

*2019 Summer National Meeting
New York, New York*

**JOINT MEETING OF EXECUTIVE (EX) COMMITTEE
AND INTERNAL ADMINISTRATION (EX1) SUBCOMMITTEE**

**Saturday, August 3, 2019
10:00 a.m. – 12:00 p.m. ET**

Meeting Summary Report

The Executive (EX) Committee and the Internal Administration (EX1) Subcommittee met in joint session Aug. 3, 2019. The meeting was held in regulator-to-regulator session pursuant to paragraph 4 (internal or administrative matters of the NAIC) and paragraph 6 (consultations with NAIC staff members) of the NAIC Policy Statement on Open Meetings. During this joint meeting, the Committee and Subcommittee:

1. Adopted its June 25 and Spring National Meeting minutes.
2. Adopted the Aug. 2 Audit Committee report, which included the following action:
 - a. Received an overview of the June 30 financial statements.
 - b. Reconfirmed RSM for the 2019 financial audit.
 - c. Received an update on the 2019 Service Organization Control (SOC) 1 and SOC 2 reviews and reports.
 - d. Received an update on database filing fee payments and approved a charge against the Reserve for Doubtful Accounts.
 - e. Received an update on Zone financials
 - f. Reaffirmed its 2020 proposed charter.
 - g. Received an update on the 2020 budget calendar.
3. Adopted the Aug. 2 Information Systems (EX1) Task Force report, which included the following action:
 - a. Adopted its 2020 charges, which remain unchanged from 2019.
 - b. Received an operational report for the NAIC's information technology (IT) activities.
 - c. Received a portfolio update, which includes 22 active projects, and project status reports.
4. Approved a recommendation of the Internal Administration (EX1) Subcommittee to invest in a real estate investment trust.
5. Approved the SERFF Data Hosting Fiscal.
6. Appointed Commissioner Andrew N. Mais (CT) to serve on the International Association of Insurance Supervisors (IAIS) Executive Committee.
7. Heard a presentation on the status of the Interstate Insurance Product Regulation Commission (Compact) note payable and directed joint management team to identify/discuss options.
8. Received an overview on Board oversight of corporate culture.
9. Received the joint chief executive officer (CEO)/chief operating officer (COO) report.
10. Received an update on cybersecurity tabletop exercise.

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EXECUTIVE (EX) COMMITTEE
June 25, 2019

Interim Meeting Report

The Executive (EX) Committee met June 25, 2019. The meeting was held in regulator-to-regulator session pursuant to paragraph 4 (internal or administrative matters of the NAIC or any NAIC member) of the NAIC Policy Statement on Open Meetings. During this meeting, the Committee:

1. Appointed Director Lori K. Wing-Heier (AK) to serve on the National Insurance Producer Registry (NIPR) Board of Directors beginning in June 2019.
2. Heard an update on the 2019 financial results and preliminary 2020 budget assumptions.
3. Received an NAIC Audit Committee report on Service Organization Control (SOC) 1 and SOC 2.
4. Heard an update on *State Ahead*.
5. Approved a recommendation to contribute to the NAIC defined benefit plan by mid-July.
6. Approved Management's recommendation to extend the residential mortgage-backed securities (RMBS)/commercial mortgage-backed securities (CMBS) modeling contract with BlackRock.
7. Adopted the revised NAIC Consumer Participation Program Plan of Operation.
8. Adopted a report on the Actuarial Credentials Project and sent a revised definition to the Blanks (E) Working Group.
9. Approved the recommendation to expose the System for Electronic Rate and Form Filing (SERFF) Data Hosting Proposal.
10. Selected the meeting locations for the 2023 spring and summer national meetings: the 2023 Spring National Meeting will be held in Louisville, KY; and the 2023 Summer National Meeting will be held in Seattle, WA.

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Draft: 8/5/19

REPORT OF THE EXECUTIVE (EX) COMMITTEE TASK FORCES

Financial Stability (EX) Task Force—The Financial Stability (EX) Task Force met Aug. 5 and took the following action: 1) adopted its Spring National Meeting minutes; 2) adopted the Liquidity Assessment (EX) Subgroup’s May 10 minutes and noted that the Subgroup met June 14 and July 30 via conference call in regulator-to-regulator session, pursuant to paragraph 3 (specific companies, entities or individuals) of the NAIC Policy Statement on Open Meetings, to discuss progress made by the Liquidity Stress Testing Study Group; 3) heard an update on Financial Stability Oversight Council (FSOC) developments; 4) received an update from the Liquidity Assessment (EX) Subgroup on its progress toward achieving its deliverables related to liquidity stress testing; 5) received an update from the Receivership and Insolvency (E) Task Force on its work to address the Financial Stability (EX) Task Force’s referral letter to undertake analysis relevant to the NAIC Macroprudential Initiative; 6) heard an update on leveraged loans; and 7) heard an update on macroprudential surveillance.

Government Relations (EX) Leadership Council—The Government Relations (EX) Leadership Council did not meet at the Summer National Meeting. The Leadership Council meets weekly via conference call in regulator-to-regulator session, pursuant to paragraph 8 (consideration of strategic planning issues relating to federal legislative and regulatory matters or international regulatory matters) of the NAIC Policy Statement on Open Meetings, to discuss federal legislative and regulatory developments affecting insurance regulation.

Innovation and Technology (EX) Task Force—The Innovation and Technology (EX) Task Force met June 4 and took the following action: 1) adopted its Spring National Meeting minutes; 2) heard presentations from various stakeholders, including representatives for producers, insurers, InsurTechs, consumers, and state insurance regulators, regarding anti-rebating. The Task Force also met Aug. 5 and took the following action: 1) adopted its June 4 minutes; 2) adopted its working group reports and heard a report on the activities of the Innovation and Technology State Contact group; 3) discussed options for moving forward on the issue of anti-rebating. During that discussion, the Task Force members received a draft guideline from North Dakota addressing a specific interpretation of its statutory language considering anti-rebating issues and discussed the appropriateness of pursuing model law or regulation language, as well as a guideline. The Task Force members also heard an update on the activities of the National Conference of Insurance Legislators (NCOIL) regarding anti-rebating and e-commerce; 4) heard an update on cybersecurity activity, including a legislative update and briefing on data privacy from NAIC Legal staff. The decision was made to refer a charge to the Market Regulation and Consumer Affairs (D) Committee to review state insurance privacy protections to determine if additional work is necessary to close potential gaps or omissions; 5) heard a presentation from an innovator, Theta Lake, Inc, on using artificial intelligence (AI) to evaluate unstructured data for regulatory compliance; and 6) decided to form an Artificial Intelligence (EX) Working Group under the Task Force to further evaluate issues related to the use of AI in insurance transactions and AI principles.

The **Big Data (EX) Working Group** met Aug. 3 and took the following action: 1) adopted its Spring National Meeting minutes; 2) heard presentations from the Insurance Services Office (ISO) and the National Insurance Crime Bureau (NICB) on the use of data to detect fraud and settle property/casualty (P/C) claims; and 3) received an update from the Casualty Actuarial and Statistical (C) Task Force regarding its draft white paper on best practices for the review of predictive models and analytics filed by insurers to justify rates, the development of state guidance (e.g., information and data) for rate filings that are based on complex predictive models, and the development of training for the sharing of expertise through predictive analytics webinars.

The **Speed to Market (EX) Working Group** did not meet at the Summer National Meeting. The Working Group met via conference call June 26 and June 25. During its June 26 call, the Working Group discussed suggestions for 2019 changes to the Life, Accident/Health, Annuity and Credit Uniform Product Coding Matrix (PCM) effective Jan. 1, 2020. The suggestions involved changes to existing Types of Insurance (TOIs)/sub-TOIs and the addition of new TOIs/sub-TOIs. The Working Group decided that the suggested changes were not needed at this time due to the lack of need by most states. Where needed, the states can utilize state TOIs. By way of an email vote that was finalized on July 16, the following change was adopted: 1) the removal of references to 2010 dates on Medicare Supplement instructions for all TOIs and sub-TOIs. The statement, “Product filings may be submitted prior to 6/1/2010; however, plan is not effective until 6/1/2010,” is to be replaced with, “Product filings may be submitted prior to 01/01/2020; however, filing is not effective until 1/1/2020.”

During its June 25 call, the Working Group discussed suggestions for 2019 changes to the Property and Casualty Uniform PCM effective Jan. 1, 2020. By way of an email vote that was finalized on July 16, the following changes were adopted: 1) update the description for 05.0 Commercial Multi-Peril (CMP) Liability and Non-Liability to state, “various property and/or liability risk exposures” in lieu of “various property and liability risk exposures”; 2) update the description for 05.1 CMP Non-Liability Portion Only to read, “Coverage for non-liability commercial multiple peril contracts”; 3) update the description for 05.2 CMP Liability Portion Only to read, “Coverage for liability commercial multiple peril contracts”; and 4) add a sub-TOI under 16.0 Worker’s Compensation: 16.0005 Occupational Accident Worker’s Compensation.

Long-Term Care Insurance (EX) Task Force—The Long-Term Care Insurance (EX) Task Force met Aug. 4 and took the following action: 1) received a progress report on the activities of the Task Force whereby the Task Force has identified six workstreams that should be further explored to accomplish the goals set forth in its charges as follows: a) multistate rate review practices; b) restructuring techniques; c) reduced benefit options and consumer notices; d) valuation of long-term care insurance (LTCI) reserves; e) non-actuarial variance among states; and f) data call design and oversight; and 2) heard from consumer and industry representatives—including California Health Advocates (CHA), the Center for Economic Justice (CEJ) and American Council of Life Insurers (ACLI)—primarily on the topics of reduced benefit options and impacts to consumers.

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Adopted by the Health Insurance and Managed Care (B) Committee, June 11, 2019
Adopted by the Regulatory Framework (B) Task Force, May 15, 2019
Adopted by the HMO Issues (B) Subgroup, April 29, 2019

REQUEST FOR NAIC MODEL LAW DEVELOPMENT

This form is intended to gather information to support the development of a new model law or amendment to an existing model law. Prior to development of a new or amended model law, approval of the respective Parent Committee and the NAIC's Executive Committee is required. The NAIC's Executive Committee will consider whether the request fits the criteria for model law development. Please complete all questions and provide as much detail as necessary to help in this determination.

Please check whether this is: ☐ New Model Law or ☒ Amendment to Existing Model

1. Name of group to be responsible for drafting the model:

HMO Issues (B) Subgroup of the Regulatory Framework (B) Task Force

2. NAIC staff support contact information:

Jolie Matthews jmatthews@naic.org

3. Please provide a brief description of the proposed new model or the amendment(s) to the existing model. If you are proposing a new model, please also provide a proposed title. If an existing model law, please provide the title, attach a current version to this form and reference the section(s) proposed to be amended.

The Subgroup has a charge to revise provisions in the *Health Maintenance Organization Model Act* (#430) to address conflicts and redundancies with provisions in the *Life and Health Insurance Guaranty Association Model Act* (#520).

4. Does the model law meet the Model Law Criteria? ☒ Yes or ☐ No (Check one)

(If answering no to any of these questions, please reevaluate charge and proceed accordingly to address issues).

a. Does the subject of the model law necessitate a national standard and require uniformity amongst all states? ☒ Yes or ☐ No (Check one)

If yes, please explain why

The revisions would provide guidance to those states that have adopted Model #430 and the revised Model #520, which added HMOs as members of the guaranty association, in addressing conflicts and redundancies in Model #430 with the revised Model #520.

b. Does Committee believe NAIC members should devote significant regulator and Association resources to educate, communicate and support this model law?

☒ Yes or ☐ No (Check one)

5. What is the likelihood that your Committee will be able to draft and adopt the model law within one year from the date of Executive Committee approval?

☐ 1 ☒ 2 ☐ 3 ☐ 4 ☐ 5 (Check one)

High Likelihood

Low Likelihood

Explanation, if necessary: The current subgroup would target completion of a model within one year.

6. What is the likelihood that a minimum two-thirds majority of NAIC members would ultimately vote to adopt the proposed model law?

☐ 1 ☒ 2 ☐ 3 ☐ 4 ☐ 5 (Check one)

High Likelihood

Low Likelihood

Explanation, if necessary: State adoption of the anticipated revisions will depend on whether states have adopted the current Model #430 or its equivalent and adopted the revised Model #520.

7. What is the likelihood that state legislatures will adopt the model law in a uniform manner within three years of adoption by the NAIC?

☐ 1 ☒ 2 ☐ 3 ☐ 4 ☐ 5 (Check one)

High Likelihood

Low Likelihood

Explanation, if necessary: State adoption of the anticipated revisions will depend on whether states have adopted the current Model #430 or its equivalent and adopted the revised Model #520.

8. Is this model law referenced in the NAIC Accreditation Standards? If so, does the standard require the model law to be adopted in a substantially similar manner?

No

9. Is this model law in response to or impacted by federal laws or regulations? If yes, please explain.

No

W:\National Meetings\2019\Summer\Cmte\Ex\Att 4 HMO Model (#430) MLR.docx

Adopted by the Health Insurance and Managed Care (B) Committee, April 7, 2019
Adopted by the Regulatory Framework (B) Task Force, April 6, 2019
Adopted by the Pharmacy Benefit Manager Regulatory Issues (B) Subgroup, March 22, 2019

REQUEST FOR NAIC MODEL LAW DEVELOPMENT

This form is intended to gather information to support the development of a new model law or amendment to an existing model law. Prior to development of a new or amended model law, approval of the respective Parent Committee and the NAIC's Executive Committee is required. The NAIC's Executive Committee will consider whether the request fits the criteria for model law development. Please complete all questions and provide as much detail as necessary to help in this determination.

Please check whether this is: ☒ **New Model Law** or ☐ **Amendment to Existing Model**

1. Name of group to be responsible for drafting the model:

Pharmacy Benefit Manager Regulatory Issues (B) Subgroup of the Regulatory Framework (B) Task Force

2. NAIC staff support contact information:

Jolie Matthews jmatthews@naic.org

3. Please provide a brief description of the proposed new model or the amendment(s) to the existing model. If you are proposing a new model, please also provide a proposed title. If an existing model law, please provide the title, attach a current version to this form and reference the section(s) proposed to be amended.

The Subgroup has a charge to consider developing a new NAIC model to establish a licensing or registration process for pharmacy benefit managers (PBMs).

4. Does the model law meet the Model Law Criteria? ☒ **Yes** or ☐ **No (Check one)**

(If answering no to any of these questions, please reevaluate charge and proceed accordingly to address issues).

a. Does the subject of the model law necessitate a national standard and require uniformity amongst all states? ☒ **Yes** or ☐ **No (Check one)**

If yes, please explain why

The proposed new model would provide a consistent approach among the states for providing a regulatory scheme for these entities to address, for some states, a potential regulatory gap.

b. Does Committee believe NAIC members should devote significant regulator and Association resources to educate, communicate and support this model law?

☒ **Yes** or ☐ **No (Check one)**

5. What is the likelihood that your Committee will be able to draft and adopt the model law within one year from the date of Executive Committee approval?

☐ **1** ☒ **2** ☐ **3** ☐ **4** ☐ **5 (Check one)**

High Likelihood

Low Likelihood

Explanation, if necessary: The current subgroup would target completion of a model within one year.

6. What is the likelihood that a minimum two-thirds majority of NAIC members would ultimately vote to adopt the proposed model law?

☐ 1 ☒ 2 ☐ 3 ☐ 4 ☐ 5 (Check one)

High Likelihood

Low Likelihood

Explanation, if necessary: Some states have already implemented laws and/or regulations establishing a regulatory scheme for these entities, which may or may not be consistent with the provisions in the proposed new model. For those states with laws or regulations not consistent with the new model's provisions, the issue will be whether these states will want to re-open those laws or regulations after adoption the new model.

7. What is the likelihood that state legislatures will adopt the model law in a uniform manner within three years of adoption by the NAIC?

☐ 1 ☒ 2 ☐ 3 ☐ 4 ☐ 5 (Check one)

High Likelihood

Low Likelihood

Explanation, if necessary: Some states have already implemented laws and/or regulations establishing a regulatory scheme for these entities, which may or may not be consistent with the provisions in the proposed new model. For those states with laws or regulations not consistent with the new model's provisions, the issue will be whether these states will want to re-open those laws or regulations after adoption the new model.

8. Is this model law referenced in the NAIC Accreditation Standards? If so, does the standard require the model law to be adopted in a substantially similar manner?

No

9. Is this model law in response to or impacted by federal laws or regulations? If yes, please explain.

No. However, the U.S. Department of Health and Human Services (HHS) has proposed rules on rebating safe harbors. In addition, the HHS and/or other federal government agencies currently are considering proposing further federal policy guidance in the areas concerning PBMs and prescription drug pricing transparency and disclosure. In developing the new NAIC model, the Subgroup most likely will be discussing the same or similar issues.

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REQUEST FOR NAIC MODEL LAW DEVELOPMENT

This form is intended to gather information to support the development of a new model law or amendment to an existing model law. Prior to development of a new or amended model law, approval of the respective Parent Committee and the NAIC's Executive Committee is required. The NAIC's Executive Committee will consider whether the request fits the criteria for model law development. Please complete all questions and provide as much detail as necessary to help in this determination.

Please check whether this is: ☒ New Model Law or ☐ Amendment to Existing Model

1. Name of group to be responsible for drafting the model:

Pet Insurance (C) Working Group

2. NAIC staff support contact information:

Aaron Brandenburg
abrandenburg@naic.org
816 783 8271

3. Please provide a brief description of the proposed new model or the amendment(s) to the existing model. If you are proposing a new model, please also provide a proposed title. If an existing model law, please provide the title, attach a current version to this form and reference the section(s) proposed to be amended.

Pet Insurance Model Law. This model would define a regulatory structure related to pet insurance, including issues such as producer licensing, policy terms, coverages, claims handling, premium taxes, disclosures, arbitration, and preexisting conditions.

4. Does the model law meet the Model Law Criteria? ☒ Yes or ☐ No (Check one)

(If answering no to any of these questions, please reevaluate charge and proceed accordingly to address issues).

a. Does the subject of the model law necessitate a national standard and require uniformity amongst all states? ☒ Yes or ☐ No (Check one)

If yes, please explain why: Interested parties agree that there is ambiguity within regulation of the pet insurance market and having a more defined and consistent regulatory structure will improve the market and benefit consumers. The NAIC Paper, A Regulators' Guide to Pet Insurance, the Pet Insurance (C) Working Group and the Producer White Licensing (D) Task Force have previously discussed some of these ambiguities in the regulation of the market.

b. Does Committee believe NAIC members should devote significant regulator and Association resources to educate, communicate and support this model law?

☒ Yes or ☐ No (Check one)

5. What is the likelihood that your Committee will be able to draft and adopt the model law within one year from the date of Executive Committee approval?

☐ 1 ☒ 2 ☐ 3 ☐ 4 ☐ 5 (Check one)

High Likelihood

Low Likelihood

Explanation, if necessary: The NAIC White Paper, "A Regulator's Guide to Pet Insurance" has provided the background for the Working Group to understand the issues and begin to draft a model.

6. What is the likelihood that a minimum two-thirds majority of NAIC members would ultimately vote to adopt the proposed model law?

☐ 1 ☒ 2 ☐ 3 ☐ 4 ☐ 5 (Check one)

High Likelihood

Low Likelihood

Explanation, if necessary:

7. What is the likelihood that state legislatures will adopt the model law in a uniform manner within three years of adoption by the NAIC?

☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5 (Check one)

High Likelihood

Low Likelihood

Explanation, if necessary:

8. Is this model law referenced in the NAIC Accreditation Standards? If so, does the standard require the model law to be adopted in a substantially similar manner?

No

9. Is this model law in response to or impacted by federal laws or regulations? If yes, please explain.

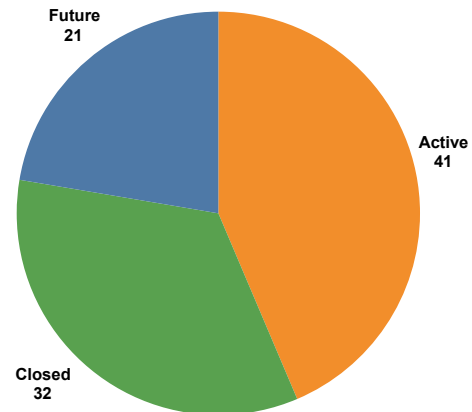
No

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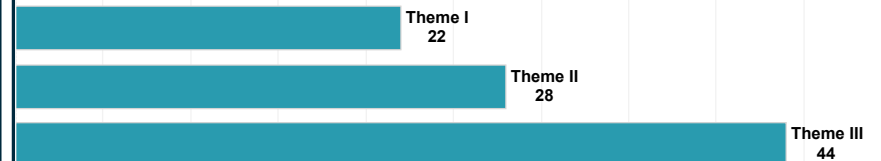


State Ahead Status Reporting - July 2019

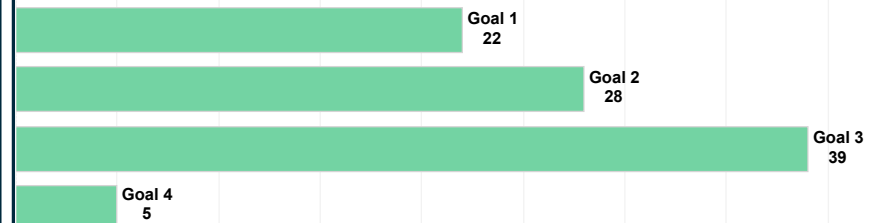
Current Project Phase



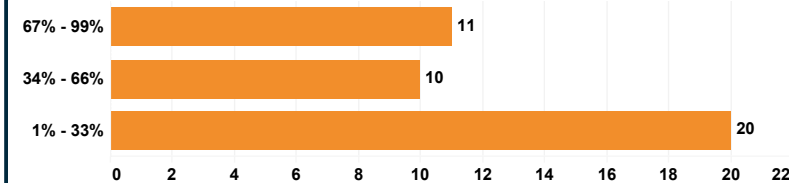
Projects by Strategic Themes



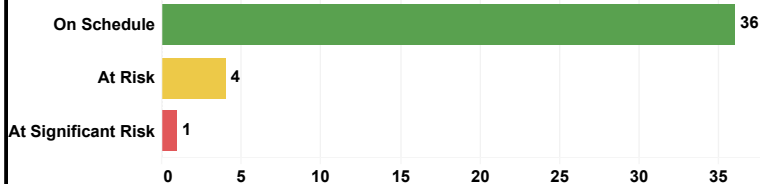
Projects by Strategic Goals



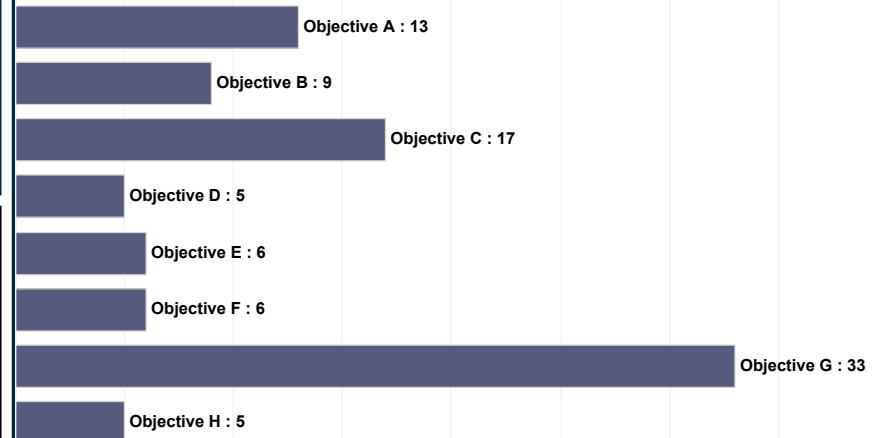
Progress On Active Projects



Current Status of Active Projects



Projects by Strategic Objectives



Draft: 8/1/19

Model Law Development Report

Amendments to the *Model Regulation to Implement the Accident and Sickness Insurance Minimum Standards Model Act (#171)*—Amendments to Model #171 are required for consistency with the federal Affordable Care Act (ACA) and, therefore, did not require approval of a Request for NAIC Model Law Development by the Executive (EX) Committee. At the 2015 Fall National Meeting, the Regulatory Framework (B) Task Force discussed the proposed revisions to this model. The Task Force requested additional comments by Jan. 22, 2016. The Task Force met Feb. 11, 2016, and appointed the Accident and Sickness Insurance Minimum Standards (B) Subgroup to work on revisions to this model. The Subgroup has been meeting on a regular basis since the 2016 Spring National Meeting and plans to continue meeting via conference call until it completes its work. During its meetings, the Subgroup has discussed a number of issues, including its approach for revising the model's disability income insurance coverage provisions, and decided preliminarily to review the Interstate Insurance Product Regulation Commission's (Compact) approach. After pausing its work due to the ACA's potential repeal, replacement or modification—and the possible impact on the provisions of this model, as well as the Subgroup's preliminary proposed revisions to the model—the Subgroup began meeting again via conference call in May 2018. Revisions to Model #170, now known as the *Supplementary and Short-Term Health Insurance Minimum Standards Model Act*, were adopted by the full NAIC membership at the Spring National Meeting. The Subgroup has begun meeting to consider revisions to Model #171 for consistency with the revised Model #170. The Subgroup hopes to complete its work by the Fall National Meeting.

Amendments to the *Annuity Disclosure Model Regulation (#245)*—The Executive (EX) Committee met June 19, 2017, and approved a Request for NAIC Model Law Development to amend Model #245. The amendments will revise Section 6—Standards for Illustrations. The purpose of the revision is to address issues identified by the Life Insurance and Annuities (A) Committee's Annuity Disclosure (A) Working Group related to innovations in annuity products that are not addressed, or not addressed adequately, in the current standards. Revisions addressing participating income annuities were adopted by the Life Insurance and Annuities (A) Committee during its July 19, 2018, conference call and held pending the resolution of the Working Group's discussions regarding illustrating indexes in existence for less than 10 years. The Working Group continues to discuss additional revisions on the index issue. At the 2019 Spring National Meeting, the Life Insurance and Annuities (A) Committee granted a request for extension of time to the Annuity Disclosure (A) Working Group to continue drafting amendments. The Working Group made progress during discussions via conference call on May 13, June 5, July 15 and July 29, and it received an extension from the Life Insurance and Annuities (A) Committee at the Summer National Meeting to continue its work. The Working Group hopes to complete its work by the Fall National Meeting.

Amendments to the *Suitability in Annuity Transactions Model Regulation (#275)*—Amendments to Model #275 are being drafted for consistency with federal rules and, therefore, did not require approval of a Request for NAIC Model Law Development by the Executive (EX) Committee. The Life Insurance and Annuities (A) Committee's Annuity Suitability (A) Working Group is drafting amendments to Model #275 that would raise the standard of conduct requirement for insurers and producers offering annuity products. The Working Group held an in-person meeting in June to consider the comments received on the draft proposed revisions exposed for a public comment period ending Feb. 15. The Working Group continued its discussion July 23 and July 29 via conference call, as well as during its meeting at the Summer National Meeting. Additional calls will be held following the Summer National Meeting.

Amendments to the *Life Insurance Disclosure Model Regulation (#580)* and *Life Insurance Illustrations Model Regulation (#582) Policy Overview Document*—The Executive (EX) Committee met June 19, 2017, and approved the Request for NAIC Model Law Development to incorporate a policy overview document requirement into Model #580 and Model #582 in order to improve the understandability of the life insurance policy summary and narrative summary already required by Section 5A(2) of Model #580 and Section 7B of Model #582. The Life Insurance and Annuities (A) Committee's Life Insurance Illustration Issues (A) Working Group has been meeting via conference call to develop language to add a requirement for a one- to two-page consumer-oriented policy overview. The Working Group has received an extension from the Life Insurance and Annuities (A) Committee until the Summer National Meeting. The Working Group continued to make progress during its discussions May 15 and July 30 via conference call and received an extension from the Life Insurance and Annuities (A) Committee at the Summer National Meeting to continue its work. The Working Group hopes to complete its work by the Fall National Meeting.

Amendments to the *Mortgage Guaranty Insurance Model Act (#630)*—The Executive (EX) Committee and Plenary approved the Request for NAIC Model Law Development to amend Model #630 on July 26, 2013. The Financial Condition (E) Committee's Mortgage Guaranty Insurance (E) Working Group developed substantial changes to the model but continues to discuss those changes. The Working Group's focus has shifted to working with a consultant to produce a capital model that

will serve as the basis for levels of intervention included in Model #630, with significant progress made in this area since the Spring National Meeting. The Working Group is requesting an additional extension from the Financial Condition (E) Committee at this meeting.

New Model: Real Property Lender-Placed Insurance Model Act—The Executive (EX) Committee approved the Request for NAIC Model Law Development, submitted by the Property and Casualty Insurance (C) Committee, to draft the new Real Property Lender-Placed Insurance Model Act at the 2017 Summer National Meeting. The Property and Casualty Insurance (C) Committee's Lender-Placed Insurance Model Act (C) Working Group exposed a draft of this proposed new model focusing on lender-placed insurance related to mortgage loans for a public comment period ending Oct. 31, 2018. At the 2019 Summer National Meeting, the Working Group received an extension of time to continue drafting the new model.

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Draft: 7/26/19

Plenary
Conference Call
June 25, 2019

The Executive (EX) Committee and Plenary met in joint session via conference call June 25, 2019. The following members participated: Eric A. Cioppa, Chair (ME); Raymond G. Farmer, Vice Chair (SC); David Altmaier, Vice President (FL); Dean L. Cameron, Secretary-Treasurer (ID); Lori K. Wing-Heier (AK); Jim L. Ridling (AL); Allen W. Kerr represented by Russ Galbraith (AR); Keith Schraad (AZ); Michael Conway (CO); Andrew N. Mais (CT); Stephen C. Taylor (DC); Trinidad Navarro (DE); Jim Beck represented by Josh McKoon (GA); Doug Ommen represented by Mike Yanacheak (IA); Robert H. Muriel (IL); Stephen W. Robertson (IN); Vicki Schmidt (KS); Nancy G. Atkins (KY); Al Redmer Jr. (MD); Anita G. Fox (MI); Steve Kelley (MN); Chlora Lindley-Myers (MO); Mike Chaney (MS); Matthew Rosendale (MT); Mike Causey (NC); Jon Godfread (ND); Bruce R. Ramge (NE); Marlene Caride (NJ); John G. Franchini (NM); Linda A. Lacewell represented by Laura Evangelista (NY); Jillian Froment (OH); Glen Mulready (OK); Jessica Altman (PA); Elizabeth Kelleher Dwyer (RI); Larry Deiter (SD); Carter Lawrence (TN); Kent Sullivan (TX); Todd E. Kiser (UT); Scott A. White (VA); Tregenza A. Roach (VI); Mike Kreidler (WA); Mark Afable (WI); James A. Dodrill (WV); and Jeff Rude (WY).

1. Adopted Revisions to Model #785 and Model #786 to Incorporate the EU and UK Covered Agreements

Commissioner Altmaier reported that on Sept. 22, 2017, the U.S. Department of the Treasury (Treasury Department) and U.S. Trade Representative signed the “Bilateral Agreement Between the United States of America and the European Union on Prudential Measures Regarding Insurance and Reinsurance” (EU Covered Agreement). The EU Covered Agreement, among other things, eliminates reinsurance collateral requirements for European Union (EU) reinsurers that meet certain capital and solvency requirements.

The EU Covered Agreement requires the states to eliminate reinsurance collateral requirements for EU reinsurers within 60 months (five years) of signing or face potential federal preemption by the Federal Insurance Office (FIO). On Dec. 18, 2018, a separate Covered Agreement was signed between the U.S. and the United Kingdom (UK), the “Bilateral Agreement Between the United States of America and the United Kingdom on Prudential Measures Regarding Insurance and Reinsurance” (UK Covered Agreement), which mirrors the language from the EU Covered Agreement and has the same timing requirements for implementation.

The first order of business was for the NAIC to decide on the right approach for addressing the Covered Agreements. To do this, the NAIC held a Public Hearing on Feb. 20, 2018, and heard comments from state, federal and international insurance regulators, as well as interested parties. There appeared to be almost unanimous consensus on all key points. As a result, the Executive (EX) Committee adopted a Request for Model Law Development to eliminate reinsurance collateral requirements for reinsurers that have their head office or are domiciled in the EU or UK, as well as updating the existing requirements for qualified jurisdictions.

The *Credit for Reinsurance Model Law* (#785) and the *Credit for Reinsurance Model Regulation* (#785) were originally submitted for Plenary consideration in December 2019, but action was delayed to allow for further action on concerns raised by the FIO and the European Commission.

The Reinsurance (E) Task Force and its drafting group, led by Director Lindley-Myers and John Rehagen (MO), worked very hard to address these issues, and on May 15 they adopted the revisions to Model #785 and Model #786. The Financial Condition (E) Committee then adopted these revisions during a conference call on May 28. The final revisions are consistent with the terms of the Covered Agreements.

Commissioner Altmaier made a motion, seconded by Director Ramge, to adopt the revisions to the *Credit for Reinsurance Model Law* (#785) and the *Credit for Reinsurance Model Regulation* (#786) (Attachment One). The motion passed unanimously.

Having no further business, the Executive (EX) Committee and Plenary adjourned.

