

To: The Honorable Michael Humphreys, Acting Insurance Commissioner
From: Brent Otto, FCAS, MAAA, Vice President of Actuarial Services and Chief Actuary
Date: December 2, 2022
Subject: PCRB Filing C-381 – Workers Compensation Loss Cost Filing
Proposed Effective Date: April 1, 2023

This actuarial memorandum provides a discussion of the analysis performed by the PCRB resulting in the proposed changes to loss costs and other rating values in Pennsylvania contained in this filing. The loss costs in this filing are meant to apply to policies written from April 1, 2023 through March 31, 2024.

Indicated and Proposed Overall Change	-3.33%
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The premium and loss experience underlying this filing has been updated with a new year of data compared to Filing C-380 (the April 1, 2022 Loss Cost filing). In this filing, a portion of a member's financial data containing issues noted in previous filings has again been excluded for valuation dates December 31, 2019, December 31, 2020, and December 31, 2021. However, the member's unit statistical data was included in this filing, as it was in previous filings.

Throughout this memorandum, several pieces of legislation are referenced. They are as follows: Act 44 of 1993 (Act 44), Act 57 of 1996 (Act 57), House Bill 1846 of 2014 (HB1846) and House Bill 1840 of 2017 (HB1840)¹. Also referenced is the Pennsylvania Supreme Court decision in *Protz v. WCAB (Derry Area School District)* (Protz).

In this year's filing, the underlying indemnity losses are again adjusted to reflect Pennsylvania law after Act 57, Protz and HB1840 (a post-HB1840 basis). Also, the medical losses continued to be reflected on a post-HB1846 basis.

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 April 1, 2023 indication. Also, several economic impacts that resulted in unusual changes due to the pandemic during Calendar Years 2020 and 2021 were excluded or smoothed in the analysis. The resulting economic impacts related to the shutdowns are having a more significant impact relative to the costs of claims. The primary factors influencing the decision to exclude COVID-19 claims 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 uncertainty regarding the final adjudication of these claims.
- 3.) This provides consistent handling between claims and economic impacts of the event as both effects are being excluded or adjusted.

¹ For consistency with prior filings, the term HB1846 is generally used in this memorandum, rather than Act 184 of 2014. Likewise, HB1840 is referenced, rather than Act 111 of 2018.

- 4.) There are not yet any reliable pandemic modeling results for a “pandemic load”, which will take time to evolve.

The indication included Policy Years 2019 and 2020, which excluded 1,375 claims totaling \$9.9 million coded to COVID-19 from the Financial Call #15 (Catastrophe No. 12) as of December 31, 2021. Given the relatively small number and amount of these claims, the decision to include or exclude these claims in this year’s filing was not material with an impact of -0.3%. The filing also did not include any payroll coded to the miscellaneous statistical code 1212 introduced for paid furloughed workers used during the pandemic.

The filing included several COVID-19 economic-related adjustments due to the unusual nature of the sudden economic shutdowns, which resulted in some abnormal data patterns that are not expected to continue into future periods. This required considerations for frequency, indemnity and medical severity, policy years’ weights, medical loss development factors, and premium development factors.

Due to Policy Years 2019 and 2020 being abnormally skewed as a result of the economic shutdowns from the pandemic, special considerations, related to the frequency trend selection, were necessary. Similar to last year, frequency used a 7-point fit excluding the two years impacted by the pandemic. This was due to the mismatch between claims and exposure levels that are expected to return to historical patterns in the future. This resulted in the same frequency selection as last year.

The historical selections for indemnity and medical severity used a 7-point fit excluding Policy Year 2020. Those selections appeared to be more depressed than expected due to the pandemic. Also, the indemnity and medical severity selections were impacted by the addition of a new method. The new method was necessary since the historical data does not reflect future costs due to the economic effects of the pandemic. Higher indemnity costs and medical fee schedules tied to the Statewide Average Weekly Wage (SAWW) changes will impact future periods differently, compared to the patterns seen in the historical filing data. This additional cost needs to be reflected in the trend selections. The combined impacts on the indemnity and medical severity trends by using these two approaches were 3.1% and 2.4%, respectively.

Also, due to anomalies in the Policy Year 2020 experience, the weight placed on that year in the indication was reduced to 20%, while 40% weight was placed on each of the other years (2018 and 2019). In past filings, each year received equal weight. Since some of the effects related to the pandemic are expected to continue into the future (e.g., workplace trends that support telecommuting workers), Policy Year 2020 was not totally excluded from the indication. The effect of this change on the indication is 1.0%.

Considerations were again made with the medical loss development factors in the 1-2 development period. Like last year, a 5-year excluding high and low average was selected to smooth out the volatile points. This was done in both the medical paid and incurred development factors.

Similar to last year, other considerations were made related to the selection of the most recent premium development factor, which was 1.0. This year’s selection was between the 4-year average and the most recent, and unusually low, observed factor, which was less than unity. This selection was made in a consistent manner as last year.

