



Eckler Partners Ltd.

**ACTUARIAL REPORT
TO THE JOINT COMMITTEE
ASSESSING THE FINANCIAL SUFFICIENCY OF THE
1986-1990 HEPATITIS C TRUST FUND
AS AT DECEMBER 31, 2004**

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Executive Summary

1. We have, at the request of the Joint Committee, completed an actuarial valuation of the assets and liabilities of the Hepatitis C fund as at December 31, 2004. The previous valuation was completed by us as at December 31, 2001, with the details included in our report dated June 6, 2002.
2. Our previous valuation calculated the liabilities based on two different assumptions as to the number of claimants that would come forward.
3. Firstly, we assumed that the full theoretical cohort, based on the estimated number infected between 1986 and 1990 and their survival rates to 1999, would come forward, consisting of 9,108 transfused claimants alive at January 1, 1999, 150 HCV deaths before 1999, and 1,645 hemophiliacs. This resulted in liabilities of \$1,317,210,000, excluding liabilities for benefits held back, compared to assets of \$1,080,287,000, which produced an actuarial deficit of \$236,923,000 as at December 31, 2001. The estimate of the liabilities held back was \$68,783,000 (excluding the impact of eliminating the \$75,000 limit on pre-claim gross income in calculating loss-of-income benefits).
4. Secondly, based on the actual number of claimants as at December 31, 2001 and the pattern of new claims until then, the Joint Committee concluded that there was good reason to believe the full theoretical cohort would not come forward. Accordingly we were asked to calculate the liability on a reduced cohort of 6,650 transfused claimants (6,500 alive as at January 1, 1999 and 150 HCV deaths before that date) and 1,481 hemophiliac claimants (90% of the original theoretical cohort). On this basis, the total liabilities at December 31, 2001 reduced to \$957,451,000. Compared to the assets of \$1,080,287,000, this indicated a surplus of \$122,836,000. The holdback amounts on the reduced cohort had a liability of \$50,969,000 (excluding the impact of removing the \$75,000 limit on pre-claim gross income). When the holdbacks were included, the projected surplus reduced to \$71,867,000.



5. Since the 2001 valuation, the holdbacks have been lifted and the cap on the income loss has been raised from \$75,000 to \$300,000. These changes are reflected in this valuation and we therefore no longer calculate a liability for deferred benefits.

6. The fund now has a further three years of claims experience and, based on the rate at which claimants have come forward since the last valuation, it appears that the estimate of 6,650 transfused claimants is too high. The Joint Committee has concluded that an estimate of 4,600 transfused claimants is more appropriate (the pattern of claims over time suggests that this is still a modestly conservative estimate) and our liabilities for the transfused claimants are based on this revised number. With regard to the hemophiliac claimants, the numbers of new claims since 2001 continue to support the assumption of a reduced cohort and the Joint Committee has made only minor changes to the reduced cohort assumption used in 2001. This is discussed in more detail in the report.

7. The medical model developed by Dr. Krahn's working group was updated for this valuation. While the model structure and methodology is largely unchanged, it has been updated to take into account additional HCV medical studies since 2001 and the further three years of experience for the claimants under the HCV settlement.

8. Our current valuation indicates liabilities of \$904,683,000 compared to available assets of \$1,121,271,000, as at December 31, 2004, based on 4,600 transfused and 1,455 hemophiliac claimants. This produces an actuarial surplus of \$216,588,000 as at December 31, 2004.

9. It is noteworthy that the assets have increased since December 31, 2001 despite a further three years of paying benefits. This is the result of very good investment performance, driven largely by capital gains on the fund's real return bonds (currently 60% of the portfolio). These capital gains were due to real return bond yields falling from 3.8% in December 2001 to 2.1% three years later (when the yield on a bond falls, the value of the bond increases). As a result, the assets are now about \$131.8 million higher than expected. However, the fall in real return bond yields made it necessary to lower our net discount rate for valuing the liabilities (the current yield



on real return bonds is a good indicator of what we can expect to earn if we hold the bonds to maturity), which increased the liabilities by about \$99.4 million. Thus, the increase in the surplus due to the asset performance is offset to a large degree by the reduction in surplus due to the increase in the liabilities, for a net improvement of about \$32 million.

10. There are a number of major reasons for the change in the actuarial position from a surplus of \$123 million in 2001 to a surplus of \$217 million today:

- the lifting of the holdbacks and the caps; reducing the surplus by \$145 million
- the net investment gain discussed above; increasing the surplus by \$32 million
- the change in the cohort assumption; increasing the surplus by \$329 million
- the change in the benefit/expense payment assumptions; decreasing the surplus by \$129 million.

11. These issues are discussed further in our report.



1. Introduction

12. A number of class actions against the Federal and Provincial governments had been commenced at various dates in 1996 and 1998 on behalf of persons infected with Hepatitis C from the Canadian blood system during the period January 1, 1986 through July 1, 1990. A Settlement Agreement (made as of June 15, 1999) was subsequently reached between the governments and the counsel for the class action plaintiffs.

13. The Settlement Agreement (subsequently approved by the Courts) provided for the creation of a trust fund from which benefits will be paid. Among other things, the Settlement Agreement set out the amounts of and manner in which funds would be paid by the federal and provincial governments, investment guidelines thereon, and detail as to those eligible for the various benefits and the amounts of those benefits. The benefits differ according to whether the claimant is a hemophiliac or a non-hemophiliac transfused patient.

14. Section 10.01(1)(i) of the Settlement Agreement requires that the financial sufficiency of the Trust Fund be assessed at least once every three years. We have previously carried out assessments of the fund's position as at September 30, 1999 and December 31, 2001. The Joint Committee has asked us to complete an actuarial assessment of the fund's assets and liabilities as at December 31, 2004, and we are pleased to report thereon.

15. The Settlement Agreement also provided for a portion of certain of the benefits to be deferred and/or restricted until there was a favourable re-assessment of the fund's assets and liabilities. While the primary purpose of the 2001 valuation was to update the actuarial position to December 31, 2001, a secondary purpose was to determine if these holdbacks could be removed or made less restrictive.



16. Following our December 2001 report, the Courts decided to lift certain of the holdbacks. In 2003 we were asked to provide an update to our December 2001 report and provide a re-assessment of the appropriateness of lifting the remaining restrictions (referred to in this report as the "2003 update"). Our update reported on the approximate actuarial position of the fund as at September 30, 2003, in a letter dated February 17, 2004. Following this, the Courts decided that the remaining restrictions could be removed or reduced; therefore this report does not include any further liabilities for holdbacks. The only remaining restriction is a limit on loss of income claims to pre-claim gross income capped at \$300,000 - we have not considered the effect of removing this in this valuation.

17. A glossary of the abbreviations used in this report is provided in Appendix E.



2. *Medical Model and Related Assumptions*

18. In 1998, the parties to the Settlement Agreement asked the Canadian Association for the Study of the Liver ("CASL") to construct a natural history model of hepatitis C to aid in the calculation of the various amounts of compensation to patients infected with the hepatitis C virus through blood transfusion between 1986 and 1990. The CASL study was led by Dr. Murray Krahn and was completed in April 1999; its results formed the basis of our assumptions regarding the development of the various medical outcomes for our 1999 actuarial valuation. We refer to this herein as the "1999 CASL" report/study/model.

19. For the purposes of the 2001 assessment, Dr. Krahn was retained to convene a working group to review the medical model taking into account the clinical and demographic data from compensation claimants to date. We refer to this herein as the "2002 MMWG"(for "Medical Model Working Group") report/study/model. We developed an actuarial model based on the 2002 MMWG model for the 2001 valuation, which we refer to as the "2001 model".

20. For the purposes of the current assessment, Dr. Krahn was again retained to convene a working group to review the medical model and update it for the additional experience since 2001. We refer to this revised study as the "2005 MMWG" report/study/model.

21. The 2005 MMWG model is not significantly different from the 2002 MMWG model in terms of its structure and methodology, but the input parameters have been updated where appropriate, and the starting point for the model is based on the actual data to August 2004.

22. The MMWG model is a Markov state transition model. In this type of model, a set of relevant health states is defined. Time elapsed is divided into cycles, and transitions among health states are modelled with each time cycle. The model produces probabilities separately for the transfused and hemophiliac populations, at intervals from the model start date of August 31, 2004, of a number of different outcomes, including:



- progressing through the various stages of fibrosis,
- developing HCV related cirrhosis,
- developing HCV related decompensated cirrhosis,
- dying from HCV related causes, and
- dying from all causes.

23. Both the 2002 and 2005 MMWG models explicitly link the prognosis of the post-transfusion cohort to liver fibrosis stage, before liver decompensation/cancer. As before, infection is presumed to be "stage 0", progressing through fibrosis stages 1, 2 and 3, until cirrhosis (presumed "stage 4") - these "stages" do not correspond directly to the disease-based compensation Levels in the Plans.

24. The 2005 MMWG model uses a starting age, sex and clinical distribution of the cohort that is based on the observed claimant data, anchored at about August 2004. The prognosis is modeled for claimants grouped into separate 10 year age strata, with the first stratum being those aged 10 to 19 at August 2004. Tables showing the medical prognosis at 2010 and subsequent 10 year intervals, i.e. at 2010, 2020 and so on, are provided for each age stratum. The 2002 MMWG report provided similar tables for each age stratum, but started at June 2000 and defined the age strata by age as at June 2000. The cohorts in the two models are therefore differently defined and care needs to be taken when comparing the prognoses under the two models.

25. Both the 2005 and 2002 models recognize the prevalence of HIV infection and hemophilia. While we understand that the year-by-year medical transition probabilities do not vary by age, sex or hemophilia in the MMWG model, they are assumed to vary by HIV presence; this, combined with the different age/sex/clinical-stage starting compositions and excess mortality associated with HIV infection, affects the hemophiliac prognosis and leads to different projected outcomes for the hemophiliac cohort compared to the transfused cohort.

26. Since a number of potential claimants have not yet applied for compensation, the 2005 MMWG model postulates a number of different starting clinical-stage distributions for these unknown, i.e. future, claimants.



27. We have continued with separate actuarial models for the transfused vs. hemophiliac claimants, and for those "known" and approved claimants at December 31, 2004 vs. those "unknown", i.e. yet to claim after December 31, 2004, based on the 2005 MMWG results. (A similar approach was used by us in the 2001 valuation.) Specifically, we have used Tables 8.1-4 through 8.1-19 in the 2005 MMWG report to establish the starting clinical-stage distributions for the known transfused and hemophiliac groups as at December 31, 2004, and to subsequently project the clinical stage development.

28. With regard to the transfused model for the unknown, i.e. future, claimants, the only difference from the known claimants is the starting clinical-stage distribution of the claimants; thereafter the medical prognosis is identical.

29. The liability for the unknown group is sensitive to the assumed clinical-stage distribution, with the liability progressively increasing as the unknown population is posited to be less and less healthy. The 2005 MMWG report puts forward a wide range of alternative stage distributions, ranging from an assumption that the unknowns are much healthier than the known group (its Table 9.1-2), to an assumption that they are significantly less healthy (its Table 9.1-4). This leaves open the question as to which of these alternative stage distributions should be used for the unknown group.

30. We find it counter-intuitive that the unknown group are less healthy than the known group – if they are in poor health we would expect them to claim, and therefore the assumption that they are less healthy is not attractive. We discussed this with Dr. Krahn, and he agreed with us. On the other hand the assumption that they are much healthier than the known population seems too optimistic (particularly as it is possible that the healthiest infected will never come forward) and results in a liability for the transfused unknowns that is about 11% lower than the liability calculated using the stage distribution of the known group.

31. The 2005 MMWG report acknowledges the uncertainty of the different possible assumptions and notes that a conservative approach is justified, but that the table with the most



unhealthy stage distribution was "speculative". Accordingly, we have assumed that the unknown stage distribution is the same as the known stage distribution. If one accepts the argument that the unknown group is likely to be in somewhat better health than the known group, it is likely that this approach overstates somewhat the unknown liabilities, but we believe that this conservatism is appropriate given the uncertainty discussed above. In Section 13.6, to illustrate the sensitivity of the results to the clinical stage distribution assumption, we show the change in total liability using two of the different initial stage distributions contained in the 2005 MMWG report.

32. In 2001, we used a table from the 2002 MMWG report (Table 9.1-2A) that assumed that the unknown group was in slightly better health than the known group. The difference between the liability calculated on the known stage distribution and this approach was much smaller than in the current valuation - 2% reduction in 2001 compared to an 11% reduction in 2004 - and therefore it was then considered appropriate to go with the less conservative, but theoretically more appealing approach.

33. With regard to the 2005 MMWG hemophiliac models, they assume that 24.6% of the "starting" population at August 2004 is co-infected with HIV. This percentage was derived based on all of the hemophiliac data made available to Dr. Krahn. However, in our calculation of the liabilities under the Hemophiliac HCV Plan - see Section 8 of this report - you have, as in 2001, instructed us to assume that a certain number of both the known and unknown co-infected claimants will be compensated on an average lump-sum basis; the residual cohort, i.e. those assumed to claim under the regular provisions, does not exhibit the same 24.6% co-infected ratio inherent in the 2005 MMWG models. The 2005 MMWG report states that the medical prognosis for singularly infected hemophiliacs is the same as for the transfused population. We are therefore able to adjust the population to be valued by the hemophiliac models so that the mix of co-infected and singularly infected is the same as assumed by Dr. Krahn, by reducing the number of singularly infected in the population at August 2004. The singularly infected that we have "removed" are then valued using the transfused models after adjusting for the different male/female and age mix. A similar approach was used in 2001.



34. As discussed above, the medical models and our resulting actuarial models include separate projections for each 10 year age stratum. For the 2004 models the age strata are calculated as at August 31, 2004; (for the 2001 models the age strata were calculated as at June 30, 2000). We used the medical model projections to generate year-by-year movements between the different health outcomes. Submodels were developed for each 10 year age stratum; these were then aggregated to get the overall results. (Submodels by age strata are needed to more properly value items such as loss of income, which ceases at age 65, and the provision of medical treatments.)

35. The 2005 MMWG model does not distinguish by sex in its medical transition probabilities or in the summary probability outputs that we have used. However, based on the starting August 2004 distributions by male/female and by age, it does apply separate mortality rates by sex according to the life table (a heavier mortality assumption is assumed to apply to those hemophiliacs who are co-infected with HIV) in deriving the various probability outputs. The male/female mix indicated at August 31, 2004 was 49.6%/50.4% respectively for the transfused HCV cohort, and 85.7%/14.3% respectively for the hemophiliac cohort. We have not distinguished between male and female claimants in any of our calculations. However, in calibrating our actuarial models we have used unisex mortality assumptions of 49.6%/50.4% and 85.7%/14.3% male/female for the transfused and hemophiliac models respectively, where we needed to make a population life-table mortality assumption (based on the Canadian Life Tables 1995-1997). Where appropriate, the mortality of the hemophiliac HIV co-infected takes into account the additional mortality due to HCV.

36. The 2001 model assumed that the June 2000 male/female mix was 53.9%/46.1%. The reduced proportion of males, to 49.6% at August 2004 in the current model, is consistent with what we would expect under normal mortality assumptions.



37. When calculating annuity values for annual losses that are dependent on the survival of the claimant and that commence at or before the cirrhosis stage (e.g. loss of income) we have used mortality rates derived from the 2005 MMWG probabilities of survival. These implicitly represent a blend between the life-table mortality with a 49.6%/50.4% or 85.7%/14.3% male/female mix experienced at or before the cirrhosis stage and the higher mortality expected thereafter. This correctly allows for the fact that someone starting to receive an income benefit at or below the cirrhosis stage will continue to progress through the disease, with an associated probability of reaching the final stages of the disease where they will be subject to the higher mortality anticipated there. For loss of support we have used annuity values with the 49.6%/50.4% and 85.7%/14.3% unisex ratios and life-table mortality rates; the 2001 valuation used a 53.9%/46.1% and 88.2%/11.8% unisex mix respectively for transfuseds and hemophiliacs in conjunction with normal life-table mortality rates.

