

Actuarial Committee Agenda

Thursday, October 21, 2010

William Green Building

Level 2, Room 2

2:30 p.m. to 4:00 p.m.

Call to Order

Jim Matesich, Committee Vice-Chair

Roll Call

Larry Rhodebeck, Scribe

Approve Minutes of September 23, 2010 meeting

Jim Matesich, Committee Vice-Chair

Review and approve Agenda

Jim Matesich, Committee Vice-Chair

New Business/ Action Items

Motions for Board Consideration:

A. For Second Reading

1. Mortality Study and Annuity Table – Rule 4123-17-60

Elizabeth Bravender, Director of Actuarial Operations
Deloitte Consulting LLP

2. Public Employer Taxing Districts Rate Change

Elizabeth Bravender, Director of Actuarial Operations
Jon Turnes, Manager of Reserving
Deloitte Consulting LLP

B. For First Reading

1. Public Employer Taxing Districts Base Rates and Expected Loss Rates – Rules 4123-17-33 and 4123-17-34

Elizabeth Bravender, Director of Actuarial Operations
Terry Potts, Supervisor of Rates
Deloitte Consulting LLP

2. Committee Charter

Donald Berno Board Liaison

Discussion Items

1. Legislative discussion and analysis – if necessary
2. CAO report
Elizabeth Bravender, Director of Actuarial Operations
3. Committee Calendar
Jim Matesich, Committee Vice-Chair

Executive Session

Litigation update – if necessary

Adjourn

Jim Matesich, Committee Vice-Chair

Next Meeting: Thursday, November 17, 2010

*Not all agenda items have material.

**Agenda Subject to change



Ohio Bureau of Workers' Compensation
Documentation of 2010 Mortality Study

Deloitte Consulting LLP
September 10, 2010

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September 10, 2010

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John Pedrick, FCAS, MAAA
Chief Actuarial Officer
Ohio Bureau of Workers' Compensation
30 W. Spring St.
Columbus, OH 43215-2256

Dear John,

We are pleased to provide this report documenting the 2010 Mortality Study for the Ohio Bureau of Workers' Compensation as of March 15, 2010.

It has been a pleasure to work with the Ohio Bureau of Workers' Compensation on this engagement. Please do not hesitate to contact me at (860) 725-3165 or Russell Menze (860) 725-3303 if you have any questions or comments.

Sincerely,

Darryl Wagner, FSA, MAAA
Deloitte Consulting LLP

Russell B. Menze, FSA, MAAA
Deloitte Consulting LLP

SCOPE

The Ohio Bureau of Workers' Compensation ("BWC") is a state funded workers' compensation system, primarily focused on providing compensation benefits for work-related injuries, diseases and deaths.

Deloitte Consulting LLP ("Deloitte Consulting") is engaged by BWC to develop group specific annuity factors for the following six groups reflecting each group's specific mortality experience:

- Permanent and Total Disability – Public Employers, Regular Accident Type
- Permanent and Total Disability – Private Employers, Regular Accident Type
- Permanent and Total Disability – OD - Lung
- Permanent and Total Disability – OD – Non-Lung
- Death – Public Employers
- Death – Private Employers

In comparison to the BWC mortality study conducted back in 2002 by MMC Enterprise Risk, this study involves comparable analysis procedures and provides a more up-to-date estimate for the group specific annuity factors.

BWC provided mortality experience data for each of the six groups. The time period for the provided mortality data was from March 15, 1916 through March 15, 2010.

In the course of our analysis, we received and relied upon the following information:

- Discussions with Elizabeth Bravender from BWC regarding the characteristics of the claim data and exposures; and
- Spreadsheets containing claimant specific information provided by BWC, including such items as claim identifiers, date of birth, sex, date of injury, date of death if available, etc.

We have relied upon BWC for the data and information received. A specific audit to verify the accuracy and completeness of the data provided to us is beyond the scope of this analysis, however we have reviewed the data supplied for reasonableness and consistency and communicated any concerns with BWC.

METHODOLOGY

Deloitte Consulting created independent models for each of the six data groups using the general methodology discussed below.

We were supplied with group specific data, and the time period for the data was from March 15, 1916 through March 15, 2010. We then cleansed and organized the raw data after we performed necessary data checks for consistency and made assumptions about any missing data elements. For example, we excluded the records where multiple claims are assigned to the same claimant and only kept one record for our study. We excluded records where the birth date was not available and we could not properly allocate exposure for this claimant based on other available information. Other cleansing procedures include checks for negative ages or unreasonably old ages etc.

For each year a claimant was in the study, one year of exposure is counted for the age at the beginning of that year, including the year of death. The only exception to this rule is the initial year entering into the study. For the first year, only a fractional exposure was included in the study representing the portion of the year the claimant was in the study. This is known as the Balducci hypothesis.

- **Permanent and Total Disability**

For the Permanent and Total Disability (“PTD”) data groups, a claimant would start contributing exposures to this study on the date of injury, and stop contributing exposures upon death or end of the study period (which is March 15, 2010) if still alive. The claimant’s age as of injury date is derived based on the provided date of birth and date of injury, and is rounded to nearest two decimal places in order to get a more accurate exposure calculation for the year of entry. For claimants with missing date of birth, BWC provided integer ages as of the date of injury from their system, and we have relied on those. The claimant’s age at death or age as of the end of mortality period is derived following the same logic. Also, if there are multiple claim records attributed to the same claimant, they are counted as one record and would contribute to exposure calculation only once.

Of the four PTD data groups, PTD Private has the most credible experience. In analyzing the experience mortality rates for PTD - Private, we adopted the Annuity 2000 Basic Male Table as the expected table. The experience mortality rate is defined as the ratio of the number of deaths for a certain age over the exposure for that age. For PTD Private, age 45 to 95 appears to be the range with most credible mortality experience, thus we applied the Whittaker-Henderson graduation technique to this range. The smoothing factor (h) was set to the average exposure. The difference polynomial (n) was set to 4, since a cubic curve (which has an order of $n-1$) exhibits the best fit to the experience mortality rates compared to linear and

quadratic in an exposure-weighted least squares fitting (see Appendix A). Rates for the age range 0 through 44 and 95 through 110 were then extrapolated based on ratios implied from the expected mortality curve.

After the entire experience curve is determined, an adjustment factor is applied to the curve such that the number of deaths implied from the experience curve equals the actual number of deaths.

For the other three PTD data groups (PTD Public, PTD OD Lung and Non-Lung), considering that they have less credible mortality experience, and that the shape of the experience mortality rates resemble that of PTD Private, we adopted the final curve derived for PTD Private as the expected curve for the three PTD groups. For each of the three groups, the expected curve is adjusted by applying a factor such that the number of deaths implied from the adjusted curve equals the actual number of deaths for that group.

Annuity factors are then derived based on group specific mortality rates and a selected interest rate.

- **Death**

For the Death claim data, the spouse or children are the claimant instead of the injured worker. The total payment is allocated to spouse and eligible children (younger than 18 year old or 25 if in a post-secondary school) based on BWC's pre-defined schedule. The spouse will receive her portion of claim payments until death or remarriage. Upon the spouse's death or remarriage, her portion will be redistributed to eligible children. At remarriage, the spouse will receive a lump sum of payments for an additional two years.

Exposure starts from the effective date of the injured worker's death, and ends upon the spouse's death or remarriage. Those records with only orphans receiving payments are excluded from our study, as we focus on developing mortality and remarriage assumptions for the spouse. Assumptions about children are made separately in calculating annuity factors.

Due to the low number of exposures from Death Public, we choose to equate the final assumptions for this group with Death Private.

The methodology of deriving the remarriage rates and mortality curve for Death Private is as follows:

1. The expected mortality is set to be 1994 Group Annuity Mortality Female table;
2. Since the data does not have breakouts for decrements due to death or remarriage, we assume the mortality experience for the spouse is consistent with expected for age 17 to 80 (spouse beyond this age band is assumed to have zero remarriage rate), and then derived raw remarriage rates by

subtracting the expected mortality rates from the total decrements. The remarriage rates were then fitted into a logarithmic curve to smooth out the results. The curve fitted to remarriage rates is as follows: $y = -0.003494 \ln(x-22) + 0.015417$. We then subtract the fitted remarriage rates from the total decrements to obtain raw mortality rates.

3. Since the Whittaker-Henderson technique does not seem to produce a mortality curve smooth enough, we applied least squares fitting and derived the following curve for age band 53~95: $y = 0.00000352*(x-52)^3 - 0.00008495*(x-52)^2 + 0.00090757*(x-52) + 0.00214218$. The rest of the curve was then extrapolated based on ratios implied from expected curve.

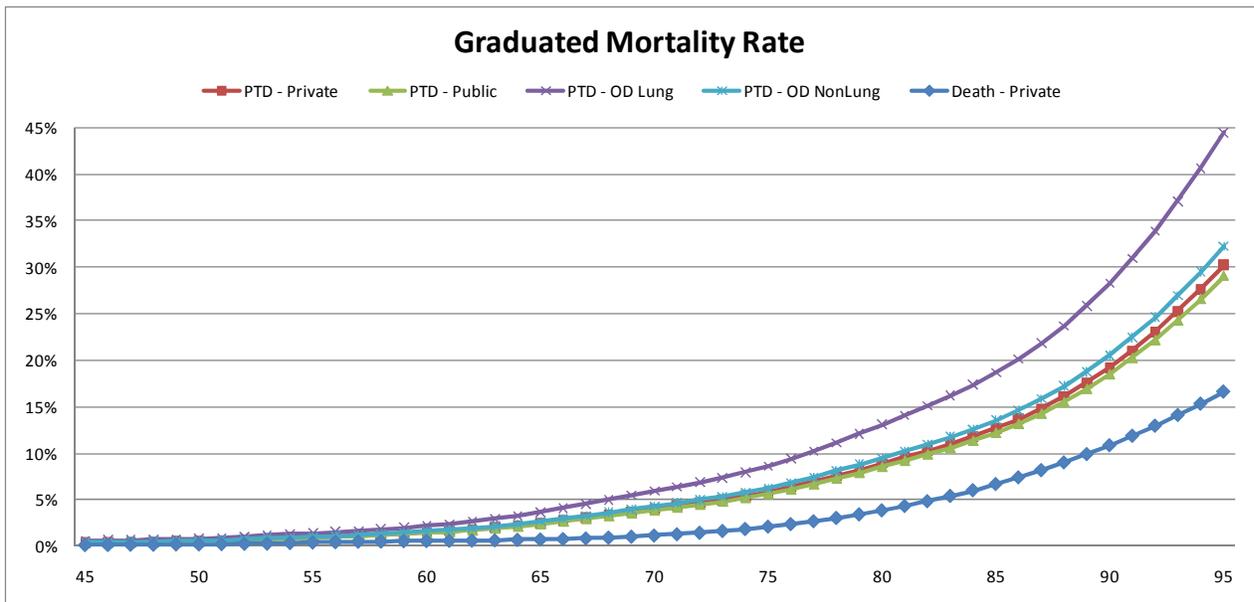
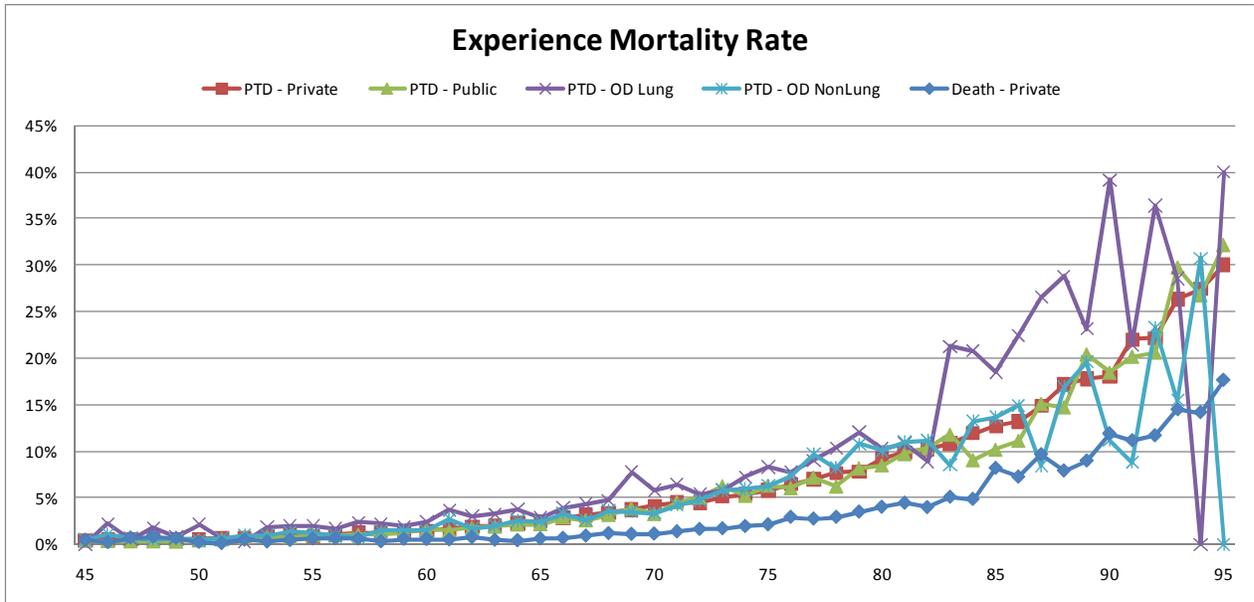
Using the mortality rates and remarriage rates for the spouse, we could derive the component for payments to the spouse. The annuity factors for the Death claims also include a component for payments to the children, since all payments are redistributed to eligible children, if any, upon the spouse's death or remarriage. The probability for each age of child and for no children are derived based on the 2000 US Census that was released on June 29, 2001. A term certain annuity factor was calculated for each age and multiplied by the probability of having children that age. Summing these factors up gives us the total annuity factor for children by age of the householder. The calculation performed based on the US Census data is the same as that of the 2002 BWC mortality study (Appendix C of the 2002 study).

SUMMARY OF RESULTS

The following table summarizes the number of deaths and exposure for each of the six data groups:

Group	Claim Type	Risk Type	Accident Type	Exposures	Deaths
1	PTD	Public	Regular	151,508	4,355
2	PTD	Private	Regular	1,371,161	33,206
3	PTD	Public/Private	OD-Lung	19,278	949
4	PTD	Public/Private	OD-Non Lung	38,652	984
5	Death	Public		15,728	255
6	Death	Private		83,442	1,411

The following two graphs show the comparison of raw experience mortality rates for the five analyzed data groups (Death Public was not analyzed as mentioned in the last section); and the comparison of mortality rates after smoothing. Only ages 45 to 95 are shown as this range has relatively higher credibility compared to younger and older ages.



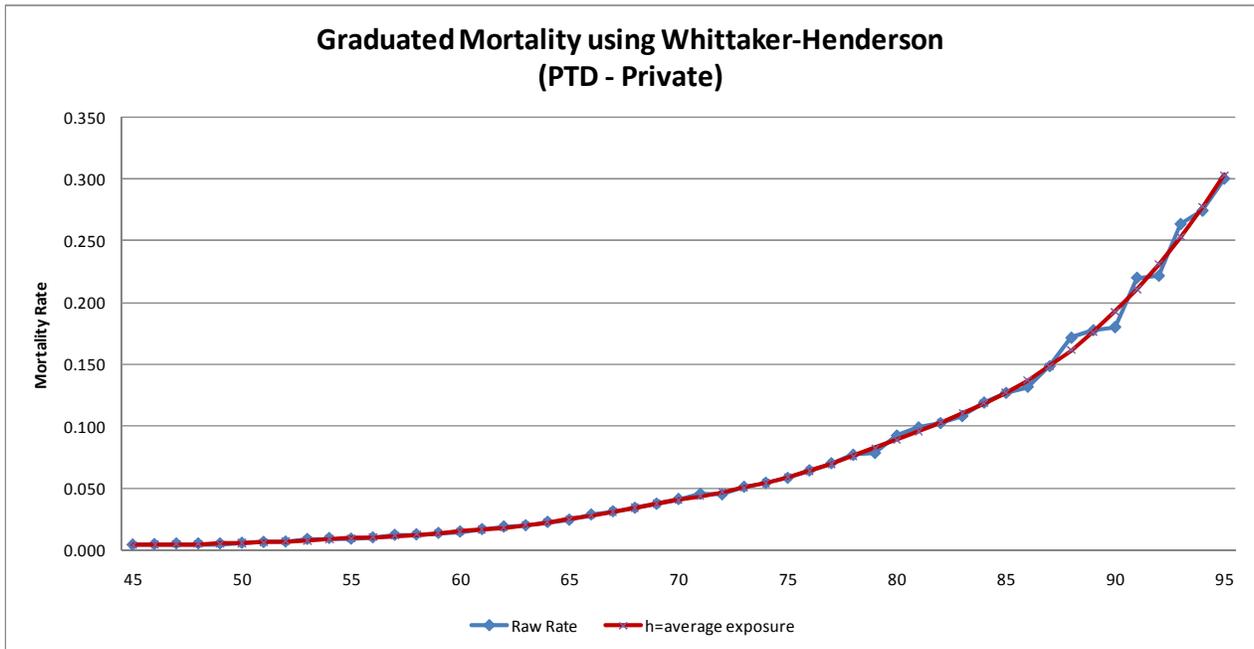
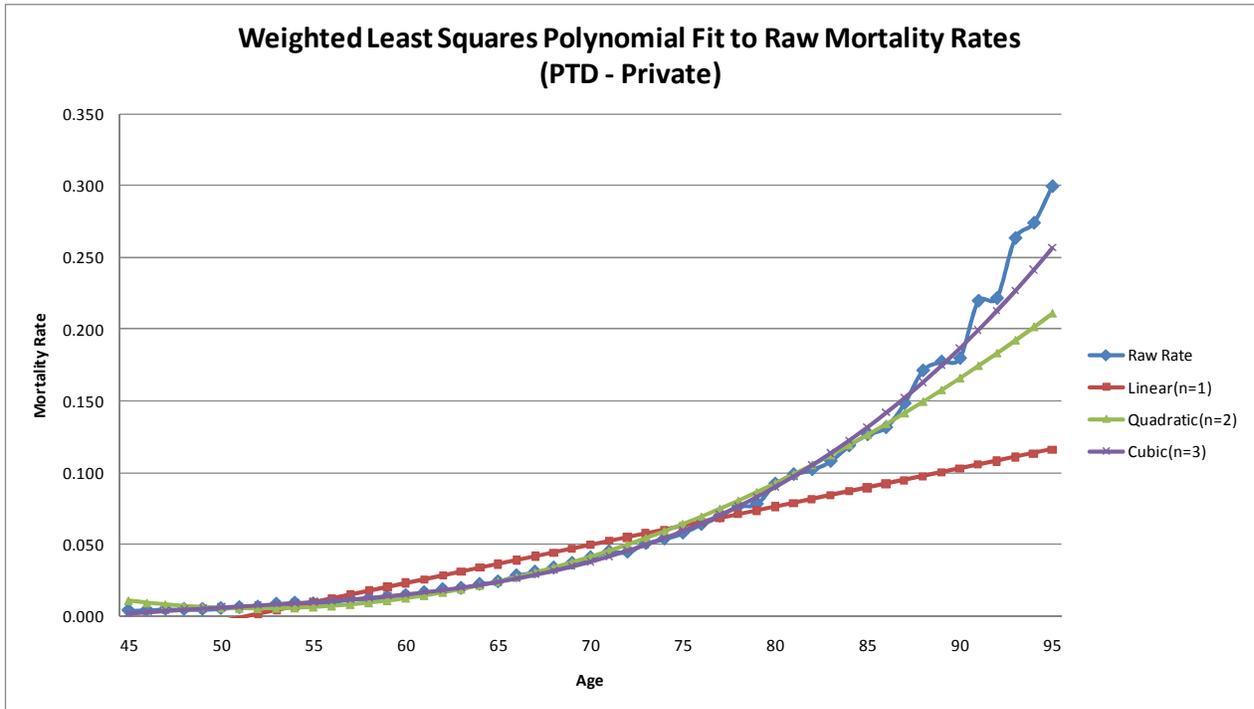
As shown in the experience rates graph, the four PTD groups have very similar curves, except for ages 82 to 95 for PTD OD Lung and Non-Lung where increase volatility is introduced by less credible data. The Death Private group has a mortality curve that has the lowest mortality rates, which appears reasonable since this curve is for the spouse, not the injured worker. Both the experience rates graph and the smoothed rates graph show that PTD OD Lung and Non-Lung have higher mortality rates than PTD Regular (which includes PTD Private and PTD Public).

The annuity factors for each group can be found in Appendix B. The factors were determined using a valuation interest rate of 4.0%.

DISTRIBUTION AND USE

This report is prepared solely for the use of Ohio BWC. The general business terms, including authorization and access letter forms, outlined in the engagement letter should be referred to regarding any additional distribution of this report. All parties receiving this report should be advised that Deloitte Consulting personnel are available to discuss this analysis in further detail.

