



NOVA SCOTIA RISK SHARING POOL

APRIL 2019 OPERATIONAL REPORT

ACTUARIAL HIGHLIGHTS

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ACTUARIAL HIGHLIGHTS**RSP NOVA SCOTIA****OPERATIONAL REPORT****APRIL 2019**

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1 Summary

1.1 Valuation Schedule (Fiscal Year 2019)

The April 2019 Operational Report leverages actuarial assumptions consistent with last month (that is, it does not reflect the results of an updated valuation). The table immediately below summarizes the implemented valuations and future scheduled valuations for fiscal year 2019.

NOVA SCOTIA RISK SHARING POOL FISCAL YEAR 2019 – SCHEDULE OF VALUATIONS			
Valuation Date	Discount Rate (per annum)	Operational Report	Description of Changes
Sep. 30, 2018 (completed)	2.28% mfad 25 bp	Oct. 2018	updated valuation (roll forward): accident year 2018 loss ratio <u>decreased</u> 0.7 points to 92.9%; discount rate <u>increased</u> by 42 basis points; no change to selected margins for adverse deviations
Dec. 31, 2018 (completed)	1.93% mfad 25 bp	Mar. 2019	updated valuation: accident year 2019 loss ratio <u>decreased</u> 0.2 points to 96.3%; discount rate <u>decreased</u> by 35 basis points; no change to selected margins for adverse deviations
Mar. 31, 2019		May 2019	update valuation (roll forward)
Jun. 30, 2019		Aug. 2019	update valuation
Sep. 30, 2019		Oct. 2019	update valuation (roll forward)

Under the proposed schedule for fiscal year 2019, the “off-half” valuation quarters ending March 31, 2019 and September 30, 2019 would not reflect a full valuation update of assumptions, but would rather “roll-forward” key assumptions from the previous valuation.

1.2 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.

1.3 Consideration of Recent Legal Decisions and Changes in Legislation / Regulation¹

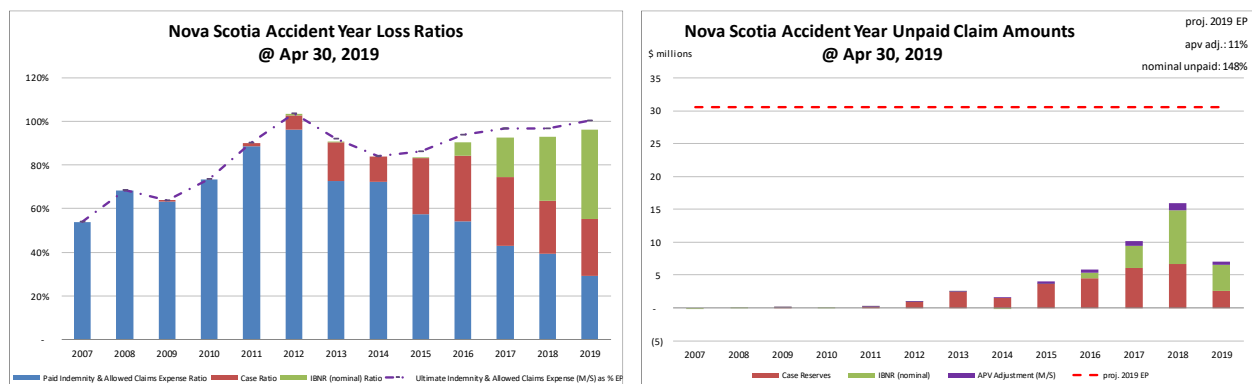
There have been no changes in these descriptions since last month's Highlights.

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.

The **Nova Scotia Court of Appeal** confirmed, in a unanimous decision released on **January 18, 2019** in relation to **Sparks v Holland (2019 NSCA 3)**, that future Canada Pension Plan (CPP) disability benefits are deductible from future income loss awards in motor-vehicle accident claims in that province. Sparks sustained injuries as a result of a motor vehicle accident in Nova Scotia and sought damages for personal injuries and loss of income. The decision supported an earlier decision (Tibbets v Murphy, 2017 NSCA 35) that both past and future CPP disability benefits are deductible under section 133A of the Insurance Act. At the current time, no adjustments have been made to our valuation estimates as a result of this decision.

1.4 Current Provision Summary

The charts immediately below show the current levels of claim liabilities² booked by accident 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 2019 full year earned premium (the red hash-mark line) to provide some perspective.



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

The current actuarial present value adjustments balance (\$3.4 million – see table at the top of the next page) represents 11% of the earned premium projected for the full year 2019 (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.

¹This link is to a helpful guide on how bills become laws: <http://www.ontla.on.ca/lao/en/media/laointernet/pdf/bills-and-lawmaking-background-documents/how-bills-become-law-en.pdf>.

