Via Electronic Mail

September 19, 2017

Mr. David C. Craik
Pension Administrator
Delaware Public Employees' Retirement System
McArdle Building
860 Silver Lake Boulevard, Suite 1
Dover, Delaware 19904

Re: Special Pensioners June 30, 2016 Actuarial Valuation

Dear Dave:

We have completed our Actuarial Valuation of the seven members remaining in the special pensioners as of June 30, 2016. Our results are as follows.

Valuation Results	
Actuarial Liability (AL)	$ 150,500
Actuarial Value of Assets	242,000
AVA Unfunded AL (UAL)	$ (91,500)
Funded Ratio on AVA (AVA/AL)	160.8%
Market Value of Assets (MVA)	214,400
Funded Ratio on MVA (MVA/AL)	142.5%
Present Value Accumulated Plan Benefits (PVAB)	$ 150,500
MVA	214,400
Unfunded PVAB	$ (63,900)
Accrued Benefit Funded Ratio (MVA/PVAB)	142.5%

The Actuarial Value of Assets is a smoothed asset value that recognizes 20% of the difference between the expected actuarial value and the Market Value of Assets. The expected actuarial value equals the prior year's actuarial value adjusted with contributions, payments, and investment earnings of 7.2%, the assumption as of last year's valuation date. This method tempers the volatile fluctuations in market value.

We found that there continue to be no contributions required as of this valuation. Therefore, the Actuarially Determined Contribution for fiscal year 2017 for this plan is $0.

Data and Assumptions

In completing the valuation and preparing our report, we relied on information, some oral and some written, supplied by staff of the Office of Pensions. This information includes, but is not limited to, the Plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23.

We found the data to be reasonably consistent and comparable with data used in the prior valuation. If the underlying data or information is inaccurate or incomplete, the results of our analysis may likewise be inaccurate or incomplete.

Appendix A outlines the actuarial assumptions used. Appendix B contains a summary of the data, and Appendix C contains the disclosure information.

The Actuarial Liability was based on a 7.20% net investment return and mortality tables as outlined in appendix A.

We believe these assumptions reflect our best estimate of anticipated future experience of the Plan. Our results are dependent upon future experience conforming to these assumptions. It is certain that actual experience will not conform exactly to these assumptions. Actual amounts will differ from projected amounts to the extent actual experience differs from expected experience.

To the best of our knowledge, this report and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices that are consistent with the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board, including the use of assumptions and methods for funding purposes that comply with the Actuarial Standards of Practice. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this report. This report does not address any contractual or legal issues. We are not attorneys, and our firm does not provide any legal services or advice.

This report was prepared for the Delaware State Police Pension Plan for the purposes described herein and for the use by the Plan auditor in completing an audit related to the matters herein. Other users of this valuation report are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any other user.

Sincerely,
Cheiron

Fiona E. Liston, FSA, EA, MAAA
Principal Consulting Actuary

Elizabeth Wiley, FSA, EA, FCA, MAAA
Consulting Actuary

Attachments

APPENDIX A – ACTUARIAL ASSUMPTIONS

A. Long-Term Assumptions Used to Determine Plan Costs and Liabilities

1. Demographic Assumptions

a. Rates of Mortality

Mortality rates are based on the sex-distinct employee, healthy annuitant, and disabled annuitant mortality tables described below, including adjustment factors applied to the published tables for each group. Future mortality improvements are reflected by applying a custom projection scale on a generational basis to adjusted base tables from the base year shown below.

i. Sample Rates of Mortality for Healthy Annuitant Lives at Selected Ages (number of deaths per 10,000 members):

(2016 Values Shown)		
Age	Male	Female
50	44	27
55	62	36
60	84	53
65	119	81
70	185	130
75	302	213
80	508	360
85	885	638
90	1,553	1,138
95	2,447	1,868
100	3,500	2,796

Rates are based on 110% and 100% of the RP-2014 Total Dataset Healthy Annuitant Mortality Table, respectively, for males and females, using the RP-2014 Total Dataset Employee Mortality Table for ages prior to start of the Healthy Annuitant Mortality Table, both projected from the 2006 base rates using the RPEC-2015 model, with an ultimate rate of 0.85% for ages 20-85, grading down to an ultimate rate of 0% for ages 115-120, and convergence to the ultimate rate in the year 2020. The valuation uses fully generational projection of mortality improvements. Sample rates shown are those projected through the valuation date.

APPENDIX A – ACTUARIAL ASSUMPTIONS

ii. Sample Rates of Mortality for Disabled Annuitant Lives at Selected Ages (number of deaths per 10,000 members):

(2016 Values Shown)		
Age	**Male**	**Female**
25	93	28
30	89	35
35	105	49
40	126	67
45	196	105
50	240	138
55	276	174
60	313	207
65	375	252
70	486	342
75	666	502
80	949	757
85	1,411	1,145
90	2,157	1,690
95	3,019	2,453
100	3,973	3,446

Rates are based on 120% of the RP-2014 Total Dataset Disabled Annuitant Mortality Table, projected from the 2006 base rates using the RPEC-2015 model, with an ultimate rate of 0.85% for ages 20-85, grading down to an ultimate rate of 0% for ages 115-120, and convergence to the ultimate rate in the year 2020. The valuation uses fully generational projection of mortality improvements. Sample rates shown are those projected through the valuation date.

2. Economic Assumptions

a. Investment Rate of Return: 7.20%
b. Annual Assumed Cost-of-Living Increase Rate for Retirees: 2.50%

3. Rationale for Assumptions

The assumptions were adopted by the Board of Trustees upon the recommendation of the actuary, based on an experience study review performed in 2016 and covering the period July 1, 2010 to June 30, 2015.

APPENDIX B – DATA SUMMARY

Data Summary			
	Count	Average Age	Average Monthly Benefit
Disabled Retirees	1	88	637.83
Beneficiaries	6	84	270.15

APPENDIX C – DISCLOSURE INFORMATION

Analysis of Financial Experience

Gain and Loss in Accrued Liability During Years Ended June 30 Resulting from Differences Between Assumed Experience and Actual Experience

	Gain (or Loss) for Year ending June 30, (expressed in thousands)					
Type of Activity	**2016**	**2015**	**2014**	**2013**	**2012**	**2011**
Investment Income on Actuarial Assets	(7)	(3)	(1)	(8)	(11)	(8)
Combined Liability Experience	31	(25)	(18)	4	(13)	(22)
(Loss)/Gain During Year from Financial Experience	24	(28)	(19)	(4)	(24)	(30)
Non-Recurring Items	(4)	0	(3)	0	0	16
Composite Gain (or Loss) During Year	20	(28)	(22)	(4)	(24)	(14)

Solvency Test
Aggregate Accrued Liabilities for

(expressed in thousands)

Valuation Date June 30,	Active Member Contributions (1)	Retirees & Beneficiaries (2)	Active Member State-Financed Contributions (3)	Actuarial Value of Reported Assets	Portion of Accrued Liabilities Covered by Reported Assets (1)	(2)	(3)
2016	$0	$151	$0	$242	N/A	160%	N/A
2015	0	210	0	279	N/A	133	N/A
2014	0	217	0	308	N/A	142	N/A
2013	0	224	0	329	N/A	147	N/A
2012	0	264	0	366	N/A	139	N/A
2011	0	287	0	406	N/A	141	N/A