MERLINOS actuaries consultants

October 2, 2018

Ms. Sydney Sloan
Mr. David Martinez
Colorado Division of Insurance
1560 Broadway, Suite 850
Denver, Colorado 80202

Re: National Council on Compensation Insurance ("NCCI")
Colorado Workers Compensation Advisory Loss Costs and Rating Values Filing
Proposed Effective January 1, 2019

Dear Ms. Sloan and Mr. Martinez:

Merlinos & Associates, Inc. (M&A) has completed our review of the above-referenced Workers Compensation Advisory Loss Costs and Rating Values filing. This letter documents our review.

BACKGROUND

The NCCI submitted an advisory loss cost and rating values filing with a proposed effected date of January 1, 2019. The current loss costs and rating values have been in effect since January 1, 2018. The overall proposed average change in advisory loss costs for the voluntary market is -16.7%.

Table 1 below shows historical changes to voluntary loss costs from 2015 to 2018 and the proposed change effected January 1, 2019.

Table 1

Effective Date	Change
1/1/2015	0.0%
1/1/2016	-1.9%
1/1/2017	-2.4%
1/1/2018	-12.7%
1/1/2019	-16.7%

The annualized average change for the 5-year period, including the proposed change, is -7.0%.

The proposed change in average voluntary loss costs consists of a 16.9% decrease due to experience and development, a 3.3% decrease due to trend, a 2.3% increase due to benefits, and a 1.3% increase due to change in loss-based expenses. Individual class changes are capped at ±15% and are applied by industry group to which the classification belongs. The primary driver of the indicated reduction to the advisory voluntary loss costs is the continued improvement in the loss experience reflected in the experience period. Specifically, the newest policy year that rolled into the experience period in this filing had better estimated experience than the oldest policy year that rolled off from the prior filing. This is the second straight year that has experienced losses significantly lower than prior policy years.

Per the Actuarial Certification included in the filing, the filing was prepared under the direction of Ms. Kelly Briggs, FCAS, MAAA, Director and Actuary. Ms. Briggs certifies that the filing was prepared in accordance with applicable Actuarial Standards of Practice as promulgated by the Actuarial Standards Board.

RATE INDICATION: VOLUNTARY LOSS COST CHANGE

We have reviewed the methodology and assumptions used by the NCCI in calculating the proposed change in voluntary loss costs and have no actuarial objections to the proposed overall change. Below are our comments on the overall methodology, experience period used, premium adjustments, projected ultimate losses, loss-based expenses, trend, and filed indicated loss cost change.

Rating Methodology

NCCI's indications are calculated using a rating methodology similar to most states where the NCCI estimates loss costs. The overall proposed loss cost changed is estimated using the state loss and payroll experience. Following that, the loss experience for each of the five industry groups is evaluated to adjust the overall statewide loss cost change to each industry group. Finally, the limited loss experience of each individual class code determines the proposed loss costs for each of the class codes, subject to swing limits around the overall industry group loss cost change. Besides a change to the credibility assigned to each class code's loss experience, which is discussed later, this methodology is consistent with the recent NCCI filings in Colorado. This methodology is reasonable.

Ultimate Losses

Unlimited indemnity and medical losses are developed to ultimate values using the reported development method. The selected unlimited loss development factors are set equal to the simple average of the five most recent development factors for all statewide losses. Loss development is performed separately for indemnity and medical.

The reported loss development method assumes that future loss emergence (i.e., payment, reporting and reserving patterns) will follow historical patterns. To test this assumption, we reviewed the following items provided by the NCCI upon request:

- Average case per open claim triangles for medical and indemnity separately,
- Paid to paid plus case loss ratio triangles for medical and indemnity separately,
- Indemnity claim closure rate triangle, and
- Paid and case losses to standard earned premium triangles for medical and indemnity separately.

