Eckler

Actuarial Report of the

Workers' Compensation Board Superannuation Plan

as at March 31, 2014

Vancouver, B. C.

December 19, 2014

Contents

Highlights and Actuarial Opinion

WorkSafeBC
6951 Westminster Highway
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We have completed an actuarial valuation of the Workers' Compensation Board Superannuation Plan (the "Plan") as at March 31, 2014 and have pleasure in submitting our report thereon. Our report is concerned with the experience in the two year period since March 31, 2012, the date of the last valuation.

Scope of the Valuation

The purpose of the actuarial valuation is to:

1. Report on the financial position of the Basic Account as at March 31, 2014;
2. To determine the contribution requirements for the period from April 1, 2014 until the results of the next valuation are available, for which the effective date must be no later than March 31, 2017; and
3. To provide the actuarial certifications required under the *B.C. Pension Benefits Standards Act* ("*PBSA*") and the federal *Income Tax Act* ("*ITA*").

The intended users of this report are WorkSafeBC, the Trustees of the Plan, the Financial Institutions Commission of British Columbia (FICOM) and Canada Revenue Agency. This report is not intended or necessarily suitable for purposes other than those listed above.

The valuation is concerned primarily with the future Basic non-indexed benefits provided under the Plan (including all indexing granted up to the valuation date). The valuation does not directly consider the liabilities for future indexing as such future indexing is to occur only to the extent it can be adequately financed by amounts available in the Inflation Adjustment Account ("IAA"); the future indexing liabilities have been considered indirectly, by setting liabilities exactly equal to the inflation assets.

Changes in Benefits and Assumptions since the Last Valuation

There have been a number of Plan amendments since the previous valuation. Most addressed housekeeping issues and had no impact on the benefits for the purpose of the valuation, except for the following change:

- Effective January 1, 2013, employer contributions to the Basic Account were decreased from 9.11% to 8.63% of that part of the employee's salary that does not exceed the Canada Pension Plan Year's

Maximum Pensionable Earnings ("YMPE"), and from 10.61% to 10.13% of the employee's salary which is in excess of the YMPE;

With the changes to employer contribution rates, from January 1, 2013 the total (employer plus employee) contributions to the Basic Account are 14.13% of that part of the employee's salary that does not exceed the YMPE, and 17.13% of the employee's salary which is in excess of the YMPE. In addition to the above contribution requirements for basic non-indexed benefits, the employees and WorkSafeBC each contribute 1% of salaries to the IAA.

The Plan rules are summarized in Appendix A.

With regards to the assumptions used for the going concern valuation, the mortality rate assumption was updated using a new table based on the results of a study of Canadian specific pension plan mortality, specifically, 100% for males and 95% for females of the rates in 2014 Public Sector Mortality Table (CPM2014Publ) projected using CPM Improvement Scale B (CPM-B). Minor adjustments were made to the assumed rates of retirement, disability and withdrawal from the Plan. The allowance for administration expenses was also increased. No changes were made to the long-term going concern economic assumptions.

The hypothetical wind-up/solvency economic assumptions were revised to reflect market conditions as at the valuation date.

The assumptions are described in detail in Appendix D.

Summary of Results

The results as at March 31, 2014 for the Basic Account are summarized below.

($,000's)	Going concern	Hypothetical Wind-up/ Solvency
Assets (net of wind-up expenses)	1,236,647	1,343,388
Liabilities	994,406	1,252,813
Surplus/(Deficiency)	**242,241**	**90,575**
Funded/Solvency Ratio	124.4%	107.2%
Total current service cost (% of active payroll)	17.72%	
Going Concern Special Payments	Nil	
Solvency Special Payments	Nil	

For the going concern position, allowing for the Inflation Adjustment Account liabilities at the amount set equal to the Inflation Adjustment Account assets of $220,209,000 maintains the going concern surplus at $242,241,000, but reduces the going concern funded ratio to 119.9%.

The current going concern valuation indicates that the actuarial surplus of $200,860,000 that existed at March 31, 2012 has increased to $242,241,000 at March 31, 2014. The increase in surplus is the net result of a number of items, the major one being the investment earnings on a smoothed asset value basis greater than the rates assumed in the last valuation, partially offset by a change in the mortality assumptions. More detailed analysis of the going concern results and changes is given in Appendix E.

The current valuation indicates that the total current service cost for Basic Account (non-indexed benefits) has increased from 17.13% to 17.72% (integrated[1]). The increase in the Basic Account current service cost is the result of a number of factors, the major causes being the change in the mortality assumption and expense assumption. These changes are analyzed in detail in Appendix F.

The hypothetical wind-up/solvency valuation indicates that the solvency deficiency of $64,183,000 that existed at March 31, 2012 has improved to a solvency surplus of $90,575,000 at March 31, 2014. The primary drivers for the improvement were the investment earnings on a market value basis greater than the solvency rates prescribed for the last valuation and an increase in the prescribed solvency rates at March 31, 2014 over those in effect at March 31, 2012. The solvency ratio of the Plan is 107.2% (greater than 100%) and, because of this, where lump sums are transferred from the Basic Account by a terminated member or with respect to a deceased member, no additional contributions will be required.

[1] The term "integrated" refers to the set of two contribution rates that apply to earnings up to and over the YMPE. For employees, 7% integrated means 5.5% of that part of the employee's salary that does not exceed the YMPE, and 7.0% of the employee's salary which is in excess of the YMPE. For the employer, 10.72% integrated means 9.22% of salary up to the YMPE, and 10.72% on the portion of salary in excess of the YMPE.

As in previous valuations, we evaluated the going concern surplus and maximum contributions in terms of the limits permitted under the *ITA*. The *ITA* surplus/contribution tests have been calculated on a basis that recognizes full indexing of benefits on a pre-funded basis, as permitted by the *ITA* – detail is provided in Appendix A.

Since there is both a going concern and a solvency surplus, no special funding payments are required.

The current service cost rate for the Basic Account is 17.72% integrated. Assuming that employee contributions continue to be made at the rate of 7% of salaries (integrated), WorkSafeBC's portion would be 10.72% (integrated). As well, as required under the Plan rules, the employees and WorkSafeBC each contribute 1% of salaries to the IAA. Based on the payroll rates as at March 31, 2014, the current service costs are summarized below:

Current Service Cost

	Basic Account		IAA		Total
	Rate	**$ at March 31, 2014**	**Rate**	**$ at March 31, 2014**	**$**
Employees	7.0% integrated	13,359,000	1.0%	2,214,000	15,573,000
WorkSafeBC	10.72% integrated	21,595,000	1.0%	2,214,000	23,809,000
Total		**34,954,000**		**4,428,000**	**39,382,000**

The foregoing valuation results recognize only those benefits up to the maximum *ITA* benefit limits. These are paid under Part 1 of the Plan. Benefits above these limits are paid under Part 2 of the Plan, via a Supplemental Benefit Account, which is maintained at a zero balance. Since WorkSafeBC may need to recognize a liability for these Part 2 benefits in its financial statements for the Accident Fund, we have recalculated the liabilities and costs, ignoring the *ITA* limits. When this is done, the going concern surplus reduces by $13,175,000 to $229,066,000 and the employer current service cost requirement for basic non-indexed benefits increases by 0.12%, from 10.72% integrated to 10.84% integrated of salaries, assuming employees continue to contribute at 7% integrated.

Summary of Results – Impact of Current Going Concern Surplus

Due to the going concern surplus, and the elimination of the solvency deficiency that existed at the March 31, 2012 valuation, contributions may be made at a rate lower than the current service cost rate (17.72% integrated, currently split 10.72% integrated for the employer plus 7% integrated for employees) to the Basic Account.

After setting aside a buffer equal to 5% of the Basic Account liability, as required under the *PBSA,* WorkSafeBC could elect to take a contribution holiday. Alternatively, WorkSafeBC could elect to reduce contributions to a lesser amount and retain the remaining surplus assets in the fund.

WorkSafeBC is currently contributing at a rate of 10.13% integrated to the Basic Account.

Further details are given in Appendix H.

The maximum contribution rate that can be paid until the next valuation is the current service cost on an indexed basis. Including the IAA contributions, the total indexed current service cost is 22.53% (integrated). Assuming employee contributions remain at 8% (integrated; including IAA contributions), the maximum contribution WorkSafeBC can make is 14.53% (integrated).

More details are provided in Appendix I.

Reliance

We have relied on the asset information as provided in the audited financial statements of the Plan as of March 31, 2013, and 2014. We have also relied on WorkSafeBC and the plan administrator to provide all relevant data, additional asset information and to confirm the pertinent Plan terms.

Further detail with respect to both the results of the valuation and the information and methods used for the valuation is set out in the attached appendices.

Subsequent Events

To the best of our knowledge there have been no events subsequent to the valuation date that would have an impact on the results of this valuation, or alter our opinion.

Actuarial Opinion

In our opinion,

(a) the membership data on which the valuation is based are sufficient and reliable for purposes of the valuation,

(b) the assumptions are appropriate for the purposes of the valuation, and

(c) the methods employed in the valuation are appropriate for the purposes of the valuation.

This report has been prepared, and our opinions given, in accordance with accepted actuarial practice in Canada. For regulatory purposes, the next valuation should be completed no later than as of March 31, 2017.

We would be pleased to discuss the report with you at your convenience.

Respectfully submitted,

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

Catherine Robertson
Fellow of the Canadian Institute of Actuaries[1]
Fellow of the Institute and Faculty of Actuaries

December 19, 2014

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

Appendix A Summary of Plan and Amendments

Changes to the Plan

The previous valuation was based on the provisions of the Plan as at March 31, 2012. There were a number of amendments to the Plan between March 31, 2012 and March 31, 2014, mostly addressing housekeeping issues which have no impact on the benefits for the purpose of the valuation. The one exception is the following amendment:

- Effective January 1, 2013, employer contributions to the Basic Account were decreased from 9.11% to 8.63% of that part of the employee’s salary that does not exceed the Canada Pension Plan Year's Maximum Pensionable Earnings ("YMPE"), and from 10.61% to 10.13% of the employee's salary which is in excess of the YMPE.

The main provisions of the Plan, as at March 31, 2014, are summarized below. The section references are to the Plan Text at January 1, 2014.

Income Tax Limits

The *ITA* imposes certain limits on the contributions that may be made to, and the benefits that may be paid from, a registered pension plan. However, in total, the contribution requirements from, and the benefit promises to, plan members have not been altered under the WorkSafeBC Plan.

To this end, a Supplemental Benefit Account has been created to cover the financing and payment of benefits in excess of those registrable under the *ITA*. The excess benefits are paid on a current cash basis, by allocating from the regular employer contributions, the amounts necessary to maintain the Supplemental Benefit Account at a zero balance. Effectively, from a plan member's perspective, it is expected that these procedures will be invisible - the employee contribution and benefit obligations remain unchanged. In completing this valuation, we have calculated the liabilities and costs on two bases, once recognizing the *ITA* limits and again ignoring those limits. In the Plan summary herein, and elsewhere in this valuation report, our references to contributions/benefits to/from the Basic/Inflation Adjustment Accounts are inclusive of the allocations to/from the Supplemental Benefit Account; in general, the allocations to/from the Supplemental Benefit Account have not been referenced.