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.

claim liabilities (\$000s)		
	amt	%
case	28,520	58.7%
ibnr	16,622	34.2%
M/S apv adjust.	3,412	7.0%
M/S total	48,554	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 for this RSP is in case reserves. Approximately 74% of the IBNR balance relates to accident years 2018 and 2019 (see Exhibit B). Approximately 89% of the M/S total claim

liabilities are related to accident years 2015-2019 inclusive (i.e. the most recent 5 accident years) and less than 1% is related to accident years 2009 and prior (i.e. prior to the most recent 10 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	14,797	96.6%	claim	45,142	70.7%
prem def/(dpac)	(264)	(1.7%)	premium	14,533	22.8%
M/S apv adjust.	790	5.2%	M/S apv adjust.	4,202	6.6%
M/S total	15,323	100.0%	M/S total	63,877	100.0%

2 Activity During the Month of April 2019

2.1 Recorded Premium and Claims Activity

The table immediately below summarizes the extent to which premiums and claims amounts recorded during the month differ from projections reflected in the prior month's Operational Report³.

Nova Scotia RSP Actual vs Projected Summary: Recorded Transaction Amounts (\$ thousands)

Table 01 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	-	-	313	(15)	(261)	52	51	36
2017	-	-	211	114	(110)	(119)	101	(5)
2018	(5)	(5)	145	(156)	(285)	(226)	(140)	(382)
2019	2,472	(38)	988	186	80	(631)	1,068	(445)
TOTAL	2,467	(43)	1,657	130	(577)	(925)	1,081	(796)

(Recorded transaction amounts exclude IBNR & other actuarial provisions)

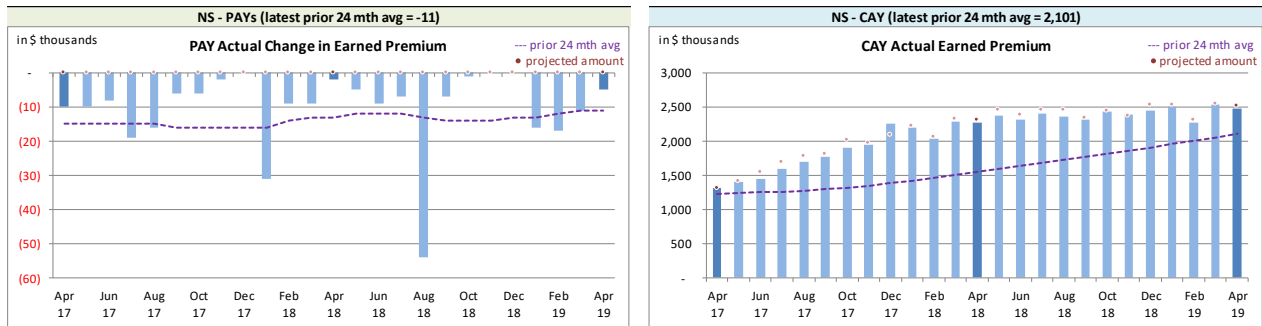
Claims transaction activity is generally volatile and changes from one month to the next are anticipated due to this natural “process variance” (i.e. random variation), and this is particularly true where volumes are low as found in this RSP. Each month, the projection variances are reviewed for signs 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.

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

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

The charts 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.

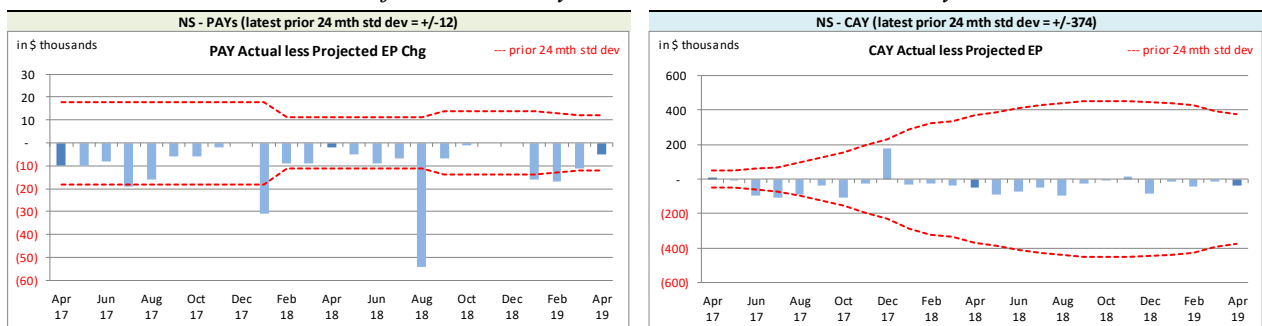
Nova Scotia RSP Actual **Earned Premium** by Calendar Month



Earned premium changes during a given calendar month in relation to prior accident years tend to be at modest levels, although relatively high levels generally occur at the beginning of each year.

The associated variance between the actual changes and the projections from the previous month are shown in the charts immediately below. **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** change in relation to prior accident years.

Nova Scotia 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)	(11)	2,101	
std dev	12	374	
A-P <> std dev	5	2	
% <> std dev	20.0%	8.0%	
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 projected, although

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.

