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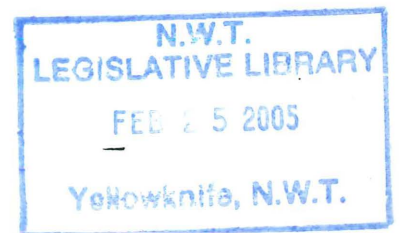


Actuarial Report

Northwest Territories
Legislative Assembly

Supplementary
Retiring Allowances
Act

Funding Valuation
As of April 1, 2004



Argentina	Chile	Greece	Malaysia	Puerto Rico	Thailand
Australia	China	Hong Kong SAR	Mauritius	Singapore	United Kingdom
Austria	Czech Republic	Hungary	Mexico	Slovenia	United States
Belgium	Dominican Republic	India	Netherlands	South Korea	Venezuela
Brazil	Republic	Ireland	Philippines	Spain	
Canada	France	Italy	Poland	Sweden	
Channel Islands	Germany	Japan	Portugal	Switzerland	

Preparation of this Actuarial Valuation

Northwest Territories Legislative Assembly Supplementary Retiring Allowances Act

This report on the actuarial valuation of the Northwest Territories Legislative Assembly Supplementary Retiring Allowances Act ('the Plan') as of April 1, 2004 has been prepared for the Board of Management of the Northwest Territories Legislative Assembly, for the purpose of determining the Plan's:

1. Going-concern financial position.
2. Wind-up position.

In conducting the valuation, we have used member information obtained from the Northwest Territories Legislative Assembly as of April 1, 2004, the financial statements prepared by CIBC Mellon as of March 31, 2004 and the actuarial assumptions and methods described in the actuarial assumptions section of this report.

It is our opinion that:

1. The latest date on which the next valuation should be performed is April 1, 2007.
2. The data on which this report is based are sufficient and reliable for the purposes of the valuation.
3. The assumptions used are, in aggregate, appropriate for the purpose of the going concern valuation; emerging experience differing from assumptions will result in gains or losses which will be revealed in future valuations and may cause changes in future contribution levels.
4. The value of the Plan assets would be greater than the actuarial liabilities if the Plan were wound up on the valuation date.
5. The methods employed in the valuation are appropriate for the purposes of the going concern valuation.

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

Hewitt Associates



Kathryn S. Ploc
Fellow of the Canadian Institute of Actuaries



Robert J.W. Vandersanden
Fellow of the Canadian Institute of Actuaries

December 2004

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Summary

Summary

Following are the key results of the April 1, 2004 valuation:

- No Assembly contribution is either required or permitted for the three plan years covered by this report.
- The plan has a Surplus of \$7,417,600 as of April 1, 2004 on a going-concern valuation basis.

Summary (continued)

Going-Concern Valuation Results	As of April 1, 2002	As of April 2004
Past Service		
Actuarial Value of Assets	\$ 22,733,000	\$ 23,095,300
Less: Accrued Liability	<u>14,931,600</u>	<u>15,677,700</u>
Surplus (Unfunded Accrued Liability)	\$ 7,801,400	\$ 7,417,600
As a % of Actuarial Value of Assets	34.3%	32.1%
Current Service		
Total Current Service Cost	\$ 544,100	\$ 458,300
As a % of Participant Salary Base	31.1%	26.1%
Participant Salary Base	\$ 1,749,100	\$ 1,754,000

Personnel Data	As of April 1, 2002	As of April 1, 2004
Active Members	18	18
Retired Members	29 ¹	35 ¹
Terminated Vested Members	<u>0</u>	<u>1</u>
Total	47	54

¹ Includes one child receiving a dependent benefit payable to age of majority or to age 25 if attending school.