The PCRB feels these adjustments are reasonable and necessary to limit the unusual nature of the pandemic from impacting the projection of future loss cost levels.

This filing also includes methodology changes related to the calculation of incurred tail factors that impact the indication. These changes are supported in detail below.

Both methods for determining the incurred tail factors were revised. The first method, the Traditional Incurred Tail, was changed from a 4-year average to a 7-year average and had no overall impact. The second tail method, the Curve Fit, was changed from using an Exponential Decay curve to a Weibull curve. This carried a -0.4% impact (further discussion on Page 8).

The discussion in this memorandum is organized by the following topics:

- Summary of Key Elements
- Recognition of Effects of Changes in Law
- Adherence to Actuarial Principles and Standards of Practice
- Methods
 - Premium and Loss Development
 - Trends (Exposure, Frequency, Severity)
- Indicated Change in Loss Costs
- Employer Assessment Factor and Loss Cost Loadings
- Experience Rating Plan Parameters
- Retrospective Loss Development Factors
- Classification Loss Cost Relativities
- Excess Loss (Pure Premium) Factors, Loss Elimination Ratios and State and Hazard Group Relativities
- Closing Comments and Qualifications
- Index of Exhibits

SUMMARY OF KEY ELEMENTS

Aside from the COVID-19 considerations and incurred tail changes noted above, the PCRB has employed procedures and analyses consistent with those supporting the prior year's annual filings. The following table summarizes the major components of the proposed change.

Components of the Indicated Change in Loss Costs		
	Component	Impact on Indication
1	Indemnity Loss	-3.18%
2	Medical Loss	-4.15%
3	Indemnity Trend	2.27%
4	Medical Trend	1.85%
	Overall Indicated Rate Change	-3.33%
Note that the total results from converting the percentages to factors (e.g., -3.33% is 0.9667, in factor form) and calculating the product of the four factors.		

Each of the components identified in this chart are briefly discussed below with more thorough discussion found in subsequent sections of this memorandum.

Changes in Indemnity Loss Experience

The PCRB's analysis of the experience data for indemnity benefits produces estimates of loss costs that would be lower than the costs underlying the schedule of loss costs in last year's annual filing. The available historical indemnity data was adjusted to be consistent with provisions of Act 57 and applied benefit on-level factors to adjust historical indemnity data to a post-Act 44 basis. Further, factors were applied to adjust indemnity experience to a post-HB1840 basis before proceeding with the loss development and trend analyses. The indemnity loss experience in the current filing, after adjustment to ultimate value, but before adjustment for trend, implies a change in indicated loss costs of -3.18%.

Changes in Medical Loss Experience

The medical loss experience was adjusted to a post-HB1846 basis, before proceeding with the loss development and trend analyses. The evaluation of medical loss experience in this filing, after adjustment to ultimate value, but before adjustment for trend, shows a change in indicated loss costs of -4.15%. The change in medical loss experience is relatively lower than the indemnity loss experience due to lower indicated medical tail factors.

Changes in Trend

Similar to last year's loss cost filing, the trend provisions are based upon separate analyses of claim frequency and claim severity experience for the Pennsylvania workers compensation system. The PCRB has applied an exponential trend model fitted using seven policy years (2012 to 2018) as the basis for estimating claim frequency trend. As noted above, Policy Years 2019 and 2020 were not used due to the distortion caused by the pandemic.

For both indemnity and medical severity, ultimate loss ratios at current loss cost levels are adjusted to remove frequency. The remaining severity ratios have been reviewed using commonly accepted trend methods. Additionally, claim severity was analyzed, in a manner noted above, to include a second method that looks at the change in SAWW. This is reasonable since the recent changes in costs are not yet reflected in the historical data and the future costs are correlated with changes in SAWW for both indemnity and medical.

The following table provides a summary of trend results and a comparison to the results in last year's loss cost filing. It shows that the indicated changes in loss costs are higher since the frequency remained the same and the severities are higher.

PCRB		
Trend Comparison Current v. Prior		
	Indemnity	Medical
Current Analysis		
Frequency Trend	-6.17%	-6.17%
Severity Trend	+2.86%	+3.39%
Combined (Loss Ratio) Trend	-3.49%	-2.99%
Prior Analysis		
Frequency Trend	-6.21%	-6.21%
Severity Trend	+1.59%	+2.40%
Combined (Loss Ratio) Trend	-4.72%	-3.96%
Impact to Current Indicated Change		
	2.27%	1.85%

RECOGNITION OF THE EFFECTS OF CHANGES IN LAW

As in past filings, the PCRB has adjusted reported experience reflecting changes in law to the historical data. As mentioned previously, this includes Act 44, Act 57, HB1846 and HB1840. This also included adjustments due to Protz.

