



NEW BRUNSWICK RISK SHARING POOL

OCTOBER 2017 OPERATIONAL REPORT

ACTUARIAL HIGHLIGHTS

Related Bulletin: [F17-090 New Brunswick RSP October 2017 Operational Report](#)

For your convenience, bookmarks have been added to this document. To view them, please click on the BOOKMARK tab at the left.

Should you require any further information, please call Shawn Doherty, Senior Vice President Actuarial & CFO at (416) 644-4968.

ACTUARIAL HIGHLIGHTS
RSP NEW BRUNSWICK
OPERATIONAL REPORT
OCTOBER 2017

TABLE OF CONTENTS

1	Summary.....	3
1.1	Valuation Schedule (Fiscal Year 2017).....	3
1.2	New Valuation.....	3
1.3	Appointed Actuary and Hybrid Actuarial Services Model.....	5
1.4	Consideration of Recent Legal Decisions and Changes in Legislation / Regulation.....	6
1.5	Harmonized Sales Tax.....	6
1.6	Current Provision Summary.....	6
2	Activity During the Month of October 2017.....	7
2.1	Recorded Premium and Claims Activity.....	7
2.1.a	Actual vs. Projected (AvsP): Earned Premium.....	8
2.1.b	AvsP: Recorded Indemnity & Allowed Claims Expense.....	9
2.1.c	AvsP: Paid Indemnity & Allowed Claims Expense.....	11
2.2	Actuarial Provisions.....	13
3	Ultimate Loss Ratio Matching Method.....	15
4	Calendar Year-to-Date Results.....	15
5	Current Operational Report – Additional Exhibits.....	16
6	EXHIBITS.....	16

1 Summary

1.1 Valuation Schedule (Fiscal Year 2017)

The October 2017 Operational Report incorporates the results of an updated valuation (as at September 30, 2017) – the impact of the implementation of the valuation is discussed in section 1.2. The table immediately below summarizes the implemented valuations and future scheduled valuations for fiscal year 2017.

NEW BRUNSWICK RISK SHARING POOL FISCAL YEAR 2017 – SCHEDULE OF VALUATIONS			
Valuation Date	Discount Rate (per annum)	Operational Report	Description of Changes
Sep. 30, 2016 (completed)	0.52% mfad: 25 bp	Oct. 2016	updated valuation (roll forward): accident year 2016 loss ratio decreased 1.3 points to 74.3%; discount rate decreased by 5 basis points; no change to selected margins for adverse deviations
Dec. 31, 2016 (completed)	1.04% mfad: 25 bp	Mar. 2017	updated valuation: accident year 2016 loss ratio decreased 3.5 points to 70.8%; accident year 2017 loss ratio decreased 2.9 points to 74.2%; discount rate increased by 52 basis points; no change to selected margins for adverse deviations
Mar. 31, 2017 (completed)	0.95% mfad: 25 bp	May 2017	updated valuation (roll forward): accident year 2017 loss ratio increased 1.0 points to 75.2; discount rate decreased by 9 basis points; no change to selected margins for adverse deviations
Jun. 30, 2017 (completed)	1.17% mfad: 25 bp	Aug. 2017	updated valuation: accident year 2017 loss ratio decreased 2.8 points to 72.4%; discount rate increased by 22 basis points; selected margins for adverse deviations were updated
Sep. 30, 2017 (completed)	1.74% mfad: 25 bp	Oct. 2017	updated valuation (roll forward): accident year 2017 loss ratio increased 1.1 points to 73.5%; discount rate increased by 57 basis points; no change to selected margins for adverse deviations

Under the proposed schedule for fiscal year 2017, the “off-half” valuation quarters ending March 31, 2017 and September 30, 2017 would not reflect a full valuation update of assumptions, but would rather “roll-forward” key assumptions from the previous valuation.

1.2 New Valuation

A valuation of the New Brunswick Risk Sharing Pool (“RSP”) as at September 30, 2017 has been completed since last month’s Operational Report and the results of that valuation have been incorporated into this month’s Report. The valuation was completed by the Facility Association’s internal actuarial group in conjunction with, and approved by, the Appointed Actuary, under the

hybrid model for actuarial services. Additional detail will be provided in an “Actuarial Highlights – Quarterly Valuation” report which we anticipate will be posted to the FA website in early December.

The valuation implementation impact is summarized in the tables below.

Summary of Impact (\$000s) of Implementing Result of Valuation as at September 30, 2017¹

NB	unfav / (fav) for the month and ytd					
	IMPACT in \$000s from changes in:					
	ults & payout patterns			dsct rate	margins	
	Nominal	apv adj.	sub-tot	apv adj.	apv adj.	TOTAL
[1]	[2]	[3]	[4]	[5]	[6]	
PAYs	1,299	99	1,398	(219)	-	1,179
CAY	96	5	101	(72)	-	29
Prem Def	20	(3)	17	(63)	-	(46)
TOTAL	1,415	101	1,516	(354)	-	1,162

As indicated in the table above, the incorporation of the new valuation had an estimated **\$1.2 million unfavourable impact** on the month’s net result from operations, adding an estimated 13.5 points (see table immediately below) from the **year-to-date Combined Operating Ratio** to end at **97.9%**.

Summary of Impact (% YTD EP) of Implementing Result of Valuation as at September 30, 2017

NB	ytd EP 8,593 (actual)					
	IMPACT unfav / (fav) as % ytd EP from changes in:					
	ults & payout patterns			dsct rate	margins	
	Nominal	apv adj.	sub-tot	apv adj.	apv adj.	TOTAL
[1]	[2]	[3]	[4]	[5]	[6]	
PAYs	15.1%	1.2%	16.3%	(2.5%)	-	13.7%
CAY	1.1%	0.1%	1.2%	(0.8%)	-	0.3%
Prem Def	0.2%	-	0.2%	(0.7%)	-	(0.5%)
TOTAL	16.5%	1.2%	17.6%	(4.1%)	-	13.5%

The impact of the nominal changes is shown in column [1] of the two preceding summary tables. The change in the selected nominal ultimates was favourable by \$1.4 million overall. This reflects the impact attributable to the changes in the selected ultimate loss ratios (i.e. for each accident year, it is the product of life-to-date earned premium for the accident year and the change in the selected ultimate loss ratio).

The prior accident years overall showed a \$1.3 million unfavourable variance, which is attributed to recorded activity related to a member’s corrections of historical claims transactions. This

¹In these tables, “PAYs” refers to prior accident years, “CAY” refers to the current accident year, and “Prem Def” refers to the provision for premium deficiency or the deferred policy acquisition asset (as applicable). “Nominal” refers to changes excluding any actuarial present value adjustments, whereas “apv adj.” refers to actuarial present value adjustments.

The columns under the heading “ults & payout patterns” reflect the impact of changes in the valuation selected ultimates and claims payment patterns (i.e. based on unchanged selection of discount rates and margins for adverse deviation). The column “dsct rate” reflects the impact of the change in the selected discount rate and the column “margins” reflects the impact of any changes in selected margins for adverse deviations.

unfavourable change is 9.7% of the prior accident years' nominal unpaid balance of \$13.4 million determined at the end of last month (September 2017). As a smaller pool, it is subject to higher levels of process variance, driving volatility in the ultimate selection.