It appears as though the paid indemnity to paid plus case indemnity ratios have decreased slightly over the past several years for recent policy years, which could possibly indicate that case reserves have been strengthened. The average case reserve diagnostics showing the increase in the average case reserves for the 2012-2014 policy years could also indicate that ultimately those policy years will have a higher claim severity than policy years 2015-2016 and years prior to 2012. Additionally, our review of diagnostic triangles related to claim closure rates did not reveal any material changes that would distort estimated ultimate losses based on the reported loss development. Based on our review of the projections and the diagnostic data, we have concluded that the reported loss development method is a reasonable approach for estimating ultimate losses.

Experience Period

NCCI's indications are based on two policy years of statewide experience: policy years 2015 and 2016. Reported losses, that is, paid losses plus case reserves, are used as the basis for the loss development projections. This is consistent with the recent NCCI filings in Colorado. Table 2 shows the statewide indications on a policy year basis for the current filing, including the impact of the change in the loss adjustment expense provision.

Table 2

Policy Year	Indicated Change (Reported)
2015	-14.2%
2016	-19.4%

Table 3 shows the statewide indications from each of the past five policy years, using both reported and paid loss experience.

Table 3

Policy Year	Indicated Change (Reported)	Indicated Change (Paid)
2012	-1.3%	-0.5%
2013	0.8%	-1.9%
2014	2.1%	0.6%
2015	**-14.2%**	-12.2%
2016	**-19.4%**	-16.9%

It is interesting to note that the indications from the three policy years from 2012 through 2014 would result in minimal loss cost changes. The larger filed decrease is driven by the relatively more favorable experience for the 2015 and 2016 policy years. If the NCCI had used more than two policy years in the indication, the proposed decrease would have been lower.

Overall the paid loss indications would have indicated a slightly lower loss cost decrease than the reported (paid plus case) losses. It appears as though the use of the reported experience is reasonable, and reliance on the paid indications would have had a minor impact on the selections.

Unlimited vs. Limited Losses

The NCCI does not limit any claims in the preparation of the statewide loss cost indication. In a number of other states, the NCCI limits large claims based on the impact to the overall indication and replaces the actual excess portion of the losses with a provision for large losses. For small states, this limiting procedure would have the impact of reducing volatility in the statewide indications. However, given the size of Colorado, it is unlikely that large claims significantly distort the statewide indications. The use of unlimited losses in the overall state indication is reasonable and consistent with prior filings.

The NCCI does limit individual claims in the calculation of the individual class code loss costs. The current claim limit is $500 thousand, consistent with prior filings. It is our understanding that the Division has requested that the NCCI review this claim threshold for the filing effective January 1, 2019, and the NCCI has provided this analysis. The NCCI reviewed loss data for both large states, small states, and countrywide data to calculate the percentage of claims and losses that are impacted by various loss limitations, including $500 thousand, $600 thousand, $750 thousand, and $1 million. Less than 1% of claims and 10% of losses are capped at the current $500 thousand threshold nationally, and the percentages are even lower for Colorado. In its analysis, if a larger threshold had been used, most class codes would have still been within 2% of the loss costs calculated at the current $500 thousand threshold, while some small and mid-sized class codes would have experienced significant increases (while approximately 98% of class codes would be within 2% with a $600 thousand limitation, over 30% of class codes would be different by over 2% using a $1 million limitation). The reason for the increased variability in small class codes is that the presence of a large claim would have comprised a higher percentage of the class code losses with a higher limitation, and the impact would remain for the five years that the NCCI considers individual class code loss experience. The impact of the $500 thousand limitation has not changed significantly in recent years, while it more effectively stabilizes the class code loss costs, and therefore this limitation appears reasonable.

Analysis of Frequency and Severity

At our request, the NCCI has provided information showing the annual change in the loss-time claim frequency and severity. The following table shows this data, including both indemnity and medical severity changes.

