## Capital Adequacy (E) Task Force

### RBC Proposal Form

| [ ] Capital Adequacy (E) Task Force | [ ] Health RBC (E) Working Group | [ ] Life RBC (E) Working Group |
| [ ] Catastrophe Risk (E) Subgroup | [ ] Investment RBC (E) Working Group | [ ] Operational Risk (E) Subgroup |
| [ ] C3 Phase II/ AG43 (E/A) Subgroup | [ ] P/C RBC (E) Working Group | [ x ] Longevity Risk (A/E) Subgroup |

**DATE:** 6/6/19

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**ON BEHALF OF:** Longevity Risk (A/E) Subgroup  
**NAME:** Rhonda Ahrens, Chair  
**TITLE:** Chief Actuary  
**AFFILIATION:** Nebraska Department of Insurance  
**ADDRESS:** 1135 M Street, Suite 300  
Lincoln, NE 68501-2089  

### FOR NAIC USE ONLY

**Agenda Item #** 2019-13-L  
**Year** 2019  
**DISPOSITION**  
[ X ] ADOPTED 2/14/20  
[ ] REJECTED  
[ ] DEFERRED TO  
[ ] REFERRED TO OTHER NAIC GROUP  
[ X ] EXPOSED 11/4 12/4  
[ ] OTHER (SPECIFY)  

### IDENTIFICATION OF SOURCE AND FORM(S)/INSTRUCTIONS TO BE CHANGED

[ ] Health RBC Blanks  
[ ] Property/Casualty RBC Blanks  
[ x ] Life and Fraternal RBC Instructions  
[ x ] Life and Fraternal RBC Blanks  
[ ] OTHER ____________________________

### DESCRIPTION OF CHANGE(S)

This proposal creates a new schedule in the life and fraternal RBC formula along with the necessary instructions to incorporate a charge for longevity risk.

### REASON OR JUSTIFICATION FOR CHANGE **

The Longevity Risk (A/E) Subgroup was charged with providing recommendations for recognizing longevity risk in statutory reserves and/or RBC, as appropriate. This represents the Subgroup’s recommendation as it applies to RBC.

### Additional Staff Comments:

- 11-4-19: Proposal was exposed for comments (DBF)
- 12-4-19: Proposal was re-exposed for comments by the Life Risk-Based Capital (E) Working Group (DBF)
- 2-14-20: Proposal was adopted by the Life Risk-Based Capital (E) Working Group (DBF)

**This section must be completed on all forms.**

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### Longevity Risk

<table>
<thead>
<tr>
<th>Life Contingent Annuity Reserves</th>
<th>Annual Statement Source</th>
<th>Statement Value</th>
<th>Factor</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) General Account Life Contingent Annuity Reserves</td>
<td>Exhibit 5 Column 2 Line 0299999, in part‡</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2) General Account Life Contingent Supplemental Contract Reserves</td>
<td>Exhibit 5 Column 2 Line 0399999, in part‡</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(3) General Account Life Contingent Miscellaneous Reserves</td>
<td>Exhibit 5 Column 2 Line 0799999, in part‡</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(4) Separate Account (SA) Life Contingent Annuity Reserves</td>
<td>S/A Exhibit 3 Column 2 Line 0299999, in part‡</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(5) Total Life Contingent Annuity Reserves</td>
<td>Lines (1) + (2) + (3) + (4)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

† The tiered calculation is illustrated in the Longevity Risk section of the risk-based capital instructions.

‡ Include only the portion of reserves for products in scope per the instructions.

Denotes items that must be manually entered on the filing software.
<table>
<thead>
<tr>
<th>Source</th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RBC Amount</td>
<td>Tax Factor</td>
<td>RBC Tax Effect</td>
</tr>
<tr>
<td>LR019 Health Premiums Column (2) Line (1) = LR023 Long-Term Care Column (4) Line (7)</td>
<td>X 0.2100</td>
<td>=</td>
</tr>
<tr>
<td>LR025 Life Insurance Column (2) Line (9)</td>
<td>X 0.2100</td>
<td>=</td>
</tr>
<tr>
<td>LR030 Long-Term Care Column (2) Lines (20) and (21)</td>
<td>X 0.2100</td>
<td>=</td>
</tr>
<tr>
<td>LR031 Longevity Risk Column (2) Line (5)</td>
<td>X 0.2100</td>
<td>=</td>
</tr>
<tr>
<td>LR034 Health Claim Reserves Column (4) Line (9) + Line (10)</td>
<td>X 0.2100</td>
<td>=</td>
</tr>
<tr>
<td>LR036 Premium Stabilization Reserves Column (2) Line (10)</td>
<td>X 0.0000</td>
<td>=</td>
</tr>
<tr>
<td>LR038 Premium Stabilization Credit</td>
<td>X 0.0000</td>
<td>=</td>
</tr>
</tbody>
</table>

**Alternative with Guardrail Factor:**

\[
L(133) + L(134) + L(137) + L(138) + \sqrt{[ (L(135) + L(136))^2 + L(136b)^2 + 2 \times (TBD Correlation Factor) \times (L(135) + L(136)) \times L(136b) ]}
\]