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Attachment Number	Page Number	LATF VM Amendment	Valuation Manual Reference	Valuation Manual Amendment Proposal Descriptions	LATF Adoption Date
1	3	2017-70	VM Section II	Revisions to the reserve methodology for valuing term riders	8/3/2018
2	7	2018-03	VM-20 Section 7.D.1, 7.D.3, and 7.D.7	Clarifying Starting Asset Language	8/3/2018
3	16	2018-06	VM-02, VM-20	Definition of Ordinary Life	11/13/2018
4	18	2018-08	Introduction, Part II, Section D	Life PBR Exemption Revision	9/27/2018
5	20	2018-11	VM-20 Sect. 6.A.2, 6.A.3 VM-31 Sect 3.C.10	Clarify details of Stochastic Exclusion Tests and results	12/13/2018
6	23	2018-15	VM-01, VM20 Section 5.A	Add Definitions to VM-01	2/21/2019
7	25	2018-17	VM-20 Sect 9.C., VM-31 Sect 3.C.3	Aggregation of Mortality Segments - Credibility	11/13/2018
8	28	2018-41	VM-02 Sect 3 and 5, VM-20 Sect 3.C.1.a.	Move VM-02 Definitions to VM-01.	1/31/2019
9	32	2018-42	VM-20 Sections 9.C.2 and 9.C.4	Clarify when capping of face amounts is appropriate	4/25/2019
10	35	2018-43	VM-01	Provide a definition for Insurance Department	4/4/2019
11	36	2018-44	VM-20 Sect 7.F.6	IUL Deterministic Reserve	3/14/2019
12	41	2018-45	VM-20 Sect 9C	Adjustments to company experience mortality rates	5/30/2019
13	48	2018-48	VM-20 Sections 3.B.4.a, 3.C.3.b.	Clarify handling of YRT reinsurance assumed, term riders and paid-up term	2/21/2019
14	52	2018-49	VM-20 Section 3.B.6.d.iii	Update to reflect adoption of APF 2017-88	11/13/2018

Attachment Number	Page Number	LATF VM Amendment	Valuation Manual Reference	Valuation Manual Amendment Proposal Descriptions	LATF Adoption Date
15	54	2018-50	VM-31 Section 3.C.2.a	Require modeling system version number	11/13/2018
16	56	2018-51	VM-31 Section 2	Revision of VM-31 reporting requirements	11/13/2018
17	58	2018-52	VM-20 Section 3.C.1	Revise NPR calculation to address substandard mortality	11/13/2018
18	60	2018-53	VM-20 Section 7.E.1.g, VM-31 Sections 3.C.6, 3.C.13, VM-G 3.A.6.d.ii	Clarify Alternative Investment Strategy parameters	5/14/2019
19	64	2018-54	VM-31 Section 11.j	Additional instructions for ULSG reserve reporting	11/13/2018
20	66	2018-55	VM-01, VM-20 Sect. 2, 4, 5 VM-31 Sect. 11	Replace references to Product Group	5/9/2019
21	71	2018-56	VM-20 Section 8.D.1	Determination of a Pre-Reinsurance-Ceded Minimum Reserve	5/14/2019
22	73	2018-57	VM-20 Section 3.C.1, VM-31 Section 3.C.3	Adjustments to the NPR Mortality	6/20/2019
23	75	2018-61	VM-31 Section 3.C.3.h	Clarify the VM-31 definition of credibility	1/31/2019
24	77	2018-62	VM-31 Section 3.C.2.e	Revise VM-31 Actuarial Report Requirements to properly reflect the degree of model validation	3/7/2019
25	79	2018-63	VM-20 Section 3.C.3.c.ii	Clarify the appropriate annual lapse rate	3/14/2019
26	81	2018-64	VM-A/VM-C	Clarify that the requirements of VM-A and VM-C are not limited to reserves	4/4/2019
27	83	2018-66	VM-20 Section 2.D	Delete VM-20 Section 2.D	4/4/2019
28	87	2019-01	VM-20 Section 6.B. and VM-31 Section 3.C.10	Modify DET for conservatively reserved policies	6/20/2019

Attachment Number	Page Number	LATF VM Amendment	Valuation Manual Reference	Valuation Manual Amendment Proposal Descriptions	LATF Adoption Date
29	92	2019-04	VM-20 Section 3.B.5 and 3.B.6	Clarifying the ULSG expense allowance formulas.	4/4/2019
30	96	2019-05	VM-31 Section 3.C.11	Clarify VM-31 reporting requirement mandated in previously adopted APF 2018-54	2/21/2019
31	98	2019-06	VM-20 Section 9.E.1, VM-31 Section 3.C.5	Recommendations 20 and 21 from VAWG's memo regarding PBR Recommendations and Referrals to LATF.	5/21/2019
32	101	2019-07	VM-31 Section 3.C.3.j	Recommendation #11 from VAWG's memo regarding PBR Recommendations and Referrals to LATF. The new post-level term language relates to VAWG recommendation #17.	5/9/2019
33	103	2019-08	VM-31 Section 3.C.3.i.	Recommendation #14 from VAWG's memo regarding the PBR Recommendations and Referrals to LATF.	4/4/2019
34	105	2019-09	VM-31 Section 3.C.6.i	Recommendation #22 from VAWG's 10/24/18 memo regarding PBR Recommendations and Referrals to LATF.	4/4/2019
35	107	2019-10	VM-20 Section 8.D.2 and VM-31 Section 3.C.10.c	Recommendation #28 from VAWG's 10/24/2018 memo regarding PBR Recommendations and Referrals to LATF. It also provides clarity in VM-20 Section 8.D.2.	4/4/2019
36	109	2019-11	VM-20 Sec 9.D.3.e, 9.D.6 and VM-31 Sec 3.C.4	Clarify requirements for documentation of A/E ratios and testing sufficiency of lapse margins	5/9/2019
37	114	2019-12	VM-01 and VM-20 Section 7.D.7	Revise PIMR language	4/4/2019
38	116	2019-13	Guidance Note following VM-20 Section 6.A.2.a	Guidance Note to Clarify SERT Numerator	4/4/2019
39	119	2019-14	VM-31 Section 3.B.3 and VM-G Section 1.E	Additional governance documentation	5/21/2019
40	121	2019-15	VM-31 Section 3.C.11	Recommendations #18, #29, #30 and third consideration in recommendation #5 from VAWG memo	4/4/2019
41	125	2019-16	VM-20 Sec. 9.C.3.c.ii, 9.C.4.b.ii, 9.C.6 and VM-31 Sec. 3.C.3.k, 3.C.3.c.ii	Recommendations #35 and #36 from VAWG memo	5/2/2019
42	134	2019-18	VM-20 Section 9.G.8.b	Make VM-20 consistent with VM-21 as to revenue-sharing rules.	5/2/2019

Attachment Number	Page Number	LATF VM Amendment	Valuation Manual Reference	Valuation Manual Amendment Proposal Descriptions	LATF Adoption Date
43	136	2019-19	VM-20 Section 9.E.1.b	Clarify Guidance Note about expense spreading.	5/9/2019
44	138	2019-21	VM-20 Section 9.C.3.g	Specify date associated with 2008 VBT Table	5/9/2019
45	140	2019-22	VM-20 Section 9.D	Need for limiting modeling of option elections to those that could contain an element of anti-selection.	5/9/2019
46	142	2019-23	VM-31 Sec. 3.C.1, 3.C.3, VM-20 9.B.1/9.C.2.e	Recommendation #6, #7 and part of #4 of VAWG memo	5/21/2019
47	147	2019-25	VM-31 Sec. 3.C.3.h	Recommendation #12 and part of #34 of VAWG memo	5/2/2019
48	149	2019-26	VM-01	Revisions to VM-01	6/20/2019
49	160	2019-27	VM-21	Revisions to VM-21	6/20/2019
50	291	2019-28	VM-31	Revisions to VM-31	6/20/2019
51	332	2019-29	VM-20 Sec. 6.A.1.b	CDHS and Stochastic Exclusion	6/4/2019
52	334	2019-31	Section 2.D	Revision to the Life PBR Exemption	6/25/2019
53	336	2019-32	VM-20 Section 2.C	Allocation of the DR/SR Excess as Appropriate	5/9/2019
54	337	2019-35	VM-31 Section 3.C.8.a	Clarification of whether a reinsurance agreement involves a captive	5/9/2019
55	339	2019-36	Section II	Clarify Section II Reserve Requirements for Deposit Type Contracts	6/20/2019
56	341	2019-37	VM-G	VM-G requirements when exclusion tests are passed	5/14/2019

Attachment Number	Page Number	LATF VM Amendment	Valuation Manual Reference	Valuation Manual Amendment Proposal Descriptions	LATF Adoption Date
57	347	2019-38	VM-02 Sec 5E	Revert to 2001 CSO for GI business	5/30/2019
58	349	2019-39	VM-20 Sec 8.C	Interim solution of YRT Reinsurance Treatment	6/20/2019
59	353	2019-43	VM-20 Section 2.A and 3.D	Addresses VAWG Recommendation #32	5/21/2019
60	356	2019-44	VM-31 Section 3.B	Addresses VAWG Recommendation #3 and #4	5/21/2019
61	360	2019-46	VM-50 Sec 3.B.6 VM51 Sec 2.D	Experience reporting Agent Trigger	6/20/2019
62	365	2019-52	Intro, VM-01, VM-20, VM-31	Addresses VAWG Recommendation #5	5/30/2019
63	371	2019-53	VM-20 Sec 9.C.2.g & 9.C.6.c	Clarify the language related to smoothing	6/4/2019
64	374	2019-54	VM-31 Section 3.C.12	Addresses VAWG Recommendation #2	6/4/2019
65	376	2019-55	VM-20 Sec 7.L	Delete a CHDS criterion that was moved to VM-01	6/20/2019

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Adopted by the Life Insurance and Annuities (A) Committee, July 10, 2019

Life Actuarial (A) Task Force
Re- Exposure of Revisions to
Amendment Proposal 2017-70
Updating the Valuation Manual for the Treatment of Term Riders

Commenters should consider the following in their responses:

- 1. What, if any, simplifications can be made to the text while maintaining the clarifications made in this version?**
- 2. What, if any, definitions can be added to VM-01 to streamline the text? In particular, can anything in bullet D and E be moved to a definition and referenced here for simplification?**

21-day Comment Period ending July 11, 2018

Please send comments to Reggie Mazyck (RMazyck@naic.org)

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form*

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Brian Bayerle, ACLI – Update the Valuation Manual for the treatment of riders

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

Valuation Manual Jan. 1, 2018 Edition, NAIC Adoptions through August 8, 2017, with nonsubstantive changes through year-end 2017: Section II – Reserve Requirements, VM-20 Section 3, VM-20 Section 6

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

The APF provides more clarity to the treatment of riders for the model reserve in the “Reserve Requirements” section of the Valuation Manual. Additionally, it clarifies the treatment of term life insurance riders when valued separately from the base contract in VM-20 Sections 2 and 3, which currently seems to contradict the “Reserve Requirements” section.

* This form is not intended for minor corrections, such as formatting, grammar, cross-references or spelling. Those types of changes do not require action by the entire group and may be submitted via letter or email to the NAIC staff support person for the NAIC group where the document originated.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
Notes: 2017-70 Rev #5 5/21/18			

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II. Reserve Requirements

Riders and Supplemental Benefits

Guidance Note:

Policy designs which are created to simply disguise riders subject to VM-20 Section 3.A.1 or exploit a perceived loophole must be reserved in a manner similar to more typical designs with similar riders.

- A. If a rider or supplemental benefit is attached to a health insurance product, annuity product, deposit-type contract or credit life or disability product it may be valued with the base contract unless required to be separated by regulation or other requirements.
- A.B. For supplemental benefits including Guaranteed Insurability, Accidental Death or Disability Benefits, Convertibility, or Disability Waiver of Premium Benefits, the supplemental benefit may be included with the base policy and follow the reserve requirements for the base policy under VM-20, VM-A, and/or VM-C as applicable.
- C. C.——ULSG and other secondary guarantee riders shall be valued with the base policy and follow the reserve requirements for ULSG policies under VM-20, VM-A, and/or VM-C as applicable.
- B.D. If a rider or supplemental benefit to a life insurance policy that is not addressed in Paragraphs B or C above possesses any of the following attributes, the rider or supplemental benefit shall be included with the base policy and follow the reserve requirements for the base policy under VM-20, VM-A, and/or VM-C as applicable.
1. The rider or supplemental benefit does not have a separately identified premium or charge;
 2. The rider or supplemental benefit premium, charge, value, or benefits are determined by reference to the base policy features or performance; or
 3. The base policy value or benefits are determined by reference to the rider or supplemental benefit features or performance. The deduction of rider or benefit premium or charge from the contract value is not sufficient for a determination by reference.
- ED. If a term life insurance rider on the named insured[s] on the base life insurance policy does not meet the conditions of paragraph D above, and either (1) guarantees level or near level premiums until a specified duration followed by a material premium increase, or (2) for a rider for which level or near level premiums are expected for a period followed by a material premium increase, then the rider shall be separated from the base policy and follow the reserve requirements for term policies under VM-20, VM-A, and/or VM-C as applicable.
- E. If a ULSG or other secondary guarantee rider on the base life insurance policy does not meet the conditions of paragraph C above, then the rider shall be separated from the base policy and follow the reserve requirements for term policies under VM-20, VM-A, and/or VM-C as applicable.
- F. For all other riders or supplemental benefits on life insurance policies not addressed in paragraphs B through E above, the riders or supplemental benefits may be included with the base policy and follow the reserve requirements for the base policy under VM-20, VM-A, and/or VM-C as applicable. For a given rider, the election to include or separate riders or supplemental benefits with the base policy shall be determined at the policy form level, and not on a rider-by-rider policy by policy basis.

- ~~A. If a rider or supplemental benefit to one of the above types of products has a separately identified premium or charge, then the following apply:~~
- ~~1. For supplemental benefits e.g., Disability Waiver of Premium, Accidental Death Benefits, Convertibility or Guaranteed Insurability the reserves may be computed separate from the base contract following the reserves requirements for that benefit.~~
 - ~~2. For term life insurance riders on persons other than the named insured[s] on the base policy, the reserve may be computed separate from the base policy following the reserve requirements for that benefit.~~
 - ~~3. For term life insurance riders on the named insured[s] on the base policy, the reserve shall be valued as part of the base policy.~~
 - ~~4. For riders that enhance or modify the terms of the base contract e.g., a secondary guarantee rider or a cash value enhancement rider the reserve shall be valued as part of the base policy.~~
 - ~~5. For any riders not addressed by paragraph A.2 through paragraph A.4 above, the reserve shall be valued as part of the base policy.~~
- ~~B. If a rider or supplemental benefit does not have a separately identified premium or charge, all cash flows associated with the rider or supplemental benefit must be included in the calculation of the reserve for the base policy. For example, reserves for a universal life policy with an accelerated benefit for long term care (LTC) must include cash flows from the LTC benefit in determining minimum reserves in compliance with VM-20. A separate reserve is not determined for the rider or supplemental benefit.~~

VM-20

Section 3: Net Premium Reserve

A. Applicability

1. The NPR for each term policy and for each ULSG policy must be determined on a seriatim basis pursuant to Section 3.

When valuing term riders pursuant to paragraph E in to Section II C-Riders and Supplemental Benefits Requirements in Section II, the reserve requirements for term policies are applicable.

Guidance Note: When valuing term riders pursuant to Section II A.2 Riders and Supplemental Benefits, the reserve requirements for term policies are applicable.

2. Except for policies subject to Section 3.A.1, the NPR shall be determined pursuant to applicable methods in VM-A and VM-C for the basic reserve. The mortality tables to be

used are those defined in Section 3.C.1 and in VM-M Section 1.H.

Section 6: Stochastic and Deterministic Exclusion Tests

A. Deterministic Exclusion Test

1. Scope of Products

a.

A group of ULSG policies that does not meet the definition of a “non-material secondary guarantee” or a group of policies that is not excluded from the stochastic reserve requirement is deemed to not pass the deterministic reserve exclusion test, and the deterministic reserve must be computed for this group of policies.

b.

The Deterministic (Reserve) Exclusion Test (DET) may not be used for term insurance policies subject to Section 3.A.1. or term riders pursuant to paragraph E in the Riders and Supplemental Benefits Requirements in Section II, and these policies may not be excluded from the deterministic reserve requirements of Section 4.

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**Life Actuarial (A) Task Force/ Health Actuarial (B) Task
Force
Amendment Proposal Form**

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Staff of Office of Principle-Based Reserving, California Department of Insurance – Clarify language about Starting Assets.

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2018 edition), with NAIC Adoptions through August 8, 2017 – as amended by APF 2017-57 adopted 11/30/2017, VM-20 Sections 7.D.1, 7.D.3, and 7.D.7

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached Appendix. These changes are **non-substantive** in nature.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

See attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
Notes: APF 2018-03 (CA APF AI)			

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Appendix

ISSUE:

Clarify Starting Asset language, in several respects:

1. Make it clearer that determining Starting Assets is an iterative process.
2. Clarify that the asset collar applies to the final iteration, not the first guess.

SECTION:

VM-20 Section 7.D.1, 7.D.3, and 7.D.7

REDLINE:

VM-20 Section 7.D.

D. Starting Assets

1. For each model segment, the company shall select starting assets based on an iterative process.

Guidance Note: A reasonable initial set of starting assets for the iteration might be such that the aggregate annual statement value of the assets at the projection start date equals (a) the estimated value of the modeled reserve plus the associated PIMR balance on the projection start date, or (b) the NPR for the same set of policies net of any corresponding due and deferred premium asset, or (c) an amount between (a) and (b). allocated to the policies in the appropriate model segment.

Iteration may continue until the asset collar of 7.D.3 is satisfied or the company may stop iteration before the asset collar is satisfied and provide the required documentation in 7.D.3 that the modeled reserve is not thereby materially understated.

3. If for all model segments combined, the aggregate annual statement value of the final value of starting assets, less the corresponding PIMR balance, is:

(a) less than 98% of the modeled reserve; or

(b) greater than the largest of:

(i) 102% of the modeled reserve

(ii) the NPR for the same set of policies, net of due and deferred premiums thereon; and

(iii) zero

then the company shall provide documentation in the PBR Actuarial Report that provides reasonable assurance that the modeled reserve is not materially understated as a result of the estimate of the amount of starting assets.

7. Under Section 4 and Section 5, any PIMR balance allocated to the group of one or more policies being modeled at the projection start date is subtracted out ~~included~~ in the calculations of the respective reserves. The determination of the PIMR allocation is subject to the following:

REASONING:

More precise language, and also the removal of any language that could be construed as regulating at what the first guess in an iterative process should equal.

Change to 7.D.7 better reflects the language of VM-20 Section 4.A and 5.F.

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Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Staff of Office of Principle-Based Reserving, California Department of Insurance,
Correct some reference errors in VM-02.

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), VM-02 Section 5

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached Appendix. These proposed changes are for clarification only and as such are **non-substantive**.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

See attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
Notes: APF 2018-06 (CA APF AV), Updated for 2019 VM 10_1_18			

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Appendix

ISSUE:

VM-02 clarity

SECTION:

VM-02 Section 5

REDLINE:

VM-02 Section 5.A

A. Ordinary Life Insurance Policies

1. For ordinary life insurance policies issued on or after Jan. 1, 2017, and prior to Jan. 1, 2020, except as provided below in ~~paragraph 2~~ Section 5.A.2 and in Section 5.B or in Section 5.E below, the minimum nonforfeiture standard shall be determined using the 2001 CSO Mortality Table as defined in VM-M of this manual and subject to the requirements defined in VM-A-814 in VM-A of this manual for using this mortality table and subject to minimum standards. The 2001 CSO Preferred Class Structure Tables shall not be used to determine the minimum nonforfeiture standard.
2. Except as provided in Section 5.B and Section 5.E, and sSubject to the requirements stated in a and b below, the 2017 CSO Mortality Table as defined in VM-M Section 1.H:
 - a. May, at the election of the company, be used for one or more specified plans of insurance issued on or after Jan. 1, 2017, to which Section 5cH(6) of the Standard Nonforfeiture Law for Life Insurance (#808) is applicable, be used to determine minimum nonforfeiture standards according to the Model #808 or the state's equivalent statute. The 2017 CSO Preferred Structure Tables shall not be used to determine the minimum nonforfeiture standard.
 - b. Shall, for policies issued on or after Jan. 1, 2020, to which Section 5cH(6) of ~~the Standard Nonforfeiture Law for Life Insurance (Model #808)~~ is applicable, be used to determine minimum nonforfeiture standards according to the Model #808 or the state's equivalent statute. The 2017 CSO Preferred Structure Tables shall not be used to determine the minimum nonforfeiture standard.

REASONING:

The verbiage in 5.A.2.b. after “Jan. 1, 2020” appears to have been intended to apply also to 5.A.2.a, and rather than doing any major restructuring, we propose here to simply add that verbiage to 5.A.2.a.

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Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force

Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Staff of Office of Principle-Based Reserving, California Department of Insurance – Miscellaneous fixes to Introduction, Section II, notably removal of the 450% RBC requirement.
(Problem that certification was required even when it did not strictly hold was pointed out by Pete Weber and issue with 450% RBC was pointed out by Mike Boerner.)

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), as amended by APF 2017-70, Introduction, Section II

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached Appendix.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

See attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
APF 2018-08 (CA APF-AX) Rev 9_20_18 Edits applied to the 2019 VM			

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Appendix

ISSUES:

Issue #1: If a company is requesting the exemption on the “exception basis” (i.e. they violated the 450% RBC requirement this year, but not in the prior two years) they still appear to be required to “certify” that they didn’t violate it this year, under the current wording.

Issue #2: The 450% RBC requirement does not appear to be appropriate to determine when PBR is needed.

Issue #3: In Section II of the introduction, item A under “Life Insurance Products” begins with the words “This subsection...” and it may not be entirely clear whether “subsection” refers to item A, or to the Life Insurance heading, or possibly even Section II itself. Also, item A ends with the words “...provided in other subsections of the Valuation Manual”, which is even less clear, as it is meant only to be referring to other subsections within Section II.

Issue #4: “Individual life” is never defined in the Valuation Manual, so it seems desirable to clarify that joint life policies are intended to be included in “individual life”.

Issue #5: Guaranteed Issue premiums need to be subtracted out of Exhibit 1 premiums, just like pre-need premiums are.

SECTION:

Introduction, Section II

REDLINE:

II. Reserve Requirements

This section provides the minimum reserve requirements by type of product, as set forth in the seven subsections below, as follows:

- (1) Life Insurance Products
- (2) Annuity Products
- (3) Deposit-Type Contracts
- (4) Health Insurance Products
- (5) Credit Life and Disability Products
- (6) Riders and Supplemental Benefits

(7) Claim Reserves

All reserve requirements provided by this section relate to business issued on or after the operative date of the *Valuation Manual*. All reserves must be developed in a manner consistent with the requirements and concepts stated in the Overview of Reserve Concepts in Section I of the *Valuation Manual*.

Guidance Note: The words “policies” and “contracts” are used interchangeably.

(1) Life Insurance Products

- A. This subsection establishes reserve requirements for all contracts issued on and after the operative date of the *Valuation Manual* that are classified as life contracts as defined in SSAP No. 50 in the AP&P Manual, with the exception of annuity contracts and credit life contracts. Minimum reserve requirements for annuity contracts and credit life contracts are provided below in ~~other~~ subsections 2 and 5 respectively of the *Valuation Manual*.
- B. Minimum reserve requirements for variable and nonvariable individual life contracts—excluding guaranteed issue life contracts, preneed life contracts, industrial life contracts, and policies of companies exempt pursuant to the companywide exemption in paragraph D below—are provided by VM-20, except for election of the transition period in paragraph C below. Joint life policies are considered individual life, for this purpose.

Minimum reserve requirements of VM-20 are considered principle-based valuation requirements for purposes of the *Valuation Manual* and VM-31, PBR Actuarial Report Requirements for Business Subject to a Principle-Based Reserve Valuation, unless VM-20 or other requirements apply only the net premium reserve method or applicable requirements in VM-A, Appendix A – Requirements, and VM-C, Appendix C – Actuarial Guidelines.

Minimum reserve requirements for life contracts not subject to VM-20 are those pursuant to applicable requirements in VM-A and VM-C. For Guaranteed Issue life contracts issued after 12/31/2018, mortality tables are defined in VM-M, and the same table shall be used for reserve requirements as is used for minimum nonforfeiture requirements as defined in VM-02.

- C. A company may elect to establish minimum reserves pursuant to applicable requirements in VM-A and VM-C for business otherwise subject to VM-20 requirements and issued during the first three years following the operative date of the *Valuation Manual*. A company electing to establish reserves using the requirements of VM-A and VM-C may elect to use the 2017 Commissioners’ Standard Ordinary (CSO) Tables as the mortality standard following the conditions outlined in VM-20 Section 3. If a company during the three years elects to apply VM-20 to a block of such business, then a company must continue to apply the requirements of VM-20 for future issues of this business.

D. Life PBR Exemption

1. A company meeting all of the following conditions may file a statement of exemption for ordinary life insurance policies, issued directly or assumed during the current calendar year, that would otherwise be subject to VM-20. Such statement must be filed, with the ~~its~~ domiciliary commissioner

prior to July 1 of that year certifying that conditions 2.a, ~~2.b~~, and 2.e~~b~~ are met based on premiums and other values from the prior calendar year annual statement and certifying that condition 2.d~~c~~ is to be met as of the current calendar year-end valuation date. The statement of exemption must also be included with the NAIC filing for the second quarter of that year. The domiciliary commissioner may reject such statement prior to Sept. 1 and require the company to follow the requirements of VM-20 for the ordinary life policies. ~~For a company that met the conditions for exemption in either of the two prior years and meets conditions 2.a, 2.e and 2.d currently but does not meet condition 2.b currently, the domiciliary commissioner may grant the exemption for the current year on an exception basis. The minimum reserve requirements for the ordinary life policies subject to the exemption are those pursuant to applicable methods required in VM-A and VM-C using the mortality as defined in VM-20 Section 3.C.1 and VM-M Section 1.H.~~

2. Conditions for Exemption:

a. The company has less than \$300 million of ordinary life premiums¹ and, if the company is a member of an NAIC group of life insurers, the group has combined ordinary life premiums¹ of less than \$600 million;

~~and~~

~~b. The company has reported total adjusted capital of at least 450% of the authorized control level RBC as reported in the prior calendar year annual financial statement, or has less than \$50,000,000 of ordinary life premiums²;~~

~~and~~

~~e.b.~~ The appointed actuary has provided an unqualified opinion on the reserves for the prior calendar year;

~~and~~

~~d.c.~~ Every ULSG policy issued or assumed by the company with an issue date on or after Jan. 1, 2020, and in force on the company's annual financial statement for the current calendar year-end valuation date only has secondary guarantees that meet the VM-01 ~~VM-02~~ definition of a "non-material secondary guarantee."

3. Each exemption, or lack of an exemption, applies only to policies issued or assumed in the current year and applies to all future valuation dates for those policies. The minimum reserve requirements for the ordinary life policies subject to the exemption shall be calculated are those pursuant to applicable methods required in VM-A and VM-C using the mortality as defined in VM-20 Section 3.C.1 and VM-M Section 1.H.

¹ Premiums are measured as direct plus reinsurance assumed from an unaffiliated company from the ordinary life line of business reported in the prior calendar year life/health annual financial statement, Exhibit 1, Part 1, Column 3, "Ordinary Life Insurance" excluding premiums for Guaranteed Issue policies and preneed life contracts and excluding amounts that represent the transfer of reserves in force as of the effective date of a reinsurance assumed transaction and are reported in Exhibit 1 Part 1, Column 3 as ordinary life insurance premium. Preened is as defined in VM-02.

(2) Annuity Products

A. This subsection establishes reserve requirements for all contracts classified as annuity contracts as defined in SSAP No. 50 in the AP&P Manual.

B. Minimum reserve requirements for variable annuity contracts and similar business, specified in VM-21, Requirements for Principle-Based Reserves for Variable Annuities, shall be those provided by VM-21. The minimum reserve requirements of VM-21 are considered PBR requirements for purposes of the *Valuation Manual*.

C. Minimum reserve requirements for fixed annuity contracts are those requirements as found in VM-A and VM-C as applicable, with the exception of the minimum requirements for the valuation interest rate for single premium immediate annuity contracts, and other similar contracts issued after Dec. 31, 2017, including those fixed payout annuities emanating from host contracts issued after Jan. 1, 2017 and on or before Dec. 31, 2017. The maximum valuation interest rate requirements for those contracts are defined in VM-22.

(3) Deposit-Type Contracts

A. This subsection establishes reserve requirements for all contracts classified as deposit-type contracts defined in SSAP No. 50 in the AP&P Manual.

B. Minimum reserve requirements for deposit-type contracts are those requirements as found in VM-A and VM-C as applicable.

(4) Health Insurance Products

A. This subsection establishes reserve requirements for all contracts classified as health contracts defined in SSAP No. 50 in the AP&P Manual.

B. Minimum reserve requirements for accident and health insurance contracts, other than Credit Disability, are those requirements provided by VM-25, Health Insurance Reserves Minimum Reserve Requirements, and VM-A and VM-C requirements, as applicable.

(5) Credit Life and Disability Products

A. This subsection establishes reserve requirements for all credit life, credit disability products and other credit-related products defined as follows:

B. “Credit life insurance” means insurance on a debtor or debtors, pursuant to or in connection with a specific loan or other credit transaction, to provide for satisfaction of a debt, in whole or in part, upon the death of an insured debtor.

Credit life insurance does NOT include:

1. Insurance written in connection with a credit transaction that is:

a. Secured by a first mortgage or deed of trust.

b. Made to finance the purchase of real property or the construction of a dwelling thereon, or to refinance a prior credit transaction made for such a purpose.

2. Insurance sold as an isolated transaction on the part of the insurer and not related to an agreement or a plan for insuring debtors of the creditor.

3. Insurance on accounts receivable.

C. “Credit disability insurance” means insurance on a debtor or debtors to or in connection with a specific loan or other credit transaction, to provide for lump sum or periodic payments on a specific loan or other credit transaction due to the disability of the insured debtor.

D. “Other credit-related insurance” means insurance on a debtor or debtors, pursuant to or in connection with a specific loan or other credit transaction, including a real estate secured loan, to provide for satisfaction of a debt, in whole or in part, upon the death or disability of an insured debtor.

1. Other credit-related insurance includes insurance written in connection with a credit transaction that is:

a. Secured by a first mortgage or deed of trust written as credit insurance, debtor group insurance or group mortgage insurance.

b. Made to finance the purchase of real property or the construction of a dwelling thereon, or to refinance a prior credit transaction made for such a purpose.

2. Other credit-related insurance DOES NOT include:

a. Insurance sold as an isolated transaction on the part of the insurer and not related to an agreement or a plan for insuring debtors of the creditor.

b. Insurance on accounts receivable.

E. Minimum reserve requirements for credit life, credit disability contracts and other credit-related insurance issued on or after the operative date of the *Valuation Manual* are provided in VM-26, Credit Life and Disability Reserve Requirements. For purposes of reserves for “other credit-related insurance” within VM-26, the terms “credit life insurance” and “credit disability insurance” shall include benefits provided under contracts defined herein as “other credit-related insurance.”

(6) Riders and Supplemental Benefits

Guidance Note:

Policy designs which are created to simply disguise riders subject to VM-20 Section 3.A.1 or exploit a perceived loophole must be reserved in a manner similar to more typical designs with similar riders.

- A. If a rider or supplemental benefit is attached to a health insurance product, annuity product, deposit-type contract or credit life or disability product it may be valued with the base contract unless required to be separated by regulation or other requirements.
- B. For supplemental benefits including Guaranteed Insurability, Accidental Death or Disability Benefits, Convertibility, or Disability Waiver of Premium Benefits, the supplemental benefit may be included with the base policy and follow the reserve requirements for the base policy under VM-20, VM-A, and/or VM-C as applicable.
- C. ULSG and other secondary guarantee riders shall be valued with the base policy and follow the reserve requirements for ULSG policies under VM-20, VM-A, and/or VM-C as applicable.
- D. If a rider or supplemental benefit to a life insurance policy that is not addressed in Paragraphs B or C above possesses any of the following attributes, the rider or supplemental benefit shall be included with the base policy and follow the reserve requirements for the base policy under VM-20, VM-A, and/or VM-C as applicable.
 - 1. The rider or supplemental benefit does not have a separately identified premium or charge;
 - 2. The rider or supplemental benefit premium, charge, value, or benefits are determined by reference to the base policy features or performance; or
 - 3. The base policy value or benefits are determined by reference to the rider or supplemental benefit features or performance. The deduction of rider or benefit premium or charge from the contract value is not sufficient for a determination by reference.
- E. If a term life insurance rider on the named insured[s] on the base life insurance policy does not meet the conditions of paragraph D above, and either (1) guarantees level or near level premiums until a specified duration followed by a material premium increase, or (2) for a rider for which level or near level premiums are expected for a period followed by a material premium increase, then the rider shall be separated from the base policy and follow the reserve requirements for term policies under VM-20, VM-A, and/or VM-C as applicable.

(7) Claim Reserves

Regardless of the requirement for use of the PBR approach to policy reserves, the claim reserves, including waiver of premium claims, are not subject to PBR requirements of the *Valuation Manual*.

REASONING:

Improved clarity.

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Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Staff of Office of Principle-Based Reserving, California Department of Insurance – Clarify rules surrounding use of Stochastic Exclusion Test and reporting of those results.

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), VM-20 Section 6 and VM-31 Section 10

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached Appendix.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

See attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
Notes: VM APF 2018-11 (CA APF AZ rev7 9_16_18)			

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Appendix

ISSUE:

Greater clarity surrounding details of Stochastic Exclusion Tests and the reporting of their results.

SECTIONS:

VM-20 Sections 6.A.2 and 6.A.3, VM-31 Section 3.C.10

REDLINE:

(new) VM-20 Section 6.A.2.d

- d. The Stochastic Exclusion Ratio Test may not be used for a group of policies if, using the current year's data, (i) the stochastic exclusion demonstration test had already been attempted using the method of Section 6.A.3.b.i or Section 6.A.3.b.ii and did not pass, or (ii) the qualified actuary had actively undertaken to perform the certification method of Section 6.A.1.a.iii and concluded that such certification could not legitimately be made.

VM-20 Section 6.A.3.a.iii

- iii. The demonstration may be based on analysis from a date that precedes the valuation date for the initial ~~calendar~~ year to which it applies ~~initial or subsequent exclusion period.~~ if the demonstration includes an explanation of why the use of such date will not produce a material change in the outcome as compared to results based on an analysis as of the valuation date.

VM-31 Section 3.C.10.b

- b. Type of Stochastic Exclusion Test – Identification of ~~For~~ each group of policies which the company elects to exclude from stochastic reserve requirements ~~and,~~ the stochastic exclusion test used (passing the stochastic exclusion ratio test or stochastic exclusion demonstration test, or certification that the group of policies does not contain material interest, tail or asset risk). For any group of policies for which a prior year's result is being invoked as to the passing of the stochastic exclusion demonstration test or the certification that policies are not subject to material interest rate risk, a statement indicating which prior year's result it was.

VM-31 Section 3.C.10.e,f,g

- e. Certification Method – For groups of policies for which the certification method is used, support for the certification including supporting analysis and tests.
- f. Fallback Results – If the stochastic exclusion demonstration test or the certification method was successfully used for any group of policies for which the Stochastic Exclusion Ratio Test was initially attempted but failed, the company shall so indicate and show the unsuccessful SERT

~~Guidance Note: There may be occasions where the Stochastic Exclusion Ratio Test could fail by virtue of the Stochastic Reserve being negative or close to zero, whereupon another method could reasonably be used instead.~~

Similarly, if the Stochastic Exclusion Ratio Test was successfully used for any group of policies for which the stochastic exclusion demonstration test under the method of Section 6.A.3.b.iii or Section 6.A.3.b.iv was initially attempted but failed, the company shall so indicate and show the results of the unsuccessful stochastic exclusion demonstration test.

- fg. Deterministic Exclusion Test – For groups of policies that pass the stochastic exclusion test and for which the company chooses not to calculate stochastic reserves, the results of the deterministic exclusion test for each group of policies.

REASONING:

Allowing flexibility where needed, disallowing gamesmanship, and adding disclosures to better inform any needed future updates to SERT rules.

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Staff of Office of Principle-Based Reserving, California Department of Insurance – Adding some definitions.

2. Identify the document including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2018 edition), with NAIC Adoptions through August 8, 2017, VM-01

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

Please see Appendix attached. This amendment is for clarification only and as such is Non-Substantive.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

Please see attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
Notes: APF 2018-15 (CA APF BF) rev 9_11_18			

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Appendix

ISSUE:

Certain key VM-20 terms do not have definitions.

SECTIONS:

VM-01

REDLINE:

VM-01

We request that LATF please add to VM-01 definitions for these two items. Our suggested wording is shown for each:

The term “indexed universal life insurance policy” means any universal —A life insurance policy where the interest credits are linked to an external reference.
~~provid coverage on an insured person and ha cash surrender value that depend on the performance of a specified external index or indices~~

The term “shadow account” means a notional account, typically consisting of premium and interest credits and cost of insurance and expense charges, that is associated with certain types of universal life policies and is used in conjunction with a secondary guarantee.

REASONING:

1. Indexed Universal Life Insurance Policy - To be consistent with the fact that UL and Variable Life are defined terms in the Valuation Manual. Also consistency with Model 585.
2. Shadow Account – To reduce any ambiguity surrounding secondary guarantees.

Revised APF 2018-17

Updated 10/12/18

Submitted by Rachel Hemphill | California Department of Insurance

ISSUE:

We greatly appreciate all of the LRWG's drafting efforts on this important issue, and have relied heavily on their language here (and updated based on subsequent helpful feedback). The iterative process that that particular APF has undergone has left the result difficult for us to follow structurally, and so we propose restructuring/movement of certain sections. We also address the issue of similarity based on reinsurer or consulting firm data being adequately documented. We revise the "bottom-up" approach narrative to give an example, analogous to the narrative for the "top-down" approach and to require that the aggregate data does in fact inform the individual mortality segment level assumption. Specifically, we propose:

1. The requirements for aggregation (e.g. "similar underwriting") belong in 9.C.2.d, where the requirements for the use of aggregate experience are set, rather than 9.C.4, where the rules for credibility of set. The level of aggregation allowed for determining credibility simply follows from the level of aggregation actually used when determining rates.
2. More clearly delineate the approaches to be considered "similar". There are two outlined methods to support the determination that a new underwriting process is similar to an established underwriting process: based on published (or 3rd-party proprietary) studies and based on retrospective analysis. They require distinct documentation in the VM-31 Report.
3. Allows for either top-down or bottom-up aggregation, as long as the aggregate experience is actually reflected.

SECTIONS:

VM-20 Section 9.C.2.d, VM-20 Section 9.C.4.b, VM-20 Section 9.C.6.b.ii, VM-31 Section 3.C.3

REDLINE:

VM-20 Section 9.C.2

d. ~~When determining the company experience mortality rates for each mortality segment, the company may base the mortality on the more aggregate company experience for a group of mortality segments when determining the company experience mortality rates for each of the individual mortality segments in the group if the mortality segments were subject to the same or similar underwriting processes.~~

- ~~For directly-written policies, "underwriting processes" means the processes by which the direct-writing company determines which risks to accept and to which risk class each policy is assigned, including any impacts on these determinations due to distribution systems and target markets.~~
- ~~For assumed policies, "underwriting processes" means the processes by which the assuming company determines which risks to accept and to which risk class each policy is assigned, when such processes are separate and distinct from the underwriting processes used by the direct-writing company. For an assuming company that depends upon the direct-writing company's underwriting processes,~~

“underwriting processes” means the direct-writing company’s underwriting processes.

- iii. An underwriting process that is expected to produce similar mortality to that of a previously established underwriting process, or for which the expected mortality differs from that of a previously established underwriting process only as the result of one or more specific, identifiable modifications to the established underwriting process for which the expected change to mortality may be reasonably estimated, may be treated as similar to the previously established underwriting process if these expectations regarding mortality are supported by relevant, pursuant to Section 9.A.6, third-party proprietary experience studies (such as those of reinsurers or consulting firms) or published medical, clinical, actuarial, or industry studies;
- iv. An underwriting process that has been shown to produce similar mortality to that of a previously established underwriting process based on a retrospective demonstration using statistical analyses, predictive model back-testing, or other modeling methods, or for which the expected change to mortality due to one or more specific, identifiable modifications to a previously established underwriting process has been estimated, based on a retrospective demonstration using statistical analyses, predictive model back-testing, or other modeling methods, may be treated as similar to the previously established underwriting process. Such retrospective demonstration shall be carried out and repeated at least once every three years, until such time as the estimated change in expected mortality has been shown to be stable and unlikely to change based on further review. Notwithstanding the above, a retrospective demonstration is not required if the difference between the modified underwriting process and the established underwriting process is minor, such as a change in the thresholds associated with a risk characteristic, and is clearly and reasonably expected to result in mortality experience that is not materially worse.
- i. To the extent that, when treating an underwriting process as similar, the judgment of the similarity of expected mortality or the estimate of the expected change to mortality increases uncertainty in the mortality assumption, the margin applicable to the mortality assumption should be increased pursuant to Section 9.C.5.d.