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

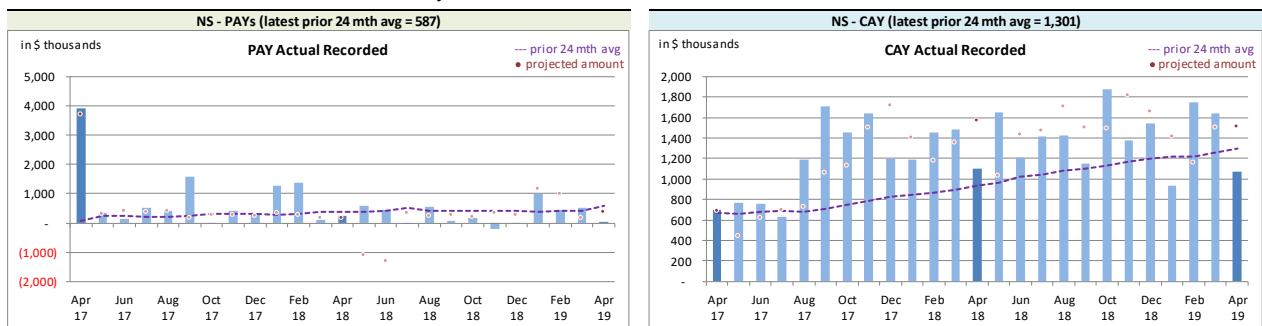
the magnitude is not high relative to monthly premium. In addition to the PAYs' bias, the CAY has also shown bias⁶, with actuals being generally lower than projected, and we have modified our projections processes in response. Over time, we may consider other projection approaches to narrow monthly variance levels further, but it is not currently deemed a priority.

Readers will note the significant widening of the CAY standard deviation band, reflecting volume increases and the impact as those increases are earned.

2.1.b AvsP: Recorded Indemnity & Allowed Claims Expense

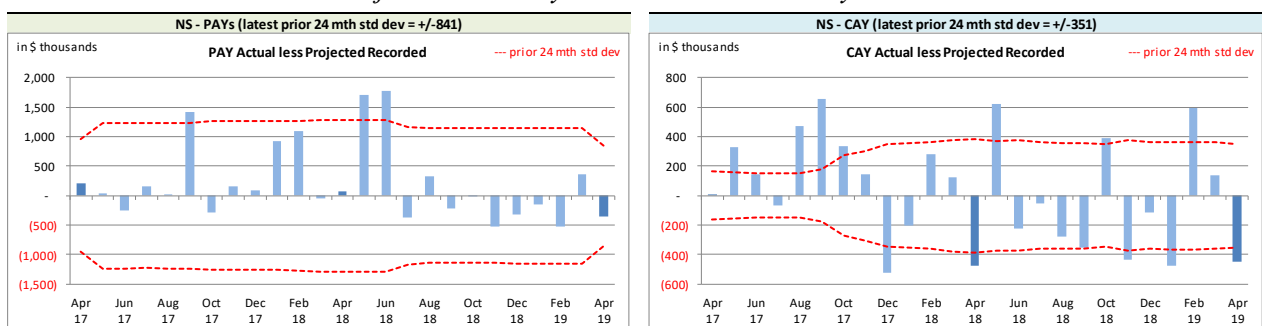
The charts immediately below show actual **recorded** activity (**paid** and case reserve changes), in each of the most recent 25 calendar months, along with a "prior 24-month average" to show how each month's actual compares with the average amount of the preceding 24 calendar months.

*Nova Scotia 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.

*Nova Scotia RSP Actual vs Projected Summary: **Recorded** Variances by Calendar Month*



⁶We measure bias based on a 95% confidence range for a binominal distribution with trials based on the range being considered (24 in this case) and 50% probability of success. The 24-month variances at April 2019 has only 3 months where the actuals were higher than projected, and as the 95% confidence range is 7 to 17, bias continues to be indicated.

On Latest \$ thousands		
Recorded	PAYs	CAY
Mthly Avg Recorded (prior 24 mths)	587	1,301
std dev	841	351
A-P <> std dev	3	12
% <> std dev	12.0%	48.0%
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 in

relative or overall terms. That said, 12% of prior accident years' (PAYs) **recorded** variances over the last 25 calendar months have fallen outside of one standard deviation of the actual **recorded** amounts (see table above), suggesting the projection process has performed better than simply projecting the prior 24-month average amount (assuming it follows a normal distribution). Bias has not been indicated at a 95% confidence level on a lagging 24-month basis.