38. Where the annual losses commence, or are assumed to increase, at the liver decompensation/cancer stage, we have applied higher mortality rates in respect of the additional losses commencing at this stage. The higher mortality rates are taken from the 2005 MMWG study, namely: for those at liver decompensation we have applied a constant mortality rate of 16% per year; for those at cancer the mortality rate is a constant 86% per year; the two sets of annuity values are then blended in the proportions 4.6% to 2.1%, being the respective annual probabilities at which the claimants are presumed to enter the decompensation and cancer stages from the cirrhosis stage (the same approach and mortality rates were used for the 2001 model).



3. Cohort Size and Development

3.1 Overview

39. The assumption as to the number of claimants that will eventually come forward is critical to the results of our valuation. Various theoretical estimates of the number of claimants have been produced since 1998. In addition, there is now about six years of actual claims experience. The actual number of claimants is significantly less than was predicted by the theoretical estimates. There are several reasons (discussed later in this section) to believe that the ultimate number of claimants will be less than the earlier theoretical numbers. Accordingly, adjustments have been made to the estimated numbers of claimants over the course of the three reports that we have produced.

3.2 History of Cohort Assumptions

40. In 1999, in the absence of any direct experience with regard to the actual numbers of claimants likely to come forward, the cohort size was based on an estimate of the likely number of infections in the period from 1986 to 1990, and an estimate of how many of these claimants were still alive at January 1, 1999.

41. As the benefits differ according to whether the claimant was alive or dead at January 1, 1999, it is useful to distinguish between those alive at that date and those who died before January 1, 1999 due to HCV related causes. We refer to those who died prior to January 1, 1999 as DB9s and those who died after this date as DA9s.

42. In 2001, we calculated liabilities based on two cohorts: firstly, an estimate derived in a similar manner to the 1999 report, based on the estimated total number of infections and the number of survivors to January 1, 1999; and secondly, based on a reduced cohort established after considering the actual claims experience since the administration of the agreement started.



43. The table below summarizes the various cohorts that were assumed in the 1999 and 2001 reports:

| | <u>Transfused</u> | | <u>Hemophiliac</u> |
|---------------------------|-------------------|------------------------|--------------------|
| | <u>DB9</u> | <u>Alive at 1.1.99</u> | <u>Total</u> |
| 1999 report | 76 | 8,104 | 1,645 |
| 2001 report - full cohort | 150 | 9,108 | 1,645 |
| - reduced cohort | 150 | 6,500 | 1,481 |

We later refer to the reduced cohort numbers above as the "6,500 cohort" and/or the "1,481 cohort".

44. There were several reasons to explain the differences between the theoretical projections and the actual claims experience in our 2001 valuation:

- analysis of the new claims volume indicated that the number of new claims had dropped in most months after the first four months of the administration getting under way. Extrapolation of this trend in new claims until June 30, 2010 generally showed reduced numbers of eventual claimants;
- there continued to be medical uncertainty regarding the excess transfusion-related (i.e. non HCV) mortality in the 10 years post-transfusion;
- you had also advised us that in class actions such as this it is fairly common for a significant percentage of the potential claimants not to come forward.

45. Following the publication of our 2001 report, the Joint Committee, basing its analysis on the emerging claims data, posited that the ultimate number of transfused claimants was unlikely to be more than 6,500 alive at January 1, 1999 together with 150 DB9s, and that the number of hemophiliac claimants would not be more than 1,481. Based on these submissions, inter alia, the Courts approved the lifting of the holdbacks. The Joint Committee concluded, and we agree, that it is now appropriate to project the cohort size from the actual claims data rather than from theoretical epidemiological studies.



3.3 2004 Cohort Revision

46. You have advised us that there are 3,291 approved transfused claimants as at December 31, 2004, consisting of 3,138 alive or DA9, and 153 DB9s. In addition you have indicated that there are a further 526 as yet unapproved claims in process at December 31, 2004, totalling 443 alive or DA9, and 83 DB9; and, applying acceptance rates similar to those approved through December 31, 2004, this might result in a further 332 alive or DA9, plus 62 DB9 HCV-deaths.

47. You have further advised us that of the 3,291 approved transfused, 83 were subsequently denied (82 alive at January 1, 1999 plus 1 DB9). It is also possible that there will be similar (but fewer) such denials going forward. You have reflected this in your analysis of the projected cohort size.

48. Further analysis of the new claims rate, similar to that carried out for 2001, shows that the new claims volume has continued to drop; from 2000 to 2001 the drop was 63%, from 2001 to 2002 the drop was 45%, to 2003 43%, and to 2004 21%. Based on this, you have examined the possible number of new claimants that might ultimately come forward, by extrapolating the number of new claims through June 2010 assuming continuing annual declines in the number coming forward ranging from 30% per year to 0% per year. This produces a total transfused cohort at January 1, 1999, i.e. knowns plus unknowns, ranging from a low of 4,006 to a high of 4,712 (these numbers include pre-1999 HCV deaths).

49. Accordingly, you have instructed us to assume that 4,600 transfused persons (the "4,600 cohort") will ultimately claim. This number consists of 4,386 persons alive at January 1, 1999, plus 214 DB9s, and is towards the high end of the extrapolated numbers discussed above. We concur with your analysis.

50. The 4,386 transfused claimants alive at January 1, 1999 consist of 3,056 known (= 3,138 - 82) plus 1,330 unknown claimants. The projected numbers alive at December 31, 2004 are 2,570 known plus 1,100 unknown, for a total of 3,670.



51. To show the sensitivity of the results to the number of claimants coming forward, you have asked us to also calculate the liabilities based on 5,200 claimants, or 4,000 claimants. We have also calculated the number of claimants that are required to come forward to reduce the surplus in the fund to zero. These sensitivities are discussed further in Section 13.

52. As at December 31, 2004, 1,357 hemophiliac claimants have applied, 1,240 have been approved, and 86 claims are currently in process. Based on the number of claimants to date and the activities that have been undertaken to encourage claimants to come forward, you are still of the opinion that the eventual number of claimants will be less than 1,645. Accordingly, you have instructed us to assume that 90% of the alive and DA9 hemophiliac claimants will come forward and that 294 DB9s will claim, for a total number of claimants of 1,455 (the "1,455 cohort"). This is 26 fewer claimants than assumed in 2001.

53. The projected distribution of the alive cohort as at December 31, 2004 is shown in Appendix A. Separate tables are shown, first indicating the percentage allocations of the known and unknown transfused cohorts by age and clinical stage at both August 31, 2004 and December 31, 2004 (Appendices A-1 and A-2); next, the hemophiliac percentage distributions by age and clinical stage, projected at December 31, 2004, are included in Appendices A-3 and A-4; finally, Appendix A-5 includes the projected total transfused cohort numbers based on the reduced number of claimants discussed above.

54. A summary of the movements through the various health states after December 31, 2004 is shown in Appendix B, for the transfused cohort.



4. Assets at December 31, 2004

55. The costs of the settlement were shared by the Federal and Provincial governments in the ratio 8/11 : 3/11. The Federal Government transferred assets in full settlement of its ongoing obligations; the Provincial governments pay their share (3/11ths) of the costs as they arise, subject to a maximum possible payout. Accordingly there are two funds:

- an invested fund containing the remaining balance of the Federal Government funds; and
- a notional Provincial fund that represents the Provincial governments' share of the cost of the agreement; this is increased by interest at the rates on three-month treasury bills, less the Provincial governments' share of costs to date.

56. The invested assets are invested in two different portfolios: a long term portfolio, divided further into a real return bond portfolio and a portfolio made up of equities and universe bonds, and a short term portfolio invested in short term bonds.

4.1 Asset Development to December 31, 2004

57. The asset development to December 31, 2001 was summarized in our previous valuation report. The previous valuation used an asset value of \$1,080,287,000 as at December 31, 2001.

58. The development of the assets from January 1, 2002 to December 31, 2004 is summarized below. The invested assets and disbursements are taken from the Royal Trust financial statements, and show a closing asset balance of \$890,331,091 at market value. The Provinces' share is taken from the Royal Trust quarterly calculations of interest credits (which are reviewed by us), and shows a closing notional asset balance of \$230,940,114. Prior to our



last report, Ontario and Alberta had prepaid a portion of their obligations. At December 31, 2004, there was a total credit balance of \$3,122,246 in their accounts, which is included with the invested assets; effectively, interest credits on their prepayments are allocated from the investment income on the invested assets.

Asset Development from January 1, 2002 to December 31, 2004

(\$,000's)

| | <u>Invested Assets</u> | <u>Notional Assets</u> | <u>Total Assets</u> |
|--|----------------------------|----------------------------|-------------------------|
| Initial, at January 1, 2002 | 809,647 | 270,640 | 1,080,287 |
| Ontario/Alberta unused prepayments, = credit balance | (13,604) | 13,604 | 0 |
| Investment income/interest credits | 276,408 | 19,160 | 295,568 |
| Interest credits allocated on Ontario/Alberta prepayments | (329) | - | (329) |
| Benefit payments | (169,340) | (63,483) | (232,823) |
| Fees/expenses | <u>(15,573)</u> | <u>(5,859)</u> | <u>(21,432)</u> |
| Sub-total | 887,209 | 234,062 | 1,121,271 |
| Ontario/Alberta unused prepayments, = credit balance | <u>3,122</u> | <u>(3,122)</u> | <u>0</u> |
| Closing, at December 31, 2004 | <u>890,331</u> | <u>230,940</u> | <u>1,121,271</u> |

59. Thus, the total assets available at December 31, 2004 are \$1,121,271,000, at market value.

**4.2 Composition of Assets**

60. The composition of the total invested and notional assets is summarized below:

Asset Distribution at December 31, 2004

| | (\$,000's) | <u>% of sub-total</u> | <u>% of total</u> |
|----------------------------|------------------|---------------------------|-----------------------|
| Long Term Fund | | | |
| Real return bonds | 668,726 | 83.4 | 59.6 |
| Universe bonds | 42,016 | 5.2 | 3.8 |
| Canadian equity | 51,762 | 6.5 | 4.6 |
| US equity | 17,731 | 2.2 | 1.6 |
| International equity | 21,751 | 2.7 | 1.9 |
| Cash & short-term | <u>86</u> | <u>0.0</u> | <u>0.0</u> |
| Sub-total | 802,072 | 100.0 | 71.5 |
| Short Term Fund | <u>88,259</u> | | <u>7.9</u> |
| Total invested assets | 890,331 | | 79.4 |
| Provinces' notional assets | <u>230,940</u> | | <u>20.6</u> |
| Total assets | <u>1,121,271</u> | | <u>100.0</u> |

61. The investment strategy is passive. In general, the assets in the Long Term Fund are held and not traded. The invested assets, other than the real return bonds that are held directly, are in a variety of index funds managed by TD Asset Management. We understand that the Short Term Fund is drawn down to meet current claims and expenses; it is then reimbursed for the 3/11 share due from the Provinces. We further understand that, from time to time, a portion of the Long Term Fund is re-allocated to the Short Term Fund to rebalance the overall portfolio. The Long Term Fund currently comprises 90% of the invested assets. The Provinces' notional assets (less their 3/11 share of disbursements) are credited with interest at 3-month treasury bill rates as per the terms of the Settlement Agreement.



4.3 Investment Returns to December 31, 2004

62. The 3-month treasury bill rates are summarized below for each calendar quarter between January 1, 2002 and December 31, 2004. These rates were applied to the Provinces' notional assets.

| | | | | | |
|-----------|-------|-----------|-------|-----------|-------|
| 2002 - Q1 | 1.91% | 2003 - Q1 | 2.67% | 2004 - Q1 | 2.56% |
| - Q2 | 2.24 | - Q2 | 3.16 | - Q2 | 1.97 |
| - Q3 | 2.75 | - Q3 | 3.06 | - Q3 | 2.00 |
| - Q4 | 2.75 | - Q4 | 2.58 | - Q4 | 2.45 |

63. The investment returns earned during calendar 2002 to 2004 on the market value of assets were:

| | On invested <u>assets</u> | On notional <u>assets</u> | <u>Combined</u> |
|----------|------------------------------|------------------------------|-----------------|
| in 2002: | 9.34% | 2.44% | 7.59% |
| in 2003: | 11.83% | 2.90% | 9.67% |
| in 2004: | 14.40% | 2.26% | 11.70% |

4.4 Excess Investment Returns (Shortfall) to December 31, 2004

64. The 2001 actuarial valuation assumed that the assets (invested and notional) would earn a real rate of return (i.e. in excess of inflation) of 3.2% per year net of investment-related expenses.

65. The actual inflation increases applied to the Plans' 2002 scale of benefits were 1.63%, 3.21% and 1.72% at January 1, 2003, 2004 and 2005 respectively.



66. If we bring forward the \$1,080,287,000 asset value used at December 31, 2001, adjusted for the actual disbursements (excluding investment-related expenses) to December 31, 2004, with the assumed rates of return, we would expect a total asset value of \$989,516,000. This compares to the actual asset value of \$1,121,271,000. Thus there was a large gain of \$131,755,000 on the actual investment returns to December 31, 2004 compared to the long-term actuarial assumption. It should be noted that a significant reason for the higher than expected returns was the fall in real return bond yields (as bond yields fall, the bond asset value rises). However, the fall in bond yields also causes us to reduce our net discount rate for the liabilities (discussed in Section 5), which causes the value of the liabilities to increase, offsetting much of the investment gain. This is discussed later in the report.

4.5 Other Adjustments

67. There were a number of payments accrued at December 31, 2004 in respect of the known (i.e. approved) claimants at that date; in addition, loss of income and loss of services payments in respect of 2004 are not payable until 2005. These total approximately \$19 million (combined for the Transfused and Hemophiliac Plans). Provisions for these payments are included with the liabilities, later in this report.



5. Net Discount Rate

68. The lump sum equivalent present value of future benefit and expense payments depends on two main economic parameters. The first is the gross rate of investment return that will be earned or credited on the fund's assets. The second is the rate at which the future payments may be expected to increase in nominal terms to offset the effects of inflation (most of the benefits under the plan are scheduled to increase in accordance with increases in the Consumer Price Index).

69. The foregoing two parameters affect the calculation of the lump sum present value in opposite directions. The higher the rate of investment return that is used in discounting the future payments to the present time, the lower will be the resulting equivalent lump sum present value; the higher the rate that the payments are assumed to increase in the future, the higher will be that resulting present value.

70. A precise present value calculation would require a formula incorporating the gross rate of return and the rate of inflation as separate parameters. However, virtually the same result will flow from a simpler formula where the future payments are discounted at a net rate equal to the excess of the gross rate of return over the assumed rate of inflation.

71. At December 31, 2004, Government of Canada real return bonds were yielding about 2.12% (annualized). Based on the actual investment-related expenses incurred by the fund, we have reduced this to 2.08% per year, net of investment expenses. Section 4.2 indicates that approximately 71.5% of the total assets are in the Long Term Fund, 83.4% of which is in real return bonds. Since the expectation of the other assets in the Long Term Fund is to produce a long-term rate of return at least equal to that on real return bonds, we have applied the 2.08% assumption to the full Long Term Fund. We have assumed that the returns on the Provinces' notional assets (i.e. at treasury bill rates) will average out at 1.5% per year in excess of inflation.



With respect to the 7.9% of the total assets that are in the Short Term Fund, we have assumed these will earn a net rate in excess of inflation that will average out at 2% per year.

