

TO: The Honorable Michael Humphreys, Insurance Commissioner

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

DATE: November 12, 2025

RE: PCRB Filing C-386
Workers Compensation F-Classification Rating Value Filing
Proposed Effective April 1, 2026

This actuarial memorandum provides a discussion of the analysis performed by the PCRB that results in proposed rating values for employment classifications subject to the United States Longshore and Harbor Workers (USL&HW) Compensation Act (the Act or the USL&HW Act). The overall impact of the proposed change to collectible premium level is -24.7%. These changes are proposed to be effective on April 1, 2026.

The overall indication is primarily impacted by a change in methodology as was presented at the Actuarial Research Meeting on May 21, 2025.

DEFINITION OF COVERAGES SUBJECT TO THIS FILING

The employment classifications that are the subject of this filing, known as “F-Classifications” or “F-Classes,” provide insurance coverage for compensation liability for maritime or federal employment subject to the USL&HW Act. The F-Classes are used for employees that are “employed in maritime employment, in whole or in part, upon the navigable waters of the United States...”¹ Examples of employment generally subject to this Act are longshoremen, harbor workers, ship repairmen, shipbuilders, ship breakers and other employees engaged in loading, unloading, repairing or building vessels.

This filing is not changing the Tax Multiplier or USL&HW coverage percentage factor used when employer operations not subject to assignment to an F-Class may involve some employees whose duties are subject to the USL&HW Act. State Act classifications (those not designated by an F suffix) do not contemplate liability under the USL&HW Act. Accordingly, a United States Longshore and Harbor Workers Compensation Coverage Percentage is provided in the PCRB Manual to adjust rating values otherwise applicable to State Act classifications for the different (and higher) benefits payable under the USL&HW Act.

FILING PROPOSAL SUMMARY

The following summarizes the overall annualized impact of the proposed changes. The impacts by class code can be found in Exhibit 10. In this filing, these values are the same since new data was not available, and the same collectible premium adjustments were used from the previous filing.

Indicated and Proposed Changes	
	Rates
Overall Average Change (Collectible Basis)	-24.7%
Overall Average Change (Manual Basis)	-24.7%

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. Pure premiums, as developed, filed and distributed by the PCRB, represent estimates of future costs. These estimates rely on countrywide data, relativities and projections

¹ 33 USC Ch.18.

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, 2026 to March 31, 2027. 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."

Actuarial Standards of Practice (ASOPs) apply to this filing. These documents set forth the standards, including appropriate considerations, that guide an actuary to develop and present the methods and calculations in this filing. These include ASOPs regarding data quality (ASOP 23), credibility (ASOP 25), trend (ASOP 13), risk classification (ASOP 12), communications (ASOP 41), and unpaid claim estimates (ASOP 43) which states:

"The actuary should assess the reasonableness of the unpaid claim estimate, using appropriate indicators or tests that, in the actuary's professional judgment, provide a validation that the unpaid claim estimate is reasonable. The reasonableness of an unpaid claim estimate should be determined based on facts known to, and circumstances known to or reasonably foreseeable by, the actuary at the time of estimation."

Unpaid claim estimates are discussed in this filing in the Loss Development section. While ASOP 43 specifies that it does not apply to "estimates developed solely for ratemaking purposes," the PCRB has nevertheless adhered to the spirit of this standard. The PCRB notes that the estimates for unpaid claims included in the referenced filing are inherently uncertain. Uncertainty stems from a dependence on facts and circumstances that are unknown currently and other limitations, including the use of aggregate data and legislative uncertainties may apply.

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 data anomalies, comparing the current premium, loss data, and loss development patterns to the data and patterns used in the prior analysis.

Also, Actuarial Standard of Practice No. 25, Credibility Procedures (ASOP 25 or the Standard), provides guidance that is applicable to this filing. ASOP 25 defines the term "Credibility" as, "A measure of the predictive value in a given application that the actuary attaches to a particular set of data (predictive is used here in the statistical sense and not in the sense of predicting the future)."² The Standard provides guidance to actuaries for the use of credibility procedures. Relevant to this filing, the standard describes the use of professional judgment:

The actuary should use professional judgment when selecting, developing, or using a credibility procedure. The use of credibility procedures is not always a precise mathematical process. For example, in some situations, an acceptable procedure for blending the subject experience with the relevant experience may be based on the actuary assigning full, partial, or zero credibility to the subject experience without using a rigorous mathematical model.

