This is the 7th Affidavit
of Richard Border in the BC Action
and was made on 12/October/2017

Court File No. 98-CV-141369 CP00

ONTARIO
SUPERIOR COURT OF JUSTICE

B E T W E E N :

DIANNA LOUISE PARSONS, deceased by her Estate Administrator, William John Forsyth, MICHAEL HERBERT CRUICKSHANKS, DAVID TULL, MARTIN HENRY GRIFFEN, ANNA KARDISH, ELSIE KOTYK, Executrix of the Estate of Harry Kotyk, deceased and ELSIE KOTYK, personally

Plaintiffs

and

THE CANADIAN RED CROSS SOCIETY,
HER MAJESTY THE QUEEN IN RIGHT OF ONTARIO
and THE ATTORNEY GENERAL OF CANADA

Defendants

and

HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF ALBERTA
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF SASKATCHEWAN,
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF MANITOBA,
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF NEW BRUNSWICK
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF PRINCE EDWARD ISLAND,
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF NOVA SCOTIA
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF NEWFOUNDLAND,
THE GOVERNMENT OF THE NORTHWEST TERRITORIES,
THE GOVERNMENT OF NUNAVUT and THE GOVERNMENT OF THE YUKON TERRITORY

Intervenors

Proceeding under the *Class Proceedings Act, 1992*

Court File No. 98-CV-146405

B E T W E E N:

JAMES KREPPNER, BARRY ISAAC, NORMAN LANDRY, as Executor of the Estate of the late SERGE LANDRY, PETER FELSING, DONALD MILLIGAN, ALLAN GRUHLKE, JIM LOVE and PAULINE FOURNIER as Executrix of the Estate of the late PIERRE FOURNIER

Plaintiffs

and

THE CANADIAN RED CROSS SOCIETY, THE ATTORNEY GENERAL OF CANADA and
HER MAJESTY THE QUEEN IN RIGHT OF ONTARIO

Defendants

and

HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF ALBERTA,
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF SASKATCHEWAN,
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF MANITOBA,
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF NEW BRUNSWICK,
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF PRINCE EDWARD ISLAND
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF NOVA SCOTIA
HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF NEWFOUNDLAND,
THE GOVERNMENT OF THE NORTHWEST TERRITORIES,
THE GOVERNMENT OF NUNAVUT AND THE GOVERNMENT OF THE YUKON TERRITORY

Intervenors

Proceeding under the *Class Proceedings Act, 1992*

No. C965349
Vancouver Registry

In the Supreme Court of British Columbia

Between:

Anita Endean, as representative plaintiff

Plaintiff

and:

**The Canadian Red Cross Society
Her Majesty the Queen in Right of the Province of
British Columbia, and The Attorney General of Canada**

Defendants

and:

**Prince George Regional Hospital, Dr. William Galliford,
Dr. Robert Hart Dykes, Dr. Peter Houghton, Dr. John Doe,
Her Majesty the Queen in Right of Canada, and
Her Majesty the Queen in Right of the Province of
British Columbia**

Third Parties

Proceeding under the *Class Proceedings Act*, R.S.B.C. 1996, C. 50

CANADA

PROVINCE OF QUÉBEC

DISTRICT OF MONTRÉAL

NO : 500-06-000016-960

SUPERIOR COURT

Class action

DOMINIQUE HONHON

Plaintiff

-vs-

THE ATTORNEY GENERAL OF CANADA
THE ATTORNEY GENERAL OF QUÉBEC
THE CANADIAN RED CROSS SOCIETY

Defendants

-and-

MICHEL SAVONITTO, in the capacity of the Joint Committee member for the province of Québec

PETITIONER

-and-

FONDS D'AIDE AUX RECOURS COLLECTIFS

-and-

LE CURATEUR PUBLIC DU QUÉBEC

Mis-en-cause

CANADA

PROVINCE OF QUÉBEC

DISTRICT OF MONTRÉAL

NO : 500-06-000068-987

SUPERIOR COURT

Class action

DAVID PAGE

Plaintiff

-vs-

THE ATTORNEY GENERAL OF CANADA
THE ATTORNEY GENERAL OF QUÉBEC
THE CANADIAN RED CROSS SOCIETY

Defendants

-and-

FONDS D'AIDE AUX RECOURS COLLECTIFS

-and-

LE CURATEUR PUBLIC DU QUÉBEC

Mis-en-cause

AFFIDAVIT

I, Richard Border, FIA, FCIA of Eckler Ltd., located at 980 - 475 West Georgia Street, Vancouver, BC V6B 4M9, SWEAR THAT:

1. I am a Principal and Shareholder of Eckler Ltd. ("Eckler").

2. The Joint Committee asked Eckler to address several matters following the Courts' orders and judgments, which restated and allocated excess capital as at December 31, 2013, including:

   (a) the amount of required capital for special distributions benefits to be paid out of excess capital and accounted for in a separate Special Distributions Benefits Account of the Trust;

   (b) the amount of required capital for an HCV Late Claims Benefit Plan to be funded from excess capital and accounted for in a separate HCV Late Claims Account of the Trust;

   (c) the estimated liability and required capital if loss of services payments to alive permanently disabled approved dependants continued for the lifetime of the dependent rather than ceasing at the normal life expectancy of the deceased HCV infected person;

   (d) the amount of required capital if the Courts allocated excess capital to permit Primarily-Infected Hemophiliacs who are Approved HCV Infected Persons co-infected with HIV and who made an election under Section 4.08(2) of the Hemophiliac HCV Plan, to re-elect as discussed at paragraph 165 of our 2015 Allocation Benefits Report.

   (e) certain implementation and valuation issues pertaining to the allocation of excess capital and the establishment of the HCV Late Claims Benefit Account, the Special Distribution Benefits Account and the Regular Benefits Account of the Trust.