¶¶.v.

- vi. If the company uses the aggregate company experience for a group of mortality segments when determining the company experience mortality rates for each of the individual mortality segments in the group, the company shall either:
 - a. ~~and use~~ Use other techniques to further subdivide the aggregate ~~class~~ experience into the various subelasses or mortality segments (e.g., start with aggregate non-smoker then use the conservation of total deaths principle, normalization or other approach to divide the aggregate mortality into super preferred, preferred and residual standard non-smoker class assumptions). ~~or~~
 - b. Use techniques to adjust the experience of each mortality segment in the group to reflect the aggregate company experience for the group (e.g. by credibility weighting the individual mortality segment experience with the aggregate company experience for the group).

In doing so, the company must ensure that when the mortality segments are weighted together, the total amount of expected claims is not less than the aggregate company experience data for the ~~aggregate class~~group.

VM-20 Section 9.C.4

- b. Credibility may be determined at either the mortality segment level or at a more aggregate level if the mortality for the ~~individual sub-classes~~ (mortality segments) was determined using an aggregate level of mortality experience pursuant to Section 9.C.2.d.

A single level of credibility shall be determined over the entire exposure period, rather than for each duration, within the exposure period. This overall level of credibility will be used to:

Commented [HR1]: Rules for credibility at an aggregate level should entirely follow from rules of setting mortality using aggregate experience.

- i. Determine the prescribed margin for company experience mortality rates.
- ii. Determine the grading period (based on the credibility percentage shown in column (1) in the applicable table in Section 9.C.6.b.iii) for grading company experience mortality rates into the applicable industry basic table.

VM-20 Section 9.C.6.b

ii. In determining the sufficient data period the company shall first identify the last policy duration at which sufficient company experience data exists (using all the sources defined in Section 9.C.2.b). The sufficient data period then ends at the last policy duration that has 50 or more claims (i.e., no duration beyond this point has 50 claims or more) subject to the limits in Column 2 of the applicable table in Section 9.C.6.b.iii.b. The sufficient data period may be determined at either the mortality segment level or at a more aggregate level if the mortality for the individual mortality segments was determined using an aggregate level of mortality experience pursuant to Section 9.C.2.d~~may be determined at a more aggregate level than the mortality segment if the company based its mortality on aggregate experience and then used a methodology to subdivide the aggregate class into various sub-classes or mortality segments.~~

Commented [HR2]: SDP level of aggregation should be the same as VM-20 Section 9.C.4 (credibility): use same language.

VM-31 Section 3.C.3

b. Company Experience – If company experience is used, a description and summary of the company experience mortality rates for each mortality segment, including a summary of the company experience mortality rates for any aggregate class that mortality rates are based on is to be sub-divided into mortality segments pursuant to VM-20 Section 9.C.2.d.

d. ~~Conservation of Deaths~~Aggregate Company Experience – If the company ~~sub-divides~~ bases mortality rates on more aggregate company experience into various sub-classes or mortality segments to determine company experience mortality rates pursuant to VM-20 Section 9.C.2.d.;

i. ~~d~~Documentation that when the mortality segments are weighted together, the total amount of expected claims is not less than the aggregate company experience data for the aggregate class group.

ii. If underwriting processes are treated as similar pursuant to VM-20 Section 9.C.2.d.iii, a description, summary, and citation of the third-party proprietary experience studies or published medical, clinical, or other published studies used to support the expectations regarding mortality. The full reports and analyses for any third-party proprietary experience studies shall be submitted upon request, shall be considered part of the PBR Actuarial Report, and shall be kept confidential to the same extent as is prescribed by law with respect the rest of the PBR Actuarial Report.

iii. If underwriting processes are treated as similar pursuant to VM-20 Section 9.C.2.d.iv, a description, explanation, and summary of results for the most recent retrospective demonstration.

m. Actual to Expected Mortality Analysis – ~~At least once every three years, the results of an actual to expected (without margins) analysis.~~ Summary of the results of an actual to expected (without margins) analysis at least once every three years, or, for mortality segments for which mortality rates are based on more aggregate company experience pursuant to VM-20 Section 9.C.2.d.vi, at least annually for each individual mortality segment separately until such time as the estimated change in expected mortality has been shown to be stable and unlikely to change based on further review. For purposes of this analysis, the expected mortality shall be that last determined under VM-20 Section 9.C.2.e.

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Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Staff of Office of Principle-Based Reserving, California Department of Insurance,
Move VM-02 Definitions to VM-01, Add in currently “TBD” definition.

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), Section II, VM-01, VM-02 Sections 3-5

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached Appendix. These proposed changes are for clarification only and as such are **non-substantive**.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

See attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
Notes: Amendment Proposal 2018-41 (CA APF BT) Updates 11/3/18			

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Appendix

ISSUE:

- The terms defined in VM-02 are also used outside of VM-02, and would be better located in VM-01.
- The Definition of Ordinary Life is currently “To be Completed” in the 2019 Valuation Manual.

SECTION:

Section II, VM-01, VM-02 Sections 3-5

REDLINE:

Section II D.2 Footnote

²Premiums are measured as direct plus reinsurance assumed from an unaffiliated company from the ordinary life line of business reported in the prior calendar year life/health annual financial statement, Exhibit 1, Part 1, Column 3, “Ordinary Life Insurance” excluding premiums for preneed life contracts and excluding amounts that represent the transfer of reserves in force as of the effective date of a reinsurance assumed transaction and are reported in Exhibit 1 Part 1, Column 3 as ordinary life insurance premium. Preneed is as defined in VM-~~02~~01.

VM-01 (Add Definitions)

- The term “industrial life insurance” means that form of life insurance written under policies under which premiums are payable monthly or more often, bearing the words “industrial policy” or “weekly premium policy” or words of similar import imprinted upon the policies as part of the descriptive matter, and issued by an insurer that, as to such industrial life insurance, is operating under a system of collecting a debit by its agent.
- The term “preneed” means any life insurance policy or certificate that is issued in combination with, in support of, with an assignment to or as a guarantee for a prearrangement agreement for goods and services to be provided at the time of and immediately following the death of the insured. Goods and services may include, but are not limited to, embalming, cremation, body preparation, viewing or visitation, coffin or urn, memorial stone, and transportation of the deceased. The status of the policy or contract as preneed insurance is determined at the time of issue in accordance with the policy form filing. (Note: Preceding definition taken from the *Preneed Life Insurance Minimum Standards for Determining Reserve Liabilities and Nonforfeiture Values Model Regulation* [#817].) The definition of preneed shall be subject to that definition of preneed in a particular state of issue if such definition is different in that state.
- The term “ordinary life insurance” means any individual life insurance policy that does not meet the definition of industrial life insurance or credit life insurance.

VM-02 Table of Contents

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VM-02 Section 3 (Delete Section)

- ~~A. — Industrial Life Insurance — That form of life insurance written under policies under which premiums are payable monthly or more often, bearing the words “industrial policy” or “weekly premium policy” or words of similar import imprinted upon the policies as part of the descriptive matter, and issued by an insurer that, as to such industrial life insurance, is operating under a system of collecting a debit by its agent.~~
- ~~B. — Preneed — Any life insurance policy or certificate that is issued in combination with, in support of, with an assignment to or as a guarantee for a prearrangement agreement for goods and services to be provided at the time of and immediately following the death of the insured. Goods and services may include, but are not limited to, embalming, cremation, body preparation, viewing or visitation, coffin or urn, memorial stone, and transportation of the deceased. The status of the policy or contract as preneed insurance is determined at the time of issue in accordance with the policy form filing. (Note: Preceding definition taken from the *Preneed Life Insurance Minimum Standards for Determining Reserve Liabilities and Nonforfeiture Values Model Regulation* [#817].) The definition of preneed shall be subject to that definition of preneed in a particular state of issue if such definition is different in that state.~~
- ~~C. — Ordinary Life [to be completed].~~

VM-02 Section 4 (Header Update)

Section 43: Interest

VM-02 Section 5 (Header Update)

Section 54: Mortality

VM-02 Section 5-A-4.A.

A. Ordinary Life Insurance Policies

1. For ordinary life insurance policies issued on or after Jan. 1, 2017, and prior to Jan. 1, 2020,

except as provided below in [Section 4.A.2](#) [Section 5.A.2](#) and in [Section 4.B5.B](#) or in [Section 4.E 5.E](#) below, the minimum nonforfeiture standard shall be determined using the 2001 CSO Mortality Table as defined in VM-M of this manual and subject to the requirements defined in VM-A-814 in VM-A of this manual for using this mortality table and subject to minimum standards. The 2001 CSO Preferred Class Structure Tables shall not be used to determine the minimum nonforfeiture standard.

2. [Except as provided in Section 4.B 5.B and Section 4.E5.E, and](#) subject to the requirements stated in a and b below, the 2017 CSO Mortality Table as defined in VM-M Section 1.H:

(Note: [Yellow highlighted](#) text is not from 1/1/2019 *Valuation Manual* but rather from pending APF 2018-06)

REASONING:

- The terms defined in VM-02 used outside of VM-02, and so would be better located in VM-01.
- The Definition of Ordinary Life is currently “To be Completed” in the 2019 Valuation Manual.

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Staff of Office of Principle-Based Reserving, California Department of Insurance,
Clarify when capping of face amounts is appropriate
2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2018 edition), with NAIC Adoptions through August 8, 2017,
VM-20 Section 9.C
3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached Appendix.
4. State the reason for the proposed amendment? (You may do this through an attachment.)

See attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
12/13/18			
Notes: VM APF 2018-42 (CA APF BU) rev 2 Adopted 4/25/19 (w/ALT 2)			

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Appendix

ISSUE:

The Valuation Manual does not currently address the topic of capping amounts of insurance in mortality-related calculations.

SECTION:

VM-20 Sections 9.C.2 and 9.C.4

(For 9.C.2, two options are shown)

REDLINE:

Section 9.C.2

~~g. Company experience mortality rates shall be based on amount of insurance, not number of policies. The amounts of insurance used in the numerators of the mortality rates shall be computed consistently with how the amounts in the denominators are calculated. At the company's option, the amount of insurance for a given policy may be capped at a reasonable high ceiling, such as a retention limit or \$3 million, in both numerator and denominator, in order to mitigate distortions in results caused by unusually large policies. A different set of company experience mortality rates is permitted to be used for pre-reinsurance calculations of modeled reserves than for post reinsurance calculations.~~ g. Mortality improvement shall not be incorporated beyond the valuation date. However, historical mortality improvement from the central point of the underlying company experience data to the valuation date may be incorporated.

ALTERNATIVE 2:

g. Company experience mortality rates shall be based on amount of insurance, not number of policies. The amounts of insurance used in the numerators of the mortality rates shall be computed consistently with how the amounts in the denominators are calculated. A ceiling on the amount of insurance for a given policy is not permitted.

hg. Mortality improvement shall not be incorporated beyond the valuation date. However, historical mortality improvement from the central point of the underlying company experience data to the valuation date may be incorporated.

Section 9.C.4.a

Where,

$A = \text{Sum of expected deaths by amount} = \Sigma (\text{amount insured}) \times (\text{exposure}) \times (\text{mortality})$

$B = \Sigma (\text{amount insured})^2 \times (\text{exposure}) \times (\text{mortality})$ $C = \Sigma (\text{amount insured})^2 \times (\text{exposure})^2 \times (\text{mortality})^2$

$C = \Sigma (\text{amount insured})^2 \times (\text{exposure})^2 \times (\text{mortality})^2$

For both the Limited Fluctuation Method and the Buhlmann Empirical Bayesian Method, the credibility percentage shall be based on amounts of insurance, uncapped.

REASONING:

Provide clarifying detail on how regulators would expect calculations to be performed.

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form*

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Bill Carmello, New York State Department of Financial Services, add definition of Insurance Department to VM-01

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2018 edition), with NAIC Adoptions through August 8, 2017, VM-01

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

We request that LATF add a definition of Insurance Department to VM-01. Our suggested wording is as follows:

Insurance Department: The regulatory agency which by law is charged with the principal responsibility of supervising the business of insurance within a State, territory, or insular possession of the United States.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

To make it clear that any reference to insurance department would also include any state regulatory agency not specifically referred to as an insurance department

* This form is not intended for minor corrections, such as formatting, grammar, cross-references or spelling. Those types of changes do not require action by the entire group and may be submitted via letter or email to the NAIC staff support person for the NAIC group where the document originated.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
Notes: VM APF 2018-43			

W:\National Meetings\2019\Spring\TF\LA\National Meeting\1.8 & 1.9 Consider VM Amendment Proposals\47. APF 2018-43 (NYDFS APF; def of ins dept) rev 2_7_19.docx

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form*

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Chris Whitney, on behalf of the American Academy of Actuaries' Life Reserves Work Group.

Revise the approach in VM-20 to determine the return on assets used in the hedging of credited amounts for indexed accounts in the calculation of the Deterministic Reserve (DR).

2. Identify the document, including the date if the document is "released for comment," and the location in the document where the amendment is proposed:

2018 edition of the Valuation Manual, updated Nov. 22, 2017; VM-20: *Requirements for Principle-based Reserves for Life Products*.

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on "track changes" in Word®) version of the verbiage. (You may do this through an attachment.)

See Attachment A.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

The equity market returns prescribed in the Deterministic Reserve (DR) scenario are based on analysis for variable products. Applying these returns to indexed accounts within life products results in very low index credited rates that is not consistent with the intent of the DR scenario (as defined in VM-20) to be a one standard deviation shock from the mean for the first twenty years from the valuation date, followed by a return to normal.

Using an index credited rate for the DR scenario consistent with the Implied Guaranteed Rate Method (IGRM) under Actuarial Guideline XXXVI produces moderately adverse index credited rates that are more in line with the intent of the DR scenario and have a more realistic relationship between index credited rates and option budgets.

See Attachment B for further details and supporting analysis.

* This form is not intended for minor corrections, such as formatting, grammar, cross-references or spelling. Those types of changes do not require action by the entire group and may be submitted via letter or email to the NAIC staff support person for the NAIC group where the document originated.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
Notes: Revised Amendment Proposal 2018-44			

Attachment A: Proposed changes

Insert the following new paragraph #4 under Section 7.F:

F. Cash Flows from Invested Assets

4. Determine cash flows from invested assets for each projection interval for assets used in the hedging of credited amounts for indexed accounts within life insurance products (including indexed life products and indexed accounts within other types of life insurance products) as follows:

- a. In lieu of the economic scenario 12 equity returns, as described in Section 7.G.1.a.ii for the deterministic reserve, use X% of the amount spent on options, accumulated to the end of the option settlement period; where X is equal to 100% in projection years 1-20 and 108% in projection years 21+. The 1-year U.S. Treasury rate from scenario 12 applicable to the projection year will be used for accumulation.
- b. For the scenarios described in Section 7.G.2 for the stochastic reserve, use scenario equity returns applicable to the underlying basis for credited interest, along with mechanics of the underlying options that reflect caps, floors, and participation rates.

~~4.5.~~ Determine cash flows ~~from invested assets~~ for each projection interval for all other general account assets by modeling asset cash flows on other assets that are not described in subsections 7.F.1 through 7.F.4~~3~~ using methods consistent with the methods described in subsections 7.F.1 and 7.F.2. This includes assets that are a hybrid of fixed income and equity investments.

~~5.6.~~ Determine cash flows or total investment returns as appropriate for each projection interval for all separate account assets as follows:

- a. Determine the grouping for each variable fund and subaccount (e.g., bonds funds, large cap stocks, international stocks, owned real estate, etc.) as described in Section 7.J.
- b. Project the total investment return for each variable fund and subaccount in a manner that is consistent with the prescribed returns described in Section 7.G.

G. Economic Scenarios

1. Deterministic Economic Scenarios

- a. For purposes of calculating the deterministic reserve under Section 4, the company shall use:
 - i. U.S. Treasury interest rate curves following Scenario 12 from the set of prescribed scenarios used in the stochastic exclusion ratio test defined in Section 6.B; and
 - ii. Total investment return paths for general account equity assets (excluding assets used in the hedging of credited amounts for indexed accounts as described in Section 7.F.4) and separate account fund performance consistent with the total investment returns for corresponding investment categories contained in Scenario 12 from the set of prescribed scenarios used in the stochastic exclusion ratio test defined in Section 6.B.

Guidance Note: Where the NGE being projected is based on cash flows from invested assets, the cash flows from invested assets should be determined first, following Section 7.F.]

Attachment B: Supporting analysis

Summary

The equity market returns prescribed in the Deterministic Reserve (DR) scenario are based on analysis for variable products. Applying these returns to indexed accounts within life products results in very low index credited rates that is not consistent with the intent of the DR scenario (as defined in VM-20) to be a one standard deviation shock from the mean for the first 20 projection years. Using an index credited rate for the DR scenario consistent with the Implied Guaranteed Rate Method (IGRM) under Actuarial Guideline XXXVI produces moderately adverse index credited rates that are more in line with the intent of the DR scenario and demonstrate a more realistic relationship between index credited rates and option budgets.

Analysis

Account performance

The account performance for representative Variable and Indexed account deposits was compared using the DR scenario and 1,000 SR scenarios.

Product details and results from this analysis are summarized in the following table.

		Projection year 1-20		Projection year 21+	
		Variable	Indexed	Variable	Indexed
Index Parameters	Dividends	Yes	No	Yes	No
	Cap	n/a	Dynamic*	n/a	Dynamic*
	Guaranteed Cap	n/a	n/a	n/a	n/a
1,000 SR Scenarios	Mean	7.4%	3.4%	7.5%	4.0%
	SD	3.6%	0.8%	3.1%	1.0%
	Minimum	-3.5%	1.9%	-1.9%	2.2%
	Maximum	18.5%	6.3%	17.7%	7.0%
DR Scenario—Current	Rate	4.0%	2.0%	7.7%	5.4%
	SDs From Mean	-1.0	-2.2	0.0	1.4
DR Scenario—100% OB	Rate		2.6%		3.7%
	SDs From Mean		-1.0		-0.2
DR Scenario—108% OB	Rate				4.0%
	SDs From Mean				0.0

* The dynamic cap is based on the projected earned rate for each scenario.

Variable account (VUL product)

Performance for the DR scenario is 1.0 standard deviations below the average of SR scenarios in projection years 1-20 and in line with the average of SR scenarios in projection years 20-50. This is consistent with the DR scenario description shown in the “Background” section of this attachment.

Index account

Account performance for the DR scenario under the current approach is 2.2 standard deviations below the average of SR scenarios in projection years 1-20 and 1.4 standard deviations above the average in projection years 20-50.

When considering the description of the DR scenario, this results in extremely low index credits in the first 20 projection years followed by index credits that are too high beyond projection year 20.

The recommended change to the DR scenario brings the index account performance in line with the variable account in projection in all years, with performance 1.0 standard deviations below the average of the SR scenarios for the first 20 projection years and in line with the average beyond projection year 20.

Equity growth rates

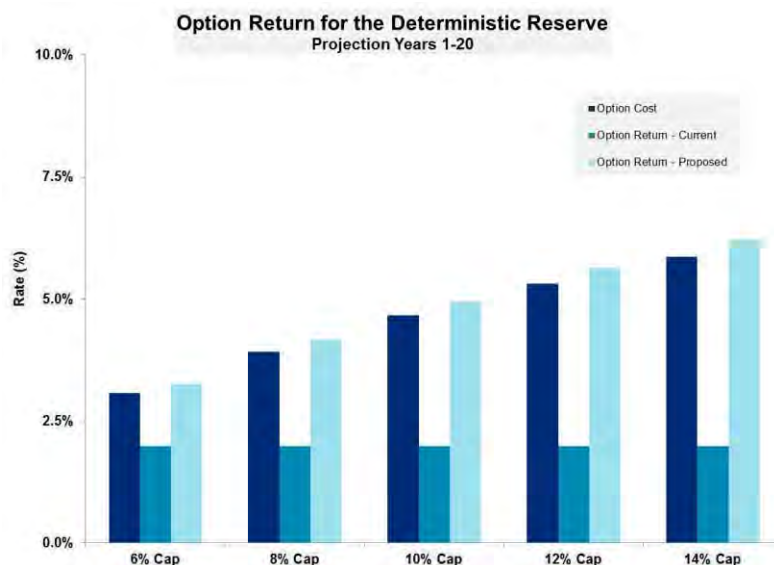
Considerations and analysis around equity growth rates were presented at the Spring NAIC meeting.¹

The file below contains a comparison of the option return and option budgets for the DR scenario using the current and proposed approach for a variety of different cap rates.



IUL Crediting 04 09
2018.xlsx

The results demonstrate that the proposed approach has the desired effect of linking the option return to the option budget for the DR scenario. The results are shown in the following graph, taken from this file.



Background information

DR equity returns

The equity market returns for the DR scenario are based on analysis performed for variable products by the American Academy of Actuaries' Variable Universal Life Subgroup.

The scenario used for the DR is described in Section 7.G.1.c of VM-20 as: “...*interest rate yield curves and total investment returns are based on approximately a one standard deviation shock to the economic conditions as of the projection start date, where the shock is spread uniformly over the first 20 years of the projection.*”

¹ The presentation can be found at actuary.org/files/publications/Academy_IUL_under_PBR_for_NAIC_Spring_2018.pdf.

Actuarial Guideline XXXVI

The IGRM under Actuarial Guideline XXXVI defines the guaranteed rate as: (a) the guaranteed interest rate for the current term of the contract; plus (b) the accumulated option cost expressed as a percent of the policy value to which the indexed benefit is to be applied.

The option cost as of the valuation date uses the currently declared cap rate. For periods past the valuation date, the guaranteed minimum cap rate is used.

EXPOSURE OF APF 2018-45

Two alternatives are proposed for a new Section 9.C.3.h. The first applies this test at the individual segment level, while the second applies this test at the underwriting type level. The second alternative is representative of a level of granularity between an aggregate level and a segment level. Readers are asked to consider what level of granularity might be sufficient to inform regulators without causing an undue burden on companies. Please submit your suggestions along with any other comments you would like to offer.

The proposal is exposed for a 21-day public comment period ending April 29.

Comments should be sent to Reggie Mazyck @ RMazyck@NAIC.Org

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form*

1. **Identify yourself, your affiliation and a very brief description (title) of the issue.**

American Academy of Actuaries' Life Reserves Work Group. Selection of industry basic table when company experience mortality rates are higher than the industry basic table determined by the Relative Risk Tool.

2. **Identify the document, including the date if the document is "released for comment," and the location in the document where the amendment is proposed:**

Valuation Manual (VM) (January 1, 2019 edition). Location of change: VM-20 Section 9.C.

3. **Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on "track changes" in Word®) version of the verbiage. (You may do this through an attachment.):**

See attached.

4. **State the reason for the proposed amendment? (You may do this through an attachment.)**

When the mortality experience for a mortality segment is worse than the industry basic table for the mortality segment, this will result in the rates being lower after grading than what the company actually expects will emerge. And if the company uses the lower industry basic table in lieu of company experience, this will result in the anticipated experience rates being lower than what the company actually expects.

To address this situation, Section 9.C.3 needs to be amended to require that the mortality rates of the industry basic table be adjusted upward to ensure that the expected claims of the mortality segment using mortality rates from the adjusted industry table are greater than the expected claims using the company experience rates. Two alternatives are proposed for a new Section 9.C.3.h. The first applies this test at the individual segment level, while the second applies this test at the aggregate level.

Also, to provide more clarity on how anticipated experience assumptions are used to determine prudent estimate mortality assumptions, several wording changes have been made to Section 9.C.1, Section 9.C.6, and Section 9.C.7. In addition, the definition of anticipated experience assumptions in Section 9.C.7 has been moved earlier in Section 9.C (is now Section 9.C.4), and the impacted references have been renumbered.

* This form is not intended for minor corrections, such as formatting, grammar, cross-references or spelling. Those types of changes do not require action by the entire group and may be submitted via letter or email to the NAIC staff support person for the NAIC group where the document originated.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
10/4/18			
VM APF 2018-45 rev. 1/7/19			

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Section 9. Assumptions

C. Mortality Assumptions

1. Procedure for Setting Prudent Estimate Mortality Assumptions

- b. For each mortality segment, the company shall establish prudent estimate mortality assumptions using the following procedure:
 - i. Determine the company experience mortality rates as provided in ~~sub~~Section 9.C.2. If company experience data is limited or not available, the company can use an applicable industry basic table in lieu of company experience as provided in Section 9.C.3.
 - ii. ~~If the company determines company experience mortality rates as provided in Section 9.C.2, then use~~ the procedure described in Section 9.C.3 to determine the applicable industry table for each mortality segment ~~to grade company experience to the industry table.~~
 - iii. Determine the anticipated experience assumptions as provided in Section 9.C.4.
 - iv. Determine the level of credibility of the underlying company experience as provided in Section 9.C.54.
 - ~~iv.~~ Determine the prescribed mortality margins as provided in Section 9.C.65. Separate mortality margins are determined for company experience mortality rates and for the applicable industry basic tables.
 - vi. Use the procedure described in Section 9.C.76 to determine the prudent estimate mortality~~anticipated experience~~ assumptions.

2. Determination of Company Experience Mortality Rates

- f. The company may remove from the company experience data any policies for which the experience is reflected through adjustments to the prudent estimate assumptions as provided under subsection 9.C.67.e below, including policies insuring impaired lives and those for which there is a reasonable expectation, due to conditions such as changes in premiums or other policy provisions, that policyholder behavior will lead to mortality results that vary significantly from those that would otherwise be expected.

3. Determination of Applicable Industry Basic Tables

- c. The company may apply the Relative Risk Tool described in Subsection 9.C.3.d below to determine:
 - ii. The applicable industry basic table for grading company experience mortality to industry experience mortality using the grading method described in Section 9.C.76.b.iii.

Two alternatives for a new Section 9.C.3.h:

Option 1

- h. For any mortality segment, if the quantity (A-B) is positive, then the industry basic table for the mortality segment shall be adjusted upward by the number of tables necessary, or the industry basic table rates shall be multiplied by an appropriate scalar (i.e., a single factor applied to all rates in the table, subject to a cap that ensures mortality rates do not exceed 1000 per 1000), such that the quantity (A-C) is negative, where:

A = the present value of projected expected claims at the duration where grading to the industry table begins, calculated using the company experience mortality rates,

B = the present value of projected expected claims at the duration where grading to the industry table begins, calculated using mortality rates from the industry basic table determined as per Sections 9.C.3.d, 9.C.3.e, or 9.C.3.f,

C = the present value of projected expected claims at the duration where grading to the industry table begins, calculated using the mortality rates from the basic industry table that has been adjusted as described at the beginning of this paragraph.

The expected claims are not to reflect mortality improvement beyond the valuation date.

Option 2

- h. For all mortality segments within a given underwriting type, if the quantity (A - B) is positive, then the industry basic table for selected mortality segments (as determined by the company) shall be adjusted upward by the number of tables necessary, or the industry basic table rates shall be multiplied by an appropriate scalar (i.e., a single factor applied to all rates in the table, subject to a cap that ensures mortality rates do not exceed 1000 per 1000), such that the quantity (A - C) is negative, where:

A = the sum of the present values of projected expected claims for each mortality segment at the duration where grading to the industry table begins, calculated using the company experience mortality rates;

B = the sum of the present values of projected expected claims for each mortality segment at the duration where grading to the industry table begins using calculated mortality rates from the industry basic table determined as per Sections 9.C.3.d, 9.C.3.e, or 9.C.3.f;

C = the sum of the present values of projected expected claims for each mortality segment at the duration where grading to the industry table begins, calculated using the mortality rates from the basic industry table that has been adjusted as described at the beginning of this paragraph.

The projected expected claims are not to reflect mortality improvement beyond the valuation date.

4. Anticipated Experience Assumptions

- a. If the company uses an applicable industry basic table in lieu of its own company experience, as described in Section 9.C.2.a., then the anticipated experience assumptions shall be the applicable industry basic table.
- a.b. If the company uses company experience as described in Section 9.C.2.a, then the anticipated experience assumptions shall equal the company experience mortality rates described in Section 9.C.
- c. The mortality rates from the resulting anticipated experience assumptions must be no lower than the mortality rates that are actually expected to emerge and that the company can justify.

54. Credibility of Company Experience

- c. A single level of credibility shall be determined over the entire exposure period, rather than for each duration within the exposure period. This overall level of credibility will be used to:
- ii. Determine the grading period (based on the credibility percentage shown in column (1) in the applicable table in Section 9.C.76.b.iii) for grading company experience mortality rates into the applicable industry basic table.

65. Prescribed Mortality Margins

- a. Separate prescribed margins will be added to company experience mortality rates, and to the applicable industry basic tables. The mortality margin shall be in the form of a prescribed percentage increase applied to each mortality rate.
- b. The prescribed margin percentages for the company experience mortality rates will vary by attained age (att age) and by the level of credibility of the underlying company experience, based on the level of credibility determined in Section 9.C.54. The percentages are given in the following tables. To determine the margin percentage for each table, round the credibility level amount to the nearest whole integer.

The percentages are as follows:

76. Process to Determine Prudent Estimate Assumptions-

- a. If applicable industry basic tables are used in lieu of company experience as the anticipated experience assumptions, the prudent estimate assumptions for each mortality segment shall equal the respective mortality rates in the applicable industry basic tables as provided in Section 9.C.3, plus the prescribed margin as provided in Section 9.C.65.c and any additional margin as provided in Section 9.C.65.d.
- b. If the company uses determines company experience mortality rates as the anticipated experience assumptions, the prudent estimate assumptions will be determined as follows:
 - i. For each mortality segment, use the company experience mortality rates (as defined in Section 9.C.2) for policy durations in which there exists sufficient company experience data (as defined below in paragraph ii), plus the prescribed margin as provided in Section 9.C.65.b and any additional margin as provided in Section 9.C.65.d.
 - ii. In determining the sufficient data period the company shall first identify the last policy duration at which sufficient company experience data exists (using all the sources defined in Section 9.C.2.b). The sufficient data period then ends at the last policy duration that has 50 or more claims (i.e., no duration beyond this point has 50 claims or more) subject to the limits in Column 2 of the applicable table in Section 9.C.76.b.iii.b. The sufficient data period may be determined at a more aggregate level than the mortality segment if the company based its mortality on aggregate experience and then used a methodology to subdivide the aggregate class into various sub-classes or mortality segments.

Guidance Note: The objective is to use last duration at which there are 50 or more claims - not the first duration in which there are less than 50 claims.

- iii. Beginning in the policy duration at which sufficient company experience data no longer exists, use the guidelines in the applicable table below to linearly grade from the company experience mortality rates with margins to 100% of the applicable industry table with margins (the determination of the applicable industry table is described in Section 9.C.3). Grading must begin and end no later than the policy durations shown in the applicable table below, based on the level of credibility of the data as provided in Section 9.C.54. For valuations on or after 1/1/2015, if the credibility level is less than 20%, the company is not allowed to use its company experience and must use 100% of the applicable industry table.
 - a) Grading must begin no later than the number of years in column (3) after the first policy duration after the sufficient data period (as defined in Section 9.C.76.b.ii).
 - b) Grading to 100% of the industry table must be completed no later than the number of years in column (4) after the first policy duration after the sufficient data period (as defined in Section 9.C.76.b.ii).

Table A:**Effective for Valuations Dec. 31, 2016, and Prior**

Credibility of company data (as defined in Section 9.C.54 above), rounded to the nearest % (1)	Maximum # of years for data to be considered sufficient (2)	Maximum # of years in which to begin grading after sufficient data no longer exists (3)	Maximum # of years in which the assumption must grade to 100% of an applicable industry table (from the duration where sufficient data no longer exists) (4)
10%–19%	10	2	10
20%–39%	20	4	15
40%–59%	30	6	18
60%–79%	40	8	20
80%–100%	50	10	25

Table B:

Permissible for Valuations on and After Jan. 1, 2017, but Before Jan. 1, 2020
(in the alternative, company may elect to use Table C below)

Credibility of company data (as defined in Section 9.C.54 above), rounded to nearest % (1)	Maximum # of years for data to be considered sufficient (2)	Maximum # of years in which to begin grading after sufficient data no longer exists (3)	Maximum # of years in which the assumption must grade to 100% of an applicable industry table (from the duration where sufficient data no longer exists)* (4)
20%–39%	10	2	8*
40%–59%	20	4	12*
60%–79%	35	7	17*
80%–100%	50	10	25*

Table C:**Mandatory for Valuations on and After Jan. 1, 2020**

Credibility of company data (as defined in Section 9.C.54– above) rounded to nearest % (1)	Maximum # of years for data to be considered sufficient (2)	Maximum # of years in which to begin grading after sufficient data no longer exists (3)	Maximum # of years in which the assumption must grade to 100% of an applicable industry table (from the duration where sufficient data no longer exists) (4)

		(3)	

~~7. Anticipated Experience Assumptions~~

~~Anticipated experience assumptions shall be the company experience mortality rates described in Section C.2 (which excludes prescribed margins). If the company elects to use an applicable industry basic table in lieu of its own company experience, as described in Section C.2.a., then the anticipated experience assumptions shall be the applicable industry basic table (which excludes prescribed margins).~~

- ~~b. The resulting anticipated experience assumptions must be no lower than the mortality rates that are actually expected to emerge and that the company can justify. The company must disclose this conclusion in the PBR Actuarial Report.~~

**Life Actuarial (A) Task Force/ Health Actuarial
(B) Task Force
Amendment Proposal Form**

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Staff of Office of Principle-Based Reserving, California Department of Insurance – Clarify NPR Term Lapse Rates rules

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition) , VM-20 Sections 3.B and 3.C.3.b

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached Appendix.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

See attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
APF 2018-48 (CA BW), rev. 1/ <u>247</u> /2019			

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ISSUES:

1. Need for clear rules about reinsurance assumed on a YRT basis
2. Proper handling of term riders
3. Proper handling of paid-up term

SECTIONS:

VM-20 Sections 3.B and 3.C.3.b

REDLINE:

VM-20 Section 3.B.4

4. For all ~~term~~ policies ~~and -riders within the Term Reserving Category other than those addressed in Section 3.B.8 below, the NPR~~ on any valuation date ~~the NPR~~ shall be equal to the actuarial present value of future benefits less the actuarial present value of future annual valuation net premiums as follows:

a. The annual valuation net premiums shall be a uniform percent of the respective adjusted gross premiums, described in Section 3.B.4.b, such that at issue the actuarial present value of future valuation net premiums shall equal the actuarial present value of future benefits plus an amount equal to \$2.50 per \$1,000 of insurance for the first policy year only.

Guidance Note: When calculating the present values under Section 3.B.4.a.i and Section 3.B.4.a.ii, benefits and premiums during the years following the end of the level term period should be projected assuming that the policies subject to the shock lapse in each year do not pay the higher premium in that year.

A shock lapse is deemed to have occurred in any year for which the prescribed lapse rate is greater than or equal to 25%. For policies subject to the shock lapse provisions of Section 3.C.3.b.v, vValuation net premiums for policy years after ~~at the~~ shock lapse shall be limited and may result in two uniform percentages, one applicable to policy years prior to ~~that the~~ shock lapse and one applicable to policy years following ~~that the~~ shock lapse. However, for policies with more than one shock lapse, only one shock lapse shall be subject to such treatment, namely the one that would produce the largest ratio ii/i as computed below before any such percentages are applied. For these policies, these percentages shall be determined as follows:

VM-20 Section 3.B.5

5. For all policies and riders within any ULSG policy~~the ULSG Reserving Category~~, prior to the point when all secondary guarantee periods have expired, the NPR shall be determined in Section 3.B.6 below. Once all secondary guarantee periods have expired, the NPR shall, subject to the floors specified in Section 3.D.2, be the reserve calculated in Section 3.B.5.a through Section 3.B.5.g below. A ~~a~~ reserve shall be determined by the policy features and guarantees of the policy without considering any secondary guarantee provisions. The reserve~~NPR~~ shall be calculated as follows:

VM-20 Section 3.B.6

6. For all policies and riders within any ULSG policy~~the ULSG Reserving Category~~, the NPR shall be determined as follows. Prior to the point when all secondary guarantee periods have expired, the NPR shall, subject to the floors specified in Section 3.D.2, be the greater of the reserve amount determined according to Section 3.B.5, assuming the policy has no secondary guarantees, and the reserve amount for the policy determined according to the methodology and requirements in Section 3.B.6.b through Section 3.B.6.e below.

