

**Testimony Submission to the Public Hearing Regarding
Delaware Compensation and Rating Bureau Filing No. 1305
Dated October 9, 2013**

**Submitted by John R. Pedrick, FCAS, MAAA
INS Consultants, Inc.**

Q: Please state your name

A: John R. Pedrick.

Q: By whom are you employed?

A: INS Consultants, Inc. (INS).

Q: What is your position with INS?

A: Actuary.

Q: How did INS become involved with this proceeding?

A: INS is engaged by the Delaware Insurance Department (the Department) to conduct an independent actuarial review of the Delaware Compensation and Rating Bureau (DCRB) Filing No. 1305 dated October 9, 2013 (the Filing). The scope includes an evaluation of the key assumptions contained in the DCRB's analysis of prospective rates and loss costs and the development of an overall indicated change in involuntary market rate level and voluntary market loss cost level. Our report (Report) is attached as Exhibit A and is incorporated in its entirety into my testimony.

Q: What is the purpose of your testimony?

A: The purpose of my testimony is to present my professional qualifications related to preparation of the Report, to summarize briefly the findings of the Report, and to present the Report in its entirety as an exhibit incorporated into my testimony.

Q: What are your professional qualifications in connection with your preparation of the Report?

A: I am a Fellow of the Casualty Actuarial Society and a member of the American Academy of Actuaries (AAA). I meet Qualification Standards of the AAA to provide a statement of actuarial opinion regarding the Filing. A brief summary of my professional background and credentials is attached as Exhibit B and is incorporated in its entirety into my testimony.

Q: Was the Report prepared in accordance with generally accepted actuarial practices?

A: Yes.

Testimony of John Pedrick (continued)

Q: You have testified that INS is engaged by the Department to review the Filing and to prepare the Report. Please explain briefly what your review entailed, and summarize your findings.

A: As described in our report, INS reviewed the filing, and analyzed the experience data in the filing to calculate overall indicated changes in residual market rates and voluntary market loss costs. The INS indicated changes are +20.98% and +23.80%, respectively.

Q: Did the indicated changes as determined by INS differ significantly from the indicated changes contained in the DCRB filing?

A: Yes.

Q: Please explain the principal differences between the overall indicated changes as determined by INS and the overall indicated changes contained in the DCRB filing.

A: The differences between the indicated changes calculated by the DCRB and by INS are due to the loss development methods used to project historical loss experience to its ultimate future value, and in the selection of cost trends. In this filing, as in previous years' filings, the DCRB utilized two standard actuarial methods for estimating the ultimate value of the costs of claims from past policy years: the Paid Loss Development and the Incurred Loss Development methods. INS incorporated the results of four standard actuarial methods in its analysis: the two methods used by the DCRB, as well as the Paid Bornhuetter-Ferguson and the Incurred Bornhuetter-Ferguson methods.

Q: Why did INS select the Paid Bornhuetter-Ferguson and the Incurred Bornhuetter-Ferguson methods in addition to the Paid Loss Development and the Incurred Loss Development methods utilized by the DCRB?

A: These two additional methods are used by many actuaries when the data exhibits significant leveraging in paid and incurred losses. For both policy years 2010 and 2011, the data generated age to ultimate Loss Development Factors of 2.0 or greater. For indemnity losses in policy year 2011, the paid factor is greater than 5.0. The Bornhuetter-Ferguson methods mitigate the impact of leverage and produce more stable results. Such methods are appropriate in these circumstances. All of these methods are generally accepted actuarial practices.

Q: What is the impact on the overall indicated change of the additional methods used by INS?

A: The additional methods resulted in lower projections of future costs, and account for fifteen percentage points of the difference from DCRB's indicated changes. The estimates of future costs are then used in the analysis of claim severity trends in both the DCRB and INS analyses. Since the INS estimates of future costs are lower, the INS estimates of claim severity are also lower and account for an additional three percentage points of the difference from the DCRB's indicated changes.

Q: Do you wish to add anything else to your testimony.

A: Yes. The INS report includes a narrative and exhibits numbered 1 through 7. It should be read in its entirety, and treated as a whole.


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DATE: November 7, 2013

TO: Gene Reed, Deputy Insurance Commissioner, State of Delaware

FROM: John R. Pedrick, Actuary, INS Consultants, Inc.

SUBJECT: 2013 DCRB Workers Compensation Residual Market Rates and Voluntary Market Loss Costs -- Bureau Filing No. 1305, Dated October 9, 2013

INS Consultants, Inc. (INS) has been engaged by the Delaware Insurance Department (the Department) to review the Delaware Compensation Rating Bureau (DCRB) Workers Compensation Bureau Filing No. 1305 dated October 9, 2013. The filing requests an overall rate level change of +38.52% for the residual market rates and requests an overall loss cost level change of +41.75% for the voluntary market loss costs. These filed amounts were based on indicated changes of +38.52% for the residual market rates and +41.75% for the voluntary market loss costs.

INS has reviewed the filing. INS used the experience data in the filing to calculate indicated changes in residual market rates and voluntary market loss costs. The INS indicated changes are +20.98% and +23.80% respectively. The attached exhibits present the derivation of these figures.

The following table presents a comparison of the DCRB and INS indicated changes:

	<u>Comparison of Indicated Changes</u>	
	DCRB	INS
Residual Market Rates	+38.52%	+20.98%
Voluntary Market Loss Costs	+41.75%	+23.80%

The indicated changes are based upon policy-year premium and loss data through policy-year 2011 evaluated as of December 31, 2012.

This analysis was performed by John R. Pedrick, FCAS, MAAA and was peer reviewed by Robert W. Gardner, FCAS, MAAA.

Details of the INS analysis

In the derivation of the indications, INS reviewed and accepted the following key parameters as presented by the DCRB:

INS reviewed and accepted the Permissible Loss and Loss Adjustment Expense (“LAE”) Ratio of 70.09%. This acceptance is based on the review and acceptance of the projected figures for underwriting expenses and the required need for profit. Note that this acceptance relates primarily to the determination of the residual market rates, since the voluntary market loss costs are calculated without a provision for expenses (other than LAE) and profit. The expense and profit component of an insurer’s final rates for the voluntary market are determined in the adoption filings to be submitted to the Department.

INS reviewed and accepted the July 1, 2014 anticipated benefit change of +0.32% together with past benefit level changes included in the adjustment of past losses.

INS reviewed and accepted the Senate Bill 1 (SB-1) adjustment of -17.4%, the Senate Bill 238 (SB-238) adjustment of -0.42%, and the House Bill 175 (HB-175) adjustment of -7.11% applied to the medical losses. The SB-1 adjustment is consistent with the Department’s agreement from earlier filings. The SB-238 and HB-175 adjustments are based on analyses included in this filing.

INS reviewed and accepted the Excess Loss Factor of 11.87% as derived by the DCRB. The data in the filing supports the use of this factor to account for losses above the basic limits level used in the estimation of the indicated change.

INS reviewed and accepted the Loss Adjustment Expense Factor of 1.1972 as derived by the DCRB. The data in the filing supports the use of this factor to account for loss adjustment expenses in the projection of future costs.

INS reviewed and accepted the premium development factors for projecting the final premiums by policy year after all premium adjustments will have been made.

The following items require some further review and discussion in the analysis of the data. The discussion includes the incremental steps from the DCRB's indicated change, +41.75%, to the INS indicated change, +23.80%, for the voluntary market.

Loss Development Factors: For both the paid and incurred loss development factors (LDFs), INS independently selected factors based on the data in the filing. Where the DCRB processed their selections through a fitting technique, INS elected to select factors based on the observed link ratios. The INS selections were based on averaging two measures of central tendency: the mean of the latest four years of the observed link ratios and the median of the latest four years of observed link ratios. The selection of LDFs reduced the voluntary market indicated change by 0.73 percentage points from the DCRB's indicated change.

Selections of Ultimate Loss: For selecting estimates of ultimate indemnity and medical loss, the DCRB relied upon the average of the paid development method and the incurred development method.

Under both the DCRB and INS analyses, for both indemnity and medical losses, the paid LDFs for 2010 and 2011, and the incurred LDF for 2011 exceeded 2.000. A factor over 2.000 means that less than 50% of the ultimate amount has been paid (for paid LDF) or less than 50% has been reported (for incurred LDF). As a result, INS relied on the average of the paid and incurred development methods for all years through 2009.