APPENDIX A – Whittaker-Henderson Graduation for PTD Private



APPENDIX B – Annuity Factors by Group, Valuation Interest Rate = 4.0%

PTD Public									
Age	Annuity Factor				Age	Annuity Factor			
	Yearly	Monthly	Biweekly	Weekly		Yearly	Monthly	Biweekly	Weekly
1	22.9	280.6	608.6	1217.7	56	13.1	161.1	349.5	699.6
2	22.9	280.0	607.4	1215.2	57	12.8	157.0	340.8	682.0
3	22.9	279.3	605.7	1212.0	58	12.5	152.9	331.9	664.2
4	22.8	278.5	604.0	1208.5	59	12.1	148.7	322.8	646.2
5	22.7	277.6	602.1	1204.7	60	11.8	144.5	313.8	628.0
6	22.6	276.7	600.1	1200.7	61	11.4	140.3	304.6	609.7
7	22.6	275.7	598.0	1196.4	62	11.1	136.1	295.4	591.3
8	22.5	274.7	595.8	1192.1	63	10.7	131.8	286.2	573.0
9	22.4	273.7	593.6	1187.6	64	10.4	127.6	277.1	554.7
10	22.3	272.6	591.3	1183.1	65	10.0	123.5	268.1	536.7
11	22.2	271.5	588.9	1178.4	66	9.7	119.4	259.3	519.0
12	22.1	270.4	586.5	1173.6	67	9.3	115.4	250.6	501.7
13	22.0	269.3	584.1	1168.6	68	9.0	111.5	242.1	484.7
14	21.9	268.1	581.5	1163.5	69	8.7	107.6	233.8	468.1
15	21.8	266.9	578.8	1158.1	70	8.4	103.8	225.6	451.7
16	21.7	265.6	576.1	1152.6	71	8.0	100.1	217.4	435.3
17	21.6	264.3	573.2	1146.9	72	7.7	96.3	209.3	419.1
18	21.5	262.9	570.3	1141.0	73	7.4	92.6	201.1	402.8
19	21.4	261.5	567.2	1134.9	74	7.1	88.8	193.0	386.6
20	21.3	260.1	564.1	1128.6	75	6.8	85.1	185.0	370.6
21	21.2	258.6	560.8	1122.1	76	6.5	81.5	177.1	354.8
22	21.0	257.0	557.5	1115.4	77	6.2	77.9	169.5	339.4
23	20.9	255.4	554.0	1108.5	78	5.9	74.5	162.0	324.5
24	20.8	253.8	550.4	1101.3	79	5.6	71.2	154.7	310.0
25	20.6	252.1	546.7	1093.9	80	5.3	67.9	147.7	295.9
26	20.5	250.3	542.9	1086.3	81	5.1	64.7	140.8	282.2
27	20.3	248.5	539.0	1078.5	82	4.8	61.6	134.1	268.6
28	20.2	246.6	534.9	1070.3	83	4.6	58.5	127.4	255.2
29	20.0	244.7	530.7	1061.9	84	4.3	55.4	120.7	241.9
30	19.9	242.6	526.3	1053.1	85	4.0	52.4	114.0	228.6
31	19.7	240.5	521.7	1044.0	86	3.8	49.3	107.4	215.4
32	19.5	238.3	517.0	1034.5	87	3.5	46.3	100.9	202.4
33	19.3	236.1	512.1	1024.6	88	3.3	43.4	94.6	189.7
34	19.1	233.7	506.9	1014.3	89	3.1	40.5	88.4	177.3
35	18.9	231.2	501.5	1003.6	90	2.8	37.8	82.5	165.4
36	18.7	228.6	496.0	992.4	91	2.6	35.2	76.8	154.1
37	18.5	226.0	490.2	980.8	92	2.4	32.7	71.4	143.3
38	18.3	223.2	484.2	968.8	93	2.2	30.4	66.4	133.3
39	18.0	220.3	478.0	956.4	94	2.0	28.3	61.8	124.2
40	17.8	217.4	471.6	943.7	95	1.8	26.4	57.8	116.1
41	17.5	214.4	465.1	930.7	96	1.7	24.7	54.1	108.8
42	17.3	211.3	458.4	917.4	97	1.6	23.1	50.6	101.7
43	17.0	208.2	451.7	903.8	98	1.4	21.5	47.1	94.8
44	16.8	205.0	444.8	890.1	99	1.3	19.9	43.7	87.9
45	16.5	201.8	437.8	876.1	100	1.2	18.3	40.3	81.0
46	16.2	198.5	430.7	861.9	101	1.0	16.7	36.8	74.2
47	16.0	195.1	423.4	847.2	102	0.9	15.2	33.4	67.3
48	15.7	191.6	415.8	832.1	103	0.8	13.6	30.0	60.5
49	15.4	188.0	408.0	816.5	104	0.7	12.0	26.6	53.8
50	15.1	184.3	400.0	800.5	105	0.6	10.5	23.3	47.1
51	14.8	180.6	391.8	784.2	106	0.4	9.0	20.0	40.5
52	14.4	176.8	383.6	767.6	107	0.3	7.5	16.8	33.9
53	14.1	172.9	375.2	750.9	108	0.2	6.0	13.5	26.7
54	13.8	169.0	366.8	734.0	109	0.1	4.4	10.1	15.6
55	13.5	165.1	358.2	716.9	110	0.0	0.0	0.0	0.0

Note: Factors are annuities with one dollar of compensation benefit for each payment at specified frequency from the attained age indicated, at an interest of 4.0%

PTD Private

Age	Annuity Factor				Age	Annuity Factor			
	Yearly	Monthly	Biweekly	Weekly		Yearly	Monthly	Biweekly	Weekly
1	22.9	280.1	607.5	1215.5	56	13.0	159.2	345.6	691.7
2	22.9	279.5	606.3	1213.0	57	12.6	155.2	336.8	674.0
3	22.8	278.8	604.6	1209.8	58	12.3	151.0	327.8	656.1
4	22.7	278.0	602.8	1206.2	59	12.0	146.8	318.7	638.0
5	22.7	277.1	600.9	1202.3	60	11.6	142.6	309.6	619.7
6	22.6	276.1	598.9	1198.2	61	11.3	138.4	300.4	601.4
7	22.5	275.1	596.7	1194.0	62	10.9	134.1	291.2	582.9
8	22.4	274.1	594.5	1189.5	63	10.5	129.9	282.0	564.5
9	22.3	273.1	592.2	1185.0	64	10.2	125.7	272.9	546.2
10	22.3	272.0	589.9	1180.4	65	9.8	121.5	263.9	528.2
11	22.2	270.9	587.6	1175.6	66	9.5	117.4	255.0	510.5
12	22.1	269.8	585.1	1170.8	67	9.2	113.4	246.3	493.2
13	22.0	268.6	582.6	1165.7	68	8.8	109.5	237.9	476.3
14	21.9	267.4	580.0	1160.5	69	8.5	105.7	229.6	459.7
15	21.8	266.2	577.3	1155.1	70	8.2	101.9	221.4	443.3
16	21.7	264.9	574.5	1149.5	71	7.9	98.2	213.3	427.0
17	21.6	263.6	571.6	1143.8	72	7.6	94.4	205.2	410.8
18	21.5	262.2	568.6	1137.8	73	7.3	90.7	197.1	394.7
19	21.3	260.8	565.5	1131.6	74	7.0	87.0	189.0	378.6
20	21.2	259.3	562.4	1125.2	75	6.6	83.3	181.1	362.6
21	21.1	257.8	559.1	1118.6	76	6.3	79.7	173.2	347.0
22	21.0	256.2	555.6	1111.8	77	6.0	76.2	165.6	331.7
23	20.8	254.6	552.1	1104.8	78	5.8	72.8	158.2	316.9
24	20.7	252.9	548.5	1097.5	79	5.5	69.4	151.1	302.6
25	20.5	251.2	544.8	1090.1	80	5.2	66.2	144.1	288.7
26	20.4	249.4	540.9	1082.4	81	4.9	63.1	137.3	275.1
27	20.3	247.6	536.9	1074.4	82	4.7	60.0	130.6	261.8
28	20.1	245.6	532.8	1066.1	83	4.4	57.0	124.0	248.5
29	19.9	243.7	528.5	1057.6	84	4.2	53.9	117.4	235.4
30	19.8	241.6	524.1	1048.7	85	3.9	50.9	110.9	222.3
31	19.6	239.5	519.5	1039.5	86	3.7	47.9	104.4	209.3
32	19.4	237.3	514.7	1029.9	87	3.4	45.0	98.0	196.5
33	19.2	235.0	509.7	1019.9	88	3.2	42.1	91.7	184.0
34	19.0	232.6	504.5	1009.5	89	2.9	39.3	85.7	171.8
35	18.8	230.1	499.1	998.6	90	2.7	36.6	79.8	160.1
36	18.6	227.5	493.4	987.3	91	2.5	34.0	74.2	148.9
37	18.4	224.7	487.5	975.5	92	2.3	31.6	68.9	138.4
38	18.2	221.9	481.4	963.4	93	2.1	29.3	64.0	128.5
39	17.9	219.0	475.2	950.9	94	1.9	27.2	59.5	119.6
40	17.7	216.1	468.7	938.0	95	1.8	25.4	55.6	111.6
41	17.4	213.0	462.1	924.8	96	1.6	23.7	52.0	104.5
42	17.2	209.9	455.4	911.3	97	1.5	22.1	48.6	97.6
43	16.9	206.8	448.6	897.6	98	1.4	20.6	45.2	90.9
44	16.6	203.6	441.6	883.7	99	1.2	19.0	41.8	84.1
45	16.4	200.3	434.6	869.7	100	1.1	17.5	38.5	77.4
46	16.1	197.0	427.4	855.3	101	1.0	15.9	35.1	70.8
47	15.8	193.6	420.0	840.5	102	0.9	14.4	31.8	64.1
48	15.5	190.0	412.4	825.2	103	0.7	12.9	28.5	57.4
49	15.2	186.4	404.5	809.5	104	0.6	11.4	25.2	50.9
50	14.9	182.7	396.4	793.3	105	0.5	9.9	21.9	44.3
51	14.6	178.9	388.2	776.9	106	0.4	8.4	18.7	37.8
52	14.3	175.0	379.9	760.2	107	0.3	6.9	15.4	31.3
53	14.0	171.2	371.4	743.4	108	0.2	5.3	12.0	24.3
54	13.6	167.2	362.9	726.4	109	0.1	3.5	8.1	14.4
55	13.3	163.3	354.3	709.1	110	0.0	0.0	0.0	0.0

Note: Factors are annuities with one dollar of compensation benefit for each payment at specified frequency from the attained age indicated, at an interest of 4.0%

PTD Occupational Disease - Lung

Age	Annuity Factor				Age	Annuity Factor			
	Yearly	Monthly	Biweekly	Weekly		Yearly	Monthly	Biweekly	Weekly
1	22.5	274.7	595.7	1191.8	56	11.5	141.2	306.6	613.7
2	22.4	274.1	594.4	1189.3	57	11.1	137.0	297.3	595.2
3	22.4	273.2	592.6	1185.6	58	10.8	132.7	288.0	576.6
4	22.3	272.3	590.5	1181.5	59	10.4	128.3	278.7	557.8
5	22.2	271.3	588.3	1177.1	60	10.1	124.0	269.3	539.0
6	22.1	270.2	585.9	1172.4	61	9.7	119.7	259.8	520.2
7	22.0	269.0	583.4	1167.4	62	9.3	115.3	250.4	501.4
8	21.9	267.8	580.9	1162.2	63	9.0	111.0	241.1	482.7
9	21.8	266.6	578.3	1157.0	64	8.6	106.8	231.9	464.3
10	21.7	265.4	575.6	1151.7	65	8.3	102.6	222.9	446.3
11	21.6	264.1	572.9	1146.3	66	7.9	98.6	214.2	428.9
12	21.5	262.9	570.1	1140.7	67	7.6	94.7	205.7	411.9
13	21.4	261.5	567.2	1135.0	68	7.3	90.9	197.6	395.6
14	21.3	260.2	564.3	1129.0	69	7.0	87.2	189.6	379.7
15	21.2	258.8	561.2	1122.9	70	6.7	83.7	181.9	364.3
16	21.0	257.3	558.0	1116.6	71	6.4	80.2	174.2	349.0
17	20.9	255.8	554.8	1110.0	72	6.1	76.7	166.7	333.8
18	20.8	254.2	551.4	1103.2	73	5.8	73.2	159.1	318.8
19	20.7	252.6	547.9	1096.2	74	5.5	69.7	151.7	303.9
20	20.5	250.9	544.2	1089.0	75	5.2	66.4	144.3	289.2
21	20.4	249.2	540.5	1081.5	76	4.9	63.1	137.2	274.9
22	20.2	247.4	536.7	1073.9	77	4.7	59.9	130.3	261.1
23	20.1	245.6	532.7	1066.0	78	4.4	56.8	123.7	247.8
24	19.9	243.7	528.7	1057.8	79	4.2	53.9	117.3	235.1
25	19.8	241.8	524.5	1049.5	80	3.9	51.1	111.2	223.0
26	19.6	239.8	520.2	1040.8	81	3.7	48.4	105.4	211.3
27	19.4	237.8	515.7	1031.9	82	3.5	45.7	99.7	199.8
28	19.3	235.6	511.1	1022.7	83	3.3	43.1	94.0	188.5
29	19.1	233.4	506.3	1013.2	84	3.0	40.5	88.4	177.3
30	18.9	231.1	501.4	1003.3	85	2.8	38.0	82.9	166.2
31	18.7	228.8	496.2	993.0	86	2.6	35.4	77.4	155.2
32	18.5	226.3	490.9	982.3	87	2.4	32.9	72.0	144.4
33	18.3	223.7	485.3	971.1	88	2.2	30.5	66.7	133.9
34	18.1	221.0	479.5	959.4	89	2.0	28.1	61.6	123.6
35	17.8	218.2	473.4	947.3	90	1.8	25.9	56.6	113.8
36	17.6	215.3	467.0	934.6	91	1.6	23.7	52.0	104.4
37	17.4	212.3	460.5	921.4	92	1.5	21.7	47.5	95.6
38	17.1	209.1	453.7	907.8	93	1.3	19.8	43.4	87.3
39	16.8	205.9	446.7	893.8	94	1.2	18.0	39.7	79.8
40	16.6	202.6	439.5	879.5	95	1.0	16.5	36.4	73.3
41	16.3	199.2	432.2	864.8	96	0.9	15.2	33.6	67.7
42	16.0	195.7	424.7	849.9	97	0.8	14.0	30.9	62.3
43	15.7	192.3	417.2	834.8	98	0.7	12.8	28.3	57.1
44	15.4	188.7	409.5	819.6	99	0.6	11.6	25.7	51.8
45	15.1	185.2	401.9	804.2	100	0.5	10.4	23.0	46.5
46	14.8	181.6	394.1	788.7	101	0.4	9.1	20.3	41.2
47	14.5	177.9	386.0	772.6	102	0.3	7.9	17.6	35.7
48	14.2	174.1	377.8	756.0	103	0.3	6.6	14.8	30.0
49	13.9	170.1	369.2	739.0	104	0.2	5.1	11.6	23.8
50	13.6	166.1	360.5	721.5	105	0.1	3.1	7.0	14.4
51	13.2	162.0	351.7	703.9	106	0.0	0.0	0.0	0.0
52	12.9	157.9	342.8	686.0	107	0.0	0.0	0.0	0.0
53	12.5	153.8	333.8	668.1	108	0.0	0.0	0.0	0.0
54	12.2	149.6	324.8	650.1	109	0.0	0.0	0.0	0.0
55	11.8	145.5	315.7	632.0	110	0.0	0.0	0.0	0.0

Note: Factors are annuities with one dollar of compensation benefit for each payment at specified frequency from the attained age indicated, at an interest of 4.0%

PTD Occupational Disease - Non Lung

Age	Annuity Factor				Age	Annuity Factor			
	Yearly	Monthly	Biweekly	Weekly		Yearly	Monthly	Biweekly	Weekly
1	22.8	279.3	605.7	1211.8	56	12.7	156.2	339.1	678.6
2	22.8	278.7	604.4	1209.3	57	12.4	152.1	330.1	660.8
3	22.7	277.9	602.7	1206.0	58	12.1	147.9	321.1	642.7
4	22.7	277.1	600.9	1202.3	59	11.7	143.7	312.0	624.5
5	22.6	276.2	598.9	1198.4	60	11.3	139.5	302.8	606.1
6	22.5	275.2	596.8	1194.2	61	11.0	135.2	293.6	587.6
7	22.4	274.2	594.6	1189.8	62	10.6	130.9	284.3	569.1
8	22.4	273.1	592.4	1185.2	63	10.3	126.7	275.1	550.6
9	22.3	272.1	590.1	1180.6	64	9.9	122.5	265.9	532.3
10	22.2	271.0	587.7	1175.9	65	9.6	118.3	256.9	514.2
11	22.1	269.9	585.3	1171.0	66	9.2	114.2	248.0	496.5
12	22.0	268.7	582.8	1166.0	67	8.9	110.2	239.4	479.2
13	21.9	267.5	580.2	1160.9	68	8.6	106.3	230.9	462.4
14	21.8	266.3	577.5	1155.5	69	8.2	102.5	222.7	445.9
15	21.7	265.0	574.8	1150.0	70	7.9	98.8	214.6	429.6
16	21.6	263.7	571.9	1144.3	71	7.6	95.0	206.5	413.5
17	21.5	262.3	569.0	1138.4	72	7.3	91.3	198.5	397.4
18	21.3	260.9	565.9	1132.3	73	7.0	87.6	190.5	381.4
19	21.2	259.5	562.7	1126.0	74	6.7	84.0	182.5	365.5
20	21.1	257.9	559.5	1119.4	75	6.4	80.3	174.6	349.7
21	21.0	256.4	556.1	1112.7	76	6.1	76.8	166.9	334.3
22	20.8	254.8	552.6	1105.7	77	5.8	73.3	159.4	319.3
23	20.7	253.1	549.0	1098.6	78	5.5	69.9	152.1	304.7
24	20.6	251.4	545.3	1091.2	79	5.2	66.7	145.1	290.6
25	20.4	249.7	541.5	1083.6	80	5.0	63.5	138.3	277.0
26	20.3	247.9	537.6	1075.7	81	4.7	60.5	131.6	263.7
27	20.1	246.0	533.5	1067.6	82	4.5	57.5	125.1	250.7
28	20.0	244.0	529.3	1059.2	83	4.2	54.5	118.6	237.8
29	19.8	242.0	525.0	1050.4	84	4.0	51.5	112.2	224.9
30	19.6	239.9	520.4	1041.4	85	3.7	48.6	105.8	212.2
31	19.5	237.8	515.7	1032.0	86	3.5	45.7	99.5	199.5
32	19.3	235.5	510.8	1022.2	87	3.2	42.8	93.3	187.0
33	19.1	233.2	505.7	1012.0	88	3.0	40.0	87.2	174.8
34	18.9	230.7	500.4	1001.4	89	2.8	37.2	81.2	163.0
35	18.7	228.1	494.9	990.3	90	2.6	34.6	75.5	151.6
36	18.4	225.5	489.1	978.7	91	2.3	32.1	70.1	140.7
37	18.2	222.7	483.1	966.8	92	2.1	29.7	65.0	130.5
38	18.0	219.9	476.9	954.4	93	2.0	27.5	60.2	120.9
39	17.7	216.9	470.5	941.6	94	1.8	25.5	55.8	112.2
40	17.5	213.9	464.0	928.4	95	1.6	23.7	52.0	104.5
41	17.2	210.8	457.3	915.0	96	1.5	22.2	48.6	97.7
42	17.0	207.6	450.4	901.3	97	1.4	20.6	45.3	91.1
43	16.7	204.4	443.4	887.4	98	1.2	19.1	42.0	84.6
44	16.4	201.1	436.4	873.2	99	1.1	17.7	38.8	78.2
45	16.2	197.8	429.2	858.9	100	1.0	16.2	35.6	71.7
46	15.9	194.5	421.9	844.3	101	0.9	14.7	32.4	65.3
47	15.6	191.0	414.4	829.3	102	0.8	13.2	29.2	58.9
48	15.3	187.4	406.6	813.8	103	0.6	11.7	26.0	52.5
49	15.0	183.7	398.7	797.8	104	0.5	10.3	22.8	46.1
50	14.7	179.9	390.5	781.4	105	0.4	8.8	19.7	39.8
51	14.4	176.1	382.1	764.8	106	0.3	7.3	16.5	33.4
52	14.1	172.2	373.7	747.9	107	0.2	5.8	13.2	26.9
53	13.7	168.3	365.2	730.8	108	0.1	4.2	9.6	19.6
54	13.4	164.3	356.6	713.6	109	0.0	2.3	5.2	11.2
55	13.1	160.3	347.9	696.2	110	0.0	0.0	0.0	0.0

Note: Factors are annuities with one dollar of compensation benefit for each payment at specified frequency from the attained age indicated, at an interest of 4.0%

Death Public

Age	Annuity Factor				Age	Annuity Factor			
	Yearly	Monthly	Biweekly	Weekly		Yearly	Monthly	Biweekly	Weekly
1	21.7	264.7	574.1	1148.6	56	16.0	196.3	426.0	852.4
2	21.6	263.2	570.8	1142.1	57	15.8	193.4	419.5	839.6
3	21.4	261.6	567.3	1135.1	58	15.5	190.3	412.9	826.3
4	21.3	259.9	563.7	1127.8	59	15.3	187.1	406.0	812.5
5	21.1	258.1	559.9	1120.2	60	15.0	183.8	398.8	798.1
6	21.0	256.3	555.9	1112.3	61	14.7	180.3	391.3	783.1
7	20.8	254.4	551.7	1104.0	62	14.4	176.7	383.5	767.5
8	20.7	252.4	547.4	1095.4	63	14.1	173.0	375.4	751.2
9	20.5	250.3	542.9	1086.4	64	13.8	169.1	366.9	734.3
10	20.3	248.2	538.3	1077.0	65	13.5	165.0	358.1	716.8
11	20.2	245.9	533.4	1067.3	66	13.1	160.8	349.1	698.6
12	20.0	243.6	528.4	1057.2	67	12.8	156.5	339.7	679.9
13	19.8	241.2	523.1	1046.8	68	12.4	152.1	330.0	660.6
14	19.6	238.7	517.7	1035.9	69	12.0	147.5	320.1	640.7
15	19.4	236.1	512.1	1024.7	70	11.6	142.8	310.0	620.4
16	19.1	233.4	506.3	1013.1	71	11.2	138.0	299.6	599.7
17	18.9	235.4	510.6	1021.8	72	10.8	133.1	289.0	578.6
18	19.4	240.3	521.2	1042.9	73	10.4	128.2	278.3	557.1
19	19.7	243.9	529.0	1058.5	74	10.0	123.1	267.4	535.3
20	19.9	246.3	534.3	1069.1	75	9.6	118.0	256.3	513.1
21	20.1	248.1	538.2	1076.9	76	9.2	113.4	246.3	493.1
22	20.3	249.4	540.9	1082.2	77	8.8	108.8	236.4	473.3
23	20.3	250.1	542.4	1085.3	78	8.4	104.3	226.6	453.6
24	20.4	250.4	543.0	1086.5	79	8.1	99.8	216.9	434.3
25	20.4	250.3	542.9	1086.4	80	7.7	95.4	207.3	415.1
26	20.4	250.1	542.4	1085.2	81	7.3	91.0	197.7	395.9
27	20.3	249.6	541.4	1083.3	82	7.0	86.7	188.4	377.3
28	20.3	249.0	540.0	1080.6	83	6.6	82.5	179.3	359.1
29	20.2	248.2	538.4	1077.3	84	6.3	78.4	170.5	341.5
30	20.2	247.3	536.4	1073.3	85	5.9	74.5	161.9	324.4
31	20.1	246.3	534.2	1069.0	86	5.6	70.7	153.7	307.8
32	20.0	245.2	531.9	1064.2	87	5.3	67.0	145.7	291.9
33	19.9	244.0	529.3	1059.1	88	5.0	63.4	138.0	276.5
34	19.8	242.7	526.5	1053.5	89	4.7	60.0	130.7	261.8
35	19.7	241.4	523.5	1047.6	90	4.4	56.8	123.6	247.6
36	19.6	239.9	520.4	1041.3	91	4.2	53.6	116.8	234.0
37	19.5	238.4	517.1	1034.8	92	3.9	50.6	110.3	221.0
38	19.3	236.8	513.7	1027.9	93	3.7	47.8	104.1	208.6
39	19.2	235.2	510.1	1020.8	94	3.4	45.1	98.2	196.8
40	19.1	233.5	506.4	1013.3	95	3.2	42.4	92.6	185.4
41	18.9	231.7	502.6	1005.7	96	3.0	40.0	87.2	174.7
42	18.8	229.9	498.7	997.9	97	2.8	37.6	82.1	164.5
43	18.6	228.0	494.6	989.8	98	2.6	35.4	77.4	154.9
44	18.5	226.1	490.5	981.4	99	2.4	33.4	72.9	145.8
45	18.3	224.1	486.1	972.7	100	2.3	31.4	68.7	137.2
46	18.1	222.0	481.6	963.7	101	2.1	29.6	64.7	129.0
47	18.0	219.8	476.8	954.2	102	2.0	27.8	60.9	121.0
48	17.8	217.5	471.9	944.3	103	1.8	26.2	57.3	113.2
49	17.6	215.2	466.8	934.1	104	1.7	24.6	53.8	105.3
50	17.4	212.7	461.5	923.4	105	1.6	23.0	50.3	96.8
51	17.2	210.2	456.0	912.4	106	1.5	21.2	46.4	86.6
52	17.0	207.5	450.2	901.0	107	1.3	19.1	41.8	73.2
53	16.7	204.8	444.3	889.2	108	1.1	16.2	35.6	53.7
54	16.5	202.0	438.3	877.1	109	0.9	12.0	26.3	22.7
55	16.3	199.2	432.2	864.9	110	0.0	0.0	0.0	0.0

Note: Factors are annuities with one dollar of compensation benefit for each payment at specified frequency from the attained age indicated, at an interest of 4.0%