Assets and Liabilities

Assets and Liabilities

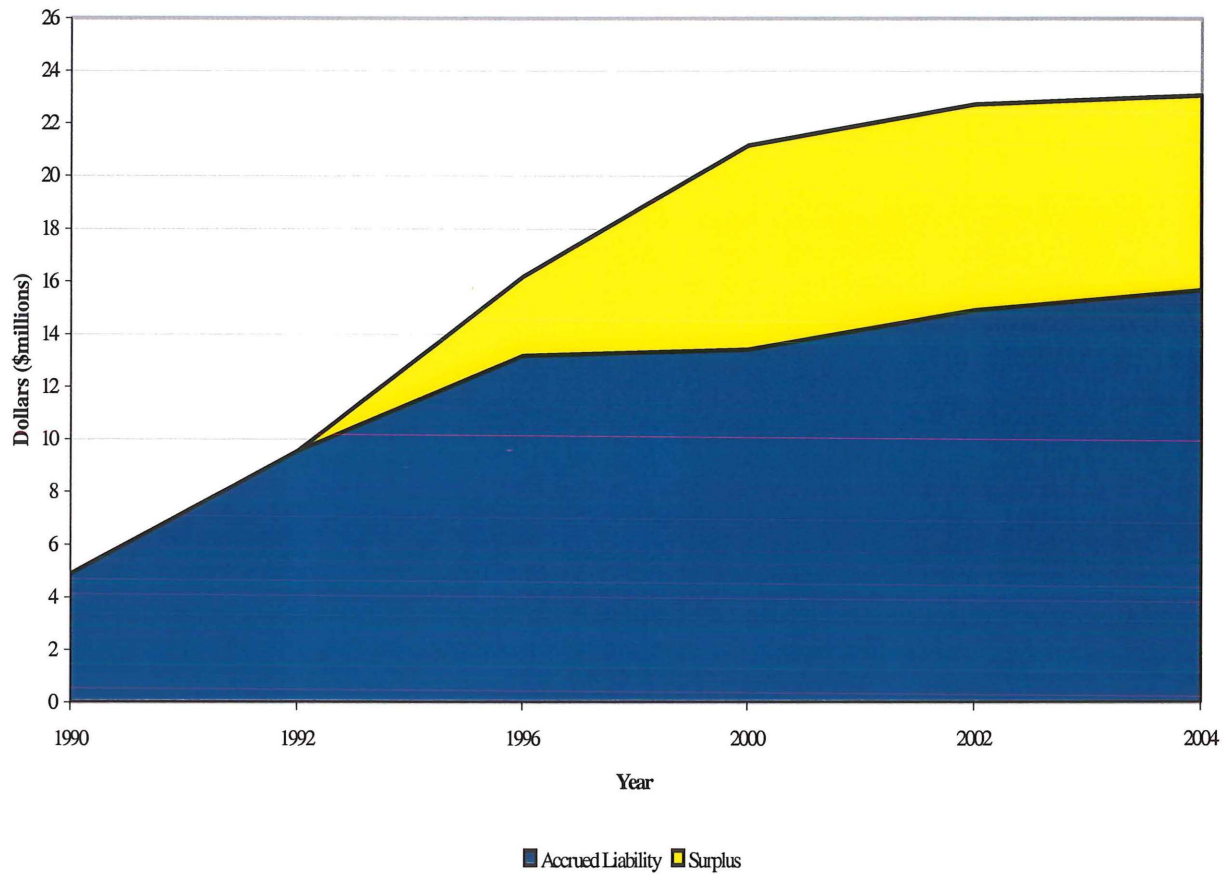
Going-Concern Valuation

A **Going-Concern Valuation** is performed to determine the funded status of the pension plan and the funding requirements for the pension plan treating the plan as a going-concern. Following are definitions of some of the key terms used in reference to the going-concern valuation results;

- The **Actuarial Value of Assets** is the asset value used for valuation purposes. Since neither book value nor market value are necessarily ideal measures, other methods are often used to smooth asset values;
- The **Accrued Liability** is the actuarial present value of benefits earned in respect of service prior to the valuation date. The **Accrued Liability** is calculated using the going concern valuation assumptions summarized in the Actuarial Assumptions section of this report;
- The **Surplus (Unfunded Accrued Liability)** is the difference between the Actuarial Value of Assets and the **Accrued Liability**;
- The **Total Current Service Cost** is the actuarial present value of benefits expected to be earned in respect of service in the current year. **Required Member Contributions** (if any) are deducted from the Total Current Service Cost to determine the **Assembly Current Service Cost**. The Total Current Service Cost is calculated using the going concern valuation assumptions summarized in the Actuarial Assumptions section of this report; and
- **Valuation Compensation** represents pensionable earnings for all active members under the assumed retirement age.

Assets and Liabilities (continued)

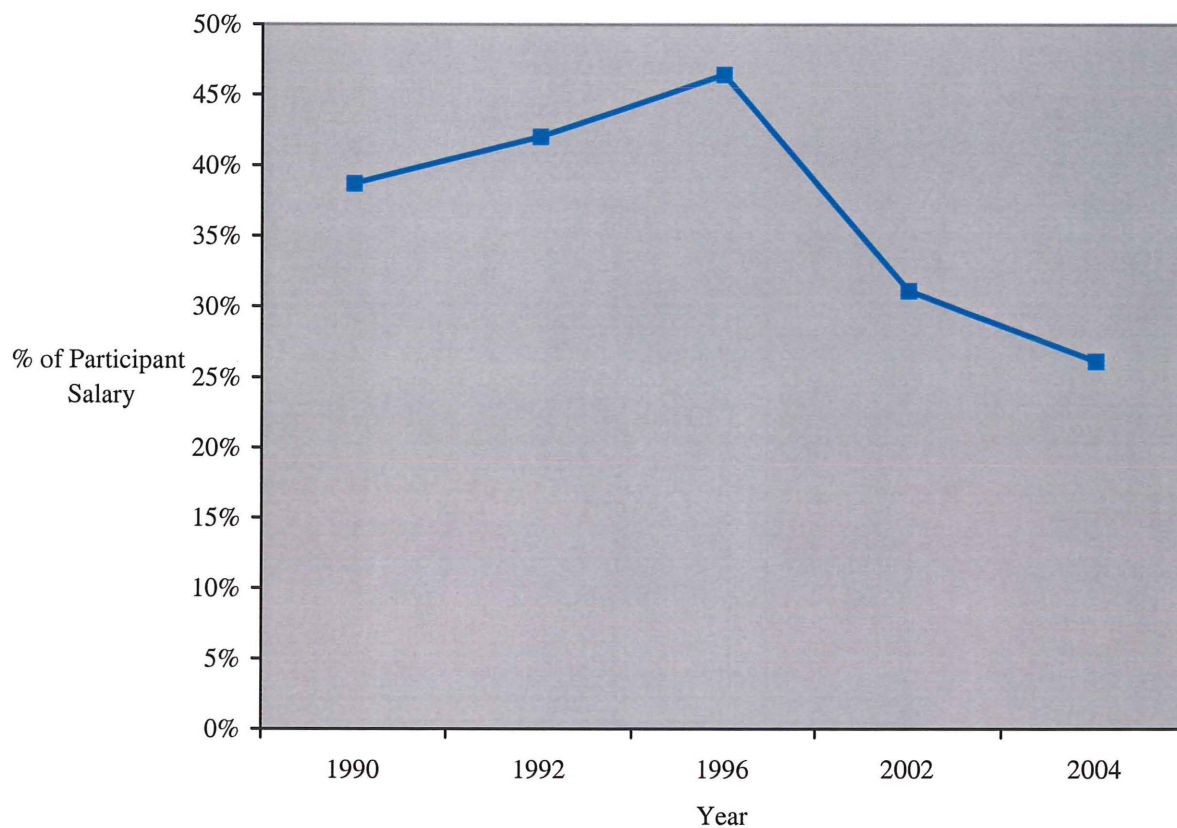
History of Accrued Liability and Surplus