For 2011, the LDFs for both paid and incurred, medical and indemnity losses are all above 2.000. For this year, INS used the average of the paid and incurred Bornhuetter-Ferguson methods, which reduced the voluntary market indicated change by an additional 10.18 percentage points from the DCRB indicated change.

For 2010, the LDFs for both paid medical and paid indemnity losses are above 2.000, while the LDFs for incurred medical and incurred indemnity losses are below 2.000. As a result, INS relied on the average of four methods: the paid and incurred development methods and the paid and incurred Bornhuetter-Ferguson methods. This reduced the voluntary market indicated change by an additional 4.26 percentage points from the DCRB indicated change.

The Bornhuetter-Ferguson method is a generally accepted actuarial practice for estimating unpaid claim amounts, particularly for immature years, where the loss development methods can have a significant leveraging affect. For incurred loss, the Bornhuetter-Ferguson Incurred Development Method is a target loss ratio approach with scheduled amortization of reserves. The method calculates the estimated Incurred But Not Reported (IBNR) losses as the product of the applicable earned premium, the expected loss ratio, and the percentage of ultimate loss undeveloped at the respective valuation date. The derivation of the percentage undeveloped utilizes the age-to-ultimate development factors derived in the Incurred Loss Development Method. The IBNR is added to the reported incurred losses to estimate the ultimate losses. Similarly, for paid losses, the Bornhuetter-Ferguson Paid Development Method calculates the estimated unpaid as the product of the applicable earned premium, the expected loss ratio, and the percentage of ultimate loss unpaid at the respective valuation date. The derivation of the percentage unpaid utilizes the age-to-ultimate development factors derived in the Paid Loss Development Method. The unpaid is added to the paid to estimate the ultimate losses.

In applying these methods, the actuary must estimate an Initial Expected Loss Ratio (IELR) for the amortization of the reserves. For 2010 and 2011, INS elected to rely upon the average of the ultimate loss ratios from the four prior policy years after consideration of trend. For policy year 2010, ultimate loss ratios for 2006 through 2009 were trended to 12/31/2010. For policy year 2011, ultimate loss ratios for 2007 through 2010 were trended to 12/31/2011. For purposes of trending to estimate the IELR, INS used exponential fits for frequency and severity based on the seven years immediately prior to the year for which losses are being estimated.

Note that the trending involved in the IELR, as mentioned above, is for the purpose of estimating a pure loss ratio for policy years 2010 and 2011, as of December 31 of those respective years. This differs from the trending discussed in the following paragraphs used to determine the projected loss and LAE ratio for the cohort of policies to be written in the future period from December 1, 2013 through November 30, 2014.

Frequency Trend: After examining the fits of data across differing time periods, INS agrees with the DCRB's frequency trend selection of -5.1% representing the annual change in claims frequency.

Indemnity Severity Trend: The DCRB selected an annual trend factor of +4.7% for projecting the severity of indemnity losses. The figure is equal to the fitted average annual change based upon a 7-year exponential regression. INS performed an exponential fit of the

values over a 10-year period, 7-year period, 5-year period, and 4-year period for estimating the annual severity trend. INS selected the 7-year value, but because the INS severities are derived from different estimates of ultimate loss values (see “Loss Development Factors” and “Selections of Ultimate Loss” above), INS’ resulting exponential fitted average annual change is +3.1%.

Medical Severity Trend: The DCRB selected annual trend factors for three contiguous time frames. For medical costs prior to, and up through September 1, 2008, the DCRB used the fitted average annual change of +14.0%, based on a 7-year exponential regression. For medical costs from September 1, 2008 to January 31, 2013, the DCRB adjusted the fitted trend downward by 1.5 points to +12.5%. For medical costs after January 31, 2013, the DCRB adjusted the 7-year fitted trend downward by 1.8 points to +12.2%. INS followed the DCRB method of adjusting fitted trend due to legislative changes. INS performed an exponential fit of the values over a 10-year period, a 7-year period, a 5-year period, and a 4-year period for estimating the annual severity trend. INS selected the 7-year value, but because the INS severities are derived from different estimates of ultimate loss values (see “Loss Development Factors” and “Selections of Ultimate Loss” above), the resulting exponential fitted average annual change is lower, at +11.8%. The table below summarizes the trend figures used in both the DCRB and INS analyses.

Summary of Frequency and Severity Trend		
	DCRB	INS
Claim Frequency	-5.1%	-5.1%
Indemnity Severity	+4.7%	+3.1%
Medical Severity, up to 9/1/08	+14.0%	+11.8%
From 9/1/08 to 1/31/13	+12.5%	+10.3%
After 1/31/13	+12.2%	+10.0%

The severity trend selections made by INS reduced the voluntary market indicated change by an additional 2.78 percentage points from the DCRB indicated change.

Average Loss Ratio: In both the DCRB and the INS approaches, for both Indemnity and Medical, the indicated rate level need relies upon the average of the latest four policy years’ loss and LAE ratios.

Summary of differences

The following table summarizes the effects of the major differences between the DCRB and INS indications for the voluntary market. Exhibit 7 provides a chart of these incremental differences.

DCRB Voluntary Market Loss Cost Indicated Change	+41.75%
1. INS Loss Development Factors	-0.73%
2. INS Use of Bornhuetter-Ferguson Methods for Policy Year 2011	-10.18%
INS Use of Bornhuetter-Ferguson Methods for Policy Year 2010	-4.26%
3. INS Severity Trend Selection	-2.78%
INS Voluntary Market Loss Cost Indicated Change	+23.80%

Descriptions of the exhibits

Exhibit 1 is structured to compare directly to the DCRB’s Exhibit I (“Brown Book”) in deriving the indicated changes. Line 1 represents the selected value for the projected loss and LAE ratios separately for indemnity and medical, with losses capped at the loss limitation. Line 2 shows the -17.4% adjustment to the projected medical loss ratio to account for the effects of SB-1 [0.8260 = 1.000 - 0.1740]. Line 3 shows the -0.42% adjustment to the projected medical loss ratio to account for the effects of SB238 [0.9958 = 1.0000 – 0.0042]. Line 4 shows the -7.11% adjustment to the projected medical loss ratio to account for the effects of HB175 [0.9289 = 1.0000 – 0.0711]. Line 5 calculates the combined effect of these legislative changes. Line 6 shows the resulting loss ratios. Line 7 shows the 11.87% Excess Loss Factor accepted by INS. Line 8 restates the loss and LAE ratios at full value including the excess losses. Line 9 shows the Permissible Loss and LAE Ratio accepted by INS. Line 10 shows the preliminary indicated change in Residual Market Rates before adjustment for the anticipated benefit change on 7/1/14. Line 12 shows the indicated change in Residual Market Rates. Line 13 removes the effects of the changes in expense and profit load to calculate the indicated change in voluntary market loss costs.

Exhibit 2, Page 1, shows the derivation of the projected indemnity loss ratio for the 12/1/13 to 11/30/14 prospective policy period. The loss and LAE ratios for 2005 through 2011, from Exhibit 4, Page 1, are projected to the average exposure date for the prospective policy period. The severity trend factors developed in this exhibit use the annual severity trend derived in Exhibit 3, Page 2. The frequency trend factors are from Exhibit 3, Page 1. Column 6 shows the projected loss and LAE ratios for 2005 through 2011. INS selected the average of the most

recent four years (2008 to 2011) as its projected indemnity loss ratio for the prospective policy period.

Exhibit 2, Page 2, shows the derivation of the projected medical loss ratio for the 12/1/13 to 11/30/14 prospective policy period. The loss and LAE ratios for 2005 through 2011, from Exhibit 4, Page 2, are projected to the average exposure date for the prospective policy period. INS followed the DCRB approach in making adjustments for SB-1. Severity trend is calculated over three contiguous time periods. The severity trend for medical costs is a 7-year fitted trend, derived in Exhibit 3, Page 2, and is applied to medical costs through September 1, 2008. For the period from September 1, 2008 through January 31, 2013, the 7-year fitted trend is reduced by 1.5 percentage points. For medical costs after January 31, 2013, the 7-year fitted trend is reduced by 1.8 percentage points. The adjustments reflect the impact of SB-1. The frequency trend factors are from Exhibit 3, Page 1. Column 15 shows the projected loss and LAE ratios for 2005 through 2011. INS selected the average of the most recent four years (2008 to 2011) as its projected medical loss ratio for the prospective policy period.

