1,797,440	2,803,817	690,233	1,209,489	6,500,979	64.903	26,797	91.700
2008	57,405	9	49	1,363,238	1,563,269	450,858	628,577	4,005,942	50.980	18,804	69.783
2009	53,505	4	41	1,002,582	2,760,455	325,865	909,471	4,998,372	70.330	23,088	93.419
<b>MA Total:</b>	<b>356,788</b>	<b>32</b>	<b>413</b>	<b>6,124,182</b>	<b>13,148,444</b>	<b>2,098,277</b>	<b>4,964,616</b>	<b>26,335,520</b>	<b>54.017</b>	<b>19,796</b>	<b>73.813</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	15.292	9.745	.
(14) Massachusetts Credibility:	0.690	0.950	.
(15) Countrywide Pure Premium:	11.877	6.323	18.200
(16) Countrywide Indicated Relativity:	3.491	3.211	.
(17) Countrywide Credibility:	0.160	0.030	.
(18) Countrywide Lost-Time Claims:	1465.0	.	.
(19) Pure Premium Underlying Present Rate:	25.943	16.565	42.508
(20) Relativity to Underlying Present Rate:	11.478	8.555	.
(21) Credibility to Underlying Relativity:	0.150	0.020	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	12.831	9.525	.
(24) Balanced Formula Relativity:	13.082	9.567	11.799

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	77,014	4	29	422,249	1,198,580	414,896	496,451	2,532,176	21,046	11,833	32,879
2006	74,543	3	36	66,430	337,477	24,476	239,418	667,802	5,418	3,540	8,959
2007	83,083	3	51	752,806	868,317	1,312,319	557,537	3,490,978	19,512	22,506	42,018
2008	74,897	2	38	383,142	1,346,692	505,953	534,722	2,770,508	23,096	13,895	36,991
2009	68,391	2	13	295,027	132,308	160,658	73,773	661,767	6,248	3,428	9,676
<b>MA Total:</b>	<b>377,928</b>	<b>14</b>	<b>167</b>	<b>1,919,654</b>	<b>3,883,375</b>	<b>2,418,302</b>	<b>1,901,901</b>	<b>10,123,232</b>	<b>15,355</b>	<b>11,431</b>	<b>26,786</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	4.347	5.627	.
(14) Massachusetts Credibility:	0.560	0.800	.
(15) Countrywide Pure Premium:	5.389	3.313	8.703
(16) Countrywide Indicated Relativity:	1.584	1.682	.
(17) Countrywide Credibility:	0.220	0.100	.
(18) Countrywide Lost-Time Claims:	1565.0	.	.
(19) Pure Premium Underlying Present Rate:	14.689	10.205	24.895
(20) Relativity to Underlying Present Rate:	6.499	5.271	.
(21) Credibility to Underlying Relativity:	0.220	0.100	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	4.212	5.197	.
(24) Balanced Formula Relativity:	4.295	5.220	4.633

Class(es):		Effective: 9/1/2012							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)
2005	320,687	4	51	789,534	994,859	124,290	420,154	2,328,837	5,564	1,698	7,262
2006	386,266	9	99	2,196,993	2,752,592	745,344	815,615	6,510,544	12,814	4,041	16,855
2007	398,396	2	70	878,338	695,464	129,623	443,854	2,147,279	3,950	1,439	5,390
2008	410,004	2	59	588,654	874,164	139,449	377,954	1,980,221	3,568	1,262	4,830
2009	341,554	2	54	679,293	744,156	178,086	732,027	2,333,562	4,168	2,665	6,832
<b>MA Total:</b>	<b>1,856,906</b>	<b>19</b>	<b>333</b>	<b>5,132,811</b>	<b>6,061,235</b>	<b>1,316,791</b>	<b>2,789,605</b>	<b>15,300,442</b>	<b>6,028</b>	<b>2,211</b>	<b>8,240</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.707	1.089	.
(14) Massachusetts Credibility:	0.570	0.800	.
(15) Countrywide Pure Premium:	4.416	2.353	6.769
(16) Countrywide Indicated Relativity:	1.298	1.195	.
(17) Countrywide Credibility:	0.220	0.100	.
(18) Countrywide Lost-Time Claims:	2059.0	.	.
(19) Pure Premium Underlying Present Rate:	3.109	2.090	5.199
(20) Relativity to Underlying Present Rate:	1.376	1.079	.
(21) Credibility to Underlying Relativity:	0.210	0.100	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	1.547	1.098	.
(24) Balanced Formula Relativity:	1.577	1.103	1.404

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	474,118	8	122	512,148	1,359,047	381,080	869,601	3,121,877	3,947	2,638	6,585
2006	513,701	10	160	787,406	1,096,609	1,177,569	521,251	3,582,835	3,668	3,307	6,975
2007	553,231	4	110	498,713	689,057	166,176	706,271	2,060,218	2,147	1,577	3,724
2008	536,855	6	93	507,688	635,140	169,079	374,948	1,686,854	2,129	1,013	3,142
2009	531,639	6	69	1,678,513	542,724	653,662	340,782	3,215,681	4,178	1,871	6,049
<b>MA Total:</b>	<b>2,609,544</b>	<b>34</b>	<b>554</b>	<b>3,984,469</b>	<b>4,322,577</b>	<b>2,547,566</b>	<b>2,812,852</b>	<b>13,667,465</b>	<b>3,183</b>	<b>2,054</b>	<b>5,237</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.901	1.011	.
(14) Massachusetts Credibility:	0.570	0.850	.
(15) Countrywide Pure Premium:	3.452	1.854	5.307
(16) Countrywide Indicated Relativity:	1.015	0.942	.
(17) Countrywide Credibility:	0.220	0.080	.
(18) Countrywide Lost-Time Claims:	2011.0	.	.
(19) Pure Premium Underlying Present Rate:	2.277	1.751	4.028
(20) Relativity to Underlying Present Rate:	1.007	0.904	.
(21) Credibility to Underlying Relativity:	0.210	0.070	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	0.948	0.998	.
(24) Balanced Formula Relativity:	0.967	1.003	0.980

Class(es):		Effective: 9/1/2012							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)
2005	310,097	4	47	79,788	307,838	158,259	126,346	672,232	1,250	0,918	2,168
2006	408,804	2	46	280,827	749,296	56,714	375,611	1,462,447	2,520	1,058	3,577
2007	438,315	4	70	466,611	574,334	205,330	482,662	1,728,937	2,375	1,570	3,945
2008	412,985	1	34	247,856	132,703	102,591	134,293	617,443	0,921	0,574	1,495
2009	328,544	2	33	286,455	210,563	142,843	147,372	787,233	1,513	0,883	2,396
<b>MA Total:</b>	<b>1,898,744</b>	<b>13</b>	<b>230</b>	<b>1,361,537</b>	<b>1,974,733</b>	<b>665,738</b>	<b>1,266,284</b>	<b>5,268,292</b>	<b>1,757</b>	<b>1,018</b>	<b>2,775</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.497	0.501	.
(14) Massachusetts Credibility:	0.460	0.690	.
(15) Countrywide Pure Premium:	2.008	1.017	3.025
(16) Countrywide Indicated Relativity:	0.590	0.517	.
(17) Countrywide Credibility:	0.270	0.160	.
(18) Countrywide Lost-Time Claims:	786.00	.	.
(19) Pure Premium Underlying Present Rate:	1.760	1.438	3.198
(20) Relativity to Underlying Present Rate:	0.779	0.743	.
(21) Credibility to Underlying Relativity:	0.270	0.150	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	0.598	0.540	.
(24) Balanced Formula Relativity:	0.610	0.542	0.585

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	5,587,018	40	1,123	4,381,900	6,482,583	2,656,257	4,395,623	17916362	1,945	1,262	3,207
2006	5,390,436	45	999	5,254,684	7,509,850	2,053,525	5,406,281	20224341	2,368	1,384	3,752
2007	5,487,551	31	857	5,064,023	6,203,298	2,165,805	4,123,726	17556852	2,053	1,146	3,199
2008	5,286,335	26	707	4,379,456	5,655,327	1,856,165	3,393,398	15284345	1,898	0,993	2,891
2009	4,722,570	24	587	4,399,352	5,742,112	1,787,685	3,211,304	15140453	2,147	1,059	3,206
<b>MA Total:</b>	<b>26473910</b>	<b>166</b>	<b>4,273</b>	<b>23479414</b>	<b>31593170</b>	<b>10519436</b>	<b>20530332</b>	<b>86122352</b>	<b>2,080</b>	<b>1,173</b>	<b>3,253</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.589	0.577	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	2.454	1.310	3.764
(16) Countrywide Indicated Relativity:	0.721	0.665	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	14368	.	.
(19) Pure Premium Underlying Present Rate:	1.387	1.254	2.641
(20) Relativity to Underlying Present Rate:	0.614	0.648	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	0.589	0.577	.
(24) Balanced Formula Relativity:	0.600	0.580	0.593

Class(es):		Effective: 9/1/2012							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)
2005	716,250	2	127	63,151	1,115,192	268,111	488,510	1,934,964	1,645	1,056	2,702
2006	755,283	10	135	1,561,035	939,188	662,412	509,700	3,672,335	3,310	1,552	4,862
2007	724,817	9	99	1,309,333	880,990	587,877	609,796	3,387,997	3,022	1,652	4,674
2008	660,225	7	70	1,646,274	1,623,094	733,369	524,488	4,527,226	4,952	1,905	6,857
2009	519,816	2	64	1,232,554	1,285,908	191,609	711,542	3,421,613	4,845	1,737	6,582
<b>MA Total:</b>	<b>3,376,391</b>	<b>30</b>	<b>495</b>	<b>5,812,347</b>	<b>5,844,372</b>	<b>2,443,378</b>	<b>2,844,036</b>	<b>16944133</b>	<b>3,452</b>	<b>1,566</b>	<b>5,018</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.977	0.771	.
(14) Massachusetts Credibility:	0.580	0.840	.
(15) Countrywide Pure Premium:	2.509	1.397	3.905
(16) Countrywide Indicated Relativity:	0.737	0.709	.
(17) Countrywide Credibility:	0.210	0.080	.
(18) Countrywide Lost-Time Claims:	1645.0	.	.
(19) Pure Premium Underlying Present Rate:	1.811	1.308	3.119
(20) Relativity to Underlying Present Rate:	0.801	0.675	.
(21) Credibility to Underlying Relativity:	0.210	0.080	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	0.890	0.758	.
(24) Balanced Formula Relativity:	0.907	0.762	0.854

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	6,246,212	41	1,119	3,674,849	6,706,982	2,910,694	4,322,258	17614782	1,662	1,158	2,820
2006	6,294,251	33	940	4,160,411	6,585,111	2,025,220	5,564,879	18335621	1,707	1,206	2,913
2007	6,592,394	24	855	4,089,298	7,050,988	2,457,463	3,854,667	17452416	1,690	0,957	2,647
2008	6,180,133	25	682	5,533,926	4,783,171	2,725,253	3,346,381	16388732	1,669	0,982	2,652
2009	5,540,908	22	566	3,398,982	4,632,547	1,790,966	3,080,613	12903108	1,449	0,879	2,329
<b>MA Total:</b>	<b>30853898</b>	<b>145</b>	<b>4,162</b>	<b>20857466</b>	<b>29758799</b>	<b>11909596</b>	<b>20168798</b>	<b>82694659</b>	<b>1,641</b>	<b>1,040</b>	<b>2,680</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.464	0.512	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	2.159	1.209	3.368
(16) Countrywide Indicated Relativity:	0.634	0.614	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	15977	.	.
(19) Pure Premium Underlying Present Rate:	1.108	1.037	2.144
(20) Relativity to Underlying Present Rate:	0.490	0.535	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	0.464	0.512	.
(24) Balanced Formula Relativity:	0.473	0.514	0.488

Class(es):		Effective: 9/1/2012							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)
2005	3,295,337	13	219	1,486,908	822,142	1,179,015	949,354	4,437,420	0.701	0.646	1.347
2006	3,615,147	9	204	756,170	560,786	325,763	761,051	2,403,770	0.364	0.301	0.665
2007	3,916,838	10	250	1,055,818	1,243,559	298,823	933,352	3,531,552	0.587	0.315	0.902
2008	3,650,465	11	216	1,286,564	1,337,722	886,468	1,077,691	4,588,446	0.719	0.538	1.257
2009	3,587,215	6	168	551,446	1,935,105	185,230	952,684	3,624,466	0.693	0.317	1.010
<b>MA Total:</b>	<b>18065003</b>	<b>49</b>	<b>1,057</b>	<b>5,136,908</b>	<b>5,899,314</b>	<b>2,875,299</b>	<b>4,674,132</b>	<b>18585654</b>	<b>0,611</b>	<b>0,418</b>	<b>1,029</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.570	0.538	.
(14) Massachusetts Credibility:	0.620	1.000	.
(15) Countrywide Pure Premium:	0.475	0.285	0.760
(16) Countrywide Indicated Relativity:	0.448	0.369	.
(17) Countrywide Credibility:	0.190	0.000	.
(18) Countrywide Lost-Time Claims:	3918.0	.	.
(19) Pure Premium Underlying Present Rate:	0.396	0.386	0.781
(20) Relativity to Underlying Present Rate:	0.579	0.542	.
(21) Credibility to Underlying Relativity:	0.190	0.000	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	0.549	0.538	.
(24) Balanced Formula Relativity:	0.547	0.538	0.543

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	271,231	6	58	360,501	129,180	88,391	110,775	688,846	1,805	0,734	2,540
2006	301,300	5	38	780,679	33,710	175,216	51,814	1,041,418	2,703	0,754	3,456
2007	344,257	6	63	748,598	119,896	381,602	128,838	1,378,934	2,523	1,483	4,006
2008	317,044	5	45	434,824	341,068	214,937	195,710	1,186,538	2,447	1,295	3,743
2009	328,336	1	55	32,975	341,657	21,283	369,441	765,355	1,141	1,190	2,331
<b>MA Total:</b>	<b>1,562,168</b>	<b>23</b>	<b>259</b>	<b>2,357,576</b>	<b>965,511</b>	<b>881,427</b>	<b>856,578</b>	<b>5,061,092</b>	<b>2,127</b>	<b>1,113</b>	<b>3,240</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.985	1.433	.
(14) Massachusetts Credibility:	0.410	0.630	.
(15) Countrywide Pure Premium:	1.802	1.144	2,946
(16) Countrywide Indicated Relativity:	1.701	1.481	.
(17) Countrywide Credibility:	0.300	0.190	.
(18) Countrywide Lost-Time Claims:	1934.0	.	.
(19) Pure Premium Underlying Present Rate:	1.634	1.351	2,986
(20) Relativity to Underlying Present Rate:	2.393	1.900	.
(21) Credibility to Underlying Relativity:	0.290	0.180	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1,848
(23) Formula Relativity:	2.018	1.526	.
(24) Balanced Formula Relativity:	2.010	1.525	1,806

Class(es):		Effective: 9/1/2012							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)
2005	403,923	9	255	1,829,803	2,908,368	445,482	1,394,870	6,578,524	11,730	4,556	16,287
2006	397,233	6	167	538,289	1,608,578	186,023	2,135,102	4,467,994	5,405	5,843	11,248
2007	452,884	6	196	1,822,797	3,294,618	759,510	1,157,370	7,034,296	11,300	4,233	15,532
2008	370,343	8	132	2,235,835	1,612,744	923,628	792,952	5,565,159	10,392	4,635	15,027
2009	268,956	1	64	125,541	948,636	102,111	628,474	1,804,762	3,994	2,716	6,710
<b>MA Total:</b>	<b>1,893,339</b>	<b>30</b>	<b>814</b>	<b>6,552,266</b>	<b>10,372,944</b>	<b>2,416,755</b>	<b>6,108,770</b>	<b>25,450,734</b>	<b>8,939</b>	<b>4,503</b>	<b>13,442</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.531	2.217	.
(14) Massachusetts Credibility:	0.860	1.000	.
(15) Countrywide Pure Premium:	4.555	2.425	6,981
(16) Countrywide Indicated Relativity:	1.339	1.232	.
(17) Countrywide Credibility:	0.070	0.000	.
(18) Countrywide Lost-Time Claims:	6687.0	.	.
(19) Pure Premium Underlying Present Rate:	8.589	5.633	14,222
(20) Relativity to Underlying Present Rate:	3.800	2.909	.
(21) Credibility to Underlying Relativity:	0.070	0.000	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5,564
(23) Formula Relativity:	2.536	2.217	.
(24) Balanced Formula Relativity:	2.586	2.226	2,454

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	607,247	8	118	1,020,173	1,392,068	473,701	660,635	3,546,578	3,972	1,868	5,840
2006	560,572	7	102	1,143,665	664,299	559,014	692,342	3,059,319	3,225	2,232	5,457
2007	520,179	4	84	242,184	629,512	174,420	348,873	1,394,989	1,676	1,006	2,682
2008	425,782	5	52	345,356	734,596	384,759	536,477	2,001,187	2,536	2,164	4,700
2009	374,912	3	62	570,224	809,327	120,729	577,300	2,077,579	3,680	1,862	5,542
<b>MA Total:</b>	<b>2,488,691</b>	<b>27</b>	<b>418</b>	<b>3,321,602</b>	<b>4,229,801</b>	<b>1,712,622</b>	<b>2,815,628</b>	<b>12079652</b>	<b>3,034</b>	<b>1,820</b>	<b>4,854</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.859	0.896	.
(14) Massachusetts Credibility:	0.540	0.870	.
(15) Countrywide Pure Premium:	3.541	1.835	5.376
(16) Countrywide Indicated Relativity:	1.041	0.932	.
(17) Countrywide Credibility:	0.230	0.070	.
(18) Countrywide Lost-Time Claims:	2848.0	.	.
(19) Pure Premium Underlying Present Rate:	2.084	1.943	4.027
(20) Relativity to Underlying Present Rate:	0.922	1.003	.
(21) Credibility to Underlying Relativity:	0.230	0.060	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	0.915	0.905	.
(24) Balanced Formula Relativity:	0.933	0.909	0.924

Class(es):		Effective: 9/1/2012							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)
2005	1,032,785	14	283	2,481,281	2,749,801	1,729,791	1,547,973	8,508,846	5,065	3,174	8,239
2006	1,077,169	14	267	2,174,604	3,226,793	945,269	1,440,915	7,787,581	5,014	2,215	7,230
2007	1,020,921	17	203	3,681,335	1,653,488	1,564,504	1,084,432	7,983,759	5,225	2,595	7,820
2008	1,028,320	12	171	2,527,804	2,446,027	2,118,024	1,624,842	8,716,697	4,837	3,640	8,477
2009	945,390	10	138	821,558	2,499,862	553,445	1,107,162	4,982,028	3,513	1,757	5,270
<b>MA Total:</b>	<b>5,104,585</b>	<b>67</b>	<b>1,062</b>	<b>11686583</b>	<b>12575970</b>	<b>6,911,033</b>	<b>6,805,324</b>	<b>37978910</b>	<b>4,753</b>	<b>2,687</b>	<b>7,440</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.346	1.323	.
(14) Massachusetts Credibility:	0.790	1.000	.
(15) Countrywide Pure Premium:	2.890	1.586	4.476
(16) Countrywide Indicated Relativity:	0.849	0.806	.
(17) Countrywide Credibility:	0.110	0.000	.
(18) Countrywide Lost-Time Claims:	9526.0	.	.
(19) Pure Premium Underlying Present Rate:	2.626	2.082	4.708
(20) Relativity to Underlying Present Rate:	1.162	1.075	.
(21) Credibility to Underlying Relativity:	0.100	0.000	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	1.273	1.323	.
(24) Balanced Formula Relativity:	1.297	1.329	1.309

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	159,458	4	25	1,511,505	470,356	662,467	463,430	3,107,758	12,429	7,061	19,489
2006	205,603	1	48	144,127	2,133,684	53,895	579,628	2,911,334	11,079	3,081	14,160
2007	180,773	1	31	577,410	676,576	410,142	266,700	1,930,829	6,937	3,744	10,681
2008	204,719	1	20	334,425	884,847	47,174	811,595	2,078,042	5,956	4,195	10,151
2009	244,440	4	26	602,711	892,769	216,205	485,076	2,196,761	6,118	2,869	8,987
<b>MA Total:</b>	<b>994,994</b>	<b>11</b>	<b>150</b>	<b>3,170,178</b>	<b>5,058,233</b>	<b>1,389,883</b>	<b>2,606,430</b>	<b>12,224,724</b>	<b>8,270</b>	<b>4,016</b>	<b>12,286</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.341	1.977	.
(14) Massachusetts Credibility:	0.470	0.710	.
(15) Countrywide Pure Premium:	4.978	2.688	7.665
(16) Countrywide Indicated Relativity:	1.463	1.365	.
(17) Countrywide Credibility:	0.270	0.150	.
(18) Countrywide Lost-Time Claims:	1181.0	.	.
(19) Pure Premium Underlying Present Rate:	3.680	2.885	6.565
(20) Relativity to Underlying Present Rate:	1.628	1.490	.
(21) Credibility to Underlying Relativity:	0.260	0.140	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	1.919	1.817	.
(24) Balanced Formula Relativity:	1.956	1.825	1.908

Class(es):		Effective: 9/1/2012							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)
2005	416,240	6	80	1,045,705	986,615	886,956	405,546	3,324,823	4,883	3,105	7,988
2006	437,104	7	57	1,387,976	903,051	272,097	379,884	2,943,008	5,241	1,492	6,733
2007	494,930	6	59	1,703,484	1,012,676	525,350	410,622	3,652,132	5,488	1,891	7,379
2008	456,222	1	59	238,359	1,196,902	157,351	712,664	2,305,276	3,146	1,907	5,053
2009	376,375	3	34	737,759	274,390	276,212	172,524	1,460,885	2,689	1,192	3,881
<b>MA Total:</b>	<b>2,180,870</b>	<b>23</b>	<b>289</b>	<b>5,113,283</b>	<b>4,373,634</b>	<b>2,117,965</b>	<b>2,081,241</b>	<b>13,686,124</b>	<b>4,350</b>	<b>1,925</b>	<b>6,276</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.231	0.948	.
(14) Massachusetts Credibility:	0.550	0.840	.
(15) Countrywide Pure Premium:	2.892	1.395	4.287
(16) Countrywide Indicated Relativity:	0.850	0.708	.
(17) Countrywide Credibility:	0.230	0.080	.
(18) Countrywide Lost-Time Claims:	2412.0	.	.
(19) Pure Premium Underlying Present Rate:	2.399	1.987	4.386
(20) Relativity to Underlying Present Rate:	1.061	1.026	.
(21) Credibility to Underlying Relativity:	0.220	0.080	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	1.106	0.935	.
(24) Balanced Formula Relativity:	1.128	0.939	1.059

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	3,946	0	1	0	0	0	432	432	0.000	0.110	0.110
2006	9,012	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	5,350	0	3	0	145,506	0	82,691	228,197	27.195	15.455	42.650
2008	7,192	0	2	0	0	0	1,148	1,148	0.000	0.160	0.160
2009	3,363	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>28,863</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>145,506</b>	<b>0</b>	<b>84,272</b>	<b>229,778</b>	<b>5.041</b>	<b>2.920</b>	<b>7.961</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.427	1.437	.
(14) Massachusetts Credibility:	0.110	0.200	.
(15) Countrywide Pure Premium:	1.609	1.135	2.744
(16) Countrywide Indicated Relativity:	0.473	0.576	.
(17) Countrywide Credibility:	0.230	0.240	.
(18) Countrywide Lost-Time Claims:	28.000	.	.
(19) Pure Premium Underlying Present Rate:	3.481	4.040	7.521
(20) Relativity to Underlying Present Rate:	1.540	2.087	.
(21) Credibility to Underlying Relativity:	0.660	0.560	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	1.282	1.594	.
(24) Balanced Formula Relativity:	1.307	1.601	1.415

Class(es):		Effective: 9/1/2012							Construction		
5403 CARPENTRY 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)
2005	739,479	15	221	1,119,802	2,442,902	527,340	1,610,189	5,700,233	4.818	2.891	7.708
2006	782,709	12	211	2,363,345	3,263,745	912,289	1,583,331	8,122,710	7.189	3.188	10.378
2007	891,514	18	241	3,617,602	2,756,617	2,440,237	1,642,387	10,456,843	7.150	4.579	11.729
2008	845,928	17	214	2,721,699	3,545,240	1,367,686	1,658,120	9,292,745	7.408	3.577	10.985
2009	605,736	9	129	1,044,074	2,290,901	386,798	1,666,223	5,387,997	5.506	3.389	8.895
<b>MA Total:</b>	<b>3,865,367</b>	<b>71</b>	<b>1,016</b>	<b>10,866,521</b>	<b>14,299,405</b>	<b>5,634,351</b>	<b>8,160,250</b>	<b>38,960,528</b>	<b>6.511</b>	<b>3.569</b>	<b>10.079</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.843	1.757	.
(14) Massachusetts Credibility:	0.830	1.000	.
(15) Countrywide Pure Premium:	4.855	2.839	7.694
(16) Countrywide Indicated Relativity:	1.427	1.442	.
(17) Countrywide Credibility:	0.090	0.000	.
(18) Countrywide Lost-Time Claims:	9616.0	.	.
(19) Pure Premium Underlying Present Rate:	3.853	3.309	7.161
(20) Relativity to Underlying Present Rate:	1.704	1.709	.
(21) Credibility to Underlying Relativity:	0.080	0.000	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	1.795	1.757	.
(24) Balanced Formula Relativity:	1.830	1.765	1.806

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							Construction		
5437 CARPENTRY-INSTALL OF CABINET WORK OR INT TRIM											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2005	2,646,605	30	613	4,668,240	5,967,428	2,056,843	2,994,214	15686726	4,019	1,909	5,927
2006	2,587,893	20	460	2,499,123	6,205,718	795,852	3,172,582	12673274	3,364	1,533	4,897
2007	2,744,647	21	408	3,199,175	4,547,969	1,109,971	2,252,911	11110025	2,823	1,225	4,048
2008	2,375,649	13	319	1,636,682	3,798,604	729,386	2,555,508	8,720,180	2,288	1,383	3,671
2009	1,820,650	9	225	1,947,902	4,090,379	872,641	2,802,502	9,713,425	3,317	2,019	5,335
<b>MA Total:</b>	<b>12175444</b>	<b>93</b>	<b>2,025</b>	<b>13951121</b>	<b>24610098</b>	<b>5,564,692</b>	<b>13777717</b>	<b>57903629</b>	<b>3,167</b>	<b>1,589</b>	<b>4,756</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.897	0.782	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	3.674	1.967	5.641
(16) Countrywide Indicated Relativity:	1.080	0.999	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	6250.0	.	.
(19) Pure Premium Underlying Present Rate:	2.342	1.606	3.948
(20) Relativity to Underlying Present Rate:	1.036	0.829	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	0.897	0.782	.
(24) Balanced Formula Relativity:	0.914	0.785	0.867

Class(es):		Effective: 9/1/2012							Construction		
5443 LATHING & 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)
2005	2,624	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	447	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	685	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	207	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	0	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>3,963</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	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:	2.031	1.371	3.402
(16) Countrywide Indicated Relativity:	0.597	0.696	.
(17) Countrywide Credibility:	0.480	0.470	.
(18) Countrywide Lost-Time Claims:	221.00	.	.
(19) Pure Premium Underlying Present Rate:	1.999	1.729	3.729
(20) Relativity to Underlying Present Rate:	0.884	0.893	.
(21) Credibility to Underlying Relativity:	0.480	0.470	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	0.711	0.747	.
(24) Balanced Formula Relativity:	0.725	0.750	0.734

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							Construction		
5445 WALLBOARD INSTALLATION WITHIN BUILDINGS & 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)
2005	1,788,447	31	453	7,261,610	4,201,298	2,275,950	2,021,071	15759929	6,409	2,403	8,812
2006	1,760,565	15	347	2,824,438	4,148,533	898,620	2,458,831	10330423	3,961	1,907	5,868
2007	1,934,158	24	365	3,981,527	4,795,766	2,148,678	2,472,075	13398047	4,538	2,389	6,927
2008	1,721,709	9	278	1,709,067	6,637,359	1,331,091	3,234,183	12911701	4,848	2,652	7,499
2009	1,340,124	7	177	1,528,716	4,205,591	608,688	1,928,436	8,271,432	4,279	1,893	6,172
<b>MA Total:</b>	<b>8,545,004</b>	<b>86</b>	<b>1,620</b>	<b>17305359</b>	<b>23988548</b>	<b>7,263,028</b>	<b>12114597</b>	<b>60671531</b>	<b>4,833</b>	<b>2,268</b>	<b>7,100</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.368	1.116	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	3.673	1.941	5.614
(16) Countrywide Indicated Relativity:	1.079	0.986	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	6249.0	.	.
(19) Pure Premium Underlying Present Rate:	3.343	2.122	5.464
(20) Relativity to Underlying Present Rate:	1.479	1.096	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	1.368	1.116	.
(24) Balanced Formula Relativity:	1.395	1.121	1.295

Class(es):		Effective: 9/1/2012							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)
2005	381,482	10	122	1,055,341	1,029,131	1,250,365	546,206	3,881,043	5,464	4,709	10,174
2006	410,845	13	152	2,487,189	1,391,445	1,555,146	884,893	6,318,672	9,441	5,939	15,380
2007	456,104	7	144	608,216	1,373,985	146,463	750,099	2,878,763	4,346	1,966	6,312
2008	481,461	2	112	579,918	810,821	267,377	655,232	2,313,348	2,889	1,916	4,805
2009	357,852	4	54	857,615	1,117,475	192,132	339,514	2,506,736	5,519	1,486	7,005
<b>MA Total:</b>	<b>2,087,745</b>	<b>36</b>	<b>584</b>	<b>5,588,279</b>	<b>5,722,857</b>	<b>3,411,482</b>	<b>3,175,944</b>	<b>17898563</b>	<b>5,418</b>	<b>3,155</b>	<b>8,573</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.534	1.553	.
(14) Massachusetts Credibility:	0.650	1.000	.
(15) Countrywide Pure Premium:	4.209	2.293	6.502
(16) Countrywide Indicated Relativity:	1.237	1.164	.
(17) Countrywide Credibility:	0.180	0.000	.
(18) Countrywide Lost-Time Claims:	2153.0	.	.
(19) Pure Premium Underlying Present Rate:	3.872	3.357	7.229
(20) Relativity to Underlying Present Rate:	1.713	1.734	.
(21) Credibility to Underlying Relativity:	0.170	0.000	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	1.511	1.553	.
(24) Balanced Formula Relativity:	1.540	1.560	1.548

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	181.888	5	54	1,852,017	1,027,672	1,189,797	554,771	4,624,256	15,832	9,591	25,424
2006	188,472	10	35	1,043,181	1,362,928	460,593	356,325	3,223,027	12,766	4,334	17,101
2007	228,970	5	50	850,963	1,054,174	268,562	581,648	2,755,347	8,320	3,713	12,034
2008	156,176	0	21	0	264,653	0	128,002	392,655	1,695	0,820	2,514
2009	146,496	3	23	514,847	670,752	264,669	359,100	1,809,367	8,093	4,258	12,351
<b>MA Total:</b>	<b>902,002</b>	<b>23</b>	<b>183</b>	<b>4,261,007</b>	<b>4,380,179</b>	<b>2,183,620</b>	<b>1,979,845</b>	<b>12804652</b>	<b>9,580</b>	<b>4,616</b>	<b>14,196</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.712	2.272	.
(14) Massachusetts Credibility:	0.510	0.800	.
(15) Countrywide Pure Premium:	4.727	2.417	7.144
(16) Countrywide Indicated Relativity:	1.389	1.227	.
(17) Countrywide Credibility:	0.250	0.100	.
(18) Countrywide Lost-Time Claims:	192.00	.	.
(19) Pure Premium Underlying Present Rate:	4.944	4.270	9.214
(20) Relativity to Underlying Present Rate:	2.187	2.205	.
(21) Credibility to Underlying Relativity:	0.240	0.100	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	2.255	2.161	.
(24) Balanced Formula Relativity:	2.299	2.171	2.252

Class(es):		Effective: 9/1/2012							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)
2005	76.845	2	8	84,377	224,326	25,271	80,318	414,292	4,017	1,374	5,391
2006	85,846	0	12	0	324,096	0	85,183	409,279	3,775	0,992	4,768
2007	93,247	3	18	698,870	325,092	573,760	111,956	1,709,678	10,981	7,354	18,335
2008	67,458	0	11	0	256,849	0	172,428	429,276	3,808	2,556	6,364
2009	90,557	0	11	0	238,167	0	117,303	355,470	2,630	1,295	3,925
<b>MA Total:</b>	<b>413,953</b>	<b>5</b>	<b>60</b>	<b>783,247</b>	<b>1,368,530</b>	<b>599,031</b>	<b>567,189</b>	<b>3,317,996</b>	<b>5,198</b>	<b>2,817</b>	<b>8,015</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.472	1.387	.
(14) Massachusetts Credibility:	0.390	0.570	.
(15) Countrywide Pure Premium:	5.270	3.323	8.593
(16) Countrywide Indicated Relativity:	1.549	1.687	.
(17) Countrywide Credibility:	0.310	0.220	.
(18) Countrywide Lost-Time Claims:	503.00	.	.
(19) Pure Premium Underlying Present Rate:	5.555	3.954	9.509
(20) Relativity to Underlying Present Rate:	2.458	2.042	.
(21) Credibility to Underlying Relativity:	0.300	0.210	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	1.791	1.591	.
(24) Balanced Formula Relativity:	1.826	1.598	1.743

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Section IX - G  
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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)	
2005	2,169,447	25	252	2,480,087	4,265,271	1,649,043	2,152,629	10547030	3,109	1,752	4,862	
2006	2,284,529	31	204	4,818,575	2,862,074	2,847,564	1,767,463	12295675	3,362	2,020	5,382	
2007	2,553,249	27	233	3,710,653	5,009,349	2,489,434	2,754,756	13964191	3,415	2,054	5,469	
2008	2,341,939	17	201	3,211,772	5,174,347	2,691,491	3,535,874	14613485	3,581	2,659	6,240	
2009	2,143,416	21	182	2,988,552	3,718,025	1,985,656	3,117,492	11809725	3,129	2,381	5,510	
<b>MA Total:</b>	<b>11492579</b>	<b>121</b>	<b>1,072</b>	<b>17209640</b>	<b>21029065</b>	<b>11663188</b>	<b>13328214</b>	<b>63230106</b>	<b>3,327</b>	<b>2,175</b>	<b>5,502</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.942	1.070	.
(14) Massachusetts Credibility:	0.990	1.000	.
(15) Countrywide Pure Premium:	3.812	2.339	6.151
(16) Countrywide Indicated Relativity:	1.120	1.188	.
(17) Countrywide Credibility:	0.010	0.000	.
(18) Countrywide Lost-Time Claims:	7248.0	.	.
(19) Pure Premium Underlying Present Rate:	2.028	1.813	3.841
(20) Relativity to Underlying Present Rate:	0.897	0.936	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	0.944	1.070	.
(24) Balanced Formula Relativity:	0.962	1.075	1.003

Class(es):		Effective: 9/1/2012							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)	
2005	493,711	3	62	850,361	363,067	180,383	145,142	1,538,953	2,458	0,659	3,117	
2006	536,575	4	61	716,949	1,143,631	322,008	653,412	2,836,000	3,468	1,818	5,285	
2007	545,779	7	82	1,459,496	1,582,241	283,602	564,692	3,890,031	5,573	1,554	7,127	
2008	533,412	2	89	650,612	1,509,717	225,130	575,052	2,960,511	4,050	1,500	5,550	
2009	510,264	3	65	201,098	1,469,260	222,627	765,985	2,658,970	3,274	1,937	5,211	
<b>MA Total:</b>	<b>2,619,741</b>	<b>19</b>	<b>359</b>	<b>3,878,515</b>	<b>6,067,917</b>	<b>1,233,749</b>	<b>2,704,283</b>	<b>13884465</b>	<b>3,797</b>	<b>1,503</b>	<b>5,300</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.075	0.740	.
(14) Massachusetts Credibility:	0.570	0.760	.
(15) Countrywide Pure Premium:	3.225	1.503	4.728
(16) Countrywide Indicated Relativity:	0.948	0.763	.
(17) Countrywide Credibility:	0.220	0.120	.
(18) Countrywide Lost-Time Claims:	1660.0	.	.
(19) Pure Premium Underlying Present Rate:	2.238	1.290	3.529
(20) Relativity to Underlying Present Rate:	0.990	0.666	.
(21) Credibility to Underlying Relativity:	0.210	0.120	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	1.029	0.734	.
(24) Balanced Formula Relativity:	1.049	0.737	0.935

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	212,417	5	45	536,258	167,014	254,163	133,290	1,090,724	3,311	1,824	5,135
2006	234,343	1	58	114	618,025	3,478	525,504	1,147,120	2,638	2,257	4,895
2007	216,076	4	49	926,619	476,004	563,884	335,665	2,302,172	6,491	4,163	10,654
2008	214,932	0	56	0	320,614	0	342,307	662,922	1,492	1,593	3,084
2009	211,918	5	33	549,106	791,294	177,091	402,049	1,919,540	6,325	2,733	9,058
<b>MA Total:</b>	<b>1,089,686</b>	<b>15</b>	<b>241</b>	<b>2,012,097</b>	<b>2,372,951</b>	<b>998,615</b>	<b>1,738,815</b>	<b>7,122,478</b>	<b>4,024</b>	<b>2,512</b>	<b>6,536</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.139	1.237	.
(14) Massachusetts Credibility:	0.460	0.720	.
(15) Countrywide Pure Premium:	3.833	2.329	6.162
(16) Countrywide Indicated Relativity:	1.127	1.183	.
(17) Countrywide Credibility:	0.270	0.140	.
(18) Countrywide Lost-Time Claims:	1823.0	.	.
(19) Pure Premium Underlying Present Rate:	3.106	2.765	5.871
(20) Relativity to Underlying Present Rate:	1.374	1.428	.
(21) Credibility to Underlying Relativity:	0.270	0.140	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	1.199	1.256	.
(24) Balanced Formula Relativity:	1.223	1.261	1.237

Class(es):		Effective: 9/1/2012							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)
2005	460,069	10	44	1,817,780	547,470	527,594	286,324	3,179,167	5,141	1,769	6,910
2006	441,546	6	55	1,339,062	978,875	591,684	400,518	3,310,139	5,250	2,247	7,497
2007	426,511	2	52	157,613	1,003,906	31,476	704,758	1,897,752	2,723	1,726	4,449
2008	361,053	2	23	254,163	1,097,867	89,120	710,337	2,151,487	3,745	2,214	5,959
2009	301,593	2	27	421,433	989,024	88,203	355,803	1,854,464	4,677	1,472	6,149
<b>MA Total:</b>	<b>1,990,772</b>	<b>22</b>	<b>201</b>	<b>3,990,052</b>	<b>4,617,142</b>	<b>1,328,076</b>	<b>2,457,739</b>	<b>12,393,009</b>	<b>4,324</b>	<b>1,902</b>	<b>6,225</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.224	0.936	.
(14) Massachusetts Credibility:	0.500	0.700	.
(15) Countrywide Pure Premium:	4.254	2.231	6.485
(16) Countrywide Indicated Relativity:	1.250	1.133	.
(17) Countrywide Credibility:	0.250	0.150	.
(18) Countrywide Lost-Time Claims:	262.00	.	.
(19) Pure Premium Underlying Present Rate:	2.127	1.405	3.532
(20) Relativity to Underlying Present Rate:	0.941	0.726	.
(21) Credibility to Underlying Relativity:	0.250	0.150	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	1.160	0.934	.
(24) Balanced Formula Relativity:	1.182	0.938	1.093

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	328,411	10	62	1,057,968	616,959	758,892	486,204	2,920,022	5,100	3,791	8,891
2006	305,042	1	43	172,312	940,987	55,344	444,264	1,612,907	3,650	1,638	5,287
2007	313,785	3	34	522,472	367,220	300,675	177,378	1,367,745	2,835	1,524	4,359
2008	380,727	2	57	455,695	2,049,909	200,326	851,801	3,557,730	6,581	2,763	9,345
2009	414,586	3	55	303,077	426,089	205,172	288,950	1,223,289	1,759	1,192	2,951
<b>MA Total:</b>	<b>1,742,551</b>	<b>19</b>	<b>251</b>	<b>2,511,523</b>	<b>4,401,165</b>	<b>1,520,408</b>	<b>2,248,596</b>	<b>10681693</b>	<b>3,967</b>	<b>2,163</b>	<b>6,130</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.123	1.065	.
(14) Massachusetts Credibility:	0.540	0.830	.
(15) Countrywide Pure Premium:	3.966	2.519	6.485
(16) Countrywide Indicated Relativity:	1.166	1.279	.
(17) Countrywide Credibility:	0.230	0.090	.
(18) Countrywide Lost-Time Claims:	4813.0	.	.
(19) Pure Premium Underlying Present Rate:	2.891	2.431	5.323
(20) Relativity to Underlying Present Rate:	1.279	1.256	.
(21) Credibility to Underlying Relativity:	0.230	0.080	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	1.169	1.099	.
(24) Balanced Formula Relativity:	1.192	1.104	1.160

Class(es):		Effective: 9/1/2012							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)
2005	201,494	0	66	0	1,062,697	0	602,259	1,664,956	5,274	2,989	8,263
2006	201,505	4	37	1,158,910	556,223	522,907	162,672	2,400,711	8,512	3,402	11,914
2007	220,871	2	43	263,789	393,910	170,358	249,854	1,077,911	2,978	1,903	4,880
2008	218,799	1	35	363,944	828,884	114,045	383,049	1,689,921	5,452	2,272	7,724
2009	209,426	2	18	187,695	232,933	145,900	90,898	657,426	2,008	1,131	3,139
<b>MA Total:</b>	<b>1,052,095</b>	<b>9</b>	<b>199</b>	<b>1,974,338</b>	<b>3,074,646</b>	<b>953,210</b>	<b>1,488,733</b>	<b>7,490,926</b>	<b>4,799</b>	<b>2,321</b>	<b>7,120</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.359	1.143	.
(14) Massachusetts Credibility:	0.440	0.670	.
(15) Countrywide Pure Premium:	2.634	1.479	4.113
(16) Countrywide Indicated Relativity:	0.774	0.751	.
(17) Countrywide Credibility:	0.280	0.170	.
(18) Countrywide Lost-Time Claims:	1481.0	.	.
(19) Pure Premium Underlying Present Rate:	2.981	2.340	5.322
(20) Relativity to Underlying Present Rate:	1.319	1.209	.
(21) Credibility to Underlying Relativity:	0.280	0.160	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	1.184	1.087	.
(24) Balanced Formula Relativity:	1.207	1.091	1.165

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	140	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	91	0	1	0	0	0	935	935	0.000	10.327	10.327
2007	17,307	0	1	0	0	0	121	121	0.000	0.007	0.007
2008	103,486	2	38	216,983	294,198	88,234	228,371	827,786	4,940	3,059	7,999
2009	179,358	0	35	0	319,353	0	245,118	564,472	1,781	1,367	3,147
<b>MA Total:</b>	<b>300,381</b>	<b>2</b>	<b>75</b>	<b>216,983</b>	<b>613,552</b>	<b>88,234</b>	<b>474,546</b>	<b>1,393,314</b>	<b>2,765</b>	<b>1,874</b>	<b>4,638</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.783	0.922	.
(14) Massachusetts Credibility:	0.190	0.310	.
(15) Countrywide Pure Premium:	2.056	1.794	3.850
(16) Countrywide Indicated Relativity:	0.604	0.911	.
(17) Countrywide Credibility:	0.410	0.350	.
(18) Countrywide Lost-Time Claims:	444.00	.	.
(19) Pure Premium Underlying Present Rate:	1.325	1.200	2.525
(20) Relativity to Underlying Present Rate:	0.586	0.620	.
(21) Credibility to Underlying Relativity:	0.400	0.340	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	0.631	0.816	.
(24) Balanced Formula Relativity:	0.643	0.819	0.707

Class(es):		Effective: 9/1/2012							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)
2005	1,531,404	8	415	1,504,600	2,899,805	838,510	2,087,674	7,330,589	2,876	1,911	4,787
2006	1,616,585	16	388	2,041,367	3,055,612	1,604,765	1,849,132	8,550,877	3,153	2,137	5,289
2007	1,669,646	27	361	5,328,232	3,250,895	3,067,948	1,664,886	13,311,961	5,138	2,835	7,973
2008	1,586,123	6	301	1,586,727	2,712,869	671,574	2,148,427	7,119,597	2,711	1,778	4,489
2009	1,446,572	5	225	397,042	1,635,306	353,392	1,193,801	3,579,541	1,405	1,070	2,474
<b>MA Total:</b>	<b>7,850,330</b>	<b>62</b>	<b>1,690</b>	<b>10,857,969</b>	<b>13,554,488</b>	<b>6,536,189</b>	<b>8,943,920</b>	<b>39,892,565</b>	<b>3,110</b>	<b>1,972</b>	<b>5,082</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.880	0.971	.
(14) Massachusetts Credibility:	0.890	1.000	.
(15) Countrywide Pure Premium:	3.988	2.270	6.258
(16) Countrywide Indicated Relativity:	1.172	1.153	.
(17) Countrywide Credibility:	0.060	0.000	.
(18) Countrywide Lost-Time Claims:	3173.0	.	.
(19) Pure Premium Underlying Present Rate:	2.275	2.040	4.315
(20) Relativity to Underlying Present Rate:	1.007	1.054	.
(21) Credibility to Underlying Relativity:	0.050	0.000	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	0.904	0.971	.
(24) Balanced Formula Relativity:	0.922	0.975	0.941

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	164,676	12	62	1,691,022	1,302,591	1,784,346	1,103,251	5,881,211	18,179	17,535	35,714
2006	100,283	6	43	859,574	1,020,736	292,088	697,396	2,869,794	18,750	9,867	28,617
2007	109,778	7	24	1,091,467	1,695,788	592,362	907,224	4,286,841	25,390	13,660	39,050
2008	101,849	4	38	812,017	1,950,153	742,118	920,951	4,425,239	27,120	16,329	43,449
2009	94,233	3	32	558,556	1,511,167	474,389	1,437,644	3,981,756	21,964	20,290	42,254
<b>MA Total:</b>	<b>570,819</b>	<b>32</b>	<b>199</b>	<b>5,012,636</b>	<b>7,480,436</b>	<b>3,885,304</b>	<b>5,066,466</b>	<b>21,444,841</b>	<b>21,886</b>	<b>15,682</b>	<b>37,569</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	6.196	7.720	.
(14) Massachusetts Credibility:	0.580	1.000	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	4.444	6.312	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	10.483	12.920	23.403
(20) Relativity to Underlying Present Rate:	4.638	6.673	.
(21) Credibility to Underlying Relativity:	0.420	0.000	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	5.541	7.720	.
(24) Balanced Formula Relativity:	5.650	7.754	6.418

Class(es):		Effective: 9/1/2012							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)
2005	363,996	11	123	2,974,750	1,352,559	2,208,829	743,038	7,279,175	11,888	8,110	19,998
2006	358,531	15	91	3,167,590	1,369,302	2,643,637	987,643	8,168,172	12,654	10,128	22,782
2007	427,741	16	76	2,811,436	2,950,857	1,811,631	1,537,772	9,111,696	13,471	7,830	21,302
2008	442,124	11	101	1,856,017	1,595,705	1,701,710	1,156,190	6,309,622	7,807	6,464	14,271
2009	463,290	12	85	2,688,157	1,816,249	1,868,006	1,531,472	7,903,884	9,723	7,338	17,060
<b>MA Total:</b>	<b>2,055,682</b>	<b>65</b>	<b>476</b>	<b>13,497,950</b>	<b>9,084,673</b>	<b>10,233,812</b>	<b>5,956,115</b>	<b>38,772,549</b>	<b>10,985</b>	<b>7,876</b>	<b>18,861</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.110	3.877	.
(14) Massachusetts Credibility:	0.770	1.000	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	2.541	3.387	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	5.994	6.931	12.925
(20) Relativity to Underlying Present Rate:	2.652	3.580	.
(21) Credibility to Underlying Relativity:	0.230	0.000	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	3.004	3.877	.
(24) Balanced Formula Relativity:	3.063	3.894	3.367

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	4,943,397	15	306	2,305,366	3,424,315	1,666,446	2,049,217	9,445,344	1,159	0,752	1,911
2006	4,925,589	3	172	269,431	839,623	579,150	575,038	2,263,242	0,225	0,234	0,459
2007	5,271,905	13	265	3,823,584	3,360,258	1,409,526	2,475,836	11,069,204	1,363	0,737	2,100
2008	5,019,768	6	205	1,222,269	4,632,352	748,513	2,665,084	9,268,218	1,166	0,680	1,846
2009	4,446,539	7	165	1,629,871	4,454,042	1,144,532	1,707,147	8,935,592	1,368	0,641	2,010
<b>MA Total:</b>	<b>24607198</b>	<b>44</b>	<b>1,113</b>	<b>9,250,521</b>	<b>16710590</b>	<b>5,548,167</b>	<b>9,472,322</b>	<b>40981600</b>	<b>1,055</b>	<b>0,610</b>	<b>1,665</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.299	0.300	.
(14) Massachusetts Credibility:	0.840	1.000	.
(15) Countrywide Pure Premium:	0.870	0.505	1.375
(16) Countrywide Indicated Relativity:	0.256	0.257	.
(17) Countrywide Credibility:	0.080	0.000	.
(18) Countrywide Lost-Time Claims:	4978.0	.	.
(19) Pure Premium Underlying Present Rate:	0.630	0.594	1.223
(20) Relativity to Underlying Present Rate:	0.279	0.307	.
(21) Credibility to Underlying Relativity:	0.080	0.000	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	0.294	0.300	.
(24) Balanced Formula Relativity:	0.299	0.302	0.300

Class(es):		Effective: 9/1/2012							Construction		
5610 CLEANER - DEBRIS REMOVAL											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2005	297,118	2	57	144,476	262,821	53,200	186,079	646,576	1,371	0,805	2,176
2006	291,812	5	69	913,793	386,411	267,264	232,505	1,799,974	4,456	1,713	6,168
2007	344,562	2	58	398,274	1,561,078	75,222	414,903	2,449,476	5,686	1,422	7,109
2008	310,834	2	50	670,906	520,982	183,271	300,745	1,675,904	3,834	1,557	5,392
2009	279,334	5	47	1,976,600	717,062	828,164	324,366	3,846,192	9,643	4,126	13,769
<b>MA Total:</b>	<b>1,523,660</b>	<b>16</b>	<b>281</b>	<b>4,104,050</b>	<b>3,448,354</b>	<b>1,407,121</b>	<b>1,458,598</b>	<b>10418122</b>	<b>4,957</b>	<b>1,881</b>	<b>6,838</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.403	0.926	.
(14) Massachusetts Credibility:	0.480	0.670	.
(15) Countrywide Pure Premium:	2.690	1.646	4.336
(16) Countrywide Indicated Relativity:	0.791	0.836	.
(17) Countrywide Credibility:	0.260	0.170	.
(18) Countrywide Lost-Time Claims:	955.00	.	.
(19) Pure Premium Underlying Present Rate:	2.459	1.634	4.093
(20) Relativity to Underlying Present Rate:	1.088	0.844	.
(21) Credibility to Underlying Relativity:	0.260	0.160	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	1.162	0.897	.
(24) Balanced Formula Relativity:	1.185	0.901	1.081

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							Construction		
5645 CARPENTRY-DETACHED ONE OR TWO FAMILY DWELLINGS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2005	5,625,061	112	1,433	11902718	13753746	8,643,703	10753618	45053785	4,561	3,448	8,009
2006	5,521,385	94	1,239	13039752	16934983	8,258,472	11971177	50204385	5,429	3,664	9,093
2007	5,250,935	60	1,057	9,401,093	16217649	5,993,630	11747192	43359563	4,879	3,379	8,257
2008	4,643,291	52	842	10183706	13979425	5,313,144	9,871,340	39347616	5,204	3,270	8,474
2009	4,096,490	43	694	7,575,421	14696083	5,708,838	10859857	38840199	5,437	4,045	9,481
<b>MA Total:</b>	<b>25137162</b>	<b>361</b>	<b>5,265</b>	<b>52102690</b>	<b>75581887</b>	<b>33917788</b>	<b>55203183</b>	<b>216805548</b>	<b>5,080</b>	<b>3,545</b>	<b>8,625</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.438	1.745	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	6.272	4.017	10.289
(16) Countrywide Indicated Relativity:	1.843	2.040	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	20110	.	.
(19) Pure Premium Underlying Present Rate:	3.219	3.336	6.555
(20) Relativity to Underlying Present Rate:	1.424	1.723	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	1.438	1.745	.
(24) Balanced Formula Relativity:	1.466	1.753	1.571

Class(es):		Effective: 9/1/2012							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)
2005	87,220	2	16	148,956	566,926	225,032	584,508	1,525,421	8,208	9,282	17,489
2006	92,192	3	25	503,732	424,642	464,459	283,632	1,676,465	10,070	8,114	18,184
2007	115,514	2	13	461,433	197,271	435,114	297,101	1,390,919	5,702	6,339	12,041
2008	100,293	0	6	0	232,752	0	93,496	326,247	2,321	0,932	3,253
2009	12,429	1	1	47,597	240,820	37,889	195,798	522,104	23,206	18,802	42,009
<b>MA Total:</b>	<b>407,648</b>	<b>8</b>	<b>61</b>	<b>1,161,718</b>	<b>1,662,411</b>	<b>1,162,495</b>	<b>1,454,534</b>	<b>5,441,157</b>	<b>6,928</b>	<b>6,420</b>	<b>13,348</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.961	3.160	.
(14) Massachusetts Credibility:	0.430	0.770	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	2.974	4.280	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	7.015	8.760	15.775
(20) Relativity to Underlying Present Rate:	3.104	4.524	.
(21) Credibility to Underlying Relativity:	0.570	0.230	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	2.612	3.474	.
(24) Balanced Formula Relativity:	2.663	3.489	2.965

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Section IX - G  
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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	11,118	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	14,086	0	2	0	15,611	0	20,493	36,105	1.108	1.455	2.563
2007	13,140	1	0	17,913	0	215,987	0	233,900	1.363	16.438	17.801
2008	8,866	0	2	0	23,945	0	14,778	38,723	2.701	1.667	4.368
2009	8,438	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>55,647</b>	<b>1</b>	<b>4</b>	<b>17,913</b>	<b>39,556</b>	<b>215,987</b>	<b>35,272</b>	<b>308,728</b>	<b>1.033</b>	<b>4.515</b>	<b>5.548</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.292	2.223	.
(14) Massachusetts Credibility:	0.250	0.310	.
(15) Countrywide Pure Premium:	13.035	4.415	17.450
(16) Countrywide Indicated Relativity:	3.831	2.242	.
(17) Countrywide Credibility:	0.290	0.310	.
(18) Countrywide Lost-Time Claims:	53.000	.	.
(19) Pure Premium Underlying Present Rate:	13.545	6.600	20.144
(20) Relativity to Underlying Present Rate:	5.992	3.409	.
(21) Credibility to Underlying Relativity:	0.460	0.380	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	3.941	2.679	.
(24) Balanced Formula Relativity:	4.018	2.691	3.533

Class(es):		Effective: 9/1/2012							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)
2005	14	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	42	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	744	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	1,491	0	1	0	0	0	834	834	0.000	0.560	0.560
2009	567	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>2,858</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>834</b>	<b>834</b>	<b>0.000</b>	<b>0.292</b>	<b>0.292</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.144	.
(14) Massachusetts Credibility:	0.050	0.070	.
(15) Countrywide Pure Premium:	4.558	6.666	11.224
(16) Countrywide Indicated Relativity:	1.340	3.385	.
(17) Countrywide Credibility:	0.240	0.260	.
(18) Countrywide Lost-Time Claims:	33.000	.	.
(19) Pure Premium Underlying Present Rate:	4.861	3.556	8.416
(20) Relativity to Underlying Present Rate:	2.150	1.836	.
(21) Credibility to Underlying Relativity:	0.710	0.670	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	1.848	2.120	.
(24) Balanced Formula Relativity:	1.884	2.130	1.974

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	53,613	1	32	7,627	425,429	436	165,379	598,871	8,077	3,093	11,170
2006	51,382	0	13	0	193,012	0	86,186	279,199	3,756	1,677	5,434
2007	59,108	1	20	261,083	28,212	71,804	35,438	396,537	4,894	1,814	6,709
2008	59,568	0	9	0	56,106	0	62,075	118,181	0,942	1,042	1,984
2009	43,912	0	13	0	33,031	0	29,663	62,695	0,752	0,676	1,428
<b>MA Total:</b>	<b>267,584</b>	<b>2</b>	<b>87</b>	<b>268,709</b>	<b>735,791</b>	<b>72,241</b>	<b>378,742</b>	<b>1,455,483</b>	<b>3,754</b>	<b>1,685</b>	<b>5,439</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.063	0.830	.
(14) Massachusetts Credibility:	0.340	0.450	.
(15) Countrywide Pure Premium:	4.800	2.165	6.965
(16) Countrywide Indicated Relativity:	1.411	1.100	.
(17) Countrywide Credibility:	0.330	0.280	.
(18) Countrywide Lost-Time Claims:	133.00	.	.
(19) Pure Premium Underlying Present Rate:	6.210	3.534	9.744
(20) Relativity to Underlying Present Rate:	2.747	1.825	.
(21) Credibility to Underlying Relativity:	0.330	0.270	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	1.733	1.174	.
(24) Balanced Formula Relativity:	1.767	1.179	1.553

Class(es):		Effective: 9/1/2012							Construction		
6204 DRILLING 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)
2005	151,513	0	39	0	600,315	0	447,789	1,048,103	3,962	2,955	6,918
2006	151,001	1	37	117,186	1,060,803	64,001	720,964	1,962,955	7,801	5,198	13,000
2007	135,572	3	33	572,077	338,307	207,091	218,285	1,335,760	6,715	3,138	9,853
2008	145,206	5	16	1,339,393	312,992	330,496	93,075	2,075,956	11,380	2,917	14,297
2009	126,883	0	16	0	642,518	0	229,374	871,892	5,064	1,808	6,872
<b>MA Total:</b>	<b>710,175</b>	<b>9</b>	<b>141</b>	<b>2,028,657</b>	<b>2,954,935</b>	<b>601,588</b>	<b>1,709,486</b>	<b>7,294,666</b>	<b>7,017</b>	<b>3,254</b>	<b>10,272</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.987	1.602	.
(14) Massachusetts Credibility:	0.430	0.650	.
(15) Countrywide Pure Premium:	6.451	3.638	10.089
(16) Countrywide Indicated Relativity:	1.896	1.848	.
(17) Countrywide Credibility:	0.290	0.180	.
(18) Countrywide Lost-Time Claims:	1497.0	.	.
(19) Pure Premium Underlying Present Rate:	3.976	3.319	7.295
(20) Relativity to Underlying Present Rate:	1.759	1.714	.
(21) Credibility to Underlying Relativity:	0.280	0.170	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	1.897	1.665	.
(24) Balanced Formula Relativity:	1.934	1.673	1.838

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## Calculation of Class Relativities

Class(es): 6217 EXCAVATION & DRIVERS		Effective: 9/1/2012							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)
2005	3,825,215	39	563	5,566,415	5,511,164	2,646,180	3,072,066	167,958,25	2,896	1,495	4,391
2006	3,540,136	31	458	6,969,010	5,493,155	3,475,857	3,417,215	193,552,37	3,520	1,947	5,467
2007	3,424,094	27	373	5,180,122	4,646,713	2,928,932	3,175,661	159,314,27	2,870	1,783	4,653
2008	3,003,552	18	277	3,682,271	5,710,008	1,634,163	3,515,332	145,417,74	3,127	1,714	4,842
2009	2,674,741	14	273	2,737,557	3,183,636	1,039,374	2,191,184	9,151,751	2,214	1,208	3,422
<b>MA Total:</b>	<b>16,467,738</b>	<b>129</b>	<b>1,944</b>	<b>24,135,374</b>	<b>24,544,677</b>	<b>11,724,506</b>	<b>15,371,458</b>	<b>75,776,015</b>	<b>2,956</b>	<b>1,645</b>	<b>4,601</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.837	0.810	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	3.278	1.807	5.085
(16) Countrywide Indicated Relativity:	0.963	0.918	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	10201	.	.
(19) Pure Premium Underlying Present Rate:	1.745	1.536	3.281
(20) Relativity to Underlying Present Rate:	0.772	0.793	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	0.837	0.810	.
(24) Balanced Formula Relativity:	0.853	0.814	0.839

Class(es): 6233 OIL OR GAS PIPELINE CONSTRUCTION & DRIVERS		Effective: 9/1/2012							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)
2005	1,234	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	7,986	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	8,736	0	5	0	0	0	4,442	4,442	0.000	0.508	0.508
2008	5,177	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	21,672	1	4	105,247	65,147	12,524	38,747	221,665	7,862	2,366	10,228
<b>MA Total:</b>	<b>44,804</b>	<b>1</b>	<b>9</b>	<b>105,247</b>	<b>65,147</b>	<b>12,524</b>	<b>43,189</b>	<b>226,107</b>	<b>3,803</b>	<b>1,243</b>	<b>5,047</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.077	0.612	.
(14) Massachusetts Credibility:	0.100	0.140	.
(15) Countrywide Pure Premium:	3.216	1.467	4.683
(16) Countrywide Indicated Relativity:	0.945	0.745	.
(17) Countrywide Credibility:	0.450	0.430	.
(18) Countrywide Lost-Time Claims:	879.00	.	.
(19) Pure Premium Underlying Present Rate:	1.721	1.118	2.839
(20) Relativity to Underlying Present Rate:	0.762	0.577	.
(21) Credibility to Underlying Relativity:	0.450	0.430	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	0.876	0.654	.
(24) Balanced Formula Relativity:	0.893	0.657	0.807