Death Private

Age	Annuity Factor				Age	Annuity Factor			
	Yearly	Monthly	Biweekly	Weekly		Yearly	Monthly	Biweekly	Weekly
1	21.7	264.7	574.1	1148.6	56	16.0	196.3	426.0	852.4
2	21.6	263.2	570.8	1142.1	57	15.8	193.4	419.5	839.6
3	21.4	261.6	567.3	1135.1	58	15.5	190.3	412.9	826.3
4	21.3	259.9	563.7	1127.8	59	15.3	187.1	406.0	812.5
5	21.1	258.1	559.9	1120.2	60	15.0	183.8	398.8	798.1
6	21.0	256.3	555.9	1112.3	61	14.7	180.3	391.3	783.1
7	20.8	254.4	551.7	1104.0	62	14.4	176.7	383.5	767.5
8	20.7	252.4	547.4	1095.4	63	14.1	173.0	375.4	751.2
9	20.5	250.3	542.9	1086.4	64	13.8	169.1	366.9	734.3
10	20.3	248.2	538.3	1077.0	65	13.5	165.0	358.1	716.8
11	20.2	245.9	533.4	1067.3	66	13.1	160.8	349.1	698.6
12	20.0	243.6	528.4	1057.2	67	12.8	156.5	339.7	679.9
13	19.8	241.2	523.1	1046.8	68	12.4	152.1	330.0	660.6
14	19.6	238.7	517.7	1035.9	69	12.0	147.5	320.1	640.7
15	19.4	236.1	512.1	1024.7	70	11.6	142.8	310.0	620.4
16	19.1	233.4	506.3	1013.1	71	11.2	138.0	299.6	599.7
17	18.9	235.4	510.6	1021.8	72	10.8	133.1	289.0	578.6
18	19.4	240.3	521.2	1042.9	73	10.4	128.2	278.3	557.1
19	19.7	243.9	529.0	1058.5	74	10.0	123.1	267.4	535.3
20	19.9	246.3	534.3	1069.1	75	9.6	118.0	256.3	513.1
21	20.1	248.1	538.2	1076.9	76	9.2	113.4	246.3	493.1
22	20.3	249.4	540.9	1082.2	77	8.8	108.8	236.4	473.3
23	20.3	250.1	542.4	1085.3	78	8.4	104.3	226.6	453.6
24	20.4	250.4	543.0	1086.5	79	8.1	99.8	216.9	434.3
25	20.4	250.3	542.9	1086.4	80	7.7	95.4	207.3	415.1
26	20.4	250.1	542.4	1085.2	81	7.3	91.0	197.7	395.9
27	20.3	249.6	541.4	1083.3	82	7.0	86.7	188.4	377.3
28	20.3	249.0	540.0	1080.6	83	6.6	82.5	179.3	359.1
29	20.2	248.2	538.4	1077.3	84	6.3	78.4	170.5	341.5
30	20.2	247.3	536.4	1073.3	85	5.9	74.5	161.9	324.4
31	20.1	246.3	534.2	1069.0	86	5.6	70.7	153.7	307.8
32	20.0	245.2	531.9	1064.2	87	5.3	67.0	145.7	291.9
33	19.9	244.0	529.3	1059.1	88	5.0	63.4	138.0	276.5
34	19.8	242.7	526.5	1053.5	89	4.7	60.0	130.7	261.8
35	19.7	241.4	523.5	1047.6	90	4.4	56.8	123.6	247.6
36	19.6	239.9	520.4	1041.3	91	4.2	53.6	116.8	234.0
37	19.5	238.4	517.1	1034.8	92	3.9	50.6	110.3	221.0
38	19.3	236.8	513.7	1027.9	93	3.7	47.8	104.1	208.6
39	19.2	235.2	510.1	1020.8	94	3.4	45.1	98.2	196.8
40	19.1	233.5	506.4	1013.3	95	3.2	42.4	92.6	185.4
41	18.9	231.7	502.6	1005.7	96	3.0	40.0	87.2	174.7
42	18.8	229.9	498.7	997.9	97	2.8	37.6	82.1	164.5
43	18.6	228.0	494.6	989.8	98	2.6	35.4	77.4	154.9
44	18.5	226.1	490.5	981.4	99	2.4	33.4	72.9	145.8
45	18.3	224.1	486.1	972.7	100	2.3	31.4	68.7	137.2
46	18.1	222.0	481.6	963.7	101	2.1	29.6	64.7	129.0
47	18.0	219.8	476.8	954.2	102	2.0	27.8	60.9	121.0
48	17.8	217.5	471.9	944.3	103	1.8	26.2	57.3	113.2
49	17.6	215.2	466.8	934.1	104	1.7	24.6	53.8	105.3
50	17.4	212.7	461.5	923.4	105	1.6	23.0	50.3	96.8
51	17.2	210.2	456.0	912.4	106	1.5	21.2	46.4	86.6
52	17.0	207.5	450.2	901.0	107	1.3	19.1	41.8	73.2
53	16.7	204.8	444.3	889.2	108	1.1	16.2	35.6	53.7
54	16.5	202.0	438.3	877.1	109	0.9	12.0	26.3	22.7
55	16.3	199.2	432.2	864.9	110	0.0	0.0	0.0	0.0

Note: Factors are annuities with one dollar of compensation benefit for each payment at specified frequency from the attained age indicated, at an interest of 4.0%

Settlement for Medical Benefits

Age	Annuity Factor				Age	Annuity Factor			
	Yearly	Monthly	Biweekly	Weekly		Yearly	Monthly	Biweekly	Weekly
1	23.7	289.9	628.7	1257.9	56	16.2	198.7	431.1	862.6
2	23.7	289.4	627.6	1255.8	57	16.0	195.4	423.9	848.4
3	23.6	288.9	626.4	1253.4	58	15.7	192.0	416.6	833.8
4	23.6	288.3	625.2	1250.9	59	15.4	188.6	409.1	818.7
5	23.5	287.7	623.8	1248.2	60	15.1	185.0	401.4	803.2
6	23.5	287.0	622.4	1245.4	61	14.8	181.3	393.3	787.2
7	23.4	286.3	621.0	1242.5	62	14.5	177.4	385.0	770.6
8	23.4	285.6	619.4	1239.4	63	14.2	173.5	376.5	753.4
9	23.3	284.9	617.8	1236.2	64	13.8	169.4	367.6	735.7
10	23.3	284.1	616.2	1232.9	65	13.5	165.2	358.5	717.4
11	23.2	283.3	614.5	1229.4	66	13.1	160.9	349.1	698.7
12	23.1	282.5	612.7	1225.9	67	12.8	156.4	339.5	679.4
13	23.1	281.7	610.9	1222.2	68	12.4	151.9	329.7	659.8
14	23.0	280.8	609.0	1218.4	69	12.0	147.3	319.6	639.8
15	22.9	279.9	607.0	1214.6	70	11.6	142.6	309.5	619.5
16	22.8	279.0	605.0	1210.6	71	11.2	137.8	299.2	598.9
17	22.8	278.0	603.0	1206.5	72	10.8	133.1	288.9	578.2
18	22.7	277.0	600.9	1202.2	73	10.4	128.3	278.5	557.4
19	22.6	276.0	598.6	1197.8	74	10.0	123.4	268.0	536.6
20	22.5	275.0	596.3	1193.2	75	9.6	118.7	257.7	515.8
21	22.4	273.9	593.9	1188.4	76	9.2	113.9	247.3	495.2
22	22.3	272.7	591.5	1183.4	77	8.8	109.2	237.1	474.7
23	22.2	271.5	588.9	1178.3	78	8.5	104.5	227.0	454.5
24	22.1	270.3	586.2	1172.9	79	8.1	99.9	217.1	434.6
25	22.0	269.0	583.4	1167.3	80	7.7	95.4	207.3	415.1
26	21.9	267.6	580.5	1161.5	81	7.3	91.0	197.7	395.9
27	21.8	266.3	577.5	1155.4	82	7.0	86.7	188.4	377.3
28	21.7	264.8	574.3	1149.2	83	6.6	82.5	179.3	359.1
29	21.6	263.3	571.1	1142.7	84	6.3	78.4	170.5	341.5
30	21.4	261.8	567.8	1136.0	85	5.9	74.5	161.9	324.4
31	21.3	260.2	564.3	1129.1	86	5.6	70.7	153.7	307.8
32	21.2	258.5	560.7	1121.9	87	5.3	67.0	145.7	291.9
33	21.0	256.8	557.0	1114.5	88	5.0	63.4	138.0	276.5
34	20.9	255.0	553.2	1106.8	89	4.7	60.0	130.7	261.8
35	20.7	253.2	549.2	1098.9	90	4.4	56.8	123.6	247.6
36	20.6	251.3	545.1	1090.7	91	4.2	53.6	116.8	234.0
37	20.4	249.4	540.8	1082.2	92	3.9	50.6	110.3	221.0
38	20.2	247.3	536.5	1073.5	93	3.7	47.8	104.1	208.6
39	20.1	245.3	532.0	1064.4	94	3.4	45.1	98.2	196.8
40	19.9	243.1	527.3	1055.2	95	3.2	42.4	92.6	185.4
41	19.7	240.9	522.5	1045.6	96	3.0	40.0	87.2	174.7
42	19.5	238.6	517.6	1035.7	97	2.8	37.6	82.1	164.5
43	19.3	236.3	512.5	1025.5	98	2.6	35.4	77.4	154.9
44	19.1	233.8	507.2	1014.9	99	2.4	33.4	72.9	145.8
45	18.9	231.3	501.7	1004.0	100	2.3	31.4	68.7	137.2
46	18.7	228.7	496.1	992.7	101	2.1	29.6	64.7	129.0
47	18.5	226.0	490.3	981.1	102	2.0	27.8	60.9	121.0
48	18.3	223.3	484.3	969.1	103	1.8	26.2	57.3	113.2
49	18.0	220.4	478.1	956.8	104	1.7	24.6	53.8	105.3
50	17.8	217.5	471.8	944.1	105	1.6	23.0	50.3	96.8
51	17.5	214.5	465.3	931.1	106	1.5	21.2	46.4	86.6
52	17.3	211.4	458.7	917.9	107	1.3	19.1	41.8	73.2
53	17.0	208.3	451.9	904.2	108	1.1	16.2	35.6	53.7
54	16.8	205.1	445.0	890.4	109	0.9	12.0	26.3	22.7
55	16.5	201.9	438.1	876.6	110	0.0	0.0	0.0	0.0

Note: Factors are annuities with one dollar of compensation benefit for each payment at specified frequency from the attained age indicated, at an interest of 4.0%. These factors were derived based on survival curve from the death claims.

Common Sense Business Regulation (BWC Rules)

(Note: The below criteria apply to existing and newly developed rules)

Rule 4123-17-60

Annuity Factor Update

Rule Review

1. The rule is needed to implement an underlying statute.

Citation: R.C. 4121.121, 4123.29, and 4123.34

2. The rule achieves an Ohio specific public policy goal.

What goal(s): These rules establish the annuity factors that are used in the calculation of reserves for Permanent Total Disability (PTD) and Death Claims.

3. Existing federal regulation alone does not adequately regulate the subject matter.

4. The rule is effective, consistent and efficient.

5. The rule is not duplicative of rules already in existence.

6. The rule is consistent with other state regulations, flexible, and reasonably balances the regulatory objectives and burden.

7. The rule has been reviewed for unintended negative consequences.

8. Stakeholders, and those affected by the rule were provided opportunity for input as appropriate.

Explain: BWC rate annuity table rules are developed using actuarial and insurance principles, stakeholder input is not appropriate.

9. The rule was reviewed for clarity and for easy comprehension.

10. The rule promotes transparency and predictability of regulatory activity.

11. The rule is based on the best scientific and technical information, and is designed so it can be applied consistently.

12. The rule is not unnecessarily burdensome or costly to those affected by rule.

If so, how does the need for the rule outweigh burden and cost? _____

13. The Chief Legal Officer, or his designee, has reviewed the rule for clarity and compliance with the Governor's Executive Order.

What is the purpose of the Annuity Factor? The annuity factor is used to set a present value or the indemnity reserve on a permanent and totally disabled claim (PTD) or a death claim.

Does the annuity factors change impact the injured workers benefit amount or the number of future payments in which he/she is entitled? No.

Where and when does a reserve on a PTD or death claim get used? It is used in the experience modification commonly referred to as the EM for both individuals and for the group EM

Is it used anywhere else? Yes, it is used by the claim settlement teams when settling PTD claims and in some instances when the claimant is expected to receive lifetime medical benefits and the claimant chooses to settle the medical benefits. For the most part, it is only one of many tools used in determining a fair settlement value.

Why do we care? We care because the information is used in other processes and therefore it is important to update the factors to more closely resemble the current mortality trends in Ohio. It is also updated to reflect the current discount rate. Actuarial staff will be using the data to develop incurred loss triangles in the future. The greater the amount of historical data, the better information can be derived from loss triangles.

How long has BWC used this methodology? BWC has continuously used a present value methodology for setting reserves on death claims and PTD claims since at least the sixties. The oldest PTD recorded in the Actuarial history cards is a 12-6-1912 injury that was originally a PTD and later, an allowed death claim. Prior to February 1994, annuity factors were approved by resolution by the Industrial Commission. Since February of 1994, the annuity factors have been adopted in rule form by the BWC board of directors (or the Oversight Commission). In 1997, the methodology was continued in the MIRA 1 system and remains today in the MIRA 2 system.

Definitions used in the mortality study

Life expectancy is the expected number of years of life remaining at a given age. Each year of life, a new life expectancy number is determined.

Age is the current age of the claimant or beneficiary.

Weekly Mortality rate is the probability of dying for a certain week, which is deemed as a measure of the number of deaths in a population, scaled to the size of the population. For example, for a population of 100,000, a mortality rate of 0.01 for a certain week means that 1% of the population is expected to die, or 1,000 deaths are expected to occur during that week.

Surviving probability is the probability that the claimant or beneficiary will continue to survive another year. It is equal to one minus the mortality rate for the first year. In the second year, the surviving probability is (one minus the mortality rate) multiplied by the prior year surviving probability. Also, surviving probability can be understood as the % surviving a certain time point. For example, if starting off with a population of 100,000, three years later, the surviving probability is 80%, this means the size of remaining population is expected to be 80,000.

Weekly payment is the amount of payments provided on a weekly basis.

Payment with probability is the weekly payment multiplied by the surviving probability, since payment is contingent on claimant's survival.

Discount factor is a factor that uses the chosen earning rate percentage that the BWC expects to earn on investments to adjust the mortality rate. The selected discount rate is located in the box at the top right of the example.

Payment with probability and discount factor is each weekly payment discounted to the present, and also reflecting the surviving probability.

Annuity factor is the summation of the weekly payments with appropriate probability and discount factor reflected, across all the remaining lifetime. In this case, it is the summation of the weeks remaining between current age 50 and the ultimate age 100 (60 years). It is approximately 3120 rows of data summed.

Calculation of Annuity Factor (PTD Private) for a 50 years old

Additional Life Expectancy (yrs)	25.61	Interest Rate	4.0%
		Annuity factor (\$)	793.31

<u>Age</u>	<u>Week</u>	<u>Weekly Mortality</u>	<u>Surviving probability</u>	<u>Weekly Payment</u>	<u>Payment with Prob.</u>	<u>Discount Factor</u>	<u>Payment with Prob. And Discount</u>
50	1	0.00011	0.99989	1.0	0.99989	0.99925	0.99914
50	2	0.00011	0.99978	1.0	0.99978	0.99849	0.99827
:							
:							
74	1223	0.00107	0.58997	1.0	0.58997	0.39755	0.23454
74	1224	0.00107	0.58934	1.0	0.58934	0.39725	0.23412
74	1225	0.00107	0.58871	1.0	0.58871	0.39695	0.23369
74	1226	0.00107	0.58808	1.0	0.58808	0.39665	0.23326
:							
:							
90	2055	0.00409	0.09968	1.0	0.09968	0.21225	0.02116
90	2056	0.00409	0.09927	1.0	0.09927	0.21209	0.02105
90	2057	0.00409	0.09886	1.0	0.09886	0.21193	0.02095
90	2058	0.00409	0.09846	1.0	0.09846	0.21177	0.02085
:							
:							
110	3145	0.10756	0.00000	1.0	0.00000	0.09328	0.00000
110	3146	0.10756	0.00000	1.0	0.00000	0.09321	0.00000

Board of Directors
Executive Summary
Annuity Factors

Introduction

Annuity tables are used in the calculation of reserves for Permanent and Totally Disabled (PTD) and Death claims. These tables are utilized in the MIRA 2 reserving system. Effective December 31, 2010, the MIRA 2 system will be updated with the new factors after the BWC receives the board's approval.

Background Information

The BWC updates the annuity table factors every time the discount factor used in the actuarial reserve estimate is changed. The most recent actuarial reserve estimate as of June 30, 2010 uses a discount rate assumption of 4.00%, down from the 4.50% discount rate assumption in the prior year estimate.

Executive summary

The annuity tables in Rule 4123-17-60 consist of four tables containing life expectancy factors that are used in the calculation of individual claim reserves. The fifth table is a present value interest factor of a closed annuity table used for orphan claimants. The factors are created as a result of a Mortality Study of Ohio claims using the current discount rate of 4.00%. The mortality study was conducted in 2010 by Deloitte Actuarial Consultants, using only Ohio data. The BWC also uses the annuity tables in the calculation of the net present value (NPV) to calculate the lump sum of money that an injured worker may receive when settling their workers' compensation claim. These tables will not impact injured worker's benefit amount or duration of payments.

The five tables include:

1. "Survivor Annuity Factors" are factors used in the calculation of the reserves or NPV for death claims filed by the surviving spouse. The surviving spouse is eligible for benefits on an allowed death claim for the remainder of the spouse's life or until remarriage.
2. "Orphans Annuity Factors" are factors used in the calculation of the reserves or NPV on death claims filed on behalf of minor dependants. The surviving minor dependant is eligible for benefits on an allowed death claim until age 18 or age 25 if pursuing a full-time educational program while enrolled in an accredited educational institution. This also includes children who are physically or mentally incapacitated from having any earnings so long as the physical or mental incapacity continues.
3. "PTD Annuity Factors – Regular Injury" are factors used in the calculation of reserves or NPV on allowed Permanent and Total Disabled (PTD) claims. PTD benefits are paid for the life of the claimant.
4. "PTD Annuity Factors – Occupational Disease - Lung" are factors used in the calculation of reserves or NPV on allowed Permanent and Total Disabled (PTD) claims where the allowed condition is a lung related injury such as pneumoconiosis. PTD benefits are paid for the life of the claimant.
5. "PTD Annuity Factors – Occupational Disease – Non-Lung" are factors used in the calculation of reserves or NPV on allowed Permanent and Total Disabled (PTD) claims where the allowed condition is an occupational condition other than a lung disease such as carpal tunnel syndrome. PTD benefits are paid for the life of the claimant

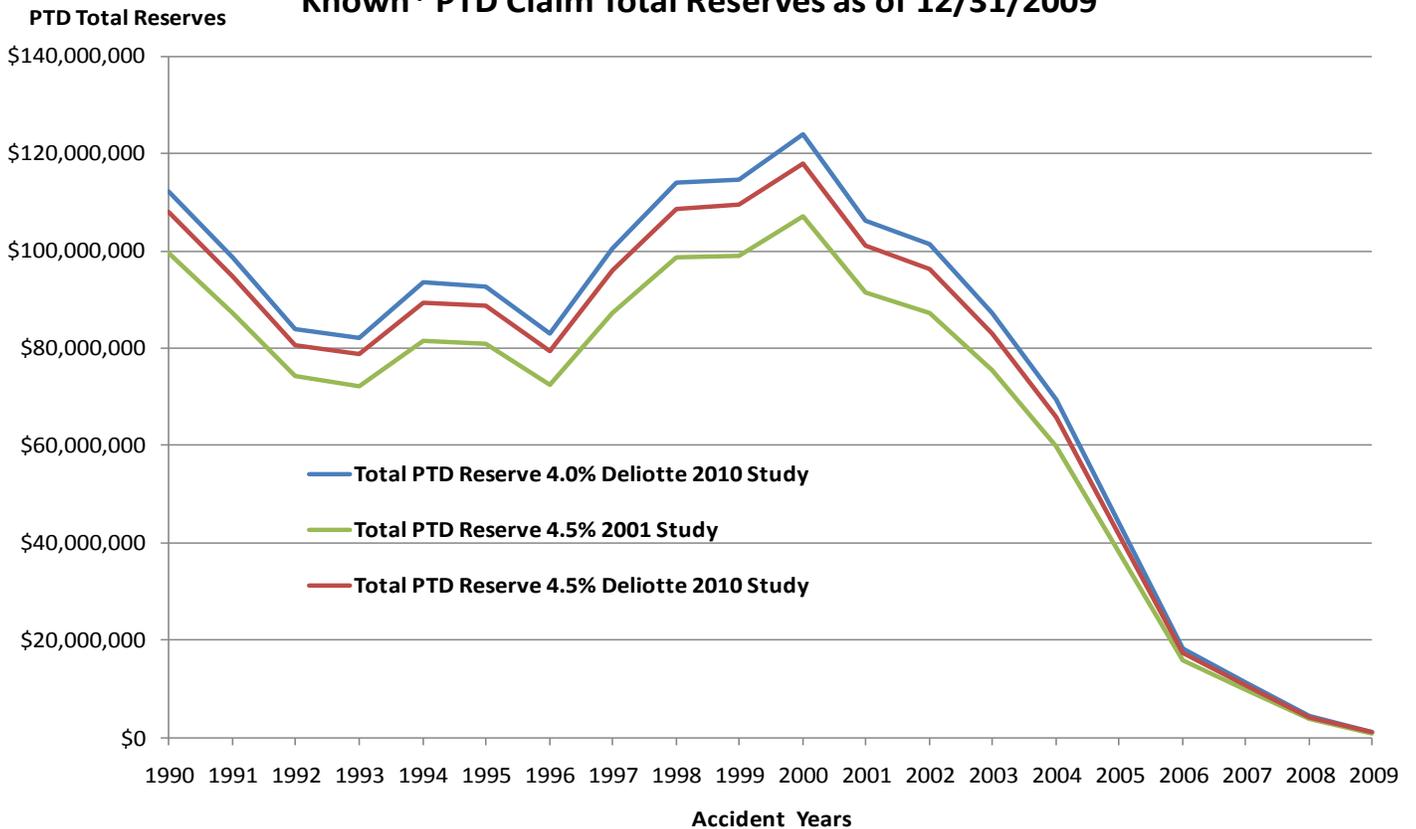
For PTD for most ages, the improvement in life expectancy from the 2001 mortality study to the 2010 mortality study leads to a lengthening of time in the benefits provided to both the PTD. For certain older ages (above age 85 for PTD-Regular, above age 90 for PTD-OD Lung, and above age 80 for PTD-OD Non Lung), there was a decrease in life expectancy, leading to a shortening of time in the benefits provided to the PTD claimants. This led to an increase in the annuity factors at most ages, and a decrease in annuity factors for the older ages discussed above.

For Survivor for all ages, the decrease in life expectancy from the 2001 mortality study to the 2010 mortality study leads to a shortening of time in the benefits provided to survivors. In most instances, the annuity factors in the proposed rule are less than the factors in the prior rule due to decreased life expectancy at most ages. However, for certain of the younger ages (ages 18 through 48), the new annuity factor is greater than the factors in the prior rule due to the effect decrease in the discount factor (which has the effect of increasing the annuity factor) exceeding the effect of the decrease in the mortality from the new study.

Orphan annuity factors will increase modestly due to the discount factor change from 4.5% to 4%. The life expectancy study does not have an impact on these factors as they are for a closed period of time up until age 25.

The table below shows the change in total known PTD claims under the current rule using the 2001 mortality study at 4.5% discount factor (green line), the proposed rule using the 2010 mortality study at a 4.0% discount factor (blue line) and the 2010 mortality study at a discount rate of 4.5% (red line).

2010 Deloitte Mortality Study vs. 2001 Mortality Study Known* PTD Claim Total Reserves as of 12/31/2009



*This excludes incurred but not yet reported PTD Claims

The table below lists the dollar change in total PTD reserves from the current rule to the proposed rule.