(new) VM-20 Section 3.B.8

8. For life insurance coverage that the company has assumed on a Yearly Renewable Term basis, the reinsurer's net premium reserve shall be one half year's cost of insurance for the reinsured net amount at risk.

VM-20 Section 3.C.3.b

- b. For NPR amounts calculated according to Section 3.B.4, the annual lapse rates used shall vary by level premium period as stated below:
 - i. 10% per year during any level premium period of less than five years, except as noted in iii, v, and vi~~and iv~~.
 - ii. 6% per year during any level premium period of five or more years, except as noted in iii, iv, v, and vi~~and iv~~.
 - iii. For any policy that provides an endowment benefit at the end of an initial level premium period that is materially less than the policy face amount, such as a return of premium benefit, with values subject to the requirements of Actuarial Guideline XLV—The Application of the Standard Nonforfeiture Law For Life Insurance to Certain Policies Having Intermediate Cash Benefits (AG 45) in Appendix C of the AP&P Manual,

the annual lapse rate is 6% for the first half of the initial level premium period and 0% for the remainder of the initial level premium period except the final year thereof.

Guidance Note: Therefore, the first 0% lapse rate would, for example, be at the end of year 11 for a 20 year level plan and at the end of year 8 for a 15 year level plan.

iv. 10% per year during any premium paying period after an initial level premium period of less than five years except as noted in v and vi.

v. 0% per year for any policy whose final premium has by then been payable.

iv-vi. The lapse rate for the final year of a level premium period, applied after any benefit assumed payable in the final year, and prior to the payment of the increased premium rate, shall be determined based on the length of the level premium periods before and after the increase, as well as the percent increase in the gross premium (including policy fee) per \$1000 of face amount as shown in the table below instead of what would otherwise apply from i through iv-v above.

Length of <u>Level</u> Premium Period Prior to Increase	Length of <u>Level</u> Premium Period After Increase	Percent Increase in Gross Premium per \$1000	Lapse Rate for the Final Year of the Level Premium Period (Shock Lapse)
1<PP≤5	1	Any	50%
1<PP≤5	1<PP	Any	25%
5<PP≤10	1	< 400%	70%
5<PP≤10	1	≥ 400%	80%
5<PP≤10	1<PP≤5	Any	50%
5<PP≤10	5<PP	Any	25%
10<PP	1	< 400%	70%
10<PP	1	≥ 400%	80%
10<PP	1<PP≤5	Any	70%
10<PP	5<PP≤10	Any	50%
<u>10<PP</u>	<u>10<PP</u>	<u>Any</u>	<u>50%</u>

REASONING:

Greater clarity.

**Life Actuarial (A) Task Force/ Health Actuarial (B) Task
Force
Amendment Proposal Form**

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Staff of Office of Principle-Based Reserving, California Department of Insurance – Inconsistent language used to specify the method for calculating NSP.

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), VM-20 Section 3.B.6.d.iii.

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached Appendix.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

See attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
10/1/18			
VM APF 2018-49 (CA APF-BZ)			

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Appendix

ISSUE:

Previous APF 2017-88 impacted the definition of “n” used in Section 3.B.6 of VM-20. To follow through fully on that, the wording of Section 3.B.6.d.iii needs to be changed accordingly.

SECTION:

VM-20 Section 3.B.6.d.iii

REDLINE:

iii. Compute the net single premium (NSP_{x+t}) on the valuation date for the coverage provided by the secondary guarantee for the ~~period of time ending at attained age $x+n$~~ ~~remainder of the secondary guarantee period~~, using the interest, lapse and mortality assumptions prescribed in Section 3.C below. The NSP shall include consideration for death benefits only.

REASONING:

Consistency.

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Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force

Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Staff of Office of Principle-Based Reserving, California Department of Insurance – Need more specific information about modeling systems used, i.e. version numbers.
2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), VM-31 Section 3.C.2.a
3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached Appendix.
4. State the reason for the proposed amendment? (You may do this through an attachment.)

See attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
Revised 9/28/18			
VM APF 2018-50 (CA APF-CA)			

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Appendix

ISSUE:

Modeling software typically undergoes periodic updates, so it is not enough for the VM-31 report to say what modeling system is being used. The version number should be specified as well. Also, a discussion of any customization is needed.

SECTION:

VM-31 Section 3.C.2.a

REDLINE:

- a. Modeling Systems – Description of the modeling system(s) used, for both assets and liabilities;. Each description should include identification of the model vendor when external, identification of the model version number, discussion of the degree of customization in the model, and discussion of the extent and function of supporting tools (e.g. pre-processing or post-processing in a spreadsheet or database software). and if more than one modeling system is used, a description of how the modeling systems interact.

REASONING:

Clarity and completeness.

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Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force

Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Staff of Office of Principle-Based Reserving, California Department of Insurance – Ensure that VM-31 reports are readable and searchable. Submitting of data in spreadsheet form needs to be addressed.

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), VM-31 Section 2

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached Appendix.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

See attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
9/28/18			
VM APF 2018-51 (CA APF-CB)			

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Appendix

ISSUES:

1. Regulatory review of VM-31 reports will be facilitated if the documents are searchable.
2. A minimum font size should be mandated to ensure readability.
3. Large arrays of data should be submitted in spreadsheet form.

SECTION:

VM-31 Section 2

REDLINE:

D. The company shall retain on file, for at least seven years from the date of filing, sufficient documentation so that it will be possible to determine the procedures followed, the analyses performed, the bases for assumptions and the results obtained in a principle-based valuation.

E. The PBR Actuarial Report shall be submitted in searchable pdf form, in which the narrative uses a font size no smaller than 10 point. However:

1. This requirement shall in no way preclude the use of graphs and charts.
2. As needed, large arrays of data should be submitted alongside the pdf file in the form of spreadsheets. The pdf document ~~should~~ shall make specific reference to such accompanying files. Such companion files shall be considered to be part of the PBR Actuarial Report for regulatory review purposes.

REASONING:

Ease of use by regulators.

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Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force

Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Staff of Office of Principle-Based Reserving, California Department of Insurance – Proper recognition of substandard extra mortality in NPR calculation.

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), VM-20 Section 3.C.1.

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached Appendix.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

See attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
9/28/18			
VM APF 2018-52 (CA APF-CC)			

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Appendix

ISSUE:

The NPR section of VM-20 makes no mention of substandard extra mortality.

SECTION:

VM-20 Section 3.C.1

REDLINE:

(new Section 3.C.1.f)

f. For policies issued on a substandard basis, the company shall increase the CSO mortality rates in a manner commensurate with the substandard rating, subject to a cap that ensures mortality rates do not exceed 1000 per 1000. Alternatively, a company may choose to reserve for the substandard extra mortality separately in Exhibit 5, for groups of policies for which the NPR dominates the DR and SR.

REASONING:

- (1) Fills a bit of a gap in the current logic.
- (2) Consistent with current common practice.

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Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

This APF was jointly prepared by the Staff of Office of Principle-Based Reserving, California Department of Insurance, and NAIC Support Staff

This APF addresses recommendation #23, #24, and #31 from VAWG's 10/24/2018 memo regarding PBR Recommendations and Referrals to LATF.

2. Identify the document, including the date if the document is "released for comment," and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), VM-20 Section 7.E.1.g, VM-31 Section 3.C.6.r, VM-31 Section 3.C.6.s, VM-31 Section 3.C.13.a, and VM-G Section 3.A.6.d.ii.

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on "track changes" in Word®) version of the verbiage. (You may do this through an attachment.)

See attached Appendix.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

See attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
Notes: VM APF 2018-53 (CA APF-CD) revised 4/4/19			

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Appendix

ISSUE:

It may not be completely clear that in setting up the alternative investment strategy, maturity lengths of the alternative assets should be comparable to those in the company's real investment strategy.

Also, the following VAWG Recommendations were made to address issues found during the review of the 2017 PBR Actuarial Reports:

- VAWG #23: Disclose the asset maturities used in the alternative investment strategy and whether these are in line with the company's actual reinvestment strategy, regardless of which strategy is ultimately used in the final valuation
- VAWG #24: Document whether the company investment strategy or the alternative strategy produces a higher reserve
- VAWG #31: Modify the required language in the certification from the investment officer on investments to encompass both the company strategy and the alternative investment strategy.

SECTION:

VM-20 Section 7.E.1.g

VM-31 Sections 3.C.6.r and 3.C.6.s

VM-31 Section 3.C.13.a

VM-G Section 3.A.6.d.ii

REDLINE:

VM-20 Section 7.E.1.g

- g. Notwithstanding the above requirements, the modeled reserve shall be the higher of that produced by the model investment strategy and/or any non-prescribed asset spreads shall be adjusted as necessary so that the modeled reserve is not less than would be obtained and that produced by substituting an alternative investment strategy in which all the fixed income reinvestment assets have the same WAL as the reinvestment assets in the model investment strategy and are all public non-callable corporate bonds with gross asset spreads, asset default costs and investment expenses by projection year that are consistent with a credit quality blend of 50% PBR credit rating 6 (A2/A) and 50% PBR credit rating 3 (Aa2/AA). The following pertain to this requirement:

Policy loans, equities and derivative instruments associated with the execution of a clearly defined hedging strategy (in compliance with Section 7.L) are not affected by this requirement.

Guidance Note: VM-31 requires a demonstration of compliance with VM-20 Section 7.E.1.g. In many cases, particularly if the model investment strategy does not involve callable assets, it is expected that the demonstration of compliance will not require running the reserve calculation twice. For example, an analysis of the weighted average net reinvestment spread on new purchases by projection year (gross spread minus prescribed default costs minus investment expenses) of the model investment strategy compared to the weighted average net reinvestment spreads by projection year of the alternative strategy may suffice. The assumed mix of asset types, asset credit quality or the levels of non-prescribed spreads for other fixed income investments may need to be adjusted to achieve compliance.

VM-31 Sections 3.C.6.r and 3.C.6.s

- r. Modeled Company Investment Strategy and Reinvestment Assumptions – Description of the asset-modeled company investment strategy used in the model demonstration of compliance required by VM-31 Section 3.C.6.s, including asset reinvestment and disinvestment assumptions, and documentation supporting the appropriateness of the model-modeled company investment strategy compared to the actual investment policy of the company.
- s. Alternative Modeled Investment Strategy – Documentation demonstrating compliance with VM-20 Section 7.E.1.g, showing that the modeled reserve is the higher of that produced using the modeled company investment strategy and the alternative investment strategy.~~that the model investment strategy does not produce a modeled reserve that is less than the modeled reserve that would result by assuming an alternative investment strategy in which all fixed income reinvestment assets are public non-callable bonds with gross assets spreads, asset default costs and investment expenses by projection year that are consistent with a credit quality blend of 50% PBR credit rating of 6 (“A2/A”) and 50% PBR credit rating of 3 (“Aa2/AA”).~~

VM-31 Section 3.C.13.a and 3.C.13.b

- a. Investment Officer on Investments – A certification from a duly authorized investment officer that the ~~modeled-asset~~ modeled company investment strategy is representative of and consistent with the company’s current investment strategy investment policy, except where the modeled reinvestment strategy may have been substituted with and the alternative investment strategy as defined in VM-20 Section 7.E.1.g reflects the prescribed mix of assets with the same WAL as the reinvestment assets in the company investment strategy.
- b. Qualified Actuary on Investments – A certification by a qualified actuary, not necessarily the same qualified actuary that has been assigned responsibility for the PBR Actuarial Report or this sub-report, that the modeling of any clearly defined hedging strategies was performed in accordance with VM-20 and in compliance with all applicable ASOPs and the alternative investment strategy as defined in VM-20 Section 7.E.1.g reflects the prescribed mix of assets with the same WAL as the reinvestment assets in the company investment strategy. [MR1]

VM-G Section 3.A.6.d.ii

- ii. ~~The certification from a duly authorized investment officer that the modeled asset investment strategy is consistent with the company's current investment strategy and the actuarial certification regarding the modeling of clearly defined hedging strategies the Investment Officer on Investments and Qualified Actuary on Investments,~~ as provided in VM-31 Sections 3.C.13.a and 3.C.13.b.

REASONING:

Clarity. (Note: The deleted sentence near the end of VM-20 Section 7.E.1.g seemed not to be serving any purpose.)

VM-20 Section 7.E.1.g, VM-31 Section 3.C.6.r, and VM-31 Section 3.C.6.s address VAWG recommendations #23 and #24.

VM-31 Section 3.C.13.a address VAWG recommendation #31. Changes to VM-G Section 3.A.6.d.ii are proposed for purposes of consistency.

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force

Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Staff of Office of Principle-Based Reserving, California Department of Insurance – Provide breakdown of ULSG reserves by regular UL vs. IUL vs. VUL.

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), VM-31 Section [443.C.11](#).

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached Appendix.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

See attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
VM APF 2018-54 (CA APF-CE)			

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Appendix

ISSUE:

All ULSG reserves, whether from a regular UL chassis, an IUL chassis, or a VUL chassis, should be reported in line 1.2 of the VM-20 Supplement. It seems desirable for regulators to be able to see those three components separately, so we are proposing that an additional informational item be added in VM-31.

SECTION:

(new) VM-31 Section 3.C.11.j

REDLINE:

- j. ULSG Detail – Breakdown of ULSG reserve results (NPR, DR, and SR) into Indexed UL, Variable UL, and regular UL components, both pre- and post-reinsurance, along with case counts and face amounts.

REASONING:

Completeness. This will also help make it clearer to companies that IUL with SG and VUL with SG belong in line 1.2, which seems not to have been completely clear to everyone in the past.

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Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form

- 1) Identify yourself, your affiliation and a very brief description (title) of the issue.

Staff of Office of Principle-Based Reserving, California Department of Insurance – Renaming a term and adding a definition of it to VM-01.

- 2) Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition): VM-01 and Sections 2, 4.C, 5.A, and 5.G of VM-20, Section 11 of VM-31.

- 3) Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

Please see attached Appendix.

- 4) State the reason for the proposed amendment? (You may do this through an attachment.)

Please see attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
Notes: APF 2018-55 (CA APF-CF) , Revised 1/7/2019			

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Appendix

ISSUES:

1. “Product Group” and “group of policies” mean two different things, which has caused some confusion, so we propose to give Product Group a different name.
2. We also propose to add this term to the list of definitions in VM-01.

SECTIONS:

VM-01, VM-20 Sections 2, 4.C, 5.A, and 5.G and VM-31 Section 11

REDLINE:

VM-01

We request that LATF please add to VM-01 a definition for this item. Our suggested wording is:

The term “VM-20 Reserving Category” means one of the following three terms, as applicable:

(a) “Term Reserving Category” shall consist of:

- i. Term life insurance policies, whether directly written or assumed;
- ii. Term life insurance riders, whether directly written or assumed, that are attached to a base policy of any kind that is valued under VM-20 but are valued separately from such base policy;
- iii. Riders and supplemental benefits, whether directly written or assumed, that are attached to and valued with a term life insurance policy, whether directly written or assumed; and
- iv. Life insurance coverage of any kind that the company has assumed on a YRT basis and would be valued under VM-20 had the company (i.e. reinsurer) written it on a direct basis.

(b) “ULSG Reserving Category” shall consist of:

- i. ULSG policies directly written, including any policies that are beyond the end of their contractual secondary guarantee period, but excluding any policies in an extended term insurance status or reduced paid-up status;
- ii. Riders and supplemental benefits, whether directly written or assumed, that are attached to and valued with a ULSG policy; and
- iii. ULSG coverage that the company has assumed on other than a YRT basis, and which would be valued under VM-20 had the company written it on a direct basis, including any beyond the end of the contractual secondary guarantee period.

(c) “All Other VM-20 Reserving Category” shall consist of:

- i. All other life insurance coverage -valued under VM-20 that does not belong in (a) or (b) above;
- ii. Life insurance policies valued under VM-20 that are in an extended term insurance status or reduced paid-up status, even if they had belonged in (a) or (b) above when originally issued; and
- iii. Riders and supplemental benefits that do not belong in (a) or (b) above but which are attached to life insurance policies that are valued under VM-20.

Section 2: Minimum Reserve

A. All policies subject to these requirements shall be included in one of the VM-20 Reserving Categories product groups defined by as specified in Section 2.A.1, Section 2.A.2 and Section 2.A.3 below. The company may elect to exclude one or more groups of policies from the stochastic reserve calculation and/or the deterministic reserve calculation. When ~~excluding a group of policies from a reserve calculation~~, the company must document that the applicable exclusion test defined in Section 6 is passed for that group of policies. The minimum reserve for each VM-20 Reserving Category product group is defined by Section 2.A.1, Section 2.A.2 and Section 2.A.3, and the total minimum reserve equals the sum of Section 2.A.1, Section 2.A.2 and Section 2.A.3 below, defined as:

1. Term Reserving Category Policies — All term policies and riders belonging in the Term Reserving Category are to be included in Section 2.A.1.b. unless the company has elected to exclude a group of them policies from the stochastic reserve calculation and ~~has applied the stochastic exclusion test defined in Section 6, passed the test and documented the results.~~

- a. For the group of term policies and riders subject to Section 3.A.1 for which the company did not compute the stochastic reserve: the sum of the policy minimum NPR's for those policies plus the excess, if any, of the deterministic reserve for those policies determined pursuant to Section 4 over the quantity (A-B) where A = the sum of the policy minimum NPR's for those policies, and B = any due and deferred premium asset held on account of those policies.
- b. For the group of term policies and riders subject to Section 3.A.1 for which the company computes all three reserve calculations: the sum of the policy minimum NPR's for those policies plus the excess, if any, of the greater of the deterministic reserve for those policies determined pursuant to Section 4 and the stochastic reserve for those policies determined pursuant to Section 5 over the quantity (A-B) where A = the sum of the policy minimum NPR's for those policies, and B = any due and deferred premium asset held on account of those policies.

2. Universal Life with Secondary Guarantee (ULSG) Reserving Category Policies — All ULSG policies and riders belonging in the ULSG Reserving Category are to be included in Section 2.A.2.b. unless the company has elected to exclude a group of them policies from the stochastic reserve calculation and has applied the stochastic exclusion test defined in Section 6, passed the test and documented the results.

- a. For the group of ULSG policies and riders subject to Section 3.A.1 for which the company did not compute the stochastic reserve: the sum of the policy minimum NPR's for those policies plus the excess, if any, of the deterministic reserve for those policies determined pursuant to Section 4 over the quantity (A-B) where A = the sum of the policy minimum NPR's for those policies, and B = any due and deferred premium asset held on account of those policies.
- b. For the group of ULSG policies and riders subject to Section 3.A.1 for which the company computes all three reserve calculations: the sum of the policy minimum NPR's for those policies plus the excess, if any, of the greater of the deterministic reserve for those policies determined pursuant to Section 4 and the stochastic reserve for those policies determined pursuant to Section 5 over the quantity (A-B) where A = the sum of the policy minimum NPR's for those policies, and B = any due and deferred premium asset held on account of those policies.

3. All Other VM-20 Reserving Category (Life Insurance Policies Subject to Section 3.A.2) – All life insurance policies and riders belonging in the All Other VM-20 Reserving Category subject to Section 3.A.2. are to be included in Section 2.A.3.c. unless the company has elected to exclude a the group of them such policies from the stochastic reserve calculation or both the deterministic and stochastic reserve calculations and has applied the applicable exclusion test defined in Section 6, passed ~~the test and documented the results.~~

- a. For the group of policies ~~subject to Section 3.A.2 and riders~~ for which the company did not compute the deterministic reserve nor the stochastic reserve: the sum of the policy minimum NPR's for those policies.
- b. For the group of policies ~~subject to Section 3.A.2 and riders~~ for which the company did not compute the stochastic reserve but did compute the deterministic reserve: the sum of the policy minimum NPR's for those policies plus the excess, if any, of the deterministic reserve for those policies determined pursuant to Section 4 over the quantity (A-B) where A = the sum of the policy minimum NPR's for those policies, and B = any due and deferred premium asset held on account of those policies.
- c. For the group of policies ~~subject to Section 3.A.2 and riders~~ for which the company computes all three reserve calculations: the sum of the policy minimum NPR's for those policies plus the excess, if any, of the greater of the deterministic reserve for those policies determined pursuant to Section 4 and the stochastic reserve for those policies determined pursuant to Section 5 over the quantity (A-B) where A = the sum of the policy minimum NPR's for those policies, and B = any due and deferred premium asset held on account of those policies.

B. Section 3 defines the requirements for the policy NPR, and Section 3.F defines how that reserve is attributed to a ~~VM-20 Reserving Category product group~~. Section 4 defines the requirements for the deterministic reserve, and Section 4.C defines how that reserve is attributed to a ~~VM-20 Reserving Category product group~~. Section 5 defines the requirements for the stochastic reserve, and Section 5.G defines how that reserve is determined for each ~~VM-20 Reserving Category product group~~.

C. The reserve for each ~~VM-20 Reserving Category product group~~ as determined in Section 2.A.1, Section 2.A.2 or Section 2.A.3 shall be allocated to each policy within that ~~VM-20 Reserving Category product group~~ in the same proportion as the minimum NPR for that policy to the minimum NPR for the ~~VM-20 Reserving Category product group~~.

VM-20 Section 4.C

C. If a group of policies for which a deterministic reserve is calculated includes policies from more than one ~~VM-20 Reserving Category product group~~, where ~~VM-20 Reserving Category product group~~ is ~~as defined in VM-01, as in Section 2, to be term insurance policies, ULSG policies or all other types of policies~~, a deterministic reserve shall be determined for each subgroup of the group of policies consisting of only those policies from each individual ~~VM-20 Reserving Category product group~~....

VM-20 Section 5.A

A. Project cash flows in compliance with the applicable requirements in Section 7, Section 8 and Section 9 using the stochastically generated scenarios described in Section 7.G.2, and further described in Appendix 1. In determining the stochastic reserve, the company shall determine the number and composition of subgroups for aggregation purposes in a manner that is consistent with how the company manages risks across products with significantly different risk profiles, and that reflects the likelihood of any change in risk offsets that could arise from distributional shifts between product types, due to, for example, differing policyholder behavior. If a company is managing the risks of two or more products with significantly different risk profiles as part of an integrated risk management process, then the products may be combined into the same subgroup for aggregation purposes. If policies from more than one ~~VM-20 Reserving Category product group~~ are included in such a subgroup, the reserve for each ~~VM-20 Reserving Category product group~~ shall also be determined, as described in Section 5.G.

Guidance Note: Aggregation refers to the number and composition of subgroups of policies that are used to combine cash flows. Aggregating policies into a common subgroup allows the cash flows arising from the policies for a given stochastic scenario to be netted against each other (i.e., allows risk offsets between policies to be recognized). Note Section 5.G regarding the calculation of the stochastic reserve on a stand-alone basis for each VM-20 Product Group Reserving Category. Product group is defined, as in Section 2, to be term insurance policies, ULSG policies or all other types of policies.

VM-20 Section 5.G

G. The stochastic reserve equals the amount determined in Section 5.F. If the company includes policies from two or more VM-20 Reserving Categories ~~product groups~~ in a subgroup for aggregation purposes as described in Section 5.A, the company shall calculate the stochastic reserve for policies from each VM-20 Reserving Category ~~product group~~ on a stand-alone basis by following the process of A through F above.

VM-31 Section 3.C.11

- f. Allocation for Deterministic Reserve – For each group of policies for which a deterministic reserve is calculated and an allocation is performed as described in VM-20 Section 4.C, disclosure of the ratio (i) to (ii), in which the respective components are:
 - i. The deterministic reserves for that group of policies as reported.
 - ii. The sum of the deterministic reserves calculated separately for each VM-20 Reserving Category ~~product group~~ within that group of policies.
- g. Impact of Aggregation for Stochastic Reserve – For each group of policies for which a stochastic reserve is calculated, the impact of aggregation on the stochastic reserve, including a discussion of material risk offsets across different product types within a VM-20 Reserving Category ~~product group~~ that were modeled together.

REASONING:

The definition of VM-20 Reserving Category is for the most part implicit in Section 2.A as well as in 4.C, but for clarity is being made more precise in VM-01, with the added clarity coming from such means as making explicit mention of YRT reinsurance, extended term insurance, and term riders.

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Academy Life Valuation Committee – Reinsurance Work Group, Richard Daillak, Work Group Chairperson

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), VM-20 Section 8.D.1.

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached Appendix.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

See attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
10/13/18			
VM APF 2018-56			

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Appendix

ISSUE:

The current wording in Section 8.D.1. defines the reserve credit for reinsurance as "the excess, if any" of the pre-reinsurance-ceded minimum reserve "over" the post-reinsurance-ceded minimum reserve. This wording requires that the reported reserve credit must be positive or zero, but never negative. Under VM-20 it is possible for the post-reinsurance-ceded reserve to exceed the pre-reinsurance-ceded reserve. Restricting the reported reinsurance reserve credit to be zero or positive can potentially break the expected relationship in financial statements between gross reserve, reserve credit for reinsurance, and reserve net of reinsurance, namely that:

reported reserve net of reinsurance = reported gross reserve *minus* reported reserve credit for reinsurance

Under current VM-20 8.D.1, this expected relationship (i.e., net = gross - credit) does not always hold:

<i>Reserve Relationship</i>	<i>Implied Reserve Credit</i>	<i>Reported Credit</i>	<i>Net = Gross - Credit?</i>
Pre-reinsurance-ceded reserve > Post-reinsurance-ceded reserve	Positive amount	Positive, same as implied	Yes
Pre-reinsurance ceded reserve < Post-reinsurance ceded reserve	Negative amount	Zero	No

SECTION:

VM-20 Section 8.D.1

REDLINE:

D. Determination of a Pre-Reinsurance-Ceded Minimum Reserve

1. The minimum reserve pursuant to Section 2 is a post-reinsurance-ceded minimum reserve. The company also shall calculate a pre-reinsurance-ceded reserve as specified in Section 8.D.2 below, for financial statement purposes where such a pre-reinsurance-ceded amount is required. Similarly, where a reserve credit for reinsurance may be required, the credit for reinsurance ceded shall be ~~the excess, if any, of the pre-reinsurance-ceded minimum reserve over~~ minus the minimum reserve (post-reinsurance-ceded) ~~minimum reserve. This credit may be negative.~~ Note that due allowance for reasonable approximations may be used where appropriate.

REASONING:

Using the methods of VM-20 it is possible, and can be reasonable in certain cases, for a modeled post-reinsurance-ceded reserve (deterministic and/or stochastic) to be greater than the corresponding modeled reserve in the absence of reinsurance, implying a *negative* reserve credit. ~~An example could be a case where the modeled reserve (rather than the NPR) determines the minimum reserve and where YRT mortality risk reinsurance introduces an additional net cost sufficient that the modeled post-reinsurance-ceded reserve is larger than the modeled reserve in the absence of reinsurance.~~

To provide for such cases and ensure that the reported gross reserve minus reported reserve credit always equals reported (post-reinsurance-ceded) minimum reserve, Section 8.D.1 should allow a reported negative reserve credit.

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form*

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Brian Bayerle, ACLI – Allows for adjustment to the mortality table used for the NPR when expecting additional mortality (such as substandard and conversions)

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

2019 Valuation Manual adopted September 10, 2018, reflecting APF 2018-52 edits; VM-20 Section 3.C.1, VM-31 Section 3.C.3.

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

Currently, the NPR definition does not allow for any adjustments to mortality when additional conservatism may be warranted. This APF broadly allows for adjustments as appropriate, so long as it does not decrease the NPR for the policy.

* This form is not intended for minor corrections, such as formatting, grammar, cross-references or spelling. Those types of changes do not require action by the entire group and may be submitted via letter or email to the NAIC staff support person for the NAIC group where the document originated.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
11/6/18			
Notes: APF 2018-57_RE-EXPOSED 1/31/19			

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VM-20

(new Section 3.C.1.g)

f. For policies issued on a substandard basis, the company shall increase the CSO mortality rates in a manner commensurate with the substandard rating, subject to a cap that ensures mortality rates do not exceed 1000 per 1000. Alternatively, a company may choose to reserve for the substandard extra mortality separately in Exhibit 5, for groups of policies for which the NPR dominates the DR and SR.

g. For policies where the anticipated mortality experience materially exceeds the prescribed CSO mortality rates determined in Section 3.C.1 a through 3.C.d above, the company shall ~~consider~~ adjusting the CSO mortality rates used in the NPR calculation in a manner commensurate with the anticipated mortality experience for the policy, subject to a cap that ensures mortality rates do not exceed 1000 per 1000. These adjustments should be consistent with the adjustments made for the DET Net Premium Test in Section 6.B.5.d, if applicable. The resulting NPR must not be lower than the NPR calculated without adjustments to the CSO mortality rates.

VM-31

(new Section 3.C.3.n)

n. Adjustments to NPR Mortality - Description and rationale of any adjustments made to the CSO mortality rates used in the NPR calculation to reflect the requirements of VM-20 Section 3.C.1.g.

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

This APF was jointly prepared by the Staff of Office of Principle-Based Reserving, California Department of Insurance and NAIC Support Staff.

This APF addresses recommendation #13 from VAWG's 10/24/2018 memo regarding PBR Recommendations and Referrals to LATF.

2. Identify the document, including the date if the document is "released for comment," and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), VM-31 Section 3.C.3.h

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on "track changes" in Word®) version of the verbiage. (You may do this through an attachment.)

Please see Appendix attached.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

Please see attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
12/3/18			
Notes: VM APF 2018-61 (CA OPBR/NAIC PBR)			

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Appendix

ISSUE:

Need greater clarity surrounding what is required by VM-31 for credibility calculations.

SECTIONS:

VM-31, Section 3.C.3.h

REDLINE:

VM-31 Section 3.C.3.h

- h. Credibility – Identification of the method used to determine credibility percentage(s) for the company's mortality exposure period, including a listing of the credibility percentage that was used in VM-20 Section 9.C.6.b for each mortality segment, and an indication of whether each such~~the~~ credibility percentage was determined at the mortality segment level or at a higher level using aggregate mortality experience.

REASONING:

There appeared to be some confusion at 2017 year end among some companies as to what this section was asking for.

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

This APF was jointly prepared by the Staff of Office of Principle-Based Reserving, California Department of Insurance and NAIC Support Staff.

This APF addresses recommendation #10 from VAWG's 10/24/2018 memo regarding PBR Recommendations and Referrals to LATF.

2. Identify the document, including the date if the document is "released for comment," and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), VM-31 Section 3.C.2.e

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on "track changes" in Word®) version of the verbiage. (You may do this through an attachment.)

Please see Appendix attached.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

Please see attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
12/3/18			
Notes: VM APF 2018-62 (CA APF-CL)			

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Appendix

ISSUE:

A number of 2017 PBR Actuarial Reports did not provide a clear indication of the degree of rigor applied in validating models.

SECTIONS:

VM-31, Section 3.C.2.e

REDLINE:

- e. Calculation and Model Validation – Description of the approach used to validate model calculations ~~within each model segment~~ for ~~both the deterministic and stochastic models~~ NPR, DR, and SR, including:
- i. How the model was evaluated for appropriateness and applicability, including a thorough explanation of how the company became comfortable with the model (e.g. specific model controls, independent reviews performed, etc.);
 - ii. How the model results compare with actual historical experience;
 - iii. Tables showing numerical static and dynamic validation results, and commentary on these results;
 - iv. what Which risks, if any, ~~risks~~ are not included in the model ~~the extent to which correlation of different risks is reflected in the margins;~~ and
 - v. Any -limitations of the model that could materially impact NPR, DR, or SR.

REASONING:

To enable regulators to better gauge how conscientiously the company performed its model validation.

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Staff of Office of Principle-Based Reserving, California Department of Insurance,
Provide further clarity with respect to lapse rates to be used in VM-20 Section 3.B.6.

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), VM-20 Section 3.C.3.c

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached Appendix. These proposed changes are for clarification only and as such are **non-substantive**.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

See attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
Notes: VM APF 2018-63 (CA APF-CP), revised 1/26/2019			

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Appendix

ISSUE:

VM-20 clarity.

The subscript t as used in VM-20 Section 3.B.6.d represents a duration at a point in time (the valuation date) that is not a whole number of years.

The subscript t as used in VM-20 Section 3.B.6.c.ii is an index, i.e., these t 's are always whole numbers.

This leads, potentially, to a bit of confusion in VM-20 Section 3.C.3.c.ii.

SECTION:

VM-20 Section 3.C.3.c.ii

REDLINE:

- ii. As of the valuation date, which is t years after issue, ~~the~~ the annual lapse rate for the policy shall be assumed to be level for all future years and denoted as L_{x+t} for durations $t+1$ and later which shall be set equal to:

$$L_{x+t} = R_{x+t} \cdot 0.01 + (1 - R_{x+t}) \cdot 0.005 \cdot r_{x+t}$$

Where r_{x+t} is the ratio determined in Section 3.B.5.d.ii.

Guidance Note: By similar logic, it follows (from ASG_{x+t} being 0 when $t=0$) that the level annual lapse rate to be used in the calculations in Section 3.B.6.c.ii and 3.B.6.c.iii is 1%. On the other hand, when performing the calculations in Section 3.B.6.d.iii, L_{x+t} , though level, is not generally equal to what it was for the same policy on the previous valuation date.

REASONING:

Make it very clear that the constant lapse rate used in the as-of-issue calculations differs from the constant lapse rate used in the calculations done as of the valuation date.

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Staff of Office of Principle-Based Reserving, California Department of Insurance,
Minor correction to descriptive language in VM-A and VM-C.

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), VM-A and VM-C

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached Appendix. These proposed changes are for clarification only and as such are **non-substantive**.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

See attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
12/3/18			
Notes: VM APF 2018-64 (CA APF-CQ)			

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Appendix

ISSUE:

VM-A and VM-C list many requirements, not all of which pertain to reserves. Thus the introductions to them should be characterizing the items listed as “requirements”, not “reserve requirements”. (The title of VM-A already is correct in this regard.)

SECTIONS:

VM-A and VM-C

REDLINE:

VM-A: Appendix A – Requirements

Unless otherwise noted, this appendix references the following ~~reserve~~ requirements from Appendix A of the AP&P Manual, ~~which are to be used for policies issued on and after the *Valuation Manual* operative date unless otherwise provided for in the *Valuation Manual*.~~

VM-C: Appendix C – Actuarial Guidelines

Guidance Note: This appendix references the following ~~reserve~~ requirements from Appendix C of the AP&P Manual, ~~which are to be used for policies issued on and after the *Valuation Manual* operative date unless otherwise provided for in Section II, *Reserve Requirements*.~~

REASONING:

Clarity.

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Exposure of APF 2018-66

Delete VM-20, Section 2.D to clarify that policies that pass an exclusion test remain subject to PBR requirements.

Note: This proposal directly conflicts with APF 2019-03, which is exposed concurrently. Only one of the APFs can be adopted.

Send comments to Reggie Mazyck (RMazyck@naic.org) before COB Mar. 7, 2019

|

**Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force
Amendment Proposal Form***

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

John Robinson FSA, Director PBR – Valuation Actuary, Minnesota Department of Commerce

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

Valuation Manual Jan 1, 2019 edition

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

Delete VM-20, Section 2.D in its entirety. Move Section 2.H to replace Section 2.D.

In addition, a corresponding deletion is applied in the second paragraph of Section II.B.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

Suppose that DR and SR are not required for a group of policies because of “passing” the exclusion tests. To infer that this group of policies is NOT subject to principle-based valuation, is FALSE, because the exclusion tests are part of PBR, and the exclusion tests results are required to be part of the PBR Report (VM-31, Section 3.C.10).

Alternatively, if the intent had nothing to do with the exclusion tests, such as where policies are subject to VM-A or VM-C, then the statement provides no useful guidance.

Consequently, I propose that this Section 2.D be deleted. Replace Section 2.D with Section 2.H to maintain the structure and references pertaining to Section 2.

* This form is not intended for minor corrections, such as formatting, grammar, cross-references or spelling. Those types of changes do not require action by the entire group and may be submitted via letter or email to the NAIC staff support person for the NAIC group where the document originated.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
11/27/18			
Notes: VM APF 2018-66 rev. 2_5_19			

Section 2: Minimum Reserve

A. All policies subject to these requirements shall be included in one of the product groups defined by Section 2.A.1, Section 2.A.2 and Section 2.A.3 below. The company may elect to exclude one or more groups of policies from the stochastic reserve calculation and/or the deterministic reserve calculation. When excluding a group of policies from a reserve calculation, the company must document that the applicable exclusion test defined in Section 6 is passed for that group of policies. The minimum reserve for each product group is defined by Section 2.A.1, Section 2.A.2 and Section 2.A.3, and the total minimum reserve equals the sum of the Section 2.A.1, Section 2.A.2 and Section 2.A.3 results below, defined as: 1. Term Policies —All term policies are to be included in Section 2.A.1.b unless the company has elected to exclude a group of policies from the stochastic reserve calculation and has applied the stochastic exclusion test (SET) defined in Section 6, passed the test and documented the results. a. For the group of term policies subject to Section 3.A.1 for which the company did not compute the stochastic reserve: the sum of the policy minimum NPRs for those policies plus the excess, if any, of the deterministic reserve for those policies determined pursuant to Section 4 over the quantity (A–B), where A = the sum of the policy minimum NPRs for those policies, and B = any due and deferred premium asset held on account of those policies.

