# PENNSYLVANIA COMPENSATION RATING BUREAU F CLASS FILING

## ANALYSIS OF EXPERIENCE

The following pages present an analysis of Pennsylvania "F" class experience. The analysis is based on data reported to the Bureau under the Unit Statistical Plan.

<u>Reported Premium and Losses</u> - Pages 1 and 2 present reported standard earned premiums and incurred losses by policy year separately for indemnity (page 1) and medical (page 2). Losses are shown through 10th report which is the latest report currently available under the Unit Statistical Plan.

<u>Indicated Loss Development Factors</u> - Page 3 (indemnity) and page 4 (medical) show age-to-age development factors based on reported losses. A seven year average, or all available points if fewer than seven were available, for indemnity and medical was calculated and formed the basis for the factors ultimately selected. The process for calculation of selected loss development factors and a tail factor are shown on pages 5 and 6. Factors to ultimate are calculated by compounding the age-to-age and 10th-to-ultimate factors.

Selected Loss Development Factors - Pages 5 (indemnity) and page 6 (medical) show the derivation of selected age-to-age and 10th-to-ultimate development factors. The residuals of all years available average indicated age-to-age development factors from pages 3 and 4 were fitted to a curve of the form  $y = a * (1 + x) ^b$  for indemnity and y = 1 / (a + b\*x) for medical. A value of 1.0000 was selected from the 14th-to-15th development stage to ensure a more reasonable shape for the final fitted curve. The 10th-to-ultimate factor was then calculated by compounding the age-to-age factors for 10th-to-11th and all subsequent development stages through the  $15^{th}$  report. These factors became the "selected" values on pages 3 and 4.

Loss Ratios - Indemnity and medical ultimate loss ratios are calculated on page 7.

<u>Graphs</u> - Indemnity, medical and total ultimate loss ratio graphs for policy years 1996 through 2005 are shown on page 8.

<u>Trend Summary</u> - Ultimate loss ratios were then fitted to both a linear and experimental curve to project a loss ratio for the prospective rating period. A summary of these results are shown on page 9.

## "F" CLASS UNIT STATISTICAL PLAN EXPERIENCE

#### REPORTED STANDARD EARNED PREMIUM AND INDEMNITY INCURRED LOSSES

Policy	Standard Earned				I	Reported Indem	nity Incurred Lo	sses			
Year	Premium	1	2	3	4	5	6	7	8	9	10
92	8,224,657	1,685,379	2,634,208	3,008,151	3,529,773	4,244,023	4,212,388	4,329,719	4,494,702	3,917,997	3,865,290
93	8,868,022	940,865	1,776,487	2,104,171	3,036,597	3,237,829	4,037,056	3,898,149	2,295,835	2,276,985	2,276,985
94	8,613,777	2,017,088	3,072,208	3,229,962	3,208,208	2,995,170	3,167,237	2,443,570	2,474,752	2,483,655	2,465,136
95	9,317,313	518,260	1,106,477	1,403,489	916,600	1,123,965	1,144,298	987,901	1,052,159	892,189	892,191
96	10,841,351	1,628,776	2,237,575	2,717,205	3,471,694	4,897,966	4,493,113	4,383,289	4,370,894	4,466,226	4,194,215
97	6,729,291	1,665,526	2,517,585	2,932,035	2,936,181	2,959,307	3,143,129	2,838,081	2,838,080	2,838,080	
98	11,198,940	2,189,207	2,741,853	1,455,480	1,638,418	1,655,549	2,145,803	1,734,303	1,752,606		
99	7,004,741	2,278,068	1,444,801	1,491,375	1,545,642	1,413,730	1,525,607	1,578,164			
00	10,673,321	968,974	2,575,955	3,013,038	3,243,897	3,259,124	3,385,904				
01	16,185,988	1,167,275	2,142,613	2,358,411	2,795,446	3,175,107					
02	18,811,734	1,334,807	1,840,111	2,306,583	2,603,805						
03	9,701,858	1,654,185	2,378,806	3,594,256							
04	6,065,731	1,244,135	2,120,736								
05	4,248,801	1,194,959									

