DCRB
DELAWARE
Compensation Rating Bureau, Inc.

TO: The Honorable Trinidad Navarro
Delaware Insurance Commissioner

FROM: Brent Otto, FCAS, MAAA
Vice President of Actuarial Services and Chief Actuary

DATE: August 19, 2021

RE: DCRB Filing No. 2104
Workers Compensation Residual Market Rate and Voluntary Market Loss Cost Filing
Proposed Effective December 1, 2021 (Selected Portions Effective June 1, 2022)

This actuarial memorandum provides a discussion of the analysis performed by the Delaware Compensation Rating Bureau, Inc. (DCRB) that results in proposed changes in Residual Market Rates, Voluntary Market Loss Costs, rating values and supplementary rate information for Workers Compensation insurance in Delaware.

SUMMARY OF THE PROPOSAL IN THIS FILING

This filing proposes an overall change in Residual Market Rates and Voluntary Market Loss Costs. The changes vary by class. Associated rating values will also be revised.

Indicated and Proposed Changes	
Residual Market Rates	Voluntary Market Loss Costs
-18.37%	-19.40%

In this year's filing, the underlying losses are again adjusted to reflect Delaware law after House Bill 373 of 2014 (HB373) (a "post-HB373" basis). The full impact of HB373 contemplated in the law is reflected in this filing. This is discussed further in the Technical Discussion and Supporting Information section of this memorandum.

The filing included several considerations related to the COVID-19 pandemic. In regard to the treatment of COVID-19 claims, the claims were excluded from the December 1, 2021 indications. Also, several economic impacts that resulted in unusual changes due to the pandemic during Calendar Year 2020 were excluded or smoothed in the analysis. The primary factors influencing this decision were:

1.) COVID-19 claims are not a reliable predictor of future losses given this event is viewed as being an unusual event that will not re-occur on an annual or regular basis.

2.) There is still too much uncertainty given that the event is still ongoing.

3.) This provides consistent handling between claims and economic impacts of the event as both are being excluded.

4.) There are not yet any reliable pandemic modeling results for a "pandemic load" given that the claim adjudication process will take time to evolve.

5.) This approach is similar to how terrorism evolved over time with the exclusion of claims and an eventual terrorism charge.

The indications included Policy Year 2019, which contained three excluded claims totaling $8,386 coded to COVID-19 from Delaware Financial Call #15 as of December 31, 2020. Given the limited number and amount of these claims, the decision to include or exclude these claims in this year's filing was not material.

The filing included three COVID-19 economic-related adjustments due to the unusual nature of the economic shutdowns and skewed impacts by sectors. This resulted in different considerations for the employment, wage, and average wage projections to limit the use of data skewed by the pandemic. The three areas for these considerations are as follows. First, Call data showed an increase in the number of negative Earned but Unbilled (EBUB) adjustments that supported lower projected premiums at audit. While premiums generally develop upward slightly at the first report, a premium development factor for Policy Year 2019 was selected as 1.00. This was to consider that the data supported less upward development for Policy Year 2019 at audit due to the economic disruptions. Second, projected employment and wage levels excluded the disruption from Calendar Year 2020 data when calculating the expense constant and the qualifying wages for the Delaware Construction Classification Premium Adjustment Program (DCCPAP). This resulted in an expense constant increase from $320 to $330 rather than $350 which would have been the result without any considerations for the disruption in employment and wage levels. Third, consideration was given to adjust the increase seen in SAWW when estimating the effect of the 2022 benefit level due to the unusual increase related to the shift in employment by sector. This shift by sector was the result of lower wage workers from the leisure and hospitality sector being impacted more significantly compared to other sectors, which caused the SAWW to artificially increase due to a shift in mix. The adjustment to smooth this effect resulted in a 0.36% benefit change, as compared to 1.14% without any consideration being made. The DCRB feels these adjustments were reasonable and necessary to limit the unusual nature of the pandemic from impacting the projection of future rate and loss cost levels.

This filing also includes several methodology changes that impact the indication, compared to last year's filing. These are listed and supported in detail below.

1.) The claims counts used in the frequency analysis have been developed to an ultimate level rather than using claim counts at the 1st report level used previously. This change carried no overall impact on the overall indication (further details found on page 13).

2.) The paid and incurred tail attachment points were moved from the 30th report to the 20th report for both indemnity and medical loss development. This change carried a -1.2% impact on the overall indication (further details found on page 11).

3.) A second incurred tail method was added, an exponential fit, that was then averaged with the current incurred tail method. This change carried a +0.4% impact on the overall indication (further details found on page 11).

4.) The current paid tail bridge factor (paid to incurred ratios) used to determine the paid tail in conjunction with the incurred tail was replaced by a new method. The new method uses a curve fit applied to the paid-to-incurred ratio triangle. This change carried a -0.8% impact on the overall indication (further details found on pages 11 and 12).

The supporting exhibits and other attachments accompanying this actuarial memorandum comprise the balance of the filing and provide pertinent information regarding the proposed residual market rates, voluntary market loss costs, rating values, supplementary rate information and supporting information for this filing. An index of exhibits appears at the end of this memorandum.