Exhibit 3, Page 1, shows the derivation and selection of annual frequency trend. The analysis uses normalized frequency, which is the ratio of reported claim frequency for each year divided by the reported claim frequency for 1999. (The normalization has no impact on the calculations of frequency trend, but is used in the following analysis of severity trend.) INS calculated 13-year, 10-year, 7-year, 5-year, and 4-year exponential fitted trend. The results support the acceptance of the DCRB's selection of -5.1% to represent the annual change in claim frequency. Columns 2, 3, 8, and 9 contain the key figures for the frequency trend analysis used in projecting costs to the prospective policy period. Columns 4 through 7, and 10 through 13 provide the frequency trend analyses used in Exhibit 6.

Exhibit 3, Page 2, shows the derivation and selection of annual severity trend. Separately for indemnity and medical losses, ultimate loss ratios are divided by relative frequency, producing severity loss ratios for each year. That is, the ultimate loss ratios have a frequency and a severity component. Dividing by normalized frequency leaves only the severity component needed for the analysis in this exhibit. INS calculated 10-year, 7-year, 5-year, and 4-year exponential fitted trend. The results support the selection of the 7-year fitted severity trends of +3.1% for indemnity and +11.8% for medical. The INS trend selections differ from the DCRB selections, even though both are based on 7-year fitted trend calculations, because the ultimate loss ratios selected by INS and used in this analysis are different for the most recent two years (see Exhibit 4 and "Loss Development Factors", "Selection of Ultimate Loss" above). Columns 1 through 5 are the basis for the INS severity analysis. Columns 6 through 9 contain the key

figures for the severity trend analysis used in projecting costs to the prospective policy period. Columns 10 through 17 provide the severity trend analyses used in Exhibit 6.

Exhibit 4 shows the derivation of the ultimate loss and LAE values with Page 1 for indemnity and Page 2 for medical. Premiums are shown as developed to ultimate value. Paid and incurred development factors are applied to paid and incurred losses, respectively. For indemnity, benefit level changes are included in the estimates of the ultimate losses. The selected ultimate indemnity loss values are those resulting from the average of the paid and incurred development methods in policy years 2002 through 2009. For 2010, selected ultimate indemnity loss values result from an average of estimates from four methods: paid and incurred loss development, and paid and incurred Bornhuetter-Ferguson. For 2011, selected ultimate indemnity loss values result from an average of the paid and incurred Bornhuetter-Ferguson methods. Procedures outlined in the “Exhibit 6” paragraph below describe the derivation of the Initial Expected Loss Ratios. In both the indemnity and the medical estimates, the final column accounts for the loss adjustment expenses through the inclusion of the 1.1972 LAE factor.

Exhibit 5 provides the derivations of the paid loss development factors and the incurred loss development factors. INS used the DCRB link ratios, and selected the average of two measures of central tendency: the 4-year average and the 4-year median of the four most recent years.

Exhibit 6 provides the derivation of the Initial Expected Loss Ratios for use in the Bornhuetter-Ferguson methods that are applied to policy years 2010 and 2011 indemnity and medical losses. The IELRs for indemnity are derived on Page 1a for 2011 and Page 1b for 2010. Severity trend from Exhibit 3, Page 2, and frequency trend from Exhibit 3, Page 1, are applied to the ultimate loss ratios from Exhibit 4, for the four policy years preceding the one for which the IELR is to be estimated. The IELRs for medical are derived similarly on Page 2a for 2011 and Page 2b for 2010. In each case, the selected IELR is the average of the trended ultimate loss ratio for the four years shown.

Exhibit 7 is a chart that illustrates the impact of the major elements of the INS analysis and the resulting incremental steps in the voluntary market indicated change from the DCRB’s result to INS’ result.

Throughout this analysis, all source documentation citing the DCRB Filing refers to the DCRB’s so-called “Brown Book” as filed.

Closing

The INS review is focused only on the overall statewide rate level change. Changes in classification relativities are accepted without review, based on the controls present in the DCRB and in the procedures for review by an actuarial panel. INS finds that the filing request for the overall change is higher than indicated by the INS review. The INS findings pertain solely to the DCRB Delaware Workers Compensation Bureau Filing No. 1305, submitted October 9, 2013.



John R. Pedrick, FCAS, MAAA
INS Consultants, Inc.

DELAWARE COMPENSATION RATING BUREAU
 DCRB Bureau Filing No. 1305, Proposed Effective December 1, 2013
 INS RATE LEVEL INDICATION

Exhibit 1

	Indemnity	Medical	Total
(1) Trended Policy Year Loss & LAE Ratio for Policy Period 12/01/13-12/01/14	0.2407	0.6599	0.9006
(2) Senate Bill 1 Adjustment	1.0000	0.8260	
(3) Senate Bill 238 Adjustment	1.0000	0.9958	
(4) House Bill 175 Adjustment	1.0000	0.9289	
(5) Combined Legislative Adjustment	1.0000	0.7640	
(6) Trended Loss & LAE Ratio Adjusted for Legislative Changes	0.2407	0.5042	0.7449
(7) Excess Loss Factor			0.1187
(8) Trended Loss & LAE Ratio with Excess Load			0.8452
(9) Permissible Loss & LAE Ratio			0.7009
(10) Preliminary Indicated Rate Change in Residual Market Rates			1.2059
(11) Estimated Effect of 07/01/14 Benefit Change			1.0032
(12) Indicated Change in Residual Market Rate Level			1.2098
(13) Indicated Change in Voluntary Loss Costs			1.2380

Notes:

- (1) from INS Exhibit 2, Page 1, Column 6 (Indemnity); Exhibit 2, Page 2, Column 15 (Medical)
- (2) through (5) from DCRB Filing Exhibit I, Lines 3ai, 3aii, 3aiii, 3a
- (5) = (2) x (3) x (4)
- (6) = (1) x (5) separately for Indemnity and Medical
- (7) from DCRB Filing Exhibit I, Line 4a
- (8) = (6) / [1 - (7)]
- (9) from DCRB Filing Exhibit I, Line 6
- (10) = (8) / (9)
- (11) from DCRB Filing Exhibit I, Line 8
- (12) = (10) x (11)
- (13) = (12) x 0.7239 / 0.7074, per DCRB Filing Exhibit I, Line 10

Workers' Compensation Indemnity
 Derivation of Trended Loss Ratio

Policy Year	(1) Ultimate Loss & LAE Ratio	(2) Selected Indemnity Severity Trend	(3) Number of Years to 12/01/14	(4) Severity Trend Factor	(5) Frequency Trend factor	(6) Trended Loss & LAE Ratio
2005	0.3044	3.1%	8.9167	1.3129	0.6263	0.2503
2006	0.2949	3.1%	7.9167	1.2734	0.6600	0.2478
2007	0.2835	3.1%	6.9167	1.2351	0.6956	0.2436
2008	0.2550	3.1%	5.9167	1.1980	0.7331	0.2239
2009	0.2731	3.1%	4.9167	1.1620	0.7726	0.2452
2010	0.2578	3.1%	3.9167	1.1270	0.8142	0.2366
2011	0.2742	3.1%	2.9167	1.0931	0.8581	0.2572
					4-yr avg	0.2407

Notes

- (1) from INS Exhibit 4, Page 1, Col 15
- (2) from INS Exhibit 3, Page 2, Selected Col 6
- (3) by calculation of difference between 12/31/xx and 12/01/14
- (4) = [1.0 + (2)] ^ (3)
- (5) From INS Exhibit 3, Page 1, Col 9
- (6) = (1) x (4) x (5)

Workers' Compensation Medical
Derivation of Trended Loss Ratio

(1) Medical severity trend prior to 9/1/08	11.8%
(2) Adjustment for S.B.1 from 9/1/08 to 1/31/13	-1.5%
(3) Medical severity trend 9/1/08 to 1/31/13	10.3%
(4) Adjustment for S.B.1 after 1/31/13	-1.8%
(5) Medical severity trend subsequent to 1/31/13	10.0%