## "F" CLASS UNIT STATISTICAL PLAN EXPERIENCE

#### REPORTED STANDARD EARNED PREMIUM AND MEDICAL INCURRED LOSSES

Delieu	Standard					Reported Medic	al Incurred Loss	ses			
Policy Year	Earned Premium	1	2	3	4	5	6	7	8	9	10
92	8,224,657	1,324,644	1,725,261	1,848,169	1,828,378	1,846,771	1,825,230	1,958,424	1,924,003	1,758,325	1,759,414
93	8,868,022	662,636	801,635	823,492	819,314	819,568	920,355	896,193	753,390	741,750	810,428
94	8,613,777	1,001,710	1,187,641	1,071,712	958,351	1,058,106	920,957	759,304	789,304	789,279	773,376
95	9,317,313	321,942	409,250	422,749	394,452	472,415	505,361	494,476	699,067	471,507	474,780
96	10,841,351	644,990	785,475	785,093	863,747	1,167,216	1,194,582	1,338,407	1,120,582	1,022,823	1,015,823
97	6,729,291	775,865	972,104	872,839	828,878	820,761	846,122	1,010,414	1,007,414	1,010,414	
98	11,198,940	2,954,477	2,026,872	1,430,034	1,407,195	1,407,916	2,044,227	1,274,643	1,107,469		
99	7,004,741	1,045,998	224,350	219,209	234,063	230,274	234,666	239,666			
00	10,673,321	549,267	722,368	945,750	1,136,245	1,229,772	1,303,448				
01	16,185,988	529,685	1,026,741	1,085,155	1,153,388	1,293,024					
02	18,811,734	608,969	687,581	849,750	821,090						
03	9,701,858	1,111,619	1,308,013	1,378,467							
04	6,065,731	768,403	997,905								
05	4,248,801	599,007									

## "F" CLASS UNIT STATISTICAL PLAN EXPERIENCE

#### INDEMNITY INCURRED LOSS DEVELOPMENT FACTORS

## Age-to-Age Development Factors

Policy	4.0	2 2	2.4	4 5		eport	7 0	0.0	0 40	40 III T
Year	1 - 2	2 - 3	3 - 4	4 - 5	5 - 6	6 - 7	7 - 8	8 - 9	9 - 10	10 - ULT
92	Γ	1.1420	1.1734	1.2024	0.9925		1.0381		0.9865	
93	1.8881	1.1845	***	1.0663	****	0.9656	***	0.9918	1.0000	
94	1.5231	***	0.9933	0.9336	1.0574	***	1.0128	1.0036	0.9925	
95	****	1.2684	0.6531	1.2262	***	0.8633	1.0650	0.8480	1.0000	
96 _	1.3738	****	1.2777	****	0.9173	0.9756	0.9972	1.0218	0.9391	
97	***	1.1646	****	1.0079	1.0621	0.9029	1.0000	1.0000		
98 _	1.2524	****	1.1257	1.0105	1.2961	0.8082	1.0106			
99	****	1.0322	1.0364	0.9147	1.0791	1.0344				
00 _	2.6584	****	1.0766	1.0047	1.0389					
01	***	1.1007	1.1853	1.1358						
02	1.3786	1.2535	1.1289							
03	1.4381	1.5109								
04	1.7046									
3 Yr Avg (Latest 3)	1.5071	1.2884	1.1303	1.0184	1.1380	0.9152	1.0026	0.9566	0.9772	
5 Yr Avg	1.6864	1.2124	1.1106	1.0147	1.0787	0.9169	1.0171	0.9730	0.9836	
7 Yr Avg	1.6184	1.2164	1.0691	1.0333	1.0633	0.9250	1.0206	0.9730	0.9836	
										4.0405
Selected (Fitted)	1.6236	1.1886	1.0808	1.0418	1.0244	1.0155	1.0105	1.0074	1.0054	1.0135
				Developmer	nt Factors to U	ltimate				
3 Yr Avg (Latest 3)	1-ULT	2-ULT	3-ULT	4-ULT	5-ULT	6-ULT	7-ULT	8-ULT	9-ULT	10-ULT *
5 Yr Avg										
7 Yr Avg	2.1177	1.3085	1.0757	1.0062	0.9738	0.9158	0.9900	0.9700	0.9969	1.0135
Selected	2.3446	1.4441	1.2150	1.1242	1.0791	1.0534	1.0373	1.0265	1.0190	1.0135
* Based on selected value	е									