ADHERENCE TO ACTUARIAL PRINCIPLES AND STANDARDS OF PRACTICE

This filing has been developed using actuarial methods that are consistent with all applicable actuarial principles and standards of practice. Rates and loss costs, as developed, filed and distributed by the DCRB represent estimates of future costs. These estimates rely on projections of loss experience (claim costs) to the prospective time period during which they will be in effect. That is, they are estimates of the costs of claims that are made under workers compensation insurance policies to be in effect from December 1, 2021 to November 30, 2022. The ultimate, true value of these claims is uncertain and will not be known until they have all closed, several decades from now. As a result, estimates of the future costs must be used. Adherence to actuarial principles and standards of practice ensures the reasonableness of the estimates, along with their compliance with regulatory requirements.

Four principles are provided in the Casualty Actuarial Society's Statement of Principles Regarding Property and Casualty Insurance Ratemaking. The fourth principle states:

> "A rate is reasonable and not excessive, inadequate, or unfairly discriminatory if it is an actuarially sound estimate of the expected value of all future costs associated with an individual risk transfer."

In addition, core principles for estimating future payments on claims are found in the Casualty Actuarial Society's Statement of Principles Regarding Property and Casualty Unpaid Claims Estimates. The first principle states:

> "An unpaid claims estimate for a defined group of claims is reasonable if it is derived from reasonable assumptions and appropriate methods or models and the reasonableness of the estimate has been validated by appropriate indicators or tests, all evaluated consistent with the review date and valuation date in the context of the intended measure."

There are many Actuarial Standards of Practice (ASOPs) applicable to this filing. These documents set forth the standards, including appropriate considerations, that guide an actuary in developing and presenting the methods and calculations contained in this filing. These include ASOPs regarding data quality, credibility, trend, risk classification, and communications.

This filing relies on data provided by our member companies; however in accordance with ASOP No. 23 Data Quality, the data has been reviewed for reasonableness and consistency. Some examples of review include, but are not limited to: Identifying and investigating questionable data from the 13 largest carrier groups in Delaware as well as in total for all carriers; comparing the current premium and loss data to the data used in the prior analysis; comparing loss development patterns and several reserving diagnostic triangles.

DISCUSSION OF THIS FILING'S METHODS, ANALYSIS AND FINDINGS

The proposed residual market rates, voluntary market loss costs and minimum premiums by classification submitted in this filing reflect the DCRB's actuarial analysis of all available

experience data, enacted legislation and other relevant factors to establish appropriate and lawful rating values for the policy period beginning December 1, 2021.

Delaware Workers Compensation Insurance Plan - Residual Market Rates

Delaware law requires that a "residual market plan" be filed with the Insurance Commissioner by the advisory organization. Residual market coverage is provided under the auspices of the Delaware Workers Compensation Insurance Plan (Plan). Employers unable to obtain workers compensation insurance in the voluntary market may apply to the Plan. An insurance carrier is then assigned to administer coverage for that employer, either as a servicing carrier, on behalf of the Plan, or on a direct assignment basis.

In this filing, as in filings since the inception of the surcharge program (discussed below in Exhibit 19), the expected amounts of the Plan surcharges are accounted for in the form of offsets to voluntary market loss costs. The average change in collectible rate level for the residual market, prior to the effect of Plan surcharges proposed in this filing, is a decrease of 18.37%.

The components of the proposed overall change in residual market rates are shown below with their impact on the filing indication.

Components of Indicated Change in Residual Market Rates		
	Component	**Impact on Indication**
1	Limited Medical Loss	-11.16%
2	Limited Medical Trend	-6.17%
3	Medical Excess Loss	+0.20%
	SUBTOTAL: MEDICAL LOSS	-16.47%
4	Limited Indemnity Loss	-0.26%
5	Indemnity Excess Loss	-0.19%
6	Limited Indemnity Trend	+0.53%
	SUBTOTAL: INDEMNITY LOSS	+0.09%
7	Loss Adjustment Expense	-3.44%
8	Loss-Based Assessments	-0.02%
9	July 1, 2022 Benefit Level Change	+0.36%
10	Underwriting Expense	+0.78%
	SUBTOTAL: OTHER	-2.36%
	OVERALL INDICATED RATE CHANGE	-18.37%
Note that the total results from converting the percentages to factors (e.g., -11.16% is 0.8884, in factor form) and calculating the product of the 10 factors.		

Voluntary Market Loss Costs

Since the enactment of House Bill 241 in 1993, Delaware law has applied a "loss cost" approach to pricing of workers compensation insurance written in the voluntary market. Under this system, the advisory organization (i.e., the DCRB) filings are limited to prospective loss costs, which reflect loss and loss adjustment expense, as well as policy forms, uniform classification and experience rating plans and rules, and supporting information. Advisory organization filings specifically

exclude provisions for profit and expenses, other than loss adjustment expenses and loss-based assessments. Provisions for profit and expenses, other than loss adjustment expenses and loss-based assessments, are incorporated into voluntary market workers compensation rates by virtue of competitive filings made by each insurer. Insurer expense filings may adopt loss costs filed by the advisory organization or the rates and supplementary information filed by another insurer, by reference, with or without deviation.