3. Attached hereto and marked as **Exhibit "A"** to this affidavit is Eckler's report dated October 12, 2017 addressing these issues. The Eckler actuarial personnel involved in preparation of the report are myself, Wendy Harrison, Dong Chen and Kevin Chen. The opinions are those of Wendy Harrison and me and we are the authors of the report.

4. Attached hereto and marked as **Exhibit "B"** to this affidavit is my memorandum to the Joint Committee dated October 12, 2017 on the estimated liability and required capital if loss of services payments were to be extended for the lifetime of permanently disabled approved dependants, rather than ceasing at the actuarially calculated normal life expectancy of the deceased HCV infected person.

5. In making this affidavit, I certify that I am aware that my duty is to:

a) provide opinion evidence that is fair, objective and non-partisan and related only to matters within the area of my expertise; and

b) assist the court and provide such additional assistance as the court may reasonable require to determine a matter in issue.

6. I am aware that the foregoing duties prevail over any obligation I may owe to any party on whose behalf I am engaged and I am aware that I am not to be an advocate for any party. I confirm this affidavit conforms with the above-noted duties. I further confirm that if called upon to give oral or written testimony, I will give such testimony in conformity with this duty.

SWORN BEFORE ME at Vancouver,)
British Columbia, on 12/October/2017.)
)
)
)
)
)
A Commissioner for taking)
Affidavits for British Columbia)

Richard Border

LAURA E. JONES
BARRISTER & SOLICITOR
856 Homer Street, 4th Floor
Vancouver, BC, V6B 2W5
Tel: 604-689-7555 Fax: 604-689-7554

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Actuarial Report to the Joint Committee

Allocation of Required Capital Between HCV Regular Benefits, Special Distribution Benefits, and Late Claims Benefit Accounts

1986-1990 Hepatitis C Trust

Prepared by:

Richard Border, FIA, FCIA Wendy Harrison, FSA, FCIA

This is Exhibit" A "referred to in the affidavit of Richard Border #7 sworn before me at Vancouver this 12 day of October 2017

A Commissioner for taking Affidavits for British Columbia

Vancouver, B.C.

October 12, 2017

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1 INTRODUCTION

1. Our assessment of the financial sufficiency of the 1986-1990 Hepatitis C Trust as at December 31, 2013 was documented in our report (2013 Sufficiency Report) dated March 11, 2015.
2. Our 2013 Sufficiency Report concluded that, after allowing for an appropriate level of Required Capital, there was Excess Capital, or actuarially unallocated assets, of $236,341,000.
3. Our assessment of the cost of the proposed priority Allocation Benefits (described below) was documented in our report (2015 Allocation Benefit Report) dated October 14, 2015.
4. Our 2015 Allocation Benefit Report first reflected an additional sufficiency liability in respect of level 2 claimants who are reclassified as level 3 claimants equal to $29,421,000. This reduced the Excess Capital to $206,920,000.
5. Our 2015 Allocation Benefit Report then set out the costs, including the increase in Required Capital, of potential priority "Allocation Benefits" that would be directed "for the benefit of class members and family class members". The priority Allocation Benefits were identified by the Joint Committee after consultation with class members.
6. The total cost of the priority Allocation Benefits, including the additional Required Capital, was $205,422,000. This reduced the remaining Excess Capital to $1,498,000.
7. The Courts have considered the proposal for Allocation Benefits following hearings in June 2016. Their decisions are summarized in the following section.

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2 COURT-APPROVED HCV SPECIAL DISTRIBUTION BENEFITS AND HCV LATE CLAIMS BENEFIT PLAN

8. The Courts have issued orders declaring that the actuarially unallocated assets of the 1986-1990 Hepatitis C Settlement Agreement Trust Fund as at December 31, 2013 are restated to be $206,920,000 (the "Excess Capital"), consistent with our 2015 Allocation Benefit Report.

9. The Courts also approved all but two of the priority Allocation Benefits. The proposal to no longer deduct other sources of income from income loss was not approved, nor was the proposal to increase the cap on Funeral Expenses to $10,000 in 1999 dollars.

10. Two of the Priority Allocation Benefits were approved with modifications such that the total estimated liability was unchanged:

    - Payments on death to children over 21 and parents were increased by $4,600 (instead of by $5,000) but retroactive payments are indexed to 2014 dollars (instead of to year of the original payment), and
    - All regular lump sum payments are increased by 8.5% (rather than 10%), but retro-active payments indexed to 2014 dollars (instead of to year of original payment).

11. The Late Claims Protocol (CAP3) could only be provided from a discrete HCV Late Claims Benefit Plan, to be funded from Excess Capital.

12. The Courts ordered that an amount equal to $130,970,000 plus administrative costs of $61,000, plus required capital in an amount to be agreed upon, be allocated for the approved priority Allocation Benefits (excluding the proposed late claims protocol), which are now referred to as the "HCV Special Distribution Benefits".

13. The Courts ordered that an amount equal to $32,450,000 plus administrative costs of $51,000, plus required capital in an amount to be agreed upon, be allocated to the discrete HCV Late Claims Benefit Plan.[1]

14. The Courts have also directed the Joint Committee to review the issue where a co-infected claimant who elected the $50,000 lump sum in lieu of other benefits payable under the settlement now has a longer life expectancy (due to improved treatment for HIV), and would like to "re-elect" (paragraphs 164 and 165 of the 2015 Allocation Benefits Report). We calculated the liability for this option to "re-elect" to be $4.6 million; this amount is not included in the Court Orders approved to date.

15. Loss of services payments to dependents (disabled spouses or permanently dependent children) on the HCV related death of the primarily infected claimant are payable for the normal life expectancy of

[1] In our 2015 Allocation Benefits Report (paragraph 26), we reported the amounts for the late claims protocol (now called the Late Claims Benefit Plan) as $32,450,000, which included administrative costs of $51,000.

the primary infected claimant. We have been asked to calculate the additional liability that arises if the payments are made for the life of these dependents. We calculated the liability for this change to be $3.9 million.