In the PCRB F-Class filing, the pure premium from recent experience is the "subject experience" in the above quote, and the permissible loss ratio underlying current rates is the "relevant experience." ASOP 25 also provides, "Whenever appropriate in the actuary's professional judgment, the actuary should disclose the credibility procedures used and any material changes from prior credibility procedures."³

² ASOP25, Section 2.1.

³ ASOP25, Section 4.1.

DEVIATION FROM STANDARD METHODS

The current F-Class ratemaking methodology was patterned after the annual filing approach even though the F-Classes lack credibility to allow for rates to adjust accordingly. For this reason, the PCRB has chosen an updated methodology that still uses some state specific data, however, it also incorporates creditable countrywide F-Class data when deriving F-Class rates. This results in a simplification of this process and may allow F-Class rates to be reviewed annually instead of the standard biennial updates. Previous filings included a comparison of F-Class rates for Pennsylvania (PA) to F-Class rates in other states, so this filing continues the use of similar elements in the proposed methodology.

The proposed methodology uses countrywide data to complement the PA statewide experience. The countrywide pure premium uses ten years of experience as well as the pure premium class specific relativities. This data is accumulated and provided to PCRB by NCCI.

To improve rate adequacy and responsiveness, a new methodology has been adopted that assigns equal weight (50%) to both the statewide and countrywide pure premium. This mirrors the weighting used in previous indications for state-specific data.

Historically, the complement of credibility was anchored to current rate levels, which limited rate changes and did not incorporate countrywide data in the aggregate indicators. Although recent filings began considering other states when setting individual class rates, the methodology still constrained F-Class rate adjustments, preventing them from reaching appropriate levels.

By using countrywide pure premium as the complement, PA can better align its rates with trends and levels observed countrywide. A countrywide pure premium tends to be more stable, which helps smooth out volatility in statewide data and allows class-level experience to have a more meaningful impact. It's important to note that differences between states are largely driven by expense variations. Therefore, the determination of the permissible loss ratio remains a state-based approach.

Once the statewide pure premium and the permissible loss ratio are calculated, they are combined to determine the PA State Base Rate. Countrywide class relativities are used directly since the class specific PA experience lacks credibility. Classes that NCCI determine are too thin in the countrywide data are also left at a relativity of 1.000. Otherwise, the factor between countrywide overall pure premium and each individual class pure premium is applied to the State Base Rate to derive the State Class Rate.

Additional detail for this whole calculation is provided in F-Class Exhibit 9 and the calculations themselves are provided in F-Class Exhibit 10.

The deviations from previous methods are consistent with Actuarial Principles and Standards of Practice stated previously. The Standards also provide the following discussion:

A number of ratemaking methodologies have been established by precedent or common usage within the actuarial profession. Since it is desirable to encourage experimentation and innovation in ratemaking, the actuary need not be completely bound by these precedents. Regardless of the ratemaking methodology utilized, the material assumptions should be documented and available for disclosure. While no ratemaking methodology is appropriate in all cases, a number of considerations commonly apply ... Informed actuarial judgments can be used effectively in ratemaking. Such judgments may be applied throughout the ratemaking process and should be documented and available for disclosure.⁴

⁴ CAS Principles of Ratemaking, lines 59 through 64, 138 through 140.

FILING METHODS AND ANALYSIS

Data Used for Loss and Exposures

This filing uses Policy Year 2012 through 2021 loss and exposure data attributed to F-Class business as submitted on unit data reports under the approved Statistical Plan in PA and shown in F-Class Exhibit 5. Unit statistical data is limited to case incurred losses, separately reported for indemnity and medical benefits, for a series of ten successive annual evaluations beginning 18 months after the inception of each policy period (First Report through Tenth Report). Further, countrywide data, as provided to the PCRB by NCCI, is used to support the filing. This data includes countrywide loss and premium values as well as class relativities derived from this data.

Analysis of Loss Experience

Analysis from Filing C-385 was relied upon to develop the new methodology and is detailed here. The PCRB performed incurred loss development analyses, separately for indemnity and medical benefits. All available development points at each maturity (i.e. development factors for policy years containing reported loss amounts) were computed and formed the basis for a selected series of loss development factors. Those selected factors were smoothed by fitting curves to the differences (or “residuals”) between the selected loss development factors and unity (1.0). Several different curve-fitting alternatives were considered in the preparation of this filing. This included special treatment of unusual development patterns in one year related to an extremely large claim.