	(6)	(7)	(8)	(9)	(10)	(11)
					Severity Trend Factor	
Policy Year	Number of Years to 09/01/08	Severity Trend Factor to 09/01/08	Number of Years to 01/31/13	Severity Trend Factor from 09/01/08 to 01/31/13	from 01/31/13 to 12/01/14	Severity Trend Factor
2005	2.6667	1.3464	4.4167	1.5418	1.1909	2.4722
2006	1.6667	1.2043	4.4167	1.5418	1.1909	2.2113
2007	0.6667	1.0772	4.4167	1.5418	1.1909	1.9779
2008	-	1.0000	4.0833	1.4923	1.1909	1.7772
2009	-	1.0000	3.0833	1.3529	1.1909	1.6112
2010	-	1.0000	2.0833	1.2266	1.1909	1.4608
2011	-	1.0000	1.0833	1.1120	1.1909	1.3243

	(12)	(13)	(14)	(15)
Policy Year	Frequency Trend factor	Ultimate Loss & LAE Ratio	Loss Ratio Trend Factor	Trended Loss & LAE Ratio
2005	0.6263	0.4517	1.5483	0.6994
2006	0.6600	0.4303	1.4595	0.6280
2007	0.6956	0.4729	1.3758	0.6506
2008	0.7331	0.4565	1.3029	0.5948
2009	0.7726	0.5111	1.2448	0.6362
2010	0.8142	0.5924	1.1894	0.7046
2011	0.8581	0.6196	1.1364	0.7041
			4-yr avg	0.6599

Notes:

- | | |
|--|--|
| (1) from INS Exhibit 3, Page 2, Selected Col 8 | (10) = [1.0 + (5)] ^ (22/12) |
| (2) from DCRB Exhibit VII-2 | (11) = (7) x (9) x (10) |
| (3) = (1) - (2) | (12) from INS Exhibit 3, Page 1, Column 9 |
| (4) from DCRB Exhibit VII-2 | (13) from INS Exhibit 4, Page 2, Column 14 |
| (5) = (1) - (4) | (14) = (11) x (12) |
| (6) difference between 12/31/xx and 09/01/08 | (15) = (13) x (14) |
| (7) = [1.0 + (1)] ^ (6) | |
| (8) difference between 09/01/08, (12/31/xx for 2008 to 2011), and 01/31/13 | |
| (9) = [1.0 + (3)] ^ (8) | |

Derivation of Frequency Trend

Policy Year	(1)	(2)			(3)			(4)			(5)			(6)			(7)		
	Normalized Frequency	Trend Using All Years			R-squared			Trend Using 1999 to 2010			R-squared			Trend Using 1999 to 2009			R-squared		
		Annual Trend			Annual Trend			Annual Trend			Annual Trend			Annual Trend			Annual Trend		
1999	1.0000	13-yr-fit	-6.8%	97.2%	12-yr-fit	-7.0%	95.3%	11-yr-fit	-7.5%	96.9%									
2000	0.9066	10-yr-fit	-6.7%	94.9%	10-yr-fit	-6.8%	94.1%	10-yr-fit	-7.4%	96.8%									
2001	0.7903	7-yr fit	-5.1%	90.9%	7-yr fit	-6.1%	90.1%	7-yr fit	-7.9%	94.5%									
2002	0.8007	5-yr fit	-3.7%	76.4%	5-yr fit	-4.7%	78.1%	5-yr fit	-6.6%	94.2%									
2003	0.7663	4-yr fit	-2.2%	55.1%	4-yr fit	-2.2%	56.9%	4-yr fit	-6.5%	88.5%									
2004	0.6751																		
2005	0.6041	Selected	-5.1%		Selected	-6.1%		Selected	-7.9%										
2006	0.5686																		
2007	0.5276																		
2008	0.4692																		
2009	0.4719																		
2010	0.4714																		
2011	0.4354																		

	(8)	(9)	(10)	(11)	(12)	(13)		
	Number of Years	Trend Factor	Number of Years	Trend Factor	Number of Years	Trend Factor		
Policy Year	to 12/01/14		to 12/31/11		to 12/31/10			
2005	8.9167	0.6263	2005	6.0000	0.6853	2005	5.0000	0.6611
2006	7.9167	0.6600	2006	5.0000	0.7298	2006	4.0000	0.7182
2007	6.9167	0.6956	2007	4.0000	0.7773	2007	3.0000	0.7801
2008	5.9167	0.7331	2008	3.0000	0.8278	2008	2.0000	0.8474
2009	4.9167	0.7726	2009	2.0000	0.8816	2009	1.0000	0.9206
2010	3.9167	0.8142	2010	1.0000	0.9390			
2011	2.9167	0.8581						

Notes:

- (1) from DCRB Filing Exhibit VII-3
- (2) through (7) from exponential regression of (1) across indicated years
- (8) by calculation of difference between 12/31/xx and 12/01/14
- (9) = [1 + Selected (2)] ^ (8)
- (10) by calculation of difference between 12/31/xx and 12/31/11 for IELRs in Exhibit 6, Pages 1a and 2a
- (11) = [1 + Selected (4)] ^ (10)
- (12) by calculation of difference between 12/31/xx and 12/31/10 for IELRs in Exhibit 6, Pages 1b and 2b
- (13) = [1 + Selected (6)] ^ (12)

Workers' Compensation Severity
Derivation of Severity Trend

Policy Year	(1) Normalized Frequency	(2) Indemnity Ultimate Loss Ratio	(3) Indemnity Severity Loss Ratio	(4) Medical Ultimate Loss Ratio	(5) Medical Severity Loss Ratio
2002	0.8007	0.3156	0.3942	0.4113	0.5137
2003	0.7663	0.3122	0.4074	0.4169	0.5440
2004	0.6751	0.2636	0.3905	0.3861	0.5719
2005	0.6041	0.2543	0.4210	0.3773	0.6246
2006	0.5686	0.2463	0.4332	0.3594	0.6321
2007	0.5276	0.2368	0.4488	0.3950	0.7487
2008	0.4692	0.2130	0.4540	0.3813	0.8127
2009	0.4719	0.2281	0.4834	0.4269	0.9046
2010	0.4714	0.2153	0.4567	0.4948	1.0496
2011	0.4354	0.2290	0.5260	0.5175	1.1886

Trend Using 2002 to 2011

	(6) Indemnity Severity Trend	(7) R-squared	(8) Medical Severity Trend	(9) R-squared
10-yr-fit	2.9%	85.3%	9.8%	92.4%
7-yr-fit	3.1%	76.8%	11.8%	96.1%
5-yr-fit	3.3%	59.8%	12.5%	97.5%
4-yr-fit	3.9%	53.5%	13.8%	99.1%
Selected	3.1%		11.8%	

Trend Using 2002 to 2010 (for IELRs in Exhibit 6)

	(10) Indemnity Severity Trend	(11) R-squared	(12) Medical Severity Trend	(13) R-squared
9-yr-fit	2.5%	84.5%	9.2%	92.7%
7-yr-fit	2.9%	80.1%	10.6%	95.0%
5-yr-fit	1.8%	50.3%	12.8%	98.3%
4-yr-fit	1.2%	19.6%	11.9%	96.7%
Selected	2.9%		10.6%	

Trend Using 2002 to 2009 (for IELRs in Exhibit 6)

	(14) Indemnity Severity Trend	(15) R-squared	(16) Medical Severity Trend	(17) R-squared
8-yr-fit	2.9%	90.0%	8.4%	94.0%
7-yr-fit	3.2%	89.8%	9.0%	94.7%
5-yr-fit	3.3%	94.7%	10.4%	95.7%
4-yr-fit	3.5%	91.9%	12.3%	98.8%
Selected	3.2%		9.0%	

(1) from DCRB Filing Exhibit VII-3
(2) from INS Exhibit 4, Page 1, Col (13)
(3) = (2) / (1)
(4) from INS Exhibit 4, Page 2, Col (12)
(5) = (4) / (1)
(6), (7), (10), (11), (14), (15) from exponential regression of (3) across indicated years
(8), (9), (12), (13), (16), (17) from exponential regression of (5) across indicated years