16. Accordingly, we have been asked to update the required capital to be allocated to the HCV Special Distribution Benefits and the HCV Late Claims Benefit Plan.

3 METHOD

17. It is our understanding that all benefits will continue to be provided from a single trust fund, which will be segregated into three accounts to track the income and expenses of the three components: the original "Regular Benefits Account", the HCV Special Distribution Benefits Account, and the HCV Late Claims Benefit Plan Account.

18. Our approach to calculating the total Required Capital is consistent with that used in our 2015 Allocation Benefits Report, modified to reflect the specific Special Distribution Benefits and Late Claims Benefits Plan that have been approved by the Courts. After this modification, the total Required Capital is $163,230,000, versus $163,400,000 in the 2015 Allocation Benefits Report. In other words, the total Required Capital has been reduced by $170,000 relative to the 2015 Allocation Benefits Report.

19. We then allocated the total Required Capital between the three Accounts. The method of allocation varied by risk component[1]. For example, in the case of Investment Risk, the Required Capital Risk amount is allocated in proportion to assets in each of the three Accounts. Mismatch risk was allocated in proportion to liabilities. For the other risk components, more complex calculations were appropriate.

20. Details of our calculation and allocation of the Required Capital for this purpose are set out in Appendix A.

21. Additional details on the allocation of Investment Risk are included in Appendix B.

22. A summary of the results by each of the three Accounts is set out in Appendix C.

[1] We note that paragraph 102 of our 2015 Allocation Benefits Report set out the increase in required capital as a result of considering the priority Allocation Benefits. There was no increase in investment risk or mismatch risk (for reasons discussed in that report), however, it is appropriate to allocate a portion of each of these risk components to the Special Distribution Benefits and Late Claims Benefits Plan, since investment and mismatch risk are associated with the assets and liabilities of each.

4 RESULTS

23. The amounts to be allocated to the HCV Late Claims Benefit Plan are set out in the table below:

HCV Late Claims Benefit Plan	
Component	**($ thousands)**
Liability for Late Claims Benefit Plan	32,450
Administrative Cost Allowance	51
Required Capital	7,411
Total Liability and Expense for Late Claims Benefit Plan	**39,912**

24. The amounts to be allocated to the HCV Special Distribution Benefits are set out below:

HCV Special Distribution Benefits	
Component	**($ thousands)**
Compensate for lost pension benefits at 10% of pre-tax loss of income (loss of income capped at $200,000 prior to 2014, indexed thereafter)	19,787
Increase hours cap on loss of services to 22 hours	34,756
Increase maximum benefit payable for Cost of Care by $10,000 in 1999 dollars	629
$200 in 2014 dollars per diem for family member out of pocket expenses	1,957
Increase payments on death to children over 21 and parents by $4,600 in 1999 dollars, retro-active payments indexed to 2014 dollars	22,449
Increase all regular lump sum payments by 8.5%, retro-active payments indexed to 2014 dollars	51,392
Subtotal Liabilities for HCV Special Distribution Benefits	130,970
Administrative Cost Allowance	61
Required Capital	12,199
Total Liability and Expense for HCV Special Distribution Benefits	**143,230**

25. The remaining assets, including the PT Notional Assets equal to $162,152,000,[1] remain with the HCV Regular Benefits Account as set out in the table below. Note that, after adjusting the required capital for the Special Distribution Benefits and Late Claims Benefits Plan, the Excess Assets are $31,370,000:

HCV Regular Benefits	
Component	**($ thousands)**
Liability (including allowance for administrative costs)	832,067
Required Capital	143,620
Excess Assets	31,370
Total Liability and Expense for HCV Regular Benefits	**1,007,057**

[1] Paragraph 14 of our 2015 Allocation Benefits Report.

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26. Introduction of the "re-election" option for co-infected claimants and the changes to the permanent dependents' loss of service payments will increase the Special Distribution Benefits Account by $5.1 million and $4.3 million respectively (reflecting the total increase in liability and required capital), and the Excess Assets in the Regular Benefits Account will decrease by the same amount.

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5 ADJUSTMENT TO CURRENT DOLLARS

27. All analysis thus far has been based on assets, liabilities and required capital as at December 31, 2013. In order to manage the three Accounts going forward, it will be necessary to adjust the figures to current dollars.

28. While it would be theoretically feasible to carry out a very precise calculation of the current value of the three Accounts, the administrative cost of doing so could be considerable. We recommend that a reasonable approximation be used instead.

29. We note that, for the period prior to 2017, there were basically no cash flows for either of the Special Distribution Benefits or the Late Claims Benefit Plan. Benefit payments did not start until 2017. There may have been some administration expenses that arose in connection with the Special Distribution Benefits and Late Claims Benefit Plan; these could be ignored if the amounts are not material, or an approximate adjustment could be made.

30. Assuming for the moment that there were no Special Distribution Benefit or Late Claims Benefit Plan cash flows prior to 2017, we believe it would be reasonable to roll each December 31, 2013 Account value (equal to $143,230,000 and $39,912,000 respectively) to December 31, 2016, using the annual rate of return for the invested assets of the fund (i.e. excluding the PT Notional Assets), net of investment expenses.

31. The use of the total rate of return for the invested assets is consistent with a pro-rata allocation of invested assets to the three Accounts, which we believe is reasonable. A more refined approach might be to allocate certain invested assets (such as equities) to the "Excess Assets" of $31,370,000 in the Regular Benefits Account, however, this would involve additional analysis that may not result in a materially different result. We suggest that this topic be revisited following the 2016 Sufficiency Review.

32. The balance in the Regular Benefits Account at December 31, 2016 would be equal to the total fund minus the December 31, 2016 Account values for the Special Distribution Benefits and the Late Claims Benefit Plan i.e. the Regular Benefits Account is the balance of the fund after setting aside these two calculated amounts.