The current accident year and premium deficiency impacts are a result of the changes in the selected loss ratios for accident year **2017** (up 1.1 points from 72.4% to **73.5%**). There was no change to the selected loss ratio for accident year **2018** (remains at **72.1%**).

The impacts related to actuarial present value (“apv”) adjustments are split into the impact prior to any change in the selected discount rate and selected margins for adverse deviations or “MfADs” (at the level they were selected i.e. coverage and accident half-year), the impact of then updating the discount rate, and finally the impact of any changes to the MfADs (at the level they were selected). The changes in actuarial present value adjustments are shown in the summary tables in columns [2], [4], and [5].

Column [2] recognizes that changing the nominal selections also changed the unpaid estimates (including changes to the relative mix by government line, which has an impact on the weighted-average MfADs). It also reflects the fact that we updated the projected emergence of claims payments, resulting in a change in the projected cash flows. These changes generated a favourable change of \$0.1 million in the actuarial present value adjustments, prior to any changes in the selected discount rate and/or MfADs.

Claims payment emergence patterns were updated and cash flows were reviewed against the selected risk-free yield curve, derived from Government of Canada benchmark bond yields monthly series using values for September 2017. Column [4] accounts for the change in the **discount rate** selected (increased 57 basis points to **1.74%**), indicating a favourable impact of \$0.4 million. The impact *related only to claims liabilities* (i.e. PAYs plus CAY) was \$0.3 million at October 2017 (projected \$0.3 million impact at December 31, 2017) – this compares to the \$0.3 million change one would estimate as the impact by interpolation using the interest rate sensitivity table provided in last month's Actuarial Highlights.

Column [5] accounts for any changes to selected MfADs. The selected **investment rate MfAD** was **left unchanged at 25 basis points** and the selected **claims development MfADs** at the coverage and accident year level were **left unchanged** as well.

Consideration was given to recent legal decisions and changes in legislation / regulation as outlined in section 1.4.

1.3 Appointed Actuary and Hybrid Actuarial Services Model

Liam McFarlane of Ernst & Young LLP is Facility Association's Appointed Actuary (effective as of June 1, 2013).

Facility Association operates under a “hybrid” model in relation to the management and provision of actuarial services. Under this model, actuarial services are performed by both Facility Association's internal staff and its external actuarial consulting firm. The hybrid model approach maximizes the efficiency of resource allocation while providing access to additional expertise and capacity as needed.

1.4 Consideration of Recent Legal Decisions and Changes in Legislation / Regulation

Consideration and assessment of potential impacts of legal decisions and changes in legislation / regulation constitutes a regular part of the valuation process. Descriptions of some of the more recent changes are provided below (there have been no changes in these descriptions since last month's Highlights).

The **Supreme Court of Canada** rendered its judgment on **Saadati v Moorhead (2017 SCC 28, rendered on Jun 2, 2017)**. Saadati was involved in a collision in July of 2005 in British Columbia and sued the at-fault driver for damages. According to the Supreme Court decision, *“The trial judge found that the ... accident caused S[aadati] psychological injuries, including personality change and cognitive difficulties. ...and awarded S[aadati] \$100,000 for non-pecuniary damages.”* The trial decision was appealed to the BC Court of Appeal where the trial's \$100,000 non-pecuniary award was dismissed. The Supreme Court upheld the \$100,000 non-pecuniary award, determining:

- *“A finding of legally compensable mental injury need not rest, in whole or in part, on the claimant proving a recognized psychiatric injury.”*
- *“...a trier of fact adjudicating a claim of mental injury is not concerned with diagnosis, but with symptoms and their effects.”*
- *“Expert evidence can assist in determining whether or not a mental injury has been shown, but where psychiatric diagnosis is unavailable, it remains open to a trier of fact to find on other evidence adduced by the claimant that he or she has proven on a balance of probabilities the occurrence of mental injury.”*

At the current time, no adjustments have been made to our valuation estimates or views based on the judgment as rendered, but we continue to review and consider the implications of the judgment.

1.5 Harmonized Sales Tax

(There have been no changes to this section since last month's Highlights, other than updating the current valuation references.)

In the fiscal 2016-17 provincial budget released February 2, 2016, the New Brunswick Finance Minister announced a 2 percentage point increase in the provincial component of the harmonized sales tax (“HST”) **effective July 1st, 2016** increasing the combined HST rate in the province from 13% to 15%.

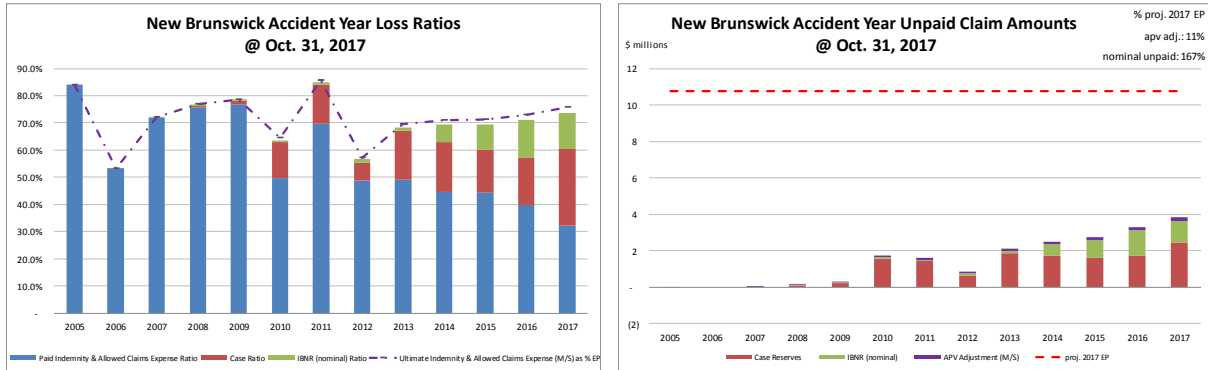
An adjustment for the HST rate increase was included in the updated loss cost trend structures selected using NB PPV Industry 2016-2 data, impacting the selected a priori loss ratios, however, no specific adjustments have been made to the valuation assumptions from the current valuation (September 30, 2017).

1.6 Current Provision Summary

The charts at the top of the next page show the current levels of claim liabilities² booked by accident

²Claim liabilities refer to provision for unpaid indemnity and allowed claims expenses. Allowed claims expenses are first party legal and other expenses as listed in the RSP Claims Guide. Claims expenses paid through the member company expense allowance are NOT included in this discussion.

year. The left chart displays life-to-date payments, case reserves, IBNR, and the total including actuarial present value adjustments against accident year earned premium. The right chart shows the associated dollar amounts for the components of the claim liabilities and the current projected amount of 2017 full year earned premium (the red hash-mark line) to provide some perspective.



"M/S" refers to "Member Statement" values – that is, actuarial present value adjustments at the selected discount rate.

The current actuarial present value adjustments balance (\$1.2 million – see table immediately below) represents 11% of the earned premium projected for the full year 2017 (see the upper right corner of the right chart above). If our current estimates of the nominal unpaid amounts prove to match actual claims payments, the actuarial present value adjustments will be released into the net operating result over future periods.

claim liabilities (\$000s)	amt	%
case	13,408	69.9%
ibnr	4,608	24.0%
M/S apv adjust.	1,162	6.1%
M/S total	19,178	100.0%

The table to the left breaks down the Member Statement (M/S) claim liabilities total into component parts, showing that the majority of the claim liabilities is in case reserves for this pool. Approximately 55% of the IBNR balance relates to accident years 2016 and 2017 (see Exhibit B). Approximately 76% of the M/S claim liabilities are

related to accident years 2013-2017 inclusive (i.e. the most recent 5 accident years).