Accident Year	Total change in reserve 2001 study at 4.5% to 2010 study at 4%
1990	\$12,835,270
1991	\$11,472,161
1992	\$9,785,241
1993	\$9,900,398
1994	\$11,833,888
1995	\$11,771,901
1996	\$10,452,341
1997	\$13,310,790
1998	\$15,463,846
1999	\$15,693,853
2000	\$16,961,914
2001	\$14,628,794
2002	\$13,944,445
2003	\$11,895,986
2004	\$9,446,925
2005	\$6,054,001
2006	\$2,597,645
2007	\$1,534,647
2008	\$622,063
2009	\$151,990
20 year total	\$200,358,099

Example calculation:

In a PTD claim the compensation reserve uses an annuity factor based upon the claimants age. This annuity factor is multiplied by the weekly compensation rate. This example uses Appendix B – PTD regular injury. The claimant is 50 years old and the weekly compensation rate is \$420, the reserve calculation is the annuity factor of 793 X \$420 = \$333,060. This calculation is performed by the MIRA 2 reserving system. Under the prior annuity table, the calculation was the annuity factor of 667 x \$420 = \$280,000.

There will be NO impact to an employer with the example above as the total reserve exceeds the employers maximum claim value used in the EM calculation under both mortality studies. The maximum claim values are found in the credibility table and begin at the lowest level of \$12,500 per claim to a maximum of \$250,000 per claim.

4123-17-60 Annuity Factors

The administrator of workers' compensation, with the advice and consent of the workers' compensation board of directors, has authority to approve contributions made to the state insurance fund by employers pursuant to sections 4121.121, 4123.29, and 4123.34 of the Revised Code. The administrator hereby establishes annuity factors for use in establishing claims reserves and premium rates as indicated in the attached Appendixes A, B, C, D, and E. The basis and interest factor of each annuity factor table is indicated in the appendix.

Effective: 12/31/2010

Prior Effective Dates: 3/1/94, 12/31/98, 12/31/99, 12/31/00, 12/31/02, 12/31/03, 12/31/05, 12/31/07, 12/31/09

Appendix A
4123-17-60

SURVIVOR ANNUITY FACTORS					
AGE	FACTOR	AGE	FACTOR	AGE	FACTOR
17	1032	48	942	79	539
18	1036	49	935	80	520
19	1039	50	927	81	502
20	1040	51	920	82	483
21	1040	52	912	83	465
22	1040	53	903	84	447
23	1040	54	894	85	428
24	1039	55	885	86	410
25	1038	56	875	87	393
26	1036	57	865	88	376
27	1035	58	855	89	360
28	1032	59	844	90	344
29	1030	60	833	91	329
30	1028	61	821	92	315
31	1025	62	809	93	302
32	1022	63	796	94	289
33	1018	64	783	95	277
34	1015	65	770	96	265
35	1011	66	756	97	253
36	1007	67	742	98	242
37	1003	68	727	99	230
38	998	69	712	100	218
39	994	70	696	101	207
40	989	71	680	102	194
41	984	72	663	103	182
42	978	73	646	104	170
43	973	74	629	105	158
44	967	75	611	106	146
45	961	76	593	107	134
46	955	77	575	108	123
47	949	78	557	109	111
				110	101

NOTE: Factors are annuities per dollar of weekly compensation benefit from the attained age indicated.

SOURCE: 2000 a Basic Female Mortality Table, modified remarriage factors, 4.50% interest.

*****DRAFT – NOT FOR FILING*****

Appendix B

4123-17-60

~~PTD ANNUITY FACTORS — REGULAR INJURY~~

AGE	FACTOR	AGE	FACTOR	AGE	FACTOR
17	995	48	693	79	288
18	989	49	680	80	276
19	984	50	667	81	264
20	978	51	654	82	253
21	972	52	641	83	241
22	965	53	628	84	230
23	959	54	615	85	220
24	952	55	602	86	210
25	945	56	589	87	201
26	938	57	576	88	193
27	931	58	564	89	185
28	923	59	551	90	178
29	915	60	538	91	172
30	907	61	525	92	165
31	899	62	513	93	157
32	890	63	500	94	149
33	880	64	486	95	142
34	870	65	473	96	136
35	860	66	459	97	129
36	849	67	446	98	123
37	837	68	432	99	116
38	825	69	419	100	110
39	813	70	405	101	103
40	800	71	393	102	97
41	787	72	380	103	90
42	774	73	367	104	83
43	760	74	353	105	77
44	747	75	340	106	70
45	733	76	327	107	64
46	720	77	313	108	58
47	706	78	301	109	52
				110	47

~~NOTE: Factors are annuities per dollar of weekly compensation benefit from the attained age indicated.~~

~~SOURCE: 2001 Mortality Study of Ohio permanent total disability claims, 4.50% interest.~~

~~***DRAFT – NOT FOR FILING***~~

~~Appendix C~~

~~4123-17-60~~

~~PTD ANNUITY FACTORS Occupational Disease – Lung~~

AGE	FACTOR	AGE	FACTOR	AGE	FACTOR
17	938	48	591	79	205
18	932	49	577	80	195
19	925	50	563	81	185
20	918	51	549	82	175
21	911	52	535	83	166
22	903	53	522	84	156
23	896	54	509	85	148
24	888	55	496	86	139
25	880	56	483	87	132
26	872	57	470	88	126
27	864	58	458	89	120
28	855	59	445	90	115
29	846	60	433	91	110
30	837	61	420	92	105
31	827	62	408	93	99
32	817	63	396	94	93
33	806	64	384	95	88
34	794	65	371	96	83
35	782	66	358	97	79
36	769	67	345	98	74
37	756	68	332	99	70
38	742	69	320	100	65
39	727	70	308	101	61
40	712	71	297	102	56
41	697	72	286	103	51
42	682	73	274	104	47
43	666	74	262	105	42
44	651	75	251	106	38
45	636	76	239	107	33
46	621	77	227	108	29
47	606	78	216	109	26
				110	26

~~NOTE: Factors are annuities per dollar of weekly compensation benefit from the attained age indicated.~~

~~SOURCE: 2001 Mortality Study of Ohio permanent total disability claims, 4.50% interest.~~

Appendix D

4123-17-60

~~PTD ANNUITY FACTORS — OCCUPATIONAL DISEASE — NON LUNG~~

AGE	FACTOR	AGE	FACTOR	AGE	FACTOR
17	995	48	693	79	288
18	989	49	680	80	276
19	984	50	667	81	264
20	978	51	654	82	253
21	972	52	641	83	241
22	965	53	628	84	230
23	959	54	615	85	220
24	952	55	602	86	210
25	945	56	589	87	201
26	938	57	576	88	193
27	931	58	564	89	185
28	923	59	551	90	178
29	915	60	538	91	172
30	907	61	525	92	165
31	899	62	513	93	157
32	890	63	500	94	149
33	880	64	486	95	142
34	870	65	473	96	136
35	860	66	459	97	129
36	849	67	446	98	123
37	837	68	432	99	116
38	825	69	419	100	110
39	813	70	405	101	103
40	800	71	393	102	97
41	787	72	380	103	90
42	774	73	367	104	83
43	760	74	353	105	77
44	747	75	340	106	70
45	733	76	327	107	64
46	720	77	313	108	58
47	706	78	301	109	52
				110	47

~~NOTE: Factors are annuities per dollar of weekly compensation benefit from the attained age indicated.~~

~~SOURCE: 2001 Mortality Study of Ohio permanent total disability claims, 4.50% interest.~~

Appendix E
4123-17-60

Orphans Annuity Factors

Year	Factor	Year	Factor	Year	Factor
1	24	11	418	21	671
2	71	12	448	22	691
3	117	13	478	23	710
4	161	14	506	24	728
5	202	15	532	25	745
6	242	16	558	26	762
7	280	17	583	27	777
8	317	18	606	28	793
9	352	19	629	29	807
10	385	20	650	30	821

NOTE: Factors are annuities per dollar of weekly compensation benefit for the number of years indicated, 4.50% interest.

SOURCE: Handbook of Mathematical Tables and Formulas, 4th Ed. Richard Stevens Burington, PH.D., McGraw Hill

Appendix A
4123-17-60

SURVIVOR ANNUITY FACTORS					
AGE	FACTOR	AGE	FACTOR	AGE	FACTOR
17	1022	48	944	79	434
18	1043	49	934	80	415
19	1059	50	923	81	396
20	1069	51	912	82	377
21	1077	52	901	83	359
22	1082	53	889	84	341
23	1085	54	877	85	324
24	1087	55	865	86	308
25	1086	56	852	87	292
26	1085	57	840	88	277
27	1083	58	826	89	262
28	1081	59	812	90	248
29	1077	60	798	91	234
30	1073	61	783	92	221
31	1069	62	767	93	209
32	1064	63	751	94	197
33	1059	64	734	95	185
34	1054	65	717	96	175
35	1048	66	699	97	164
36	1041	67	680	98	155
37	1035	68	661	99	146
38	1028	69	641	100	137
39	1021	70	620	101	129
40	1013	71	600	102	121
41	1006	72	579	103	113
42	998	73	557	104	105
43	990	74	535	105	97
44	981	75	513	106	87
45	973	76	493	107	73
46	964	77	473	108	54
47	954	78	454	109	23
				110	0

NOTE: Factors are annuities with one dollar of compensation benefit for each payment at specified frequency from the attained age indicated.

SOURCE: 2010 Deloitte Consulting, LLP Mortality Study, 4.00% interest.

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Appendix B

4123-17-60

PTD ANNUITY FACTORS REGULAR INJURY

AGE	FACTOR	AGE	FACTOR	AGE	FACTOR
17	1144	48	825	79	303
18	1138	49	809	80	289
19	1132	50	793	81	275
20	1125	51	777	82	262
21	1119	52	760	83	249
22	1112	53	743	84	235
23	1105	54	726	85	222
24	1098	55	709	86	209
25	1090	56	692	87	196
26	1082	57	674	88	184
27	1074	58	656	89	172
28	1066	59	638	90	160
29	1058	60	620	91	149
30	1049	61	601	92	138
31	1039	62	583	93	129
32	1030	63	565	94	120
33	1020	64	546	95	112
34	1009	65	528	96	104
35	999	66	511	97	98
36	987	67	493	98	91
37	976	68	476	99	84
38	963	69	460	100	77
39	951	70	443	101	71
40	938	71	427	102	64
41	925	72	411	103	57
42	911	73	395	104	51
43	898	74	379	105	44
44	884	75	363	106	38
45	870	76	347	107	31
46	855	77	332	108	24
47	841	78	317	109	14
				110	0

NOTE: Factors are annuities with one dollar of compensation benefit for each payment at specified frequency from the attained age indicated.

SOURCE: 2010 Deloitte Consulting, LLP Mortality Study, 4.00% interest.

*****DRAFT – NOT FOR FILING*****

Appendix C

4123-17-60

PTD ANNUITY FACTORS Occupational Disease - Lung

AGE	FACTOR	AGE	FACTOR	AGE	FACTOR
17	1110	48	756	79	235
18	1103	49	739	80	223
19	1096	50	722	81	211
20	1089	51	704	82	200
21	1082	52	686	83	189
22	1074	53	668	84	177
23	1066	54	650	85	166
24	1058	55	632	86	155
25	1049	56	614	87	144
26	1041	57	595	88	134
27	1032	58	577	89	124
28	1023	59	558	90	114
29	1013	60	539	91	104
30	1003	61	520	92	96
31	993	62	501	93	87
32	982	63	483	94	80
33	971	64	464	95	73
34	959	65	446	96	68
35	947	66	429	97	62
36	935	67	412	98	57
37	921	68	396	99	52
38	908	69	380	100	47
39	894	70	364	101	41
40	879	71	349	102	36
41	865	72	334	103	30
42	850	73	319	104	24
43	835	74	304	105	14
44	820	75	289	106	0
45	804	76	275	107	0
46	789	77	261	108	0
47	773	78	248	109	0
				110	0

NOTE: Factors are annuities with one dollar of compensation benefit for each payment at specified frequency from the attained age indicated.

SOURCE: 2010 Deloitte Consulting, LLP Mortality Study, 4.00% interest.

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Appendix D

4123-17-60

PTD ANNUITY FACTORS

OCCUPATIONAL DISEASE – NON LUNG

AGE	FACTOR	AGE	FACTOR	AGE	FACTOR
17	1138	48	814	79	291
18	1132	49	798	80	277
19	1126	50	781	81	264
20	1119	51	765	82	251
21	1113	52	748	83	238
22	1106	53	731	84	225
23	1099	54	714	85	212
24	1091	55	696	86	199
25	1084	56	679	87	187
26	1076	57	661	88	175
27	1068	58	643	89	163
28	1059	59	624	90	152
29	1050	60	606	91	141
30	1041	61	588	92	130
31	1032	62	569	93	121
32	1022	63	551	94	112
33	1012	64	532	95	105
34	1001	65	514	96	98
35	990	66	497	97	91
36	979	67	479	98	85
37	967	68	462	99	78
38	954	69	446	100	72
39	942	70	430	101	65
40	928	71	413	102	59
41	915	72	397	103	53
42	901	73	381	104	46
43	887	74	365	105	40
44	873	75	350	106	33
45	859	76	334	107	27
46	844	77	319	108	20
47	829	78	305	109	11
				110	0

NOTE: Factors are annuities with one dollar of compensation benefit for each payment at specified frequency from the attained age indicated.

SOURCE: 2010 Deloitte Consulting, LLP Mortality Study, 4.00% interest.

Appendix E
4123-17-60

Orphans Annuity Factors

Year	Factor	Year	Factor	Year	Factor
1	24	11	430	21	704
2	72	12	462	22	725
3	118	13	493	23	747
4	163	14	523	24	767
5	205	15	552	25	786
6	247	16	580	26	805
7	286	17	607	27	823
8	324	18	632	28	840
9	361	19	657	29	857
10	396	20	681	30	873

NOTE: Factors are annuities with one dollar of compensation benefit for each payment at specified frequency from the number of years indicated at an interest rate of 4.00% interest.

SOURCE: Deloitte Consulting, LLP - 2010



Bureau of Workers' Compensation

30 W. Spring St.
Columbus, OH 43215-2256

Governor **Ted Strickland**
Administrator **Marsha P. Ryan**

ohiobwc.com
1-800-OHIOBWC

To: Marsha P. Ryan, Administrator
From: John R. Pedrick, FCAS, MAAA, Chief Actuarial Officer
Date: October 8, 2010
Subject: Public Employer – Taxing Districts (PEC) Rate Change Effective 1/1/2011
(Update to the September 22, 2010 Memo)

I have reviewed the calculations and results in the document “Public Employer Taxing Districts 1-1-11 Rate Recommendations” submitted by our actuarial consultant, Deloitte Consulting LLP, and recommend the BWC implement an overall rate decrease of 5.5% for PECs for the policy year starting January 1, 2011. I believe this change will result in an actuarially sound rate level and will meet the requirement to set the lowest possible rates of premium consistent with the maintenance of a solvent state insurance fund.

Deloitte’s rate level recommendations are summarized in the following table.

Discount Rate	Baseline	Reasonable Expectation - Optimistic	Reasonable Expectation – Conservative
4.5%	-8.3%	-13.1%	-2.8%
4.0%	-5.5%	-10.3%	0.6%

The recommendation to decrease rates by 5.5% is based on my concurrence with Deloitte’s selected frequency, severity and payroll trends and the resulting calculations using a 4.0% discount rate.

Since my last memo, we have analyzed the final group rosters. As a result, when this overall rate change is combined with the rate structure the Board approved in June 2010, the following average changes result.

Segment	Average Rate Level Change
Non-Group	-7.7%
Group	-1.0%
Retrospectively Rated Non-Group	-4.9%
Overall	-5.5%



September 22, 2010

Rate Recommendations for
Public Employer Taxing Districts
State of Ohio Bureau of Workers'
Compensation

Deloitte Consulting LLP

Audit • Tax • Consulting • Financial Advisory •



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September 22, 2010

Mr. John Pedrick, FCAS, MAAA
Chief Actuarial Officer
Ohio Bureau of Workers' Compensation
30 West Spring Street
Columbus, OH 43266-0581

Subject:

Public Employer Taxing Districts 1-1-11 Rate Recommendations

Dear Mr. Pedrick:

We are pleased to provide this Final Report, which provides our rate recommendations for the State of Ohio Bureau of Workers' Compensation ("BWC") public employer taxing districts ("PEC") rates to be effective January 1, 2011.

We have provided a baseline rate level recommendation, as well as a reasonable range around that recommendation, as shown below. The baseline indicated rate change is based primarily on average historical loss costs over the past five accident years at current cost levels. The range around the baseline rate change is based primarily on the range of historical loss costs at current cost levels observed over the last several accident years. The following table illustrates the indicated rate changes at a 4.0% and 4.5% discount rate as recommended by BWC:

Scenarios	Baseline	Reasonable Expectation Optimistic	Reasonable Expectation Conservative
4.5% Discount Rate	-8.3%	-13.1%	-2.8%
4.0% Discount Rate	-5.5%	-10.3%	0.6%

The loss costs used to determine the rate change recommendations are derived from Deloitte Consulting's June 20, 2010 Loss & LAE reserve analysis for PEC.

At a discount rate of 4.5%, it is our opinion that a rate change of -13.1% to -2.8% is appropriate for the policy year beginning January 1, 2011. At a discount rate of 4.0%, it is our opinion that a rate change of -10.3% to 0.6% is appropriate for the policy year beginning January 1, 2011. Base rates for the individual manual classes should be adjusted according to their experience so as to achieve the applicable overall rate level change. "Off-balance" factors resulting from experience rating should also

be considered in the base rates, as these factors are not contemplated in the overall rate indications presented herein.

Please note that our recommendations are subject to the Conditions and Limitations described in the attached report which are inherent in estimating workers' compensation loss costs.

It has been our pleasure to be of service to you in this regard.

Yours very truly,

Jan A. Lommele, FCAS, MAAA

Principal

Handwritten signature of Jan A. Lommele in cursive script.

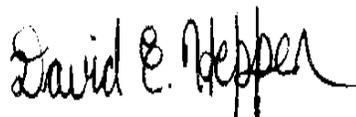
Robert S. Miccolis, FCAS, MAAA

Director

Handwritten signature of Robert S. Miccolis in cursive script.

David E. Heppen, FCAS, MAAA

Director

Handwritten signature of David E. Heppen in cursive script, followed by a vertical line.

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Background

Rates for taxing districts are set annually to be applied to payrolls from January 1 to December 31 of the following year. Billings for the 2011 policy year will be due May 15, 2012 (45%) and September 1, 2012 (55%). Rates are applicable to \$100 of payroll.

The overall rate level recommended in this study is intended to provide for the following costs associated with the January 1, 2011 to December 31, 2011 policy year:

- Indemnity losses
- Medical losses
- Health Partnership Programs (“HPP”)
- Non-claim payments costs
- Safety and Hygiene (“S&H”)

Rate Level Recommendations

Our rate projections are based on our analysis of historical loss cost trends for Indemnity and Medical losses separately. We have selected a Baseline, Reasonable Expectation - Optimistic, and Reasonable Expectation - Conservative Loss Costs for Indemnity and Medical losses that can be seen in Exhibits 6 and 7. These Loss Costs are also displayed in Exhibit 1A and Exhibit 1B, where we determine the range of rate level indications at a discount rate of 4.5% and 4.0% respectively.

The main assumptions and observations underlying our rate level indications are as follows:

- Loss costs from accident year 1999 to 2009 are considered in the analysis. The results for the most recent five years are given the majority of the weight in the baseline rate indication.
- Loss costs are brought on-level in order to determine the rate level indication. On-leveling is a ratemaking procedure that allows past years to be evaluated at current cost levels, thus providing a relevant basis for the selection of current year rates. On-leveling includes the impact of changes in the frequency of claims, the severity of claims, and the change in wage levels over time.
- Loss costs are discounted at a rate of 4.5% and 4.0%. Discounting loss costs adds variability to estimates of appropriate rate levels, as discount is influenced by the timing of loss payments and the actual rate of return achieved by BWC on invested assets. If the timing of the payments or the expected investment returns are not achieved, the results could vary significantly. Our discount factors for Indemnity and Medical are derived from our June 30, 2010 PEC reserve

study. Support for our discount factors can be seen on Exhibits 15A (4.5%) and 15B (4.0%).

- The frequency trend (Ultimate Lost Time Claims/On-Level Payroll), as shown in Exhibit 10, has been exhibiting decreases in all but three years of the 1999-2009 experience period. Our selected frequency trend considers the long-term trend in BWC's PEC data as well as countrywide trends. Our selection for frequency trend is -2.0% for 1999-2008 and 0.0% for 2009 and 2010.
- Indemnity and Medical severity trends (Ultimate losses/Ultimate Lost Time Claims) have varied significantly over the 1999-2009 accident years. Due to this variability we have relied on BWC indications and NCCI benchmark indications in determining our selected severity assumptions. We have selected an Indemnity severity trend of 5.0% for accident years 1999 and subsequent and Medical severity trend of 6.0% for accident years 2001 and subsequent, as shown in Exhibits 11 and 12, respectively.
- HPP costs are projected to be 10.7% of the discounted total pure premium. The percentage was determined from our June 30, 2010 PEC reserve study by relating HPP payments in recent fiscal years to the fiscal year Loss & ALAE payments. HPP costs are related to claim determinations and allowances, paying lost time compensation, second level of dispute resolution, and educating injured workers, employers and providers about HPP. Please see Exhibit 14 for the development of the HPP load.
- A loading of \$.01 per \$100 of payroll is included for the non-claim payment costs for all scenarios. Non-claim payments includes actuarial fees, reinsurance costs, and miscellaneous expenses.
- A loading of 0.5% is included for Safety and Hygiene.
- A Premium Lag Adjustment is included to recognize the fact that there is a lag between the inception of the coverage period and the time the premium is collected from the insureds (45% collected May 15, 2012, 55% collected September 1, 2012, for the 2011 policy year).
- Rate change indications are based on a current collectible rate of \$1.46.
- No margin has been included for contingencies.

Change from the 1/1/2010 Rate Indication at 4.5% Discount

1) Prior Actuary's Baseline Indicated Rate Change at 1/1/10 (at 4.5% discount)	-19.8%
2) Actual Rate Change (Approved by BWC)	-17.0%
3) Prior Actuary's Loss Cost Trend (from 1/1/10 Baseline rate indication at 4.5% discount)	+1.4%
4) Expected Baseline Change at 1/1/2011 $\left[\frac{1+(1)}{1+(2)} * \{1+(3)\} - 1 \right]$	-2.0%
5) Deloitte Indicated Baseline Change @ 4.5%	-8.3%
6) Improvement/Deterioration [(5) – (4)] (Improvement is indicated by a negative number; deterioration by a positive number)	-6.3%

As can be seen in the table above, there has been significant improvement in the indicated rate level for PEC. This improvement can mainly be attributed to changes in estimated loss costs based on the June 30, 2010 Deloitte Consulting analysis in comparison to the June 30, 2009 analysis from the prior actuary. A comparison of the indicated loss costs in the current analysis and the prior year analysis, using discount rates of 4.5% and 4.0%, can be found in Exhibits 5A and 5B, respectively. This comparison isolates the indicated rate change to the loss component only; the comparison excludes other expenses.

Terrorism Risk Insurance Act (TRIA)

Due to the passage of the Terrorism Risk Insurance Act and its subsequent renewal through December 31, 2014, the Ohio BWC is subject to assessment for terrorist related losses in other locations and lines of business, provided certain thresholds are met. The assessment is limited to a maximum of 3% of annual premium per year. We have not included a provision for TRIA in the rates.

Deloitte Rate Development Procedure

In developing the rate recommendations, we consider medical and indemnity loss experience separately, and then combine the two to develop the Total Loss and Expense rate. The rate is developed from the

indicated loss costs, or losses per \$100 of payroll. All losses and payroll data are trended to the rate effective period of January 1, 2011 to December 31, 2011.

Severity trends for Indemnity and Medical are based on ultimate loss projections and ultimate lost time claim projections from our June 30, 2010 PEC reserve study. The severity trend for Indemnity and Medical can be found in Exhibits 11 and 12 respectively.