Consistent with past practice, in this filing, the DCRB has derived indicated changes in voluntary market loss costs directly from the proposed residual market rate change discussed above. This derivation is accomplished by removing from those rate proposals the combined effects of all provisions for profit and expenses, other than loss adjustment expenses and loss-based assessments. As a result, like the proposed changes in Plan rates, these proposed revisions in overall voluntary market loss costs are based on statewide experience.

The relationship between collectible residual market rates and voluntary market loss costs is based on a loss cost multiplier (LCM) derived from industry underwriting expenses (Exhibit 11), including the underwriting profit provision from the internal rate of return analysis (Exhibit 9). Under Delaware law, loss adjustment expenses and loss-based assessments are included in the loss costs filed by the DCRB. The LCM is the reciprocal of the ratio of loss, loss adjustment expense and loss-based assessments to premium. In the previous filing, the proposed LCM was 1.3916 (= 1 ÷ 0.7186).

The loss cost multiplier in this filing is 1.4094 (= 1 ÷ 0.7095). Exhibit 12, page 12.1, line (9), reflects this modification to the DCRB's standard calculations. The table below provides the details.

Delaware Loss, Loss Adjustment Expense, Underwriting Expense and Profit		
Item	**Current Provision as a Percent of Premium**	**Proposed Provision as a Percent of Premium**
Loss	54.43	53.26
Loss Adjustment Expense	14.23	14.86
Commission	5.45	5.32
Other Acquisition	2.04	1.77
General Expenses	2.84	2.47
Premium Discount	8.59	8.53
State Premium Tax	2.00	2.00
Other State Taxes	0.32	0.31
Uncollectible Premium	2.30	2.86
Administrative Assessment*	3.20	2.83
Workers Compensation Fund	2.00	2.00
Underwriting Profit	2.60	3.79
Loss, LAE, Administrative Assessment	71.86	70.95
* Denotes loss-based assessment		

Using the proposed provision for loss, loss adjustment expense and loss-based assessments (the provision for loss costs), the indicated change in voluntary market loss costs is -19.40%, which is computed as follows:

$$0.8163 \times 0.7095 / 0.7186 = 0.8060$$

The proposed decrease in voluntary market loss costs is attributable to the same factors as those that impact residual market rates, except that the effects of expense provisions, other than loss adjustment expense and loss-based assessments, do not apply to loss costs.

It is important to note that the net effect of the proposed loss costs on ultimate prices for employers that will be insured in the voluntary market (the majority of all insured risks) may differ significantly from employer to employer and from insurer to insurer. Workers compensation insurance prices for these employers will be a function of individual carrier decisions. Each carrier may elect to use the DCRB's loss costs by reference, to deviate from those loss costs, to file independent loss costs, or to use loss costs filed by another insurer by reference. In addition, employers may obtain their future workers compensation insurance from a different insurance carrier than the carrier providing their current policy, further expanding the range of possible price changes that individual risks may experience. These variables in the determination of the ultimate price impact of the DCRB's filing are natural consequences of the competitive pricing system implemented in Delaware.

Residual Market Surcharge, Exhibit 19

Experience of employers insured under the Plan in Delaware has historically presented an aggregate loss ratio higher than that of employers insured in the voluntary market. As shown in Exhibit 19, the loss ratio of the Plan accounts was about 70% higher than the loss ratio for voluntary business in the five-year period 2014-2018.

During the late 1980s and early 1990s, Delaware had seen persistent increases in the portion of the market insured in the Plan. In previous response to these concerns, the DCRB filed, and the Insurance Commissioner approved, a Plan surcharge program in 1997 that incorporated the following features:

- Surcharges are limited to risks eligible for experience rating and only apply to risks with debit experience modifications (i.e., those employers with demonstrably higher than average experience).
- To avoid redundant or inequitable penalties, surcharges are applied only to the extent that each employer is not fully credible in the Experience Rating Plan. This procedure assesses larger proportional surcharges to small employers, who are largely protected from the effects of their own experience in the Experience Rating Plan, but reduces surcharges applicable to larger employers whose premiums significantly respond to their own loss records.
- Surcharges are limited to the debit portion of each risk's experience modification. This limitation provides a smooth transition from non-rated to experience-rated risks and/or from small experience rating credits to small experience rating debits.

The surcharge expressed as a factor to be applied to standard premium is computed using the following formula:

$$0.50 \times (1.000 - \text{risk credibility in the Experience Rating Plan})$$

As noted above, Plan loss ratios continue to be higher than those of the voluntary market. Since 2005, the portion of the Delaware workers compensation market insured under the Plan declined from a high of approximately 20% to a current low of about 5% in 2020. For this filing, the Plan market share is estimated at 4.65%. This estimate is based on the most recent available policy year, 2020. This represents a de minimis decrease compared to last year's market share.

This filing retains the Plan surcharge program as a disincentive for employers to have their Delaware workers compensation insurance coverage placed in the Plan.

The DCRB estimates that the surcharge program will produce an average surcharge for subject risks of approximately 18.8% of premium. Recognizing that some employers insured in the Plan do not qualify for experience rating and that other employers insured in the Plan qualify for experience rating but produce credit modifications, the surcharges produced by the proposed procedure would represent approximately 7.1% of total Plan premium.