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Section IX - Classification Pricing  
 Subsection G - Class Relativities  
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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	203,421	1	4	591,004	0	163,113	2,456	756,574	2,905	0,814	3,719
2006	121,150	2	21	777,504	894,562	103,685	179,159	1,954,910	13,802	2,335	16,136
2007	12,217	0	0	0	0	0	0	0	0,000	0,000	0,000
2008	5,835	0	0	0	0	0	0	0	0,000	0,000	0,000
2009	0	0	0	0	0	0	0	0	0,000	0,000	0,000
<b>MA Total:</b>	<b>342,623</b>	<b>3</b>	<b>25</b>	<b>1,368,508</b>	<b>894,562</b>	<b>266,799</b>	<b>181,615</b>	<b>2,711,484</b>	<b>6,605</b>	<b>1,309</b>	<b>7,914</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.870	0.644	.
(14) Massachusetts Credibility:	0.290	0.360	.
(15) Countrywide Pure Premium:	7.017	2.277	9,294
(16) Countrywide Indicated Relativity:	2.062	1.156	.
(17) Countrywide Credibility:	0.340	0.320	.
(18) Countrywide Lost-Time Claims:	75,000	.	.
(19) Pure Premium Underlying Present Rate:	3.023	1.491	4,514
(20) Relativity to Underlying Present Rate:	1.337	0.770	.
(21) Credibility to Underlying Relativity:	0.370	0.320	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5,564
(23) Formula Relativity:	1.738	0.848	.
(24) Balanced Formula Relativity:	1.772	0.852	1,436

Class(es):		Effective: 9/1/2012							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)
2005	21,402	0	3	0	45,726	0	21,350	67,076	2,136	0,998	3,134
2006	22,251	0	1	0	40,471	0	9,751	50,222	1,819	0,438	2,257
2007	27,400	0	1	0	7,479	0	64,475	71,953	0,273	2,353	2,626
2008	19,110	0	1	0	205,767	0	294,336	500,103	10,767	15,402	26,169
2009	10,066	0	1	0	0	0	4,366	4,366	0,000	0,434	0,434
<b>MA Total:</b>	<b>100,229</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>299,442</b>	<b>0</b>	<b>394,278</b>	<b>693,721</b>	<b>2,988</b>	<b>3,934</b>	<b>6,921</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.846	1.936	.
(14) Massachusetts Credibility:	0.180	0.260	.
(15) Countrywide Pure Premium:	5.079	1.906	6,985
(16) Countrywide Indicated Relativity:	1.493	0.968	.
(17) Countrywide Credibility:	0.350	0.370	.
(18) Countrywide Lost-Time Claims:	84,000	.	.
(19) Pure Premium Underlying Present Rate:	3.491	2.413	5,904
(20) Relativity to Underlying Present Rate:	1.545	1.246	.
(21) Credibility to Underlying Relativity:	0.470	0.370	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5,564
(23) Formula Relativity:	1.401	1.323	.
(24) Balanced Formula Relativity:	1.428	1.329	1,392

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	256,494	8	40	1,882,268	69,048	888,077	151,000	2,990,393	7,608	4,051	11,659
2006	268,764	6	35	1,415,833	735,145	435,211	353,387	2,939,576	8,003	2,934	10,937
2007	272,715	6	35	1,017,975	1,384,082	363,348	752,629	3,518,034	8,808	4,092	12,900
2008	245,101	6	17	1,530,807	154,775	702,075	261,065	2,648,722	6,877	3,930	10,807
2009	248,805	7	35	1,471,385	475,321	644,358	475,656	3,066,720	7,824	4,502	12,326
<b>MA Total:</b>	<b>1,291,880</b>	<b>33</b>	<b>162</b>	<b>7,318,267</b>	<b>2,818,371</b>	<b>3,033,069</b>	<b>1,993,737</b>	<b>15,163,445</b>	<b>7,846</b>	<b>3,891</b>	<b>11,738</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.221	1.915	.
(14) Massachusetts Credibility:	0.510	0.770	.
(15) Countrywide Pure Premium:	3.612	1.951	5.562
(16) Countrywide Indicated Relativity:	1.061	0.991	.
(17) Countrywide Credibility:	0.250	0.120	.
(18) Countrywide Lost-Time Claims:	1902.0	.	.
(19) Pure Premium Underlying Present Rate:	3.425	2.775	6.200
(20) Relativity to Underlying Present Rate:	1.515	1.433	.
(21) Credibility to Underlying Relativity:	0.240	0.110	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	1.762	1.751	.
(24) Balanced Formula Relativity:	1.796	1.759	1.783

Class(es):		Effective: 9/1/2012							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)
2005	423,169	7	63	1,621,945	438,079	735,636	319,122	3,114,782	4,868	2,493	7,361
2006	430,558	5	81	848,301	754,575	365,726	510,505	2,479,108	3,723	2,035	5,758
2007	468,389	3	76	1,142,505	916,640	628,811	566,870	3,254,827	4,396	2,553	6,949
2008	460,438	3	65	815,616	1,196,585	144,673	477,503	2,634,377	4,370	1,351	5,721
2009	453,332	1	62	260,829	549,680	59,213	359,497	1,229,219	1,788	0,924	2,712
<b>MA Total:</b>	<b>2,235,886</b>	<b>19</b>	<b>347</b>	<b>4,689,197</b>	<b>3,855,560</b>	<b>1,934,059</b>	<b>2,233,498</b>	<b>12,712,313</b>	<b>3,822</b>	<b>1,864</b>	<b>5,686</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.082	0.918	.
(14) Massachusetts Credibility:	0.520	0.770	.
(15) Countrywide Pure Premium:	2.571	1.377	3.948
(16) Countrywide Indicated Relativity:	0.756	0.699	.
(17) Countrywide Credibility:	0.240	0.120	.
(18) Countrywide Lost-Time Claims:	1646.0	.	.
(19) Pure Premium Underlying Present Rate:	2.087	1.583	3.669
(20) Relativity to Underlying Present Rate:	0.923	0.817	.
(21) Credibility to Underlying Relativity:	0.240	0.110	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	0.965	0.880	.
(24) Balanced Formula Relativity:	0.984	0.884	0.948

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	204,060	4	35	340,225	316,252	458,308	254,393	1,369,178	3,217	3,493	6,710
2006	194,041	3	23	713,589	54,869	330,470	86,752	1,185,680	3,960	2,150	6,110
2007	191,211	2	24	1,015,303	380,437	390,800	170,948	1,957,488	7,299	2,938	10,237
2008	174,424	0	32	0	1,619,868	0	943,203	2,563,071	9,287	5,408	14,694
2009	167,780	1	13	244,961	270,155	176,247	449,732	1,141,095	3,070	3,731	6,801
<b>MA Total:</b>	<b>931,515</b>	<b>10</b>	<b>127</b>	<b>2,314,078</b>	<b>2,641,579</b>	<b>1,355,825</b>	<b>1,905,029</b>	<b>8,216,511</b>	<b>5,320</b>	<b>3,501</b>	<b>8,821</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.506	1.723	.
(14) Massachusetts Credibility:	0.350	0.570	.
(15) Countrywide Pure Premium:	3.084	1.842	4.926
(16) Countrywide Indicated Relativity:	0.906	0.935	.
(17) Countrywide Credibility:	0.330	0.220	.
(18) Countrywide Lost-Time Claims:	1502.0	.	.
(19) Pure Premium Underlying Present Rate:	1.894	1.822	3.715
(20) Relativity to Underlying Present Rate:	0.838	0.941	.
(21) Credibility to Underlying Relativity:	0.320	0.210	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	1.094	1.386	.
(24) Balanced Formula Relativity:	1.116	1.392	1.216

Class(es):		Effective: 9/1/2012							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)
2005	243,633	4	65	332,079	87,359	388,196	206,490	1,014,124	1,722	2,441	4,163
2006	260,141	2	66	160,933	323,804	17,391	279,625	781,753	1,863	1,142	3,005
2007	251,667	11	72	945,505	658,530	464,063	393,989	2,462,087	6,374	3,409	9,783
2008	228,541	1	60	231,766	280,687	38,507	302,113	853,073	2,242	1,490	3,733
2009	238,114	0	50	0	586,994	0	234,679	821,673	2,465	0,986	3,451
<b>MA Total:</b>	<b>1,222,096</b>	<b>18</b>	<b>313</b>	<b>1,670,283</b>	<b>1,937,374</b>	<b>908,157</b>	<b>1,416,896</b>	<b>5,932,710</b>	<b>2,952</b>	<b>1,903</b>	<b>4,855</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.836	0.937	.
(14) Massachusetts Credibility:	0.450	0.750	.
(15) Countrywide Pure Premium:	4.996	2.683	7.679
(16) Countrywide Indicated Relativity:	1.468	1.363	.
(17) Countrywide Credibility:	0.280	0.130	.
(18) Countrywide Lost-Time Claims:	1016.0	.	.
(19) Pure Premium Underlying Present Rate:	2.586	2.739	5.325
(20) Relativity to Underlying Present Rate:	1.144	1.414	.
(21) Credibility to Underlying Relativity:	0.270	0.120	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	1.096	1.049	.
(24) Balanced Formula Relativity:	1.118	1.054	1.094

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## Calculation of Class Relativities

Class(es): 6834 BOAT BUILDING OR REPAIRING & DRIVERS: MA ACT									Effective: 9/1/2012			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)			
2005	170.180	3	27	42.018	14.984	80.755	31.806	169.563	0.335	0.661	0.996			
2006	155.450	0	29	0	439.503	0	73.453	512.956	2.827	0.473	3.300			
2007	158.656	0	27	0	12.548	0	22.700	35.249	0.079	0.143	0.222			
2008	154.310	1	28	25.563	71.030	9.658	103.182	209.433	0.626	0.731	1.357			
2009	140.875	0	15	0	14.234	0	27.813	42.047	0.101	0.197	0.298			
<b>MA Total:</b>	<b>779.471</b>	<b>4</b>	<b>126</b>	<b>67.580</b>	<b>552.300</b>	<b>90.413</b>	<b>258.954</b>	<b>969.248</b>	<b>0.795</b>	<b>0.448</b>	<b>1.243</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.246	0.211	.
(14) Massachusetts Credibility:	0.270	0.450	.
(15) Countrywide Pure Premium:	2.191	1.459	3.650
(16) Countrywide Indicated Relativity:	0.723	0.736	.
(17) Countrywide Credibility:	0.370	0.280	.
(18) Countrywide Lost-Time Claims:	1197.0	.	.
(19) Pure Premium Underlying Present Rate:	1.168	1.199	2.367
(20) Relativity to Underlying Present Rate:	0.599	0.621	.
(21) Credibility to Underlying Relativity:	0.360	0.270	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	0.550	0.469	.
(24) Balanced Formula Relativity:	0.538	0.461	0.508

Class(es): 6836 MARINA & DRIVERS: MA ACT									Effective: 9/1/2012			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)			
2005	389.896	1	97	53.241	96.370	13.231	211.552	374.394	0.384	0.577	0.960			
2006	422.891	4	98	681.891	475.475	403.486	323.255	1,884.108	2.737	1.719	4.455			
2007	429.849	3	92	429.847	783.156	138.558	332.447	1,684.008	2.822	1.096	3.918			
2008	441.013	1	80	87.428	131.750	57.899	278.640	555.717	0.497	0.763	1.260			
2009	418.727	3	64	302.688	221.199	122.132	341.206	987.225	1.251	1.107	2.358			
<b>MA Total:</b>	<b>2,102.377</b>	<b>12</b>	<b>431</b>	<b>1,555.094</b>	<b>1,707.951</b>	<b>735.307</b>	<b>1,487.100</b>	<b>5,485.452</b>	<b>1.552</b>	<b>1.057</b>	<b>2.609</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.481	0.497	.
(14) Massachusetts Credibility:	0.370	0.620	.
(15) Countrywide Pure Premium:	2.775	2.178	4.952
(16) Countrywide Indicated Relativity:	0.916	1.099	.
(17) Countrywide Credibility:	0.320	0.190	.
(18) Countrywide Lost-Time Claims:	752.00	.	.
(19) Pure Premium Underlying Present Rate:	0.943	0.996	1.939
(20) Relativity to Underlying Present Rate:	0.484	0.516	.
(21) Credibility to Underlying Relativity:	0.310	0.190	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	0.621	0.615	.
(24) Balanced Formula Relativity:	0.608	0.605	0.607

# IX 000204

## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	2,392,233	79	516	11717080	6,236,523	5,468,083	4,003,489	27425176	7,505	3,959	11,464
2006	2,266,584	39	416	7,816,268	5,637,089	4,274,964	3,002,781	20731102	5,936	3,211	9,146
2007	2,401,510	45	453	9,337,678	6,977,019	5,952,422	4,011,339	26278459	6,794	4,149	10,942
2008	2,226,195	49	364	7,308,443	5,591,885	4,618,006	4,299,372	21817706	5,795	4,006	9,800
2009	2,143,743	39	380	4,631,752	7,252,381	2,494,334	3,563,936	17942403	5,544	2,826	8,370
<b>MA Total:</b>	<b>11430265</b>	<b>251</b>	<b>2,129</b>	<b>40811221</b>	<b>31694898</b>	<b>22807809</b>	<b>18880918</b>	<b>114194846</b>	<b>6,343</b>	<b>3,647</b>	<b>9,991</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.965	1.714	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	5.500	2.910	8.411
(16) Countrywide Indicated Relativity:	1.815	1.468	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	12416	.	.
(19) Pure Premium Underlying Present Rate:	3.503	3.091	6.594
(20) Relativity to Underlying Present Rate:	1.798	1.601	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	1.965	1.714	.
(24) Balanced Formula Relativity:	1.924	1.687	1.830

Class(es):		Effective: 9/1/2012							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)
2005	39,842	2	9	254,800	22,855	106,157	16,198	400,011	6,969	3,071	10,040
2006	30,971	1	3	61,998	313	26,884	2,531	91,727	2,012	0,950	2,962
2007	31,923	0	4	0	2,008	0	5,009	7,017	0,063	0,157	0,220
2008	30,948	0	4	0	54,737	0	44,709	99,446	1,769	1,445	3,213
2009	28,208	1	8	199,119	279,728	90,778	106,765	676,390	16,976	7,003	23,979
<b>MA Total:</b>	<b>161,892</b>	<b>4</b>	<b>28</b>	<b>515,918</b>	<b>359,642</b>	<b>223,819</b>	<b>175,213</b>	<b>1,274,592</b>	<b>5,408</b>	<b>2,465</b>	<b>7,873</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.675	1.158	.
(14) Massachusetts Credibility:	0.200	0.310	.
(15) Countrywide Pure Premium:	4.657	3.139	7.796
(16) Countrywide Indicated Relativity:	1.537	1.584	.
(17) Countrywide Credibility:	0.400	0.350	.
(18) Countrywide Lost-Time Claims:	375.00	.	.
(19) Pure Premium Underlying Present Rate:	2.573	2.237	4.810
(20) Relativity to Underlying Present Rate:	1.320	1.158	.
(21) Credibility to Underlying Relativity:	0.400	0.340	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	1.478	1.307	.
(24) Balanced Formula Relativity:	1.447	1.287	1.383

# IX 000205

## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	177,245	3	37	316,726	394,270	231,563	218,426	1,160,986	4,011	2,539	6,550
2006	168,845	3	24	203,135	254,216	61,044	137,414	655,809	2,709	1,175	3,884
2007	199,412	6	65	1,103,492	307,075	468,070	219,330	2,097,967	7,074	3,447	10,521
2008	199,480	4	37	114,595	797,632	71,171	576,164	1,559,562	4,573	3,245	7,818
2009	230,495	7	40	688,740	607,363	393,281	273,803	1,963,187	5,623	2,894	8,517
<b>MA Total:</b>	<b>975,477</b>	<b>23</b>	<b>203</b>	<b>2,426,688</b>	<b>2,360,557</b>	<b>1,225,128</b>	<b>1,425,137</b>	<b>7,437,510</b>	<b>4,908</b>	<b>2,717</b>	<b>7,624</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.520	1.277	.
(14) Massachusetts Credibility:	0.410	0.680	.
(15) Countrywide Pure Premium:	6.034	3.237	9.270
(16) Countrywide Indicated Relativity:	1.991	1.633	.
(17) Countrywide Credibility:	0.300	0.160	.
(18) Countrywide Lost-Time Claims:	4409.0	.	.
(19) Pure Premium Underlying Present Rate:	2.654	2.657	5.311
(20) Relativity to Underlying Present Rate:	1.362	1.376	.
(21) Credibility to Underlying Relativity:	0.290	0.160	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	1.615	1.350	.
(24) Balanced Formula Relativity:	1.582	1.328	1.481

Class(es):		Effective: 9/1/2012							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)
2005	58,697	0	9	0	3,722	0	12,879	16,601	0.063	0.219	0.283
2006	69,133	0	23	0	23,433	0	45,272	68,705	0.339	0.655	0.994
2007	71,365	3	23	935,406	354,711	110,210	163,864	1,564,192	18,078	3,840	21,918
2008	66,862	0	13	0	92,764	0	52,587	145,351	1,387	0.787	2,174
2009	59,725	0	15	0	105,548	0	67,139	172,687	1,767	1,124	2,891
<b>MA Total:</b>	<b>325,781</b>	<b>3</b>	<b>83</b>	<b>935,406</b>	<b>580,178</b>	<b>110,210</b>	<b>341,741</b>	<b>1,967,536</b>	<b>4,652</b>	<b>1,387</b>	<b>6,039</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.441	0.652	.
(14) Massachusetts Credibility:	0.250	0.410	.
(15) Countrywide Pure Premium:	2.970	2.013	4.983
(16) Countrywide Indicated Relativity:	0.980	1.016	.
(17) Countrywide Credibility:	0.380	0.300	.
(18) Countrywide Lost-Time Claims:	1101.0	.	.
(19) Pure Premium Underlying Present Rate:	2.187	2.198	4.386
(20) Relativity to Underlying Present Rate:	1.122	1.139	.
(21) Credibility to Underlying Relativity:	0.370	0.290	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	1.148	0.902	.
(24) Balanced Formula Relativity:	1.124	0.888	1.030

# IX 000206

## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	823,579	13	416	1,203,214	761,788	1,704,990	862,268	4,532,259	2,386	3,117	5,503
2006	928,383	19	462	1,083,641	602,326	673,402	1,008,793	3,368,162	1,816	1,812	3,628
2007	996,815	24	473	1,598,913	1,497,612	1,034,640	1,730,886	5,862,052	3,106	2,774	5,881
2008	1,089,455	19	433	2,106,750	901,036	1,326,322	1,037,620	5,371,729	2,761	2,170	4,931
2009	1,266,833	20	513	1,122,299	1,369,747	502,537	1,232,320	4,226,903	1,967	1,369	3,337
<b>MA Total:</b>	<b>5,105,065</b>	<b>95</b>	<b>2,297</b>	<b>7,114,817</b>	<b>5,132,509</b>	<b>5,241,891</b>	<b>5,871,887</b>	<b>23361104</b>	<b>2,399</b>	<b>2,177</b>	<b>4,576</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.743	1.023	.
(14) Massachusetts Credibility:	0.650	1.000	.
(15) Countrywide Pure Premium:	2.772	2.104	4.876
(16) Countrywide Indicated Relativity:	0.915	1.062	.
(17) Countrywide Credibility:	0.180	0.000	.
(18) Countrywide Lost-Time Claims:	3243.0	.	.
(19) Pure Premium Underlying Present Rate:	1.560	2.109	3.670
(20) Relativity to Underlying Present Rate:	0.801	1.092	.
(21) Credibility to Underlying Relativity:	0.170	0.000	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	0.784	1.023	.
(24) Balanced Formula Relativity:	0.768	1.007	0.863

Class(es):		Effective: 9/1/2012							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)
2005	3,159,994	55	1,005	4,796,734	4,620,270	2,768,964	3,843,355	16029323	2,980	2,093	5,073
2006	3,369,191	58	992	7,159,308	6,041,476	4,363,291	4,363,894	21927969	3,918	2,590	6,508
2007	3,192,168	52	985	4,956,770	8,724,193	2,783,052	5,227,625	21691640	4,286	2,509	6,795
2008	3,102,263	46	930	4,708,780	9,160,099	2,390,099	5,153,614	21412592	4,471	2,432	6,902
2009	3,023,779	31	720	2,302,188	6,484,764	1,317,201	4,141,470	14245623	2,906	1,805	4,711
<b>MA Total:</b>	<b>15847395</b>	<b>242</b>	<b>4,632</b>	<b>23923779</b>	<b>35030803</b>	<b>13622607</b>	<b>22729957</b>	<b>95307147</b>	<b>3,720</b>	<b>2,294</b>	<b>6,014</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.152	1.078	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	3.015	1.945	4.960
(16) Countrywide Indicated Relativity:	0.995	0.981	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	23511	.	.
(19) Pure Premium Underlying Present Rate:	2.369	2.183	4.552
(20) Relativity to Underlying Present Rate:	1.216	1.131	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	1.152	1.078	.
(24) Balanced Formula Relativity:	1.128	1.061	1.102

# IX 000207

## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)	
2005	2,280,565	63	666	3,362,815	1,969,447	1,943,208	1,838,650	9,114,121	2,338	1,658	3,996	
2006	2,004,103	51	494	3,680,591	1,464,285	1,549,309	1,417,198	8,111,383	2,567	1,480	4,047	
2007	1,955,970	39	501	2,518,166	2,357,589	2,062,473	1,934,082	8,872,309	2,493	2,043	4,536	
2008	2,023,169	30	467	1,473,844	1,815,521	739,230	1,745,622	5,774,217	1,626	1,228	2,854	
2009	2,393,456	47	528	1,723,258	2,263,010	1,403,313	2,178,388	7,567,970	1,665	1,496	3,162	
<b>MA Total:</b>	<b>10657263</b>	<b>230</b>	<b>2,656</b>	<b>12758674</b>	<b>9,869,852</b>	<b>7,697,533</b>	<b>9,113,940</b>	<b>39440000</b>	<b>2,123</b>	<b>1,577</b>	<b>3,701</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.658	0.741	.
(14) Massachusetts Credibility:	0.870	1.000	.
(15) Countrywide Pure Premium:	2.458	1.822	4.280
(16) Countrywide Indicated Relativity:	0.811	0.919	.
(17) Countrywide Credibility:	0.070	0.000	.
(18) Countrywide Lost-Time Claims:	6285.0	.	.
(19) Pure Premium Underlying Present Rate:	1.591	1.669	3.260
(20) Relativity to Underlying Present Rate:	0.816	0.864	.
(21) Credibility to Underlying Relativity:	0.060	0.000	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	0.678	0.741	.
(24) Balanced Formula Relativity:	0.664	0.730	0.690

Class(es):		Effective: 9/1/2012							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)	
2005	427,524	8	166	555,949	622,511	506,070	725,385	2,409,916	2,756	2,880	5,637	
2006	335,327	3	109	35,954	149,511	21,303	256,845	463,612	0,553	0,829	1,383	
2007	273,806	6	109	493,681	479,982	624,220	498,706	2,096,590	3,556	4,101	7,657	
2008	598,061	5	165	302,722	493,597	182,986	810,461	1,789,766	1,332	1,661	2,993	
2009	658,088	5	154	150,749	832,538	144,773	845,111	1,973,171	1,494	1,504	2,998	
<b>MA Total:</b>	<b>2,292,805</b>	<b>27</b>	<b>703</b>	<b>1,539,055</b>	<b>2,578,139</b>	<b>1,479,352</b>	<b>3,136,508</b>	<b>8,733,054</b>	<b>1,796</b>	<b>2,013</b>	<b>3,809</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.556	0.946	.
(14) Massachusetts Credibility:	0.470	0.890	.
(15) Countrywide Pure Premium:	2.472	1.795	4.267
(16) Countrywide Indicated Relativity:	0.816	0.906	.
(17) Countrywide Credibility:	0.270	0.060	.
(18) Countrywide Lost-Time Claims:	16606	.	.
(19) Pure Premium Underlying Present Rate:	1.552	2.217	3.769
(20) Relativity to Underlying Present Rate:	0.796	1.148	.
(21) Credibility to Underlying Relativity:	0.260	0.050	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	0.689	0.954	.
(24) Balanced Formula Relativity:	0.674	0.939	0.779

# IX 000208

## Calculation of Class Relativities

Class(es): 7405 AIRCRAFT OR HELICOP OP: AIR CARRIER-SCHD/ SUPPL: FLYING CREW									Effective: 9/1/2012			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)			
2005	429.139	5	23	273.041	125.064	250.033	64.962	713.099	0.928	0.734	1.662			
2006	175.721	0	10	0	164.730	0	115.748	280.478	0.937	0.659	1.596			
2007	262.561	4	27	225.698	871.654	151.405	136.908	1,385.664	4.179	1.098	5.278			
2008	262.325	1	26	34.579	123.867	22.288	201.020	381.753	0.604	0.851	1.455			
2009	251.915	1	17	107.829	63.562	76.498	62.115	310.004	0.680	0.550	1.231			
<b>MA Total:</b>	<b>1,381.661</b>	<b>11</b>	<b>103</b>	<b>641,146</b>	<b>1,348,877</b>	<b>500,223</b>	<b>580,752</b>	<b>3,070,998</b>	<b>1.440</b>	<b>0.782</b>	<b>2.223</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.446	0.368	.
(14) Massachusetts Credibility:	0.270	0.430	.
(15) Countrywide Pure Premium:	0.784	0.414	1.198
(16) Countrywide Indicated Relativity:	0.259	0.209	.
(17) Countrywide Credibility:	0.370	0.290	.
(18) Countrywide Lost-Time Claims:	4041.0	.	.
(19) Pure Premium Underlying Present Rate:	0.644	0.606	1.250
(20) Relativity to Underlying Present Rate:	0.331	0.314	.
(21) Credibility to Underlying Relativity:	0.360	0.280	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	0.335	0.307	.
(24) Balanced Formula Relativity:	0.328	0.302	0.318

Class(es): 7420 AIRCRAFT OR HELICOP OP: PUBLIC EXHIB STUNT FLYING: FLY CREW									Effective: 9/1/2012			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)			
2005	1.338	0	0	0	0	0	0	0	0.000	0.000	0.000			
2006	346	0	0	0	0	0	0	0	0.000	0.000	0.000			
2007	456	0	0	0	0	0	0	0	0.000	0.000	0.000			
2008	2,036	0	0	0	0	0	0	0	0.000	0.000	0.000			
2009	2,377	0	0	0	0	0	0	0	0.000	0.000	0.000			
<b>MA Total:</b>	<b>6,553</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.060	0.070	.
(15) Countrywide Pure Premium:	7.920	0.981	8.900
(16) Countrywide Indicated Relativity:	2.613	0.495	.
(17) Countrywide Credibility:	0.230	0.240	.
(18) Countrywide Lost-Time Claims:	29.000	.	.
(19) Pure Premium Underlying Present Rate:	3.214	1.453	4.667
(20) Relativity to Underlying Present Rate:	1.649	0.752	.
(21) Credibility to Underlying Relativity:	0.710	0.690	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	1.772	0.638	.
(24) Balanced Formula Relativity:	1.735	0.628	1.295

# IX 000209

## Calculation of Class Relativities

Class(es):									Effective: 9/1/2012			Miscellaneous		
7421 AIRCRAFT OR HELICOP OP: TRANSPORT PERS IN EMPLR BUS: FLY CRW														
Converted Unlimited Losses														
Amount														
		Claim Count		Indemnity		Medical		Total	MA Indicated Pure Premiums					
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)			
2005	235,733	0	9	0	13,838	0	30,326	44,164	0.059	0.129	0.187			
2006	257,691	0	13	0	4,946	0	28,997	33,943	0.019	0.113	0.132			
2007	239,251	0	17	0	920,668	0	171,508	1,092,176	3.848	0.717	4.565			
2008	210,429	0	5	0	44,447	0	82,737	127,184	0.211	0.393	0.604			
2009	200,736	0	4	0	78,043	0	25,787	103,830	0.389	0.128	0.517			
<b>MA Total:</b>	<b>1,143,840</b>	<b>0</b>	<b>48</b>	<b>0</b>	<b>1,061,942</b>	<b>0</b>	<b>339,356</b>	<b>1,401,297</b>	<b>0.928</b>	<b>0.297</b>	<b>1.225</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.288	0.139	.
(14) Massachusetts Credibility:	0.310	0.380	.
(15) Countrywide Pure Premium:	1.332	0.615	1.946
(16) Countrywide Indicated Relativity:	0.439	0.310	.
(17) Countrywide Credibility:	0.350	0.310	.
(18) Countrywide Lost-Time Claims:	621.00	.	.
(19) Pure Premium Underlying Present Rate:	1.075	0.530	1.604
(20) Relativity to Underlying Present Rate:	0.551	0.274	.
(21) Credibility to Underlying Relativity:	0.340	0.310	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	0.430	0.234	.
(24) Balanced Formula Relativity:	0.422	0.230	0.346

Class(es):									Effective: 9/1/2012			Miscellaneous		
7425 AIRCRAFT OR HELICOP OP: NOC- HELICOPTERS: FLYING CREW														
Converted Unlimited Losses														
Amount														
		Claim Count		Indemnity		Medical		Total	MA Indicated Pure Premiums					
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)			
2005	0	0	0	0	0	0	0	0	0.000	0.000	0.000			
2006	0	0	0	0	0	0	0	0	0.000	0.000	0.000			
2007	0	0	0	0	0	0	0	0	0.000	0.000	0.000			
2008	50,653	0	0	0	0	0	0	0	0.000	0.000	0.000			
2009	63,694	0	2	0	0	0	221	221	0.000	0.003	0.003			
<b>MA Total:</b>	<b>114,346</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>221</b>	<b>221</b>	<b>0.000</b>	<b>0.002</b>	<b>0.002</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.001	.
(14) Massachusetts Credibility:	0.160	0.200	.
(15) Countrywide Pure Premium:	3.070	1.025	4.094
(16) Countrywide Indicated Relativity:	1.013	0.517	.
(17) Countrywide Credibility:	0.420	0.400	.
(18) Countrywide Lost-Time Claims:	148.00	.	.
(19) Pure Premium Underlying Present Rate:	2.021	1.107	3.128
(20) Relativity to Underlying Present Rate:	1.037	0.573	.
(21) Credibility to Underlying Relativity:	0.420	0.400	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	0.861	0.436	.
(24) Balanced Formula Relativity:	0.843	0.429	0.679

# IX 000210

## Calculation of Class Relativities

Class(es):									Effective: 9/1/2012			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)			
2005	109,171	1	43	429,758	21,506	234,104	93,768	779,136	4,134	3,003	7,137			
2006	96,328	2	38	134,225	97,647	153,624	105,021	490,516	2,407	2,685	5,092			
2007	123,411	2	37	427,370	130,280	210,980	76,158	844,787	4,519	2,327	6,845			
2008	129,883	1	36	157	125,045	1,381	227,023	353,605	0,964	1,759	2,722			
2009	173,356	0	32	0	71,396	0	66,679	138,075	0,412	0,385	0,796			
<b>MA Total:</b>	<b>632,149</b>	<b>6</b>	<b>186</b>	<b>991,511</b>	<b>445,873</b>	<b>600,088</b>	<b>568,648</b>	<b>2,606,120</b>	<b>2,274</b>	<b>1,849</b>	<b>4,123</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.704	0.869	.
(14) Massachusetts Credibility:	0.270	0.480	.
(15) Countrywide Pure Premium:	1.494	1.195	2.690
(16) Countrywide Indicated Relativity:	0.493	0.603	.
(17) Countrywide Credibility:	0.370	0.260	.
(18) Countrywide Lost-Time Claims:	619.00	.	.
(19) Pure Premium Underlying Present Rate:	1.374	1.679	3.053
(20) Relativity to Underlying Present Rate:	0.705	0.870	.
(21) Credibility to Underlying Relativity:	0.360	0.260	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	0.626	0.800	.
(24) Balanced Formula Relativity:	0.613	0.787	0.683

Class(es):									Effective: 9/1/2012			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)			
2005	24,371	0	6	0	51,156	0	29,948	81,104	2,099	1,229	3,328			
2006	12,497	0	0	0	0	0	0	0	0,000	0,000	0,000			
2007	25,621	0	2	0	6,545	0	19,958	26,503	0,255	0,779	1,034			
2008	36,930	0	2	0	14,197	0	135,406	149,603	0,384	3,667	4,051			
2009	10,729	0	0	0	0	0	0	0	0,000	0,000	0,000			
<b>MA Total:</b>	<b>110,149</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>71,899</b>	<b>0</b>	<b>185,313</b>	<b>257,211</b>	<b>0,653</b>	<b>1,682</b>	<b>2,335</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.202	0.791	.
(14) Massachusetts Credibility:	0.110	0.180	.
(15) Countrywide Pure Premium:	0.667	0.611	1.278
(16) Countrywide Indicated Relativity:	0.220	0.308	.
(17) Countrywide Credibility:	0.450	0.410	.
(18) Countrywide Lost-Time Claims:	361.00	.	.
(19) Pure Premium Underlying Present Rate:	0.913	0.900	1.813
(20) Relativity to Underlying Present Rate:	0.469	0.466	.
(21) Credibility to Underlying Relativity:	0.440	0.410	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	0.327	0.460	.
(24) Balanced Formula Relativity:	0.321	0.452	0.373

# IX 000211

## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	197,267	3	23	557,463	5,711	119,764	70,601	753,540	2,855	0,965	3,820
2006	216,990	1	36	625,872	245,234	269,076	336,032	1,476,213	4,014	2,789	6,803
2007	256,685	2	43	94,877	345,770	277,054	349,342	1,067,043	1,717	2,440	4,157
2008	280,144	0	27	0	96,373	0	187,673	284,047	0,344	0,670	1,014
2009	299,021	0	36	0	451,573	0	408,239	859,812	1,510	1,365	2,875
<b>MA Total:</b>	<b>1,250,107</b>	<b>6</b>	<b>165</b>	<b>1,278,213</b>	<b>1,144,661</b>	<b>665,894</b>	<b>1,351,888</b>	<b>4,440,655</b>	<b>1,938</b>	<b>1,614</b>	<b>3,552</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.549	0.795	.
(14) Massachusetts Credibility:	0.450	0.680	.
(15) Countrywide Pure Premium:	5.484	3.347	8.831
(16) Countrywide Indicated Relativity:	1.612	1.700	.
(17) Countrywide Credibility:	0.280	0.160	.
(18) Countrywide Lost-Time Claims:	1440.0	.	.
(19) Pure Premium Underlying Present Rate:	2.579	2.080	4.659
(20) Relativity to Underlying Present Rate:	1.141	1.074	.
(21) Credibility to Underlying Relativity:	0.270	0.160	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	1.006	0.984	.
(24) Balanced Formula Relativity:	1.026	0.989	1.012

Class(es):		Effective: 9/1/2012							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)
2005	412,235	1	36	12,754	21,006	12,531	95,348	141,639	0.082	0.262	0.344
2006	496,417	1	48	5,255	568,919	6,677	241,927	822,777	1.157	0.501	1.657
2007	658,851	1	46	592,522	92,614	346,108	132,328	1,163,572	1.040	0.726	1.766
2008	653,907	0	48	0	545,603	0	405,517	951,119	0.834	0.620	1.455
2009	683,007	2	33	218,109	85,682	109,053	62,784	475,628	0.445	0.252	0.696
<b>MA Total:</b>	<b>2,904,417</b>	<b>5</b>	<b>211</b>	<b>828,640</b>	<b>1,313,824</b>	<b>474,368</b>	<b>937,904</b>	<b>3,554,735</b>	<b>0.738</b>	<b>0.486</b>	<b>1.224</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.228	0.228	.
(14) Massachusetts Credibility:	0.330	0.500	.
(15) Countrywide Pure Premium:	1.361	0.829	2.190
(16) Countrywide Indicated Relativity:	0.449	0.418	.
(17) Countrywide Credibility:	0.340	0.250	.
(18) Countrywide Lost-Time Claims:	1691.0	.	.
(19) Pure Premium Underlying Present Rate:	0.524	0.416	0.940
(20) Relativity to Underlying Present Rate:	0.269	0.215	.
(21) Credibility to Underlying Relativity:	0.330	0.250	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	0.317	0.273	.
(24) Balanced Formula Relativity:	0.310	0.268	0.294

# IX 000212

## Calculation of Class Relativities

Class(es): 7580 SEWAGE DISPOSAL PLANT OPERATION & DRIVERS									Effective: 9/1/2012			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)			
2005	121.410	0	15	0	32.949	0	42.175	75.124	0.271	0.347	0.619			
2006	135.803	0	18	0	32.721	0	34.509	67.231	0.241	0.254	0.495			
2007	150.962	2	19	35.841	37.013	55.634	24.600	153.088	0.483	0.531	1.014			
2008	204.997	2	27	70.547	354.965	30.162	199.192	654.865	2.076	1.119	3.195			
2009	269.472	2	35	19.213	162.513	11.732	162.642	356.100	0.674	0.647	1.321			
<b>MA Total:</b>	<b>882.643</b>	<b>6</b>	<b>114</b>	<b>125.600</b>	<b>620.161</b>	<b>97.527</b>	<b>463.118</b>	<b>1,306.407</b>	<b>0.845</b>	<b>0.635</b>	<b>1.480</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.262	0.298	.
(14) Massachusetts Credibility:	0.260	0.450	.
(15) Countrywide Pure Premium:	1.565	1.070	2.635
(16) Countrywide Indicated Relativity:	0.516	0.540	.
(17) Countrywide Credibility:	0.370	0.280	.
(18) Countrywide Lost-Time Claims:	734.00	.	.
(19) Pure Premium Underlying Present Rate:	0.934	1.035	1.969
(20) Relativity to Underlying Present Rate:	0.479	0.536	.
(21) Credibility to Underlying Relativity:	0.370	0.270	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	0.436	0.430	.
(24) Balanced Formula Relativity:	0.427	0.424	0.426

Class(es): 7590 GARBAGE WORKS									Effective: 9/1/2012			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)			
2005	40.912	0	3	0	171.534	0	20.869	192.402	4.193	0.510	4.703			
2006	37.277	1	4	16.054	7.247	843	18.042	42.187	0.625	0.507	1.132			
2007	42.139	1	3	8.535	0	16.959	2.820	28.313	0.203	0.469	0.672			
2008	11.365	1	3	3.882	111.477	4.413	106.139	225.911	10.150	9.727	19.878			
2009	21.870	0	1	0	5.156	0	7.224	12.381	0.236	0.330	0.566			
<b>MA Total:</b>	<b>153.563</b>	<b>3</b>	<b>14</b>	<b>28.471</b>	<b>295.414</b>	<b>22.215</b>	<b>155.094</b>	<b>501.194</b>	<b>2.109</b>	<b>1.155</b>	<b>3.264</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.653	0.543	.
(14) Massachusetts Credibility:	0.200	0.300	.
(15) Countrywide Pure Premium:	2.892	2.013	4.905
(16) Countrywide Indicated Relativity:	0.954	1.016	.
(17) Countrywide Credibility:	0.400	0.350	.
(18) Countrywide Lost-Time Claims:	477.00	.	.
(19) Pure Premium Underlying Present Rate:	2.866	2.174	5.040
(20) Relativity to Underlying Present Rate:	1.471	1.126	.
(21) Credibility to Underlying Relativity:	0.400	0.350	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	1.101	0.912	.
(24) Balanced Formula Relativity:	1.078	0.898	1.006

# IX 000213

Section IX - Classification Pricing  
 Subsection G - Class Relativities  
 9/1/2012

Section IX - G  
 Exhibit 143

## Calculation of Class Relativities

Class(es): 7600 TELEPHONE OR TELEGRAPH CO: ALL OTHER EMP & DR									Effective: 9/1/2012			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)			
2005	1,168,482	6	172	763,299	1,193,546	161,365	934,897	3,053,108	1,675	0,938	2,613			
2006	1,292,226	17	177	2,012,346	1,453,394	718,453	1,103,132	5,287,325	2,682	1,410	4,092			
2007	1,388,503	17	243	2,568,403	2,027,042	922,683	1,156,905	6,675,032	3,310	1,498	4,807			
2008	1,305,640	11	246	2,930,573	3,236,190	1,598,119	1,669,301	9,434,183	4,723	2,503	7,226			
2009	1,302,819	17	212	2,509,784	1,757,742	1,064,126	960,391	6,292,044	3,276	1,554	4,830			
<b>MA Total:</b>	<b>6,457,671</b>	<b>68</b>	<b>1,050</b>	<b>10784405</b>	<b>9,667,914</b>	<b>4,464,746</b>	<b>5,824,628</b>	<b>30741692</b>	<b>3,167</b>	<b>1,593</b>	<b>4,760</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.981	0.749	.
(14) Massachusetts Credibility:	0.670	1.000	.
(15) Countrywide Pure Premium:	2.030	1.328	3.358
(16) Countrywide Indicated Relativity:	0.670	0.670	.
(17) Countrywide Credibility:	0.170	0.000	.
(18) Countrywide Lost-Time Claims:	7074.0	.	.
(19) Pure Premium Underlying Present Rate:	1.353	1.217	2.569
(20) Relativity to Underlying Present Rate:	0.694	0.630	.
(21) Credibility to Underlying Relativity:	0.160	0.000	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	0.882	0.749	.
(24) Balanced Formula Relativity:	0.864	0.737	0.813

Class(es): 7610 RADIO OR TV BROADCAST STATION-ALL EMP & CL, DR									Effective: 9/1/2012			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)			
2005	2,846,148	2	43	387,071	220,383	73,670	255,635	936,760	0.213	0.116	0.329			
2006	3,172,984	1	40	6,436	112,818	15,905	134,716	269,874	0.038	0.047	0.085			
2007	3,603,718	3	93	251,230	125,391	57,946	168,641	603,209	0.105	0.063	0.167			
2008	3,541,633	2	73	97,037	700,803	214,304	315,047	1,327,190	0.225	0.149	0.375			
2009	3,545,242	6	35	1,049,648	375,453	399,111	284,158	2,108,370	0.402	0.193	0.595			
<b>MA Total:</b>	<b>16709725</b>	<b>14</b>	<b>284</b>	<b>1,791,422</b>	<b>1,534,848</b>	<b>760,937</b>	<b>1,158,197</b>	<b>5,245,403</b>	<b>0.199</b>	<b>0.115</b>	<b>0.314</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.249	1.649	.
(14) Massachusetts Credibility:	0.300	0.500	.
(15) Countrywide Pure Premium:	0.175	0.127	0.303
(16) Countrywide Indicated Relativity:	2.206	1.954	.
(17) Countrywide Credibility:	0.350	0.250	.
(18) Countrywide Lost-Time Claims:	1787.0	.	.
(19) Pure Premium Underlying Present Rate:	0.073	0.073	0.145
(20) Relativity to Underlying Present Rate:	1.292	1.132	.
(21) Credibility to Underlying Relativity:	0.350	0.250	.
(22) Industry Group Converted Pure Premium:	0.089	0.070	0.158
(23) Formula Relativity:	1.899	1.596	.
(24) Balanced Formula Relativity:	1.889	1.595	1.760

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)	
2005	23,168	0	3	0	0	0	3,270	3,270	0.000	0.141	0.141	
2006	30,450	0	2	0	0	0	1,489	1,489	0.000	0.049	0.049	
2007	29,626	0	4	0	939	0	1,718	2,657	0.032	0.058	0.090	
2008	25,020	0	1	0	0	0	364	364	0.000	0.015	0.015	
2009	26,038	0	2	0	928	0	5,212	6,140	0.036	0.200	0.236	
<b>MA Total:</b>	<b>134,303</b>	<b>0</b>	<b>12</b>	<b>0</b>	<b>1,867</b>	<b>0</b>	<b>12,053</b>	<b>13,920</b>	<b>0.014</b>	<b>0.090</b>	<b>0.104</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.004	0.042	.
(14) Massachusetts Credibility:	0.100	0.170	.
(15) Countrywide Pure Premium:	2.926	2.435	5.361
(16) Countrywide Indicated Relativity:	0.965	1.229	.
(17) Countrywide Credibility:	0.450	0.420	.
(18) Countrywide Lost-Time Claims:	2515.0	.	.
(19) Pure Premium Underlying Present Rate:	0.562	0.632	1.194
(20) Relativity to Underlying Present Rate:	0.289	0.327	.
(21) Credibility to Underlying Relativity:	0.450	0.410	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	0.565	0.657	.
(24) Balanced Formula Relativity:	0.553	0.647	0.590

Class(es):		Effective: 9/1/2012							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)	
2005	1,370,570	9	123	547,533	1,361,890	482,392	1,624,866	4,016,682	1.393	1.538	2.931	
2006	1,278,898	3	93	190,591	395,431	34,978	586,649	1,207,649	0.458	0.486	0.944	
2007	1,378,368	4	100	396,436	801,435	112,819	800,547	2,111,237	0.869	0.663	1.532	
2008	1,403,940	7	94	907,307	515,775	532,160	1,246,924	3,202,166	1.014	1.267	2.281	
2009	1,534,838	4	91	79,725	1,078,545	99,564	735,388	1,993,222	0.755	0.544	1.299	
<b>MA Total:</b>	<b>6,966,614</b>	<b>27</b>	<b>501</b>	<b>2,121,592</b>	<b>4,153,076</b>	<b>1,261,913</b>	<b>4,994,374</b>	<b>12,530,956</b>	<b>0.901</b>	<b>0.898</b>	<b>1.799</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.279	0.422	.
(14) Massachusetts Credibility:	0.520	0.870	.
(15) Countrywide Pure Premium:	1.623	1.239	2.862
(16) Countrywide Indicated Relativity:	0.536	0.625	.
(17) Countrywide Credibility:	0.240	0.070	.
(18) Countrywide Lost-Time Claims:	12114	.	.
(19) Pure Premium Underlying Present Rate:	0.678	0.696	1.375
(20) Relativity to Underlying Present Rate:	0.348	0.361	.
(21) Credibility to Underlying Relativity:	0.240	0.060	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	0.357	0.433	.
(24) Balanced Formula Relativity:	0.350	0.426	0.380

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	18,722	0	2	0	0	0	4,501	4,501	0.000	0.240	0.240
2006	49,756	1	4	272,500	6,510	30,697	10,073	319,780	5.608	0.819	6.427
2007	14,380	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	9,068	0	1	0	5,474	0	4,682	10,156	0.604	0.516	1.120
2009	7,184	0	1	0	0	0	1,471	1,471	0.000	0.205	0.205
<b>MA Total:</b>	<b>99,109</b>	<b>1</b>	<b>8</b>	<b>272,500</b>	<b>11,984</b>	<b>30,697</b>	<b>20,727</b>	<b>335,908</b>	<b>2.870</b>	<b>0.519</b>	<b>3.389</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.813	0.255	.
(14) Massachusetts Credibility:	0.170	0.210	.
(15) Countrywide Pure Premium:	3.293	1.878	5.170
(16) Countrywide Indicated Relativity:	0.968	0.954	.
(17) Countrywide Credibility:	0.420	0.400	.
(18) Countrywide Lost-Time Claims:	299.00	.	.
(19) Pure Premium Underlying Present Rate:	2.846	1.446	4.292
(20) Relativity to Underlying Present Rate:	1.259	0.747	.
(21) Credibility to Underlying Relativity:	0.410	0.390	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	1.061	0.726	.
(24) Balanced Formula Relativity:	1.082	0.730	0.953

Class(es):		Effective: 9/1/2012							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)
2005	696,716	5	116	159,844	425,351	58,647	365,002	1,008,844	0.840	0.608	1.448
2006	721,306	4	80	413,814	524,297	154,214	470,830	1,563,155	1.301	0.867	2.167
2007	676,884	4	85	268,954	476,305	80,701	409,623	1,235,584	1.101	0.724	1.825
2008	610,116	1	66	118,469	197,766	75,308	251,771	643,314	0.518	0.536	1.054
2009	593,286	2	77	583,663	716,126	614,858	384,078	2,298,725	2.191	1.684	3.875
<b>MA Total:</b>	<b>3,298,308</b>	<b>16</b>	<b>424</b>	<b>1,544,744</b>	<b>2,339,846</b>	<b>983,728</b>	<b>1,881,304</b>	<b>6,749,622</b>	<b>1.178</b>	<b>0.869</b>	<b>2.046</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.099	1.119	.
(14) Massachusetts Credibility:	0.370	0.650	.
(15) Countrywide Pure Premium:	1.191	0.962	2.153
(16) Countrywide Indicated Relativity:	1.124	1.245	.
(17) Countrywide Credibility:	0.320	0.180	.
(18) Countrywide Lost-Time Claims:	1416.0	.	.
(19) Pure Premium Underlying Present Rate:	0.602	0.706	1.308
(20) Relativity to Underlying Present Rate:	0.881	0.992	.
(21) Credibility to Underlying Relativity:	0.310	0.170	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	1.039	1.120	.
(24) Balanced Formula Relativity:	1.035	1.119	1.071

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	73,435	1	10	242,783	218,460	219,170	143,863	824,276	6,281	4,944	11,225
2006	70,605	0	8	0	9,309	0	10,568	19,877	0.132	0.150	0.282
2007	121,565	2	19	5,607	81,558	8,948	97,975	194,088	0.717	0.880	1.597
2008	127,207	1	12	65,191	5,490	8,155	12,943	91,779	0.556	0.166	0.721
2009	103,429	0	9	0	47,807	0	119,597	167,404	0.462	1.156	1.619
<b>MA Total:</b>	<b>496,241</b>	<b>4</b>	<b>58</b>	<b>313,580</b>	<b>362,623</b>	<b>236,274</b>	<b>384,947</b>	<b>1,297,424</b>	<b>1.363</b>	<b>1.252</b>	<b>2.615</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.272	1.613	.
(14) Massachusetts Credibility:	0.190	0.350	.
(15) Countrywide Pure Premium:	1.017	0.962	1.978
(16) Countrywide Indicated Relativity:	0.959	1.245	.
(17) Countrywide Credibility:	0.410	0.330	.
(18) Countrywide Lost-Time Claims:	1865.0	.	.
(19) Pure Premium Underlying Present Rate:	0.796	1.021	1.817
(20) Relativity to Underlying Present Rate:	1.166	1.435	.
(21) Credibility to Underlying Relativity:	0.400	0.320	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	1.101	1.434	.
(24) Balanced Formula Relativity:	1.097	1.433	1.238

Class(es):		Effective: 9/1/2012							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)
2005	1,897,509	11	271	399,602	963,646	828,189	922,286	3,113,723	0.718	0.923	1.641
2006	1,934,900	11	322	976,565	652,738	754,209	663,474	3,046,986	0.842	0.733	1.575
2007	2,049,449	11	276	624,830	745,626	400,559	800,297	2,571,312	0.669	0.586	1.255
2008	2,072,655	14	279	1,578,620	903,192	560,942	939,310	3,982,065	1.197	0.724	1.921
2009	2,155,599	13	269	2,485,320	789,061	2,005,702	1,015,845	6,295,927	1.519	1.402	2.921
<b>MA Total:</b>	<b>10110113</b>	<b>60</b>	<b>1,417</b>	<b>6,064,937</b>	<b>4,054,262</b>	<b>4,549,601</b>	<b>4,341,212</b>	<b>19010013</b>	<b>1.001</b>	<b>0.879</b>	<b>1.880</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.934	1.133	.
(14) Massachusetts Credibility:	0.540	1.000	.
(15) Countrywide Pure Premium:	1.144	0.861	2.005
(16) Countrywide Indicated Relativity:	1.079	1.115	.
(17) Countrywide Credibility:	0.230	0.000	.
(18) Countrywide Lost-Time Claims:	10035	.	.
(19) Pure Premium Underlying Present Rate:	0.504	0.717	1.220
(20) Relativity to Underlying Present Rate:	0.738	1.007	.
(21) Credibility to Underlying Relativity:	0.230	0.000	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	0.922	1.133	.
(24) Balanced Formula Relativity:	0.919	1.132	1.008

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	2,791,822	6	264	149,276	723,309	690,044	597,183	2,159,812	0.313	0.461	0.774
2006	2,677,852	13	234	471,237	215,303	238,519	458,792	1,383,851	0.256	0.260	0.517
2007	3,505,614	6	271	323,735	685,297	82,055	756,454	1,847,540	0.288	0.239	0.527
2008	3,135,806	6	267	989,254	1,089,261	427,087	867,734	3,373,336	0.663	0.413	1.076
2009	2,957,443	7	229	265,467	883,014	249,323	685,809	2,083,613	0.388	0.316	0.705
<b>MA Total:</b>	<b>15068536</b>	<b>38</b>	<b>1,265</b>	<b>2,198,969</b>	<b>3,596,183</b>	<b>1,687,027</b>	<b>3,365,972</b>	<b>10848151</b>	<b>0.385</b>	<b>0.335</b>	<b>0.720</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.359	0.432	.
(14) Massachusetts Credibility:	0.470	0.800	.
(15) Countrywide Pure Premium:	0.640	0.509	1.148
(16) Countrywide Indicated Relativity:	0.603	0.659	.
(17) Countrywide Credibility:	0.270	0.100	.
(18) Countrywide Lost-Time Claims:	9547.0	.	.
(19) Pure Premium Underlying Present Rate:	0.243	0.262	0.506
(20) Relativity to Underlying Present Rate:	0.356	0.369	.
(21) Credibility to Underlying Relativity:	0.260	0.100	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	0.424	0.448	.
(24) Balanced Formula Relativity:	0.423	0.448	0.433

Class(es):		Effective: 9/1/2012							Goods and Services		
8010 STORE: HARDWARE											
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)
2005	2,027,918	10	395	1,023,844	1,383,910	613,061	1,187,426	4,208,241	1.187	0.888	2.075
2006	2,036,011	6	282	505,017	1,002,612	270,336	718,167	2,496,131	0.740	0.486	1.226
2007	1,885,377	11	254	948,798	1,087,322	418,528	780,521	3,235,169	1.080	0.636	1.716
2008	1,947,373	8	238	765,329	627,427	701,392	784,673	2,878,821	0.715	0.763	1.478
2009	1,689,276	3	209	426,944	996,028	217,408	749,741	2,390,122	0.842	0.573	1.415
<b>MA Total:</b>	<b>9,585,955</b>	<b>38</b>	<b>1,378</b>	<b>3,669,932</b>	<b>5,097,300</b>	<b>2,220,725</b>	<b>4,220,527</b>	<b>15208483</b>	<b>0.915</b>	<b>0.672</b>	<b>1.587</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.854	0.866	.
(14) Massachusetts Credibility:	0.550	0.980	.
(15) Countrywide Pure Premium:	0.926	0.690	1.616
(16) Countrywide Indicated Relativity:	0.874	0.893	.
(17) Countrywide Credibility:	0.230	0.010	.
(18) Countrywide Lost-Time Claims:	5396.0	.	.
(19) Pure Premium Underlying Present Rate:	0.555	0.670	1.224
(20) Relativity to Underlying Present Rate:	0.812	0.941	.
(21) Credibility to Underlying Relativity:	0.220	0.010	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	0.849	0.867	.
(24) Balanced Formula Relativity:	0.846	0.866	0.854

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## Calculation of Class Relativities

Class(es): 8013 STORE: JEWELRY STORES		Effective: 9/1/2012							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)
2005	1,084,134	2	44	269,257	489,792	36,257	439,200	1,234,506	0.700	0.439	1.139
2006	1,108,518	1	34	29,739	261,458	1,180	127,312	419,690	0.263	0.116	0.379
2007	1,112,572	2	19	126,245	89,718	115,934	68,827	400,724	0.194	0.166	0.360
2008	1,172,241	2	26	90,484	64,737	89,989	141,166	386,376	0.132	0.197	0.330
2009	1,149,197	4	28	413,099	334,703	84,043	180,077	1,011,923	0.651	0.230	0.881
<b>MA Total:</b>	<b>5,626,663</b>	<b>11</b>	<b>151</b>	<b>928,825</b>	<b>1,240,408</b>	<b>327,404</b>	<b>956,581</b>	<b>3,453,218</b>	<b>0.386</b>	<b>0.228</b>	<b>0.614</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.360	0.294	.
(14) Massachusetts Credibility:	0.280	0.470	.
(15) Countrywide Pure Premium:	0.223	0.151	0.374
(16) Countrywide Indicated Relativity:	0.210	0.196	.
(17) Countrywide Credibility:	0.360	0.270	.
(18) Countrywide Lost-Time Claims:	777.00	.	.
(19) Pure Premium Underlying Present Rate:	0.180	0.181	0.361
(20) Relativity to Underlying Present Rate:	0.264	0.254	.
(21) Credibility to Underlying Relativity:	0.360	0.260	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	0.271	0.257	.
(24) Balanced Formula Relativity:	0.270	0.257	0.265

Class(es): 8017 STORE: RETAIL NOC		Effective: 9/1/2012							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)
2005	10567402	60	1,585	3,182,523	3,293,822	1,930,606	3,368,986	11775937	0.613	0.502	1.114
2006	10782108	53	1,729	4,308,714	3,840,264	2,729,771	4,303,286	15182035	0.756	0.652	1.408
2007	14280330	69	2,345	4,069,141	5,271,460	2,575,284	6,074,783	17990668	0.654	0.606	1.260
2008	12854216	50	1,591	3,710,410	5,165,276	2,764,424	4,639,706	16279815	0.690	0.576	1.266
2009	12852751	48	1,432	3,611,197	3,661,901	2,158,651	3,884,275	13316024	0.566	0.470	1.036
<b>MA Total:</b>	<b>61336807</b>	<b>280</b>	<b>8,682</b>	<b>18881984</b>	<b>21232723</b>	<b>12158737</b>	<b>22271036</b>	<b>74544479</b>	<b>0.654</b>	<b>0.561</b>	<b>1.215</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.610	0.723	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	0.716	0.622	1.338
(16) Countrywide Indicated Relativity:	0.676	0.806	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	43871	.	.
(19) Pure Premium Underlying Present Rate:	0.406	0.512	0.919
(20) Relativity to Underlying Present Rate:	0.595	0.720	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	0.610	0.723	.
(24) Balanced Formula Relativity:	0.608	0.723	0.656

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## Calculation of Class Relativities

Class(es): 8018 STORE: WHOLESALE NOC		Effective: 9/1/2012							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)
2005	2,523,792	23	803	1,433,213	2,256,947	1,238,515	2,080,845	7,009,520	1,462	1,315	2,777
2006	2,683,455	32	806	2,911,822	3,383,989	1,027,215	2,354,412	9,677,437	2,346	1,260	3,606
2007	2,815,766	31	741	1,838,074	2,541,716	916,640	2,085,469	7,381,899	1,555	1,066	2,622
2008	2,798,185	18	768	1,580,065	4,871,044	1,257,918	3,653,943	11,362,969	2,305	1,755	4,061
2009	2,514,563	20	582	1,753,103	2,996,211	889,608	2,052,402	7,691,324	1,889	1,170	3,059
<b>MA Total:</b>	<b>13,335,761</b>	<b>124</b>	<b>3,700</b>	<b>9,516,276</b>	<b>16,049,907</b>	<b>5,329,896</b>	<b>12,227,070</b>	<b>43,123,149</b>	<b>1,917</b>	<b>1,317</b>	<b>3,234</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.789	1.696	.
(14) Massachusetts Credibility:	0.870	1.000	.
(15) Countrywide Pure Premium:	1.460	1.018	2.479
(16) Countrywide Indicated Relativity:	1.378	1.319	.
(17) Countrywide Credibility:	0.070	0.000	.
(18) Countrywide Lost-Time Claims:	20944	.	.
(19) Pure Premium Underlying Present Rate:	1.244	1.268	2.512
(20) Relativity to Underlying Present Rate:	1.821	1.783	.
(21) Credibility to Underlying Relativity:	0.060	0.000	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	1.762	1.696	.
(24) Balanced Formula Relativity:	1.755	1.695	1.730

Class(es): 8021 STORE: MEAT, FISH OR POULTRY DEALER- WHOLESALE		Effective: 9/1/2012							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)
2005	610,044	1	137	7,647	274,053	745	329,715	612,160	0.462	0.542	1.003
2006	565,036	5	114	236,483	345,216	57,839	373,468	1,013,006	1.029	0.763	1.793
2007	640,462	4	115	202,752	1,021,900	40,620	389,473	1,654,745	1.912	0.672	2.584
2008	645,598	6	125	329,278	1,793,773	129,047	1,911,146	4,163,244	3.289	3.160	6.449
2009	627,396	1	107	146,156	497,393	93,316	453,552	1,190,418	1.026	0.872	1.897
<b>MA Total:</b>	<b>3,088,536</b>	<b>17</b>	<b>598</b>	<b>922,316</b>	<b>3,932,335</b>	<b>321,567</b>	<b>3,457,355</b>	<b>8,633,573</b>	<b>1.572</b>	<b>1.224</b>	<b>2.795</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.467	1.576	.
(14) Massachusetts Credibility:	0.450	0.750	.
(15) Countrywide Pure Premium:	1.179	1.006	2.185
(16) Countrywide Indicated Relativity:	1.112	1.303	.
(17) Countrywide Credibility:	0.280	0.130	.
(18) Countrywide Lost-Time Claims:	2643.0	.	.
(19) Pure Premium Underlying Present Rate:	1.048	1.083	2.131
(20) Relativity to Underlying Present Rate:	1.535	1.522	.
(21) Credibility to Underlying Relativity:	0.270	0.120	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	1.386	1.534	.
(24) Balanced Formula Relativity:	1.381	1.533	1.445