~~D. A group of policies for which neither deterministic nor stochastic reserves are required or calculated are not subject to principle-based valuation as defined under Model #820.~~

The reserves for supplemental benefits and riders shall be calculated consistent with the requirements for “Riders and Supplemental Benefits” in Section II—Reserve Requirements.

~~H. The reserves for supplemental benefits and riders shall be calculated consistent with the requirements for “Riders and Supplemental Benefits” in Section II—Reserve Requirements.~~

Section II.B, page 7, second paragraph:

Minimum reserve requirements of VM-20 are considered principle-based valuation requirements for purposes of the Valuation Manual ~~and VM-31, PBR Actuarial Report Requirements for Business Subject to a Principle-Based Reserve Valuation, unless VM-20 or other requirements apply only the net premium reserve (NPR) method or applicable requirements in VM Appendix A—Requirements (VM-A) and VM Appendix C—Actuarial Guidelines (VM-C).~~

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Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form*

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Brian Bayerle, ACLI – Modify Deterministic Exclusion Test (DET) for policies with sufficiently conservative additional reserves (such as for conversions) to not require a deterministic reserve
2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

2019 Valuation Manual adopted September 10, 2018 [reflecting APF 2018-11 and APF 2018-53](#); VM-20 Section 6.B and VM-31 Section 3.C.10
3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached.
4. State the reason for the proposed amendment? (You may do this through an attachment.)

For group and individual term conversions, there is an expectation of additional mortality. Under the current VM, the NPR does not reflect this expectation; there will be a separate APF allowing for an additional reserve amount to reflect the additional mortality. This APF would allow such blocks to pass the DET given the level of conservatism of the additional reserve. Rather than requiring a deterministic reserve for such policies, the APF updates the DET to allow for a certification that the additional reserves held are reasonably greater than what would be held in the deterministic reserve were calculated.

Additionally, renamed the SET Certification to avoid confusion with the DET Certification, along with some miscellaneous cleanup.

* This form is not intended for minor corrections, such as formatting, grammar, cross-references or spelling. Those types of changes do not require action by the entire group and may be submitted via letter or email to the NAIC staff support person for the NAIC group where the document originated.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
Notes: VM APF 2019-01 rev060419			

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Section 6: Stochastic and Deterministic Exclusion Tests

A. Stochastic Exclusion Test (SET)

1. Requirements to pass the SET:
 - a. Groups of policies pass the SET if one of the following is met:
 - i. **Stochastic Exclusion Ratio Test (SERT)** - Annually and within 12 months before the valuation date the company demonstrates that the groups of policies pass the ~~stochastic exclusion ratio test (SERT)~~ defined in Section 6.A.2.
 - ii. **Stochastic Exclusion Demonstration Test** - In the first year and at least once every three calendar years thereafter, the company provides a demonstration in the PBR Actuarial Report as specified in Section 6.A.3.
 - iii. **SET Certification Method** - For groups of policies other than variable life or ULSG, in the first year and at least every third calendar year thereafter, the company provides a certification by a qualified actuary that the group of policies is not subject to material interest rate risk or asset return volatility risk (i.e., the risk on non-fixed-income investments having substantial volatility of returns, such as common stocks and real estate investments). The company shall provide the certification and documentation supporting the certification to the commissioner upon request.

B. Deterministic Exclusion Test (DET)

1. Scope of Products
 - a. A group of ULSG policies that does not meet the definition of a “non-material secondary guarantee” or a group of policies that is not excluded from the stochastic reserve requirement is deemed to not pass the ~~DET deterministic reserve exclusion test~~, and the deterministic reserve must be computed for this group of policies.
 - b. The DET may not be used for term insurance policies, and these policies may not be excluded from the deterministic reserve requirements of Section 4.
2. Except as provided in Section 6.B.1, a group of policies passes the DET if **one of the following is met:**
 - a. **Deterministic Net Premium Test** - ~~The~~ the company demonstrates that the sum of the valuation net premiums for all future years for the group of policies, determined according to Section 6.B.5 below, is less than or equal to the sum of the corresponding guaranteed gross premiums for such policies. The test shall be performed on a direct or assumed basis.

b. DET Certification Method - For a group of policies where all policyholders have elected to convert to a product other than term life, variable life, indexed life, or ULSG with a material secondary guarantee, in the first year and at least every third calendar year thereafter the company shall provide a certification by a qualified actuary that, for each policy in the group of policies, the total ~~non-modeled~~ reserve for the policy (including either the NPR adjusted for excess conversion mortality or the NPR plus an additional reserve for excess reserve mortality) ~~(including Section 3.C.1.f.iii reserves if applicable)~~ is at least equal to the minimum NPR for an otherwise identical underwritten policy plus an additional reserve that ~~reflects~~ includes the additional anticipated a prudent provision for the additional mortality associated with the conversion, ~~and reasonably exceed the value of a deterministic reserve which otherwise would have been calculated for this group of policies.~~

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Guidance Note:

An example of a method a qualified actuary could use to support the actuarial certification includes, but is not limited to, holding a net single premium as an additional reserve for a converted policy.

3. A company may not group together policies of different contract types with significantly different risk profiles for purposes of the calculation in Section 6.B.2.

VM-31

Section 3: PBR Actuarial Report Requirements

- C. Life PBR Actuarial Report – This subsection establishes the PBR Actuarial Report requirements for individual life insurance policies subject to VM-20.

The company shall include in the Life PBR Actuarial Report and in any sub-report thereof:

10. Exclusion Tests – The following information regarding the deterministic and stochastic exclusion tests, if calculated:
 - a. Exclusion Test Policies – Identification and description of each group of policies using the deterministic and stochastic exclusion tests, including contract type and risk profile, and rationale for each grouping of policies.
 - b. Type of SET – For each group of policies that the company elects to exclude from stochastic reserve requirements, the SET used (passing the SERT or stochastic

exclusion demonstration test, or certification that the group of policies does not contain material interest, tail or asset risk).

- c. SERT – For groups of policies for which the SERT is used, the results of the 16 scenarios and the test ratio.
- d. Stochastic Exclusion Demonstration Test – For groups of policies for which the stochastic exclusion demonstration test is used, the rationale for using the demonstration test, identification of which acceptable demonstration method listed under VM-20 Section 6.A.3.b was applied or a statement that another method acceptable to the insurance commissioner was applied, and the details of the demonstration supporting the exclusion in the initial exclusion year and at least once every three calendar years subsequent to the initial exclusion year.
- e. SET Certification Method – For groups of policies for which the SET certification method is used, support for the certification including supporting analysis and tests.
- f. Fallback Results – If the stochastic exclusion demonstration test or the certification method was successfully used for any group of policies for which the stochastic exclusion ratio test was initially attempted but failed, the company shall so indicate and show the unsuccessful SERT results.

Similarly, if the stochastic exclusion ratio test was successfully used for any group of policies for which the stochastic exclusion demonstration test under the method of VM-20 Section 6.A.3.b.iii or VM-20 Section 6.A.3.b.iv was initially attempted but failed, the company shall so indicate and show the results of the unsuccessful stochastic exclusion demonstration test.

Commented [EL1]: APF 2018-11 adopted 12/13/18

- g. ~~DET~~ Deterministic Net Premium Test – For groups of policies for which the ~~DET~~ Deterministic Net Premium Test is performed, the results of the ~~DET~~ Deterministic Net Premium Test for each group of policies.
- h. DET Certification Method – For groups of policies for which the DET certification method is used, support for the certification including policy counts, reserve amounts and their corresponding location in Exhibit 5 of the Annual Statement, methodology, supporting analysis, and tests.

[Skip to Section 3.C.13]

13. Certifications

- a. Investment Officer on Investments – A certification from a duly authorized investment officer that the modeled company investment strategy is representative of and consistent with the company's investment policy.
- b. Qualified Actuary on Investments – A certification by a qualified actuary, not necessarily the same qualified actuary that has been assigned responsibility for the PBR Actuarial Report or this sub-report, that the modeling of any clearly defined hedging strategies was performed in accordance with VM-20 and in compliance

Commented [EL22]: APF 2018-53 adopted on 5/14/19

with all applicable ASOPs and the alternative investment strategy as defined in VM-20 Section 7.E.1.g reflects the prescribed mix of assets with the same WAL as the reinvestment assets in the company investment strategy.

Commented [EL23]: APF 2018-53 adopted on 5/14/19

- c. Senior Management on Internal Controls – A certification from senior management regarding the effectiveness of internal controls with respect to the principle-based valuation under VM-20, as provided in Section 12B(2) of Model #820.
- d. Qualified Actuary on Interest Rate and Volatility Risks – Certification, by the qualified actuary assigned responsibility under VM-G for a group of policies that qualifies for exclusion from the requirement to calculate a stochastic reserve under the provisions of VM-20, Section 6.A.1.a.iii, that this group of policies is not subject to material interest rate risk or asset return volatility risk.
- e. Qualified Actuary on Accordance with VM-20 and Model #820 – Certification by the qualified actuary, for the groups of policies for which responsibility was assigned, that the principle-based valuation was performed in accordance with the requirements outlined in VM-20 and the relevant sections of Model #820.
- f. Qualified Actuary on Assumptions and Margins – Certification by the qualified actuary, for the groups of policies for which responsibility was assigned, that the assumptions used in the principle-based valuation under VM-20, other than assumptions used for risk factors that are prescribed or stochastically modeled, are prudent estimate assumptions and the margins applied therein are appropriate.
- g. Qualified Actuary on Conservatism of Converted Policies - Certification, by the qualified actuary assigned responsibility under VM-G for a group of policies that qualifies for exclusion from the requirement to calculate a deterministic reserve under the provisions of VM-20, Section 6.B.2.b, that the total reserve for this group of policies includes a prudent provision for the additional mortality associated with the conversion and reasonably exceed the value of a calculated deterministic reserve which otherwise would have been calculated for this group of policies.

14. Closing Paragraph – A closing paragraph with the signature, credentials, title, telephone number and e-mail address of the qualified actuary, the company name and address, and the date signed.

**Life Actuarial (A) Task Force/ Health Actuarial (B) Task
Force
Amendment Proposal Form**

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Staff of Office of Principle-Based Reserving, California Department of Insurance –Clarify expense allowance formulas in VM-20 Sections 3.B.5 and 3.B.6

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), VM-20 Sections 3.B.5 and 3.B.6

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached Appendix.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

See attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
1/7/19			
Notes: VM APF 2019-04 (CA APF AQ rev. 3) rev. 02152019			

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Appendix

ISSUE:

1. Clarification of expense allowance formulas for ULSG.
2. The subscript t as used in VM-20 Sections 3.B.5.d and 3.B.6.d represents a duration at a point in time (the valuation date) that is not a whole number of years.

The subscript t as used in VM-20 Section 3.B.5.b and 3.B.6.c.ii is an index, i.e. these t 's are always whole numbers.

This contributes to possible confusion as to what E_{x+t} means for non-integer values of t .

3. The colon in $\sum_{w=1}^{t-1} (1/\ddot{a}_{x+w:\overline{s-w}|})$ is red and should be made black.

SECTIONS:

VM-20 Sections 3.B.5 and 3.B.6

REDLINE:

VM-20 Section 3.B.5.b

~~The expense allowance shall be amortized over the period during which premiums are permitted to be paid. E_{x+t} The expense allowance balance, E_{x+t} , as of the end of policy year t , shall be calculated as follows- over the period for which premiums are permitted to be paid:~~

$$E_{x+t} = VNPR \cdot \ddot{a}_{x+t:\overline{s-t}|} [(x_1 + z_1)/\ddot{a}_{x:\overline{s}|} + y_{2-5} \cdot C_{x+t}] \quad \text{for } t < s$$

$$= 0 \quad \text{for } t \geq s$$

Where:

$t = 1, 2, \dots$ (number of completed years since issue)

$VNPR$ = Valuation Net Premium Ratio from 3.B.5.c.

$$C_{x+t} = 0 \quad \text{when } t = 1$$

$$= \sum_{w=1}^{t-1} (1/\ddot{a}_{x+w:\overline{s-w}|}) \quad \text{when } 2 \leq t \leq 5$$

$$= C_{x+5} \quad \text{when } t > 5$$

VM-20 Section 3.B.5.d

- d. For a policy issued at age x , at any duration t on any valuation date, the net premium reserve shall equal:

$$m_{x+t} \cdot r_{x+t} \quad \text{Where:}$$

- i. m_{x+t} = the actuarial present value of future benefits less the actuarial present value of future valuation net premiums and less the unamortized expense allowance for the policy, E_{x+t} .

(a) **Guidance Note:** For a non-integer value of t , E_{x+t} is obtained by taking the present value at duration t of E_{x+T} , where T is the next higher integer, i.e., entails discounting by valuation interest and survivorship for the fractional year between the valuation date and the next anniversary ($T - t$).

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VM-20 Section 3.B.6.c.ii

The expense allowance shall be amortized over the span of years in the secondary guarantee period during which premiums are permitted to be paid. E_{x+t} The expense allowance ~~E_{x+t}~~ balance, as of the end of policy year t , shall be computed ~~amortized~~ as follows: ~~over the period for which premium are permitted to be paid:~~

$$E_{x+t} = VNPR \cdot \ddot{a}_{x+t:v-t} [(x_1 + z_1)/\ddot{a}_{x:\overline{v}}] + y_{2-5} \cdot C_{x+t} \quad \text{for } t < v$$

$$= 0 \quad \text{for } t \geq v$$

Where:

$t = 1, 2, \dots$ (number of completed years since issue)

$VNPR$ = Valuation Net Premium Ratio from 3.B.6.c.iii

$$C_{x+t} = 0 \quad \text{when } t = 1$$

$$= \sum_{w=1}^{t-1} (1/\ddot{a}_{x+w:v-w}) \quad \text{when } 2 \leq t \leq 5$$

$$= C_{x+5} \quad \text{when } t > 5$$

VM-20 Section 3.B.6.d.iv

- iv. The NPR for an insured age x at issue at time t shall be according to the formula below:

$$\text{Min} \left[\frac{ASG_{x+t}}{FFSG_{x+t}}, 1 \right] \cdot NSP_{x+t} - E_{x+t}$$

Guidance Note: For a non-integer value of t, E_{x+t} is obtained by taking the present value at duration t of E_{x+T} , where T is the next higher integer, i.e., entails discounting by valuation interest, mortality, and lapse for the fractional year between the valuation date and next anniversary (T - t).

REASONING:

Added clarity.

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rev_2_15_2019.docx

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Staff of Office of Principle-Based Reserving, California Department of Insurance – Clarify reporting requirement mandated in previously adopted APF 2018-54

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), VM-31 Section 3.C.11 as amended by APF 2018-54

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached Appendix. This APF is for clarification only and as such is non-substantive.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

See attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
1/7/19			
Notes: VMAPF 2019-05 (Calif APF CW)			

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Appendix

ISSUE:

Some Indexed policies have elements of fixed UL in them by virtue of containing a choice of having some of the funds in a fixed account. Also, some VUL policies have a menu of fund choices that can include fixed and/or indexed funds.

The purpose of this APF is to make it clear that there is no expectation that a company need split policies of these kinds into pieces for the purposes of performing VM-31 reporting. Any given UL policy is to be classified in its entirety as either VUL, IUL, or regular UL.

All UL business containing a secondary guarantee (whether VUL, IUL, or fixed) belongs on Line 1.2 of the VM-20 Supplement, and the reporting requirement of VM-31 Section 3.C.11.j asks for the VUL/IUL/regular split of those Line 1.2 totals. The sorting into these three categories is to be accomplished at a policy level and not at any level more granular.

SECTION:

(new) Guidance Note for (new) VM-31 Section 3.C.11.j .

REDLINE:

VM-31 Section 3.C.11.j

- j. ULSG Detail – Breakdown of ULSG reserve results (NPR, DR, SR) into ~~Indexed-Variable~~ UL, ~~Variable-Indexed~~ UL, and regular UL components, both pre- and post-reinsurance, along with case counts and face amounts. Any given UL policy is to be classified in its entirety as either Variable UL, Indexed UL, or regular UL. If a ULSG policy satisfies the definition of a variable life insurance policy (even if it contains options for indexed funds or fixed funds), that policy should be classified as variable for this VM-31 reporting purpose. If it does not, but it satisfies the definition of an Indexed UL policy, it should be classified as Indexed.

Note on the Exposure

In addition to considering the wording of the Guidance Note, commenters are being asked to opine on whether the text of the Guidance Note constitutes guidance or whether it should be considered part of the requirements. If deemed to be part of the requirements, the guidance note indicator will be removed.

REASONING:

Clarification.

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

This APF was jointly prepared by the Staff of Office of Principle-Based Reserving, California Department of Insurance and NAIC Support Staff.

This APF addresses recommendations 20 and 21 from VAWG's 10/24/2018 memo regarding PBR Recommendations and Referrals to LATF.

Note:

APF 2019-06 has dependencies on a future APF to address VAWG Recommendation #6, in which VM-31 Section 3.C.1.a will require a spreadsheet containing all anticipated experience assumptions, margins, and prudent estimate assumptions used in the model. Because of this, these two APFs should be adopted together. APF 2019-06 references the revised Section 3.C.1.a as the place where commissions and acquisition expenses should be provided, and it deletes VM-31 Section 3.C.5.c (Inflation) to avoid redundancy with the revised Section 3.C.1.a.

2. Identify the document, including the date if the document is "released for comment," and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), VM-20 Section 9.E.1.n, VM-31 Section 3.C.5

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on "track changes" in Word®) version of the verbiage. (You may do this through an attachment.)

Please see Appendix attached.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

Please see attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
1/30/19			
Notes: VM APF 2019-06 (CA OPBR/NAIC PBR)			

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Appendix

ISSUE:

Regulators need greater assurance that expenses have been fully allocated and that any relevant acquisition expenses have been taken into account. Also, correct a wrong section reference in VM-20 Section 9.E and delete VM-31 Section 3.C.5.c (Inflation) to avoid redundancy with VM-31 Section 3.C.1.

SECTIONS:

VM-20 Section 9.E.1, VM-31 Section 3.C.5

REDLINE:

VM-20 Section 9.E.1.n

- n. For policies sold under a new policy form or due to entry into a new product line, the company shall use expense factors that are consistent with the expense factors used to determine anticipated experience assumptions for policies from an existing block of mature policies taking into account:
 - i. Any differences in the expected long-term expense levels between the block of new policies and the block of mature policies.
 - ii. That all expenses must be fully allocated as required under Section ~~9.E.1.b~~ 9.E.1.i above.

VM-31 Section 3.C.5

- 5. Expenses – The following information regarding the expense assumptions used by the company in performing a principle-based valuation:
 - a. Allocating Expenses to PBR Policies – Methodology used to allocate expenses to the individual life insurance policies subject to a principle-based valuation, and a statement confirming that expenses have been fully allocated in accordance with VM-20 Section 9.E.1.i.
 - b. Allocating Expenses to Model Segments – Methodology used to apply the allocated expenses to model segments or sub-segments within the cash-flow model.
 - c. Commissions and Acquisition Expenses – One of the following statements, as applicable, confirming the company's treatment of commissions and acquisition expenses pursuant to VM-20 Sections 7.B.1.e and 9.E.1.m:
 - i. There are no future commissions or acquisition expenses associated with business in force as of the valuation date and therefore none are included in the model.
 - ii. There are future commissions and acquisition expenses associated with business in force as of the valuation date, and these have been provided in response to Section 3.C.1.a.
 - iii. There are future commissions associated with business in force as of the valuation date, and these have been provided in response to Section 3.C.1.a. There are no

future acquisition expenses associated with business in force as of the valuation date and therefore none are included in the model.

- iv. There are future acquisition expenses associated with business in force as of the valuation date, and these have been provided in response to Section 3.C.1.a. There are no future commissions associated with business in force as of the valuation date and therefore none are included in the model.

~~c. Inflation – Assumption and source.~~

~~d. Spreading of Costs – Identification of types of costs that were spread, and for how many years, if any cost spreading was done pursuant to VM-20 Section 9.E.1.b.~~

~~ed. Expense Margins – Methodology used to determine margins.~~

REASONING:

Several VM-31 reports for 2017 left regulators uncertain as to whether the fully-allocated requirement had been met.

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

This APF was jointly prepared by the Office of Principle-Based Reserving, California Department of Insurance, and NAIC Support Staff.

This APF addresses recommendation #11 from VAWG's 10/24/2018 memo regarding PBR Recommendations and Referrals to LATF. The new post-level term language relates to VAWG recommendation #17.

2. Identify the document, including the date if the document is "released for comment," and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), VM-31 Section 3.C.3.j

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on "track changes" in Word®) version of the verbiage. (You may do this through an attachment.)

Please see Appendix attached.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

Please see attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
1/30/19			
Notes: VM APF 2019-07 (CA OPBR/NAIC PBR)			

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Appendix

ISSUE:

Provide regulators information as to the company's handling of substandard business and adjustments to mortality for policyholder behavior.

SECTIONS:

VM-31 Section 3.C.3.j

REDLINE:

VM-31 Section 3.C.3.j

- j. ~~Adjustments to Mortality~~ for Impaired Lives or Policyholder Behavior – ~~Description~~ Disclosure of: (i) the percentage of business that is on impaired lives, (ii) whether impaired lives were included or excluded from the mortality study upon which company experience mortality was based, and (iii) ~~rationale for whether~~ any adjustments to mortality assumptions for impaired lives or policyholder behavior were found to be necessary and, if so, the rationale for the adjustments that were used.

Item (iii) above is a required disclosure for post-level term mortality assumptions even if the company uses a 100% shock lapse assumption, since it pertains to the analysis demonstrating whether there are post-level term profits.

REASONING:

At year end 2017, there were very few VM-31 reports that provided any information on this topic.

**Life Actuarial (A) Task Force/ Health Actuarial (B) Task
Force
Amendment Proposal Form**

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

This APF was jointly prepared by the Office of Principle-Based Reserving, California Department of Insurance, and NAIC Support Staff.

This APF addresses recommendation #14 from VAWG's 10/24/2018 memo regarding the PBR Recommendations and Referrals to LATF.

2. Identify the document, including the date if the document is "released for comment," and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), VM-31 Section 3.C.3.i.

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on "track changes" in Word®) version of the verbiage. (You may do this through an attachment.)

See attached Appendix.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

See attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
1/30/19			
Notes: VM APF 2019-08 (CA OPBR/NAIC PBR)			

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Appendix

ISSUE:

At year end 2017, several companies had mistakes in the start and/or end dates of their mortality improvement calculations. Also, several companies utilized the wrong annual improvement percentages for mortality improvement for the industry tables.

SECTION:

VM-31 Section 3.C.3.i

REDLINE:

- i. Adjustments for Mortality Improvement – Description of and rationale for any adjustments to the mortality assumptions for mortality improvement up to the valuation date. Such description shall include the assumed start and end dates of the improvements and a table of the annual improvement percentage(s) used, separately for company experience and the industry basic table(s), along with a sample calculation of the adjustment (e.g. for a male preferred nonsmoker age 45).

REASONING:

Completeness of information.

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Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

This APF was jointly prepared by the Office of Principle-Based Reserving, California Department of Insurance, and NAIC Support Staff.

The APF addresses recommendation #22 from VAWG's 10/24/18 memo regarding PBR Recommendations and Referrals to LATF.

2. Identify the document, including the date if the document is "released for comment," and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), VM-31 Section 3.C.6.i

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on "track changes" in Word®) version of the verbiage. (You may do this through an attachment.)

See attached Appendix.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

See attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
1/30/19			
Notes: VM APF 2019-09 (CA OPBR/NAIC PBR)			

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Appendix

ISSUE:

2017 VM-31 reports provided, in some cases, incomplete information about NAER rates, and/or not enough information to explain unusual patterns of NAER rates

SECTION:

VM-31 Section 3.C.6.i

REDLINE:

i. NAER – For each model segment's deterministic reserve: If the gross premium valuation method outlined in VM-20 Section 4.A was used, a complete listing or graph of the path of calculated NAER for each model segment calculated for the deterministic reserve for all years of the projection and, if using the gross premium valuation method outlined in VM 20 Section 4.A an explanation of any abnormally high or low NAER values or unusual patterns over time.

REASONING:

Enable regulators to better understand the earned rates.

W:\National Meetings\2019\Spring\TF\LA\National Meeting\1.7 Consider VM Amendment Proposals Related to the VAWG Report\42. APF 2019-09.docx

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

This APF was jointly prepared by the Office of Principle-Based Reserving, California Department of Insurance, and NAIC Support Staff.

The APF addresses recommendation #28 from VAWG's 10/24/2018 memo regarding PBR Recommendations and Referrals to LATF. It also provides clarity in VM-20 Section 8.D.2.

2. Identify the document, including the date if the document is "released for comment," and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), VM-20 Section 8.D.2 and VM-31 Section 3.C.10.c

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on "track changes" in Word®) version of the verbiage. (You may do this through an attachment.)

See attached Appendix.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

See attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
1/30/19			
Notes: VM APF 2019-10 (CA OPBR/NAIC PBR)			

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Appendix

ISSUE:

VM-31 specifies that SERT results should be reported, but currently does not state that those results are needed on both a pre-reinsurance and post-reinsurance basis. Also, VM-20 Section 8.D.2 needs clarity.

SECTION:

VM-20 Section 8.D.2 and VM-31 Section 3.C.10.c

REDLINE:

VM-20 Section 8.D.2

2. The pre-reinsurance-ceded minimum reserve shall be calculated pursuant to the requirements of VM-20, using methods and assumptions consistent with those used in calculating the minimum reserve, but excluding the effect of ceded reinsurance.
 - a. If, on a pre-reinsurance-ceded basis~~when ceded reinsurance is excluded~~, a group of policies is not able to pass the exclusion tests pursuant to Section 6, then the required deterministic or stochastic reserves shall be calculated in determining the pre-reinsurance-ceded minimum reserve, even if not required for the minimum reserve.
 - b. The company shall use assumptions that represent company experience in the absence of reinsurance—for example, assuming that the business was managed in a manner consistent with the manner that retained business is managed—when computing such exclusion tests and reserves.
 - c. The requirement in Section 7.D.3 regarding the 98% to 102% collar does apply when determining the amount of starting assets excluding the effect of ceded reinsurance.

VM-31 Section 3.C.10.c

- c. SERT – For groups of policies for which the SERT is used, the following data~~results of the 16 scenarios and the test ratio~~ on a post-reinsurance-ceded basis calculated in accordance with VM-20 Section 6.A.2 and on a pre-reinsurance-ceded basis calculated in accordance with VM-20 Section 8.D.2:
 - i. The adjusted deterministic reserve for each of the 16 scenarios;
 - ii. The values of a, b, and c;
 - iii. The value of the test ratio (b-a)/c.

REASONING:

Clarity.

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Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

This APF was jointly prepared by the Office of Principle-Based Reserving, California Department of Insurance, and NAIC Support Staff.

New VM-20 Section 9.D.3.e and the edits to VM-31 Section 3.C.4 and VM-20 Section 9.D.6 address recommendations #16, #17, and #19 from VAWG's 10/24/2018 memo regarding PBR Recommendations and Referrals to LATF.

2. Identify the document, including the date if the document is "released for comment," and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), VM-20 Sections 9.D.3.e, 9.D.6 and VM-31 Sections 3.C.4.a, 3.C.4.c, 3.C.4.d, and 3.C.4.k.

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on "track changes" in Word®) version of the verbiage. (You may do this through an attachment.)

See attached Appendix.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

See attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
1/30/19rev3/27/19			
Notes: VM APF 2019-11 (CA OPBR/NAIC PBR)			

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Appendix

ISSUE:

The following VAWG Recommendations were made to address issues found during the review of the 2017 PBR Actuarial Reports:

- VAWG #16: Provide the definition of the expected basis used in all Actual to Expected (A/E) ratios shown in the PBR Actuarial Report.
- VAWG #17: Provide documentation of testing performed to determine whether there were post level term profits, including the assumptions used (premiums and anti-selective mortality and lapses) in the post level term period.
- VAWG #19: Provide results of testing performed to determine the direction of the lapse margin by duration.

SECTIONS:

VM-31 Section 3.C.4, VM-20 Section 9.D.3.e, and VM-20 Section 9.D.6:

VM-31 Section 3.C.4.a is being deleted since data sources are already requested in VM-31 Section 3.C.1.

VM-31 Section 3.C.4.c is being deleted since the method used to develop anticipated experience assumptions is already requested in VM-31 Section 3.C.1.

Re-numbered VM-31 3.C.4.c has edits to address VAWG Recommendation #16. Also, the required frequency for the A/E Ratios is changing to better align with the frequency of analysis for the policyholder behavior assumption.

Re-numbered VM-31 3.C.4.d and VM-20 Section 9.D.3 have edits to address VAWG Recommendation #19.

New VM-31 Section 3.C.4.k and revised VM-20 Section 9.D.6 have edits to address VAWG Recommendation #17.

REDLINE:

VM-31 Section 3.C.4

4. Policyholder Behavior – The following information regarding each policyholder behavior assumption used by the company in performing a principle-based valuation:

- a. Data Reliability Sources – Discussion of the Sources and reliability of the data and an explanation of why the data is ~~are~~ reasonable and appropriate for this purpose.

b. Sparse Data – Explanation of how assumptions were determined for periods that were based on less than fully credible or relevant data.

~~e. Anticipated Experience Assumptions~~ – ~~Description of method used to develop anticipated experience assumptions.~~

~~d. c. Actual to Expected Policyholder Behavior Analysis~~ – ~~At least once every three years, t~~The results of ~~an~~~~the most recently available~~ actual to expected (without margins) analysis, including:
i. Definitions of the expected basis used in all actual-to-expected ratios shown.
ii. Comments addressing the conclusions drawn from the analysis.

~~e. d. Margins and Sensitivity Tests~~ – ~~Margins used, methodology used to determine the margins and~~~~Rationale for the particular margins used~~ and a description of testing performed to determine the size and direction of the margins by duration, including how the results of sensitivity tests were used in connection with setting the margins.

~~f. e. Impact of NGE~~ – How changes in NGE affect the policyholder behavior assumptions.

~~g. f. Scenario-Dependent Dynamic Formulas~~ – Description of any scenario-dependent dynamic formula.

~~h. g. Changes from Prior Year~~ – Changes in anticipated experience assumptions and/or margins since the last PBR Actuarial Report.

~~i. h. Flexible Premiums~~ – For policies that give policyholders flexibility in timing and amount of premium payments, the results of sensitivity tests related to the following premium payment patterns: minimum premium payment, no further premium payment, pre-payment of premium assuming a single premium and pre-payment of premiums assuming level premiums.

~~j. i. Anti-Selective Lapses~~ – Specific to lapses, a description of and rationale regarding adjustments to lapse and mortality assumptions to account for potential anti-selection.

~~k. j. Competitor Rates~~ – Competitor rate definition and usage.

k. Post-Level Term Testing – For products with a level term period:

- i. Summary results of the ~~seriatim~~ comparison of the present value of post-level term cash inflows and outflows for the DR as required by VM-20 Section 9.D.6.
- ii. If this comparison showed there were post-level term profits, describe how anti-selection was handled in the post-level term period, including the prudent estimate premium, mortality, and lapse assumptions used.
- iii. If the comparison showed there were post-level term losses, confirm that the prudent estimate premium, mortality, and lapse assumptions for the post-level period were addressed in Section 3.C.1.a and were used in the reserve calculation.

VM-20 Section 9.D.3

3. Margins for Prudent Estimate Policyholder Behavior Assumptions

The company shall establish margins for policyholder behavior assumptions in compliance with Section 9.B subject to the following:

- a. To the extent that there is an absence of relevant and fully credible data, the company shall determine the margin such that the policyholder behavior assumption is shifted toward the conservative end of the plausible range of behavior, which is the end of the range that serves to increase the modeled reserve.
- b. The company must assume that policyholders' efficiency will increase over time unless the company has relevant and credible experience or clear evidence to the contrary.
- c. The company must reflect the data uncertainty associated with using data from a similar but not identical block of business to determine the anticipated experience assumption.
- d. The company shall establish a higher margin for partial withdrawal and surrender assumptions in the case where the company's marketing or administrative practices encourage anti-selection.
- d.e. The company shall perform testing to determine whether the modeled reserve is materially impacted by variations in the size and direction of the margin and shall do so using a methodology that recognizes that the appropriate size and/or direction of a margin in the early durations may be quite different from that in later durations. If the impact on the modeled reserve is material, the company shall establish margins accordingly.

Guidance Note: For example, the lapse rate margins on a level term plan may increase lapses in the first few years ~~(due to non-recovered acquisition costs)~~ but decrease lapses for the remainder of the level term period ~~(due to higher death claims)~~.

VM-20 Section 9.D.6

Post-Level Term Period

- a. For the calculation of the deterministic reserve, for a term life policy issued Jan. 1, 2017 and later in which level or near level premiums are guaranteed or expected for a specified duration, followed by a substantial premium increase, for the period following that substantial premium increase, the company shall compare the present value of cash inflows to the present value of cash outflows. If the present value of cash inflows exceeds the present value of cash outflows for the policy, then the company shall assume a 100% lapse rate at the end of the level term period so that no post-level term profits are reflected in the deterministic reserve calculation. If the present value of cash inflows is less than the present value of

cash outflows for the policy, the post-level term losses shall be reflected in the deterministic reserve calculation.

- b. For the calculation of the stochastic reserve for a term life policy subject to Section 9.D.6.a and for the calculation of the deterministic reserve and the stochastic reserve for a term policy issued before Jan. 1, 2017 ~~For a term life policy that guarantees in which~~ level or near level premiums are guaranteed or expected for ~~until a specified duration, followed by a material substantial premium increase, or for a policy for which level or near level premiums are expected for a period, followed by a material premium increase,~~ for the period following that substantial premium increase, the lapse and mortality assumptions shall be adjusted, or margins added, such that the policy's present value of cash inflows in excess of cash outflows assumed shall be limited to reflect the relevance and credibility of the experience, approaching zero for periods where the underlying data have low or no credibility or relevance.

~~For the calculation of the deterministic reserve, for a term life policy issued Jan. 1, 2017, and later that guarantees level or near level premiums for more than five years until a specified duration followed by a material premium increase, or for a policy for which level or near level premiums are expected for more than five years, followed by a material premium increase, for the period following that premium increase, the cash inflows or outflows shall be adjusted such that the present value of cash inflows does not exceed the present value of cash outflows.~~

Guidance Note: A seriatim comparison of the present value of post-level term cash inflows and outflows must be performed. For policies subject to Section 9.D.6.a, the 100% lapse rate assumption at the end of the level term period applies only to those policies with post-level term profits. Similarly, for policies subject to Section 9.D.6.b, adjustments to limit post-level term profits must be made at a seriatim level, and post-level term losses must be reflected in the reserve calculations.

This does not preclude a company from using a simplified approach consistent with VM-20 Section 2.G. For example, testing on a representative number of key cells could be performed to verify that no post-level term profits are reflected in the deterministic reserve calculation.

Guidance Note: Section 9.D.6.b applies to a term policy issued before Jan. 1, 2017 that is valued using Actuarial Guideline XLVIII or Model 787.

REASONING:

These edits to VM-20 and VM-31 will fulfill the listed recommendations from VAWG.

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force

Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Staff of Office of Principle-Based Reserving, California Department of Insurance – Clarification of PIMR language
2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), VM-01 and VM-20 Section 7.D.7
3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

Please see Appendix attached. This change is for clarification and is thus **non-substantive**.
4. State the reason for the proposed amendment? (You may do this through an attachment.)

Please see attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
1/30/19			
Notes: VM APF 2019-12 (CA OPBR/NAIC PBR)			

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Appendix

ISSUE:

In VM-01 PIMR is currently defined as if it has already been allocated to model segments. We feel that language is needed that starts with PIMR at the company level (i.e. PBR business and non-PBR business) and then carves out the PBR portion thereof and allocates that portion among the model segments.

SECTIONS:

VM-01, VM-20 Section 7.D.7

REDLINE:

VM-01

- The term “pretax interest maintenance reserve” (PIMR) means the statutory interest maintenance reserve liability ~~adjusted to a pretax basis for each model segment~~ at the projection start date, adjusted to a pretax basis.

VM-20, Section 7.D.7

7. Under Section 7.D.1, any PIMR balance allocated to the group of one or more policies being modeled at the projection start date is included when determining the amount of starting assets and is then subtracted out, under Section 4 and Section 5, as the final step in calculating the modeled reserves. The determination of the PIMR allocation is subject to the following:
 - a. The amount of PIMR allocable to each model segment is the approximate statutory interest maintenance reserve liability that would have developed for the model segment, assuming applicable capital gains taxes are excluded. The allocable PIMR may be either positive or negative.
 - b. In performing the allocation to each model segment, the company shall use a reasonable approach to allocate any portion of the total company balance that is disallowable under statutory accounting procedures (i.e., when the total company balance is an asset rather than a liability). The company shall use a reasonable approach to allocate the total company balance between PBR and non-PBR business and then allocate the PBR portion among model segments in an equitable fashion.
 - c. The company may use a simplified approach to allocate the PIMR, if the impact of the PIMR on the minimum reserve is minimal.