The tables immediately below summarize the premium liabilities and the total policy liabilities.

premium liabilities (\$000s)			policy liabilities (\$000s)		
	amt	%		amt	%
unearned prem	6,584	126.4%	claim	18,016	73.9%
prem def/(dpac)	(1,643)	(31.6%)	premium	4,941	20.3%
M/S apv adjust.	266	5.1%	M/S apv adjust.	1,428	5.9%
M/S total	5,207	100.0%	M/S total	24,385	100.0%

2 Activity During the Month of October 2017

2.1 Recorded Premium and Claims Activity

The table at the top of the next page summarizes the extent to which premiums and claims amounts recorded during the month differ from projections reflected in the prior month's Operational Report³.

³There may be rounding differences in values in this document compared with the associated Bulletin and/or Operational Report.

New Brunswick RSP Actual vs Projected Summary: Recorded Transaction Amounts (\$ thousands)

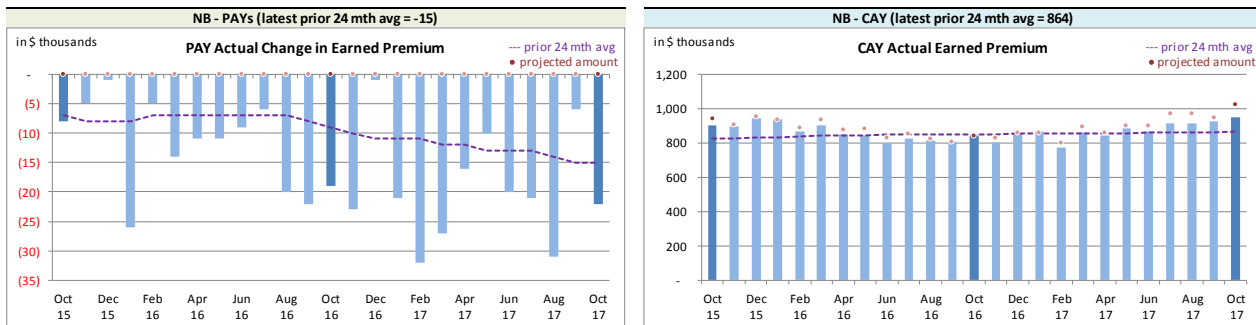
Accident Year	Earned Premium		Paid Indemnity & Allowed Claims Expense		Case increase / (decrease)		Recorded increase / (decrease)	
	Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected
Prior	(0)	(0)	200	115	(175)	(108)	25	7
2015	(1)	(1)	54	(8)	(115)	(63)	(62)	(72)
2016	(20)	(20)	42	(12)	203	211	245	199
2017	947	(78)	429	62	268	34	698	97
TOTAL	925	(99)	725	157	181	74	906	231

(Recorded transaction amounts exclude IBNR & other actuarial provisions)

Claims transaction activity is generally volatile and changes from one month to the next are anticipated due to this natural “process variance” (i.e. random variation), and this is particularly true where volumes are low as found in this RSP. Each month, the projection variances are reviewed for signs of projection bias and to identify potential ways to reduce the level of the variance. Commentary from our review is provided in the sub-sections that follow.

2.1.a Actual vs. Projected (AvsP): Earned Premium

The tables immediately below show actual **earned premium**⁴ activity in each of the most recent 25 calendar months, along with a “prior 24-month average” to show how each month’s actual compares with the average amount of the preceding 24 calendar months.

New Brunswick RSP Actual Earned Premium by Calendar Month


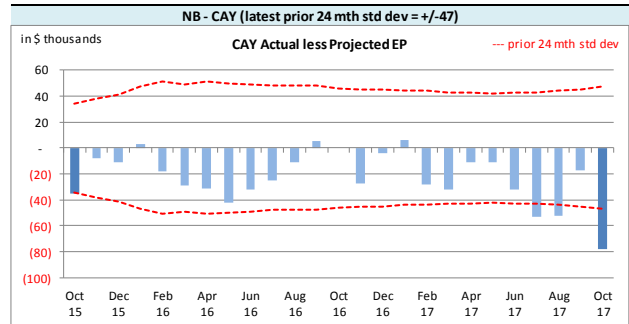
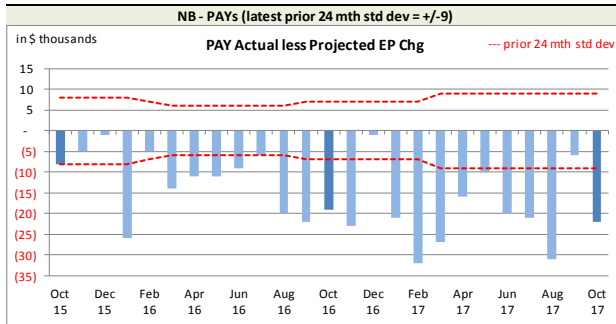
Earned premium changes during a given calendar month in relation to prior accident years tend to be at modest levels, although relatively high levels seem to occur in January each year. The heightened prior accident years’ activity for recent months is related to ineligible risks being removed from the RSP based on findings of the FA internal audit team with respect to recent audits.

The associated variance between the actual changes and the projections from the previous month are shown in the charts at the top of the next page. **Earned premium** change projections are all attributed to the current accident year as the projection upload does not accept **earned premium** changes for other accident years. We do not see this limitation as being significant for our purposes, but it does mean that the actual less projection variance will equal the actual **earned premium**

⁴Premium is earned on a daily basis based on the transaction term measured in days. As a result, months with 31 days earned relatively more than those with 30 days, and February earns the least.

change in relation to prior accident years.

New Brunswick RSP Actual vs. Projected Summary: Earned Premium Variances by Calendar Month



On Latest \$ thousands		
Earned Premium	PAYs	CAY
Mthly Avg EP Chg (prior 24 mths)	(15)	864
std dev	9	47
A-P <> std dev	18	4
% <> std dev	72.0%	16.0%
norm <> std dev	31.7%	31.7%

We project **earned premium** changes from known unearned premium and projected written premium levels, but upload the total projections as current accident year (CAY). This process has generated prior accident years' (PAYs) bias⁵, with actuals generally lower than our projections. However, the magnitude is not high relative to

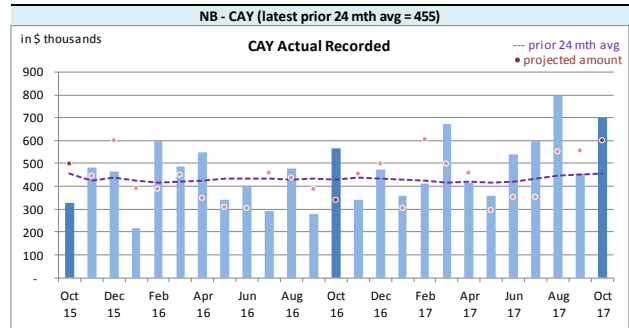
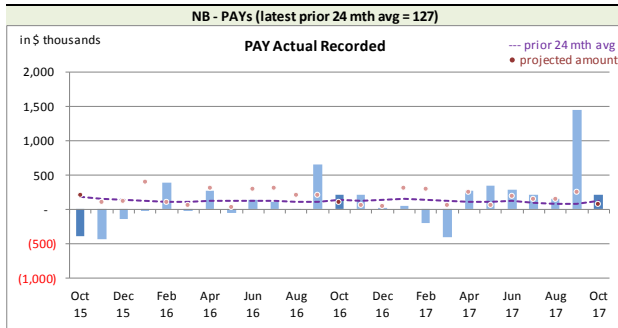
monthly premium, and the CAY variances are within the prior 24-month standard deviation more often than indicated by a normal distribution (see left table above). In addition to the PAYs' bias, the CAY has also shown bias, with actuals being generally lower than projected. Starting with the August 2016 projections, we have modified our projections processes in an attempt to account for CAY bias. Over time, we may consider other projection approaches to narrow monthly variance levels further, but it is not currently deemed a priority. Projection variances have also been exacerbated by written premium variances, where our projections, based on information provided by larger RSP users, have been proven to be too high (July variance of \$449 thousand, August variance of \$336 thousand, September variance of \$453 thousand and October variance of \$638 thousand).