In this year's filing, indemnity losses were adjusted to a post-HB1840 basis, consistent with last year's filing. Table I, prepared from reported financial data in support of this filing, adjusted to a post-HB1840 and HB1846 basis, is shown in Exhibit 4. Details of the adjustments are provided in Exhibit 4.

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. Loss costs, as developed, filed and distributed by the PCRB 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 April 1, 2023 to March 31, 2024. The ultimate, true value of these claims 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."

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 20 largest carrier groups in Pennsylvania 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.

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."

Unpaid claim estimates are discussed in this filing in the Loss Development section. In November 2014, the Casualty Actuarial Society revised the Statement of Principles Regarding Unpaid Claims Estimates, removing reference to several considerations that now appear in ASOP 43. While this ASOP specifies that it does not apply to "estimates developed solely for ratemaking purposes," the PCRB has nevertheless adhered to the spirit of this standard. Below is a discussion of limitations that may have a substantive impact on the unpaid claims estimates included in the filing.

The PCRB notes that the estimates for unpaid claims included in the referenced filing are inherently uncertain. This uncertainty stems from a dependence of the amount of future claims payments on facts and circumstances that are unknown at this time. Also, the following additional limitations may apply.

Aggregate Data

The filing contains data and information for the combined experience of carriers in the PCRB's database. The policy year data valued as of December 31, 2021 used to calculate the overall loss cost indication in this filing was based on most companies in the database. The total Pennsylvania workers compensation market share of those companies was approximately 98%. This compared to market shares of 99%, 99% and 97% in the April 1, 2022, 2021 and 2020 loss cost filings, respectively. Not all companies' financial call data is used in the filing due to data quality issues or because certain companies/groups did not submit financial calls to the PCRB.

As noted elsewhere in this filing, a portion of a member's financial data containing issues noted in previous filings has again been excluded for valuation since December 31, 2017. However, the member's unit statistical data was included in this filing as with previous filings.

Data by carrier or insured is not disclosed in the filing to protect the proprietary and trade secret information of these entities. However, it is acknowledged that the experience of the individual member companies or insureds may be different (or may be perceived to be different) from the aggregate experience of the PCRB's total membership.

Legislative Changes

The impact of legislative adjustments over time is another area that can impact unpaid claim estimates. The uncertainty inherent in the estimation of legislative reform implies that a range of reserves can be actuarially sound. The true value of the impact of these reforms may not be known until all claims have been settled.

METHODS

The ratemaking approach in this filing has three overarching steps:

- Gather premium and claim data from prior periods and project it to its ultimate value. This is commonly known as premium and loss development.
- Project the resulting estimated ultimate loss ratios for both frequency and severity trend to the midpoint of the future policy period.
- Make any other adjustments necessary to reflect known trends or changes impacting premium or claims.

PREMIUM AND LOSS DEVELOPMENT

This filing uses premium and loss experience from recent policy years to estimate the costs of the upcoming policy period, which starts April 1, 2023. Using experience from prior years is perhaps the most common approach to developing estimates of future costs in property and casualty insurance ratemaking and relies on the basic assumption that past experience is a key source of information and insight regarding future costs.

Premiums used within the analysis are developed due to audits and other adjustments that occur over different reporting periods. As mentioned above, the disruption from the pandemic resulted in a different selection from pre-pandemic filings, which utilized a 4-year average of factors. In this filing, the Policy Year 2020 premium development factor was selected as 1.0. This is between the 4-year average containing pre-pandemic economic growth conditions and a factor of less than unity observed in the most recent evaluation. The PCRB believes this is a reasonable selection based on a review of past years containing both growth and recessionary periods, lower employment levels leading to reduced audits and negative EBUB adjustments filed by more carriers than in previous years. The expectation is that development will return to historical patterns.

For loss development, this filing utilizes both the case incurred loss development and the paid loss development methods in the analysis of loss experience of prior policy periods. The PCRB has selected the average of these two methods in its estimate of future costs. The average provides a balance between the different results of the case incurred and the paid loss

development methods. Results of these loss development methods are set forth in detail in Exhibits 5, 7 and 10. The data used to calculate the two most recent sets of development factors (link ratios) is shown in Exhibit 4.

Data in Exhibit 4 is organized so that policy year losses for a given stage of development, used to calculate development factors, are from a common population of companies. To make the best use of available data, the population of companies used for one stage of development is allowed to differ from the population for other stages of development. Exhibit 4 provides the data for two stages of development: policy years valued as of 12/31/19 developing to values as of 12/31/20; policy years valued as of 12/31/20 developing to values as of 12/31/21. These are the two stages of development used to select loss development factors in this filing. The development factors calculated in this fashion are shown in columns labeled, "Ratio to Prior Year."