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)	
2005	204,302	2	49	91,906	136,959	39,658	179,406	447,930	1,120	1,072	2,192	
2006	229,087	3	57	112,213	163,700	18,848	117,356	412,117	1,204	0,595	1,799	
2007	191,381	1	25	567,262	8,969	280,081	78,401	934,713	3,011	1,873	4,884	
2008	214,314	2	35	44,959	49,488	55,775	77,596	227,819	0,441	0,622	1,063	
2009	223,519	1	52	406,621	204,209	99,032	165,992	875,854	2,733	1,186	3,918	
<b>MA Total:</b>	<b>1,062,603</b>	<b>9</b>	<b>218</b>	<b>1,222,961</b>	<b>563,325</b>	<b>493,395</b>	<b>618,751</b>	<b>2,898,432</b>	<b>1,681</b>	<b>1,047</b>	<b>2,728</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.569	1.348	.
(14) Massachusetts Credibility:	0.290	0.490	.
(15) Countrywide Pure Premium:	1.111	1.063	2,174
(16) Countrywide Indicated Relativity:	1.048	1.376	.
(17) Countrywide Credibility:	0.360	0.260	.
(18) Countrywide Lost-Time Claims:	646.00	.	.
(19) Pure Premium Underlying Present Rate:	1.052	1.052	2,104
(20) Relativity to Underlying Present Rate:	1.541	1.478	.
(21) Credibility to Underlying Relativity:	0.350	0.250	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1,848
(23) Formula Relativity:	1.372	1.388	.
(24) Balanced Formula Relativity:	1.366	1.387	1,375

Class(es):		Effective: 9/1/2012							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)	
2005	293,291	1	54	9,361	41,603	6,934	82,056	139,954	0,174	0,303	0,477	
2006	316,829	3	52	272,056	159,086	206,294	110,096	747,532	1,361	0,999	2,359	
2007	332,042	1	44	2,251	83,079	3,912	129,568	218,809	0,257	0,402	0,659	
2008	379,314	1	49	1,996	264,728	12,400	124,619	403,743	0,703	0,361	1,064	
2009	351,723	2	74	96,205	224,952	163,425	358,556	843,138	0,913	1,484	2,397	
<b>MA Total:</b>	<b>1,673,198</b>	<b>8</b>	<b>273</b>	<b>381,869</b>	<b>773,448</b>	<b>392,965</b>	<b>804,895</b>	<b>2,353,176</b>	<b>0,690</b>	<b>0,716</b>	<b>1,406</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.644	0.922	.
(14) Massachusetts Credibility:	0.280	0.480	.
(15) Countrywide Pure Premium:	1.185	0.858	2,043
(16) Countrywide Indicated Relativity:	1.118	1.110	.
(17) Countrywide Credibility:	0.360	0.260	.
(18) Countrywide Lost-Time Claims:	1150.0	.	.
(19) Pure Premium Underlying Present Rate:	0.575	0.634	1,209
(20) Relativity to Underlying Present Rate:	0.842	0.892	.
(21) Credibility to Underlying Relativity:	0.360	0.260	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1,848
(23) Formula Relativity:	0.886	0.963	.
(24) Balanced Formula Relativity:	0.882	0.963	0,916

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	1,051,458	5	260	150,051	880,437	269,329	723,479	2,023,296	0.980	0.944	1.924
2006	641,307	4	186	534,093	570,264	215,698	384,089	1,704,144	1.722	0.935	2.657
2007	705,777	6	161	328,986	172,216	156,966	237,499	895,666	0.710	0.559	1.269
2008	704,375	6	132	792,647	442,602	426,925	427,819	2,089,993	1.754	1.213	2.967
2009	708,174	3	117	261,843	397,904	116,289	346,217	1,122,253	0.932	0.653	1.585
<b>MA Total:</b>	<b>3,811,092</b>	<b>24</b>	<b>856</b>	<b>2,067,619</b>	<b>2,463,423</b>	<b>1,185,207</b>	<b>2,119,104</b>	<b>7,835,352</b>	<b>1.189</b>	<b>0.867</b>	<b>2.056</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.110	1.117	.
(14) Massachusetts Credibility:	0.420	0.730	.
(15) Countrywide Pure Premium:	0.999	0.809	1.809
(16) Countrywide Indicated Relativity:	0.943	1.048	.
(17) Countrywide Credibility:	0.290	0.140	.
(18) Countrywide Lost-Time Claims:	19010	.	.
(19) Pure Premium Underlying Present Rate:	0.716	0.801	1.517
(20) Relativity to Underlying Present Rate:	1.049	1.125	.
(21) Credibility to Underlying Relativity:	0.290	0.130	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	1.044	1.108	.
(24) Balanced Formula Relativity:	1.039	1.108	1.068

Class(es):		Effective: 9/1/2012							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)
2005	185,861	3	48	275,083	199,714	223,515	131,828	830,140	2.555	1.912	4.466
2006	271,352	7	61	855,808	61,047	146,255	110,017	1,173,126	3.379	0.944	4.323
2007	144,055	1	46	172,657	221,142	28,685	111,823	534,307	2.734	0.975	3.709
2008	138,632	2	34	212,521	538,600	61,639	155,201	967,961	5.418	1.564	6.982
2009	133,982	2	22	153,699	50,253	95,335	45,895	345,182	1.522	1.054	2.576
<b>MA Total:</b>	<b>873,883</b>	<b>15</b>	<b>211</b>	<b>1,669,769</b>	<b>1,070,755</b>	<b>555,428</b>	<b>554,764</b>	<b>3,850,715</b>	<b>3.136</b>	<b>1.270</b>	<b>4.406</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.927	1.637	.
(14) Massachusetts Credibility:	0.320	0.520	.
(15) Countrywide Pure Premium:	1.287	0.861	2.148
(16) Countrywide Indicated Relativity:	1.214	1.115	.
(17) Countrywide Credibility:	0.340	0.240	.
(18) Countrywide Lost-Time Claims:	199.00	.	.
(19) Pure Premium Underlying Present Rate:	1.575	1.526	3.101
(20) Relativity to Underlying Present Rate:	2.307	2.145	.
(21) Credibility to Underlying Relativity:	0.340	0.240	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	2.134	1.633	.
(24) Balanced Formula Relativity:	2.125	1.632	1.918

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## Calculation of Class Relativities

Class(es): 8039 STORE: DEPARTMENT - RETAIL		Effective: 9/1/2012							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)
2005	156,006	3	63	72,199	207,038	45,644	180,573	505,454	1,790	1,450	3,240
2006	393,684	8	66	143,440	80,534	158,151	101,791	483,916	0,569	0,660	1,229
2007	673,076	8	131	425,995	137,823	154,684	278,492	996,995	0,838	0,644	1,481
2008	638,413	1	103	48,938	9,314	40,642	111,612	210,505	0,091	0,238	0,330
2009	609,914	2	75	32,134	37,485	32,085	140,090	241,794	0,114	0,282	0,396
<b>MA Total:</b>	<b>2,471,094</b>	<b>22</b>	<b>438</b>	<b>722,705</b>	<b>472,194</b>	<b>431,206</b>	<b>812,558</b>	<b>2,438,664</b>	<b>0,484</b>	<b>0,503</b>	<b>0,987</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.451	0.648	.
(14) Massachusetts Credibility:	0.320	0.590	.
(15) Countrywide Pure Premium:	0.754	0.714	1.468
(16) Countrywide Indicated Relativity:	0.712	0.924	.
(17) Countrywide Credibility:	0.340	0.210	.
(18) Countrywide Lost-Time Claims:	4866.0	.	.
(19) Pure Premium Underlying Present Rate:	0.559	0.734	1.294
(20) Relativity to Underlying Present Rate:	0.819	1.032	.
(21) Credibility to Underlying Relativity:	0.340	0.200	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	0.665	0.783	.
(24) Balanced Formula Relativity:	0.662	0.783	0.713

Class(es): 8044 STORE: FURNITURE & DRIVERS		Effective: 9/1/2012							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)
2005	1,199,905	14	277	1,141,303	784,754	776,794	726,060	3,428,912	1,605	1,252	2,858
2006	1,058,313	13	194	894,395	407,934	473,329	600,614	2,376,271	1,231	1,015	2,245
2007	714,323	7	157	328,844	1,466,131	281,048	820,456	2,896,479	2,513	1,542	4,055
2008	628,750	4	142	334,090	597,066	251,567	439,922	1,622,646	1,481	1,100	2,581
2009	788,013	14	145	1,470,971	616,099	1,457,588	698,083	4,242,742	2,649	2,736	5,384
<b>MA Total:</b>	<b>4,389,302</b>	<b>52</b>	<b>915</b>	<b>4,169,603</b>	<b>3,871,984</b>	<b>3,240,326</b>	<b>3,285,136</b>	<b>14,567,050</b>	<b>1,832</b>	<b>1,487</b>	<b>3,319</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.710	1.915	.
(14) Massachusetts Credibility:	0.550	0.950	.
(15) Countrywide Pure Premium:	1.756	1.129	2.885
(16) Countrywide Indicated Relativity:	1.656	1.462	.
(17) Countrywide Credibility:	0.230	0.030	.
(18) Countrywide Lost-Time Claims:	8216.0	.	.
(19) Pure Premium Underlying Present Rate:	1.202	1.361	2.563
(20) Relativity to Underlying Present Rate:	1.760	1.914	.
(21) Credibility to Underlying Relativity:	0.220	0.020	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	1.709	1.902	.
(24) Balanced Formula Relativity:	1.702	1.900	1.785

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	302,547	4	48	279,043	514,779	179,220	472,349	1,445,390	2,624	2,154	4,777
2006	244,615	4	30	474,271	50,032	371,144	72,985	968,432	2,143	1,816	3,959
2007	309,988	2	57	83,812	129,523	10,280	148,715	372,330	0,688	0,513	1,201
2008	422,525	6	71	518,330	598,421	576,797	478,057	2,171,604	2,643	2,497	5,140
2009	377,314	3	46	497,217	418,362	125,388	373,066	1,414,033	2,427	1,321	3,748
<b>MA Total:</b>	<b>1,656,990</b>	<b>19</b>	<b>252</b>	<b>1,852,673</b>	<b>1,711,117</b>	<b>1,262,828</b>	<b>1,545,172</b>	<b>6,371,789</b>	<b>2,151</b>	<b>1,695</b>	<b>3,845</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.007	2.183	.
(14) Massachusetts Credibility:	0.320	0.590	.
(15) Countrywide Pure Premium:	1.190	0.873	2.063
(16) Countrywide Indicated Relativity:	1.122	1.130	.
(17) Countrywide Credibility:	0.340	0.210	.
(18) Countrywide Lost-Time Claims:	4846.0	.	.
(19) Pure Premium Underlying Present Rate:	0.820	1.076	1.896
(20) Relativity to Underlying Present Rate:	1.200	1.513	.
(21) Credibility to Underlying Relativity:	0.340	0.200	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	1.432	1.828	.
(24) Balanced Formula Relativity:	1.426	1.827	1.595

Class(es):		Effective: 9/1/2012							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)
2005	284,429	5	63	142,004	156,409	74,155	139,046	511,613	1,049	0,750	1,799
2006	306,949	4	52	160,801	322,186	45,428	146,656	675,071	1,574	0,626	2,199
2007	316,590	1	37	328,879	628,756	278,916	450,035	1,686,585	3,025	2,303	5,327
2008	310,723	1	30	97,276	12,457	37,143	35,243	182,118	0,353	0,233	0,586
2009	268,495	3	30	336,436	305,642	134,242	208,500	984,820	2,391	1,277	3,668
<b>MA Total:</b>	<b>1,487,187</b>	<b>14</b>	<b>212</b>	<b>1,065,395</b>	<b>1,425,450</b>	<b>569,883</b>	<b>979,479</b>	<b>4,040,207</b>	<b>1,675</b>	<b>1,042</b>	<b>2,717</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.563	1.342	.
(14) Massachusetts Credibility:	0.370	0.590	.
(15) Countrywide Pure Premium:	1.188	1.027	2.215
(16) Countrywide Indicated Relativity:	1.121	1.330	.
(17) Countrywide Credibility:	0.320	0.210	.
(18) Countrywide Lost-Time Claims:	67.000	.	.
(19) Pure Premium Underlying Present Rate:	1.378	1.235	2.612
(20) Relativity to Underlying Present Rate:	2.017	1.735	.
(21) Credibility to Underlying Relativity:	0.310	0.200	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	1.562	1.418	.
(24) Balanced Formula Relativity:	1.556	1.417	1.498

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	4,134	0	1	0	0	0	593	593	0.000	0.143	0.143
2006	7,881	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	7,402	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	7,253	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	7,312	0	1	0	0	0	1,048	1,048	0.000	0.143	0.143
<b>MA Total:</b>	<b>33,982</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,641</b>	<b>1,641</b>	<b>0.000</b>	<b>0.048</b>	<b>0.048</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.062	.
(14) Massachusetts Credibility:	0.060	0.110	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	0.894	1.019	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	0.614	0.730	1.344
(20) Relativity to Underlying Present Rate:	0.900	1.026	.
(21) Credibility to Underlying Relativity:	0.940	0.890	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	0.846	0.920	.
(24) Balanced Formula Relativity:	0.842	0.919	0.875

Class(es):		Effective: 9/1/2012							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)
2005	247,451	2	70	45,228	255,839	21,865	194,633	517,565	1,217	0.875	2,092
2006	268,422	3	53	312,929	223,652	98,233	193,767	828,582	1,999	1.088	3,087
2007	273,771	1	36	3,277	93,164	738	58,638	155,818	0.352	0.217	0.569
2008	243,969	2	59	172,408	469,139	218,651	302,599	1,162,796	2,630	2.137	4,766
2009	235,579	2	58	102,387	467,048	91,298	290,744	951,476	2,417	1.622	4,039
<b>MA Total:</b>	<b>1,269,194</b>	<b>10</b>	<b>276</b>	<b>636,229</b>	<b>1,508,842</b>	<b>430,786</b>	<b>1,040,381</b>	<b>3,616,237</b>	<b>1,690</b>	<b>1.159</b>	<b>2,849</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.577	1.493	.
(14) Massachusetts Credibility:	0.300	0.550	.
(15) Countrywide Pure Premium:	1.416	1.182	2.598
(16) Countrywide Indicated Relativity:	1.336	1.530	.
(17) Countrywide Credibility:	0.350	0.230	.
(18) Countrywide Lost-Time Claims:	6457.0	.	.
(19) Pure Premium Underlying Present Rate:	0.937	1.195	2.131
(20) Relativity to Underlying Present Rate:	1.372	1.679	.
(21) Credibility to Underlying Relativity:	0.350	0.220	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	1.421	1.543	.
(24) Balanced Formula Relativity:	1.415	1.542	1.468

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## Calculation of Class Relativities

Class(es): 8103 WOOL MERCHANT		Effective: 9/1/2012							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)
2005	34,303	0	5	0	101,287	0	19,204	120,491	2,953	0,560	3,513
2006	19,507	0	3	0	350	0	1,113	1,463	0,018	0,057	0,075
2007	20,505	0	8	0	9,530	0	7,068	16,598	0,465	0,345	0,809
2008	20,134	0	6	0	52,315	0	15,475	67,790	2,598	0,769	3,367
2009	8,441	0	0	0	0	0	0	0	0,000	0,000	0,000
<b>MA Total:</b>	<b>102,890</b>	<b>0</b>	<b>22</b>	<b>0</b>	<b>163,482</b>	<b>0</b>	<b>42,860</b>	<b>206,341</b>	<b>1,589</b>	<b>0,417</b>	<b>2,005</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.483	0.537	.
(14) Massachusetts Credibility:	0.120	0.200	.
(15) Countrywide Pure Premium:	2.663	1.330	3.993
(16) Countrywide Indicated Relativity:	2.512	1.723	.
(17) Countrywide Credibility:	0.300	0.310	.
(18) Countrywide Lost-Time Claims:	55.000	.	.
(19) Pure Premium Underlying Present Rate:	1.223	1.168	2.391
(20) Relativity to Underlying Present Rate:	1.791	1.642	.
(21) Credibility to Underlying Relativity:	0.580	0.490	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	1.970	1.446	.
(24) Balanced Formula Relativity:	1.962	1.445	1.745

Class(es): 8105 STORE: HIDE OR LEATHER DEALERS OR STORES		Effective: 9/1/2012							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)
2005	9,240	0	0	0	0	0	0	0	0,000	0,000	0,000
2006	8,120	0	1	0	4,468	0	2,703	7,172	0,550	0,333	0,883
2007	8,820	0	1	0	4,202	0	133	4,335	0,476	0,015	0,492
2008	8,540	0	1	0	361	0	407	768	0,042	0,048	0,090
2009	7,805	0	1	0	7,713	0	10,337	18,050	0,988	1,324	2,313
<b>MA Total:</b>	<b>42,524</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>16,744</b>	<b>0</b>	<b>13,581</b>	<b>30,325</b>	<b>0,394</b>	<b>0,319</b>	<b>0,713</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.367	0.411	.
(14) Massachusetts Credibility:	0.100	0.170	.
(15) Countrywide Pure Premium:	0.979	0.590	1.569
(16) Countrywide Indicated Relativity:	0.924	0.764	.
(17) Countrywide Credibility:	0.130	0.140	.
(18) Countrywide Lost-Time Claims:	7.000	.	.
(19) Pure Premium Underlying Present Rate:	1.821	1.824	3.645
(20) Relativity to Underlying Present Rate:	2.666	2.564	.
(21) Credibility to Underlying Relativity:	0.770	0.690	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	2.210	1.946	.
(24) Balanced Formula Relativity:	2.201	1.945	2.093

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	158,269	2	73	394,557	89,029	142,383	146,398	772,367	3,055	1,825	4,880
2006	169,405	4	55	388,964	906,311	434,075	644,930	2,374,280	7,646	6,369	14,015
2007	149,291	4	50	583,287	456,228	725,691	489,459	2,254,665	6,963	8,139	15,102
2008	117,602	1	30	191,548	109,944	102,460	160,483	564,435	2,564	2,236	4,800
2009	123,495	1	34	93,631	717,861	112,379	474,890	1,398,761	6,571	4,755	11,326
<b>MA Total:</b>	<b>718,063</b>	<b>12</b>	<b>242</b>	<b>1,651,988</b>	<b>2,279,372</b>	<b>1,516,989</b>	<b>1,916,160</b>	<b>7,364,509</b>	<b>5,475</b>	<b>4,781</b>	<b>10,256</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	5.110	6.160	.
(14) Massachusetts Credibility:	0.350	0.670	.
(15) Countrywide Pure Premium:	2.620	1.758	4.378
(16) Countrywide Indicated Relativity:	2.472	2.276	.
(17) Countrywide Credibility:	0.330	0.170	.
(18) Countrywide Lost-Time Claims:	2885.0	.	.
(19) Pure Premium Underlying Present Rate:	2.437	3.475	5.912
(20) Relativity to Underlying Present Rate:	3.568	4.885	.
(21) Credibility to Underlying Relativity:	0.320	0.160	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	3.746	5.296	.
(24) Balanced Formula Relativity:	3.731	5.292	4.387

Class(es):		Effective: 9/1/2012							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)
2005	607,605	9	134	1,037,887	1,415,473	385,712	598,089	3,437,162	4,038	1,619	5,657
2006	566,786	3	104	259,831	302,046	320,270	424,146	1,306,293	0,991	1,313	2,305
2007	621,729	3	138	396,534	455,921	471,704	770,957	2,095,115	1,371	1,999	3,370
2008	571,051	2	108	418,924	1,365,517	79,784	620,457	2,484,682	3,125	1,226	4,351
2009	524,237	3	73	235,193	312,635	100,702	427,168	1,075,698	1,045	1,007	2,052
<b>MA Total:</b>	<b>2,891,407</b>	<b>20</b>	<b>557</b>	<b>2,348,369</b>	<b>3,851,592</b>	<b>1,358,172</b>	<b>2,840,817</b>	<b>10,398,950</b>	<b>2,144</b>	<b>1,452</b>	<b>3,597</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.001	1.871	.
(14) Massachusetts Credibility:	0.490	0.890	.
(15) Countrywide Pure Premium:	1.834	1.104	2.938
(16) Countrywide Indicated Relativity:	1.730	1.430	.
(17) Countrywide Credibility:	0.260	0.060	.
(18) Countrywide Lost-Time Claims:	6821.0	.	.
(19) Pure Premium Underlying Present Rate:	1.405	1.776	3.181
(20) Relativity to Underlying Present Rate:	2.057	2.497	.
(21) Credibility to Underlying Relativity:	0.250	0.050	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	1.945	1.876	.
(24) Balanced Formula Relativity:	1.937	1.874	1.911

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	461,484	7	117	767,281	420,585	374,503	365,763	1,928,132	2,574	1,604	4,178
2006	483,180	4	131	357,444	572,096	124,434	560,272	1,614,245	1,924	1,417	3,341
2007	485,318	4	96	287,125	336,555	282,361	427,558	1,333,598	1,285	1,463	2,748
2008	491,853	1	104	198,725	362,099	281,573	323,285	1,165,682	1,140	1,230	2,370
2009	423,473	3	79	78,917	196,397	97,761	252,668	625,742	0,650	0,828	1,478
<b>MA Total:</b>	<b>2,345,307</b>	<b>19</b>	<b>527</b>	<b>1,689,491</b>	<b>1,887,731</b>	<b>1,160,631</b>	<b>1,929,546</b>	<b>6,667,399</b>	<b>1,525</b>	<b>1,318</b>	<b>2,843</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.423	1.697	.
(14) Massachusetts Credibility:	0.440	0.730	.
(15) Countrywide Pure Premium:	1.355	0.955	2.310
(16) Countrywide Indicated Relativity:	1.278	1.236	.
(17) Countrywide Credibility:	0.280	0.140	.
(18) Countrywide Lost-Time Claims:	1390.0	.	.
(19) Pure Premium Underlying Present Rate:	1.336	1.331	2.667
(20) Relativity to Underlying Present Rate:	1.957	1.870	.
(21) Credibility to Underlying Relativity:	0.280	0.130	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	1.532	1.655	.
(24) Balanced Formula Relativity:	1.526	1.654	1.580

Class(es):		Effective: 9/1/2012							Goods and Services		
8203 ICE DEALER & 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)
2005	26,111	1	12	32,663	10,401	8,143	25,283	76,491	1,649	1,280	2,929
2006	26,366	1	13	100,146	29,013	10,115	123,340	262,615	4,899	5,062	9,960
2007	30,758	0	2	0	6,788	0	6,730	13,518	0,221	0,219	0,439
2008	32,038	1	12	9,161	45,417	10,351	70,507	135,436	1,703	2,524	4,227
2009	36,619	0	15	0	33,516	0	66,425	99,942	0,915	1,814	2,729
<b>MA Total:</b>	<b>151,892</b>	<b>3</b>	<b>54</b>	<b>141,970</b>	<b>125,136</b>	<b>28,610</b>	<b>292,285</b>	<b>588,001</b>	<b>1,759</b>	<b>2,113</b>	<b>3,871</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.641	2.722	.
(14) Massachusetts Credibility:	0.190	0.300	.
(15) Countrywide Pure Premium:	2.720	1.656	4.376
(16) Countrywide Indicated Relativity:	2.566	2.145	.
(17) Countrywide Credibility:	0.410	0.350	.
(18) Countrywide Lost-Time Claims:	347.00	.	.
(19) Pure Premium Underlying Present Rate:	2.428	2.172	4.600
(20) Relativity to Underlying Present Rate:	3.555	3.054	.
(21) Credibility to Underlying Relativity:	0.400	0.350	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	2.786	2.636	.
(24) Balanced Formula Relativity:	2.775	2.634	2.716

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							Goods and Services		
8204 BUILDING MATERIAL YARD & 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)
2005	10,348	0	1	0	2,092	0	2,096	4,187	0.202	0.203	0.405
2006	12,043	0	5	0	165,360	0	38,203	203,563	13.731	3.172	16.903
2007	19,664	1	1	224,407	19,383	70,148	21,526	335,463	12.398	4.662	17.060
2008	26,569	0	3	0	232,273	0	188,856	421,130	8.742	7.108	15.850
2009	21,658	0	6	0	15,814	0	47,825	63,639	0.730	2.208	2.938
<b>MA Total:</b>	<b>90,282</b>	<b>1</b>	<b>16</b>	<b>224,407</b>	<b>434,922</b>	<b>70,148</b>	<b>298,506</b>	<b>1,027,983</b>	<b>7.303</b>	<b>4.083</b>	<b>11.386</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	6.816	5.261	.
(14) Massachusetts Credibility:	0.150	0.200	.
(15) Countrywide Pure Premium:	1.920	1.245	3.165
(16) Countrywide Indicated Relativity:	1.811	1.612	.
(17) Countrywide Credibility:	0.430	0.400	.
(18) Countrywide Lost-Time Claims:	164.00	.	.
(19) Pure Premium Underlying Present Rate:	2.319	1.429	3.748
(20) Relativity to Underlying Present Rate:	3.395	2.009	.
(21) Credibility to Underlying Relativity:	0.420	0.400	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	3.227	2.501	.
(24) Balanced Formula Relativity:	3.214	2.499	2.914

Class(es):		Effective: 9/1/2012							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)
2005	67,228	0	10	0	6,531	0	11,676	18,208	0.097	0.174	0.271
2006	62,558	0	14	0	7,097	0	13,128	20,225	0.113	0.210	0.323
2007	64,489	0	12	0	54,180	0	12,112	66,292	0.840	0.188	1.028
2008	51,653	0	10	0	0	0	9,981	9,981	0.000	0.193	0.193
2009	47,243	1	12	224,783	24,565	70,661	80,947	400,956	5.278	3.209	8.487
<b>MA Total:</b>	<b>293,171</b>	<b>1</b>	<b>58</b>	<b>224,783</b>	<b>92,373</b>	<b>70,661</b>	<b>127,845</b>	<b>515,661</b>	<b>1.082</b>	<b>0.677</b>	<b>1.759</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.010	0.872	.
(14) Massachusetts Credibility:	0.190	0.300	.
(15) Countrywide Pure Premium:	1.887	1.279	3.165
(16) Countrywide Indicated Relativity:	1.780	1.655	.
(17) Countrywide Credibility:	0.410	0.350	.
(18) Countrywide Lost-Time Claims:	1504.0	.	.
(19) Pure Premium Underlying Present Rate:	1.322	1.125	2.447
(20) Relativity to Underlying Present Rate:	1.936	1.582	.
(21) Credibility to Underlying Relativity:	0.400	0.350	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	1.696	1.395	.
(24) Balanced Formula Relativity:	1.689	1.394	1.565

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	881,043	8	89	1,092,623	860,748	1,076,765	909,765	3,939,901	2,217	2,255	4,472
2006	926,138	6	62	851,428	835,233	390,211	711,082	2,787,954	1,821	1,189	3,010
2007	927,271	10	95	2,185,485	472,490	864,618	755,895	4,278,488	2,866	1,748	4,614
2008	929,887	4	73	914,072	2,282,070	577,537	1,451,575	5,225,253	3,437	2,182	5,619
2009	800,885	2	91	243,967	2,899,510	203,845	1,906,777	5,254,100	3,925	2,635	6,560
<b>MA Total:</b>	<b>4,465,224</b>	<b>30</b>	<b>410</b>	<b>5,287,576</b>	<b>7,350,052</b>	<b>3,112,977</b>	<b>5,735,092</b>	<b>21485697</b>	<b>2,830</b>	<b>1,982</b>	<b>4,812</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.801	0.975	.
(14) Massachusetts Credibility:	0.620	1.000	.
(15) Countrywide Pure Premium:	2.732	1.773	4.505
(16) Countrywide Indicated Relativity:	0.803	0.901	.
(17) Countrywide Credibility:	0.190	0.000	.
(18) Countrywide Lost-Time Claims:	3742.0	.	.
(19) Pure Premium Underlying Present Rate:	1.596	1.793	3.389
(20) Relativity to Underlying Present Rate:	0.706	0.926	.
(21) Credibility to Underlying Relativity:	0.190	0.000	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	0.783	0.975	.
(24) Balanced Formula Relativity:	0.799	0.980	0.865

Class(es):		Effective: 9/1/2012							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)
2005	1,082,079	12	239	1,821,523	1,088,803	1,147,996	771,195	4,829,516	2,690	1,774	4,463
2006	1,050,495	16	246	1,920,330	1,885,901	1,247,252	1,182,702	6,236,185	3,623	2,313	5,936
2007	1,024,609	8	246	869,925	1,366,267	286,903	1,011,081	3,534,175	2,182	1,267	3,449
2008	949,310	5	202	635,964	2,686,068	358,924	1,394,984	5,075,942	3,499	1,848	5,347
2009	842,758	7	157	1,215,964	2,606,454	448,226	1,440,332	5,710,976	4,536	2,241	6,777
<b>MA Total:</b>	<b>4,949,251</b>	<b>48</b>	<b>1,090</b>	<b>6,463,706</b>	<b>9,633,493</b>	<b>3,489,301</b>	<b>5,800,294</b>	<b>25386794</b>	<b>3,252</b>	<b>1,877</b>	<b>5,129</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.035	2.418	.
(14) Massachusetts Credibility:	0.660	1.000	.
(15) Countrywide Pure Premium:	2.485	1.532	4.017
(16) Countrywide Indicated Relativity:	2.345	1.983	.
(17) Countrywide Credibility:	0.170	0.000	.
(18) Countrywide Lost-Time Claims:	11516	.	.
(19) Pure Premium Underlying Present Rate:	1.717	1.827	3.544
(20) Relativity to Underlying Present Rate:	2.515	2.568	.
(21) Credibility to Underlying Relativity:	0.170	0.000	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	2.829	2.418	.
(24) Balanced Formula Relativity:	2.818	2.416	2.649

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	182,600	3	61	673,399	518,791	232,787	293,399	1,718,376	6,529	2,882	9,411
2006	191,537	4	52	739,288	174,961	540,392	403,108	1,857,749	4,773	4,926	9,699
2007	193,601	4	58	302,592	316,830	126,248	401,049	1,146,720	3,199	2,724	5,923
2008	161,094	1	36	88,002	135,880	16,755	140,705	381,343	1,390	0,977	2,367
2009	159,114	0	41	0	184,454	0	175,432	359,886	1,159	1,103	2,262
<b>MA Total:</b>	<b>887,945</b>	<b>12</b>	<b>248</b>	<b>1,803,282</b>	<b>1,330,916</b>	<b>916,182</b>	<b>1,413,694</b>	<b>5,464,074</b>	<b>3,530</b>	<b>2,624</b>	<b>6,154</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.294	3.380	.
(14) Massachusetts Credibility:	0.410	0.780	.
(15) Countrywide Pure Premium:	3.252	2.485	5.737
(16) Countrywide Indicated Relativity:	3.068	3.218	.
(17) Countrywide Credibility:	0.300	0.110	.
(18) Countrywide Lost-Time Claims:	2069.0	.	.
(19) Pure Premium Underlying Present Rate:	2.972	4.052	7.025
(20) Relativity to Underlying Present Rate:	4.352	5.697	.
(21) Credibility to Underlying Relativity:	0.290	0.110	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	3.533	3.617	.
(24) Balanced Formula Relativity:	3.519	3.615	3.559

Class(es):		Effective: 9/1/2012							Goods and Services		
8235 SASH, DOOR OR ASSEMBLED MILLWORK DEALER & 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)
2005	174,797	3	70	38,113	165,207	39,555	136,313	379,187	1,163	1,006	2,169
2006	177,824	1	59	6,155	286,541	9,046	285,214	586,956	1,646	1,655	3,301
2007	160,447	2	61	303,858	39,346	55,246	96,013	494,463	2,139	0,943	3,082
2008	154,347	1	58	284,337	484,208	90,697	216,470	1,075,712	4,979	1,990	6,969
2009	130,986	1	48	106,108	479,515	74,750	308,793	969,166	4,471	2,928	7,399
<b>MA Total:</b>	<b>798,401</b>	<b>8</b>	<b>296</b>	<b>738,570</b>	<b>1,454,818</b>	<b>269,293</b>	<b>1,042,803</b>	<b>3,505,484</b>	<b>2,747</b>	<b>1,643</b>	<b>4,391</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.564	2.117	.
(14) Massachusetts Credibility:	0.300	0.500	.
(15) Countrywide Pure Premium:	2.186	1.317	3.503
(16) Countrywide Indicated Relativity:	2.062	1.705	.
(17) Countrywide Credibility:	0.350	0.250	.
(18) Countrywide Lost-Time Claims:	713.00	.	.
(19) Pure Premium Underlying Present Rate:	1.526	1.512	3.038
(20) Relativity to Underlying Present Rate:	2.234	2.126	.
(21) Credibility to Underlying Relativity:	0.350	0.250	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	2.273	2.016	.
(24) Balanced Formula Relativity:	2.264	2.015	2.159

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## Calculation of Class Relativities

Class(es): 8263 JUNK DEALERS & DRIVERS		Effective: 9/1/2012							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)
2005	29.435	1	15	166.783	24.651	62.359	40.350	294.142	6.504	3.489	9.993
2006	49.257	2	14	175.782	12.010	61.700	38.567	288.059	3.813	2.036	5.848
2007	53.047	0	8	0	108.596	0	139.732	248.328	2.047	2.634	4.681
2008	55.974	1	11	278.637	68.411	122.183	189.222	658.453	6.200	5.563	11.764
2009	66.697	0	16	0	130.827	0	55.048	185.875	1.962	0.825	2.787
<b>MA Total:</b>	<b>254.409</b>	<b>4</b>	<b>64</b>	<b>621.201</b>	<b>344.495</b>	<b>246.242</b>	<b>462.919</b>	<b>1,674.857</b>	<b>3.796</b>	<b>2.787</b>	<b>6.583</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.543	3.591	.
(14) Massachusetts Credibility:	0.260	0.410	.
(15) Countrywide Pure Premium:	3.226	2.383	5.609
(16) Countrywide Indicated Relativity:	3.043	3.085	.
(17) Countrywide Credibility:	0.370	0.300	.
(18) Countrywide Lost-Time Claims:	164.00	.	.
(19) Pure Premium Underlying Present Rate:	3.197	2.846	6.043
(20) Relativity to Underlying Present Rate:	4.681	4.001	.
(21) Credibility to Underlying Relativity:	0.370	0.290	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	3.779	3.558	.
(24) Balanced Formula Relativity:	3.764	3.556	3.677

Class(es): 8264 BOTTLE DEALER-USED & DRIVERS		Effective: 9/1/2012							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)
2005	174.290	4	51	439.468	341.292	404.428	231.563	1,416.751	4.480	3.649	8.129
2006	163.181	4	52	311.279	134.606	153.126	149.183	748.194	2.732	1.853	4.585
2007	186.668	1	41	107.021	158.136	7.657	151.076	423.890	1.420	0.850	2.271
2008	198.144	1	31	7.076	600.581	38.489	366.535	1,012.681	3.067	2.044	5.111
2009	205.594	7	79	694.719	936.692	297.190	448.661	2,377.262	7.935	3.628	11.563
<b>MA Total:</b>	<b>927.876</b>	<b>17</b>	<b>254</b>	<b>1,559.562</b>	<b>2,171.308</b>	<b>900.891</b>	<b>1,347.018</b>	<b>5,978.779</b>	<b>4.021</b>	<b>2.423</b>	<b>6.444</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.753	3.121	.
(14) Massachusetts Credibility:	0.350	0.580	.
(15) Countrywide Pure Premium:	3.130	1.930	5.060
(16) Countrywide Indicated Relativity:	2.953	2.499	.
(17) Countrywide Credibility:	0.330	0.210	.
(18) Countrywide Lost-Time Claims:	1012.0	.	.
(19) Pure Premium Underlying Present Rate:	1.883	1.851	3.734
(20) Relativity to Underlying Present Rate:	2.757	2.602	.
(21) Credibility to Underlying Relativity:	0.320	0.210	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	3.170	2.881	.
(24) Balanced Formula Relativity:	3.158	2.879	3.041

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	136,784	1	24	27,459	10,115	167,945	48,623	254,143	0.275	1.583	1.858
2006	146,119	0	28	0	38,612	0	98,158	136,769	0.264	0.672	0.936
2007	151,825	1	28	46,187	155,357	13,308	197,751	412,602	1.327	1.390	2.718
2008	149,110	2	36	219,021	188,443	78,783	205,112	691,360	2.733	1.904	4.637
2009	150,847	6	21	1,060,647	296,763	981,407	256,030	2,594,847	8.999	8.203	17.202
<b>MA Total:</b>	<b>734,684</b>	<b>10</b>	<b>137</b>	<b>1,353,315</b>	<b>689,290</b>	<b>1,241,443</b>	<b>805,673</b>	<b>4,089,721</b>	<b>2.780</b>	<b>2.786</b>	<b>5.567</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.595	3.590	.
(14) Massachusetts Credibility:	0.300	0.480	.
(15) Countrywide Pure Premium:	2.807	2.303	5.110
(16) Countrywide Indicated Relativity:	2.648	2.982	.
(17) Countrywide Credibility:	0.350	0.260	.
(18) Countrywide Lost-Time Claims:	1175.0	.	.
(19) Pure Premium Underlying Present Rate:	1.591	1.491	3.082
(20) Relativity to Underlying Present Rate:	2.330	2.095	.
(21) Credibility to Underlying Relativity:	0.350	0.260	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	2.521	3.043	.
(24) Balanced Formula Relativity:	2.511	3.041	2.734

Class(es):		Effective: 9/1/2012							Goods and Services		
8291 STORAGE WAREHOUSE-COLD											
		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)
2005	144,743	3	42	221,574	61,602	121,209	110,093	514,477	1.956	1.598	3.554
2006	185,929	0	57	0	538,114	0	249,560	787,674	2.894	1.342	4.236
2007	210,701	2	70	151,689	433,320	23,022	301,159	909,190	2.776	1.539	4.315
2008	206,032	4	46	575,359	104,620	314,929	128,866	1,123,774	3.300	2.154	5.454
2009	162,556	3	50	197,193	148,268	131,600	139,379	616,439	2.125	1.667	3.792
<b>MA Total:</b>	<b>909,961</b>	<b>12</b>	<b>265</b>	<b>1,145,815</b>	<b>1,285,923</b>	<b>590,759</b>	<b>929,057</b>	<b>3,951,554</b>	<b>2.672</b>	<b>1.670</b>	<b>4.343</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.494	2.152	.
(14) Massachusetts Credibility:	0.330	0.560	.
(15) Countrywide Pure Premium:	1.772	1.293	3.066
(16) Countrywide Indicated Relativity:	1.672	1.675	.
(17) Countrywide Credibility:	0.340	0.220	.
(18) Countrywide Lost-Time Claims:	1015.0	.	.
(19) Pure Premium Underlying Present Rate:	1.601	1.716	3.317
(20) Relativity to Underlying Present Rate:	2.344	2.412	.
(21) Credibility to Underlying Relativity:	0.330	0.220	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	2.165	2.104	.
(24) Balanced Formula Relativity:	2.156	2.103	2.134

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## Calculation of Class Relativities

Class(es): 8292 STORAGE WAREHOUSE NOC		Effective: 9/1/2012							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)
2005	444,879	6	131	235,550	347,692	131,300	374,943	1,089,484	1,311	1,138	2,449
2006	517,544	5	144	367,797	358,479	392,499	399,746	1,518,522	1,403	1,531	2,934
2007	552,661	9	145	419,806	448,632	116,725	408,865	1,394,028	1,571	0,951	2,522
2008	510,428	4	106	548,474	969,091	549,127	680,717	2,747,409	2,973	2,409	5,383
2009	365,777	1	68	158	807,271	20,250	300,821	1,128,500	2,207	0,878	3,085
<b>MA Total:</b>	<b>2,391,290</b>	<b>25</b>	<b>594</b>	<b>1,571,786</b>	<b>2,931,165</b>	<b>1,209,900</b>	<b>2,165,092</b>	<b>7,877,943</b>	<b>1,883</b>	<b>1,411</b>	<b>3,294</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.757	1.818	.
(14) Massachusetts Credibility:	0.460	0.800	.
(15) Countrywide Pure Premium:	1.945	1.328	3.272
(16) Countrywide Indicated Relativity:	1.835	1.719	.
(17) Countrywide Credibility:	0.270	0.100	.
(18) Countrywide Lost-Time Claims:	7236.0	.	.
(19) Pure Premium Underlying Present Rate:	1.463	1.619	3.082
(20) Relativity to Underlying Present Rate:	2.142	2.276	.
(21) Credibility to Underlying Relativity:	0.270	0.100	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	1.882	1.854	.
(24) Balanced Formula Relativity:	1.875	1.853	1.865

Class(es): 8293 STORAGE WAREHOUSE-FURNITURE & DRIVERS		Effective: 9/1/2012							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)
2005	487,075	13	156	629,942	783,510	407,652	689,566	2,510,671	2,902	2,253	5,155
2006	463,088	20	177	1,479,671	1,091,159	922,767	863,733	4,357,330	5,551	3,858	9,409
2007	391,377	6	112	259,934	803,209	141,000	892,954	2,097,098	2,716	2,642	5,358
2008	390,697	15	121	2,345,960	1,343,503	1,393,743	1,014,848	6,098,054	9,443	6,165	15,608
2009	344,154	14	107	1,702,549	1,592,293	864,995	1,191,915	5,351,752	9,574	5,977	15,550
<b>MA Total:</b>	<b>2,076,391</b>	<b>68</b>	<b>673</b>	<b>6,418,055</b>	<b>5,613,675</b>	<b>3,730,157</b>	<b>4,653,017</b>	<b>20,414,904</b>	<b>5,795</b>	<b>4,037</b>	<b>9,832</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	5.408	5.201	.
(14) Massachusetts Credibility:	0.610	1.000	.
(15) Countrywide Pure Premium:	5.523	3.048	8.571
(16) Countrywide Indicated Relativity:	5.211	3.946	.
(17) Countrywide Credibility:	0.200	0.000	.
(18) Countrywide Lost-Time Claims:	4990.0	.	.
(19) Pure Premium Underlying Present Rate:	3.328	3.292	6.621
(20) Relativity to Underlying Present Rate:	4.873	4.628	.
(21) Credibility to Underlying Relativity:	0.190	0.000	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	5.267	5.201	.
(24) Balanced Formula Relativity:	5.246	5.198	5.226

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							Goods and Services		
8350 GASOLINE OR OIL DEALER & 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)
2005	1,593,548	23	380	2,104,802	2,837,650	1,133,080	1,887,821	7,963,353	3,102	1,896	4,997
2006	1,500,853	32	313	6,718,152	3,080,733	3,361,901	1,755,213	149,159,999	6,529	3,409	9,938
2007	1,536,019	20	301	3,769,155	3,117,032	1,702,766	1,902,404	104,913,356	4,483	2,347	6,830
2008	1,528,878	15	265	2,421,503	2,788,011	1,283,530	1,792,256	8,285,299	3,407	2,012	5,419
2009	1,622,533	14	263	2,551,170	4,036,337	965,528	2,137,070	9,690,106	4,060	1,912	5,972
<b>MA Total:</b>	<b>7,781,831</b>	<b>104</b>	<b>1,522</b>	<b>17,564,783</b>	<b>15,859,763</b>	<b>8,446,804</b>	<b>9,474,764</b>	<b>513,461,114</b>	<b>4,295</b>	<b>2,303</b>	<b>6,598</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	4.009	2.967	.
(14) Massachusetts Credibility:	0.910	1.000	.
(15) Countrywide Pure Premium:	3.416	1.801	5.217
(16) Countrywide Indicated Relativity:	3.222	2.332	.
(17) Countrywide Credibility:	0.050	0.000	.
(18) Countrywide Lost-Time Claims:	4028.0	.	.
(19) Pure Premium Underlying Present Rate:	2.404	2.196	4.601
(20) Relativity to Underlying Present Rate:	3.521	3.088	.
(21) Credibility to Underlying Relativity:	0.040	0.000	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	3.950	2.967	.
(24) Balanced Formula Relativity:	3.934	2.965	3.527

Class(es):		Effective: 9/1/2012							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)
2005	9,034,333	71	1,792	6,977,442	7,201,579	3,666,277	5,306,913	231,522,111	1,569	0,993	2,563
2006	8,348,217	59	1,490	5,750,170	7,152,571	3,640,271	5,353,630	218,966,642	1,546	1,077	2,623
2007	7,741,336	47	1,371	5,742,482	6,387,703	2,674,488	5,153,827	199,585,000	1,567	1,011	2,578
2008	7,476,387	39	1,135	5,163,696	6,691,211	2,438,814	5,965,845	202,595,666	1,586	1,124	2,710
2009	7,353,335	42	1,140	4,590,764	9,506,404	2,600,197	6,607,621	233,049,855	1,917	1,252	3,169
<b>MA Total:</b>	<b>39,953,608</b>	<b>258</b>	<b>6,928</b>	<b>28,224,554</b>	<b>36,939,469</b>	<b>15,020,047</b>	<b>28,387,835</b>	<b>1,085,719,044</b>	<b>1,631</b>	<b>1,086</b>	<b>2,717</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.522	1.400	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	1.571	0.970	2.541
(16) Countrywide Indicated Relativity:	1.482	1.256	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	27427	.	.
(19) Pure Premium Underlying Present Rate:	1.011	0.947	1.959
(20) Relativity to Underlying Present Rate:	1.481	1.332	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	1.522	1.400	.
(24) Balanced Formula Relativity:	1.516	1.399	1.467

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Exhibit 165

## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	210,844	0	25	0	46,045	0	73,658	119,703	0.218	0.349	0.568
2006	218,363	0	25	0	403,033	0	265,182	668,215	1.846	1.214	3.060
2007	205,312	2	20	94,078	123,518	127,291	146,341	491,228	1.060	1.333	2.393
2008	203,946	0	16	0	245,873	0	152,012	397,884	1.206	0.745	1.951
2009	191,038	1	14	164,797	129,550	84,193	65,828	444,368	1.541	0.785	2.326
<b>MA Total:</b>	<b>1,029,503</b>	<b>3</b>	<b>100</b>	<b>258,875</b>	<b>948,019</b>	<b>211,484</b>	<b>703,021</b>	<b>2,121,398</b>	<b>1.172</b>	<b>0.888</b>	<b>2.061</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.094	1.144	.
(14) Massachusetts Credibility:	0.250	0.400	.
(15) Countrywide Pure Premium:	1.059	0.853	1.912
(16) Countrywide Indicated Relativity:	0.999	1.105	.
(17) Countrywide Credibility:	0.380	0.300	.
(18) Countrywide Lost-Time Claims:	627.00	.	.
(19) Pure Premium Underlying Present Rate:	0.689	0.656	1.345
(20) Relativity to Underlying Present Rate:	1.009	0.922	.
(21) Credibility to Underlying Relativity:	0.370	0.300	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	1.026	1.066	.
(24) Balanced Formula Relativity:	1.022	1.065	1.040

Class(es):		Effective: 9/1/2012							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)
2005	280,592	5	84	121,969	955,087	144,971	242,948	1,464,975	3.839	1.383	5.221
2006	267,104	2	76	218,214	419,145	43,240	308,311	988,909	2.386	1.316	3.702
2007	301,512	3	79	1,158,940	431,453	180,479	276,104	2,046,975	5.275	1.514	6.789
2008	301,742	3	75	20,843	124,858	63,055	230,240	438,996	0.483	0.972	1.455
2009	305,027	2	38	75,338	439,265	65,803	227,999	808,406	1.687	0.963	2.650
<b>MA Total:</b>	<b>1,455,977</b>	<b>15</b>	<b>352</b>	<b>1,595,304</b>	<b>2,369,807</b>	<b>497,548</b>	<b>1,285,602</b>	<b>5,748,262</b>	<b>2.723</b>	<b>1.225</b>	<b>3.948</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.542	1.578	.
(14) Massachusetts Credibility:	0.370	0.590	.
(15) Countrywide Pure Premium:	1.459	0.987	2.447
(16) Countrywide Indicated Relativity:	1.377	1.279	.
(17) Countrywide Credibility:	0.320	0.210	.
(18) Countrywide Lost-Time Claims:	1516.0	.	.
(19) Pure Premium Underlying Present Rate:	1.396	1.251	2.647
(20) Relativity to Underlying Present Rate:	2.045	1.759	.
(21) Credibility to Underlying Relativity:	0.310	0.200	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	2.015	1.551	.
(24) Balanced Formula Relativity:	2.007	1.550	1.815

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Section IX - G  
Exhibit 166

## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							Goods and Services		
8392 AUTOMOBILE STORAGE GARAGE OR PARKING STATION & 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)
2005	515,772	0	57	0	80,170	0	89,544	169,714	0.155	0.174	0.329
2006	511,236	2	56	57,858	77,476	25,284	97,717	258,334	0.265	0.241	0.505
2007	594,692	4	70	87,784	288,709	40,819	224,451	641,764	0.633	0.446	1.079
2008	502,389	2	62	38,451	336,976	15,287	378,026	768,739	0.747	0.783	1.530
2009	513,744	1	62	104,934	260,577	39,603	176,453	581,567	0.711	0.421	1.132
<b>MA Total:</b>	<b>2,637,832</b>	<b>9</b>	<b>307</b>	<b>289,027</b>	<b>1,043,908</b>	<b>120,993</b>	<b>966,190</b>	<b>2,420,118</b>	<b>0.505</b>	<b>0.412</b>	<b>0.917</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.472	0.531	.
(14) Massachusetts Credibility:	0.320	0.500	.
(15) Countrywide Pure Premium:	1.117	0.987	2.104
(16) Countrywide Indicated Relativity:	1.054	1.278	.
(17) Countrywide Credibility:	0.340	0.250	.
(18) Countrywide Lost-Time Claims:	1228.0	.	.
(19) Pure Premium Underlying Present Rate:	0.539	0.448	0.987
(20) Relativity to Underlying Present Rate:	0.789	0.630	.
(21) Credibility to Underlying Relativity:	0.340	0.250	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	0.777	0.742	.
(24) Balanced Formula Relativity:	0.774	0.742	0.761

Class(es):		Effective: 9/1/2012							Goods and Services		
8393 AUTOMOBILE BODY REPAIR											
		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)
2005	1,614,466	14	220	797,537	1,010,242	183,463	679,741	2,670,983	1.120	0.535	1.654
2006	1,629,830	11	221	1,894,759	533,140	703,295	683,021	3,814,215	1.490	0.851	2.340
2007	1,622,328	8	204	606,568	1,235,681	130,510	891,704	2,864,463	1.136	0.630	1.766
2008	1,623,780	8	209	641,366	1,221,336	242,908	747,482	2,853,092	1.147	0.610	1.757
2009	1,672,587	12	194	1,706,231	1,341,174	659,505	683,551	4,390,461	1.822	0.803	2.625
<b>MA Total:</b>	<b>8,162,992</b>	<b>53</b>	<b>1,048</b>	<b>5,646,461</b>	<b>5,341,573</b>	<b>1,919,681</b>	<b>3,685,498</b>	<b>16,593,214</b>	<b>1.346</b>	<b>0.687</b>	<b>2.033</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.256	0.885	.
(14) Massachusetts Credibility:	0.610	0.900	.
(15) Countrywide Pure Premium:	1.119	0.599	1.718
(16) Countrywide Indicated Relativity:	1.056	0.775	.
(17) Countrywide Credibility:	0.200	0.050	.
(18) Countrywide Lost-Time Claims:	3122.0	.	.
(19) Pure Premium Underlying Present Rate:	0.856	0.649	1.505
(20) Relativity to Underlying Present Rate:	1.254	0.912	.
(21) Credibility to Underlying Relativity:	0.190	0.050	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	1.216	0.881	.
(24) Balanced Formula Relativity:	1.211	0.880	1.072

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							Office and Clerical		
8601 ARCHITECT OR ENGINEER-CONSULTING											
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)
2005	7,968,313	8	218	269,768	274,303	436,755	653,791	1,634,617	0.068	0.137	0.205
2006	8,306,370	4	228	627,964	374,542	443,748	598,989	2,045,243	0.121	0.126	0.246
2007	8,824,401	1	173	204,347	298,986	29,600	658,187	1,191,120	0.057	0.078	0.135
2008	9,183,533	1	176	236,460	1,422,377	134,766	755,336	2,548,938	0.181	0.097	0.278
2009	9,298,864	0	186	0	743,511	0	1,252,652	1,996,163	0.080	0.135	0.215
<b>MA Total:</b>	<b>43581481</b>	<b>14</b>	<b>981</b>	<b>1,338,539</b>	<b>3,113,719</b>	<b>1,044,869</b>	<b>3,918,954</b>	<b>9,416,081</b>	<b>0.102</b>	<b>0.114</b>	<b>0.216</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.154	1.635	.
(14) Massachusetts Credibility:	0.500	0.880	.
(15) Countrywide Pure Premium:	0.212	0.144	0.355
(16) Countrywide Indicated Relativity:	2.663	2.202	.
(17) Countrywide Credibility:	0.250	0.060	.
(18) Countrywide Lost-Time Claims:	4024.0	.	.
(19) Pure Premium Underlying Present Rate:	0.096	0.113	0.209
(20) Relativity to Underlying Present Rate:	1.710	1.766	.
(21) Credibility to Underlying Relativity:	0.250	0.060	.
(22) Industry Group Converted Pure Premium:	0.089	0.070	0.158
(23) Formula Relativity:	1.670	1.677	.
(24) Balanced Formula Relativity:	1.662	1.676	1.668

Class(es):		Effective: 9/1/2012							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)
2005	4,928	1	0	21,526	0	32,500	0	54,027	4,368	6,595	10,963
2006	3,593	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	5,748	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	6,236	0	1	0	3,525	0	8,885	12,410	0.565	1.425	1,990
2009	7,005	0	1	0	179,133	0	58,540	237,674	25.572	8.357	33,929
<b>MA Total:</b>	<b>27,510</b>	<b>1</b>	<b>2</b>	<b>21,526</b>	<b>182,658</b>	<b>32,500</b>	<b>67,425</b>	<b>304,111</b>	<b>7.422</b>	<b>3.632</b>	<b>11,054</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	6.927	4.680	.
(14) Massachusetts Credibility:	0.060	0.110	.
(15) Countrywide Pure Premium:	2.409	2.311	4.720
(16) Countrywide Indicated Relativity:	2.273	2.992	.
(17) Countrywide Credibility:	0.300	0.320	.
(18) Countrywide Lost-Time Claims:	57.000	.	.
(19) Pure Premium Underlying Present Rate:	0.859	0.883	1.743
(20) Relativity to Underlying Present Rate:	1.258	1.242	.
(21) Credibility to Underlying Relativity:	0.640	0.570	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	1.903	2.180	.
(24) Balanced Formula Relativity:	1.895	2.178	2.014

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	1,253,368	4	46	322,381	1,008,942	118,285	259,886	1,709,493	1,062	0,302	1,364
2006	1,285,264	5	51	532,691	75,457	272,669	158,034	1,038,852	0,473	0,335	0,808
2007	1,330,778	3	47	240,550	82,856	258,126	158,268	739,799	0,243	0,313	0,556
2008	1,341,329	1	61	130,656	222,869	220,234	223,593	797,352	0,264	0,331	0,594
2009	1,379,731	1	39	24,602	386,249	62,189	206,415	679,455	0,298	0,195	0,492
<b>MA Total:</b>	<b>6,590,470</b>	<b>14</b>	<b>244</b>	<b>1,250,879</b>	<b>1,776,374</b>	<b>931,502</b>	<b>1,006,195</b>	<b>4,964,950</b>	<b>0,459</b>	<b>0,294</b>	<b>0,753</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.429	0.379	.
(14) Massachusetts Credibility:	0.440	0.650	.
(15) Countrywide Pure Premium:	0.872	0.540	1.412
(16) Countrywide Indicated Relativity:	0.822	0.699	.
(17) Countrywide Credibility:	0.280	0.180	.
(18) Countrywide Lost-Time Claims:	1045.0	.	.
(19) Pure Premium Underlying Present Rate:	0.461	0.349	0.809
(20) Relativity to Underlying Present Rate:	0.675	0.490	.
(21) Credibility to Underlying Relativity:	0.280	0.170	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	0.608	0.455	.
(24) Balanced Formula Relativity:	0.605	0.455	0.542

Class(es):		Effective: 9/1/2012							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)
2005	296,745	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	244,849	0	5	0	3,216	0	4,491	7,707	0.013	0.018	0.031
2007	232,173	0	4	0	4,454	0	6,355	10,809	0.019	0.027	0.047
2008	210,047	1	0	140,924	0	211,189	0	352,113	0.671	1.005	1.676
2009	220,261	0	3	0	36,607	0	12,711	49,318	0.166	0.058	0.224
<b>MA Total:</b>	<b>1,204,076</b>	<b>1</b>	<b>12</b>	<b>140,924</b>	<b>44,278</b>	<b>211,189</b>	<b>23,557</b>	<b>419,948</b>	<b>0.154</b>	<b>0.195</b>	<b>0.349</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.738	2.799	.
(14) Massachusetts Credibility:	0.100	0.170	.
(15) Countrywide Pure Premium:	0.109	0.081	0.190
(16) Countrywide Indicated Relativity:	1.368	1.240	.
(17) Countrywide Credibility:	0.350	0.370	.
(18) Countrywide Lost-Time Claims:	83.000	.	.
(19) Pure Premium Underlying Present Rate:	0.063	0.070	0.134
(20) Relativity to Underlying Present Rate:	1.129	1.093	.
(21) Credibility to Underlying Relativity:	0.550	0.460	.
(22) Industry Group Converted Pure Premium:	0.089	0.070	0.158
(23) Formula Relativity:	1.273	1.438	.
(24) Balanced Formula Relativity:	1.267	1.437	1.342

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	64558014	46	756	4,016,287	2,247,097	1,977,985	2,241,795	10483163	0.097	0.065	0.162
2006	70062679	35	690	2,726,072	2,811,286	1,348,063	2,435,037	9,320,458	0.079	0.054	0.133
2007	73944243	34	704	3,308,835	3,576,743	2,367,461	3,594,134	12847173	0.093	0.081	0.174
2008	75234719	28	585	3,052,280	3,522,352	1,688,373	3,814,202	12077208	0.087	0.073	0.161
2009	73860689	29	482	3,084,537	4,043,300	1,476,502	3,421,205	12025544	0.097	0.066	0.163
<b>MA Total:</b>	<b>357660344</b>	<b>172</b>	<b>3,217</b>	<b>16188011</b>	<b>16200778</b>	<b>8,858,382</b>	<b>15506373</b>	<b>56753545</b>	<b>0.091</b>	<b>0.068</b>	<b>0.159</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.023	0.978	.
(14) Massachusetts Credibility:	0.940	1.000	.
(15) Countrywide Pure Premium:	0.128	0.095	0.222
(16) Countrywide Indicated Relativity:	1.607	1.453	.
(17) Countrywide Credibility:	0.030	0.000	.
(18) Countrywide Lost-Time Claims:	19560	.	.
(19) Pure Premium Underlying Present Rate:	0.057	0.062	0.119
(20) Relativity to Underlying Present Rate:	1.009	0.970	.
(21) Credibility to Underlying Relativity:	0.030	0.000	.
(22) Industry Group Converted Pure Premium:	0.089	0.070	0.158
(23) Formula Relativity:	1.040	0.978	.
(24) Balanced Formula Relativity:	1.035	0.978	1.010

Class(es):		Effective: 9/1/2012							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)
2005	229,159	4	43	113,386	222,528	114,362	89,113	539,389	1.466	0.888	2.354
2006	240,794	1	59	237,697	380,420	15,861	286,804	920,782	2.567	1.257	3.824
2007	152,791	0	35	0	345,470	0	133,106	478,576	2.261	0.871	3.132
2008	138,256	0	25	0	43,745	0	76,647	120,392	0.316	0.554	0.871
2009	119,586	3	35	875,483	570,702	317,140	413,952	2,177,277	12.093	6.114	18.207
<b>MA Total:</b>	<b>880,585</b>	<b>8</b>	<b>197</b>	<b>1,226,566</b>	<b>1,562,865</b>	<b>447,363</b>	<b>999,622</b>	<b>4,236,416</b>	<b>3.168</b>	<b>1.643</b>	<b>4.811</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.956	2.117	.
(14) Massachusetts Credibility:	0.300	0.500	.
(15) Countrywide Pure Premium:	1.941	1.551	3.492
(16) Countrywide Indicated Relativity:	1.832	2.008	.
(17) Countrywide Credibility:	0.350	0.250	.
(18) Countrywide Lost-Time Claims:	460.00	.	.
(19) Pure Premium Underlying Present Rate:	1.283	1.342	2.625
(20) Relativity to Underlying Present Rate:	1.879	1.886	.
(21) Credibility to Underlying Relativity:	0.350	0.250	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	2.185	2.032	.
(24) Balanced Formula Relativity:	2.177	2.031	2.115