Year	Actuarial Value of Assets (AVA)	Accrued Liability	Surplus	Surplus as a Percentage of AVA
1990	\$ 271,000	\$ 4,872,000	\$ 0	0%
1992	6,551,000	9,549,000	0	0%
1996	16,191,700	13,197,700	2,994,700	18.5%
2000	21,155,400	13,442,200	7,713,200	36.5%
2002	22,733,000	14,931,600	7,801,400	34.3%
2004	23,095,300	15,677,700	7,417,600	32.1%

Assets and Liabilities (continued)

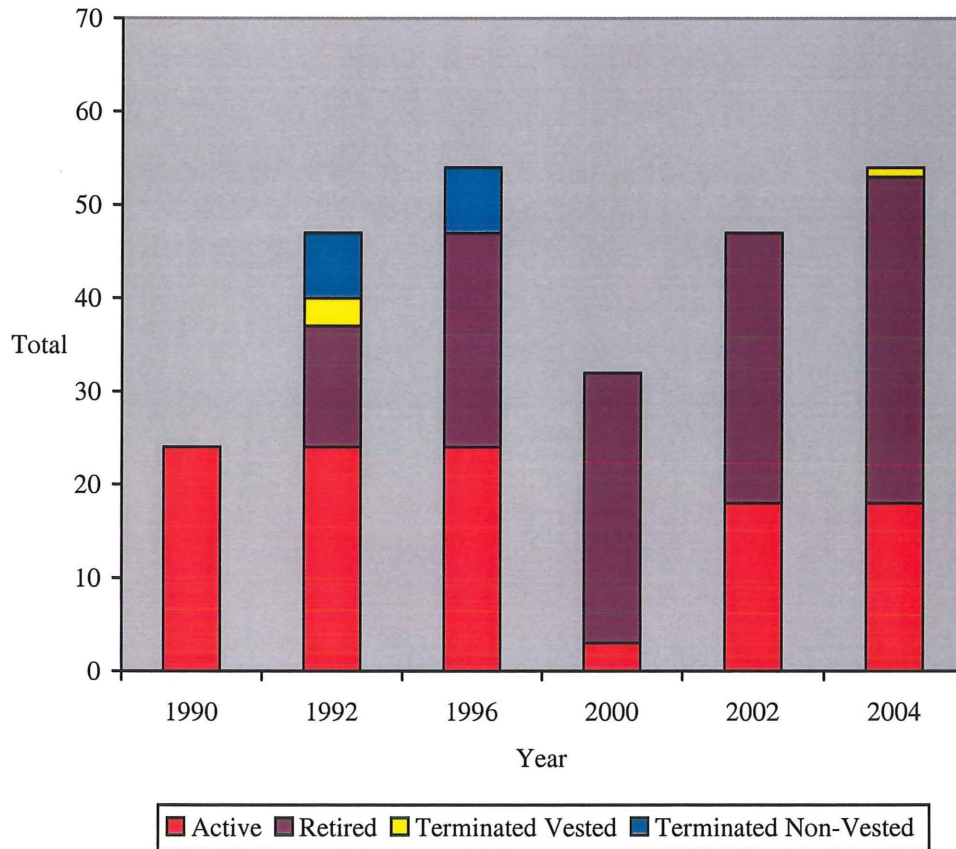
History of Current Service Cost as a Percent of a Participant Salary Base



Year	Current Service Cost	Participant Salary Base	Current Service Cost as a % of Salary
1990	\$ 705,000	\$ 1,824,000	38.7%
1992	810,600	1,928,400	42.0%
1996	233,900	504,400	46.4%
2002	544,100	1,749,100	31.1%
2004	458,300	1,754,000	26.1%

Assets and Liabilities (continued)

History of Distribution of Members



Year	Active Members	Retired Members	Terminated Vested Members	Non-Terminated Vested Members	Total Members
1990	24	0	0	0	24
1992	24	13	3	7	47
1996	24	23	0	7	54
2000	3	29	0	0	32
2002	18	29	0	0	47
2004	18	35	1	0	54

Assets and Liabilities (continued)

The Northwest Territories Legislative Assembly Supplementary Retiring Allowances Act (SRAA) was re-opened in May 2002 for active members. The SRAA includes service from December 7, 1999 and provides pensions in addition to those provided under the Northwest Territories Legislative Assembly Retiring Allowances Act (RAA).

Members of the 14th Assembly were given a one-time opportunity to join the SRAA. Newly-elected members were given the option of joining the plan at the time of their election.