Development of Ultimate Loss and LAE

Indemnity

Policy Year	(1) Ult. Std. Earned Premium (At Current Rates)	(2) Paid Loss	(3) Incurred Loss	(4) Paid Loss Dev. Factor	(5) Incurred Loss Dev. Factor	(6) 7/1/13 Benefit Factor	(7) Indemnity IELR	(8) Paid LDF Ult. Loss	(9) Incurred LDF Ult. Loss	(10) Paid BF Ult. Loss	(11) Incurred BF Ult. Loss	(12) Selected Ult. Loss	(13) Selected Ult. Loss Ratio	(14) LAE Factor	(15) Ult. Loss & LAE Ratio
2002	144,483,284	35,323,677	37,352,337	1.1235	1.0389	1.1619						45,599,634	0.3156	1.1972	0.3778
2003	151,226,238	36,407,050	39,597,450	1.1490	1.0471	1.1338						47,219,477	0.3122	1.1972	0.3738
2004	178,652,130	36,329,321	38,632,924	1.1827	1.0639	1.1205						47,099,241	0.2636	1.1972	0.3156
2005	193,047,458	36,390,212	41,228,537	1.2156	1.0824	1.1050						49,096,095	0.2543	1.1972	0.3044
2006	196,948,585	34,955,071	40,811,076	1.2748	1.1046	1.0821						48,500,068	0.2463	1.1972	0.2949
2007	201,362,243	33,585,265	39,860,900	1.3676	1.1181	1.0536						47,675,232	0.2368	1.1972	0.2835
2008	205,462,335	28,760,684	35,051,835	1.5215	1.1627	1.0358						43,769,878	0.2130	1.1972	0.2550
2009	203,271,000	24,574,920	36,940,985	1.8200	1.2221	1.0320						46,373,917	0.2281	1.1972	0.2731
2010	197,819,364	15,541,039	28,469,469	2.6712	1.4552	1.0348	0.2031		42,092,874	42,465,337	42,596,647	0.2153	1.1972	0.2578	
2011	197,909,030	9,487,937	24,337,351	5.5270	2.0021	1.0379	0.2049		44,320,929	46,326,042	45,323,486	0.2290	1.1972	0.2742	
Total	1,870,181,667	291,355,176	362,282,864					476,046,038	465,449,235			463,253,675			

Notes:

- (1) from DCRB Filing Exhibit IV, Pages 1 to 10, Line 7
- (2) from DCRB Filing Exhibit IV, Pages 1 to 10, Line 8
- (3) from DCRB Filing Exhibit IV, Pages 1 to 10, Line 11
- (4), (5) from INS Exhibit 5
- (6) from DCRB Filing Exhibit IV, Pages 1 to 10, Line 15
- (7) from INS Exhibit 6, Page 1a, Selected Column 7 for 2011; Exhibit 6, Page 1b, Selected Column 7 for 2010
- (8) = (2) x (4) x (6)
- (9) = (3) x (5) x (6)
- (10) = [(1) x (7) x [1.0 - (1.0 / (4))] + (2)] x (6)
- (11) = [(1) x (7) x [1.0 - (1.0 / (5))] + (3)] x (6)
- (12) = Average of: (8) and (9) for 2002 to 2009; (8), (9), (10) and (11) for 2010; (10) and (11) for 2011
- (13) = (12) / (1)
- (14) from DCRB Filing Exhibit IV, Pages 1 to 10, Line 16
- (15) = (13) x (14)

Development of Ultimate Loss and LAE

Medical

Policy Year	(1) Ult. Std. Earned Premium (At Current Rates)	(2) Paid Loss	(3) Incurred Loss	(4) Paid Loss Dev. Factor	(5) Incurred Loss Dev. Factor	(6) Medical IELR			
2002	144,483,284	44,884,806	53,215,618	1.2620	1.1692				
2003	151,226,238	45,958,931	56,523,906	1.2966	1.1767				
2004	178,652,130	49,791,385	58,507,204	1.3456	1.2126				
2005	193,047,458	49,648,095	61,498,005	1.3993	1.2392				
2006	196,948,585	46,932,028	57,195,093	1.4550	1.2812				
2007	201,362,243	50,586,917	61,562,383	1.5261	1.3300				
2008	205,462,335	46,683,853	56,777,273	1.6195	1.4283				
2009	203,271,000	47,359,579	57,439,292	1.7544	1.5750				
2010	197,819,364	48,255,805	61,699,641	2.0426	1.7714	0.3938			
2011	197,909,030	38,184,537	54,452,707	2.9256	2.2745	0.4652			
Total	1,870,181,667	468,285,936	578,871,122						
Policy Year	(7) Paid LDF Ult. Loss	(8) Incurred LDF Ult. Loss	(9) Paid BF Ult. Loss	(10) Incurred BF Ult. Loss	(11) Selected Ult. Loss	(12) Selected Ult. Loss Ratio	(13) LAE Factor	(14) Ult. Loss & LAE Ratio	
2002	56,644,625	62,219,701			59,432,163	0.4113	1.1972	0.4924	
2003	59,590,350	66,511,680			63,051,015	0.4169	1.1972	0.4991	
2004	66,999,288	70,945,836			68,972,562	0.3861	1.1972	0.4622	
2005	69,472,579	76,208,328			72,840,454	0.3773	1.1972	0.4517	
2006	68,286,101	73,278,353			70,782,227	0.3594	1.1972	0.4303	
2007	77,200,694	81,877,969			79,539,332	0.3950	1.1972	0.4729	
2008	75,604,500	81,094,979			78,349,740	0.3813	1.1972	0.4565	
2009	83,087,645	90,466,885			86,777,265	0.4269	1.1972	0.5111	
2010	98,567,307	109,294,744	88,018,783	95,623,676	97,876,128	0.4948	1.1972	0.5924	
2011	111,712,681	123,852,682	98,782,280	106,041,957	102,412,119	0.5175	1.1972	0.6196	
Total	767,165,770	835,751,157			780,033,005				

Notes:

- (1) from DCRB Filing Exhibit IV, Pages 1 to 10, Line 7
- (2) from DCRB Filing Exhibit IV, Pages 1 to 10, Line 8
- (3) from DCRB Filing Exhibit IV, Pages 1 to 10, Line 11
- (4), (5) from INS Exhibit 5
- (6) from INS Exhibit 6, Page 2a, Selected Column 7 for 2011; Exhibit 6 Page 2b, Selected Column 7 for 2010
- (7) = (2) x (4)
- (8) = (3) x (5)
- (9) = [(1) x (6) x [1.0 - (1.0 / (4))] + (2)]
- (10) = [(1) x (6) x [1.0 - (1.0 / (5))] + (3)]
- (11) = Average of: (7) and (8) for 2002 to 2010; (7), (8), (9) and (10) for 2010; (9) and (10) for 2011
- (12) = (11) / (1)
- (13) from DCRB Filing Exhibit IV, Pages 1 to 10, Line 16
- (14) = (12) x (13)

