

Undertaking # 16

MPI to replicate the analysis presented in the four (4) year budgeted compounded return relative to 5th percentile, but using the time period 1919 and to the end of 1955.

Undertaking # 17

MPI to provide, with regard to MPI Exhibit 14, a footnoted or source document identifying where on the record each piece of information is.

RESPONSE:

Attachment A is the revised MPI Exhibit 14, the S&P/TSX Composite Index for the period of January 1956 to March 2012, showing the source documents as requested in Undertaking 17. The exhibit was also updated to include the following:

- Page 1: The original percentile rankings were based on the two and four year returns starting in January 1956. However, to reflect only the 1956 and after experience the two and four year return should have been calculated based on data as of January 1958 (i.e. two years after 1956) and January 1960 (four years after 1956). These changes have been made in the exhibit.
- Page 2: The actual investment income for 2011/12 was corrected because the previous figure incorrectly included private equity write downs. The figure was revised from -\$1,260 to -\$319.
- Page 2: The budgeted figures were revised to match AI.9 schedule 4. Prior to 2010/11, the internal budget was based on the prior year's GRA forecast, not the current GRA forecast. This resulted in some differences between the AI.9 forecast and the internal calculations. The revised figures show the results on a consistent basis.

Attachment B is the S&P/TSX Composite Index for the period of 1919 to 1955, as requested in Undertaking 16. The Exhibit also includes (where applicable) all the changes made to Attachment A (as described above).

Attachment C is the S&P/TSX Composite Index for the period of 1919 to March 2012. The Exhibit also includes (where applicable) all the changes made to Attachment A (as described above).

S&P/TSX Composite Index 1956 to March 2012

4 Year Budgeted Compounded Return Relative to 5th Percentile

The 4 year budgeted equity return (6.1% per year compounded)¹ is: 26.7%

	4 year cumulative return 1956 to March 2012 (A) ²	4 Year <u>Budgeted</u> Equity Return (B)	4 year cumulative return 1956 to present relative to budget (A-B)
1 in 100 year event (1st percentile)	-23.6%	26.7%	-50.3%
1 in 40 year event (2.5th percentile)	-21.3%	26.7%	-48.0%
1 in 20 year event (5th percentile)	-17.0%	26.7%	-43.7%

2 Year Budgeted Compounded Return Relative to 5th Percentile

The 2 year budgeted equity return (6.1% per year compounded)¹ is: 12.6%

	2 year cumulative return 1956 to March 2012 (A) ²	2 Year <u>Budgeted</u> Equity Return (B)	2 year cumulative return 1956 to present relative to budget (A-B)
1 in 100 year event (1st percentile)	-36.8%	12.6%	-49.4%
1 in 40 year event (2.5th percentile)	-31.7%	12.6%	-44.3%
1 in 20 year event (5th percentile)	-25.0%	12.6%	-37.5%

¹ 6.1% per year return - See T1.18 p24

² Monthly S&P/TSX Composite Index Returns from 1956 to March 31, 2012 - Source: Bloomberg

S&P/TSX Composite Index 1956 to March 2012

Investment Income From Equities: Actual vs Budget (\$000)

Fiscal Year	Actual ¹	Budget ²	Variance
2008/09	(\$71,684)	\$21,715	(\$93,399)
2009/10	\$2,983	\$27,974	(\$24,991)
2010/11	\$25,735	\$24,409	\$1,326
2011/12	(\$319)	\$33,240	(\$33,559)
Total	(\$43,285)	\$107,338	(\$150,623)
Basic Investment Impact (assume 85% of total)			(\$128,030)

¹ AI.9 Schedule 1 adjusted for equity manager fees.

² AI.9 Schedule 2

Beginning of year 2008/09 Corporate Equity Balance ³	\$417,070
4 year decline as a percentage of 2008/09 Corporate Equity Balance ⁴	-36.1%
Forecasted Beginning of year 2013/14 Corporate Equity Balance ³	\$456,215
Adjusted Basic Investment Impact using 2013/14 Equity Balance ⁵	(\$140,046)

³ Source: AI.9 Schedule 2, pg. 1

⁴ The total actual vs budgeted variance (\$150,623) divided by the 2008/09 Corporate equity balance.