The frequency trend is based on BWC's payroll and our ultimate lost time claim projections. The payroll is adjusted for future development and average weekly wage trend to bring it on-level for the rate effective period. Our analysis and selection of the frequency trend is on Exhibit 10.

The frequency and severity trends are then multiplied together to form a loss trend. The loss trends are calculated on Exhibit 13, in columns 1 through 6.

On-level loss costs are developed for Indemnity and Medical separately. Our ultimate loss projections are trended to the rate effective period. Dividing the on-level ultimate losses by on-level payroll yields the on-level loss costs. From the accident year on-level loss cost indications we select a Baseline, Optimistic, and Conservative loss cost. The loss cost projections for Indemnity and Medical are shown in Exhibits 6 and 7, respectively. These loss costs are undiscounted.

The undiscounted loss costs for Indemnity and Medical are multiplied by their respective discount factors and then added to develop the Total Loss Cost. This can be seen in Exhibits 1A and 1B. The discount factors for Indemnity and Medical were derived from our June 30, 2010 PEC reserve study and were calculated at discount rates of 4.5% and 4.0%. The Total Loss Cost is adjusted for Health Partnership Program (HPP) costs. These have been estimated to be 10.7% of discounted losses. Support for the 10.7% selection can be found on Exhibit 14. The Total Loss Cost is also adjusted for loads related to non-claim payment costs and Safety and Hygiene ("S&H") program. The loading for non-claim payment cost is \$.01 per \$100 of payroll and the S&H load is 0.5%. The non-claim payment loading is consistent with prior rate recommendations. Based on information provided by BWC and discussions with BWC Management, we believe this provision to be a reasonable for the 2011 year. The S&H load in past rate reviews was 1.0%. The current 0.5% loading is based on information provided by BWC Management.

The indicated rate is adjusted for the lag in premium collections. The derivation of this adjustment can be found in Exhibits 4A and 4B, respectively. After adjusting for the loads and the impact of the lag in premium collection, the result is the Total Discounted Loss & Expense Rate indication effective January 1, 2011 as seen on Exhibit 1A at a 4.5% discount rate and Exhibit 1B at a 4.0% discount rate. Exhibit 2 shows the Undiscounted Total Loss & Expense Rate. Exhibits 3A (4.5% discount) and 3B (4.0% discount) quantify the dollar impact of discounting the rates.

Conditions and Limitations

In estimating future loss and loss adjustment expense, it is necessary to project future indemnity, medical and loss adjustment expenses. It is certain that actual indemnity, medical and loss adjustment expenses will not develop exactly as indicated and may, in fact, vary significantly from our estimates.

No warranty is expressed or implied that such variance will not occur. Furthermore, our estimates make no provision for the broadening of coverage by legislative action or judicial interpretation or for extraordinary future emergence of new classes of losses or types of losses not sufficiently represented in the BWC's historical database or which are not yet quantifiable, and which might affect the claim experience. We believe, however, that the actuarial techniques and assumptions used in our analysis are reasonable.

Loss Cost Trends and Projections

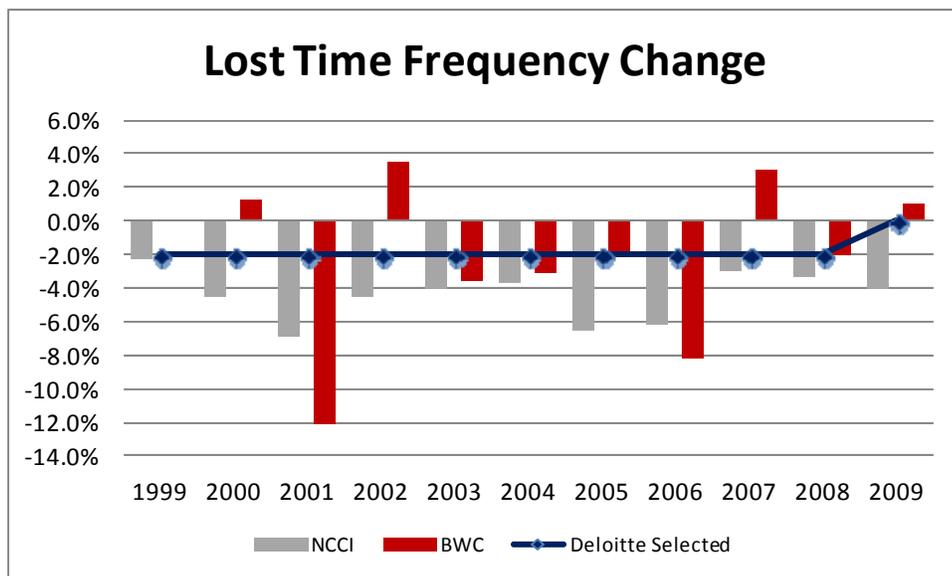
Medical and Indemnity loss cost calculations are developed separately. On-level factors are needed to adjust the losses from each accident year to the level anticipated for the rate period effective January 1, 2011. We have used data from our PEC reserve study as of June 30, 2010 to calculate the historical trends in Medical and Indemnity loss costs. The data we used to select our frequency, Indemnity severity, and Medical severity can be seen on Exhibits 10, 11, and 12 respectively.

The data tables below show the indicated annual trend based on an exponential curve fit of the data for the years indicated. Our selected frequency trend (ultimate claims/on-level payroll) for 2010 to 2011 is 0.0%. The selected Indemnity severity trend for 2010 to 2011 is 5.0%, while the selected Medical severity trend for 2010 to 2011 is 6.0%. Multiplying the frequency and severity trends yields the overall loss trends. Loss costs trends are then calculated by dividing by the payroll trend. Our selected payroll trend for 2010 to 2011 is 2.5%.

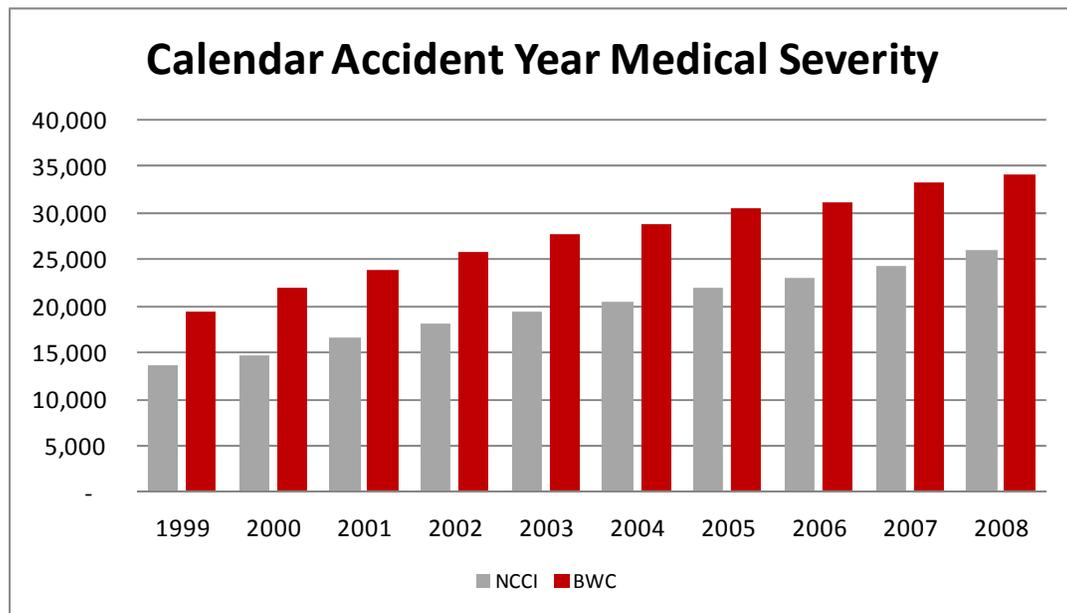
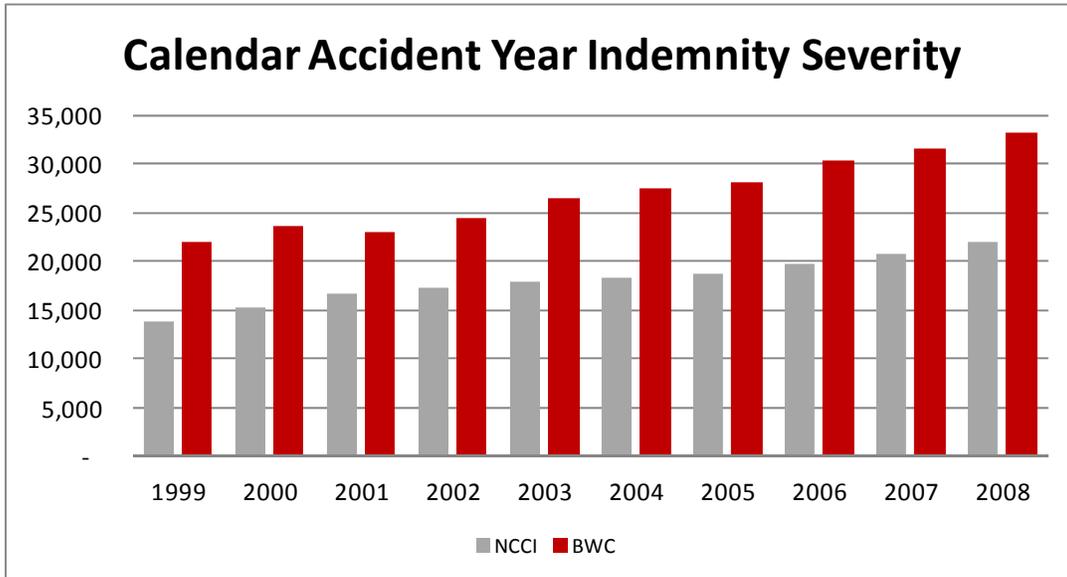
Medical Severity Trend			Indemnity Severity Trend			Payroll Trend	
Years	BWC	NCCI State of Line	Years	BWC	NCCI State of Line	Years	BWC
1999-2008	6.2%	7.3%	1999-2008	4.7%	4.6%	1999-2009	2.6%
2000-2008	5.5%	7.0%	2000-2008	4.8%	4.1%	2000-2009	2.3%
2001-2008	5.1%	6.5%	2001-2008	5.2%	3.8%	2001-2009	2.0%
2002-2008	4.7%	6.2%	2002-2008	5.0%	4.0%	2002-2009	1.7%
2003-2008	4.4%	6.0%	2003-2008	4.7%	4.2%	2003-2009	1.6%
2004-2008	4.5%	6.0%	2004-2008	5.1%	4.8%	2004-2009	1.6%
2005-2008	4.3%	5.7%	2005-2008	5.6%	5.3%	2005-2009	1.7%
2006-2008	5.0%	6.1%	2006-2008	4.7%	5.4%	2006-2009	1.5%
2007-2008	2.8%	6.6%	2007-2008	5.4%	5.8%	2007-2009	0.9%
						2008-2009	-0.3%

Calendar Year	Ultimate Payroll
1999	15,088,873
2000	15,809,043
2001	16,717,138
2002	17,601,171
2003	18,004,352
2004	18,523,800
2005	18,568,714
2006	18,918,245
2007	19,392,260
2008	19,814,092
2009	19,750,465

The graph below shows actual BWC and National Council on Compensation Insurance (“NCCI”) frequency for lost time claims for each accident year experience period. The NCCI values come from the presentation “State of the Workers Compensation Line” by Dennis C. Mealy, FCAS, MAAA, Chief Actuary, National Council on Compensation Insurance, Inc. The 2009 NCCI values are preliminary based on data valued as 12/31/09. NCCI values for Accident Years 2008 and prior are based on data valued as of 12/31/08, developed to ultimate. The definition of the 1999 change is the change of frequency from 1998 to 1999 and so on for subsequent years.



The graphs below show actual BWC and National Council on Compensation Insurance (“NCCI”) Indemnity severity and Medical severity for each accident year experience period. The NCCI values come from the presentation “State of the Workers Compensation Line” by Dennis C. Mealy, FCAS, MAAA, Chief Actuary, National Council on Compensation Insurance, Inc. . The 2009 NCCI values are preliminary based on data valued as 12/31/09. NCCI values for Accident Years 2008 and prior are based on data valued as of 12/31/08, developed to ultimate.



The graphs below show actual observed BWC and NCCI Indemnity severity and Medical severity trends for each accident year experience period based on the severities on the previous page. The Deloitte selected annual trend for each accident period is also shown in comparison. The definition of the 1999 trend is the change of severity from 1998 to 1999 and so on for subsequent years.

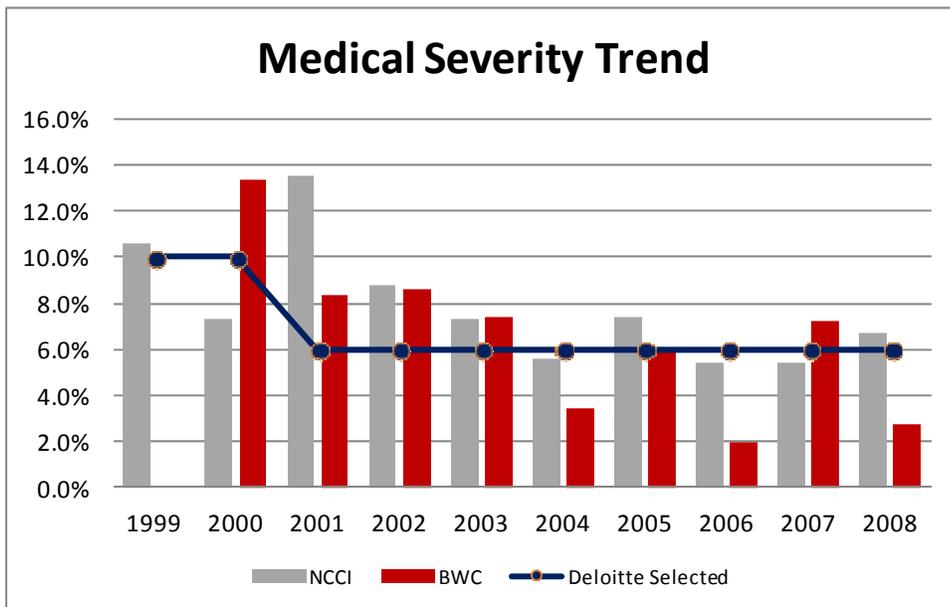
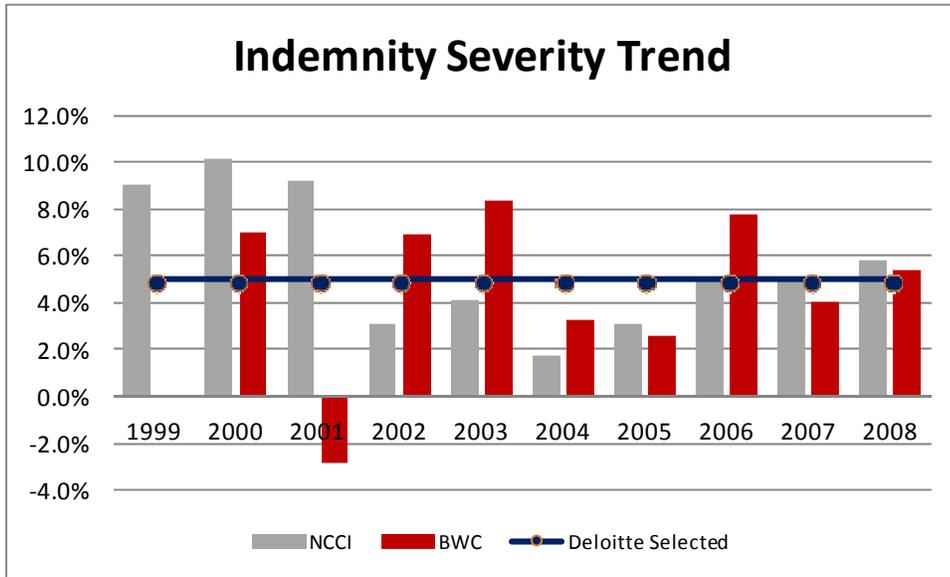


Table of Exhibits

Section 1, Exhibit 1A: Determination of Overall Rate Change (Discounted at 4.5%)

This exhibit displays the indicated overall rate level discounted at 4.5% as well as the indicated rate change for the Baseline, Reasonable Expectation – Optimistic, and Reasonable Expectation – Conservative scenarios.

Section 1, Exhibit 1B: Determination of Overall Rate Change (Discounted at 4.0%)

This exhibit displays the indicated overall rate level discounted at 4.0% as well as the indicated rate change for the Baseline, Reasonable Expectation – Optimistic, and Reasonable Expectation – Conservative scenarios.

Section 1, Exhibit 2: Determination of Overall Rate Level (Undiscounted)

This exhibit displays the indicated overall rate level on an undiscounted basis for the Baseline, Reasonable Expectation – Optimistic, and Reasonable Expectation – Conservative scenarios.

Section 1, Exhibit 3A: Determination of Overall Rate Level – Impact of Discount on Rates at a Discount Rate of 4.5%

This exhibit displays the impact of discounting rates at 4.5% for the Baseline, Reasonable Expectation – Optimistic, and Reasonable Expectation – Conservative scenarios.

Section 1, Exhibit 3B: Determination of Overall Rate Level – Impact of Discount on Rates at a Discount Rate of 4.0%

This exhibit displays the impact of discounting rates at 4.0% for the Baseline, Reasonable Expectation – Optimistic, and Reasonable Expectation – Conservative scenarios.

Section 1, Exhibit 4A: Impact of Premium Payment Lag (4.5%)

This exhibit displays the impact of collecting premium on May 15 (45%) and September 1 (55%), using a 4.5% discount rate.

Section 1, Exhibit 4B: Impact of Premium Payment Lag (4.0%)

This exhibit displays the impact of collecting premium on May 15 (45%) and September 1 (55%), using a 4.0% discount rate.

Section 1, Exhibit 5A: Comparison of Discounted Loss Costs excluding Expenses (4.5%)

This exhibit compares the current year discounted loss cost to the prior year. Expenses are not included in this comparison. This is based on a discount rate of 4.5%

Section 1, Exhibit 5B: Comparison of Discounted Loss Costs excluding Expenses (4.0%)

This exhibit compares the current year discounted loss cost to the prior year. Expenses are not included in this comparison. This is based on a discount rate of 4.0%.

Section 1, Exhibit 6: Calculation of Loss Cost – Indemnity

This exhibit displays the selection of the undiscounted loss cost for Indemnity for the Baseline, Reasonable Expectation – Optimistic, and Reasonable Expectation – Conservative scenarios.

Section 1, Exhibit 7: Calculation of Loss Cost – Medical

This exhibit displays the selection of the undiscounted loss cost for Medical for the Baseline, Reasonable Expectation – Optimistic, and Reasonable Expectation – Conservative scenarios.

Section 1, Exhibit 8: Exposure Year Payroll Development

This exhibit displays the historical development of payroll and the resulting payroll development factors selected by Deloitte Consulting.

Section 1, Exhibit 9: Payroll Trend

This exhibit shows the historical change in Ohio average weekly wages and the resulting payroll trend assumptions selected by Deloitte Consulting.

Section 1, Exhibit 10: Frequency Trend

This exhibit shows the historical change in frequency of lost time claims relative to developed and on-level payroll, and the resulting frequency trend assumptions selected by Deloitte Consulting.

Section 1, Exhibit 11: Severity Trend – Indemnity

This exhibit shows the historical change in ultimate Indemnity losses per lost time claims, and the resulting severity trend assumptions selected by Deloitte Consulting.

Section 1, Exhibit 12: Severity Trend – Medical

This exhibit shows the historical change in ultimate Medical losses per lost time claims, and the resulting severity trend assumptions selected by Deloitte Consulting.

Section 1, Exhibit 13: Trend Summary

This exhibit shows the combined impact of the payroll, frequency, and severity trend assumptions selected by Deloitte Consulting in Exhibits 9 through 12 for Indemnity and Medical.

Section 1, Exhibit 14: Calculation of HPP Expense Factor

This exhibit shows the historical Claims Adjusting Expense Ratios and the selected ratio by Deloitte Consulting

Section 1, Exhibit 15A: Derivation of Discount factors at a 4.5% discount rate

This exhibit shows the support for the indemnity and medical discount factors at a 4.5% discount rate as displayed on Exhibit 1A

Section 1, Exhibit 15B: Derivation of Discount factors at a 4.0% discount rate

This exhibit shows the support for the indemnity and medical discount factors at a 4.0% discount rate as displayed on Exhibit 1B

OHIO BUREAU OF WORKERS' COMPENSATION
Determination of Overall Rate Change (Discounted at 4.5%)
Public Employers - Taxing Districts

Section 1
Exhibit 1A

Discounted
Effective January 1, 2011

		Reasonable Expectation <u>Optimistic</u>	<u>Baseline</u>	Reasonable Expectation <u>Conservative</u>
(1)	Selected Indemnity Undiscounted Loss Cost:	\$0.79	\$0.825	\$0.87
(2)	Selected Indemnity Discount Factor:	0.605	0.605	0.605
(3)	Selected Medical Loss Cost:	\$0.85	\$0.905	\$0.97
(4)	Selected Medical Discount Factor:	0.680	0.680	0.680
(5)	Selected Total Loss Cost:	\$1.06	\$1.11	\$1.19
(6)	HPP Expense Load; 10.7% of Losses	1.107	1.107	1.107
(7)	Non-Claim Payment Costs	\$0.01	\$0.01	\$0.01
(8)	S&H Load (0.5%):	0.5%	0.5%	0.5%
(9)	Contingency Load (0.0%):	0.0%	0.0%	0.0%
(10)	Premium Lag Adjustment	0.935	0.935	0.935
(11)	Calculated Total Loss & Expense Rate:	\$1.27	\$1.34	\$1.42
(12)	Current Loss & Expense Rate (1/1/10 - 12/31/10)	\$1.46	\$1.46	\$1.46
(13)	Indicated Base Rate Level Change:	-13.1%	-8.3%	-2.8%

-
- (1) From Section 1, Exhibit 6, Col. (11, 12, 13)
(2) From Section 1, Exhibit 15A, Col. (3)
(3) From Section 1, Exhibit 7, Col. (11, 12, 13)
(4) From Section 1, Exhibit 15A, Col. (3)
(5) = (1) * (2) + (3) * (4)
(6) From Section 1, Exhibit 14, Col.6
(7) Selected by Deloitte
(8) Selected by Deloitte
(9) Selected by Deloitte
(10) = $1 / (1.045^{(16.5/12)} * 0.45 + 1.045^{(20/12)} * 0.55)$; Assumes 45% of the premium paid by 5/15/11 and 55% by 9/1/11
(11) = $\{(5) \times (6) / [1 - (8) - (9)] + (7)\} / (10)$
(12) Actual Current Loss & Expense Rate
(13) = (10) / (11) - 1.0

OHIO BUREAU OF WORKERS' COMPENSATION
Determination of Overall Rate Change (Discounted at 4.0%)
Public Employers - Taxing Districts

Section 1
Exhibit 1B

Discounted
Effective January 1, 2011

	<u>Reasonable Expectation Optimistic</u>	<u>Baseline</u>	<u>Reasonable Expectation Conservative</u>
(1) Selected Indemnity Undiscounted Loss Cost:	\$0.79	\$0.83	\$0.87
(2) Selected Indemnity Discount Factor:	0.633	0.633	0.633
(3) Selected Medical Loss Cost:	\$0.85	\$0.91	\$0.97
(4) Selected Medical Discount Factor:	0.702	0.702	0.702
(5) Selected Total Loss Cost:	\$1.10	\$1.16	\$1.23
(6) HPP Expense Load; 10.7% of Losses	1.107	1.107	1.107
(7) Non-Claim Payment Costs	\$0.01	\$0.01	\$0.01
(8) S&H Load (0.5%):	0.5%	0.5%	0.5%
(9) Contingency Load (0.0%):	0.0%	0.0%	0.0%
(10) Premium Lag Adjustment	0.942	0.942	0.942
(11) Calculated Total Loss & Expense Rate:	\$1.31	\$1.38	\$1.47
(12) Current Loss & Expense Rate (1/1/10 - 12/31/10)	\$1.46	\$1.46	\$1.46
(13) Indicated Base Rate Level Change:	-10.3%	-5.5%	0.6%