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)	
2005	26.839	1	0	859	0	4.547	0	5.406	0.032	0.169	0.201	
2006	27.078	0	0	0	0	0	0	0	0.000	0.000	0.000	
2007	160.354	0	2	0	9.990	0	22.052	32.042	0.062	0.138	0.200	
2008	36.259	0	2	0	0	0	5.843	5.843	0.000	0.161	0.161	
2009	25.058	0	0	0	0	0	0	0	0.000	0.000	0.000	
<b>MA Total:</b>	<b>275.587</b>	<b>1</b>	<b>4</b>	<b>859</b>	<b>9.990</b>	<b>4.547</b>	<b>27.895</b>	<b>43.291</b>	<b>0.039</b>	<b>0.118</b>	<b>0.157</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.037	0.152	.
(14) Massachusetts Credibility:	0.120	0.210	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	0.591	0.715	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	0.406	0.512	0.919
(20) Relativity to Underlying Present Rate:	0.595	0.720	.
(21) Credibility to Underlying Relativity:	0.880	0.790	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	0.528	0.601	.
(24) Balanced Formula Relativity:	0.526	0.601	0.557

Class(es):		Effective: 9/1/2012							Office and Clerical			
8748 AUTOMOBILE SALESPERSONS												
		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)	
2005	2.771.767	7	93	432.202	601.779	204.026	296.928	1.534.934	0.373	0.181	0.554	
2006	2.803.834	6	92	109.778	485.445	241.686	283.726	1.120.635	0.212	0.187	0.400	
2007	2.367.597	6	91	515.449	365.306	140.459	397.666	1.418.881	0.372	0.227	0.599	
2008	2.179.387	2	88	240.600	1.174.867	54.938	761.557	2.231.962	0.649	0.375	1.024	
2009	2.284.783	4	74	233.377	307.984	92.991	209.900	844.252	0.237	0.133	0.370	
<b>MA Total:</b>	<b>12407368</b>	<b>25</b>	<b>438</b>	<b>1,531,406</b>	<b>2,935,380</b>	<b>734,100</b>	<b>1,949,778</b>	<b>7,150,664</b>	<b>0.360</b>	<b>0.216</b>	<b>0.576</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	4.067	3.106	.
(14) Massachusetts Credibility:	0.380	0.650	.
(15) Countrywide Pure Premium:	0.272	0.170	0.442
(16) Countrywide Indicated Relativity:	3.424	2.610	.
(17) Countrywide Credibility:	0.310	0.180	.
(18) Countrywide Lost-Time Claims:	1967.0	.	.
(19) Pure Premium Underlying Present Rate:	0.170	0.188	0.359
(20) Relativity to Underlying Present Rate:	3.036	2.931	.
(21) Credibility to Underlying Relativity:	0.310	0.170	.
(22) Industry Group Converted Pure Premium:	0.089	0.070	0.158
(23) Formula Relativity:	3.548	2.987	.
(24) Balanced Formula Relativity:	3.529	2.985	3.290

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							Office and Clerical		
8800 MAILING OR ADDRESSING CO & 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)
2005	648,186	3	40	156,454	157,619	41,506	109,583	465,161	0.485	0.233	0.718
2006	703,910	5	46	250,366	110,260	163,481	121,219	645,326	0.512	0.404	0.917
2007	711,650	3	46	749,511	695,193	332,435	709,294	2,486,432	2.030	1.464	3.494
2008	594,488	1	41	115,182	465,635	22,432	182,139	785,388	0.977	0.344	1.321
2009	524,749	0	19	0	124,026	0	87,196	211,222	0.236	0.166	0.403
<b>MA Total:</b>	<b>3,182,984</b>	<b>12</b>	<b>192</b>	<b>1,271,513</b>	<b>1,552,733</b>	<b>559,853</b>	<b>1,209,431</b>	<b>4,593,530</b>	<b>0.887</b>	<b>0.556</b>	<b>1.443</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	10.023	7.981	.
(14) Massachusetts Credibility:	0.280	0.480	.
(15) Countrywide Pure Premium:	0.429	0.392	0.822
(16) Countrywide Indicated Relativity:	5.405	6.017	.
(17) Countrywide Credibility:	0.360	0.260	.
(18) Countrywide Lost-Time Claims:	1022.0	.	.
(19) Pure Premium Underlying Present Rate:	0.312	0.343	0.655
(20) Relativity to Underlying Present Rate:	5.559	5.343	.
(21) Credibility to Underlying Relativity:	0.360	0.260	.
(22) Industry Group Converted Pure Premium:	0.089	0.070	0.158
(23) Formula Relativity:	6.754	6.785	.
(24) Balanced Formula Relativity:	6.719	6.781	6.746

Class(es):		Effective: 9/1/2012							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)
2005	20466815	1	53	35,502	73,311	43,017	214,380	366,211	0.005	0.013	0.018
2006	21928503	1	46	288,481	39,451	77,684	84,984	490,600	0.015	0.007	0.022
2007	23673009	0	52	0	140,457	0	327,116	467,573	0.006	0.014	0.020
2008	23039662	1	42	99,261	220,080	113,309	98,100	530,750	0.014	0.009	0.023
2009	21610720	1	50	43,185	220,391	71,581	252,395	587,553	0.012	0.015	0.027
<b>MA Total:</b>	<b>110718707</b>	<b>4</b>	<b>243</b>	<b>466,430</b>	<b>693,690</b>	<b>305,591</b>	<b>976,976</b>	<b>2,442,687</b>	<b>0.010</b>	<b>0.012</b>	<b>0.022</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.118	0.166	.
(14) Massachusetts Credibility:	0.360	0.560	.
(15) Countrywide Pure Premium:	0.026	0.022	0.048
(16) Countrywide Indicated Relativity:	0.326	0.342	.
(17) Countrywide Credibility:	0.320	0.220	.
(18) Countrywide Lost-Time Claims:	951.00	.	.
(19) Pure Premium Underlying Present Rate:	0.016	0.014	0.031
(20) Relativity to Underlying Present Rate:	0.292	0.223	.
(21) Credibility to Underlying Relativity:	0.320	0.220	.
(22) Industry Group Converted Pure Premium:	0.089	0.070	0.158
(23) Formula Relativity:	0.240	0.217	.
(24) Balanced Formula Relativity:	0.239	0.217	0.229

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)	
2005	310152561	91	2,511	5,758,404	10427981	3,890,162	8,670,643	28747190	0.052	0.040	0.093	
2006	347862348	99	2,284	7,880,315	7,051,391	4,501,718	7,254,857	26688282	0.043	0.034	0.077	
2007	381392343	89	2,227	6,053,239	9,590,738	2,653,060	9,215,618	27512655	0.041	0.031	0.072	
2008	386856996	80	1,932	9,550,078	7,999,846	6,627,146	8,107,163	32284233	0.045	0.038	0.083	
2009	363569246	72	1,766	6,384,296	6,918,980	4,926,670	7,457,197	25687143	0.037	0.034	0.071	
MA Total:	1.78983E9	431	10,720	35626332	41988936	22598757	40705477	140919502	0.043	0.035	0.079	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.490	0.508	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	0.056	0.047	0.103
(16) Countrywide Indicated Relativity:	0.703	0.726	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	55463	.	.
(19) Pure Premium Underlying Present Rate:	0.032	0.037	0.069
(20) Relativity to Underlying Present Rate:	0.567	0.571	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	0.089	0.070	0.158
(23) Formula Relativity:	0.490	0.508	.
(24) Balanced Formula Relativity:	0.487	0.508	0.496

Class(es):		Effective: 9/1/2012							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)	
2005	21364530	8	107	520,451	199,249	648,679	326,954	1,695,333	0.034	0.046	0.079	
2006	21916726	5	93	225,960	463,853	366,686	378,419	1,434,918	0.031	0.034	0.065	
2007	23742335	10	101	856,509	492,988	467,387	372,398	2,189,281	0.057	0.035	0.092	
2008	24001171	5	82	580,962	477,179	211,911	492,286	1,762,338	0.044	0.029	0.073	
2009	23048159	6	80	473,251	385,589	218,679	434,967	1,512,486	0.037	0.028	0.066	
MA Total:	114072920	34	463	2,657,133	2,018,858	1,913,342	2,005,023	8,594,355	0.041	0.034	0.075	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.463	0.493	.
(14) Massachusetts Credibility:	0.490	0.800	.
(15) Countrywide Pure Premium:	0.053	0.043	0.097
(16) Countrywide Indicated Relativity:	0.673	0.666	.
(17) Countrywide Credibility:	0.260	0.100	.
(18) Countrywide Lost-Time Claims:	2177.0	.	.
(19) Pure Premium Underlying Present Rate:	0.034	0.035	0.069
(20) Relativity to Underlying Present Rate:	0.611	0.538	.
(21) Credibility to Underlying Relativity:	0.250	0.100	.
(22) Industry Group Converted Pure Premium:	0.089	0.070	0.158
(23) Formula Relativity:	0.555	0.515	.
(24) Balanced Formula Relativity:	0.552	0.515	0.536

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	8,536,849	76	2,811	4,959,670	5,486,896	2,554,213	4,528,664	17529443	1,224	0.830	2,053
2006	7,864,314	49	2,175	3,391,227	5,400,948	1,785,259	4,612,027	15189460	1,118	0.813	1,931
2007	8,150,294	50	2,279	3,536,393	5,362,199	1,634,445	4,541,041	15074079	1,092	0.758	1,850
2008	8,708,593	45	2,222	4,376,523	7,061,746	2,154,360	5,126,058	18718687	1,313	0.836	2,149
2009	8,668,270	44	2,179	4,511,614	7,257,069	2,002,064	4,790,658	18561405	1,358	0.784	2,141
<b>MA Total:</b>	<b>41928320</b>	<b>264</b>	<b>11,666</b>	<b>20775427</b>	<b>30568858</b>	<b>10130340</b>	<b>23598448</b>	<b>85073074</b>	<b>1,225</b>	<b>0.804</b>	<b>2,029</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.143	1.036	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	1.253	0.928	2.182
(16) Countrywide Indicated Relativity:	1.183	1.202	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	24066	.	.
(19) Pure Premium Underlying Present Rate:	0.843	0.802	1.645
(20) Relativity to Underlying Present Rate:	1.234	1.128	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	1.143	1.036	.
(24) Balanced Formula Relativity:	1.138	1.036	1.095

Class(es):		Effective: 9/1/2012							Goods and Services		
8831 PET GROOMING & 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)
2005	1,880,371	10	553	364,089	262,355	820,489	768,815	2,215,748	0.333	0.845	1,178
2006	1,922,695	3	638	275,920	514,141	167,497	1,005,890	1,963,448	0.411	0.610	1,021
2007	1,960,115	10	530	1,157,352	623,431	954,303	942,281	3,677,367	0.909	0.968	1,876
2008	2,306,771	6	576	393,444	694,493	124,206	1,029,529	2,241,673	0.472	0.500	0.972
2009	2,382,380	5	509	419,750	586,856	108,739	1,014,657	2,130,002	0.423	0.472	0.894
<b>MA Total:</b>	<b>10452333</b>	<b>34</b>	<b>2,806</b>	<b>2,610,556</b>	<b>2,681,276</b>	<b>2,175,234</b>	<b>4,761,172</b>	<b>12228238</b>	<b>0,506</b>	<b>0,664</b>	<b>1,170</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.472	0.855	.
(14) Massachusetts Credibility:	0.440	0.990	.
(15) Countrywide Pure Premium:	0.576	0.624	1.200
(16) Countrywide Indicated Relativity:	0.544	0.808	.
(17) Countrywide Credibility:	0.280	0.010	.
(18) Countrywide Lost-Time Claims:	3938.0	.	.
(19) Pure Premium Underlying Present Rate:	0.292	0.634	0.926
(20) Relativity to Underlying Present Rate:	0.428	0.891	.
(21) Credibility to Underlying Relativity:	0.280	0.000	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	0.480	0.854	.
(24) Balanced Formula Relativity:	0.478	0.854	0.636

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## Calculation of Class Relativities

Class(es): 8832 PHYSICIAN & CLERICAL		Effective: 9/1/2012							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)
2005	38977654	37	1,261	2,464,394	1,899,527	1,098,514	1,951,936	7,414,370	0.112	0.078	0.190
2006	41906571	44	1,213	3,496,947	2,101,659	2,906,962	2,687,692	11,193,260	0.134	0.134	0.267
2007	43807546	30	1,188	2,759,063	3,705,595	1,212,245	2,566,176	10,243,079	0.148	0.086	0.234
2008	44810395	20	1,156	2,277,765	4,081,495	1,323,237	3,167,263	10,849,760	0.142	0.100	0.242
2009	46678942	27	1,195	3,458,757	5,372,303	1,131,414	4,129,424	14,091,897	0.189	0.113	0.302
<b>MA Total:</b>	<b>216181109</b>	<b>158</b>	<b>6,013</b>	<b>14,456,927</b>	<b>17,160,578</b>	<b>7,672,371</b>	<b>14,502,490</b>	<b>53,792,366</b>	<b>0.146</b>	<b>0.103</b>	<b>0.249</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.652	1.473	.
(14) Massachusetts Credibility:	0.900	1.000	.
(15) Countrywide Pure Premium:	0.109	0.088	0.197
(16) Countrywide Indicated Relativity:	1.376	1.344	.
(17) Countrywide Credibility:	0.050	0.000	.
(18) Countrywide Lost-Time Claims:	12896	.	.
(19) Pure Premium Underlying Present Rate:	0.085	0.089	0.175
(20) Relativity to Underlying Present Rate:	1.523	1.388	.
(21) Credibility to Underlying Relativity:	0.050	0.000	.
(22) Industry Group Converted Pure Premium:	0.089	0.070	0.158
(23) Formula Relativity:	1.632	1.473	.
(24) Balanced Formula Relativity:	1.623	1.472	1.557

Class(es): 8833 HOSPITAL: PROFESSIONAL EMPLOYEES		Effective: 9/1/2012							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)
2005	9,163,580	41	1,502	3,014,081	3,805,983	1,289,575	2,547,235	10,656,874	0.744	0.419	1.163
2006	9,735,897	46	1,362	4,166,182	4,228,723	2,047,729	2,910,428	13,353,063	0.862	0.509	1.372
2007	7,751,884	21	1,046	1,829,804	4,362,035	702,813	2,619,374	9,514,025	0.799	0.429	1.227
2008	6,388,261	26	802	2,881,050	2,851,256	1,203,030	2,130,458	9,065,794	0.897	0.522	1.419
2009	6,710,900	19	771	2,431,517	2,595,637	1,005,832	1,944,498	7,977,485	0.749	0.440	1.189
<b>MA Total:</b>	<b>39,750,523</b>	<b>153</b>	<b>5,483</b>	<b>14,322,634</b>	<b>17,843,634</b>	<b>6,248,980</b>	<b>12,151,993</b>	<b>50,567,241</b>	<b>0.809</b>	<b>0.463</b>	<b>1.272</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	9.141	6.647	.
(14) Massachusetts Credibility:	0.890	1.000	.
(15) Countrywide Pure Premium:	0.337	0.260	0.597
(16) Countrywide Indicated Relativity:	4.243	3.979	.
(17) Countrywide Credibility:	0.060	0.000	.
(18) Countrywide Lost-Time Claims:	17776	.	.
(19) Pure Premium Underlying Present Rate:	0.446	0.415	0.861
(20) Relativity to Underlying Present Rate:	7.950	6.453	.
(21) Credibility to Underlying Relativity:	0.050	0.000	.
(22) Industry Group Converted Pure Premium:	0.089	0.070	0.158
(23) Formula Relativity:	8.788	6.647	.
(24) Balanced Formula Relativity:	8.742	6.643	7.818

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	3,382,097	28	652	1,501,442	2,838,464	436,832	1,635,621	6,412,359	1,283	0.613	1,896
2006	3,803,944	34	694	2,534,714	2,194,488	1,359,476	1,731,833	7,820,511	1,243	0.813	2,056
2007	4,138,191	40	667	2,340,242	2,352,126	917,035	1,720,950	7,330,352	1,134	0.637	1,771
2008	4,491,570	40	647	2,523,860	2,361,002	1,868,936	1,951,841	8,705,638	1,088	0.851	1,938
2009	4,882,664	31	736	2,236,718	4,660,974	909,766	2,624,677	10,432,134	1,413	0.724	2,137
<b>MA Total:</b>	<b>20698467</b>	<b>173</b>	<b>3,396</b>	<b>11136975</b>	<b>14407053</b>	<b>5,492,045</b>	<b>9,664,921</b>	<b>40700995</b>	<b>1,234</b>	<b>0.732</b>	<b>1,966</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.152	0.943	.
(14) Massachusetts Credibility:	0.890	1.000	.
(15) Countrywide Pure Premium:	1.271	0.841	2.112
(16) Countrywide Indicated Relativity:	1.199	1.089	.
(17) Countrywide Credibility:	0.060	0.000	.
(18) Countrywide Lost-Time Claims:	12900	.	.
(19) Pure Premium Underlying Present Rate:	0.848	0.779	1.627
(20) Relativity to Underlying Present Rate:	1.241	1.096	.
(21) Credibility to Underlying Relativity:	0.050	0.000	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	1.159	0.943	.
(24) Balanced Formula Relativity:	1.154	0.943	1.066

Class(es):		Effective: 9/1/2012							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)
2005	24458451	87	2,853	3,753,271	3,613,344	2,791,788	5,017,013	15,175,416	0.301	0.319	0.620
2006	26870088	89	2,940	5,327,024	3,948,247	2,877,155	6,093,909	18,246,334	0.345	0.334	0.679
2007	28737225	77	3,323	5,497,549	7,120,903	3,680,335	7,879,805	24,178,592	0.439	0.402	0.841
2008	30961216	67	3,657	4,306,556	7,055,843	2,373,170	8,073,398	21,808,968	0.367	0.337	0.704
2009	33110009	75	3,580	6,686,552	8,122,402	3,348,168	9,044,792	27,201,914	0.447	0.374	0.822
<b>MA Total:</b>	<b>144136990</b>	<b>395</b>	<b>16,353</b>	<b>25570953</b>	<b>29860739</b>	<b>15070615</b>	<b>36108917</b>	<b>106611224</b>	<b>0.385</b>	<b>0.355</b>	<b>0.740</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	4.344	5.098	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	0.106	0.113	0.219
(16) Countrywide Indicated Relativity:	1.332	1.739	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	15940	.	.
(19) Pure Premium Underlying Present Rate:	0.215	0.294	0.509
(20) Relativity to Underlying Present Rate:	3.823	4.575	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	0.089	0.070	0.158
(23) Formula Relativity:	4.344	5.098	.
(24) Balanced Formula Relativity:	4.322	5.096	4.663

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	4,665,010	67	649	4,561,531	4,032,796	2,860,846	2,376,697	13831871	1,842	1,123	2,965
2006	5,200,986	49	650	4,238,182	3,810,424	1,906,642	2,422,734	12377981	1,548	0,832	2,380
2007	5,406,520	32	706	2,279,020	3,844,465	1,062,899	2,927,912	10114296	1,133	0,738	1,871
2008	4,249,702	24	504	2,281,022	3,901,527	1,336,922	3,346,606	10866078	1,455	1,102	2,557
2009	4,306,867	20	440	3,024,199	3,778,434	1,585,441	2,465,137	10853212	1,579	0,940	2,520
<b>MA Total:</b>	<b>23829085</b>	<b>192</b>	<b>2,949</b>	<b>16383954</b>	<b>19367647</b>	<b>8,752,750</b>	<b>13539086</b>	<b>58043437</b>	<b>1,500</b>	<b>0,935</b>	<b>2,436</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.400	1.205	.
(14) Massachusetts Credibility:	0.990	1.000	.
(15) Countrywide Pure Premium:	1.610	1.134	2.744
(16) Countrywide Indicated Relativity:	1.519	1.468	.
(17) Countrywide Credibility:	0.010	0.000	.
(18) Countrywide Lost-Time Claims:	16878	.	.
(19) Pure Premium Underlying Present Rate:	0.984	0.894	1.878
(20) Relativity to Underlying Present Rate:	1.441	1.257	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	1.401	1.205	.
(24) Balanced Formula Relativity:	1.396	1.204	1.315

Class(es):		Effective: 9/1/2012							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)
2005	4,426,556	50	950	4,896,359	3,721,882	3,022,896	2,997,692	14638828	1,947	1,360	3,307
2006	4,616,484	33	904	2,929,848	4,334,529	1,859,766	3,499,933	12624076	1,574	1,161	2,735
2007	4,785,107	29	869	2,807,707	4,910,318	1,557,745	4,112,763	13388532	1,613	1,185	2,798
2008	4,900,794	35	901	5,191,107	6,534,117	2,779,617	4,627,673	19132514	2,393	1,511	3,904
2009	5,042,266	33	806	4,644,340	5,243,722	2,291,534	3,681,499	15861096	1,961	1,185	3,146
<b>MA Total:</b>	<b>23771208</b>	<b>180</b>	<b>4,430</b>	<b>20469361</b>	<b>24744567</b>	<b>11511558</b>	<b>18919560</b>	<b>75645046</b>	<b>1,902</b>	<b>1,280</b>	<b>3,182</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.775	1.649	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	1.706	1.114	2.820
(16) Countrywide Indicated Relativity:	1.610	1.443	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	14296	.	.
(19) Pure Premium Underlying Present Rate:	1.115	1.063	2.179
(20) Relativity to Underlying Present Rate:	1.633	1.495	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	1.775	1.649	.
(24) Balanced Formula Relativity:	1.768	1.648	1.718

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)	
2005	471,106	2	103	84,611	587,129	7,893	319,389	999,022	1,426	0,695	2,121	
2006	511,249	3	72	76,956	21,539	177,586	132,819	408,900	0,193	0,607	0,800	
2007	564,663	0	94	0	201,011	0	371,545	572,556	0,356	0,658	1,014	
2008	562,964	3	105	134,690	166,825	67,241	433,062	801,819	0,536	0,889	1,424	
2009	470,345	1	94	131,900	307,021	75,144	319,503	833,568	0,933	0,839	1,772	
<b>MA Total:</b>	<b>2,580,328</b>	<b>9</b>	<b>468</b>	<b>428,156</b>	<b>1,283,525</b>	<b>327,865</b>	<b>1,576,318</b>	<b>3,615,864</b>	<b>0,663</b>	<b>0,738</b>	<b>1,401</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.619	0.951	.
(14) Massachusetts Credibility:	0.340	0.570	.
(15) Countrywide Pure Premium:	1.206	1.130	2.336
(16) Countrywide Indicated Relativity:	1.137	1.464	.
(17) Countrywide Credibility:	0.330	0.220	.
(18) Countrywide Lost-Time Claims:	2289.0	.	.
(19) Pure Premium Underlying Present Rate:	0.604	0.658	1.262
(20) Relativity to Underlying Present Rate:	0.884	0.925	.
(21) Credibility to Underlying Relativity:	0.330	0.210	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	0.877	1.058	.
(24) Balanced Formula Relativity:	0.874	1.057	0.951

Class(es):		Effective: 9/1/2012							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)	
2005	8,159	0	0	0	0	0	0	0	0.000	0.000	0.000	
2006	5,209	0	0	0	0	0	0	0	0.000	0.000	0.000	
2007	6,139	0	0	0	0	0	0	0	0.000	0.000	0.000	
2008	11,112	0	0	0	0	0	0	0	0.000	0.000	0.000	
2009	12,921	0	0	0	0	0	0	0	0.000	0.000	0.000	
<b>MA Total:</b>	<b>43,539</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	

	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:	1.104	0.701	1.804
(16) Countrywide Indicated Relativity:	0.364	0.354	.
(17) Countrywide Credibility:	0.190	0.200	.
(18) Countrywide Lost-Time Claims:	19.000	.	.
(19) Pure Premium Underlying Present Rate:	0.842	0.468	1.310
(20) Relativity to Underlying Present Rate:	0.432	0.242	.
(21) Credibility to Underlying Relativity:	0.730	0.700	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	0.385	0.240	.
(24) Balanced Formula Relativity:	0.377	0.236	0.321

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	481,266	7	119	435,383	1,381,477	167,564	607,980	2,592,404	3,775	1,611	5,387
2006	474,892	7	104	1,077,810	1,191,260	419,570	667,201	3,355,840	4,778	2,288	7,067
2007	93,055	0	18	0	25,690	0	77,566	103,256	0,276	0,834	1,110
2008	541,715	2	108	60,406	1,046,179	33,432	481,248	1,621,266	2,043	0,950	2,993
2009	552,009	5	90	909,356	1,102,809	216,749	581,052	2,809,967	3,645	1,445	5,090
<b>MA Total:</b>	<b>2,142,937</b>	<b>21</b>	<b>439</b>	<b>2,482,955</b>	<b>4,747,416</b>	<b>837,314</b>	<b>2,415,048</b>	<b>10482733</b>	<b>3,374</b>	<b>1,518</b>	<b>4,892</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.149	1.955	.
(14) Massachusetts Credibility:	0.520	0.760	.
(15) Countrywide Pure Premium:	1.203	0.699	1.902
(16) Countrywide Indicated Relativity:	1.135	0.905	.
(17) Countrywide Credibility:	0.240	0.120	.
(18) Countrywide Lost-Time Claims:	808.00	.	.
(19) Pure Premium Underlying Present Rate:	2.125	1.603	3.728
(20) Relativity to Underlying Present Rate:	3.111	2.253	.
(21) Credibility to Underlying Relativity:	0.240	0.120	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	2.657	1.865	.
(24) Balanced Formula Relativity:	2.646	1.864	2.317

Class(es):		Effective: 9/1/2012							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)
2005	771,973	5	406	221,987	562,643	110,183	567,549	1,462,362	1,016	0,878	1,894
2006	964,684	11	298	1,216,627	625,601	459,205	703,427	3,004,860	1,910	1,205	3,115
2007	661,942	5	235	415,229	795,274	130,688	726,247	2,067,438	1,829	1,295	3,123
2008	598,834	3	210	37,768	420,577	68,091	549,010	1,075,446	0,765	1,031	1,796
2009	608,165	3	262	267,656	800,954	158,937	456,402	1,683,949	1,757	1,012	2,769
<b>MA Total:</b>	<b>3,605,598</b>	<b>27</b>	<b>1,411</b>	<b>2,159,267</b>	<b>3,205,050</b>	<b>927,104</b>	<b>3,002,635</b>	<b>9,294,055</b>	<b>1,488</b>	<b>1,090</b>	<b>2,578</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.388	1.404	.
(14) Massachusetts Credibility:	0.500	0.830	.
(15) Countrywide Pure Premium:	1.925	1.654	3.579
(16) Countrywide Indicated Relativity:	1.817	2.141	.
(17) Countrywide Credibility:	0.250	0.090	.
(18) Countrywide Lost-Time Claims:	7681.0	.	.
(19) Pure Premium Underlying Present Rate:	1.181	1.172	2.353
(20) Relativity to Underlying Present Rate:	1.729	1.647	.
(21) Credibility to Underlying Relativity:	0.250	0.080	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	1.581	1.490	.
(24) Balanced Formula Relativity:	1.574	1.489	1.538

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	5,208,660	36	1,004	2,733,590	2,143,603	1,683,473	1,929,509	8,490,175	0.936	0.694	1.630
2006	5,356,131	29	999	1,962,181	2,036,225	1,175,427	2,518,019	7,691,851	0.747	0.690	1.436
2007	6,035,150	33	1,129	2,661,306	2,748,479	2,381,280	2,734,590	10,525,655	0.896	0.848	1.744
2008	6,252,170	27	1,087	1,984,896	3,001,597	1,060,538	2,795,827	8,842,858	0.798	0.617	1.414
2009	6,272,899	31	1,073	2,855,598	2,793,701	1,714,054	2,894,665	10,258,019	0.901	0.735	1.635
<b>MA Total:</b>	<b>29,125,009</b>	<b>156</b>	<b>5,292</b>	<b>12,197,571</b>	<b>12,723,605</b>	<b>8,014,771</b>	<b>12,872,610</b>	<b>45,808,557</b>	<b>0.856</b>	<b>0.717</b>	<b>1.573</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.799	0.924	.
(14) Massachusetts Credibility:	0.860	1.000	.
(15) Countrywide Pure Premium:	1.004	0.809	1.813
(16) Countrywide Indicated Relativity:	0.947	1.048	.
(17) Countrywide Credibility:	0.070	0.000	.
(18) Countrywide Lost-Time Claims:	22388	.	.
(19) Pure Premium Underlying Present Rate:	0.559	0.633	1.192
(20) Relativity to Underlying Present Rate:	0.818	0.890	.
(21) Credibility to Underlying Relativity:	0.070	0.000	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	0.810	0.924	.
(24) Balanced Formula Relativity:	0.807	0.923	0.856

Class(es):		Effective: 9/1/2012							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)
2005	2,523,618	12	394	998,080	400,828	890,368	845,398	3,134,673	0.554	0.688	1.242
2006	2,600,940	9	326	561,194	288,386	387,750	765,594	2,002,924	0.327	0.443	0.770
2007	2,668,883	9	380	330,605	375,565	259,262	688,968	1,654,400	0.265	0.355	0.620
2008	2,733,346	7	364	733,421	1,178,478	395,248	1,565,347	3,872,495	0.699	0.717	1.417
2009	2,730,228	6	313	264,487	632,344	158,318	1,036,009	2,091,158	0.328	0.437	0.766
<b>MA Total:</b>	<b>13,257,015</b>	<b>43</b>	<b>1,777</b>	<b>2,887,787</b>	<b>2,875,601</b>	<b>2,090,946</b>	<b>4,901,315</b>	<b>12,755,650</b>	<b>0.435</b>	<b>0.527</b>	<b>0.962</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.406	0.680	.
(14) Massachusetts Credibility:	0.540	1.000	.
(15) Countrywide Pure Premium:	0.743	0.617	1.360
(16) Countrywide Indicated Relativity:	0.701	0.799	.
(17) Countrywide Credibility:	0.230	0.000	.
(18) Countrywide Lost-Time Claims:	5763.0	.	.
(19) Pure Premium Underlying Present Rate:	0.393	0.509	0.902
(20) Relativity to Underlying Present Rate:	0.575	0.716	.
(21) Credibility to Underlying Relativity:	0.230	0.000	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	0.513	0.680	.
(24) Balanced Formula Relativity:	0.511	0.679	0.581

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	631,409	3	39	181,700	72,621	65,505	79,335	399,161	0.403	0.229	0.632
2006	675,420	5	42	343,552	130,852	291,018	95,419	860,841	0.702	0.572	1.275
2007	698,506	1	55	222,833	99,239	207,538	143,341	672,951	0.461	0.502	0.963
2008	696,753	0	33	0	207,548	0	219,543	427,092	0.298	0.315	0.613
2009	661,540	1	34	160,224	48,963	38,567	58,268	306,022	0.316	0.146	0.463
<b>MA Total:</b>	<b>3,363,629</b>	<b>10</b>	<b>203</b>	<b>908,309</b>	<b>559,223</b>	<b>602,628</b>	<b>595,906</b>	<b>2,666,066</b>	<b>0.436</b>	<b>0.356</b>	<b>0.793</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.407	0.459	.
(14) Massachusetts Credibility:	0.300	0.530	.
(15) Countrywide Pure Premium:	0.693	0.550	1.243
(16) Countrywide Indicated Relativity:	0.654	0.712	.
(17) Countrywide Credibility:	0.350	0.240	.
(18) Countrywide Lost-Time Claims:	821.00	.	.
(19) Pure Premium Underlying Present Rate:	0.359	0.411	0.770
(20) Relativity to Underlying Present Rate:	0.526	0.578	.
(21) Credibility to Underlying Relativity:	0.350	0.230	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	0.535	0.547	.
(24) Balanced Formula Relativity:	0.533	0.547	0.539

Class(es):		Effective: 9/1/2012							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)
2005	3,549,299	12	366	417,341	680,904	353,705	1,001,857	2,453,806	0.309	0.382	0.691
2006	3,730,018	9	357	577,108	1,120,343	578,027	1,148,115	3,423,593	0.455	0.463	0.918
2007	4,003,188	7	355	255,155	649,172	185,455	822,101	1,911,883	0.226	0.252	0.478
2008	4,061,838	5	380	475,236	715,432	162,195	1,258,243	2,611,106	0.293	0.350	0.643
2009	4,234,217	10	330	960,442	1,332,327	363,800	1,225,416	3,881,986	0.541	0.375	0.917
<b>MA Total:</b>	<b>19,578,559</b>	<b>43</b>	<b>1,788</b>	<b>2,685,282</b>	<b>4,498,177</b>	<b>1,643,183</b>	<b>5,455,732</b>	<b>14,282,374</b>	<b>0.367</b>	<b>0.363</b>	<b>0.729</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.342	0.467	.
(14) Massachusetts Credibility:	0.500	0.970	.
(15) Countrywide Pure Premium:	0.392	0.404	0.796
(16) Countrywide Indicated Relativity:	0.370	0.523	.
(17) Countrywide Credibility:	0.250	0.020	.
(18) Countrywide Lost-Time Claims:	2863.0	.	.
(19) Pure Premium Underlying Present Rate:	0.212	0.325	0.537
(20) Relativity to Underlying Present Rate:	0.311	0.457	.
(21) Credibility to Underlying Relativity:	0.250	0.010	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	0.341	0.468	.
(24) Balanced Formula Relativity:	0.340	0.468	0.394

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## Calculation of Class Relativities

Class(es): 9079 RESTAURANT NOC		Effective: 9/1/2012							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)
2005	15957623	52	3,036	3,297,828	5,366,883	1,686,604	6,770,839	17122153	0.543	0.530	1.073
2006	16030629	72	2,830	5,137,211	5,394,744	3,313,950	5,754,103	19600007	0.657	0.566	1.223
2007	16906409	61	2,859	3,456,096	6,687,854	1,299,629	7,021,133	18464712	0.600	0.492	1.092
2008	17258613	61	2,643	3,818,579	7,037,358	2,553,464	7,145,156	20554557	0.629	0.562	1.191
2009	17657607	55	2,659	4,985,456	9,132,157	3,849,780	7,719,048	25686441	0.800	0.655	1.455
<b>MA Total:</b>	<b>83810881</b>	<b>301</b>	<b>14,027</b>	<b>20695170</b>	<b>33618997</b>	<b>12703426</b>	<b>34410278</b>	<b>101427870</b>	<b>0.648</b>	<b>0.562</b>	<b>1.210</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.605	0.724	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	0.581	0.545	1.126
(16) Countrywide Indicated Relativity:	0.548	0.706	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	3253.0	.	.
(19) Pure Premium Underlying Present Rate:	0.386	0.470	0.856
(20) Relativity to Underlying Present Rate:	0.566	0.660	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	0.605	0.724	.
(24) Balanced Formula Relativity:	0.602	0.724	0.653

Class(es): 9089 BILLIARD HALL		Effective: 9/1/2012							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)
2005	38,079	2	6	58,993	1,821	19,545	11,032	91,391	1.597	0.803	2.400
2006	36,136	0	7	0	8,172	0	12,630	20,802	0.226	0.350	0.576
2007	34,868	0	13	0	15,140	0	17,835	32,975	0.434	0.512	0.946
2008	11,364	0	1	0	0	0	209	209	0.000	0.018	0.018
2009	7,416	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>127,864</b>	<b>2</b>	<b>27</b>	<b>58,993</b>	<b>25,134</b>	<b>19,545</b>	<b>41,706</b>	<b>145,378</b>	<b>0.658</b>	<b>0.479</b>	<b>1.137</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.614	0.617	.
(14) Massachusetts Credibility:	0.090	0.160	.
(15) Countrywide Pure Premium:	0.633	0.411	1.044
(16) Countrywide Indicated Relativity:	0.597	0.532	.
(17) Countrywide Credibility:	0.170	0.180	.
(18) Countrywide Lost-Time Claims:	14,000	.	.
(19) Pure Premium Underlying Present Rate:	0.458	0.526	0.984
(20) Relativity to Underlying Present Rate:	0.671	0.739	.
(21) Credibility to Underlying Relativity:	0.740	0.660	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	0.653	0.683	.
(24) Balanced Formula Relativity:	0.650	0.682	0.664

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## Calculation of Class Relativities

Class(es): 9093 BOWLING LANE		Effective: 9/1/2012							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)
2005	96,727	0	8	0	17,782	0	24,910	42,692	0.184	0.258	0.441
2006	92,804	0	10	0	6,313	0	13,884	20,197	0.068	0.150	0.218
2007	93,240	0	12	0	10,066	0	21,865	31,931	0.108	0.235	0.342
2008	111,007	0	11	0	22,021	0	33,075	55,096	0.198	0.298	0.496
2009	114,470	0	10	0	7,935	0	34,003	41,938	0.069	0.297	0.366
<b>MA Total:</b>	<b>508,246</b>	<b>0</b>	<b>51</b>	<b>0</b>	<b>64,118</b>	<b>0</b>	<b>127,737</b>	<b>191,854</b>	<b>0.126</b>	<b>0.251</b>	<b>0.377</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.118	0.324	.
(14) Massachusetts Credibility:	0.140	0.260	.
(15) Countrywide Pure Premium:	0.592	0.588	1.180
(16) Countrywide Indicated Relativity:	0.558	0.762	.
(17) Countrywide Credibility:	0.430	0.370	.
(18) Countrywide Lost-Time Claims:	484.00	.	.
(19) Pure Premium Underlying Present Rate:	0.325	0.470	0.795
(20) Relativity to Underlying Present Rate:	0.476	0.661	.
(21) Credibility to Underlying Relativity:	0.430	0.370	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	0.461	0.611	.
(24) Balanced Formula Relativity:	0.459	0.610	0.523

Class(es): 9101 COLLEGE: ALL OTHER EMPLOYEES		Effective: 9/1/2012							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)
2005	1,056,081	14	562	696,653	960,356	385,598	1,149,984	3,192,591	1,569	1,454	3,023
2006	1,128,701	13	578	261,512	1,352,085	490,518	1,119,577	3,223,691	1,430	1,427	2,856
2007	1,196,927	16	607	1,412,930	1,402,475	657,853	1,401,847	4,875,105	2,352	1,721	4,073
2008	1,340,310	17	610	1,515,809	1,906,769	1,124,036	1,980,338	6,526,952	2,554	2,316	4,870
2009	1,452,817	17	568	1,196,021	2,266,300	848,865	1,505,531	5,816,717	2,383	1,621	4,004
<b>MA Total:</b>	<b>6,174,837</b>	<b>77</b>	<b>2,925</b>	<b>5,082,925</b>	<b>7,887,985</b>	<b>3,506,869</b>	<b>7,157,277</b>	<b>23,635,057</b>	<b>2,101</b>	<b>1,727</b>	<b>3,828</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.960	2.225	.
(14) Massachusetts Credibility:	0.630	1.000	.
(15) Countrywide Pure Premium:	1.721	1.363	3.084
(16) Countrywide Indicated Relativity:	1.624	1.765	.
(17) Countrywide Credibility:	0.190	0.000	.
(18) Countrywide Lost-Time Claims:	15027	.	.
(19) Pure Premium Underlying Present Rate:	1.226	1.311	2.536
(20) Relativity to Underlying Present Rate:	1.795	1.842	.
(21) Credibility to Underlying Relativity:	0.180	0.000	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	1.867	2.225	.
(24) Balanced Formula Relativity:	1.859	2.223	2.012

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	105.714	1	19	13.621	29.692	72.406	95.094	210.812	0.410	1.584	1.994
2006	130.232	2	32	97.260	128.096	14.527	159.990	399.873	1.730	1.340	3.070
2007	173.226	0	26	0	52.665	0	53.218	105.883	0.304	0.307	0.611
2008	189.867	1	43	146.112	68.390	56.737	56.644	327.883	1.130	0.597	1.727
2009	205.892	0	33	0	356.543	0	193.920	550.463	1.732	0.942	2.674
<b>MA Total:</b>	<b>804.931</b>	<b>4</b>	<b>153</b>	<b>256.993</b>	<b>635.385</b>	<b>143.670</b>	<b>558.865</b>	<b>1,594.914</b>	<b>1.109</b>	<b>0.873</b>	<b>1.981</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.343	0.410	.
(14) Massachusetts Credibility:	0.240	0.410	.
(15) Countrywide Pure Premium:	1.663	1.304	2.967
(16) Countrywide Indicated Relativity:	0.549	0.658	.
(17) Countrywide Credibility:	0.380	0.300	.
(18) Countrywide Lost-Time Claims:	6217.0	.	.
(19) Pure Premium Underlying Present Rate:	0.869	0.919	1.788
(20) Relativity to Underlying Present Rate:	0.446	0.476	.
(21) Credibility to Underlying Relativity:	0.380	0.290	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	0.460	0.504	.
(24) Balanced Formula Relativity:	0.451	0.496	0.469

Class(es):		Effective: 9/1/2012							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)
2005	631.113	3	80	73.732	286.640	47.423	261.156	668.952	0.571	0.489	1.060
2006	558.768	0	81	0	62.971	0	269.352	332.323	0.113	0.482	0.595
2007	599.601	2	95	322.472	40.041	117.729	127.938	608.181	0.605	0.410	1.014
2008	606.283	2	90	21.965	347.303	72.133	251.541	692.942	0.609	0.534	1.143
2009	622.642	1	65	176.698	193.159	23.041	242.346	635.244	0.594	0.426	1.020
<b>MA Total:</b>	<b>3,018,406</b>	<b>8</b>	<b>411</b>	<b>594.867</b>	<b>930.115</b>	<b>260.327</b>	<b>1,152.333</b>	<b>2,937.642</b>	<b>0.505</b>	<b>0.468</b>	<b>0.973</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.156	0.220	.
(14) Massachusetts Credibility:	0.320	0.550	.
(15) Countrywide Pure Premium:	0.947	0.870	1.817
(16) Countrywide Indicated Relativity:	0.312	0.439	.
(17) Countrywide Credibility:	0.340	0.230	.
(18) Countrywide Lost-Time Claims:	1513.0	.	.
(19) Pure Premium Underlying Present Rate:	0.459	0.498	0.958
(20) Relativity to Underlying Present Rate:	0.236	0.258	.
(21) Credibility to Underlying Relativity:	0.340	0.220	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	0.236	0.279	.
(24) Balanced Formula Relativity:	0.232	0.274	0.249

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	439,875	1	114	70,535	81,487	27,303	182,114	361,439	0.346	0.476	0.822
2006	461,683	1	97	2,408	304,040	126	234,122	540,697	0.664	0.507	1.171
2007	477,204	0	60	0	76,444	0	131,789	208,233	0.160	0.276	0.436
2008	470,881	2	105	56,056	269,509	42,203	364,417	732,185	0.691	0.864	1.555
2009	447,841	1	65	4,779	151,102	11,541	193,736	361,157	0.348	0.458	0.806
<b>MA Total:</b>	<b>2,297,484</b>	<b>5</b>	<b>441</b>	<b>133,778</b>	<b>882,582</b>	<b>81,174</b>	<b>1,106,177</b>	<b>2,203,711</b>	<b>0.442</b>	<b>0.517</b>	<b>0.959</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	4.997	7.421	.
(14) Massachusetts Credibility:	0.250	0.510	.
(15) Countrywide Pure Premium:	0.653	0.588	1.241
(16) Countrywide Indicated Relativity:	8.220	9.021	.
(17) Countrywide Credibility:	0.380	0.250	.
(18) Countrywide Lost-Time Claims:	747.00	.	.
(19) Pure Premium Underlying Present Rate:	0.334	0.546	0.880
(20) Relativity to Underlying Present Rate:	5.944	8.501	.
(21) Credibility to Underlying Relativity:	0.370	0.240	.
(22) Industry Group Converted Pure Premium:	0.089	0.070	0.158
(23) Formula Relativity:	6.572	8.080	.
(24) Balanced Formula Relativity:	6.538	8.076	7.215

Class(es):		Effective: 9/1/2012							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)
2005	16,553	0	33	0	16,272	0	132,834	149,106	0.983	8.025	9.008
2006	61,040	1	74	107,893	88,967	19,515	454,698	671,072	3.225	7.769	10.994
2007	30,366	1	49	15,154	1,099	19,602	176,395	212,250	0.535	6.454	6.990
2008	20,202	0	14	0	113,011	0	100,756	213,767	5.594	4.987	10.581
2009	8,115	0	5	0	65,571	0	12,078	77,649	8.080	1.488	9.568
<b>MA Total:</b>	<b>136,277</b>	<b>2</b>	<b>175</b>	<b>123,047</b>	<b>284,919</b>	<b>39,116</b>	<b>876,762</b>	<b>1,323,844</b>	<b>2.994</b>	<b>6.721</b>	<b>9.714</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.927	3.158	.
(14) Massachusetts Credibility:	0.160	0.450	.
(15) Countrywide Pure Premium:	1.443	2.809	4.252
(16) Countrywide Indicated Relativity:	0.476	1.417	.
(17) Countrywide Credibility:	0.420	0.280	.
(18) Countrywide Lost-Time Claims:	456.00	.	.
(19) Pure Premium Underlying Present Rate:	1.754	6.674	8.429
(20) Relativity to Underlying Present Rate:	0.900	3.457	.
(21) Credibility to Underlying Relativity:	0.420	0.270	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	0.726	2.751	.
(24) Balanced Formula Relativity:	0.711	2.708	1.505

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	27,425	4	70	8,114	1,311,055	3,158	290,060	1,612,387	48,100	10,691	58,792
2006	28,433	7	57	332,435	1,025,332	48,692	184,892	1,591,351	47,753	8,215	55,968
2007	34,709	11	83	502,078	1,006,931	99,522	536,174	2,144,705	43,476	18,315	61,791
2008	29,415	5	45	489,442	188,762	46,896	131,257	856,357	23,057	6,057	29,113
2009	37,523	3	44	202,394	162,803	81,400	89,371	535,967	9,733	4,551	14,284
<b>MA Total:</b>	<b>157,506</b>	<b>30</b>	<b>299</b>	<b>1,534,463</b>	<b>3,694,883</b>	<b>279,668</b>	<b>1,231,753</b>	<b>6,740,767</b>	<b>33,201</b>	<b>9,596</b>	<b>42,797</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	10.284	4.509	.
(14) Massachusetts Credibility:	0.340	0.530	.
(15) Countrywide Pure Premium:	6.978	5.785	12.763
(16) Countrywide Indicated Relativity:	2.302	2.919	.
(17) Countrywide Credibility:	0.330	0.240	.
(18) Countrywide Lost-Time Claims:	1017.0	.	.
(19) Pure Premium Underlying Present Rate:	10.027	9.038	19.065
(20) Relativity to Underlying Present Rate:	5.145	4.681	.
(21) Credibility to Underlying Relativity:	0.330	0.230	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	5.954	4.167	.
(24) Balanced Formula Relativity:	5.831	4.101	5.144

Class(es):		Effective: 9/1/2012							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)
2005	112,851	0	43	0	67,111	0	325,971	393,082	0.595	2,889	3,483
2006	103,384	0	33	0	18,360	0	168,278	186,639	0.178	1,628	1,805
2007	116,028	1	33	348	23,170	5,908	159,515	188,942	0.203	1,426	1,628
2008	118,127	1	36	31,494	43,156	36,641	257,532	368,822	0.632	2,490	3,122
2009	129,290	0	37	0	144,529	0	186,940	331,469	1.118	1,446	2,564
<b>MA Total:</b>	<b>579,680</b>	<b>2</b>	<b>182</b>	<b>31,842</b>	<b>296,327</b>	<b>42,549</b>	<b>1,098,236</b>	<b>1,468,954</b>	<b>0.566</b>	<b>1,968</b>	<b>2,534</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.175	0.925	.
(14) Massachusetts Credibility:	0.230	0.500	.
(15) Countrywide Pure Premium:	3.132	3.877	7.009
(16) Countrywide Indicated Relativity:	1.033	1.956	.
(17) Countrywide Credibility:	0.390	0.250	.
(18) Countrywide Lost-Time Claims:	2031.0	.	.
(19) Pure Premium Underlying Present Rate:	1.058	2.119	3.177
(20) Relativity to Underlying Present Rate:	0.543	1.098	.
(21) Credibility to Underlying Relativity:	0.380	0.250	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	0.650	1.226	.
(24) Balanced Formula Relativity:	0.636	1.207	0.863

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## Calculation of Class Relativities

Class(es): 9182 ATHLETIC TEAM OR PARK: OPERATIONS & DRIVERS									Effective: 9/1/2012			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)			
2005	102,389	4	55	694,611	57,408	180,381	79,380	1,011,779	7,345	2,537	9,882			
2006	148,437	0	42	0	174,078	0	134,375	308,453	1,173	0,905	2,078			
2007	214,984	1	69	394,926	45,221	15,676	326,788	782,611	2,047	1,593	3,640			
2008	126,669	3	40	243,718	247,854	934,211	264,363	1,690,145	3,881	9,462	13,343			
2009	136,834	2	34	126,412	34,607	314,885	149,368	625,272	1,177	3,393	4,570			
<b>MA Total:</b>	<b>729,313</b>	<b>10</b>	<b>240</b>	<b>1,459,666</b>	<b>559,167</b>	<b>1,445,153</b>	<b>954,273</b>	<b>4,418,260</b>	<b>2,768</b>	<b>3,290</b>	<b>6,058</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.857	1.546	.
(14) Massachusetts Credibility:	0.250	0.500	.
(15) Countrywide Pure Premium:	0.903	1.095	1.998
(16) Countrywide Indicated Relativity:	0.298	0.552	.
(17) Countrywide Credibility:	0.380	0.250	.
(18) Countrywide Lost-Time Claims:	419.00	.	.
(19) Pure Premium Underlying Present Rate:	1.055	1.639	2.695
(20) Relativity to Underlying Present Rate:	0.542	0.849	.
(21) Credibility to Underlying Relativity:	0.370	0.250	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	0.528	1.123	.
(24) Balanced Formula Relativity:	0.517	1.106	0.751

Class(es): 9220 CEMETERY OPERATION & DRIVERS									Effective: 9/1/2012			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)			
2005	169,654	2	55	287,806	57,554	29,528	61,622	436,510	2,036	0,537	2,573			
2006	166,405	2	42	327,321	118,703	101,241	141,591	688,856	2,680	1,459	4,140			
2007	174,443	2	54	86,183	142,109	120,758	166,476	515,526	1,309	1,647	2,955			
2008	185,983	0	38	0	350,961	0	304,664	655,626	1,887	1,638	3,525			
2009	194,535	1	29	13,093	107,677	13,232	139,322	273,325	0,621	0,784	1,405			
<b>MA Total:</b>	<b>891,021</b>	<b>7</b>	<b>218</b>	<b>714,403</b>	<b>777,003</b>	<b>264,759</b>	<b>813,676</b>	<b>2,569,842</b>	<b>1,674</b>	<b>1,210</b>	<b>2,884</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.562	1.559	.
(14) Massachusetts Credibility:	0.310	0.500	.
(15) Countrywide Pure Premium:	2.313	1.831	4.144
(16) Countrywide Indicated Relativity:	2.182	2.371	.
(17) Countrywide Credibility:	0.350	0.250	.
(18) Countrywide Lost-Time Claims:	705.00	.	.
(19) Pure Premium Underlying Present Rate:	1.442	1.347	2.788
(20) Relativity to Underlying Present Rate:	2.111	1.893	.
(21) Credibility to Underlying Relativity:	0.340	0.250	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	1.966	1.846	.
(24) Balanced Formula Relativity:	1.958	1.844	1.910

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	549,456	7	115	811,361	466,798	589,664	305,698	2,173,521	2,326	1,630	3,956
2006	557,253	7	87	1,328,755	245,752	1,036,060	330,344	2,940,911	2,825	2,452	5,278
2007	576,039	4	97	404,453	991,120	712,955	1,067,404	3,175,932	2,423	3,091	5,513
2008	663,953	3	76	650,356	871,472	219,687	479,303	2,220,818	2,292	1,053	3,345
2009	622,709	8	81	1,603,282	753,616	766,004	611,940	3,734,841	3,785	2,213	5,998
<b>MA Total:</b>	<b>2,969,410</b>	<b>29</b>	<b>456</b>	<b>4,798,207</b>	<b>3,328,759</b>	<b>3,324,369</b>	<b>2,794,689</b>	<b>14,246,024</b>	<b>2,737</b>	<b>2,061</b>	<b>4,798</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.848	0.968	.
(14) Massachusetts Credibility:	0.570	0.940	.
(15) Countrywide Pure Premium:	3.273	2.129	5.402
(16) Countrywide Indicated Relativity:	1.080	1.074	.
(17) Countrywide Credibility:	0.220	0.030	.
(18) Countrywide Lost-Time Claims:	1867.0	.	.
(19) Pure Premium Underlying Present Rate:	1.948	1.970	3.919
(20) Relativity to Underlying Present Rate:	1.000	1.020	.
(21) Credibility to Underlying Relativity:	0.210	0.030	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	0.931	0.973	.
(24) Balanced Formula Relativity:	0.911	0.958	0.930

Class(es):		Effective: 9/1/2012							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)
2005	1,093,486	31	327	3,087,254	2,457,269	2,305,912	1,458,895	9,309,330	5,071	3,443	8,513
2006	1,122,483	32	395	5,872,255	4,193,970	2,242,836	2,248,800	14,557,861	8,968	4,002	12,969
2007	765,488	9	274	1,867,591	3,204,563	669,585	2,991,325	8,733,064	6,626	4,782	11,408
2008	876,485	14	268	2,815,064	3,691,584	1,938,467	2,561,934	11,007,049	7,424	5,135	12,558
2009	838,295	8	245	944,265	2,782,700	545,500	1,893,826	6,166,291	4,446	2,910	7,356
<b>MA Total:</b>	<b>4,696,237</b>	<b>94</b>	<b>1,509</b>	<b>14,586,428</b>	<b>16,330,087</b>	<b>7,702,301</b>	<b>11,154,780</b>	<b>49,773,596</b>	<b>6,583</b>	<b>4,015</b>	<b>10,599</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.039	1.887	.
(14) Massachusetts Credibility:	0.830	1.000	.
(15) Countrywide Pure Premium:	4.731	3.090	7.820
(16) Countrywide Indicated Relativity:	1.561	1.559	.
(17) Countrywide Credibility:	0.090	0.000	.
(18) Countrywide Lost-Time Claims:	7597.0	.	.
(19) Pure Premium Underlying Present Rate:	3.207	3.207	6.415
(20) Relativity to Underlying Present Rate:	1.646	1.661	.
(21) Credibility to Underlying Relativity:	0.080	0.000	.
(22) Industry Group Converted Pure Premium:	3.229	2.128	5.357
(23) Formula Relativity:	1.965	1.887	.
(24) Balanced Formula Relativity:	1.924	1.857	1.897

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	5,287	0	2	0	1,998	0	2,571	4,569	0.378	0.486	0.864
2006	8,242	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	16,844	0	5	0	30,391	0	60,716	91,107	1.804	3.605	5,409
2008	126,113	0	17	0	31,791	0	23,789	55,580	0.252	0.189	0.441
2009	120,197	3	45	191,489	176,038	598,667	218,222	1,184,417	3.058	6.796	9,854
<b>MA Total:</b>	<b>276,683</b>	<b>3</b>	<b>69</b>	<b>191,489</b>	<b>240,218</b>	<b>598,667</b>	<b>305,299</b>	<b>1,335,673</b>	<b>1.560</b>	<b>3.267</b>	<b>4.827</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.456	4.209	.
(14) Massachusetts Credibility:	0.140	0.260	.
(15) Countrywide Pure Premium:	0.973	0.711	1.684
(16) Countrywide Indicated Relativity:	0.918	0.921	.
(17) Countrywide Credibility:	0.430	0.370	.
(18) Countrywide Lost-Time Claims:	816.00	.	.
(19) Pure Premium Underlying Present Rate:	0.676	0.881	1.557
(20) Relativity to Underlying Present Rate:	0.990	1.238	.
(21) Credibility to Underlying Relativity:	0.430	0.370	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	1.024	1.893	.
(24) Balanced Formula Relativity:	1.020	1.892	1.386

Class(es):		Effective: 9/1/2012							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)
2005	270,806	2	53	183,601	42,972	230,879	89,590	547,042	0.837	1.183	2,020
2006	302,202	2	68	90,800	410,729	89,922	184,918	776,369	1.660	0.909	2,569
2007	298,057	2	56	411,205	297,301	384,086	194,843	1,287,435	2.377	1.942	4,319
2008	295,749	2	54	90,487	113,024	49,829	149,766	403,106	0.688	0.675	1,363
2009	273,391	0	32	0	8,904	0	38,391	47,295	0.033	0.140	0.173
<b>MA Total:</b>	<b>1,440,204</b>	<b>8</b>	<b>263</b>	<b>776,094</b>	<b>872,928</b>	<b>754,716</b>	<b>657,509</b>	<b>3,061,247</b>	<b>1.145</b>	<b>0.981</b>	<b>2,126</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.858	1.093	.
(14) Massachusetts Credibility:	0.340	0.600	.
(15) Countrywide Pure Premium:	1.497	1.057	2,554
(16) Countrywide Indicated Relativity:	1.295	1.355	.
(17) Countrywide Credibility:	0.330	0.200	.
(18) Countrywide Lost-Time Claims:	1121.0	.	.
(19) Pure Premium Underlying Present Rate:	1.101	1.317	2,419
(20) Relativity to Underlying Present Rate:	1.161	1.466	.
(21) Credibility to Underlying Relativity:	0.330	0.200	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2,231
(23) Formula Relativity:	1.103	1.220	.
(24) Balanced Formula Relativity:	1.104	1.220	1,151

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	593.409	9	99	1,087,118	528,253	740,096	378,121	2,733,589	2,722	1,884	4,607
2006	679,391	2	88	168,055	286,268	246,077	256,241	956,641	0,669	0,739	1,408
2007	749,158	3	127	313,634	186,778	233,081	510,544	1,244,037	0,668	0,993	1,661
2008	753,375	7	110	1,284,817	594,658	553,317	684,292	3,117,083	2,495	1,643	4,137
2009	706,284	4	90	449,709	1,101,232	393,180	748,056	2,692,177	2,196	1,616	3,812
<b>MA Total:</b>	<b>3,481,617</b>	<b>25</b>	<b>514</b>	<b>3,303,333</b>	<b>2,697,188</b>	<b>2,165,751</b>	<b>2,577,254</b>	<b>10743526</b>	<b>1,723</b>	<b>1,362</b>	<b>3,086</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.608	1.755	.
(14) Massachusetts Credibility:	0.470	0.770	.
(15) Countrywide Pure Premium:	1.915	1.115	3.030
(16) Countrywide Indicated Relativity:	1.807	1.443	.
(17) Countrywide Credibility:	0.270	0.120	.
(18) Countrywide Lost-Time Claims:	1720.0	.	.
(19) Pure Premium Underlying Present Rate:	1.015	1.003	2.018
(20) Relativity to Underlying Present Rate:	1.486	1.410	.
(21) Credibility to Underlying Relativity:	0.260	0.110	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	1.630	1.680	.
(24) Balanced Formula Relativity:	1.624	1.679	1.647

Class(es):		Effective: 9/1/2012							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)
2005	277,363	4	54	721,290	447,922	353,621	244,663	1,767,495	4,215	2,157	6,372
2006	272,657	2	42	187,851	93,835	124,004	83,979	489,669	1,033	0,763	1,796
2007	285,214	2	28	228,082	23,439	92,432	59,732	403,685	0,882	0,534	1,415
2008	221,868	1	19	348,056	57,103	97,074	45,524	547,756	1,826	0,643	2,469
2009	192,330	1	26	73,039	153,905	51,994	114,925	393,863	1,180	0,868	2,048
<b>MA Total:</b>	<b>1,249,432</b>	<b>10</b>	<b>169</b>	<b>1,558,318</b>	<b>776,204</b>	<b>719,125</b>	<b>548,822</b>	<b>3,602,468</b>	<b>1,868</b>	<b>1,015</b>	<b>2,883</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.400	1.131	.
(14) Massachusetts Credibility:	0.400	0.600	.
(15) Countrywide Pure Premium:	2.321	1.339	3.660
(16) Countrywide Indicated Relativity:	2.008	1.716	.
(17) Countrywide Credibility:	0.300	0.200	.
(18) Countrywide Lost-Time Claims:	629.00	.	.
(19) Pure Premium Underlying Present Rate:	1.951	1.534	3.485
(20) Relativity to Underlying Present Rate:	2.058	1.707	.
(21) Credibility to Underlying Relativity:	0.300	0.200	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.780	1.363	.
(24) Balanced Formula Relativity:	1.782	1.363	1.614

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## Calculation of Class Relativities

Class(es): 9522 UPHOLSTERING		Effective: 9/1/2012							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)
2005	147,485	3	15	508,168	2,112	136,004	19,244	665,527	3,460	1,053	4,513
2006	152,945	0	8	0	276,082	0	89,924	366,006	1,805	0,588	2,393
2007	146,843	0	14	0	320,279	0	128,420	448,698	2,181	0,875	3,056
2008	130,081	0	9	0	126,982	0	33,797	160,778	0,976	0,260	1,236
2009	111,785	0	7	0	52,928	0	40,166	93,093	0,473	0,359	0,833
<b>MA Total:</b>	<b>689,139</b>	<b>3</b>	<b>53</b>	<b>508,168</b>	<b>778,382</b>	<b>136,004</b>	<b>311,550</b>	<b>1,734,104</b>	<b>1.867</b>	<b>0.649</b>	<b>2.516</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.399	0.724	.
(14) Massachusetts Credibility:	0.230	0.350	.
(15) Countrywide Pure Premium:	1.252	0.727	1.979
(16) Countrywide Indicated Relativity:	1.084	0.932	.
(17) Countrywide Credibility:	0.390	0.330	.
(18) Countrywide Lost-Time Claims:	1261.0	.	.
(19) Pure Premium Underlying Present Rate:	0.893	0.733	1.626
(20) Relativity to Underlying Present Rate:	0.941	0.816	.
(21) Credibility to Underlying Relativity:	0.380	0.320	.
(22) Industry Group Converted Pure Premium:	1.334	0.897	2.231
(23) Formula Relativity:	1.102	0.822	.
(24) Balanced Formula Relativity:	1.104	0.822	0.990