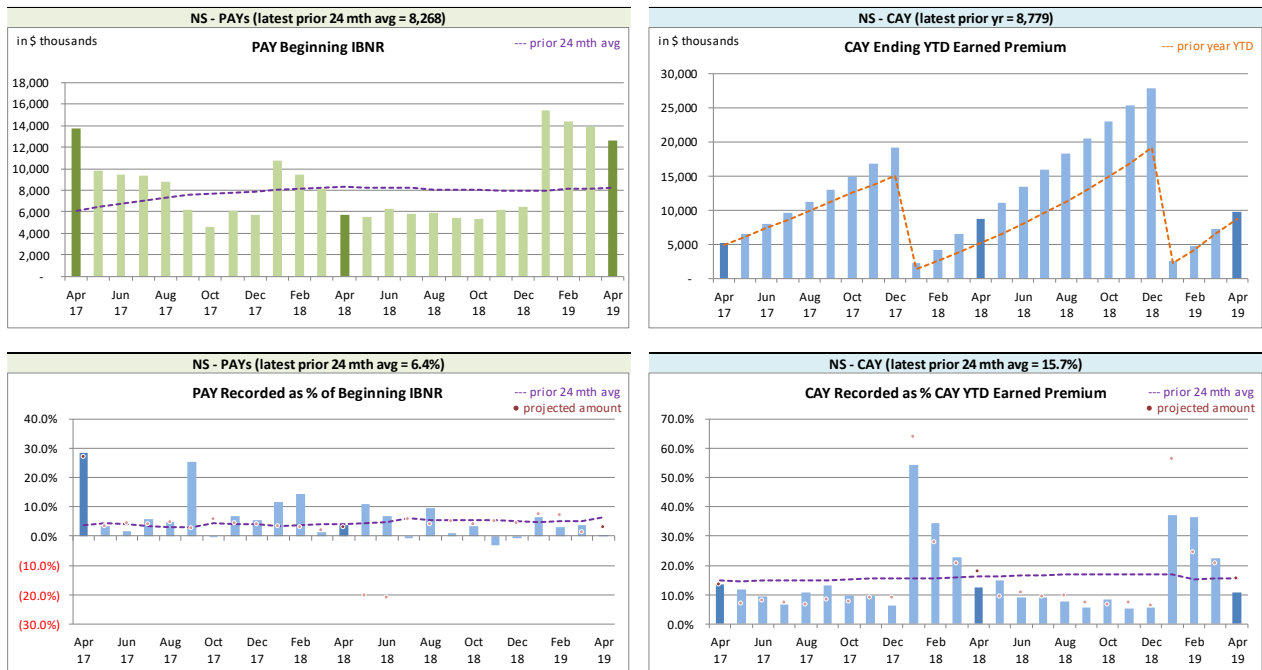
The current accident year (CAY) **recorded** variances fell outside of one standard deviation 48% of the time over the last 25 calendar months (see table above), suggesting that the projection process has performed worse than simply projecting the prior 24-month average amount. We are considering ways to improve our projection process as a result, but efforts so far have fallen short (although rapid growth may be hampering our projection capabilities). Bias has not been indicated at a 95% confidence level on a lagging 24-month basis.

The CAY **recorded** variance (see right chart at the bottom of the previous page) was outside of one standard deviation. The activity was reviewed and confirmed, with the variance attributed to process variance.

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. 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), and part will also reflect the maturity level of the RSP.

Nova Scotia RSP Levels that influence⁷ 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 left chart above) occur for several possible reasons:

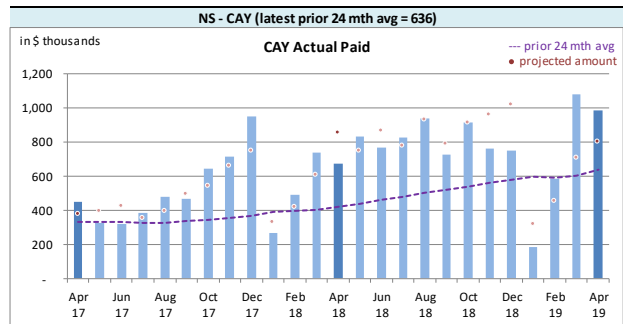
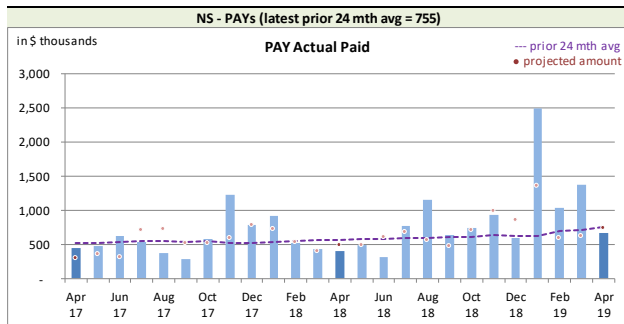
- to offset actual **recorded** activity (through loss ratio matching);
- the annual switchover as a current accident year becomes a prior accident year (occurs in January); and
- when a new valuation is implemented, where the valuation resulted in changes to the selection of prior accident years' ultimate (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.