72. In summary, we assumed an overall weighted average net discount rate of 2.0% per year - i.e. 71.5% of 2.08% plus 7.9% of 2% plus 20.6% of 1.50%, rounded to the nearest 1/10th of a percentage point - for the purposes of this valuation.

73. The 2001 valuation used a net discount rate of 3.2% per year. This was derived in a similar way to the net discount rate used in the 2004 valuation, but based on real return bond yields net of expenses of 3.7%, an assumed return on the Provinces' notional assets of 2.25% in excess of inflation, and an assumed return on the Short Term Fund of 3% in excess of inflation. Thus, there has been a significant reduction in our net discount rate assumption from 2001, driven mainly by the fall in real return bond yields over the period.

74. In order to illustrate the sensitivity of the results to variations in the investment experience, and hence in the net discount rate, calculations have also been done (in Section 13.1) at net discount rates of 2.4% per year (this reduces the present value of the liabilities) and 1.6% per year (this increases the present value of the liabilities). (We, of course, also show the increase in liabilities resulting from reducing the net discount rate assumption from 3.2% to 2.0% in the reconciliation of the results with those of the previous valuation (Section 12).)

75. We have continued to ignore the effect of income tax on the investment returns since the Settlement Agreement provides that if any such taxes are paid they will be reimbursed to the fund.



6. Other Assumptions

6.1 Clearance Rate

76. For the 2005 (and 2002) MMWG model, clearance rates are factored directly into the medical model, both as an initial assumption and as smaller on-going annual probabilities. Thus we do not need to adjust the MMWG model outcomes for clearance rates. Based on the MMWG models, we project that about 25.0% of the transfused, known cohort is at clinical stage RNA- (i.e. "cleared") at December 31, 2004; the corresponding figures are 25.0% of the transfused-unknown cohort, 16.4% for the hemophiliac-known cohort, and 16.3% for the hemophiliac-unknown cohort.

6.2 Other Assumptions

77. The 2001 valuation used a number of other assumptions, e.g. proportion of claimants claiming loss of income/services/support at various disease levels, their average percentage of disability, income/support levels, costs of care, drug costs, other expenses, death benefits. Most of these assumptions were derived by you based on analysis of the claims experience to that date, consideration of the assumptions used in the 1999 valuation, as well as on expert medical and other advice.

78. You have compared most of these assumptions to the actual experience on claims observed to early 2005. Based on this analysis you have instructed us to make a number of changes. You have also sought expert medical advice to assist you in these changes.

79. We show the revised (and former 2001) assumptions under the attendant heads of compensation in Sections 7 and 8. In the 2001 valuation, you provided separate assumptions for the transfused and hemophiliac cohorts, based on their observed differences. You have continued



with this approach for this valuation. For convenience, the hemophiliac assumption variations are shown alongside their transfused counterparts in Section 7 (the hemophiliac liabilities are shown in Section 8).



7. Compensation Amounts and Present Values - Transfused Plan

80. The Settlement Agreement set up three compensation plans: the Transfused HCV Plan ("Transfused Plan"), the Hemophiliac HCV Plan ("Hemophiliac Plan"), and the HIV Secondarily Infected Program ("HIV Program"). The following paragraphs set out the various heads of compensation. The Transfused Plan is covered in this Section 7; the Hemophiliac Plan is covered in Section 8; the HIV Program is covered in Section 9. The present value liability under each head, calculated as at December 31, 2004, is also shown. Fees and expenses are then considered in Section 10. The total present value and expense amounts are then summarized in Section 11 and the results are reconciled against those of the previous valuation in Section 12. We also set out, under each head of compensation, the additional assumptions we have made, or that you have asked us to make, and how they have changed from the 2001 valuation. For convenience, where the hemophiliac assumption differs from the corresponding transfused assumption, we point out that difference in this Section 7.

Transfused Plan

81. The compensation amounts are set out in Sections 4, 5 and 6 of the Transfused Plan. Section 7.03 of the Transfused Plan restricted certain payments initially, subject to revision by the Courts. These restrictions have been removed or reduced since the 2001 valuation and are discussed in further detail in the relevant sections below. As a consequence of the removal of the restrictions, we no longer show a liability for holdback amounts as we did in the 2001 report.

82. The cross-references to the relevant sections of the Transfused Plan are shown in parentheses for each item.

83. Most of the prescribed compensation amounts are indexed by inflation each year. In general, we have started with the indexed amounts in effect at January 1, 2005. At January 1,



2005 the prescribed increase over the 1999 values is 14.4834%. Thus, for example, the \$10,000 payment (1999 dollars) to each infected claimant under Section 4.01(1)(a) of the Transfused Plan, is increased to \$11,448.34 where the payment is made in 2005. For ease of reference we continue to refer to the original 1999 amounts below rather than the actual indexed amounts used in the calculation (e.g. \$10,000 instead of \$11,448.34). The base 1999 amounts and the indexed 2005 values are summarized in Appendix C.

84. In some instances the dollar expenditures are based on current estimates rather than a prescribed amount, e.g. loss of income, costs of care. In these situations, where you have derived a compensation level by reference to the actual payouts, you have provided us with the amount payable in 2005. We refer to these 2005 figures in the subsequent sections. Your 2005 figures, and the corresponding 2002 amounts used in the 2001 valuation, are summarized in Appendix C.

85. Finally, we have calculated the liabilities using the adjusted cohort of 4,600 transfused claimants you have asked us to assume will actually come forward (as discussed in Section 3). We discuss the sensitivity of the results to changes in the cohort size in Section 13.

7.1 Heads of Compensation

86. In this Section, the total liability is included under each head of compensation for the known and unknown cohorts. The portion relating to the known cohort includes only those payments expected to fall due after 2004 (a liability for payments incurred to December 31, 2004 but outstanding at that date is identified separately, later in this section). The portion relating to the unknown cohort assumes that they will all come forward immediately, with all lump sum and periodic losses due prior to January 1, 2005 payable right away, based on their assumed clinical stage or presumption of death, and with future losses calculated in similar fashion to the known cohort.



7.1.1 \$10,000 to Each HCV Infected Claimant (4.01(1)(a))

87. The payments to the known/approved claimants have already been made. The remaining payments are assumed to apply to all of the unknown cohort who were alive at January 1, 1999, i.e. to 1,330 persons. The present value is \$15,226,000.

7.1.2 Reduce Cohort, for those Clearing the Virus

88. As in 2001, we do not need to reduce the cohort size to reflect those who will not progress to the chronic stages of the disease. The "recovery" rates are implicit in the projections made for the 2005 MMWG model.

7.1.3 \$20,000 to Each Claimant with Positive PCR Test (4.01(1)(b))

89. We have assumed that this will apply to 100% of the cohort at clinical stage RNA+ and beyond. The \$20,000 was originally restricted to \$15,000 payable immediately, with \$5,000 deferred until there was a favourable reassessment of the fund's assets and liabilities. Following the 2001 review, the Courts lifted the restriction in July 2002 and the full \$20,000 is now taken into account. We understand that virtually all the claimants who were originally paid \$15,000, have had the additional \$5,000 plus interest paid to them, and there is therefore no further liability in this regard.

90. The present value of the \$20,000 payments is \$22,821,000.

7.1.4 \$30,000 to Each Claimant with Non-bridging Fibrosis (4.01(1)(c))

91. The payments here are to those who have developed non-bridging fibrosis or who have satisfied certain conditions regarding HCV drug therapy. You have indicated that you believe



this should affect claimants at somewhere between stage 1 and stage 2 fibrosis (the fibrosis stages in the model were discussed earlier, in Section 2). You have asked us to take the conservative view and assume that these losses will apply to all those who reach stage 1 fibrosis. The same treatment was applied in the previous valuation.

92. It should be noted that, in all of our calculations, where a future claimant has already progressed beyond the disease stage at which a compensation amount is payable after January 1, 1999, we have assumed that amounts payable at all prior disease stages will be paid (this is covered under the Transfused Plan section 4.01(4)). Expressed differently, we have assumed that the \$30,000 amount is payable to all those alive at January 1, 1999 who are already at stage 1 fibrosis or beyond (right up to and including those at the decompensation/cancer stage), plus to all those who enter stage 1 fibrosis after January 1, 1999 (except for those who waive this amount, as discussed in the next paragraph), but excluding payments for the known claimants, who have already been paid.

93. A claimant is allowed to waive the \$30,000 payment under this Section and in lieu thereof elect compensation for loss of income (Transfused Plan section 4.02) or loss of services in the home (Transfused Plan section 4.03), provided the claimant is at least 80% disabled. You have asked us to assume the following:

- 95% of claimants will take the \$30,000 lump sum;
- the remaining 5% of claimants will claim loss of income or loss of services as discussed below in Section 7.1.8.

94. For the 2001 valuation, it was assumed that 95% would take the \$30,000 lump sum and that the remaining 5% would claim loss of income until age 65 and loss of services after age 65.



95. Since claimants who are already at stage 3 (i.e. bridging) fibrosis or beyond are entitled to loss of income/services in any event (see Section 7.1.9 below), we have reflected this by assuming that 100% of those at stage 3 fibrosis or beyond will elect the \$30,000 lump sum.

96. The present value of the \$30,000 lump sum elections is \$40,366,000.

97. The present values of the loss of income/services elections are dealt with in Section 7.1.8 below.

7.1.5 \$65,000 to Each Claimant with Cirrhosis (4.01(1)(d))

98. A \$65,000 amount is payable to all claimants who are at or who enter the cirrhosis stage. As shown in the table in Appendix B-1, using the MMWG probabilities, a total of 1,287 persons are projected to develop cirrhosis; in addition, Appendix A-5 indicates that 107 persons have progressed beyond the cirrhosis stage, to decompensation/cancer, as at December 31, 2004. The present value of the \$65,000 lump sum payments to them (plus the relevant deaths between January 1, 1999 and December 31, 2004, less the payments already made to known claimants) is \$66,982,000.

7.1.6 \$100,000 to Each Claimant at Decompensation/Cancer (4.01(1)(e))

99. The Transfused Plan includes some other conditions in addition to liver decompensation or cancer. We have assumed that these are all included within the decompensation/cancer probabilities derived by MMWG. The table in Appendix B-1 indicates that 962 persons are projected to reach this stage; this includes the known claimants to date. The present value of the future \$100,000 lump sum payments (i.e. excluding those paid to date) is \$72,034,000.



7.1.7 Bridging Fibrosis (4.01(2))

100. As in 2001 and 1999, we have assumed that bridging fibrosis is analogous to stage 3 fibrosis in the model. Claimants who have developed bridging fibrosis are to be paid the amounts under 7.1.1, 7.1.3 and 7.1.4 above. As noted in the second paragraph of 7.1.4, we have already covered this in the amounts above.

7.1.8 Loss of Income/Services in lieu of \$30,000 Lump Sum under 7.1.4 above (4.01(3), 4.02(1)(a) and 4.03(1)(a))

101. As noted in 7.1.4, 5% of claimants at stage 1 or 2 (i.e. non-bridging) fibrosis as at January 1, 1999, plus 5% of those who enter stage 1 after January 1, 1999, are assumed to elect the loss of income/services option. Of these, 60% (i.e. 3% of all eligible claimants) will claim loss of income until age 65, and loss of service after age 65 for the remainder of their lives; 40% (i.e. 2% of all eligible claimants) will claim loss of services, payable for life.

102. As instructed, we have set the loss of income level at \$38,000 per year (\$45,000 for hemophiliacs) and the loss of services at \$13,000 (\$14,000 for hemophiliacs). These claim amounts are the same as those assumed for the loss of income and loss of services claimants at stage 3 fibrosis (discussed below). These amounts are net amounts, i.e. they represent the actual amount paid, which can be viewed as consisting of a gross amount for the loss at 100% disability, reduced for the actual level of disability. There is thus an implied assumption that the level of disability of claimants electing loss of income or services in lieu of \$30,000 is the same as the level of disability of those who have already reached stage 3 fibrosis. In 2001 it was assumed that claimants at stage 1 or 2 fibrosis electing the loss of income/services option had a higher level of disability than those at stage 3 fibrosis.



103. In 2001, it was assumed that 5% of claimants would elect the loss of income/services option, but that all those younger than 65 would claim loss of income; income loss at 100% was set at \$21,100 (\$33,600 for hemophiliacs; both in 2002 dollars; with compensation at 80% for transfused and 75% for hemophiliacs); loss of services at 100% was set at \$11,600 (\$12,300 for hemophiliacs; both in 2002 dollars) payable for life; and the claimants were assumed to be 100% disabled. The assumption changes made for our 2003 update are described in paragraph 111 below.

104. We have also included an amount for the pre-1999 losses, calculated in an approximate fashion; this is included in 7.1.9.

105. The loss of income payments are paid at 100% of the presumed annual loss. In 2001 they were restricted to 70% of the presumed annual loss; an additional liability was calculated for the remaining 30% of the loss, to measure the effect of removing the 70% restriction. The Courts removed the 70% restriction in October 2004, so this adjustment is no longer necessary.

106. The present values of the outstanding losses are:

| | |
|---|--------------|
| - for 100% of the income loss to age 65 | \$19,168,000 |
| - for 100% of the loss of services to age 65 | \$4,054,000 |
| - for 100% of the loss of services after age 65 | \$10,352,000 |

7.1.9 Loss of Income (4.02(1)(b))

107. In addition to the loss of income already discussed in 7.1.8, compensation is provided for loss of income to those who have developed bridging fibrosis (assumed equal to stage 3 fibrosis in the model), cirrhosis or liver decompensation/cancer.

108. As noted in 7.1.8, the average annual loss of income for a claimant is set at \$38,000 (\$45,000 for hemophiliacs). This loss is intended to cover the claimant's net after-tax loss, taking



into consideration Canada Pension Plan, Quebec Pension Plan, Unemployment Insurance and/or Employment Insurance premiums and benefits, and certain other collateral benefits.

109. In the 2001 valuation, we were provided with an annual loss for a claimant who was 100% disabled, as well as an assumption as to the average level of disability of claimants. These two assumptions enabled us to derive the average net loss of income for claimants. The administrator generally holds data only on the net loss of income paid to claimants, and thus it is not possible to readily derive an estimate of the average level of disability or the annual loss for a 100% disabled claimant. You have accordingly provided us with a net loss of income that incorporates the average level of disability, and no longer provide us with an explicit assumption for the average level of disability.

110. The Transfused Plan initially imposed a \$75,000 limit (in 1999 dollars) on the pre-claim gross income used in calculating a claimant's loss of income; this limit was increased by the Courts to \$300,000 (in 1999 dollars) and took effect in October 2004. The \$38,000/\$45,000 (in 2005 dollars) net losses you have asked us to use are based on the actual income averages capped at \$300,000, so that the impact of losses in excess of the revised limit is not reflected in the assumption. Thus, a provision for completely removing this cap is not included in this report. If requested, we would be pleased to provide illustrations of the possible outcomes under different scenarios of potential claims where gross income exceeds \$300,000.

111. In 2001, the loss of income subject to the \$75,000 limit, at 100% disability, was assumed to be \$21,100 (\$33,600 for hemophiliacs; both in 2002 dollars) and it was assumed that on average claimants were 80% (75% for hemophiliacs) disabled for a net loss of \$16,880 (\$25,200 for hemophiliacs). In our 2003 update, we were asked to assume gross income losses of \$50,000 (\$60,000 for hemophiliacs; both in 2002 dollars) resulting in net losses of \$40,000 (\$45,000 for hemophiliacs).



Proportion of Claimants suffering Income Loss

112. You have asked us to make the following assumptions:

- 50% of those who reach stage 3 (i.e. bridging) fibrosis or cirrhosis will claim some loss; this 50% consists of 14% who claim a loss of income, and 36% who claim a loss of services (this latter item is covered in 7.1.10);
- 68% of those who reach liver decompensation/cancer will claim a loss; this 68% consists of 19% with an income loss and 49% with a loss of services.