2.1.b AvsP: Recorded Indemnity & Allowed Claims Expense

The charts at the top of the next page show actual **recorded** activity (**paid** and case reserve changes), in each of the most recent 25 calendar months, along with a "prior 24-month average" to show how each month's actual compares with the average amount of the preceding 24 calendar months.

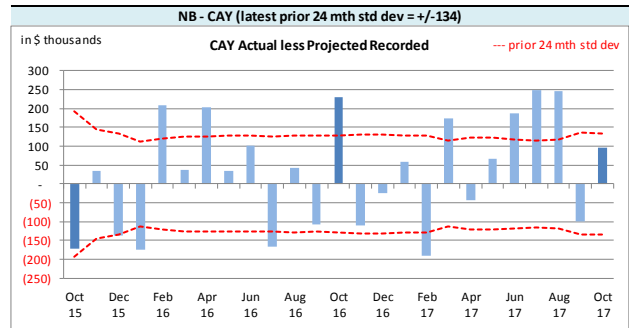
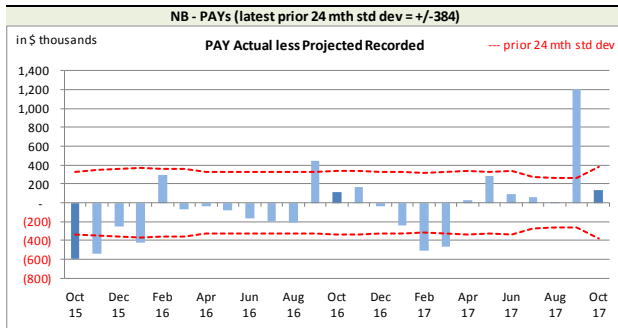
⁵The PAYs' variances will show bias as the projection upload forces all earned premium projections to be attributed to the CAY.

New Brunswick RSP Actual Recorded by Calendar Month



Recorded activity variances from the previous month’s projections are shown in the charts immediately below, including the “prior 24-month standard deviation” levels to show how the variances from projection compare with historical standard deviations.

New Brunswick RSP Actual vs Projected Summary: Recorded Variances by Calendar Month



On Latest \$ thousands			
	Recorded	PAYs	CAY
Mthly Avg Recorded (prior 24 mths)		127	455
std dev		384	134
A-P <> std dev		7	11
% <> std dev		28.0%	44.0%
norm <> std dev		31.7%	31.7%

With respect to **recorded** indemnity & allowed claims expense activity, caution must be exercised in reviewing the variances as this is a small pool and single claim transactions that are normal course for the business may look “unusual” and generate relatively “significant” variances that in nominal value terms are not that

significant. The prior accident years’ (PAYs) **recorded** variances (left chart above) have fallen outside one standard deviation of the overall period 28% of the time, indicating the projection process performs no better than simply projecting from the preceding 24-month average.

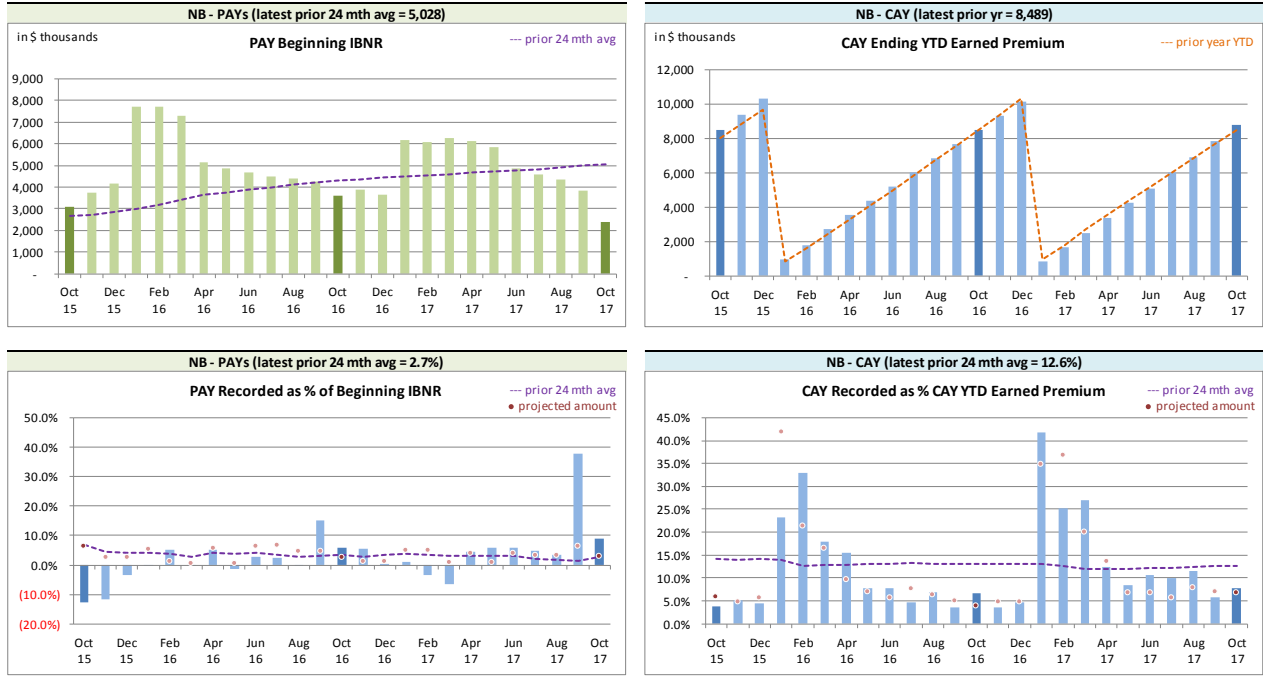
The current accident year (CAY) **recorded** variances (right chart above), with 44% outside of one standard deviation, suggests the projection process is performing worse than projecting simply on a 24-month average, and we note that CAY variances have been outside of the band in 3 of the last 5 months, and for 6 of the last 13 months.

The method for establishing IBNR adjusts automatically for changes in **earned premium** and **recorded** claims activity level (see sections 2.2 and 3).

We have included, for reference, additional charts at the top of the next page related to levels influencing **recorded** activity. Note in particular the increase in the level of PAYs beginning IBNR over the months. Part of this will be as a response to valuations and showing up as a beginning

IBNR change one month after the valuation is implemented (i.e. April, June, September, and November).

