

PENNSYLVANIA COMPENSATION RATING BUREAU

Indicated Change in Loss Cost

Page 1 presents the overall indicated change in loss costs.

Derivation of the indemnity and medical trend factors and trended loss ratios shown on page 1 is presented on page 2. Severity ratios, defined herein as loss ratios adjusted by dividing out the frequency component, for both indemnity and medical, have been fitted using a seven point exponential curve. Severity trend factors are calculated by fitting severity ratios to curves using a least squares regression analysis and comparing the fitted values at 4/1/13 to the fitted values at the midpoints of the latest three available policy years. Frequency trend factors are derived on page 3. The resulting severity and frequency trend factors are then applied to the latest three available policy year loss ratios to generate projected ultimate trended loss ratios.

As described in Exhibit 8, staff has selected an annual frequency trend of -5.7%. Page 3 shows the derivation of overall frequency trend factors for each of the latest three available policy years.

**INDICATED CHANGE IN LOSS COSTS**

	<u>Indemnity</u>	<u>Medical</u>	<u>Total</u>
(1) Policy Year 2007 Ratio of Loss to Expected Loss	0.5060	0.5025	1.0085
(2) Policy Year 2008 Ratio of Loss to Expected Loss	0.5060	0.4759	0.9819
(3) Policy Year 2009 Ratio of Loss to Expected Loss	0.4882	0.4714	0.9596
(4) Average (Midpoint = 1/1/2009)	0.5001	0.4833	0.9834
(5) Policy Year 2007 Ratio Trended to 4/1/2013 +	0.4849	0.4733	0.9582
(6) Policy Year 2008 Ratio Trended to 4/1/2013 +	0.4888	0.4533	0.9421
(7) Policy Year 2009 Ratio Trended to 4/1/2013 +	0.4755	0.4542	0.9297
(8) Average at 4/1/2013	0.4831	0.4603	0.9434
(9) Indicated Change in Loss Costs	0.4831	0.4603	0.9434

**CHANGES IN MANUAL LOSS COST LEVEL BY INDUSTRY GROUP**

	<u>Mfg.</u>	<u>Cont.</u>	<u>Other</u>	<u>Total</u>
(10) Current Collectible Premium Ratio	1.0244	1.0827	1.0165	
(11) Anticipated Collectible Premium Ratio	1.0276	1.0838	1.0150	
(12) Final Indicated Change in Manual Loss Cost Level (9T) * (11) / (10)	0.9463	0.9444	0.9420	0.9433

+ Refer to pages 12.2 and 12.3

**DETERMINATION OF TREND**

**INDEMNITY**

Policy Year	2003	2004	2005	2006	2007	2008	2009
Actual Loss Ratio	0.5203	0.5212	0.4874	0.4785	0.5060	0.5060	0.4882
Normalized Frequency	0.7220	0.6819	0.6332	0.6087	0.5740	0.5296	0.5130
Severity Loss Ratio	0.7206	0.7643	0.7697	0.7861	0.8815	0.9554	0.9517
<b>x</b>	1	2	3	4	5	6	7
<b>y</b>	0.7206	0.7643	0.7697	0.7861	0.8815	0.9554	0.9517

7 Point Exponential Regression:  $y = 0.676418 * 1.051889 ^ x$

Policy Year	Severity Trend Factor (1)	# of years to 4/1/13 (2)	Severity Trend to 4/1/13 (3) = (1) ^ (2)	Frequency Trend Factor (4) #
2007	1.0519	5.2500	1.3043	0.7348
2008	1.0519	4.2500	1.2399	0.7792
2009	1.0519	3.2500	1.1787	0.8263

**Trended Loss Ratio**

Policy Year	Actual Loss Ratio (5)	Combined Trend Factor (6) = (3) * (4)	Trended Loss Ratio (7) = (5) * (6)
2007	0.5060	0.9584	0.4849
2008	0.5060	0.9661	0.4888
2009	0.4882	0.9740	0.4755

**MEDICAL**

Policy Year	2003	2004	2005	2006	2007	2008	2009
Actual Loss Ratio	0.4971	0.5188	0.4892	0.4723	0.5025	0.4759	0.4714
Normalized Frequency	0.7220	0.6819	0.6332	0.6087	0.5740	0.5296	0.5130
Severity Loss Ratio	0.6885	0.7608	0.7726	0.7759	0.8754	0.8986	0.9189
<b>x</b>	1	2	3	4	5	6	7
<b>y</b>	0.6885	0.7608	0.7726	0.7759	0.8754	0.8986	0.9189

7 Point Exponential Regression:  $y = 0.669673 * 1.048416 ^ x$

Policy Year	Severity Trend Factor (1)	# of years to 4/1/13 (2)	Severity Trend to 4/1/13 (3) = (1) ^ (2)	Frequency Trend Factor (4) #
2007	1.0484	5.2500	1.2816	0.7348
2008	1.0484	4.2500	1.2225	0.7792
2009	1.0484	3.2500	1.1660	0.8263

**Trended Loss Ratio**

Policy Year	Actual Loss Ratio (5)	Combined Trend Factor (6) = (3) * (4)	Trended Loss Ratio (7) = (5) * (6)
2007	0.5025	0.9417	0.4733
2008	0.4759	0.9526	0.4533
2009	0.4714	0.9635	0.4542

# See page 12.3

## DETERMINATION OF TREND

### Claim Frequency

Policy Year Frequency per \$1 million of Expected Losses  
{1 = PY 1998, 12 = PY 2009}

Policy Year	Claim Frequency	Normalized Frequency
1998	27.70	1.0000
1999	26.31	0.9498
2000	24.67	0.8906
2001	22.73	0.8206
2002	21.82	0.7877
2003	20.00	0.7220
2004	18.89	0.6819
2005	17.54	0.6332
2006	16.86	0.6087
2007	15.90	0.5740
2008	14.67	0.5296
2009	14.21	0.5130

Policy Year	2003	2004	2005	2006	2007	2008	2009
<b>x</b>	1	2	3	4	5	6	7
<b>y</b>	0.7220	0.6819	0.6332	0.6087	0.5740	0.5296	0.5130

7 Point Exponential Regression:  $y = 0.763236 * 0.943484 ^ x$

### SELECTED FREQUENCY TREND FACTOR

-5.7%

Policy Year	Frequency Trend Factor (1)	# of years to 4/1/13 (2)	Frequency Trend to 4/1/13 (3) = (1)^(2)
2007	0.9430	5.2500	0.7348
2008	0.9430	4.2500	0.7792
2009	0.9430	3.2500	0.8263