Covered Employees [Section C]

These include every employee of WorkSafeBC.

Employee Contributions [Section D.1]

Effective January 1, 2012, the following employee contributions are deducted from an employee's salary:

(a) 5.5% of that part of the employee's salary that does not exceed the Canada Pension Plan Year's Maximum Pensionable Earnings (YMPE) - paid into the Basic Account;

(b) 7.0% of the employee's salary which is in excess of the YMPE - paid into the Basic Account; and

(c) 1.0% of the employee's salary - paid into the Inflation Adjustment Account.

Employee contributions cease after 35 years of pensionable service have been accrued.

Employer Contributions [Section D.2]

WorkSafeBC (referred to in the Plan rules by its official name "Workers' Compensation Board" or "Board") is required to contribute such amounts which, based on the recommendation of the actuary, are determined by WorkSafeBC to be necessary to provide for the benefits under the Plan. Actuarial surpluses may be used to reduce or eliminate contributions that might otherwise be required. All WorkSafeBC contributions must also comply with the requirements of the *ITA* and the *PBSA*.

Effective January 1, 2013, the employer contribution rate to the Basic Account decreased by 0.48%, to:

(a) 8.63% of that part of the employee's salary that does not exceed the YMPE - paid into the Basic Account;

(b) 10.13% of the employee's salary which is in excess of the YMPE - paid into the Basic Account; and

(c) 1% of the employee's salary - paid into the Inflation Adjustment Account.

Employer contributions also cease in respect of an employee's salary after the employee has accrued 35 years of pensionable service.

Trustees [Section E]

The Plan provides for WorkSafeBC to appoint three Trustees, comprising:

(a) one Trustee who represents WorkSafeBC;

(b) one Trustee who represents the employees; and

(c) one Trustee nominated jointly by the two Trustees referred to in (a) and (b).

Section E further provides that WorkSafeBC shall remit to the Trustees the contributions made under the Plan. The Trustees may, in their discretion, invest the fund monies in investments permitted for pension plans registered in compliance with the *PBSA*.

Fund and Accounts [Section F]

The fund is divided into the following two accounts:

(a) the **Inflation Adjustment Account** (IAA) consisting of:

(i) the 1% contribution by each of the employees under Section D.1 with a matching amount allocated from the employer contributions under Section D.2;

(ii) the net investment income earned on the Inflation Adjustment Account;

(iii) the income, as determined by the plan administrative agent, that is earned on fund assets held in the Basic Account in respect of pensions being paid and that is in excess of the interest anticipated in the most recent actuarial valuation; and

(iv) where an actuarial valuation discloses a surplus in the Basic Account, such amounts as the Trustees determine be transferred from such surplus;

less:

(v) amounts transferred to the Basic Account in respect of capitalized supplements granted under Section Q;

(vi) refunds to former contributors of the 1% contribution made to this account under Section D.1, or amounts otherwise transferred out of this account in respect of employee and employer contributions allocated to this account;

(vii) amounts in respect of the portions of commuted value payments or other transfers out of the Plan that are attributable to indexing adjustments; and

(viii) amounts transferred to the Basic Account under Section L.1(d) in respect of the capitalized value of increases in pension resulting from increases in highest average salary under that section - (for deferred vested pensions);

(b) the **Basic Account** consisting of all the assets in the fund other than assets in the Inflation Adjustment Account.

Notwithstanding the foregoing, the Part 2 non-tax-registered provisions provide for the maintenance of a Supplemental Benefit Account to cover the financing and payment of contributions and benefits in excess of those registrable under the *ITA*. Contributions from the Basic and Inflation accounts are to be allocated, as applicable, to this account. However, we understand that no assets are to be accumulated in this account.

Eligibility Conditions for Pension [Section H]

An employee is entitled to a pension if:

(a) having left the service of WorkSafeBC after attaining age 60, the employee retires;

(b) having reached age 55 and after not less than 2 years of contributory service, the employee retires; or

(c) having completed 2 years of contributory service, the employee becomes totally and permanently disabled.

The Plan Text defines a maximum retirement age as age 65, although an employee may continue to contribute and accrue pensionable service after reaching maximum retirement age, provided that the commencement of pension cannot be delayed beyond the December of the calendar year of turning age 71.

Amount of Pension [Section J]

The normal pension is payable monthly, and is calculated as follows:

> 2% of the contributor's highest average salary multiplied by the number of years of pensionable service (not exceeding 35 years), reduced at age 65 or at the date of death or disability, whichever is earlier, by
>
> (i) 0.7% of the lesser of the contributor's highest average salary and one-twelfth of the YMPE for the calendar year prior to the calendar year in which the pension is first paid; multiplied by
>
> (ii) the number of years of pensionable service after December 31, 1965 (not exceeding 35 years).

Highest average salary means the average of the monthly salaries received by the employee during the 60 months of service in which the salaries were highest.

The normal pension is payable on an unreduced basis:

(a) at or after age 55 if the sum of the member's age plus years of contributory service is equal to 90 or more ("rule-of-90");

(b) at or after age 60 with at least 2 years of contributory service;

(c) on retirement from active employment, at age 65, regardless of service.

A contributor who has attained age 55 (but not age 60) and who does not meet the requirements of the rule-of-90 may, instead of receiving the full accrued pension starting at age 60, elect a reduced pension starting immediately, but with the 2% in the benefit formula above reduced by 5% for each year the contributor's age is less than the earlier of age 60 or the age at which the age plus years of contributory service total 90, prorated for fractions of a year. If the employee terminates employment after age 50 with at least 10 years of contributory service, the foregoing 5% per year reduction is reduced to 3% per year. A reduced pension is also available to employees terminating after age 60 with less than 2 years of contributory service, with the 2% in the benefit formula being reduced by 5% for each year the employee's age is less than age 65.

The normal form of pension is payable as a single life annuity for those contributors who terminated service before October 1, 1999. For those contributors who terminate service on or after October 1, 1999, the normal form of pension is single life with a 10-year guarantee; (the 10-year guarantee applies only to the lifetime portion of the pension and not to the additional temporary pension payable until age 65).

An employee who has made voluntary additional contributions in the past - these are no longer accepted - will be granted an additional pension or may take a refund.

Part 1 (Income Tax) Benefit Limits [Section J.1.2]

The tax-registered provisions in Part 1 of the pension plan limit the amount of pension as required by the *ITA*, in respect of service after 1991. The maximum annual pension currently permitted (before application of any early retirement reductions, where applicable) is the lesser of:

(i) $2,646.67 multiplied by the years of service; and

(ii) 2% multiplied by the years of service further multiplied by the average of the best 3 years of remuneration paid to the member.

The Plan also imposes a 35 year cap on accruals at the above maximum rate. The $2,646.67 limit in 2012 is automatically indexed to increases in average wage rates in 2013 and thereafter.

Alternative Types of Pensions [Section I]

A pension may be granted on the single life plan, single life plan with guaranteed period, joint life and last survivor plan, temporary life plan or such combination of these plans as may be approved by the Trustees. The amount of any pension granted on a form other than the normal form is calculated on an actuarially equivalent basis.

Where an employee has a spouse at retirement, the employee is deemed to have elected a form of pension that provides for the continuance of 60% of the pension to his/her spouse in the event that the employee should predecease the spouse, unless the employee and spouse elect, by completion of a form prescribed by the Trustees, to choose some other form of pension. A spouse is as defined in the *PBSA*, and includes a common-law or same-sex spouse.

Disability Pension [Sections D.1(c) and H.2]

Section D.1(c)(ii) provides that if an employee is receiving a monthly income benefit from an approved group disability income benefit plan, the employee is not entitled to a disability pension under the Plan, but the period for which the employee receives such group disability income benefit is considered pensionable service, with the final pension based on the highest average salary at disablement increased to retirement in accordance with changes in the consumer price index.

Section H.2 provides that where a disability pension is payable, the pension earned to date may be increased as permitted under the *ITA*. Subject to certain limits, this permits the immediate recognition of projected future service in the calculation of the pension.

Death Benefits [Section K]

The pre-retirement death benefits are as follows:

- if the employee is not vested (i.e. less than 2 years of contributory service and dies before age 60), the death benefit is a refund of employee contributions plus interest;
- if the employee is vested, and there is no surviving spouse, the death benefit is the full commuted value of the regular pension earned to the date of death;
- if the employee is vested and dies before age 55 with a surviving spouse, the spouse can opt to receive a commuted value of the regular pension earned to the date of death, or an immediate pension;
- if the employee is vested and dies on or after age 55 with a surviving spouse, the spouse will receive an immediate pension.

Death benefits for former employees who have not taken a refund and who die before retirement are determined in the same manner as for active employees, as described above.

Vesting, Refunds and Portability [Section L]

A terminating employee who has 2 or more years of contributory service is entitled to receive a deferred vested pension starting at or after age 55, calculated as described earlier in the section headed "Amount of Pension".

If an employee terminates without becoming entitled to a pension, a refund is payable, equal to the accumulated employee contributions plus interest. Interest credits are based on the average yield of 5-year personal fixed term chartered bank deposit rates, published in the Bank of Canada Review as CANSIM Series V122515. Prior to 2002, interest was credited at a rate related to the investment earnings on the fund.

In lieu of a deferred pension, a vested member who terminates before age 55 may elect a lump-sum commuted value in respect of the full vested pension, payable on a locked-in basis. Under certain limited conditions (small pensions, or small commuted values) the *PBSA* permits the election of a lump-sum payout, regardless of age, and on a non-locked-in basis.

The deferred vested pension of an employee is based on the highest average salary at termination, increased to retirement or to December 31, 1982 if earlier, in accordance with changes in the pension index.

Subsequent to 1982, the highest average salary is increased to retirement by the percentage increase granted to pensions for the period between the month of termination and the month the pension becomes effective. Section (L.1(d)) provides that the cost of this indexing is funded from the Inflation Adjustment Account.

Supplementary Allowances (Indexing) [Sections P and Q]

The Plan provides for increases to retired members on January 1 of each year, with the benefits funded from the Inflation Adjustment Account. The benefit is based on the total amount of pension being received, including previous indexing increases, less any portion of the pension that is a result of voluntary contributions (which are no longer permitted). The maximum increase is equal to the percentage increase in the Consumer Price Index ("CPI") over the 12 months ending on September 30 of the previous year.

Section Q sets out additional requirements with regards to the indexing benefit, including:

(a) the same uniform percentage increase will be granted in respect of all pensions eligible for adjustment;

(b) the increase is prorated if the pension has not been in payment for at least 12 months;

(c) the total capitalized value of all indexing benefits granted on January 1 must not exceed the amount in the Inflation Adjustment Account on the preceding September 30; and

(d) the capitalized value of all indexing benefits granted annually is transferred from the Inflation Adjustment Account to the Basic Account.