Table 4

Policy Year	Frequency Change	Indemnity Severity Change	Medical Severity Change
2012	-2.3%	-1.4%	3.3%
2013	-5.2%	2.5%	4.3%
2014	-2.1%	1.6%	-2.3%
2015	-6.6%	-12.9%	-14.1%
2016	-9.3%	-3.7%	1.9%

The data in table 4 suggests negative frequency trends, which is consistent with our expectations given that frequency is measured relative to payroll. From policy years 2012 through 2014, both indemnity and medical severities averaged small increases. However, the implied policy year severity decreased significantly in 2015 and remained at this lower level in 2016. We are unaware of the cause for the large declines in the severity, and the NCCI is not aware of any systemic reason for the decline which would necessarily continue into future years. The NCCI attributes the decline to fewer large losses. The diagnostics do indicate that the case reserves per open claim for the 2015 and 2016 policy years, for both indemnity and medical losses, are lower than the 2012 through 2014 policy years. This does provide some support for the lower severity over the two latest policy years.

The reduced severity is a primary driver of the proposed decrease in loss costs. If policy years 2015 or 2016 either turns out to by an outlier compared to the 2012 through 2014 policy years or ultimately has a severity consistent with the 2012 through 2014 policy years, other things being equal we may expect to see loss cost increases in the future.

<u>Statewide vs. Pinnacol Data</u>

The NCCI has estimated the proposed loss costs using all the statewide data, including Pinnacol. For filings with effective dates between 1/1/2010 and 1/1/2017, loss development was analyzed and applied separately to private carrier and Pinnacol data. The reason for separate analysis related to a change in Pinnacol's reporting of structured settlements, which has now been reflected in the recent development history. Because Pinnacol's market share has not changed significantly, which could otherwise bias the loss development factors, we do not have any objection to the overall loss costs rate indication being estimated on a statewide basis.

We reviewed supplemental information to determine if there is a significant difference in loss experience between Pinnacol and the rest of the industry. The data provided suggests that Pinnacol has had higher on-level loss ratios than the private carriers for policy years 2011 through 2016. While the non-Pinnacol experience may indicate rates a couple of percent lower than the proposed loss cost change, because this difference is within a relatively small range around the proposed change, the proposed change is reasonable.

<u>Loss Trend</u>

The NCCI proposes a change in trend factor for both indemnity and medical losses, as Colorado's indemnity and medical costs per case figures decreased in policy year 2016. The proposed annual loss trends are shown in Table 5 below:

Table 5

	Current	Proposed
Indemnity	-4.0%	-5.5%
Medical	-2.5%	-3.0%

As part of their selection process, the NCCI reviewed the exponential trend fits for periods ranging from 5 to 15 years for loss ratio, along with the frequency and severity components. The indicated trends, along with the selected trends, are lower than previous years due to the inclusion of the policy year 2016 data. The NCCI has selected both indemnity and medical trends that are consistent with the exponential fits and within the range of trend factors we have observed in other states. We have no objection to the selected annual trend rates.

Benefit Level Changes

The NCCI has included the impact of the latest medical fee schedule and the minimum and maximum weekly indemnity benefits in the proposed loss costs. The estimated change to the loss costs, a 2.9% increase to medical costs and a 1.4% increase to indemnity costs, appear reasonable, based on the analysis included in the filing.

Loss Adjustment Expenses

In Colorado, the NCCI loss costs include a provision for all loss adjustment expenses ("LAE"), including legal defense and claims adjusting costs. The NCCI reviews the industry countrywide LAE experience and selects an LAE provision for the private carriers, after adjusting the defense costs to reflect the actual Colorado experience. Countrywide data is used because the claims adjusting costs are often difficult to allocate out to individual states for national workers compensation insurers. The NCCI develops Pinnacol legal defense and claims adjusting data separately to estimate an LAE provision for Pinnacol. Finally, the private carrier and Pinnacol LAE provisions (20.9% and 23.0%, respectively) are weighted together to determine a statewide LAE provision to apply to the losses to calculate the filed loss costs.

The selected LAE provision of 22.3% is higher than the 20.7% provision underlying the loss costs effective 1/1/18. This selected LAE provision is consistent with the industry and Pinnacol data and appears reasonable. Because much of the LAE provision relates to salaries and overhead, the LAE provision, relative to losses, is likely to increase when loss costs decrease significantly. The difference in the LAE provision is included in the overall loss cost change.

