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January 28, 2020

Board of Trustees
Iowa Peace Officers' Retirement, Accident, and Disability System
215 East 7th Street
Des Moines, IA 50319

Re: Actuarial Analysis under Chapter 97A.5, subsection 11.b.

Dear Trustees:

SF 2420, which was passed by the 2014 Iowa Legislature, added a presumption of cancer and infectious disease to Chapter 97A.6(5), which sets out the requirements for accidental disability benefits. At that time, the Iowa Peace Officers Retirement System (POR) already had a heart and lung presumption under 97A.6(5)(b) so SF 2420 broadened the category to include prostate cancer, primary brain cancer, breast cancer, ovarian cancer, cervical cancer, uterine cancer, malignant melanoma, leukemia, non-Hodgkin's lymphoma, bladder cancer, colorectal cancer, multiple myeloma, testicular cancer, and kidney cancer. "Infectious disease", as defined in statute, includes HIV or AIDS, all strains of hepatitis, meningococcal meningitis, and mycobacterium tuberculosis. If a disability occurs as a result of one of these cancers or infectious diseases (as defined above), the member is eligible for an accidental (duty related) disability rather than an ordinary disability.

When the cancer and infectious disease presumption was added to the statutes in 2014, the member contribution rate was increased by 0.05%, effective July 1, 2014, to fund the expected increase in liabilities. Section 97A.5, subsection (11)(b) of the Iowa Code requires that an actuarial investigation related to the implementation, utilization, and actuarial cost associated with providing that cancer and infectious disease are presumed to be a disease contracted while the member is on active duty be made during calendar year 2019 and every five years thereafter. Based on the results of the analysis, the Board of Trustees may change the contribution rate assessed for the cost of this provision. If the Board makes a change, the new contribution rate would be effective July 1, 2020. This letter summarizes our analysis of the actuarial cost of the presumption of cancer and infectious disease as contracted while on active duty and the corresponding benefit increase expected to be paid as a result of the disability qualifying as an accidental disability.



Background

At the time the legislation was passed, an actuarial cost study was prepared to estimate the possible cost implications of including these forms of cancer and infectious disease, as contracted on active duty, and thus resulting in payment of benefit under the accidental disability provisions. That study, dated September 21, 2012, explained the challenges of attempting to determine the impact of the proposed change on the cost of the System. The actuarial study performed was based on the expectation that the total number of disabilities would not change significantly, but that some of the disabilities that would have been classified as ordinary disabilities under the prior law would instead be considered accidental disabilities. Since it was not possible to anticipate exactly how the number of disabilities would be impacted or the percentage of total disabilities ultimately due to accidental retirement types, cost results were provided using two different sets of assumptions. One assumption assumed that 50% of the ordinary disabilities would become accidental disabilities under the cancer and infectious disease presumption while the other assumed that 15% of the ordinary disabilities would become accidental disabilities. The resulting increase in costs at that time under the two assumptions was 0.07% and 0.02% respectively.

Cost Analysis

The cost impact of adding the cancer and infectious disease presumption is small due to two factors:

- The probability of a member becoming disabled is relatively small, and the likelihood that the disability falls under the cancer and infectious disease category is even smaller. Very few occurrences are expected to occur.
- The additional monthly benefit payable to a member who retired under an accidental disability retirement is not significantly larger than the benefit payable under an ordinary disability retirement (in general, 60% of final average pay versus 50%). However, if the member's regular service retirement at age 55 is higher than the 50% or 60%, the disability retirement, whether ordinary or accidental, will be the service retirement amount. Since many disability retirees are older at the time of disability, there may be no difference in the ordinary and accidental disability monthly benefit, i.e., the full accrued benefit is paid in either scenario. The cost of members becoming disabled and drawing an ordinary disability benefit has historically been included in the actuarial contribution rate developed in the actuarial valuation so only the additional cost associated with paying the higher accidental disability benefit must be covered with the higher contribution rate.
- Another cost associated with granting an accidental disability retirement rather than an ordinary disability retirement is the reimbursement of medical expenses for the disabling condition that are not covered by medical insurance. When considering the actual



experience for recent disabled members, there is a significant variation in the amount of expenses reimbursed. However, given the potential medical cost of treatments for cancer and infectious disease it is possible this expense could be significant if it were to occur.