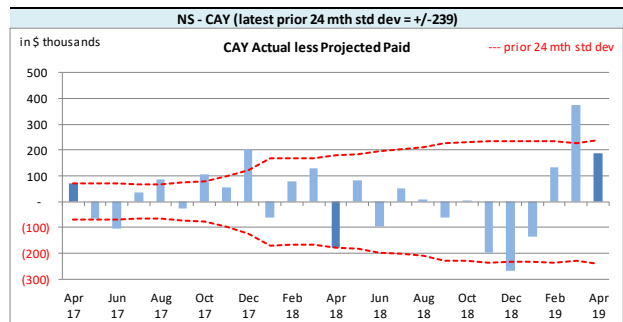
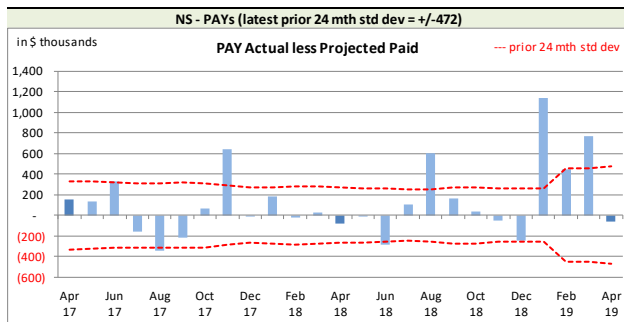
⁷Our recorded activity projections for the prior accident years are based on selected ratios of recorded activity to beginning unpaid balances, whereas the current accident year projections are based on selected ratios of year-to-date IBNR to year-to-date selected ultimate (i.e. selected LR x earned 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.

Nova Scotia RSP Actual **Paid** by activity Calendar Month



Paid 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.

Nova Scotia RSP Actual vs Projected Summary: **Paid** Variances by Calendar Month



On Latest \$ thousands		
	Paid	
Mthly Avg Paid (prior 24 mths)	755	636
std dev	472	239
A-P <> std dev	7	7
% <> std dev	28.0%	28.0%
norm <> std dev	31.7%	31.7%

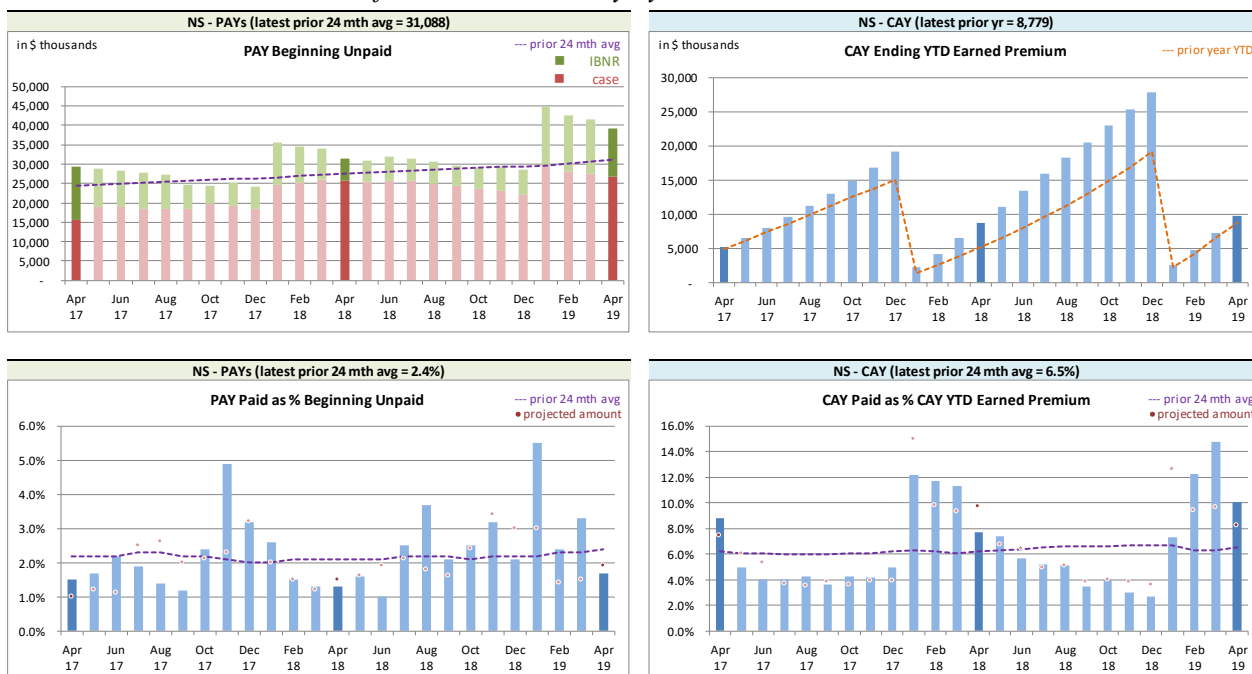
With respect to **paid** indemnity & allowed claims expense activity, caution must be exercised in reviewing the variances as this is a small pool and single claim transactions that are normal course for the business may look unusual and generate relatively significant variances that in nominal value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

overall terms. That said, 28% of the prior accident years' (PAYs) variances over the last 25 calendar months have fallen outside of one standard deviation of the actual **paid** amounts (see table on left above), suggesting the projection process has performed no better than simply projecting the prior 24-month average amount (assuming it follows a normal distribution). Bias has not been indicated at a 95% confidence level on a lagging 24-month basis.