The fitted values for loss development factor residuals were adjusted by adding back the value of unity (1.0) that was removed prior to the application of the curve-fitting process. Development factors derived by cumulatively multiplying the age-to-age factors were used to estimate ultimate losses for indemnity and medical benefits by policy year.

A weighted average of the ten most recent policy year pure premiums was selected as the basis for the indicated change in F-Class rates.

The PCRB's loss development and trend analyses are included in F-Class Exhibit 5.

Data Used for Expenses

As with the analysis of experience, expense data was held constant from PA Filing C-385. Expense data is not reported to the PCRB separately for F-Class business. Accordingly, much of the expense data used in preparation of this filing is total PA workers compensation expense data, related to total PA workers compensation premiums. Exhibit 3 from Filing C-385 can be found reprinted with this Filing's exhibits.

The PCRB's expense study performed in support of this filing is included in F-Class Exhibit 3. Provisions were separately measured based on total PA workers compensation experience for the following expense components: commission and brokerage, other acquisition, general expense and loss adjustment expense.

Using unit statistical data, an indicated provision in proposed rates for premium discounts was obtained for F-Class business. This derivation is also presented in F-Class Exhibit 3. A provision for uncollectible premium is included based on data collected by the NCCI for residual market business in the State of Delaware experience. The analysis appears on Page 9 of F-Class Exhibit 3.

Analysis of Expenses

Historical ratios of expense to premium were obtained for the experience period of 2020 - 2022. Provisions for the Security Fund and Premium Tax were based on current assessment levels. Miscellaneous taxes were estimated based on historical relationships between such taxes and premiums. Loss adjustment expenses were measured in relation to losses based on experience from policy years 2020 - 2022.

Consistent with practice adopted in prior F-Class rate filings, expense attributable to the Security Fund, General Expenses and Other Acquisition have been treated as “fixed expenses” in the preparation of this

filing. "Fixed expenses" are presumed to be independent of premium levels so that their relationships to premiums will change as rate levels rise or fall.

PA Filing C-385 expenses to premium were used as starting points in the determination of final proposed expense loadings. These expense loadings were divided into their respective parts and applied individually to determine the proper permissible loss ratio needed for the determination of rates. The proposed expense loadings consistent with this filing are shown in F-Class Exhibit 2.

Derivation of Permissible Loss and Loss Adjustment Expense Ratio

The PCRB retained an economic consultant to accomplish the following portions of the analysis supporting this filing:

- Determine an appropriate rate of return for the enterprise of writing workers compensation insurance in Pennsylvania
- Prepare a model to account for all applicable cash flows attendant with the writing of workers compensation insurance business in Pennsylvania
- Using this model, compute a permissible portion of premium to be attributed to loss, loss adjustment expense and loss-based assessments in combination and a separate provision for profit consistent with the anticipated cash flows and rate of return noted above

As noted above with respect to the PCRB's analysis of expense data, preliminary changes in pure premium level were derived. The pure premium was then adjusted for loss adjustment expenses, fixed expenses, and variable expenses to derive the final permissible loss ratio and, thus, the final state base rate.

Details of the IRR model applied in preparation of this filing with a summary of key inputs, outputs and assumptions are provided in F-Class Exhibit 4.

DISCUSSION OF EXHIBITS

An index of all updated exhibits appears at the end of this memorandum. The following material provides discussion of the key elements.

F-Class Exhibit 2 – Expense Loading

Expense provisions are presented in F-Class Exhibit 2 and are broadly categorized as loss and loss adjustment, fixed expenses, and variable expenses. Variable expenses are those expenses which are expected to remain a constant percentage of premium regardless of the overall premium level or premium charge. Fixed expenses are assumed a function of changes in payroll levels and/or expense costs independent of changes in premium levels. Fixed expenses are, therefore, separately trended.

The first column of F-Class Exhibit 2 shows expense provisions prior to trending, where trending refers to the separate trending applicable to fixed expenses. Provisions for the Security Fund (0.00%) and taxes (2.30%) are based on current assessment levels. Taxes include the 2.00% premium tax amount plus a miscellaneous taxes provision estimated at 0.30%. Provisions for general expense, other acquisition, premium discount, commissions and uncollectible premiums are derived in F-Class Exhibit 3 – Expense Study.