113. In 2001, the 50/14/36% figures above were 30/7.5/22.5%; the 68/19/49% figures were 40/10/30%.

114. The present value of these income losses is \$38,640,000. The loss of services component is covered in 7.1.10 below.

Pre-1999 Losses

115. Compensation is also payable for proven losses during the period prior to 1999. The amounts here should be relatively small; accordingly, for the previous valuations, you had asked us to make some simplifying assumptions, as follows:

- the likelihood of any HCV-related income loss during the first 10 years after infection should be quite small;
- thus assume that on average income loss commences 10 years after infection; we could therefore ignore the portions of the cohort that became infected in 1989 or 1990 (as they were still within 10 years of infection as at January 1, 1999).

116. We then took the remaining cohort survivors at January 1, 1999, allocated to stage 3 (i.e. bridging) fibrosis, cirrhosis and decompensation/cancer, and assumed that pre-1999



compensation was due for 3 years on those transfused in 1986, for 2 years on those transfused in 1987, and for 1 year on those transfused in 1988, applied to 23% of those with stage 3 (i.e. bridging) fibrosis or cirrhosis and to 92% of those with decompensation/cancer, in respect of those between ages 18 and 65. The resulting present value (for 100% of the losses, i.e. prior to the 30% holdback) was \$4,151,000 for the 1999 valuation.

117. For this valuation (and the 2001 valuation), we have merely adjusted the 1999 liability figure on an approximate basis to allow for the outstanding unknown claimants and the new assumptions. The resulting present value (for 100% of the losses) is \$220,000.

Combined Losses

118. The present value of the 7.1.9 income losses including the pre-1999 losses (described in the immediately preceding paragraphs) but excluding those income losses paid in lieu of the \$30,000 Lump Sum (previously covered in 7.1.8), is \$38,860,000.

7.1.10 Loss of Services in the Home (4.03(1)(b))

119. Compensation for loss of services is available under the same conditions covered in 7.1.9 as for loss of income. A portion of these losses has already been included in 7.1.8. The assumptions with respect to the further amounts payable were described in 7.1.9, and are repeated below:

- for those reaching stage 3 (i.e. bridging) fibrosis, or cirrhosis:
 - payable to 36% of those below age 65 (income loss is payable to the other 14%); (2001: 22.5%/7.5%)
 - payable to 50% of those above age 65 (the income loss payable to the other 14% ceases at age 65 and is assumed to be replaced by a loss of services); (2001: 30%/7.5%);



- for those reaching liver decompensation/cancer:
 - payable to 49% of those below age 65 (2001: 30%);
 - increasing to 68% of those above age 65 (2001: 40%).

120. The compensation payable under this head is set at \$12 per hour to a maximum of \$240 per week (4.03(2) of the Transfused Plan). This maximum works out to \$240 x 52 weeks per year = \$12,480 per year (in 1999 dollars). You have asked us to make the following additional assumptions:

- the net annual compensation is \$13,000 (\$14,000 for hemophiliacs) (2001: compensation at \$11,600/12,300 to those 100% disabled, with all claimants assumed to be 100% disabled);
- compensation continues for the life expectancy of the claimant (unchanged from 2001).

121. We have also calculated an amount for pre-1999 losses in a manner analogous to that described in 7.1.9, in an amount of \$4,356,000.

122. The present value of the total loss (i.e. including the pre-1999 component, but excluding the amounts previously included in 7.1.8) is \$119,486,000.

7.1.11 Costs of Care (4.04)

123. Compensation is available to those who have liver decompensation or cancer, to the extent such costs are not recoverable under any public or private health care plan, to a maximum of \$50,000 per year. You have asked us to assume that each year 20% of those persons at this stage will incur costs of care and seek compensation of \$11,000.

124. In 2001, the assumption was that 25% of persons at this stage would claim once and incur total costs of \$50,000 in 2002 dollars.



125. The present value of this amount is \$5,421,000.

7.1.12 HCV Drug Therapy (4.05)

126. This compensation (at \$1,000 per month - 1999 dollars) is available to those undergoing a regimen of drug treatment. You have asked us to assume the following:

- treatment is given to 65% of those who are at stage 2 or worse; (2001: 65% below age 65 and 20% over age 65 of those at stage 2 or 3 fibrosis, or cirrhosis)
- the treatment lasts for 11 months on average; (2001: 9 months).

127. The present value of this loss is \$10,464,000.

7.1.13 Uninsured Treatment and Medication (4.06)

128. For the 2001 valuation, you had asked us to assume:

- those claiming HCV drug therapy costs (i.e. as in 7.1.12) would be compensated;
- the average treatment/medication cost would be a one-time cost of \$3,000 (in 2002 dollars), but only 32% of the above group would claim reimbursement;
- in addition, 4% of all claimants at RNA+ through cancer would have an initial expense of \$1,056, plus subsequent expenses of \$528 every 4 years (both in 2002 dollars) for life.

129. For this valuation, you have asked us to assume:

- 6% of all alive claimants who are RNA+ or worse will claim expenses of \$4,000 each year for life (hemophiliacs 7%, expenses of \$6,000).

130. The present value of this loss is \$10,940,000.



7.1.14 Out-of-Pocket Expenses (4.07)

131. Out-of-pocket expenses are expenses other than the uninsured medication costs and costs of care discussed above, and include travel costs to receive medical care and costs of obtaining medical evidence for the purposes of obtaining compensation under the Transfused Plan. You have asked us to assume that 12% of all claimants alive at January 1, 1999 will incur expenses of \$1,500 each year until 2012; thereafter 12% of those who are RNA+ or worse will claim expenses of \$1,500 for life (hemophiliacs 12%, \$2,000).

132. In 2001, we assumed 25% of all alive claimants who were RNA+ or worse would incur an initial expense of \$1,373 and 25% of those who had not cleared the virus (i.e. at stage RNA+ through cancer) would incur ongoing costs of \$528 every 4 years for life (both amounts in 2002 dollars).

133. The present value of this expense is \$9,334,000.

7.1.15 HIV Secondarily Infected (4.08)

134. The Transfused Plan only pays compensation above \$240,000 in provable claims to those persons who are also receiving compensation under the HIV Program (see Section 9). You expect this group to be extraordinarily small or non-existent and therefore, as in 2001 and 1999, do not want us to perform any calculations pertaining to this limit.

7.1.16 Deaths Before January 1, 1999 (5.01)

135. The estates of HCV related deaths before January 1, 1999 may elect either \$120,000 in full settlement of all claims (\$120k option), or \$50,000 plus claims by the family, including loss of support or loss of services (\$50k+ option).



136. You have asked us to assume that there are currently 59 approved pre-1999 deaths where the family is claiming loss of services and 12 claiming loss of support; and, that loss of services will be payable at \$13,000 per year and loss of support at \$26,600 per year (2001: 22 claiming loss of services at \$13,100 per year, 3 claiming loss of support at \$17,300 per year; amounts in 2002 dollars). We have calculated the liability in this regard, taking into account the expected future payment term, as \$16,685,000.

137. In addition, you have instructed us to assume a further 62 HCV deaths will be approved, of which 30 will take the \$120k option and 32 will take the \$50k+ option (2001: 78 additional approved, 50 taking \$120k option, 28 taking \$50k+ option).

138. For the 32 who will take the \$50k+ option you have instructed us to assume fixed payments of \$50,000 (in 1999 dollars) to the estate, \$47,000 to the family, and funeral costs of \$4,500; loss of support of \$26,600 payable to 6 and loss of services of \$13,000 payable to the remaining 26; (hemophiliacs: \$50,000 / \$55,000 / \$4,500 / \$31,500 / \$14,000 respectively); all amounts other than the initial \$50,000 are in 2005 dollars.

139. In 2001, we assumed for transfused claimants: 28 taking \$50,000 / \$31,700 / \$4,000 / \$17,300 / \$13,100; for hemophiliacs: \$50,000 / \$44,400 / \$4,000 / \$9,800 / \$12,300; all amounts other than the initial \$50,000 are in 2002 dollars. (Adjustments were made to the \$17,300 / \$9,800 figures for our 2003 update, but the impact was not significant.)

140. This results in the following total present values:

| | |
|--|---------------------|
| - known pre-1999 deaths claiming loss of support or services | \$16,685,000 |
| - unknown pre-1999 deaths claiming \$120k option | 4,259,000 |
| - unknown pre-1999 deaths claiming the \$50k+ option | <u>15,008,000</u> |
| | <u>\$35,952,000</u> |



7.1.17 Deaths after January 1, 1999 (5.02)

141. Funeral expenses are payable up to a maximum of \$5,000. You have asked us to assume each HCV-caused death will produce funeral expenses of \$4,500; (2001 assumption: \$4,000 in 2002 dollars).

142. Loss of income/services prior to death were previously covered under 7.1.9 and 7.1.10. Loss of support is covered under 7.1.18 and loss of guidance, care and companionship is covered under 7.1.19 following.

143. The present value of the funeral losses is \$2,157,000.

7.1.18 Death Claims after January 1, 1999 - Loss of Support/Services (6.01)

144. You have asked us to assume that:

50% of all HCV deaths will give rise to a claim; 10% for loss of support and 40% for loss of services;

- loss of support will be payable at \$26,600 (hemophiliacs, \$31,500)
- loss of services will be payable at \$13,000 (hemophiliacs, \$14,000)

Both loss of support and loss of services are assumed to be payable during the remainder of the deceased's life expectancy, as if the death had not occurred, with loss of support converting to loss of services after age 65.

145. We have simplified our calculations with respect to the mortality assumptions as follows:

- on HCV-death before age 65, the losses of support are assumed to be payable for a fixed period equal to the remaining time to the deceased's age 65, i.e. mortality is ignored;



- after age 65, or on HCV-death after age 65, the losses of services are treated as a life-annuity commencing at the later of age 65 and the deceased's age at death. Normal life-table probabilities are applied thereafter (i.e. without regard to the HCV or HIV condition; excess mortality related to the initial cause for the transfusion is assumed to have dissipated after 10 years under the CASL/MMWG models), based on an individual aged the same as the deceased.

The foregoing is largely consistent with the payment protocol you use. Normally, we would apply joint survival probabilities, i.e. both for the deceased and for the spouse or other dependant. Our simplification will overstate the liabilities.

146. In 2001, we assumed 30% of deaths would result in a claim and that all claims would be for loss of services at the maximum rate of \$12,480 in 1999 dollars.

147. We have also included a provision for future payments to current dependants, i.e. in the case of known deaths between January 1, 1999 and December 31, 2004.

148. Prior to October 2004 there was a 30% holdback on the loss of support component (but not the services component), similar to the holdbacks on the \$20,000 lump sum in 7.1.3 and the loss of income in 7.1.8/7.1.9. This holdback has been lifted and therefore, unlike the 2001 valuation, there is no further deferred liability for this head of compensation. The retroactive payments for the period prior to the holdback being lifted have been paid and there is no further liability in this regard.

149. The present values of these losses (i.e. in respect of HCV deaths after 1998) are:

| | |
|------------------------|--------------|
| - for loss of support | \$6,876,000 |
| - for loss of services | \$67,630,000 |



7.1.19 Death Claims after January 1, 1999 - Loss of Guidance, Care and Companionship (6.02)

150. The lump sum amounts payable vary between \$500 for each grandparent or grandchild, \$5,000 for each parent, sibling, or child aged 21 or over, \$15,000 for each child under age 21, and \$25,000 for a spouse.

151. For this valuation you have asked us to use an average lump sum payable of \$48,000 regardless of the age at death (\$44,000 for hemophiliacs); (2001: averages of \$29,000/\$20,900, both in 2002 dollars).

152. The present value of these losses (i.e. in respect of HCV deaths after January 1, 1999) is \$23,239,000.

7.1.20 Secondarily Infected Persons (3.02)

153. These include spouses of the cohort members, infected via sexual transmission, and perinatal (from mother to fetus) transmission of HCV.

154. For this valuation, you have asked us to assume that 2% of the transfused cohort (1% of the hemophiliac cohort) who have progressed to a chronic infection stage will give rise to secondary infections and that these infections will lag the primarily infected by 7 years; (unchanged from 2001 assumptions).

155. We have utilized these assumptions, applied on an average basis to the total plan cohort and liabilities, producing a present value for this loss of \$14,605,000.



7.1.21 Outstanding 2004 Payments for Known Claimants

156. As noted in Section 4.5, there were a number of payments relating to calendar 2004 that were outstanding in respect of the known/approved claimants as at December 31, 2004. These total approximately \$13,242,000 in respect of the Transfused Plan claimants (\$6,210,000 for hemophiliacs).

7.1.22 Total Liabilities – 4,600 Cohort

157. The foregoing liabilities add up to \$609,209,000. The only remaining limitation or holdback on the benefits is the limit on loss of income to pre-claim gross income of \$300,000 per year. The liability detail is summarized in tabular form in Section 11.



8. Compensation Amounts and Present Values - Hemophiliac Plan

158. The Hemophiliac Plan provides for compensation amounts and conditions that are similar to the Transfused Plan, with the following exceptions:

- a claimant who is also infected with HIV may elect to be paid \$50,000 in full satisfaction of all other claims (4.08(2) of the Hemophiliac Plan);
- the estates of HIV co-infected persons who died before January 1, 1999 may elect to be paid \$72,000 in full satisfaction of all other claims (5.01(4) of the Hemophiliac Plan), even if HCV is not the cause of death.

8.1 Cohort Assumptions

159. We have previously discussed the cohort size in Section 3.3.

160. You have asked us to make the following assumptions:

- 1,455 hemophiliacs will ultimately claim; consisting of 294 who died before January 1, 1999 (compared to a 2001 estimate of 355), and 1,161 alive at January 1, 1999 (calculated as 90% of the unreduced 2001 estimate of 1,290);
- 34 singularly infected and 260 co-infected members of this cohort have died prior to January 1, 1999:
 - to date the estates of 20 of the singularly infected and 237 of the co-infected have come forward, 182 of these elected lump sum payouts and there is therefore no further liability for them. The remaining 75 made loss of support or loss of service claims for which there is an ongoing liability;
 - of the 14 singularly infected and 23 co-infected who have not yet made a claim, we have been instructed to assume:



- 12 of the co-infected will take the \$72,000 option
- the remainder (14 singularly infected and 11 co-infected) will establish HCV as the cause of death and claim under the regular death provisions, and:
 - 12 will claim the \$120,000 option
 - 13 will claim the \$50,000 plus family and funeral claims;
- 55 singularly infected and 46 co-infected have died between January 1, 1999 and December 31, 2004:
 - to date 90 of these deaths are known and 18 of them have an ongoing liability for loss of income or loss of support claims
 - the 11 deaths not yet accounted for are included in the liability for regular HCV claims described below;
- 836 singularly infected and 224 co-infected are alive at December 31, 2004:
 - 48 of the co-infected have claimed the \$50,000 in full satisfaction of all other claims and there is no further liability in this regard; a further 10 co-infected are also expected to make this claim
 - 674 singularly infected and 161 co-infected have been approved and are claiming under the ongoing HCV provisions
 - of the 5 co-infected who have not yet claimed we have been instructed to assume that 1 of them will choose the \$50,000 option and 4 will choose to claim under the ongoing provisions
 - the 162 singularly infected who have not yet applied will all claim under the ongoing HCV provisions.



161. The total 2004 cohort of 1,455 is 26 less than the 90% reduced cohort of 1,481 assumed in 2001, and it has been re-allocated somewhat between (and within) those assumed to claim under the one-time options compared to ongoing payments similar to those in the Transfused Plan.