Exhibits 5 and 6 show the development factors calculated in Exhibit 4, along with several sets of factors from prior years for comparison. The selected factors for indemnity and medical, both paid and incurred, are the average of the factors for the latest two stages of development (from Exhibit 4). The exceptions to this are in the medical paid and incurred 1st to 2nd development points, which used a 5-year excluding high and low average. As mentioned above, these points were distorted due to the economic effects from the pandemic. The medical points of concern can be seen in Exhibit 6, pages 4 and 5, for the Policy Years 2018 and 2019/2 link ratios. For example, the 1/2 medical incurred link ratio for Policy Year 2018 observed a large reduction compared to Policy Year 2017, while Policy Year 2019 was a large increase compared to 2018. For consistency, both the paid and incurred factors used the alternative selection to avoid distorting the development pattern. Carrier feedback supported this observation as being abnormal. Due to the pandemic, some carriers noted observing a decrease in medical link ratios, longer claim closure patterns, and loss of medical procedures due to the shutdowns. Most believe the effect will be temporary and things will revert to pre-pandemic patterns, which appears to be the case. These selection changes had a 0.6-point overall impact on the indication compared to using the normal 2-year average.

Exhibit 7 shows the calculations for our 20th to ultimate tail factor selections. As mentioned above, two changes were made to the incurred tail methods. After researching several commonly used distributions and methods to determine workers compensation tail factors, including the inverse power curve, growth methods, and others, the Weibull model was selected. This method is commonly used in workers compensation insurance, works with incurred loss factors below unity 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 7 shows the curve fits for indemnity and medical. The historical incurred tail method was changed to a 7-point average for both indemnity and medical incurred loss factors for greater stability, instead of a 4-point average used last year. Stability is desired for any tail factor method, especially one that uses actual data points that can be volatile. The final incurred tail factor selections were the result of averaging the two methods. The resulting tail factors are summarized in Exhibit 7, Page 1 with the detail calculations following on Pages 2-17.

The tail factors for paid loss development are based on the incurred loss tail factors and a paid "bridge factor" using ratios of incurred losses to paid losses. The 20th to ultimate paid bridge

factors are calculated in Exhibit 7, Pages 18-20. Like last year, the approach taken in this filing uses a curve fit. The curve fits are performed on a broader set of data based on triangles of incurred to paid loss ratios using a 2-year average of factors. The curve fits project these ratios to the 50th report level, when virtually all of the claims have been settled. Exhibit 7, Page 20 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 multiplied by the incurred tail factors to calculate the paid tail factors for both indemnity and medical.

Paid and incurred loss development factors are used through the 19th report with the tail factors added at the 20th report to develop losses to an ultimate level. The individual development factors for each report are accumulated into report-to-ultimate factors, shown in Exhibit 5 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 and paid basis. The resulting projected ultimate losses can be seen on Exhibit 5, Page 7 for indemnity and Page 14 for medical. The resulting projected ultimate loss ratios appear on Exhibit 5, Page 8 for indemnity and Page 15 for medical.

In summary, the paid loss development method and the incurred loss development method provide important insight into the projected costs of the upcoming policy period. The practice of using the average of the two methods, as is done in this and in prior filings, strikes a balance between the two and utilizes the strengths of both methods: the paid loss development method relies on actual payments and payment patterns, while the incurred loss development method uses actual payments plus the amounts that insurers have identified as the additional amounts to be paid on a case-by-case basis. These two methods produce consistent and relatively tight projections in most years, which is a desirable outcome between methods.

TRENDS

This filing incorporates adjustments for four types of trend, or the inflationary (deflationary) forces that affect costs and the methods of measuring and projecting costs: exposure trend, frequency trend, indemnity severity trend, and medical severity trend.

Exposure Trend

In this filing, as has been done in prior filings, standard earned premium is calculated at current loss cost levels. This removes the impact of loss cost level changes. The remaining trends in exposure are matched to trends in costs through loss ratios. By dividing losses for a policy year, either on a paid or case incurred basis, by premium at current levels, the loss-based costs of providing workers compensation coverage are directly paired with the premium for the coverage. When loss ratios rise, then costs are rising relative to premium, and when they decline, the costs are declining relative to premium, exclusive of filed loss cost changes. Thus, the loss ratio methods used in this filing implicitly reflect premium trends due to exposure changes. The loss ratios are shown in Exhibit 5, Page 8 for indemnity and Page 15 for medical.

Frequency Trend

Exhibit 8 provides the analysis of frequency trend. Indemnity claim counts are used as a consistent measure for frequency since these claims include those with indemnity and medical

benefits. Medical only claims are not used here to reduce the volatility they bring, however the cost of medical only claims is incorporated later in the medical loss ratios. Separate analyses are shown; the first excludes large deductible business, while the second includes it. This exhibit also includes graphs of frequency using both approaches, along with non-deductible business broken down by industry group.

The analysis develops claim counts used in the frequency analysis to an ultimate level. Exhibit 8, Page 2 shows the Reported Claim Count development triangle and development factors. The statewide volume of data produces very stable and consistent factors allowing a 5-year average to be selected. There was limited development beyond the 4th report, so the factors result in unity beyond that point.