Derivation of Loss Development Factors
Paid Indemnity

Maturities	Policy-year age-to-age factors for calendar-year intervals									4-yr avg	4-yr median	Avg	Cumul
	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12					
Beyond					0.9760	1.0069	1.0011	1.0020		0.9965	1.0016	0.9991	0.9991
22 to 23					1.0325	1.0182	1.0180	1.0140		1.0207	1.0181	1.0194	1.0185
21 to 22				1.0045	1.0058	1.0049	1.0099	1.0024		1.0058	1.0054	1.0056	1.0242
20 to 21			1.005	0.9996	1.0021	1.0037	1.0024	1.0052		1.0034	1.0031	1.0033	1.0276
19 to 20	1.0028	1.0050	1.0066	1.0023	1.0011	1.0006	1.0012	1.0063		1.0023	1.0012	1.0018	1.0294
18 to 19	1.0101	1.0020	1.0206	1.0014	1.0510	1.0053	0.9963	1.0130		1.0164	1.0092	1.0128	1.0426
17 to 18	1.0040	1.0217	1.0026	1.0154	1.0125	1.0026	1.0066	1.0040		1.0064	1.0053	1.0059	1.0488
16 to 17	1.0111	1.0026	1.0052	1.0064	1.0090	1.0052	1.0063	1.0020		1.0056	1.0058	1.0057	1.0548
15 to 16	1.0039	1.0131	1.0049	1.0015	1.0125	1.0016	1.0061	1.0053		1.0064	1.0057	1.0061	1.0612
14 to 15	1.0101	1.0067	1.0000	1.0164	1.0055	1.0068	1.0162	1.0134		1.0105	1.0101	1.0103	1.0721
13 to 14	1.0092	1.0021	1.0508	1.0141	1.0043	1.0222	1.0093	1.0101		1.0115	1.0097	1.0106	1.0835
12 to 13	1.0108	1.0149	1.0028	1.0021	1.0107	1.0086	1.0157	1.0109		1.0115	1.0108	1.0112	1.0956
11 to 12	1.0176	1.0025	1.0137	1.0066	1.0213	1.0189	1.0032	1.0106		1.0135	1.0148	1.0142	1.1112
10 to 11	1.0203	1.0144	1.0118	1.0135	1.0144	1.0024	1.0125	1.0114		1.0102	1.0120	1.0111	1.1235
9 to 10	1.0150	1.0109	1.0272	1.0197	1.0204	1.0263	1.0284	1.0126		1.0219	1.0234	1.0227	1.1490
8 to 9	1.0158	1.0470	1.0262	1.0301	1.0221	1.0524	1.0317	1.0203		1.0316	1.0269	1.0293	1.1827
7 to 8	1.0599	1.0302	1.0220	1.0437	1.0273	1.0256	1.0376	1.0253		1.0290	1.0265	1.0278	1.2156
6 to 7	1.0414	1.0524	1.0487	1.0281	1.0569	1.0510	1.0425	1.0456		1.0490	1.0483	1.0487	1.2748
5 to 6	1.0583	1.0912	1.0634	1.0538	1.0515	1.0692	1.0937	1.0765		1.0727	1.0729	1.0728	1.3676
4 to 5	1.1013	1.1160	1.0912	1.0891	1.1048	1.0951	1.1221	1.1236		1.1114	1.1135	1.1125	1.5215
3 to 4	1.1720	1.1380	1.1664	1.1592	1.1975	1.1982	1.1750	1.2072		1.1945	1.1979	1.1962	1.8200
2 to 3	1.3539	1.4474	1.4072	1.4355	1.4826	1.4292	1.4499	1.5142		1.4690	1.4663	1.4677	2.6712
1 to 2	1.8426	2.1728	1.9577	1.8847	2.0617	2.1484	2.1034	1.9090		2.0556	2.0826	2.0691	5.5270

source: page 2.2 of DCRB filing

Cumulative value beyond 22 months is from the incurred analysis

DELAWARE COMPENSATION RATING BUREAU
DCRB Bureau Filing No. 1305, Proposed Effective December 1, 2013
INS RATE LEVEL INDICATION

Exhibit 5
Page 2

Derivation of Loss Development Factors
Incurred Indemnity

Maturities	Policy-year age-to-age factors for calendar-year intervals								4-yr avg	4-yr median	Avg	Cumul
	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12				
Beyond	0.9941	1.0206	0.9971	1.0450	0.9760	1.0069	1.0011	1.0020	0.9965	1.0016	0.9991	0.9991
22 to 23					1.0033	1.0005	0.9978	0.9981	0.9999	0.9993	0.9996	0.9987
21 to 22				0.9899	1.0042	1.0024	1.0022	0.9992	1.0020	1.0023	1.0022	1.0009
20 to 21			1.0091	1.0026	1.0036	0.9931	1.0009	0.9965	0.9985	0.9987	0.9986	0.9995
19 to 20	1.0014	1.0013	1.0038	0.9956	1.0128	0.9977	1.0014	0.9971	1.0023	0.9996	1.0010	1.0005
18 to 19	0.9926	1.0019	1.0005	0.9944	1.0440	1.0154	1.0018	1.0210	1.0206	1.0182	1.0194	1.0199
17 to 18	0.9988	1.0001	0.9986	0.9814	1.0028	0.9973	1.0019	0.9777	0.9949	0.9996	0.9973	1.0171
16 to 17	1.0040	0.9980	0.9990	1.0037	1.0050	1.0039	1.0252	0.9996	1.0084	1.0045	1.0065	1.0237
15 to 16	1.0092	1.0063	1.0010	1.0000	1.0044	0.9970	1.0032	1.0027	1.0018	1.0030	1.0024	1.0262
14 to 15	1.0010	1.0107	0.9964	1.0094	1.0166	0.9894	1.0041	1.0039	1.0035	1.0040	1.0038	1.0301
13 to 14	0.9925	0.9971	1.0414	1.0041	1.0057	1.0137	0.9997	1.0050	1.0060	1.0054	1.0057	1.0360
12 to 13	1.0065	1.0070	0.9938	1.0063	1.0091	1.0001	1.0076	1.0217	1.0096	1.0084	1.0090	1.0453
11 to 12	1.0176	1.0243	0.9999	1.0015	0.9948	1.0065	0.9923	0.9957	0.9973	0.9953	0.9963	1.0414
10 to 11	1.0061	0.9979	0.9961	1.0099	1.0022	0.9933	0.9948	1.0002	0.9976	0.9975	0.9976	1.0389
9 to 10	0.9900	0.9925	1.0123	1.0066	1.0122	0.9904	1.0159	1.0065	1.0063	1.0094	1.0079	1.0471
8 to 9	1.0262	0.9915	1.0131	0.9938	1.0387	1.0171	1.0013	1.0121	1.0173	1.0146	1.0160	1.0639
7 to 8	1.0840	1.0253	1.0163	1.0182	1.0219	1.0083	1.0159	1.0202	1.0166	1.0181	1.0174	1.0824
6 to 7	1.0217	1.0293	1.0071	0.9990	1.0132	1.0312	1.0045	1.0296	1.0196	1.0214	1.0205	1.1046
5 to 6	1.0085	1.0301	1.0160	1.0065	1.0106	1.0139	1.0088	1.0148	1.0120	1.0123	1.0122	1.1181
4 to 5	1.0562	1.0315	1.0113	1.0414	1.0361	1.0408	1.0702	1.0182	1.0413	1.0385	1.0399	1.1627
3 to 4	1.0310	1.0701	1.0381	1.0281	1.0870	1.0722	0.9970	1.0360	1.0481	1.0541	1.0511	1.2221
2 to 3	1.1414	1.1462	1.1294	1.1735	1.1782	1.1848	1.1920	1.2166	1.1929	1.1884	1.1907	1.4552
1 to 2	1.3025	1.3445	1.2337	1.3367	1.4037	1.4655	1.3396	1.3108	1.3799	1.3717	1.3758	2.0021

source: page 2.2 of DCRB filing

Derivation of Loss Development Factors
 Paid Medical

Maturities	Policy-year age-to-age factors for calendar-year intervals									4-yr avg	4-yr median	Avg	Cumul
	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12					
Beyond					1.0333	0.9944	1.0778	1.0159				1.0275	
22 to 23					1.0396	1.0918	1.0172	1.0283		1.0442	1.0340	1.0391	1.0677
21 to 22				1.0031	1.0074	1.0101	1.0177	1.0098		1.0113	1.0100	1.0107	1.0791
20 to 21			1.0077	1.0076	1.0051	1.0148	1.0154	1.0071		1.0106	1.0110	1.0108	1.0908
19 to 20	1.0040	1.0049	0.9935	1.0099	1.0232	1.0082	1.0091	1.0094		1.0125	1.0093	1.0109	1.1027
18 to 19	1.0037	1.0099	1.0057	1.0120	1.0125	1.0058	1.0080	1.0142		1.0101	1.0103	1.0102	1.1139
17 to 18	1.0158	1.0051	1.0132	1.0065	1.0149	1.0066	1.0083	1.0092		1.0098	1.0088	1.0093	1.1243
16 to 17	1.0086	1.0094	1.0110	1.0107	1.0078	1.0180	1.0148	1.0088		1.0124	1.0118	1.0121	1.1379
15 to 16	1.0119	1.0207	1.0100	1.0098	1.0120	1.0116	1.0145	1.0285		1.0167	1.0133	1.0150	1.1550
14 to 15	1.0109	1.0215	1.0108	1.0218	0.9976	1.0025	1.0280	1.0137		1.0105	1.0081	1.0093	1.1657
13 to 14	1.0107	1.0070	1.0174	1.0184	1.0187	1.0196	1.0177	1.0094		1.0164	1.0182	1.0173	1.1859
12 to 13	1.0082	1.0137	1.0309	1.0166	1.0402	1.0134	1.0158	1.0162		1.0214	1.0160	1.0187	1.2081
11 to 12	1.0156	1.0299	1.0336	1.0301	1.0235	1.0132	1.0161	1.0372		1.0225	1.0198	1.0212	1.2337
10 to 11	1.0206	1.0333	1.0476	1.0175	1.0114	1.0226	1.0342	1.0232		1.0229	1.0229	1.0229	1.2620
9 to 10	1.0187	1.0300	1.0341	1.0232	1.0249	1.0386	1.0273	1.0235		1.0286	1.0261	1.0274	1.2966
8 to 9	1.0237	1.0366	1.0271	1.0226	1.0573	1.0294	1.0318	1.0399		1.0396	1.0359	1.0378	1.3456
7 to 8	1.0274	1.0240	1.0269	1.0436	1.0450	1.0528	1.0367	1.0212		1.0389	1.0409	1.0399	1.3993
6 to 7	1.0318	1.0529	1.0497	1.0318	1.0330	1.0389	1.0391	1.0508		1.0405	1.0390	1.0398	1.4550
5 to 6	1.0515	1.0627	1.0436	1.0545	1.0422	1.0514	1.0413	1.0690		1.0510	1.0468	1.0489	1.5261
4 to 5	1.1013	1.0720	1.0544	1.0622	1.0529	1.0656	1.0726	1.0555		1.0617	1.0606	1.0612	1.6195
3 to 4	1.0627	1.0830	1.0451	1.0858	1.0891	1.0743	1.0794	1.0881		1.0827	1.0838	1.0833	1.7544
2 to 3	1.1553	1.1522	1.1381	1.1360	1.1592	1.1671	1.1561	1.1790		1.1654	1.1632	1.1643	2.0426
1 to 2	1.3288	1.3390	1.3225	1.3583	1.4535	1.4290	1.4392	1.4001		1.4305	1.4341	1.4323	2.9256