8.2 Claims under the Ongoing HCV Provisions

162. As is the case for the transfused cohort, Dr. Krahn developed a medical model for the known approved hemophiliac claimants. For the unknown claimants who have not yet come forward, the prognosis is the same, but the initial clinical stage distribution could differ. Based on this, we have continued with separate models for known and unknown hemophiliacs claiming under the ongoing HCV provisions. A critical parameter in these models is the percentage of the population who are co-infected, as they have a quite different HCV prognosis and mortality expectation compared to the singularly infected lives.

163. Once we applied the cohort assumptions outlined above, i.e. assumed that a number of the co-infected claimants will not claim under the ongoing provisions, the remaining proportions of co-infected lives in both our known and unknown groups were quite different to those assumed by Dr. Krahn, which made valuing their liabilities using the hemophiliac models alone inappropriate. However, Dr. Krahn concluded in his report that the prognosis for singularly infected hemophiliacs is the same as for the non-hemophiliac population, meaning that we could value singularly infected hemophiliacs using the transfused models if necessary. By reducing the number of singularly infected in the known and unknown groups we were able to derive hemophiliac populations (654 known and 16 unknown) that had the appropriate co-infected proportion for the hemophiliac models. The liability for the remaining singularly infected (181 known and 150 unknown) was calculated using the transfused models (after adjusting them for a different mix of males/females). We then summed the results to obtain the total liability for the hemophiliac group claiming under the ongoing HCV provisions.



8.3 Results - Total Liabilities - Hemophiliac Cohort

164. Our liability calculations are as follows:

| | |
|--|----------------------|
| - for the 75 approved pre-1999 deaths claiming loss of income or support | \$21,081,000 |
| - for the 25 pre-1999 deaths presumed to be HCV related | 6,948,000 |
| - for the 12 pre-1999 co-infected deaths who do not establish HCV as the cause of death | 989,000 |
| - for the 11 co-infected alive at December 31, 2004 who are presumed to take the \$50,000 option | 307,000 |
| - for the 1,001 alive at December 31, 2004 and the 18 known plus 11 unknown deaths since January 1, 1999 assumed to claim under the ongoing HCV provisions | <u>203,529,000*</u> |
| Total | <u>\$232,854,000</u> |

* a breakdown of these liabilities into components similar to those detailed for the Transfused Plan is included in Appendix D, where we also illustrate the change in liabilities due to assumption changes



9. HIV Program

165. The fund will pay all claims made under the HIV Program at \$240,000 per claim to a maximum of 240 claims, as well as costs of administering that program to a maximum of \$2 million. No interest is paid on these claims and they are not indexed for the cost of living.

166. Up to December 31, 1999, the Federal Government had made 70 HIV Program payments and had incurred \$420,617 in administrative costs to do so. We understand that subsequent to January 2000 the administration of the HIV Program was discontinued and was not reinstated until January 2002. Between December 1999 and January 2002, no administrative costs were incurred but three payments of \$240,000 each were made by special order of the Ontario Court.

167. Since January 2002, 9 further program payments have been made; you have advised that administrative costs of \$11,000 per month were incurred from March 2002 to February 2003, reducing to a total of \$35,977 in the 22 months since then.

168. Given the open-ended nature of this obligation, you have instructed us to assume that a further 11 payments will be made under the HIV Program and that administration costs will be \$13,325 in 2005, \$11,275 in each of 2006 and 2007, and \$7,175 annually thereafter (in 2005 dollars), with these payments and costs spread over the period January 1, 2005 to December 31, 2011. Since the payments are not indexed, we have discounted them using a nominal interest of 4.55% per year (the 4.55% rate is a combination of the net discount rate assumption of 2.0% per year and an inflation rate of 2.5% per year based on recent average increases in the Consumer Price Index; $1.02 \times 1.025 - 1 = 4.55\%$ per year). The resulting present value of these costs, as at December 31, 2004, is \$2,380,000.

169. The 2001 valuation assumed there would be a total of 27 further claims with administration costs of \$11,000 per month over the two year period January 1, 2002 to December 31, 2003.



10. Fees and Expenses

170. You have asked us to make the following assumptions with respect to fees and expenses payable by the fund. The references to year 1, year 2, etc. are to 2005, 2006, and so on. The dollar references are in 2004 dollars (we adjust these later, to 2005 dollars). The federal goods and services tax (GST) at 7% is to be added to all of the amounts shown below; provincial sales taxes (PST) are to be added as indicated.

Actuarial: \$420,000 in year 1, \$55,000 in year 2, \$55,000 in year 3, with that cycle to be repeated every three years.

Accounting expert testimony and assistance: \$60,000 per year.

Administration: \$2.2 million in year 1, declining by 10% per year until it reaches \$1 million, and \$1 million per year thereafter.

Advertising: \$2 million in year 5.

Arbitrators/Referees: \$200,000 in year 1, declining by 10% per year until it reaches \$50,000, and \$50,000 per year thereafter.

Audit: \$80,000 per year, plus \$15,000 per year for special projects.

Canadian Blood Services: \$30,000 per year until 2013.

Cohort Modelling: No further expenses.

Fund Counsel: \$700,000 in year 1, declining by 10% per year until it reaches \$100,000 per year, and \$100,000 per year thereafter; PST at 7% on one-half of the total.



Hema-Quebec: \$15,000 in years 1 and 2, and \$10,000 per year thereafter until 2013.

Independent Counsel: \$100,000 per year until 2010, and \$50,000 per year thereafter.

Joint Committee: \$750,000 in year 1, declining by 10% per year until it reaches \$100,000, and \$100,000 per year thereafter; PST at 7% on one-half of the total.

Medical Modelling: \$200,000 in year 1, and \$200,000 year 4.

Monitor: \$50,000 per year.

Software Development: \$20,000 per year.

Sufficiency Hearings: \$1.875 million in year 1, \$625,000 in year 2, \$1.25 million in each of years 4 and 7, and \$500,000 every three years thereafter.

171. Investment expenses, including fees for investment counsel, custody of assets, and other related items are not included in this Section as they have already been implicitly recognized in our calculation of the net discount rate (see Section 5).

172. As all of the fees were expressed in constant 2004 dollars, we have first converted them to constant 2005 dollars, and then discounted them using a net discount rate, using the same 2.0% per year rate that is used for discounting the benefit liabilities.

173. You have asked us to value the fees and expenses for the next 24 years only (i.e. reduced by 3 years from the 27 years used in the 2001 valuation). While expenses will continue beyond 24 years, the activity (and hence the attendant expenses) will diminish as time progresses and more and more of the cohort reach age 65 (i.e. fewer loss of income cases to administer) or die; after an initial period, you have set the expenses at a level amount for the balance of 24 years and



this is intended to capture the declining nature of the expenses both before and after the 24 year horizon. It might also be noted that the expenses have a progressively smaller present day value, due to discounting, as one moves further out along the time horizon.

174. The present values of the expenses are calculated as at the December 31, 2004 valuation date. For simplicity, we have assumed that the annual expenses thereafter are payable at the middle of each year, measured from December 31, 2004.

175. The present values of the above expenses are summarized below. The federal GST and the applicable provincial taxes are summarized at the end of the table.

| <u>Item of expense</u> | <u>Present value at December 31, 2004</u> (\$,000's) |
|--|---|
| Actuarial | 3,479 |
| Accounting expert testimony and assistance | 1,166 |
| Administration | 23,820 |
| Advertising | 1,861 |
| Arbitrators/Referees | 1,765 |
| Audit | 1,846 |
| Canadian Blood Services | 252 |
| Cohort Modelling | - |
| Fund Counsel | 5,769 |
| Hema-Quebec | 94 |
| Independent counsel | 1,259 |
| Joint Committee | 6,159 |
| Medical Modelling | 391 |
| Monitor | 972 |
| Software Development | 389 |
| Sufficiency Hearings | 6,687 |
| Taxes - Federal GST | 3,914 |
| - Provincial PST | <u>417</u> |
| Total | <u>60,240</u> |



11. Summary of Present Values

11.1 Benefit Liabilities at December 31, 2004

176. The present values of the various compensation amounts set out in Sections 7, 8 and 9 are summarized below.

177. For ease of cross-referencing, we have set out both the section number in our report and the plan section reference in the summary below.

| Item | Report section | Plan section | Benefit | Present value at Dec-31-2004 (\$,000's) |
|------------------------|----------------|--------------------------|---|---|
| Transfused Plan | | | | |
| 1. | 7.1.1 | 4.01(1)(a) | \$10,000 to those alive at 1.1.99 | 15,226 |
| 2. | 7.1.3 | 4.01(1)(b) | \$20,000 if PCR positive at 1.1.99 | 22,821 |
| 3. | 7.1.4 | 4.01(1)(c) | \$30,000 if non-bridging fibrosis | 40,366 |
| 4. | 7.1.5 | 4.01(1)(d) | \$65,000 if cirrhosis | 66,982 |
| 5. | 7.1.6 | 4.01(1)(e) | \$100,000 if decompensation/cancer | 72,034 |
| 6. | 7.1.8 | 4.02(1)(a) 4.03(1)(a) | Non-bridging fibrosis: Loss of income Loss of services in lieu of \$30,000 lump sum in 7.1.4 | 19,168* 14,406 |
| 7. | 7.1.9 | 4.02(1)(b) | Loss of income for bridging fibrosis, cirrhosis and decompensation/cancer | 38,860* |
| 8. | 7.1.10 | 4.03(1)(b) | Loss of services for bridging fibrosis, cirrhosis and decompensation/cancer | 119,486 |

* As noted earlier, the liability under loss of income is based on data with pre-claim gross income capped at \$300,000. Therefore the amounts in this report do not include a liability for any loss of income in excess of this limit (which is the only remaining restriction).



| Item | Report section | Plan section | Benefit | Present value at Dec-31-2004 (\$,000's) |
|-------------------------|----------------|--------------|---|---|
| 9. | 7.1.11 | 4.04 | Costs of care | 5,421 |
| 10. | 7.1.12 | 4.05 | HCV drug therapy | 10,464 |
| 11. | 7.1.13 | 4.06 | Uninsured treatment & medication | 10,940 |
| 12. | 7.1.14 | 4.07 | Out-of-pocket expenses | 9,334 |
| 13. | 7.1.15 | 4.08 | Excess HIV secondarily infected | - |
| 14. | 7.1.16 | 5.01 | Pre-1999 deaths | 35,952 |
| 15. | 7.1.17 | 5.02 | Deaths after 1.1.1999 - funeral | 2,157 |
| 16. | 7.1.18 | 6.01 | Deaths after 1.1.99: - loss of support - loss of services | 6,876 67,630 |
| 17. | 7.1.19 | 6.02 | Loss of guidance, care and companionship | 23,239 |
| 18. | 7.1.20 | 3.02 | Secondarily infected | 14,605 |
| 19. | 7.1.21 | | Outstanding 2004 payments for known cohort | 13,242 |
| 20. | 7.1.22 | | Sub-total for Transfused Plan | 609,209 |
| Hemophiliac Plan | | | | |
| 21. | 8. | Schedule B | Sub-total for Hemophiliac Plan | 232,854 |
| HIV Program | | | | |
| 22. | 9. | Schedule C | Sub-total for HIV Program | 2,380 |
| 23. | | | Total for all = 20. + 21. + 22. | 844,443 |



11.2 Benefit Liabilities and Expenses at December 31, 2004

178. The total of the benefit liabilities is taken from Section 11.1 above; the total of the expenses is taken from Section 10.

| | \$,000's |
|----------|----------------|
| Benefits | 844,443 |
| Expenses | <u>60,240</u> |
| Total | <u>904,683</u> |

11.3 Assets at December 31, 2004

179. The assets at December 31, 2004 are taken from Section 4.2 in the amount of \$1,121,271,000.

11.4 Comparison of Assets vs. Liabilities

180. The foregoing sections indicate that, as at December 31, 2004, the assets will be \$1,121,271,000 compared to liabilities of \$904,683,000. Thus the assets are greater than the liabilities, by about \$216,588,000.



12. Reconciliation of Results with Previous Valuation

12.1 2001 Results and 2003 Update

181. The previous valuation indicated assets of approximately \$1,080,287,000 compared to liabilities of \$1,317,210 for the 100% cohort, for an actuarial deficit of \$236,923,000 as at December 31, 2001, if the liabilities for the deferred benefits (i.e. holdbacks) were excluded. These liabilities totalled a further \$68,783,000. If they were included, the actuarial position for the 100% cohort would have shown a net deficit of \$305,706,000 as at December 31, 2001.

182. Based on the reduced 6,500 cohort assumptions (transfused: 6,500 alive and DA9s, 150 DB9s; hemophiliac: 1,481 total claimants) the liability as at December 31, 2001 reduced to \$957,451,000 (excluding deferred liabilities of \$50,969,000 and the impact of removing the \$75,000 limit on the pre-claim gross income), for an actuarial surplus of \$122,836,000.

183. In our 2003 update, used in assessing the impact of lifting the remaining holdbacks, we estimated the increase in the liability as at December 31, 2001 on lifting the holdbacks as \$145,357,000 based on the 6,500 cohort assumptions. This resulted in an actuarial deficit of \$22,521,000. Bringing this deficit forward to December 31, 2004, and ignoring all other changes, we would have expected this deficit to have increased to \$26,740,000, i.e. grown by interest of \$4,219,000.

12.2.1 Actuarial Gain from Investment Returns

184. As indicated in Section 4.4, the actual assets at December 31, 2004 are \$131,755,000 more than expected based on the December 31, 2001 values brought forward with the 2001 return assumptions and the actual disbursements.

**12.2.2 Changes in Transfused Plan Liability**

185. The changes from the 2001 liabilities are summarized below. The interim changes have been calculated in an approximate fashion. The first column shows the adjusted liabilities; the second column shows the incremental change at each step.

| | (\$,000's) | |
|---|---------------------------|---------------------------|
| | <u>Adjusted liability</u> | <u>Incremental change</u> |
| 1. December 2001 liability on 6,500 cohort | 688,413 | - |
| 2. Remove \$5,000 level 2 holdback | 716,022 | 27,609 |
| 3. Remove 30% holdback on LOI (old income levels) | 729,021 | 12,999 |
| 4. Revise income levels and lift \$75,000 cap | 794,511 | 65,490 |
| 5. Bring revised 2001 liability forward with interest, reduced by actual 2002-2004 benefit payments | 753,571 | (40,940) |
| 6. Savings because of delay in settling unknown cohort | 749,203 | (4,368) |
| 7. Replace 2001 data with 2004 data | 783,855 | 34,652 |
| 8. Reduce cohort size from 6,500 to 4,600 | 460,248 | (323,607) |
| 9. Replace 2002 MMWG model with 2005 MMWG model | 453,023 | (7,225) |
| 10. Change net discount rate from 3.2% to 2.0% | 519,537 | 66,514 |
| 11. Change other assumptions, i.e. December 2004 liability, 4,600 cohort | 609,209 | 89,672 |

Discussion of Above Changes

186. The items for the lifting of the holdbacks in #2, #3 and # 4 above are the transfused share of the change in liability shown in our 2003 update on the effect of removing the holdbacks. Subsequent to the 2003 update, the \$75,000 cap on loss of income was increased to \$300,000.



187. The previous valuation had made an allowance of \$14 million for the expected delay in the emergence of the unknown cohort at 2001 - the savings arise because future payments are made at an indexed rate; meanwhile the fund enjoys the previously assumed 3.2% excess investment return over and above inflation. The unknown cohort at December 2001 has since come forward at an even slower rate than assumed, and this has led to the additional \$4.4 million savings in #6. Given the significant reduction in the assumed unknown population at December 2004, we have not repeated an allowance for delays in the unknown claimants coming forward after December 31, 2004. However, any delay in this regard will result in savings emerging over time.