Plan Termination [Section N1]

For purposes of testing the *PBSA* solvency rules, benefits are to be calculated as follows:

- all active members are deemed to be terminated and 100% vested;
- benefits are calculated only on the basis of earnings and service frozen at the valuation date;
- future indexing is ignored, both before and after retirement; and
- the liability for future indexing is limited to assets in the IAA.

In the event the Plan is terminated, priorities are set out for any surplus that might emerge: wage and CPI indexing are first restored before any residual surplus is considered.

Other Items

1. Section N.9 provides that expenses incurred in the administration of the Plan shall be paid from the fund.

2. A maximum of 5 years taken to raise a child may be recognized in establishing eligibility for a pension provided the employee has a record of pensionable service immediately before and after the child-rearing period(s). [Section B – "contributory service" definition]

3. Section N.10 enables WorkSafeBC to request the Trustees to adopt a Special Retirement Incentive Plan (SRIP), whereby the age and service conditions, or the early retirement percentage reductions, or both, may be adjusted. Where the Trustees agree, they must also determine the employees eligible for the SRIP, the period it remains open, the conditions applicable to the incentives, the additional costs to WorkSafeBC, and the timing of these payments to fund the SRIP.

4. In 1999, the definitions of, and references to, approved and reciprocal employers were removed from the Plan, to comply with ITA requirements. In general, these provisions allowed for portability among various plans (mostly with four public sector plans in B.C.), whereby service and salaries were commonly recognized in all of the plans. These arrangements have been replaced by transfer of reserve agreements, whereby the plan member may elect to have a reserve transferred and then be covered by the rules of the importing plan.

Appendix B Membership Information

Data as of March 31, 2014 were prepared by the Pension Corporation for 2,798 active employees, 4 inactive employees on leave of absence, 249 employees currently receiving long-term disability benefits, 377 former employees entitled to deferred pensions, 102 other inactive employees, 9 non-retired individuals with very limited data, 1,413 former employees in receipt of pensions and 146 beneficiaries in receipt of pensions as a result of the deaths of Plan members (a total of 1,559 pensioners). The Pension Corporation advised us that the data supplied are generally proper, complete and in accordance with specifications, unless otherwise noted.

Where possible, we compared totals with corresponding details in the Plan's Annual Report. We also subjected the data to a number of tests of reasonableness and consistency, including the following:

- A member's (and partner's as applicable) age is within a reasonable range;
- A member's gender or date of birth did not change;
- A member joined the Plan or commenced pension at a reasonable age;
- Accrued service increased by a reasonable amount (e.g. no more than 36 months since the last valuation);
- The salary level and the salary increase from the previous valuation was within a reasonable range;
- Pensions in pay increased by a reasonable amount (e.g. in line with the indexation since the last valuation); and
- We examined the additions to and deletions from each of the data files (i.e. the files for active employees, pensioners and terminated members) since the previous valuation to determine whether all Plan members were accounted for in this valuation, to check for duplicate records and to confirm pension amounts.

There were a number of discrepancies recorded during our examination of the data and we sought clarification of these from the Pension Corporation. Where necessary, we modified the data, our assumptions, or both, to compensate for these discrepancies, as summarized below.

Data Adjustments

The active member data included 72 persons who had no salary or service reported for the year ending March 31, 2014, or with a last-contribution-date prior to March 2014. We excluded them from the active member base, and have included them with the inactive data.

We treated the 4 inactive employees on leave of absence as if they were active employees at the valuation date.

The information supplied with respect to 30 of the 377 former employees entitled to deferred pensions was incomplete. We held liabilities for them equal to twice their contributions plus interest. Of the 102 other inactive employees, the bulk of them had less than 2 years of service at termination. For these 102 other inactive and the 9 non-retired individuals with very limited data, we also held a liability equal to twice their contributions plus interest.

Of the total pensioner data, there were 3 members excluded from the valuation because they died prior to the valuation date with no outstanding guaranteed pensions due, and hence their liability is zero.

The data from the Pension Corporation, and our treatment of this data, are summarised below:

Treatment of Member Data in Valuation

Category of Membership From Pension Corporation	Pension Corporation Membership Count	Treatment in Valuation					
		Active Members	LTD	Deferred Vested	Refund 2 x CWI[1]	Pensioners with zero liability	Pensioners
Active Members	2,798	2,726			72		
Leave of absence	4	4					
Long Term Disability	249		249				
Terminated Vested	377			347	30		
Inactive members	102				102		
Limited data	9				9		
Pensioners	1,559					3	1,556
Total membership	**5,098**	**2,730**	**249**	**347**	**213**	**3**	**1,556**

[1] Contributions With Interest.

Data Reconciliation

A reconciliation of the data received and membership movements between March 31, 2012 and March 31, 2014 is included below:

Summary of Changes in Membership — March 31, 2012 to March 31, 2014

	Actives	LOA	LTD	Deferred Vested	Inactive	Limited Data	Pensioners and Beneficiaries	Total
Data Received March 31, 2012	**2,776**	**3**	**236**	**383**	**103**	**6**	**1,386**	**4,893**
Additions:								
- new members	312		4	2	4		10	
Changes:								
- vested terminations	(54)	4	(2)	39	10	3		
- retirements	(166)		(23)	(16)			205	
- deaths with beneficiary	(1)		(2)				3	
- disablement	(59)		59					
- pension split							1	
- returned to active	23	(3)	(15)	(4)	(1)			
Deletions:								
- terminations with CV	(19)		(3)	(27)	(14)			
- terminations - refund	(8)		(1)					
- deaths with CV	(3)		(4)					
- deaths, no benefit due							(46)	
- guarantee expired								
- reciprocal transfer out	(3)							
Data Received March 31, 2014	**2,798**	**4**	**249**	**377**	**102**	**9**	**1,559**	**5,098**

Data Summaries

Details regarding the data used in the valuation are set out below.

The data for the 2,730 actives are summarized below:

Active Employee Data - March 31, 2014

Age[1]	Males			Females		
	Number	Average Service (years)	Average Salary[2]	Number	Average Service (years)	Average Salary[3]
Under 29	39	2.4	$59,825	63	2.1	$51,782
30 – 34	76	4.0	67,961	110	3.4	64,445
35 – 39	95	6.3	75,139	170	6.6	72,523
40 – 44	122	8.8	85,874	244	10.3	78,193
45 – 49	171	13.0	90,363	301	13.6	76,857
50 – 54	196	16.0	98,632	327	16.0	79,933
55 – 59	201	17.4	97,278	290	17.4	76,413
60 – 64	108	20.1	102,999	139	17.8	76,720
65 & over	36	18.8	108,269	42	15.8	73,059
Total	**1,044**	**13.2**	**$90,484**	**1,686**	**12.8**	**$75,281**

Summary Statistics Male and Female Combined	
Total Actives	2,730
Average Age	48.3
Average Service	13.0
Average Salary	$81,095

1 Age nearest birthday at valuation date.

2 Actual earnings for the 12 months ended March 31, 2014 for those employees employed all year and annualized for others.

A comparison of the March 31, 2014 active membership with the March 31, 2012 active membership is as follows:

Comparison of Active Employee Data[1] - March 31, 2014 vs March 31, 2012

	March 31, 2012	**March 31, 2014**	**Change 2012 to 2014**
Males			
- Number	1,027	1,044	+ 1.7%
- Proportion of total	37.9%	38.2%	+ 0.3%
- Average age	48.6	48.8	+ 0.2 years
- Average service	13.1	13.2	+ 0.1 years
- Average salary[2]	$87,569	$90,484	+ 3.3%
Females			
- Number	1,680	1,686	+ 0.4%
- Proportion of total	62.1%	61.8%	- 0.3%
- Average age	47.9	48.0	+ 0.1 years
- Average service	12.8	12.8	no change
- Average salary[2]	$72,260	$75,281	+ 4.2%

The above comparison indicates a 0.8% increase in the covered membership during the 2 year inter-valuation period. The proportion of males to females has increased slightly. The average ages have increased slightly, by 0.2 years for males and 0.1 years for females. The average service has also increased slightly by 0.1 years for males but remained the same for females.

The percentage increase in the average salary is higher for females (4.2% increase) than males (3.3% increase). These increases compare with an expected average salary increase of about 6.1% (2 years compounded at 3.0% per year) based on the previous valuation assumptions, producing a liability gain during the inter-valuation period (as shown in the gain and loss analysis in Appendix E).

The data for the 249 employees receiving long-term disability benefits are summarized below.

[1] Including members on a leave of absence who are treated as active for the valuation.

[2] Average salary in the 12 months ending on the valuation date.

Members on Long-Term Disability - March 31, 2014

	Number	Average age	Average service	Average salary
Males	46	56.3	19.4	$79,744
Females	203	53.4	18.7	68,909
Total	**249**	**53.9**	**18.8**	**$70,910**

The data for the 347 deferred vested members are summarized below.

Deferred Vested Member Data - March 31, 2014

	Number	Average age	Average initial annual pension[1]	Average annual offset at age 65	Employee regular contributions with interest
Males	115	50.9	$13,221	$2,513	$5,017,072
Females	232	48.4	8,948	2,213	7,637,163
Total	**347**	**49.3**	**$10,364**	**2,312**	**$12,654,235**

The data for the 213 other inactive members is summarized below.

Other Inactive Member Data - March 31, 2014

	Number	Employee regular contributions with interest
Other inactives	183	$2,391,288
Incomplete Data	30	89,252
Total	**213**	**$2,480,540**

We held a liability for the 183 other inactive members and the 30 deferred vested members with incomplete date equal to twice the employee regular contributions with interest balance.

[1] These pensions are calculated based on salaries at date of termination and assumed to commence at the first age at which the employee is entitled to an unreduced pension, i.e. at various ages between 60 and 65.

The information with respect to those in receipt of pension benefits as at March 31, 2014 is as follows:

Pensions in Payment to Former Employees - March 31, 2014

Age Group[1]	Number of Pensioners[2]	Annual Pensions ($,000's)[3]				
		Single Life	Joint Life & Survivor	Single Life with Guarantee	Joint with Guarantee	Temporary Life
Males						
55 - 59	25	-	397	198	10	247
60 - 64	126	233	2,007	653	1,014	1,216
65 - 69	174	654	2,354	877	1,338	98
70 - 74	131	960	1,762	503	377	-
75 - 79	83	810	1,099	60	36	-
80 - 84	47	422	559	-	-	-
85 - 89	38	376	329	-	-	-
90 & over	20	225	194	-	-	-
Total Males	**644**	**3,680**	**8,701**	**2,291**	**2,775**	**1,561**
Females						
Under 59	75	-	586	784	461	789
60 - 64	214	416	1,169	2,118	1,043	2,023
65 - 69	228	1,371	1,030	1,476	702	187
70 - 74	121	1,071	298	538	122	-
75 - 79	62	492	149	10	-	-
80 - 84	40	465	45	-	-	-
85 - 89	18	196	2	-	-	-
90 & over	8	132	-	-	-	-
Total Females	**766**	**4,143**	**3,279**	**4,926**	**2,328**	**2,999**
Basic Total	**1,410**	**7,823**	**11,980**	**7,217**	**5,103**	**4,560**
Supplemental Pensions included		**24**	**196**	**42**	**114**	**0**

The average age of the pensioners was 69.2 as of March 31, 2014.