Voluntary Loss Cost Change Summary

Based on the support provided, we have no objections to the proposed -16.7% voluntary loss cost change.

In our evaluation of the reasonability of the proposed changes in loss costs we have considered market conditions. Among other things, we monitor market conditions by reviewing the impact on premium of loss cost deviations, schedule rating, and dividends which, when combined, are referred to as "premium departures" in the table below. Upon request, the NCCI provided this information for Colorado through 2017.

Table 6

Year	Premium Departures
2013	-2.1%
2014	-0.2%
2015	-1.5%
2016	-6.8%
2017	-8.1%

For years 2013-2015, the net impact of loss cost modification, schedule rating, and dividends on premium was minimal. The 6.8% and 8.1% overall downward rate deviations in industry pricing for 2016 and 2017 are consistent with the actual and proposed reduction in loss costs effective 1/1/18 and 1/1/19, respectively.

OTHER CONSIDERATIONS

Class Pure Premiums

After determining the -16.7% statewide loss cost indication, indicated changes by individual occupational class are determined. All class codes are assigned to one of five industry groups. The loss experience of each industry group determines the overall loss cost change for each industry group. The indicated class code loss cost, the current class code loss cost, and the countrywide loss cost (adjusted to state conditions) are credibility-weighted together to calculate the class code loss cost, prior to any limiting. Due to the lower credibility of each class code, individual losses are also limited for the sake of these calculations. The swings in the individual class code loss costs are capped at the industry group loss cost change ±15%, rounded to the nearest 1%, which is consistent with prior filings. We have no objections to these swing limits or methodology.

The NCCI made a significant change to the credibility standard that is used to estimate the proposed loss cost from both the statewide and countrywide experience. The NCCI doubled the indemnity and medical claim counts required for full credibility and increased the exponent from 0.4 to 0.5. Both of these changes result in lower credibility being assigned to the loss experience for each class, which increases the stability of the current loss costs and reduces the likelihood of large annual changes. The NCCI claimed that the change would not also increase stability, but that it would also increase the class equity or accuracy. We reviewed the subsequently-provided results of the NCCI's analysis, which measured the stability and accuracy of the credibility standard using various multiples of the current standard. While raising the credibility threshold will increase the stability, it is worth noting that the accuracy in small states was higher using the proposed doubling of the standard than higher multiples. It appears as though the proposed change in the credibility standard increases both the stability and accuracy, and strikes a good balance between the two.

Experience Modification Factors and Off-Balance

The NCCI has provided subsequent information showing the average experience modification of the past five years. The following table shows this data, showing a slight decline in 2017.

Table 7

Year	Average Experience Mod
2013	0.977
2014	0.975
2015	0.970
2016	0.953
2017	0.950

Because the overall premium collected is a function of both the manual proposed loss costs and the average experience modification factor, the NCCI adjust the loss costs for the change in the experience modification factors. This procedure is consistent with previous filings, and appears reasonable.

Experience Rating Parameters

The split point used to allocate both actual and expected losses into primary and excess losses increased from $16,500 to $17,000 for this filing. This appears reasonable, given that it did not increase last year. The methodologies used to calculate the Expected Loss Ratios and D-ratios used in the experience rating formula are unchanged in this filing.

Terrorism Loss Cost

Following the reduction in the terrorism loss cost for the filing effective 1/1/18, there is no change to the terrorism charge effective 1/1/19. This appears reasonable, given the absence of any large act of terrorism on US soil over the latest year.

Coal Mining Class Codes

The two coal mining class codes (1005 and 1016), include a provision for traumatic injury and occupational disease (“OD”). The standard rating methodology is used to calculate the provision for traumatic injury. The NCCI then adds a provision for occupational disease ($0.67 and $2.01 for class codes 1005 and 1016, respectively, prior to the impact of the class code swing limitations) to the traumatic injury provision. Last year we recommended that the NCCI update the analysis of the OD component, since before this filing the OD loss costs had not been updated since a significant reduction effective 1/1/11.