The PCRB selected the 7-year exponential trend excluding Policy Years 2019 and 2020, as shown on Exhibit 8, Page 1 (see "PY12-PY18"). The resulting frequency trend, -6.2%, the same result as selected in last year's filing. As mentioned earlier, Policy Years 2019 and 2020 were not used due to being dramatically distorted due to the pandemic. This can be seen on Exhibit 8, Page 1, for PY 2019. The frequency point shows a large decrease of -11.3%. Prior to this year, the changes have been consistently around -6%. This result is abnormal as the sudden shutdowns due to the pandemic created a mismatch between a more sudden drop in claim counts and a slower drop in exposures used to calculate frequency. Carriers have indicated that more recent calendar accident years are reverting to the previously observed historical trend patterns. Testing showed that, if the observed frequency change next year was slightly higher, at around -3%, then the historical trend at around -6%, including 2019 and 2020, would be restored. This selection change had a 2-point overall impact on the indication compared, which was similar to the effect of excluding Policy Year 2019 last year.

Claim frequency ("#Claims per \$1 million") in Exhibit 8 is reproduced in Exhibit 5, Page 8. These are actual frequency measures, not fitted. The figures are normalized to show them relative to Policy Year 2010. The frequency component of indemnity and medical trend is removed by dividing the indemnity loss ratio and the medical loss ratio by normalized frequency. The resulting indemnity severity and medical severity ratios show the resulting severity over time. In other words, by holding exposure trend and frequency trend constant, the remaining severity trends may be observed and analyzed.

Indemnity Severity Trend

Exponential trend models are applied to the severity ratios of the seven most recent available policy years, excluding Policy Year 2020, and to a SAWW index using the six most recent available policy years to estimate indemnity claim severity trend. The selected indemnity severity trend of 2.9% is the average of the historical indemnity severity trend of +1.1% and the indicated SAWW trend of 4.6%. This is higher than the selected indemnity severity trend in last year's filing, which was +1.6%. Exhibit 1, Page 2 and 3, provides details of the severity ratios, SAWW trends and the variety of analyses applied. As mentioned earlier, the introduction of the SAWW trends is necessary given that the historical data alone is not representative of future costs.

Medical Severity Trend

Exponential trend models are applied to the most recent seven available policy years, excluding Policy Year 2020, and to a SAWW index using the six most recent available policy years to estimate medical claim severity trend. The use of SAWW is reasonable since the change in the medical fee schedule is based on the change in SAWW. The fee schedule is expected to increase more significantly, compared to recent years, due to the rise in SAWW related to the economic changes as a result of the pandemic. The shift in these costs will not be observed in the historical data for several years. Also, note that the pandemic-related adjustments for both the medical loss development factors and for frequency has allowed the use of Policy Year 2019 in the severity trend models. The selected medical severity trend is +3.4%, an average of the historical medical severity trend of +2.2% per year and the indicated SAWW trend of 4.6%. The selected trend is higher than the selected medical severity trend in last year's filing, which was +2.4%. Exhibit 1, Pages 2 and 3, provides details of the medical severity ratios and the variety of analyses applied.

INDICATED CHANGE IN LOSS COSTS

Exhibit 1 presents the derivation of indicated changes in collectible loss costs effective April 1, 2023. The indicated change in collectible loss costs is derived based on estimates of prior policy year loss ratios on a post-reform basis as described previously. The estimated policy year loss ratios are trended forward to the midpoint of the prospective policy period (April 1, 2024), resulting in a loss ratio of 0.9667, which represents a change in collectible loss costs of -3.33%.

Recognizing expected changes in experience modifications during the period for which the proposed loss costs will apply, the average change proposed in manual loss costs is -6.11%. By industry group, the proposed average changes in manual loss costs effective April 1, 2023 are:

Manufacturing	-3.50%
Contracting	-2.68%
All Other	-2.91%

These indicated changes to manual loss costs were derived by industry group on Page 1 of Exhibit 1, using information regarding the historical operation of the Experience Rating Plan (see Exhibits 18 and 19 of the enclosures to this filing). Anticipated collectible premium ratios are compared to provisions in current loss costs, with the ratios used to adjust the proposed change in collectible loss costs to appropriate manual levels on the bottom of Page 1 of Exhibit 1.

EMPLOYER ASSESSMENT FACTOR AND LOSS COST LOADINGS

The PCRB has reviewed experience pertinent to the Employer Assessment Factor to be applied to Pennsylvania workers compensation business in accordance with Act 57 of 1997. Exhibit 13 presents a summary of the Employer Assessment Factor determination. The proposed employer assessment provision is 2.89%, an increase from the currently approved provision of 2.68%. The increase in the provision was primarily due to an increase in the Supersedeas Fund and partially offset by a decrease in the Administration Fund assessments.