[1] Age nearest birthday at March 31, 2014.
[2] These figures include only those who were formerly contributors to the Plan.
[3] Including indexing supplements granted through January 1, 2014.

Pensions in Payment to Beneficiaries - March 31, 2014

Age Group[1]	Number of Beneficiaries[2]	Annual Pensions ($,000's)[3]	
		Single Life	Single Life with Guarantee
Males			
Under 65	8	98	46
65 - 69	10	180	-
70 & over	7	94	-
Total Males	**25**	**372**	**46**
Females			
Under 65	10	182	77
65 - 69	10	278	-
70 - 74	7	195	-
75 - 79	14	218	-
80 - 84	21	307	-
85 - 89	29	499	-
90 & over	24	390	-
Total Females	**115**	**2,069**	**77**
Remaining guarantees	**6**	**-**	**96**
Basic Total	**146**	**2,441**	**219**
Supplemental Pensions included above		**10**	

The average age of the 140 beneficiaries in receipt of lifetime pensions was 78.7 as of March 31, 2014.

[1] Age nearest birthday at March 31, 2014.
[2] These figures include spouses (or estates) currently receiving benefits where the former contributor is deceased.
[3] Including indexing supplements granted through January 1, 2014.

Appendix C Operation of the Fund

The Fund's financial statements are prepared by the Pension Corporation and based on the market or fair values of assets. The day-to-day investment of the Fund is carried out by the British Columbia Investment Management Corporation. We have relied upon the audited financial statements of the fund for purposes of our valuation.

The growth in the Basic Account during the last two years plan years to March 31 is shown below.

Year by Year Change in Basic Account Fund Balance from March 31, 2012 to March 31, 2014

	Basic Account ($,000's)		
	2013	**2014**	**Total**
Opening Fund balance	**1,100,645**	**1,198,633**	**1,100,645**
Plus: Contributions - employees	13,436	13,690	27,126
Contributions - employer	21,082	20,641	41,723
Transfers from other plans	1,385	1,604	2,989
Investment income	97,705	149,281	246,986
Less: Pensions paid	(34,484)	(37,376)	(71,860)
Termination and death benefits	(2,393)	(3,168)	(5,561)
Administration expenses	(1,056)	(931)	(1,987)
Investment expenses	(1,651)	(1,771)	(3,422)
Transfers to other plans	(288)	(508)	(796)
Internal account transfers	4,252	4,493	8,745
Net increase	97,988	145,955	243,943
Closing Fund balance	**1,198,633**	**1,344,588**	**1,344,588**

The change in the fund balance by sub-account from March 31, 2012 to March 31, 2014 is shown below.

	($,000's)			
	Basic Account	Inflation Adjustment Account	Supplemental Benefit Account	Total
Fund balance March 31, 2012	**1,100,645**	**199,051**	**-**	**1,299,696**
Plus: Contributions - employees	27,126	4,537	176	31,839
Contributions - employer	41,723	4,482	435	46,640
Transfers from other plans	2,989	675	-	3,664
Investment income	246,986	44,621	-	291,607
Less: Pensions paid	(71,860)	-	(569)	(72,429)
Termination benefits	(5,561)	(4,030)	-	(9,591)
Administration expenses	(1,987)	-	(42)	(2,029)
Investment expenses	(3,422)	(625)	-	(4,047)
Transfers to other plans	(796)	(536)	-	(1,332)
Internal account transfers	8,745	(8,745)	-	-
Net increase	243,943	40,379	-	284,322
Fund balance March 31, 2014	**1,344,588**	**239,430**	**-**	**1,584,018**

The distribution of assets on March 31 for each of the last two years is summarized below. All figures are taken from the audited financial statements.

	March 31, 2013		March 31, 2014	
	Amount $,000's	**% of total**	**Amount $,000's**	**% of total**
Cash	110	0.0	1	0.0
Contributions receivable	71	0.0	3,448	0.2
Accounts payable and accrued expenses	(2,294)	(0.2)	(781)	(0.0)
Investments in process				
Due from sales	20,539	1.5	-	-
Payable for purchase	(23,665)	(1.7)	(1,909)	(0.1)
Investments (at market value)				
Short-term	34,443	2.4	66,503	4.2
Bonds	353,475	25.0	358,483	22.6
Mortgages	57,733	4.1	41,991	2.7
Canadian equities	156,719	11.1	163,739	10.3
US equities	164,214	11.6	208,853	13.2
International equities	311,098	22.0	368,837	23.3
Private placements	121,016	8.6	74,532	4.7
Real estate	220,349	15.6	223,545	14.1
Infrastructure and renewable resources	-	-	76,776	4.8
Fund Balance	**1,413,808**	**100.0**	**1,584,018**	**100.0**
Comprising: Basic Account	1,198,633		1,344,588	
Inflation Adjustment Account	215,175		239,430	
Supplemental Benefit Account	0		0	

Asset Allocation Policy

The plan's Statement of Investment Policies and Procedures (last amended April 1, 2014) sets out the following minimum, maximum and target allocations:

	Minimum Allocation (%)	Maximum Allocation (%)	Target Mix (%)
Short Term	0	10	2
Mortgages	0	10	5
Nominal Bonds	10	25	18
Real Return Bonds	0	10	5
Fixed Income Sub-total	**20**	**40**	**30**
Canadian Equities	6	19	11
Global Equities	15	35	24
Emerging Markets	2	15	6
Public Equity Sub-total	**25**	**55**	**41**
Real Estate	10	25	16
Real Estate Sub-total	**10**	**25**	**16**
Private Placements	0	12	6
Infrastructure and Renewable Resources ("IRR")	2	15	7
Private Placements and IRR Sub-total	**5**	**25**	**13**
Other	**0**	**5**	**0**

Fund Returns

The fund market values and the total fund returns during the last 10 years are set out below. Our yield calculations are determined assuming that cash flows occur at mid-year. The assumption of mid-year cash flows will distort the results if the weighted cash flows are too far from mid-year. The yields are based on the total net assets of the fund including both invested and non-invested assets (i.e. receivables and payable are included in the asset base to determine yields). The nature of our calculations is such that the results will likely differ somewhat from those produced by performance measurement services who apply more refined techniques. The yields are also shown on the smoothed asset value basis (described in Appendix D).

Historical Market Value Yields

March 31	Market Values ($,000's)			Total Fund Yields on Market Value (%)
	Basic Account	Inflation Adjustment Account	Total Fund	
2005	585,387	137,940	723,327	7.7
2006	677,499	155,262	832,761	14.5
2007	758,585	175,504	934,089	11.4
2008	774,726	178,806	953,532	1.9
2009	694,504	153,457	847,961	(11.4)
2010	795,108	177,461	972,569	13.9
2011	1,023,479	193,998	1,217,477	9.3
2012	1,100,645	199,051	1,299,696	6.7
2013	1,198,633	215,175	1,413,808	8.7
2014	1,344,588	239,430	1,584,018	12.3

Historical Smoothed Value Yields

March 31	Smoothed Values ($,000's)			Total Fund Yields on Smoothed Value (%)
	Basic Account	Inflation Adjustment Account	Total Fund	
2005	566,838	133,569	700,407	4.0
2006	616,424	141,265	757,689	7.6
2007	677,941	156,846	834,787	9.4
2008	746,963	172,398	919,361	10.0
2009	782,849	172,978	955,827	3.6
2010	821,830	183,425	1,005,255	4.5
2011	1,023,795	194,058	1,217,853	6.0
2012	1,077,086	194,790	1,271,876	4.4
2013	1,131,678	203,156	1,334,834	4.9
2014	1,236,647	220,209	1,456,856	9.4

Appendix D Actuarial Basis and Assumptions

Monies contributed to the Plan are deposited in a trust fund. There is not, of course, any guarantee that the assets of the fund will be sufficient at any particular time to meet the liabilities for plan benefits that have accrued up to then. The adequacy of the fund is examined at the time of each actuarial valuation, when the value of the assets on hand is compared with the value placed upon the plan's liabilities according to certain actuarial assumptions. Emerging experience, differing from the assumptions, will result in gains or losses which will be revealed in future valuations.

The going concern valuation assumes that the plan will continue to operate indefinitely, and is used to estimate the funded position of the Plan, and to determine the contributions currently required to be made to the Plan's fund, both to fund the cost of any benefits being earned by members for current service and, in the event there is a funding deficiency, to liquidate the amount of the funding deficiency.

The assumptions that underlie the calculation of the liabilities for the going concern valuation are unchanged from those used for the previous valuation with the exception of the following:

- the going concern mortality table used for members other than those retired on account of disability has been changed to the 100% for males and 95% for females of the rates under the 2014 Public Sector Mortality Table (CPM2014Publ) projected using CPM Improvement Scale B (CPM-B);
- the going concern mortality table used for members who retired on account of disability has been changed to 75% for males and females of the mortality rates (applicable in 2012) for similar retirees used for the valuation of the the Pension Plan for the Public Service of Canada as at March 31, 2011;
- the withdrawal, disability and retirement scale assumptions were updated; and
- the allowance for administration expenses was increased.

A hypothetical wind-up/solvency valuation is intended to reflect the status of the Plan as if it had been wound up on the valuation date and the Plan members had been provided with the benefits specified by the Plan and the *PBSA*. The purpose of this valuation is to show the degree of benefit security provided for all of the Plan members' accrued benefit by the current assets of the pension fund. If the solvency valuation reveals that there is a "solvency deficiency" (as defined in the Regulations), then additional contributions, over and above the contributions required under the going concern valuation, must be made to the Plan (unless a Letter of Credit is secured, or another deficit funding arrangement is approved).

The hypothetical wind-up/solvency valuation reflects current transfer value assumptions and market annuity interest rates; these differ from those required at the time of the previous valuation.

The significant actuarial assumptions used for the going concern valuation are summarized below.

Investment Return	6% per annum (unchanged from previous valuation)
General ("across-the-board") Salary Increases	3% per annum (unchanged from previous valuation)
Seniority Salary Increases	annual percentages varying by age and sex
Pension Indexing	future indexing of pensions and deferred pensions ignored, as will be covered by Inflation Adjustment Account future indexing (by inflation) of wage base for disability accruals assumed to be a charge to the Basic Account and to be 2.5% per annum (unchanged from previous valuation) indexing to date is capitalized and forms part of pension liability
Asset Values	assets carried at smoothed values
Costing Method	recommended contributions are based on an accrued benefit approach

More detail with respect the actuarial basis and assumptions is set out below.

Investment return and general salary increase rates

Our actuarial costing method involves projecting future benefit disbursements and contribution and investment income. In such projections, the most significant assumptions are those that are made for the future rates of return to be earned by the fund and the future general salary increases (which are across-the-board increases applying to employees regardless of service, rank or position).