<sup>\*\*\*\*</sup> Loss development factor not used

#### "F" CLASS UNIT STATISTICAL PLAN EXPERIENCE

## MEDICAL INCURRED LOSS DEVELOPMENT FACTORS

#### Age-to-Age Development Factors

Policy Year	1 - 2	2 - 3	3 - 4	4 - 5	5 - 6	Report 6 - 7	7 - 8	8 - 9	9 - 10	10 - ULT
92	****	1.0712	0.9893	1.0101	0.9883	***	0.9824	***	1.0006	
93	1.2098	1.0273	****	1.0003	****	0.9737	***	0.9845	1.0926	
94	1.1856	****	0.8942	****	0.8704	****	1.0395	1.0000	0.9799	
95	****	1.0330	0.9331	1.1976	****	0.9785	1.4138	0.6745	1.0069	
96	1.2178	****	1.1002	****	1.0234	1.1204	0.8373	0.9128	0.9932	
97	****	0.8979	****	0.9902	1.0309	1.1942	0.9970	1.0030		
98	0.6860	****	0.9840	1.0005	1.4520	0.6235	0.8688			
99	****	0.9771	1.0678	0.9838	1.0191	1.0213				
00	1.3151	****	1.2014	1.0823	1.0599					
01	***	1.0569	1.0629	1.1211						
02	1.1291	1.2359	0.9663							
03	1.1767	1.0539								
04	1.2987									
3 Yr Avg (Latest 3)	1.2015	1.1156	1.0769	1.0624	1.1770	0.9463	0.9010	0.8634	0.9933	
5 Yr Avg	1.1211	1.0443	1.0565	1.0356	1.1171	0.9876	1.0313	0.9150	1.0146	
7 Yr Avg	1.1441	1.0403	1.0451	1.0537	1.0634	0.9853	1.0231	0.9150	1.0146	
Selected (Fitted)	1.1439	1.0525	1.0321	1.0231	1.0181	1.0148	1.0126	1.0109	1.0096	1.0367
				Developme	nt Factors to U	Itimate				
	1-ULT	2-ULT	3-ULT	4-ULT	5-ULT	6-ULT	7-ULT	8-ULT	9-ULT	10-ULT *
3 Yr Avg (Latest 3)										
5 Yr Avg										
7 Yr Avg	1.3521	1.1818	1.1360	1.0870	1.0316	0.9701	0.9846	0.9624	1.0518	1.0367
Selected	1.4075	1.2304	1.1690	1.1326	1.1070	1.0873	1.0714	1.0581	1.0467	1.0367
* Deced on colocted valu	_									

<sup>\*</sup> Based on selected value

<sup>\*\*\*\*</sup> Loss development factor not used

# "F" CLASS UNIT STATISTICAL PLAN EXPERIENCE

## FITTED DEVELOPMENT FACTORS

# **INDEMNITY INCURRED LOSSES**

 $Y = a^{*}(1+x)^{b}$  a = 4.81500b = (2.94893)