New Brunswick RSP Levels that influence⁶ Recorded activity by Calendar Month



We track beginning prior accident years’ IBNR as **recorded** activity “comes out of” IBNR. Changes in the prior accident years’ beginning IBNR (see upper left chart above) occur for several possible reasons:

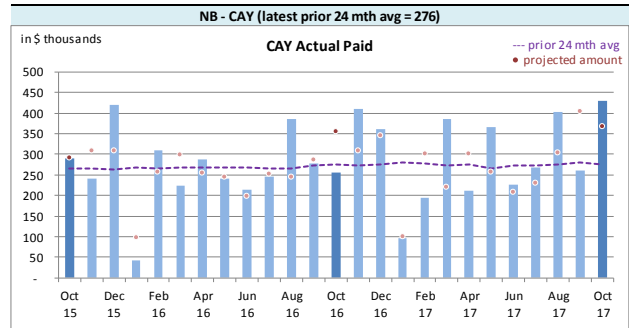
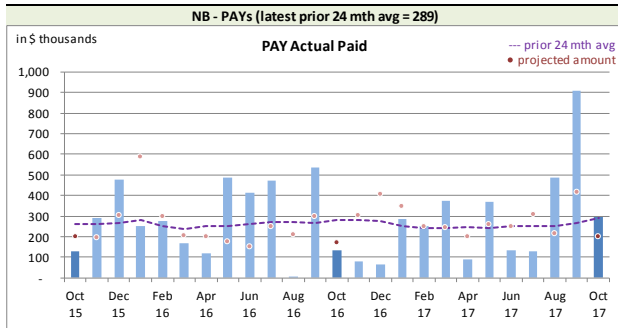
- to offset actual **recorded** activity (through loss ratio matching);
- the annual switchover as a current accident year becomes a prior accident year (occurs in January); and
- when a new valuation is implemented, where the valuation resulted in changes to the selection of prior accident years’ ultimate (will show up as a beginning IBNR change one month after the valuation is implemented, i.e. the change will generally show in April, June, September, and November).

2.1.c AvsP: Paid Indemnity & Allowed Claims Expense

The charts at the top of the next page show actual **paid** activity in each of the most recent 25 calendar months, along with a “prior 24-month average” to show how each month’s actual compares with the average amount of the preceding 24 calendar months.

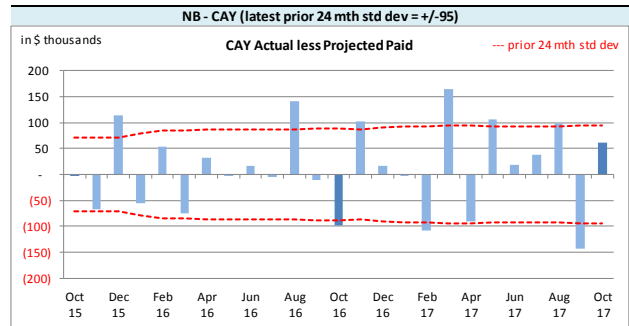
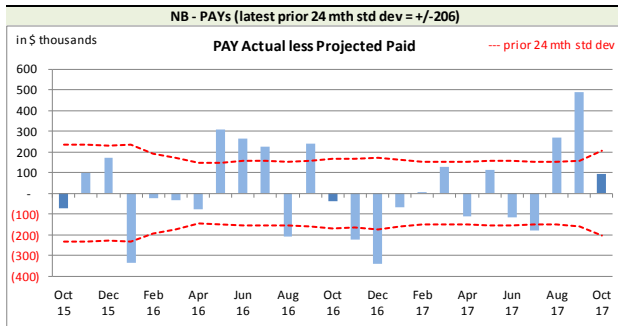
⁶Our recorded activity projections for the prior accident years are based on selected ratios of recorded activity to beginning unpaid balances, whereas the current accident year projections are based on selected ratios of year-to-date IBNR to year-to-date selected ultimate (i.e. selected LR x earned premium), deriving year-to-date recorded as selected ultimate less IBNR. In both cases, the ratio selection is based on our review of the more recent recorded activity and recent AvsP analyses.

*New Brunswick RSP Actual **Paid** activity by Calendar Month*



Paid activity variances from the previous month’s projections are shown in the charts below, including the “prior 24-month standard deviation” levels to show how the variances from projection compare with historical standard deviations.

*New Brunswick RSP Actual vs Projected Summary: **Paid** Variances by Calendar Month*



On Latest \$ thousands		
Paid	PAYs	CAY
Mthly Avg Paid (prior 24 mths)	289	276
std dev	206	95
A-P <> std dev	11	9
% <> std dev	44.0%	36.0%
norm <> std dev	31.7%	31.7%

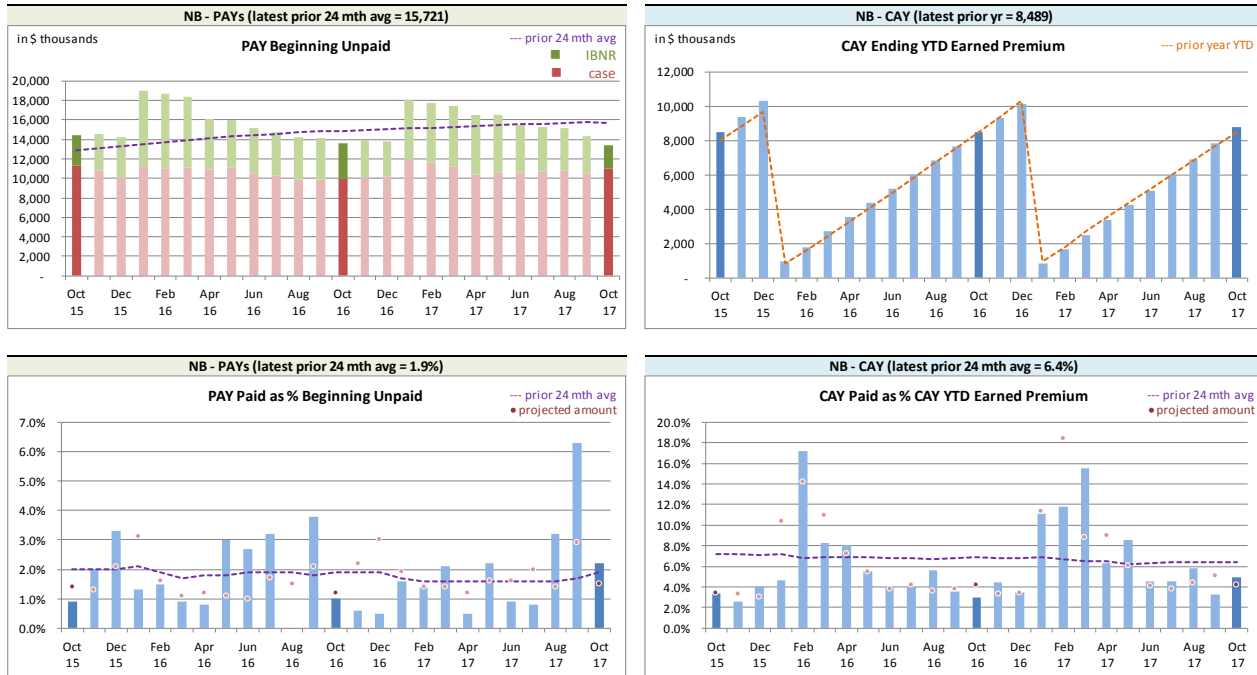
With respect to **paid** indemnity & allowed claims expense, caution must be exercised in reviewing the variances as this is a small pool, and single claim transactions that are normal course for the business may look “unusual” and generate relatively “significant” variances that in nominal value terms are not that significant. That said, the

prior accident years’ (PAYs) **paid** variances (left chart above) do not seem to indicate bias. At 44%, the percentage of months with variances outside of the experience period’s standard deviation suggests the projection process performs worse than projecting simply on average values.