Class(es): 9533 SCAFFOLDING: SCAFFOLD INST, RPR OR REMOVAL- BUILT UP FROM GROUN		Effective: 9/1/2012							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)
2005	53,517	2	21	479,010	300,124	78,983	173,648	1,031,765	14,559	4,721	19,279
2006	58,062	3	40	571,765	175,341	116,535	171,245	1,034,886	12,867	4,956	17,824
2007	68,382	2	5	211,619	179,374	67,317	52,128	510,438	5,718	1,747	7,465
2008	63,093	1	9	288,170	282,242	129,634	122,172	822,219	9,041	3,991	13,032
2009	48,867	1	10	200,830	333,120	41,845	102,120	677,916	10,926	2,946	13,873
<b>MA Total:</b>	<b>291,921</b>	<b>9</b>	<b>85</b>	<b>1,751,395</b>	<b>1,270,201</b>	<b>434,314</b>	<b>621,313</b>	<b>4,077,224</b>	<b>10.351</b>	<b>3.616</b>	<b>13.967</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.930	1.780	.
(14) Massachusetts Credibility:	0.400	0.500	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	3.541	1.997	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	8.355	4.087	12.442
(20) Relativity to Underlying Present Rate:	3.696	2.111	.
(21) Credibility to Underlying Relativity:	0.600	0.500	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	3.390	1.945	.
(24) Balanced Formula Relativity:	3.456	1.954	2.908

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## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	232,028	0	42	0	944,922	0	313,982	1,258,904	4,072	1,353	5,426
2006	223,854	1	17	404,813	706,134	56,775	135,043	1,302,765	4,963	0,857	5,820
2007	264,659	3	16	923,118	147,501	457,389	108,846	1,636,855	4,045	2,139	6,185
2008	267,701	2	15	726,392	539,530	155,690	295,809	1,717,420	4,729	1,687	6,415
2009	160,452	0	16	0	465,367	0	594,543	1,059,910	2,900	3,705	6,606
<b>MA Total:</b>	<b>1,148,694</b>	<b>6</b>	<b>106</b>	<b>2,054,323</b>	<b>2,803,454</b>	<b>669,854</b>	<b>1,448,222</b>	<b>6,975,854</b>	<b>4,229</b>	<b>1,844</b>	<b>6,073</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.197	0.908	.
(14) Massachusetts Credibility:	0.440	0.560	.
(15) Countrywide Pure Premium:	3.590	1.924	5.514
(16) Countrywide Indicated Relativity:	1.055	0.977	.
(17) Countrywide Credibility:	0.280	0.220	.
(18) Countrywide Lost-Time Claims:	543.00	.	.
(19) Pure Premium Underlying Present Rate:	2.617	1.369	3.986
(20) Relativity to Underlying Present Rate:	1.158	0.707	.
(21) Credibility to Underlying Relativity:	0.280	0.220	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	1.146	0.879	.
(24) Balanced Formula Relativity:	1.169	0.883	1.064

Class(es):		Effective: 9/1/2012							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)
2005	770	0	0	0	0	0	0	0	0.000	0.000	0.000
2006	865	0	0	0	0	0	0	0	0.000	0.000	0.000
2007	807	0	0	0	0	0	0	0	0.000	0.000	0.000
2008	643	0	0	0	0	0	0	0	0.000	0.000	0.000
2009	0	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>3,084</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.030	0.050	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	0.744	0.654	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	1.755	1.339	3.094
(20) Relativity to Underlying Present Rate:	0.776	0.692	.
(21) Credibility to Underlying Relativity:	0.970	0.950	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	0.753	0.657	.
(24) Balanced Formula Relativity:	0.768	0.660	0.728

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## Calculation of Class Relativities

Class(es): 9549 ADVERTISING CO & DRIVERS		Effective: 9/1/2012							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)
2005	3,569	0	3	0	0	0	963	963	0.000	0.270	0.270
2006	4,431	0	7	0	48,501	0	69,437	117,938	10.946	15.671	26.617
2007	10,427	0	2	0	122,285	0	40,913	163,198	11.728	3.924	15.652
2008	11,201	0	2	0	0	0	1,310	1,310	0.000	0.117	0.117
2009	14,260	0	1	0	0	0	349	349	0.000	0.024	0.024
<b>MA Total:</b>	<b>43,888</b>	<b>0</b>	<b>15</b>	<b>0</b>	<b>170,786</b>	<b>0</b>	<b>112,971</b>	<b>283,757</b>	<b>3.891</b>	<b>2.574</b>	<b>6.465</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.102	1.267	.
(14) Massachusetts Credibility:	0.100	0.180	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	0.791	1.073	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	1.866	2.196	4.062
(20) Relativity to Underlying Present Rate:	0.826	1.134	.
(21) Credibility to Underlying Relativity:	0.900	0.820	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	0.853	1.158	.
(24) Balanced Formula Relativity:	0.870	1.163	0.977

Class(es): 9552 SIGN MFG-ERECTION, REPAIR OR MAINT & SHOP, DR		Effective: 9/1/2012							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)
2005	158,483	5	22	672,491	91,920	426,155	79,874	1,270,440	4.823	3.193	8.016
2006	147,909	4	31	1,292,635	37,952	609,475	71,247	2,011,309	8.996	4.602	13.598
2007	117,810	2	21	167,147	502,137	129,037	250,695	1,049,016	5.681	3.223	8.904
2008	118,515	0	14	0	428,156	0	199,841	627,997	3.613	1.686	5.299
2009	110,339	0	22	0	1,144,433	0	153,576	1,298,010	10.372	1.392	11.764
<b>MA Total:</b>	<b>653,056</b>	<b>11</b>	<b>110</b>	<b>2,132,273</b>	<b>2,204,598</b>	<b>1,164,667</b>	<b>755,234</b>	<b>6,256,771</b>	<b>6.641</b>	<b>2.940</b>	<b>9.581</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.880	1.447	.
(14) Massachusetts Credibility:	0.400	0.610	.
(15) Countrywide Pure Premium:	5.804	3.314	9.118
(16) Countrywide Indicated Relativity:	1.706	1.683	.
(17) Countrywide Credibility:	0.200	0.200	.
(18) Countrywide Lost-Time Claims:	20.000	.	.
(19) Pure Premium Underlying Present Rate:	3.659	2.993	6.652
(20) Relativity to Underlying Present Rate:	1.619	1.546	.
(21) Credibility to Underlying Relativity:	0.400	0.190	.
(22) Industry Group Converted Pure Premium:	3.532	2.031	5.564
(23) Formula Relativity:	1.741	1.513	.
(24) Balanced Formula Relativity:	1.775	1.520	1.682

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Section IX - Classification Pricing  
Subsection G - Class Relativities  
9/1/2012

Section IX - G  
Exhibit 193

## Calculation of Class Relativities

Class(es):		Effective: 9/1/2012							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)
2005	2,931,773	7	81	331,553	213,311	500,609	277,097	1,322,570	0.186	0.265	0.451
2006	3,111,283	10	85	735,706	233,734	903,879	165,025	2,038,344	0.312	0.344	0.655
2007	3,242,539	4	102	219,560	295,790	58,510	216,080	789,939	0.159	0.085	0.244
2008	3,496,674	2	110	207,847	696,570	69,005	461,677	1,435,100	0.259	0.152	0.410
2009	3,606,540	5	79	269,012	109,174	208,923	140,311	727,422	0.105	0.097	0.202
<b>MA Total:</b>	<b>16388808</b>	<b>28</b>	<b>457</b>	<b>1,763,679</b>	<b>1,548,580</b>	<b>1,740,926</b>	<b>1,260,190</b>	<b>6,313,375</b>	<b>0.202</b>	<b>0.183</b>	<b>0.385</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.189	0.236	.
(14) Massachusetts Credibility:	0.440	0.710	.
(15) Countrywide Pure Premium:	0.331	0.240	0.572
(16) Countrywide Indicated Relativity:	0.313	0.311	.
(17) Countrywide Credibility:	0.280	0.150	.
(18) Countrywide Lost-Time Claims:	2092.0	.	.
(19) Pure Premium Underlying Present Rate:	0.190	0.174	0.364
(20) Relativity to Underlying Present Rate:	0.278	0.245	.
(21) Credibility to Underlying Relativity:	0.280	0.140	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	0.248	0.248	.
(24) Balanced Formula Relativity:	0.247	0.248	0.248

Class(es):		Effective: 9/1/2012							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)
2005	486,120	1	3	547,944	5,892	116,939	2,751	673,526	1.139	0.246	1.386
2006	512,622	0	12	0	184,806	0	95,171	279,977	0.361	0.186	0.546
2007	538,425	2	9	165,671	67,228	21,821	74,527	329,246	0.433	0.179	0.611
2008	547,049	1	10	23,681	80,457	3,828	98,479	206,446	0.190	0.187	0.377
2009	564,571	0	14	0	148,991	0	95,205	244,196	0.264	0.169	0.433
<b>MA Total:</b>	<b>2,648,786</b>	<b>4</b>	<b>48</b>	<b>737,295</b>	<b>487,374</b>	<b>142,589</b>	<b>366,133</b>	<b>1,733,390</b>	<b>0.462</b>	<b>0.192</b>	<b>0.654</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.431	0.247	.
(14) Massachusetts Credibility:	0.270	0.410	.
(15) Countrywide Pure Premium:	0.440	0.347	0.787
(16) Countrywide Indicated Relativity:	0.415	0.449	.
(17) Countrywide Credibility:	0.370	0.300	.
(18) Countrywide Lost-Time Claims:	459.00	.	.
(19) Pure Premium Underlying Present Rate:	0.331	0.284	0.615
(20) Relativity to Underlying Present Rate:	0.485	0.399	.
(21) Credibility to Underlying Relativity:	0.360	0.290	.
(22) Industry Group Converted Pure Premium:	1.072	0.776	1.848
(23) Formula Relativity:	0.445	0.352	.
(24) Balanced Formula Relativity:	0.443	0.352	0.405

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Section IX - Classification Pricing  
 Subsection H - Industry Group Rate Change and Rate Level Factors  
 9/1/2012

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	0.921	1.011	1.002	1.011	1.045
(2) Experience and Benefit Level Change - Overall	19.3%	19.3%	19.3%	19.3%	19.3%
(3) Target Rate Change = (1) x [1.000 + (2)] - 1.000	9.9%	20.6%	19.5%	20.6%	24.6%
(4) Benefit Level Change - Overall	0.3%	0.3%	0.3%	0.3%	0.3%
(5) Experience Change - Overall = {[1.000 + (2)] / [1.000 + (4)]} - 1.000	18.9%	18.9%	18.9%	18.9%	18.9%
(6) Experience Change - by Group = {(1) x [1.000 + (5)]} - 1.000	9.6%	20.2%	19.2%	20.2%	24.2%
(7) 1/2 Experience Change - by Group = (6) / 2.000	4.8%	10.1%	9.6%	10.1%	12.1%
(8) Maximum Rate Change = (4) + (7) + 20.0%	25.1%	30.4%	29.9%	30.4%	32.4%
(9) Minimum Rate Change = (4) + (7) - 20.0%	-14.9%	-9.6%	-10.1%	-9.6%	-7.6%
(10) Present Average Rate	2.399	5.502	0.158	1.827	5.081
(11) Uncapped Rate Level Factor = [1.000 + (3)] x (10)	2.637	6.638	0.189	2.203	6.331
(12) Capped Rate Level Factor	2.748	6.810	0.197	2.221	6.656

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.
- (4): Section IV - A, Exhibit 1.
- (10): Rates by class consistent with the 09/01/10 stipulation, weighted by five years of exposure.
- (12): 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) / 1.311 (9)
Manufacturing	470,996,118	569,032,145	1.208	11,995	12,000	1.000	1.208	0.921
Construction	1,005,736,456	1,333,434,682	1.326	14,846	12,000	1.000	1.326	1.011
Office & Clerical	343,854,297	451,797,068	1.314	10,948	12,000	0.955	1.314	1.002
Goods & Services	896,836,798	1,188,484,223	1.325	29,468	12,000	1.000	1.325	1.011
Miscellaneous	347,858,672	480,289,239	1.381	8,411	12,000	0.837	1.370	1.045
All	3,065,282,341	4,023,037,357	1.312			1.000	1.311	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  
 9/1/2012

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	1.287	1.541	1.393	2.203	3.07
0008	1.277	1.668	1.441	2.203	3.18
0016	2.003	2.513	2.217	2.203	4.88
0034	2.041	3.677	2.728	2.203	6.01
0035	1.153	1.068	1.118	2.203	2.46
0036	2.041	3.677	2.728	2.203	6.01
0037	1.277	1.668	1.441	2.203	3.18
0042	2.163	2.231	2.191	2.203	4.83
0046	1.026	1.172	1.087	2.203	2.39
0050	1.272	1.177	1.237	6.638	8.21
0079	1.220	1.213	1.217	2.203	2.68
0083	2.515	4.060	3.164	2.203	6.97
0106	2.455	4.185	3.142	6.331	19.89
0113	2.041	3.677	2.728	2.203	6.01
0170	2.041	3.677	2.728	2.203	6.01
0251	0.708	0.766	0.731	6.331	4.63
0908	123.438	101.409	114.184	2.203	125.79
0909	109.182	224.660	157.694	2.203	173.72
0912	109.182	224.660	157.694	2.203	347.44
0913	123.438	101.409	114.184	2.203	251.58
0917	1.640	2.016	1.798	2.203	3.96
0918	0.411	0.241	0.339	2.203	0.75
1430	3.716	2.434	3.201	2.637	8.44
1438	1.499	1.433	1.473	2.637	3.88
1463	5.293	3.580	4.604	2.637	12.14
1624	1.125	1.100	1.115	6.331	7.06
1655	0.926	1.125	1.005	6.331	6.36
1701	2.244	1.580	1.977	2.637	5.21
1710	1.125	1.100	1.115	6.331	7.06
1747	1.233	1.130	1.192	2.637	3.14
1748	1.268	1.371	1.309	2.637	3.45
1852	3.946	1.828	3.094	2.637	8.16
1853	0.849	0.482	0.701	2.637	1.85
1860	1.073	0.952	1.024	2.637	2.70
1924	1.133	1.039	1.095	2.637	2.89
1925	1.605	1.630	1.615	2.637	4.26
2001	1.470	1.686	1.557	2.637	4.11
2002	2.627	3.508	2.982	2.637	7.86
2003	1.470	1.686	1.557	2.637	4.11
2014	1.802	1.789	1.797	2.637	4.74
2021	1.811	1.567	1.713	2.637	4.52
2039	1.119	0.978	1.062	2.637	2.80

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Section IX - Classification Pricing  
 Subsection I - Average Uncapped Rates  
 9/1/2012

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	1.229	1.082	1.170	2.637	3.09
2070	1.801	1.820	1.809	2.637	4.77
2081	1.420	1.826	1.583	2.637	4.18
2089	1.039	1.080	1.056	2.637	2.78
2095	1.716	1.511	1.634	2.637	4.31
2101	1.039	1.080	1.056	2.637	2.78
2111	1.119	1.058	1.094	2.637	2.89
2114	1.039	1.080	1.056	2.637	2.78
2115	1.432	1.445	1.437	2.637	3.79
2121	0.846	0.751	0.808	2.637	2.13
2130	1.148	1.105	1.131	2.637	2.98
2131	1.118	1.067	1.098	2.637	2.89
2143	1.291	1.077	1.205	2.637	3.18
2150	2.993	3.048	3.015	2.637	7.95
2156	5.076	4.641	4.901	2.637	12.93
2157	2.566	2.214	2.424	2.637	6.39
2172	1.178	0.747	1.005	2.637	2.65
2174	1.931	1.316	1.684	2.637	4.44
2211	2.478	3.396	2.847	2.637	7.51
2220	1.358	1.539	1.431	2.637	3.77
2260	4.225	2.972	3.721	2.637	9.81
2286	1.358	1.539	1.431	2.637	3.77
2288	1.107	0.991	1.060	2.637	2.80
2302	1.358	1.539	1.431	2.637	3.77
2305	1.306	1.135	1.237	2.637	3.26
2362	0.856	0.980	0.906	2.637	2.39
2380	0.956	1.145	1.032	2.637	2.72
2402	1.166	1.060	1.123	2.637	2.96
2413	1.382	1.524	1.439	2.637	3.79
2416	1.149	1.158	1.153	2.637	3.04
2417	1.728	1.239	1.531	2.637	4.04
2501	1.034	1.019	1.028	2.637	2.71
2503	0.583	0.577	0.581	2.637	1.53
2534	1.034	1.019	1.028	2.637	2.71
2570	1.833	1.854	1.841	2.637	4.86
2576	1.366	1.087	1.254	2.637	3.31
2578	1.366	1.087	1.254	2.637	3.31
2585	1.312	1.631	1.440	2.637	3.80
2586	0.780	0.733	0.761	2.637	2.01
2587	1.861	1.643	1.769	2.203	3.90
2623	1.703	1.564	1.647	2.637	4.34
2640	0.977	0.798	0.905	2.637	2.39

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 Subsection I - Average Uncapped Rates  
 9/1/2012

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)		
2651	0.977	0.798	0.905	2.637	2.39
2660	0.820	1.021	0.901	2.637	2.38
2683	0.981	0.992	0.985	2.637	2.60
2688	1.160	1.225	1.186	2.637	3.13
2702	3.003	2.533	2.817	6.331	17.83
2710	2.838	3.237	2.999	2.637	7.91
2731	2.010	1.943	1.983	2.637	5.23
2741	2.739	2.011	2.446	2.637	6.45
2747	3.108	2.810	2.988	2.637	7.88
2790	0.835	0.981	0.894	2.637	2.36
2802	2.060	2.080	2.068	2.637	5.45
2835	0.985	0.941	0.967	2.637	2.55
2836	1.287	1.036	1.186	2.637	3.13
2841	2.520	1.935	2.285	2.637	6.03
2883	1.548	1.704	1.611	2.637	4.25
2923	0.768	0.676	0.731	2.637	1.93
2942	1.042	1.548	1.246	2.637	3.29
3018	1.117	1.025	1.080	2.637	2.85
3022	1.702	1.764	1.727	2.637	4.56
3027	2.030	1.949	1.997	2.637	5.27
3028	1.391	1.624	1.485	2.637	3.92
3030	3.136	3.684	3.356	2.637	8.85
3040	3.892	3.222	3.622	2.637	9.55
3041	1.884	1.628	1.781	2.637	4.70
3042	4.000	2.386	3.351	2.637	8.84
3064	1.312	1.210	1.271	2.637	3.35
3066	1.312	1.210	1.271	2.637	3.35
3076	1.148	1.287	1.204	2.637	3.18
3081	3.436	3.246	3.360	2.637	8.86
3082	3.436	3.246	3.360	2.637	8.86
3085	1.814	1.663	1.754	2.637	4.62
3110	2.766	3.015	2.866	2.637	7.56
3111	1.167	1.286	1.215	2.637	3.20
3113	0.825	0.693	0.772	2.637	2.04
3114	1.428	1.297	1.375	2.637	3.63
3118	0.825	0.693	0.772	2.637	2.04
3119	0.404	0.412	0.407	2.637	1.07
3120	0.948	0.613	0.814	2.637	2.15
3122	0.784	0.931	0.843	2.637	2.22
3127	0.420	0.394	0.410	2.637	1.08
3131	0.745	0.769	0.755	2.637	1.99
3132	1.540	1.470	1.512	2.637	3.99

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Section IX - Classification Pricing  
 Subsection I - Average Uncapped Rates  
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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)		
3145	0.876	0.930	0.898	2.637	2.37
3146	0.931	0.849	0.898	2.637	2.37
3169	1.570	1.746	1.640	2.637	4.33
3179	0.754	0.660	0.716	2.637	1.89
3180	1.374	1.342	1.361	2.637	3.59
3188	1.516	1.201	1.389	2.637	3.66
3200	1.092	1.284	1.169	2.637	3.08
3220	1.056	0.894	0.991	2.637	2.61
3227	1.570	1.746	1.640	2.637	4.33
3241	1.133	1.039	1.095	2.637	2.89
3255	1.403	1.400	1.402	2.637	3.70
3257	1.333	1.356	1.342	2.637	3.54
3270	1.211	1.259	1.230	2.637	3.24
3300	2.632	2.360	2.523	2.637	6.65
3315	1.604	1.374	1.512	2.637	3.99
3336	1.756	1.596	1.691	2.637	4.46
3365	1.493	1.407	1.462	6.638	9.70
3372	1.069	1.066	1.068	2.637	2.82
3373	2.332	2.381	2.351	2.637	6.20
3381	1.423	1.498	1.453	2.637	3.83
3383	0.551	0.575	0.560	2.637	1.48
3385	0.398	0.393	0.396	2.637	1.04
3400	1.570	1.746	1.640	2.637	4.33
3507	1.738	2.414	2.010	2.637	5.30
3515	1.162	1.236	1.192	2.637	3.14
3548	0.746	0.810	0.772	2.637	2.04
3558	0.476	0.534	0.499	2.637	1.32
3559	0.746	0.810	0.772	2.637	2.04
3571	0.484	0.457	0.473	2.637	1.25
3574	0.746	0.810	0.772	2.637	2.04
3612	0.966	0.880	0.932	2.637	2.46
3620	2.366	2.379	2.371	2.637	6.25
3629	0.746	0.810	0.772	2.637	2.04
3632	0.746	0.810	0.772	2.637	2.04
3634	0.814	0.727	0.779	2.637	2.05
3635	1.467	2.040	1.697	2.637	4.48
3638	0.746	0.810	0.772	2.637	2.04
3642	0.703	0.561	0.646	2.637	1.70
3643	0.754	0.660	0.716	2.637	1.89
3647	1.089	1.067	1.080	2.637	2.85
3648	0.647	0.721	0.677	2.637	1.78
3681	0.341	0.363	0.350	2.637	0.92

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Section IX - Classification Pricing  
 Subsection I - Average Uncapped Rates  
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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)		
3685	0.341	0.363	0.350	2.637	0.92
3724	0.741	0.848	0.780	6.638	5.18
3726	2.745	2.100	2.510	6.638	16.66
3807	1.570	1.746	1.640	2.637	4.33
3808	1.702	1.895	1.780	2.637	4.69
3821	2.553	2.448	2.509	2.203	5.53
3826	2.188	2.051	2.133	2.637	5.63
3830	0.746	0.810	0.772	2.637	2.04
3841	0.767	0.860	0.804	2.637	2.12
4000	0.883	0.646	0.789	6.331	4.99
4021	2.355	2.280	2.325	2.637	6.13
4024	1.840	1.501	1.704	2.637	4.49
4034	2.340	2.397	2.363	2.637	6.23
4036	1.726	1.278	1.546	2.637	4.08
4038	1.021	0.868	0.959	2.637	2.53
4053	0.954	0.845	0.910	2.637	2.40
4061	1.001	1.307	1.124	2.637	2.96
4062	1.001	1.307	1.124	2.637	2.96
4112	0.398	0.331	0.371	2.637	0.98
4113	0.954	0.845	0.910	2.637	2.40
4114	1.287	1.079	1.203	2.637	3.17
4130	2.420	2.531	2.464	2.637	6.50
4133	0.694	0.946	0.795	2.637	2.10
4150	0.414	0.329	0.380	2.637	1.00
4239	1.211	1.169	1.194	2.637	3.15
4243	1.477	1.478	1.477	2.637	3.90
4244	1.516	2.087	1.745	2.637	4.60
4250	0.828	0.734	0.790	2.637	2.08
4251	0.893	0.780	0.848	2.637	2.24
4273	1.193	1.255	1.218	2.637	3.21
4279	1.360	1.549	1.436	2.637	3.79
4282	0.580	0.439	0.523	2.637	1.38
4283	1.315	1.223	1.278	2.637	3.37
4299	0.981	0.845	0.926	2.637	2.44
4301	5.693	3.472	4.800	2.637	12.66
4304	1.634	1.662	1.645	2.637	4.34
4307	0.664	0.596	0.637	2.637	1.68
4308	1.645	0.390	1.140	2.637	3.01
4350	0.306	0.243	0.281	2.637	0.74
4351	0.543	0.394	0.483	2.637	1.27
4352	0.492	0.578	0.527	2.637	1.39
4360	0.590	0.571	0.583	2.637	1.54

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Section IX - Classification Pricing  
 Subsection I - Average Uncapped Rates  
 9/1/2012

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)		
4361	3.761	4.287	3.993	0.189	0.75
4362	0.372	0.416	0.391	2.203	0.86
4410	2.061	1.845	1.974	2.637	5.21
4417	2.350	2.132	2.262	2.637	5.97
4432	0.602	0.626	0.612	2.637	1.61
4439	1.363	1.972	1.608	2.637	4.24
4452	1.510	1.506	1.508	2.637	3.98
4459	1.393	1.619	1.484	2.637	3.91
4470	1.204	1.173	1.191	2.637	3.14
4484	1.017	1.138	1.066	2.637	2.81
4493	1.368	1.435	1.395	2.637	3.68
4511	0.185	0.174	0.181	2.203	0.40
4512	0.083	0.075	0.080	2.203	0.18
4557	0.744	0.754	0.748	2.637	1.97
4558	0.770	0.701	0.742	2.637	1.96
4561	1.363	1.972	1.608	2.637	4.24
4583	1.505	1.293	1.420	2.637	3.74
4611	0.630	0.526	0.589	2.637	1.55
4635	1.384	1.550	1.451	2.637	3.83
4653	0.717	0.590	0.666	2.637	1.76
4665	3.686	4.093	3.850	2.637	10.15
4692	0.310	0.234	0.280	2.637	0.74
4693	0.470	0.478	0.474	2.637	1.25
4720	0.862	0.840	0.853	2.637	2.25
4740	0.428	0.391	0.413	2.637	1.09
4741	1.444	1.035	1.280	2.637	3.38
4770	8.253	1.262	5.442	2.637	14.35
4773	16.785	2.369	10.989	2.637	28.98
4774	13.770	2.201	9.119	2.637	24.05
4775	41.827	40.359	41.237	2.637	108.75
4776	12.391	1.210	7.896	2.637	20.82
4777	1.505	1.293	1.420	2.637	3.74
4779	8.992	2.431	6.355	2.637	16.76
4799	30.392	4.653	20.043	2.637	52.86
4825	0.298	0.278	0.290	2.637	0.76
4828	0.605	0.513	0.568	2.637	1.50
4829	0.605	0.513	0.568	2.637	1.50
4902	1.042	1.548	1.246	2.637	3.29
4923	0.590	0.571	0.583	2.637	1.54
5020	1.417	1.355	1.395	6.638	9.26
5022	2.079	1.609	1.907	6.638	12.66
5037	6.916	6.592	6.797	6.638	45.12

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Section IX - Classification Pricing  
 Subsection I - Average Uncapped Rates  
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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)		
5040	13.082	9.567	11.799	6.638	78.31
5057	4.295	5.220	4.633	6.638	30.75
5059	4.295	5.220	4.633	6.638	30.75
5069	4.295	5.220	4.633	6.638	30.75
5102	1.577	1.103	1.404	6.638	9.32
5146	0.967	1.003	0.980	6.638	6.50
5160	0.610	0.542	0.585	6.638	3.88
5183	0.600	0.580	0.593	6.638	3.94
5188	0.907	0.762	0.854	6.638	5.67
5190	0.473	0.514	0.488	6.638	3.24
5191	0.547	0.538	0.543	2.203	1.20
5192	2.010	1.525	1.806	2.203	3.98
5213	2.586	2.226	2.454	6.638	16.29
5215	0.933	0.909	0.924	6.638	6.13
5221	1.297	1.329	1.309	6.638	8.69
5222	1.956	1.825	1.908	6.638	12.67
5223	0.933	0.909	0.924	6.638	6.13
5348	1.128	0.939	1.059	6.638	7.03
5402	1.307	1.601	1.415	6.638	9.39
5403	1.830	1.765	1.806	6.638	11.99
5437	0.914	0.785	0.867	6.638	5.76
5443	0.725	0.750	0.734	6.638	4.87
5445	1.395	1.121	1.295	6.638	8.59
5462	1.540	1.560	1.548	6.638	10.27
5472	2.299	2.171	2.252	6.638	14.95
5473	1.826	1.598	1.743	6.638	11.57
5474	0.962	1.075	1.003	6.638	6.66
5478	1.049	0.737	0.935	6.638	6.21
5479	1.223	1.261	1.237	6.638	8.21
5480	1.182	0.938	1.093	6.638	7.26
5506	1.192	1.104	1.160	6.638	7.70
5507	1.207	1.091	1.165	6.638	7.73
5508	1.272	1.177	1.237	6.638	8.21
5509	0.643	0.819	0.707	6.638	4.70
5538	0.922	0.975	0.941	6.638	6.25
5545	5.650	7.754	6.418	6.638	42.60
5547	3.063	3.894	3.367	6.638	22.35
5606	0.299	0.302	0.300	6.638	1.99
5610	1.185	0.901	1.081	6.638	7.18
5645	1.466	1.753	1.571	6.638	10.43
5651	1.466	1.753	1.571	6.638	10.43
5701	2.663	3.489	2.965	6.638	19.68

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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)		
5703	4.018	2.691	3.533	6.638	23.45
5705	1.884	2.130	1.974	6.638	13.10
6003	1.767	1.179	1.553	6.638	10.31
6005	1.272	1.177	1.237	6.638	8.21
6204	1.934	1.673	1.838	6.638	12.20
6217	0.853	0.814	0.839	6.638	5.57
6229	0.853	0.814	0.839	6.638	5.57
6233	0.893	0.657	0.807	6.638	5.36
6251	1.772	0.852	1.436	6.638	9.53
6252	1.428	1.329	1.392	6.638	9.24
6306	1.796	1.759	1.783	6.638	11.83
6319	0.984	0.884	0.948	6.638	6.29
6325	1.116	1.392	1.216	6.638	8.07
6400	1.118	1.054	1.094	6.638	7.26
6504	1.039	1.080	1.056	2.637	2.78
6834	0.538	0.461	0.508	6.331	3.21
6836	0.608	0.605	0.607	6.331	3.84
7219	1.924	1.687	1.830	6.331	11.59
7230	1.447	1.287	1.383	6.331	8.76
7231	1.582	1.328	1.481	6.331	9.38
7360	1.124	0.888	1.030	6.331	6.52
7370	0.768	1.007	0.863	6.331	5.46
7380	1.128	1.061	1.102	6.331	6.97
7382	0.664	0.730	0.690	6.331	4.37
7403	0.674	0.939	0.779	6.331	4.93
7405	0.328	0.302	0.318	6.331	2.01
7420	1.735	0.628	1.295	6.331	8.20
7421	0.422	0.230	0.346	6.331	2.19
7422	0.422	0.230	0.346	6.331	2.19
7425	0.843	0.429	0.679	6.331	4.30
7431	0.422	0.230	0.346	6.331	2.19
7502	0.613	0.787	0.683	6.331	4.32
7515	0.321	0.452	0.373	6.331	2.36
7520	0.708	0.766	0.731	6.331	4.63
7538	1.026	0.989	1.012	6.638	6.72
7539	0.310	0.268	0.294	6.331	1.86
7580	0.427	0.424	0.426	6.331	2.70
7590	1.078	0.898	1.006	6.331	6.37
7600	0.864	0.737	0.813	6.331	5.15
7601	1.026	0.989	1.012	6.638	6.72
7610	1.889	1.595	1.760	0.189	0.33
7704	0.553	0.647	0.590	6.331	3.74

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 Subsection I - Average Uncapped Rates  
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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)		
7720	0.350	0.426	0.380	6.331	2.41
7855	1.082	0.730	0.953	6.638	6.33
8001	1.035	1.119	1.071	2.203	2.36
8002	1.097	1.433	1.238	2.203	2.73
8006	0.919	1.132	1.008	2.203	2.22
8008	0.423	0.448	0.433	2.203	0.95
8010	0.846	0.866	0.854	2.203	1.88
8013	0.270	0.257	0.265	2.203	0.58
8017	0.608	0.723	0.656	2.203	1.45
8018	1.755	1.695	1.730	2.203	3.81
8021	1.381	1.533	1.445	2.203	3.18
8031	1.366	1.387	1.375	2.203	3.03
8032	0.882	0.963	0.916	2.203	2.02
8033	1.039	1.108	1.068	2.203	2.35
8034	2.125	1.632	1.918	2.203	4.23
8039	0.662	0.783	0.713	2.203	1.57
8044	1.702	1.900	1.785	2.203	3.93
8046	1.426	1.827	1.595	2.203	3.51
8048	1.556	1.417	1.498	2.203	3.30
8050	0.842	0.919	0.875	2.203	1.93
8058	1.415	1.542	1.468	2.203	3.23
8103	1.962	1.445	1.745	2.203	3.84
8105	2.201	1.945	2.093	2.203	4.61
8106	3.731	5.292	4.387	2.203	9.66
8107	1.937	1.874	1.911	2.203	4.21
8111	1.526	1.654	1.580	2.203	3.48
8116	1.937	1.874	1.911	2.203	4.21
8203	2.775	2.634	2.716	2.203	5.98
8204	3.214	2.499	2.914	2.203	6.42
8215	1.689	1.394	1.565	2.203	3.45
8227	0.799	0.980	0.865	6.638	5.74
8232	2.818	2.416	2.649	2.203	5.84
8233	3.519	3.615	3.559	2.203	7.84
8235	2.264	2.015	2.159	2.203	4.76
8263	3.764	3.556	3.677	2.203	8.10
8264	3.158	2.879	3.041	2.203	6.70
8265	3.519	3.615	3.559	2.203	7.84
8279	2.511	3.041	2.734	2.203	6.02
8291	2.156	2.103	2.134	2.203	4.70
8292	1.875	1.853	1.865	2.203	4.11
8293	5.246	5.198	5.226	2.203	11.51
8350	3.934	2.965	3.527	2.203	7.77

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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)		
8380	1.516	1.399	1.467	2.203	3.23
8381	1.022	1.065	1.040	2.203	2.29
8385	2.007	1.550	1.815	2.203	4.00
8392	0.774	0.742	0.761	2.203	1.68
8393	1.211	0.880	1.072	2.203	2.36
8500	3.519	3.615	3.559	2.203	7.84
8601	1.662	1.676	1.668	0.189	0.32
8710	1.895	2.178	2.014	2.203	4.44
8719	1.895	2.178	2.014	2.203	4.44
8720	0.605	0.455	0.542	2.203	1.19
8721	1.267	1.437	1.342	0.189	0.25
8742	1.035	0.978	1.010	0.189	0.19
8745	2.177	2.031	2.115	2.203	4.66
8747	0.526	0.601	0.557	2.203	1.23
8748	3.529	2.985	3.290	0.189	0.62
8800	6.719	6.781	6.746	0.189	1.28
8803	0.239	0.217	0.229	0.189	0.04
8810	0.487	0.508	0.496	0.189	0.09
8820	0.552	0.515	0.536	0.189	0.10
8829	1.138	1.036	1.095	2.203	2.41
8831	0.478	0.854	0.636	2.203	1.40
8832	1.623	1.472	1.557	0.189	0.29
8833	8.742	6.643	7.818	0.189	1.48
8835	1.154	0.943	1.066	2.203	2.35
8868	4.322	5.096	4.663	0.189	0.88
8901	0.487	0.508	0.496	0.189	0.09
9014	1.396	1.204	1.315	2.203	2.90
9015	1.768	1.648	1.718	2.203	3.78
9016	0.874	1.057	0.951	2.203	2.10
9019	0.377	0.236	0.321	6.331	2.03
9033	2.646	1.864	2.317	2.203	5.11
9040	1.574	1.489	1.538	2.203	3.39
9052	0.807	0.923	0.856	2.203	1.89
9058	0.807	0.923	0.856	2.203	1.89
9060	0.511	0.679	0.581	2.203	1.28
9061	0.533	0.547	0.539	2.203	1.19
9063	0.340	0.468	0.394	2.203	0.87
9079	0.602	0.724	0.653	2.203	1.44
9089	0.650	0.682	0.664	2.203	1.46
9093	0.459	0.610	0.523	2.203	1.15
9101	1.859	2.223	2.012	2.203	4.43
9102	0.451	0.496	0.469	6.331	2.97

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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)		
9154	0.232	0.274	0.249	6.331	1.57
9156	6.538	8.076	7.215	0.189	1.36
9178	0.711	2.708	1.505	6.331	9.53
9179	5.831	4.101	5.144	6.331	32.57
9180	0.636	1.207	0.863	6.331	5.46
9182	0.517	1.106	0.751	6.331	4.75
9186	0.636	1.207	0.863	6.331	5.46
9220	1.958	1.844	1.910	2.203	4.21
9402	0.911	0.958	0.930	6.331	5.89
9403	1.924	1.857	1.897	6.331	12.01
9410	1.020	1.892	1.386	2.203	3.05
9501	1.104	1.220	1.151	2.637	3.03
9505	1.104	1.220	1.151	2.637	3.03
9519	1.624	1.679	1.647	2.203	3.63
9521	1.782	1.363	1.614	2.637	4.26
9522	1.104	0.822	0.990	2.637	2.61
9533	3.456	1.954	2.908	6.638	19.30
9534	1.169	0.883	1.064	6.638	7.06
9545	0.768	0.660	0.728	6.638	4.83
9549	0.870	1.163	0.977	6.638	6.48
9552	1.775	1.520	1.682	6.638	11.16
9553	1.775	1.520	1.682	6.638	11.16
9586	0.247	0.248	0.248	2.203	0.55
9620	0.443	0.352	0.405	2.203	0.89

## Notes:

(2), (3), (4), (5): Section IX - G.

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

(7) = (5) x (6)

## IX 000277

Section IX - Classification Pricing  
 Subsection J - Average Rates and Proposed Premium Change  
 9/1/2012

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	2.95	3.07	3.09
0008	2.45	3.18	3.20
0016	3.67	4.88	4.78
0034	3.81	6.01	4.96
0035	2.08	2.46	2.48
0036	3.81	6.01	4.96
0037	2.45	3.18	3.20
0042	4.22	4.83	4.87
0046	2.97	2.39	2.69
0050	5.95	8.21	7.76
0079	2.97	2.68	2.70
0083	5.43	6.97	7.03
0106	15.31	19.89	20.27
0113	3.81	6.01	4.96
0170	3.81	6.01	4.96
0251	3.29	4.63	4.36
0908	98.54	125.79	126.80
0909	140.84	173.72	175.12
0912	281.69	347.44	350.23
0913	197.07	251.58	253.60
0917	2.66	3.96	3.47
0918	0.66	0.75	0.75
1430	12.61	8.44	10.73
1438	3.24	3.88	4.05
1463	7.87	12.14	9.85
1624	5.57	7.06	7.38
1655	6.37	6.36	6.69
1701	5.21	5.21	5.43
1710	5.57	7.06	7.38
1747	4.36	3.14	3.71
1748	3.54	3.45	3.60
1852	8.12	8.16	8.50
1853	1.91	1.85	1.93
1860	2.84	2.70	2.82
1924	2.82	2.89	3.01
1925	4.70	4.26	4.44
2001	3.48	4.11	4.28
2002	4.01	7.86	5.02
2003	3.48	4.11	4.28
2014	4.10	4.74	4.94
2021	3.52	4.52	4.41
2039	3.02	2.80	2.92
2041	2.74	3.09	3.22
2070	4.55	4.77	4.97
2081	4.21	4.18	4.35
2089	2.70	2.78	2.90
2095	4.57	4.31	4.49
2101	2.70	2.78	2.90

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Comparison of Average Rates  
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Class (1)	Present Average Capped Rate (2)	Proposed Average Uncapped Rate (3)	Proposed Average Capped Rate (4)
2111	2.84	2.89	3.01
2114	2.70	2.78	2.90
2115	3.51	3.79	3.95
2121	2.32	2.13	2.22
2130	2.89	2.98	3.11
2131	2.54	2.89	3.02
2143	3.32	3.18	3.31
2150	5.58	7.95	6.98
2156	8.48	12.93	10.61
2157	6.15	6.39	6.66
2172	1.72	2.65	2.15
2174	4.88	4.44	4.63
2211	6.42	7.51	7.82
2220	3.83	3.77	3.93
2260	6.29	9.81	7.87
2286	3.83	3.77	3.93
2288	2.30	2.80	2.87
2302	3.83	3.77	3.93
2305	2.07	3.26	2.60
2362	2.55	2.39	2.49
2380	3.11	2.72	2.84
2402	3.29	2.96	3.09
2413	3.82	3.79	3.95
2416	3.49	3.04	3.17
2417	3.28	4.04	4.10
2501	2.55	2.71	2.83
2503	1.08	1.53	1.35
2534	2.55	2.71	2.83
2570	5.16	4.86	5.06
2576	3.47	3.31	3.45
2578	3.47	3.31	3.45
2585	3.02	3.80	3.77
2586	1.64	2.01	2.05
2587	2.59	3.90	3.38
2623	3.67	4.34	4.53
2640	2.64	2.39	2.49
2651	2.64	2.39	2.49
2660	2.23	2.38	2.48
2683	2.31	2.60	2.71
2688	2.84	3.13	3.26
2702	16.20	17.83	18.75
2710	6.90	7.91	8.24
2731	5.04	5.23	5.45
2741	6.50	6.45	6.72
2747	8.32	7.88	8.21
2790	2.42	2.36	2.46
2802	4.84	5.45	5.68
2835	2.40	2.55	2.66

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Comparison of Average Rates  
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Class (1)	Present Average Capped Rate (2)	Proposed Average Uncapped Rate (3)	Proposed Average Capped Rate (4)
2836	3.45	3.13	3.26
2841	3.99	6.03	4.99
2883	3.93	4.25	4.43
2923	2.13	1.93	2.01
2942	2.42	3.29	3.03
3018	3.04	2.85	2.97
3022	4.21	4.56	4.75
3027	5.12	5.27	5.49
3028	4.65	3.92	4.08
3030	8.92	8.85	9.22
3040	8.13	9.55	9.96
3041	4.92	4.70	4.90
3042	4.82	8.84	6.04
3064	3.22	3.35	3.49
3066	3.22	3.35	3.49
3076	2.86	3.18	3.31
3081	8.85	8.86	9.23
3082	8.85	8.86	9.23
3085	5.29	4.62	4.82
3110	9.01	7.56	7.88
3111	2.76	3.20	3.34
3113	2.36	2.04	2.12
3114	3.89	3.63	3.78
3118	2.36	2.04	2.12
3119	1.11	1.07	1.12
3120	2.09	2.15	2.24
3122	2.81	2.22	2.39
3127	0.96	1.08	1.13
3131	2.30	1.99	2.07
3132	2.82	3.99	3.53
3145	2.09	2.37	2.47
3146	2.26	2.37	2.47
3169	4.65	4.33	4.51
3179	1.82	1.89	1.97
3180	3.11	3.59	3.74
3188	3.68	3.66	3.82
3200	3.42	3.08	3.21
3220	2.09	2.61	2.62
3227	4.65	4.33	4.51
3241	2.82	2.89	3.01
3255	3.73	3.70	3.85
3257	3.29	3.54	3.69
3270	2.09	3.24	2.62
3300	7.64	6.65	6.93
3315	2.93	3.99	3.66
3336	3.47	4.46	4.35
3365	9.58	9.70	9.96
3372	2.63	2.82	2.93

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Comparison of Average Rates  
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Class (1)	Present Average Capped Rate (2)	Proposed Average Uncapped Rate (3)	Proposed Average Capped Rate (4)
3373	3.95	6.20	4.94
3381	3.64	3.83	3.99
3383	1.50	1.48	1.54
3385	0.92	1.04	1.09
3400	4.65	4.33	4.51
3507	3.62	5.30	4.53
3515	3.13	3.14	3.27
3548	2.09	2.04	2.12
3558	0.65	1.32	0.81
3559	2.09	2.04	2.12
3571	1.34	1.25	1.30
3574	2.09	2.04	2.12
3612	2.11	2.46	2.56
3620	5.31	6.25	6.52
3629	2.09	2.04	2.12
3632	2.09	2.04	2.12
3634	2.05	2.05	2.14
3635	4.20	4.48	4.67
3638	2.09	2.04	2.12
3642	1.16	1.70	1.45
3643	1.82	1.89	1.97
3647	3.03	2.85	2.97
3648	1.89	1.78	1.86
3681	0.88	0.92	0.96
3685	0.88	0.92	0.96
3724	5.42	5.18	5.31
3726	15.27	16.66	17.09
3807	4.65	4.33	4.51
3808	4.16	4.69	4.89
3821	4.22	5.53	5.50
3826	2.55	5.63	3.19
3830	2.09	2.04	2.12
3841	1.97	2.12	2.21
4000	5.04	4.99	5.25
4021	4.20	6.13	5.25
4024	3.42	4.49	4.27
4034	6.11	6.23	6.49
4036	2.96	4.08	3.70
4038	2.59	2.53	2.64
4053	2.22	2.40	2.50
4061	3.26	2.96	3.09
4062	3.26	2.96	3.09
4112	0.70	0.98	0.87
4113	2.22	2.40	2.50
4114	2.89	3.17	3.31
4130	5.49	6.50	6.77
4133	2.17	2.10	2.18
4150	1.10	1.00	1.04

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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	3.71	3.15	3.28
4243	3.27	3.90	4.06
4244	4.17	4.60	4.80
4250	2.05	2.08	2.17
4251	2.05	2.24	2.33
4273	3.37	3.21	3.35
4279	3.98	3.79	3.95
4282	0.76	1.38	0.95
4283	3.23	3.37	3.51
4299	2.35	2.44	2.55
4301	4.36	12.66	5.46
4304	4.28	4.34	4.52
4307	1.53	1.68	1.75
4308	1.00	3.01	1.25
4350	0.69	0.74	0.77
4351	1.03	1.27	1.29
4352	1.22	1.39	1.45
4360	1.27	1.54	1.59
4361	0.50	0.75	0.65
4362	0.68	0.86	0.87
4410	4.97	5.21	5.43
4417	5.78	5.97	6.22
4432	1.39	1.61	1.68
4439	2.58	4.24	3.22
4452	3.24	3.98	4.05
4459	3.34	3.91	4.08
4470	3.14	3.14	3.27
4484	2.68	2.81	2.93
4493	3.63	3.68	3.83
4511	0.37	0.40	0.40
4512	0.15	0.18	0.18
4557	1.62	1.97	2.03
4558	1.93	1.96	2.04
4561	2.58	4.24	3.22
4583	3.59	3.74	3.90
4611	1.74	1.55	1.62
4635	3.59	3.83	3.99
4653	3.43	1.76	2.92
4665	9.35	10.15	10.58
4692	0.62	0.74	0.77
4693	1.08	1.25	1.30
4720	2.08	2.25	2.34
4740	1.37	1.09	1.17
4741	3.65	3.38	3.52
4770	12.19	14.35	14.96
4773	24.56	28.98	30.20
4774	20.46	24.05	25.06
4775	18.32	108.75	22.92

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Comparison of Average Rates  
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Class (1)	Present Average Capped Rate (2)	Proposed Average Uncapped Rate (3)	Proposed Average Capped Rate (4)
4776	17.47	20.82	21.70
4777	3.59	3.74	3.90
4779	15.84	16.76	17.46
4799	44.91	52.86	55.09
4825	0.65	0.76	0.80
4828	1.40	1.50	1.56
4829	1.40	1.50	1.56
4902	2.42	3.29	3.03
4923	1.27	1.54	1.59
5020	6.19	9.26	8.07
5022	10.45	12.66	12.99
5037	23.28	45.12	30.37
5040	53.55	78.31	68.55
5057	32.68	30.75	31.55
5059	32.68	30.75	31.55
5069	32.68	30.75	31.55
5102	6.82	9.32	8.90
5146	5.29	6.50	6.67
5160	4.17	3.88	3.99
5183	3.46	3.94	4.04
5188	4.09	5.67	5.34
5190	2.81	3.24	3.33
5191	1.02	1.20	1.21
5192	4.22	3.98	4.01
5213	18.67	16.29	16.88
5215	5.28	6.13	6.29
5221	6.18	8.69	8.06
5222	8.62	12.67	11.24
5223	5.28	6.13	6.29
5348	5.75	7.03	7.21
5402	11.38	9.39	10.29
5403	9.52	11.99	12.30
5437	5.18	5.76	5.91
5443	5.22	4.87	5.00
5445	7.17	8.59	8.82
5462	9.48	10.27	10.54
5472	8.67	14.95	11.30
5473	12.48	11.57	11.87
5474	5.04	6.66	6.57
5478	4.63	6.21	6.04
5479	7.70	8.21	8.42
5480	4.64	7.26	6.05
5506	6.98	7.70	7.90
5507	6.98	7.73	7.93
5508	5.95	8.21	7.76
5509	3.40	4.70	4.43
5538	5.66	6.25	6.41
5545	30.68	42.60	40.02

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Class (1)	Present Average Capped Rate (2)	Proposed Average Uncapped Rate (3)	Proposed Average Capped Rate (4)
5547	16.91	22.35	22.05
5606	1.60	1.99	2.04
5610	5.37	7.18	7.01
5645	8.60	10.43	10.70
5651	8.60	10.43	10.70
5701	23.52	19.68	21.27
5703	26.46	23.45	24.06
5705	11.05	13.10	13.44
6003	12.79	10.31	11.57
6005	5.95	8.21	7.76
6204	9.57	12.20	12.48
6217	4.30	5.57	5.61
6229	4.30	5.57	5.61
6233	3.78	5.36	4.94
6251	5.93	9.53	7.73
6252	7.75	9.24	9.48
6306	7.54	11.83	9.83
6319	4.82	6.29	6.28
6325	4.34	8.07	5.66
6400	6.98	7.26	7.45
6504	2.70	2.78	2.90
6834	3.11	3.21	3.38
6836	2.54	3.84	3.37
7219	8.66	11.59	11.46
7230	6.53	8.76	8.64
7231	6.62	9.38	8.77
7360	5.73	6.52	6.86
7370	4.81	5.46	5.74
7380	5.97	6.97	7.33
7382	4.28	4.37	4.59
7403	4.94	4.93	5.19
7405	1.29	2.01	1.71
7420	6.13	8.20	8.12
7421	2.11	2.19	2.30
7422	2.11	2.19	2.30
7425	3.50	4.30	4.52
7431	2.11	2.19	2.30
7502	4.01	4.32	4.54
7515	2.38	2.36	2.48
7520	3.29	4.63	4.36
7538	5.34	6.72	6.89
7539	1.23	1.86	1.63
7580	2.58	2.70	2.83
7590	6.62	6.37	6.70
7600	3.37	5.15	4.47
7601	5.34	6.72	6.89
7610	0.19	0.33	0.25
7704	1.89	3.74	2.50

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Class (1)	Present Average Capped Rate (2)	Proposed Average Uncapped Rate (3)	Proposed Average Capped Rate (4)
7720	1.80	2.41	2.39
7855	6.10	6.33	6.49
8001	1.53	2.36	1.99
8002	2.37	2.73	2.75
8006	1.59	2.22	2.08
8008	0.66	0.95	0.86
8010	1.60	1.88	1.90
8013	0.47	0.58	0.59
8017	1.20	1.45	1.46
8018	3.28	3.81	3.84
8021	2.86	3.18	3.21
8031	2.75	3.03	3.05
8032	1.58	2.02	2.03
8033	1.98	2.35	2.37
8034	4.05	4.23	4.26
8039	1.69	1.57	1.58
8044	3.35	3.93	3.96
8046	2.48	3.51	3.23
8048	3.42	3.30	3.33
8050	1.76	1.93	1.94
8058	2.84	3.23	3.26
8103	3.13	3.84	3.88
8105	4.77	4.61	4.65
8106	7.72	9.66	9.74
8107	4.16	4.21	4.24
8111	3.49	3.48	3.51
8116	4.16	4.21	4.24
8203	6.02	5.98	6.03
8204	5.67	6.42	6.47
8215	3.23	3.45	3.48
8227	3.89	5.74	5.08
8232	4.63	5.84	5.88
8233	9.18	7.84	8.30
8235	3.97	4.76	4.80
8263	6.21	8.10	8.10
8264	4.88	6.70	6.37
8265	9.18	7.84	8.30
8279	4.56	6.02	5.95
8291	4.34	4.70	4.74
8292	4.03	4.11	4.14
8293	8.66	11.51	11.29
8350	6.02	7.77	7.83
8380	2.56	3.23	3.26
8381	1.76	2.29	2.29
8385	3.46	4.00	4.03
8392	1.29	1.68	1.68
8393	1.97	2.36	2.38
8500	9.18	7.84	8.30

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Class (1)	Present Average Capped Rate (2)	Proposed Average Uncapped Rate (3)	Proposed Average Capped Rate (4)
8601	0.27	0.32	0.33
8710	2.28	4.44	2.97
8719	2.28	4.44	2.97
8720	1.06	1.19	1.20
8721	0.17	0.25	0.23
8742	0.16	0.19	0.20
8745	3.43	4.66	4.48
8747	1.20	1.23	1.24
8748	0.47	0.62	0.61
8800	0.79	1.28	1.02
8803	0.04	0.04	0.05
8810	0.09	0.09	0.10
8820	0.09	0.10	0.11
8829	2.15	2.41	2.43
8831	1.21	1.40	1.41
8832	0.23	0.29	0.30
8833	1.12	1.48	1.46
8835	2.13	2.35	2.37
8868	0.64	0.88	0.83
8901	0.09	0.09	0.10
9014	2.46	2.90	2.92
9015	2.85	3.78	3.71
9016	1.65	2.10	2.11
9019	3.79	2.03	3.50
9033	4.88	5.11	5.15
9040	3.08	3.39	3.42
9052	1.56	1.89	1.90
9058	1.56	1.89	1.90
9060	1.18	1.28	1.29
9061	1.01	1.19	1.20
9063	0.70	0.87	0.87
9079	1.12	1.44	1.45
9089	1.29	1.46	1.47
9093	1.16	1.15	1.16
9101	3.32	4.43	4.32
9102	2.35	2.97	3.11
9154	1.26	1.57	1.65
9156	1.14	1.36	1.42
9178	18.51	9.53	17.11
9179	25.03	32.57	33.14
9180	4.16	5.46	5.52
9182	3.53	4.75	4.68
9186	4.16	5.46	5.52
9220	3.65	4.21	4.24
9402	5.14	5.89	6.19
9403	8.12	12.01	10.76
9410	2.03	3.05	2.65
9501	3.29	3.03	3.16

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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)
9505	3.29	3.03	3.16
9519	2.64	3.63	3.44
9521	4.74	4.26	4.44
9522	2.06	2.61	2.57
9533	20.72	19.30	19.80
9534	5.55	7.06	7.24
9545	4.06	4.83	4.96
9549	5.07	6.48	6.62
9552	8.73	11.16	11.38
9553	8.73	11.16	11.38
9586	0.48	0.55	0.55
9620	0.80	0.89	0.90

Notes:

(2) = (4) from Section IX - J of the 09/01/2010 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  
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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	611,828,881	672,562,559	9.9%	9.9%	2.748
Construction	1,318,663,918	1,590,732,772	20.6%	20.6%	6.810
Office & Clerical	451,617,010	539,874,269	19.5%	19.5%	0.197
Goods & Services	1,175,353,997	1,417,177,171	20.6%	20.6%	2.221
Miscellaneous	455,545,395	567,672,968	24.6%	24.6%	6.656
All Groups	4,013,009,201	4,788,019,739	19.3%		

Notes:

(2), (3): Exposure x Average 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  
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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:

Proposed Manual Rate = [Proposed Average Rate / (Factor 1 x Factor 2 x Factor 3)] x [1.000 / (1.000 - Factor 4)]

(1)	Factor 1 =	0.997	The offset for Merit Rating and Average Experience Modification
(2)	Factor 2 =	1.069	The offset for ARAP
(3)	Factor 3 =	0.975	For eligible classes, the offset for the Construction Classification Premium Adjustment Program
(4)	Factor 4 =	0.0007	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): Section I - E, Exhibit 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)
2005	66	Non Rated	50,191	30%	12,705,071	1%	12,704,070	1.000	
		Merit Rated	80,094	47%	144,863,259	14%	141,931,486	0.980	
		Intrastate Rated	24,288	14%	574,514,290	56%	567,760,978	0.988	
		Interstate Rated	14,774	9%	296,986,402	29%	280,178,007	0.943	
		Total	169,347	100%	1,029,069,022	100%	1,002,574,541	0.974	
2006	54	Non Rated	52,430	30%	12,829,091	1%	12,829,347	1.000	
		Merit Rated	81,006	47%	146,602,694	14%	143,843,642	0.981	
		Intrastate Rated	23,792	14%	546,985,092	53%	561,937,628	1.027	
		Interstate Rated	16,303	9%	327,762,180	32%	313,231,263	0.956	
		Total	173,531	100%	1,034,179,057	100%	1,031,841,880	0.998	
2007	42	Non Rated	55,105	31%	13,995,565	1%	13,992,290	1.000	
		Merit Rated	81,887	47%	147,324,846	15%	144,591,078	0.981	
		Intrastate Rated	22,590	13%	517,599,503	52%	528,858,258	1.022	
		Interstate Rated	15,653	9%	320,804,727	32%	302,928,128	0.944	
		Total	175,235	100%	999,724,641	100%	990,369,754	0.991	
2008	30	Non Rated	66,735	37%	16,387,726	2%	16,384,903	1.000	
		Merit Rated	79,301	44%	141,982,919	17%	139,411,471	0.982	
		Intrastate Rated	18,685	10%	404,647,148	49%	413,023,074	1.021	
		Interstate Rated	14,265	8%	271,104,417	33%	257,011,890	0.948	
		Total	178,986	100%	834,122,210	100%	825,831,338	0.990	
2009	18	Non Rated	71,470	40%	17,976,648	2%	17,974,175	1.000	
		Merit Rated	75,404	42%	137,289,830	17%	134,622,628	0.981	
		Intrastate Rated	17,690	10%	378,088,990	47%	381,594,151	1.009	
		Interstate Rated	15,106	8%	270,279,815	34%	257,413,461	0.952	
		Total	179,670	100%	803,635,283	100%	791,604,415	0.985	
Total		Non Rated	295,931	34%	73,894,101	2%	73,884,785	1.000	1.000
		Merit Rated	397,692	45%	718,063,548	15%	704,400,305	0.981	0.981
		Intrastate Rated	107,045	12%	2,421,835,023	52%	2,453,174,089	1.013	1.000
		Interstate Rated	76,101	9%	1,486,937,541	32%	1,410,762,749	0.949	1.000
		Total	876,769	100%	4,700,730,213	100%	4,642,221,928	0.988	0.997

Notes:

Data from Unit Statistical Plan data at most recent report, 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, Intrastate Rated, and Interstate Rated risks. Total of (10) calculated as weighted average of (10) using (6).

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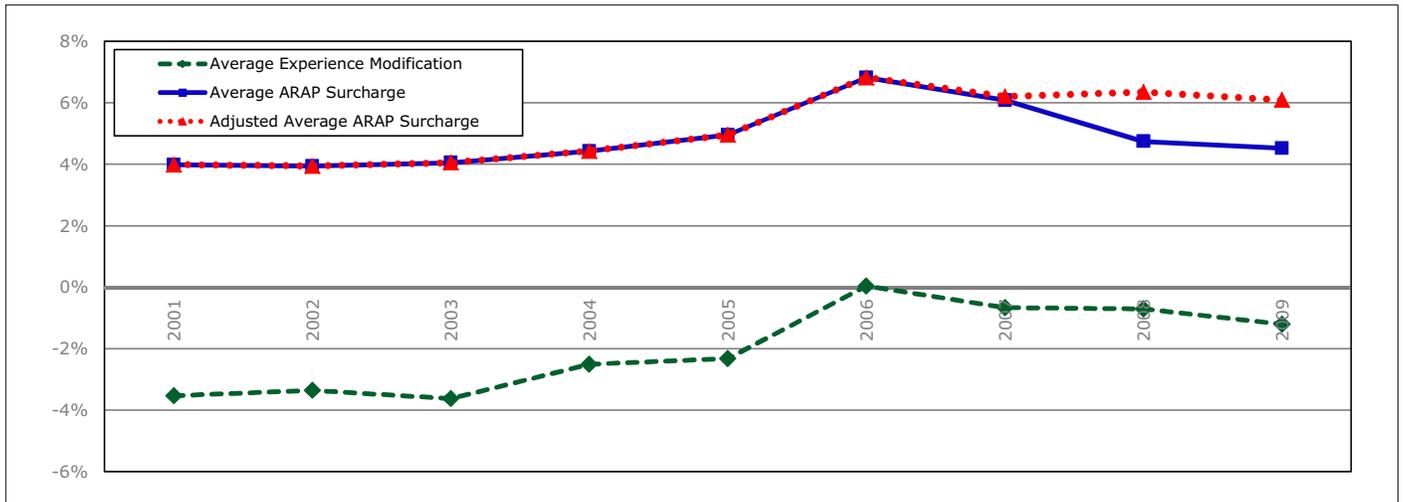
## Offset for ARAP Estimate of Average ARAP Surcharge for Prospective Effective Period

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)
2001	985,653,743	950,780,077	37,898,827	37,898,827	4.0%	-3.5%	4.0%
2002	1,026,772,558	992,235,794	39,142,674	39,142,674	3.9%	-3.4%	3.9%
2003	1,032,504,010	994,997,150	40,303,079	40,303,079	4.1%	-3.6%	4.1%
2004	992,506,367	967,636,781	42,875,233	42,875,233	4.4%	-2.5%	4.4%
2005	1,026,425,154	1,002,574,541	49,701,885	49,701,885	5.0%	-2.3%	5.0%
2006	1,031,500,645	1,031,841,880	70,412,687	70,412,687	6.8%	0.0%	6.8%
2007	997,058,451	990,369,754	60,285,836	61,393,663	6.1%	-0.7%	6.2%
2008	831,753,768	825,831,338	39,184,963	51,668,642	4.7%	-0.7%	6.4%
2009	801,242,316	791,604,415	35,773,008	47,543,937	4.5%	-1.2%	6.1%

Regression of Average ARAP Surcharge on Average Experience Modification

(9) R-Squared	0.976
(10) Slope	0.826
(11) Intercept	0.069
(12) Projected Average ARAP Surcharge = (11)	0.069



Notes:

- (2)-(4): Unit Statistical Plan data at most recent report, excluding Large Deductibles and SIGs. ARAP adjusted from company level to DSR level.
- (5): 2001-2006 = (4), 2007-2009 adjusted to maximum ARAP surcharge factor of 1.49.