REASONING:

Clarity.

**Life Actuarial (A) Task Force/ Health Actuarial (B) Task
Force
Amendment Proposal Form**

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

This APF was jointly prepared by the Office of Principle-Based Reserving, California Department of Insurance, and NAIC Support Staff.

This APF addresses recommendation #33 from VAWG's 10/24/2018 memo regarding PBR Recommendations and Referrals to LATF.

2. Identify the document, including the date if the document is "released for comment," and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), VM-20, inserting Guidance Note following Section 6.A.2.a

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on "track changes" in Word®) version of the verbiage. (You may do this through an attachment.)

Please see the attached Appendix.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

Please see the attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
1/30/19			
Notes: VM APF 2019-13 (CA OPBR/NAIC PBR)			

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Appendix

ISSUE:

In the 2017 PBR Actuarial Reports, several companies incorrectly described the numerator in the SERT as the biggest difference from the base scenario. The numerator should be the largest adjusted DR for scenarios other than the base scenario, minus the adjusted DR for the base scenario (scenario 9). Using the biggest difference from the base scenario can result in an incorrect SERT ratio.

SECTIONS:

VM-20, Section 6.A.2.a

REDLINE:

VM-20 Section 6.A.2.a

2. Stochastic Exclusion Ratio Test

- a. In order to exclude a group of policies from the stochastic reserve requirements using the method allowed under Section 6.A.1.a, a company shall demonstrate that the ratio of $(b-a)/c$ is less than 6% where:
 - i. a = the adjusted deterministic reserve described in Section 6.A.2.b.i using economic scenario 9, the baseline economic scenario, as described in Appendix 1.E.
 - ii. b = the largest adjusted deterministic reserve described in Section 6.A.2.b.i under any of the other 15 economic scenarios described in Appendix 1.E.
 - iii. c = an amount calculated from the baseline economic scenario described in Appendix 1.E that represents the present value of benefits for the policies, adjusted for reinsurance by subtracting ceded benefits. For clarity, premium, ceded premium, expense, reinsurance expense allowance, modified coinsurance reserve adjustment and reinsurance experience refund cash flows shall not be considered “benefits,” but items such as death benefits, surrender or withdrawal benefits and policyholder dividends shall be. For this purpose, the company shall use the benefits cash flows from the calculation of quantity “a” and calculate the present value of those cash flows using the same path of discount rates as used for “a.”

Guidance Note: Note that the numerator should be the largest adjusted DR for scenarios other than the baseline economic scenario, minus the adjusted DR for the baseline economic scenario. This is not necessarily the same as the biggest difference from the adjusted DR for the baseline economic scenario, or the absolute value of the biggest difference from the adjusted DR for the baseline economic scenario, both of which could lead to an incorrect test result.

REASONING:

The guidance note will provide additional clarity so that companies can determine the appropriate ratio.

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Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

This APF was jointly prepared by the Office of Principle-Based Reserving, California Department of Insurance and NAIC Support Staff.

This APF addresses recommendation #1 from VAWG's 10/24/2018 memo regarding PBR Recommendations and Referrals to LATF. VM-G currently does not require companies to retain governance documentation on file. This APF adds this requirement and requires that documentation be available upon request.

2. Identify the document, including the date if the document is "released for comment," and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), VM-31 Section 3.B.3.g, VM-G Section 1.E

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on "track changes" in Word®) version of the verbiage. (You may do this through an attachment.)

Please see Appendix attached.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

Please see attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
2/11/19			
Notes: VM APF 2019-14 (CA OPBR/NAIC PBR 4_19)			

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Appendix

ISSUE:

Additional documentation on governance.

SECTION:

See above.

REDLINE:

VM-31, (new) Section 3.B.3.g

g. Governance –A statement indicating that governance documentation, including that required by VM-G Section 2.A.5, Section 3.A.6, and Section 4.A.3, is available upon request.

(new) VM-G Section 1.E

E. The company shall retain governance documentation on file for at least seven years from the valuation date, including that required by VM-G Section 2.A.5, Section 3.A.6, and Section 4.A.3. This documentation shall be available upon request.

REASONING:

Fulfill VAWG item 1.

**Life Actuarial (A) Task Force/ Health Actuarial (B) Task
Force
Amendment Proposal Form**

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

This APF was jointly prepared by the Office of Principle-Based Reserving, California Department of Insurance, and NAIC Support Staff.

This APF addresses recommendations #18, #29, #30, and the third drafting consideration in #5 from VAWG's 10/24/2018 memo regarding PBR Recommendations and Referrals to LATF. It also adds reporting requirements for PIMR.

2. Identify the document, including the date if the document is "released for comment," and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition) with adopted amendments (APF 2018-54 and APF 2019-05) to VM-31 Section 3.C.11.k.

This APF is editing VM-31 Section 3.C.11.

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on "track changes" in Word®) version of the verbiage. (You may do this through an attachment.)

Please see the attached Appendix.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

Please see the attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
2/26/19			
Notes: APF 2019-15			

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Appendix

ISSUE:

The following VAWG recommendations were made to address issues found during the review of the 2017 PBR Actuarial Reports:

- VAWG #18: Provide evidence that the lapse margin increases the reserve.
- VAWG #29: State whether sensitivity testing was done using prudent estimate or anticipated experience assumptions.
- VAWG #30: Provide the dates used to calculate NPR, DR, and SR, along with the date of the assets, liabilities, yield curve, spreads, and default costs.
- VAWG #5 (drafting consideration): State the VM-20 Section 2.G requirement in VM-31

Comments embedded within the redline section indicate the applicable VAWG recommendation addressed by each section.

This APF adds reporting requirements on how PIMR was derived and allocated among model segments.

SECTIONS:

VM-31, Section 3.C.11

REDLINE:

11. Additional Information – The following additional information:

- a. Impact of Margins for Each Risk Factor –For each group of policies for which a separate deterministic reserve is calculated, the impact of margins on the deterministic reserve for each risk factor, or group of risk factors, that has a material impact on the deterministic reserve, determined by subtracting (i) from (ii):
- i. The deterministic reserve for that group of policies, but with the reserve calculated based on the anticipated experience assumption for the risk factor and prudent estimate assumptions for all other risk factors.
- ii. The deterministic reserve for that group of policies as reported.

Guidance Note: By definition, margins must increase the reserve, so the impact of each margin, as calculated by subtracting (i) from (ii) above, must be positive.

- d. Sensitivity Tests – ~~An explanation of~~ For each distinct product type for which margins were established:

Commented [FJ1]: Partially addresses VAWG Recommendation 18 (the rest of the recommendation is addressed in VM-31 Section 3.C.11.d)

Commented [FJ2]: (d.ii) addresses VAWG Recommendation 29

The remainder of (d) partially addresses VAWG Recommendation 18 (the rest of the recommendation is addressed in the VM-31 Section 3.C.11.a Guidance Note)

- i. List the specific sensitivity tests performed for each risk factor or combination of risk factors;
- ii. Indicate whether the reserve was calculated based on the anticipated experience assumptions or prudent estimate assumptions for all other risk factors while performing the tests;
- iii. Provide the numerical results of the sensitivity tests; and
- iv. Explain how the results of sensitivity tests and varying assumptions were used or considered in developing assumptions, including a description of, results of and action taken with respect to sensitivity tests performed.

Guidance Note: If a model segment contains multiple distinct product types (e.g. ART, Level Term), (i) through (iv) should be done for each product.

h. Calculations as of the Valuation Date— The following information:

- i. A statement confirming that the NPR was calculated based on policies in force as of the valuation date; and
- ii. If the DR and/or SR were calculated as of the valuation date, a statement confirming that the calculations were based on the following items: policies in force, starting assets, and the starting yield curve as of the valuation date, and the prescribed Table A and Tables F through J in effect on the valuation date.

Commented [FJ3]: New section (h) and (i) address VAWG Recommendation 30

~~h.i. Use of Calculations as of a Date Preceding the Valuation Date – If the company uses a date that precedes the valuation date to calculate the reserves, the company shall (i.e. if the dates of any of the items listed in Section 3.C.11.h.ii preceded the valuation date): state the date used and explain why the use of such date will not produce a material change in the results if the results were based on the valuation date. Such explanation shall describe the process the qualified actuary used to determine the adjustment, the amount of the adjustment and the rationale for why the adjustments are appropriate.~~

- i. The dates used for each item listed in Section 3.C.11.h.ii, separately for the DR and/or SR.
- ii. A description of the methodology used to determine the adjustment required by VM-20 Section 2.E, along with the adjustment amount and an explanation that justifies why it produces a reserve that is not materially less than a reserve calculated as of the valuation date.

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~~h.j. Approximations and Simplifications, and Modeling Efficiency Techniques— Description of any A description of each approximations and, simplifications, or modeling efficiency technique used in reserve calculations, and a statement that the required VM-20 Section 2.G demonstration is available upon request and shows that 1) the use of each approximation, simplification, or modeling efficiency technique does not understate the~~

Commented [FJ4]: Addresses the third drafting consideration in VAWG Recommendation 5, which was to re-state the VM-20 Section 2.G requirements in VM-31. Added Modeling Efficiency Techniques for completeness.

reserve by a material amount, and 2) the expected value of the reserve is not less than the expected value of the reserve calculated that does not use the approximation, simplification, or modeling efficiency technique.

j-k. ULSG Detail – Breakdown of ULSG reserve results (NPR, DR, and SR) into Variable UL, Indexed UL, and regular UL components, both pre- and post-reinsurance, along with case counts and face amounts.

Any given UL policy is to be classified in its entirety as either Variable UL, Indexed UL, or regular UL. If a ULSG policy satisfies the definition of a variable life insurance policy (even if it contains options for indexed funds or fixed funds), that policy should be classified as variable for this VM-31 reporting purpose. If it does not, but it satisfies the definition of an Indexed UL policy, it should be classified as Indexed.

l. PIMR – Description of the methodology used to derive the PIMR balance on the projection start date and allocate it among the model segments, and the dollar amount of each such portion of PIMR.

Commented [FJ5]: Not a VAWG Recommendation. Relates to APF 2019-12, which was exposed for comments until 3/8/2019 during the 2/14/2019 LATF meeting.

REASONING:

These edits to VM-31 will fulfill the listed recommendations from VAWG.

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Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

This APF was jointly prepared by the Office of Principle-Based Reserving, California Department of Insurance, and NAIC Support Staff.

Proposal to implement VAWG recommendations #35 and #36, i.e. need for greater clarity in the VM-20 explanation of rules for grading from company experience to industry table.

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), VM-20 Sections 9.C.6.a, 9.C.6.b, 9.C.3.c.ii, 9.C.4.b.ii and VM-31 Sections 3.C.3.k, 3.C.3.c.ii

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached Appendix.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

See attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
2/27/19			
Notes: APF 2019-16 (CA OPBR/NAIC PBR)			

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Appendix

ISSUE:

At 2017 year end, at least 6 companies misunderstood the rules for grading from company experience mortality rates to an industry table. We propose a different presentation (more of a formula-based one) aimed at making things clearer, including adding a Guidance Note with examples.

SECTIONS:

VM-20 Section 9.C.6 (parts a and b) and VM-31 Section 3.C.3.k
Reference changes in VM-20 Section 9.C.3.c.ii, VM-20 Section 9.C.4.b.ii, and VM-31 Section 3.C.3.c.ii

REDLINE:

VM-20 Section 9.C.6

6. Process to Determine Prudent Estimate Assumptions

- a. If applicable industry basic tables are used in lieu of company experience, or if the level of credibility of the data as provided in Section 9.C.4 is less than 20%, the prudent estimate assumptions for each mortality segment shall equal the respective mortality rates in the applicable industry basic tables as provided in Section 9.C.3, including any applicable improvement pursuant to Section 9.C.3.g, plus the prescribed margin as provided in Section 9.C.5.c and any additional margin as provided in Section 9.C.5.d., plus any applicable additional margin pursuant to Section 9.C.5.d.v and/or Section 9.C.5.d.vi.
- b. If the company determines company experience mortality rates, the following process shall be used to develop prudent estimate assumptions ~~will be determined as follows:~~
 - i. Determine the values of A, B, and C from the Grading Table below, based on the level of credibility of the data as provided in Section 9.C.4. For each mortality segment, use the company experience mortality rates (as defined in Section 9.C.2) for policy durations in which there exists sufficient company experience data (as defined below in paragraph ii), plus the prescribed margin as provided in Section 9.C.5.b and any additional margin as provided in Section 9.C.5.d.
 - ii. In determining the sufficient data period, the company shall first identify the last policy duration at which sufficient company experience data exists (using all the sources defined in Section 9.C.2.b). The sufficient data period then ends at the

last policy duration that has 50 or more claims (i.e., no duration beyond this point has 50 claims or more) subject to the limits in Column 2 of the applicable table in Section 9.C.6.b.iii.b. The sufficient data period may be determined at a more aggregate level than the mortality segment if the company based its mortality on aggregate experience and then used a methodology to subdivide the aggregate class into various sub-classes or mortality segments.

Guidance Note: The objective is to use the last duration at which there are 50 or more claims—not the first duration in which there are less than 50 claims.

iii. Beginning in the first policy duration after the sufficient data period, use the guidelines in the applicable table below to linearly grade from the company experience mortality rates with margins to 100% of the applicable industry basic table with margins. (The determination of the applicable industry basic table is described in Section 9.C.3.) Grading must begin and end no later than the policy durations shown in the applicable table below, based on the level of credibility of the data as provided in Section 9.C.4. For valuations on or after Jan. 1, 2015, if the credibility level is less than 20%, the company is not allowed to use its company experience and must use 100% of the applicable industry table.

a) — Grading must begin no later than the number of years in column (3) after the first policy duration after the sufficient data period (as defined in Section 9.C.6.b.ii).

b) Grading to 100% of the industry table must be completed no later than the number of years in column (4) after the first policy duration after the sufficient data period (as defined in Section 9.C.6.b.ii).

Table A:

Effective for Valuations Dec. 31, 2016, and Prior

Credibility of company data (as defined in Section 9.C.4 above), rounded to the nearest %	Maximum # of years for data to be considered sufficient (2)	Maximum # of years in which to begin grading after sufficient data no longer exists (3)	Maximum # of years in which the assumption must grade to 100% of an applicable industry table (from the duration where sufficient data no longer exists) (4)
10%–19%	10	2	10
20%–39%	20	4	15
40%–59%	30	6	18
60%–79%	40	8	20
80%–100%	50	10	25

Table B:

Permissible for Valuations on and After Jan. 1, 2017, but Before Jan. 1, 2020

———— (in the alternative, company may elect to use Table C below)

Credibility of company data (as defined in Section 9.C.4 above), rounded to nearest %	Maximum # of years for data to be considered sufficient (2)	Maximum # of years in which to begin grading after sufficient data no longer exists —— (3)	Maximum # of years in which the assumption must grade to 100% of an applicable industry table (from the duration where sufficient data no longer exists)* (4)
20%–39%	10	2	8*
40%–59%	20	4	12*
60%–79%	35	7	17*
80%–100%	50	10	25*

Additional standards applicable only to Table B:

The maximum # of years in which the assumption must grade to 100% of an applicable industry table shall be the lesser of: (a) the appropriate number of years stated in chart above; and (b) the number of years of sufficient data + 15 times the credibility percentage applicable to column (1) in the chart above. This maximum # of years figure shall be rounded to the nearest whole number.

For example, if the number of years of sufficient data was nine, and the credibility percentage over the sufficient data period was 80%, (b) would equal $9 + 15 * (80\%) = 21$. The maximum # of years in which the assumption must grade to 100% of an applicable industry table (from the duration where sufficient data no longer exists) would therefore be 21.

Grading Table C:

Mandatory for Valuations on and After Jan. 1, 2020

Credibility of company data (as defined in Section 9.C.4 above), rounded to nearest % (1)	Maximum # of years for data to be considered sufficient A (2)	Maximum # of years in which to begin grading after sufficient data no longer exists B (3)	Maximum # of years in which the assumption must grade to 100% of an industry table (from the duration where sufficient data no longer exists) C (4)

20%–30%	10	2	8
31%–32%	11	3	8
33%–34%	12	3	8
35%–36%	13	3	9
37%–38%	14	3	9
39%–40%	15	3	10
41%–42%	16	3	10
43%–44%	17	3	10
45%–46%	18	3	11
47%–48%	19	3	11
49%	20	3	11
50%	20	4	12
51%	21	4	12
52%–53%	22	4	12
54%	23	4	13
55%	24	4	13
56%	25	4	13
57%	25	5	13
58%	26	5	14
59%	27	5	14
60%–61%	28	5	14
62%	29	5	15
63%	30	6	15
64%–65%	31	6	15
66%	32	6	16
67%	33	6	16
68%–69%	34	6	16
70%	35	7	17
71%	36	7	17
72%	37	7	17
73%	38	7	18
74%	39	7	18

75%	40	7	18
76%	41	7	19
77%	42	8	19
78%	43	8	19
79%	44	8	20
80%	45	8	20
81%	46	8	20
82%	47	8	21
83%	48	9	21
84%	49	9	21
85%–87%	50	9	22
88%–89%	50	9	23
90%	50	10	23
91%–93%	50	10	24
94%–100%	50	10	25

~~iv. Notwithstanding the guidelines in paragraph b.iii above, the company must grade into 100% of the applicable industry table mortality with margins by the later of attained age 100 or 15 years after policy underwriting.~~

ii. Determine the value of D, which represents the last policy duration that has a substantial volume of claims, using the chosen data source(s) as specified in Section 9.C.2.b. D is defined as the last policy duration at which there are 50 or more claims (not the first policy duration in which there are fewer than 50 claims), not counting riders. This may be determined at either the mortality segment level or at a more aggregate level if the mortality for the individual mortality segments was determined using an aggregate level of mortality experience pursuant to Section 9.C.2.d.

iii. Establish the sufficient data period S, as follows:

$$S = \min\{A, D\}$$

iv. For each issue age x, determine the values of M, E, Z, and G, where:

$M = \min\{(S + B), 100 - x\}$ = the maximum number of policy durations for which the company is permitted to use 100% of the company experience mortality rates

E = the last policy duration at which the company chooses to use 100% of the company experience mortality rates, equal to any policy duration chosen by the company that is less than or equal to M

$Z = \min\{(S + C), 100 - x\}$ = the last policy duration at which the company is permitted to use less than 100% of the industry mortality rate

G = the last policy duration at which the company chooses to use less than 100% of the industry mortality rate, which must be greater than or equal to E and less than or equal to Z

- v. For each policy in a given mortality segment, from the start of the projection through policy duration E , the prudent estimate mortality assumptions are the company experience mortality rates (as defined in Section 9.C.2) plus the prescribed margin pursuant to Section 9.C.5.b, plus any additional margin pursuant to Section 9.C.5.d.
- vi. Beginning in the first policy duration after policy duration E , the prudent estimate mortality assumptions for each policy in a given mortality segment are determined as a weighted average of the company experience mortality rates with margins and the applicable industry basic table with margins, in which the weights on the company rates grade linearly from 100% down to 0%. This grading must be completed (i.e., must reach 100% of industry table) no later than the beginning of the first policy duration after policy duration Z . (The determination of the applicable industry basic table is described in Section 9.C.3). Thus the prudent estimate mortality rate, prior to any adjustments pursuant to Sections 9.C.6.c, 9.C.6.d, and 9.C.6.e below, is:

$$(W_t)(\text{com}Q_{[x]+t-1}) + (1-W_t)(\text{ind}Q_{[x]+t-1})$$

Where

$$\begin{aligned} W_t &= 1 \text{ for } 1 < t < E \\ &= [G+1-t] / [G+1-E] \text{ for } E < t < G \\ &= 0 \text{ for } t > G \end{aligned}$$

$\text{com}Q_{[x]+t-1}$ is the company experience mortality rate, including any applicable improvement pursuant to Section 9.C.2.g, with margin for policy year t

$\text{ind}Q_{[x]+t-1}$ is the industry table mortality rate, including any applicable improvement pursuant to Section 9.C.3.g, plus margin for policy year t

- vii. For each policy within a given mortality segment, the sufficient data period and grading period and policy durations are measured from the issue date of the policy, not from the valuation date. The projection for a policy commences at the valuation date, using the prudent estimate mortality rate for whatever duration the policy is in at that point.

Guidance Note: The following examples for a policy issued at age 35 on 1/1/2021 illustrate how grading is to be performed.

Example 1

Suppose the valuation date is 12/31/2025. Assume a credibility score of 96%. Based on the Grading Table:

A=50

B=10

C=25

Assume the last policy duration that has 50 or more claims is 30, so D=30.

$S = \min\{A, D\} = \min\{50, 30\} = 30 = \text{sufficient data period}$

$M = \min\{(S + B), 100 - x\} = \min\{(30 + 10), 65\} = 40$

E = 40

$Z = \min\{(S + C), 100 - x\} = \min\{(30 + 25), 65\} = 55$

G = 55

In this example, the company would set the prudent estimate mortality assumption at 100% of company experience mortality, plus the prescribed margin, plus any additional margin, for policy durations 1 through 40. (However, policy durations 1-5 are already in the past and would not come into play. For this particular policy, only the first 35 years of the projection (policy durations 6-40) would use prudent mortality rates that are 100% company experience. Starting in policy duration 41, the company would linearly grade from the company experience mortality rates with margins to 100% of the applicable industry basic table with margins. The company must be using 100% of the applicable industry basic table with margins no later than the beginning of policy duration 56. Thus for policy duration 47, for instance, the prudent estimate mortality rate would be:

$$\frac{(9/16)(\text{com}Q_{[35]+47-1}) + (7/16)(\text{ind}Q_{[35]+47-1})}{1}$$

At a valuation date two years later at 12/31/2027, if a new mortality study had not been run and S was still 30, only the first 33 years of the projection (policy durations 8-40) would be using prudent mortality rates that are 100% company experience.

More newly issued policies with issue age 35 would be using more years of 100% company experience than the policy in this example.

Example 2

Suppose that for the same case the company elected to begin grading five years earlier than required, but not end the grading any sooner than required. In this case, grading must be completed no later than the beginning of policy duration 56, just as in the example above. Electing to begin grading early does not change the policy duration by which grading to 100% of the applicable industry basic table with margins must be completed. The policy duration 47 prudent mortality rate would be:

$$\frac{(9/21)(\text{com}Q_{[35]+47-1}) + (12/21)(\text{ind}Q_{[35]+47-1})}{1}$$

Example 3

Same as Example 1, but company elected to end grading seven years earlier than required. The company would therefore reach 100% of industry rates at the start of policy duration 49 instead of the start of policy duration 56. In this case, the company would set the prudent

estimate mortality assumption at 100% of company experience mortality, plus the prescribed margin, plus any additional margin, for policy durations 1 through 40. The policy duration 47 prudent rate would be:

$$\frac{(2/9)(\text{com}Q_{[35]+47-1}) + (7/9)(\text{ind}Q_{[35]+47-1})}{1}$$

VM-31 Section 3.C.3.k

k. Setting Prudent Estimate Assumptions for Mortality – If company experience is used, a summary of the approach used to determine the final set of prudent estimate assumptions for mortality, including:

- i. The start and ending period of time used to grade company experience to the industry basic table, including the approach used to grade company experience mortality rates to the industry table for advanced ages (attained age 100 and up or 15 years after policy underwriting).

VM-20 Section 9.C.3.c.ii

- ii. The applicable industry basic table for grading company experience mortality to industry experience mortality using the grading method described in Section 9.C.6.b.iii.

VM-20 Section 9.C.4.b.ii

- ii. Determine the grading period (based on the credibility percentage shown in the first column ~~(1)~~ in the ~~applicable table~~ Grading Table in Section 9.C.6.b.iii) for grading company experience mortality rates into the applicable industry basic table.

VM-31 Section 3.C.3.c.ii

- ii. For mortality segments where company experience with margins is graded to industry basic table with margins per VM-20 Section 9.C.6.b.iii, the rationale for the choice of industry basic table to the extent not covered in Section 3.C.3.e and Section 3.C.3.f below.

REASONING:

- (1) Table A and B are obsolete for the 2020 Valuation Manual.
- (2) The remainder of the section needed greater clarity.
- (3) The 15 year rule for advanced issue ages has been eliminated for simplicity.

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Staff of Office of Principle-Based Reserving, California Department of Insurance – Make VM-20 consistent with VM-21 as to revenue-sharing rules.

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), VM-20 Section 9.G.8.b

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached Appendix.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

See attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
2/27/19			
Notes: APF 2019-18 (CA APF DA)			

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Appendix

ISSUE:

VM-21 revenue sharing rules are changing, and VM-20 ought to be changed in the same manner.

SECTION:

VM-20 Section 9.G.8.b

REDLINE:

b. Is the company's estimate of non-contractually guaranteed net revenue-sharing income multiplied by the following factors:

- i. 1.0 in the first projection year.
- ii. ~~0.9~~0.95 in the second projection year.
- iii. ~~0.8~~0.90 in the third projection year.
- iv. ~~0.7~~0.85 in the fourth projection year.
- v. ~~0.6~~0.80 in the fifth and all subsequent projection years.
- vi. ~~0.5 in the sixth and all subsequent projection years. The resulting amount of non-contractually guaranteed net revenue-sharing income after application of this factor shall not exceed 0.25% per year on separate account assets in the sixth and all subsequent projection years.~~

REASONING:

Consistent rule.

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Staff of Office of Principle-Based Reserving, California Department of Insurance – Clarify Guidance Note about expense spreading.

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), VM-20 Section 9.E.1.b

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached Appendix. This APF is for clarification and is thus **non-substantive**.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

See attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
2/27/19			
Notes: APF 2019-19 (CA APF-DB rev.)			

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Appendix

ISSUE:

1. Guidance Note refers to “considerations above” and it is not clear what that is alluding to.

SECTION:

VM-20 Section 9.E.1

REDLINE:

- a. Shall use expense assumptions for the deterministic and stochastic scenarios that are the same except for differences arising from application of inflation rates.
- b. May spread certain information technology development costs and other capital expenditures over a reasonable number of years in accordance with accepted statutory accounting principles as defined in the Statements of Statutory Accounting Principles.

Guidance Note: Care should be taken with regard to the potential interaction with the inflation assumption ~~considerations~~ above.

REASONING:

Clarity.

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Staff of Office of Principle-Based Reserving, California Department of Insurance – Specify date associated with 2008 VBT Table

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), VM-20 Section 9.C.3.g

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached Appendix. This change is for clarification as such is **non-substantive**.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

See attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
2/27/19			
Notes: APF 2019-21 (CA APF-DD rev)			

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Appendix

ISSUE:

VM-20 specifies the date of the 2015 VBT Table but not the date of the 2008 VBT Table.

SECTION:

VM-20 Section 9.C.3.g

REDLINE:

- g. Mortality improvement shall not be incorporated beyond the valuation date. However, historical mortality improvement from the date of the industry basic table (e.g., January 1, 2008 for the 2008 VBT, and July 1, 2015, for the 2015 VBT) to the valuation date may be incorporated using the improvement factors for the applicable industry basic table as determined by the SOA and published on the SOA website, <https://www.soa.org/research/topics/indiv-val-exp-study-list/> (Mortality Improvement Rates for AG-38 for Year-End YYYY).

Guidance Note: The improvement factors for the industry basic table will be determined by the SOA. YYYY is the calendar year of valuation.

REASONING:

The differing dates for the different tables warrant being spelled out, to help companies avoid mistakes. Both dates have been confirmed by the SOA. In particular, the 2008 VBT report (<https://www.soa.org/Files/Research/Exp-Study/research-2008-vbt-report.pdf>) states at the top of page 15, “The resulting mortality tables were then projected forward to the beginning of year 2008.”

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Staff of Office of Principle-Based Reserving, California Department of Insurance – Need for limiting modeling of option elections to those that could contain an element of anti-selection.

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), VM-20 Section 9.D

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached Appendix. These changes are for clarification and as such are **non-substantive**.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

See attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
2/27/19			
Notes: APF 2019-22 (CA APF-DE rev1)			

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Appendix

ISSUE:

A certain percentage of policyholders will exercise contractual rights to decrease their face amount or increase their face amount (subject to evidence) or to change UL death benefit options, but it is not expected or desired that such options as these should be modeled for PBR, since there is no risk of anti-selection associated with them. There may be other examples besides these.

SECTIONS:

VM-20 Section 9.D

REDLINE:

VM-20 Section 9.D.1.f

f. Are assigned to policies in a manner that provides an appropriate level of granularity.

Guidance Note: Anticipated experience policyholder behavior assumptions for policyholder behavior risk factors include, but are not limited to, assumptions for premium payment patterns, premium persistency, surrenders, withdrawals, allocations between available investment and crediting options, benefit utilization, and other option elections that could contain an element of anti-selection. For fixed premium products, many of the premium payment patterns, premium persistency and partial withdrawal behavior assumptions may not apply and do not need to be considered.

REASONING:

Avoid unnecessary complexity.

In this exposure, VM-31 Section 3.C.1.a asks for the anticipated experience assumptions, margins, and prudent estimate assumptions used in the model, provided in Excel format. LATF encourages suggestions, for each material assumption, regarding an appropriate level of detail and format that would give regulators the information they need to understand each assumption. Comments for the other sections addressed in this APF are, of course, also welcome.

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

This APF was jointly prepared by the Office of Principle-Based Reserving, California Department of Insurance, and NAIC Support Staff.

This APF addresses recommendations #6 and #7, and partially addresses recommendation #4 from VAWG's 10/24/2018 memo regarding PBR Recommendations and Referrals to LATF.

2. Identify the document, including the date if the document is "released for comment," and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), VM-31, editing Sections 3.C.1 and 3.C.3.I
Valuation Manual (January 1, 2019 edition), VM-20, editing Section 9.C.2.e

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on "track changes" in Word®) version of the verbiage. (You may do this through an attachment.)

Please see the attached Appendix for red-lined verbiage. Note that this APF also includes a template.

Section VII of the VAWG paper entitled *2017 Principle-Based Reserves (PBR) Review Report* noted potential ways to convey information more efficiently and effectively, including the use of tables or spreadsheets as appropriate. To support this effort, four templates are under development.

The intent is that all four templates would be contained in a single spreadsheet that companies would download from the NAIC website and provide as part of their PBR Actuarial Report.

This APF includes two spreadsheets:
PBR Actuarial Report Templates (Template C).xlsx
Sample PBR Actuarial Report Templates (Template C).xlsx

The first spreadsheet will eventually contain all four PBR Actuarial Report templates along with instructions on how to complete them. Template C is included in the spreadsheet for this APF.

The second spreadsheet will eventually contain the same four templates filled out with sample data illustrating how they would look when completed. For this APF, an example for Template C is included in the spreadsheet.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

Please see the attached Appendix.

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NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
2/26/19			
Notes: APF 2019-23 (CA OPBR/NAIC PBR)			

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Appendix

ISSUE:

The following VAWG recommendations were made to address issues found during the review of the 2017 PBR Actuarial Reports:

- VAWG #6: Provide a complete listing of anticipated experience assumptions, margins, and final prudent estimate assumptions, in a spreadsheet.
- VAWG #7: Provide the date of the most recent experience study for each major risk factor, and years of data included in the study.
- VAWG #4 (Drafting Consideration) – Ideally, the report would include a thorough treatment of the different underwriting approaches used, including a description of the process, the period of time used, and the level of additional margin, if any, to reflect any increased uncertainty with newer approaches.
- VM-31 Reporting Considerations: Section VII of the “VAWG 2017 PBR Review Report” identified the use of spreadsheets as an effective and efficient means by which companies can fulfill VM-31 requirements.

SECTIONS:

VM-31 Sections 3.C.1 and 3.C.3.I, PBR Actuarial Report Templates.xlsx, Sample PBR Actuarial Report Templates.xlsx

VM-20 Section 9.C.2.e

REDLINE:

VM-31 Section 3.C.1

1. Assumptions and Margins – ~~A summary of~~ Details on the valuation assumptions and margins, including:
 - a. ~~Listing Tables – A listing of the final~~ For each material risk, the anticipated experience assumptions, margins, and prudent estimate assumptions used in the model, provided in Excel format. A complete table of reinsurance premiums is not required. If applicable, provide upon request a sample calculation demonstrating the methodology used to determine future reinsurance premiums reflecting non-guaranteed reinsurance features, including margins and details of any simplifications and approximations used, and margins for the major risk factors and

Guidance Note: See VM-20 Section 9.B.1 for a discussion on material risks.

For valuation dates prior to Dec. 31, 2022, the company's domiciliary commissioner may permit less than full compliance with the above section 3.C.1.a, provided the commissioner determines that the company has made a good faith attempt to comply.

- ~~a.b.~~ Changes - aA description of any changes in anticipated experience assumptions or margins since the last PBR Actuarial Report.
- c. Company Experience Studies – The following information for each risk factor, provided using PBR Actuarial Report Template 3C provided on the NAIC website (link to be determined): the type(s) of policies included by VM-20 product group, the year the most recent experience study was performed, along with the observation calendar years, the policy issue years included, and the length of the lag time used to allow for events reported after the study period.
- ~~b.d.~~ MethodsAssumption and Margin Development – The following information for each risk factor: Ddescription of the methods used to determine anticipated experience assumptions and margins, including the sources of experience (including company experience, industry experience, or other data), and how changes in such experience are monitored, any adjustments made to increase mortality margins above the prescribed margin (such as to reflect increased uncertainty with newer underwriting approaches), and
- e. Other Considerations – Description of any other considerations helpful in or necessary to understanding the rationale behind the development of assumptions and margins, even if such considerations are not explicitly mentioned in the Valuation Manual.

VM-31 Section 3.C.3.1

- ~~1. Adjustments to Mortality Margins – Description and rationale of any adjustments made to increase margins above the prescribed margin.~~

PBR Actuarial Report Templates.xlsx



PBR Actuarial
Report Templates (T

Sample PBR Actuarial Report Templates.xlsx



Sample PBR
Actuarial Report Ten

VM-20 Section 9.C.2.e

- e. The company shall review, and update as needed, the company experience data described in Section 9.C.2.b, based on either an updated company mortality study ~~whether based on actual experience~~ or updated mortality study data from other sources, at least every three years. If updated experience becomes available prior to the end of three years since the last review or update, which alters the company's expected mortality for the mortality segments in a significant manner and such impact is expected to continue into the future, the company shall reflect the changes implied by the updated data in the current year.
 - i. The company experience data for each mortality segment shall include the most recent experience study and shall include the in-force and claim data pertaining to the study period for all policies currently in the mortality segment or that would have been in the mortality segment at any time during the period over which experience is being evaluated.
 - ii. The period of time used for the experience study should be at least three exposure years and should not exceed 10 exposure years.

REASONING:

These edits to VM-20 and VM-31 will fulfill the listed recommendations from VAWG.

Note: This APF and APF 2018-42 should be reviewed together. VM-31 Section 3.C.3.h.ii (in this APF) requires uncapped amounts of insurance, which is pursuant to the requirements in VM-20 Section 9.C.2.g (in APF 2018-42, Alternative 2).

**Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force
Amendment Proposal Form**

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

This APF was jointly prepared by the Office of Principle-Based Reserving, California Department of Insurance, and NAIC Support Staff.

This APF addresses recommendation #12 and partially addresses recommendation #34 from VAWG's 10/24/2018 memo regarding PBR Recommendations and Referrals to LATF. The rest of recommendation #34 is addressed in APF 2018-42.

2. Identify the document, including the date if the document is "released for comment," and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition) with adopted language from APF 2018-61, VM-31 Section 3.C.3.h.

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on "track changes" in Word®) version of the verbiage. (You may do this through an attachment.)

Please see Appendix attached.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

Please see attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
3/5/19			
Notes: APF 2019-25			

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Appendix

ISSUE:

The following VAWG Recommendations were made to address issues found during the review of the 2017 PBR Actuarial Reports:

- VAWG #12: Provide details on the company's credibility calculations using the Buhlmann or Limited Fluctuation Method.
- VAWG #34: Add language to make it clear that exposure and claim amounts cannot be capped (e.g. capping a 5m claim at 1m) when calculating credibility.

SECTIONS:

VM-31, Section 3.C.3.h

REDLINE:

VM-31 Section 3.C.3.h

- h. Credibility – The following items related to credibility:
- i. Identification of the method used to determine credibility percentage(s) for the company's mortality exposure period, including a listing of the credibility percentage that was used in VM-20 Section 9.C.6.b for each mortality segment, and an indication of whether each such credibility percentage was determined at the mortality segment level or at a higher level using aggregate mortality experience.
 - ii. A statement confirming that the credibility level was calculated using the data from the company's mortality experience study, based on uncapped amounts of insurance.
 - iii. For each credibility percentage that was used in VM-20 Section 9.C.6.b, the numerical values of all credibility formula inputs, along with calculation steps. For the Limited Fluctuation Method, this shall include r , z , m , σ , and the resulting value of Z . For the Buhlmann Empirical Bayesian Method, this shall include A , B , C , and the resulting value of Z .