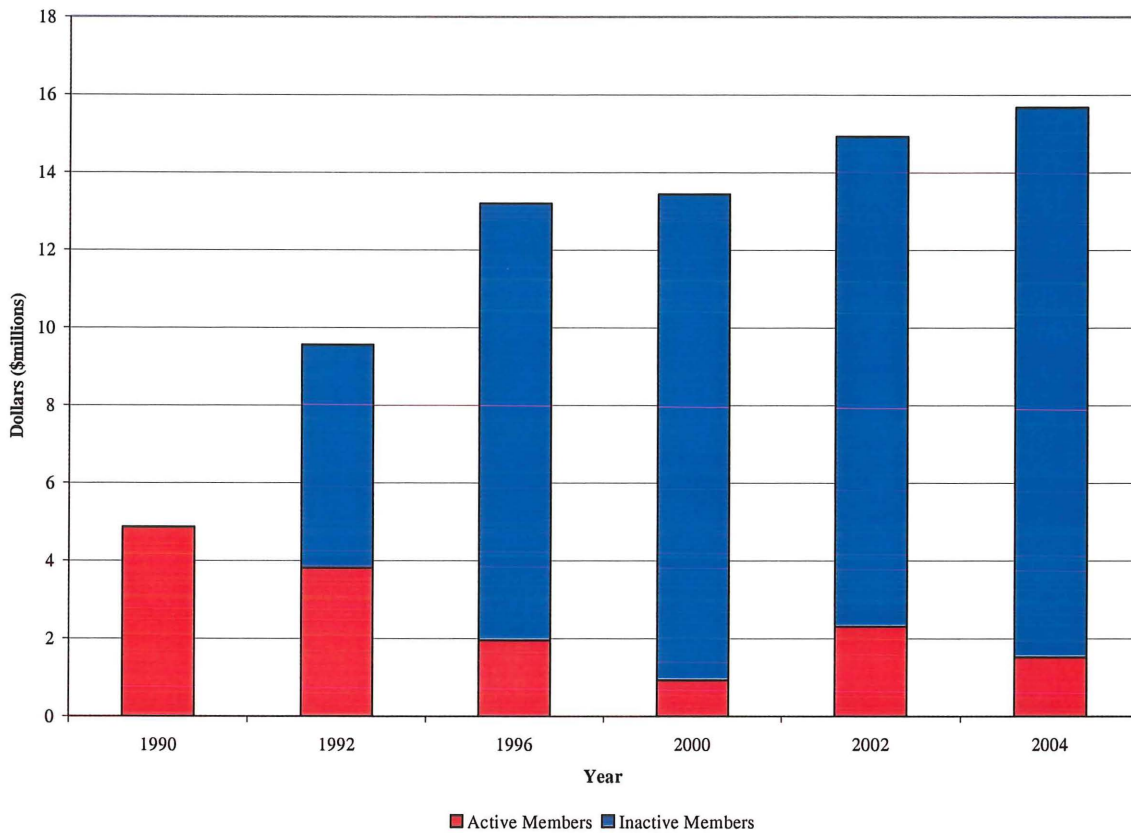
The benefit accrual level was reduced from 3% to 2% at the time that the SRAA was re-opened.

Going-Concern Valuation Results	As of April 1, 2002	As of April 1, 2004
Actuarial Value of Assets	\$ 22,733,000	\$ 23,095,300
Less: Accrued Liability		
Active Members	\$ 2,321,700	\$ 1,532,600
Retired Members	12,589,000	14,068,600
Terminated Vested Members	0	61,300
Contribution balance for Members elected for the first time in the 13 th Assembly	<u>20,800</u>	<u>15,200</u>
Total	<u>\$ 14,931,600</u>	<u>\$ 15,677,700</u>
Surplus (Unfunded Accrued Liability)	\$ 7,801,400	\$ 7,417,600
As a % of Actuarial Value of Assets	34.3%	32.1%
Current Service		
Total Current Service Cost	\$ 544,100	\$ 458,300
As a % of Participant Salary Base	31.1%	26.1%
Participant Salary Base	\$ 1,749,100	\$ 1,754,000

Assets and Liabilities (continued)

History of Distribution of Accrued Liability

The liabilities have been divided into liabilities for inactive members (terminated vested members and terminated non-vested members and retired members) and active members.



Year	Active Members	Inactive Members	Total
1990	\$ 4,872,000	\$ 0	\$ 4,872,000
1992	3,826,000	5,723,000	9,549,000
1996	1,964,900	11,232,100	13,197,000
2000	934,800	12,507,400 ¹	13,442,200
2002	2,321,700	12,609,900 ¹	14,931,600
2004	1,532,600	14,145,100 ¹	15,677,700

¹ Includes contribution balance for those Members elected for the first time in the 13th Assembly.

Assets and Liabilities (continued)

Description of Plan Assets

The Plan assets are held by CIBC Mellon and invested by UBS Global Asset Management (Canada) and McLean Budden. Information in this section of the report is based on financial reports prepared by CIBC Mellon, the Plan custodian and asset mix information provided by UBS Global Asset Management (Canada) and McLean Budden.

Assets appropriated by the Legislative Assembly for the purpose of providing benefits under the Supplementary Retiring Allowances Act constitute part of the Government of the Northwest Territories Consolidated Revenue Fund. While in this report the assets are treated as being Plan assets, the Assembly does not in fact have a beneficial ownership in the assets and the assets could, in theory, be used at any time for any other purpose.

Asset Category	April 1, 2002		April 1, 2004	
Equities				
• Canadian	\$ 3,633,958	16%	\$ 4,600,424	20%
• Foreign	7,985,599	35%	8,308,931	35%
Fixed Income	9,387,433	41%	9,496,825	40%
Short Term	<u>1,768,083</u>	<u>8%</u>	<u>1,181,571</u>	<u>5%</u>
	\$ 22,775,073	100%	\$ 23,587,751	100%

Assets and Liabilities (continued)

Changes to Plan Assets

	2001/2002	2002/2003	2003/2004
Market Value at April 1	\$ 22,103,527	\$ 22,775,073	\$ 19,906,396
Plus:			
Member Contributions	0	0	0
Assembly Contributions	0	0	0
Other	0	0	0
Investment Income	1,411,170	(2,117,508)	4,517,156
Less:			
Benefit Payments	639,526	655,928	701,679
Lump Sum Payments	0	0	0
Administrative and Other Expenses	21,394	38,230	72,571
Investment Management Fees	<u>78,434</u>	<u>75,536</u>	<u>61,551</u>
Market Value at March 31	\$ 22,775,073	\$ 19,906,396	\$ 23,587,751

Assets and Liabilities (continued)

Determination of Actuarial Value of Assets

In determining the Plan's funded position, we use an asset valuation method which smoothes the impact of short-term fluctuations in the market value of the assets. The method does this by recognizing the difference between the fund's actual and expected investment earnings gradually over a four-year period.