The full amount of this surcharge premium is recognized in the calculation of proposed voluntary market loss costs for this filing. This approach allows a reduction of manual loss costs of less than 1% and essentially produces three different benchmark loss cost levels underlying workers compensation insurance rates in Delaware. These different underlying loss cost levels are as defined below:

1. Plan risks subject to surcharges (highest level depending on individual risk experience)
2. Plan risks not subject to surcharges (based on statewide average experience)
3. Voluntary market risks (based on statewide average experience reduced by offset for surcharges applied to first group above)

The DCRB believes that while the Plan surcharge approach does not fully address the loss ratio difference between the residual and voluntary markets, it is practical and represents a reasonable step toward reducing Plan subsidies and providing meaningful disincentives for placement of employers in the Plan.

Delaware Construction Classification Premium Adjustment Program (DCCPAP), Exhibit 14

This filing proposes to update the reference to calendar quarter(s) used as the basis for determining qualifying wages for the DCCPAP and update the table of qualifying wages underpinning that program with adjustments in the Statewide Average Weekly wage in Delaware, reflecting shifts in mix of workers by sector due to COVID-19 as discussed above.

Other Filing Provisions

In addition to proposed residual market rates, voluntary market loss costs and residual market surcharges, this filing addresses a number of rating values, programs, rules and procedures which are integral parts of the Delaware workers compensation insurance system. In general, the filing's proposals simply reflect parametric changes in various rating values consistent with the most recent available Delaware experience. Detailed information supporting each of these proposals is provided elsewhere in this filing. Here is a brief synopsis of these other changes:

Item	Filing Exhibit(s)	Proposed Change	Purpose
DCCPAP Program – Effective June 1, 2022	14	Revise manual rating value offsets & wage table	Maintain revenue balance of the program
Minimum Premium (residual market)	11, 27	Update parameters	Update for wage inflation
Excess Loss Factors	17b, 17c	Update ELFs	Maintain accuracy of rating values based on current data
Excess Loss Premium Factors	17d, 17e	Update ELPFs	Maintain accuracy of rating values based on current data
State and Hazard Group Relativities	18	Update Rating Values	Maintain accuracy of rating values based on current data
Experience Rating Plan	13, 20, 21, 27	Update Rating Values	Maintain accuracy of rating values based on current data
Small Deductible Program	16	Revise existing premium credit and loss elimination ratio schedules	Maintain accuracy of rating values based on current data
Workplace Safety Program	29	Revise manual rating value offsets	Maintain revenue balance in the program
Merit Rating Plan	29	Revise manual rating value offsets	Maintain revenue balance in the program
Retrospective Rating Plan	24, 25	Revise optional development factors and tax multiplier	Maintain accuracy of rating values based on current data

TECHNICAL DISCUSSION AND SUPPORTING INFORMATION

Attached to this filing are exhibits and materials that provide technical support for each of the proposals. In addition to the discussion that follows, each exhibit begins with one or more pages of discussion and technical details for the calculations that it contains. In order to highlight some of the more important aspects of the DCRB's technical analysis, the following discussion will address each of the following topics:

- Treatment of legislative and regulatory changes
- Effects of large losses on the experience analysis
- Estimation of policy year ultimate loss and loss adjustment expense ratios
- Trend provisions: Frequency, Severity

- Determination of the permissible loss ratio for proposed residual market rates
- Considerations regarding the Experience Rating Plan

Unless otherwise stated, the discussion and exhibits use experience from financial data collected by the DCRB in its annual financial data calls. These are the major topics underlying the proposed changes in residual market rates and voluntary market loss costs.

Treatment of Legislative and Regulatory Changes

Four recent major legislative changes have impacted medical expenditures in Delaware: Senate Bill 1 of the 144th General Assembly (SB1), Senate Bill 238 of the 146th General Assembly (SB238), House Bill 175 of the 147th General Assembly (HB175) and House Bill 373 of the 147th General Assembly (HB373). A fifth piece of legislation, House Bill 166 of the 148th General Assembly (HB166), supplemented changes in these other bills. The DCRB does not anticipate any impact on medical expenditures from HB166.

As mentioned earlier, losses are adjusted to a post-HB373 basis. That is, the underlying losses are adjusted to reflect Delaware law after SB1, SB238, HB175 and HB373. The calculations underlying the adjustment of unlimited losses to a post-HB373 basis are in Exhibit 1 – Unlimited Losses. The estimated impacts of each of these four laws were provided in previous DCRB filings.

The adjustment of losses to a common baseline in Delaware law allows the analysis of the underlying loss development and loss trend on a basis that is neutral to changes in law.

The law adjustment factors were developed separately for paid and incurred losses. The HB373 adjustment factors assume that payments were reduced consistent with the percentages stated in the law. The incurred factors also incorporate case adjustments to reflect the impact of HB373 as was done in past filings. However, in this year's filing, the reserve level adjustments were revised to a historical approach by removing any additional adjustments, with each reserve level change distributed evenly over a 36-month period, beginning from the effective dates of the medical fee schedule changes in 2015 through 2017. Previously, only one reserve level change, beginning in 2015, was implemented uniformly over a 36-month period. The results of the adjustments are paid and incurred loss development factors that are relatively more consistent across all years (both pre- and post-reform).

Additional details regarding legislative changes can be found in the Appendix at the end of this memorandum.