(a) Relationship to excess investment return threshold

The investment return assumption is also significant for another reason. Since 1982, the provisions of the Plan relating to the indexing of pensions provide that the income to be credited to the Inflation Adjustment Account in respect of pensions being paid is determined by reference to the amount "in excess of the interest anticipated in the most recent actuarial valuation". An increase in the investment return assumption, and hence in the excess return threshold, would have at least two effects:

(i) it would reduce the amount of excess investment return allocated to the IAA, and hence reduce the potential for future indexing; and

(ii) it would reduce the cost of the basic non-indexed Plan, provided benefit levels are not changed.

A reduction in the investment return assumption would have the opposite effects. In this context, consistency in the assumptions, from one valuation to the next, takes on added significance.

The previous valuation used a long-term investment return assumption of 6% per annum. As noted earlier, this also becomes the threshold rate used to determine excess investment return transfers to the IAA during the post-retirement period; effectively, this is the same as saying that the Basic Account would earn no more than 6% per annum during the post-retirement period.

(b) Actual returns and asset mix

We have calculated market value returns on the total fund (i.e. Basic plus IAA), including non-invested assets (i.e. receivables, net of payables), net of investment-related expenses, and assuming that all cash flows occur at mid-year, as 8.7% for 2012/13 and 12.3% for 2013/14. At March 31, 2014, approximately 51.5% of the total portfolio was invested in equities and private placements, a further 18.9% in real estate and infrastructure, and the balance of 29.6% in fixed income (including mortgages).

After examining the net average investment return earned by the fund's investments, the yield on investments made in recent years, the likely future trend of investment returns in general, the investment practices, and the provisions of this plan - e.g. the allocation of excess investment income to the Inflation Adjustment Account - we have, following discussions with WorkSafeBC and the Plan Trustees, kept our long-term investment return assumption as 6% per annum for the purposes of this valuation.

The discount rate was determined using Eckler's 2014 funding discount rate model. Our model determined expected long term capital market returns, standard deviations and correlations for each major asset class (universe bonds, Canadian equities, global equities, etc.) by using historic returns, current yields and forecasts. We then stochastically generated projected asset class returns for 1,000 paths over 20 years to create expected returns for each asset class. The simulated going concern expected return was the return at the median of each asset class weighted by the Plan's target asset mix.

Further adjustment is made to reflect the diversification and rebalancing effect (the discipline of rebalancing at intervals to the plan's target asset mix provides a mechanism for "selling high and buying low" that is expected to enhance the fund's return over the long term).

For the purposes of establishing the discount rate used in this report, we have assumed that there will be no added-value returns from employing an active management strategy in excess of the associated additional investment management fees. The investment expense allowance of 0.25% provides for expected future investment management fees (both active and passive).

Based on these key economic expectations over the long term, adjusting for expenses, and taking into account a margin for adverse deviations, the going-concern discount rate assumption has been developed as follows:

	Discount rate
Expected return, before diversification and rebalancing effect	6.45%
Diversification and rebalancing effect	0.30%
Provision for investment related expenses	(0.25%)
Estimated net investment return before margin	**6.50%**
Margin for adverse deviation	(0.50%)
Discount return assumption	**6.00%**

(c) Real return and salary relationships - derive salary assumption

The 6% investment return assumption used in the 2012 valuation was viewed as consisting of a real return component of about 3.5% per annum plus a long-term underlying inflation assumption of about 2.5% per annum. We continued with the same real return component of 3.5% for this valuation and obtain the same long-term underlying inflation assumption of 2.5% per annum.

The general salary increase assumption used in the 2012 valuation was 3% per annum. This was viewed as consisting of the underlying inflation assumption of 2.5% per annum, plus a real salary increase component of 0.5% per annum. We continued with the same real salary increase component of 0.5% and obtain the same general salary increase assumption of 3%.

(d) Implication of assumption interrelationships

During the **post-retirement period**, the investment return is critical, as this is the discount rate for the Basic Account post-retirement liabilities. It also sets the excess investment return threshold that effectively puts a ceiling on the amounts the Basic Account can earn on the portion of the assets that support post-retirement liabilities. For example, if the investment return assumption is 6%, then the excess investment return threshold is 6%, and if the actual long-term returns exceed 6% on average, all of the excess will be transferred to the IAA, i.e. the Basic Account will only retain 6% on those assets.

During the **pre-retirement period**, it is the relationship, i.e. the net difference, between the investment return and general salary increase assumptions that is the key, rather than their absolute levels - projected benefits increase each year by the salary assumption and are then discounted by the investment assumption. The net result is that the liabilities are effectively being discounted by the net difference between the two assumptions. For example, the long-term assumptions we have used in this valuation (i.e. 6% investment return, 3% salary, 2.5% underlying inflation) would produce results similar to those using assumptions of 6.5% investment return and 3.5% salary, with 3% underlying inflation; or 7% investment return and 4% salary, with 3.5% underlying inflation, etc. Thus, the underlying inflation assumption itself is not relevant.

(e) Summary of interrelationships

The 2014 and 2012 annual investment return and general salary increase assumptions, and their underlying economic interrelationships, are summarized below.

	2012 and 2014 valuations
1. Investment return = excess investment return threshold	6.0%
2. Real return rate	3.5%
3. Implied underlying inflation = 1 - 2	2.5%
4. Real salary increase	0.5%
5. General salary increase = 3 + 4	3.0%

(f) Salary Data and Salary Growth Assumption

The salary data provided to us for this valuation were the actual earnings during 2013/14. Based on our understanding of the pattern of salary increases during this period, we used these salary amounts without further adjustment as being equal to the salary rates on the valuation date (this may understate very slightly the actual salary rates at the valuation date). Thereafter, the assumed rates of salary increase are applied continuously during each future year.

Because the assumed rate of salary increase is a long-term assumption, we did not adjust it to reflect any specific future salary increases that are agreed to in the near future. To the extent that the assumed salary increase differs from the actual increases during the coming valuation period, gains or losses will emerge at the next valuation.

(g) YMPE increase

We also assumed that the YMPE under the Canada Pension Plan would increase at the general salary increase rate of 3% per year from its 2014 level of $52,500. In the previous valuation we assumed that the YMPE would increase at the rate of 3% per year from its 2012 level of $50,100.

Pension indexing - Valuation of Basic Account

Indexing supplements on and after January 1, 1984 are on an annual basis and are limited to those amounts that can be appropriately financed by the balances available in the Inflation Adjustment Account. Thus we do not need to allow for future indexing in our calculations, as the costs of this indexing are currently fixed at 1% of salaries to be paid by each of the employees and WorkSafeBC. With respect to indexed supplements granted through January 1, 2014, the present values have been included in the actuarial liabilities for pensions in the course of payment and thus form part of the determination of the recommended contribution.

With regard to the vested pensions of members who have terminated employment, the amounts of deferred pensions quoted to us include indexing during the deferred period to date. We understand that such transfers from the Inflation Adjustment Account do not occur until retirement (theoretically, such transfers should be made on an annual basis as the indexing occurs, so as to reduce the inter-generational transfer of the costs of such indexing). We have therefore adjusted the deferred pension amounts to remove this indexing so that the Basic Account liability is aligned with the allocation of assets between the Basic and IAA accounts.

The indexing of salaries before retirement in the case of employees on long-term disability is, on the other hand, a charge to the Basic Account rather than to the Inflation Adjustment Account. Accordingly, in valuing the deferred pensions for those members currently on long-term disability, we have made an allowance for this by applying an escalation assumption (at the full underlying inflation assumption) of 2.5% per annum during the deferral period to retirement.

Asset values

The fund's audited financial statements record assets on a market value basis. As in previous valuations, we applied a smoothing technique for purposes of the previous actuarial valuation by adjusting the market values over a five year period. We believe a smoothing approach is appropriate as it would cushion the actuarial valuation results against the dramatic swings in market value that can occur.

To determine the smoothed value of assets, we first determine the actual return on the basis of market values during the year after allowing for the net contributions minus benefits and non-investment expenses. We then determine an assumed return for the year at a rate equal to the assumed underlying real interest rate plus the year-over-year change in the consumer price index. The difference between the two returns is then spread over a five year period, recognizing one-fifth of it in each of the current and four succeeding years. This approach effectively spreads the difference between (a) the total investment return (including both realized and unrealized capital changes) and (b) a hypothetical return based on a long-term real interest rate, over a five year period.

The application of this approach to the total fund yields the following results:

Total Fund Smoothing

	2011/12	2012/13	2013/14
1. Mar-over-Mar increase in CPI	1.9%	1.0%	1.5%
2. Base return = (1) + 3.5%	5.4%	4.5%	5.0%
Year-end asset values - ($,000's)			
3. Market value	1,299,696	1,413,808	1,584,018
4. Smoothed value	1,271,876	1,334,834	1,456,856
5. Ratio of (4) ÷ (3)	0.979	0.944	0.920
Annual returns			
6. Market value	6.7%	8.7%	12.3%
7. Smoothed value	4.4%	4.9%	9.4%

Using the relationship between the market and adjusted values shown in line 5 above, and applying this relationship to the Basic Account and Inflation Adjustment Account balances, we get:

Basic Account ($,000's)	**March 31, 2014**
8. Market value	$1,344,588
9. Smoothed value	$1,236,647
10. Ratio of (9) ÷ (8)	0.920
Inflation Adjustment Account ($,000's)	
11. Market value	$239,430
12. Smoothed value	$220,209
13. Ratio of (12) ÷ (11)	0.920

The figures above indicate that the smoothed asset value is 8.0% lower than the market value as at March 31, 2014. This is a significant increase in smoothing cushion relative to the last valuation, when the smoothed asset value was 2.1% lower than the market value. The increase is primarily due to the relatively high market value returns during the 2-year inter-valuation period. While the financial position of the plan has improved significantly due to the performance of the assets on a market value basis, it has only improved modestly on a smoothed basis. This difference illustrates the volatility of the assets, and the dampening effect of the smoothing process.

Mortality

(a) The incidence of mortality both prior to and after retirement (other than employees retired on account of disability) was assumed to be in accordance with 100% for males and 95% for females of the rates in 2014 Public Sector Mortality Table (CPM2014Publ), projected using CPM Improvement Scale B (CPM-B).

The underlying table is based on the results of a study of Canadian specific pension plan mortality, which was published by the Canadian Institute of Actuaries in February 2014. The 2014 Public Sector Mortality Table is anticipated to be commonly used for valuations of public sector pension plans where the amount of data relating to actual mortality experience of the specific plan is of limited statistical significance and there is no reason to believe mortality experience for the plan will differ significantly from that of other plans. We believe, however, that the mortality experience of this Plan is likely to be similar to the mortality experience of the BC Public Service Pension Plan, and that it is reasonable for this Plan to use the same mortality assumption. Therefore, we have adjusted the rates from the 2014 Public Sector Mortality Table to reflect the experience of BC Public Service Pension Plan, as reported in their March 31, 2014 valuation, specifically 100% for males and 95% for females.

The previous valuation used 65% for males and 75% for females of the respective base rates in the 1994 Group Annuity Mortality Table.