-
- (1) From Section 1, Exhibit 6, Col. (11, 12, 13)
 - (2) From Section 1, Exhibit 15B, Col. (3)
 - (3) From Section 1, Exhibit 7, Col. (11, 12, 13)
 - (4) From Section 1, Exhibit 15B, Col. (3)
 - (5) = (1) * (2) + (3) * (4)
 - (6) From Section 1, Exhibit 14, Col.6
 - (7) Selected by Deloitte
 - (8) Selected by Deloitte
 - (9) Selected by Deloitte
 - (10) = $1 / (1.04^{16.5/12} * 0.45 + 1.04^{20/12} * 0.55)$; Assumes 45% of the premium paid by 5/15/11 and 55% by 9/1/11
 - (11) = $\{(5) \times (6) / [1 - (8) - (9)] + (7)\} / (10)$
 - (12) Actual Current Loss & Expense Rate
 - (13) = $(10) / (11) - 1.0$

OHIO BUREAU OF WORKERS' COMPENSATION
Determination of Overall Rate Level (Undiscounted)
Public Employers - Taxing Districts

Section 1
Exhibit 2

Undiscounted
Effective January 1, 2011

	Reasonable Expectation <u>Optimistic</u>	<u>Baseline</u>	Reasonable Expectation <u>Conservative</u>
(1) Selected Indemnity Loss Cost:	\$0.79	\$0.83	\$0.87
(2) Selected Medical Loss Cost:	\$0.85	\$0.91	\$0.97
(3) Selected Total Loss Cost:	\$1.64	\$1.73	\$1.84
(4) HPP Expense Load; 10.7% of Losses	1.107	1.107	1.107
(5) Non-Claim Payment Costs	\$0.01	\$0.01	\$0.01
(6) S&H Load (0.3%):	0.3%	0.3%	0.3%
(7) Contingency Load (0.0%):	0.0%	0.0%	0.0%
(8) Calculated Total Loss & Expense Rate:	\$1.83	\$1.93	\$2.05

-
- (1) From Section 1, Exhibit 6, Col. (11, 12, 13)
 - (2) From Section 1, Exhibit 7, Col. (11, 12, 13)
 - (3) = (1) + (2)
 - (4) From Section 1, Exhibit 14, Col.6
 - (5) Selected by Deloitte. Factors on an undiscounted basis estimated by Deloitte.
 - (6) Selected by Deloitte. Factors on an undiscounted basis estimated by Deloitte.
 - (7) Selected by Deloitte
 - (8) = (3) x (4) / [1 - (5) - (6)] + (7)

OHIO BUREAU OF WORKERS' COMPENSATION
Determination of Overall Rate Level - Impact of Discount on Rates (4.5% Discount)
Public Employers - Taxing Districts

Section 1
Exhibit 3A

Impact of Discount on Rates
Effective January 1, 2011

	Reasonable Expectation Optimistic	Baseline	Reasonable Expectation Conservative
(1) Estimated Payroll for the Period 1/1/11-12/31/11 (100s)	\$204,205,908	\$204,205,908	\$204,205,908
(2) Selected Total Undiscounted Loss Cost (prior to expense loading):	\$1.64	\$1.73	\$1.84
(3) Selected Total Discounted Loss Cost (prior to expense loading):	\$1.06	\$1.11	\$1.19
(4) Estimated Credit for Discounting Losses	\$119,384,044	\$125,724,730	\$133,574,763
(5) Selected Total Undiscounted HPP Rate:	\$0.18	\$0.19	\$0.20
(6) Selected Total Discounted HPP Rate	\$0.11	\$0.12	\$0.13
(7) Estimated Credit for Discounting HPP	\$12,809,685	\$13,490,029	\$14,332,323
(8) Estimated Credit for Discounting Total Loss & Expense	\$132,193,729	\$139,214,759	\$147,907,086

-
- (1) Selected by Deloitte
 - (2) From Section 1, Exhibit 2, Line (3)
 - (3) From Section 1, Exhibit 1A, Line (5)
 - (4) (1) * [(2) - (3)]
 - (5) From Section 1, Exhibit 2, Line (4) - 1* Line (2)
 - (6) From Section 1, Exhibit 2, Line (4) - 1* Line (3)
 - (7) (1) * [(5) - (6)]
 - (8) (4) + (7)

OHIO BUREAU OF WORKERS' COMPENSATION
Determination of Overall Rate Level - Impact of Discount on Rates (4.0% Discount)
Public Employers - Taxing Districts

Section 1
Exhibit 3B

Impact of Discount on Rates
Effective January 1, 2011

	Reasonable Expectation <u>Optimistic</u>	<u>Baseline</u>	Reasonable Expectation <u>Conservative</u>
(1) Estimated Payroll for the Period 1/1/11-12/31/11 (100s)	\$204,205,908	\$204,205,908	\$204,205,908
(2) Selected Total Undiscounted Loss Cost (prior to expense loading):	\$1.64	\$1.73	\$1.84
(3) Selected Total Discounted Loss Cost (prior to expense loading):	\$1.10	\$1.16	\$1.23
(4) Estimated Credit for Discounting Losses	\$111,099,641	\$117,000,629	\$124,306,233
(5) Selected Total Undiscounted HPP Rate:	\$0.18	\$0.19	\$0.20
(6) Selected Total Discounted HPP Rate	\$0.12	\$0.12	\$0.13
(7) Estimated Credit for Discounting HPP	\$11,920,784	\$12,553,949	\$13,337,827
(8) Estimated Credit for Discounting Total Loss & Expense	\$123,020,425	\$129,554,578	\$137,644,059

-
- (1) Selected by Deloitte
(2) From Section 1, Exhibit 2, Line (3)
(3) From Section 1, Exhibit 1B, Line (5)
(4) (1) * [(2) - (3)]
(5) From Section 1, Exhibit 2, Line (4) - 1* Line (2)
(6) From Section 1, Exhibit 2, Line (4) - 1* Line (3)
(7) (1) * [(5) - (6)]
(8) (4) + (7)

OHIO BUREAU OF WORKERS' COMPENSATION
Determination of Overall Rate Change (Discounted at 4.5%)
Public Employers - Taxing Districts

Section 1
Exhibit 4A

Impact of Premium Payment Lag
Effective January 1, 2011

	Reasonable Expectation <u>Optimistic</u>	<u>Baseline</u>	Reasonable Expectation <u>Conservative</u>
(1) Estimated Payroll for the Period 1/1/11-12/31/11 (100s)	\$204,205,908	\$204,205,908	\$204,205,908
(2) Discounted Loss Cost at Time 0	\$1.06	\$1.11	\$1.19
(3) Discounted Losses at Time 0	\$ 215,845,005	\$ 227,636,667	\$ 242,164,107
(4) Expenses	\$ 26,402,854	\$ 27,733,690	\$ 29,373,292
(5) Total Loss & Expenses	\$242,247,859.06	\$255,370,357.30	\$271,537,399.07
(6) Premium Discount Factor	0.935	0.935	0.935
(7) Final Premium	\$258,083,623.63	\$272,063,940.77	\$289,287,823.53
(8) Premium Discount Charge	\$15,835,764.57	\$16,693,583.47	\$17,750,424.46

-
- (1) Selected by Deloitte
(2) From Section 1, Exhibit 1A, Row (5)
(3) = (1) * (2)
(4) Calculated using expense assumptions from Section 1, Exhibit 1A
(5) = (3) + (4)
(6) = $1/(1.045^{(16.5/12)*0.45+1.045^{(20/12)*0.55})$; Assumed 45% of the premium paid by 5/15/12 and 55% by 9/1/12
(7) = (5) * [1 - (6)] + (5)
(8) = (7) - (5)

OHIO BUREAU OF WORKERS' COMPENSATION
Determination of Overall Rate Change (Discounted at 4.0%)
Public Employers - Taxing Districts

Section 1
Exhibit 4B

Impact of Premium Payment Lag
Effective January 1, 2011

	Reasonable Expectation <u>Optimistic</u>	<u>Baseline</u>	Reasonable Expectation <u>Conservative</u>
(1) Estimated Payroll for the Period 1/1/11-12/31/11 (100s)	\$204,205,908	\$204,205,908	\$204,205,908
(2) Discounted Loss Cost at Time 0	\$1.10	\$1.16	\$1.23
(3) Discounted Losses at Time 0	\$ 224,129,408	\$ 236,360,768	\$ 251,432,637
(4) Expenses	\$ 27,337,852	\$ 28,718,313	\$ 30,419,361
(5) Total Loss & Expenses	\$251,467,260.21	\$265,079,081.77	\$281,851,998.78
(6) Premium Discount Factor	0.942	0.942	0.942
(7) Final Premium	\$266,167,533.78	\$280,575,075.23	\$298,328,503.46
(8) Premium Discount Charge	\$14,700,273.57	\$15,495,993.47	\$16,476,504.68

-
- (1) Selected by Deloitte
(2) From Section 1, Exhibit 1B, Row (5)
(3) = (1) * (2)
(4) Calculated using expense assumptions from Section 1, Exhibit 1B
(5) = (3) + (4)
(6) = $1/(1.04^{16.5/12})^{0.45} + 1.04^{20/12}^{0.55}$; Assumed 45% of the premium paid by 5/15/12 and 55% by 9/1/12
(7) = (5) * [1 - (6)] + (5)
(8) = (7) - (5)

OHIO BUREAU OF WORKERS' COMPENSATION
Determination of Overall Rate Change (Discounted at 4.5%)
Public Employers - Taxing Districts

Section 1
Exhibit 5A

Comparison of Discounted Loss Costs excluding Expenses
Effective January 1, 2011

	Reasonable Expectation <u>Optimistic</u>	<u>Baseline</u>	Reasonable Expectation <u>Conservative</u>
(1) Oliver Wyman "Selected Discounted Pure Premium"	\$1.18	\$1.24	\$1.31
(2) Interest Adjustment for Oliver Wyman discounting losses to Time 1 instead of Time 0	1.045	1.045	1.045
(3) Oliver Wyman Adjusted "Selected Discounted Pure Premium"	\$1.13	\$1.19	\$1.25
(4) Deloitte Selected Discounted Loss Costs	\$1.06	\$1.11	\$1.19
(5) Indicated Loss Cost Change:	-6.4%	-6.1%	-5.4%

-
- (1) From the Oliver Wyman "1/1/2010 Rate Indications for Public Employer -- Taxing Districts" report, dated August 25, 2009; Exhibit 1 - 4.50%
(2) 4.5% interest adjustment for a consistent comparison
(3) = (1) / (2)
(4) From Section 1, Exhibit 1A, Row (5)
(5) = (4) / (3) - 1

OHIO BUREAU OF WORKERS' COMPENSATION
Determination of Overall Rate Change (Discounted at 4.0%)
Public Employers - Taxing Districts

Section 1
Exhibit 5B

Comparison of Discounted Loss Costs
Effective January 1, 2011

	Reasonable Expectation <u>Optimistic</u>	<u>Baseline</u>	Reasonable Expectation <u>Conservative</u>
(1) Olive Wyman "Selected Discounted Pure Premium"	\$1.23	\$1.30	\$1.37
(2) Interest Adjustment for Oliver Wyman discounting losses to Time 1 instead of Time 0	1.04	1.04	1.04
(3) Oliver Wyman Adjusted "Selected Discounted Pure Premium"	\$1.18	\$1.25	\$1.32
(4) Deloitte Selected Discounted Loss Costs	\$1.10	\$1.16	\$1.23
(5) Indicated Loss Cost Change:	-7.2%	-7.4%	-6.5%

-
- (1) From the Oliver Wyman "1/1/2010 Rate Indications for Public Employer -- Taxing Districts" report, dated August 25, 2009; Exhibit 1 - 4.00%
(2) 4% interest adjustment for a consistent comparison
(3) = (1) / (2)
(4) From Section 1, Exhibit 1B, Row (5)
(5) = (4) / (3) - 1

OHIO BUREAU OF WORKERS' COMPENSATION
Determination of Overall Rate Change for Public Employers - Taxing Districts
Calculation of Loss Cost - Indemnity

Section 1
Exhibit 6

Effective January 1, 2011
(000's)

Calendar Accident Year	Payroll	Payroll Trend To Period Eff 01/01/11	Payroll Development Factor	Developed & Trended Payroll	Ultimate Loss Projection	Loss Trend To Period Eff 01/01/11	Adjusted & Trended Ultimate	Average Loss Cost Unadjusted	Loss Cost On-Level
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1999	15,088,873	1.419	1.000	21,412,212	133,107	1.467	195,314	0.88	0.91
2000	15,809,043	1.351	1.000	21,355,259	143,851	1.426	205,130	0.91	0.96
2001	16,717,138	1.308	1.000	21,873,842	125,768	1.386	174,289	0.75	0.80
2002	17,601,171	1.268	1.000	22,321,938	142,149	1.347	191,438	0.81	0.86
2003	18,004,352	1.230	1.000	22,151,666	147,420	1.309	192,942	0.82	0.87
2004	18,523,800	1.190	1.000	22,034,365	146,674	1.272	186,555	0.79	0.85
2005	18,568,714	1.168	1.000	21,681,075	144,821	1.236	179,007	0.78	0.83
2006	18,918,245	1.137	1.000	21,510,304	142,261	1.201	170,887	0.75	0.79
2007	19,392,260	1.104	1.000	21,399,889	151,728	1.167	177,123	0.78	0.83
2008	19,814,092	1.066	1.000	21,129,946	154,693	1.134	175,494	0.78	0.83
2009	19,750,465	1.046	1.000	20,649,111	158,772	1.103	175,046	0.80	0.85
Total	198,188,152			237,519,608	1,591,242		2,023,228	0.80	0.85
							All Year Weighted Average:		0.85
							2000-07 Weighted Avg:		0.85
							2000-04 Weighted Avg:		0.87
							2004-08 Weighted Avg:		0.83
							2006-08 Weighted Avg:		0.82
				(11)			Selected Reasonable Expectation - Optimistic		0.79
				(12)			Selected Baseline		0.83
				(13)			Selected Reasonable Expectation - Conservative		0.87

(1) Calendar Accident Year Beginning January 1, XXXX
(2) From Deloitte 6/30/10 PEC Reserve Study
(3) From Section 1, Exhibit 9, Col. (5)
(4) From Section 1, Exhibit 8.
(5) = (2) x (3) x (4)
(6) Based on Deloitte PEC Reserve Study as of 6/30/10
(7) From Section 1, Exhibit 13, Col. (4)

(8) = (6) x (7)
(9) = (6) / [(2) x (4)] * 100
(10) = (8) / (5) x 100
(11) Selected by Deloitte
(12) Selected by Deloitte
(13) Selected by Deloitte

OHIO BUREAU OF WORKERS' COMPENSATION
Determination of Overall Rate Change for Public Employers - Taxing Districts
Calculation of Loss Cost - Medical

Section 1
Exhibit 7

Effective January 1, 2011
(000's)

Calendar Accident Year	Payroll	Payroll Trend to 2011 \$'s	Payroll Development Factor	Developed & Trended Payroll	Ultimate Loss Projection	Loss Trend to 2011 \$'s	Adjusted & Trended Ultimate	Average Loss Cost Unadjusted	Loss Cost On-Level
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1999	15,088,873	1.419	1.000	21,412,212	116,913	1.771	206,999	0.77	0.97
2000	15,809,043	1.351	1.000	21,355,259	133,785	1.642	219,732	0.85	1.03
2001	16,717,138	1.308	1.000	21,873,842	130,393	1.524	198,666	0.78	0.91
2002	17,601,171	1.268	1.000	22,321,938	149,679	1.467	219,532	0.85	0.98
2003	18,004,352	1.230	1.000	22,151,666	153,905	1.412	217,298	0.85	0.98
2004	18,523,800	1.190	1.000	22,034,365	153,304	1.359	208,364	0.83	0.95
2005	18,568,714	1.168	1.000	21,681,075	156,458	1.308	204,709	0.84	0.94
2006	18,918,245	1.137	1.000	21,510,304	145,441	1.260	183,187	0.77	0.85
2007	19,392,260	1.104	1.000	21,399,889	159,825	1.212	193,785	0.82	0.91
2008	19,814,092	1.066	1.000	21,129,946	158,935	1.167	185,508	0.80	0.88
2009	19,750,465	1.046	1.000	20,649,111	162,495	1.124	182,579	0.82	0.88
Total	198,188,152			237,519,608	1,621,132		2,220,358	0.82	0.93
							All Year Weighted Av		0.93
							2000-07 Weighted Avg:		0.94
							2000-04 Weighted Avg:		0.97
							2004-08 Weighted Avg:		0.91
							2006-08 Weighted Avg:		0.88
				(11)		Selected Reasonable Expectation - Optimistic			0.85
				(12)		Selected Baseline			0.91
				(13)		Selected Reasonable Expectation - Conservative			0.97

(1) Calendar Accident Year Beginning January 1, XXXX
(2) From Deloitte 6/30/10 PEC Reserve Study
(3) From Section 1, Exhibit 9, Col. (5)
(4) From Section 1, Exhibit 8.
(5) = (2) x (3) x (4)
(6) Based on Deloitte PEC Reserve Study as of 6/30/10
(7) From Section 1, Exhibit 13, Col. (6)

(8) = (6) x (7)
(9) = (6) / [(2) x (4)] * 100
(10) = (8) / (5) x 100
(11) Selected by Deloitte
(12) Selected by Deloitte
(13) Selected by Deloitte

OHIO BUREAU OF WORKERS' COMPENSATION
Determination of Overall Rate Change for Public Employers - Taxing Districts
Exposure Year Payroll Development
(000's)

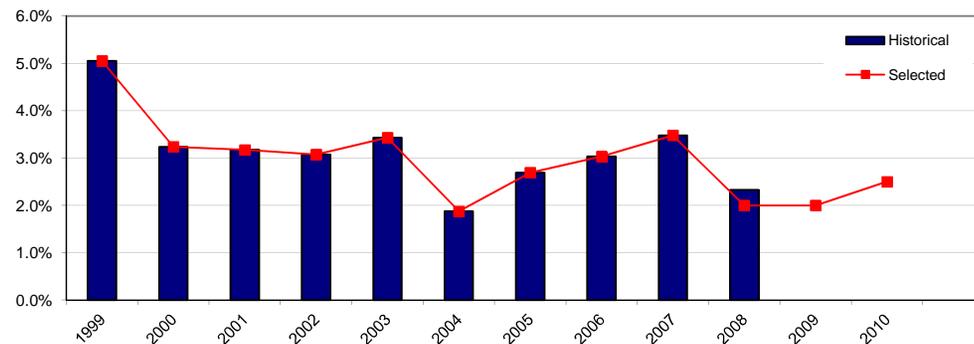
Section 1
Exhibit 8

Calendar Accident Year	6	18	30	42	54	66	78	90	102	114	126	138
1999												15,088,873
2000								15,809,043	15,809,043	15,809,043	15,809,043	
2001							16,717,138	16,717,138	16,717,138	16,717,138		
2002						17,601,171	17,601,171	17,601,171	17,601,171			
2003					18,004,352	18,004,352	18,004,352	18,004,352				
2004				18,523,800	18,523,800	18,523,800	18,523,800					
2005			18,584,736	18,568,714	18,568,714	18,566,524						
2006		18,740,062	18,923,870	18,913,468	18,918,245							
2007		19,418,112	19,402,936	19,392,260								
2008		19,805,264	19,814,092									
2009		19,750,465										
2010	19,750,465											
Exposure Year	6-18	18-30	30-42	42-54	54-66	66-78	78-90	90-102	102-114	114-126	126-138	138- ULT
1999												
2000								1.0000	1.0000	1.0000		
2001							1.0000	1.0000	1.0000			
2002						1.0000	1.0000	1.0000				
2003					1.0000	1.0000	1.0000					
2004				1.0000	1.0000	1.0000						
2005			0.9991	1.0000	0.9999							
2006		1.0098	0.9995	1.0003								
2007		0.9992	0.9994									
2008		1.0004										
2009												
Age to Age Factors ("ATA")												
3yr Wtd Avg		1.003	0.999	1.000	1.000	1.000	1.000	1.000	1.000			
PA Payroll Development ATA	2.003	1.004	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Sel. ATA	1.250	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Sel. ATU	1.250	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

OHIO BUREAU OF WORKERS' COMPENSATION
Determination of Overall Rate Change for Public Employers - Taxing Districts
Payroll Trend

Section 1
Exhibit 9

Calendar Year (1)	Ohio Average Weekly Wage (2)	Annual Percent Change (3)	Selected Payroll Trend (4)	Cumulative Payroll Trend Policy Period Effective To	
				01/01/11 (5)	Cal Yr 2010 (6)
1993	476	2.9%			
1994	490	3.5%			
1995	507	3.5%			
1996	525	3.8%			
1997	544	2.7%			
1998	559	3.9%			
1999	581	5.1%	5.1%	1.419	1.384
2000	610	3.2%	3.2%	1.351	1.318
2001	630	3.2%	3.2%	1.308	1.277
2002	650	3.1%	3.1%	1.268	1.237
2003	670	3.4%	3.4%	1.230	1.200
2004	693	1.9%	1.9%	1.190	1.161
2005	706	2.7%	2.7%	1.168	1.139
2006	725	3.0%	3.0%	1.137	1.109
2007	747	3.5%	3.5%	1.104	1.077
2008	773	2.3%	2.0%	1.066	1.040
2009	791		2.0%	1.046	1.020
2010			2.5%	1.025	1.000



- (1) Calendar Year Beginning January 1, XXXX
- (2) Based on Bureau of Labor Statistics Ohio Average Weekly Wages, Local Government - All Industries
- (3) $= [(2)\{CAY X+1\} / (2)] - 1.0$
- (4) Selected by Deloitte
- (5) $= [1.0 + (4)] \times (5)\{CAY X+1\}$
- (6) $= (5) / (5)\{CY 2010\}$

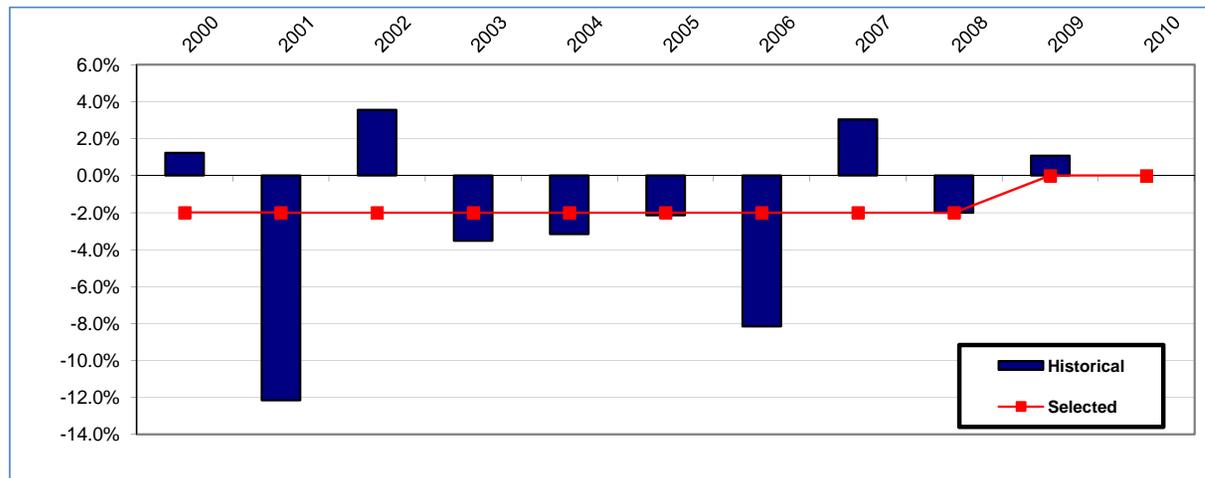
OHIO BUREAU OF WORKERS' COMPENSATION

Determination of Overall Rate Change for Public Employers - Taxing Districts

Frequency Trend (000's)