⁵ 2013/14 Initial Corporate Equity Balance x Assumed Decline x 85% Basic Portion

4 Year Budgeted Compounded Return Relative to 5th Percentile (\$000)

Beginning of year 2013/14 Equity Balance x Deviation to Budget x 85%

1 in 100 year event (1st percentile)*	-50.3%	(\$195,124)
1 in 40 year event (2.5th percentile)*	-48.0%	(\$186,195)
1 in 20 year event (5th percentile)*	-43.7%	(\$169,598)

*Percentage impacts per page 1

2 Year Budgeted Compounded Return Relative to 5th Percentile (\$000)

Beginning of year 2013/14 Equity Balance x Deviation to Budget x 85%

1 in 100 year event (1st percentile)*	-49.4%	(\$191,371)
1 in 40 year event (2.5th percentile)*	-44.3%	(\$171,727)
1 in 20 year event (5th percentile)*	-37.5%	(\$145,550)

*Percentage impacts per page 1

2013/14 RSR Targets using Percentage of Premium Method⁶

Minimum	\$81,000
Maximum	\$162,000

⁶ AI.II RSR Part 2 - Amended DCAT, pg.12

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S&P/TSX Composite Index 1919 to 1955

4 Year Budgeted Compounded Return Relative to 5th Percentile

The 4 year budgeted equity return (6.1% per year compounded) is:¹

26.7%

	4 year S&P/TSX cumulative return 1919 to 1955²	4 Year <u>Budgeted</u> Equity Return (B)	4 year S&P/TSX cumulative return 1919 to 1955** relative to budget (A- B)
1 in 100 year event (1st percentile)	-77.2%	26.7%	-104.0%
1 in 40 year event (2.5th percentile)	-72.2%	26.7%	-99.0%
1 in 20 year event (5th percentile)	-63.1%	26.7%	-89.8%

2 Year Budgeted Compounded Return Relative to 5th Percentile

The 2 year budgeted equity return (6.1% per year compounded) is:¹

12.6%

	2 year cumulative return 1919 to 1955²	2 Year <u>Budgeted</u> Equity Return (B)	2 year cumulative return 1919 to 1955** relative to budget (A-B)
1 in 100 year event (1st percentile)	-68.5%	12.6%	-81.0%
1 in 40 year event (2.5th percentile)	-61.9%	12.6%	-74.4%
1 in 20 year event (5th percentile)	-56.6%	12.6%	-69.2%

¹ 6.1% per year return - See TI.18 p24

² Monthly S&P/TSX Composite Index Returns from 1919 to 1955 - Source: Bloomberg

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S&P/TSX Composite Index 1919 to 1955

Investment Income From Equities: Actual vs Budget (\$000)

Fiscal Year	Actual ¹	Budget ²	Variance
2008/09	(\$71,684)	\$21,715	(\$93,399)
2009/10	\$2,983	\$27,974	(\$24,991)
2010/11	\$25,735	\$24,409	\$1,326
2011/12	(\$319)	\$33,240	(\$33,559)
Total	(\$43,285)	\$107,338	(\$150,623)
Basic Investment Impact (assume 85% of total)			(\$128,030)

¹ AI.9 Schedule 1 adjusted for equity manager fees.

² AI.9 Schedule 4

Beginning of year 2008/09 Corporate Equity Balance ³	\$417,070
4 year decline as a percentage of 2008/09 Corporate Equity Balance ⁴	-36.1%
Forecasted Beginning of year 2013/14 Corporate Equity Balance ³	\$456,215
Adjusted Basic Investment Impact using 2013/14 Equity Balance ⁵	(\$140,046)

³ Source: AI.9 Schedule 2, pg. 1

⁴ The total actual vs budgeted variance (\$150,623) divided by the 2008/09 Corporate equity balance.

⁵ 2013/14 Initial Corporate Equity Balance x Assumed Decline x 85% Basic Portion

4 Year Budgeted Compounded Return Relative to 5th Percentile (\$000)

Beginning of year 2013/14 Equity Balance x Deviation to Budget x 85%

1 in 100 year event (1st percentile)*	-104.0%	(\$403,154)
1 in 40 year event (2.5th percentile)*	-99.0%	(\$383,742)
1 in 20 year event (5th percentile)*	-89.8%	(\$348,340)