33. From December 31, 2016 onwards, the three accounts should be updated monthly as follows. The monthly rate of investment return on the total invested assets, net of investment fees, should be calculated. Each account balance will then be reduced by the payments (benefits and expenses) out of the account and interest income added at the monthly investment return rate. In any one month the investment return could be negative.

6 OPINION

34. In our opinion,

    a. after allowing for the Special Distribution Benefits and Late Claims Benefit Plan the Trust funds are sufficient to meet the liabilities of the Trust,

    b. the claimant data on which the calculations are based are sufficient and reliable for the purposes of the calculations,

    c. the assumptions are appropriate for the purposes of the calculations, and

    d. the methods employed in the calculations are appropriate for the purposes of the calculations.

35. This report has been prepared, and our opinions given, in accordance with accepted actuarial practice in Canada.

36. To the best of our knowledge, there are no material subsequent events that would affect the results and recommendations of this report.

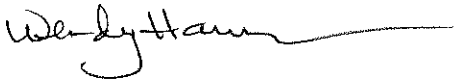
37. On behalf of the Eckler actuarial personnel who worked on this report, we certify that we are aware that our duties are:

    a. to provide opinion evidence that is fair, objective and non-partisan and related only to matters within our area of expertise; and

    b. to assist the Courts and provide such additional assistance as the Courts may reasonably require to determine a matter in issue.

38. We are aware that the foregoing duties prevail over any obligation we may owe to any party on whose behalf we are engaged and we are aware that we are not to be an advocate for any party. We confirm that the report conforms with the above-noted duties. We further confirm that if called upon to give oral or written testimony, we will give such testimony in conformity with these duties.

Richard A. Border
Fellow of the Canadian Institute of Actuaries[1]
Fellow of the Institute and Faculty of Actuaries



Wendy F. Harrison
Fellow of the Canadian Institute of Actuaries
Fellow of the Society of Actuaries

[1] Canadian Institute of Actuaries is the Primary Regulator.

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APPENDIX A REQUIRED CAPITAL FOR HCV SPECIAL DISTRIBUTION BENEFITS & HCV LATE CLAIMS BENEFIT PLAN

39. In our 2013 Sufficiency Report, we developed a Hepatitis C specific framework to systematically assess the sources of risk not covered in the sufficiency liability and calculate an appropriate "Required Capital" for the Hepatitis C fund, in order to protect the claimants from future major adverse experience or catastrophe. This "Required Capital" represents the amount of assets, in addition to those needed to meet the liabilities, that is to be used for the protection, and benefit, of claimants. We continued with that framework in our 2015 Allocation Benefit Report, and in this report. Specifically, we have updated the elements of Required Capital to reflect the approved Special Distribution Benefits and Late Claims Benefit Plan.

40. Our approach takes into account any existing margins for adverse deviation in the actual liability calculation; to the extent there are margins for adverse deviation in the actual liability calculation, the impact is to reduce the additional Required Capital. Conversely, if there is no margin in the actual liability (i.e. it is a "best estimate" liability), the Required Capital would be higher. This approach prevents inappropriate duplication (between the actual liability and the Required Capital) in providing for uncertainty.

41. The approach also takes into account the risks that the Trust faces as a whole, and sets aside capital to protect the claimants from these risks. Retroactive payments do not have a need for Required Capital and so we have calculated the increase in Required Capital based on the future liability increase only. Further, not all risks increase as a result of the approved benefits (discussed further under Investment Risk and Mismatch Risk).

A.1 Investment Risk

42. The investment risk in our 2013 Sufficiency Report was based on the total assets, which are not affected by the increase in liabilities arising from the Special Distribution Benefits or Late Claims Benefit Plan. Therefore, the total Investment Risk component remains at $25.4 million as calculated in our 2013 Sufficiency Report (and unchanged in our 2015 Allocation Benefit Report). It is appropriate, however, to allocate a portion of the $25.4 million Investment Risk component to the Special Distribution Benefits and Late Claims Benefits Plan, since investment risk is associated with the assets in each.

43. The Investment Risk component of $25.4 million arises from invested assets of $1,028.0 million; the Investment Risk component can be calculated as 2.47% of the invested assets. This factor is used to allocate the $25.4 million in proportion to the assets in each of the three Accounts. In practical terms, we apply this factor after all other items have been allocated. Details of this calculation are set out in Appendix B.

Investment Risk ($ thousands)			
Account	**Invested Assets**	**Investment Risk Component**	**Investment Risk % of Assets**
Regular Benefits	844,905	20,875	2.47%
Special Distribution Benefits	143,230	3,539	2.47%
Late Claims Benefit Plan	39,912	986	2.47%
Total	**1,028,047**	**25,400**	**2.47%**

A.2 Interest Mismatch

44. In our 2013 Sufficiency Report, we calculated the Interest Mismatch component to be $18.6 million, based on the sensitivity of the financial position of the Trust to a 0.5% increase in medium to long-term interest rates. An interest rate increase would be detrimental to the Trust because the duration of the liabilities[1], as measured in the 2013 Sufficiency Assessment, was about 9.5 years (using a 1.05% net discount rate), while the duration of the interest-sensitive assets was longer, with average duration of about 13.4 years. If interest rates increase, the resulting decrease in liabilities would be less than the decrease in asset value.

45. As a result of the introduction of the Special Allocation Benefits, the duration of the liabilities, excluding the retroactive payments which would be paid out immediately, increases. This would reduce the mismatch, as the duration of the assets is currently greater than the duration of the liabilities. However, offsetting this, the duration of the assets is likely to increase as well if the retroactive payments are paid out of the short-term assets. Furthermore, to the extent that the actual benefits and expenses payable under the HCV arrangement differ from those assumed in the valuation, interest mismatch may exist even if the duration of the assets is set equal to the duration of the liabilities, but it is not possible to quantify this in any meaningful way.