R ^ 2 = 0.9615

Incurred Development	All Year Average	All Year Average - 1	Fitted Value	Fitted Value + 1
1 1st to 2nd	1.6184	0.6184	0.6236	1.6236
2 2nd to 3rd	1.2164	0.2164	0.1886	1.1886
3 3rd to 4th	1.0691	0.0691	0.0808	1.0808
4 4th to 5th	1.0333	0.0333	0.0418	1.0418
5 5th to 6th	1.0633	0.0633	0.0244	1.0244
6 6th to 7th	0.9250	(0.0750)	0.0155	1.0155
7 7th to 8th	1.0206	0.0206	0.0105	1.0105
8 8th to 9th	0.9730	(0.0270)	0.0074	1.0074
9 9th to 10th	0.9836	(0.0164)	0.0054	1.0054
10 10th to 11th		,	0.0041	1.0041
11 11th to 12th			0.0032	1.0032
12 12th to 13th			0.0025	1.0025
13 13th to 14th			0.0020	1.0020
14 14th to 15th	1.0000	-	0.0016	1.0016
10th to Ultimate				1.0135

<sup>(</sup>a) 14th to 15th age-to-age factor set at 1.0000 to ensure proper tendency for the fitted curve.

## "F" CLASS UNIT STATISTICAL PLAN EXPERIENCE

## FITTED DEVELOPMENT FACTORS

### **MEDICAL INCURRED LOSSES**

 $Y = 1/(a+b^*x)$  a = (5.1594)b = 12.1105

R ^ 2 = 0.5147

Incurred Development All Year Average All Year Average - 1 Fitted Value Fitted Value + 1 1 1st to 2nd 1.1441 0.1441 0.1439 1.1439 0.0525 1.0525 2 2nd to 3rd 1.0403 0.0403 3 3rd to 4th 1.0451 0.0451 0.0321 1.0321 1.0537 0.0537 0.0231 1.0231 4 4th to 5th 1.0634 0.0181 1.0181 5 5th to 6th 0.0634 0.9853 (0.0147)6 6th to 7th 0.0148 1.0148 7 7th to 8th 1.0231 0.0231 0.0126 1.0126 0.9150 (0.0850)0.0109 1.0109 8 8th to 9th 9 9th to 10th 1.0146 0.0146 0.0096 1.0096 10 10th to 11th 0.0086 1.0086 0.0078 11 11th to 12th 1.0078 12 12th to 13th 0.0071 1.0071 0.0066 13 13th to 14th 1.0066 14 14th to 15th 1.0000 0.0061 1.0061 10th to Ultimate 1.0367

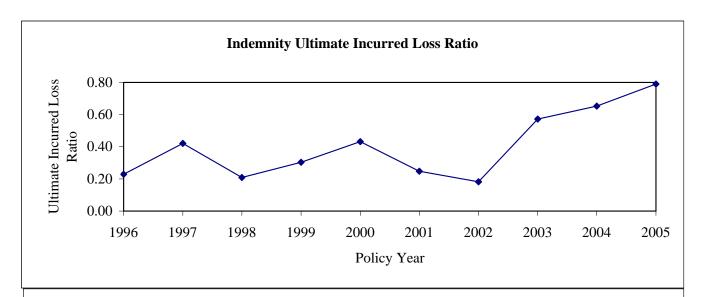
<sup>(</sup>a) 14th to 15th age-to-age factor set at 1.0000 to ensure proper tendency for the fitted curve.

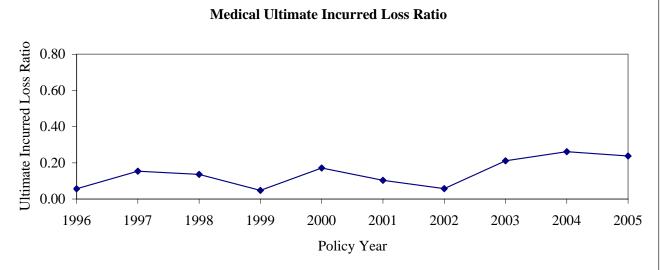
## "F" CLASS UNIT STATISTICAL PLAN EXPERIENCE