Effects of Large Losses on the Experience Analysis, Exhibit 1a

The analysis of residual market rates and voluntary market loss costs performed by the DCRB includes methods to reduce the impact of a small number of large claims in a given year. Starting with its annual experience filings effective December 1, 2004, the DCRB has applied procedures that perform loss development and trend analyses on a "limited" basis and then account for the expectation that claims exceeding the selected limit would occur from time to time by adding an excess loss factor to the rate level analysis. This filing has again approached loss development and trend analysis on a limited loss basis.

Loss amounts are stated on a post-HB373 basis. Loss development and trend analyses are conducted using losses at the post-HB373 level. The loss limit was adjusted to be stated on a post-HB373 basis (reflecting benefit levels and system provisions expected to be attained after

the successive changes to Delaware's medical fee schedule were completed on January 31, 2017).

The methods and steps regarding loss limits and trend are outlined briefly below:

1. The December 1, 2004 loss limit ($1,043,461 on a post-HB373 basis) and the associated excess loss factor (0.0757) were taken as a key reference point for determination of appropriate loss limitations for this filing.
2. Approved excess loss factor tables prior to December 1, 2004 were used to establish loss limitations consistent with an excess loss factor of 0.0757.
3. An annual trend rate was computed for the series of loss limits established in step 2 above.
4. Loss limits were interpolated for each policy period prior to December 1, 2004 based on the trend in loss limits through December 1, 2004.
5. Loss limitations consistent with an excess loss factor of 0.0757 for filings through December 1, 2020 were used to derive post-2004 annual trend rates. After review of recent changes in loss limitations, an average annual change of 4.61% was selected for Policy Years 2005 through 2016 and an average annual change of 2.97% was selected for Policy Years 2017 and subsequent.
6. Loss limits were projected for each policy period subsequent to December 1, 2004 based on the trends in loss limits through December 1, 2021.
7. A series of loss limitations was selected for previous policy years consistent with the trend through December 1, 2004, applied retrospectively from that date and consistent with the trend from December 1, 2004 through December 1, 2020, applied prospectively from December 1, 2004, such that losses were capped at successively lower levels for older policy years, recognizing the impacts of wage and price inflation and potential changes in utilization over time. For policy years prior to 1984, a constant loss limitation of $275,196 was applied.
8. Reported paid and case incurred losses were adjusted, as needed, to limit underlying loss data to the selected limitations by policy year. These can be found in Exhibit 1 – Limited Losses.
9. Loss development analysis was performed using the limited loss data produced above.
10. Trend analysis was accomplished by dividing the observed limited loss ratios into separate components for claim frequency and claim severity, and prospective trends were selected for each component.
11. A loss limitation was selected for the prospective rating period based on the post-2004 projections. This selection was $1,732,150 on a post-HB373 basis.
12. The portion of losses that the selected loss limitations would be expected to remove from Delaware experience was determined.
13. Trended limited loss ratios were adjusted to an unlimited basis by application of an excess loss factor, from which point the rate level analysis could proceed in the usual fashion.

Estimation of Policy Year Ultimate Loss and Loss Adjustment Expense Ratios, Exhibit 2 – Limited Losses

Much of the analytical effort required in workers compensation insurance ratemaking is devoted to the evaluation of loss experience from prior periods of time. Results of past experience form a vitally important base of information when developing the prospective estimates in this filing. Since workers compensation losses may be paid out over an extended period of time after an accident occurs and a claim is filed, results of recent periods of experience must be estimated before ratemaking analysis based on those prior periods of time may proceed.

The DCRB has considered the matter of estimating ultimate policy year loss and loss adjustment expense ratios at length in the preparation of this filing. In evaluating results of the methods in this filing, information gleaned from the DCRB's Unit Statistical Plan data was also used.

As mentioned above, three tail factor method changes have been incorporated with this filing. The primary goal for these changes were to improve the accuracy of our methods, further reduce systematic bias, and incorporate additional methods. The timing for some of these changes were made possible due to the implementation of our new data management system providing easy access to additional data.

The first change related to moving the tail attachment point from the 30th report to the 20th. This change results in several benefits. First, points further out in the tail are more random in nature as over 97% of the claims are closed by 10th report. Second, it allows more data points to be used with our tail methods. Third, it allows for methods to better handle the unique patterns and volatility between tail points and those at earlier maturities within the triangles. Fourth, it improves the convergence between the two loss development method projections. Also, attaching tail factors at the 19th or 20th report is common practice in many other states.

Once the new tail attachment point was determined, a second method was added to help project the incurred loss tail factors. After previously researching several commonly used distributions and methods for determine workers compensation tail factors including exponential decay, inverse power curve, growth methods, and others, the exponential decay model was selected. This method is commonly used for workers compensation insurance and allows for varying levels of development pattern stability (number of data points used in the model) or year-over-year observed volatility in the data (number of years averaged) between indemnity and medical. Exhibit 3, Pages 3 and 4 show the two exponential curve fits for indemnity and medical. Our prior incurred tail method was adjusted to be applied to an attachment point at the 20th report using an eight-point average for both indemnity and medical incurred losses, and then the final incurred tail factor selections are the result of averaging the two methods as shown on Exhibit 3, Page 1.