The second column of F-Class Exhibit 2 shows expenses after trending, where trending applies to fixed expenses. The fixed expense trend of 2.27% is based on a review of countrywide workers compensation dollars of expense for general and other acquisition expenses for the period 2013 through 2023, as compiled by A. M. Best Company. The payroll trend of 3.78% is based on Quarterly State Average Weekly Wage data using the prior 6-quarter rolling average. Loss adjustment expenses and the federal assessment are functions of losses, with LAE derived in F-Class Exhibit 3 and the federal assessment based on the latest available assessment rate.

The last column of F-Class Exhibit 2 shows the proposed provision for expenses. Premium discount, commissions, taxes and the provision for uncollectible premiums remain a constant percentage of premium and are, therefore, unchanged from Column 2. The fixed expense ratios of Column 2 were kept the same as what was shown in the prior filing. The provisions for profit (-2.22%) was derived from an internal rate of return model, as described in F-Class Exhibit 4. The combined provision for loss and loss-related expenses of 75.05% was split into the loss (64.69%) and loss adjustment expense (10.36%).

To determine the permissible loss ratio, first the Permissible loss, loss adjustment expense, and fixed expense ratio is calculated as the complement to the variable expenses (81.29%). Next, the total proposed fixed expenses (6.36%) are subtracted from that prior value to get the permissible loss and loss adjustment expense ratio. The ratio of loss adjustment expense to loss of 16.02%, as determined from the expense study, is used to get to the final permissible loss ratio of 64.58%. This permissible loss ratio is then brought over to our rate analysis in Exhibit 10 to determine the adjustment needed to cover all expense loadings.

F-Class Exhibit 3 – Expense Study

Page 3 of F-Class Exhibit 3 derives provisions for commission, other acquisition, and general expense exclusive of expense constant dollars. Commissions are related to premiums, including large deductible business on a net (as reported) basis. Other acquisition and general expense are related to premiums, including large deductible business on a gross (before deductible credits) basis. An average factor over three years, 2020 through 2022, is used. Experience for all companies is included.

Loss adjustment expenses for Calendar Years 2020 through 2022 are related to incurred losses, including large deductible business on a gross (before reimbursement) basis. The resulting indicated average factor of 16.02% is shown on Page 4. Experience for all companies is included.

An average premium discount figure of 7.81% is derived on pages 5 and 6 of F-Class Exhibit 3, based on the total PA premium for all policies including those with F-Class exposure. The figure includes an adjustment to account for multi-state risks.

Based on data from the Delaware (Assigned Risk) Insurance Plan, an average uncollectible premium rate of approximately 3.21% was selected. Adjusting to a voluntary basis that generally carries a lower uncollectible rate, an uncollectible premium provision of 1.61%, or 50% of the assigned risk rate was selected for PA F-Class business.

F-Class Exhibit 4 – Internal Rate of Return Model

F-Class Exhibit 4 presents an internal rate of return model which tracks the premium, loss and expense cash flows of PA workers compensation F-Class business for the prospective rating period. The model combines expense assumptions from F-Class Exhibit 2, a premium collection pattern, loss and expense payout patterns, and a base standard premium of \$1 million to model the net cash flows for F-Class business.

A profit loading is chosen so that the net cash flows, when discounted to present value, provide a return on equity equal to the projected target rate of return or cost of capital. The cost of capital is derived in F-Class Exhibit 4 and is equal to 11.79%.

This filing recognizes investment income on reserve and surplus funds as well as the cost of debt capital in determining the overall expected return for carriers writing workers compensation business in PA.

The inclusion of debt capital as part of the weighted average cost of capital is the same as what was done in the prior filing from two years ago. The primary reasons supporting this change were:

1. Debt capital is part of statutory surplus.
2. Insurance company debt/capital ratios have risen over the past 20 years.
3. Inclusion of debt capital brings the model into compliance with industry best practices

In the internal rate of return analysis, the profit provision is -2.22%. A loss ratio, including provision for loss, loss adjustment and the federal assessment, and consistent with the other expense values used in the model, was also derived and equal to 79.13%.