source: page 2.14 of DCRB filing

Cumulative value beyond 22 months is from the incurred analysis

Derivation of Loss Development Factors
Incurred Medical

Maturities	Policy-year age-to-age factors for calendar-year intervals								4-yr avg	4-yr median	Avg	Cumul
	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12				
Beyond	1.0528	1.0347	1.0628	1.0222	1.0333	0.9944	1.0778	1.0159	1.0304	1.0246	1.0275	1.0275
22 to 23					0.9976	1.0041	0.9952	0.9928	0.9974	0.9964	0.9969	1.0243
21 to 22				1.0083	1.0265	1.0017	1.0240	1.0081	1.0151	1.0161	1.0156	1.0403
20 to 21			1.0050	1.0233	1.0056	1.0156	1.0044	0.9977	1.0058	1.0050	1.0054	1.0459
19 to 20	1.0140	1.0036	0.9948	0.9983	1.0074	1.0022	0.9987	1.0089	1.0043	1.0048	1.0046	1.0507
18 to 19	1.0169	1.0034	1.0105	1.0049	1.0164	1.0020	1.0015	0.9965	1.0041	1.0018	1.0030	1.0539
17 to 18	1.0059	1.0166	0.9994	1.0177	1.0086	0.9997	0.9985	1.0077	1.0036	1.0037	1.0037	1.0578
16 to 17	1.0024	1.0102	1.0107	1.0154	1.0040	1.0090	1.0213	1.0185	1.0132	1.0138	1.0135	1.0721
15 to 16	1.0183	1.0206	0.9986	1.0121	1.0292	1.0102	1.0252	1.0175	1.0205	1.0214	1.0210	1.0946
14 to 15	1.0007	1.0174	1.0039	1.0153	1.0008	1.0001	1.0458	1.0127	1.0149	1.0068	1.0109	1.1065
13 to 14	1.0082	1.0116	1.0143	1.0053	1.0067	1.0115	1.0167	0.9963	1.0078	1.0091	1.0085	1.1159
12 to 13	0.9906	1.0123	1.0006	1.0110	1.0371	1.0089	1.0125	0.9966	1.0138	1.0107	1.0123	1.1296
11 to 12	1.0399	0.9999	1.0171	1.0415	1.0244	1.0139	1.0118	1.0270	1.0193	1.0192	1.0193	1.1514
10 to 11	1.0264	1.0053	1.0223	1.0405	0.9928	1.0205	1.0269	1.0140	1.0136	1.0173	1.0155	1.1692
9 to 10	1.0163	1.0242	1.0090	0.9875	0.9789	1.0159	0.9982	1.0297	1.0057	1.0071	1.0064	1.1767
8 to 9	1.0500	0.9982	1.0093	1.0236	1.0216	1.0372	1.0180	1.0493	1.0315	1.0294	1.0305	1.2126
7 to 8	1.0240	1.0313	1.0604	1.0156	1.0190	1.0404	1.0232	1.0082	1.0227	1.0211	1.0219	1.2392
6 to 7	1.0474	1.0560	1.0471	1.0210	1.0316	1.0473	1.0157	1.0378	1.0331	1.0347	1.0339	1.2812
5 to 6	1.0474	1.0608	1.0229	1.0426	1.0217	1.0389	1.0403	1.0451	1.0365	1.0396	1.0381	1.3300
4 to 5	1.1314	1.0954	1.0327	1.0772	1.0771	1.0816	1.1004	1.0146	1.0684	1.0794	1.0739	1.4283
3 to 4	1.0612	1.0930	1.0654	1.0893	1.0912	1.1117	1.1302	1.0821	1.1038	1.1015	1.1027	1.5750
2 to 3	1.1279	1.1161	1.0901	1.1591	1.1124	1.1156	1.1319	1.1426	1.1256	1.1238	1.1247	1.7714
1 to 2	1.1921	1.1267	1.1244	1.1907	1.2986	1.2789	1.3402	1.1986	1.2791	1.2888	1.2840	2.2745

source: page 2.14 of DCRB filing

Support for IELR - Indemnity - 2011

Derivation of Ultimate Trended Indemnity Loss Ratio
 Trending to December 31, 2011

Policy Year	(1) Number of Years to 12/31/11	(2) Annual Severity Trend	(3) Severity Trend Factor	(4) Annual Frequency Trend	(5) Frequency Trend Factor
2007	4.0000	2.9%	1.1211	-6.1%	0.7773
2008	3.0000	2.9%	1.0895	-6.1%	0.8278
2009	2.0000	2.9%	1.0588	-6.1%	0.8816
2010	1.0000	2.9%	1.0290	-6.1%	0.9390

Policy Year	(6) Selected Ult. Loss Ratio	(7) Trended Selected Ult. Loss Ratio
2007	0.2368	0.2064
2008	0.2130	0.1921
2009	0.2281	0.2129
2010	0.2153	0.2080
4-yr avg - Selected		0.2049

Notes:

- (1) Difference between 12/31/xx and 12/31/11, in years
- (2) from INS Exhibit 3, Page 2, Selected Column 10
- (3) = [1 + (2)] ^ (1)
- (4) from INS Exhibit 3, Page 1, Selected Column 4
- (5) = [1 + (4)] ^ (1)
- (6) From INS Exhibit 4, Page 1, Column 13
- (7) = (3) x (5) x (6); IELR = 4-yr avg - Selected

Support for IELR - Indemnity - 2010

Derivation of Ultimate Trended Indemnity Loss Ratio
 Trending to December 31, 2010

Policy Year	(1) Number of Years to 12/31/10	(2) Annual Severity Trend	(3) Severity Trend Factor	(4) Annual Frequency Trend	(5) Frequency Trend Factor
2006	4.0000	3.2%	1.1337	-7.9%	0.7182
2007	3.0000	3.2%	1.0987	-7.9%	0.7801
2008	2.0000	3.2%	1.0648	-7.9%	0.8474
2009	1.0000	3.2%	1.0319	-7.9%	0.9206

Policy Year	(6) Selected Ult. Loss Ratio	(7) Trended Selected Ult. Loss Ratio
2006	0.2463	0.2005
2007	0.2368	0.2030
2008	0.2130	0.1922
2009	0.2281	0.2167
4-yr avg - Selected		0.2031

Notes:

- (1) Difference between 12/31/xx and 12/31/10, in years
- (2) from INS Exhibit 3, Page 2, Selected Column 14
- (3) = $[1 + (2)] ^ (1)$
- (4) from INS Exhibit 3, Page 1, Selected Column 6
- (5) = $[1 + (4)] ^ (1)$
- (6) From INS Exhibit 4, Page 1, Column 13
- (7) = (3) x (5) x (6); IELR = 4-yr avg - selected