The fund's investment earnings net of investment and plan expenses (including realized and unrealized gains and losses) are compared below to expected investment earnings:

	2001/2002		2002/2003		2003/2004	
Net investment earnings:						
Actual	\$ 1,311,342	6.0%	\$ (2,212,749)	(9.9)%	\$ 4,383,034	22.4%
Expected	<u>1,416,254</u>	6.5%	<u>1,459,398</u>	6.5%	<u>1,271,470</u>	6.5%
Excess of actual over expected	\$ (104,912)		\$ (3,672,147)		\$ 3,111,564	

The actuarial asset value is then obtained by deducting from the current market value the portion of the investment gains (losses) which our method has not yet recognized:

Market Value at April 1, 2004		\$ 23,587,751
Adjustment investment gains and losses not yet fully recognized		
2001/2002: ¼ x	\$ (104,912)	\$ 26,228
2002/2003: ½ x	(3,672,147)	1,836,073
2003/2004: ¾ x	3,111,564	<u>(2,333,673)</u>
Smoothed Value at April 1, 2004		\$ 23,116,379

Therefore, \$471,372 of the last three years' investment gains have not yet been recognized in the smoothed actuarial asset value. The smoothed asset value equals 98.0% of the market value.

For this valuation, the actuarial value of assets equals the smoothed market value of assets adjusted for amounts payable and receivable at the valuation date.

Assets and Liabilities (continued)

The following table shows the calculation of the actuarial value of assets:

Smoothed Market Value at April 1, 2004	\$	23,116,379
Fees Payable at the Valuation Date		<u>(21,118)</u>
Actuarial Value of Assets	\$	23,095,261

History of Asset Returns

The following table shows the history of asset returns, based on market values and actuarial values, net after investment management fees and other expenses charged to the fund.

Year Ending March 31	Return on Market Value	Return on Actuarial Value
2001	6.1 %	7.8 %
2002	6.0 %	5.6 %
2003	(9.9)%	2.8 %
2004	22.4 %	4.8 %

The return (after expenses) on market value has been calculated assuming contributions and benefit payments take place in the middle of each year.

Contributions

Contributions

Minimum Recommended Assembly Contribution

For a plan year, the minimum recommended Assembly contribution is equal to:

- the Assembly Current Service Cost; plus
- Special Payments toward amortizing any Unfunded Accrued Liability over 15 years from the date on which the Unfunded Accrued Liability was established; less
- required application of Excess Surplus; less
- permitted application of Surplus.

Development of Minimum Required Assembly Contribution

The development of the minimum required Assembly contribution for the plan year commencing April 1, 2004 is shown below.

Company Current Service Cost	\$	458,300
Plus: Special Payments Toward Amortizing Unfunded Accrued Liability		0
Less: Permitted Application of Surplus		<u>458,300</u>
Equals: Minimum Recommended Assembly Contribution	\$	0

Operating Expenses

The Plan's operating expenses are paid partly from the pension fund. The going-concern actuarial assumptions include an implicit allowance for operating expenses.

Subsequent Events

Subsequent events are events that transpire after the valuation date and before the date the valuation was completed. Subsequent events also include events which, as of the date the valuation was completed, are fully committed to occur in the future.

To the best of our knowledge, there are no subsequent events, which materially affect the results of the valuation.

Experience

Experience

Analysis of Experience

The table below presents a reconciliation of the change in Surplus (Unfunded Accrued Liability) from April 1, 2002 to April 1, 2004:

Surplus (Unfunded Accrued Liability), April 1, 2002	\$ 7,801,500
Plus: Actual Contributions In Respect of 2002, 2003 and 2004	0
Less: Current Service Costs In Respect of 2002, 2003 and 2004	1,123,600
Plus: Interest at 6.5% Per Year	<u>936,500</u>
Equals: Expected Surplus (Unfunded Accrued Liability), April 1, 2004	\$ 7,614,400
Plus: Increase (Decrease) Attributable to Actuarial Gains (Losses) Arising From:	
Investment Return	\$ (1,244,000)
Salary Increases	178,100
COLA Increases	377,500
Turnover, Mortality, Retirement	<u>57,500</u>
Total	\$ (630,900)
Plus: Increase (Decrease) Attributable to Change in Actuarial Assumptions	<u>\$ 434,100</u>
Equals: Surplus (Unfunded Accrued Liability), April 1, 2004	\$ 7,417,600

Experience (continued)

Comments Regarding Experience

Return on Assets

The assumed rate of return for actuarial valuation purposes was 6.5% per annum. The average annual total return based on the actuarial value of assets during the two-year period was approximately 3.8% per annum, assuming contributions and benefit payments took place in the middle of the year. This resulted in an actuarial loss of \$1,244,000.

Contributions

Due to the surplus in the Plan as of April 1, 2002, no Assembly contributions were made during the period from April 1, 2002 to April 1, 2004. The cost of accruing benefits was paid out of the surplus of the Plan, and this resulted in an actuarial loss of \$1,123,600.