46. Taking into account these factors, we stated in our Allocation Benefits Report that, in our opinion, the Mismatch Risk component would not change materially as a result of the priority Allocation Benefits (the total Mismatch Risk component remained at $18.6 million as calculated in our 2013 Sufficiency Report).

[1] Duration is the weighted average term of the cash flows associated with an asset or a liability. Since it is the average term, some cash flows will occur earlier, and some later, than the duration.

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47. We believe that a Mismatch Risk component of $18.6 million continues to be appropriate for the Special Distribution Benefits and Late Claims Benefit Plan and have maintained the Mismatch Risk at the same level. As for the Investment Risk, it is appropriate to allocate a portion of the $18.6 million Mismatch Risk component to the Special Distribution Benefits and Late Claims Benefits Plan.

48. We are unable to quantify a meaningful difference in Mismatch Risk between the three Accounts, and therefore believe it is reasonable to allocate the $18.6 million Mismatch Risk in proportion to the liabilities and administrative cost allowance of each of the three Accounts as follows:

Mismatch Risk ($ thousands)			
Account	**Future Liability + Administrative Cost Allowance**	**Mismatch Risk Component**	**Mismatch Risk % of Liability**
Regular Benefits	832,067	15,545	1.87%
Special Distribution Benefits	$131,031	2,448	1.87%
Late Claims Benefit Plan	32,501	607	1.87%
Total	**995,599**	**$18,600**	**1.87%**

A.3 Efficacy Rate of New HCV Treatments

49. When assessing the cost of the priority Allocation Benefits in our 2015 report, we included a provision for adverse deviation for drug efficacy in our liability calculation by multiplying the best estimate drug efficacy rate by a factor of 80%. Given the newness of these drugs, and the sensitivity of the liability to this assumption, we calculated an additional buffer (a Required Capital component) for drug efficacy equal to the increase in liabilities if we substituted a factor of 67% for the 80% factor in the liability calculation. The increase in the buffer for drug efficacy due to the priority Allocation Benefits was $2.8 million ($44.8 million in the 2013 Sufficiency Report increased to $47.6 million).

50. Since the approved Special Distribution Benefits are different from the priority Allocation Benefits, we have recalculated the increase in buffer for drug efficacy for the Special Distribution Benefits to be $1.42 million ($47.6 million in the 2015 Allocation Benefits Report decreased by $1.38 million to $46.22 million).

51. We calculated the ratio of the treatment efficacy risk components to the future liability for the Regular Benefits plus the Special Distribution Benefits combined to be 5.24%. Because the Late Claims Benefits Plan provides both the Regular Benefits and the Special Distribution Benefits, we believe this is a reasonable measure of the treatment efficacy risk for the Late Claims Benefits Plan. The resulting treatment efficacy risk for the Late Claims Benefits Plan is $1.7 million. This represents a refinement of the approach used in the 2015 Allocation Benefits Report, where we did not include a specific efficacy risk component for Late Claims Benefits Plan (referred to as CAP3 in that report).

52. The total treatment efficacy risk component is therefore $47.92 ($44.8 million from the 2013 Sufficiency Report plus $1.42 million for Special Distribution Benefits plus $1.7 for the Late Claims Benefits Plan), compared to $47.6 million in the 2015 Allocation Benefits Report.

Efficacy Rate of New HCV Treatments ($ thousands)			
Account	**Future Liability**	**Treatment Efficacy Risk Component**	**Treatment Efficacy Risk % of Future Liability**
Regular Benefits	832,067	44,800	5.38%
Special Distribution Benefits	50,259	1,420	2.83%
Late Claims Benefit Plan	32,450	1,700	5.24%
Total	**914,776**	**47,920**	**5.24%**

A.4 Transition Probability Parameter Uncertainty

53. As noted in our 2013 Sufficiency Report, the Medical Model Working Group (MMWG), who have defined the medical model used in the liability calculations, could not know with certainty what the actual transition probabilities are, and therefore provided the estimated mean, associated distribution, and 95% confidence intervals for each one. The estimated mean represents the best estimate of the true value of the transition probability, and the 95% confidence interval indicates that the MMWG are 95% confident (statistically) that the true value falls in the range.

54. For our 2015 Allocation Benefit report, we modified our liability calculation to use the distribution specified by the MMWG, rather than the mean of the distribution, for seven[1] key disease transition parameters. Using these distributions in the Tree-age software, we carried out stochastic analysis of the impact of medical parameter uncertainty. Based on the results of 1,000 stochastic scenarios, we determined the distribution of liability results, and selected the liability at the 95% quantile threshold. The difference between the 95% quantile liability and the mean liability (which formed the basis for the sufficiency liability) represents the required capital for this risk exposure. The increase for parameter uncertainty risk due to the priority Allocation Benefits was $2.5 million ($28.4 million in the 2013 Sufficiency Report increased to $30.9 million).

55. Since the approved Special Distribution Benefits are different from the priority Allocation Benefits, we have recalculated the increase in the parameter uncertainty risk component for the Special Distribution Benefits to be $1.4 million.

[1] The stochastic analysis was restricted to seven parameters to limit the changes needed to Tree-age. The seven specific parameters chosen were those that we understand will have the most significant impact on the results.

56. As for the treatment efficacy risk, we calculated the ratio of the parameter uncertainty risk components to the future liability for the Regular Benefits plus the Special Distribution Benefits combined to be 3.38%. Again, because the Late Claims Benefits Plan provides both the Regular Benefits and the Special Distribution Benefits, we believe this is a reasonable measure of the treatment efficacy risk for the Late Claims Benefits Plan. The resulting treatment efficacy risk for the Late Claims Benefits Plan is $1.1 million.

57. The total treatment efficacy risk component is therefore $30.9 million, unchanged from the 2015 Allocation Benefits Report.