*Percentage impacts per page 1

2 Year Budgeted Compounded Return Relative to 5th Percentile (\$000)

Beginning of year 2013/14 Equity Balance x Deviation to Budget x 85%

1 in 100 year event (1st percentile)*	-81.0%	(\$314,222)
1 in 40 year event (2.5th percentile)*	-74.4%	(\$288,624)
1 in 20 year event (5th percentile)*	-69.2%	(\$268,360)

*Percentage impacts per page 1

2013/14 RSR Targets using Percentage of Premium Method⁶

Minimum	\$81,000
Maximum	\$162,000

⁶ AI.II RSR Part 2 - Amended DCAT, pg.12

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Undertaking 16 and 17 Attachment C

S&P/TSX Composite Index 1919 to March 2012

4 Year Budgeted Compounded Return Relative to 5th Percentile

The 4 year budgeted equity return (6.1% per year compounded) is:¹

26.7%

	4 year S&P/TSX cumulative return 1919 to March 2012**	4 Year <u>Budgeted</u> Equity Return (B)	4 year S&P/TSX cumulative return 1919 to present** relative to budget (A- B)
1 in 100 year event (1st percentile)	-71.3%	26.7%	-98.0%
1 in 40 year event (2.5th percentile)	-60.3%	26.7%	-87.0%
1 in 20 year event (5th percentile)	-42.8%	26.7%	-69.5%

2 Year Budgeted Compounded Return Relative to 5th Percentile

The 2 year budgeted equity return (6.1% per year compounded) is:¹

12.6%

	2 year cumulative return 1919 to present**	2 Year <u>Budgeted</u> Equity Return (B)	2 year cumulative return 1919 to present** relative to budget (A-B)
1 in 100 year event (1st percentile)	-61.4%	12.6%	-74.0%
1 in 40 year event (2.5th percentile)	-47.9%	12.6%	-60.5%
1 in 20 year event (5th percentile)	-33.1%	12.6%	-45.7%

¹ 6.1% per year return - See TI.18 p24

² Monthly S&P/TSX Composite Index Returns from 1919 to March 31, 2012 - Source: Bloomberg

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Undertaking 16 and 17 Attachment C

S&P/TSX Composite Index 1919 to March 2012

Investment Income From Equities: Actual vs Budget (\$000)

Fiscal Year	Actual ¹	Budget ²	Variance
2008/09	(\$71,684)	\$21,715	(\$93,399)
2009/10	\$2,983	\$27,974	(\$24,991)
2010/11	\$25,735	\$24,409	\$1,326
2011/12	(\$319)	\$33,240	(\$33,559)
Total	(\$43,285)	\$107,338	(\$150,623)
Basic Investment Impact (assume 85% of total)			(\$128,030)

¹ AI.9 Schedule 1 adjusted for equity manager fees.

² AI.9 Schedule 4

Beginning of year 2008/09 Corporate Equity Balance³

4 year decline as a percentage of 2008/09 Corporate Equity Balance⁴

Forecasted Beginning of year 2013/14 Corporate Equity Balance³

Adjusted Basic Investment Impact using 2013/14 Equity Balance⁵

\$417,070
-36.1%
\$456,215
(\$140,046)

³ Source: AI.9 Schedule 2, pg. 1

⁴ The total actual vs budgeted variance (\$150,623) divided by the 2008/09 Corporate equity balance.

⁵ 2013/14 Initial Corporate Equity Balance x Assumed Decline x 85% Basic Portion

4 Year Budgeted Compounded Return Relative to 5th Percentile (\$000)

Beginning of year 2013/14 Equity Balance x Deviation to Budget x 85%

1 in 100 year event (1st percentile)*	-98.0%	(\$379,974)
1 in 40 year event (2.5th percentile)*	-87.0%	(\$337,426)
1 in 20 year event (5th percentile)*	-69.5%	(\$269,418)

*Percentage impacts per page 1

2 Year Budgeted Compounded Return Relative to 5th Percentile (\$000)

Beginning of year 2013/14 Equity Balance x Deviation to Budget x 85%

1 in 100 year event (1st percentile)*	-74.0%	(\$287,005)
1 in 40 year event (2.5th percentile)*	-60.5%	(\$234,634)
1 in 20 year event (5th percentile)*	-45.7%	(\$177,133)

*Percentage impacts per page 1

2013/14 RSR Targets using Percentage of Premium Method⁶

Minimum	\$81,000
Maximum	\$162,000

⁶ AI.II RSR Part 2 - Amended DCAT, pg.12