The provision for assessments supporting the Office of the Small Business Advocate, which continues to be part of proposed loss costs, increased to 0.02% from the current level of 0.01%.

PCRB loss costs continue to include adjustments for the effects of the Merit Rating Plan and the Certified Safety Committee Program. The Merit Rating Plan increment factor is proposed to be 0.0035, which is slightly higher than the current factor of 0.0032. The Certified Safety Committee Program increment factor is proposed at 0.0108, a slight increase from the current factor of 0.0107. These proposed values are shown in Exhibit 13 and are separately derived in Exhibits 15 and 16.

This filing also proposes to update classification loss costs to reflect indicated loadings for the Pennsylvania Construction Classification Premium Adjustment Program (PCCPAP). The PCCPAP program is intended to be revenue neutral and reallocates premium obligations between low and high wage employers without either increasing or reducing the overall amount of premium collected in the affected classifications.

For this filing, the PCRB analyzed participation in this program and the level of credits generally obtained by participating employers in each classification using the most recent available experience. Results of that analysis and proposed PCCPAP loads on loss costs by classification are included in Exhibit 14.

Available experience, as summarized on Exhibit 14, produces a revised average indicated PCCPAP offset of 2.19% of loss costs, an increase from the current average of 2.13%.

Exhibit 14 reveals that there continue to be material differences between construction classifications in terms of the portion of employers receiving PCCPAP credits and/or the level of credits provided to such employers. Proposed offsets range from 0.06% in Code 652, Carpentry – Residential, to 6.26% in Code 666, Plate Glass Installation.

EXPERIENCE RATING PLAN PARAMETERS

The Experience Rating Plan provides a prospective means of recognizing differences in loss potential between employers. This recognition is accomplished by means of a comparison of each qualifying employer's loss and exposure experience over a specified period (experience period) to the average experience of all employers engaged in similar businesses.

As part of each loss cost filing, the PCRB reviews the results of its Experience Rating Plan and proposes certain updates or revisions to the plan as are deemed necessary or appropriate to maintain the effective operation of the plan.

Exhibit 18 presents a detailed analysis of results of the Experience Rating Plan within each industry group over the most recent available five years. These analyses are set forth in tabular form by premium size group and experience modification range by year.

Exhibit 19 presents summaries of collectible premium ratios and details of the derivation of expected loss cost factors supporting the Experience Rating Plan parameters proposed in this filing.

Final Experience Rating Plan parameters proposed in this filing are shown in Exhibits 27 and 28.

RETROSPECTIVE LOSS DEVELOPMENT FACTORS

Because loss valuations tend to change (and generally increase) over time, some retrospective rating plans provide for application of development factors to preliminary loss reports in computing retrospective premiums. The PCRB has historically presented appropriate voluntary loss development factors based on aggregate experience as part of the filings for use by carriers and insureds in negotiating and agreeing upon their retrospective rating plans.

Exhibit 26 presents the proposed optional retrospective loss development factors on an unlimited basis. In addition, the PCRB's Manual references the formula for adjusting unlimited loss development factors to a limited basis. That formula is also shown in Exhibit 26 for reference.

CLASSIFICATION LOSS COST RELATIVITIES

Workers compensation insurance is written under a classification system that provides varying rating values for different types of businesses, based on the risk of loss inherent in those businesses subject to each distinct classification. As a result, any overall loss cost indication must ultimately be apportioned to each individual classification with due recognition given to the comparative experience of employers subject to each classification.

Exhibit 17 provides an overview of the classification loss cost formulae used in preparation of this filing. These procedures are consistent with previously submitted and approved methods.

The PCRB applies "swing limits," which limit fluctuations in classification loss costs to no more than 25 points above and below the average loss cost change within each industry group. In addition, a testing procedure gets applied to identify significant changes in classification loss cost changes relative to overall average indications year-after-year and intervenes where such indicated changes exceed selected amounts. These swing limits apply to "pure" loss costs, which include an adjustment for the operation of the Experience Rating Plan. The values so determined are subsequently adjusted to include appropriate provisions for the following items:

- Offsets for net Merit Rating Plan credits
- Offsets for Pennsylvania Construction Classification Premium Adjustment Program credits
- Offsets for Certified Safety Committee credits
- Assessment for the Office of the Small Business Advocate

The Other Supporting Classification Exhibits and the accompanying Class Book present detail of the experience and loss cost indications derived for each classification in this filing. Within the Other Supporting Classification Exhibits, certain parameters of the classification loss cost review process are presented, and the bases for establishing credibility tables applicable to both payroll and expected losses are provided. Summary unit statistical data is also included in Exhibits 20a, 20b and 20c.