Support for IELR - Medical - 2011

Derivation of Ultimate Trended Medical Loss Ratio
 Trending to December 31, 2011

Policy Year	(1) Number of Years to 12/31/11	(2) Annual Severity Trend	(3) Severity Trend Factor	(4) Annual Frequency Trend	(5) Frequency Trend Factor
2007	4.0000	10.6%	1.4963	-6.1%	0.7773
2008	3.0000	10.6%	1.3529	-6.1%	0.8278
2009	2.0000	10.6%	1.2232	-6.1%	0.8816
2010	1.0000	10.6%	1.1060	-6.1%	0.9390

Policy Year	(6) Selected Ult. Loss Ratio	(7) Trended Selected Ult. Loss Ratio
2007	0.3950	0.4594
2008	0.3813	0.4270
2009	0.4269	0.4604
2010	0.4948	0.5139
4-yr avg - Selected		0.4652

Notes:

- (1) Difference between 12/31/xx and 12/31/11, in years
- (2) from INS Exhibit 3, Page 2, Selected Column 12
- (3) = $[1.0 + (2)] ^ (1)$
- (4) from INS Exhibit 3, Page 1, Selected Column 4
- (5) = $[1.0 + (4)] ^ (1)$
- (6) From INS Exhibit 4, Page 2, Column 12
- (7) = (3) x (5) x (6); IELR = 4-yr avg - selected

Support for IELR - Medical -2010

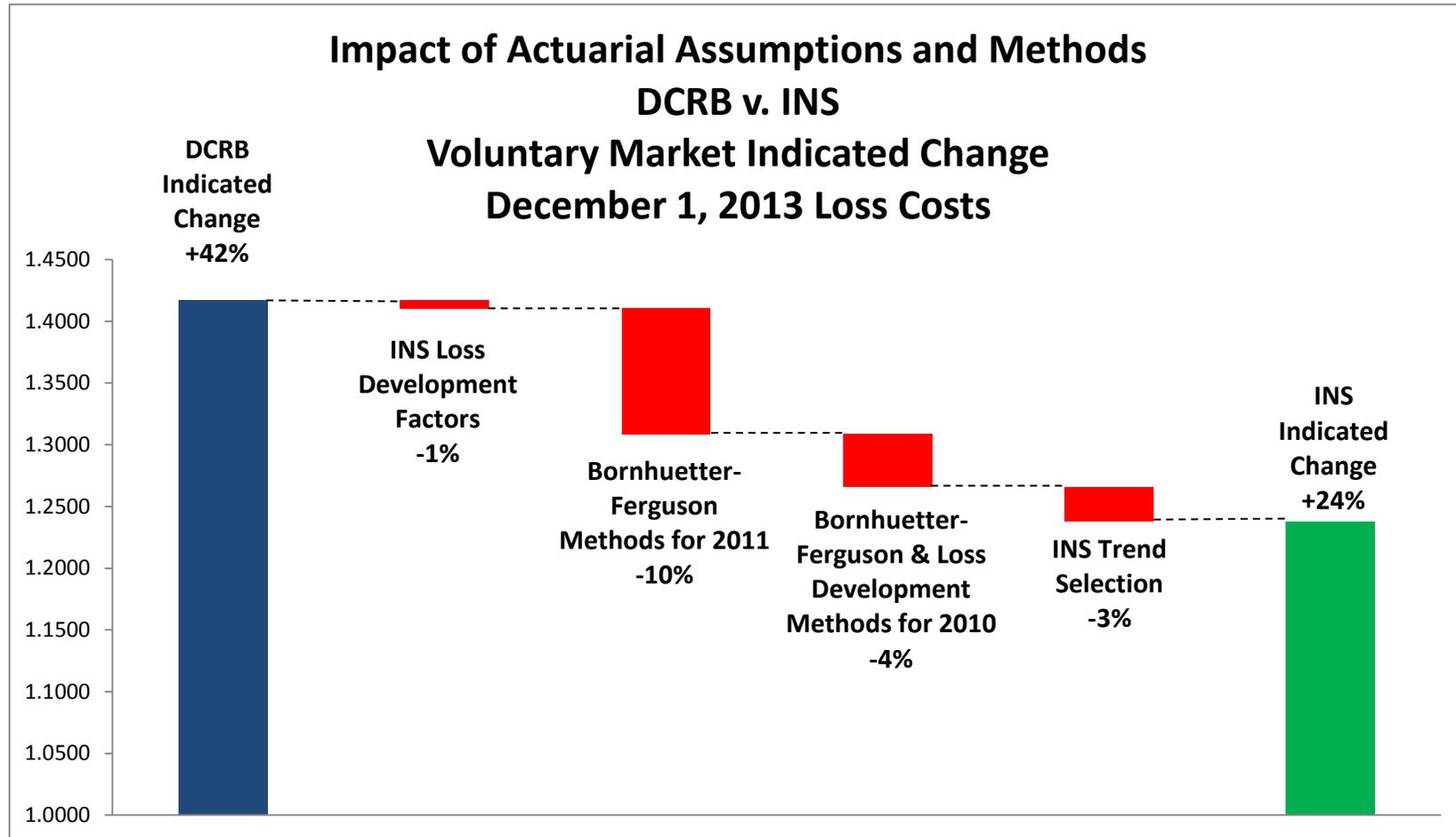
Derivation of Ultimate Trended Medical Loss Ratio
 Trending to December 31, 2010

Policy Year	(1) Number of Years to 12/31/10	(2) Annual Severity Trend	(3) Severity Trend Factor	(4) Annual Frequency Trend	(5) Frequency Trend Factor
2006	4.0000	9.0%	1.4109	-7.9%	0.7182
2007	3.0000	9.0%	1.2946	-7.9%	0.7801
2008	2.0000	9.0%	1.1878	-7.9%	0.8474
2009	1.0000	9.0%	1.0899	-7.9%	0.9206

Policy Year	(6) Selected Ult. Loss Ratio	(7) Trended Selected Ult. Loss Ratio
2006	0.3594	0.3642
2007	0.3950	0.3989
2008	0.3813	0.3838
2009	0.4269	0.4283
4-yr avg - Selected		0.3938

Notes:

- (1) Difference between 12/31/xx and 12/31/10, in years
- (2) from INS Exhibit 3, Page 2, Selected Column 16
- (3) = [1.0 + (2)] ^ (1)
- (4) from INS Exhibit 3, Page 1, Selected Column 6
- (5) = [1.0 + (4)] ^ (1)
- (6) From INS Exhibit 4, Page 2, Column 12
- (7) = (3) x (5) x (6); IELR = 4-yr avg - selected



John R. Pedrick, FCAS, MAAA
Actuary
INS Consultants, Inc.

Biographical Information

John Pedrick is a credentialed actuary, a former insurance regulator and former chief actuarial officer of a state workers' compensation fund. He joined INS Consultants in 2013, and provides actuarial services for rate reviews, risk focused examinations, and captive applications. He has an extensive background in product and rate regulation, regulatory policy, and workers compensation.

Mr. Pedrick started his actuarial career with CIGNA Corporation's Property and Casualty Division in 1986. In 1995 he joined the Ohio Department of Insurance and rose to the level of Assistant Director for Product Regulation and Actuarial Services, where he managed the regulation of all P&C, Life, and Health insurance products and rates, drafted legislation and amicus briefs, wrote position papers, and testified before the legislature. He was also active on several NAIC committees.

He later took on the role of Chief Actuarial Officer of the Ohio Bureau of Workers' Compensation, the largest monopolistic state workers compensation fund in the United States with annual written premium of \$2 billion. He was responsible for leading the development and presentation of all rate and reserve recommendations to the board of directors, and for communicating them to the governor, legislature, employers, and business associations throughout the state. He led the development and implementation of the Bureau's first deductible program, its first group retrospective rating plan, and the overhaul of an automated claim reserve analysis system. He developed a reputation as the architect of rate reform for the Ohio system.

Subsequently, he joined Liberty Mutual where he managed workers compensation product intelligence. Most recently he was Assistant Vice President for State Relations with the Insurance Services Office, Inc.

He is a Fellow of the Casualty Actuarial Society, and has been a member of several of its committees, including a term as chair of its Committee on Ratemaking. He is a member of the American Academy of Actuaries, and has participated on several of its committees, including the P&C Federal Charters Task Force and the Actuarial Soundness Task Force.