The current accident year (CAY) **paid** variances (right above) do not appear to show bias, but at 36%, the percentage of months with variances falling outside of the experience period’s standard deviation suggests the projection process is performing no better than simply projecting a 24-month average.

We have included, for reference, additional charts below related to levels influencing **paid** activity.

New Brunswick RSP Levels that influence⁷ Paid activity by Calendar Month



We track beginning prior accident years’ unpaid balance (case and IBNR) as **paid** activity “comes out of” the unpaid balance. Changes in the prior accident years’ beginning unpaid balance (see upper left chart above) occur for several possible reasons:

- to offset actual **paid** activity (may reduce case or IBNR or both);
- the annual switchover as a current accident year becomes a prior accident year (occurs in January); and
- when a new valuation is implemented, where the valuation resulted in changes to the selection of prior accident years’ ultimate (will show up as a beginning unpaid balance change one month after the valuation is implemented, i.e. the change will generally show in April, June, September, and November).

2.2 Actuarial Provisions

An “ultimate loss ratio matching method” (described in section 3) was used to determine the month’s IBNR⁸, and factors were applied to the nominal unpaid claims liability (case plus IBNR) to determine the discount amount (shown as a negative value to indicate its impact of reducing the liability) and the Provisions for Adverse Deviations. The loss ratios and the factors used to determine the current month’s provisions and projections were based on the applicable valuation. The table at the top of the next page summarizes variances in provisions included in the October

⁷Our paid projections for the prior accident years are based on selected ratios of paid to beginning unpaid balances, whereas the current accident year projections are based on selected ratios of year-to-date paid to year-to-date selected ultimate indemnity (i.e. selected LR x earned premium). In both cases, the ratio selection is based on our review of the more recent recorded activity and recent AvsP analyses.

⁸For ease of discussion, “IBNR” is used in place of “provisions for incurred but not recorded (IBNR) and development”.

2017 Operational Report and the associated one-month projections from last month's Report.

New Brunswick RSP Actual vs Projected Summary: IBNR and APV Amounts (\$ thousands)

Table 02

Accident Year	IBNR		actuarial present value adjustments				IBNR + actuarial present value adjustments	
	Actual	Actual less Projected	Discount Amount		Provisions for Adverse Deviations		Actual	Actual less Projected
			Actual	Actual less Projected	Actual	Actual less Projected		
Prior	1,152	254	(308)	(106)	884	4	1,728	152
2015	930	620	(123)	(57)	305	55	1,112	618
2016	1,368	276	(171)	(69)	366	42	1,563	249
2017	1,158	(57)	(210)	(60)	419	(17)	1,367	(134)
TOTAL	4,608	1,093	(812)	(292)	1,974	84	5,770	885

The IBNR provision is \$1.1 million higher than projected from last month, counterbalancing the recorded claims activity and adjusting for the earned premium variance impacts indicated in section 2.1, and due to the valuation implementation.

Exhibit G shows the accident year IBNR amount change from last month to this month broken down into:

- (i) the change projected last month;
- (ii) the additional change due to variances in earned premium (because we apply a loss ratio to earned premium in determining ultimate level) and/or recorded claims (as IBNR is calculated as ultimate less recorded) differences; and
- (iii) the additional change due to valuation implementation impacts (as applicable)

The variances associated with (ii) above are discussed in sections 2.1.a and 2.1.b.

The table immediately below summarizes the variances in the provisions for deferred policy acquisition cost asset included in the October 2017 Operational Report and the one-month projections from last month's Report. This RSP is in a deferred policy acquisition cost asset position (shown as a negative amount) prior to and after actuarial present value adjustments. Actuarial present value adjustments decrease the asset value as the adjustments increase the expected future policy obligations (costs) associated with the unearned premium. The variances noted are mainly driven by the unearned premium variance and due to valuation implementation.

New Brunswick RSP Actual vs Projected Summary: Premium Deficiency / (DPAC) Amounts (\$ thousands)

Table 03

	Premium Deficiency / (Deferred Policy Acquisition Costs)		actuarial present value adjustments		Premium Deficiency / (DPAC) including actuarial present value adjustments	
	Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected
balance:	(1,643)	157	266	(93)	(1,377)	64
balance as % unearned premium:	(25.0%)	0.3%	4.0%	(1.0%)	(20.9%)	(0.7%)
actual unearned premium:	6,584					
less projected:	(538)					

3 Ultimate Loss Ratio Matching Method

An “ultimate loss ratio matching method” continues to be applied to the current month and two projected months shown in the Operational Reports, with IBNR determined by accident year as follows:

- (a) Earned premium to-date
- (b) Ultimate loss⁹ ratio per latest valuation
- (c) Estimated ultimate incurred = (a) x (b)
- (d) Recorded indemnity & allowed claims expense to-date
- (e) IBNR = (c) – (d)

4 Calendar Year-to-Date Results

The table at the top of the next page summarizes the calendar year-to-date results for indemnity & allowed claims expenses¹⁰, including IBNR.

In calculating the amounts as percentages of earned premium, the calendar year-to-date earned premium has been used, which includes not only the earned premium associated with the current accident year, but also earned premium adjustments related to prior accident years. Specifically, the current accident year (CAY) ratio in the table is 75.3% rather than 73.5% (the valuation ultimate ratio for accident year 2017), as the calendar year-to-date earned premium includes prior accident year earned premium adjustments. (Note that the ratios in this table may differ slightly from those shown in the New Brunswick RSP Summary of Operations due to rounding.)

New Brunswick RSP Calendar Year-to-Date Indemnity & Allowed Claims Expense Summary (\$ thousands)

Table 04	YTD Nominal Values		YTD actuarial present value adjustment		YTD Total		Change from Prior Month YTD	
	Amount	% EP	Amount	% EP	Amount	% EP	Amount	LR pts
PAYs	(340)	(4.0%)	(896)	(10.4%)	(1,236)	(14.4%)	1,135	16.5%
CAY	6,468	75.3%	209	2.4%	6,677	77.7%	735	0.2%
TOTAL	6,128	71.3%	(687)	(8.0%)	5,441	63.3%	1,870	16.7%

(“% EP” based on 2017 calendar year-to-date earned premium; ratios may not total due to rounding)

The prior accident years (PAYs) changes from last month are due to the release of the actuarial present value adjustments with claims payments and due to valuation implementation. The loss ratio change year-to-date reflects not only changes in the prior accident year levels, but also the increase in the calendar year-to-date earned premium with an additional month’s earned premium and the valuation implementation.

For the current accident year (CAY), changes in the year-to-date total reflects the additional month’s exposure and regular changes to actuarial present value adjustments as the year ages and due to the valuation implementation.