Section 1 Exhibit 10

Calendar Accident Year	Ultimate # of Claims	Payroll	Payroll Development Factor	Payroll On-Level Factor	Developed Payroll On-Level	Claim Frequency Per \$100	Change in Frequency	Selected Frequency Trend	Cumulative Frequency Trend
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1999	6,042	15,088,873	1.000	1.419	21,412,212	0.028		-2.0%	0.817
2000	6,100	15,809,043	1.000	1.351	21,355,259	0.029	1.2%	-2.0%	0.834
2001	5,489	16,717,138	1.000	1.308	21,873,842	0.025	-12.1%	-2.0%	0.851
2002	5,801	17,601,171	1.000	1.268	22,321,938	0.026	3.6%	-2.0%	0.868
2003	5,554	18,004,352	1.000	1.230	22,151,666	0.025	-3.5%	-2.0%	0.886
2004	5,350	18,523,800	1.000	1.190	22,034,365	0.024	-3.2%	-2.0%	0.904
2005	5,151	18,568,714	1.000	1.168	21,681,075	0.024	-2.1%	-2.0%	0.922
2006	4,694	18,918,245	1.000	1.137	21,510,304	0.022	-8.2%	-2.0%	0.941
2007	4,812	19,392,260	1.000	1.104	21,399,889	0.022	3.0%	-2.0%	0.960
2008	4,656	19,814,092	1.000	1.066	21,129,946	0.022	-2.0%	-2.0%	0.980
2009	4,599	19,750,465	1.000	1.046	20,649,111	0.022	1.1%	0.0%	1.000
2010								0.0%	1.000



-2.9% All year trend*
 -2.9% 7 yr trend*
 -2.5% 5 yr trend*
 0.5% 3 yr trend*

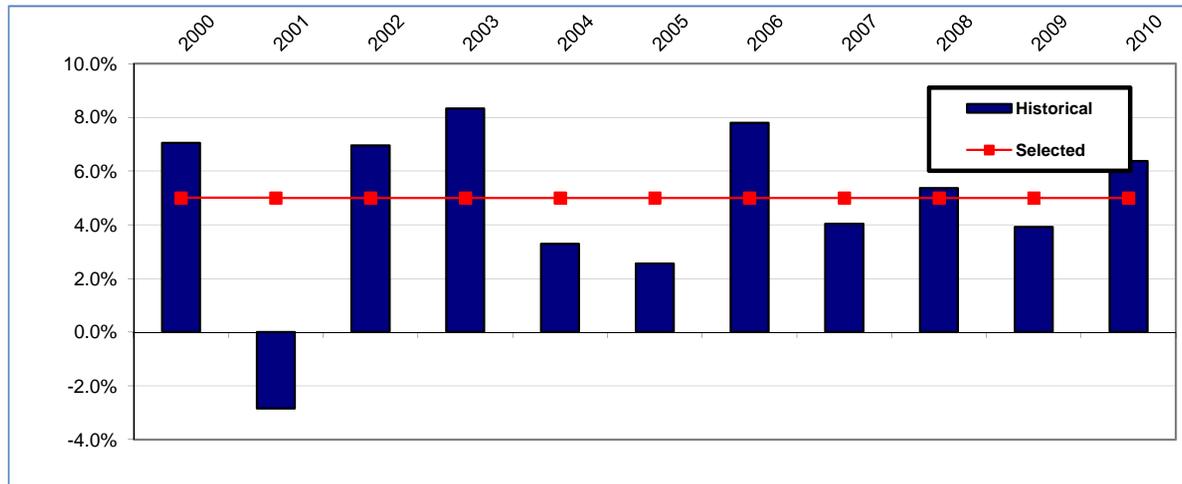
* Excludes 2009 and 2010

- | | |
|--|---|
| <p>(1) Calendar Accident Year Beginning January 1, XXXX</p> <p>(2) Based on Deloitte PEC Reserve Study as of 6/30/10, Lost Time Counts Only</p> <p>(3) From Deloitte 6/30/10 PEC Reserve Study</p> <p>(4) From Section 1, Exhibit 8</p> <p>(5) From Section 1, Exhibit 9, Col. (6)</p> <p>(6) =(3) x (4) x (5)</p> | <p>(7) = (2) / (6) x 100</p> <p>(8) = [(7) / (7) {CAY X-1}] - 1.0</p> <p>(9) Selected by Deloitte</p> <p>(10) = [1.0 + (9)] x (10){CAY X+1}</p> |
|--|---|

OHIO BUREAU OF WORKERS' COMPENSATION
Determination of Overall Rate Change for Public Employers - Taxing Districts
Severity Trend - Indemnity
(000's)

Section 1
Exhibit 11

Calendar Accident Year	Other Than Medical Ultimate Loss	Ultimate # of Claims	Severity Loss / Claims	Change in Severity	NCCI State of Line	Selected Severity Trend	Cumulative Severity Trend
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1999	133,107	6,042	22,030		10.1%	5.0%	1.796
2000	143,851	6,100	23,582	7.0%	10.1%	5.0%	1.710
2001	125,768	5,489	22,912	-2.8%	9.2%	5.0%	1.629
2002	142,149	5,801	24,504	7.0%	3.1%	5.0%	1.551
2003	147,420	5,554	26,545	8.3%	4.1%	5.0%	1.477
2004	146,674	5,350	27,417	3.3%	1.7%	5.0%	1.407
2005	144,821	5,151	28,116	2.5%	3.1%	5.0%	1.340
2006	142,261	4,694	30,308	7.8%	5.0%	5.0%	1.276
2007	151,728	4,812	31,532	4.0%	5.0%	5.0%	1.216
2008	154,693	4,656	33,225	5.4%	5.8%	5.0%	1.158
2009	158,772	4,599	34,525	3.9%	4.5%	5.0%	1.103
2010	162,840	4,434	36,725	6.4%		5.0%	1.050



BWC
 4.7% All year trend*
 2.0% 1999-2001 trend
 5.0% 2002-2008 trend
 5.1% 2004-2008 trend

NCCI
 4.6% All year trend*
 9.8% 1999-2001 trend
 4.0% 2002-2008 trend
 4.8% 2004-2008 trend

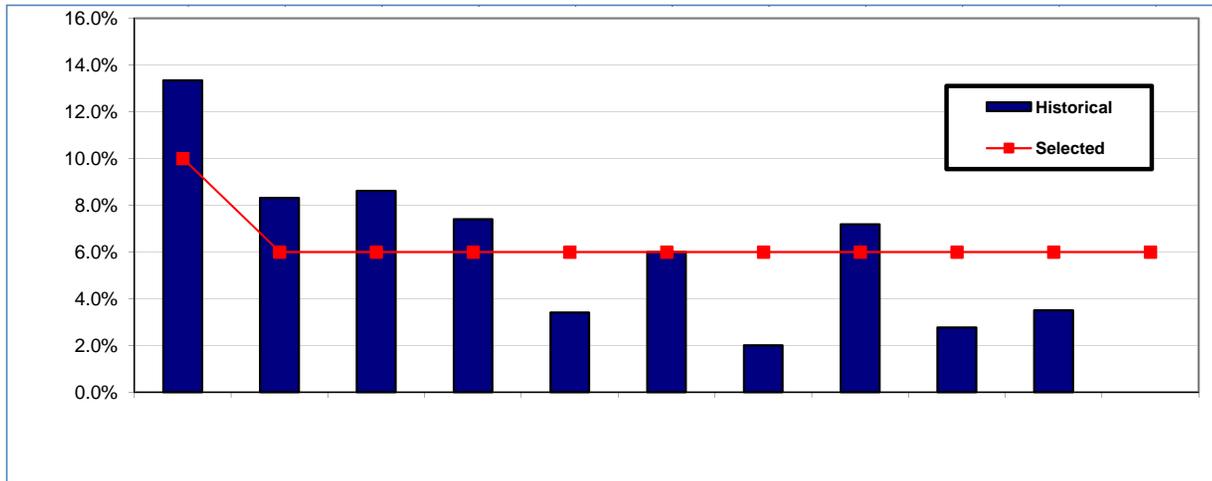
* Excludes 2009 and 2010

(1)	Calendar Accident Year Beginning January 1, XXXX	(7)	Selected by Deloitte
(2)	Based on Deloitte PEC Reserve Study as of 6/30/10	(8)	= [1.0 + (7)] x (8){CAY X+1}
(3)	Based on Deloitte PEC Reserve Study as of 6/30/10, Lost Time Counts Only		
(4)	= (2) / (3) x 1000		
(5)	= [(4) / (4) {CAY X-1}] - 1.0		
(6)	From NCCI State Of Line Presentation May 6, 2010		

OHIO BUREAU OF WORKERS' COMPENSATION
Determination of Overall Rate Change for Public Employers - Taxing Districts
Severity Trend - Medical
(000's)

Section 1
Exhibit 12

Calendar Accident Year	Medical Ultimate Loss	Ultimate # of Claims	Severity Loss / Claims	Change in Severity	NCCI State of Line	Selected Severity Trend	Cumulative Severity Trend
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1999	116,913	6,042	19,350		10.6%	10.0%	2.167
2000	133,785	6,100	21,932	13.3%	7.3%	10.0%	1.970
2001	130,393	5,489	23,755	8.3%	13.5%	6.0%	1.791
2002	149,679	5,801	25,803	8.6%	8.8%	6.0%	1.689
2003	153,905	5,554	27,713	7.4%	7.3%	6.0%	1.594
2004	153,304	5,350	28,657	3.4%	5.6%	6.0%	1.504
2005	156,458	5,151	30,375	6.0%	7.4%	6.0%	1.419
2006	145,441	4,694	30,986	2.0%	5.4%	6.0%	1.338
2007	159,825	4,812	33,214	7.2%	5.4%	6.0%	1.262
2008	158,935	4,656	34,136	2.8%	6.7%	6.0%	1.191
2009	162,495	4,599	35,334	3.5%	5.0%	6.0%	1.124
2010	173,690	4,434	39,172			6.0%	1.060



BWC

6.2% All year trend*
 10.8% 1999-2001 trend
 4.7% 2002-2008 trend
 4.5% 2004-2008 trend

NCCI

7.3% All year trend*
 10.5% 1999-2001 trend
 6.2% 2002-2008 trend
 6.0% 2004-2008 trend

* Excludes 2009 and 2010

(1) Calendar Accident Year Beginning January 1, XXXX	(7) Selected by Deloitte
(2) Based on Deloitte PEC Reserve Study as of 6/30/10	(8) = [1.0 + (7)] x (8){CAY X+1}
(3) Based on Deloitte PEC Reserve Study as of 6/30/10, Lost Time Counts Only	
(4) = (2) / (3) x 1000	
(5) = [(4) / (4) {CAY X-1}] - 1.0	
(6) From NCCI State Of Line Presentation May 6, 2010	

OHIO BUREAU OF WORKERS' COMPENSATION
Determination of Overall Rate Change for Public Employers - Taxing Districts
Trend Summary

Section 1
Exhibit 13

Calendar Accident Year	Cumulative Frequency Trend	Indemnity Cumulative Severity Trend	Indemnity Cumulative Loss Trend	Medical Cumulative Severity Trend	Medical Cumulative Loss Trend	Selected Payroll Trend	Selected Frequency Trend	Indemnity Selected Severity Trend	Indemnity Selected Loss Cost Trend	Medical Selected Severity Trend	Medical Selected Loss Cost Trend
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1999	0.817	1.796	1.467	2.167	1.771	5.1%	-2.0%	5.0%	-2.0%	10.0%	2.6%
2000	0.834	1.710	1.426	1.970	1.642	3.2%	-2.0%	5.0%	-0.3%	10.0%	4.4%
2001	0.851	1.629	1.386	1.791	1.524	3.2%	-2.0%	5.0%	-0.3%	6.0%	0.7%
2002	0.868	1.551	1.347	1.689	1.467	3.1%	-2.0%	5.0%	-0.2%	6.0%	0.8%
2003	0.886	1.477	1.309	1.594	1.412	3.4%	-2.0%	5.0%	-0.5%	6.0%	0.4%
2004	0.904	1.407	1.272	1.504	1.359	1.9%	-2.0%	5.0%	1.0%	6.0%	2.0%
2005	0.922	1.340	1.236	1.419	1.308	2.7%	-2.0%	5.0%	0.2%	6.0%	1.2%
2006	0.941	1.276	1.201	1.338	1.260	3.0%	-2.0%	5.0%	-0.1%	6.0%	0.8%
2007	0.960	1.216	1.167	1.262	1.212	3.5%	-2.0%	5.0%	-0.6%	6.0%	0.4%
2008	0.980	1.158	1.134	1.191	1.167	2.0%	-2.0%	5.0%	0.9%	6.0%	1.8%
2009	1.000	1.103	1.103	1.124	1.124	2.0%	0.0%	5.0%	2.9%	6.0%	3.9%
2010	1.000	1.050	1.050	1.060	1.060	2.5%	0.0%	5.0%	2.4%	6.0%	3.4%

(1) Calendar Accident Year Beginning January 1, XXXX
(2) From Section 1, Exhibit 10, Col. (10)
(3) From Section 1, Exhibit 11, Col. (8)
(4) = (2) x (3)
(5) From Section 1, Exhibit 12, Col. (8)
(6) = (2) x (5)

(7) From Section 1, Exhibit 9, Col. (4)
(8) From Section 1, Exhibit 10, Col. (9)
(9) From Section 1, Exhibit 11, Col. (7)
(10) = [1.0 + (8)] x [1.0 + (9)] / [1.0 + (7)]-1
(11) From Section 1, Exhibit 12, Col. (7)
(12) = [1.0 + (8)] x [1.0 + (11)] / [1.0 + (7)]-1

OHIO BUREAU OF WORKERS' COMPENSATION
Determination of Overall Rate Change for Public Employers - Taxing Districts
Calculation of HPP Expense Factor
(000's)

Section 1
Exhibit 14

Fiscal Year	Paid HPP Expense	Paid Loss	Claim Adjusting Expense Ratio
(1)	(2)	(3)	(4)
2003	21,500	211,537	10.2%
2004	22,900	222,311	10.3%
2005	23,449	218,170	10.7%
2006	23,900	216,075	11.1%
2007	23,900	233,961	10.2%
2008	23,800	234,436	10.2%
2009	25,884	224,435	11.5%
		3 Year:	10.6%
		5 Year:	10.7%
		All Years:	10.6%
	(5)	Prior Selected:	9.0%
	(6)	Selected:	10.7%

-
- (1) Fiscal Year Beginning 7/1/XXXX
 - (2) Provided by BWC
 - (3) Provided by BWC
 - (4) = (2) / (3)
 - (5) Selected by Prior Actuary in PEC Rate Analysis, August, 2010
 - (6) Selected by Deloitte

OHIO BUREAU OF WORKERS' COMPENSATION
Determination of Discount Factor (4.5%)
Public Employers - Taxing Districts

Section 1
Exhibit 15A

	<u>Discount Factor</u> <u>at Time 0</u> (1)	Calendar Accident Year 2010 <u>Undiscounted Ultimate (000s)</u> <u>@6/30/2010</u> (2)	<u>Wtd Avg</u> <u>Discount Factor</u> (3)
Medical			
Medical Only	0.947	12,046	
Medical Lost Time	0.637	74,800	
Total Medical			0.680
Compensation			
Permanent Total Disability	0.412	23,843	
Death	0.436	6,921	
TT, WL, LMWL, LM, TP, CO	0.813	20,003	
% Permanent Partial & Permanent Partial	0.817	12,780	
Lump Sum Settlement	0.540	16,294	
Lump Sum Advancements	0.583	1,481	
Additional Awards	0.556	99	
Total Compensation			0.605

(1) Based on the Deloitte PEC Reserve Study as of 6/30/10

(2) From Deloitte PEC Reserve Study as of 6/30/10, Section 2, Exhibit 1 - 9, Sheet 3, Column (12)

(3) Weighted Average of Column (1) & Column (2)

OHIO BUREAU OF WORKERS' COMPENSATION
Determination of Discount Factor (4.0%)
Public Employers - Taxing Districts

Section 1
Exhibit 15B

	<u>Discount Factor</u> <u>at Time 0</u> (1)	Calendar Accident Year 2010 <u>Undiscounted Ultimate (000s)</u> <u>@6/30/2010</u> (2)	<u>Wtd Avg</u> <u>Discount Factor</u> (3)
Medical			
Medical Only	0.952	12,046	
Medical Lost Time	0.662	74,800	
Total Medical			0.702
Compensation			
Permanent Total Disability	0.449	23,843	
Death	0.470	6,921	
TT, WL, LMWL, LM, TP, CO	0.831	20,003	
% Permanent Partial & Permanent Partial	0.834	12,780	
Lump Sum Settlement	0.571	16,294	
Lump Sum Advancements	0.615	1,481	
Additional Awards	0.586	99	
Total Compensation			0.633

(1) From Deloitte PEC Reserve Study as of 6/30/10, Section 2, Exhibit 1 - 9, Sheet 18, Column (6)

(2) From Deloitte PEC Reserve Study as of 6/30/10, Section 2, Exhibit 1 - 9, Sheet 3, Column (12)

(3) Weighted Average of Column (1) & Column (2)

Common Sense Business Regulation (BWC Rules)

(Note: The below criteria apply to existing and newly developed rules)

Rules 4123-17-33, 4123-17-34

Rule Review

1. The rule is needed to implement an underlying statute.

Citation: R.C. 4123.39, 4123.40

2. The rule achieves an Ohio specific public policy goal.

What goal(s): These rules establish base rates for public employer taxing districts for the policy year January 1, 2011 to December 31, 2011.

3. Existing federal regulation alone does not adequately regulate the subject matter.

4. The rule is effective, consistent and efficient.

5. The rule is not duplicative of rules already in existence.

6. The rule is consistent with other state regulations, flexible, and reasonably balances the regulatory objectives and burden.

7. The rule has been reviewed for unintended negative consequences.

8. Stakeholders, and those affected by the rule were provided opportunity for input as appropriate.

Explain: Generally, rate rules are not subject to stakeholder input.

9. The rule was reviewed for clarity and for easy comprehension.

10. The rule promotes transparency and predictability of regulatory activity.

11. The rule is based on the best scientific and technical information, and is designed so it can be applied consistently.

12. The rule is not unnecessarily burdensome or costly to those affected by rule.

If so, how does the need for the rule outweigh burden and cost? _____

13. The Chief Legal Officer, or his designee, has reviewed the rule for clarity and compliance with the Governor's Executive Order.

Board of Directors
Executive Summary

**Public employer taxing district industry group and limited loss ratio tables
Public employer taxing districts contribution to the state insurance fund**

Introduction

Rule 4123-17-33 of the Administrative Code contains the industry groups and the limited loss ratios used in experience rating for public employer taxing districts. Rule 4123-17-34 of the Administrative Code contains the base rates and expected loss rates used to determine employer premium obligations.

Background Information

Public Employer Taxing Districts are the approximately 3,800 cities, counties, villages, townships, schools, and miscellaneous special districts in Ohio who are provided workers' compensation insurance through the Ohio State Insurance Fund.

At the September 2010 Workers' Compensation Actuarial Committee meeting, a rate recommendation of a 5.5% decrease in the Public Employer Taxing Districts' overall premium rate level for the January 1, 2011 policy year was presented. The rates presented here today are the preliminary base rates as a result of the rate recommendation. Some categories of employers may have greater rate decreases and some categories may have less of a rate decrease. Individual employers may also have rate changes that are based upon their own loss experience.

Base rates for Public Employer Taxing Districts must be approved and filed with the Secretary of State and Legislative Services Commission on or before December 20, 2010, to be effective January 1, 2011. The consent of the Workers' Compensation Board of Directors is necessary for the adoption of premium rates.

Rule Changes

Rule 4123-17-33 has been updated to include the new limited loss ratios used in experience rating. Rule 4123-17-34 has been updated to include the new base rates and expected loss rates that carry out the recommended 5.5% overall premium level decrease.

1-1-2011 Public Employer Taxing District Rate Summary

Public Employer Taxing District Premium Rates

1. Change in public employer taxing district premium rates at the industry level:

Industry Group	Name	Percent Change	Average Collectible Rate per \$100 Unit of Payroll
1	Counties	-5	1.58
2	Cities	-3	3.10
3	Villages	-7	2.65
4	Townships	-12	2.38
5	Schools	-7	0.71
6	Public Works' Relief Employees	+36	1.03
7	Contract Coverage	+8	21.57
8	Hospitals	+14	1.30
20	Transit Authorities	-13	2.59
22	Special Districts Excluding Transit Authorities	-19	2.49
	Total	-5.5	\$1.38

2. Projected payroll is \$19.8 billion. Estimated premium is \$273 million.
3. Average assessment for a public employer taxing district per \$100 of reported payroll:

Premium (average collectible base rate)	\$1.38000
Administrative Cost- BWC (8.25% based on the 1/1/2010 Admin. Cost Rate)	.11385
Administrative Cost- IC (1.81% based on the 1/1/2010 Admin. Cost Rate)	.02498
Administrative Cost- WCC (0.0022% based on the 1/1/2010 Admin. Cost Rate)	.00003
Disabled Workers' Relief Fund	.06000
Additional Disabled Workers' Relief Fund (.1% of premium at base rate)	.00138
Total Collectible Rate	1.58024

Miscellaneous Rates and Assessments

- A. Disabled Workers' Relief Fund rate was reduced to \$0.06 per \$100 unit of payroll, effective January 1, 2007.
- B. Additional Disabled Workers' Relief Fund remained at .1% of premium at base rate.
- C. Administrative Cost Rate is unknown at this time. We have used the 1/1/2010 administrative cost assessment rate for illustration purposes.

4123-17-33 Public employer taxing district industry group and limited loss ratio tables

The administrator of workers' compensation, with the advice and consent of the bureau of workers' compensation board of directors, has authority to calculate contributions made to the state insurance fund by employers pursuant to section 4121.121 of the Revised Code. The administrator hereby sets the credibility table parts A and B to be effective January 1, ~~2010~~2011 applicable to the payroll reporting period January 1, ~~2010~~2011 through December 31, ~~2010~~2011 for public employer taxing districts as indicated in the attached appendixes A and B.