The current accident year (CAY) **paid** variances fell outside of one standard deviation 28% of the time over the last 25 calendar months (see table above), suggesting that the projection process has performed no better than simply projecting the prior 24-month average amount. No bias has been indicated at a 95% confidence level on a lagging 24-month basis.

We have included, for reference, additional charts at the top of the next page related to levels influencing **paid** activity. Both case and IBNR increases contribute to the increase of PAYs beginning unpaid. This is somewhat expected, given the maturity level of the RSP.

Nova Scotia RSP Levels that influence⁸ **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 IBNR⁹, 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 this month's Operational Report and the

⁸Our 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.

⁹For ease of discussion, "IBNR" is used in place of "provisions for incurred but not recorded (IBNR) and development".

associated one-month projections from last month's Report.

Nova Scotia RSP Actual vs Projected Summary: IBNR and APV Amounts (\$ thousands)

Table 02

Accident Year	IBNR		actuarial present value adjustments				IBNR + actuarial present value adjustments	
	Discount Amount		Provisions for Adverse Deviations					
	Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected
Prior	976	(36)	(441)	(2)	1,629	7	2,164	(31)
2017	3,428	5	(407)	5	1,152	(15)	4,173	(5)
2018	8,190	377	(761)	(8)	1,832	19	9,261	388
2019	4,028	408	(388)	14	796	(27)	4,436	395
TOTAL	16,622	754	(1,997)	9	5,409	(16)	20,034	747

The IBNR provision is \$0.8 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

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 at the top of the next page summarizes the variances in the provisions for premium deficiency liability / (deferred policy acquisition cost asset) included this month's 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 value) prior to actuarial present value adjustments and in a premium deficiency position (shown as a positive value) after actuarial present value adjustments. Actuarial present value adjustments increase the liability 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.

Nova Scotia 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:	(264)	0	790	(2)	526	(2)
balance as % unearned premium:	(1.8%)	-	5.3%	-	3.6%	-
actual unearned premium:	14,797					
less projected:	(10)					

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 loss¹⁰ 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 expenses¹¹, 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 96.8% rather than 96.3% (the valuation ultimate ratio for accident year 2019), 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 Nova Scotia RSP Summary of Operations due to rounding.)

¹⁰“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).

¹¹Allowed 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.

Nova Scotia 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	(870)	(8.9%)	261	2.7%	(609)	(6.3%)	(55)	1.3%
CAY	9,416	96.8%	408	4.2%	9,824	101.0%	2,466	(0.3%)
TOTAL	8,546	87.8%	669	6.9%	9,215	94.7%	2,412	1.0%

("EP" based on 2019 calendar year-to-date earned premium; ratios may not total due to rounding)

In general, prior accident years (PAYs) changes from last month are due to the release of the actuarial present value adjustments with claims payments, except when valuations are implemented. The loss ratio change year-to-date in Table 04 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.

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.

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 Nova Scotia 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
**IBNR + M/S actuarial present
 value adjustments**

 discount rate
 1.93%

 interest rate margin
 25 basis pts

Amounts in \$000s					
Accident Year	Actual Mar. 2019	Actual Apr. 2019	Projected May. 2019	Projected Jun. 2019	Projected Dec. 2019
2007	(1)	(1)	(1)	(1)	(1)
2008	2	2	2	2	2
2009	10	10	10	10	8
2010	4	4	4	4	4
2011	48	17	17	17	15
2012	121	121	120	117	101
2013	170	185	182	181	163
2014	(95)	20	20	22	27
2015	594	428	424	408	320
2016	1,387	1,378	1,308	1,244	975
2017	4,290	4,173	4,063	3,922	3,103
2018	9,135	9,261	8,911	8,587	6,886
2019	3,038	4,436	5,875	7,340	11,858
TOTAL	18,703	20,034	20,935	21,853	23,461
Change		1,331	901	918	

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

EXHIBIT B
IBNR
TABLE EXHIBIT B

TABLE EXHIBIT B		Amounts in \$000s					
IBNR	Ultimate Loss Ratio	Accident Year	Actual Mar. 2019	Actual Apr. 2019	Projected May. 2019	Projected Jun. 2019	Projected Dec. 2019
	53.9%	2007	(1)	(1)	(1)	(1)	(1)
	68.3%	2008	2	2	2	2	2
	63.8%	2009	5	5	5	5	4
	73.4%	2010	4	4	4	4	4
	90.2%	2011	35	5	5	5	4
	103.3%	2012	60	60	59	57	47
	90.6%	2013	(5)	10	10	10	9
	83.3%	2014	(218)	(90)	(89)	(86)	(70)
	83.6%	2015	239	82	81	75	47
	90.5%	2016	906	899	836	777	569
	92.7%	2017	3,529	3,428	3,325	3,192	2,469
	93.0%	2018	8,055	8,190	7,862	7,548	5,966
	96.3%	2019	2,716	4,028	5,358	6,715	10,649
		TOTAL	15,327	16,622	17,457	18,303	19,699
	Change		1,295	835	846		