Parameter Uncertainty Risk ($ thousands)			
Account	**Future Liability**	**Parameter Uncertainty Risk Component**	**Parameter Uncertainty Risk % of Future Liability**
Regular Benefits	832,067	28,400	3.41%
Special Distribution Benefits	50,259	1,400	2.79%
Late Claims Benefit Plan	32,450	1,100	3.38%
Total	**914,776**	**30,900**	**3.38%**

A.5 Uncertainty Regarding Other Benefit and Claim Amounts

58. For benefits other than the lump sums, the dollar amount of benefits that will be paid in the future is not known.

59. As set out in our 2013 Sufficiency Report and our 2015 Allocation Benefits Report, the Required Capital earmarked an amount for a potential large loss of income claim of $1 million annual loss of income claim payable for 12 years; such a claim would require about $11.3 million in assets. We have maintained the same amount in this report.

60. In our 2013 Sufficiency Report and our 2015 Allocation Benefits Report, we considered the impact of our assumption regarding the proportion of deaths (other than deaths at level 6) that are deemed to be HCV related (with the ensuing additional benefits). There is considerable uncertainty around this outcome, as it depends on a number of factors, including the co-morbidities and the interpretation of "death materially contributed to by HCV", and we therefore incorporated a buffer reflecting the increase in liability if the assumed proportion of deaths at levels 2 through 5 that are deemed to be caused by HCV were increased by adding 10% at each level. Using the same principle and methodology, we calculated that the corresponding buffer would increase by $3.7 million as a result of the Special Distribution Benefits and Late Claims Benefits Plan (was $3.9 million in the 2015 Allocation Benefit Report). The risk component decreases from $21.3 million in the 2015 Allocation Benefits Report to $21.1 million.

61. Taking into account the magnitude of the additional liability, the variability in the retroactive payment data associated with these benefits, and the uncertainty inherent in our liability calculation, we believe there is additional benefit uncertainty arising from the Special Distribution Benefits and Late Claims Benefits Plan. As a proxy for this additional overall benefit amount uncertainty, we calculated an additional buffer equal to the increase in liability should the number of family members eligible for the enhanced family benefits exceed our sufficiency assumption by 10% (a similar approach was followed for the 2015 Allocation Benefit Report). The resulting Required Capital component is $1.0 million (was $1.1 million in the 2015 Allocation Benefit Report).

62. Considering only this subset (one additional large loss of income claim, additional deaths attributed to HCV, and additional family benefits claimants) of the possible variation in benefit and claim amounts, and calculating the impact of the resulting increase in liability generates an additional risk amount as a result of the Special Distribution Benefits and Late Claims Benefits Plan of $4.7 million (was $5.0 million in the 2015 Allocation Benefits Report). The risk component decreases from $33.7 million in the 2015 Allocation Benefits Report to $33.4 million.

63. We allocated the additional benefit uncertainty risk in proportion to the future liability for each of the Special Distribution Benefits and the Late Claims Benefit Plan.

Benefit Amount Uncertainty Risk ($ thousands)			
Account	**Future Liability**	**Benefit Amount Risk Component**	**Benefit Amount Risk % of Future Liability**
Regular Benefits	832,067	28,700	3.45%
Special Distribution Benefits	50,259	2,856	5.68%
Late Claims Benefit Plan	32,450	1,844	5.68%
Total	**914,776**	**33,400**	**3.65%**

A.6 Actual Size of Unknown Cohort

64. In our 2013 Sufficiency Report, we noted that although the official cut-off date for claimants coming forward was June 30, 2010, there is still some uncertainty regarding the size (and profile) of the unknown cohort: additional claimants may be approved due to unusual circumstances and/or the assumed denial rate could prove to be too high. We therefore incorporated a risk component regarding the actual size of the unknown cohort based on an additional 25 additional unknown alive transfused claimants, multiplied by the corresponding average sufficiency liability. The 25 additional unknowns represented two types of uncertainty: the possibility that the number for claimants coming forward in the future is higher than anticipated (we assumed there were 10 unanticipated claimants) and the risk that the assumed denial rate is higher than actual denial rate (we assumed an additional 15 claimants would be approved).

65. For the 2015 Allocation Benefit Report, we incorporated an additional 5 claimants to reflect the uncertainty around the additional CAP3 claims[1], and used the higher average sufficiency liability arising from the balance of the priority Allocation Benefits. We continued with the same approach in this report, with a resulting additional buffer of $1.71 million (was $1.9 million in the 2015 Allocation Benefits Report). The total Cohort Uncertainty risk component decreases from $7.2 million in the 2015 Allocation Benefits Report to $7.01 million.

66. Of the additional $1.71 million, $1.174 million arises from the Late Claims Benefit Plan (calculated as 5 additional unknowns multiplied by the average liability of $235,000). The balance of $0.536 million arises from the Special Distribution Benefits for other than the Late Claims Benefits Plan class members.

Cohort Size Risk ($ thousands)			
Account	**Future Liability**	**Cohort Risk Component**	**Cohort Risk % of Future Liability**
Regular Benefits	832,067	5,300	0.64%
Special Distribution Benefits	131,031	536	0.41%
Late Claims Benefit Plan	32,501	1,174	3.61%
Total	**995,599**	**7,010**	**0.70%**

A.7 Results of Hepatitis C Specific Approach to Required Capital

67. The overall results of the Hepatitis C specific approach to calculating required capital, with a comparison to the results from the 2015 Allocation Benefits Report, are set out in the following table:

Required Capital on Hepatitis C Specific Approach ($ thousands)				
Risk Component ($ millions)		**2015 Allocation Benefits Report**	**2013 HCV Regular Benefits, Special Distribution Benefits and Late Claims Benefit Plan**	**Change Relative to 2015 Allocation Benefits Report**
Investment Risk		25,400	25,400	0
Mismatch Risk		18,600	18,600	0
Claimant Risk	Drug Treatment Efficacy	47,600	47,920	320
	Parameter Uncertainty	30,900	30,900	0
	Benefit Amount Uncertainty	33,700	33,400	(300)
	Cohort Uncertainty	7,200	7,010	(190)
Total Required Capital		**163,400**	**163,230**	**(170)**

[1] Now called the Late Claims Benefits Plan.