F-Class Exhibit 5 – Analysis of Experience

F-Class Exhibit 5 presents a review of experience as reported under the Unit Statistical Plan. Data remained the same as the prior filing. The step-shaped lines separating successive evaluations for a given policy period indicate that the data was extracted from successive reviews. Page 1 of F-Class Exhibit 5 shows reported standard earned premiums (2007 to 2021), indemnity incurred losses (2007 to 2021) and the associated age-to-age loss development factors. The cells denoted with asterisks (****) represent points where an inconsistency in data was observed between successive extracts for a given report year and maturity. Where the inconsistency was deemed negligible, loss development factors were calculated to increase the number of factors available. The bottom section of Page 1 shows five-year, ten-year and an all-years weighted averages of age-to-age factors, on both an age-to-age and ultimate basis.

Page 2 shows similar detail for F-Class medical experience.

The selected age-to-age factors for indemnity and medical are derived on Pages 3 and 4, respectively, and are the result of fitting a curve to the residuals (LDF-1) of the all-years weighted average age-to-age factors. Due to the unusual development of a large Policy Year 2014 claim's medical losses, the all-years weighted average of age-to-age factors for medical losses were recalculated with Policy Year 2014's age-to-age factors reordered largest to smallest. Unity (1.0) is selected as the 14th to 15th age-to-age factor to ensure proper tendency for the fitted curve. The 10th to ultimate tail factor is the accumulation of the fitted values from periods 10 to 15.

Ultimate losses based on the selected loss development factors and trend factors are calculated on Page 5 for indemnity, medical and in total. Note that one extremely large individual claim with over \$11 million dollars of medical incurred loss was capped at the medical Maximum Single Loss (MSL) amount of \$5.93 million. The medical MSL is calculated using the commonly accepted approach of taking 25 times the medical serious severity from the annual PA loss cost filing. The capped losses were then used to determine the ten-year medical ultimate losses. There were no claims that reached the indemnity MSL.

Pages 6 and 7 show the calculation of the selected indemnity and medical severity trends of 4.2% and 4.5% respectively. Given the limited amount of indemnity and medical losses, external economic data was used to select severity trends. Indemnity severity trend was determined by fitting multiple exponential curves to National Average Weekly Wage (NAWW) data and selecting a 10-point curve fit. Medical severity trend was determined by fitting multiple exponential curves to a Medicare Index and selecting a 10-point fit. These data sources were selected based on their correlations to indemnity benefits and the medical fee schedule used as the basis for the benefits provided.

Frequency trend was selected as 0% given the very limited number of claims resulting in no meaningful patterns.

Page 8 shows graphs of the resulting projected ultimate loss ratios.

F-Class Exhibit 9, 10 and 12 – Classification Analysis and Exhibits

These exhibits support the calculation of individual F-Class rates.

F-Class Exhibit 9, Rate Formulae, describes the steps used in the classification ratemaking process.

F-Class Exhibit 10, Derivation of F-Class Rates contains the development of the proposed individual PA F-Class rates. It shows current and proposed rates by class and the respective percentage changes. Page 1 shows the derivation for PA's empirical F-Class expected pure premium. Page 2 introduces countrywide data to determine the credibility-weighted F-Class pure premium for the state. It also uses the permissible loss ratio in Exhibit 2 (64.58%) to determine the final State Base Rate. Class relativities consistent with NCCI's data are used on Page 3 to calculate final rates for these federal classifications, while considering

standard capping procedures (+/- 25%). The pre-capped rates are also adjusted to balance back to the calculated State base rate (6.831). This balancing factor is determined by dividing the state base rate by the weighted average indicated pre-cap rate. Since this filing contains a methodology change, that capping is done with respect to an overall “no change”. Future filings will use the change in pure premium to determine maximum and minimum changes allowable.

Expected loss rate factors used to calculate expected losses for experience rating are derived in F-Class Exhibit 11, Review of Experience Rating Plan Parameters. F-Class Exhibit 11 was unchanged from Filing C-385. Proposed rating values are shown in F-Class Exhibit 12, Manual Rates and Expected Loss Rates.

Other Filing Exhibits

Exhibits related to the USL&HW coverage percentage factor, the tax multiplier, and few others have not been included. This information either did not change due to the scope of this filing and will hold to the values determined in the prior approved F-Class Filing, C-385, or are obsolete with the new methodology.

INDEX OF EXHIBITS

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F-Class Exhibit 9	Rate Formulae
F-Class Exhibit 10	Derivation of F-Class Rates
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F-Class Exhibit 12	Manual Rates and Expected Loss Rates