188. The largest decrease in liabilities is due to the reduction in cohort size, shown in #8.

189. The modest decrease in #9 suggests that the 2005 MMWG model is not significantly different from the 2002 MMWG model.

190. As discussed earlier, the increase in liability due to the reduction in the net discount rate - item #10 - partially offsets the investment gain caused by the reduction in bond yields.

191. The changes in liability by benefit type due to the assumption changes, i.e. #11 above, are summarized in Appendix D-1. The net overall change is an increase of about \$90 million; this includes a number of large positive differences offset to some degree by smaller negative differences, as may be seen from the breakdown therein.



192. The changes in the table in paragraph 185 may be grouped further, as follows:

| | (\$,000's) |
|--|------------------|
| - projected liability from 2001 on the 6500 cohort, less actual payments (item #5) | 753,571 |
| - increase in liability due to change in discount rate (#10) | 66,514 |
| - net increase in liability, due to change in valuation model and assumptions (#6 + #7 + #9 + #11) | 112,731 |
| - decrease in liability, due to reduction in cohort size to 4,600 (#8) | <u>(323,607)</u> |
| - revised liability at December 2004 | 609,209 |

These are referred to in the reconciliation summary in 12.2.6.

**12.2.3 Changes in Hemophiliac Plan Liability**

193. The changes from the 2001 liabilities are summarized below. The interim changes have been calculated in an approximate fashion. The first column shows the adjusted liabilities; the second column shows the incremental change at each step.

| | (\$,000's) | |
|---|---------------------------|---------------------------|
| | <u>Adjusted liability</u> | <u>Incremental change</u> |
| 1. December 2001 liability on 1,481 cohort | 184,878 | - |
| 2. Remove \$5,000 level 2 holdback | 190,715 | 5,837 |
| 3. Remove 30% holdback on LOI (old income levels) | 195,239 | 4,524 |
| 4. Revise income levels and lift \$75,000 cap | 224,137 | 28,898 |
| 5. Bring revised 2001 liability forward with interest, reduced by actual 2002-2004 benefit payments | 188,809 | (35,328) |
| 6. Replace 2002 MMWG model and data profile by 2005 MMWG model and data profile | 156,582 | (32,227) |
| 7. Reduce cohort assumption to 1,455 | 150,948 | (5,634) |
| 8. Change net discount rate from 3.2% to 2.0% | 175,478 | 24,530 |
| 9. Change other assumptions, i.e. December 2004 liability | 232,854 | 57,376 |

Discussion of Above Changes

194. Item #6 above shows a relatively large decrease compared to the projected residual liability using the 2001 estimates. There are two main reasons for this. First, the current numbers of DB9s and DA9s are quite different from those assumed in 2001 and that were expected to emerge by 2004, resulting in about a \$4 million decrease in the liability. Second, the change in the medical model and starting clinical stage distribution results in a decrease in the liability of about \$20 million. There are other smaller items making up the balance of the decrease.



195. The changes in liability by benefit type due to the assumption changes, i.e. #9 above, are summarized in Appendix D-2. The net overall change is an increase of \$57 million; this includes a number of large positive differences offset to some degree by smaller negative differences, as may be seen in the breakdown therein.

196. The changes in the table in paragraph 193 may be grouped further, as follows:

| | (\$,000's) |
|---|----------------|
| - projected liability from 2001, less actual payments (item #5) | 188,809 |
| - increase in liability due to change in discount rate (#8) | 24,530 |
| - net increase in liability, due to change in valuation model and assumptions (#6 + #9) | 25,149 |
| - reduce cohort size to 1,455 (#7) | <u>(5,634)</u> |
| - revised liability at December 2004 | 232,854 |

These are referred to in the reconciliation summary in 12.2.6.

12.2.4 Changes in HIV Program Liability

197. If we bring forward the 2001 liability less the actual payments/costs through December 31, 2004, both adjusted for interest, the expected residual liability would be \$5,063,000 at December 31, 2004. This compares to the current liability of \$2,380,000 calculated in Section 9. The decrease of \$2,683,000 is due to a reduction in the number of assumed claims, lower ongoing administration costs, and a greater impact on the discounted present value due to a lengthening of the period over which the payments will be made.

12.2.5 Changes in Expenses

198. The liability held at December 31, 2001 was \$77,781,000. If we bring this forward, less the actual expenses (excluding investment-related expenses, which are considered in the excess



investment returns), both adjusted for interest, the expected residual liability would be \$68,813,000 as at December 31, 2004. This compares to the revised current liability of \$60,240,000 calculated in Section 10, i.e. there is a decrease of \$8,573,000. This consists of a decrease of about \$1,752,000 due to actual expenses being lower than expected over the three years from 2001 to 2004, a decrease of about \$15,211,000 due to reductions in the assumed future expenses, offset by an increase of about \$8,390,000 due to the change in the net discount rate from 3.2% to 2.0%.

12.2.6 Summary of Reconciliation

199. In this section, we combine the components in 12.2.1 through 12.2.5 to show how the actuarial position has changed from 2001.

| <u>From paragraph</u> | <u>Description</u> | <u>Impact on actuarial position (\$,000's)</u> |
|-----------------------|---|--|
| 182 | December 2001 actuarial surplus (6,500 cohort estimate) | 122,836 |
| 183 | Liability increase at December 31, 2001, due to lifting of holdbacks and income caps | <u>(145,357)</u> |
| 183 | Revised deficit at December 31, 2001 | (22,521) |
| 183 | Interest on revised deficit at December 31, 2001 | (4,219) |
| 192, 196 | Reduce cohort size | 329,241 |
| 184 | Gain from investment returns | 131,755 |
| 192, 196, 198 | Increase in liability due to change in net discount rate | (99,434) |
| 192 | Net residual increase in Transfused liability | (112,731) |
| 196 | Net residual increase in Hemophiliac liability | (25,149) |
| 197 | Net decrease in Program liability | 2,683 |
| 198 | Net residual decrease in provision for Expenses | <u>16,963</u> |
| 180 | December 2004 actuarial surplus (4,600 cohort estimate) | 216,588 |



13. Sensitivity Tests

200. In all of the following comparisons, the liabilities are based on the 4,600 cohort, as shown in Section 11. Adjustments to these liabilities are determined for various changes to the assumptions. Care should be taken when combining the effects of various changes since there may be a compounding effect.

13.1 Net Discount Rate

201. The foregoing liability calculations are based on a net discount rate of 2.0% per year. In order to illustrate the sensitivity of the results to variations in the investment experience, and hence in the net discount rate, calculations have also been done at net discount rates of 2.4% per year (this reduces the present value of the liabilities) and 1.6% per year (this increases the present value of the liabilities).

202. The impact on the total liabilities is as follows:

| | \$ millions | | |
|------------------|--------------------|-----------------------|--------------------|
| | Liabilities | Impact on liabilities | |
| | <u>@ 2.0% p.a.</u> | <u>@ 2.4% p.a.</u> | <u>@ 1.6% p.a.</u> |
| Transfused Plan | 609.2 | - 31 | + 35 |
| Hemophiliac Plan | 232.9 | - 13 | + 15 |
| HIV Program | <u>2.4</u> | - <u>0</u> | + <u>0</u> |
| Total benefits | 844.5 | - 44 | + 50 |
| Expenses | <u>60.2</u> | - <u>2</u> | + <u>2</u> |
| Total | <u>904.7</u> | - <u>46</u> | + <u>52</u> |



13.2 Cohort Size - Transfused Plan

203. The liabilities in Sections 7 and 11 are based on an assumption of 4,600 claimants. This cohort is composed of 214 DB9s, 3,056 known alive and DA9s, and a further 1,330 unknown claimants alive at January 1, 1999.

204. All of the change in the cohort size and corresponding liability will come from the unknown group. Variations in the cohort size can be assumed to have a proportionate impact on the liabilities for the unknown group, if we assume that their claimant profile and disease progression characteristics are the same as in our transfused unknown model. The liability for the 1,330 infected unknowns in our model is \$233,872,000 . The pro-rata impacts are as follows:

| <u>Unknown cohort at January 1, 1999</u> | <u>Transfused Plan Liability</u> (\$ millions) |
|---|---|
| (a) 1,330 persons | 233.9 |
| (b) +/- each 100 persons | +/- 17.6 |
| (c) +/- 10% in cohort size (i.e. 130 persons) | +/- 23.4 |

205. You have asked us to illustrate the impact on the total liabilities of variations in the total cohort size (i.e. known plus unknown), to 4,000, and to 5,200 (i.e. +/- 600 unknowns). We can combine the above adjustments with the total Transfused Plan liability to produce the following results (the figures in (a) below are the regular liabilities summarized earlier in 7.1.22):



| Total (i.e. known + unknown) <u>cohort</u> | <u>Transfused Plan Liability</u> (\$ millions) |
|---|---|
| (a) 4,600 persons (i.e. base case) | 609.2 |
| (b) 4,000 persons (i.e. -600) | 503.6 |
| (c) 5,200 persons (i.e. +600) | 714.8 |

206. We have ignored any impact on the expenses of a change in cohort size. It may be that if the numbers of claimants are significantly higher (or lower), you would want to adjust certain of the expense provisions up (or down).

13.3 Take-up Rate

207. The cohort assumption used in this valuation is much reduced from the initial 1999 and the adjusted 2001 estimates. One of the main reasons for this reduced cohort is the fact that claimants have not come forward at the rate initially expected and the assumption as to the present cohort therefore already reflects the effect of a reduced take-up rate. Other than showing the sensitivity of the results to an even lower cohort assumption in Section 13.2, we have not made any further calculations in this regard.

13.4 Prevalent Infections

208. These are individuals who were transfused during the 1986-1990 period but who were infected by HCV through other exposures (either before, during or after the period), e.g. injection drug users. We understand that, in theory, none of these should qualify for benefits; in practice, the numbers qualifying may depend to some extent on the administrative protocols developed in screening and accepting claims. This has effectively been recognized in your analysis of the cohort size, since the known claimants to date will include prevalent infections that have passed through your screening process. We have not made any calculations in this regard.



13.5 Hemophiliac Plan - Cohort Size/Take-up Rate

209. We have reduced the hemophiliac cohort from 1,481 to 1,455 claimants as discussed in Section 3. To enable calculation of other cohort reductions, we have assumed that any further change to the hemophiliac cohort would come from the unknowns alive at January 1, 1999, i.e. from the unknown alive and DA9s. Applying this approach we calculate the reduction in the liability per 100 person reduction in cohort size to be \$25.5 million.

13.6 Clinical Stage Distribution for the Unknowns

210. As discussed in Section 2, there is uncertainty as to the actual clinical stage distribution of the unknown claimants. We have used the distribution of the known claimants as a modestly conservative estimate of the unknown starting position. If we were to use the clinical stage distribution in the MMWG Table 9.1-2 for the transfused claimants (Table 9.1-3 for hemophiliacs), which assume that the unknown claimants are much more healthy than the knowns, the total liability would decrease by \$31.3 million. If we were to use the distribution from the MMWG Table 9.1-4 that most closely corresponds to our assumed cohort (and that assumes the unknown claimants are much less healthy), the liability would increase by \$30.8 million.

13.7 Number of Claimants to Reduce Surplus to Zero

211. In this section we consider the question "Given that the expected number of hemophiliac claimants is now set at 1,455, how high could the number of transfused claimants get before the surplus projected on the reduced claimant numbers would disappear?"

212. In paragraph 180 we indicated that, based on the 4,600 cohort size, the plans had an actuarial surplus of \$216,588,000.



213. From paragraph 204, we know that the impact of adjusting the transfused cohort by 100 persons is a liability change of \$17.6 million. Thus, in order to eliminate the \$216.6 million surplus in paragraph 212, we would need to add about 1,231 persons, i.e. the number of transfused claimants would have to increase to about 5,831 persons.



14. Other

14.1 Positive and Negative Contingencies

214. We discussed in Section 13 the sensitivity effect of variables such as the net discount rate, cohort size, take-up rates, prevalent infections, changes in the clinical stage distribution for the unknowns, and changes to the numbers qualifying for the Hemophiliac Plan. In addition to these items, there are a number of other contingencies that will have a positive (i.e. lower costs/liabilities) or negative (i.e. higher costs/liabilities) impact on the results. These include, inter alia:

- the possibility of improvements or breakthroughs in medical treatments and their attendant costs;
- the uncertainties in the disease modelling;
- the average income levels and collateral benefits, the proportions working and the extent of the claimants' disabilities used in calculating the various losses for income, support and services emerging at significantly different levels (higher or lower) from those we have assumed;
- fees and expenses emerging at levels different from those we have assumed.

14.2 Statement as to Assumptions

215. A considerable number of assumptions have been made in order to calculate the liabilities in this report. We have also made a number of approximations in calculating some of the smaller components of the liabilities. Where we have made the assumptions, we used our best efforts based on our understanding of the plan benefits; in general, where we have made simplifying assumptions or approximations, we have tried to err on the conservative side, i.e. increasing costs and liabilities. In many instances we have relied on counsel for the assumptions and understand that they have used their best efforts in making these. Nevertheless, the medical outcomes



continue to be very unclear - e.g. the MMWG report indicates very wide ranges in its confidence intervals for the various outcomes it developed. There continues to be substantial room for variation in the results. Indeed, a number of significant changes have been made at this valuation, affecting the liabilities both upwards and downwards. Other differences will continue to emerge in the ensuing years as more experience is obtained on the actual cohort size and characteristics of the infected claimants. These differences and the related actuarial assumptions will continue to be re-examined at each periodic assessment of the fund.



APPENDIX A

Cohort Distributions at December 31, 2004

A-1 Transfused Knowns

The first table shows the allocation of the alive cohort at August 31, 2004, by stage of HCV, for each age stratum; the percentages are taken from the MMWG report. The second table shows the resulting projected allocation of those alive at December 31, 2004, using the actual age distribution of the known claimants at that date. The totals may not balance due to rounding of the individual cells.