68. The total Required Capital of $163.23 million is slightly less than the $163.4 million figure from our 2015 Allocation Benefit report due to the exclusion of two of the proposed priority Allocation Benefits and changes to two others, partially offset by refinements to the calculation of Required Capital for the Late Claims Benefits Plan.

69. The total Required Capital is allocated between the three Accounts as follows:

Required Capital on Hepatitis C Specific Approach Allocated by Account ($ thousands)					
Risk Component		**Regular Benefits**	**Special Distribution Benefits**	**Late Claims Benefit Plan**	**Total**
Investment Risk (as allocated in Appendix B)		20,875	3,539	986	25,400
Mismatch Risk		15,545	2,448	607	18,600
Claimant Risk	Drug Treatment Efficacy	44,800	1,420	1,700	47,920
	Parameter Uncertainty	28,400	1,400	1,100	30,900
	Benefit Amount Uncertainty	28,700	2,856	1,844	33,400
	Cohort Uncertainty	5,300	536	1,174	7,010
Total Required Capital		**143,620**	**12,199**	**7,411**	**163,230**
Total Required Capital excluding Investment Risk (used in Appendix B)		122,745	8,660	6,425	137,830

A.8 Impact of Allowing Co-infected Claimants to "Re-elect"

70. In our 2015 Allocation Benefits Report, paragraph 165, we calculated the liability that would arise from allowing co-infected claimants to "re-elect" as $4.6 million. If this is approved, the total liability for the three Accounts would increase by about 0.46%.

71. Considering the total Required Capital of $163.23 million, and following the same logic as outlined above, there would be no change to the investment risk of $25.4 million, the mismatch risk of $18.6 million or the cohort risk of $7.0 million[1].

72. The balance of the Required Capital components, comprising efficacy rate risk transition probability risk and benefit amount uncertainty, total $112.22 million. Taking into account the relatively small additional liability arising from the re-election option we have simply increased the Required Capital by 0.46% of $112.22 million, or $0.5 million.

[1] In theory, the allocation of these risk amounts between the three Accounts could be refined to reflect the additional liability arising from the re-election option, but, in our opinion, the impact of this refinement would not be significant, and we have not incorporated it into our calculations.

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73. If this election is approved, the Special Distribution Benefits Account would increase by $5.1 million (comprising $4.6 million liability and $0.5 million in Required Capital), and the Excess Assets in the Regular Benefits Account would decrease by $5.1 million.

A.9 Impact of Continuing Loss of Services to Permanent Dependents for their Lifetime

74. In a memo dated October 12, 2017 on this issue, we calculated the liability that would arise from making this change as $3.9 million. If this is approved, the total liability for the three Accounts would increase by about 0.39%.

75. Considering the total Required Capital of $163.23 million, and following the same logic as outlined above, there would be no change to the investment risk of $25.4 million, the mismatch risk of $18.6 million or the cohort risk of $7.0 million[1].

76. The balance of the Required Capital components, comprising efficacy rate risk transition probability risk and benefit amount uncertainty, total $112.22 million. Taking into account the relatively small additional liability arising from this option we have simply increased the Required Capital by 0.39% of $112.22 million, or $0.4 million.

77. If this election is approved, the Special Distribution Benefits Account would increase by $4.3 million (comprising $3.9 million liability and $0.4 million in Required Capital), and the Excess Assets in the Regular Benefits Account would decrease by $4.3 million.

[1] As for the re-election option, in theory, the allocation of these risk amounts between the three Accounts could be refined to reflect the additional liability arising from the re-election option, but, in our opinion, the impact of this refinement would not be significant, and we have not incorporated it into our calculations.

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APPENDIX B ALLOCATION OF INVESTMENT RISK

78. As noted in Section A.1, the Investment Risk component of $25.4 million arises from invested assets of $1,028.0 million and represents 2.47% of the invested assets. This factor is used to allocate the $25.4 million in proportion to the assets allocated to each of the three Accounts, and in practical terms, is calculated after all the other components (liabilities, expense, required capital, and, if applicable, excess assets) have been allocated.

79. The following table summarizes the allocation of liabilities, expense, required capital excluding investment risk, and excess assets to each of the three Accounts:

Allocation of Components Excluding Investment Risk Account ($ thousands)				
Component	**HCV Regular Benefits**	**HCV Special Distribution Benefits**	**HCV Late Claims Benefit Plan**	**Total**
Liability	832,067	130,970	32,450	995,487
Expense Allowance	0	61	51	112
Required Capital excluding investment risk	122,745	8,660	6,425	137,830
Excess Assets	31,370	0	0	31,370
Total Allocated Components Excluding Investment Risk	**986,182**	**139,691**	**38,926**	**1,164,799**

80. Note that the total allocated components, equal to $1,164.8 million, exceeds the invested assets of $1,028.0 million; we therefore need to remove the non-invested "notional" assets of the Provinces and Territories, which are equal to $162.152 million.[1] The PT Notional Assets are allocated only to the HCV Regular Benefits. Removing this amount from the HCV Regular Benefits Account results in the following allocation of invested assets excluding investment risk:

Allocation of Components Excluding Investment Risk by Account ($ thousands)				
Component	**HCV Regular Benefits**	**HCV Special Distribution Benefits**	**HCV Late Claims Benefit Plan**	**Total**
Total Allocated Components Excluding Investment Risk	986,182	139,691	38,926	1,164,799
Provinces and Territories Notional Assets	(162,152)	0	0	(162,152)
Total Allocated Invested Assets Excluding Investment Risk	**824,030**	**139,691**	**38,926**	**1,002,647**

81. We now allocate the investment risk required capital of $25,400, also equal to the balance of the remaining invested assets (equal to $1,028,047 minus $1,002,647), between the three Accounts in proportion to the amounts allocated in the bottom line of the table above.