⁹“Loss” here refers to indemnity and allowed claims expenses, but does not include the claims expense allowance included in member company overall expense allowances (“Expense Allowance” in the Operational Report).

¹⁰Allowed claims expenses are first party legal and other expenses as listed in the RSP Claims Guide. Claims expenses paid through the member company expense allowance are NOT included in this analysis.

5 Current Operational Report – Additional Exhibits

Section 6 provides exhibits pertaining to the actuarial provisions reflected in the current month's Operational Report.

IBNR (including actuarial present value adjustments) presented in section 6, Exhibit A, were derived on a discounted basis, and therefore reflect the time value of money and include an explicit provision for adverse deviations in accordance with accepted actuarial practice in Canada.

IBNR presented in section 6, Exhibit B, does NOT include any actuarial present value adjustments. The "Total IBNR" from this exhibit is shown in the Operational Report as "Undiscounted IBNR".

The ultimate loss ratios detailed in section 6, Exhibit B, refer to the estimates derived on the basis of various actuarial methodologies applied to the experience of the New Brunswick Risk Sharing Pool for the purposes of the most recent quarterly valuation. As discussed in section 3, IBNR reflected in the current month's Operational Report was derived as the difference between the estimated ultimate for the claims amount (i.e. earned premium x ultimate loss ratio) and the associated current recorded amounts (life-to-date payments plus current case reserves).

6 EXHIBITS

The exhibits listed below are provided on the pages that follow:

- EXHIBIT A IBNR for Member Sharing – includes Actuarial Present Value Adjustments
- EXHIBIT B IBNR
- EXHIBIT C Premium Liabilities
- EXHIBIT D Projected Year-end Policy Liabilities
- EXHIBIT E Discount Rate & Margins for Adverse Deviations
- EXHIBIT F Interest Rate Sensitivity
- EXHIBIT G Components of IBNR Change During Month

EXHIBIT A

IBNR for Member Sharing – includes Actuarial Present Value Adjustments

TABLE EXHIBIT A

		Amounts in \$000s					
IBNR + M/S actuarial present value adjustments		Accident Year	Actual Sep. 2017	Actual Oct. 2017	Projected Nov. 2017	Projected Dec. 2017	Projected Dec. 2018
	2005		(2)	(2)	(2)	(2)	(2)
	2006		-	-	-	-	-
	2007		35	22	22	22	11
	2008		81	75	74	73	37
	2009		67	77	76	74	40
	2010		181	175	173	171	120
	2011		62	171	170	167	113
discount rate	2012		259	184	183	181	100
1.74%	2013		325	259	257	255	164
	2014		595	767	744	737	473
interest rate margin	2015		510	1,112	1,097	1,072	801
25 basis pts	2016		1,363	1,563	1,500	1,453	1,205
	2017		1,330	1,367	1,481	1,599	1,195
	2018		-	-	-	-	2,003
	TOTAL		4,806	5,770	5,775	5,802	6,260
	Change			964	5	27	

Please see Exhibit G, page 1 for Components of Change during Current Month

EXHIBIT B
IBNR

TABLE EXHIBIT B

Amounts in \$000s

IBNR	Ultimate Loss Ratio	Accident Year	Actual Sep. 2017	Actual Oct. 2017	Projected Nov. 2017	Projected Dec. 2017	Projected Dec. 2018
	84.0%	2005	(2)	(2)	(2)	(2)	(2)
	53.2%	2006	-	-	-	-	-
	72.2%	2007	33	21	21	21	9
	76.8%	2008	68	64	63	62	28
	78.6%	2009	46	58	57	56	24
	63.4%	2010	47	59	58	57	25
	84.7%	2011	(63)	67	66	65	29
	56.6%	2012	192	132	131	130	57
	68.4%	2013	174	133	132	131	58
	69.4%	2014	421	620	601	595	349
	69.4%	2015	320	930	921	903	637
	71.0%	2016	1,138	1,368	1,313	1,274	1,029
	73.5%	2017	1,073	1,158	1,251	1,349	987
	72.1%	2018	-	-	-	-	1,659
		TOTAL	3,447	4,608	4,612	4,641	4,889
		Change		1,161	4	29	

Please see Exhibit G, page 2 for Components of Change during Current Month

EXHIBIT C

Premium Liabilities

TABLE EXHIBIT C

	Amounts in \$000s				
	Actual Sep. 2017	Actual Oct. 2017	Projected Nov. 2017	Projected Dec. 2017	Projected Dec. 2018
Premium Liabilities					
(1) unearned premium (UP)	6,391	6,584	6,805	6,860	8,315
FOR MEMBER SHARING					
(2) expected future costs ratio {% of (1)}	79.8%	79.1%	78.9%	78.7%	79.8%
(3) expected future costs {(1) x (2)}	5,101	5,207	5,368	5,397	6,636
(4) premium deficiency / (deferred policy acquisition cost)	(1,290)	(1,377)	(1,437)	(1,463)	(1,679)
Excluding Actuarial Present Value Adjustments					
(5) expected future costs ratio {% of (1)}	74.8%	75.0%	74.9%	74.7%	75.7%
(6) expected future costs {(1) x (5)}	4,779	4,941	5,095	5,122	6,298
(7) premium deficiency / (deferred policy acquisition cost)	(1,612)	(1,643)	(1,710)	(1,738)	(2,017)

EXHIBIT D
Projected Year-end Policy Liabilities

The table below presents the projected policy liabilities as at December 31, 2017, broken down by component.

New Brunswick ending 2017	Projected Balances as at Dec. 31, 2017 (\$000s)									
	nominal values			actuarial present value adjustments (apvs)					TOTAL	
	Acc Yr	Case	IBNR	Total Unpaid	discount	investment PfAD	nominal development PfAD	development PfAD discount		Total apvs
2005	-	(2)	(2)	-	-	-	-	-	-	(2)
2006	-	-	-	-	-	-	-	-	-	-
2007	-	21	21	(1)	-	2	-	-	1	22
2008	79	62	141	(4)	1	14	-	-	11	152
2009	197	56	253	(7)	1	25	(1)	-	18	271
2010	1,551	57	1,608	(50)	8	161	(5)	-	114	1,722
2011	1,410	65	1,475	(46)	6	147	(5)	-	102	1,577
2012	642	130	772	(27)	4	77	(3)	-	51	823
2013	1,833	131	1,964	(75)	10	196	(7)	-	124	2,088
2014	1,695	595	2,290	(92)	14	229	(9)	-	142	2,432
2015	1,458	903	2,361	(113)	14	281	(13)	-	169	2,530
2016	1,592	1,274	2,866	(158)	20	335	(18)	-	179	3,045
PAYs (sub-total):	10,457	3,292	13,749	(573)	78	1,467	(61)	-	911	14,660
CAY (2017)	3,014	1,349	4,363	(253)	35	497	(29)	-	250	4,613
claims liabilities:	13,471	4,641	18,112	(826)	113	1,964	(90)	-	1,161	19,273
	Unearned Premium	Premium Deficiency / (DPAC)	Total Provision	discount	investment PfAD	nominal development PfAD	development PfAD discount	-	Total apvs	TOTAL*
premium liabilities:	6,860	(1,738)	5,122	(188)	25	455	(17)	-	275	5,397
*Total may not be sum of parts, as apvs apply to future costs within UPR										
policy liabilities:			23,234	(1,014)	138	2,419	(107)	-	1,436	24,670

EXHIBIT E

Discount Rate & Margins for Adverse Deviations

The tables below present selected margins for adverse development by coverage (the total is a weighted average, based on the unpaid claims projection for December 31, 2017 from the valuation), followed by the selected discount rate and the associated margin for investment income.