The tail factors for paid loss development are based on the incurred loss tail factors and a paid-to-incurred ratio or paid "bridge factor". Our previously used bridge factor placed significant weight on a few points at the 29th report. As discussed earlier, this made the calculations subject to a higher degree of volatility. The approach taken in this filing is an improvement over the prior method. A curve fit is performed on a broader set of data based on the paid-to-incurred ratio triangle to better determine the bridge factors for indemnity and medical losses (Exhibit 3, Pages 5 and 6). The curve fit projected paid-to-incurred ratios to the 50th report level, when virtually all of the claims have been settled. Exhibit 3, Page 7 also shows graphically the two selected curve fits, and the resulting bridge factors based on the average of the points between the 20th and 50th reports. The bridge factors are then combined with the paid development point at the 19th report as well as the incurred tail shown at the 20th report.

That is, paid loss development factors are used through the 19th report, developed to the incurred level at the 20th report, and then developed to ultimate using the incurred tail factor for beyond the 20th report. The individual development factors for each report are accumulated into report-to-ultimate factors, shown in Exhibit 2 – Limited Losses as "Cum LDF". The product of the report-to-ultimate factors and the most recent valuation of paid loss or case incurred loss, as appropriate, produces estimates of ultimate loss for all policy years displayed. This process produces estimates of ultimate loss for both indemnity and medical on both an incurred basis and a paid basis. The resulting projected ultimate losses can be seen on Exhibit 2 – Limited Losses, Page 4 for indemnity and Page 16 for medical. The resulting projected ultimate loss ratios appear on Exhibit 2 – Limited Losses, Page 5 for indemnity and Page 17 for medical.

The DCRB continued to use a four-year average of indemnity age-to-age development factors in its estimation of ultimate loss and loss adjustment expense ratios. For medical, given the recent volatility and the difficultly in adjusting medical loss development factors for the significant multi-year reforms, an eight-year average was selected to balance stability and responsiveness of the factors between the very low recent year factors impacted by the reforms and the higher prior year factors. For this filing, the latest available year of development experience available for this filing is Calendar Year 2020. This means that the policy years used in the analysis are evaluated at the end of Calendar Year 2020.

As has been the case in recent DCRB filings, a review of Unit Statistical Plan data showed claim closure rates that tended to be increasing in recent years. In addition, a review of the portion of reported losses that have been paid at successive annual stages, from financial data, also provides signs of improvement. Exhibit 7 provides both sets of results.

Consistent with historical practices, the DCRB has based estimates of ultimate indemnity and medical losses in the filing on the average of the case incurred loss development method and paid loss development applied over as long a development period as is available from the DCRB's data, with case incurred loss development used for the remaining development to an ultimate basis.

As in prior analyses, the DCRB used the following approach to smooth fluctuations arising due to the limited volume of data available for the analysis:

- Use of four-year averages when selecting indemnity loss development factors
- Smooth loss development factors using various mathematical models and curves fitted through the observed multi-year averages
- Use trend procedures which rely on multi-year averages rather than individual year ultimate loss and loss adjustment expense ratios

A comparison of results of loss development methods used in the filing may be seen on the enclosed Exhibit 2 – Limited Losses at the top of Page 5 for indemnity loss and at the top of Page 17 of the same exhibit for medical loss.

Trend Provisions, Exhibit 12

Each DCRB filing applies to a prospective time period. Since historical data is used in the analysis, it is necessary to account for any anticipated changes in loss ratios over the time between the end of the available data and the policy period to which the proposed rates will apply. This is known as "trend" analysis.

Since 2002, the DCRB has used a trend approach that separates policy year loss ratio trends into frequency and severity components. Frequency is measured on the basis of indemnity claims per unit of expected loss at a constant DCRB rate level. The use of expected loss in the calculation of frequency incorporates exposure trend, however is not affected by loss cost changes.

Policy year on-level ultimate loss ratios are adjusted to a series of severity ratios by removing the effects of actual observed changes in the frequency of indemnity claims. The series of resulting severity ratios represent the policy year loss ratios that would have applied if all years had the same claim frequency. The result is a series of indices of claim severity. Loss ratio trends can then be derived as the combined result of separately determined claim frequency and claim severity trends.

In both the frequency and severity trend analyses, the goal is to develop the best estimate of frequency and severity in the upcoming policy period based on recent historical data.

Frequency

Frequency analysis by the DCRB is based on Unit Statistical Data as shown in Exhibit 23. In last year's filing, the changes between Policy Years 2015 to 2016 and 2016 to 2017, were -12.4% and +0.4%, respectively. Additionally, the frequency change from Policy Year 2017 to Policy Year 2018 was -11.3%. In this filing, a similar pattern was seen with respective percentages of -14.0%, +2.6% and -10.4%. The newest data includes Policy Year 2019, which shows a frequency change from Policy Year 2018 of +4.5%. While the year-to-year changes show opposite signs for these recent policy years, overall frequency continues to decline.

As mentioned earlier, the analysis contained a change that develops the claim counts used in the frequency analysis to an ultimate level. It is considered actuarial best practice to develop claim counts to an ultimate level where reasonable and consistent factors can be determined. This change was made possible with our new data management system. Exhibit 23, Page 2 shows the Reported Claim Count development triangle and development factors. The statewide volume of data produces very stable and consistent factors allowing an all-year average to be selected for most periods. There was limited development beyond the 4th report, so the factors result in unity beyond that point. While this new approach did not result in a material change to the overall indication, it is considered a more actuarially sound method compared to our previous method which used reported counts at the 1st report.