The “Byrd Amendment”, passed as part of the Affordable Care Act, added the presumption that black lung claims for coal workers with a fixed amount of tenure are job-related and compensable under workers compensation. This amendment appears to have made a significant impact on coal mining loss costs. This year the NCCI filed increased OD provisions, which are more consistent with the provisions found in most other states. The analysis projects the future frequency and severity of claims, and compares those future costs to the projected payroll. The selection of the losses appears reasonable, given the data and analysis provided. The NCCI selected a -2% payroll trend factor, which contemplates both the significant reduction in coal class code payroll over the past decade and the recent changes in national policies that may slow or stop altogether the decline in coal mine payroll.

The selected OD provisions appear reasonable. If payroll ends up being higher than the NCCI expects, then these OD provisions may turn out to have been high. However, the practical effect is greatly minimized due to the 1016 class code total loss cost being initially estimated significantly higher than the proposed loss cost, due to the class code swing limitation. It would take a material reduction in the OD component to impact the proposed 1016 loss cost. The 1005 OD component is a third of the 1016 OD component, so it would also take a material change in the OD component to significantly impact the proposed 1005 loss cost.

First Responder Class Codes

Class codes covering first responders are treated the same as any other class code in this filing, with the past experience determining the proposed class code loss cost changes. However, there are recent events that are likely to have a prospective impact on first responder losses. The Colorado Supreme Court ruled in *Zukowski* that employers can overcome a cancer presumption for firefighters by showing that other risk factors were more likely to have caused the cancer than occupational exposure, whereas previously an insured had to prove a causal relationship between a non-work related risk factor and the cancer.

This *Zukowski* case should result in lower losses for firefighter class codes. In its response to follow-up questions, the NCCI has estimated that cancer claims account for approximately 14% of reported losses for class codes 7710 and 7711 in Colorado. As a result, it is unlikely that the *Zukowski* case will have a significant impact on loss costs.

Separately, House Bill 17-1229 effective July 1, 2018 clarifies post-traumatic stress disorder ("PTSD") claims, which will also likely have an impact on future losses for first responders (Peace officers, emergency medical service providers, firefighter, and public safety professionals). The law provides for first responders to make a claim of mental impairment based on traumatic event that occurs within the normal course of duties. The law may increase workers compensation claims for employers of first responders.

It will take a few years for any impact of these changes to be reflected in NCCI loss cost filing using the standard rating methodology. For example, policy year 2018, which will be moderately impacted, will not show up in the NCCI proposed rates until the filing effective January 1, 2021. The NCCI filing effective January 1, 2019 has not mentioned these events and has not made any adjustments to the proposed loss costs.

Residual Market

Unlike many states, Colorado does not have a separate residual market that covers insureds that are generally not able to secure insurance through the voluntary market. These insureds tend to have higher expected losses, and are often covered by either a residual market pool or by direct assignment of the risks to voluntary insurers. In many states, the NCCI estimates assigned risk rates that reflect both expenses and the higher loss experience of these insureds.

In Colorado, Pinnacol is required to insure all risks. However, because Pinnacol does not know or note which policyholders would otherwise be "residual market" insureds, it is difficult to estimate the possible impact of these insureds being included in the voluntary loss cost data. We also note that there are insureds who move into and out of the "residual market." However, based on our understanding of Pinnacol's structure and the current countrywide residual markets, it is possible that the proposed loss costs would be 2 to 3% lower if the "residual market" insureds could be excluded from the statewide analysis. We also understand that the current methodology has always been used, and do not have any current objections to it.

CONCLUSION AND RECOMMENDATIONS

Based on our review of this filing, we have no objections to the proposed voluntary loss cost changes. In our opinion, the proposed changes are reasonable. We would recommend that, for the next filing, the NCCI determine if an adjustment is needed for first responder class codes to reflect the recent law change and *Zukowski* court case.

Please let me know if you have any questions.

Sincerely,

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