Selected Claims Development MfADs (Sep. 30, 2017)

Accident Year	Third Party Liability	Accident Benefits	Other Coverages	Total
2005	10.0%	10.0%	10.0%	10.0%
2006	10.0%	10.0%	10.0%	10.0%
2007	10.0%	10.0%	10.0%	10.0%
2008	10.0%	10.0%	10.0%	10.0%
2009	10.0%	10.0%	10.0%	10.0%
2010	10.0%	10.0%	10.0%	10.0%
2011	10.0%	10.0%	10.0%	10.0%
2012	10.0%	10.0%	10.0%	10.0%
2013	10.0%	10.0%	10.0%	10.0%
2014	10.0%	10.0%	7.5%	10.0%
2015	12.4%	10.0%	6.3%	11.9%
2016	12.4%	10.0%	6.2%	11.7%
2017	12.3%	10.0%	5.7%	11.4%
2018	11.7%	10.0%	5.1%	9.2%
prem liab	11.7%	10.0%	5.1%	9.2%

discount rate: 1.74%
 margin (basis points): 25

EXHIBIT F
Interest Rate Sensitivity

The tables below present sensitivity to the member statement claims liability as projected to Dec. 31, 2017 from the latest valuation date (projections in exhibits A to D are also to Dec. 31, 2017, but are based on more up-to-date information). We have included both the most recent valuation selection (1.74%), the prior valuation assumption (1.17%) and the prior fiscal year end valuation assumption (0.52%) for comparative purposes. A 25 basis point margin for investment return adverse deviation is used in all scenarios presented.

\$ Format: \$000s

Actuarial Present Value of Provisions at Various Discount Rates - Dec. 31, 2017 projected Unpaid								
AY	0.74%	1.24%	1.74%	2.24%	2.74%	3.24%	1.17%	0.52%
2005	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-
2007	20	20	20	20	20	20	20	21
2008	138	137	136	135	134	133	137	139
2009	246	244	242	240	238	236	244	246
2010	1,452	1,439	1,426	1,414	1,401	1,389	1,441	1,458
2011	1,600	1,586	1,572	1,558	1,544	1,531	1,588	1,607
2012	801	793	785	777	770	762	794	805
2013	1,994	1,972	1,950	1,929	1,908	1,888	1,975	2,004
2014	2,382	2,354	2,327	2,301	2,275	2,250	2,358	2,395
2016	3,336	3,282	3,229	3,178	3,128	3,080	3,289	3,361
2017	4,892	4,807	4,727	4,647	4,571	4,497	4,819	4,930
Total	19,540	19,274	19,018	18,767	18,522	18,285	19,311	19,662
	curr - 100 bp	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	prior val assumption	prior fyr end assumption

Dollar Impact Relative to Valuation Assumption								
AY	0.74%	1.24%	1.74%	2.24%	2.74%	3.24%	1.17%	0.52%
Total	522	256	-	(251)	(496)	(733)	293	644
	curr - 100 bp	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	prior val assumption	prior fyr end assumption

Percentage Impact Relative to Valuation Assumption								
AY	0.74%	1.24%	1.74%	2.24%	2.74%	3.24%	1.17%	0.52%
2005	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	5.0%
2008	1.5%	0.7%	-	(0.7%)	(1.5%)	(2.2%)	0.7%	2.2%
2009	1.7%	0.8%	-	(0.8%)	(1.7%)	(2.5%)	0.8%	1.7%
2010	1.8%	0.9%	-	(0.8%)	(1.8%)	(2.6%)	1.1%	2.2%
2011	1.8%	0.9%	-	(0.9%)	(1.8%)	(2.6%)	1.0%	2.2%
2012	2.0%	1.0%	-	(1.0%)	(1.9%)	(2.9%)	1.1%	2.5%
2013	2.3%	1.1%	-	(1.1%)	(2.2%)	(3.2%)	1.3%	2.8%
2014	2.4%	1.2%	-	(1.1%)	(2.2%)	(3.3%)	1.3%	2.9%
2016	3.3%	1.6%	-	(1.6%)	(3.1%)	(4.6%)	1.9%	4.1%
2017	3.5%	1.7%	-	(1.7%)	(3.3%)	(4.9%)	1.9%	4.3%
Total	2.7%	1.3%	-	(1.3%)	(2.6%)	(3.9%)	1.5%	3.4%
	curr - 100 bp	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	prior val assumption	prior fyr end assumption

EXHIBIT G

Page 1 of 2

Components of Member Statement IBNR (i.e. “Discounted”) Change During Month

RSP		New Brunswi						M/S IBNR - in \$000s
AccountCode Desc		IBNR - Discou						
AccYear	Values							Sum of Current Month Final Amount
	Sum of Prior Month Actual Amount	Sum of Projected Change	Sum of Change Due to AvsP Variances	Sum of Change Due to Valuation Implementation	Sum of Total Change	Sum of % Total Change		
2005	(2)	-	-	-	-	-	(2)	
2006	-	-	-	-	-	-	-	
2007	35	(1)	1	(13)	(13)	(37.1%)	22	
2008	81	(1)	(4)	(1)	(6)	(7.4%)	75	
2009	67	(1)	-	11	10	14.9%	77	
2010	181	(3)	3	(6)	(6)	(3.3%)	175	
2011	62	(1)	(14)	124	109	175.8%	171	
2012	259	(4)	3	(74)	(75)	(29.0%)	184	
2013	325	(5)	(110)	49	(66)	(20.3%)	259	
2014	595	(11)	103	80	172	28.9%	767	
2015	510	(16)	72	546	602	118.0%	1,112	
2016	1,363	(49)	(214)	463	200	14.7%	1,563	
2017	1,330	171	(163)	29	37	2.8%	1,367	
Grand Total	4,806	79	(323)	1,208	964	20.1%	5,770	

EXHIBIT G

Components of IBNR (i.e. “Undiscounted”) Change During Month

RSP **New Brunswi**
AccountCode Desc **IBNR - Undisc** **nted** IBNR - in \$000s

AccYear	Values				Sum of Total Change	Sum of % Total Change	Sum of Current Month Final Amount
	Sum of Prior Month Actual Amount	Sum of Projected Change	Sum of Change Due to AvsP Variances	Sum of Change Due to Valuation Implementation			
2005	(2)	-	-	-	-	-	(2)
2006	-	-	-	-	-	-	-
2007	33	(1)	1	(12)	(12)	(36.4%)	21
2008	68	(1)	(3)	-	(4)	(5.9%)	64
2009	46	(1)	-	13	12	26.1%	58
2010	47	(1)	1	12	12	25.5%	59
2011	(63)	1	(1)	130	130	(206.3%)	67
2012	192	(4)	4	(60)	(60)	(31.3%)	132
2013	174	(3)	(111)	73	(41)	(23.6%)	133
2014	421	(8)	102	105	199	47.3%	620
2015	320	(10)	71	549	610	190.6%	930
2016	1,138	(46)	(213)	489	230	20.2%	1,368
2017	1,073	142	(153)	96	85	7.9%	1,158
Grand Total	3,447	68	(302)	1,395	1,161	33.7%	4,608