For deferred vested pensions, mortality was ignored during the deferral period before retirement. This same assumption was made in the previous valuation.

(b) For employees retired on account of disability we assumed 75% for males and females of the mortality rates (applicable in 2012) for similar retirees used for the valuation of the Pension Plan for the Public Service of Canada as at March 31, 2011. The previous valuation used 85% for males and females of the mortality rates (applicable in 1997) for similar retirees used for the valuation of the Pension Plan for the Public Service of Canada (previously referred to as the Canadian Public Service Superannuation Plan) as at March 31, 1996.

The above rates are the same as those used for employees retired on account of disability in the March 31, 2014 actuarial valuation under the BC Public Service Pension Plan.

The change in mortality rates was made to allow for increased longevity of members.

Withdrawal

We examined the rates of withdrawal for reasons other than death, retirement or disability over the period April 1, 2012 to March 31, 2014 and compared this with the experience observed and the rates used for previous valuations. We made modest changes to the withdrawal rates used for the previous valuation, by adopting the following multiples of those rates:

Multiples Applied to 2012 Withdrawal Rates

	In the first 3 years of service			After 3 years of service
	1st year	2nd year	3rd year	
Males	105%	100%	100%	105%
Females	105%	100%	100%	100%

Sample withdrawal rates are shown in the following tables. The withdrawal rates applicable in the first 3 years of service include terminations from disability.

A. Withdrawal Rates Applicable in the First 3 Years of Service

	2014 valuation			2012 valuation		
Age at entry	**1st year**	**2nd year**	**3rd year**	**1st year**	**2nd year**	**3rd year**
Males						
20	.161	.141	.136	.153	.141	.136
30	.083	.086	.089	.079	.086	.089
40	.076	.075	.062	.072	.075	.062
50	.061	.051	.055	.058	.051	.055
Females						
20	.102	.122	.147	.097	.122	.147
30	.096	.122	.127	.091	.122	.127
40	.067	.074	.053	.064	.074	.053
50	.054	.060	.049	.051	.060	.049

B. Withdrawal Rates Applicable After 3 Years of Service

	2014 valuation		2012 valuation	
Attained age	**Males**	**Females**	**Males**	**Females**
23	.128	.118	.122	.118
33	.045	.069	.043	.069
43	.022	.029	.021	.029
53	.013	.013	.012	.013

The withdrawal rates we have used do not extend past age 54. They are the same as those used for the March 31, 2014 valuation under the BC Public Service Pension Plan, as we believe that the withdrawal experience of this Plan is likely to be similar to the experience of the BC Public Service Pension Plan, and that it is reasonable for this Plan to use the same assumption.

Disability

The Plan provides for either the payment of a disability pension from the Plan or, for employees receiving long-term disability benefits, the continued accrual of pension benefits. We examined the combined experience of employees going on disability pensions and on long-term disability and retained the rates used in the previous valuation. Since most employees receive continuing disability service credits rather than an immediate pension, we have continued to value the disability cost for active employees as a deferred pension (indexed before retirement) with continued accrual of service, rather than as an immediate pension.

We have continued to assume that the deferred pensions would commence at age 65.

Sample disability rates are shown in the following table. No direct allowance is made for the possibility of an individual recovering from disability prior to retirement - the rates used have been reduced from the observed disability incidence to implicitly allow for such recoveries. The rates adopted are the same as those used for the March 31, 2014 actuarial valuation for the BC Public Service Pension Plan, as we believe that the disability experience of this Plan is likely to be similar to the experience of the BC Public Service Pension Plan, and that it is reasonable for this Plan to use the same assumption.

Sample Disability Rates

Age	2014 Valuation		2012 Valuation	
	Males	Females	Males	Females
25	.0003	.0001	.0003	.0002
35	.0004	.0011	.0005	.0011
45	.0023	.0036	.0024	.0037
55	.0073	.0098	.0066	.0102

The rates used for the 2014 valuation are 190% for males and 165% for females of the respective rates used for the valuation of the Pension Plan for the Public Service of Canada as at March 31, 2011. The previous valuation used 150% for males and 160% for females of the respective rates used for the valuation of the Pension Plan for the Public Service of Canada (previously referred to as the Canadian Public Service Superannuation Plan) as at March 31, 2005

Retirement

We examined the 2012-2014 retirement experience and compared this with the experience observed in our previous analyses of the retirement rates and with the rates used in the previous valuation. In general, the actual experience for members retiring before age 60 (either reduced or unreduced) shows fewer retirements with the exception of males not meeting the rule of 80. We gave partial recognition to the observed experience by making modest adjustments to the rates previously used.

The rates used in this and the previous valuations, are as follows:

Rates of Retirement

Age	Service	2014 valuation		2012 valuation	
		Males	Females	Males	Females
For unreduced retirement pensions					
55 - 59	rule of 90	.45	.70	.50	.70
60	10	.26	.32	.26	.30
61	10	.18	.23	.18	.23
62	10	.18	.23	.18	.23
63	10	.21	.18	.21	.18
64	10	.26	.24	.26	.26
65	0	1.00	1.00	1.00	1.00
For reduced early retirement					
55 - 59	at least 10 years, but not rule-of-80	.06	.06	.06	.08
55 - 59	rule-of-80	.10	.12	.12	.14

Even though pensions (unreduced and reduced) are available with less than 10 years of service, we have continued to apply the retirement rates before age 65 only to those with 10 or more years of service, on the assumption that those with fewer than 10 years would not retire until the age 65.

Seniority salary scales

Seniority salary increases are in addition to the general salary increases and are intended to reflect increasing seniority, recognition of merit and promotion. We examined the seniority salary scales based both on the earnings history of the active members during the 2 year period ended March 31, 2014 and on the graduated average salaries of the active members as of March 31, 2014, and compared these with the experience observed and rates used in the previous valuation. Based on these investigations we decided to continue with the previous salary scales.

The annual seniority increases are assumed to reduce with age. Sample seniority increase assumptions at key ages are shown below. The assumptions represent the assumed seniority increase in the next year. Note that these rates are the same as those used for the previous valuation, but that valuation report showed the rates expressed as a proportion of earnings at age 65.

Sample Seniority Salary Rate Increases

	2014 and 2012 valuations	
Age	**Males**	**Females**
25	.037	.029
35	.016	.015
45	.007	.009
55	.003	.004
65	.000	.000

Proportion of eligible terminating employees electing a vested pension

Effective January 1, 1998, locking-in of vested pensions occurs after 2 years of service, in respect of all service credits. We have therefore valued all vested terminations as vested pensions. The same assumption was made in the previous valuation.

The balance of the terminating employees (i.e. those not vested) is assumed to elect a refund of contributions with interest.

Proportions of contributors married at death

Since the pre-retirement death benefit is 100% of the commuted value of the earned pension, the benefit does not differ by single vs. married status, and thus this assumption is not relevant.

Expenses

Administration expenses are paid out of the pension fund. These amounts (excluding investment-related expenses) totalled 0.48% and 0.42% of salaries for the 2012/13 and 2013/14 fiscal years respectively. Projected expenses provided by the Pension Corporation for the next few years indicate that estimated administration expenses will remain at a similar level as in the past two years. Accordingly, we increased the expense provision from 0.33% of payroll used in the previous valuation to 0.45% of payroll. This provision is added to the current service cost.

The investment management fees are excluded from our analysis above. They are reflected in the long-term investment return assumption.

Refunds

We continued with the interest assumption used for accumulation and refunds of employee contributions to be 1.5% less than the valuation interest assumption, i.e. at 4.5% per annum. This allows for the *PBSA*-related practice whereby the refund interest rate is set equal to an average of 5-year bank-term-deposit rates (which are assumed to be 1.5% less than fund earnings).

Recognition of child-rearing periods for pension eligibility

We assumed this would only affect female members, and that, on average, it would increase the member's contributory service (which is used for determining pension eligibility) by 2 years; there would, of course, be no increase to the member's pensionable service (which is used for determining pension amounts). The impact of this would be to reduce the eligibility requirement for unreduced pensions between ages 55 and 59, from a rule-of-90 to a rule-of-88. We assumed that there would be no impact on the eligibility assumptions made for other benefits. The same assumption was made in the previous valuation.

Voluntary contributions

As in the 2012 valuation, this is not a material figure, and we have ignored it in the valuation balance sheet.

Maximum pension rule

The tax-registered provisions in Part 1 of the pension plan limit the amount of pension as required by the *ITA*, in respect of service after 1991. The maximum annual pension currently permitted is the lesser of:

(i) $2,770.00 in 2014 multiplied by the years of service (adjusted as described below); and

(ii) 2% multiplied by the years of service further multiplied by the average of the best 3 years of remuneration paid to the member.

While the Plan applies the *ITA* limits only in respect of service after 1991, we have, for ease of calculation, assumed that this limit applies on all service; this assumption does not affect the current service costs, but the accrued liabilities will be slightly understated. The Plan also imposes a 35 year cap on accruals at the above maximum rate, which we have applied.

For an individual in this Plan to be currently affected by the $2,770.00 maximum, the final average salary must be very high; while current salaries are not such as to cause many problems, the salaries projected in the future through application of the assumed salary increase rates outlined above are such that more individuals would be limited. However, under the income tax rules, the flat $2,770.00 limit is automatically indexed each year after 2014 in accordance with increases in the average wage (at the previous valuation the corresponding dollar limit was $2,646.67). Accordingly, we have applied a 3% per annum increase to the $2,770.00 limit after 2014 (the same per annum increase as the previous valuation).

While the Part 1 provisions of the Plan limit the normal formula benefits to the *ITA* maxima, the excess benefits are paid under the Part 2 provisions via the Supplemental Benefit Account. Even though no assets are to be accumulated in this account, WorkSafeBC may still need to recognize a liability for these excess benefits in its financial statements for the Accident Fund. Accordingly, we have also calculated the liabilities and costs ignoring the *ITA* limits.

It should also be noted that, in the tax-limited results, we valued the deferred vested pensions in full as provided to us, i.e. we were unable to carve out any "excess" portions. This will slightly overstate the accrued liabilities, but the impact should be minimal when combined with the slight understatement mentioned above resulting from applying the *ITA* limits on all service.

Treatment of Inflation Adjustment Account

Our valuation of the liabilities deals primarily with the basic non-indexed benefits covered under the Basic Account; the Inflation Adjustment Account is "ignored" on the basis that it is akin to a defined contribution or money-purchase account, used to provide indexing. Where there are sufficient monies in the IAA, full CPI indexing is provided; alternatively, if the monies in the IAA cannot provide full CPI indexing, then the amount of indexing is limited to the monies available. In either case, the mechanics are such that the capitalized value of the indexing granted is transferred from the IAA to Basic, each time indexing is granted.

For disclosure purposes in WorkSafeBC's financial statements for the Accident Fund, the Inflation Adjustment Account component is treated as if it is a defined contribution plan, with liabilities set equal to the assets, i.e. the Inflation assets are added to both the Basic assets and liabilities. The net effect of this is neutral on the actuarial surplus (unfunded liability) calculated for the Basic Account. Consistent with the 2012 valuation, we included the Inflation Adjustment Account assets with offsetting liabilities exactly equal to these assets.