Distribution of those alive at August 31, 2004 by stage of HCV

| Age at Aug-31-04 | Total at age | Number cleared virus | PCR positive | Non-bridging fibrosis | | Bridging fibrosis | Cirrhosis | Decomp/ cancer |
|---------------------|--------------|----------------------------|-----------------|-----------------------|---------|----------------------|-----------|-------------------|
| | | | | Stage 1 | Stage 2 | | | |
| 10-19 | 100.0% | 25.6 | 40.9 | 22.2 | 5.0 | 4.4 | 0.3 | 1.6 |
| 20-29 | 100.0 | 18.8 | 36.6 | 29.7 | 6.2 | 5.0 | 3.7 | 0.0 |
| 30-39 | 100.0 | 26.8 | 24.6 | 38.6 | 4.2 | 3.1 | 1.9 | 0.8 |
| 40-49 | 100.0 | 25.7 | 26.1 | 30.4 | 6.8 | 5.6 | 4.1 | 1.3 |
| 50-59 | 100.0 | 19.7 | 25.7 | 26.8 | 7.8 | 6.6 | 9.6 | 3.8 |
| 60-69 | 100.0 | 23.0 | 24.7 | 24.2 | 7.1 | 6.0 | 9.6 | 5.4 |
| 70-79 | 100.0 | 28.7 | 36.6 | 13.4 | 4.7 | 4.0 | 8.5 | 4.1 |
| 80+ | 100.0 | 28.7 | 36.6 | 13.4 | 4.7 | 4.0 | 8.5 | 4.1 |

Average age at August 31, 2004: 55.8 (based on current data)
58.1 (projected from 2001 model)

Distribution of those alive at December 31, 2004 by stage of HCV

| Age at Aug-31-04 | Projected number alive at Dec-31-04 | Number cleared virus | PCR positive | Non-bridging fibrosis | | Bridging fibrosis | Cirrhosis | Decomp/ cancer |
|---------------------|--|----------------------------|-----------------|-----------------------|-------------|----------------------|-------------|-------------------|
| | | | | Stage 1 | Stage 2 | | | |
| 10-19 | 4.7% | 1.2% | 1.9% | 1.1% | 0.2% | 0.2% | 0.0% | 0.1% |
| 20-29 | 3.4 | 0.6 | 1.2 | 1.0 | 0.2 | 0.2 | 0.1 | 0.0 |
| 30-39 | 11.1 | 3.0 | 2.7 | 4.3 | 0.5 | 0.4 | 0.2 | 0.1 |
| 40-49 | 21.3 | 5.5 | 5.5 | 6.5 | 1.5 | 1.2 | 0.9 | 0.3 |
| 50-59 | 17.7 | 3.5 | 4.5 | 4.8 | 1.4 | 1.2 | 1.7 | 0.6 |
| 60-69 | 15.8 | 3.7 | 3.8 | 3.9 | 1.1 | 1.0 | 1.6 | 0.8 |
| 70-79 | 15.7 | 4.5 | 5.6 | 2.2 | 0.7 | 0.6 | 1.4 | 0.6 |
| 80-89 | 8.9 | 2.6 | 3.2 | 1.2 | 0.4 | 0.4 | 0.7 | 0.3 |
| 90-99 | 1.5 | 0.4 | 0.5 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 |
| Total | 100.0 | 25.0% | 28.9% | 25.1% | 6.2% | 5.1% | 6.8% | 2.9% |



A-2 Transfused Unknowns

The table shows the projected allocation of those alive at December 31, 2004, using the actual age distribution of the known claimants at that date. It is based on an initial allocation of the cohort, by stage of HCV, as shown at the bottom of this page. The totals may not balance due to rounding of the individual cells.

| Distribution of those alive at December 31, 2004 by stage of HCV | | | | | | | | |
|--|---|-----------------------------------|-----------------|-----------------------|----------------|-----------------------------|------------------|--------------------------|
| Age at <u>Aug-31-04</u> | Projected number alive at <u>Dec-31-04</u> | Number cleared <u>virus</u> | PCR positive | Non-bridging fibrosis | | Bridging <u>Fibrosis</u> | <u>Cirrhosis</u> | Decomp/ <u>cancer</u> |
| | | | | <u>Stage 1</u> | <u>Stage 2</u> | | | |
| 10-19 | 4.7% | 1.2% | 1.3% | 1.2% | 0.3% | 0.2% | 0.3% | 0.1% |
| 20-29 | 3.4% | 0.9% | 1.0% | 0.9% | 0.2% | 0.2% | 0.2% | 0.1% |
| 30-39 | 11.1% | 2.8% | 3.2% | 2.8% | 0.7% | 0.6% | 0.8% | 0.3% |
| 40-49 | 21.3% | 5.3% | 6.2% | 5.3% | 1.3% | 1.1% | 1.4% | 0.6% |
| 50-59 | 17.7% | 4.4% | 5.1% | 4.4% | 1.1% | 0.9% | 1.2% | 0.5% |
| 60-69 | 15.8% | 4.0% | 4.6% | 4.0% | 1.0% | 0.8% | 1.1% | 0.5% |
| 70-79 | 15.7% | 3.9% | 4.5% | 3.9% | 1.0% | 0.8% | 1.1% | 0.5% |
| 80-89 | 8.9% | 2.2% | 2.6% | 2.2% | 0.5% | 0.4% | 0.6% | 0.3% |
| 90-99 | 1.5% | 0.4% | 0.4 | 0.4% | 0.1% | 0.1% | 0.1% | 0.0% |
| Total | 100.0% | 25.0% | 29.0% | 25.0% | 6.2% | 5.1% | 6.8% | 2.9% |

Average age at August 31, 2004: 55.8 (based on current data)
57.8 (projected from 2001 model)

The corresponding allocation by stage of HCV at August 31, 2004 on which the above projections are based is taken from average stage distribution of the known transfused claimants and is the same for all age groups.



A-3 Hemophiliac Knowns

The table shows the projected allocation of those alive at December 31, 20004, using the actual age distribution of the known hemophiliac claimants at that date. The totals may not balance due to rounding of individual cells.

| Age at Aug-31-04 | Projected number alive at Dec-31-04 | Distribution of those alive at December 31, 2004 by stage of HCV | | | | | | |
|---------------------|--|--|-----------------|-----------------------|-------------|----------------------|--------------|-------------------|
| | | Number cleared virus | PCR positive | Non-bridging fibrosis | | Bridging fibrosis | Cirrhosis | Decomp/ cancer |
| | | | | Stage 1 | Stage 2 | | | |
| 10-19 | 1.3% | 0.4% | 0.4% | 0.5% | 0.0% | 0.0% | 0.0% | 0.0% |
| 20-29 | 19.3 | 5.4 | 5.0 | 5.9 | 0.6 | 0.4 | 1.6 | 0.2 |
| 30-39 | 29.2 | 4.1 | 7.0 | 10.9 | 1.7 | 1.2 | 3.6 | 0.7 |
| 40-49 | 25.5 | 3.2 | 6.0 | 10.0 | 1.3 | 1.0 | 3.5 | 0.6 |
| 50-59 | 13.9 | 1.4 | 2.9 | 5.6 | 0.6 | 0.4 | 2.0 | 0.9 |
| 60-69 | 6.4 | 0.7 | 1.5 | 2.1 | 0.3 | 0.3 | 0.8 | 0.6 |
| 70-79 | 3.6 | 1.0 | 1.4 | 0.5 | 0.1 | 0.1 | 0.4 | 0.0 |
| 80-89 | 0.8 | 0.2 | 0.3 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 |
| 90-99 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total | 100.0% | 16.4% | 24.6% | 35.8% | 4.7% | 3.4% | 12.1% | 3.1% |

Average age at August 31, 2004: 42.0 (based on current data)
42.7 (projected from 2001 model)

The foregoing distribution by stage of HCV is derived from the MMWG model and assumes about 24.6% of the hemophiliac cohort are co-infected with HIV. As discussed in the report (see paragraph 33), since those who are expected to claim under the regular provisions do not have the same co-infected mix, our projections for the hemophiliacs are based on a blend of the hemophiliac and transfused models.



A-4 Hemophiliac Unknowns

The table shows the projected allocation of those alive at December 31, 2004 using the actual age distribution of the known hemophiliac claimants at that date. It is based on the initial allocation of the cohort by stage of HCV for the known hemophiliac cohort. The totals may not balance due to rounding of the individual cells.

| Distribution of those alive at December 31, 2004 by stage of HCV | | | | | | | | |
|--|--|----------------------------|-----------------|-----------------------|------------|----------------------|-------------|-------------------|
| Age at Aug-31-04 | Projected number alive at Dec-31-04 | Number cleared virus | PCR positive | Non-bridging fibrosis | | Bridging fibrosis | Cirrhosis | Decomp/ cancer |
| | | | | Stage 1 | Stage 2 | | | |
| 10-19 | 1.3% | 0.2% | 0.3% | 0.5% | 0.1% | 0.0% | 0.2% | 0.0% |
| 20-29 | 19.3 | 3.1 | 4.7 | 6.9 | 1.0 | 0.6 | 2.3 | 0.6 |
| 30-39 | 29.2 | 4.8 | 7.2 | 10.5 | 1.5 | 0.9 | 3.5 | 0.9 |
| 40-49 | 25.5 | 4.2 | 6.3 | 9.1 | 1.3 | 0.8 | 3.1 | 0.8 |
| 50-59 | 13.9 | 2.3 | 3.4 | 5.0 | 0.7 | 0.4 | 1.7 | 0.4 |
| 60-69 | 6.4 | 1.0 | 1.6 | 2.3 | 0.3 | 0.2 | 0.8 | 0.2 |
| 70-79 | 3.6 | 0.6 | 0.9 | 1.3 | 0.2 | 0.1 | 0.4 | 0.1 |
| 80-89 | 0.8 | 0.1 | 0.2 | 0.3 | 0.0 | 0.0 | 0.1 | 0.0 |
| 90-99 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total | 100.0% | 16.3 | 24.6 | 35.8 | 5.0 | 3.1 | 12.2 | 3.0 |

Average age at August 31, 2004: 41.9 (based on current data)
42.8 (projected from 2001 model)

The foregoing distribution by stage of HCV is derived from the MMWG model and assumes about 24.6% of the hemophiliac cohort are co-infected with HIV. As discussed in the report (see paragraph 33), since those who are expected to claim under the regular provisions do not have the same co-infected mix, our projections for the hemophiliacs are based on a blend of the hemophiliac and transfused models.



A-5 Total Transfused

Distribution of those alive at December 31, 2004 by stage of HCV

| <u>Age at Aug-31-04</u> | <u>Projected number alive at Dec-31-04</u> | <u>Number cleared virus</u> | <u>PCR positive</u> | <u>Non-bridging fibrosis</u> | | <u>Bridging fibrosis</u> | <u>Cirrhosis</u> | <u>Decomp/ cancer</u> |
|-----------------------------|--|-------------------------------------|-------------------------|------------------------------|----------------|------------------------------|------------------|---------------------------|
| | | | | <u>Stage 1</u> | <u>Stage 2</u> | | | |
| 10-19 | 171 | 44 | 63 | 40 | 9 | 8 | 4 | 3 |
| 20-29 | 126 | 26 | 43 | 36 | 8 | 6 | 6 | 1 |
| 30-39 | 408 | 107 | 104 | 141 | 20 | 15 | 14 | 6 |
| 40-49 | 782 | 200 | 208 | 225 | 53 | 43 | 39 | 14 |
| 50-59 | 648 | 138 | 171 | 171 | 48 | 40 | 58 | 22 |
| 60-69 | 582 | 138 | 149 | 143 | 40 | 33 | 52 | 26 |
| 70-79 | 575 | 159 | 194 | 99 | 30 | 25 | 47 | 21 |
| 80-89 | 325 | 90 | 111 | 56 | 17 | 14 | 26 | 12 |
| 90-99 | 54 | 15 | 18 | 9 | 3 | 2 | 4 | 2 |
| Total | 3,670 | 917 | 1,061 | 921 | 228 | 186 | 250 | 107 |

The numbers in the individual cells have been rounded to the nearest integer, for ease of reference. As a result, some of the totals may not balance.

The total number alive is based on the revised total cohort size of 4,600 knowns plus unknowns. The 4,600 cohort includes those who died prior to January 1, 1999.



APPENDIX B

Cohort Projections after December 31, 2004

B-1 Total Transfused

Projected numbers at various stages of HCV at December 31, 2004,
plus those entering after December 31, 2004

| Age at Aug-31-04 | Projected number alive at Dec-31-04 | Number who will clear virus | PCR positive | Non-bridging fibrosis | | Bridging fibrosis | Cirrhosis | Decomp/ cancer | HCV deaths after Dec-31-04 |
|---------------------|--|--------------------------------------|-----------------|-----------------------|--------------|----------------------|--------------|-------------------|-------------------------------------|
| | | | | Stage 1 | Stage 2 | | | | |
| 10-19 | 171 | 49 | 63 | 95 | 86 | 85 | 83 | 70 | 59 |
| 20-29 | 126 | 29 | 43 | 73 | 69 | 69 | 71 | 60 | 49 |
| 30-39 | 408 | 116 | 104 | 229 | 199 | 192 | 191 | 146 | 114 |
| 40-49 | 782 | 215 | 208 | 394 | 331 | 329 | 328 | 240 | 175 |
| 50-59 | 648 | 149 | 171 | 296 | 232 | 229 | 252 | 187 | 134 |
| 60-69 | 582 | 146 | 149 | 232 | 159 | 156 | 177 | 130 | 84 |
| 70-79 | 575 | 167 | 194 | 196 | 121 | 109 | 130 | 91 | 46 |
| 80-89 | 325 | 93 | 111 | 85 | 36 | 32 | 46 | 33 | 14 |
| 90-99 | 54 | 15 | 18 | 14 | 6 | 5 | 8 | 5 | 2 |
| Total | 3,670 | 979 | 1,061 | 1,613 | 1,238 | 1,207 | 1,287 | 962 | 678 |

In addition, we have:

| | |
|---|-----|
| Total deaths between Jan-1-99 and Dec-31-04 | 716 |
| HCV deaths between Jan-1-99 and Dec-31-04 | 284 |
| HCV deaths before Jan-1-99 | 214 |

The total number alive is based on the revised 4,600 cohort. Individuals can appear more than once in the above table. For example, consider those with non-bridging (stage 2) fibrosis at December 31, 2004 who progress through to cirrhosis, but then die of causes unrelated to HCV. They will appear once under non-bridging (stage 2) fibrosis, i.e. at December 31, 2004, and again under bridging fibrosis and cirrhosis as they enter those stages of HCV.

The numbers in the individual cells have been rounded to the nearest integer, for ease of reference. As a result, some of the totals may not balance.



B-2 Transfused Knowns

Projected numbers at various stages of HCV at December 31, 2004,
plus those entering after December 31, 2004

| Age at <u>Aug-31-04</u> | Projected number alive at <u>Dec-31-04</u> | Number who will clear <u>virus</u> | PCR positive | <u>Non-bridging fibrosis</u> | | Bridging <u>fibrosis</u> | <u>Cirrhosis</u> | Decomp/ <u>cancer</u> | HCV deaths after <u>Dec-31-04</u> |
|----------------------------|---|---|-----------------|------------------------------|----------------|-----------------------------|------------------|--------------------------|--|
| | | | | <u>Stage 1</u> | <u>Stage 2</u> | | | | |
| 10-19 | 120 | 35 | 48 | 69 | 62 | 61 | 57 | 47 | 42 |
| 20-29 | 88 | 19 | 32 | 54 | 51 | 51 | 52 | 43 | 35 |
| 30-39 | 286 | 82 | 69 | 169 | 146 | 139 | 134 | 101 | 80 |
| 40-49 | 547 | 151 | 140 | 281 | 239 | 239 | 233 | 169 | 122 |
| 50-59 | 454 | 97 | 114 | 206 | 166 | 166 | 187 | 141 | 94 |
| 60-69 | 407 | 100 | 99 | 159 | 112 | 111 | 130 | 98 | 59 |
| 70-79 | 402 | 122 | 144 | 129 | 79 | 71 | 90 | 65 | 32 |
| 80-89 | 227 | 68 | 82 | 54 | 23 | 21 | 33 | 24 | 10 |
| 90-99 | 38 | 11 | 14 | 9 | 4 | 3 | 5 | 4 | 2 |
| Total | 2,570 | 685 | 742 | 1,129 | 881 | 863 | 921 | 692 | 474 |

In addition, we have:

| | |
|---|-----|
| Total deaths between Jan-1-99 and Dec-31-04 | 486 |
| HCV deaths between Jan-1-99 and Dec-31-04 | 244 |
| HCV deaths before Jan-1-99 | 152 |

Individuals can appear more than once in the above table. For example, consider those with non-bridging (stage 2) fibrosis at December 31, 2004 who progress through to cirrhosis, but then die of causes unrelated to HCV. They will appear once under non-bridging (stage 2) fibrosis, i.e. at December 31, 2004, and again under bridging fibrosis and cirrhosis as they enter those stages of HCV.

The numbers in the individual cells have been rounded to the nearest integer, for ease of reference. As a result, some of the totals may not balance.