Item 8 within the Other Supporting Classification Exhibits identifies several classifications for which some form of selection or other intervention in the standard procedures was deemed appropriate. The bases for loss cost selection include special pricing procedures (for example, the explosives, aircraft, and temporary staffing classes), allocation of loss costs between ratable and non-ratable components, recognition of statutory provisions for occupational disease benefits, combinations of separately defined codes for purposes of determining loss costs. The attendant care procedure has been removed from these exhibits as the adjustments previously made to the associated Class Book pages were not necessary.

Item 10 of the Other Supporting Classification Exhibits presents “Supplemental Class Book Pages” detailing the derivation of loss costs for classifications treated in combination or subject to reassignments of data from/to another classification or classifications. The Class Book presents details of the experience and loss cost indications derived for each individual classification in this filing, performed without special consideration using the proposed procedures.

The loss costs developed in accordance with the procedures set forth in Exhibit 17 and presented in portions of the Other Supporting Classification Exhibits and the Class Book exclude the following considerations previously discussed:

- PCCPAP offsets from Exhibit 14
- Merit Rating Plan credit offsets derived in Exhibit 15
- Offsets for Certified Safety Committee credits derived in Exhibit 16
- Assessment loading for the Office of the Small Business Advocate shown in Exhibit 13

The loss costs prior to application of these latter considerations may be thought of as “pure” loss costs and are the values to which the loss cost change limitations or “swing limits” have been applied.

Consistent with prior filings, consideration has been given to past filings’ changes by classification relative to average or overall indications in making final rating value selections. This “secondary capping” procedure is meant to mitigate substantial fluctuations above and below average levels between successive filings for a limited number of classifications. This procedure also includes an additional step to prevent an increase beyond an increase resulting from secondary capping, or a decrease beyond a decrease resulting from the secondary capping.

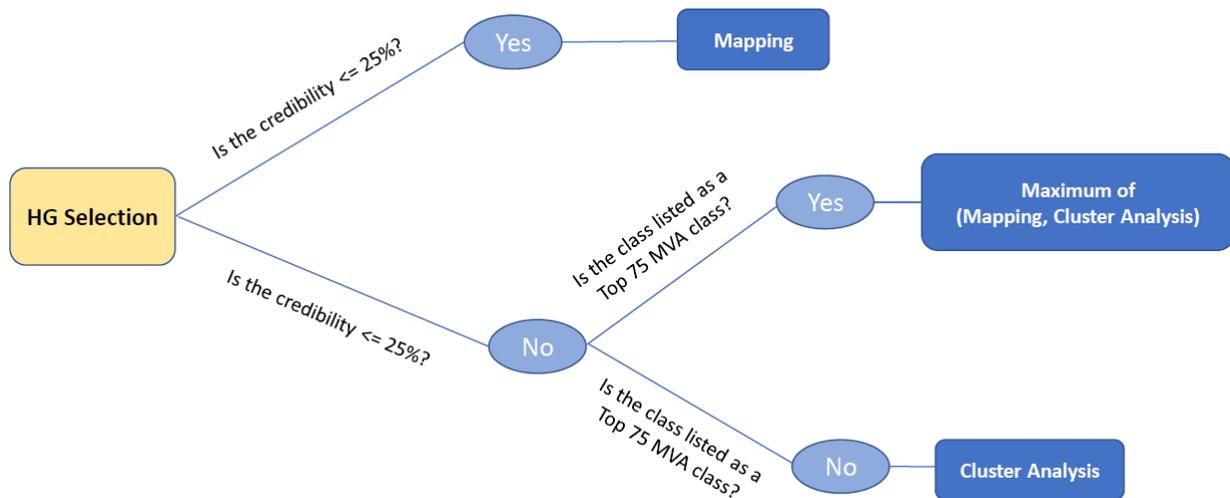
Exhibit 28 presents a complete table of proposed loss costs and expected loss factors pertinent to the Experience Rating Plan. Exhibit 29 presents, for direct employment classifications, both summary results and classification detail of the PCRB’s tests of proposed loss costs against intended levels. Exhibit 30 depicts in graphic form the distribution of percentage changes in classification loss costs for direct employment classes on both an indicated and proposed basis. Classifications subject to capping are also identified, if any. Exhibit 31 calculates temporary staffing loss costs based on the methodology introduced in 2021.

EXCESS LOSS (PURE PREMIUM) FACTORS, LOSS ELIMINATION RATIOS AND STATE AND HAZARD GROUP RELATIVITIES

The loss cost filings typically include rating values for various rating plans affected by the size of loss for individual claims or occurrences. Limitations applicable to the amount(s) of loss can be used in computing a retrospective premium. Other portions of this analysis facilitate the application of standard tables to Pennsylvania business.