**Total C-2 Risk**

<table>
<thead>
<tr>
<th>Source</th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LR027 Interest Rate Risk Column (3) Line (16)</td>
<td>X 0.2100</td>
<td>=</td>
</tr>
<tr>
<td>LR029 Health Claim Reserves Column (2) Line (7)</td>
<td>X 0.0000</td>
<td>=</td>
</tr>
<tr>
<td>LR037 Market Risk Column (3) Line (17)</td>
<td>X 0.2100</td>
<td>=</td>
</tr>
<tr>
<td>LR039 Longevity Risk Column (2) Line (17)</td>
<td>X 0.2100</td>
<td>=</td>
</tr>
<tr>
<td>LR040 Health Administrative Expenses</td>
<td>X 0.0000</td>
<td>=</td>
</tr>
</tbody>
</table>

**Total Tax Effect**

\[
L(133) + L(134) + L(137) + L(138) + L(139) + L(140) + L(141) + L(142) + L(143) + L(144)
\]
Confidential when Completed

(1) Risk-Based Capital (RBC)

Insurance Risk (C-2)

(43) Individual and Industrial Life Insurance

(44) Group and Credit Life Insurance and FEGI/SGLI

(44b) Longevity Risk

Total Health Insurance

Pension Subsidization Reserve Credit

Total (C-2) - Pre-Tax

(C-2) Tax Effect

Net (C-2) - Post-Tax

Interest Rate Risk (C-3a)

Total Interest Rate Risk - Pre-Tax

(C-3a) Tax Effect

Net (C-3a) - Post-Tax

Health Credit Risk (C-3b)

Total Health Credit Risk - Pre-Tax

(C-3b) Tax Effect

Net (C-3b) - Post-Tax

Market Risk (C-3c)

Total Market Risk - Pre-Tax

(C-3c) Tax Effect

Net (C-3c) - Post-Tax

Total (C-2) - Pre-Tax

(L(45) + L(46) + \sqrt{[(L(43) + L(44))^2 + L(44b)^2 + 2 \times (TBD Correlation Factor) \times (L(43) + L(44)) \times L(44b)]})

Net (C-2) - Post-Tax

Line (47) - Line (48)

Interest Rate Risk (C-3a)

Total Interest Rate Risk - Pre-Tax

(L(50) - Line (51)

(C-3a) Tax Effect

Net (C-3a) - Post-Tax

Health Credit Risk (C-3b)

Total Health Credit Risk - Pre-Tax

(L(53) - Line (54)

(C-3b) Tax Effect

Net (C-3b) - Post-Tax

Market Risk (C-3c)

Total Market Risk - Pre-Tax

(L(56) - Line (57)

(C-3c) Tax Effect

Net (C-3c) - Post-Tax

LR025 Life Insurance Columns (2) Line (9)

LR027 Life Insurance Columns (2) Line (20) and (21)

LR027 Longevity Risk Column (2) Line (8)

LR024 Health Claim Reserves Column (4) Line (18)

LR024 Premium Stabilization Reserve Column (2) Line (19)

LR030 Calculation of Tax Effect for Life and Fraternal Risk-Based Capital Column (2) Line (139)

LR030 Calculation of Tax Effect for Life and Fraternal Risk-Based Capital Column (2) Line (141)

LR030 Calculation of Tax Effect for Life and Fraternal Risk-Based Capital Column (2) Line (142)

LR031
LONGEVITY RISK
LRtbd

Basis of Factors

The factors chosen represent surplus needed to provide for claims in excess of reserves resulting from increased policyholder longevity calibrated to a 95th percentile level. For the purpose of this calibration aggregate reserves were assumed to provide for an 85th percentile outcome.

Longevity risk was considered over the entire lifetime of the policies since these annuity policies are generally not subject to repricing. Calibration of longevity risk considered both trend risk based on uncertainty in future population mortality improvements, as well as level or volatility risk which derives from misestimation of current population mortality rates or random fluctuations. Trend risk applies equally to all populations whereas level and volatility risk factors decrease with larger portfolios consistent with the law of large numbers.

Statutory reserve was chosen as the exposure base as a consistent measure of the economic exposure to increased longevity. Factors were also scaled by reserve level since number of insured policyholders is a less accessible measure of company specific volatility risk. Factors provided are pre-tax and were developed assuming a 21% tax adjustment would be subsequently applied.

Specific Instructions for Application of the Formula

Annual statement reference is for the total life contingent reserve for the products in scope. The scope includes annuity products with life contingent payments where benefits are to be distributed in the form of an annuity. It does not include annuity products that are not life contingent, or deferred annuity products where the policyholder has a right but not an obligation to annuitize. Line (3) for General Account Life Contingent Miscellaneous reserves is included in the event there are any reserves for products in scope reported on Exhibit 5 line 0799999; it is not meant to include cash flow testing reserves reported on this line. Included in scope are:

- Single Premium Immediate Annuities (SPIA) and other payout annuities in pay status
- Deferred Payout Annuities which will enter annuity pay status in the future upon annuitization
- Structured Settlements for annuitants with any life contingent benefits
- Group Annuities, such as those associated with pension liabilities with both immediate and deferred benefits

The total reserve exposure is then further broken down by size as in a tax table. This breakdown will not appear on the RBC filing software or on the printed copy, as the application of factors to reserves is completed automatically. The calculation is as follows:

<table>
<thead>
<tr>
<th>Line (5)</th>
<th>Life Contingent Annuity Reserves</th>
<th>Statement Value</th>
<th>Factor</th>
<th>RBC Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>First 250 Million</td>
<td></td>
<td>X 0.0171 =</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Next 250 Million</td>
<td></td>
<td>X 0.0108 =</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Next 500 Million</td>
<td></td>
<td>X 0.0095 =</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Over 1,000 Million</td>
<td></td>
<td>X 0.0089 =</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Life Contingent Annuity Reserves</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>