Salary Increase

Salaries for active members at the last valuation were assumed to increase at 5% per year. Actual increases were less than assumed. Several members also changed positions during the intervaluation period. These deviations from expected experience generated an actuarial gain of \$178,100.

Cost of Living Increases in Pensions

The increase in the cost of living during the valuation period was less than the 4.0% annual increase anticipated by the assumptions. This deviation from expected experience generated an actuarial gain of \$377,500.

Turnover, Mortality and Retirement

In addition, the combined effect of turnover, mortality and retirement resulted in actuarial gains of \$57,500.

Discussions of Changes in Assumptions

The following assumptions were changed:

- The interest rate was changed from 6.5% to 7%. This change was made to coincide with the charge made to the Statement of Investment Policy and Goals. This change resulted in an actuarial gain of \$1,068,800.
- The Mortality Table was changed from the 1983 Group Annuity Mortality Table to the 1994 Uninsured Pensioner Mortality Table, projected 20 years. This assumption change resulted in an actuarial loss of \$649,700.
- The Retirement Assumption was changed (summarized in the Actuarial Assumption section of this report). This change resulted in an actuarial gain of \$15,000.

Appendices

Appendix I—Personnel Information

Personnel Information

Personnel Information

Description of Membership Data

Active membership data as at April 1, 2004 was obtained from the Northwest Territories Legislative Assembly. Information on the other membership groups was taken from the administrative records of Hewitt Associates. The data was reviewed to ensure its completeness accuracy and consistency with the data used in the previous valuation.

The main tests of reliability and sufficiency conducted on the data include:

- Member-by-member reconciliation of records with records used for the prior valuation;
- Checks to determine reasonableness of individual data elements both on an absolute basis and relative to the same data elements provided for eth prior valuation; and
- Checks to ensure consistency between the membership information provided and the information contained in the Plan's financial statements.

The results of these tests were satisfactory and in our opinion the data is sufficient and reliable for the purpose of the valuation.

Personnel Information (continued)

Changes in Plan Membership

The following schedule shows the changes in Plan Membership since the previous valuation of the Plan at April 1, 2002.

	Active Members	Deferred Vested Members	Pensioners
Members at April 1, 2002	18	0	29 ¹
New Additions	7		
Deletions			
• Retirements	(6)		6
• Deaths			
• Deferred Vested Members	<u>(1)</u>	<u>1</u>	<u> </u>
Members at April 1, 2004	18	1	35 ¹

¹ Includes one child receiving a dependent benefit payable to age of majority or to age 25 if attending school.

Personnel Information (continued)

Active Members

Following are some relevant characteristics of the active member data as of April 1, 2004. Corresponding data as of April 1, 2002 are shown for comparison purposes.

		As of April 1, 2004		
		Male	Female	Total
Number		16	2	18
Average Age		46.0	43.7	45.7
Average Credited Service ¹				
	MLA	3.6	6.4	3.9
	Minister	2.3	1.8	2.3
	Other	2.3	1.5	2.1
Average Earnings ²				
	MLA			\$ 79,145
	Minister			42,892
	Other			16,402

		As of April 1, 2002		
		Male	Female	Total
Number		16	2	18
Average Age		49.6	41.7	48.8
Average Credited Service				
	MLA	5.1	4.4	5.1
	Minister	4.0	2.2	3.8
	Other	2.7	3.9	2.8
Average Earnings ²				
	MLA			\$ 75,543
	Minister			40,430
	Other			14,591

¹ Includes credited service for positions no longer held.

² Average earnings for positions currently in.

Personnel Information (continued)

Retired Members

Following are some relevant characteristics of the retired member data as of April 1, 2004. Corresponding data as of April 1, 2002 are shown for comparison purposes.

	As of April 1, 2004		
	Number	Average Age	Average Annual Pension
Terminated Vested Members	1	37.0	\$ 5,965
Retired Members	35 ¹	57.2	\$ 22,101

	As of April 1, 2002		
	Number	Average Age	Average Annual Pension
Retired Members	29 ¹	57.2	\$ 22,548

¹ Includes one child receiving a dependent benefit payable to age of majority or to age 25 if attending school.

Personnel Information (continued)

Confirmation Certificate

I, Myles Moreside of the Northwest Territories Legislative Assembly, hereby certify that to the best of my knowledge, the data submitted to Hewitt Associates for the purpose of performing an actuarial valuation for the Northwest Territories Legislative Assembly Supplementary Retiring Allowances Act as at April 1, 2004 is accurate and complete. I also certify that to the best of my knowledge, I have responded to any requests for additional information regarding the actuarial valuation

M. Moreside

Myles Moreside
Northwest Territories Legislative Assembly

November 18, 2004

Date

Appendix II—Plan Provisions

Plan Provisions

Plan Provisions

This summary contains the main provisions of the Northwest Territories Legislative Assembly Supplementary Retiring Allowances Act (the "Plan") as at April 1, 2004. For a complete description of the Plan, reference should be made to the Legislative Assembly Supplementary Retiring Allowances Act.

Effective Date	February 6, 1990
Eligibility	Current members of the Legislative Assembly were given a one-time opportunity to join the Plan. Future Members may elect to join the Plan at the time they are elected.
Credited Service	Service after March 10, 1975 and before: April 1, 1996 where the Member ceased to be a Member or has given at least 6 years of service prior to April 1, 1996, or The end of the 13 th Legislative Assembly to a maximum of six years of service for a returning Member of the 13 th Legislative Assembly. In no event shall credited service exceed 15 years.
Contributions	None.
Pensionable Age	
Pre-1992 Service	55
Post-1991 Service	The earliest of: a) the age of 60 years b) 30 years of service c) the aggregate of age and service equal to 80

Plan Provisions (continued)

Early Retirement

A member may retire at any time upon ceasing to be a Member of the Assembly. A member retiring prior to Pensionable Age shall receive:

Pre-1992 Service

A pension which is actuarially equivalent to the pension payable at the member's Pensionable Age.