Given this volatility in Delaware claim frequency data, the DCRB considered several approaches to estimate claim frequency trend for this filing. A seven-point exponential trend model, which has been used in previous DCRB filings, was applied to the claim frequency data, resulting in a selected frequency trend of -4.9%, which is 0.5 percentage point lower than in last year's filing (-5.4%).

Severity

In estimating claim severity trends, the DCRB applied both linear and exponential trend models to the policy year severity ratios produced by the loss development methods discussed above. Indemnity and medical ratios were treated separately and, for each method, the linear and exponential models were applied to all possible numbers of policy years from four through ten.

For indemnity benefits, the DCRB applied a seven-point exponential trend model, which gave a severity trend, based on Policy Years 2013 to 2019, of -1.2%. When combined with frequency trend, the resulting indemnity loss ratio trend is -6.1% per year:

$$0.9511 \times 0.9877 = 0.939$$

Indemnity loss ratios for this filing were then trended to December 1, 2022, the midpoint of the prospective rating period, by applying the claim frequency and claim severity trends to each of the most recent four policy year loss and loss adjustment expense ratios. The final projected indemnity loss and loss adjustment expense ratio, 0.2346, is based on the average of these four trended policy year indemnity loss and loss adjustment expense ratios.

The same claim frequency trend analysis used for indemnity loss was used for medical benefits. While the DCRB's measure of claim frequency uses only indemnity claims, the vast majority of medical benefits are attributable to indemnity cases. This approach is consistent with prior filings.

Due to the impact from the medical reforms, the DCRB used a split trend when trending periods before and after January 31, 2018. This date was selected as it was the date when the fee schedule began to increase after the reform period fee schedule decreases that occurred in 2015-2017. Based on this, a seven-point exponential trend fit was used for the periods prior to January 31, 2018, and a 10-point fit was used for trending periods after January 31, 2018. This resulted in an annual trend rate of -0.5% for the period prior to January 31, 2018, and 1.6% for the period after January 31, 2018. When combined with frequency trend, the resulting medical loss ratio trend is -5.3% and -3.4% per year for each period, respectively.

$$\text{Prior to January 31, 2018: } 0.9511 \times 0.9953 = 0.947$$

$$\text{After January 31, 2018: } 0.9511 \times 1.0159 = 0.966$$

Medical loss ratios for this filing were then trended to December 1, 2022, the midpoint of the prospective rating period, by applying the claim frequency and claim severity trends to each of the most recent four policy year loss and loss adjustment expense ratios. The final projected medical loss and loss adjustment expense ratio, 0.2806, is based on the average of these four trended policy year medical loss and loss adjustment expense ratios.

Determination of the Permissible Loss Ratio for Proposed Residual Market Rates, Exhibit 9

It is common in preparing workers compensation rate filings to use methods that explicitly recognize investment income in concert with anticipated cash flows, benefit costs and expense needs. The actual methods used differ from jurisdiction to jurisdiction. The DCRB's approach has been to directly compute a permissible loss and loss adjustment expense ratio consistent with an independently established target rate of return. This is the same approach as has been used in previous annual filings.

The prospective determination of an appropriate overall rate of return, which workers compensation insurers should be entitled to earn given the risk they assume in underwriting this line of business, is accomplished by a variety of economic analyses which are generally based

on expected returns for businesses subject to risk levels comparable to that of underwriting workers compensation insurance. These methodologies next proceed by establishing a set of cash flows representing the various transactions related to the underwriting of workers compensation insurance. These cash flows include the expected patterns for the receipt of premiums, payment of losses and expenses, use of tax credits and/or payment of tax obligations, and maintenance of surplus funds in support of the business. Expense levels to which expense cash flows apply are determined based on historical experience.

Estimates of the probable investment results that an insurer underwriting workers compensation insurance may expect to achieve were made by reviewing existing insurer investment portfolios and prevailing investment returns on various forms of investments. Applying these estimates to the cash flows previously established allows an explicit presentation of the effects of investment income throughout the life of a book of workers compensation policies and an estimate of the value of that income to the insurer.

Based on the set of cash flows determined to apply to prospective policies and the estimated parameters of investment yields, federal tax laws, etc., these methods model all expected cash flows over the entire period during which payments attributable to a given policy period are expected to continue. For any given loss provision in rates, the present value of these cash flows can then be consolidated and compared to the target rate of return. The loss provision accomplishing a balance between the expected and target rates of return then becomes the basis for the permissible loss ratio. Within the concept of the Internal Rate of Return (IRR) Model used by the DCRB, the loss provision includes provision for amounts generally related to losses such as loss adjustment expense and loss-based assessments.

This filing, as has been done in previous DCRB filings, recognizes investment income on reserve and surplus funds in determining the overall expected return for carriers from writing workers compensation business in Delaware.

The analysis supporting this filing used the same IRR model as used in last year's filing. This filing indicates a needed underwriting profit provision of +3.79% compared to last year's underwriting profit provision of +2.60%. This difference is primarily driven by increases in investment yields compared to last year.