The National Council on Compensation Insurance, Inc. (NCCI) has recently updated their hazard groups. Historically, the PCRB has used a mapping approach where Pennsylvania classes are mapped to corresponding NCCI classes to assign the associated hazard group. This approach was completed again this year by the PCRB, however two other methods and some additional considerations were included in the analysis. The NCCI performed a cluster analysis to determine more homogeneous groupings of classifications according to the potential for serious loss arising from the types of business assigned to a given hazard group. The PCRB performed a similar

cluster analysis using Pennsylvania excess loss data based for various limits. This analysis excluded Death and Permanent Total claims to enhance clustering stability. In addition, a T-Test approach was used on average severity to test statistical differences in hazard groups between classes. Exposure to motor vehicle accidents, average severities, volume of Death and Permanent Total claims, and Classification Reviews were also considered in the analysis. As shown below, a decision tree approach was developed as a guide to the new hazard group selections.



This approach allows larger classes with more credible data to be used directly with the NCCI mapping approach as the default for the smaller, more volatile classes. A review was then completed to identify classes in which the various methods showed higher levels of indicated hazard group divergence. Additional reviews were then performed and final selections were made. The final analysis resulted in only 12 classes being selected differently from the decision tree approach.

This filing used the updated set of hazard groups by class, shown in Exhibit 28, and were the basis for updating parameters associated with the seven hazard groups based on the most recent available experience, as discussed below.

Exhibit 22 shows empirical size-of-loss distributions for Pennsylvania workers compensation business. Actual excess loss indications for loss levels below \$500,000 were combined with excess loss indications derived by fitting either Single Parameter Pareto distributions or Lognormal distributions to empirical data by type of loss (death, permanent total, permanent partial and temporary total).

Exhibit 23 shows the derivation of excess loss (pure premium) factors from the loss distributions produced in Exhibit 22. Average claim size by hazard group and type of injury were used, together with incurred loss weights by type of injury within each hazard group, to derive excess loss factors at selected size-of-loss limits by hazard group for Hazard Groups A through G.

Exhibit 24 presents the derivation of state and hazard group relativities for Hazard Groups A through G in the proposed filing. The methodology used to calculate the state and hazard group relativities for Pennsylvania remained the same as in last year's filing.

Offering small deductible coverages at certain specified amounts is mandatory in Pennsylvania. PCRB filings provide loss elimination ratios computed consistent with the mandatory deductible levels of \$1,000, \$5,000 and \$10,000. Exhibit 25 shows the results of the updated analysis with new proposed loss elimination ratios.

CLOSING COMMENTS AND QUALIFICATIONS

PCRB Filing C-381 fully and fairly reflects the most recent available experience indications in Pennsylvania, together with all initial and continuing effects of Act 44, Act 57, HB1846 and HB1840 as well as the impact of the Protz decision. The PCRB respectfully requests a timely review of this filing, allowing implementation on a new and renewal basis **effective April 1, 2023**. A timely review will allow adequate advance notice of final loss costs and related rating values to all participants in the Pennsylvania marketplace. Toward that objective, the PCRB will be pleased to answer any questions or provide any available supplementary information which you or your staff may require.

This filing has been developed by and under the direction of Brent Otto, FCAS, MAAA. He meets the Qualification Standards of the American Academy of Actuaries to provide the actuarial opinion contained within this filing.

Please direct all questions to:

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INDEX OF EXHIBITS

Brown Book	Summary of Materials for Modification of Experience
Other Supporting Classification Exhibits	
Class Book	
Exhibit 1	Indicated Change in Loss Costs
Exhibit 4	Table I – Summary of Financial Call Data
Exhibit 5	Paid and Incurred Loss Development and Trend
Exhibit 6	Loss Development Triangles
Exhibit 7	Tail Factors and Paid Bridge Factors for Loss Development
Exhibit 8	Claim Frequencies
Exhibit 10	Graphs of Indemnity and Medical Loss Ratios
Exhibit 13	Loss Based Assessments and Employer Assessment Factor
Exhibit 14	Pennsylvania Construction Classification Premium Adjustment Program (“PCCPAP”)
Exhibit 15	Merit Rating Plan Off-Balance Indications
Exhibit 16	Pennsylvania Certified Safety Committee Program Offset
Exhibit 17	Loss Cost Formulae
Exhibit 18	Review of Experience Rating Plan Results
Exhibit 19	Review of Experience Rating Plan Parameters
Exhibit 20a	Table II – Unit Statistical Data
Exhibit 20b	Table III – Unit Statistical Data
Exhibit 20c	Table IV – Unit Statistical Data
Exhibit 22	Empirical Pennsylvania Loss Distribution
Exhibit 23	Excess Loss (Pure Premium) Factors
Exhibit 24	State and Hazard Group Relativities
Exhibit 25	Small Deductible Loss Elimination Ratios
Exhibit 26	Retrospective Development Factors
Exhibit 27	Table B
Exhibit 28	Loss Costs and Expected Loss Factors
Exhibit 29	Tests of Indicated and Selected Loss Costs
Exhibit 30	Distribution of Loss Cost Percentage Changes
Exhibit 31	Temporary Staffing Loss Costs
Exhibit 32	Expected Loss Factors for Discontinued Temporary Staffing Classes