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Section IX - Classification Pricing  
Subsection K - Adjustments to Derive Final Manual Rates  
9/1/2012

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)
2008	268,628,330	15,569,247	2.6%
2009	242,728,207	13,601,354	2.5%
(5) Selected Average Credit for Eligible Class Codes in Prospective Effective Period			2.5%

**Note:**

(2),(3): Unit Statistical Plan data at most recent report, 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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## Pricing Example for Class 5 Farm: Nursery Emp & Drivers

Calculation of MA Indicated Relativity:

(A). Limited Losses (Unit Statistical Plan data, excluding Large Deductibles)											
	Policy Year	Fatal		Permanent Total	Major Permanent Partial		Minor Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	LD	NLD	
Indemnity	2005	0	0	0	0	0	0	0	373	103,816	0
	2006	0	0	0	0	0	0	21,200	1,381	26,452	0
	2007	0	0	0	0	142,531	29,800	0	0	70,898	0
	2008	0	0	0	0	0	0	0	6,426	8,624	0
	2009	0	0	0	0	0	0	23,652	0	9,677	0
Medical	2005	0	0	0	0	0	0	0	2,603	70,370	27,785
	2006	0	0	0	0	0	0	47,000	3,022	16,070	23,883
	2007	0	0	0	0	34,174	48,600	0	0	103,761	28,549
	2008	0	0	0	0	0	0	0	0	9,269	13,287
	2009	0	0	0	0	0	0	20,100	0	22,724	12,061

(B). Primary Conversion Factors (Section IX - B, Exhibit 1, Page 1)											
	Policy Year	Fatal		Permanent Total	Major Permanent Partial		Minor Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	LD	NLD	
Indemnity	2005	1.041	1.046	1.053	1.085	1.091	1.085	1.091	1.035	1.040	0.000
	2006	1.120	1.113	1.130	1.156	1.150	1.156	1.150	1.115	1.108	0.000
	2007	1.251	1.192	1.259	1.281	1.220	1.281	1.220	1.247	1.188	0.000
	2008	1.377	1.265	1.383	1.398	1.284	1.398	1.284	1.374	1.262	0.000
	2009	1.982	1.603	1.989	2.007	1.622	2.007	1.622	1.978	1.599	0.000
Medical	2005	1.210	1.174	1.210	1.210	1.174	1.210	1.174	1.210	1.174	0.827
	2006	1.239	1.187	1.239	1.239	1.187	1.239	1.187	1.239	1.187	0.862
	2007	1.327	1.185	1.327	1.327	1.185	1.327	1.185	1.327	1.185	0.866
	2008	1.438	1.221	1.438	1.438	1.221	1.438	1.221	1.438	1.221	0.917
	2009	1.437	1.135	1.437	1.437	1.135	1.437	1.135	1.437	1.135	0.996

(C). Converted Limited Losses [ (A) x (B) ]											
	Policy Year	Fatal		Permanent Total	Major Permanent Partial		Minor Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	LD	NLD	
Indemnity	2005	0	0	0	0	0	0	0	386	107,994	0
	2006	0	0	0	0	0	0	24,375	1,540	29,320	0
	2007	0	0	0	0	173,900	38,169	0	0	84,196	0
	2008	0	0	0	0	0	0	0	8,827	10,882	0
	2009	0	0	0	0	0	0	38,372	0	15,476	0
Medical	2005	0	0	0	0	0	0	0	3,150	82,597	22,972
	2006	0	0	0	0	0	0	55,783	3,744	19,073	20,578
	2007	0	0	0	0	40,481	64,480	0	0	122,912	24,716
	2008	0	0	0	0	0	0	0	0	11,321	12,178
	2009	0	0	0	0	0	0	22,814	0	25,792	12,010

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Section IX - Classification Pricing  
 Subsection L - Pricing Example  
 9/1/2012

Section IX - L  
 Exhibit 1  
 Page 2

## Pricing Example for Class 5 Farm: Nursery Emp & Drivers

Calculation of MA Indicated Relativity:

(D). Unadjusted Excess Losses [ (Excess Factor -1.0) x (C) ]											
	Policy Year	Fatal		Permanent Total	Major Permanent Partial		Minor Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	LD	NLD	
		Indemnity	2005	0	0	0	0	0	0	0	
2006	0		0	0	0	0	0	3,546	224	4,265	0
2007	0		0	0	0	25,298	5,553	0	0	12,248	0
2008	0		0	0	0	0	0	0	1,284	1,583	0
2009	0		0	0	0	0	0	5,582	0	2,251	0
Medical	2005	0	0	0	0	0	0	0	458	12,016	3,342
	2006	0	0	0	0	0	0	8,115	545	2,775	2,994
	2007	0	0	0	0	5,889	9,380	0	0	17,881	3,595
	2008	0	0	0	0	0	0	0	0	1,647	1,772
	2009	0	0	0	0	0	0	3,319	0	3,752	1,747

(E). Adjusted Excess Losses											
	Policy Year	Fatal		Permanent Total	Major Permanent Partial		Minor Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	LD	NLD	
		Indemnity	2005	0	0	0	0	0	0	0	
2006	0		0	0	0	0	0	2,482	157	2,986	0
2007	0		0	0	0	17,709	3,887	0	0	8,574	0
2008	0		0	0	0	0	0	0	899	1,108	0
2009	0		0	0	0	0	0	3,908	0	1,576	0
Medical	2005	0	0	0	0	0	0	0	475	16,729	3,342
	2006	0	0	0	0	0	0	9,179	612	4,054	2,994
	2007	0	0	0	0	13,479	11,046	0	0	21,555	3,595
	2008	0	0	0	0	0	0	0	385	2,122	1,772
	2009	0	0	0	0	0	0	4,994	0	4,428	1,747

(F). Secondary Conversion Factors						
	Fatal	Permanent	Major Permanent Partial	Minor Permanent Partial	Temporary Total	Medical
Indemnity	1.068	1.035	1.204	1.218	1.210	0.000
Medical	1.192	1.037	1.207	1.221	1.213	1.192

(G). Converted Unlimited Losses											
	Policy Year	Fatal		Permanent Total	Major Permanent Partial		Minor Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	LD	NLD	
		Indemnity	2005	0	0	0	0	0	0	0	
2006	0		0	0	0	0	0	32,722	2,054	39,104	0
2007	0		0	0	0	230,760	51,241	0	0	112,292	0
2008	0		0	0	0	0	0	0	11,773	14,513	0
2009	0		0	0	0	0	0	51,514	0	20,640	0
Medical	2005	0	0	0	0	0	0	0	4,397	120,488	31,366
	2006	0	0	0	0	0	0	79,320	5,284	28,055	28,098
	2007	0	0	0	0	65,126	92,219	0	0	175,247	33,747
	2008	0	0	0	0	0	0	0	467	16,307	16,628
	2009	0	0	0	0	0	0	33,953	0	36,658	16,399

(H). Total					
Policy Year	Exposure	Indemnity		Medical	
		LD	NLD	LD	NLD
2005	140,390	515	144,032	4,397	151,854
2006	137,462	2,054	71,826	5,284	135,472
2007	137,782	51,241	343,052	92,219	274,119
2008	137,121	11,773	14,513	467	32,935
2009	124,736	0	72,154	0	87,010
<b>Total</b>	<b>677,491</b>	<b>65,583</b>	<b>645,578</b>	<b>102,367</b>	<b>681,391</b>

	Indemnity	Medical
(I). Indicated Pure Premium	1.050	1.157
(J). Goods & Services Industry Group Pure Premium	1.072	0.776
(K). MA Indicated Relativity	0.979	1.491

- 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 2.
  - (G) = [ (C) + (E) ] x (F)
  - (I) = Total Losses / Total Exposure
  - (J): Industry Group Pure Premium from Section IX - C, Exhibit 4, Page 2.
  - (K) = (I) / (J)

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## Pricing Example for Class 5 Farm: Nursery Emp & Drivers

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	69,808	75,248	283,066	270,439	2	12	33,070,799
Arizona	2	474,279	194,144	501,691	1,440,193	4	43	175,962,145
Arkansas	3	4,213	163,142	6,231	374,783	1	16	51,496,832
Colorado	5	161,927	670,134	217,814	827,371	7	47	71,257,134
Connecticut	6	733,923	520,279	1,969,283	1,052,740	12	47	72,556,561
D.C.	8	0	0	0	0	0	0	0
Florida	9	1,601,118	2,442,342	4,853,699	6,013,829	48	239	386,781,459
Georgia	10	991,709	1,288,345	1,511,884	1,856,717	12	80	161,293,126
Idaho	11	160,230	415,635	590,001	819,406	5	24	50,007,226
Illinois	12	850,331	1,405,943	1,047,028	2,263,673	16	77	153,872,107
Indiana	13	48,069	175,415	20,552	900,343	2	24	53,743,246
Iowa	14	215,298	120,613	290,093	344,556	6	35	23,655,661
Kansas	15	33,427	154,387	57,000	252,436	1	13	17,645,278
Kentucky	16	243,826	7,648	394,084	27,497	2	2	15,552,428
Louisiana	17	91,054	104,981	130,594	479,958	4	22	60,881,883
Maine	18	7,917	99,795	16,455	466,339	1	7	14,718,890
Maryland	19	31,483	290,776	57,198	438,144	3	33	97,827,732
Minnesota	22	626,102	499,279	1,112,065	787,731	15	61	71,505,903
Mississippi	23	0	99,416	0	169,169	0	10	42,467,560
Missouri	24	256,378	267,329	398,535	680,453	4	34	51,001,364
Montana	25	273,023	18,988	566,154	151,707	5	6	11,772,138
Nebraska	26	0	91,716	0	335,243	0	12	17,005,595
Nevada	27	331,509	25,027	256,284	104,496	2	5	12,066,402
New Hampshire	28	72,567	106,143	56,148	290,509	1	12	15,902,457
New Mexico	30	20,330	66,825	111,274	203,640	2	7	16,487,726
North Carolina	32	2,065,340	1,889,531	2,829,160	2,159,632	21	92	263,909,993
Oklahoma	35	681,471	588,596	523,930	648,038	13	45	86,887,601
Oregon	36	1,867,639	2,981,843	3,784,656	6,557,258	68	530	704,848,394
Rhode Island	38	11,964	483,462	13,409	279,240	2	20	15,047,725
South Carolina	39	568,476	622,689	757,725	766,387	9	31	104,290,313
South Dakota	40	0	2,908	0	38,833	0	3	4,093,830
Tennessee	41	60,006	173,555	308,553	433,872	3	26	78,664,363
Utah	43	0	122,287	0	441,868	0	15	36,500,851
Vermont	44	0	81,459	0	97,350	0	8	7,079,001
Virginia	45	301,354	141,920	466,597	441,677	6	18	106,070,403
Hawaii	52	35,745	345,352	34,791	303,408	2	31	24,166,602
Alaska	54	0	196	0	9,689	0	1	1,904,684
<b>Total</b>		<b>12,890,516</b>	<b>16,737,348</b>	<b>23,165,954</b>	<b>32,728,624</b>	<b>279</b>	<b>1,688</b>	<b>3,111,995,412</b>

Note:  
 Data are total for latest three policy years. See Section IX - D, Exhibit 3 for years used.

# IX 000295

## Pricing Example for Class 5 Farm: Nursery Emp & Drivers

Calculation of Countrywide Relativity

State (1)	State Code (2)	Goods & Services Pitch Factors		Pure Premiums, on MA Level		Total (7)
		Indemnity (3)	Medical (4)	Indemnity (5)	Medical (6)	
Alabama	1	2.136	0.472	0.937	0.790	
Arizona	2	2.505	0.607	0.952	0.670	
Arkansas	3	3.202	0.831	1.041	0.615	
Colorado	5	1.339	0.700	1.564	1.027	
Connecticut	6	0.826	0.463	1.429	1.930	
D.C.	8	1.488	1.542	0.000	0.000	
Florida	9	1.964	0.544	2.053	1.528	
Georgia	10	1.394	0.721	1.971	1.505	
Idaho	11	1.586	0.493	1.827	1.390	
Illinois	12	0.843	0.503	1.236	1.083	
Indiana	13	3.801	0.715	1.581	1.225	
Iowa	14	1.280	0.548	1.817	1.471	
Kansas	15	1.612	0.707	1.716	1.239	
Kentucky	16	1.904	0.587	3.078	1.592	
Louisiana	17	1.481	0.635	0.477	0.637	
Maine	18	1.088	0.556	0.796	1.824	
Maryland	19	1.529	0.809	0.504	0.410	
Minnesota	22	1.791	0.709	2.818	1.883	
Mississippi	23	1.735	0.618	0.406	0.246	
Missouri	24	1.816	0.669	1.864	1.416	
Montana	25	0.884	0.250	2.193	1.527	
Nebraska	26	1.906	0.522	1.028	1.029	
Nevada	27	1.495	0.723	4.417	2.162	
New Hampshire	28	1.353	0.287	1.520	0.626	
New Mexico	30	1.715	0.593	0.907	1.133	
North Carolina	32	1.182	0.702	1.772	1.327	
Oklahoma	35	0.590	0.461	0.862	0.621	
Oregon	36	1.445	0.644	0.994	0.945	
Rhode Island	38	0.758	0.848	2.495	1.650	
South Carolina	39	1.069	0.782	1.221	1.143	
South Dakota	40	2.616	0.570	0.186	0.540	
Tennessee	41	1.637	0.560	0.486	0.529	
Utah	43	3.058	0.709	1.024	0.858	
Vermont	44	0.797	0.530	0.917	0.729	
Virginia	45	2.540	0.753	1.062	0.644	
Hawaii	52	1.275	0.991	2.010	1.387	
Alaska	54	1.687	0.320	0.017	0.163	
(8)	Average of (5), (6) weighted by Payroll from Page 1, respectively			1.368	1.098	2.466
(9)	CW Goods & Services Pure Premium			1.053	0.767	1.820
(10)	CW Relativity = (8) / (9)			1.300	1.431	1.355
(11)	CW Relativity, balanced to unity			1.291	1.421	

Notes:

- (3), (4) = (MA Total Unlimited Losses) / [(State Pure Premium) x (MA Total Exposure)] for Industry Code 9. 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 Goods & Services Exposure
- (11): Relativities balanced to unity (weighted by MA exposure) over Goods & Services Industry Group.

# IX 000296

Section IX - Classification Pricing  
 Subsection L - Pricing Example  
 9/1/2012

Section IX - L  
 Exhibit 3

## Pricing Example for Class 5 Farm: Nursery Emp & Drivers

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
0.979	1.491
1.291	1.421
1.490	1.746

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)]<sup>0.4</sup>}

Injury Type	
Indemnity	Medical
1.445	1.699
0.704	0.731
1.017	1.242
689,295	841,531
23,800,000	6,800,000
24.0%	43.0%

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)]<sup>0.4</sup>, 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
1,967	1,967
1,150	1,000
38%	29%
38%	28%
1.292	1.542
1.004	1.001

- (16) Balanced Formula Relativity

Injury Type		
Indemnity	Medical	Total
1.287	1.541	1.393

Notes:

- (1): Exhibit 1, Page 2.
- (2): Exhibit 2, Page 2.
- (3): Relativity of (5) to Industry Group average, using 5 year Schedule Z exposure as weights.
- (4): Section IX - F, Exhibit 4.
- (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 000297

Section IX - Classification Pricing  
Subsection L - Pricing Example  
9/1/2012

Section IX - L  
Exhibit 4

## Pricing Example for Class 5 Farm: Nursery Emp & Drivers

Calculation of Proposed Average Rate and Proposed Manual Rate:

(1) Total Balanced Formula Relativity	1.393
(2) Capped Rate Level Factor	2.221
(3) Proposed Average Capped Rate = (1) x (2)	3.09
(4) Offset for Merit Rating	0.997
(5) Offset for ARAP	1.069
(6) Offset for Construction Classification Premium Adjustment Program	1.000
(7) Provision for Insolvency Fund Assessment Recoupment	0.0007
(8) Proposed Manual Rate = $\{(3) / [(4) \times (5) \times (6)]\} \times \{1.000 / [1.000 - (7)]\}$	2.91
(9) Minimum Premium	281
(10) Loss Constant	20.00
(11) Expected Loss Rate	1.15
(12) D-Ratio	0.19

### 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 5 is in the Goods & Services Industry Group.

(4), (5), (6), (7): Section IX - K. Class 5 is not eligible for the Construction Credit program.

(9) =  $\{[(8) \times 35.0] + (10) + \text{Expense Constant}\}$  subject to a maximum of \$500

Where Expense Constant = 159 if  $(8) \times 35 + (10) < 200$

= 250 if  $(8) \times 35 + (10) \geq 200$  and  $< 1000$ .

= 338 if  $(8) \times 35 + (10) \geq 1000$ .

(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 5 is in Hazard Group C.

(12): Section X. See text of this section 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 their 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.

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 essentially the same as the methodology 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. We calculate separate indemnity and medical partial D-Ratios, instead of serious, non-serious and medical D-Ratios, in line with the change made in Class Ratemaking's pure premium relativities (Section IX-I).

We calculate final D-Ratios by class as a weighted average of the partial D-Ratios using the formula:

$$\text{"D" Ratio} = \frac{[(P_i)(D_i) + (P_m)(D_m)]}{[P_i + P_m]}$$

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-Classess 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 State Reference Point is an index of state benefits that is used to calculate the G value, a scale factor for the Weighting and Ballast tables, and to calculate the State Accident Limitation. The State Reference Point is based on the average cost per case for all types of claims, using the most recent three years of Unit Statistical Plan data and trended to the experience period for ratings in the prospective effective period. The Weighting and Ballast tables using the proposed G value of 10 are shown in Section X-D.

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 5th Report (7)	Loss Development from 5th Report to Ult (8)	Investment Income Offset (9)	Ratio of Exp Rating ELR to Average Rate (10)
1st Report 9/1/2010 to 8/31/2011	A	0.580	0.061	1.008	1.005	1.525	1.069	1.010	0.326
	B	0.580	0.064	1.008	1.005	1.529	1.079	1.004	0.323
	C	0.580	0.084	1.008	1.005	1.537	1.083	1.008	0.312
	D	0.580	0.053	1.008	1.005	1.533	1.073	1.010	0.326
	E	0.580	0.094	1.008	1.005	1.542	1.081	1.006	0.309
	F	0.580	0.138	1.008	1.005	1.542	1.083	1.005	0.294
	G	0.580	0.174	1.008	1.005	1.544	1.084	1.000	0.282
2nd Report 9/1/2009 to 8/31/2010	A	0.580	0.063	1.011	1.008	1.217	1.069	1.010	0.406
	B	0.580	0.066	1.011	1.008	1.219	1.079	1.004	0.403
	C	0.580	0.087	1.011	1.008	1.222	1.083	1.008	0.389
	D	0.580	0.054	1.011	1.008	1.221	1.073	1.010	0.407
	E	0.580	0.098	1.011	1.008	1.224	1.081	1.006	0.386
	F	0.580	0.143	1.011	1.008	1.224	1.083	1.005	0.366
	G	0.580	0.180	1.011	1.008	1.225	1.084	1.000	0.352
3rd Report 9/1/2008 to 8/31/2009	A	0.580	0.092	1.012	1.010	1.108	1.069	1.010	0.430
	B	0.580	0.096	1.012	1.010	1.108	1.079	1.004	0.427
	C	0.580	0.127	1.012	1.010	1.110	1.083	1.008	0.408
	D	0.580	0.079	1.012	1.010	1.109	1.073	1.010	0.434
	E	0.580	0.142	1.012	1.010	1.111	1.081	1.006	0.402
	F	0.580	0.208	1.012	1.010	1.111	1.083	1.005	0.371
	G	0.580	0.262	1.012	1.010	1.111	1.084	1.000	0.347
1st - 3rd Report Average	A								0.387
	B								0.384
	C								0.370
	D								0.389
	E								0.366
	F								0.343
	G								0.327

Notes:

- (1): Unit Stat Reports used to experience rate a policy taking effect during the prospective effective period.
- (3): Section VI-A, 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 000005

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	56,123,776	4,173,404	0.074	62,904,836	0.074	0.65	0.65
B	211,339,246	16,411,408	0.078	247,582,347	0.078	0.67	0.67
C	400,413,921	40,905,334	0.102	492,523,571	0.102	0.89	0.89
D	164,519,121	10,542,812	0.064	217,670,479	0.064	0.56	0.56
E	241,102,166	27,655,328	0.115	319,929,544	0.115	1.00	1.00
F	331,108,288	55,633,046	0.168	424,372,082	0.168	1.46	1.46
G	52,277,054	11,058,036	0.212	72,415,805	0.212	1.84	1.84
Total	1,456,883,571	166,379,368	0.114	1,837,398,663	0.115	1.00	1.00

Loss Elimination Ratio by Hazard Group

Hazard Group	First Report	Second Report	Third Report	Average
(9)	(10)	(11)	(12)	(13)
A	0.061	0.063	0.092	0.072
B	0.064	0.066	0.096	0.075
C	0.084	0.087	0.127	0.099
D	0.053	0.054	0.079	0.062
E	0.094	0.098	0.142	0.111
F	0.138	0.143	0.208	0.163
G	0.174	0.180	0.262	0.205
Total	0.095	0.098	0.143	

Notes:

- (2): Unit Statistical Plan losses, PYs 2007 - 2009. Adjusted by factors from Section X - B, Exhibit 1, Page 2.
- (3): Adjusted losses above per claim limit of \$250,000
- (5): PYs 2007 - 2009, 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)

Loss Elimination Ratio  
 Factor to Reflect the State Accident Limitation of \$250,000

Report	Injury Type	Adjusted Total Losses	Adjusted Excess Losses	Loss Elimination Ratio = (4) / (3)
(1)	(2)	(3)	(4)	(5)
1st	1	10,970,123	6,653,082	0.606
1st	2	11,016,888	9,411,972	0.854
1st	3	117,585,390	13,987,623	0.119
1st	4	36,301,425	0	0.000
1st	5	197,891,618	7,727,684	0.039
1st	6	26,021,486	0	0.000
1st	Total	399,786,930	37,780,360	0.095
2nd	1	11,438,297	7,432,367	0.650
2nd	2	8,243,788	4,168,547	0.506
2nd	3	244,902,069	29,085,407	0.119
2nd	4	57,299,714	0	0.000
2nd	5	143,863,714	7,773,633	0.054
2nd	6	29,468,208	0	0.000
2nd	Total	495,215,791	48,459,955	0.098
3rd	1	14,411,868	9,855,198	0.684
3rd	2	22,066,049	12,250,897	0.555
3rd	3	295,008,197	54,669,796	0.185
3rd	4	49,437,452	0	0.000
3rd	5	148,662,575	3,363,162	0.023
3rd	6	32,294,710	0	0.000
3rd	Total	561,880,850	80,139,053	0.143

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 \$250,000.

X 000007

# X 000008

Section X - Experience Rating  
 Subsection A - Expected Loss Rates  
 9/1/2012

Section X - A  
 Exhibit 4  
 Page 1

## Hazard Group Development Factors to Fifth Report

Development to Fifth Report (1)	Hazard Group (2)	Losses at Latest Report (3)	Selected Relativity (4)	Balanced Relativity = (4) / TT(4) (5)	Selected Dev. Factor to 5th Report (6)
1st to 5th	A	16,836,122	0.977	0.978	1.525
1st to 5th	B	58,744,464	0.985	0.985	1.529
1st to 5th	C	106,754,095	1.000	1.001	1.537
1st to 5th	D	41,625,941	0.993	0.993	1.533
1st to 5th	E	54,994,389	1.009	1.010	1.542
1st to 5th	F	76,787,672	1.010	1.010	1.542
1st to 5th	G	11,906,586	1.013	1.013	1.544
1st to 5th	Total	367,649,269	0.999	1.000	1.537
2nd to 5th	A	16,268,491	0.977	0.977	1.217
2nd to 5th	B	63,071,824	0.985	0.984	1.219
2nd to 5th	C	126,741,040	1.000	1.000	1.222
2nd to 5th	D	54,310,896	0.993	0.993	1.221
2nd to 5th	E	77,301,187	1.009	1.009	1.224
2nd to 5th	F	99,616,839	1.010	1.009	1.224
2nd to 5th	G	14,120,665	1.013	1.012	1.225
2nd to 5th	Total	451,430,942	1.000	1.000	1.222
3rd to 5th	A	17,989,426	0.977	0.977	1.108
3rd to 5th	B	70,556,028	0.985	0.984	1.108
3rd to 5th	C	131,185,611	1.000	0.999	1.110
3rd to 5th	D	53,998,283	0.993	0.992	1.109
3rd to 5th	E	87,458,216	1.009	1.008	1.111
3rd to 5th	F	125,361,534	1.010	1.009	1.111
3rd to 5th	G	21,623,679	1.013	1.012	1.111
3rd to 5th	Total	508,172,777	1.001	1.000	1.110

**Notes:**

(3): See Exhibit 4 Pages 4-6.

(4): See Page 3 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) = 1.00 + (5) x (Total LDF from page 2 - 1.00)

# X 000009

Section X - Experience Rating  
 Subsection A - Expected Loss Rates  
 9/1/2012

Section X - A  
 Exhibit 4  
 Page 2

## Loss Development Factors For Use in Calculation of Reciprocals

Report (1)	Benefit Type (2)	Injury Type (3)	Distribution of Reported Loss @ 5th Report (4)	Loss Development Factor to 5th Report (5)	Adjusted Distribution = (4) / (5) (6)	LDF to 5th Report to Derive ELR = TT(4) / TT(6) (7)
1st	Indemnity	Likely to Develop	31.5%	2.039	15.5%	
1st	Indemnity	Not Likely to Develop	32.2%	1.621	19.8%	
1st	Medical	Likely to Develop	15.8%	1.384	11.4%	
1st	Medical	Not Likely to Develop	20.5%	1.118	18.3%	
1st	Total		100.0%		65.1%	1.537

2nd	Indemnity	Likely to Develop	31.5%	1.349	23.4%	
2nd	Indemnity	Not Likely to Develop	32.2%	1.229	26.2%	
2nd	Medical	Likely to Develop	15.8%	1.227	12.9%	
2nd	Medical	Not Likely to Develop	20.5%	1.056	19.4%	
2nd	Total		100.0%		81.8%	1.222

3rd	Indemnity	Likely to Develop	31.5%	1.166	27.1%	
3rd	Indemnity	Not Likely to Develop	32.2%	1.100	29.2%	
3rd	Medical	Likely to Develop	15.8%	1.141	13.8%	
3rd	Medical	Not Likely to Develop	20.5%	1.028	19.9%	
3rd	Total		100.0%		90.1%	1.110

**Notes:**

(4): Section IV-E, Exhibit 1, Page 2.

(5): Section X-A, Exhibit 5, Page 5.

Hazard Group Reported Loss Development Relativities to Fifth Report

Relativities for State Classification Rates

Hazard Group (1)	Development			Average Relativity (5)	Selected (6)
	3rd Report to 5th Report (2)	2nd Report to 5th Report (3)	1st Report to 5th Report (4)		
A	0.987	0.979	0.966	0.977	0.977
B	0.993	0.984	0.977	0.985	0.985
C	0.999	0.998	1.003	1.000	1.000
D	0.995	0.999	0.985	0.993	0.993
E	1.003	1.007	1.017	1.009	1.009
F	1.005	1.009	1.014	1.010	1.010
G	1.012	1.010	1.016	1.013	1.013

Relativities for F-Class Rates

Hazard Group (7)	Development			Average Relativity (11)	Selected (12)
	3rd Report to 5th Report (8)	2nd Report to 5th Report (9)	1st Report to 5th Report (10)		
C	0.996	0.994	0.993	0.994	0.994
E	1.000	1.003	0.975	0.993	0.993
F	1.002	1.005	1.007	1.005	1.005
G	1.009	1.005	1.004	1.006	1.006

Notes:

(2) - (4): Pages 4 through 6. = [(16) for Hazard Group] / [(16) for Hazard Groups A-G Total]

(8) - (10): Pages 4 through 6. = [(16) for Hazard Group] / [(16) for Hazard Groups C,E,F,G Total]

X 000010

Loss Development of Schedule Z to Fifth Report by Hazard Group

Review Year 2011  
 First Report to Fifth 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	Develop. Factor to 5th Report	Losses Developed to 5th Report = (2) x (3)	Reported Losses	Develop. Factor to 5th Report	Losses Developed to 5th Report = (5) x (6)	Reported Losses	Develop. Factor to 5th Report	Losses Developed to 5th Report = (8) x (9)	Reported Losses	Develop. Factor to 5th Report	Losses Developed to 5th Report = (11) x (12)	Total Reported Losses =(2)+(5)+(8)+(11)	Total Developed Losses =(4)+(7)+(10)+(13)	Develop. Factor = (15) / (14)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
A	2,336,519	2.039	4,764,212	5,513,947	1.621	8,938,901	2,452,781	1.384	3,394,148	6,532,875	1.118	7,302,065	16,836,122	24,399,327	1.449
B	9,448,411	2.039	19,265,512	16,495,522	1.621	26,741,614	12,896,808	1.384	17,846,551	19,903,723	1.118	22,247,216	58,744,464	86,100,894	1.466
C	21,317,800	2.039	43,467,450	34,975,000	1.621	56,699,507	15,705,050	1.384	21,732,585	34,756,245	1.118	38,848,495	106,754,095	160,748,038	1.506
D	6,402,543	2.039	13,054,922	15,860,473	1.621	25,712,108	4,230,222	1.384	5,853,764	15,132,703	1.118	16,914,449	41,625,941	61,535,244	1.478
E	10,978,936	2.039	22,386,285	21,428,753	1.621	34,739,091	6,042,624	1.384	8,361,759	16,544,076	1.118	18,491,999	54,994,389	83,979,135	1.527
F	14,575,776	2.039	29,720,319	29,274,191	1.621	47,457,675	10,781,355	1.384	14,919,196	22,156,350	1.118	24,765,071	76,787,672	116,862,261	1.522
G	2,121,141	2.039	4,325,052	4,902,554	1.621	7,947,745	1,610,586	1.384	2,228,722	3,272,305	1.118	3,657,591	11,906,586	18,159,111	1.525
A, B, C, D, E, F, G	67,181,126		136,983,754	128,450,440		208,236,643	53,719,426		74,336,725	118,298,277		132,226,887	367,649,269	551,784,009	1.501
C, E, F, G	48,993,653		99,899,107	90,580,498		146,844,019	34,139,615		47,242,262	76,728,976		85,763,156	250,442,742	379,748,544	1.516

Notes:  
 (2), (5), (8), (11): Unit Statistical Plan Data.  
 (3), (6), (9), (12): Section X-A, Exhibit 5, Page 5

110000 X

Loss Development of Schedule Z to Fifth Report by Hazard Group

Review Year 2011  
 Second Report to Fifth 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	Develop. Factor to 5th Report	Losses Developed to 5th Report = (2) x (3)	Reported Losses	Develop. Factor to 5th Report	Losses Developed to 5th Report = (5) x (6)	Reported Losses	Develop. Factor to 5th Report	Losses Developed to 5th Report = (8) x (9)	Reported Losses	Develop. Factor to 5th Report	Losses Developed to 5th Report = (11) x (12)	Total Reported Losses	Total Developed Losses	Develop. Factor = (15) / (14)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	=(2)+(5)+(8)+(11) (14)	=(4)+(7)+(10)+(13) (15)	= (15) / (14) (16)
A	2,840,040	1.349	3,832,325	5,882,116	1.229	7,229,836	1,470,787	1.227	1,804,481	6,075,548	1.056	6,417,340	16,268,491	19,283,981	1.185
B	12,110,615	1.349	16,341,959	22,242,082	1.229	27,338,223	6,537,148	1.227	8,020,303	22,181,979	1.056	23,429,869	63,071,824	75,130,354	1.191
C	30,308,090	1.349	40,897,475	43,101,049	1.229	52,976,429	16,968,075	1.227	20,817,808	36,363,826	1.056	38,409,544	126,741,040	153,101,256	1.208
D	12,373,394	1.349	16,696,551	21,192,675	1.229	26,048,374	5,751,017	1.227	7,055,813	14,993,810	1.056	15,837,316	54,310,896	65,638,054	1.209
E	21,016,631	1.349	28,359,660	27,597,274	1.229	33,920,405	9,640,848	1.227	11,828,173	19,046,434	1.056	20,117,928	77,301,187	94,226,166	1.219
F	26,789,253	1.349	36,149,186	38,921,426	1.229	47,839,165	11,144,049	1.227	13,672,422	22,762,111	1.056	24,042,638	99,616,839	121,703,410	1.222
G	2,979,540	1.349	4,020,566	7,041,314	1.229	8,654,631	1,470,300	1.227	1,803,883	2,629,511	1.056	2,777,439	14,120,665	17,256,519	1.222
A, B, C, D, E, F, G	108,417,563		146,297,722	165,977,936		204,007,063	52,982,224		65,002,883	124,053,219		131,032,074	451,430,942	546,339,741	1.210
C, E, F, G	81,093,514		109,426,886	116,661,063		143,390,630	39,223,272		48,122,286	80,801,882		85,347,549	317,779,731	386,287,352	1.216

Notes:  
 (2), (5), (8), (11): Unit Statistical Plan Data.  
 (3), (6), (9), (12): Section X-A, Exhibit 5, Page 5

X 000012

Loss Development of Schedule Z to Fifth Report by Hazard Group

Review Year 2011  
 Third Report to Fifth 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	Develop. Factor to 5th Report	Losses Developed to 5th Report = (2) x (3)	Reported Losses	Develop. Factor to 5th Report	Losses Developed to 5th Report = (5) x (6)	Reported Losses	Develop. Factor to 5th Report	Losses Developed to 5th Report = (8) x (9)	Reported Losses	Develop. Factor to 5th Report	Losses Developed to 5th Report = (11) x (12)	Total Reported Losses	Total Developed Losses	Develop. Factor = (15) / (14)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	=(2)+(5)+(8)+(11) (14)	=(4)+(7)+(10)+(13) (15)	= (15) / (14) (16)
A	3,810,750	1.166	4,441,983	6,035,255	1.100	6,639,377	1,577,916	1.141	1,800,489	6,565,505	1.028	6,750,244	17,989,426	19,632,093	1.091
B	16,365,389	1.166	19,076,239	23,378,810	1.100	25,719,003	8,753,728	1.141	9,988,483	22,058,101	1.028	22,678,769	70,556,028	77,462,494	1.098
C	32,652,871	1.166	38,061,667	42,637,385	1.100	46,905,341	21,267,133	1.141	24,266,963	34,628,222	1.028	35,602,586	131,185,611	144,836,557	1.104
D	12,792,153	1.166	14,911,114	20,371,896	1.100	22,411,101	5,991,495	1.141	6,836,624	14,842,739	1.028	15,260,382	53,998,283	59,419,220	1.100
E	26,283,858	1.166	30,637,657	31,289,484	1.100	34,421,527	10,556,076	1.141	12,045,061	19,328,798	1.028	19,872,669	87,458,216	96,976,913	1.109
F	38,409,165	1.166	44,771,464	42,723,998	1.100	47,000,624	18,211,355	1.141	20,780,153	26,017,016	1.028	26,749,079	125,361,534	139,301,320	1.111
G	6,969,285	1.166	8,123,715	7,324,517	1.100	8,057,693	4,122,249	1.141	4,703,712	3,207,628	1.028	3,297,884	21,623,679	24,183,003	1.118
A, B, C, D, E, F, G	137,283,471		160,023,838	173,761,345		191,154,666	70,479,952		80,421,483	126,648,009		130,211,614	508,172,777	561,811,601	1.106
C, E, F, G	104,315,179		121,594,502	123,975,384		136,385,184	54,156,813		61,795,888	83,181,664		85,522,219	365,629,040	405,297,793	1.108

Notes:  
 (2), (5), (8), (11): Unit Statistical Plan Data.  
 (3), (6), (9), (12): Section X-A, Exhibit 5, Page 5

X 000013

Loss Development Factors From 5th to Ultimate

Hazard Group	Losses Developed to 5th 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	13,038,521	22,808,114	6,999,118	20,469,649	1.069	1.069
B	54,683,711	79,798,841	35,855,336	68,355,854	1.079	1.079
C	122,426,592	156,581,277	66,817,356	112,860,626	1.083	1.083
D	44,662,587	74,171,583	19,746,201	48,012,147	1.073	1.073
E	81,383,602	103,081,024	32,234,992	58,482,597	1.081	1.081
F	110,640,970	142,297,463	49,371,770	75,556,788	1.083	1.083
G	16,469,332	24,660,069	8,736,317	9,732,914	1.084	1.084
TOTAL	443,305,314	603,398,371	219,761,091	393,470,575	1.080	1.080

Notes:

(2) - (5): Exhibit 4, Pages 4-6.

(6): Weighted Average of Development Factors from Page 2.

(Likely to Dev. Ind. 1.146, Not Likely to Dev. Ind.1.027, Likely to Dev. Med. 1.190, Not Likely to Dev. Med. 1.027)

(7): Factors are balanced to the total development factor from Page 2.

X 000014

# X 000015

Section X - Experience Rating  
 Subsection A - Expected Loss Rates  
 9/1/2012

Section X - A  
 Exhibit 5  
 Page 2

## Calculation of Injury Type Development Factors from 5th to Ultimate

Policy Year (1)	Unit Stat Plan Losses Developed to 5th Rept. (2)	Aggregate Financial Develop. Factor 5th 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 5th to Ult. = (5) / (2) (6)
<b>Indemnity</b>					
2009	345,220,396	1.056	1.020	371,973,471	1.077
2008	350,304,784	1.056	1.020	377,451,877	1.077
2007	351,178,504	1.056	1.020	378,393,306	1.077
<b>Total</b>	<b>1,046,703,685</b>			<b>1,127,818,653</b>	<b>1.077</b>
<b>Medical</b>					
2009	206,563,612	1.085	1.000	224,170,156	1.085
2008	196,034,957	1.085	1.000	212,744,086	1.085
2007	210,633,097	1.085	1.000	228,586,505	1.085
<b>Total</b>	<b>613,231,666</b>			<b>665,500,748</b>	<b>1.085</b>
<b>Ind.+ Med.</b>					
2009	551,784,009			596,143,627	1.080
2008	546,339,741			590,195,963	1.080
2007	561,811,601			606,979,811	1.080
<b>Total</b>	<b>1,659,935,351</b>			<b>1,793,319,401</b>	<b>1.080</b>

(7)	Unit Stat Plan Indem. Losses Developed to 5th Report (8)	Development Factor 5th to Ult. (9)	(10)	Unit Stat Plan Med. Losses Developed to 5th Report (11)	Development Factor 5th to Ult. (12)
a. Likely to Develop	443,305,314	1.146	a. Likely to Develop	219,761,091	1.190
b. Not Likely to Develop	603,398,371	1.027	b. Not Likely to Develop	393,470,575	1.027
<b>c. Total</b>	<b>1,046,703,685</b>	<b>1.077</b>	<b>c. Total</b>	<b>613,231,666</b>	<b>1.085</b>

**Notes:**

(2): Page 4.

(3): Page 3.

(4): Page 8.

(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/Likely to Develop Losses) x ("Appropriate Column 6 Factor" - 1) x (1 - 0.8)

Determination of Factor to Aggregate Financial Level

	<u>Indemnity</u>	<u>Medical</u>
(1) Development Factor based on Paid + Case 72 Months to Ult.	1.043	1.141
(2) Est. Ultimate Losses (Prior to Escalation Adj.) based on Paid + Case Develop. Method		
(a) PY2008	331,273,063	212,789,424
(b) PY2009	307,822,360	214,602,610
(c) Average	319,547,712	213,696,017
(3) Est. Ultimate Losses (Prior to Escalation Adj.) based on Paid Develop. Method		
(a) PY2008	348,144,128	194,703,543
(b) PY2009	306,645,862	190,952,634
(c) Average	327,394,995	192,828,088
(4) Ratio of Est. Ultimate Losses based on average of Paid and Paid + Case indications to Est. Ultimate Losses based on Paid + Case = { [ (2c) + (3c) ] / 2.000 } / (2c)	1.012	0.951
(5) Development Factor to bring Unit Statistical Plan Data 5th report to Aggregate Financial Ultimate Level = (1) x (4)	1.056	1.085

Notes:

- (1): Section II-B, Exhibit 1 & Section II-C, Exhibit 2, Page 1.  
 (2),(3): Section II-A, Exhibit 1.

X 000016

Losses Developed to 5th Report

Policy Year (1)	Injury Type (2)	Paid + Case					
		Reported Schedule Z Losses		Development Factors to 5th Report		Losses Developed to 5th Report	
		Indemnity (3)	Medical (4)	Indemnity (5)	Medical (6)	Indemnity = (3) x (5) (7)	Medical = (4) x (6) (8)
2009	Likely	67,181,126	53,719,426	2.039	1.384	136,983,754	74,336,725
2009	Not Likely	128,450,440	118,298,277	1.621	1.118	208,236,643	132,226,887
2009	TOTALS	195,631,566	172,017,703			345,220,396	206,563,612
2008	Likely	108,417,563	52,982,224	1.349	1.227	146,297,722	65,002,883
2008	Not Likely	165,977,936	124,053,219	1.229	1.056	204,007,063	131,032,074
2008	TOTALS	274,395,499	177,035,443			350,304,784	196,034,957
2007	Likely	137,283,471	70,479,952	1.166	1.141	160,023,838	80,421,483
2007	Not Likely	173,761,345	126,648,009	1.100	1.028	191,154,666	130,211,614
2007	TOTALS	311,044,816	197,127,961			351,178,504	210,633,097

Notes:

(3),(4): Sum of Unit Statistical Plan Data.

(5),(6): Page 5.

X 000017

# X 000018

Section X - Experience Rating  
Subsection A - Expected Loss Rates  
9/1/2012

Section X - A  
Exhibit 5  
Page 5

## Summary of Development Factors

Likely to Develop				
Development Factors From:				
	18-30	30-42	42-54	54-66
<u>(1) Indemnity Losses</u>				
2 Yr Average	1.511	1.158	1.108	1.052
Cumulative	2.039	1.349	1.166	1.052
<u>(2) Medical Losses</u>				
2 Yr Average	1.128	1.075	1.075	1.062
Cumulative	1.384	1.227	1.141	1.062

Not-Likely to Develop				
Development Factors From:				
	18-30	30-42	42-54	54-66
<u>(3) Indemnity Losses</u>				
2 Yr Average	1.319	1.117	1.062	1.035
Cumulative	1.621	1.229	1.100	1.035
<u>(4) Medical Losses</u>				
2 Yr Average	1.058	1.027	1.016	1.012
Cumulative	1.118	1.056	1.028	1.012

Notes:

(1),(2): Page 6.

(3),(4): Page 7.

**X 000019**

Section X - Experience Rating  
 Subsection A - Expected Loss Rates  
 9/1/2012

Section X - A  
 Exhibit 5  
 Page 6

Calculation of Likely to Develop Development Factors

Likely to Develop						
Policy Year	Unlimited Indemnity Losses			Unlimited Medical Losses		
	Evaluated at month		Link Ratio	Evaluated at month		Link Ratio
	18	30		18	30	
2008	69,427,666	105,474,162	1.519	45,035,265	52,008,481	1.155
2007	75,703,794	113,778,260	1.503	60,417,583	66,517,098	1.101
Average			1.511			1.128
	30	42		30	42	
2007	117,430,393	133,569,608	1.137	67,969,445	69,446,249	1.022
2006	121,759,732	143,412,596	1.178	67,952,404	76,698,266	1.129
Average			1.158			1.075
	42	54		42	54	
2006	148,074,709	160,678,497	1.085	78,925,941	83,248,220	1.055
2005	142,116,389	160,843,991	1.132	71,884,886	78,710,727	1.095
Average			1.108			1.075
	54	66		54	66	
2005	166,234,890	172,686,979	1.039	81,315,434	87,349,962	1.074
2004	169,836,015	180,771,946	1.064	94,581,064	99,211,638	1.049
Average			1.052			1.062

**X 000020**

Section X - Experience Rating  
 Subsection A - Expected Loss Rates  
 9/1/2012

Section X - A  
 Exhibit 5  
 Page 7

Calculation of Not-Likely to Develop Development Factors

Not-Likely to Develop						
Policy Year	Unlimited Indemnity Losses			Unlimited Medical Losses		
	Evaluated at month		Link Ratio	Evaluated at month		Link Ratio
	18	30		18	30	
2008	128,198,556	168,921,337	1.318	118,423,809	125,026,962	1.056
2007	123,465,610	163,003,767	1.320	119,137,860	126,364,873	1.061
Average			1.319			1.058
	30	42		30	42	
2007	159,351,634	177,475,208	1.114	124,912,526	127,681,712	1.022
2006	149,371,054	167,419,912	1.121	114,585,050	118,312,506	1.033
Average			1.117			1.027
	42	54		42	54	
2006	162,757,799	173,869,283	1.068	116,084,831	117,317,856	1.011
2005	171,097,410	180,791,483	1.057	117,733,542	120,233,150	1.021
Average			1.062			1.016
	54	66		54	66	
2005	175,400,584	182,818,144	1.042	117,628,443	119,060,574	1.012
2004	172,756,571	177,689,646	1.029	114,483,214	115,841,558	1.012
Average			1.035			1.012

Escalation Adjustment for Indemnity Losses Only

Loss Development Method  (1)	Policy Year  (2)	Differential in Loss Development  (3)
Paid Plus Case	2009	1.008
	2008	1.008
	2007	1.008
Paid	2009	1.033
	2008	1.033
	2007	1.033
Average of Paid and Paid Plus Case	2009	1.020
	2008	1.020
	2007	1.020

Notes:

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

X 000021

# X 000022

Section X - Experience Rating  
 Subsection A - Expected Loss Rates  
 9/1/2012

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	1	1,371,204	0.896	144,064	1.000	
A	2	404,372	0.868	248,307	0.870	
A	3	15,144,644	1.010	8,023,087	1.013	
A	4	5,619,995	1.022	3,585,009	1.024	
A	5	15,823,919	1.015	11,091,638	1.018	
A	6	0		6,259,077	1.000	
A	TOTAL	38,364,134	1.009	29,351,183	1.012	1.010
B	1	4,007,961	0.896	317,232	1.000	
B	2	3,807,697	0.868	11,056,457	0.870	
B	3	59,790,007	1.010	25,634,602	1.013	
B	4	17,650,339	1.022	11,704,803	1.024	
B	5	59,358,337	1.015	43,456,043	1.018	
B	6	0		20,699,970	1.000	
B	TOTAL	144,614,341	1.007	112,869,108	0.999	1.004
C	1	4,815,617	0.896	3,149,477	1.000	
C	2	9,378,156	0.868	5,518,573	0.870	
C	3	142,788,250	1.010	62,427,500	1.013	
C	4	36,061,338	1.022	21,645,546	1.024	
C	5	108,050,761	1.015	74,061,924	1.018	
C	6	0		28,617,057	1.000	
C	TOTAL	301,094,121	1.007	195,420,078	1.010	1.008
D	1	4,105,808	0.896	587,811	1.000	
D	2	933,711	0.868	758,163	0.870	
D	3	65,986,735	1.010	24,173,615	1.013	
D	4	12,044,563	1.022	8,078,241	1.024	
D	5	44,279,158	1.015	29,306,038	1.018	
D	6	0		9,901,998	1.000	
D	TOTAL	127,349,974	1.009	72,805,866	1.013	1.010
E	1	7,077,805	0.896	1,068,057	1.000	
E	2	6,051,253	0.868	3,696,469	0.870	
E	3	109,443,630	1.010	35,565,884	1.013	
E	4	13,355,586	1.022	9,909,759	1.024	
E	5	63,192,742	1.015	37,041,094	1.018	
E	6	0		11,138,779	1.000	
E	TOTAL	199,121,017	1.004	98,420,043	1.009	1.006
F	1	12,585,218	0.896	3,728,355	1.000	
F	2	7,822,410	0.868	4,194,857	0.870	
F	3	161,326,450	1.010	64,379,235	1.013	
F	4	16,015,121	1.022	11,114,392	1.024	
F	5	75,174,561	1.015	44,397,684	1.018	
F	6	0		8,533,907	1.000	
F	TOTAL	272,923,760	1.003	136,348,431	1.010	1.005
G	1	3,920,450	0.896	20,237	1.000	
G	2	1,800,394	0.868	813,540	0.870	
G	3	29,156,587	1.010	12,102,829	1.013	
G	4	1,737,459	1.022	1,477,972	1.024	
G	5	7,583,953	1.015	4,853,669	1.018	
G	6	0		1,123,724	1.000	
G	TOTAL	44,198,843	0.996	20,391,972	1.008	1.000

Notes:  
 (3),(5): 2011 From Exhibit 4, Pages 4-6, 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 Injury Type

Injury Type (1)	Adjusted Primary Losses (2)	Adjusted Total Losses (3)	Partial D-Ratio = (2) / (3) (4)
Indemnity	83,591,784	759,769,515	0.110
Medical	155,119,554	530,734,689	0.292

Notes:

Data at the individual claim level for PYs 2007 - 2009 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 \$250,000 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.

Severity Trend and Law Amendment Factors

Policy Year	Indemnity By Injury Type					Medical by Injury Type					
	1	2	3	4	5	1	2	3	4	5	6

(1) Severity Trend Factors

2007	1.079	1.079	1.079	1.079	1.079	1.092	1.092	1.092	1.092	1.092	1.092
2008	1.079	1.079	1.079	1.079	1.079	1.092	1.092	1.092	1.092	1.092	1.092
2009	1.079	1.079	1.079	1.079	1.079	1.092	1.092	1.092	1.092	1.092	1.092

(2) State Benefit Level Adjustment Factors

2007	1.008	1.011	1.019	1.019	1.007	1.026	1.026	1.026	1.026	1.026	1.026
2008	1.002	1.002	1.004	1.004	1.001	1.024	1.024	1.024	1.024	1.024	1.024
2009	1.001	1.002	1.004	1.004	1.001	1.002	1.002	1.002	1.002	1.002	1.002

(3) Combined Severity Trend and Law Amendment Factors

2007	1.088	1.091	1.100	1.100	1.086	1.121	1.121	1.121	1.121	1.121	1.121
2008	1.081	1.082	1.084	1.084	1.080	1.119	1.119	1.119	1.119	1.119	1.119
2009	1.080	1.081	1.083	1.083	1.080	1.094	1.094	1.094	1.094	1.094	1.094

Notes:

(1): Exhibit 2.

(2): Section IV-A, Exhibit 1. PY 2007 to effective period starting 09/01/2008. PY 2008 to effective period starting 09/01/2009.  
 PY 2009 to effective period starting 09/01/2010.

(3) = (1) x (2)

X 000024

Severity Trend Factors

Schedule Z Policy Year (1)			Policy Effective Period (2)		
01/01/2009	-	12/31/2009	09/01/2010	-	08/31/2011
01/01/2008	-	12/31/2008	09/01/2009	-	08/31/2010
01/01/2007	-	12/31/2007	09/01/2008	-	08/31/2009

Avg Acc Date	Avg Acc Date
12/30/2008	08/31/2010

(3) Indemnity Severity Trend	4.7%
(4) Medical Severity Trend	5.4%
(5) Trend Period Length = Years between (1) and (2)	1.667
(6) Indemnity Trend Factor = [ 1.000 + (3) ] ^ (5)	1.079
(7) Medical Trend Factor = [ 1.000 + (4) ] ^ (5)	1.092

Notes:

(3),(4): Section V-A Exhibit 1.

Medical Severity Trend is a weighted average. The weights used are the relative amounts of losses for Lost Time Medical and Medical Only at 5th report.

(6),(7): Severity Trend Factors adjust 2009 to 8/31/2011, 2008 to 8/31/2010, and 2007 to 8/31/2009.

Calculation of ELR Factors

Unit Report / Policy Effective Dates (1)	Hazard Group (2)	Permissible Loss 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	0.580	0.104	0.084	1.004	1.005	1.696	1.008	0.279
9/1/2010	E	0.580	0.104	0.094	1.004	1.005	1.695	1.006	0.276
to	F	0.580	0.104	0.138	1.004	1.005	1.704	1.005	0.262
8/31/2011	G	0.580	0.104	0.174	1.004	1.005	1.704	1.000	0.252
2nd Report	C	0.580	0.104	0.087	1.005	1.008	1.332	1.008	0.352
9/1/2009	E	0.580	0.104	0.098	1.005	1.008	1.332	1.006	0.349
to	F	0.580	0.104	0.143	1.005	1.008	1.336	1.005	0.331
8/31/2010	G	0.580	0.104	0.180	1.005	1.008	1.336	1.000	0.318
3rd Report	C	0.580	0.104	0.127	1.006	1.010	1.193	1.008	0.375
9/1/2008	E	0.580	0.104	0.142	1.006	1.010	1.193	1.006	0.369
to	F	0.580	0.104	0.208	1.006	1.010	1.195	1.005	0.341
8/31/2009	G	0.580	0.104	0.262	1.006	1.010	1.196	1.000	0.319
1st - 3rd Report Average	C E F G								0.335 0.332 0.311 0.297

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 000026

# X 000027

Section X - Experience Rating  
 Subsection C - Expected Loss Rates for F-Class  
 9/1/2012

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	106,754,095	0.994	0.997	1.696
1st	E	54,994,389	0.993	0.995	1.695
1st	F	76,787,672	1.005	1.007	1.704
1st	G	11,906,586	1.006	1.008	1.704
1st	Total	250,442,742	0.998	1.000	1.699
2nd	C	126,741,040	0.994	0.997	1.332
2nd	E	77,301,187	0.993	0.995	1.332
2nd	F	99,616,839	1.005	1.007	1.336
2nd	G	14,120,665	1.006	1.008	1.336
2nd	Total	317,779,731	0.998	1.000	1.333
3rd	C	131,185,611	0.994	0.996	1.193
3rd	E	87,458,216	0.993	0.994	1.193
3rd	F	125,361,534	1.005	1.007	1.195
3rd	G	21,623,679	1.006	1.008	1.196
3rd	Total	365,629,040	0.998	1.000	1.194

**Notes:**

(3): See Section X-A, Exhibit 4, Pages 4-6.

(4): See Section X-A, Exhibit 4, Page 3 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	2.337	2.611	2.611	31.3%	12.0%	
1st	Indemnity	Not Likely to Develop	1.665	1.595	1.595	30.3%	19.0%	
1st	Medical	Likely to Develop	1.647	1.793	1.793	18.4%	10.3%	
1st	Medical	Not Likely to Develop	1.147	1.134	1.134	20.0%	17.6%	
1st	Total					100.0%	58.9%	1.699
2nd	Indemnity	Likely to Develop	1.547	1.542	1.542	31.3%	20.3%	
2nd	Indemnity	Not Likely to Develop	1.262	1.230	1.230	30.3%	24.7%	
2nd	Medical	Likely to Develop	1.460	1.595	1.595	18.4%	11.6%	
2nd	Medical	Not Likely to Develop	1.084	1.079	1.079	20.0%	18.5%	
2nd	Total					100.0%	75.0%	1.333
3rd	Indemnity	Likely to Develop	1.336	1.266	1.266	31.3%	24.7%	
3rd	Indemnity	Not Likely to Develop	1.130	1.099	1.099	30.3%	27.6%	
3rd	Medical	Likely to Develop	1.358	1.489	1.489	18.4%	12.4%	
3rd	Medical	Not Likely to Develop	1.055	1.048	1.048	20.0%	19.0%	
3rd	Total					100.0%	83.7%	1.194

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 1 and Page 3.

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 000028

# X 000029

Section X - Experience Rating  
Subsection D - State Reference Point  
9/1/2012

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	2009	42,821	367,649,269	8,586
2nd	2008	47,267	451,430,942	9,551
3rd	2007	52,816	508,172,777	9,622
Total		142,904	1,327,252,988	9,288
(6)	Indicated State Reference Point = [ Total (5) ] x 250			2,321,931
(7)	Average Annual Severity Trend			4.97%
(8)	Length of Trending Period in Years			1.667
(9)	Trend Factor = [ 1.000 + (7) ] ^ (8)			1.084
(10)	Trended State Reference Point = (6) x (9)			2,517,294
(11)	Selected State Reference Point			2,500,000
(12)	G = (11) / 250,000			10
(13)	State Per Claim Accident Limitation = (11) x 0.1			250,000
(14)	Multiple State Claim Accident Limitation = (13) x 2			500,000

### 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 September 1, 2012

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	1.15	.19	2002	1.93	.20	2683	1.04	.18	3241	1.11	.18	4053	0.93	.18
0008	1.25	.20	2003	1.58	.19	2688	1.25	.19	3255	1.49	.18	4061	1.19	.20
0016	1.75	.20	2014	1.81	.18	2702	6.13	.18	3257	1.37	.18	4062	1.14	.20
0034	1.84	.21	2021	1.72	.18	2710	2.83	.19	3270	0.97	.18	4112	0.32	.18
0035	0.95	.18	2039	1.12	.18	2731	1.99	.18	3300	2.57	.18	4113	0.93	.18
0036	1.84	.21	2041	1.23	.18	2741	2.60	.17	3305	(a)	(a)	4114	1.22	.18
0037	1.25	.20	2070	1.84	.18	2747	3.18	.18	3315	1.41	.18	4130	2.51	.19
0042	1.89	.19	2081	1.61	.19	2790	0.94	.19	‡			4133	0.84	.20
0046	0.99	.19	2089	1.07	.18	2802	2.21	.18	3336	1.59	.18	4150	0.40	.17
0050	2.87	.17	2095	1.66	.18	2835	1.03	.18	3365	3.64	.17	4239	1.20	.18
0059D	.	.	2101	1.11	.18	2836	1.26	.17	3372	1.14	.18	4243	1.50	.18
0065D	.	.	2105	(a)	(a)	2841	1.92	.17	3373	1.83	.18	4244	1.77	.20
0066D	.	.	2111	1.15	.18	2883	1.64	.19	3381	1.48	.19	4250	0.80	.18
0067D	.	.	2114	1.11	.18	2923	0.77	.18	3383	0.59	.19	4251	0.86	.18
0079	0.99	.19	2115	1.45	.18	2942	1.17	.20	3385	0.42	.18	4273	1.24	.19
0083	2.60	.21	2121	0.82	.18	3018	1.09	.18	3400	1.75	.19	4279	1.46	.19
0106	6.95	.21	2130	1.15	.18	3022	1.82	.18	3507	1.68	.20	4282	0.37	.17
0113	1.84	.21	2131	1.12	.18	3027	2.01	.18	3515	1.21	.19	4283	1.30	.18
0170	1.84	.21	2143	1.27	.18	3028	1.51	.19	3548	0.78	.19	4299	0.98	.18
0251	1.61	.19	2150	2.58	.18	3030	3.38	.19	3558	0.30	.19	4301	2.10	.16
‡			2156	3.92	.18	3040	3.64	.18	3559	0.78	.19	4304	1.76	.18
‡			2157	2.47	.18	3041	1.81	.18	3571	0.50	.18	4307	0.68	.18
0770	.	.	2172	0.84	.16	3042	2.35	.16	3574	0.81	.19	4308	0.48	.14
0773	.	.	2174	1.78	.17	3064	1.29	.18	3612	1.00	.18	4350	0.29	.17
0774	.	.	2211	2.86	.20	3066	1.29	.18	3620	2.39	.18	4351	0.48	.17
0775	.	.	2220	1.45	.19	3076	1.27	.19	3629	0.81	.19	4352	0.56	.19
0776	.	.	2260	2.88	.17	3081D	3.38	.18	3632	0.83	.19	4360	0.61	.18
0779	.	.	2286	1.51	.19	3082D	3.38	.18	3634	0.82	.18	4361	0.25	.20
0799	.	.	2288	1.10	.18	3085D	1.76	.18	3635	1.73	.20	4362	0.32	.19
0908	46.92	.18	2302	1.45	.19	3110	2.91	.19	3638	0.81	.19	4410	2.01	.18
0909	67.24	.22	2305	1.01	.18	3111	1.24	.19	3642	0.54	.17	4417	2.39	.18
0912	134.49	.22	2362	0.92	.19	3113	0.79	.18	3643	0.73	.18	4432	0.65	.18
0913	93.83	.18	2380	1.05	.19	3114	1.40	.18	3647	1.16	.18	4439	1.18	.20
0917	1.33	.20	2402	1.13	.18	3118	0.81	.18	3648	0.71	.19	4452	1.50	.18
0918	0.28	.16	2413	1.46	.19	3119	0.43	.18	3681	0.37	.19	4459	1.51	.19
1430	3.93	.17	2416	1.17	.18	3120	0.87	.17	3685	0.37	.19	4470	1.21	.18
1438	1.39	.18	2417	1.52	.17	3122	0.92	.19	3724	1.82	.18	4484	1.08	.19
1463	3.38	.17	2501	1.05	.18	3127	0.42	.18	3726	5.59	.17	4493	1.42	.19
1624D	2.53	.18	2503	0.52	.18	3131	0.77	.18	3807	1.73	.19	4511	0.16	.18
1655	2.45	.19	2534	1.08	.18	3132	1.30	.18	3808	1.90	.19	4512	0.07	.18
1701	1.99	.17	2570	1.94	.18	3145	0.91	.19	3821	2.14	.18	4557	0.78	.18
1710D	2.70	.18	2576	1.32	.17	3146	0.91	.18	3826	1.18	.18	4558	0.75	.18
1747	1.36	.18	2578	1.28	.17	3169	1.67	.19	3830	0.83	.19	4561	1.19	.20
1748	1.32	.19	2585	1.45	.19	3179	0.76	.18	3841	0.82	.19	4583	1.34	.18
1852	2.78	.15	2586	0.76	.18	3180	1.44	.18	4000	1.80	.17	4611	0.62	.18
1853	0.75	.16	2587	1.30	.18	3188	1.47	.17	4021	1.92	.18	4635	1.30	.19
1860	1.08	.18	2623	1.76	.18	3200	1.19	.19	4024	1.56	.17	4653	1.12	.17
1924	1.16	.18	2640	0.97	.17	3220	0.97	.18	4034	2.38	.18	4665	3.87	.19
1925	1.73	.18	2651	0.96	.17	3223	(a)	(a)	4036	1.35	.17	4692	0.30	.17
2001	1.64	.19	2660	0.95	.19	3227	1.73	.19	4038	1.02	.18	4693	0.48	.18

(a) Expected Loss Rates and Discount Ratios for each individual risk must be obtained by Home Office from the MA Bureau.