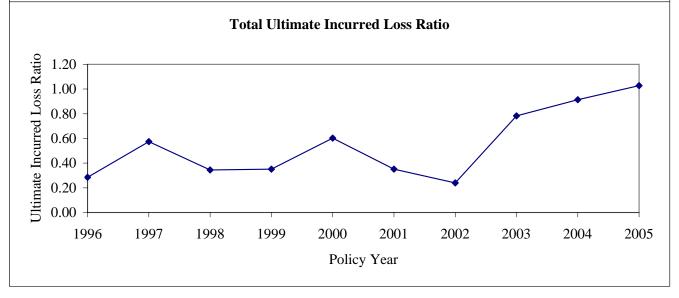
## **ULTIMATE LOSS RATIOS**

	Policy Year	Standard Earned Premium (1)	Premium On-Level Factor (2)	Adjusted Premium (3)	Reported Incurred Loss (4)	Loss Level	Loss Development Factor (6)	Ultimate Incurred Loss (7)=(4)*(6)	Loss Ratio (8)=(7)/(3)
		(1)	(2)	(3)	(+)	(3)	(0)	(1)=(4) (0)	(0)=(1)/(3)
Indemnity	96	10,841,351	1.7124	18,564,729	4,194,215	10	1.0135	4,250,837	0.2290
•	97	6,729,291	1.0216	6,874,644	2,838,080	9	1.0190	2,892,004	0.4207
	98	11,198,940	0.7691	8,613,105	1,752,606	8	1.0265	1,799,050	0.2089
	99	7,004,741	0.7691	5,387,346	1,578,164	7	1.0373	1,637,030	0.3039
	00	10,673,321	0.7743	8,264,352	3,385,904	6	1.0534	3,566,711	0.4316
	01	16,185,988	0.8552	13,842,257	3,175,107	5	1.0791	3,426,258	0.2475
	02	18,811,734	0.8552	16,087,795	2,603,805	4	1.1242	2,927,198	0.1820
	03	9,701,858	0.7869	7,634,392	3,594,256	3	1.2150	4,367,021	0.5720
	04	6,065,731	0.7738	4,693,663	2,120,736	2	1.4441	3,062,555	0.6525
	05	4,248,801	0.8349	3,547,324	1,194,959	1	2.3446	2,801,701	0.7898
	10 Year Total	101,461,756		93,509,607	26,437,832			30,730,365	0.3286
	3 Year Average	е							0.6714
Medical									
	96	10,841,351	1.7124	18,564,729	1,015,823	10	1.0367	1,053,104	0.0567
	97	6,729,291	1.0216	6,874,644	1,010,414	9	1.0467	1,057,600	0.1538
	98	11,198,940	0.7691	8,613,105	1,107,469	8	1.0581	1,171,813	0.1361
	99	7,004,741	0.7691	5,387,346	239,666	7	1.0714	256,778	0.0477
	00	10,673,321	0.7743	8,264,352	1,303,448	6	1.0873	1,417,239	0.1715
	01	16,185,988	0.8552	13,842,257	1,293,024	5	1.1070	1,431,378	0.1034
	02	18,811,734	0.8552	16,087,795	821,090	4	1.1326	929,967	0.0578
	03	9,701,858	0.7869	7,634,392	1,378,467	3	1.1690	1,611,428	0.2111
	04	6,065,731	0.7738	4,693,663	997,905	2	1.2304	1,227,822	0.2616
	05	4,248,801	0.8349	3,547,324	599,007	1	1.4075	843,102	0.2377
	10 Year Total	101,461,756		93,509,607	9,766,313			11,000,231	0.1176
	3 Year Average	е							0.2368
Total	96	10,841,351	1.7124	18,564,729	5,210,038			5,303,941	0.2857
	97	6,729,291	1.0216	6,874,644	3,848,494			3,949,604	0.5745
	98	11,198,940	0.7691	8,613,105	2,860,075			2,970,863	0.3449
	99	7,004,741	0.7691	5,387,346	1,817,830			1,893,808	0.3515
	00	10,673,321	0.7743	8,264,352	4,689,352			4,983,950	0.6031
	01	16,185,988	0.8552	13,842,257	4,468,131			4,857,636	0.3509
	02	18,811,734	0.8552	16,087,795	3,424,895			3,857,165	0.2398
	03	9,701,858	0.7869	7,634,392	4,972,723			5,978,449	0.7831
	04	6,065,731	0.7738	4,693,663	3,118,641			4,290,377	0.9141
	05	4,248,801	0.8349	3,547,324	1,793,966			3,644,803	1.0275
	10 Year Total	101,461,756		93,509,607	36,204,145			41,730,596	0.4463