Testing of Income Tax maximum surplus and contribution limits

The foregoing assumptions deal with the regular liabilities under the Basic Account. For purposes of testing the Plan surplus and current service contribution requirements against the maximum permissible *ITA* limits, we also carried out a subsidiary valuation assuming the pensions are fully indexed to inflation. In this scenario, we made the following changes to the regular valuation:

- We combined the assets in the Basic and Inflation Adjustment Accounts, using a smoothed asset value of $1,456,856,000;
- We applied an indexing assumption equal to the full assumed underlying inflation rate, i.e. 2.5% per annum. This indexing rate was applied both to pensions after retirement and during the pre-retirement period in the case of deferred vested pensions and disability salary accruals. Indexing is applied annually, in arrears; and
- In determining the employer portion of the current service costs, we combined the employee contributions to the IAA with those to the Basic Account, i.e. we assumed a total employee contribution rate of 7% + 1% = 8% (reduced by 1.5% of salaries below the YMPE).

Actuarial cost method

We have continued with the approach used in the previous valuation, namely, the Accrued Benefit Actuarial Cost Method. Under this approach, the actuarial present value of benefits earned for service before the valuation date is compared with the assets on hand to determine the unfunded actuarial liability or actuarial surplus, as the case may be.

With regard to current service costs, the actuarial present values for benefits to be earned for service after the valuation date are calculated only for the one year following the valuation date to determine the rate of contribution required to finance currently accruing benefits. This cost will rise as an individual ages and gets closer to retirement. For the group as a whole this step-rate increase in cost is mitigated by the addition of younger new entrants to the plan but, to the extent the group ages, costs can be expected to rise.

The intent of this method is to accumulate assets systematically to provide security for the benefits provided in respect of service that has already been rendered, without further recourse to any other assets; of course, such security is not guaranteed.

Hypothetical Wind-up/Solvency valuation

Under the *PBSA*, certain certifications are required with respect to the hypothetical wind-up/solvency position of the Plan. These are needed for a variety of reasons, including: (a) to ensure minimum funding requirements are met, and (b) to determine whether transfers of commuted values in respect of terminating or deceased members can be made in full, immediately, as these may be restricted by the "solvency" position of the Plan.

For this purpose, liabilities must be determined on a "plan termination basis". The Standards of Practice – Practice Specific Standards for Pension Plans issued by the Canadian Institute of Actuaries require the actuary to postulate a scenario upon which a hypothetical wind-up valuation is based. For this purpose, when calculating the wind-up/solvency liabilities, we have assumed the plan has terminated due to the insolvency of the Plan sponsor (although we believe this scenario is very unlikely). Note that the liabilities would be the same even if a different termination scenario was used.

As with the prior valuation, we used the unit credit method. Under this method, the actuarial liabilities consist of the present value of pensions in payment and vested deferred benefits for terminated employees.

The Plan text indicates that for purposes of testing the *PBSA* solvency rules, benefits are to be calculated as follows:

- all active members are deemed to be terminated and 100% vested;
- benefits are calculated only on the basis of earnings and service frozen at the valuation date;
- future indexing should be ignored, both before and after retirement; and

- the Inflation Adjustment Account continues to be recognized on a defined-contribution basis with liabilities set equal to the assets, as for the going-concern valuation.

Accordingly, we have applied the following changes to the actuarial assumptions in determining the hypothetical wind-up/solvency status of the Plan as at March 31, 2014:

- all non-terminated members assumed to be terminated and 100% vested in their accrued pensions as at March 31, 2014;
- for those inactive and deferred vested members with incomplete data, we assumed their hypothetical wind-up/solvency liability to be equal to twice the employee regular contributions with interest balance;
- for all other active, disabled and deferred vested members, liabilities are determined as deferred vested pensions payable at age 55 if the member is now below age 55, or as an immediate pension if the member is now over age 55, subject to the regular 3% or 5% per year early retirement reductions below age 60, as applicable, based on actual average earnings over the last 5 years (or such shorter period of plan membership) and the 2013 YMPE of $51,100;
- interest: 2.9% per annum for 10 years, 4.4% per annum thereafter for actives, deferred vested and LTD members below age 55 (2.5%/4.0% was used at the previous valuation); for pensioners and other non-retired members aged 55 and over, we used a flat rate of 3.6% (based on a duration for these liabilities of 10.1 years) throughout as a proxy to immediate annuity purchase rates (a flat rate of 3.45% was used in 2012);
- mortality: UP-94 Generational Mortality Table; for non-retired members and former members, mortality is ignored before assumed retirement date (unchanged from the 2012 valuation); and
- wind-up expenses: $1,200,000 assumed; subtracted from the assets (unchanged from the 2012 valuation).

As with the 2012 valuation, we have continued to use market value of assets for the hypothetical wind-up/solvency valuation.

Emerging Experience

It should be noted that emerging experience differing from the assumptions described above will result in gains or losses that will be revealed in future valuations.

Appendix E Going Concern Valuation Balance Sheet

The results of the valuation as of March 31, 2014 with respect to benefits accrued for service to the valuation date are set out below. The March 31, 2012 results are shown for comparison. The cost of benefits for future service subsequent to the valuation date is dealt with in Appendix F.

The Basic Account liabilities include the capitalized value of indexing supplements granted through January 1, 2014, but exclude future indexing to be granted after the valuation date; the Inflation Adjustment Account liabilities are set equal to the Inflation Adjustment Account assets.

Going Concern Valuation Balance Sheet

($,000's)	March 31, 2014	March 31, 2012
Assets (smoothed value)		
1. Basic Account	1,236,647	1,077,086
2. Inflation Adjustment Account	220,209	194,790
3. Total Assets	**1,456,856**	**1,271,876**
Liabilities		
4. Actuarial present values of Basic Account (non-indexed):		
(a) pensions in payment	416,320	349,354
(b) inactive employees (deferred pensions and refunds)	31,169	27,315
(c) disabled employees	54,047	44,583
(d) active employees	492,870	454,974
5. Basic Account sub-total	994,406	876,226
6. Inflation Adjustment Account	220,209	194,790
7. Total Liabilities	**1,214,615**	**1,071,016**
Surplus (Deficit)		
8. Surplus (deficit) = 3 - 7	**242,241**	**200,860**
9. Going Concern Funded Ratio = 3 / 7	**119.9%**	**118.8%**

If the market value of assets were to be substituted for the smoothed value, the surplus would increase to $350,182,000.

Excess (Income Tax) Benefit Liabilities

The above liabilities and surplus recognize the maximum Income Tax limits on benefits from the registered portion of the pension plan. If these limits are ignored (the excess benefits are currently provided through the Supplemental Benefit Account, which does not accumulate any assets), the liabilities would increase by $13,175,000 and the surplus would reduce to $229,066,000.

Reconciliation with Previous Valuation

The previous valuation at March 31, 2012 indicated an actuarial surplus of $200,860,000, compared to the surplus of $242,241,000 for this valuation. The change in actuarial position can be traced in an approximate fashion (with all values adjusted for interest to March 31, 2014) as follows:

Change in Actuarial Position

		Approximate Effect on Surplus ($,000's)
1. Surplus at March 31, 2012		**200,860**
2. Interest @ 6% on item 1 for 2 years		24,826
3. Investment income (on smoothed values) greater than 6%		26,057
4. Actual salary and YMPE increases to March 31, 2014 lower than previously assumed		9,301
5. Actual WorkSafeBC contributions higher than current service cost rate		614
6. Assumption changes		
pre-retirement mortality/withdrawal/disability rates	986	(23,395)
post-retirement mortality rates	(26,298)	
retirement rates	1,917	
7. Pensioner mortality gain/(loss)		(402)
8. Other factors including changes in plan membership and other differences between actuarial assumptions and actual experience during the inter-valuation period		4,380
9. Surplus at March 31, 2014		**242,241**

The main sources of gain/loss were as follows:

- The smoothed rate of return over the inter-valuation period was about 7.1% per annum, compared to the 6% per annum going concern investment return assumption, generating a gain of $26.1 million (item 3).
- As discussed in Appendix B, actual cumulative salary increases over the inter-valuation period were lower than the valuation assumption. Combined with the lower YMPE increases, this generated a gain of $9.3 million (item 4).
- WorkSafeBC contributed to the Basic Account at a rate of 10.61% integrated to December 31, 2012 and 10.13% integrated from January 1, 2013. The employees contributed at a rate of 7% integrated

during the inter-valuation period. The total regular contributions were more than the current service cost indicated by the previous valuation, increasing surplus by about $0.6 million (item 5).

- The assumption changes combined to decrease the surplus by about $23.4 million. The bulk of this increase arose from the reduction of the post-retirement mortality assumption to reflect the expected improved longevity of pensioners (item 6), partially offset by changes to the retirement, withdrawal and disability rate as a result of the recent history of gains on the previous assumptions.
- There was a small pensioner mortality loss of about $0.4 million (item 7).
- The remainder, an increase in surplus of about $4.4 million, is due to changes in plan membership and other miscellaneous experience gains and losses.

Thus the major factors leading to the net increase in the surplus may be summarized as: investment income earned at a rate higher than the rate assumed in the previous valuation, partially offset by the valuation assumption changes.

Sensitivity Analysis

Below we show the going concern actuarial liability and the current service cost as at March 31, 2014 based on a one percentage point drop in the going concern discount rate assumption. All other assumptions were kept unchanged.

The liability increase per member group is as follows:

Impact on liabilities of 1% drop in discount rates	Going Concern 6.0% ($,000's)	Going Concern 5.0% ($,000's)	Increase ($,000's)
Active members	492,870	580,152	87,282
Disabled members	54,047	64,341	10,294
Terminated members	31,169	35,855	4,686
Pensioners and beneficiaries	416,320	455,622	39,302
Total increase in liabilities			**141,564**

The increase in the current service cost as percentage of salaries (integrated) is as follows (see Appendix F for more details on the current service cost):

Impact on current service cost rate of 1% drop in discount rates	Going Concern 6.0%	Going Concern 5.0%	Increase
Current service cost rate	17.72%	20.98%	3.26%

Appendix F Costs for Future Service

The contribution rate required to fund the Basic Account benefits attributable to service on and after April 1, 2014 is 17.72% of salaries (less 1.5% of salaries up to the YMPE). This rate is calculated using the accrued benefit method.

The total current service cost rate calculated in the previous valuation was 17.13% of salaries (integrated). The change from the 17.13% rate to the 17.72% rate indicated by this valuation can be traced as follows:

Change in Total Basic Account Current Service Rate

	Approximate Effect on Current Service Cost
1. 2012 integrated total Basic Account current service cost rate	**17.13%**
2. Changes in membership profile from 2012 to 2014	0.03
3. Assumption changes:	
- pre-retirement mortality/withdrawal/disability rates	(0.04)
- post-retirement mortality rates	0.53
- retirement rates	(0.05)
- expense allowance	0.12
4. 2014 integrated total Basic Account current service cost rate	**17.72%**

Assuming that employee contributions continue to be made at the rate of 7% of salaries (integrated), WorkSafeBC's portion would be is 10.72% (integrated).