Post-1991 Service

A pension which is reduced by 0.25% for each month a member retires before Pensionable Age.

Late Retirement

Up to age 69.

Retirement Pension at Pensionable Age Pre-14th Assembly Service

Three percent of the average best earnings over four consecutive years as an MLA multiplied by Credited Services as an MLA

Plus

Three percent of the average best earnings over four consecutive years in each of the positions of Minister, Speaker or Chairperson multiplied by Credited Service for each position. A position must be held for at least one year for a pension to be paid, and the pension for each position is calculated separately.

Plan Provisions (continued)

Post-13th Assembly Service

Two percent of the average best earnings over any four years as an MLA multiplied by Credited Service as an MLA.

Plus

Two percent of the average best earnings over any four years in an eligible position multiplied by Credited Service in that position. A position must be held for at least one year for a pension to be paid, and the pension for each position is calculated separately.

Form of Pension

Pre-1992 Service

The normal form of payment is a joint and 75% survivor pension reducing on the death of a Member. Each dependent will receive a pension of 10% of the retirement pension (to a maximum total of 25%) if the spouse survives. If there is no surviving spouse, a benefit of 25% of the retirement pension (to a maximum total of 100%) will be paid to each dependent.

Post-1991 Service

The normal form of pension is a joint and 66-2/3% survivor pension reducing on the death of the Member with a guarantee of 5 years in any event. Each dependent will receive a pension of 10% of the retirement pension (to a maximum total of 25%) if the spouse survives. If there is no surviving spouse, a benefit of 25% of the retirement pension (to a maximum total of 100%) will be paid to each dependent.

Increases in Pension

Pensions in pay and deferred pensions are increased every January 1 based on increases in Consumer Price Index up to the Preceding September 30.

Plan Provisions (continued)

Pre-Retirement Death Benefits

If a Member or Former Member dies before retirement and is not eligible to receive a pension, his accumulated contributions with interest will be returned to the beneficiary. If he was eligible to receive a pension, it will be assumed that the member retired on the day preceding his death.

Each dependent will receive a pension of 10% of the retirement pension (to a maximum total of 25%) if the spouse survives. If there is no surviving spouse, a benefit of 25% of the retirement pension (to a maximum total of 100%) will be paid to each dependent.

Withdrawal Benefits

A Member who ceases to be a Member with four or more years of service or serves at least one full term as a Member of the Assembly is entitled to a retirement pension. All other Members who terminate will receive a lump sum payment of their accumulated contributions with interest.

Additional Benefit to New Members In the 13th Assembly

As a result of the closure of the SRAA plan in 1996, a Member who first became a Member during the 13th Legislative Assembly is entitled to receive, on ceasing to be a Member, an amount equal to the amount contributed by the member to the Legislative Assembly Retiring Allowances Act before April 1, 1996 plus interest.

Maximum Pension

The combined pension amount under the Northwest Territories Legislative Assembly Retiring Allowances Act and the Northwest Territories Legislative Assembly Supplementary Retiring Allowances Act shall not exceed 75% of the average best earnings over any four years.

Appendix III—Actuarial Assumptions

Actuarial Assumptions

Actuarial Assumptions

Going-Concern Valuation

Retirement assumptions for members	Later of age 50 (previously was age 55), or four years of service or end of current session
Mortality Rates	
• Before Retirement	None
• After Retirement	UP 1994 projected 20 years with Scale AA (was 1983 Group Annuity Mortality Table in prior valuation)
Withdrawal Rates	None assumed
Disability Rates	None assumed
Percentage with spouse	100%; female spouse assumed to be 2 years younger than male spouse
Dependent Children's Death Benefit	None assumed
Salary Scale	5.0% per annum
Inflation	4.0% per annum
Interest Rate	7.0% per annum net of expenses (6.5% in prior valuation)
Re-election of Deferred Members	Non-vested terminated Members are assumed to have a 25% chance of being re-elected in the next two general elections after being terminated

Actuarial Assumptions (continued)

Going-Concern Valuation (continued)

Valuation of Assets

The actuarial value of assets is equal to the smoothed market value of assets adjusted by amounts receivable and payable at the valuation date.

The smoothed market value is calculated by adjusting the market value to gradually recognize the difference between each year's actual and expected investment earnings over a four year period. Expected investment earnings are calculated by assuming the fund assets and cash flows will earn the prior valuation's going-concern valuation interest rate.

Actuarial Cost Method

Projected unit credit actuarial cost method.

Actuarial Assumptions (continued)

Wind-Up Valuation

Retirement age	Retirement age that produces the highest value.
Mortality Rates	1983 Group Annuity Mortality Table.
• Interest Rates	
Active Members Less Than Age 50	2.75% per annum for 15 years 3.25% per annum thereafter
	Interest rates are based on the Canadian Institute of Actuaries Recommendations for the Computation of Transfer Values from Registered Pension Plans (“Transfer Value Basis”).
Active Member Greater Than Age 50 and Inactive Members	2.50% per annum
Termination	All Members are assumed to terminate on the valuation date.
Windup Expenses	\$50,000.
Valuation of Assets	The actuarial value of assets used for wind-up purposes is the market value of assets adjusted by amount receivable and payable at the valuation date, less an allowance for estimated wind-up expenses.
Actuarial Cost Method	Accrued benefit actuarial cost method.