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

EXHIBIT C
Premium Liabilities
TABLE EXHIBIT C

	Amounts in \$000s				
	Actual Mar. 2019	Actual Apr. 2019	Projected May. 2019	Projected Jun. 2019	Projected Dec. 2019
Premium Liabilities					
(1) unearned premium (UP)	14,526	14,797	15,152	15,661	16,573
FOR MEMBER SHARING					
(2) expected future costs ratio {% of (1)}	103.4%	103.6%	103.8%	104.0%	106.3%
(3) expected future costs {(1) x (2)}	15,020	15,323	15,725	16,295	17,615
(4) premium deficiency / (deferred policy acquisition cost)	494	526	573	634	1,042
Excluding Actuarial Present Value Adjustments					
(5) expected future costs ratio {% of (1)}	98.1%	98.2%	98.4%	98.7%	100.8%
(6) expected future costs {(1) x (5)}	14,245	14,533	14,913	15,453	16,705
(7) premium deficiency / (deferred policy acquisition cost)	(281)	(264)	(239)	(208)	132

EXHIBIT D

Projected Year-end Policy Liabilities

The table below presents the projected policy liabilities as at December 31, 2019, broken down by component.

Nova Scotia ending 2019		Projected Balances as at Dec. 31, 2019 (\$000s)								
Acc Yr	nominal values			actuarial present value adjustments (apvs)						TOTAL
	Case	IBNR	Total Unpaid	discount	investment PfAD	nominal development PfAD	development PfAD discount	development PfAD	Total apvs	
2007	-	(1)	(1)	-	-	-	-	-	-	(1)
2008	-	2	2	-	-	-	-	-	-	2
2009	59	4	63	(2)	-	6	-	6	4	67
2010	-	4	4	-	-	-	-	-	-	4
2011	167	4	171	(6)	1	17	(1)	16	11	182
2012	779	47	826	(29)	3	83	(3)	80	54	880
2013	2,160	9	2,169	(65)	9	217	(7)	210	154	2,323
2014	1,345	(70)	1,275	(31)	4	127	(3)	124	97	1,372
2015	2,874	47	2,921	(82)	9	356	(10)	346	273	3,194
2016	4,012	569	4,581	(160)	18	568	(20)	548	406	4,987
2017	5,580	2,469	8,049	(346)	40	982	(42)	940	634	8,683
2018	6,857	5,966	12,823	(654)	77	1,577	(80)	1,497	920	13,743
PAYs (sub-total):	23,833	9,050	32,883	(1,375)	161	3,933	(166)	3,767	2,553	35,436
CAY (2019)	8,874	10,649	19,523	(1,152)	156	2,343	(138)	2,205	1,209	20,732
claims liabilities:	32,707	19,699	52,406	(2,527)	317	6,276	(304)	5,972	3,762	56,168
	Unearned Premium	Premium Deficiency / (DPAC)	Total Provision	discount	investment PfAD	nominal development PfAD	development PfAD discount	development PfAD	Total apvs	TOTAL*
premium liabilities:	16,573	132	16,705	(756)	82	1,660	(76)	1,584	910	17,615
*Total may not be sum of parts, as apvs apply to future costs within UPR										
policy liabilities:			69,111	(3,283)	399	7,936	(380)	7,556	4,672	73,783

*Total may not be sum of parts, as apvs apply to future costs within UPR

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, 2019 from the valuation), followed by the selected discount rate and the associated margin for investment income.

Selected Claims Development MfADs (Dec. 31, 2018)				
Accident Year	Third Party Liability	Accident Benefits	Other Coverages	Total
	Margins	Margins	Margins	Margins
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%	9.9%	10.0%
2015	12.5%	10.0%	12.0%	12.2%
2016	12.5%	10.0%	12.5%	12.4%
2017	12.5%	10.0%	9.8%	12.2%
2018	12.5%	10.0%	9.5%	12.3%
2019	12.4%	10.0%	5.8%	12.0%
prem liab	11.9%	10.0%	5.1%	10.1%

discount rate: 1.93%
 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, 2019 from the latest valuation date (projections in exhibits A to D are to Dec. 31, 2019, and are based on more up-to-date information). We have included the most recent valuation selection (1.93%), the prior valuation assumption (2.28%) and the prior fiscal year end valuation assumption (2.28%) for comparative purposes. A 25 basis point margin for investment return adverse deviation is used in all scenarios presented.