APPENDIX A

TABLE 1

PART A

INDUSTRY GROUP	MANUAL CLASSIFICATIONS
01	9430
02	9431
03	9432
04	9433
05	9434, 9435, 9436, 9437
06	9438
07	9439
08	9440, 9441
20	9442
22	9443

Revised 1-1-2011 applicable to 2011 calendar year payroll

APPENDIX B

**TABLE 1
PART B
INDUSTRY GROUP (LLR)**

Credibility Group	1	2	3	4	5	6	7	8	20	22
1	0.4195	0.4954	0.4241	0.5241	0.4837	0.3421	0.3496	0.4342	0.5469	0.3916
2	0.4195	0.4954	0.4241	0.5241	0.4837	0.3421	0.3496	0.4342	0.5469	0.3916
3	0.4195	0.4954	0.4241	0.5241	0.4837	0.3421	0.3496	0.4342	0.5469	0.3916
4	0.4195	0.4954	0.4241	0.5241	0.4837	0.3421	0.3496	0.4342	0.5469	0.3916
5	0.4195	0.4954	0.4241	0.5241	0.4837	0.3421	0.3496	0.4342	0.5469	0.3916
6	0.5478	0.6325	0.5372	0.6654	0.6208	0.4525	0.4580	0.5659	0.6742	0.5140
7	0.6286	0.7081	0.6078	0.7447	0.7007	0.5286	0.5302	0.6525	0.7465	0.6017
8	0.7086	0.7769	0.6814	0.8113	0.7759	0.6227	0.6012	0.7374	0.8115	0.6765
9	0.7713	0.8326	0.7468	0.8532	0.8338	0.7026	0.6615	0.8037	0.8529	0.7360
10	0.8031	0.8593	0.7849	0.8701	0.8618	0.7461	0.6942	0.8383	0.8674	0.7670
11	0.8306	0.8811	0.8175	0.8845	0.8849	0.7896	0.7219	0.8649	0.8818	0.7956
12	0.8551	0.9000	0.8446	0.8973	0.9040	0.8320	0.7470	0.8855	0.8963	0.8201
13	0.8768	0.9164	0.8676	0.9093	0.9204	0.8646	0.7703	0.9042	0.9108	0.8430
14	0.8960	0.9301	0.8863	0.9199	0.9346	0.8948	0.7937	0.9200	0.9252	0.8633
15	0.9127	0.9417	0.9050	0.9305	0.9466	0.9166	0.8170	0.9323	0.9397	0.8819
16	0.9276	0.9517	0.9225	0.9410	0.9574	0.9383	0.8403	0.9441	0.9542	0.9005
17	0.9414	0.9608	0.9366	0.9515	0.9665	0.9492	0.8637	0.9550	0.9686	0.9191
18	0.9535	0.9692	0.9491	0.9620	0.9743	0.9601	0.8870	0.9638	0.9808	0.9377
19	0.9646	0.9769	0.9615	0.9714	0.9808	0.9710	0.9103	0.9726	0.9880	0.9555
20	0.9748	0.9838	0.9729	0.9797	0.9865	0.9819	0.9336	0.9815	0.9952	0.9712
21	0.9839	0.9901	0.9828	0.9875	0.9919	0.9927	0.9570	0.9882	1.0000	0.9814
22	0.9923	0.9954	0.9922	0.9940	0.9965	1.0000	0.9788	0.9941	1.0000	0.9907
23	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Effective 1-1-2011 applicable to 2011 calendar year payroll

4123-17-34 Public employer taxing districts contribution to the state insurance fund

The administrator of workers' compensation, with the advice and consent of the bureau of workers' compensation board of directors, has authority to approve contributions made to the state insurance fund by employers pursuant to section 4121.121 of the Revised Code. The administrator hereby sets base rates and expected loss rates to be effective January 1, ~~2010~~ 2011, applicable to the payroll reporting period January 1, ~~2010~~ 2011 through December 31, ~~2010~~ 2011, for public employer taxing districts as indicated in the attached appendix A.

TO BE AMENDED
Appendix A

NCCI Classification Code	NCCI Classification Description	Base Rate Per \$100 of Payroll		Expected Loss Rate Per \$100 of Payroll	
		1.86	<u>1.70</u>	0.56	<u>0.52</u>
9430	County employees: all employees & clerical, clerical telecommuter, salespersons, drivers	1.86	<u>1.70</u>	0.56	<u>0.52</u>
9431	City employees: all employees & clerical, clerical telecommuter, salespersons, drivers	3.60	<u>3.33</u>	1.05	<u>1.03</u>
9432	Village employees: all employees & clerical, clerical telecommuter, salespersons, drivers	3.19	<u>2.85</u>	0.84	<u>0.84</u>
9433	Township employees: all employees & clerical, clerical telecommuter, salespersons, drivers	3.02	<u>2.56</u>	0.84	<u>0.77</u>
9434	Local school districts: all employees & clerical, clerical telecommuter, salespersons, drivers	0.85	<u>.76</u>	0.25	<u>0.24</u>
9435	Public libraries: all employees & clerical, clerical telecommuter, salespersons, drivers	0.85	<u>.76</u>	0.25	<u>0.24</u>

DRAFT – NOT FOR FILING

NCCI Classification Code	NCCI Classification Description	Base Rate Per \$100 of Payroll		Expected Loss Rate Per \$100 of Payroll	
		0.85	<u>.76</u>	0.25	<u>0.24</u>
9436	Special public universities: all employees & clerical, clerical telecommuter, salespersons, drivers	0.85	<u>.76</u>	0.25	<u>0.24</u>
9437	Joint vocational schools: all employees & clerical, clerical telecommuter, salespersons, drivers	0.85	<u>.76</u>	0.25	<u>0.24</u>
9438	Public work-relief Employees	0.85	<u>1.10</u>	0.30	<u>0.56</u>
9439	Public employer emergency services organizations: contract coverage (See note below)	22.42	<u>23.18</u>	6.32	<u>7.03</u>
9440	Public hospitals: all employees & clerical, clerical telecommuter, salespersons, drivers	1.28	<u>1.40</u>	0.37	<u>0.43</u>
9441	Special public institutions: all employees & clerical, clerical telecommuter, salespersons, drivers	1.28	<u>1.40</u>	0.37	<u>0.43</u>
9442	Public transit authorities: all employees & clerical, clerical telecommuter, salespersons, drivers	3.34	<u>2.78</u>	1.00	<u>0.84</u>
9443	Special public authorities: all employees & clerical, clerical telecommuter, salespersons, drivers	3.45	<u>2.68</u>	0.98	<u>0.76</u>

(Revised January 1, ~~2010-2011~~, applicable to the payroll reporting period January 1, ~~2010-2011~~ through December 31, ~~2010-2011~~)

Note: for classification code 9439, contract coverage, actual payroll is to be reported with a minimum of three hundred dollars (\$300.00) per enrolled person per year, with a minimum reportable payroll of \$4,500.00.

Note: the bureau shall assign claims for emergency management workers occurring due to a disaster or an emergency as provided under sections 4123.031 to 4123.037 of the Revised Code to the risk of the public employer taxing district that administered the loyalty oath. The bureau shall charge all of the costs of such claims to the surplus fund. There is no payroll to be reported or premium charged for this coverage.

Effective Date: [January 1, 2011](#)

Certification: _____

Date

Promulgated Under: R.C. Sec. 111.15
Rule Amplifies: R.C. Sec. 4123.39, 4123.40
Rule Authorized By: R.C. Sec. 4121.12, 4121.121
Prior Effective Date: 1/1/10, 1/1/09, 1/1/08, 1/1/07, 1/1/06, 1/1/05, 1/1/04, 1/1/03, 1/1/02, 1/1/01, 1/1/00, 1/1/99, 1/1/98, 1/1/97, 3/15/96 1/1/96, (Emer.), 5/15/95, 1/1/95, 1/1/94, 1/1/93, 1/1/92, 1/1/91, 1/1/90

OBWC Board of Directors Actuarial Committee Charter

Purpose

The Actuarial Committee has been established to assist the Ohio Bureau of Workers' Compensation Committee Board of Directors in fulfilling its responsibilities through:

- monitoring the actuarial soundness and financial condition of the funds and reviewing rates, reserves and the level of net assets
- monitoring the integrity of the actuarial audit process
- monitoring compliance with legal and regulatory requirements
- monitoring the design and effectiveness of the actuarial studies
- confirming external actuarial consultants' qualifications and independence
- reviewing any independent external actuarial work product
- reviewing opportunities and challenges the Board of Directors needs to discuss as they fulfill the statutory requirement to "... fix and maintain... the lowest possible rates of premium consistent with the maintenance of a solvent state insurance fund ..."

In order to constitute the will of the Board of Directors, Committee actions must be ratified or adopted by the Board of Directors to become effective.

Membership

The Committee shall be composed of a minimum of five (5) members. One member shall be the member of the Board who is appointed as the an-actuary. The Board, by majority vote, shall appoint at least four additional members of the Board to serve on the Actuarial Committee and may appoint additional members who are not Board members, as the Board determines necessary. Bureau management personnel cannot serve as a committee member.

The Chair and Vice Chair are designated by the Board, based on the recommendation of the Board Chair. If the Board Chair is not a member of the Committee, he/she shall be an ex-officio member. As an ex-officio member, the Board chair shall not vote if his/her vote will create a tie.

The Committee Chair will be responsible for scheduling all meetings of the Committee and providing the Committee with a written agenda for each meeting. The Committee will have a staff liaison designated to assist it in carrying out its duties.

Members of the Actuarial Committee serve at the pleasure of the Board and the Board, by majority vote, may remove any member except the member of the committee who is appointed as the actuary member of the Board.

Meetings

The Committee shall meet at least nine (9) times annually. The Committee Chair will provide a meeting report at the next subsequent Board meeting. Additional meetings may be requested by the Committee Chair, 2 or more members of the Committee, or the Chair of the Board.

A quorum shall consist of a majority of Committee members. Committee meetings will be conducted according to Robert's Rules of Order. All Directors are encouraged to attend the Committee meetings.

The Committee will invite members of management, external actuarial firms, internal actuarial staff and/or others to attend meetings and provide pertinent information, as necessary.

Minutes for all meetings of the Committee will be prepared to document the actions of the Committee's in the discharge of its responsibilities.

Duties and Responsibilities

1. The Actuarial Committee shall be responsible for the following statutory requirements:

- Recommend actuarial consultants for the Board to use for the funds specified in Chapters 4121, 4123, 4127, and 4131 of the Revised Code (RC 4121.129 (B)(1))
- Review the calculation of rate schedules prepared by the actuarial consultants with whom the Board contracts (RC 4121.129 (B)(2))
- Supervise, for the Board's consideration, the preparation of an annual report of the actuarial valuation of the assets, liabilities and funding requirements of the state insurance funds to be submitted to the Workers' Compensation Council and the Senate and the House. (RC 1421.125(C) and 4123.47)
- Arrange for an actuarial analysis of any legislation expected to have measurable financial impact on the system, within 60 days after introduction of the legislation. (RC 4121.125(C)(6) and (7) and 4121.125(G)).
- At least once every five (5) years, contract for an actuarial investigation of experience of employers; mortality, service

and injury rate of employees; and payment of benefits in order to update the assumptions on the annual actuarial report. (RC 4121.125(C)(4) and RC 4121.125(F))

- Review, and make recommendations to the Board, regarding rate-making administrative code rules. (RC 4121.12(F)(13)(a))

2. Coordinate with other Board Committees on issues of common interest, including but not limited to an annual discussion of actuarial issues which would impact the Board's statutory requirement to "... fix and maintain the lowest possible rates of premium consistent with the maintenance of a solvent state insurance fund ...".
3. At least annually, review this charter and submit any proposed changes to the Governance Committee and to the Board for approval.
4. Create, by majority vote, a subcommittee consisting of one or more Directors on the Committee. As appropriate, and in consultation with the Chair, appoint other Board members to the subcommittee. The subcommittee shall have a specific purpose. The subcommittee shall keep minutes of its meetings. The subcommittee shall report to the Committee. At any time, the Committee, by majority vote, may dissolve the subcommittee.
5. Perform such other duties required by law or otherwise as are necessary or appropriate to further the Committee's purposes or as the Board may from time to time assign to the Committee.

Draft 092607
Review & Approved 112107, Chuck Bryan, Chair
Revised 012408
Revised 092408
Annual Review and Revision 112108
Annual Review and Revision 112009
Annual Review and Revision 111910

Current Meeting Topics

Mortality study and Annuity Table rule 4123-17-60 is presented for a second reading and anticipated vote. Discussion this month will focus on the use of the annuity table factors. We will provide answers to several questions that were raised last month. An annuity factor is the result of combining life expectancy and investment income. For example, the life expectancy of a fifty-year old injured worker that is permanently and totally disabled is estimated to be 25.61 years or roughly 1,330 weeks. That figure is an average, so some will live longer and others shorter. As you will see in the materials for the meeting, and as was discussed last month, life expectancy calculations use the probability of surviving through each week, producing tables that extend to ages in excess of 100. The second element of the calculations incorporates our 4.0% discount rate as the investment income assumption. For the injured worker in our example, we expect to make 1,330 weekly payments. For each dollar of future PTD benefits we do not need to have the full amount today because our case reserves will increase at an annual rate of 4.0%. For example, for each dollar of the payment we expect to make in week 1,225, we need to have a present value of \$0.39695 today. When we combine life expectancy and present value, that figure drops to \$0.23369 because not all of those alive today will survive to this future date. When we add up these individual weekly payments, at present value and reflecting mortality, we need to have a total of \$793.31 today for every dollar of weekly benefit.

The public employer – taxing district (PEC) rate level recommendation is presented for a second reading and anticipated vote. We continue to recommend an overall rate decrease of 5.5% for these employers. This is the last of the major structural pieces for PEC rates beginning January 1, 2011. We will apply the new credibility table (65% maximum) and the group break-even factors that were approved in June 2010. Since last month we have finished analyzing the impacts of changes to group rosters and distributional changes by manual class. As a result, the changes to the three PEC segments (group, non-group, and retrospectively rated) as well as the overall decrease are:

Segment	Average Rate Level Change
Non-Group	-7.7%
Group	-1.0%
Retrospectively Rated Non-Group	-4.9%
Overall	-5.5%

The final element of PEC rates that will require board action is the rule containing base rates. This will be presented for a first reading. The base rates reflect the overall change mentioned above adjusted based on the actual claim costs within each manual classification from the experience in the oldest four of the last five years, or 2006 through 2009. The rule also contains expected loss rates (ELRs) and limited loss ratios (LLRs), which are used in experience rating.

Projects and Other Actuarial Activity

The tables and discussion below provide details on the various projects underway.

Split Experience Rating Plan Development

Larry King – Project Manager; Leads: Terry Potts and Jon Turnes		
Task/Function	Timeline	Status
Plan development at BWC		
Split experience plan parameters determined through actuarial modeling (also on Deloitte project list)	Jan 2010- Dec 2010	In-Progress & on target
Split experience plan development in Rates & Payments system	Sept 2009 to July 2010	In-Progress & on target
Split experience plan implementation in R&P (Beta Version)	July 1, 2011	Scheduled
Split experience plan full implementation and conversion	July 1, 2012	
Communications	8/1/2008 start	Continuing
Split experience plan discussions with TPA community on methodology for system programming purposes	Summer 2010	Continuing
Split experience plan training for BWC staff	Later October 2010	
Split experience plan training for external interested parties	Dec 2010 to Mar 2010	

- Split plan training has been scheduled for internal BWC field staff for the end of October. This training will cover the split plan programming and how a split plan EM is calculated. Follow up training will take place with BWC staff once the final split plan parameters are decided.
- Actuarial and employer operations developed a spreadsheet with the split plan formulas used in the calculation for external staff to use. This spreadsheet will assist external parties in programming their systems for the split plan.
- The split experience plan IT programming development is continuing. The final split experience plan parameters are still being developed by the BWC along with Deloitte. Deloitte and Actuarial have developed a schedule for their review.
- Scenarios 1, 2 and 3 have been completed. Have begun work on Scenario 4.
- Actuarial is reviewing the overall employer impacts as well as individual employer impacts.
- Multi-split experience programs are in testing. The first multi-split experience table will be run mid October 2010.

New Products

Project Lead: Joy Bush		
Task/Function	Timeline	Status
One Claim program review	September 2010 to December 2010	Beginning
Group Rating plan	July 2010 to June 2011	In progress

Base Rate Analysis Project

Project Lead: Liz Bravender		
Task/Function	Timeline	Status
Develop project plan with Deloitte Consulting, LLP	August 2010	In-Process
Evaluate the current rating process	August 2010 to November 2010	In-Process
Present findings to actuarial committee	January 2011	
Implement findings from evaluation and determine next steps		

- The first is the review of our base rate methodology and all the underlying factors. We will pull apart all of the elements, identify opportunities to improve our methods and increase stability, and create a plan to address recommended changes. Some changes may be possible with little change to the underlying computer code and could be implemented in time for the July 1, 2011 policy year. Other changes may take longer and could require statutory change. The plan we create will identify phases we can implement in the short, medium, and long term.
- The actuarial division and Deloitte have held initial planning meetings in August on the Base Rate Analysis Project. During this meeting actuarial staff went over the base rate methodology with Deloitte. The mission is to identify appropriate measures to bring greater stability and actuarial soundness to base rate changes.

State Agency Premium Calculation Analysis Project

Project Lead: Liz Bravender		
Task/Function	Timeline	Status
Develop project plan with Deloitte Consulting, LLP	August 2010	In-Process
Evaluate the current rating process	August 2010 to November 2010	In-Process
Present findings to actuarial committee	January 2011	
Implement findings from evaluation and determine next steps		

- The actuarial division and Deloitte have held initial planning meetings in August on the State agency premium calculation analysis project. During this meeting actuarial staff went over the methodology with Deloitte. The mission is to areas of improvement with an eye towards transparency and easy understanding.

January 1, 2011 Public Employer Taxing District (PEC) rates

Project Lead: Terry Potts		
Task/Function	Timeline	Status
Public Employer Taxing District Rate Calculation	July to December 2010	In-Process
Summary Payroll	July to August 2010	Completed
Summary Losses	July to August 2010	Completed
Rate Calculations	August to September 2010	Completed
Rate recommendation received from Deloitte	September 2010	Completed
Rate decision from WCB – Preliminary Base rates to WCB	October 2010	In-Process
Final Rates to WCB	November 2010	
Employer Rating Information available on ohiohwc.com	January 2011	

Deloitte Consulting Projects

Project Lead: Liz Bravender		
Task/Function	Timeline	Status
Mortality Study	Sept 2010	Completed
Actual vs. Expected data	Sept 2010	Completed
Reserve Estimate at June 30, 2010	Sept 2010	Completed
GASB 10 final report	Sept 2010	Completed
Retrospective rating premiums receivable;	Sept 2010	Completed
Opinion Letter; representation letter;	Sept 2010	Completed
SEC 10K run-off report.	Sept 2010	Completed
PEC rate recommendation	Sept 2010	Completed
Split experience Plan - assistance	Dec 2010	In-Progress
Group Rating plan development	Dec 2010	In-Progress
State Agency rate making review and recommendation	Dec 2010	In-Progress
Base Rate Calculation analysis	Dec 2010	In-Progress
PA Deductible analysis	Dec 2010	In-Progress
Risk of inflation on the DWRF fund	Feb 2011	In-Progress
Funding Ratio analysis	Feb 2011	In-Progress
Black Lung Fund –rate recommendation analysis	March 2011	In-Progress
PA rate recommendation	March 2011	Not Scheduled
Marine Fund rate recommendation	March 2011	Not Scheduled
DWRF 1 and 2 rate recommendation	March 2011	Not Scheduled
SI minimum assessment methodology review		Not scheduled
PA minimum premium assessment and security deposit	Fall 2011	Not scheduled
Actuarial Database update	Dec 2011	In-Progress

Actuarial Committee Calendar - 2010/2011

Date	October 2010
10/21/2010	1. Mortality Study and Annuity table rule 4123-17-60 - 2nd reading
	2. Public employer taxing districts rate change - 2nd reading
	3. Public employer taxing district base and expected loss rates rules 4123-17-33 and 4123-17-34 - 1 st reading
	4. Committee Charter - 1 st reading
Date	November 2010
11/18/2010	1. Public employer taxing district base and expected loss rates rules 4123-17-33 and 4123-17-34 - 2 nd reading
	2. Committee Charter - 2nd reading
	3. Market results for the new deductible plan
	4. Quarterly Reserve Update
Date	December 2010
12/15/2010	1. 2011 NCCI Classification Code Changes - 1st reading
	2. Experience Rating Education
Date	January 2011
1/20/2011	1. 2011 NCCI Classification Code Changes - 2 nd reading
	2. One Claim Program - rule 4123-17--71 - 1st reading
	3. Split experience rating plan rules - 1 st reading
	4. Base rate stability analysis
Date	February 2011
2/23/2011	1. One Claim Program - rule 4123-17--71 - 2nd reading
	2. Split Experience Rating Plan rules - 2 nd reading
	3. State of the Line report
	4. Black Lung Fund report
	5. Quarterly reserve update as of 12/31/10
	6. Funding ratio analysis update by Deloitte
	7. Public employer state agency rate calculation analysis - tentative
Date	March 2011
3/24/2011	1. Private employer rate change recommendation - 1 st reading
	2. Public employer state agency rate change recommendation- rule 4123-17-35 - 1 st reading
	3. Quarterly reserve analysis for financial reporting for fiscal year ending June 30, 2011 based on data as of December 31, 2010

Actuarial Committee Calendar - 2010/2011

Date	April 2011
4/28/2011	1. Private employer rate change recommendation - 2 nd reading
	2. Public employer state agency rate change recommendation- rule 4123-17-35 - 2nd reading
	3. Private employer base rates and expected loss rates - rules 4123-17-05 and 4123-17-06 - 1 st reading
	4. Marine Industry Fund - rule 4123-17-19 - 1 st reading
	5. Coal-Workers' Pneumoconiosis Fund - rule 4123-17-20 - 1st reading
	6. Disabled Workers' Relief Fund and Additional Disabled Workers' Relief Fund rule 4123-17-29 - 1 st reading
Date	May 2011
5/26/2011	1. Private employer base rates and expected loss rates - rules 4123-17-05 and 4123-17-06 - 2 nd reading
	2. Marine Industry Fund - rule 4123-17-19 - 2 nd reading
	3. Coal-Workers' Pneumoconiosis Fund - rule 4123-17-20 - 2 nd reading
	4. Disabled Workers' Relief Fund and Additional Disabled Workers' Relief Fund rule 4123-17-29 - 2 nd reading
	5. Self-Insured assessments - rule 4123-17-32 - 1 st reading
	6. Administrative Cost Fund - rule 4123-17-36 - 1 st reading
	7. Safety & Hygiene assessment- 1 st reading
	8. Reserve update for financial reporting for fiscal year ending June 30, 2011 and projection for June 30, 2012 based on data as of March 31, 2011
	9. Group Rating program changes - 1 st reading
NOTE - CAN BE DONE IN AN EARLIER MEETING	10. Public employer taxing districts credibility table effective 1-1-2012- rule 4123-17-33.1 - 1 st reading
	11. Public employer taxing districts group break even factor rule 4123-17-64.2 - 1 st reading
Date	June 2011
6/15/2011	1. Administrative Cost Fund - rule 4123-17-36 - 2 nd reading
	2. Self-Insured Assessments - rule 4123-17-32 - 2 nd reading
	3. Safety & Hygiene assessment - 2 nd reading
	4. Group Rating program changes - 2 nd reading
NOTE - CAN BE DONE IN AN EARLIER MEETING	5. Public employer taxing districts credibility table effective1-1-2012- rule 4123-17-33.1 - 2 nd reading
	6. Public employer taxing districts group break even factor rule 4123-17-64.2 - 2 nd reading
	7. State-by-State Rate Comparison
Date	July 2011
7/28/2011	1. Reserve adjustments as of June 30, 2011 - discussion if necessary
	2. Reserve Audit as of 6-30-2011
	3. Group rating rule changes - 1 st reading
Date	August 2011
8/25/2011	1. Final Reserve Audit as of June 30, 2011 and quarterly reserve true up for financial reporting for fiscal year ending June 30, 2011 and updated estimate for fiscal year ending June 30, 2012 based on data as of June 30, 2011
	2. Group rating rule changes - 2 nd reading
Date	September 2011
9/29/2011	1. Safety & Hygiene is found in rule 4123-17-37 - 1st reading
	2. Annuity table rule 4123-17-60 - 1 st reading
	3. Public employer taxing districts rate change - 1 st reading

Actuarial Committee Calendar - 2010/2011

Date	October 2011
10/27/2011	1. PEC Base Rate and Expected Loss rates rule 4123-17-33 and 4123-17-34 - 1 st reading
	2. PEC group Break even factor rule 4123-17-64.2 - 1 st reading
	3. Safety & Hygiene assessment rate - rule 4123-17-37 - 2 nd reading
Date	November 2011
11/17/2011	1. Quarterly reserve update
	2.
Date	December 2011
12/14/2011	1.