Actuarial Assumptions (continued)

Discussion of Actuarial Assumptions and Methods

Ultimate Cost

The ultimate cost of a pension plan can be measured only when the obligation to all members has been fully discharged. The cost will then be:

The benefits paid from the plan
plus
administrative expenses
less
investment gains
plus
investment losses.

The actuarial process assigns pension costs to the current year by estimating, based on both current and future service, the benefits to be paid to current plan members. These estimates are determined through an actuarial valuation which uses three basic elements to project payments from the plan:

- Benefit provisions of the plan;
- Data on the present workforce, terminated vested, and retired employees; and
- Certain predictions (actuarial assumptions) about the future as it applies to this workforce.

Actuarial Assumptions

The first step in the actuarial process is to determine the magnitude of the pension liability by determining the benefits expected to be paid. To determine how many employees will become eligible for benefits, what benefits will be paid, and how long benefits will be paid, it is necessary to make some economic and demographic predictions (usually called actuarial assumptions) such as:

- Assumed retirement rates predicting when employees will begin to receive retirement benefits;
- Mortality rates predicting the number of employees who will die before retirement and the duration of benefit payments after retirement;
- Withdrawal rates predicting the number of employees who will leave the workforce before retirement (sometimes certain kinds of withdrawal such as disabilities are predicted separately); and
- An assumed rate of pay increases predicting employees' compensation in future years.

Actuarial Assumptions (continued)

These assumptions are applied to the data for each employee to predict the amount of benefits expected to be paid each year in the future. The total future benefit payments in each year are then discounted at a selected interest rate to determine the current amount which with future investment return, will be sufficient to pay the expected benefits as they become payable. The discounted payments are usually called the present value of future benefits.

Total Future Benefit Payments	
Future Investment Return	Present Value of Future Benefits

Actuarial Method

The actuarial method is the mathematical process which determines the contributions required to pay for the present value of future benefits, by allocating costs to the years of an employee's career. Some costs are allocated to future years in an employee's career (*future service liability*) and other costs are allocated to past years (*past service liability*).

Total Future Benefit Payments			
Future Investment Return	Present Value of Future Benefits		
	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Future Service Liability</td> <td style="text-align: center;">Past Service Liability</td> </tr> </table>	Future Service Liability	Past Service Liability
Future Service Liability	Past Service Liability		

There is a fair amount of flexibility in this allocation of costs between future and past. Some methods assign relatively little cost to past years in an employee's career, others assign a more significant portion to the past. All methods produce allocations of contributions which will accumulate to an amount sufficient to provide the benefits at retirement. However, the various methods produce widely different allocation of contributions to past and future employment.

Usual terminology refers to the future allocation as the *present value of future normal costs* and the past allocation as the *accrued liability*.

Actuarial Assumptions (continued)

The portion of the accrued liability which is not covered by the assets of the plan is called the *unfunded accrued liability*. The value of the assets used in the actuarial process must take into account fair market value, but this may be done in a way which eliminates much of the short-term fluctuation of market value from one valuation to the next.

Total Future Benefit Payments		
Future Investment Return	Present Value of Future Benefits	
	Future Service Liability	Past Service Liability
	Present Value of Future Normal Costs	Unfunded Accrued Liability
		Assets

For the current year, the method produces a *normal cost*. Payment of the normal cost each year would eventually discharge all future service liability.

The unfunded accrued liability must also be discharged, and this is done by an *amortization payment*. The amortization payment is flexible, and may be increased or decreased within certain allowable bounds. The sum of both the normal cost and the amortization payment is the current year's pension cost.

Total Future Benefit Payments		
Future Investment Return	Present Value of Future Benefits	
	Future Service Liability	Past Service Liability
	Present Value of Future Normal Costs	Unfunded Accrued Liability
		Assets
	Normal Cost	Amortization Payment
	Current Year's Contribution	

Actuarial Assumptions (continued)

Valuations to determine contributions to the ongoing plan use the *Projected Unit Credit Cost Method*.

Under this actuarial method, the cost attributed to past service (*past service liability* or *accrued liability*) is determined on the valuation date as the present value of the benefits actually earned (accrued) as of that date. Benefits earned by members are calculated using current earnings projected to retirement, termination or death. The *unfunded accrued liability* is the amount by which the accrued liability exceeds the valuation assets. This actuarial method does not necessarily ensure that assets will exceed liabilities in the event of a plan wind-up.

The current year's *normal cost*, determined on the valuation date, is the amount required to fund the benefit expected to be earned in the current year.

The benefits earned by members and used for the calculation of the accrued liability or normal cost, are calculated using current earnings projected to retirement, termination of employment or death, whichever is applicable.

Because the value of the future service liability is not used in the calculation of normal cost, it is often omitted from the actuarial report which may show only an accrued liability.

The calculations for any disability, termination or death benefits take into consideration that the entitlement to benefits may begin at various future times. Each age prior to retirement has associated with it appropriate probabilities of disability, termination and death.

The Projected Unit Credit Actuarial Cost Method produces a contribution rate for an individual member that increases with age. For the entire membership, however, the contribution rate will remain stable provided the average age of the active membership remains stable.

Each going-concern unfunded actuarial liability is amortized over a period of fifteen years from the date it is created by equal monthly payments of principal and interest using the going-concern valuation interest rate which is compounded annually.

The actuarial methods used for determining the wind-up status of the Plan are as follows:

1. The wind-up liability was determined using the Accrued Benefit Actuarial Cost Method. The wind-up liability is equal to the present value of benefits earned by members for service prior to the valuation date assuming the Plan is wound-up on the valuation date.
2. Wind-up assets are equal to the market value of invested assets, already adjusted for payments due to and payable from the pension fund, less an allowance for wind-up expenses.