For this filing, the DCRB again retained an independent economic consultant to perform the above-described analyses. Results of this work are presented in complete detail in Exhibit 9.

Additional expense provisions are shown in Exhibit 8 and the expense loading is shown in Exhibit 11.

Considerations Regarding the Experience Rating Plan, Exhibits 13, 20, 21 and 27

The DCRB reviews the performance of the Experience Rating Plan as part of its analysis supporting each annual rating value filing submitted to the Department of Insurance. Fluctuations in results of the plan, in particular movement in the average experience modification produced by the plan, are measured and accounted for in the derivation of proposed changes in manual rates and loss costs. This allows the Experience Rating Plan to reallocate premium obligations among insureds based on the merits of their past experience, but not either increase or reduce the total amount of premium indicated by the DCRB's benchmark filings of residual market rates and voluntary market loss costs.

The DCRB based the Collectible Premium Ratios used to derive manual rating values for purposes of this filing on the most recent three completed available years of Market Profile data as shown in Exhibit 20. This approach is used to support the proposed collectible rate and loss cost changes and to provide more current recognition of the probable impact of experience rating for the upcoming rating period.

Exhibit 32 is a new exhibit which calculates temporary staffing rates based on the new methodology presented in DCRB Filing No. 2012. The proposed rates and loss costs in this filing will replace those approved in that filing.

CLOSING COMMENTS AND QUALIFICATIONS

DCRB Filing No. 2104 fully and fairly reflects the most recent available experience indications in Delaware, together with all initial and continuing effects of SB1, SB238, HB175 and HB373. The DCRB respectfully requests a timely review of this filing, allowing implementation on a new and renewal basis **effective December 1, 2021**. A timely review will allow adequate advance notice of final residual market rates and voluntary market loss costs and related rating values to all participants in the Delaware marketplace. Toward that objective, the DCRB will be pleased to answer any questions or provide any available supplementary information which you, your staff and consultants reviewing this filing on your behalf may require.

This filing has been developed by and under the direction of Brent Otto, FCAS, MAAA and Ken Creighton, ACAS, MAAA. They both meet the Qualification Standards of the American Academy of Actuaries to provide the actuarial opinion contained within this filing.

Please direct all questions to:

Brent Otto
Vice President of Actuarial Services
and Chief Actuary
botto@dcrb.com
215-320-4451

Ken Creighton
Director of Actuarial Services
kcreighton@dcrb.com
215-320-4924

APPENDIX – LEGISLATIVE CHANGES

Here is a brief summary of the recent major legislative changes in Delaware.

Senate Bill 1, 144th GA

SB1 was signed into law on January 17, 2007. This was a landmark piece of legislation, creating several features of the health care payment system in Delaware. It included the following notable components:

- Established a Health Care Advisory Panel
- Provided for a health care payment system intended to control health care costs in connection with workers compensation
- Provided for the establishment of health care practice guidelines
- Provided for the development of certification standards for health care providers treating employees in the workers compensation system
- Provided for the adoption of forms and a consistent and uniform reporting system among employees, employers, insurance carriers and health care providers
- Adopted standards for billing and payment of health care services
- Required contractors and other parties doing substantial work within Delaware to adequately insure their employees for workers compensation under the laws of Delaware
- Authorized payment of indemnity benefits or health care benefits without prejudice against the right to later contest the employer's obligation to pay the expense in question
- Established new procedures for attorney fees in workers compensation matters
- Clarified the obligations of independent contractors and subcontractors with respect to maintaining workers compensation insurance
- Clarified the calculation of wage rates, especially in cases where employees had limited work histories
- Implemented procedures for the collection of data relevant to workers compensation including injury reports, mandatory insurance requirements and health care treatments and costs

Senate Bill 238, 146th GA

SB238 was signed into law on August 7, 2012, and revised procedures used to determine payments to hospitals and ambulatory surgery centers for services provided to workers compensation claimants. SB238 made technical improvements to the changes in SB1.

House Bill 175, 147th GA

HB175 was signed into law on June 27, 2013, arising from work done by the Workers' Compensation Task Force created by House Joint Resolution 3.

House Bill 373, 148th GA

HB373 was signed into law on July 15, 2014, and included the following notable components:

- A 33% reduction in medical expenditures phased in over a three-year period (20%, 5% and 8%) effective 1/31/2015, 1/31/2016, and 1/31/2017 respectively.
- Imposed caps expressed as percentages of Medicare per-procedure reimbursements beginning on January 31, 2017

- Revised certain procedures pertaining to the position of Ratepayer Advocate

House Bill 166, 148th GA

HB166 was signed into law on July 27, 2015, and included the following provisions:

- Defined "health care provider" for purposes of §2301
- Allowed recognition of savings other than fee schedule changes in accomplishing the reductions in medical expenditures required by HB373
- Modified procedures applicable to the reimbursement for medical treatment and procedures performed outside Delaware
- Authorized the Workers Compensation Oversight Panel to adopt rules requiring electronic medical billing and payment processes and to standardize documentation required for billing adjudication
- Provided for the certification of healthcare providers not licensed by Delaware
- Made the utilization review program applicable to health care providers regardless of whether such providers are certified under §2322D

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