D D Specific Disease element involved. Refer to Manual Supplement – Treatment of Disease Coverage.

‡ Class Codes 0400, 0401 and 3334 are deleted effective September 1, 2012.

**MASSACHUSETTS**  
**Page 2**

**EXPERIENCE RATING PLAN MANUAL**

*Proposed Effective September 1, 2012*

**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
4720	0.87	.18	5507	2.72	.17	7382	1.70	.19	8215	1.27	.18	9052	0.73	.19
4740	0.43	.18	5508D	2.84	.17	7403	1.90	.20	8227	1.66	.19	9058	0.74	.19
4741	1.30	.17	5509	1.52	.19	7405	0.63	.18	8232	2.15	.18	9060	0.50	.20
4770	4.89	.13	5538	2.35	.18	7420	2.66	.15	8233	3.04	.19	9061	0.46	.19
4773	9.88	.13	5545	13.09	.19	7421	0.79	.16	8235	1.77	.18	9063	0.34	.20
4774	8.20	.13	5547	7.21	.19	7422	0.75	.16	8263	3.15	.18	9077F	2.09	.25
4775	7.50	.18	5606	0.70	.18	7425	1.48	.16	8264	2.33	.18	9079	0.56	.19
4776	7.10	.12	5610	2.59	.17	7431	0.75	.16	8265	2.85	.19	‡		
4777	1.28	.18	5645	3.67	.18	7445	.	.	8279	2.04	.20	9089	0.57	.19
4779	5.71	.14	5651	3.67	.18	7453	.	.	8291	1.84	.19	9093	0.45	.20
4799	18.01	.13	5701	6.96	.19	7502	1.66	.19	8292	1.53	.19	9101	1.66	.19
4825	0.29	.18	5703	8.81	.16	7515	0.81	.20	8293	4.13	.19	9102	1.15	.19
4828	0.61	.18	5705	4.92	.18	7520	1.61	.19	8350	2.69	.17	9154	0.61	.19
4829	0.54	.18	6003	4.23	.16	7538	2.25	.17	8380	1.27	.18	9156	0.55	.20
4902	1.16	.20	6005	2.84	.17	7539	0.56	.18	8381	0.89	.19	9178	6.62	.24
4923	0.59	.18	6204	4.28	.17	7580	1.04	.18	8385	1.48	.18	9179	12.73	.17
5020	2.95	.17	6217	1.93	.17	7590	2.61	.17	8392	0.62	.18	9180	2.02	.21
5022	4.46	.17	6229	1.93	.17	7600	1.63	.18	8393	0.88	.17	9182	1.73	.22
5037	9.93	.17	6233	1.69	.16	7601	2.36	.17	8500	3.04	.19	9186	1.89	.21
5040	22.42	.16	6251D	2.65	.15	7610	0.10	.18	8601	0.13	.19	9220	1.65	.18
5057	10.32	.18	6252D	3.10	.17	7704	0.86	.19	8709F	2.63	.18	9402	2.27	.18
5059	10.32	.18	6306	3.37	.18	7720	0.87	.19	8710	1.09	.19	9403	3.69	.18
5069	10.32	.18	6319	2.15	.17	7855	2.38	.16	8719	0.97	.19	9410	0.98	.21
5102	3.05	.16	6325	1.94	.19	8001	0.76	.19	8720	0.44	.17	9501	1.23	.19
5146	2.44	.18	6400	2.90	.17	8002	1.02	.20	8721	0.08	.20	9505	1.23	.19
5160	1.37	.17	6504	1.11	.18	8006	0.77	.20	8726F	2.42	.19	9519	1.26	.19
5183	1.48	.17	6801F	5.47	.19	8008	0.33	.19	8742	0.07	.19	9521	1.62	.17
5188	1.95	.17	6811	4.62	.19	8010	0.73	.19	8745	1.74	.18	9522	0.95	.17
5190	1.22	.18	6824F	4.29	.18	8013	0.22	.18	8747	0.48	.19	9533	6.79	.15
5191	0.45	.19	6826F	4.38	.19	8017	0.56	.19	8748	0.24	.18	9534	2.48	.17
5192	1.48	.17	6834	1.31	.18	8018	1.48	.18	8800	0.40	.19	9545	1.82	.17
5213	5.79	.17	6836	1.23	.18	8021	1.19	.19	8803	0.02	.19	9549	2.42	.19
5215	2.45	.18	6843F	5.55	.18	8031	1.13	.19	8810	0.04	.19	9552	4.17	.17
5221	2.95	.18	6854	4.69	.18	8032	0.78	.19	8820	0.04	.19	9553	3.90	.17
5222	3.85	.17	6872F	14.06	.19	8033	0.88	.19	8824	0.73	.19	9586	0.21	.19
5223	2.30	.18	6874F	10.41	.17	8034	1.58	.18	8826	0.73	.19	9620	0.35	.18
5348	2.64	.17	6882	11.88	.19	8039	0.61	.19	8829	0.90	.18			
5402	3.95	.19	6884	8.79	.17	8044	1.54	.19	8831	0.52	.21			
5403	4.22	.17	7133	(a)	(a)	8046	1.20	.20	8832	0.11	.19			
5437	2.16	.17	7219	3.93	.18	8048	1.28	.18	8833	0.54	.18			
5443	1.85	.18	7230	3.36	.18	8050	0.75	.19	8835	0.88	.18			
5445	3.02	.17	7231	3.41	.17	8058	1.21	.19	8837	(a)	(a)			
5462	3.86	.18	7309F	10.75	.17	8103	1.51	.17	8868	0.32	.20			
5472	3.70	.17	7313F	5.94	.15	8105	1.79	.18	8901	0.04	.19			
5473	3.88	.17	7317F	5.68	.16	8106	3.57	.20	9014	1.08	.18			
5474	2.25	.18	7327F	12.99	.17	8107	1.55	.19	9015	1.37	.18			
5478	2.21	.16	7350F	7.03	.17	8111	1.30	.19	9016	0.78	.20			
5479	3.28	.18	7360	2.51	.17	8116	1.57	.19	9019	1.28	.16			
5480	2.07	.17	7370	2.12	.19	8203	2.23	.18	9033	1.90	.17			
5506	2.58	.17	7380	2.85	.18	8204	2.37	.18	9040	1.31	.18			

(a) Expected Loss Rates and Discount Ratios for each individual risk must be obtained by Home Office from the MA Bureau.  
 F Expected Loss Rates and Discount Ratios for risks covered under the United States Longshore and Harbor Workers' Compensation Act.  
 D D Specific Disease element involved. Refer to Manual Supplement – Treatment of Disease Coverage.  
 ‡ Class Code 9088 is deleted effective September 1, 2012.

EXPERIENCE RATING PLAN MANUAL

Proposed Effective September 1, 2012

TABLE OF WEIGHTING VALUES

Expected Losses	Weighting Values	Expected Losses	Weighting Values	Expected Losses	Weighting Values
0 - 2,094	0.04	592,434 - 639,201	0.24	2,442,140 - 2,640,313	0.44
2,095 - 8,465	0.05	639,202 - 688,454	0.25	2,640,314 - 2,861,317	0.45
8,466 - 14,973	0.06	688,455 - 740,399	0.26	2,861,318 - 3,109,338	0.46
14,974 - 61,441	0.07	740,400 - 795,268	0.27	3,109,339 - 3,389,655	0.47
61,442 - 89,440	0.08	795,269 - 853,318	0.28	3,389,656 - 3,709,015	0.48
89,441 - 116,140	0.09	853,319 - 914,835	0.29	3,709,016 - 4,076,189	0.49
116,141 - 142,901	0.10	914,836 - 980,144	0.30	4,076,190 - 4,502,785	0.50
142,902 - 170,187	0.11	980,145 - 1,049,608	0.31	4,502,786 - 5,004,499	0.51
170,188 - 198,237	0.12	1,049,609 - 1,123,639	0.32	5,004,500 - 5,603,090	0.52
198,238 - 227,209	0.13	1,123,640 - 1,202,704	0.33	5,603,091 - 6,329,619	0.53
227,210 - 257,226	0.14	1,202,705 - 1,287,337	0.34	6,329,620 - 7,230,011	0.54
257,227 - 288,398	0.15	1,287,338 - 1,378,150	0.35	7,230,012 - 8,375,165	0.55
288,399 - 320,826	0.16	1,378,151 - 1,475,847	0.36	8,375,166 - 9,880,584	0.56
320,827 - 354,616	0.17	1,475,848 - 1,581,242	0.37	9,880,585 - 11,948,018	0.57
354,617 - 389,873	0.18	1,581,243 - 1,695,284	0.38	11,948,019 - 14,964,429	0.58
389,874 - 426,711	0.19	1,695,285 - 1,819,085	0.39	14,964,430 - 19,777,840	0.59
426,712 - 465,250	0.20	1,819,086 - 1,953,956	0.40	19,777,841 - 28,675,343	0.60
465,251 - 505,620	0.21	1,953,957 - 2,101,450	0.41	28,675,344 - 50,684,928	0.61
505,621 - 547,963	0.22	2,101,451 - 2,263,429	0.42	50,684,929 - 195,948,101	0.62
547,964 - 592,433	0.23	2,263,430 - 2,442,139	0.43	195,948,102 - 999,999,999	0.63

- (a) G 10
- (b) State Per Claim Accident Limitation \$250,000
- (c) State Multiple Claim Accident Limitation \$500,000
- (d) U.S. Longshore and Harbor Workers' Act Per Claim Accident Limitation \$130,000
- (e) U.S. Longshore and Harbor Workers' Act Multiple Claim Accident Limitation \$260,000
- (f) Employers Liability Accident Limitation \$55,000
- (g) USL&HW Act-Expected Loss Factor-Non-F Classes 18.4%
- (h) Cap on Modifications =  $1 + (0.00005) [(Expected Losses) + (2) (Expected Losses) / (10.00)]$

**MASSACHUSETTS EXPERIENCE RATING PLAN MANUAL**

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Proposed Effective September 1, 2012

**TABLE OF BALLAST VALUES**

Expected Losses	Ballast Values	Expected Losses	Ballast Values	Expected Losses	Ballast Values
0 - 53,788	25,000	1,726,010 - 1,775,981	200,000	3,475,503 - 3,525,495	375,000
53,789 - 92,574	30,000	1,775,982 - 1,825,954	205,000	3,525,496 - 3,575,488	380,000
92,575 - 137,140	35,000	1,825,955 - 1,875,929	210,000	3,575,489 - 3,625,481	385,000
137,141 - 184,154	40,000	1,875,930 - 1,925,905	215,000	3,625,482 - 3,675,475	390,000
184,155 - 232,312	45,000	1,925,906 - 1,975,882	220,000	3,675,476 - 3,725,468	395,000
232,313 - 281,074	50,000	1,975,883 - 2,025,860	225,000	3,725,469 - 3,775,462	400,000
281,075 - 330,189	55,000	2,025,861 - 2,075,840	230,000	3,775,463 - 3,825,456	405,000
330,190 - 379,527	60,000	2,075,841 - 2,125,820	235,000	3,825,457 - 3,875,450	410,000
379,528 - 429,013	65,000	2,125,821 - 2,175,801	240,000	3,875,451 - 3,925,445	415,000
429,014 - 478,603	70,000	2,175,802 - 2,225,783	245,000	3,925,446 - 3,975,439	420,000
478,604 - 528,269	75,000	2,225,784 - 2,275,766	250,000	3,975,440 - 4,025,433	425,000
528,270 - 577,991	80,000	2,275,767 - 2,325,750	255,000	4,025,434 - 4,075,428	430,000
577,992 - 627,756	85,000	2,325,751 - 2,375,734	260,000	4,075,429 - 4,125,423	435,000
627,757 - 677,556	90,000	2,375,735 - 2,425,719	265,000	4,125,424 - 4,175,418	440,000
677,557 - 727,382	95,000	2,425,720 - 2,475,704	270,000	4,175,419 - 4,225,413	445,000
727,383 - 777,231	100,000	2,475,705 - 2,525,690	275,000	4,225,414 - 4,275,408	450,000
777,232 - 827,098	105,000	2,525,691 - 2,575,677	280,000	4,275,409 - 4,325,403	455,000
827,099 - 876,979	110,000	2,575,678 - 2,625,664	285,000	4,325,404 - 4,375,399	460,000
876,980 - 926,873	115,000	2,625,665 - 2,675,652	290,000	4,375,405 - 4,425,394	465,000
926,874 - 976,778	120,000	2,675,653 - 2,725,640	295,000	4,425,395 - 4,475,390	470,000
976,779 - 1,026,692	125,000	2,725,641 - 2,775,628	300,000	4,475,391 - 4,525,386	475,000
1,026,693 - 1,076,614	130,000	2,775,629 - 2,825,617	305,000	4,525,387 - 4,575,381	480,000
1,076,615 - 1,126,543	135,000	2,825,618 - 2,875,607	310,000	4,575,382 - 4,625,377	485,000
1,126,544 - 1,176,478	140,000	2,875,608 - 2,925,596	315,000	4,625,378 - 4,675,373	490,000
1,176,479 - 1,226,418	145,000	2,925,597 - 2,975,586	320,000	4,675,374 - 4,725,369	495,000
1,226,419 - 1,276,363	150,000	2,975,587 - 3,025,577	325,000	4,725,370 - 4,775,365	500,000
1,276,364 - 1,326,312	155,000	3,025,578 - 3,075,567	330,000		
1,326,313 - 1,376,265	160,000	3,075,568 - 3,125,558	335,000		
1,376,266 - 1,426,221	165,000	3,125,559 - 3,175,549	340,000		
1,426,222 - 1,476,179	170,000	3,175,550 - 3,225,541	345,000		
1,476,180 - 1,526,141	175,000	3,225,542 - 3,275,533	350,000		
1,526,142 - 1,576,105	180,000	3,275,534 - 3,325,525	355,000		
1,576,106 - 1,626,071	185,000	3,325,526 - 3,375,517	360,000		
1,626,072 - 1,676,039	190,000	3,375,518 - 3,425,509	365,000		
1,676,040 - 1,726,009	195,000	3,425,510 - 3,475,502	370,000		

Note: For Expected Losses (E) greater than \$4,775,365, 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/1000.  
 In Massachusetts G = 10000/1000 = 10

**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
- Elimination of Hazard Group 1 - 4 references from the Table of Hazard Groups
- 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
- Elimination of inactive “A” Rated class codes 0400, 0401, 3334 and 9088
- Executive Officer minimum and maximum individual payroll limitations
- Exclusion of certain Davis-Bacon wages from the calculation of premium
- Massachusetts Construction Classification Premium Adjustment Program Credits
- All Risk Adjustment Program (“ARAP”) maximum surcharge factor

**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 retained below 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 2005, 2004, 2003, 2002, and 2001 at fifth report. Each loss is multiplied by appropriate trend, law amendment and development factors. Claim costs are trended to 9/1/2013, the average accident date (assuming the proposed small deductible credits will be in effect for one year starting 9/1/2012). 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

## XI 000003

“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 (from 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 this problem 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

**XI 000004**

Section XI – Miscellaneous Rating Values  
Subsection B - Massachusetts Benefits Deductible Program  
9/1/2012

Section XI - B  
Page 3

policyholder has opted for a deductible because the policyholder is retaining the less risky portion of the total losses.

# XI 000005

Section XI - Miscellaneous Rating Values  
Subsection B - Massachusetts Benefits Deductible Program Credits  
9/1/2012

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%	0.580	0.90	0.190	0.068	1.9%
1,000	4.3%	0.580	0.90	0.190	0.068	3.0%
2,000	6.6%	0.580	0.90	0.190	0.068	4.6%
2,500	7.4%	0.580	0.90	0.190	0.068	5.2%
5,000	11.0%	0.580	0.90	0.190	0.068	7.8%

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) ]

**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 5.2% is estimated for a \$2,500 per claim deductible (not subject to an aggregate limit). The 5.2% 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”

## XI 000007

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 2005, 2004, 2003, 2002, and 2001 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.

# XI 000008

Section XI - Miscellaneous Rating Values  
 Subsection C - Massachusetts Benefits Claim and Aggregate Deductible Program Credits  
 9/1/2012

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) / \$25,702 (2)	Aggregate Limit (3)	Selected Adjustment Factor for Aggregate Limit (4)	Premium Credit = (4) x 5.2% (5)
0 - 75,000	1.5	\$10,000	0.98	5.1%
75,000 - 100,000	3.4	\$10,000	0.96	5.0%
100,000 - 125,000	4.4	\$10,000	0.94	4.9%
125,000 - 150,000	5.3	\$10,000	0.92	4.8%
150,000 - 200,000	6.8	\$10,000	0.89	4.7%
Over 200,000	8 or more	5% of the 'Basis for the Aggregate Limit at Policy Inception'	0.84	4.4%

Notes:

- (2): Based on \$25,702 in standard premium (no ARAP) per expected claim.
- (4): Selected based on the simulation results shown in Exhibit 2.
- (5): The 5.2% is based on the \$2,500 per claim deductible without any aggregate limit, from Section XI-B, Exhibit 1.

# XI 000009

Section XI - Miscellaneous Rating Values  
 Subsection C - Massachusetts Benefits Claim and Aggregate Deductible Program Credits  
 9/1/2012

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	7.40%	7.40%	3.79%	1.00	0.51
2	1,000,000	7.51%	7.49%	5.09%	1.00	0.68
3	1,000,000	7.40%	7.34%	5.48%	0.99	0.74
4	1,000,000	7.45%	7.29%	5.81%	0.98	0.78
5	1,000,000	7.43%	7.10%	6.00%	0.96	0.81
6	1,000,000	7.47%	6.91%	6.18%	0.93	0.83
7	1,000,000	7.44%	6.60%	6.27%	0.89	0.84
8	1,000,000	7.45%	6.30%	6.37%	0.85	0.86
9	1,000,000	7.43%	5.95%	6.43%	0.80	0.87
10	1,000,000	7.44%	5.62%	6.50%	0.76	0.87
12	1,000,000	7.42%	4.95%	6.58%	0.67	0.89
14	1,000,000	7.44%	4.38%	6.68%	0.59	0.90
16	1,000,000	7.43%	3.88%	6.74%	0.52	0.91
18	1,000,000	7.45%	3.48%	6.81%	0.47	0.91
20	1,000,000	7.44%	3.14%	6.85%	0.42	0.92
25	1,000,000	7.44%	2.51%	6.93%	0.34	0.93
30	1,000,000	7.44%	2.10%	7.00%	0.28	0.94
40	1,000,000	7.44%	1.57%	7.09%	0.21	0.95
50	1,000,000	7.45%	1.26%	7.15%	0.17	0.96
75	1,000,000	7.44%	0.84%	7.23%	0.11	0.97
100	1,000,000	7.44%	0.63%	7.28%	0.08	0.98
150	1,000,000	7.44%	0.42%	7.33%	0.06	0.99
200	1,000,000	7.44%	0.31%	7.37%	0.04	0.99
300	1,000,000	7.44%	0.21%	7.40%	0.03	0.99
400	1,000,000	7.44%	0.16%	7.41%	0.02	1.00
500	1,000,000	7.44%	0.13%	7.42%	0.02	1.00

**Notes:**

(5): The Aggregate Limit is based on the average claim severity of the simulated losses, \$15,916 and the permissible loss ratio of 0.580. One claim is assumed to be expected for each \$25,702 of standard premium.

# XI 000010

Section XI - Miscellaneous Rating Values  
 Subsection D - Law Amendment , Loss Development, and Trend Summary  
 9/1/2012

Section XI-D  
 Exhibit 1

## Law Amendments, Loss Development Factors, and Severity Trend

(1) Law Amendment Factors to Prospective Effective Period

Policy Year	Indemnity Losses					Medical Losses
	Injury Type 1	Injury Type 2	Injury Type 3	Injury Type 4	Injury Type 5	All Injury Types
PY 2001	1.037	1.055	1.101	1.101	1.029	1.101
PY 2002	1.035	1.052	1.095	1.095	1.028	1.072
PY 2003	1.035	1.052	1.095	1.095	1.028	1.046
PY 2004	1.032	1.047	1.086	1.086	1.026	1.036
PY 2005	1.027	1.039	1.071	1.071	1.021	1.032

(2) Loss Development Factors - Fifth Report to Ultimate

Loss Development Category	Indemnity	Medical
Likely to Develop	1.070	1.259
Not Likely to Develop	1.017	1.050

(3) Severity Trend Factors

We apply three distinct trend factors.

Trend to PY 2005 is based on empirical USR data at 5th report.

Trend from PY 2005 to PY 2009 is based on severities from Section V-A.

Trend from PY 2009 to the Prospective Effective Period is based on the projected severity trends from Section V-A.

Trend Period		Indemnity	Lost Time	
From	To		Medical	Medical Only
PY 2001	PY 2005	1.257	1.299	1.363
PY 2002	PY 2005	1.235	1.224	1.262
PY 2003	PY 2005	1.170	1.147	1.136
PY 2004	PY 2005	1.015	0.968	1.087
PY 2005	PY 2009	1.217	1.300	1.106
PY 2009	Prosp. Eff. Period	1.182	1.227	1.130

Notes:

- (1): Section IV-A, Exhibit 1.
- (2): Section IV-E, Exhibit 2.
- (3): Section V-A, Exhibit 1.

# XI 000011

<b>MASSACHUSETTS WORKERS COMPENSATION AND EMPLOYERS LIABILITY INSURANCE MANUAL</b>	<b>RATES</b> Page RA-5
<i>Proposed Effective September 1, 2012</i>	

<b>MISCELLANEOUS VALUES</b>	
<b>Basis of Premium</b> applicable in accordance with the footnote instructions for Code 7370 - "Taxicab Co.":	
Employee operated vehicles.....	\$88,600.00‡
Leased or rented vehicles.....	\$59,100.00‡
<b>Basis of Premium</b> 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.....	\$41,300.00‡
Maximum individual payroll for an executive officer per week.....	\$200.00
Maximum individual payroll for an executive officer per week.....	\$1,000.00
<b>Terrorism Insurance Program</b> —Certified Loss: .....	0.03

<b>BENEFITS DEDUCTIBLE COVERAGE PROGRAM</b>	
Medical and Indemnity Deductible Amount	Premium Reduction Percentage
\$500	1.9%
\$1,000	3.0%
\$2,000	4.6%
\$2,500	5.2%
\$5,000	7.8%

<b>BENEFITS CLAIM AND AGGREGATE DEDUCTIBLE PROGRAM</b>			
Basis for the Aggregate Limit	Claim/Deductible Amount	Aggregate Deductible Amount	Premium Reduction Percentage
\$ 0 to \$75,000	\$2,500	\$10,000	5.1%
\$75,001 to \$100,000	\$2,500	\$10,000	5.0%
\$100,001 to \$125,000	\$2,500	\$10,000	4.9%
\$125,001 to \$150,000	\$2,500	\$10,000	4.8%
\$150,001 to \$200,000	\$2,500	\$10,000	4.7%
over \$200,000	\$2,500	5% of Basis for the Aggregate Limit	4.4%

<b>Expense Constant</b> 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%

<b>United States Longshore and Harbor Workers' Compensation Coverage</b> Percentage applicable only in connection with Rule XII-D-3. "U.S. Longshore and Harbor Workers' Compensation Act" of the Basic Manual.....	29.2%
(Multiply a Non-F classification rate by a factor of 1.292)	

### 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.

‡ Effective October 1, 2011

- 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.

**Section XI-F – Elimination of Hazard Group 1 - 4 References from the Table of Hazard Groups**

The Table of Hazard Groups contained in Appendix G of the Massachusetts Manual includes references to the old system of hazard group assignments where classes were categorized into one of four hazard groups denoted as 1, 2, 3, or 4. A new system for assigning classes to hazard groups which utilizes seven hazard groups denoted as A, B, C, D, E, F, and G is now in place. Therefore, the WCRIBMA recommends that the references to hazard groups 1, 2, 3, and 4 be removed from the Table of Hazard Groups.

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Hazard group assignments are based on the classification producing the largest amount of estimated workers' compensation standard premium for a given state. A multi-state policy would have separate and potentially different hazard group assignments for each state contributing exposure to the calculation of the policy's premium.

### MASSACHUSETTS TABLE OF CLASSIFICATIONS BY HAZARD GROUP

Code No.	Hazard Group	Code No.	Hazard Group	Code No.	Hazard Group	Code No.	Hazard Group	Code No.	Hazard Group
0005	C	1747	E	2286	B	2883	C	3220	C
0008	D	1748	E	2288	B	2923	B	3223	A
0016	E	1852	G	2302	C	2942	A	3227	B
0034	C	1853	D	2305	D	3018	E	3241	C
0035	B	1860	B	2362	C	3022	B	3255	A
0036	C	1924	B	2380	C	3027	E	3257	C
0037	D	1925	D	2402	E	3028	C	3270	C
0042	D	2001	B	2413	C	3030	E	3300	C
0046	C	2002	B	2416	C	3040	E	3305	C
0050	C	2003	C	2417	C	3041	C	3315	B
0059	G	2014	E	2501	C	3042	D	‡	
0065	E	2021	D	2503	B	3064	C	3336	E
0066	E	2039	B	2534	B	3066	C	3365	E
0067	E	2041	B	2570	B	3076	B	3372	D
0079	E	2070	C	2576	B	3081	E	3373	C
0083	C	2081	C	2578	C	3082	E	3381	C
0106	F	2089	C	2585	B	3085	E	3383	B
0113	C	2095	C	2586	C	3110	C	3385	B
0170	C	2101	B	2587	B	3111	C	3400	D
0251	C	2105	B	2623	D	3113	C	3507	C
‡		2111	B	2640	D	3114	C	3515	C
‡		2114	B	2651	B	3118	B	3548	C
0908	C	2115	E	2660	B	3119	A	3558	C
0909	B	2121	C	2683	B	3120	A	3559	C
0912	B	2130	C	2688	B	3122	B	3571	B
0913	C	2131	C	2702	G	3127	C	3574	B
0917	B	2143	B	2710	F	3131	C	3612	D
0918	C	2150	C	2731	E	3132	C	3620	E
1430	E	2156	C	2741	A	3145	C	3629	B
1438	F	2157	C	2747	A	3146	C	3632	D
1463	F	2172	D	2790	B	3169	C	3634	B
1624	F	2174	B	2802	D	3179	B	3635	C
1655	E	2211	E	2835	A	3180	B	3638	B
1701	E	2220	C	2836	A	3188	B	3642	C
1710	E	2260	E	2841	B	3200	C	3643	C

‡ Class Codes 0400, 0401 and 3334 are deleted effective September 1, 2012.

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<b>APPENDIX G TABLE OF HAZARD GROUPS</b>	<b>MASSACHUSETTS WORKERS COMPENSATION AND EMPLOYERS LIABILITY INSURANCE MANUAL</b>
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*Effective September 1, 2011*

**MASSACHUSETTS TABLE OF CLASSIFICATIONS BY HAZARD GROUP**

Code No.	Hazard Group								
3647	D	4283	C	4741	C	5402	B	6319	F
3648	B	4299	B	4770	G	5403	F	6325	F
3681	B	4301	B	4773	G	5437	E	6400	D
3685	B	4304	D	4774	G	5443	C	6504	B
3724	F	4307	A	4775	G	5445	F	6801	E
3726	G	4308	B	4776	G	5462	E	6811	E
3807	B	4350	C	4777	G	5472	G	6824	F
3808	D	4351	C	4779	G	5473	G	6826	E
3821	D	4352	B	4799	G	5474	F	6834	D
3826	C	4360	B	4825	E	5478	E	6836	E
3830	D	4361	B	4828	D	5479	D	6843	G
3841	C	4362	C	4829	F	5480	F	6854	G
4000	F	4410	C	4902	B	5506	G	6872	G
4021	E	4417	B	4923	C	5507	F	6874	G
4024	E	4432	A	5020	E	5508	E	6882	G
4034	E	4439	E	5022	F	5509	F	6884	G
4036	E	4452	C	5037	G	5538	E	7016	G
4038	A	4459	C	5040	G	5545	G	7019	G
4053	C	4470	C	5057	G	5547	G	7020	G
4061	B	4484	C	5059	G	5606	F	7024	G
4062	C	4493	C	5069	G	5610	C	7027	G
4112	C	4511	D	5102	F	5645	F	7028	G
4113	C	4512	C	5146	E	5651	F	7036	G
4114	C	4557	B	5160	F	5701	G	7037	G
4130	C	4558	C	5183	E	5703	E	7038	G
4133	B	4561	C	5188	E	5705	E	7039	G
4150	A	4583	F	5190	E	6003	E	7046	G
4239	E	4611	B	5191	C	6005	E	7075	G
4243	C	4635	G	5192	C	6204	F	7079	G
4244	C	4653	B	5213	F	6217	F	7088	G
4250	C	4665	E	5215	D	6229	F	7089	G
4251	C	4692	B	5221	E	6233	F	7090	G
4273	C	4693	C	5222	F	6251	F	7091	G
4279	C	4720	C	5223	E	6252	G	7093	G
4282	B	4740	E	5348	E	6306	F	7097	G

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MASSACHUSETTS TABLE OF CLASSIFICATIONS BY HAZARD GROUP									
Code No.	Hazard Group	Code No.	Hazard Group	Code No.	Hazard Group	Code No.	Hazard Group	Code No.	Hazard Group
7098	G	7590	D	8227	G	8815	B	9182	C
7133	F	7600	E	8232	E	8820	D	9186	F
7151	E	7601	F	8233	E	8824	C	9220	D
7152	E	7610	D	8235	C	8826	B	9402	E
7219	F	7704	F	8263	D	8829	C	9403	F
7230	D	7720	E	8264	E	8831	C	9410	C
7231	D	7855	E	8265	F	8832	C	9501	D
7309	G	8001	B	8279	F	8833	C	9505	D
7313	G	8002	C	8291	D	8835	C	9519	E
7317	G	8006	C	8292	C	8837	C	9521	E
7327	G	8008	B	8293	E	8868	B	9522	C
7333	G	8010	B	8350	F	8901	D	9533	F
7334	G	8013	C	8380	D	9014	C	9534	F
7335	G	8017	B	8381	D	9015	C	9545	E
7336	G	8018	B	8385	E	9016	C	9549	E
7350	F	8021	C	8392	C	9019	E	9552	E
7360	E	8031	C	8393	C	9033	C	9553	F
7370	C	8032	B	8500	E	9040	B	9586	A
7380	D	8033	C	8601	D	9052	B	9620	D
7382	C	8034	C	8709	G	9058	A		
7394	G	8039	B	8710	E	9060	B		
7395	G	8044	D	8719	G	9061	A		
7403	E	8046	C	8720	E	9063	B		
7405	E	8048	B	8721	E	9077	C		
7420	G	8050	B	8726	E	9079	A		
7421	F	8058	C	8737	B	‡			
7422	G	8103	D	8738	B	9089	B		
7425	G	8105	B	8742	E	9093	B		
7431	G	8106	E	8745	D	9101	B		
7502	E	8107	E	8747	B	9102	C		
7515	G	8111	C	8748	D	9154	C		
7520	C	8116	C	8800	A	9156	D		
7538	G	8203	C	8803	E	9178	A		
7539	F	8204	E	8810	C	9179	B		
7580	E	8215	E	8814	B	9180	E		

‡ Class Code 9088 is deleted effective September 1, 2012.

**Section XI-G – 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 relates the maximum weekly payroll per individual employee to the statewide average weekly wage. Consequently 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. The WCRIBMA recommends that the maximum weekly payroll per individual employee be calculated every October as four times the statewide average weekly wage rounded to the nearest \$100.

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.

An October 1, 2012 effective date, applicable to new and renewal policies, is recommended for this change to coincide with the revision to the statewide average

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weekly wage. At that time, the WCRIBMA would calculate the new maximum, revise the impacted manual pages, and publish a circular to its members announcing the change. The present and proposed classification phraseology from Part II – Classifications of the Massachusetts Manual is displayed below.

<p align="center"><b>Present Phraseology</b> Part Two – Classifications</p>	<p align="center"><b>Proposed Phraseology</b> Part Two – Classifications</p>
<p><b>ATHLETIC TEAM OR PARK:</b></p> <p><b>CONTACT SPORTS.....9179</b>  <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><b>NON-CONTACT SPORTS ..... 9178</b>  <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><del>ATHLETIC TEAM OR PARK:</del> <b><u>ATHELETIC SPORTS OR PARK:</u></b></p> <p><b>CONTACT SPORTS.....9179</b>  <i>Applies to players, coaches, managers, <u>trainers, equipment managers</u> or <del>umpires</del> 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 <del>derbies</del> derby.</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 average weekly wage per employee equal to of an average of <del>\$300</del> <b>\$XXX</b> 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><b>NON-CONTACT SPORTS.....9178</b>  <i>Applies to players, coaches, managers, <u>trainers, equipment managers,</u> or <del>umpires</del> 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 shall be included in computing premium, subject, however, to a minimum of <del>\$500</del> per employee per season and a maximum average weekly wage per employee equal to of an average of <del>\$300</del> <b>\$XXX</b> 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>

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<p align="center"><b>Present Phraseology</b> Part Two – Classifications</p>	<p align="center"><b>Proposed Phraseology</b> Part Two – Classifications</p>
<p><b>YMCA, YWCA, YMHA, OR YWHA, INSTITUTION - ALL EMPLOYEES CLERICAL.....9063</b>  <i>Includes teachers and instructors. Camp operation to be separately rated as Code <u>9015</u>—                      Camp Operation NOC</i></p>	<p><b>YMCA, YWCA, YMHA OR YWHA, INSTITUTION - ALL EMPLOYEES &amp; CLERICAL.....9063</b>  <i>Includes teachers and instructors. <b>Overnight</b> camp operation to be separately rated as Code 9015. <u>This classification is also applicable to amateur, youth, or recreational sports in which the athletes are generally not paid. It is assigned to coaches, managers, trainers, equipment managers, and sports officials. For professional and semiprofessional sports, refer to Code 9178 or Code 9179.</u></i></p>

**Section XI-H – 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. At that time, the payroll limitation for class code 9186 should have been eliminated so that the exposure base for class code 9186 would coincide with the exposure base for class code 9180, unlimited payroll. The WCRIBMA is recommending that this oversight be corrected by eliminating the payroll limitation associated with class code 9186 for policies effective on or after October 1, 2012. The present and proposed classification phraseology from Part II – Classifications of the Massachusetts Manual of is displayed below.

<p align="center"><b>Present Phraseology</b> Part Two – Classifications</p>	<p align="center"><b>Proposed Phraseology</b> Part Two – Classifications</p>
<p><b>AMUSEMENT DEVICE OPERATOR, CARNIVAL OR CIRCUS TRAVELING – ALL EMPLOYEES &amp; DRIVERS.....</b>  <b>9186</b>  <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></p>	<p><b>AMUSEMENT DEVICE OPERATOR, CARNIVAL OR CIRCUS TRAVELING – ALL EMPLOYEES &amp; DRIVERS.....</b>  <b>9186</b>  <del><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></del></p>

**Section XI-I Elimination of Inactive “A” Rated Class Codes 0400, 0401, 3334 and 9088**

The following “A” rates have been inactive for many years and the WCRIBMA recommends these class codes be eliminated:

- Code 0400 - “Used Clothing Dealers - Wholesale - Including Drivers/Synthetic Waste Dealers-Including picking, blending and dyeing”
- Code 0401 - “Cotton Gin Operation & Drivers/Wool Waste Dealers-Including blending or dusting”
- Code 3334 - “Tantalum Processing/Tin Foil Mfg.”
- Code 9088 - “Rocket or Missile Testing or Launching & Drivers”

<b>Present Phraseology</b> Part Two – Classifications	<b>Proposed Phraseology</b> Part Two - Classifications
<p><b>COTTON COMPRESSING &amp; DRIVERS.....</b>  <b>0400</b>  <i>Includes incidental warehouses. Codes 0400 and 0401 cotton gin shall not be assigned to the same risk unless the operations described by these classifications are conducted as separate and distinct business.</i></p>	<p><b>NONE - ELIMINATED</b></p>
<p><b>COTTON GIN OPERATION &amp; LOCAL MANAGERS, DRIVERS .....</b> <b>0401</b>  <i>Applies during both ginning and dormant seasons. Includes installation or repair of equipment; yard workers, weighers, seed or fuel haulers.</i></p> <p><i>This classification also applies to additional operations, such as a feed mill, on the same premises or at a separate location conducted by the cotton gin employees during the ginning season. The additional operations shall be subject to a division of payroll if conducted as follows:</i></p> <p><b>1. On the same premises or at a separate location during the ginning season when performed by separate employees, physically separated from the</b></p>	<p><b>NONE - ELIMINATED</b></p>

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<b>Present Phraseology</b> Part Two – Classifications	<b>Proposed Phraseology</b> Part Two - Classifications
<p><i>cotton ginning operation without an interchange of labor.</i></p> <p>2. <i>During the dormant season when performed by the cotton gin employees on the same premises or at a separate location.</i></p> <p><b>COLLAPSIBLE WHITE METAL TUBE AND CAP MFG.....3334</b></p> <p><b>TINFOIL MFG.....3334</b></p> <p><b>TUBE MFG - METAL - COLLAPSIBLE..... 3334</b></p> <p><b>ROCKET OR MISSILE TESTING OR LAUNCHING &amp; DRIVERS .....9088</b></p>	<p><b>NONE - ELIMINATED</b></p> <p><b>NONE - ELIMINATED</b></p> <p><b>NONE - ELIMINATED</b></p> <p><b>NONE - ELIMINATED</b></p>

To implement the elimination of the above noted inactive “A” rated class codes, the WCRIBMA will revise the following:

- Massachusetts Workers’ Compensation and Employers Liability Insurance Manual
  - Rates Section
  - Appendix G – Massachusetts Table of Classification by Hazard Group Classification
- Experience Rating Plan Manual for Workers’ Compensation and Employers Liability Insurance
  - Table of Expected Loss Rates and Discounts Ratios [MA]

**Section XI-J – 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) that makes the executive officer payroll limitations a function of the statewide average weekly wage. Consequently as statewide average weekly wages change over time, both the maximum and minimum weekly payroll limitation applicable to executive officers would automatically adjust. The WCRIBMA recommends that the minimum weekly payroll per executive officer be calculated every October as the statewide average weekly wage rounded to the nearest \$100. The WCRIBMA recommends that the maximum weekly payroll per executive officer be calculated every October as four times the statewide average weekly wage rounded to the nearest \$100.

An October 1, 2012 effective date, applicable to new and renewal policies, is recommended for this change to coincide with the revision to the statewide average weekly wage. At that time, the WCRIBMA would calculate the new maximum and minimum, revise the impacted manual pages, and publish a circular to its members announcing the change. The present and proposed classification phraseology from Part II – Classifications of the Massachusetts Manual is displayed below.

<p align="center"><b>Present Phraseology</b> Part Two – Classifications</p>	<p align="center"><b>Proposed Phraseology</b> Part Two – Classifications</p>
<p><b>RULE IX - SPECIAL CONDITIONS OR OPERATIONS AFFECTING COVERAGE AND PREMIUM</b></p> <p><b>A. EXECUTIVE OFFICERS</b></p> <p><b>1. Definition</b>                      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><b>2. Law and Status</b>                      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><b>3. Premium Determination</b>                      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><b>RULE IX - SPECIAL CONDITIONS OR OPERATIONS AFFECTING COVERAGE AND PREMIUM</b></p> <p><b>A. EXECUTIVE OFFICERS</b></p> <p><b>1. Definition</b>                      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><b>2. Law and Status</b>                      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><b>3. Premium Determination</b>                      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 <del>\$200</del> \$XXX per week.</p> <p>b. The maximum individual payroll for an executive officer is <del>\$1,000</del> \$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"><b>Present Phraseology</b> Part Two – Classifications</p>	<p align="center"><b>Proposed Phraseology</b> Part Two – Classifications</p>
<p><b>4. Spouses of Individuals, Co-Partners or Corporate Officers</b>                      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><b>5. Elected or Appointed Officers of a City or Town</b>                      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><b>6. Assignment of Payroll</b>                      Payroll shall be assigned to the classification that applies to the principal operations in which the executive officer is engaged.</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><b>4. Spouses of Individuals, Co-Partners or Corporate Officers</b>                      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 <del>\$200</del> <b>\$XXX</b> 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><b>5. Elected or Appointed Officers of a City or Town</b>                      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 <del>\$200</del> <b>\$XXX</b> per week and a maximum individual payroll of <del>\$1,000</del> <b>\$XXX</b> per week.</p> <p><b>6. Assignment of Payroll</b>                      Payroll shall be assigned to the classification that applies to the principal operations in which the executive officer is engaged.</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 align="center"><b>Present Phraseology</b> Part Two – Classifications</p>	<p align="center"><b>Proposed Phraseology</b> Part Two – Classifications</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><b>7. Flight Duties</b>                      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"> <li>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.</li> <li>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.</li> </ul> <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><b>7. Flight Duties</b>                      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"> <li>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.</li> <li>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.</li> </ul> <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>

**Section XI-K – Exclusion of Certain Davis-Bacon Wages from the Calculation of Premium**

The WCRIBMA proposes to amend Rule V-Premium Basis of the Massachusetts Manual so that employer contributions to third-party pension trusts under the Davis-Bacon Act or similar state prevailing wage laws are no longer considered to be remuneration for purposes of determining workers' compensation premium.

The federal Davis-Bacon Act and state prevailing wage laws require employers on certain construction projects to pay prevailing wage rates to its union and non-union employees. Under the Davis-Bacon Act, the term “wages” or “prevailing wages” includes fringe benefits paid by the employer.<sup>1</sup> Such “Davis-Bacon Employers” have the option of paying the fringe benefit portion of the prevailing wage in the form of direct additional cash wages to the employee or by contributions to a bona fide fringe benefit plan or trust.<sup>2</sup> The Massachusetts prevailing wage law is similar to the federal law in that fringe benefits are included in the prevailing wage rate and such fringe benefits may be paid directly to employees or through employer contributions to a bona fide fringe benefit plan.

The Massachusetts Manual provides that premium shall be computed on the basis of total remuneration paid or payable by the insured employer for services of employees. The Massachusetts Manual also contains rules governing remuneration inclusions and remuneration exclusions for purposes of determining premium.

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<sup>1</sup> Under the Davis-Bacon Act, fringe benefits include such things as health insurance, pensions, life insurance, unemployment insurance, disability insurance, accident insurance or other bona fide fringe benefits but only where the employer is not required by Federal, State or local law to provide any such benefits.

<sup>2</sup> “Davis-Bacon Employers” shall mean any employer paying prevailing wages under the federal Davis-Bacon Act or the Massachusetts prevailing wage law.

Under Massachusetts Manual Rule V-B.3.b, payments (or contributions) made by an employer to pension plans for employees are excluded from remuneration for purposes of determining premium. In contrast, Massachusetts Manual Rule V-B.2.n provides that payments placed by “Davis-Bacon Employers” into third-party pension trusts shall be included as remuneration for purposes of determining premium (see Exhibit I: Massachusetts Manual Rule V).

The WCRIBMA proposes that all employer contributions into pension plans or trusts should be treated in the same way for purposes of determining premium. This is consistent with the premium remuneration rules in most other jurisdictions and is more equitable than the current Massachusetts Manual Rules that allow all employers, except Davis-Bacon Employers, to exclude such pension contributions from premium.<sup>3</sup> In addition, auditors report difficulties in distinguishing pension plan contributions made by Davis-Bacon Employers that should be included in premium from contributions by Davis-Bacon Employers to other fringe benefit plans that are excludable from premium. The inability of premium auditors to consistently segregate and charge premium on such pension contributions results in inconsistent treatment among Davis-Bacon Employers.

The WCRIBMA proposes to amend Rule V - Premium Basis of the Massachusetts Manual as follows:

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<sup>3</sup> The National Council on Compensation Insurance, Inc (NCCI) Basic Manual Rule 2-B excludes payments made by employers into a third-party pension trust for the Davis-Bacon Act or similar prevailing wage law from remuneration for workers' compensation premium purposes. Although the Basic Manual contains state exceptions (AK, CO, NM, and OR) to Rule 2-B those exceptions also allow for the exclusion of payments made by Davis-Bacon Employers into a third-party pension trust.

## XI 000028

**Rule V.2.n:** will remove from the definition of included remuneration those payments placed by an employer into a third-party pension trust under the Davis-Bacon Act or similar state prevailing wage law.

**Rule V.3.c:** will be added to the definition of excluded remuneration to codify the current practice that excludes from premium those portions of wages paid under the Davis-Bacon Act or similar state prevailing wage laws into third-party employee benefit plans.

This change is expected to result in consistent treatment among similarly-situated employers. It should be noted that these premium exclusions apply only to benefit plan contributions made by the employer. The WCRIBMA is requesting that this change become effective September 1, 2012 and apply to new and renewal policies only. The pages that follow outline the changes required in the Massachusetts Manual.

**RULE V – PREMIUM BASIS**

**2. Inclusions**

Remuneration includes:

- n. Davis-Bacon wages or wages from a similar prevailing wage law paid directly to an employee ; ~~paid to employees or placed by an employer into third party pension trusts;~~

**3. Exclusions**

Remuneration excludes:

- a. Tips and other gratuities received by employees;
- b. Payments by an employer to group insurance or group pension plans for employees, other than payments covered by Rule V-B. 2. f. and Rule V-B. 2. m.;
- c. That portion of Davis-Bacon wages, or similar prevailing wage law, that the employer proves was actually paid before the audit into a separate and distinct third-party employee benefit plan the administration of which the employer, nor any of its officers, directors, or owners, directs or controls.
- d. ~~e.~~ The value of special rewards for individual invention or discovery;
- e. ~~d.~~ Dismissal or severance payments except for time worked or accrued vacation;
- f. ~~e.~~ Payments for active military duty;
- g. ~~f.~~ Employee discounts on goods purchased from the employee’s employer;
- h. ~~g.~~ ~~Expense reimbursements to employees to the extent that an employer’s records substantiate that the expense was incurred as a valid business expense;~~

**NOTE:** Reimbursed expense and flat expense allowances, except for hand or power tools, paid to employees may be excluded from the audit, provided that all three of the following conditions are met:

- 1) the reimbursed expenses or expenses for which allowances were paid were incurred upon the business of the employer, and
- 2) the amount of each employee’s expense payments or allowances is shown separately in the records of the employer, and
- 3) the amount of each expense reimbursement or allowance payment approximates the actual expenses incurred by the employee in the conduct of the employee’s work.

- i. ~~h.~~ Supper money for late work;

## XI 000030

Section XI – Miscellaneous Rating Values  
Subsection K – Davis-Bacon Wages  
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Section XI - K  
Page 5

- j. ~~i~~. Work uniform allowances;
- k. ~~j~~. Sick pay paid to an employee by a third-party such as an insured's group insurance carrier that is paying disability income benefits to a disabled employee;
- l. ~~k~~. Employer provided perquisites (perks) such as:
  - 1) An automobile;
  - 2) An airplane flight;
  - 3) An incentive vacation (e.g., contest winner);
  - 4) A discount on property or services;
  - 5) Club memberships;
  - 6) Tickets to entertainment events.

**Section XI-L – Massachusetts Construction Classification Premium Adjustment**

**Program Credits**

The Massachusetts Construction Classification Premium Adjustment Program (“MCCPAP”) was introduced in 1991. Experience rated insureds who paid wages in excess of \$18/hour for employees classified in eligible construction class codes could apply for a premium credit calculated by the WCRIBMA. In 1991, \$18/hour was approximately 150% of the then-current statewide average hourly wage of \$12/hour. The MCCPAP was intended to benefit employers that paid higher than average wages. Currently, the statewide average hourly wage is about \$28/hour. The WCRIBMA proposes to revise the table of discounts used by the WCRIBMA to calculate MCCPAP credits to reflect the growth of wages during the last twenty years.

The WCRIBMA is also recommending a change in the derivation of the experience rating offset used in the calculation of MCCPAP credits. The experience rating offset is needed to eliminate an overlap that would otherwise exist between the MCCPAP calculation and the experience modification calculation. The current formula for calculating the experience rating offset (Z) is:

$$Z = [ E_p + ( W \times E_x ) ] / ( E + B )$$

- E = Total Expected Losses
- E<sub>p</sub> = Expected Primary Losses
- E<sub>x</sub> = Expected Excess Losses
- W = Weighting Value
- B = Ballast Value

## XI 000032

The values E, E<sub>p</sub>, E<sub>x</sub>, W, and B are taken from an insured's experience modification worksheet. The WCRIBMA recommends the following formula for the experience rating offset (Z):

$$Z = 1.0 - [ E_x \times ( 1 - W ) + B ] / [ M \times ( E + B ) ]$$

M = Experience Modification

The derivation of the new formula begins with the formula for the experience modification.

$$M = \frac{A_p + (A_x \times W) + [E_x \times (1 - W)] + B}{(E + B)}$$

A<sub>p</sub> = Actual Primary Losses

A<sub>x</sub> = Actual Excess Losses

By adjusting the terms in the formula for the experience modification, we can isolate the impact of actual loss experience from the impact of expected loss experience on the experience modification.

$$M = \frac{A_p + (A_x \times W)}{(E + B)} + \frac{[E_x \times (1 - W)] + B}{(E + B)}$$

Next, divide both sides of the equation by the experience modification.

$$1.00 = \frac{A_p + (A_x \times W)}{[M \times (E + B)]} + \frac{[E_x \times (1 - W)] + B}{[M \times (E + B)]}$$

## XI 000033

Now we rearrange terms to isolate the proportion of the experience modification attributable to actual loss experience which equals the offset needed in the MCCPAP credit calculation.

$$Z = \frac{A_p + (A_x \times W)}{M \times (E + B)} = 1.00 - \frac{[E_x \times (1 - W)] + B}{M \times (E + B)}$$

Note that if the experience modification is 1.00, the terms of the recommended new formula can be rearranged to arrive at the current formula for the experience rating offset (Z).

The pages that follow outline the changes required in the Massachusetts Manual. The WCRIBMA is requesting that this change become effective for all MCCPAP credits effective on or after September 1, 2012. Both clean and redlined versions of the revised manual pages are included.

**MASSACHUSETTS CONSTRUCTION CLASSIFICATION PREMIUM ADJUSTMENT PROGRAM**

The Massachusetts Construction Classification Premium Adjustment Program allows for a premium credit to be applied to any experience rated insured with an average hourly wage of at least \$28.00 for one or more of the following construction classifications.

**Eligible Construction Classifications**

3365	5160	5437	5508	6003	7538
3724	5183	5443	5509	6005	7601
3726	5188	5445	5538	6204	7855
5020	5190	5462	5545	6217	8227
5022	5213	5472	5547	6229	9014
5037	5215	5473	5606	6233	9533
5040	5221	5474	5610	6251	9534
5057	5222	5478	5645	6252	
5059	5223	5479	5651	6306	
5069	5348	5480	5701	6319	
5102	5402	5506	5703	6325	
5146	5403	5507	5705	6400	

Carriers are required to provide notice, at policy inception or during the policy term, to any insured that has a policy with one or more of the eligible construction classifications by sending them a "Workers' Compensation Premium Credit Application" form. Refer to Exhibit 1 which illustrates a sample Application. Side One of the form on Page S-11 instructs the insured to complete and sign the application shown on the reverse side of the form, Side Two/Page S-12, and to submit it to the MA Bureau.

For all classifications listed on the policy, the application requests total Massachusetts payroll (excluding overtime premium pay) and hours worked by classification. In the absence of specific records for salaried employees, assume each such individual worked forty (40) hours per week.

Payroll and hours worked should be reported for the third calendar quarter (July, August, September) preceding the policy inception date. However, if the insured did not engage in operations for the reported third quarter, then the last complete quarter prior to the year the policy takes effect shall be used. A credit will be determined for each construction classification by dividing the total payroll, excluding overtime premium pay, by the number of hours worked to arrive at the average hourly wage for the classification.

Upon receipt of an insured's properly completed application, the MA Bureau computes the premium credit factor, if applicable. The credit for average hourly wage is listed below:

<b>Average Hourly Wage</b>			<b>Manual Premium Credit %</b>	<b>Average Hourly Wage</b>			<b>Manual Premium Credit %</b>
\$27.99	or less		0%	\$38.00	-	\$38.99	15%
\$28.00	-	\$28.99	5%	\$39.00	-	\$39.99	16%
\$29.00	-	\$29.99	6%	\$40.00	-	\$40.99	17%
\$30.00	-	\$30.99	7%	\$41.00	-	\$41.99	18%
\$31.00	-	\$31.99	8%	\$42.00	-	\$42.99	19%
\$32.00	-	\$32.99	9%	\$43.00	-	\$43.99	20%
\$33.00	-	\$33.99	10%	\$44.00	-	\$44.99	21%
\$34.00	-	\$34.99	11%	\$45.00	-	\$45.99	22%
\$35.00	-	\$35.99	12%	\$46.00	-	\$46.99	23%
\$36.00	-	\$36.99	13%	\$47.00	-	\$47.99	24%
\$37.00	-	\$37.99	14%	\$48.00	and over		25%

The total construction classification credit amount in dollars must be calculated and then divided by the total policy manual premium for all (construction and non-construction) classifications. The MA Bureau will obtain additional inputs from the Experience Rating Plan Calculation Worksheet to administer offsets required to calculate the policy credit factor. The result would be the percentage credit, which is to be applied to the qualifying policy. When calculating the total policy credit, the percentage shall be rounded to two decimal places. (As an example, .1547 rounded to .15 and .1551 rounded to .16.)

The carrier shall, upon audit, verify the information that was submitted by the insured and used in the calculation of the credit. If the carrier discovers an error in the original request for policy credit, revised information must be submitted to the MA Bureau for recalculation. If the insured does not furnish records to verify the payrolls and hours worked originally submitted and used in the calculation of the credit, there shall be no credit applied to the policy.

If the insured has not submitted a completed application for credit prior to policy's premium audit, the auditor will request that the insured sign an "Acknowledgment of Receipt of Notice Form" with the understanding that a completed and signed original application must be submitted to the MA Bureau before the completion of the premium audit of the affected policy. *Refer to Exhibit 2 on Page S-13.* In any event, the completed and signed application must be received by the MA Bureau within six months of the expiration date of the affected policy, or within one month of the time the insured received notice of the Massachusetts Construction Classification Premium Adjustment Program, whichever is later.

The credit authorized by the MA Bureau shall appear on Item 4. of the Information Page of the policy. The policy credit factor is to be applied in the premium determination process directly after the application of an experience modification. The premium adjustment is included in Standard Premium. *Refer to Appendix E – Voluntary Market Premium Algorithm and Appendix F – Residual Market Premium Algorithm.* If the credit is not available at the time of policy issuance, the carrier shall endorse the policy by use of Massachusetts Construction Classification Premium Adjustment Endorsement (WC 20 04 03) to provide initial notification of the Massachusetts Construction Classification Premium Adjustment Program.

**MASSACHUSETTS CONSTRUCTION CLASSIFICATION PREMIUM ADJUSTMENT PROGRAM**

The Massachusetts Construction Classification Premium Adjustment Program ~~allows~~provides for a premium credit to be applied to any experience rated insured with an average hourly wage of at least \$28.00 for a qualifying policy which contains one or more of the following construction classifications. ~~Only policies subject to experience rating are eligible for the program.~~

~~“Construction classifications” are those classifications subject to the following code numbers:~~

**Eligible Construction Classifications**

3365	5160	5437	5508	6003	7538
3724	5183	5443	5509	6005	7601
3726	5188	5445	5538	6204	7855
5020	5190	5462	5545	6217	8227
5022	5213	5472	5547	6229	9014
5037	5215	5473	5606	6233	9533
5040	5221	5474	5610	6251	9534
5057	5222	5478	5645	6252	
5059	5223	5479	5651	6306	
5069	5348	5480	5701	6319	
5102	5402	5506	5703	6325	
5146	5403	5507	5705	6400	

Carriers are required to provide ~~initial written~~ notice, at policy inception or during the policy term, to any insured ~~that who~~ has a policy with one or more of the eligible construction classifications; ~~that may be eligible for a premium modification credit~~ by sending them a “Workers’ Compensation Premium Credit Application” form. ~~Refer to Exhibit 1 which illustrates a sample Application.~~ Side One of the form on Page S-11 instructs the insured to complete and sign the application shown on the reverse side of the form, Side Two/Page S-12, and to submit return it to the MA Bureau.~~The Workers’ Compensation Rating and Inspection Bureau of Massachusetts.~~ ~~Upon its receipt of an insured’s properly completed application, the Bureau computes the premium credit factor, if applicable.~~

~~Carries are required to use the approval form to notify all of their insureds who have one or more construction classifications on their policy that may be eligible for a premium modification credit.~~

~~For all classifications listed on the policy, the application requests total Massachusetts. The basis for determining the credit is the total payroll (excluding overtime premium pay) and hours worked by for each construction classification, for the third calendar quarter of the year preceding the policy inception date as reported to taxing authorities. If the insured did not engage in operations for the complete quarter, then the last complete quarter prior to the policy year inception shall be used. A credit may be determined for each construction classification by dividing the total payroll, excluding overtime premium pay, by the number of hours worked to arrive at the average hourly wage for the classification. In the absence of specific records for salaried employees, it will be assumed each such individual worked forty (40) hours per week. The credit for average hourly wage is listed below:~~

Payroll and hours worked should be reported for the third calendar quarter (July, August, September) preceding the policy inception date. However, if the insured did not engage in operations for the reported third quarter, then the last complete quarter prior to the year the policy takes effect shall be used. A credit will be determined for each construction classification by dividing the total payroll, excluding overtime premium pay, by the number of hours worked to arrive at the average hourly wage for the classification.