0.9082







INDEMONITY I		3 points	4 points	5 points	6 points	7 points	8 points	9 points	10 points
INDEMNITY									
LINEAR	Average Loss Ratio	0.6714	0.5491	0.4888	0.4792	0.4542	0.4235	0.4232	0.4038
LINEAR	Trended Loss Ratio	1.1161	1.4217	1.2793	1.0210	0.9374	0.9067	0.7885	0.7685
	Trend Factor	1.6623	2.5891	2.6172	2.1306	2.0638	2.1410	1.8632	1.9032
	Annual. Trend Factor	1.0871	1.1437	1.1264	1.0868	1.0745	1.0711	1.0528	1.0504
	R^2	0.9778	0.8888	0.8741	0.5897	0.5778	0.6312	0.4451	0.4864
EXPONENTIAL									
	Trended Loss Ratio	1.2860	3.8468	2.6233	1.3077	1.0796	1.0847	0.7962	0.7887
	Trend Factor	1.9154	7.0056	5.3668	2.7289	2.3769	2.5613	1.8814	1.9532
	Annual. Trend Factor	1.1128	1.3163	1.2310	1.1169	1.0897	1.0886	1.0537	1.0525
	R^2	0.9889	0.7829	0.7763	0.4287	0.4160	0.5194	0.3107	0.3752
MEDICAL									
	Average Less Datio	0.2368	0.1921	0.1743	0.1739	0.1558	0.1534	0.1534	0.1437
LINEAR	Average Loss Ratio	0.2300	0.1921	0.1743	0.1739	0.1556	0.1554	0.1554	0.1437
LINLAIX	Trended Loss Ratio	0.2911	0.4626	0.4145	0.3268	0.3422	0.2987	0.2626	0.2688
	Trend Factor	1.2293	2.4081	2.3781	1.8792	2.1964	1.9472	1.7119	1.8706
	Annual. Trend Factor	1.0345	1.1321	1.1131	1.0719	1.0812	1.0620	1.0455	1.0490
	R^2	0.2772	0.6882	0.7063	0.4157	0.5810	0.4488	0.3130	0.4154
EXPONENTIAL		0.22	0.0002	0000	00.	0.00.0	000	0.0.00	00.
2/11 0/12/11/11/12	Trended Loss Ratio	0.3006	1.2797	0.7582	0.3836	0.5212	0.3480	0.2582	0.2918
	Trend Factor	1.2694	6.6616	4.3500	2.2059	3.3453	2.2686	1.6832	2.0306
	Annual. Trend Factor	1.0400	1.3070	1.1995	1.0910	1.1272	1.0767	1.0440	1.0556
	R^2	0.3050	0.6591	0.5979	0.2743	0.5043	0.3205	0.1793	0.3032
TOTAL		0.0055	0.7445	0.005	0.056	0.0465	0.5763	0.5765	0.5455
LINEAR	Average Loss Ratio	0.9082	0.7412	0.6631	0.6531	0.6100	0.5769	0.5766	0.5475
LINEAR	Trended Loss Ratio	1.4072	1.8843	1.6938	1.3478	1.2796	1.2054	1.0511	1.0373
EXPONENTIAL		2.2				50	551		
	Trended Loss Ratio	1.5866	5.1265	3.3815	1.6913	1.6008	1.4327	1.0544	1.0805