\$ Format: \$000s

AY	Actuarial Present Value of Provisions at Various Discount Rates - Dec. 31, 2019 projected Unpaid							
	0.93%	1.43%	1.93%	2.43%	2.93%	3.43%	2.28%	2.28%
2007	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-
2009	44	43	43	43	42	42	43	43
2010	2	2	2	2	2	2	2	2
2011	553	548	543	537	532	527	539	539
2012	660	654	648	642	637	631	644	644
2013	994	987	979	972	965	957	974	974
2014	843	838	833	828	823	818	829	829
2015	3,572	3,546	3,520	3,495	3,470	3,445	3,502	3,502
2016	5,325	5,276	5,228	5,181	5,135	5,089	5,195	5,195
2017	8,800	8,700	8,602	8,505	8,412	8,320	8,534	8,534
2018	15,653	15,439	15,235	15,031	14,835	14,641	15,091	15,091
2019	22,352	22,005	21,667	21,337	21,018	20,705	21,434	21,434
Total	58,798	58,038	57,300	56,573	55,871	55,177	56,787	56,787
	curr - 100 bp	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	prior val assumption	prior fyr end assumption

AY	Dollar Impact Relative to Valuation Assumption							
	0.93%	1.43%	1.93%	2.43%	2.93%	3.43%	2.28%	2.28%
Total	1,498	738	-	(727)	(1,429)	(2,123)	(513)	(513)
	curr - 100 bp	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	prior val assumption	prior fyr end assumption

AY	Percentage Impact Relative to Valuation Assumption							
	0.93%	1.43%	1.93%	2.43%	2.93%	3.43%	2.28%	2.28%
2007	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-
2009	2.3%	-	-	-	(2.3%)	(2.3%)	-	-
2010	-	-	-	-	-	-	-	-
2011	1.8%	0.9%	-	(1.1%)	(2.0%)	(2.9%)	(0.7%)	(0.7%)
2012	1.9%	0.9%	-	(0.9%)	(1.7%)	(2.6%)	(0.6%)	(0.6%)
2013	1.5%	0.8%	-	(0.7%)	(1.4%)	(2.2%)	(0.5%)	(0.5%)
2014	1.2%	0.6%	-	(0.6%)	(1.2%)	(1.8%)	(0.5%)	(0.5%)
2015	1.5%	0.7%	-	(0.7%)	(1.4%)	(2.1%)	(0.5%)	(0.5%)
2016	1.9%	0.9%	-	(0.9%)	(1.8%)	(2.7%)	(0.6%)	(0.6%)
2017	2.3%	1.1%	-	(1.1%)	(2.2%)	(3.3%)	(0.8%)	(0.8%)
2018	2.7%	1.3%	-	(1.3%)	(2.6%)	(3.9%)	(0.9%)	(0.9%)
2019	3.2%	1.6%	-	(1.5%)	(3.0%)	(4.4%)	(1.1%)	(1.1%)
Total	2.6%	1.3%	-	(1.3%)	(2.5%)	(3.7%)	(0.9%)	(0.9%)
	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 Nova Scotia
AccountCode Desc IBNR - Discounted

M/S 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			
2007	(1)	-	-	-	-	-	(1)
2008	2	-	-	-	-	-	2
2009	10	-	-	-	-	-	10
2010	4	-	-	-	-	-	4
2011	48	-	(31)	-	(31)	(64.6%)	17
2012	121	(1)	1	-	-	-	121
2013	170	(3)	18	-	15	8.8%	185
2014	(95)	1	114	-	115	(121.1%)	20
2015	594	(17)	(149)	-	(166)	(27.9%)	428
2016	1,387	(25)	16	-	(9)	(0.6%)	1,378
2017	4,290	(112)	(5)	-	(117)	(2.7%)	4,173
2018	9,135	(262)	388	-	126	1.4%	9,261
2019	3,038	1,003	395	-	1,398	46.0%	4,436
Grand Total	18,703	584	747	-	1,331	7.1%	20,034

EXHIBIT G

Page 2 of 2

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

RSP Nova Scotia
AccountCode Desc IBNR - Undiscounted

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			
2007	(1)	-	-	-	-	-	(1)
2008	2	-	-	-	-	-	2
2009	5	-	-	-	-	-	5
2010	4	-	-	-	-	-	4
2011	35	-	(30)	-	(30)	(85.7%)	5
2012	60	(1)	1	-	-	-	60
2013	(5)	-	15	-	15	(300.0%)	10
2014	(218)	2	126	-	128	(58.7%)	(90)
2015	239	(7)	(150)	-	(157)	(65.7%)	82
2016	906	(9)	2	-	(7)	(0.8%)	899
2017	3,529	(106)	5	-	(101)	(2.9%)	3,428
2018	8,055	(242)	377	-	135	1.7%	8,190
2019	2,716	904	408	-	1,312	48.3%	4,028
Grand Total	15,327	541	754	-	1,295	8.4%	16,622