Upon receipt of an insured's properly completed application, the MA Bureau computes the premium credit factor, if applicable. The credit for average hourly wage is listed below:

<u>Average Hourly Wage</u>		<u>Manual Premium Credit %</u>	<u>Average Hourly Wage</u>		<u>Manual Premium Credit %</u>		
<u>\$27.99</u>	<u>or less</u>	<u>0%</u>	<u>\$38.00</u>	<u>-</u>	<u>\$38.99</u>	<u>15%</u>	
<u>\$28.00</u>	<u>-</u>	<u>\$28.99</u>	<u>5%</u>	<u>\$39.00</u>	<u>-</u>	<u>\$39.99</u>	<u>16%</u>
<u>\$29.00</u>	<u>-</u>	<u>\$29.99</u>	<u>6%</u>	<u>\$40.00</u>	<u>-</u>	<u>\$40.99</u>	<u>17%</u>
<u>\$30.00</u>	<u>-</u>	<u>\$30.99</u>	<u>7%</u>	<u>\$41.00</u>	<u>-</u>	<u>\$41.99</u>	<u>18%</u>
<u>\$31.00</u>	<u>-</u>	<u>\$31.99</u>	<u>8%</u>	<u>\$42.00</u>	<u>-</u>	<u>\$42.99</u>	<u>19%</u>
<u>\$32.00</u>	<u>-</u>	<u>\$32.99</u>	<u>9%</u>	<u>\$43.00</u>	<u>-</u>	<u>\$43.99</u>	<u>20%</u>
<u>\$33.00</u>	<u>-</u>	<u>\$33.99</u>	<u>10%</u>	<u>\$44.00</u>	<u>-</u>	<u>\$44.99</u>	<u>21%</u>
<u>\$34.00</u>	<u>-</u>	<u>\$34.99</u>	<u>11%</u>	<u>\$45.00</u>	<u>-</u>	<u>\$45.99</u>	<u>22%</u>
<u>\$35.00</u>	<u>-</u>	<u>\$35.99</u>	<u>12%</u>	<u>\$46.00</u>	<u>-</u>	<u>\$46.99</u>	<u>23%</u>
<u>\$36.00</u>	<u>-</u>	<u>\$36.99</u>	<u>13%</u>	<u>\$47.00</u>	<u>-</u>	<u>\$47.99</u>	<u>24%</u>
<u>\$37.00</u>	<u>-</u>	<u>\$37.99</u>	<u>14%</u>	<u>\$48.00</u>	<u>and over</u>		<u>25%</u>

<u>Average Hourly Wage</u>		<u>Credit From Manual Premium</u>	<u>Average Hourly Wage</u>		<u>Credit From Manual Premium</u>		
<u>17.99</u>	<u>or less</u>	<u>0%</u>	<u>\$23.01</u>	<u>-</u>	<u>\$23.50</u>	<u>15%</u>	
<u>18.00</u>	<u>-</u>	<u>\$18.50</u>	<u>5%</u>	<u>\$23.51</u>	<u>-</u>	<u>\$24.00</u>	<u>16%</u>
<u>\$18.51</u>	<u>-</u>	<u>\$19.00</u>	<u>6%</u>	<u>\$24.01</u>	<u>-</u>	<u>\$24.50</u>	<u>17%</u>
<u>\$19.01</u>	<u>-</u>	<u>\$19.50</u>	<u>7%</u>	<u>\$24.51</u>	<u>-</u>	<u>\$25.00</u>	<u>18%</u>
<u>\$19.51</u>	<u>-</u>	<u>\$20.00</u>	<u>8%</u>	<u>\$25.01</u>	<u>-</u>	<u>\$25.50</u>	<u>19%</u>
<u>\$20.01</u>	<u>-</u>	<u>\$20.50</u>	<u>9%</u>	<u>\$25.51</u>	<u>-</u>	<u>\$26.00</u>	<u>20%</u>
<u>\$20.51</u>	<u>-</u>	<u>\$21.00</u>	<u>10%</u>	<u>\$26.01</u>	<u>-</u>	<u>\$26.50</u>	<u>21%</u>
<u>\$21.01</u>	<u>-</u>	<u>\$21.50</u>	<u>11%</u>	<u>\$26.51</u>	<u>-</u>	<u>\$27.00</u>	<u>22%</u>
<u>\$21.51</u>	<u>-</u>	<u>\$22.00</u>	<u>12%</u>	<u>\$27.01</u>	<u>-</u>	<u>\$27.50</u>	<u>23%</u>
<u>\$22.01</u>	<u>-</u>	<u>\$22.50</u>	<u>13%</u>	<u>\$27.51</u>	<u>-</u>	<u>\$28.00</u>	<u>24%</u>
<u>\$22.51</u>	<u>-</u>	<u>\$23.00</u>	<u>14%</u>	<u>\$28.01</u>	<u>and over</u>		<u>25%</u>

The total construction classification credit amount in dollars must be calculated and then divided by the total policy manual premium for all (construction and non-construction) classifications, at manual rates — including construction and non-construction classifications. The MA Bureau will obtain additional inputs from the Experience Rating Plan Calculation Worksheet to administer offsets required to calculate the policy credit factor. The result would be the percentage credit,

which is to be applied to the qualifying policy. When calculating the total policy credit, the percentage shall be rounded to two decimal places. (As an example, .1547 rounded to .15 and .1551 rounded to .16.)

The carrier shall, upon audit, verify the information that was submitted by the insured and used in the calculation of the credit. If the carrier discovers an error in the original request for policy credit, ~~the~~ revised information must be submitted to the MA Bureau Workers' Compensation Rating and Inspection Bureau of Massachusetts for recalculation. If the insured does not furnish records to verify the payrolls and hours worked originally submitted and used in the calculation of the credit, there shall be no credit applied to the policy.

If the insured has not submitted a completed application for credit prior to policy's premium audit, the auditor will request that the insured ~~to~~ sign an "Acknowledgment of Receipt of Notice Form" with the understanding that a completed and signed original application must be submitted to the MA Bureau before the completion of the premium audit of the affected policy. *Refer to Exhibit 2 on Page S-13.* In any event, the completed and signed application must be received by the MA Bureau within six months of the expiration date of the affected policy, or within one month of the time the insured received ~~written~~ notice of the Massachusetts Construction Classification Premium Adjustment Program, whichever is later.

~~The Bureau will obtain additional inputs from the Experience Rating Plan Calculation Worksheet to administer offsets required to calculate the policy credit factor.~~

The credit authorized by ~~the MA The Workers' Compensation Rating and Inspection Bureau of Massachusetts~~ shall appear on Item 4. of the Information Page of the policy. The policy credit factor is to be applied in the premium determination process directly after the application of an experience modification. The premium adjustment is included in Standard Premium. *Refer to Appendix E – Voluntary Market Premium Algorithm and Appendix F – Residual Market Premium Algorithm.* If the credit is not available at the time of policy issuance, the carrier shall endorse the policy by use of Massachusetts Construction Classification Premium Adjustment Endorsement (WC 20 04 03) to provide initial notification of the Massachusetts Construction Classification Premium Adjustment Program. ~~this credit information.~~

(Name of Insured)  
(Address)  
(Town/City, State, Zip Code)

**PART ONE**  
**SPECIAL PROGRAMS**  
**EXHIBIT 1**  
Side One  
Page S-11

**MASSACHUSETTS CONSTRUCTION CLASSIFICATION  
PREMIUM ADJUSTMENT PROGRAM  
WORKERS' COMPENSATION PREMIUM CREDIT APPLICATION**

The Massachusetts Construction Classification Premium Adjustment Program ("MCCPAP") is only applicable to policies subject to experience rating. It may result in a premium credit based on average hourly wages for each eligible construction classification. To determine if a credit is in order, please submit the completed premium credit application, as shown on the reverse side of this letter to: **The Workers' Compensation Rating and Inspection Bureau of Massachusetts, 101 Arch Street 5<sup>th</sup> Floor, Boston, Massachusetts 02110, Attention: Customer Services.**

The MA Bureau will provide notification to the policyholder and insurer of any applicable MCCPAP credit.

**IMPORTANT:** *Initial notice of possible credit under the MCCPAP is given to you at policy inception or during the policy term. If you have not already submitted an application for credit prior to policy audit, you will be requested to sign a form acknowledging receipt of notice and, at the same time, requested to indicate whether you will apply for a credit. If you apply for a credit, you must submit a completed and signed application to the MA Bureau before the completion of the audit of the affected policy. In any event, the completed and signed application must be received by the MA Bureau within six months of the expiration date of the affected policy, or within one month of the time you receive notice of the Program, whichever is later.*

For all classifications (both construction and non-construction) listed on the policy, the application requests total Massachusetts payroll (excluding overtime premium pay) and the corresponding total number of hours worked for the third calendar quarter (July, August, September) preceding the policy inception date .

- Note #1: If you did not engage in construction operations for the reported third calendar quarter, then the last complete calendar quarter prior to the year the policy takes effect should be used.
- Note #2: If you are either a new business (no prior operations), or an existing business engaged in construction operations for the first time, with a policy subject to experience rating, submit the requested information for the first complete calendar quarter following the inception date of your workers' compensation policy when available.
- Note #3: In the absence of specific records for salaried employers, you should assume that each individual worked forty (40) hours per week.

Please preserve your payroll records which formed the basis for this declaration as we will be required to verify the reported information in order for any premium credit to be applied.

Thank you for your cooperation.

Sincerely,

**Turn Page Over for Premium Credit Application**

**PART ONE  
SPECIAL PROGRAMS  
EXHIBIT 1**  
Side Two  
Page S-12

**WORKERS' COMPENSATION  
MASSACHUSETTS CONSTRUCTION CLASSIFICATION PREMIUM ADJUSTMENT  
PROGRAM APPLICATION**

---

Insured: Sample Construction Co, Inc.

Federal Employers ID No.: 04-123456

123 Main Street  
Address

City MA 02000  
City State Zip

Policy # WC123456789 Effective Date 01/01/06

Carrier Abacus Insurance Company Issuing Office Boston, MA

*Notice: Unless code(s), total wages paid, total hours worked, and calendar quarter reported are indicated and application is signed, it cannot be processed. Contact your agent if assistance is desired.*

CLASSIFICATION(S)	CODE	TOTAL MASSACHUSETTS WAGES PAID <sup>1</sup>	TOTAL HOURS WORKED
Concrete Construction	5213	\$46,176	2,080
Carpentry	5403	32,339	1,560
Excavation	6217	23,639	1,040
Contractors Yard	8227	16,640	1,040
Executive Supervisor	5606	13,000	520
Salesmen	8742	45,000	1,560
Clerical	8810	19,500	2,600

The foregoing is based on actual wages and hours worked, as reflected in our payroll records, for the complete calendar quarter ending 09/30/05.

Signature \_\_\_\_\_ Position \_\_\_\_\_ Date \_\_\_\_\_

<sup>1</sup> Excluding overtime premium pay.

(Name of Insured)  
 (Address)  
 (Town/City, State, Zip Code)

**PART ONE**  
**SPECIAL PROGRAMS**  
**EXHIBIT 1**  
 Side One  
 Page S-11

**MASSACHUSETTS CONSTRUCTION CLASSIFICATION  
 PREMIUM ADJUSTMENT PROGRAM  
 WORKERS' COMPENSATION PREMIUM CREDIT APPLICATION**

The Massachusetts Construction Classification Premium Adjustment Program ("MCCPAP") is only applicable to policies subject to experience rating. It may result in a premium credit based on average hourly wages for each eligible construction classification. To determine if a credit is in order, please submit the completed premium credit application, as shown on the reverse side of this letter to: The Workers' Compensation Rating and Inspection Bureau of Massachusetts, 101 Arch Street 5<sup>th</sup> Floor, Boston, Massachusetts 02110, Attention: Customer Services. ~~has been proposed for employers engaged in construction operations and is applicable to policies eligible for experience rating.~~

~~A special premium calculation, which may result in a premium credit for you, will be based on average hourly pay rates for each classification of construction operations. In order that your premium may be correctly established, please return the completed premium credit application, as shown on the reverse side of this letter to: The Workers' Compensation Rating and Inspection Bureau of Massachusetts, 101 Arch Street 5<sup>th</sup> Floor, Boston, Massachusetts 02110, Attention: Customer Services.~~

The MA Bureau ~~y~~ will provide notification to the policyholder and insurer advise us of any applicable MCCPAP premium credit applicable.

**IMPORTANT:** ~~Initial written notice of possible credit under the MCCPAP this Program is given to you at policy inception or during the policy term. If you have not already submitted an application for credit prior to policy audit, you will be requested to sign a form acknowledging receipt of notice and, at the same time, requested to indicate whether you will apply for a credit. If you apply for a credit, you must submit a completed and signed application to the MA Bureau before the completion of the audit of the affected policy. In any event, the completed and signed application must be received by the MA Bureau within six months of the expiration date of the affected policy, or within one month of the time you receive written notice of the Program, whichever is later.~~

~~For all classifications each applicable classification (both construction and non-construction) listed on the policy, the application requests total covering your company's operations in the State of Massachusetts, report the total Massachusetts payroll (excluding overtime premium pay) and the corresponding total number of hours worked for the third calendar quarter (July, August, September) preceding the policy inception date as reported to taxing authorities.~~

Note #1: If you did not engage in construction operations for the reported during the most recent third calendar quarter, then the last requested information to be provided should then be for the last complete calendar quarter prior to the year effective date of your workers' compensation the policy takes effect should be used.

Note #2: If you are either a new business (no prior operations), or an existing business engaged in construction operations for the first time, with a policy subject to experience rating, submit the requested information for the first complete calendar quarter following the inception effective date of your workers' compensation policy when available.

Note #3: In the absence of specific records for salaried employers, you should assume that each individual worked forty (40) hours per week.

Please preserve your payroll records which formed the basis for this declaration as we will be required to verify the reported information in order for any premium credit to be applied.

(Name of Insured)  
(Address)  
(Town/City, State, Zip Code)

**PART ONE**  
**SPECIAL PROGRAMS**  
**EXHIBIT 1**  
Side One  
Page S-11

Thank you for your cooperation.

Sincerely,

**Turn Page Over for Premium Credit Application**

**DRAFT**

**PART ONE  
SPECIAL PROGRAMS  
EXHIBIT 1**  
Side Two  
Page S-12

**WORKERS' COMPENSATION  
MASSACHUSETTS CONSTRUCTION CLASSIFICATION PREMIUM ADJUSTMENT  
PROGRAM APPLICATION**

---

Insured: Sample Construction Co, Inc.

Federal Employers ID No.: 04-123456

123 Main Street  
Address

City MA 02000  
City State Zip

Policy # WC123456789 Effective Date 01/01/06

Carrier Abacus Insurance Company Issuing Office Boston, MA

*Notice: Unless code(s), total wages paid, total hours worked, and calendar quarter reported are indicated and application is signed, it cannot be processed. Contact your agent if assistance is desired.*

CLASSIFICATION(S)	CODE	TOTAL MASSACHUSETTS WAGES PAID <sup>1</sup>	TOTAL HOURS WORKED
Concrete Construction	5213	\$46,176	2,080
Carpentry	5403	32,339	1,560
Excavation	6217	23,639	1,040
Contractors Yard	8227	16,640	1,040
Executive Supervisor	5606	13,000	520
Salesmen	8742	45,000	1,560
Clerical	8810	19,500	2,600

The foregoing is based on actual wages and hours worked, as reflected in our payroll records, for the complete calendar quarter ending 09/30/05.

Signature \_\_\_\_\_ Position \_\_\_\_\_ Date \_\_\_\_\_

<sup>1</sup> Excluding overtime premium pay.

**Section XI-M – All Risk Adjustment Program (“ARAP”) maximum surcharge factor**

The WCRIBMA is filing to reinstate the 1.49 maximum ARAP surcharge factor that was in effect prior to the September 1, 2007 to increase incentives for insureds to work with insurers to improve workplace safety and reduce claim frequency and to manage claims severity when accidents occur. The page that follows is a revised Massachusetts state exception page for the Experience Rating Plan Manual – 2003 Edition. The WCRIBMA is requesting that this change become effective for all ARAP surcharge factors effective on or after September 1, 2012.

Experience Rating Plan Manual—2003 Edition

MISCELLANEOUS RULES

**MERIT RATING PLAN** *Effective 01 July 2006*

The *Experience Rating Plan Manual* rules apply to the Merit Rating Program, subject to the following:

**1. Purpose**

The object of the Merit Rating Program is to provide a revised pricing mechanism for risks too small to qualify for experience rating to share in the loss experience they generate.

**2. Eligibility**

A risk is eligible for the Merit Rating Program if it has an average Subject Premium over the last three policy years of \$500 or more, unless the risk is eligible for experience rating on either an intrastate or interstate basis.

**3. Application**

The Merit Rating Program Adjustment, expressed as a debit or credit factor, is applied to the Subject Premium. The resultant premium, if a debit or credit, is added to or subtracted from the Subject Premium. This becomes the Standard Premium. Merit Rating Program Adjustment factors will appear on all Merit Rating worksheets when applicable.

The Merit Rating Program does not apply to an interstate rated risk with Massachusetts exposure. If the risk is eligible for interstate experience rating, an interstate experience modification that includes Massachusetts experience will be issued.

**4. Merit Rating Adjustment**

The merit rating credits and debits, which are based on lost-time claims (i.e., claims reported with incurred indemnity) that occurred during the experience period, are as follows:

Number of Lost-Time Claims	Merit Rating Adjustment
0	5% credit
1	No credit or debit
2 or more	5% debit

**Exception:** All claims reported with Catastrophe Number 48 are excluded from merit rating.

**ALL RISK ADJUSTMENT PROGRAM (ARAP)** *Effective 01 Sep 2012*

The *Experience Rating Plan Manual* rules apply to All Risk Adjustment Program (ARAP), subject to the following:

**1. Purpose**

The object of the ARAP is to provide a revised pricing mechanism for experience rated risks to share the underwriting losses they generate.

**2. Eligibility**

A risk is eligible for the ARAP if it is eligible for intrastate or interstate experience rating, and the “R” value for the insured is greater than 1.0 as shown in 4-c.

**3. Application**

The ARAP surcharge factor, expressed as a debit factor, is calculated following calculation of the experience rating modification and appears on the experience rating worksheet when applicable. This surcharge factor is applied to Standard Premium after experience rating to surcharge risks with a greater record of losses than expected under the experience rating plan.

Experience rated risks with multistate operations are subject to the ARAP for that portion of the risk in Massachusetts. The ARAP surcharge is:

- Calculated using Massachusetts losses and expected losses, and
- Applied to the Massachusetts portion of the risks

**4. Calculation**

The ARAP surcharge factor for eligible risks is determined as follows:

- a. After the calculation of the experience modification factor (M) for a particular risk, the weighted test ratio (R) is calculated.

- b. To determine whether the “R” value for the insured is greater than 1.0, the following information is needed from the experience rating calculation using Massachusetts data only:

- W = Weighting value, calculated on an intrastate basis
- A = Actual losses, as limited on a per accident basis
- Ap = Actual primary losses
- E = Total expected losses
- Ep = Expected primary losses
- M = Normal experience rating modification, calculated on an intrastate basis

- c. To determine the “R” value (weighted test ratio), the numbers derived from a. above are inserted into the formula:

$$R = \frac{((0.5 - 0.5W) \times Ap)}{(M \times Ep)} + \frac{((0.5 + 0.5W) \times A)}{(M \times E)}$$

- d. To determine the surcharge factor (called S) for qualified risks, the following formula is used:

$$S = 1 + \left[ \frac{(.08 \times E \times ((R - 1)^{1.25}))}{(E + 3)^{0.5}} \right]$$

In the calculation for S, E (Total expected losses) is divided by one thousand and may not exceed 40, while R may not exceed 2.0. **The maximum ARAP surcharge factor based on this formula is 1.49.**

- ~~e. The surcharge factor is limited to a maximum of 1.25.~~

**RETROSPECTIVE RATING PLANS**

The NCCI's Retrospective Rating Plan has been adopted for use in Massachusetts. 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.

The calculations in this section are similar to those used by the Commissioner in her 2003 decision and used by the WCRIBMA in the 2005, 2007, 2008, 2010 and 2011 rate filings. The calculations appear in Sections XII-A, XII-B and XII-C. This year, consistent with the 2011 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

## XII 000003

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.

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, hence 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 September 1, 2012*

**1. Hazard Group Differentials**

A	B	C	D	E	F	G
1.83	1.43	1.23	1.12	0.92	0.74	0.56

**2. Tax Multipliers**

a. State (non-F Classes)	1.035*
b. Federal Classes, or non-F classes where rate is increased by the USL&HW Act Percentage	1.111*

\* Includes 0.37% residual market subsidy provision and 0.07% insolvency fund assessment provision

**3. Expected Loss Ratio**

0.570

**Expected Loss and Allocated Loss Adjustment Expense Ratio (ALAE Option)**

0.635

**4. Loss Conversion Factor**

1.192

**Loss Conversion Factor for Allocated Loss Adjustment Expense Option (ALAE Option)**

1.068

**5. Table of Expense Ratios Excluding Taxes and Including Profit**

**Type A Company**

Massachusetts  
 Effective September 1, 2012

**Type B Company**

Massachusetts  
 Effective September 1, 2012

**Table of Expense Ratios Excluding Allocated Loss Adjustment Expense and Taxes and Including Profit (ALAE Option)**

**Type A Company**

Massachusetts  
 Effective September 1, 2012

**Type B Company**

Massachusetts  
 Effective September 1, 2012

**6. 2012—Table of Expected Loss Ranges**

September 1, 2012

**7a.**

**Excess Loss Factors**

(Applicable to New and Renewal Policies)

Per Accident Limitation	Hazard Groups						
	A	B	C	D	E	F	G
\$25,000	0.355	0.378	0.400	0.419	0.437	0.464	0.494
30,000	0.338	0.362	0.385	0.406	0.424	0.452	0.485
35,000	0.323	0.348	0.371	0.394	0.413	0.441	0.477
40,000	0.310	0.335	0.359	0.383	0.402	0.431	0.470
50,000	0.286	0.312	0.337	0.363	0.383	0.413	0.456
75,000	0.241	0.266	0.293	0.323	0.344	0.375	0.426
100,000	0.207	0.232	0.259	0.291	0.312	0.343	0.399
125,000	0.181	0.203	0.231	0.264	0.285	0.314	0.376
150,000	0.160	0.181	0.207	0.241	0.261	0.289	0.355
175,000	0.143	0.161	0.187	0.221	0.239	0.267	0.335
200,000	0.129	0.145	0.170	0.204	0.220	0.247	0.318
250,000	0.106	0.120	0.143	0.175	0.189	0.213	0.286
300,000	0.089	0.101	0.122	0.152	0.165	0.187	0.260
500,000	0.052	0.059	0.074	0.096	0.104	0.120	0.185
1,000,000	0.024	0.027	0.035	0.047	0.051	0.060	0.101
2,000,000	0.011	0.012	0.016	0.022	0.024	0.028	0.050
3,000,000	0.006	0.007	0.009	0.013	0.015	0.017	0.032
4,000,000	0.004	0.005	0.007	0.009	0.010	0.012	0.023
5,000,000	0.003	0.004	0.005	0.007	0.008	0.009	0.018

# XII 000005

**MASSACHUSETTS  
 RR2**

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

*Proposed Effective September 1, 2012*

**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	0.406	0.431	0.455	0.476	0.495	0.525	0.556
30,000	0.388	0.414	0.439	0.461	0.482	0.512	0.547
35,000	0.372	0.399	0.424	0.448	0.469	0.501	0.538
40,000	0.357	0.385	0.411	0.436	0.458	0.490	0.530
50,000	0.332	0.360	0.388	0.415	0.437	0.471	0.516
75,000	0.282	0.311	0.341	0.373	0.396	0.430	0.484
100,000	0.245	0.273	0.303	0.338	0.362	0.396	0.457
125,000	0.216	0.242	0.273	0.309	0.333	0.366	0.432
150,000	0.192	0.216	0.247	0.284	0.307	0.339	0.409
175,000	0.173	0.195	0.225	0.263	0.283	0.315	0.389
200,000	0.157	0.176	0.205	0.243	0.262	0.293	0.370
250,000	0.130	0.147	0.174	0.211	0.228	0.256	0.336
300,000	0.110	0.125	0.149	0.184	0.199	0.225	0.307
500,000	0.066	0.074	0.092	0.119	0.129	0.148	0.223
1,000,000	0.030	0.034	0.044	0.059	0.064	0.075	0.125
2,000,000	0.013	0.015	0.020	0.027	0.030	0.035	0.063
3,000,000	0.008	0.009	0.012	0.017	0.019	0.022	0.040
4,000,000	0.006	0.006	0.008	0.012	0.013	0.015	0.029
5,000,000	0.004	0.005	0.006	0.009	0.010	0.012	0.022

**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  
9/1/2012

Section XII - A  
Exhibit 3

### Expense Provisions Underlying the Proposed Retrospective Rating Plans

Total Expenses:	
(1) Commission and Other Acquisition Expenses	12.2%
(2) Fixed Expenses	4.4%
(3) Premium Discount	5.2%
(4) Underwriting Profit Provision	<u>6.8%</u>
(5) Total Expenses Excluding Taxes and Assessments ( = (1) + (2) + (3) + (4) )	28.7%
(6) Current Premium Tax Rate	2.28%
(7) Miscellaneous Taxes	0.62%
(8) Retro Provision for the Residual Market Subsidy	0.37%
(9) Insolvency Fund Assessment	<u>0.07%</u>
(10) Tax Multiplier ( = 1.0 / { 1.0 - [ (6) + (7) + (8) + (9) ] } )	1.035
(11) Expected Loss and LAE Ratio (adjusted for Residual Market Subsidy) ( = [ 1.0 / (10) ] - (5) )	67.9%
(12) Loss Adjustment Expense (as percentage of losses)	19.2%
(13) Loss Conversion Factor ( = 1.0 + (12) )	1.192
(14) Expected Loss without LAE ( = (11) / (13) )	57.0%
(15) Expenses excluding Premium Taxes but including LAE ( = (5) + [ (12) x (14) ] )	39.7%

#### Notes:

- (1): Section VI-A, Exhibit 1, line (1).  
(2): Section VI-A, Exhibit 1, line (7), less the provision for miscellaneous taxes, see line (7) below.  
(3): Average Voluntary Premium Discount as a Percent of Standard Premium / ( 1.0 + Average ARAP Surcharge )  
 $5.2\% = 5.6\% / (1.0 + 6.9\%)$   
 $= [ \text{Section VI-H, Exhibit 1, line (3)} ] / \{ 1.0 + [ \text{Section VI-H, Exhibit 1, line (6)} ] \}$   
(4): Section VII-B, Exhibit 1.  
(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.  
(9): Section I-E, Exhibit 1, page 1.  
(12): Section VI-A, Exhibit 1, line (9).

## XII 000007

Section XII - Retrospective Rating  
Subsection A - Expenses  
9/1/2012

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)	57.0%
(2) Provision for ALAE Expenses (as percentage of losses)	11.5%
(3) Expected Loss plus ALAE Ratio ( = (1) x [ 1.0 + (2) ] )	63.5%
(4) Loss Adjustment Expense (as percentage of losses)	19.2%
(5) Loss Conversion Factor ( = [ 1.0 + (4) ] / [ 1.0 + (2) ] )	1.069
(6) Tax Multiplier	1.035
(7) Expenses excluding Premium Taxes but including LAE (as percentage of Standard Premium plus ARAP)	39.7%
(8) Expenses including all AO Expenses but excluding ALAE Expenses and Premium Taxes ( = (7) - [ (1) x (2) ] )	33.1%

#### Notes:

(1): Exhibit 3,

(2): Section VI-K, Exhibit 1, line (4), DCC assumed a proxy for ALAE.

## XII 000008

Section XII - Retrospective Rating  
Subsection B - Residual Market Subsidy  
9/1/2012

Section XII - B  
Exhibit 1

### Calculation of the Provision for the Residual Market Subsidy

(1) Voluntary Market Implied Rate Factor Equivalent	0.995
(2) Factor to Take into Account Basic Premium	0.800
(3) Retro Provision for the Residual Market Subsidy	0.004

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 September 1, 2012*

**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	0.397	18,158	18,540	0.357	104,389	118,451	0.317
10,058	10,174	0.396	18,541	18,940	0.356	118,452	136,894	0.316
10,175	10,293	0.395	18,941	19,357	0.355	136,895	162,138	0.315
10,294	10,415	0.394	19,358	19,792	0.354	162,139	198,798	0.314
10,416	10,539	0.393	19,793	20,248	0.353	198,799	207,889	0.313
10,540	10,667	0.392	20,249	20,725	0.352	207,890	216,668	0.312
10,668	10,798	0.391	20,726	21,226	0.351	216,669	226,222	0.311
10,799	10,933	0.390	21,227	21,751	0.350	226,223	236,657	0.310
10,934	11,070	0.389	21,752	22,303	0.349	236,658	248,102	0.309
11,071	11,211	0.388	22,304	22,883	0.348	248,103	260,709	0.308
11,212	11,356	0.387	22,884	23,494	0.347	260,710	274,667	0.307
11,357	11,505	0.386	23,495	24,140	0.346	274,668	290,204	0.306
11,506	11,657	0.385	24,141	24,821	0.345	290,205	307,603	0.305
11,658	11,814	0.384	24,822	25,542	0.344	307,604	327,222	0.304
11,815	11,975	0.383	25,543	26,306	0.343	327,223	349,515	0.303
11,976	12,140	0.382	26,307	27,118	0.342	349,516	375,066	0.302
12,141	12,310	0.381	27,119	27,981	0.341	375,067	404,649	0.301
12,311	12,485	0.380	27,982	28,900	0.340	404,650	439,297	0.300
12,486	12,665	0.379	28,901	29,883	0.339	439,298	480,434	0.299
12,666	12,850	0.378	29,884	30,934	0.338	480,435	530,072	0.298
12,851	13,041	0.377	30,935	32,062	0.337	530,073	591,149	0.297
13,042	13,237	0.376	32,063	33,275	0.336	591,150	668,135	0.296
13,238	13,439	0.375	33,276	34,584	0.335	668,136	768,174	0.295
13,440	13,648	0.374	34,585	36,000	0.334	768,175	903,445	0.294
13,649	13,863	0.373	36,001	37,537	0.333	903,446	1,096,541	0.293
13,864	14,085	0.372	37,538	39,211	0.332	1,096,542	1,394,616	0.292
14,086	14,314	0.371	39,212	41,042	0.331	1,394,617	1,785,868	0.291
14,315	14,551	0.370	41,043	43,051	0.330	1,785,869	1,943,344	0.290
14,552	14,796	0.369	43,052	45,268	0.329	1,943,345	2,131,278	0.289
14,797	15,049	0.368	45,269	47,725	0.328	2,131,279	2,359,452	0.288
15,050	15,311	0.367	47,726	50,464	0.327	2,359,453	2,642,340	0.287
15,312	15,583	0.366	50,465	53,537	0.326	2,642,341	3,002,303	0.286
15,584	15,864	0.365	53,538	57,009	0.325	3,002,304	3,475,810	0.285
15,865	16,156	0.364	57,010	60,961	0.324	3,475,811	4,126,640	0.284
16,157	16,458	0.363	60,962	65,503	0.323	4,126,641	5,077,351	0.283
16,459	16,772	0.362	65,504	70,776	0.322	5,077,352	6,597,252	0.282
16,773	17,098	0.361	70,777	76,972	0.321	6,597,253	9,415,893	0.281
17,099	17,437	0.360	76,973	84,357	0.320	9,415,894	16,439,640	0.280
17,438	17,790	0.359	84,358	93,309	0.319	16,439,641	64,709,220	0.279
17,791	18,157	0.358	93,310	104,388	0.318	64,709,221	OVER	0.278

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

0.570

Tax Multiplier

1.035

**MASSACHUSETTS** **RETROSPECTIVE RATING PLAN MANUAL**  
**RR6** **STATE SPECIAL RATING VALUES**

*Proposed Effective September 1, 2012*

**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	- 10,103	0.397	19,890	- 20,725	0.372	240,422	- 259,965	0.347
10,104	- 10,314	0.396	20,726	- 21,635	0.371	259,966	- 282,966	0.346
10,315	- 10,534	0.395	21,636	- 22,629	0.370	282,967	- 310,434	0.345
10,535	- 10,765	0.394	22,630	- 23,718	0.369	310,435	- 343,807	0.344
10,766	- 11,005	0.393	23,719	- 24,918	0.368	343,808	- 385,220	0.343
11,006	- 11,256	0.392	24,919	- 26,245	0.367	385,221	- 437,976	0.342
11,257	- 11,520	0.391	26,246	- 27,721	0.366	437,977	- 507,474	0.341
11,521	- 11,795	0.390	27,722	- 29,374	0.365	507,475	- 603,189	0.340
11,796	- 12,085	0.389	29,375	- 31,236	0.364	603,190	- 743,403	0.339
12,086	- 12,388	0.388	31,237	- 33,350	0.363	743,404	- 968,544	0.338
12,389	- 12,708	0.387	33,351	- 35,771	0.362	968,545	- 1,389,297	0.337
12,709	- 13,044	0.386	35,772	- 38,571	0.361	1,389,298	- 1,833,884	0.336
13,045	- 13,399	0.385	38,572	- 41,846	0.360	1,833,885	- 2,017,939	0.335
13,400	- 13,774	0.384	41,847	- 45,730	0.359	2,017,940	- 2,243,061	0.334
13,775	- 14,170	0.383	45,731	- 50,408	0.358	2,243,062	- 2,524,719	0.333
14,171	- 14,589	0.382	50,409	- 56,152	0.357	2,524,720	- 2,887,270	0.332
14,590	- 15,034	0.381	56,153	- 63,374	0.356	2,887,271	- 3,371,405	0.331
15,035	- 15,507	0.380	63,375	- 72,727	0.355	3,371,406	- 4,050,608	0.330
15,508	- 16,011	0.379	72,728	- 85,320	0.354	4,050,609	- 5,072,517	0.329
16,012	- 16,549	0.378	85,321	- 103,187	0.353	5,072,518	- 6,784,026	0.328
16,550	- 17,124	0.377	103,188	- 130,518	0.352	6,784,027	- 10,238,622	0.327
17,125	- 17,741	0.376	130,519	- 177,546	0.351	10,238,623	- 20,862,155	0.326
17,742	- 18,403	0.375	177,547	- 208,998	0.350	20,862,156	- OVER	0.325
18,404	- 19,117	0.374	208,999	- 223,611	0.349			
19,118	- 19,889	0.373	223,612	- 240,421	0.348			

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

0.570

Tax Multiplier

1.035

RETROSPECTIVE RATING PLAN MANUAL				MASSACHUSETTS				
STATE SPECIAL RATING VALUES				RR7				
<i>Proposed Effective September 1, 2012</i>								
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	0.331	18,158	- 18,540	0.291	104,389	- 118,451	0.251
10,058	- 10,174	0.330	18,541	- 18,940	0.290	118,452	- 136,894	0.250
10,175	- 10,293	0.329	18,941	- 19,357	0.289	136,895	- 162,138	0.249
10,294	- 10,415	0.328	19,358	- 19,792	0.288	162,139	- 198,798	0.248
10,416	- 10,539	0.327	19,793	- 20,248	0.287	198,799	- 207,889	0.247
10,540	- 10,667	0.326	20,249	- 20,725	0.286	207,890	- 216,668	0.246
10,668	- 10,798	0.325	20,726	- 21,226	0.285	216,669	- 226,222	0.245
10,799	- 10,933	0.324	21,227	- 21,751	0.284	226,223	- 236,657	0.244
10,934	- 11,070	0.323	21,752	- 22,303	0.283	236,658	- 248,102	0.243
11,071	- 11,211	0.322	22,304	- 22,883	0.282	248,103	- 260,709	0.242
11,212	- 11,356	0.321	22,884	- 23,494	0.281	260,710	- 274,667	0.241
11,357	- 11,505	0.320	23,495	- 24,140	0.280	274,668	- 290,204	0.240
11,506	- 11,657	0.319	24,141	- 24,821	0.279	290,205	- 307,603	0.239
11,658	- 11,814	0.318	24,822	- 25,542	0.278	307,604	- 327,222	0.238
11,815	- 11,975	0.317	25,543	- 26,306	0.277	327,223	- 349,515	0.237
11,976	- 12,140	0.316	26,307	- 27,118	0.276	349,516	- 375,066	0.236
12,141	- 12,310	0.315	27,119	- 27,981	0.275	375,067	- 404,649	0.235
12,311	- 12,485	0.314	27,982	- 28,900	0.274	404,650	- 439,297	0.234
12,486	- 12,665	0.313	28,901	- 29,883	0.273	439,298	- 480,434	0.233
12,666	- 12,850	0.312	29,884	- 30,934	0.272	480,435	- 530,072	0.232
12,851	- 13,041	0.311	30,935	- 32,062	0.271	530,073	- 591,149	0.231
13,042	- 13,237	0.310	32,063	- 33,275	0.270	591,150	- 668,135	0.230
13,238	- 13,439	0.309	33,276	- 34,584	0.269	668,136	- 768,174	0.229
13,440	- 13,648	0.308	34,585	- 36,000	0.268	768,175	- 903,445	0.228
13,649	- 13,863	0.307	36,001	- 37,537	0.267	903,446	- 1,096,541	0.227
13,864	- 14,085	0.306	37,538	- 39,211	0.266	1,096,542	- 1,394,616	0.226
14,086	- 14,314	0.305	39,212	- 41,042	0.265	1,394,617	- 1,785,868	0.225
14,315	- 14,551	0.304	41,043	- 43,051	0.264	1,785,869	- 1,943,344	0.224
14,552	- 14,796	0.303	43,052	- 45,268	0.263	1,943,345	- 2,131,278	0.223
14,797	- 15,049	0.302	45,269	- 47,725	0.262	2,131,279	- 2,359,452	0.222
15,050	- 15,311	0.301	47,726	- 50,464	0.261	2,359,453	- 2,642,340	0.221
15,312	- 15,583	0.300	50,465	- 53,537	0.260	2,642,341	- 3,002,303	0.220
15,584	- 15,864	0.299	53,538	- 57,009	0.259	3,002,304	- 3,475,810	0.219
15,865	- 16,156	0.298	57,010	- 60,961	0.258	3,475,811	- 4,126,640	0.218
16,157	- 16,458	0.297	60,962	- 65,503	0.257	4,126,641	- 5,077,351	0.217
16,459	- 16,772	0.296	65,504	- 70,776	0.256	5,077,352	- 6,597,252	0.216
16,773	- 17,098	0.295	70,777	- 76,972	0.255	6,597,253	- 9,415,893	0.215
17,099	- 17,437	0.294	76,973	- 84,357	0.254	9,415,894	- 16,439,640	0.214
17,438	- 17,790	0.293	84,358	- 93,309	0.253	16,439,641	- 64,709,220	0.213
17,791	- 18,157	0.292	93,310	- 104,388	0.252	64,709,221	- OVER	0.212

Table based on the following discounts:			Expected Loss and Allocated Loss Adjustment Expense Ratio (ALAE Option)	
Standard Premium	Discount		0.635	
First	10,000	0.0%	Tax Multiplier 1.035	
Next	190,000	9.1%		
Next	1,550,000	11.3%		
Over	1,750,000	12.3%		

**XII 000012**

**MASSACHUSETTS** **RETROSPECTIVE RATING PLAN MANUAL**  
**RR8** **STATE SPECIAL RATING VALUES**  
*Proposed Effective September 1, 2012*

**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	- 10,103	0.331	19,890	- 20,725	0.306	240,422	- 259,965	0.281
10,104	- 10,314	0.330	20,726	- 21,635	0.305	259,966	- 282,966	0.280
10,315	- 10,534	0.329	21,636	- 22,629	0.304	282,967	- 310,434	0.279
10,535	- 10,765	0.328	22,630	- 23,718	0.303	310,435	- 343,807	0.278
10,766	- 11,005	0.327	23,719	- 24,918	0.302	343,808	- 385,220	0.277
11,006	- 11,256	0.326	24,919	- 26,245	0.301	385,221	- 437,976	0.276
11,257	- 11,520	0.325	26,246	- 27,721	0.300	437,977	- 507,474	0.275
11,521	- 11,795	0.324	27,722	- 29,374	0.299	507,475	- 603,189	0.274
11,796	- 12,085	0.323	29,375	- 31,236	0.298	603,190	- 743,403	0.273
12,086	- 12,388	0.322	31,237	- 33,350	0.297	743,404	- 968,544	0.272
12,389	- 12,708	0.321	33,351	- 35,771	0.296	968,545	- 1,389,297	0.271
12,709	- 13,044	0.320	35,772	- 38,571	0.295	1,389,298	- 1,833,884	0.270
13,045	- 13,399	0.319	38,572	- 41,846	0.294	1,833,885	- 2,017,939	0.269
13,400	- 13,774	0.318	41,847	- 45,730	0.293	2,017,940	- 2,243,061	0.268
13,775	- 14,170	0.317	45,731	- 50,408	0.292	2,243,062	- 2,524,719	0.267
14,171	- 14,589	0.316	50,409	- 56,152	0.291	2,524,720	- 2,887,270	0.266
14,590	- 15,034	0.315	56,153	- 63,374	0.290	2,887,271	- 3,371,405	0.265
15,035	- 15,507	0.314	63,375	- 72,727	0.289	3,371,406	- 4,050,608	0.264
15,508	- 16,011	0.313	72,728	- 85,320	0.288	4,050,609	- 5,072,517	0.263
16,012	- 16,549	0.312	85,321	- 103,187	0.287	5,072,518	- 6,784,026	0.262
16,550	- 17,124	0.311	103,188	- 130,518	0.286	6,784,027	- 10,238,622	0.261
17,125	- 17,741	0.310	130,519	- 177,546	0.285	10,238,623	- 20,862,155	0.260
17,742	- 18,403	0.309	177,547	- 208,998	0.284	20,862,156	- OVER	0.259
18,404	- 19,117	0.308	208,999	- 223,611	0.283			
19,118	- 19,889	0.307	223,612	- 240,421	0.282			

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)

0.635

Tax Multiplier

1.035

# XII 000013

Section XII - Retrospective Rating  
 Subsection D - NCCI's Item R-1403  
 9/1/2012

Section XII - D  
 Exhibit 1  
 Page 1

NATIONAL COUNCIL ON COMPENSATION INSURANCE, INC.

R-1403  
 PAGE 38

ITEM R-1403—2011 UPDATE TO RETROSPECTIVE RATING PLAN PARAMETERS—EXPECTED LOSS RANGES AND STATE HAZARD GROUP DIFFERENTIALS—AND CREATION OF RETROSPECTIVE RATING PLAN MANUAL APPENDIX D

EXHIBIT 3

DEVELOPMENT OF RHODE ISLAND HAZARD GROUP DIFFERENTIALS/RELATIVITIES FOR HAZARD GROUPS A TO G

- Step 1.** 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 varies by state. 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 state hazard group are produced. A new countrywide average severity is calculated by taking the weighted average of the formula for state severities using claim counts as weights.
- Step 4.** The relativities are calculated by dividing the countrywide severity by the individual state hazard group severities. The final relativities are derived by capping the indicated relativities at a 15.0% increase or decrease from the prior update.

<u>Step 1</u>	<u>Hazard Group</u>	<u>Rhode Island</u>	<u>Countrywide</u>
Severities	A	18,108	32,299
	B	24,411	44,134
	C	27,098	49,538
	D	29,941	54,838
	E	34,464	64,617
	F	41,873	78,535
	G	54,409	103,311
<u>Step 2</u>	Claim Count	= 22,072	
	Credibility	= (22,072 / 155,000) ^ 0.5 = 0.377	
<u>Step 3</u>	<u>Hazard Group</u>	<u>Rhode Island</u>	
Credibility Weighted Severities	A	26,944	= (0.377)(18,108) + (0.623)(32,299)
	B	36,692	
	C	41,070	
	D	45,443	
	E	53,239	
	F	64,700	
	G	84,857	
	Countrywide Overall:	57,027	
<u>Step 4</u>	<u>Hazard Group</u>	<u>Relativities</u>	
Relativities	A	2.12	= 57,027 / 26,944
	B	1.55	
	C	1.39	
	D	1.25	
	E	1.07	
	F	0.88	
	G	0.67	

Note: The underlying data source for the above calculations is NCCI's *Statistical Plan Manual 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 D - NCCI's Item R-1403  
 9/1/2012

Section XII - D  
 Exhibit 1  
 Page 2

**NATIONAL COUNCIL ON COMPENSATION INSURANCE, INC.**

**R-1403  
 PAGE 4**

**ITEM R-1403—2011 UPDATE TO RETROSPECTIVE RATING PLAN PARAMETERS—EXPECTED LOSS RANGES AND  
 STATE HAZARD GROUP DIFFERENTIALS—AND CREATION OF RETROSPECTIVE RATING PLAN MANUAL APPENDIX D**

**EXHIBIT 1**

**RETROSPECTIVE RATING PLAN MANUAL—2009 EDITION**

**APPENDIX A**

**2012—TABLE OF EXPECTED LOSS RANGES**

(Applies in: AK, AL, AR, AZ, CO, CT, DC, GA, HI, IA, ID, IL, IN, KS, KY, LA, MD, ME, MI, MO, MS,  
 MT, NC, NE, NH, NM, NV, OK, OR, RI, SC, SD, TN, TX, UT, VT, WI, WV)

Expected Loss Group	Range Rounded Values	Expected Loss Group	Range Rounded Values	Expected Loss Group	Range Rounded Values
95	1,069 — 1,668	65	89,596 — 96,768	35	1,117,459 — 1,254,650
94	1,669 — 2,469	64	96,769 — 104,515	34	1,254,651 — 1,408,687
93	2,470 — 3,262	63	104,516 — 112,881	33	1,408,688 — 1,606,329
92	3,263 — 4,312	62	112,882 — 121,917	32	1,606,330 — 1,846,373
91	4,313 — 5,608	61	121,918 — 131,677	31	1,846,374 — 2,122,290
90	5,609 — 6,774	60	131,678 — 142,246	30	2,122,291 — 2,439,441
89	6,775 — 8,175	59	142,247 — 153,803	29	2,439,442 — 2,899,798
88	8,176 — 9,490	58	153,804 — 166,063	28	2,899,799 — 3,467,527
87	9,491 — 11,016	57	166,064 — 178,922	27	3,467,528 — 4,146,414
86	11,017 — 12,778	56	178,923 — 192,782	26	4,146,415 — 5,111,668
85	12,779 — 14,451	55	192,783 — 207,716	25	5,111,669 — 6,504,746
84	14,452 — 16,337	54	207,717 — 224,594	24	6,504,747 — 8,277,480
83	16,338 — 18,450	53	224,595 — 242,913	23	8,277,481 — 10,577,165
82	18,451 — 20,529	52	242,914 — 262,733	22	10,577,166 — 13,534,484
81	20,530 — 22,841	51	262,734 — 284,159	21	13,534,485 — 17,318,654
80	22,842 — 25,410	50	284,160 — 306,638	20	17,318,655 — 22,160,857
79	25,411 — 28,271	49	306,639 — 330,841	19	22,160,858 — 28,356,911
78	28,272 — 31,196	48	330,842 — 357,128	18	28,356,912 — 38,897,361
77	31,197 — 34,345	47	357,129 — 388,536	17	38,897,362 — 57,528,883
76	34,346 — 37,816	46	388,537 — 422,704	16	57,528,884 — 85,084,766
75	37,817 — 41,556	45	422,705 — 459,879	15	85,084,767 — 125,839,689
74	41,557 — 45,495	44	459,880 — 502,548	14	125,839,690 — 186,115,898
73	45,496 — 49,808	43	502,549 — 549,895	13	186,115,899 — 275,263,927
72	49,809 — 54,536	42	549,896 — 601,708	12	275,263,928 — 430,893,183
71	54,537 — 59,530	41	601,709 — 663,309	11	430,893,184 — 681,845,588
70	59,531 — 64,935	40	663,310 — 733,021	10	681,845,589 — 1,078,952,801
69	64,936 — 70,826	39	733,022 — 810,061	9	1,078,952,802 — & over
68	70,827 — 76,791	38	810,062 — 895,197		
67	76,792 — 82,946	37	895,198 — 995,262		
66	82,947 — 89,595	36	995,263 — 1,117,458		

# XII 000015

Section XII - Retrospective Rating  
 Subsection E - State Hazard Group Relativities  
 9/1/2012

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	32,935	32,299	29,738
B	34,780	44,134	40,635
C	44,795	49,538	45,611
D	48,336	54,838	50,491
E	65,260	64,617	59,494
F	88,249	78,535	72,309
G	118,492	103,311	95,121
Overall	52,506	57,027	52,506

Step 2, Credibility:

(5) Massachusetts Claim Count =	42,796
(6) Requirement for Full Credibility =	155,000
(7) Massachusetts Credibility = = [ (5) / (6) ] <sup>0.5</sup>	0.53

Step 3, Credibility Weighted Severities:

Hazard Group (8)	Massachusetts Credibility Weighted Severities (9)
A	32,633
B	39,219
C	47,046
D	51,421
E	64,955
F	83,639
G	111,288

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	1.75	1.92	1.83	1.83
B	1.45	1.40	1.43	1.43
C	1.21	1.25	1.23	1.23
D	1.11	1.13	1.12	1.12
E	0.88	0.96	0.92	0.92
F	0.68	0.79	0.74	0.74
G	0.51	0.60	0.56	0.56

Notes:

(2), (5): Lost Time Claim Data for Policy Years 2009 at 1st report, 2008 at 2nd report, 2007 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-1403, Page 38.)

(9) = [ (2) x (7) ] + { (3) x [ 1.0 - (7) ] }

**EXCESS LOSS FACTORS**

This Section proposes new Excess Loss Factors (ELFs) to be effective September 1, 2012. The proposed ELFs for the seven hazard groups<sup>1</sup> 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 57.0%, 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

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<sup>1</sup> 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.

September 1, 2008 to the September 1, 2012 proposed effective date is shown on Exhibit 5. Rather than applying the factor to the data itself, the trend and benefit adjustment is 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 September 1, 2010 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,  $R(150,000)$ )  $\times$  (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**

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 63.5%, 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

$$R(\$500,000) = \frac{HG3 \text{ Losses Excess of } \$500,000}{\text{Total } HG3 \text{ Losses}}$$

We can also express this in terms of the data truncated and shifted at \$150,000 as follows:

$$R(\$500,000) = \frac{HG3 \text{ Losses Excess of } \$500,000}{HG3 \text{ Losses Excess of } \$150,000} \times \frac{HG3 \text{ Losses Excess of } \$150,000}{\text{Total } HG3 \text{ Losses}}$$

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:

$$\begin{aligned} R_f(L) &= \frac{\int_L^\infty (x - L) f(x) dx}{\int_0^\infty x f(x) dx} \\ &= \frac{p \int_L^\infty (x - L)g(x)dx + (1-p) \int_L^\infty (x - L)h(x)dx}{pm_g + (1-p)m_h} \end{aligned}$$

$$= \frac{pm_g R_g(L) + (1-p)m_h R_h(L)}{pm_g + (1-p)m_h}$$

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

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$$F(x;s,b) = 1 - \left(1 + \frac{x}{b}\right)^{-s}$$

$$f(x;s,b) = \frac{s}{b} \left(1 + \frac{x}{b}\right)^{-(s+1)}$$

$$E(X^y) = \frac{b^y \Gamma(y+1) \Gamma(s-y)}{\Gamma(s)}, \quad -1 < y < s$$

If  $y$  is an integer  $N$ ,

$$E(X^N) = \frac{b^N N!}{\prod_{i=1}^N (s-i)}, \quad N < s$$

$$\text{Mean} = \frac{b}{s-1}$$

$$\text{Variance} = \frac{b^2 s}{(s-1)^2 (s-2)}$$

$$\text{Coefficient of Variation} = \sqrt{\frac{s}{s-2}}, \quad s > 2$$

$$\text{Skewness} = \frac{2(s+1)}{s-3} \sqrt{\frac{s-2}{s}}, \quad s > 3$$

$$\text{Excess Ratio} = R(x) = \left(1 + \frac{x}{b}\right)^{1-s}$$

$$\text{Mean Residual Life} = e(x) = \frac{b+x}{s-1}$$


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Note:  $s$  is the shape parameter,  $b$  is the scale parameter.

**EXPONENTIAL DISTRIBUTION**

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$$F(x; \theta) = 1 - e^{-x/\theta}$$

$$f(x; \theta) = \frac{1}{\theta} e^{-x/\theta}$$

$$E(X^y) = \theta^y \Gamma(1 + y), \quad y > -1$$

If  $y$  is an integer  $N$ ,

$$E(X^N) = \theta^N N!, \quad N > -1$$

$$\text{Mean} = \theta$$

$$\text{Variance} = \theta^2$$

$$\text{Coefficient of Variation} = 1$$

$$\text{Skewness} = 2$$

$$\text{Excess ratio} = R(x) = e^{-x/\theta}$$

$$\text{Mean Residual Life} = e(x) = \theta$$

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Note:  $\theta$  is the scale parameter.

# XII 000024

Section XII - Retrospective Rating  
Subsection F - Excess Loss Factors  
9/1/2012

Section XII - F  
Exhibit 1  
Page 1

## Excess Loss Factors Proposed to be Effective 09/01/2012

Accident Limit	Hazard Group						
	A	B	C	D	E	F	G
\$25,000	0.355	0.378	0.400	0.419	0.437	0.464	0.494
\$30,000	0.338	0.362	0.385	0.406	0.424	0.452	0.485
\$35,000	0.323	0.348	0.371	0.394	0.413	0.441	0.477
\$40,000	0.310	0.335	0.359	0.383	0.402	0.431	0.470
\$50,000	0.286	0.312	0.337	0.363	0.383	0.413	0.456
\$75,000	0.241	0.266	0.293	0.323	0.344	0.375	0.426
\$100,000	0.207	0.232	0.259	0.291	0.312	0.343	0.399
\$125,000	0.181	0.203	0.231	0.264	0.285	0.314	0.376
\$150,000	0.160	0.181	0.207	0.241	0.261	0.289	0.355
\$175,000	0.143	0.161	0.187	0.221	0.239	0.267	0.335
\$200,000	0.129	0.145	0.170	0.204	0.220	0.247	0.318
\$250,000	0.106	0.120	0.143	0.175	0.189	0.213	0.286
\$300,000	0.089	0.101	0.122	0.152	0.165	0.187	0.260
\$500,000	0.052	0.059	0.074	0.096	0.104	0.120	0.185
\$1,000,000	0.024	0.027	0.035	0.047	0.051	0.060	0.101
\$2,000,000	0.011	0.012	0.016	0.022	0.024	0.028	0.050
\$3,000,000	0.006	0.007	0.009	0.013	0.015	0.017	0.032
\$4,000,000	0.004	0.005	0.007	0.009	0.010	0.012	0.023
\$5,000,000	0.003	0.004	0.005	0.007	0.008	0.009	0.018

Notes:

Exhibit 3, page 1 times the Expected Loss Ratio without LAE of 57.0% from Section XII-A, Exhibit 3.

# XII 000025

Section XII - Retrospective Rating  
Subsection F - Excess Loss Factors  
9/1/2012

Section XII - F  
Exhibit 1  
Page 2

## Excess Loss and ALAE Factors Proposed to be Effective 09/01/2012

Accident Limit	Hazard Group						
	A	B	C	D	E	F	G
\$25,000	0.406	0.431	0.455	0.476	0.495	0.525	0.556
\$30,000	0.388	0.414	0.439	0.461	0.482	0.512	0.547
\$35,000	0.372	0.399	0.424	0.448	0.469	0.501	0.538
\$40,000	0.357	0.385	0.411	0.436	0.458	0.490	0.530
\$50,000	0.332	0.360	0.388	0.415	0.437	0.471	0.516
\$75,000	0.282	0.311	0.341	0.373	0.396	0.430	0.484
\$100,000	0.245	0.273	0.303	0.338	0.362	0.396	0.457
\$125,000	0.216	0.242	0.273	0.309	0.333	0.366	0.432
\$150,000	0.192	0.216	0.247	0.284	0.307	0.339	0.409
\$175,000	0.173	0.195	0.225	0.263	0.283	0.315	0.389
\$200,000	0.157	0.176	0.205	0.243	0.262	0.293	0.370
\$250,000	0.130	0.147	0.174	0.211	0.228	0.256	0.336
\$300,000	0.110	0.125	0.149	0.184	0.199	0.225	0.307
\$500,000	0.066	0.074	0.092	0.119	0.129	0.148	0.223
\$1,000,000	0.030	0.034	0.044	0.059	0.064	0.075	0.125
\$2,000,000	0.013	0.015	0.020	0.027	0.030	0.035	0.063
\$3,000,000	0.008	0.009	0.012	0.017	0.019	0.022	0.040
\$4,000,000	0.006	0.006	0.008	0.012	0.013	0.015	0.029
\$5,000,000	0.004	0.005	0.006	0.009	0.010	0.012	0.022

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

XII 000026

Note:  
 9/1/2008 Stipulation. Section XII-F, Exhibit 1, Page 1.

# XII 000027

Section XII - Retrospective Rating  
 Subsection F - Excess Loss Factors  
 9/1/2012

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	0.622	0.663	0.701	0.736	0.768	0.815	0.867
\$30,000	0.593	0.635	0.675	0.712	0.745	0.794	0.852
\$35,000	0.567	0.610	0.651	0.691	0.724	0.775	0.837
\$40,000	0.544	0.587	0.630	0.672	0.706	0.757	0.824
\$50,000	0.502	0.547	0.592	0.637	0.672	0.725	0.800
\$75,000	0.422	0.468	0.515	0.567	0.604	0.658	0.747
\$100,000	0.363	0.407	0.455	0.511	0.548	0.601	0.701
\$125,000	0.318	0.357	0.405	0.464	0.500	0.552	0.659
\$150,000	0.282	0.317	0.364	0.424	0.457	0.507	0.622
\$175,000	0.251	0.283	0.329	0.389	0.420	0.468	0.589
\$200,000	0.226	0.255	0.299	0.358	0.387	0.433	0.557
\$250,000	0.186	0.210	0.250	0.307	0.332	0.374	0.503
\$300,000	0.156	0.177	0.214	0.267	0.289	0.327	0.456
\$500,000	0.092	0.104	0.129	0.169	0.183	0.211	0.324
\$1,000,000	0.042	0.048	0.061	0.082	0.090	0.105	0.178
\$2,000,000	0.019	0.021	0.027	0.038	0.041	0.049	0.088
\$3,000,000	0.011	0.013	0.017	0.023	0.026	0.030	0.056
\$4,000,000	0.008	0.009	0.012	0.016	0.018	0.021	0.040
\$5,000,000	0.006	0.007	0.009	0.012	0.014	0.016	0.031

**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	0.116	0.893	0.115	0.894	0.104	0.904	0.088	0.917	0.087	0.918	0.083	0.922	0.057	0.946
\$200,000	0.232	0.803	0.231	0.804	0.207	0.821	0.176	0.845	0.174	0.846	0.165	0.853	0.113	0.896
\$250,000	0.465	0.661	0.461	0.663	0.414	0.688	0.352	0.724	0.349	0.726	0.330	0.738	0.226	0.807
\$300,000	0.697	0.556	0.691	0.558	0.621	0.587	0.528	0.629	0.523	0.632	0.495	0.645	0.339	0.732
\$500,000	1.627	0.325	1.613	0.328	1.450	0.355	1.231	0.398	1.220	0.401	1.154	0.416	0.791	0.521
\$1,000,000	3.951	0.150	3.918	0.151	3.520	0.167	2.990	0.195	2.963	0.196	2.804	0.207	1.920	0.286
\$2,000,000	8.599	0.066	8.527	0.066	7.662	0.075	6.508	0.090	6.448	0.091	6.102	0.096	4.178	0.142
\$3,000,000	13.247	0.040	13.136	0.040	11.804	0.046	10.026	0.055	9.934	0.056	9.400	0.060	6.437	0.091
\$4,000,000	17.895	0.028	17.745	0.028	15.945	0.032	13.544	0.039	13.419	0.039	12.698	0.042	8.695	0.065
\$5,000,000	22.543	0.021	22.354	0.021	20.087	0.024	17.063	0.029	16.905	0.030	15.997	0.032	10.953	0.050

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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 \$173,691 for HGA, \$175,155 for HGB, \$194,924 for HGC, \$229,476 for HGD, \$231,613 for HGE, \$244,764 for HGF and \$357,462 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  
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 Exhibit 3  
 Page 3

Excess Ratios Based on Adjusted Data

Accident Limit	Hazard Group						
	A	B	C	D	E	F	G
\$25,000	0.622	0.663	0.701	0.736	0.768	0.815	0.867
\$30,000	0.593	0.635	0.675	0.712	0.745	0.794	0.852
\$35,000	0.567	0.610	0.651	0.691	0.724	0.775	0.837
\$40,000	0.544	0.587	0.630	0.672	0.706	0.757	0.824
\$50,000	0.502	0.547	0.592	0.637	0.672	0.725	0.800
\$75,000	0.422	0.468	0.515	0.567	0.604	0.658	0.747
\$100,000	0.363	0.407	0.455	0.511	0.548	0.601	0.701
\$125,000	0.318	0.357	0.405	0.464	0.500	0.552	0.659
\$150,000	0.282	0.317	0.364	0.424	0.457	0.507	0.622
\$175,000	0.251	0.283	0.329	0.389	0.420	0.468	0.589
\$200,000	0.226	0.256	0.300	0.359	0.387	0.432	0.558
\$250,000	0.186	0.213	0.252	0.310	0.331	0.371	0.506
\$300,000	0.157	0.181	0.217	0.272	0.286	0.321	0.462
\$500,000	0.093	0.107	0.136	0.184	0.176	0.197	0.340
\$1,000,000	0.043	0.044	0.072	0.117	0.085	0.095	0.218
\$2,000,000	0.014	0.019	0.041	0.085	0.039	0.044	0.116
\$3,000,000	0.004	0.014	0.031	0.076	0.026	0.026	0.073
\$4,000,000	0.000	0.013	0.026	0.071	0.022	0.017	0.048
\$5,000,000	0.000	0.012	0.022	0.067	0.019	0.012	0.029

**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.

## XII 000030

Section XII - Retrospective Rating  
 Subsection F - Excess Loss Factors  
 9/1/2012

Section XII - F  
 Exhibit 4

### Mixed Pareto-Exponential Distribution

Parameters:

Pareto shape = s	2.3285
Pareto scale = b	1.4950
Exponential scale = $\theta$	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 = $\theta$	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.

# XII 000031

Section XII - Retrospective Rating  
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Section XII - F  
Exhibit 5

## Total Severity Trend & Benefit Change Adjustment

	Indemnity	Lost Time Medical	Medical Only	Total
(1) PY 2008 Average Severity	24,937	12,312	815	
(2) PY 2009 Average Severity	26,325	13,831	801	
(3) Annual Severity Trend - From PY 2008 to Prospective Effective Period	4.7%	5.7%	3.4%	
(4) Trend Factor from PY 9/1/2008 to Prospective Effective Period	1.204	1.276	1.123	
(5) Injury Type Weight at Ultimate	61.60%	33.52%	4.88%	
(6) Total Severity Trend Factor from PY 9/1/2008 to Prospective Effective Period = (4) Weighted by (5)				1.224
(7) Total Benefit Level Change Factor from PY 9/1/2008 to Prospective Effective Period				1.012
(8) Combined Trend and Benefit Factor from PY9/1/2008 to Prospective Effective Period = (6) x (7)				1.239

### Notes:

- (1): From Section V-A, Exhibit 2.
- (2): From Section IV-E, Exhibit 2.
- (5): From Section IV-A, Exhibit 2.