Commented [OS1]: This paragraph contains APF 2018-61, which has been adopted.

Commented [OS2]: This paragraph partially addresses VAWG recommendation #34. The rest of the recommendation is addressed in APF 2018-42.

Commented [OS3]: This paragraph addresses VAWG recommendation #12.

REASONING:

3.C.3.h.ii – The addition of this section disallows the capping of insurance claim amounts in the determination of credibility, since it can result in more favorable credibility percentages.

3.C.3.h.iii - Details are needed to determine whether credibility was calculated appropriately.

VM-01: Definitions for Terms in Requirements

This VM-01 provides definitions for terms used in the *Valuation Manual*. The definitions in this VM-01 do not apply to documents outside the *Valuation Manual* even if referenced or used by the *Valuation Manual* such as the NAIC Accounting Practices and Procedures Manual. Some terms in the *Valuation Manual* may be defined in specific sections of the *Valuation Manual* instead of being defined in this VM-01.

Guidance Note: Any terms defined in Model #820 are noted.

- The term “accident and health insurance” means contracts that incorporate morbidity risk and provide protection against economic loss resulting from accident, sickness or medical conditions and as may be specified in the *Valuation Manual*. (Model #820 definition.)
- The term “accumulated deficiency” means an amount measured as of the end of a projection ~~interval-year~~ and equals ~~the negative of~~ the projected ~~statement value of general account and separate account Working Reserve less the amount of projected~~ assets, ~~both~~ as of the end of the projection ~~interval~~ year. Accumulated deficiencies may be positive or negative. A positive accumulated deficiency means that there is a cumulative ~~loss~~ asset shortfall. A negative accumulated deficiency means that there is a cumulative asset surplus. (Used in VM-20 and VM-21.)
- The term “Actuarial Standards Board” means the board established by the American Academy of Actuaries (Academy) to develop and promulgate actuarial standards of practice (ASOPs).
- The term “annual statement” means the statutory financial statements a company must file using the annual blank with a state insurance commissioner as required under state insurance law.
- The term “anticipated experience assumption” means an expectation of future experience for a risk factor given available, relevant information pertaining to the assumption being estimated.

Guidance Note:

A universally accepted definition of relevant information is not to be found in actuarial literature, but certainly relevant experience is a part of what constitutes relevant information. Actuarial judgment is required in selecting and applying relevant information. In the case of relevant experience, the actuary is given guidance in ASOP 52 and ASOP 25 defining relevant experience and discussing the selection of relevant experience.

- An appointed actuary is a qualified actuary who:
 - Is appointed by the board of directors, or its equivalent, or by a committee of the board, by Dec. 31 of the calendar year for which the opinion is rendered.
 - Is a member of the American Academy of Actuaries.
 - Is familiar with the valuation requirements applicable to life and health insurance.
 - Has not been found by the commissioner (or if so found has subsequently been reinstated as a qualified actuary), following appropriate notice and hearing to have:

- Violated any provision of, or any obligation imposed by, the insurance law or other law in the course of his or her dealings as a qualified actuary.
- Been found guilty of fraudulent or dishonest practices.
- Demonstrated incompetency, lack of cooperation or untrustworthiness to act as a qualified actuary.
- Submitted to the commissioner during the past five years, pursuant to these AOM requirements, an actuarial opinion or memorandum that the commissioner rejected because it did not meet the provisions of this regulation including standards set by the Actuarial Standards Board.
- Resigned or been removed as an actuary within the past five years as a result of acts or omissions indicated in any adverse report on examination or as a result of failure to adhere to generally acceptable actuarial standards.

o Has not failed to notify the commissioner of any action taken by any commissioner of any other state similar to that under the paragraph above.

- The term “asset adequacy analysis” means an analysis of the adequacy of reserves and other liabilities being tested, in light of the assets supporting such reserves and other liabilities, as specified in the actuarial opinion. -
- The term “asset-associated derivative” means a derivative program whose derivative instrument cash flows are combined with asset cash flows in performing the reserve calculations.
- The term “cash flow” means any receipt, disbursement, or transfer of cash or asset equivalents.
- The term “cash-flow model” means a model designed to simulate asset and liability cash flows.
- The term “cash surrender value” means, for purposes of these requirements, the amount available to the contract holder upon surrender of the contract, prior to any outstanding contract indebtedness and net of any applicable surrender charges and stated in the contract.
- The term “claim reserve” means a liability established with respect to any incurred contractual benefits not yet paid as of the valuation date.

Guidance Note: The Valuation Manual definition of “claim reserve” is different from the term as used in the AP&P Manual. The claim reserve as defined in the Valuation Manual should be interpreted as the sum of two values required by the AP&P Manual: 1) the AP&P “claim liability,” which is the liability for claims unpaid for services or periods prior to the valuation date; plus 2) the AP&P “claim reserve,” which is the liability for claims incurred prior to the valuation date for services or periods after the valuation date. Note that all of these values may include an incurred but not reported component.

The term “clearly defined hedging strategy” means a strategy undertaken by a company to manage risks through the future purchase or sale of hedging instruments and the opening and closing of hedging positions that meet the criteria specified in the applicable **reserve requirement section of the Valuation Manual**. **The hedge strategy may be dynamic, static, or a combination thereof.**

•

- The term “commissioner” means the chief insurance regulator of a state, district or territory of the U.S.
- The term “company” means an entity that (a) has written, issued or reinsured life insurance contracts, accident and health insurance contracts, or deposit-type contracts in this state and has at least one such policy in force or on claim; or (b) has written, issued or reinsured life insurance contracts, accident and health insurance contracts, or deposit-type contracts in any state and is required to hold a certificate of authority to write life insurance, accident and health insurance or deposit-type contracts in this state. (Model #820 definition.)
- The term “conditional tail expectation” (CTE) means a risk measure that is calculated as the average of all modeled outcomes (ranked from lowest to highest) above a prescribed percentile. For example, CTE-70 is the average of the highest 30% modeled outcomes.
- The term “contract reserve” means a liability established for health and credit insurance with respect to enforce contracts equal to the excess of the present value of claims expected to be incurred after a valuation date over the present value of future valuation net premiums.
- The term “deposit-type contract” means contracts that do not incorporate mortality or morbidity risks and as may be specified in the *Valuation Manual*. (Model #820 definition.)
- The term “derivative instrument” means an agreement, option, instrument or a series or combination thereof:
 - To make or take delivery of, or assume or relinquish, a specified amount of one or more underlying interests, or to make a cash settlement in lieu thereof.
 - That has a price, performance, value or cash flow based primarily upon the actual or expected price, level, performance, value or cash flow of one or more underlying interests. (Source: AP&P Manual.)

This includes, but is not limited to, an option, warrant, cap, floor, collar, swap, forward or future, or any other agreement or instrument substantially similar thereto or any series or combination thereof. Each derivative instrument shall be viewed as part of a specific derivative program.

- The term “derivative program” means a program to buy or sell one or more derivative instruments or open or close hedging positions to achieve a specific objective. Both hedging and non-hedging programs (e.g., for replication or income generation objectives) are included in this definition.
- The term “deterministic reserve” means a reserve amount calculated under a single defined scenario, using a combination of prescribed and company-specific assumptions derived as provided in the *Valuation Manual*.
- The term “discount rates” means the path of rates used to derive the present value.
- The term “domiciliary commissioner” means the chief insurance regulatory official of the state of domicile of the company.
- The term “elimination period” means a specified number of days, weeks or months starting at the beginning of each period of loss, during which no benefits are payable.
- The term “fraternal benefits” means payments made for charitable purposes by a fraternal life insurance company that are consistent with and/or support the fraternal purposes of the company.

• The term “gross wealth ratio” means the cumulative return for the indicated time period and percentile (e.g., 1.0 indicates that the index is at its original level).

- The term “Guaranteed Issue (GI) life insurance policy” means a life insurance policy or certificate where the applicant must be accepted for coverage if the applicant is eligible. Additionally, the following must hold:
 - o Eligibility requirements may include being within a specified age range and/or being an active member in an eligible group (e. g. group solicitation in direct marketing)
 - o Inclusion of any of the following characteristics or product types disqualifies the policy as GI:
 - Actively at work requirement
 - Employer groups
 - Acceptance based on any health-related questions or information
 - Waiving of underwriting requirements based on minimum participation thresholds, such as for worksite marketing
 - Corporate Owned Life Insurance or Bank Owned Life Insurance
 - Credit life contracts
 - Juvenile-only products (e. g. under age 15)
 - Prenatal life contracts
 - Policies and certificates issued as a result of exercising a provision (e.g., conversion or Guaranteed Insurability Option riders) from a policy, rider or certificate that do not qualify as Guaranteed Issue life insurance.

• The term “guaranteed minimum death benefit” (GMDB) guarantees, or results in a provision that guarantees, that the amount payable on the death of a contract holder, annuitant, participant or insured:

o will be not less than, or

o will be increased by, a minimum amount which may be either specified by or computed from other policy or contract values; and

has the potential to produce a contractual total amount payable on such death that exceeds the account value, or

in the case of an annuity providing income payments, guarantees payment upon such death of an amount payable on death in addition to the continuation of any guaranteed income payments.

Guidance Note: The definition of GMDB includes benefits that are based on a portion of the excess of the account value over the net of premiums paid less partial withdrawals made (e.g., an earnings enhanced death benefit).

- The term “Guaranteed Minimum Accumulation Benefit (GMAB)” means a guaranteed benefit providing, or resulting in the provision, that an amount payable on the contractually determined maturity date of the benefit will be increased and/or will be at least a minimum amount. Only such guarantees having the potential to produce a contractual total amount payable on benefit maturity that exceeds the account value, or in the case of an annuity providing income payments, an amount payable on benefit maturity other than continuation of any guaranteed income payments, are included in this definition.

Commented [PW1]: Move this definition back to VM-21 (and clarify)

- The term “guaranteed minimum income benefit” (GMIB) means ~~a variable annuity guaranteed living benefit (VAGLB) that provides~~ an option under which the ~~contractholder~~contract holder has the right to apply a specified minimum amount that could be greater than the amount that would otherwise be available in the absence of such benefit to provide periodic income using a specified purchase basis.
 - i. The term “~~Hybrid-hybrid~~ GMIB” means a GMIB design that (i) provides guaranteed growth in the benefit basis (i.e., benefit growth that does not depend on the performance of the ~~Account~~ ~~y~~-Value), and (ii) adjusts the benefit for partial withdrawals by the same dollar amount as the partial withdrawal amount for partial withdrawal amounts not in excess of a stated maximum amount.
 - ii. The term “~~Traditional-traditional~~ GMIB” means a GMIB design that is not a hybrid GMIB.
- The term “~~Guaranteed-guaranteed Minimum-minimum Withdrawal-withdrawal Benefit-benefit~~ (GMWB)” means a ~~VAGLB~~-design providing, or resulting in the provision, that the amount withdrawable by the contract_holder each year will at least be a minimum amount until the benefit amount depletes or until a contractually specified event occurs, provided that the contract_holder does not exceed a maximum withdrawal amount.
 - i. The term “~~Lifetime-lifetime~~ GMWB” means a GMWB design providing, or resulting in the provision, that the amount withdrawable by the ~~contractholder~~contract holder each year will at least be a minimum amount until the ~~contractholder’s applicable death defined in the contract, death~~ provided that the ~~contractholder~~contract holder does not exceed a maximum withdrawal amount.
 - ii. The term “~~Nonnon~~-lifetime GMWB” means a GMWB design providing, or resulting in the provision, that the amount withdrawable by the ~~contractholder~~contract holder each year will at least be a minimum amount until and only until the benefit amount depletes, even if such depletion occurs before the ~~contractholder’s applicable death defined in the contract, death~~, provided that the ~~contractholder~~contract holder does not exceed a maximum withdrawal amount.
- The term “guaranteed payout annuity floor” (GPAF) means a provision in an immediate annuity contract that guarantees that one or more of a series of periodic payments under the annuity will not be less than a specified minimum amount that could be greater than the amount that would otherwise be available in the absence of such benefit.
- The term “industry basic table” means an NAIC-approved industry experience mortality table (without the valuation margins).
- The term “life insurance” means contracts that incorporate mortality risk, including annuity and pure endowment contracts, and as may be specified in the *Valuation Manual*. (Model #820 definition.)
- The term “margin” means an amount included in the assumptions, except when the assumptions are prescribed, used to determine the modeled reserve that incorporates conservatism in the calculated value consistent with the requirements of the various sections of the *Valuation Manual*. It is intended to provide for estimation error and adverse deviation.
- The term “modeled reserve” means the deterministic reserve on the policies determined under VM-20 Section 2.A.1.a, 2.A.2.a, 2.A.3.b plus the greater of the deterministic reserve and the stochastic reserve on the policies determined under Section 2.A.1.b, 2.A.2.b and 2.A.3.c.
- The term “model segment” means a group of policies and associated assets that are modeled together to determine the path of net asset earned rates.

- The term “mortality segment” means a subset of policies for which a separate mortality table representing the prudent estimate assumption will be determined.
- The term “NAIC” means the National Association of Insurance Commissioners. (Model #820 definition).
- The term “net asset earned rates” (NAER) means the path of earned rates reflecting the net general account portfolio rate in each projection interval (net of appropriate default costs and investment expenses).
- The term “net premium reserve” (NPR) means the amount determined in Section 3 of VM-20.
- The term “non-guaranteed elements” (NGE) means either: (a) dividends under participating policies or contracts; or (b) other elements affecting life insurance or annuity policyholder/contract holder costs or values that are both established and subject to change at the discretion of the insurer.
- The term “non-material secondary guarantee” means a secondary guarantee (SG) that meets the following parameters at time of issue:
 - The policy has only one SG and that SG is in the form of a required premium (specified annual or cumulative premium).
 - The duration of the SG for each policy is no longer than 20 years from issue through issue age 60, grading down by 2/3-year for each higher issue age to age 82, thereafter five years.
 - The present value of the required premium under the SG must be at least as great as the present value of net premiums resulting from the appropriate unloaded CSO table over the maximum SG duration allowable under the contract (in aggregate and subject to above duration limit).
 - Present values use minimum allowable unloaded CSO table rates (preferred tables are subject to existing qualification requirements) and the maximum valuation interest rate as defined in VM-20 Section 3.C.2.
 - The minimum premium consists of the annual required premium over the maximum SG duration.

Guidance Note: The unloaded version of the applicable CSO table is available on the Society of Actuaries (SOA) website.

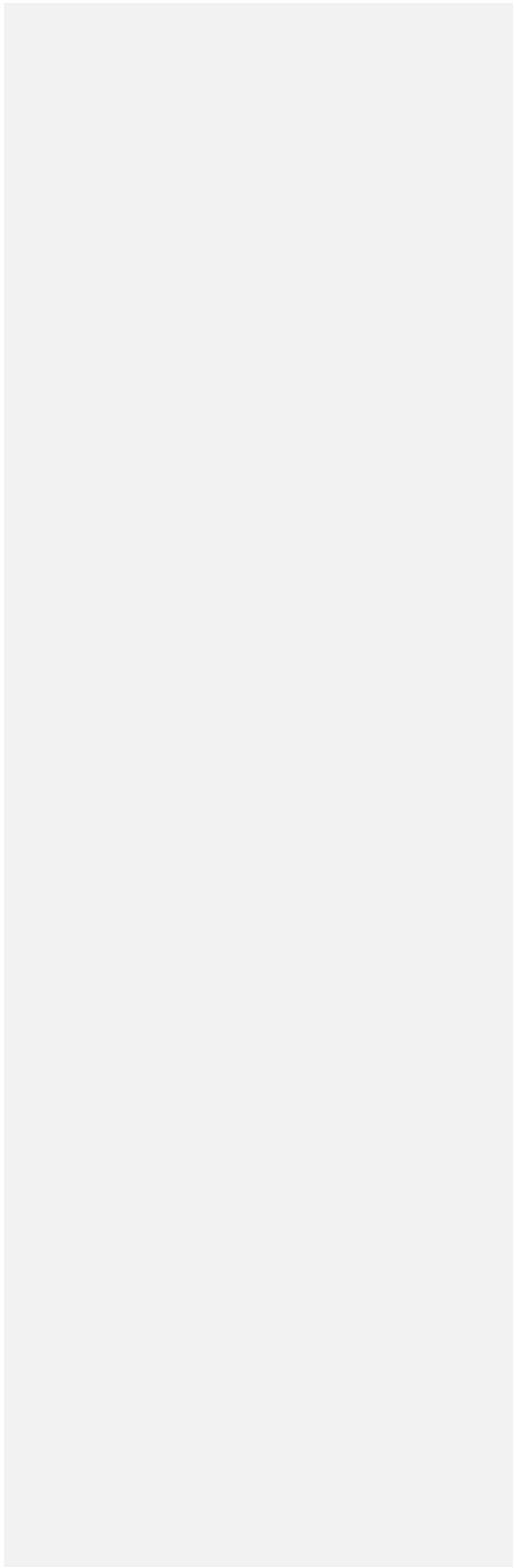
- The term “path” means a time-indexed sequence of a set of values.
- ~~• The term “Principle-Based Reserve Actuarial Report” (PBR Actuarial Report) means the supporting information prepared by the company as required by VM 31.~~
- The term “policyholder behavior” or “contract holder behavior” means any action a policyholder, contract holder or any other person with the right to elect options, such as a certificate holder, may take under a policy or contract subject to Model #820 including, but not limited to, lapse, withdrawal, transfer, deposit, premium payment, loan, annuitization, or benefit elections prescribed by the policy or contract but excluding events of mortality or morbidity that result in benefits prescribed in their essential aspects by the terms of the policy or contract. (Model #820 definition.)

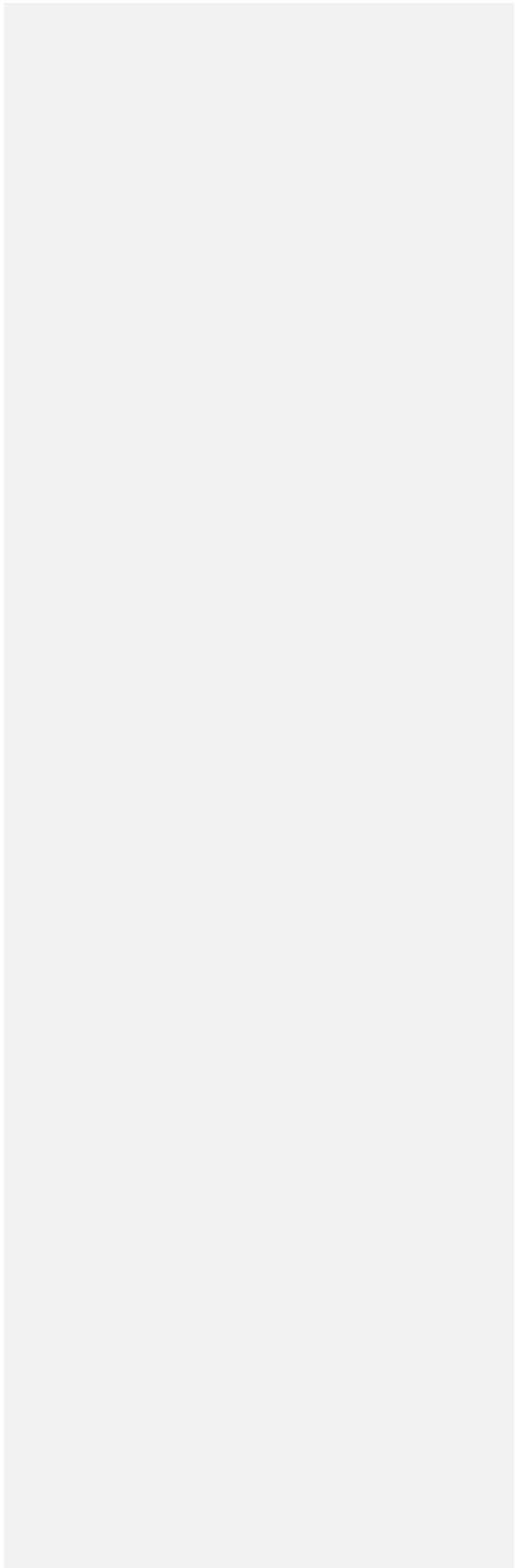
- The term “policyholder efficiency” or “contract holder efficiency” means the phenomenon that policyholders or contract holders will act in their best interest with regard to the value of their policy or contract. A policyholder or contract holders acting with high policyholder efficiency or contract holder efficiency would take actions permitted in their policy or contract which would provide the greatest relative value. Such actions include but are not limited to not lapsing a low value or no value contract, persisting, surrendering, applying additional premium, and exercising loan and partial surrender provisions.
- The term “pretax interest maintenance reserve” (PIMR) means the statutory interest maintenance reserve liability adjusted to a pretax basis for each model segment at the projection start date.
- The term “Principle-Based Reserve Actuarial Report” (PBR Actuarial Report) means the supporting information prepared by the company as required by VM-31.
- The term “principle-based valuation” means a reserve valuation that uses one or more methods or one or more assumptions determined by the insurer and is required to comply with Section 12 of the Model #820 as specified in the *Valuation Manual*. (Model #820 definition.)
- The term “projection interval” means the time interval used in the cash-flow model to project the cash-flow amounts (e.g., monthly, quarterly, annually).
- The term “projection period” means the period over which the cash-flow model is run. (This definition applies to life and annuity products only.)
- The term “projection start date” means the date on which the projection period begins.
- The term “projection year” means a 12-month period starting on the projection start date or an anniversary of the projection start date.
- The term “prudent estimate assumption” means a risk factor assumption developed by applying a margin to the anticipated experience assumption for that risk factor.
- The term “qualified actuary” means an individual who is qualified to sign the applicable statement of actuarial opinion in accordance with the Academy qualification standards for actuaries signing such statements and who meets the requirements specified in the *Valuation Manual*. (Model #820 definition.)
- The term “reinsurance cash flows” means the amount paid under a reinsurance agreement between a ceding company and an assuming company. Positive reinsurance cash flows shall represent amounts payable from the assuming company to the ceding company; negative reinsurance cash flows shall represent amounts payable from the ceding company to the assuming company.
- The term “revenue sharing” means any arrangement or understanding by which an entity responsible for providing investment or other types of services makes payments to the company or to one of its affiliates. Such payments are typically in exchange for administrative services provided by the company or its affiliate, such as marketing, distribution and recordkeeping. Only payments that are attributable to charges or fees from the underlying variable funds or mutual funds supporting the policies or contracts that fall under the scope of the given standard shall be included in the definition of “revenue sharing.”
- The term “risk factor” means an aspect of future experience that is not fully predictable on the valuation date.
- The term “scenario” means a projected sequence of events or risk factors used in the cash-flow model, such as future interest rates, equity performance or mortality.

- The term “scenario greatest present value” means the sum, for a given scenario, of:
 - o The greatest of the present values, as of the projection start date, of the projected accumulated deficiencies for the scenario.
 - o The starting asset amount.
- The term “scenario reserve” means the amount determined on an aggregated basis for a given scenario that is used as a step in the calculation of the stochastic reserve.
- The term “secondary guarantee” means a conditional guarantee that a policy will remain in force, even if its fund value is exhausted, for either:
 - o More than five years (the secondary guarantee period), or
 - o Five years or less (the secondary guarantee period) if the specified premium for the secondary guarantee period is less than the net level reserve premium for the secondary guarantee period based on the CSO valuation tables defined in VM-20 Section 3.C and VM-M and the valuation interest rates defined in this Section, or if the initial surrender charge is less than 100% of the first year annualized specified premium for the secondary guarantee period.
- The term “starting asset amount” means an amount equal to the statement value of assets at the cash flow projection start date.
- The term “stochastic exclusion test” means a test to determine whether a group of policies is required to comply with stochastic modeling requirements.
- The term “stochastic reserve” means the reserve amount determined by applying a measure (e.g., a prescribed CTE level) to the distribution of scenario reserves over a broad range of stochastically generated scenarios and using a combination of prescribed and company-specific assumptions derived as provided in the *Valuation Manual*.
- The term “tail risk” means a risk that occurs either where the frequency of low probability events is higher than expected under a normal probability distribution or where there are observed events of very significant size or magnitude. (Model #820 definition.)
- The term “unearned premium reserve” means that portion of the premium paid or due to the company that is applicable to the period of coverage extending beyond the valuation date.
- The term “universal life insurance policy” means a life insurance policy where separately identified interest credits (other than in connection with dividend accumulations, premium deposit funds or other supplementary accounts) and mortality and expense charges are made to the policy. A universal life insurance policy may provide for other credits and charges, such as charges for cost of benefits provided by rider.
- The term “valuation date” means the date when the reserve is to be valued as required by the Model #820.
- The term “*Valuation Manual*” means the manual of valuation instructions adopted by the NAIC as specified in Model #820 or as subsequently amended. (Model #820 definition.)
- The term “variable annuity guaranteed living benefit” (VAGLB) means a guaranteed benefit providing, or resulting in the provision that, one or more guaranteed benefit amounts payable or accruing to a living contract holder or living annuitant, under contractually specified conditions

(e.g., at the end of a specified waiting period, upon annuitization or upon withdrawal of premium over a period of time), will increase contractual benefits should the contract value referenced by the guarantee (e.g., account value) fall below a given level or fail to achieve certain performance levels. Only such guarantees having the potential to provide benefits with a present value as of the benefit commencement date that exceeds the contract value referenced by the guarantee are included in this definition. Payout annuities without minimum payout or performance guarantees are neither considered to contain nor to be VAGLBs.

- The term “variable life insurance policy” means a policy that provides for life insurance the amount or duration of which varies according to the investment experience of any separate account or accounts established and maintained by the insurer as to the policy.
- ~~The term “working reserve” means the assumed estimated reserve amount used in the projections of Accumulated Deficiencies supporting the calculation of the scenario greatest present values.~~





Complete Redline of Revisions to VM-21 as of 6/4/19

This version of VM-21 has been updated to reflect all edits that been exposed by LATF through the June 4 LATF conference call. Edits exposed on April on April 23 & 30 appear highlighted in yellow. Edits discussed on May 7 & 16 appear highlighted in blue and green. The ACLI edits proposed in the comment letter discussed on June 4 appear highlighted in gray. Interested parties wishing to see the complete redline of VM-21 changes should refer to this document.

Note that currently this document represents the redline of substantive VM-21 changes for consideration as updates to the Valuation Manual.

VM-21: Requirements for Principle-Based Reserves for Variable Annuities

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Section 1: Background

A. Purpose

These requirements establish the minimum reserve valuation standard for variable annuity contracts, and certain other policies and contracts (“contracts”) as defined in Section 2.A, issued on or after the operative date of the *Valuation Manual* as required by Model #820. These requirements constitute the Commissioners Annuity Reserve Valuation Method (CARVM) for variable annuity contracts by defining the assumptions and methodologies that will comply with the Standard Valuation Law. It also applies similar assumptions and methodologies to contracts that contain characteristics similar to those described in the scope but that are not directly subject to CARVM: all contracts encompassed by Section 2.A.

The contracts subject to these requirements may be aggregated with the contracts subject to *Actuarial Guideline XLIII—CARVM For Variable Annuities* (AG 43), published in Appendix C of the AP&P Manual, for purposes of performing and documenting the reserve calculations.

Guidance Note: It is intended that VM-21 requirements will mirror the requirements of AG 43, and reserves effectively, through reference in AG 43, the reserve requirements in VM-21 also apply to those contracts issued prior to January 1, 2017 that would not otherwise be encompassed

by the scope of VM-21. Reserves for contracts subject to ~~both VM-21 and~~ AG 43 may be computed as a single group. If a company chooses to aggregate business subject to AG 43 with business subject to VM-21 in calculating the reserve, then the provisions in VM-G apply to this aggregate principle-based valuation.

Guidance Note:

Relationship to RBC Requirements

These requirements anticipate that the projections described herein are used for the determination of RBC for all of the contracts falling within the scope of these requirements. These requirements and the RBC requirements for the topics covered within Sections 4.A through 4.E are identical. However, while the projections described in these requirements are performed on a basis that ignores federal income tax, a company may elect to conduct the projections for calculating the RBC requirements by including projected federal income tax in the cash flows and reducing the discount interest rates used to reflect the effect of federal income tax as described in the RBC requirements. A company that has elected to calculate RBC requirements in this manner may not switch back to using a calculation that ignores the effect of federal income tax without approval from the domiciliary commissioner.

B. Principles

The projection methodology used to calculate the ~~CTE amount~~ stochastic reserve, as well as the approach used to develop the Alternative Methodology, is based on the following set of principles. These principles should be followed when interpreting and applying the methodology in these requirements and analyzing the resulting reserves.

Guidance Note: The principles should be considered in their entirety, and it is required that companies meet these principles with respect to ~~only~~ those contracts that fall within the scope of these requirements and are in force as of the valuation date to which these requirements are applied.

Principle 1: The objective of the approach used to determine the ~~CTE amount~~ stochastic reserve is to quantify the amount of statutory reserves needed by the company to be able to meet contractual obligations in light of the risks to which the company is exposed.

Principle 2: The calculation of the ~~CTE amount~~ stochastic reserve is based on the results derived from an analysis of asset and liability cash flows produced by the application of a stochastic cash-flow model to equity return and interest rate scenarios. For each scenario, the greatest present value of accumulated ~~surplus~~ deficiency is calculated. The analysis reflects prudent estimate assumptions for deterministic variables and is performed in aggregate (subject to limitations related to contractual provisions) to allow the natural offset of risks within a given scenario. The methodology uses a projected total ~~statutory balance sheet approach cash flow analysis~~ by including all projected income, benefit and expense items related to the business in the model and sets the ~~CTE amount~~ stochastic reserve at a degree of confidence using the CTE measure applied to the set of scenario specific greatest present values of accumulated ~~statutory~~ deficiencies that is deemed to be reasonably conservative over the span of economic cycles.

Guidance Note: Examples where full aggregation between contracts may not be possible include experience rated group contracts and the operation of reinsurance treaties.

Principle 3: The implementation of a model involves decisions about the experience assumptions and the modeling techniques to be used in measuring the risks to which the company is exposed. Generally, assumptions are to be based on the conservative end of the actuary's confidence interval. The choice of a conservative estimate for each assumption may result in a distorted measure of the total risk. Conceptually, the choice of assumptions and the modeling decisions should be made so that the final result approximates what would be obtained for the CTE amount stochastic reserve at the required CTE level if it were possible to calculate results over the joint distribution of all future outcomes. In applying this concept to the actual calculation of the CTE amount stochastic reserve, the actuary company should be guided by evolving practice and expanding knowledge base in the measurement and management of risk.

Guidance Note: The intent of Principle 3 is to describe the conceptual framework for setting assumptions. Section 4410 provides the requirements and guidance for setting contract holder behavior assumptions and includes alternatives to this framework if the actuary company is unable to fully apply this principle.

Principle 4: While a stochastic cash-flow model attempts to include all real-world risks relevant to the objective of the stochastic cash-flow model and relationships among the risks, it will still contain limitations because it is only a model. The calculation of the CTE amount stochastic reserve is based on the results derived from the application of the stochastic cash-flow model to scenarios, while the actual statutory reserve needs of the company arise from the risks to which the company is (or will be) exposed in reality. Any disconnect between the model and reality should be reflected in setting prudent estimate assumptions to the extent not addressed by other means.

Principle 5: Neither a cash-flow scenario model nor a method based on factors calibrated to the results of a cash-flow scenario model can completely quantify a company's exposure to risk. A model attempts to represent reality but will always remain an approximation thereto and, hence, uncertainty in future experience is an important consideration when determining the CTE amount stochastic reserve. Therefore, the use of assumptions, methods, models, risk management strategies (e.g., hedging), derivative instruments, structured investments or any other risk transfer arrangements (such as reinsurance) that serve solely to reduce the calculated CTE amount stochastic reserve without also reducing risk on scenarios similar to those used in the actual cash-flow modeling are inconsistent with these principles. The use of assumptions and risk management strategies should be appropriate to the business and not merely constructed to exploit "foreknowledge" of the components of the required methodology.

C. Risks Reflected and Risks not Reflected

1. The risks reflected in the calculation of reserves under these requirements arise from actual or potential events or activities that are both:
 - a. Directly related to the contracts falling under the scope of these requirements or their supporting assets, and
 - b. Capable of materially affecting the reserve.
2. Categories and examples of risks reflected in the reserve calculations include, but are not necessarily limited to:
 - a. Asset Risks~~risks~~
 - i. Separate account fund performance.

- ii. Credit risks (e.g., default or rating downgrades).
 - iii. Commercial mortgage loan ~~rollover~~roll-over rates (roll-over of bullet loans).
 - iv. Uncertainty in the timing or duration of asset cash flows (e.g., shortening (prepayment risk) and lengthening (extension risk)).
 - v. Performance of equities, real estate and Schedule BA assets.
 - vi. Call risk on callable assets.
 - vii. Risk associated with hedge instrument (includes basis, gap, price, parameter estimation risks and variation in assumptions).
 - viii. Currency risk.
 - b. Liability ~~Risks~~risks
 - i. Reinsurer default, impairment or rating downgrade known to have occurred before or on the valuation date.
 - ii. Mortality/longevity, persistency/lapse, partial withdrawal and premium payment risks.
 - iii. Utilization risk associated with guaranteed living benefits.
 - iv. Anticipated mortality trends based on observed patterns of mortality improvement or deterioration, where permitted.
 - v. Annuitization risks.
 - vi. Additional premium dump-ins (high interest rate guarantees in low interest rate environments).
 - c. Combination ~~Risks~~risks
 - i. Risks modeled in the company's risk assessment processes that are related to the contracts, as described above.
 - ii. Disintermediation risk (including such risk related to payment of surrender or partial withdrawal benefits).
 - iii. Risks associated with revenue-sharing income.
3. The risks not necessarily reflected in the calculation of reserves under these requirements are:
- a. Those not reflected in the determination of ~~risk based capital~~RBC.
 - b. Those reflected in the determination of RBC but arising from obligations of the company not directly related to the contracts falling under the scope of these requirements, or their supporting assets, as described above.
4. Categories and examples of risks not reflected in the reserve calculations include, but are not necessarily limited to:

- a. Asset risks
 - bi. Liquidity risks associated with a “run on the bank”.
- eb. Liability risks
 - i. Reinsurer default, impairment or rating downgrade occurring after the valuation date.
 - ii. Catastrophic events (e.g., epidemics or terrorist events).
 - iii. Major breakthroughs in life extension technology that have not yet fundamentally altered recently observed mortality experience.
 - iv. Significant future reserve increases as an unfavorable scenario is realized.
- ec. General business risks
 - i. Deterioration of reputation.
 - ii. Future changes in anticipated experience (reparameterization in the case of stochastic processes), which would be triggered if and when adverse modeled outcomes were to actually occur.
 - iii. Poor management performance.
 - iv. The expense risks associated with fluctuating amounts of new business.
 - v. Risks associated with future economic viability of the company.
 - vi. Moral hazards.
 - vii. Fraud and theft.

D. Definitions

1. The term “cash surrender value” means, for purposes of these requirements, the amount available to the contract holder upon surrender of the contract. Generally, it is equal to the account value less any applicable surrender charges, where the surrender charge reflects the availability of any free partial surrender options. For contracts where all or a portion of the amount available to the contract holder upon surrender is subject to a market value adjustment, however, the cash surrender value shall reflect the market value adjustment consistent with the required treatment of the underlying assets. That is, the cash surrender value shall reflect any market value adjustments where the underlying assets are reported at market value, but shall not reflect any market value adjustments where the underlying assets are reported at book value.
2. The term “clearly defined hedging strategy” (CDHS) means a designation that applies to strategies undertaken by a company to manage risks through the future purchase or sale of hedging instruments and the opening and closing of hedging positions. The hedge strategy may be dynamic, static or a combination thereof is defined in VM-01. In order to qualify be designated as a clearly defined hedging strategy, the strategy must meet the principles outlined in Section 1.B (particularly Principle 5) and shall, at a minimum,

identify:

- a. The specific risks being hedged (e.g., delta, rho, vega, etc.).
- b. The hedge objectives.
- c. The risks not being hedged (e.g., variation from expected mortality, withdrawal, and other utilization or decrement rates assumed in the hedging strategy, etc.).
- d. The financial instruments that will be used to hedge the risks.
- e. The hedge trading rules, including the permitted tolerances from hedging objectives.
- f. The metric(s) for measuring hedging effectiveness.
- g. The criteria that will be used to measure hedging effectiveness.
- h. The frequency of measuring hedging effectiveness.
- i. The conditions under which hedging will not take place.
- j. The person or persons responsible for implementing the hedging strategy.