Allocation of Investment Risk by Account ($ thousands)				
Component	**HCV Regular Benefits**	**HCV Special Distribution Benefits**	**HCV Late Claims Benefit Plan**	**Total**
Total Allocated Invested Assets Excluding Investment Risk	824,030	139,691	38,926	1,002,647
Proportion of Total	82.2%	13.9%	3.9%	100%
Allocated Investment Risk	20,875	3,539	986	25,400
Total Allocated Invested Assets	**844,905**	**143,230**	**39,912**	**1,028,047**

[1] Paragraph 14 of our 2015 Allocation Benefits Report

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APPENDIX C SUMMARY OF LIABILITY, EXPENSE AND REQUIRED CAPITAL BY ACCOUNT

82. The table below summarizes the liability, expense, required capital and excess assets by Account (note that the HCV Regular Benefits Account includes the PT Notional Fund):

Allocation of Assets (Invested and Notional) by Account ($ thousands)				
Component	**HCV Regular Benefits**	**HCV Special Distribution Benefits**	**HCV Late Claims Benefit Plan**	**Total**
Liability	832,067	130,970	32,450	995,487
Expense Allowance	0	61	51	112
Required Capital	143,620	12,199	7,411	163,230
Excess Assets	31,370	0	0	31,370
Total Assets	**1,007,057**	**143,230**	**39,912**	**1,190,199**

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CONSULTANTS + ACTUARIES

This is Exhibit" B "referred to in the affidavit of Richard Border #7
sworn before me at Vancouver
this 12 day of October 20 17
A Commissioner for taking Affidavits for British Columbia

TO	:	HCV Joint Committee
FROM	:	Richard Border, Eckler Ltd.
CC	:	
DATE	:	October 12, 2017
RE	:	**Loss of services payment to 'permanent dependents'**

Currently loss of services payments to spouses or dependent children, commencing on the HCV related death of the primarily infected claimant, cease at the normal life expectancy of the deceased primarily infected claimant or, in the case of dependent children, at the earliest of the normal life expectancy of the deceased primarily infected claimant, or the date on which the child is no longer deemed to be dependent. In most cases of dependent children, payments cease before the child's 25th birthday. In four cases, the primarily infected claimant's child has been deemed to be a 'permanent dependent' and payments have continued past age 25. However, in one case, the payments were stopped after age 25 as a result of the expiry of the term to the deceased primarily infected claimant's normal life expectancy. As things currently stand, the other three permanent dependents will have their loss of service payments stopped on the expiry of their parent's term to normal life expectancy as well. There is also currently a disabled dependent spouse whose payments are scheduled to stop when she is 84 as a result of the expiry of her husband's normal life expectency. We have been asked to estimate the liability arising as a result of changing this practice so that loss of service payments to permanent dependents will be paid for their life time.

Additional liability for current permanent dependents

We were provided with the date of birth and payment cut-off date for five permanent dependents (four children and one spouse). Based on this information we have calculated the additional liability arising on the proposed change of practice for the four current permanent dependent children to be $1,3 million as at December 31, 2013. The additional liability for the disabled spouse is $0.1 million also as at December 31, 2013.

The children's amount includes a retroactive payment of $20,780 for one claimant whose benefits were stopped on October 1, 2012. In the cases of two of the children, the primarily infected claimant died after December 31, 2013, but we have included them in the December 31, 2013 calculation in full (after allowing for the delay in the start of the benefits to the claimant's date of death).

Liability for future permanent dependent children

In theory, to calculate the increase in the liability for future permanent dependent children, we need to estimate the number of such future claimants, the date of the HCV death of their parent (the primarily

infected claimant), the normal life expectancy of the parent at their date of death and the age of the dependent when the payment commences so that we can calculate the additional payments expected to be made from the primarily infected claimant's normal life expectancy until the dependent's death. Based on the data available to us at this time this is not possible.

As a start, estimating the disability rate for children is problematic. We surveyed our colleagues who work in the group benefits arena, who are familiar with insurance company health benefits underwriting practices where similar contingent benefits could arise, and they were not aware of any useful standard tables or actuarial studies addressing this issue. Statistic Canada published a Participation and Activity Limitation study in 2006 that estimated that 1.5% of Canadian children have a severe or very severe disability, but it is not clear how to translate this data to an estimate of how many children will be permanent dependents in adulthood.

The trust's experience shows a relatively low rate of such claimants – four in seventeen years – and so a detailed calculation of the future liability is likely subject to spurious accuracy. Clearly, however, the proposed change in practice will increase the liabilities. In our opinion, holding an additional liability about equal to two times the liability for the currently known claimants should provide a reasonable allowance for this increase. Thus, we recommend an additional liability of $2.5 million in this regard.

Liability for future disabled dependent spouses

Clearly, as illustrated by the one case to date, it is possible for a disabled dependent spouse to outlive a primarily infected person's normal life expectancy. However, in our opinion the additional liability arising from changing the practice is likely to be extremely small for the following reasons. Firstly, the rate of disability spouses is likely to be relatively low, and secondly, in most such cases we would expect a disabled person to have impaired mortality relative to a normal healthy person. So, in general, we would expect the disabled spouse not to outlive the primarily infected member's normal life expectancy. The net effect of these two low likelihoods means that we would not change our liability calculation for loss of services on a primarily infected member's death as a result of the proposed change.

Summary

The total liability with respect to the proposed change is $3,9 million as at December 31, 2013. This amount will also result in an increase in the required capital of $0.4 million. The calculation of this latter amount is discussed in our report on required capital dated October 12, 2017.