The first step in analyzing the impact of this presumption is to study the actual experience of the POR System with respect to this provision over the last five years (shown below). Please note that this data was provided directly by the System:

Fiscal Year	Type of Disability Retirement		
	Accidental	Ordinary	Total
2015	2	0	2
2016	3	0	3
2017	1	1	2
2018	4	0	4
2019	3	0	3
Total	13	1	14

Over this five year period, none of the members who qualified for accidental disability retirement were eligible due to the cancer and infectious disease presumption. However, as was mentioned earlier the probability of such a disability occurring is very small. It is worth noting that the total active population is about 550 so the rate of total disability over this period was about 0.50% [$14/(5*550)$]. Given that the cancer and infectious disease provision would impact a small subset of the overall disability group, the probability of its occurrence would be even smaller. When a small probability is applied to a relatively small group, we can expect significant volatility in actual experience to expected experience from year to year. For example, although there have been no accidental disabilities due to this cause over the last five years (effectively a 0.0% actual occurrence rate), if there were two disabilities in the current fiscal year and both were due to this provision, the percentage of disabilities due to this presumption would increase from 0.0% to 12.5%. Due to the limited data and small probabilities that apply for this occurrence, the System's actual experience, and therefore costs, may deviate significantly from the assumption. Therefore, the actual data observed during the last five years is of very limited value in assessing the long term cost of the provision.

Another way to evaluate the actuarial impact of the cancer and infectious disease presumption is to consider the additional funding resulting from the higher employee contribution rate of 0.05%. Over fiscal years 2015 through 2019, we estimate the higher employee contribution rate of 0.05% produced additional contributions of about \$110,000. If one accidental disability is granted rather than an ordinary disability, a higher benefit is payable for the life of the member and his spouse. The average salary of active members in the July 1, 2019 actuarial valuation was \$85,218 so if the benefit payable is 60% of final average salary (accidental disability benefit) rather than 50% (ordinary disability benefit), a difference of 10% of pay would be about \$8,500 per year, with



future post-retirement escalations, for the lifetime of the member and his/her spouse. For illustrative purposes, the additional liability experienced by the System for the higher monthly benefit would be roughly \$155,000 at age 45, based on the current actuarial assumptions. Any potential medical payments are not included in this analysis. This is just an example to illustrate the point that one such disability could be sufficient to exhaust the additional contributions made in the past to fund the higher benefits paid under this presumption. The actual difference in benefits as a result of a member receiving an accidental disability retirement rather than an ordinary disability retirement will vary with each member's individual situation, including actual salary history and years of service, as discussed on page two of this letter.

Additionally, the actuarial assumptions used for funding the System have changed significantly since the cost study was performed in 2012 including the investment return assumption, which was lowered from 8.0% to 7.5%, and the mortality assumption (which now reflects longer life expectancy). Both of these assumption changes result in higher liabilities and costs, as is evidenced by a normal cost rate of 26.53% in the July 1, 2019 valuation compared to a normal cost rate in the 2012 actuarial study using Assumption A for accidental disability of 24.74%. While we have not quantified the impact of the new set of actuarial assumptions on the previous cost analysis, the new assumptions will tend to increase the costs compared to those developed in the 2012 cost study.

In summary, there have been no accidental disabilities granted on the basis of the cancer and infectious disease presumption in the past five years. However, that does not mean the current level of additional contributions are not necessary to help fund the potential benefits payable due to this provision in the future. The very small probability of this event means that one or two in a ten year period might result in liabilities that offset the impact of the higher contributions. Based on the analysis in this letter, it would seem prudent to maintain the current contribution rate of 0.05% at this time.

On the basis of the foregoing, I hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared with generally recognized and accepted actuarial principles and practices which are consistent with the principles prescribed by the Actuarial Standards Board and the Code of Professional Conduct and Qualification Standards for Public Statement of Actuarial Opinion of the American Academy of Actuaries.



Board of Trustees
January 28, 2020
Page 5

I, Patrice A. Beckham F.S.A., am a member of the American Academy of Actuaries and a Fellow of the Society of Actuaries, and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Sincerely,

A handwritten signature in blue ink that reads 'Patrice Beckham' in a cursive script.

Patrice A. Beckham, FSA, FCA, EA, MAAA
Consulting Actuary