B-3 Transfused Unknowns

Projected numbers at various stages of HCV at December 31, 2004,
plus those entering after December 31, 2004

| Age at <u>Aug-31-04</u> | Projected number alive at <u>Dec-31-04</u> | Number who will clear <u>virus</u> | PCR positive | <u>Non-bridging fibrosis</u> | | Bridging <u>fibrosis</u> | <u>Cirrhosis</u> | Decomp/ <u>cancer</u> | HCV deaths after <u>Dec-31-04</u> |
|----------------------------|---|---|-----------------|------------------------------|----------------|-----------------------------|------------------|--------------------------|--|
| | | | | <u>Stage 1</u> | <u>Stage 2</u> | | | | |
| 10-19 | 51 | 14 | 15 | 26 | 24 | 24 | 26 | 23 | 18 |
| 20-29 | 38 | 10 | 11 | 19 | 18 | 18 | 19 | 17 | 15 |
| 30-39 | 122 | 34 | 36 | 61 | 53 | 53 | 57 | 45 | 34 |
| 40-49 | 234 | 64 | 68 | 113 | 92 | 91 | 95 | 71 | 52 |
| 50-59 | 194 | 52 | 56 | 89 | 66 | 63 | 65 | 47 | 40 |
| 60-69 | 174 | 46 | 51 | 73 | 47 | 44 | 47 | 32 | 25 |
| 70-79 | 172 | 45 | 50 | 67 | 42 | 38 | 41 | 26 | 14 |
| 80-89 | 97 | 25 | 28 | 31 | 13 | 11 | 13 | 9 | 4 |
| 90-99 | 16 | 4 | 5 | 5 | 2 | 2 | 2 | 1 | 1 |
| Total | 1,100 | 294 | 319 | 484 | 357 | 343 | 366 | 270 | 203 |

In addition, we have:

| | |
|---|-----|
| Total deaths between Jan-1-99 and Dec-31-04 | 230 |
| HCV deaths between Jan-1-99 and Dec-31-04 | 40 |
| HCV deaths before Jan-1-99 | 62 |

The total number alive is based on the 4,600 cohort. Individuals can appear more than once in the above table. For example, consider those with non-bridging (stage 2) fibrosis at December 31, 2004 who progress through to cirrhosis, but then die of causes unrelated to HCV. They will appear once under non-bridging (stage 2) fibrosis, i.e. at December 31, 2004, and again under bridging fibrosis and cirrhosis as they enter those stages of HCV.

The numbers in the individual cells have been rounded to the nearest integer, for ease of reference. As a result, some of the totals may not balance.



APPENDIX C

Compensation Payments Indexed to January 1, 2005

C.1 The following table shows the 1999 base amounts of compensation together with the 2005 indexed figures under the different sections of the Transfused Plan.

| <u>Plan section</u> | <u>1999 base amount</u> | <u>2005 indexed amount</u> |
|---------------------|-------------------------|----------------------------|
| 4.01(1)(a) | \$10,000 | \$11,448.34 |
| (b) | 20,000 | 22,896.68 |
| | in 2 parts: 15,000 | |
| | and 5,000 | |
| (c) | 30,000 | 34,345.02 |
| (d) | 65,000 | 74,414.21 |
| (e) | 100,000 | 114,483.39 |
| 4.02(2)(b)(i) | 75,000 | 85,862.55 |
| 4.03(2) | 12 | 13.74 |
| | 240 | 274.76 |
| 4.04(a) | 50,000 | 57,241.70 |
| 4.05 | 1,000 | 1,144.83 |
| 4.08 | 240,000 | 274,760.15 |
| 5.01(1) | 5,000 | 5,724.17 |
| | 50,000 | 57,241.70 |
| (2) | 120,000 | 137,380.07 |
| (3) | 240,000 | 274,760.15 |
| 5.02(1) | 5,000 | 5,724.17 |
| (2) | 240,000 | 274,760.15 |
| 6.01(2) | 12 | 13.74 |
| | 240 | 274.76 |
| 6.02(a) | 25,000 | 28,620.85 |
| (b) | 15,000 | 17,172.51 |
| (c), (d), (e) | 5,000 | 5,724.17 |
| (f), (g) | 500 | 572.42 |



C.2 The Hemophiliac Plan provides for similar payments and amounts, with the following two additional items:

| <u>Plan section</u> | <u>1999 base amount</u> | <u>2005 indexed amount</u> |
|---------------------|-------------------------|----------------------------|
| 4.08(2) | \$50,000 | \$57,241.70 |
| 5.01(4) | 72,000 | 82,428.04 |

C.3 The following table summarizes those dollar values you have instructed us to use. These were provided to us in 2005 dollars. We also show in the final column, the comparative 2002 amounts used in the 2001 valuation.

| <u>Report section</u> | <u>Item</u> | <u>Indexed 2005 amount</u> | <u>Indexed 2002 amount used in 2001 valuation</u> |
|-----------------------|--------------------------------|----------------------------|---|
| 7.1.8, | Income loss - transfused | 38,000 | 16,880* |
| 7.1.9, | - hemophiliac | 45,000 | 25,200* |
| 7.1.10 | Loss of services - transfused | 13,000 | 11,600 |
| | - hemophiliac | 14,000 | 12,300 |
| 7.1.11 | Care costs | 11,000 | 50,000 |
| 7.1.13 | Medication - transfused | 4,000 | 3,000** |
| | - hemophiliac | 6,000 | " |
| 7.1.14 | Expenses - transfused | 1,500 | 1,373** |
| | - hemophiliac | 2,000 | " |
| 7.1.16 | Payment to family - transfused | 47,000 | 31,700 |
| | - hemophiliac | 55,000 | 44,400 |
| | Funeral costs | 4,500 | 4,000 |
| | Loss of services - transfused | 13,000 | 13,100 |
| | - hemophiliac | 14,000 | 12,300 |
| | Loss of support - transfused | 26,600 | 17,300 |
| | - hemophiliac | 31,500 | 9,800 |
| 7.1.17 | Funeral costs | 4,500 | 4,000 |
| 7.1.19 | Care/guidance - transfused | 48,000 | 29,000 |
| | - hemophiliac | 44,000 | 20,900 |

* 2001 LOI was 100% of \$21,100/\$33,600 for transfused/hemophiliacs in 7.1.8, and at 80%/75% of the same numbers in 7.1.9; 100% LOI assumptions increased to \$50,000/\$60,000 for 2003 update

** plus other variations

**APPENDIX D****Changes in 2004 Liabilities due to Changes in Assumptions****D-1 Transfused Plan**

The liabilities herein correspond to those developed in Section 7, and are as summarized in Section 11.1, for the Transfused Plan, based on the 4,600 cohort. Both columns of figures are calculated using the new 2.0% net discount rate assumption. The difference in total liability resulting from the change in the net discount rate from 3.2% in 2001 to 2.0% in 2004, was shown in Section 12.2.2. The comparison in this appendix is intended to demonstrate the liability differences, by head of compensation, resulting from the other assumption changes within that category.

| Report section | Benefit | Present value at Dec-31-04 (\$,000's) | |
|-----------------------|---|--|-------------------------------|
| | | using 2001 assumptions* | using 2004 assumptions |
| 7.1.1 | \$10,000 to those alive at 1.1.99 | 15,226 | 15,226 |
| 7.1.3 | \$20,000 if PCR positive at 1.1.99 | 22,821 | 22,821 |
| 7.1.4 | \$30,000 if non-bridging fibrosis | 40,366 | 40,366 |
| 7.1.5 | \$65,000 if cirrhosis | 66,982 | 66,982 |
| 7.1.6 | \$100,000 if decompensation/cancer | 72,034 | 72,034 |
| 7.1.8 | Non-bridging fibrosis: Loss of income Loss of services in lieu of \$30,000 lump sum in 7.1.4 | 44,851 9,764 | 19,168 14,406 |
| 7.1.9 | Loss of income for bridging fibrosis, cirrhosis and decompensation/cancer | 18,089 | 38,860 |

* loss of income/support adjusted as per our 2003 update



D-1 Transfused Plan (continued)

| Report section | Benefit | Present value at Dec-31-04 (\$,000's) | |
|----------------|---|--|------------------------|
| | | using 2001 assumptions* | using 2004 assumptions |
| 7.1.10 | Loss of services for bridging fibrosis, cirrhosis and decompensation/cancer | 69,815 | 119,486 |
| 7.1.11 | Costs of care | 8,329 | 5,421 |
| 7.1.12 | HCV drug therapy | 4,437 | 10,464 |
| 7.1.13 | Uninsured treatment & medication | 730 | 10,940 |
| 7.1.14 | Out-of-pocket expenses | 1,964 | 9,334 |
| 7.1.15 | Excess HIV secondarily infected | - | - |
| 7.1.16 | Pre-1999 deaths | 38,284 | 35,952 |
| 7.1.17 | Deaths after 1.1.1999 - funeral | 2,054 | 2,157 |
| 7.1.18 | Deaths after 1.1.99: - loss of support - loss of services | 5,891 57,516 | 6,876 67,630 |
| 7.1.19 | Loss of guidance, care and companionship | 14,044 | 23,239 |
| 7.1.20 | Secondarily infected | 13,098 | 14,605 |
| 7.1.21 | Outstanding 2004 payments for known cohort | 13,242 | 13,242 |
| 7.1.22 | Total | 519,537 | 609,209 |

* loss of income/support adjusted as per our 2003 update

**D-2 Hemophiliac Plan**

The liabilities in the following table correspond to the \$203,529,000 figure in Section 8.3 for those claiming under the ongoing HCV provisions. The references to the report sections below are to the corresponding description of the benefit under the Transfused Plan in Section 7. As in Appendix D-1, both columns of figures are at the new 2.0% net discount rate; the aggregate change from the 3.2% assumption was discussed in Section 12.2.3.

| Report section | Benefit | Present value at Dec-31-04 (\$,000's) | |
|----------------|---|--|------------------------|
| | | using 2001 assumptions* | Using 2004 assumptions |
| 7.1.1 | \$10,000 to those alive at 1.1.99 | 2,545 | 2,545 |
| 7.1.3 | \$20,000 if PCR positive at 1.1.99 | 3,901 | 3,901 |
| 7.1.4 | \$30,000 if non-bridging fibrosis | 9,211 | 9,165 |
| 7.1.5 | \$65,000 if cirrhosis | 20,274 | 20,274 |
| 7.1.6 | \$100,000 if decompensation/cancer | 25,354 | 25,354 |
| 7.1.8 | Non-bridging fibrosis: Loss of income Loss of services in lieu of \$30,000 lump sum in 7.1.4 | 18,901 2,240 | 9,580 4,744 |
| 7.1.9 | Loss of income for bridging fibrosis, cirrhosis and decompensation/cancer | 8,712 | 23,154 |
| 7.1.10 | Loss of services for bridging fibrosis, cirrhosis and decompensation/cancer | 20,018 | 43,357 |
| 7.1.11 | Costs of care | 2,907 | 1,973 |
| 7.1.12 | HCV drug therapy | 1,584 | 4,050 |

* loss of income/support adjusted as per our 2003 update

**D-2 Hemophiliac Plan (continued)**

| Report section | Benefit | Present value at Dec-31-04 (\$,000's) | |
|----------------|---|--|------------------------|
| | | using 2001 assumptions* | using 2004 assumptions |
| 7.1.13 | Uninsured treatment & medication | 249 | 6,694 |
| 7.1.14 | Out-of-pocket expenses | 856 | 4,103 |
| 7.1.15 | Excess HIV secondarily infected | - | - |
| 7.1.16 | Pre-1999 deaths | - | - |
| 7.1.17 | Deaths after 1.1.1999 - funeral | 746 | 786 |
| 7.1.18 | Deaths after 1.1.99: - loss of support - loss of services | 1,199 16,376 | 4,360 22,326 |
| 7.1.19 | Loss of guidance, care and companionship | 3,655 | 7,912 |
| 7.1.20 | Secondarily infected | 2,600 | 3,041 |
| 7.1.21 | Outstanding 2004 payments for known cohort | 6,210 | 6,210 |
| 7.1.22 | Total | 147,538 | 203,529 |

* loss of income/support adjusted as per our 2003 update

The total change in the above table is \$55,991,000 (i.e. from \$147,538,000 to \$203,529,000). In addition to this, the loss of support for the pre-1999 deaths that are not valued according to the regular scale of benefits, has increased from \$26,644,000 to \$28,029,000, i.e. by \$1,385,000 (these components are not included in the table above, but are part of the total hemophiliac liabilities - see the first two items in paragraph 164). The combination of the foregoing two differences is \$57,376,000, which is the \$57 million total assumption change referred to in paragraphs 193 and 195.



APPENDIX E

Glossary of Abbreviations

The following summarizes some of the abbreviations used in the report. The paragraph reference where the abbreviation was first described is shown in parentheses after the description below.

CASL: the Canadian Association for the Study of the Liver; developed the **1999 CASL report/study/model** on the progression of hepatitis C, led by Dr. Murray Krahn; used by us in our 1999 actuarial assessment of the fund's assets and liabilities (paragraph 18)

Cohort Sizes

6,500 cohort: the reduced cohort size used for the Transfused Plan, developed for the 2001 valuation, after considering the actual claims data; consists of 6,500 claimants alive at January 1, 1999 plus 150 deaths before January 1, 1999, for a total of 6,650 persons (paragraph 43)

1,481 cohort: the reduced cohort size used for the Hemophiliac Plan in the 2001 valuation (paragraph 43)

4,600 cohort: the projected cohort size used for the Transfused Plan, for this valuation; consists of 4,386 claimants alive at January 1, 1999 plus 214 deaths before January 1, 1999 (paragraph 49)

1,455 cohort: the projected cohort size used for the Hemophiliac Plan, for this valuation (paragraph 52)

DA9: deaths after January 1, 1999 (paragraph 41)

DB9: deaths before January 1, 1999 due to HCV related causes (paragraph 41)

fibrosis stages 0, 1, 2, 3, 4: indicating the disease development in the MMWG models, from infection (stage 0) through cirrhosis (stage 4); these stages do not correspond directly to the disease-based compensation Levels in the Plans (paragraph 23)

Hemophiliac Plan: the Hemophiliac HCV Plan provided for in the Settlement Agreement (paragraph 80)

HIV Program: the HIV Secondarily Infected Program provided for in the Settlement Agreement (paragraph 80)



known(s): those claimants who are known and approved before the actuarial valuation date (paragraph 27)

MMWG: Medical Model Working Group; led by Dr. Krahn; convened to review the medical model, both for the 2001 valuation and the current 2004 valuation, taking into account the clinical and demographic data from compensation claimants to date; produced the **2002 MMWG** report/study/model used for our 2001 actuarial valuation, and the **2005 MMWG** report/study/model used for this valuation (paragraphs 19, 20)

Settlement Agreement: the agreement made as of June 15, 1999 between the governments and the counsel for the class action plaintiffs (paragraph 12)

Transfused Plan: the Transfused HCV Plan provided for in the Settlement Agreement (paragraph 80)

unknown(s): those claimants included in the projected cohort sizes who are yet to claim and who are presumed to come forward after the valuation date (paragraph 27)

\$50k+ option: for deaths before January 1, 1999, the option of choosing \$50,000 plus claims by the family, including loss of support or loss of services (paragraph 135)

\$120k option: for deaths before January 1, 1999, the option of choosing \$120,000 in full settlement of all claims (paragraph 135)

2001 model: developed by us for the 2001 actuarial assessment (our report of June 4, 2002); based on the 2002 MMWG model (paragraph 19)

2001 valuation: our actuarial assessment as at December 31, 2001 (our report of June 4, 2002) (paragraphs 1, 14)

2003 update: our update on the approximate actuarial position of the fund as at September 30, 2003 (our letter of February 17, 2004); discussed the actuarial implications of lifting the remaining restrictions on benefits (paragraph 16)

2004 valuation: the current actuarial assessment as at December 31, 2004 (paragraph 14)