The 17.72% integrated rate deals only with the combined employer and employee current service contribution rates for the Basic Account. Both WorkSafeBC and the employees are, in addition, required to pay 1% of salaries each to the IAA, for a total of 2%.

On the basis of the valuation data and assumptions, and assuming that the covered active membership remains constant, the projected payroll rate as at March 31, 2014 is $221,389,000. The current service costs calculated as at March 31, 2014, and based on that payroll, are as follows:

Current Service Cost

	Basic Account		IAA		Total
	Rate	**$ at March 31, 2014**	**Rate**	**$ at March 31, 2014**	**$**
Employees	7.0% integrated	13,359,000	1.0%	2,214,000	15,573,000
WorkSafeBC	10.72% integrated	21,595,000	1.0%	2,214,000	23,809,000
Total	**17.72% integrated**	**34,954,000**	**2.0%**	**4,428,000**	**39,382,000**

The foregoing amounts recognize the maximum Income Tax limits on benefits. If these limits are ignored, the 17.72% integrated total Basic Account current service cost would increase by 0.12%, to 17.84% integrated.

Appendix G Hypothetical Wind-up/Solvency Valuation

The results of the wind-up/solvency valuation as of March 31, 2014 on the basis of the solvency assumptions described in Appendix D are set out below. Comparative results for March 31, 2012 are also included.

Hypothetical Wind-up/Solvency Balance Sheet as at March 31, 2014

($,000's)	**March 31, 2014**	**March 31, 2012**
Basic Account Assets		
1. Basic Account Assets at Market Value	1,344,588	1,100,645
2. Wind-up expenses	(1,200)	(1,200)
3. Hypothetical Wind-up/Solvency Assets[1]	**1,343,388**	**1,099,445**
Basic Account Liabilities		
4. Actuarial present values of:		
(a) pensions in payment	489,823	420,192
(b) inactive employees (deferred pensions and refunds)	42,708	40,834
(c) disabled employees	76,290	70,037
(d) active employees	643,992	632,565
5. Hypothetical Wind-up/Solvency Liabilities	**1,252,813**	**1,163,628**
Surplus (Deficiency)		
6. Hypothetical Wind-up/Solvency surplus/(deficit) = 3 - 5	**90,575**	**(64,183)**
7. Solvency ratio = 3 / 5	**107.2%**	**94.5%**

On the basis of the solvency methods and assumptions described in Appendix D, in our opinion, the value of the plan assets would be greater than the actuarial liabilities if the plan were to be wound up on the valuation date. The surplus would have been $90,575,000, based on the market value of assets.

Solvency Ratio and Transfer Deficiencies

The solvency ratio for the plan is 107.2%, which is greater than 100%. Under the *PBSA*, if a plan has a solvency deficiency (a "solvency ratio" less than 100%), there are limits on the amounts that may be transferred out of the Plan. Since the solvency ratio is greater than 100%, amounts transferred from the Plan may be paid in full.

[1] The IAA assets and liabilities, which are equal to the assets, have not been included in the solvency balance sheet, because the indexing is not a guaranteed benefit. Including the IAA would not affect the solvency deficiency, but would increase the solvency ratio.

Sensitivity Analysis

Below we show the impact on the solvency liabilities as at March 31, 2014 of a one percentage point drop in the discount rate assumption.

- interest for those assumed to take a commuted value – reduced from 2.9% per annum for 10 years and 4.4% per annum thereafter to 1.9% and 3.4% respectively;
- interest for those assumed to take an annuity – reduced from 3.6% per annum to 2.6% per annum.

All other assumptions were kept unchanged.

Impact on liabilities of 1% drop in discount rates	Solvency 2.9% for 10 years/4.4% thereafter and 3.6% ($,000's)	Solvency 1.9% for 10 years/3.4% thereafter and 2.6% ($,000's)	Increase ($,000's)
Active members	643,992	743,810	99,818
Disabled members	76,290	86,569	10,279
Terminated members	42,708	48,697	5,989
Pensioners and beneficiaries	489,823	542,128	52,305
Total increase in liabilities			**168,391**

Incremental Cost

In accordance with the Canadian Institute of Actuaries' Standard of Practice, we have estimated the incremental cost of the solvency liability as at March 31, 2014. This is the expected aggregate change in solvency liability between March 31, 2014 and the next valuation as of March 31, 2017.

The incremental cost as at March 31, 2014 of amounts funded from the Basic Account is $96,834,000. This amount makes no allowance for any pension increases that may be granted over the period. The incremental cost does not impact the funding requirements of the Plan under the *PBSA*, and is for information purposes only.

The expected current service cost contributions towards the Basic Account are $34,954,000 per annum, assuming contributions are increased to the current service cost rates. This is more than the incremental solvency cost over the three year period commencing on the valuation date. In other words, if the solvency experience is as expected we would expect a small improvement in the solvency position as of the next valuation date, assuming no other changes in solvency assumptions and that contributions are made at the current service cost rate.

Appendix H Required Contributions

Current Service Cost

Our calculations indicate that the benefits currently accruing will require total contributions to the Basic Account equal to 17.72% of salaries (integrated); based on the current plan rules, this would be allocated as 7% from employees and 10.72% from WorkSafeBC.

Using the projected pensionable payroll as at March 31, 2014 of $221,389,000, we have estimated that the 17.72% integrated rate will produce an annual contribution to the Basic Account of $34,954,000 for fiscal 2014/2015. This figure will vary, of course, depending upon the actual pensionable payrolls.

The following table sets out the estimated contributions, assuming that contributions are made at the current service cost:

Estimated Current Service Cost

		Basic	IAA
Current Service Cost %			
	Employees	7.0 integrated	1.0
	WorkSafeBC	10.72 integrated	1.0
Current Service Cost $			
	Employees	$13,359,000	$2,214,000
	WorkSafeBC	$21,595,000	$2,214,000
	Total	**$34,954,000**	**$4,428,000**

Minimum Contributions

As the Plan is in a surplus position at March 31, 2014 under both the going concern and the solvency valuations, WorkSafeBC may elect to contribute at lower rate, by applying some of the going concern surplus towards its required contribution.

In such a case, the *PBSA* requires that a buffer is set aside equal to 5% of the Basic Account liability, or $49,720,000. The remaining $192,521,000 of the going concern surplus may be used in part or full to reduce contributions. The maximum contribution reduction permitted by the *PBSA* is the amortization of the remaining surplus over a 5 year period. This amounts to a maximum contribution reduction of 18.7%, which exceeds the current service cost. Hence, WorkSafeBC could elect to take a contribution holiday for 5 years from March 31, 2014 and could also elect to provide the members with a contribution holiday for the same period. All else being equal, this would be expected to reduce the going concern surplus (on the Basic Account) to close to 105%.

Alternatively, WorkSafeBC could elect to reduce contributions to a lesser amount and retain the remaining surplus assets in the fund.

Written notice of any contribution reduction must be provided to the Superintendent and to the plan members.

Maximum Contributions

At WorkSafeBC's option, WorkSafeBC may choose to fund at a higher level than the current service cost stated above. Based on the Plan's surplus position, the maximum current contribution rate is the current service cost on an indexed basis. Including the IAA contributions, the total indexed current service cost is 22.53% (integrated). Assuming employee contributions remain at 8% (integrated; including IAA contributions), the maximum contribution WorkSafeBC can make is 14.53% (integrated).

More details are provided in Appendix I.

Appendix I Maximum Surplus and Contributions - ITA

Section 147.2(2) of the *ITA* limits employer contributions that may be made to a plan if surplus exceeds a certain amount – the Plan becomes revocable if contributions are made when such surplus exists. This surplus threshold is equal to the lesser of (a) and (b), where

(a) = the (defined-benefit, i.e. Basic Account) actuarial surplus, and

(b) = 25% x the (defined-benefit, i.e. Basic Account) actuarial liability

Subsection (c) of Section 147.2(2) of the *ITA* also provides that the benefits taken into account for the purposes of a contribution recommendation "may include anticipated cost-of-living and similar adjustments where the terms of a pension plan do not require that those adjustments be made but it is reasonable to expect that they will be made".

Indexing at full CPI has been provided since January 1, 1984 under the present plan terms, and for many years before that under earlier plan provisions. As discussed earlier, indexing is currently financed on a mixture of a pay-as-you-go basis (from a matching 1% employee/WorkSafeBC contribution for active members), an excess interest basis (interest in excess of the valuation assumption is transferred each year from Basic to IAA in respect of pensioner liabilities), and a "terminally-funded" basis (each year the full capitalized cost of any indexing granted is transferred from IAA to Basic). Thus, it may be considered appropriate for purposes of testing the *ITA* 147.2(2) limits to recognize, in advance, the future indexing of pensions for the present plan membership. Accordingly, we carried out a subsidiary, fully indexed valuation, with modifications to the regular assumptions as described in Appendix D. On this basis, the statement of actuarial position and the future costs shown earlier are revised as shown below (only the summary totals are shown):

Statement of Actuarial Position ($,000's)	Regular Valuation	Fully-Indexed Valuation
Assets (smoothed value)		
1. Basic	1,236,647	n/a
2. IAA	220,209	n/a
3. Total Assets	**1,456,856**	**1,456,856**
Liabilities		
4. Basic sub-total	994,406	n/a
5. IAA	220,209	n/a
6. Total Liabilities	**1,214,615**	**1,290,636**
Surplus (Deficit)		
7. Surplus (Deficit) = 3 - 6	**242,241**	**166,220**
8. Funded Ratio = 3 / 6	**119.9%**	**112.9%**

The following table sets out the costs of future benefits:

	Regular Non-Indexed Current Service Cost		Indexed (Maximum Current Service Cost Contributions)
	Basic	**IAA**	**Basic and IAA Combined**
Future Cost Rates (%)			
Employees	7.0 integrated	1.0	8.0 integrated
WorkSafeBC	10.72 integrated	1.0	14.53 integrated
Total	**17.72 integrated**	**2.0**	**22.53 integrated**
Future Cost $			
Employees	13,359,000	2,214,000	15,573,000
WorkSafeBC	21,595,000	2,214,000	30,029,000
Total	**34,954,000**	**4,428,000**	**45,602,000**

The foregoing results indicate that the $242,241,000 actuarial surplus in the regular valuation reduces to an actuarial surplus of $166,220,000 when the full value of indexing is recognized on an advance-funding basis. WorkSafeBC's required current service contributions also increase from 10.72% Basic (integrated with the YMPE) plus 1% IAA, to a combined requirement of 14.53% (integrated). On the indexed basis, the *ITA* 147.2(2) surplus limit works out to $166,220,000. Thus, the Plan does not have an excess *ITA* surplus, and WorkSafeBC contributions - total Basic plus IAA - may be made at a level not exceeding the current service cost rate (on the indexed basis), i.e. at 14.53% (in addition to the total Basic plus IAA employee contributions).