Guidance Note: It is important to note that strategies involving the offsetting of the risks associated with variable annuity guarantees with other products outside of the scope of these requirements (e.g., equity-indexed annuities) do not currently qualify as a clearly defined hedging strategy under these requirements.

3. The term “guaranteed minimum death benefit” (GMD) means a provision (or provisions) for a guaranteed benefit, or results in a provision that guarantees, that the amount payable on the death of a contract holder, annuitant, participant or insured: where the amount payable is either (i) a minimum amount or (ii) exceeds the minimum amount and is

will be not less than, or

will be increased by, a minimum amount that may be either specified by or computed from other policy or contract values; and

– has the potential to produce a contractual total amount payable on such death that exceeds the account value, or

– in the case of an annuity providing income payments, guarantees payment upon such death of an amount payable on death in addition to the continuation of any guaranteed income payments.

Guidance Note: The definition of GMD includes benefits that are based on a portion of the excess of the account value over the net of premiums paid less partial withdrawals made (e.g., an earnings enhanced death benefit).

4. The term “total asset requirement” (TAR) means the sum of the reserve determined from the VM-21 requirements for the stochastic reserve (Section 4) not including any additional standard projection amount and prior to any adjustment for the elective phase-in pursuant to Section 2.B plus the C3 risk-based capital RBC amount from LR027 step 4 (paragraph D) excluding the additional standard projection amount and prior to any adjustment for phase-in or smoothing.

Guidance Note: It is important to note that strategies involving the offsetting of the risks associated with variable annuity guarantees with other products outside of the scope of these requirements (e.g., equity-indexed annuities) do not currently qualify as a clearly defined hedging strategy under these requirements.

Section 2: Scope and Effective Date

A. Scope

1. The following categories of annuities or product features issued on or after the operative date of the *Valuation Manual*, directly written or assumed through reinsurance, are covered by this section of the *Valuation Manual* subject to the requirements of VM-21:

- a. Variable deferred annuity contracts subject to the CARVM, whether or not such contracts contain GMDBs or VAGLBs.
- b. Variable immediate annuity contracts, whether or not such contracts contain GMDBs or VAGLBs.
- c. Group Any group annuity contracts that are not subject to CARVM, but contain contract containing guarantees similar in nature to GMDBs, VAGLBs or any combination thereof.

Guidance Note: The term “similar in nature” as used in this Section D2.A.1.c and Section D2.A.1.d is intended to capture current products and benefits, as well as product and benefit designs that may emerge in the future. Examples of the currently known designs are listed in the Guidance Note below following Section D-1.d2.A.3. Any product or benefit design that does not clearly fit the scope should be evaluated on a case-by-case basis taking into consideration factors that include, but are not limited to, the nature of the guarantees, the definitions of GMDB VM-01 and VAGLB in Section E.1.a and Section E.1.b VM-01, and whether the contractual amounts paid in the absence of the guarantee are based on the investment performance of a market-value fund or market-value index (whether or not part of the company’s separate account).

- d. All Any other products that contain policy or contract which contains guarantees similar in nature to GMDBs or VAGLBs, even if the insurer does not offer the mutual funds or variable funds or other supporting investments to which these guarantees relate, where there is no other explicit reserve requirement. If such a benefit is offered as part of a contract that has an explicit reserve requirement and that benefit does not currently have an explicit reserve requirement:
 - i. These requirements shall be applied to the benefit on a stand-alone basis (i.e., for purposes of the reserve calculation, the benefit shall be treated as a separate contract).
 - ii. The reserve for the underlying contract, excluding any benefits valued under (i) above, is determined according to the explicit reserve requirement.
 - iii. The reserve held for the contract shall be the sum of (i) and (ii).

Guidance Note: For example, a group life contract that wraps a GMDB around a mutual fund generally would fall under the scope of these requirements since there is not an explicit reserve requirement for this type of group life contract. However, for an individual variable life contract with a GMDB and a benefit similar in nature to a VAGLB, the requirements generally would apply only to the VAGLB-type benefit, since there is an explicit reserve requirement that applies to the variable life contract and the GMDB.

2. These requirements do not apply to contracts falling under the scope of ~~the VM-A-255: Modified Guaranteed Annuity Model Regulation (#255); Annuities~~; however, ~~it does they do~~ apply to contracts listed above that include one or more subaccounts containing features similar in nature to those contained in modified guaranteed annuities (MGAs) (e.g., market value adjustments).
3. Separate account ~~products~~ contracts that guarantee an index and do not offer GMDBs or VAGLBs are excluded from the scope of these requirements.

Guidance Note: Current VAGLBs include ~~GMABs; Guaranteed Minimum Accumulation Benefits, hybrid and traditional GMIBs; Guaranteed Minimum Income Benefits, lifetime and non-lifetime GMWBs; Guaranteed Minimum Withdrawal Benefits; Guaranteed Lifetime Withdrawal Benefits and GPAFs; Guaranteed Payout Annuity Floors~~. These requirements will be applied to future variations on these designs and to new guarantee designs.

E. Definitions

1. Definitions of Benefit Guarantees

- a. The term “guaranteed minimum death benefit (GMDB)” means a guaranteed benefit providing, or resulting in the provision that, an amount payable on the death of a contract holder, annuitant, participant or insured will be increased and/or will be at least a minimum amount. Only such guarantees having the potential to produce a contractual total amount payable on death that exceeds the account value—or in the case of an annuity providing income payments, an amount payable on death other than continuation of any guaranteed income payments—are included in this definition. GMDBs that are based on a portion of the excess of the account value over the net of premiums paid less partial withdrawals made (e.g., an earnings enhanced death benefit) are also included in this definition.
- b. The term “variable annuity guaranteed living benefit (VAGLB)” means a guaranteed benefit providing, or resulting in the provision that, one or more guaranteed benefit amounts payable or accruing to a living contract holder or living annuitant, under contractually specified conditions (e.g., at the end of a specified waiting period, upon annuitization or upon withdrawal of premium over a period of time), will increase contractual benefits should the contract value referenced by the guarantee (e.g., account value) fall below a given level or fail to achieve certain performance levels. Only such guarantees having the potential to provide benefits with a present value as of the benefit commencement date that exceeds the contract value referenced by the guarantee are included in this definition. Payout annuities without minimum payout or performance guarantees are neither considered to contain nor to be VAGLBs.

- e. The term “guaranteed minimum income benefit (GMIB)” means a VAGLB design for which the benefit is contingent on annuitization of a variable deferred annuity or similar contract. The benefit is typically expressed as a contract holder option, on one or more option dates, to have a minimum amount applied to provide periodic income using a specified purchase basis.
- d. The term “guaranteed payout annuity floor (GPAF)” means a VAGLB design guaranteeing that one or more of the periodic payments under a variable immediate annuity will not be less than a minimum amount.

2. Definitions of Reserve Methodology Terminology

The term “scenario” means a set of asset growth rates and investment returns from which assets and liabilities supporting a set of contracts may be determined for each year of a projection.

~~2.1. The term “cash surrender value” means, for purposes of these requirements, the amount available to the contract holder upon surrender of the contract. Generally, it is equal to the account value less any applicable surrender charges, where the surrender charge reflects the availability of any free partial surrender options. For contracts where all or a portion of the amount available to the contract holder upon surrender is subject to a market value adjustment, however, the cash surrender value shall reflect the market value adjustment consistent with the required treatment of the underlying assets. That is, the cash surrender value shall reflect any market value adjustments where the underlying assets are reported at market value, but shall not reflect any market value adjustments where the underlying assets are reported at book value.~~

- a. The term “scenario greatest present value” means the sum, for a given scenario, of:
 - i. The greatest of the present values, as of the projection start date, of the projected accumulated deficiencies for the scenario.
 - ii. The starting asset amount.
- b. The term “conditional tail expectation (CTE) amount” means an amount equal to the numerical average of the 30% largest values of the scenario greatest present values.
- e. The term “working reserve” means the assumed reserve used in the projections of accumulated deficiencies supporting the calculation of the scenario greatest present values. At any point in the projections, including at the start of the projection, the working reserve shall equal the projected cash surrender value.

For a variable payout annuity without a cash surrender value, the working reserve shall equal the present value, at the valuation interest rate and the valuation mortality table specified for such a product by the Standard Valuation Law, of future income payments projected using a return based on the valuation interest rate less appropriate asset based charges. For annuitizations that occur during the projection, the valuation interest rate as of the current valuation date may be used in determining the working reserve. Alternatively, if an integrated model of equity returns and interest rates is used, a future estimate of valuation interest rates may be incorporated into the working reserve.

For contracts not covered above, the actuary shall determine the working reserve in a manner that is consistent with the above requirements.

~~f. The term “accumulated deficiency” means an amount measured as of the end of a projection year and equals the projected working reserve less the amount of projected assets, both as of the end of the projection year. Accumulated deficiencies may be positive or negative.~~

Guidance Note: A positive accumulated deficiency means there is a cumulative loss, and a negative accumulated deficiency means there is a cumulative gain.

~~g. The term “starting asset amount” means an amount equal to the value of the assets at the start of the projection, as defined in Section 3.D.1.~~

~~h. The term “anticipated experience” means the actuary’s reasonable estimate of future experience for a risk factor given all available, relevant information pertaining to the contingencies being valued.~~

~~i. The term “prudent estimate” means the basis upon which the actuary sets the deterministic assumptions to be used for projections. A prudent estimate assumption is to be set at the conservative end of the actuary’s confidence interval as to the true underlying probabilities for the parameter(s) in question, based on the availability of relevant experience and its degree of credibility.~~

A prudent estimate assumption is developed by applying a margin for uncertainty to the anticipated experience assumption. The margin for uncertainty shall provide for estimation error and margins for adverse deviation. The resulting prudent estimate assumption shall be reasonably conservative over the span of economic cycles and over a plausible range of expected experience, in recognition of the principles described in Section 1.B. Recognizing that assumptions are simply assertions of future unknown experience, the margin should be directly related to uncertainty in the underlying risk factor. The greater the uncertainty, the larger the margin. Each margin should serve to increase the aggregate reserve that would otherwise be held in its absence (i.e., using only the anticipated experience assumption).

For example, assumptions for circumstances that have never been observed require more margins for error than those for which abundant and relevant experience data are available.

This means that valuation assumptions not stochastically modeled are to be consistent with the stated principles in Section 1.B, be based on any relevant and credible experience that is available, and should be set to produce, in concert with other prudent estimate assumptions, a CTE amount that is consistent with the stated CTE level.

The actuary shall follow the principles discussed in Section 11 and Section 12 in determining prudent estimate assumptions.

~~j. The term “gross wealth ratio” means the cumulative return for the indicated time period and percentile (e.g., 1.0 indicates that the index is at its original level).~~

~~k. The term “clearly defined hedging strategy” is a designation that applies to strategies undertaken by a company to manage risks through the future purchase or sale of hedging instruments and the opening and closing of hedging positions.~~

In order to qualify as a clearly defined hedging strategy, the strategy must meet the principles outlined in the Section 1.B (particularly Principle 5) and shall, at a minimum, identify:

- ~~i. The specific risks being hedged (e.g., delta, rho, vega, etc.).~~
- ~~ii. The hedge objectives.~~
- ~~iii. The risks not being hedged (e.g., variation from expected mortality, withdrawal, and other utilization or decrement rates assumed in the hedging strategy, etc.).~~
- ~~iv. The financial instruments that will be used to hedge the risks.~~
- ~~v. The hedge trading rules, including the permitted tolerances from hedging objectives.~~
- ~~vi. The metric(s) for measuring hedging effectiveness.~~
- ~~vii. The criteria that will be used to measure hedging effectiveness.~~
- ~~viii. The frequency of measuring hedging effectiveness.~~
- ~~ix. The conditions under which hedging will not take place.~~
- ~~x. The person or persons responsible for implementing the hedging strategy. The hedge strategy may be dynamic, static or a combination thereof.~~

It is important to note that strategies involving the offsetting of the risks associated with variable annuity guarantees with other products outside of the scope of the ~~these requirements (e.g., equity indexed annuities) do not currently qualify as a clearly defined hedging strategy under these requirements.~~

- ~~l. The term “revenue sharing,” for purposes of these requirements, means any arrangement or understanding by which an entity responsible for providing investment or other types of services makes payments to the company (or to one of its affiliates). Such payments are typically in exchange for administrative services provided by the company (or its affiliate), such as marketing, distribution and recordkeeping. Only payments that are attributable to charges or fees taken from the underlying variable funds or mutual funds supporting the contracts that fall under the scope of these requirements shall be included in the definition of revenue sharing.~~

- ~~m. The term “domiciliary commissioner,” for purposes of B. Effective Date and Phase-in~~

These requirements apply for valuation dates on or after January 1, 2020. A company may elect to phase in these requirements over a 36-month period beginning January 1, 2020. A company may elect a longer phase-in period, up to 7 years, with approval of the domiciliary commissioner. The election of whether to phase in and the period of phase-in must be made prior to the December 31, 2020 valuation. At the company’s option, a phase-in may be terminated prior to the originally elected end of the phase-in period; the reserve would then be equal to the unadjusted reserve calculated according to the requirements of VM-21 applicable for valuation dates on or after January 1, 2020. If there is a material decrease in the book of business by sale or reinsurance ceded, the company shall adjust the amount of the phase-in provision. The phase-in amount ($C = R1 - R2$ as described below) must be scaled down in proportion to the reduction in the excess

reserve, measured on the effective transaction date as the reserve amount in excess of cash surrender value before and after the impact of the transaction. The company must obtain approval for any other continuation or modification of the remaining phase-in from the domestic commissioner amount. The method to be used for the phase-in calculation is as follows:

1. Compute R1 = the reserve as of January 1, 2020 following the VM-21 requirements applicable in the 2020 NAIC *Valuation Manual* for all business in-force on the valuation date. The in-force in force used should include any reinsurance that is expected to be recaptured during 2020.
2. Separately, compute R2 = the reserve as of January 1, 2020 following the VM-21 requirements applicable in the 2019 NAIC *Valuation Manual* for the same in-force contracts used to compute R1, and.
3. Compute the reported reserve on the valuation date as follows:

Reserve = D - (B-A) * C / B, where

- A is the number of months that have elapsed since December 31, 2019. For example, for the March 31, 2020 valuation, A = 3.
- B = 36 unless the company has obtained approval for a longer phase-in, in which case B = number of months of approved phase-in
- C = R1 minus R2
- D is the reserve on the valuation date determined according to these requirements, prior to the phase-in adjustment.

A company may elect to apply the VM-21 requirements applicable to the 2020 NAIC *Valuation Manual*—these requirements—means the chief insurance regulatory official of the state of domicile of the company.

n. The term “aggregate reserve” means the minimum reserve requirement as of the valuation date for the contracts falling within the scope of these as the *Valuation Manual* requirements for the valuation on December 31, 2019. For such election, the phase-in provision of Section 2.B may not be elected. Any company electing may not also elect to phase in these requirements—early adoption of VM-21 shall also:

1. apply the provisions of Actuarial Guideline XLIII as amended for 2020 to the December 31, 2019 valuation of contracts within the scope of that guideline.
2. apply the Life RBC instructions for 2020 in the calculation of C-3 RBC in LR027 for 2019.
3. follow the documentation and certification requirements of VM-31 from the 2020 *Valuation Manual* for the Variable Annuity Business. In the VA Summary, clearly indicate the use of the new requirements in the section on change in methods from prior year, and
4. notify the Commissioner of the state of domicile of such elections.

o. The term “1994 Variable Annuity Minimum Guaranteed Death Benefits (MGDB) Mortality Table” means the mortality table shown in Appendix 1.

Section 23: Reserve Methodology

A. General Description Aggregate Reserve

The aggregate reserve for contracts falling within the scope of these requirements shall equal the CTE amount but not less than the standard scenario amount, where the aggregate reserve is calculated as the standard scenario amount plus the excess, if any, of the CTE amount over the standard scenario amount, stochastic reserve (following the requirements of Section 4) plus the additional standard projection amount (following the requirements of Section 6) less any applicable pre-tax Interest Maintenance Reserve (PIMR) and any Asset Valuation Reserve for all contracts not valued under the Alternative Methodology (Section 7), plus the reserve for any contracts determined using the Alternative Methodology (following the requirements of Section 7).

B. Impact of Reinsurance Ceded

Where reinsurance is ceded for all or a portion of the contracts, both all components in the above general description (and thus the aggregate reserve) shall be determined post-reinsurance ceded, that is, net of any reinsurance treaties that meet the statutory requirements that would allow the treaty to be accounted for as reinsurance and pre-reinsurance ceded, that is, ignoring such costs and benefits.

An aggregate reserve before pre-reinsurance also ceded shall also be calculated if needed for regulatory reporting or other purposes, using methods described in Section 4.

C. The Additional Standard Scenario Projection Amount

The additional standard scenario projection amount is the aggregate of the reserves an additive factor, determined by applying one of the two standard scenario projection methods defined in Section 6 that is added to the stochastic reserve to determine the aggregate reserve. The same method to each must be used for all contracts within a group of contracts that are aggregated together to determine the reserve, and the additional standard projection amount excluding do not include any contracts whose reserve is determined using the Alternative Methodology. The company shall elect which method they will use to determine the additional standard projection amount. The company may not change that election for a future valuation without the approval of the domiciliary commissioner.

D. The Stochastic Reserve

The stochastic reserve shall be determined based on asset and liability projections for the contracts falling within the scope of these requirements. The standard scenario method is outlined in Section 5.

D. The CTE Amount

The CTE amount shall be determined based on a projection of the contracts falling within the scope of these requirements excluding those contracts valued using the Alternative Methodology, and the assets supporting these contracts, over a broad range of stochastically generated projection scenarios described in Section 8 and using prudent estimate assumptions as required herein.

The stochastically generated projection scenarios shall meet the scenario calibration criteria described in Section 7.

The CTE amount The stochastic reserve may be determined in aggregate for all contracts falling

within the scope of these requirements (i.e., a single ~~grouping model segment~~); ~~At~~ or, at the option of the company, it may be determined by applying the methodology outlined below to sub-groupings ~~subgroupings~~ of contracts ~~into multiple model segments~~, in which case the CTE amount stochastic reserve shall equal the sum of the amounts computed for each ~~such subgrouping model segment~~.

The CTE amount stochastic reserve for any group of contracts shall be determined using as CTE 70 of the scenario reserves following steps:

1. For each scenario, projected aggregate accumulated deficiencies are determined at the start of the projection (i.e., "time 0") and at the end of each projection year as the ~~sum requirements~~ of the accumulated deficiencies for each contract grouping.
2. The scenario greatest present value is determined for each scenario based on the sum of the aggregate accumulated deficiencies and aggregate starting asset amounts for the contracts for which the aggregate reserve is being computed.

Guidance Note: The scenario greatest present value is, therefore, based on the greatest projected accumulated deficiency, in aggregate, for all contracts for which the aggregate reserve is computed hereunder, rather than based on the sum of the greatest projected accumulated deficiency for each grouping of contracts.

3. The scenario greatest present values for all scenarios are then ranked from smallest to largest, and the CTE amount is the average of the largest 30% of these ranked values.

The projections shall be performed in accordance with Section 3. The actuary shall document the assumptions and procedures used for the projections and summarize the results obtained as described in Section 4 and Section 10.

E. Alternative Methodology

For a group of variable deferred annuity contracts that contain either no guaranteed benefits or only GMDBs (i.e., no VAGLBs), the CTE amount reserve may be determined using the alternative methodology described in Section 67 rather than using the approach described in Section 23.C and Section 3.D. However, in the event the approach described in Section 23.C and Section 3.D has been used in prior valuations for that group of contracts, the Alternative Methodology may not be used without approval from the domiciliary commissioner.

The CTE amount reserve for the group of contracts to which the Alternative Methodology is applied shall not be less than the aggregate cash surrender value of those contracts.

The actuary shall document the assumptions and procedures used for the Alternative Methodology and summarize the results obtained as described in Section 4 and Section 10.

F. Allocation of ~~the Aggregate Reserve Results~~ to Contracts

The aggregate reserve shall be allocated to the contracts falling within the scope of these requirements using the method outlined in Section 812.

G. Reserve to Be Held in the General Account

The portion of the aggregate reserve held in the general account shall not be less than the excess of the aggregate reserve over the aggregate cash surrender value held in the separate account and attributable to the ~~variable~~ separate account portion of all such contracts. For contracts for which a cash surrender value is not defined, the company shall substitute for cash surrender value held in the separate account the implicit amount for which the contract holder is entitled to receive income based on the performance of the separate account. For example, for a variable payout annuity for which a specific number of units is payable, the implicit amount could be the present value of that number of units, discounted at the assumed investment return and defined mortality, times the unit value as of the valuation date.

Guidance Note: This approach is equivalent to assuming that the separate account performance is equal to the ~~a~~ Assumed ~~i~~ Investment Return.

4. Documentation

For each model segment, a qualified actuary to whom responsibility for the model segment is assigned shall document the development of the reserves and provide the required certification following the requirements of VM 31.

Section 34: Determination of ~~CTE Amount Based on Projections~~ the Stochastic Reserve

A. Projection of Accumulated Deficiencies

1. General Description of Projection

The projection of accumulated deficiencies shall be made ignoring federal income tax ~~in both cash flows and discount rates~~ and reflect the dynamics of the expected cash flows for the entire group of contracts, reflecting all product features—, including ~~the any~~ guarantees provided under the contracts. Insurance company expenses (including overhead and investment expense), fund expenses, contractual fees and charges, revenue-sharing income received by the company (net of applicable expenses), and cash flows associated with any reinsurance or hedging instruments are to be reflected on a basis consistent with the requirements herein. Cash flows from any fixed account options also shall be included. Any market value adjustment assessed on projected withdrawals or surrenders also shall be included (whether or not the cash surrender value reflects market value adjustments). Throughout the projection, ~~where estimates are used, such estimates~~ all assumptions shall be determined based on a prudent estimate basis the requirements herein. Accumulated deficiencies shall be determined at the end of each projection year as the sum of the accumulated deficiencies for all contracts within each ~~model segment~~ contract grouping.

Guidance Note: Section 4.A.1. requires market value adjustments on liability cash flows to be reflected because, in a cash flow model, assets are assumed to be liquidated at market value to cover the cash outflow of the cash surrender; therefore, inclusion of the market value adjustment aligns the asset and liability cash flows. This may differ Treatment of cash flows with market value adjustments in in Section 4.A.1 deviates from the treatment of MVAs in the definition of Cash Surrender Value (Section 1.D).

beams which defines the statutory reserve floor for which the values must be aligned with the annual statement value of the assets.

Federal income tax shall not be included in the projection of accumulated deficiencies.

2. Grouping of Variable Funds and Subaccounts

The portion of the starting asset amount held in the separate account represented by the variable funds and the corresponding account values may be grouped for modeling using an approach that recognizes the investment guidelines and objectives of the funds. In assigning each variable fund and the variable subaccounts to a grouping for projection purposes, the fundamental characteristics of the fund shall be reflected, and the parameters shall have the appropriate relationship to the required calibration points of the S&P 500-stochastically generated projection scenarios described in Section 8. The grouping shall reflect characteristics of the efficient frontier (i.e., returns generally cannot be increased without assuming additional risk).

An appropriate proxy fund for each variable subaccount shall be designed in order to develop the investment return paths. The development of the scenarios for the proxy funds is a fundamental step in the modeling and can have a significant impact on results. As such, the actuary company must map each variable account to an appropriately crafted proxy fund normally expressed as a linear combination of recognized market indices ~~(or, sub-indices)~~ or funds.

3. Model Cells~~Grouping of Contracts~~

Projections may be performed for each contract in force on the date of valuation or by ~~grouping~~assigning contracts into representative cells of model plans using all characteristics and criteria having a material impact on the size of the reserve. ~~Grouping shall be the responsibility of the actuary but~~Assigning contracts to model cells may not be done in a manner that intentionally understates the resulting reserve.

4. Modeling of Hedges

a. For a company that does not have a CDHS:

i. The company shall not consider the cash flows from any future hedge purchases or any rebalancing of existing hedge assets in its modeling.

ii. Existing hedging instruments that are currently held by the company in support of the contracts falling under the scope of these requirements shall be included in the starting assets. The hedge assets may then be considered in one of two ways:

- a) Include the asset cash flows from any contractual payments and maturity values in the projection model, or
- b) No hedge positions – in which case the hedge positions held on the valuation date are replaced with cash and/or other general account assets in an amount equal to the aggregate market value of these hedge positions.

Guidance Note: If the hedge positions held on the valuation date are replaced with cash, then as with any other cash, such amounts may then be invested following the company's investment strategy.

A company may switch from method a) to b) at any time, but may only change from b) to a) with approval of the domiciliary commissioner.

b. For a company with a CDHS, the detailed requirements for the modeling of hedges are defined in Section 9. The following paragraphs are a high level summary and do not supersede the detailed requirements.

i. The appropriate costs and benefits of hedging instruments that are currently held by the company in support of the contracts falling under the scope of these requirements shall be included in the projections. If the company is following a clearly defined hedging strategy and the hedging strategy meets the requirements of Section 9, the used in the determination of the stochastic reserve.

ii. The projections shall take into account the appropriate costs and benefits of hedge positions expected to be held in the future through the execution of ~~that~~ strategy. ~~strategy~~ the CDHS. Because models do not always accurately portray the results of hedge programs, the company shall, through back-testing and other means, assess the accuracy of the hedge modeling. The company shall determine a stochastic reserve as the weighted average of two CTE values; first, a CTE70 ("best efforts") representing ~~at~~ the company's projection of all of the hedge cash flows including future hedge purchases, and a second CTE70 ("adjusted") which shall use only hedge assets held by the company on the valuation date and no future hedge purchases. These are described more fully in Section 9. The stochastic reserve shall be the weighted average of the two CTE70 values, where the weights reflect the error factor (E) determined following the guidance of Section 9.C.4.

iii. ~~To the degree either the currently held hedge positions or the hedge positions expected to be held in the future introduce basis, gap, price or assumption risk, a suitable reduction for effectiveness of hedges shall be made.~~ The ~~actuary~~ company is responsible for verifying compliance with a clearly defined hedging strategy CDHS requirements and ~~the any other~~ requirements in Section 9 for all hedge instruments included in the projections.

~~While hedging strategies may change over time, any change in hedging strategy shall be documented and include an effective date of the change in strategy.~~

iv. The use of products not falling under the scope of these requirements (e.g., equity-indexed annuities) as a hedge shall not be recognized in the determination of accumulated deficiencies.

Guidance Note:

The requirements of Section 4.A.4 govern the determination of contract reserves and do not supersede any statutes, laws or regulations of any state or jurisdiction related to the use of derivative instruments for hedging purposes ~~and~~ but should not be used in determining whether a company is permitted to use such instruments in any state or

jurisdiction.

~~Upon request of the company's domiciliary commissioner and for information purposes to show the effect of including future hedge positions in the projections, the company shall show the results of performing an additional set of projections reflecting only the hedges currently held by the company in support of the contracts falling under the scope of these requirements. Because this additional set of projections excludes some or all of the derivative instruments, the investment strategy used may not be the same as that used in the determination of the CTE amount.~~

5. Revenue Sharing

- a. Projections of accumulated deficiencies may include income from projected future revenue-sharing, net of applicable projected expenses (net revenue-sharing income) if ~~each of~~ the following requirements are met:

- i. The net revenue-sharing income is received by the company.

Guidance Note: For purposes of this section, net revenue-sharing income is considered to be received by the company if it is paid directly to the company through a contractual agreement with either the entity providing the net revenue-sharing income or an affiliated company that receives the net revenue-sharing income. Net revenue-sharing income also would be considered to be received if it is paid to a subsidiary that is owned by the company and if 100% of the statutory income from that subsidiary is reported as statutory income of the company. In this case, the ~~actuary's company~~ needs to assess the likelihood that future net revenue-sharing income is reduced due to the reported statutory income of the subsidiary being less than future net revenue-sharing income received.

- ii. Signed contractual ~~agreement or agreement s~~ are in place as of the valuation date and support the current payment of the net revenue-sharing income.

- iii. The net revenue-sharing income is not already accounted for directly or indirectly as a company asset.

- b. The amount of net revenue-sharing income to be used shall reflect the ~~actuary's company's~~ assessment of factors that include, but are not limited to, the following (not all of these factors will necessarily be present in all situations):

- i. The terms and limitations of the agreement(s), including anticipated revenue, associated expenses and any contingent payments incurred or made by either the company or the entity providing the net revenue-sharing as part of the agreement(s).
- ii. The relationship between the company and the entity providing the net revenue-sharing income that might affect the likelihood of payment and the level of expenses.
- iii. The benefits and risks to both the company and the entity paying the net revenue-sharing income of continuing the arrangement.

- iv. The likelihood that the company will collect the net revenue-sharing income during the term(s) of the agreement(s) and the likelihood of continuing to receive future revenue after the agreement(s) has ended.
 - v. The ability of the company to replace the services provided to it by the entity providing the net revenue-sharing income or to provide the services itself, along with the likelihood that the replaced or provided services will cost more to provide.
 - vi. The ability of the entity providing the net revenue-sharing income to replace the services provided to it by the company or to provide the services itself, along with the likelihood that the replaced or provided services will cost more to provide.
- c. The amount of projected net revenue-sharing income ~~also~~ shall reflect a margin (which decreases the assumed net revenue-sharing income) directly related to the uncertainty of the revenue. The greater the uncertainty, the larger the margin. Such uncertainty is driven by many factors, including the potential for changes in the securities laws and regulations, mutual fund board responsibilities and actions, and industry trends. Since it is prudent to assume that uncertainty increases over time, a larger margin shall be applied as time that has elapsed in the projection increases.
- d. All expenses required or assumed to be incurred by the company in conjunction with the arrangement providing the net revenue-sharing income, as well as any expenses assumed to be incurred by the company in conjunction with the assumed replacement of the services provided to it (as discussed in Section 34.A.5.b.v), shall be included in the projections as a company expense under the requirements of Section 34.A.1. In addition, expenses incurred by either the entity providing the net revenue-sharing income or an affiliate of the company shall be included in the applicable expenses discussed in Section 34.A.1 and Section 34.A.5.a that reduce the net revenue-sharing income.
- e. The actuary company is responsible for reviewing the revenue-sharing agreements; and verifying compliance with these requirements and documenting the rationale for any source of net revenue sharing income used in the projections.
- f. The amount of net revenue-sharing income assumed in a given scenario shall not exceed the sum of (ai) and (bii), where:
- (ai) Is the contractually guaranteed net revenue-sharing income projected under the scenario.
 - (bii) Is the actuary's company's estimate of non-contractually guaranteed net revenue-sharing income before reflecting any margins for uncertainty multiplied by the following factors:
 - a) 1.000 in the first projection year.
 - b) 0.995 in the second projection year.
 - c) 0.890 in the third projection year.
 - d) 0.785 in the fourth projection year.

e) 0.680 in the fifth projection year.

~~f) 0.5 in the sixth and all subsequent projection years. The resulting amount of non-contractually guaranteed net revenue sharing income after application of this factor shall not exceed 0.25% per year on separate account assets in the sixth and all subsequent projection years.~~

6. Length of Projections

Projections of accumulated deficiencies shall be run for as many future years as needed so that no materially greater reserve value would result from longer projection periods.

7. ~~AVR~~ Interest Maintenance Reserve (IMR)

The ~~AVR and the~~ IMR shall be handled consistently with the treatment in the company's cash-flow testing, ~~and the amounts should be adjusted to a pre-tax basis.~~

B. Determination of Scenario ~~Greatest Present Values~~ Reserve

~~1. Scenario Greatest Present Values~~

1. General

For a given scenario, the scenario ~~greatest present values~~ reserve is the sum of:

- a. The greatest present value, as of the projection start date, of the projected accumulated deficiencies ~~defined in Section 1.E.2.f.; and~~
- b. ~~b.~~ The starting asset amount.

When using the direct Iteration method ~~described in Section 4.B.5~~, the scenario reserve will equal the final starting asset amount determined according to Section 4.B. ~~45~~.

The scenario reserve for any given scenario shall not be less than the cash surrender value in aggregate on the valuation date for the group of contracts modeled in the projection.

2. Discount Rates

In determining the scenario ~~greatest present values~~ reserve, accumulated deficiencies shall be discounted ~~using the same interest rates at which positive cash flows are invested at the (NAER) net asset earned rate on additional assets, as determined defined in Section 4.B.3.~~

~~3.D.4. Such interest rates shall be reduced to reflect expected credit losses. Note Determination of NAER on Additional Invested Asset Portfolio~~

a. The additional invested asset portfolio for a scenario is a portfolio of general account assets as of the valuation date, outside of the starting asset portfolio, ~~that the interest rates used~~ is required in that projection scenario so that the projection would not have a positive accumulated deficiency at the end of any projection year. This portfolio may include only (i) general account assets available to the company on the valuation date that ~~do not include a reduction for federal income taxes~~ constitute part of the starting asset portfolio, and (ii) cash assets.

Guidance Note: Additional invested assets should be selected in a manner such that if the starting asset portfolio were revised to include the additional invested assets, the projection would not be expected to experience any positive accumulated deficiencies at the end of any projection year.

It is assumed that the accumulated deficiencies for this scenario projection are known.

- b. To determine the NAER on additional invested assets for a given scenario:
- i. Project the additional invested asset portfolio as of the valuation date to the end of the projection period,
 - a) investing any cash in the portfolio and reinvesting all investment proceeds using the company's investment policy;
 - b) without regard to excluding any liability cash flows, and
 - c) incorporating the appropriate returns, defaults, and investment expenses for the given scenario.
 - ii. If the value of the projected additional invested asset portfolio does not equal or exceed the accumulated deficiencies at the end of each projection year for the scenario, increase the size of the initial additional invested asset portfolio as of the valuation date, and repeat the preceding step--step.
 - iii. Determine a vector of annual earned rates that replicates the growth in the additional invested asset portfolio from the valuation date to the end of the projection period for the scenario. This vector will be the NAER for the given scenario--scenario.

Guidance Note: There are multiple ways to select the additional invested asset portfolio at the valuation date. Similarly, there are multiple ways to determine the earned rate vector. The company ~~shall~~should be consistent in its choice of methods, from one valuation to the next.

4. Direct Iteration

In lieu of the method described in Section 4.B.2 and Section 4.B.3 above, the company may solve for the amount of starting assets which, when projected along with all contract cash flows, result in the defeasement of all projected future benefits and expenses at the end of the projection horizon with no accumulated deficiencies at the end of any projection year during the projection period.

C. Projection Scenarios

1. Minimum Required Number of Scenarios

The number of scenarios for which projected greatest present values of accumulated deficiencies the scenario reserve shall be computed shall be the responsibility of the

actuary company and shall be considered to be sufficient if any resulting understatement in total reserves, the stochastic reserve, as compared with that resulting from running additional scenarios, is not material.

2. Economic Scenario Calibration Criteria Generation

U.S. Returns Treasury interest rate curves, as well as investment return paths for the groupings of variable funds, general account equity assets and separate account fund performance shall be determined on a stochastic basis ~~such as~~ using the methodology described in Section 8. If the company uses a proprietary generator to develop scenarios, the company shall demonstrate that the resulting distribution of the gross wealth ratios of the scenarios meets the scenario calibration criteria specified meet the requirements described in Section 78.

D. Projection of Assets

1. Starting Asset Amount

a. For the projections of accumulated deficiencies, the value of assets at the start of the projection shall be set equal to the approximate value of statutory reserves at the start of the projection, plus the allocated amount of PIMR attributable to the assets selected. Assets shall be valued consistently with their annual statement values. The amount of such asset values shall equal the sum of the following items, all as of the start of the projection:

- i. All of the separate account assets supporting the contracts;
- ii. ~~b. Any hedge assets-instruments held in support of the guarantees in the contracts being valued;~~ and
- ~~ii.~~ iii. An amount of assets held in the general account equal to the approximate value of statutory reserves as of the start of the projections less the amount in (ai) and (ii).

Guidance Note: Deferred hedge gains/losses developed under SSAP108 are not included in the value of the starting assets

In many instances,

- b. If the amount of initial general account assets may be negative, resulting in the model should reflect a projected interest expense. General account assets chosen for use as described above shall be selected on a consistent basis from one reserve valuation hereunder to the next.
- c. Any To the extent the sum of the value of hedge assets meeting the requirements described in Section 3.A.4 shall be reflected in the projections and included with, or cash or other general account assets under item (b). To an amount equal to the extent the sum of the aggregate market value of such hedge assets, and the value of separate account assets in item (a) supporting the contracts is greater than the approximate value of statutory reserves as of the start of the projections, then item (b) may the company shall include enough negative general account assets or cash such that the sum of items (a) and (b) starting asset amount equals the approximate value of statutory reserves as of the start of the projections.

Deferred hedge gains/losses developed under SSAP108 are not included in the value of the starting assets

~~Guidance Note: Further elaboration on potential practices with regard to this issue may be included in a practice note.~~

~~The actuary shall document which assets were used as of the start of the projection, the approach used to determine which assets were chosen and shall verify that the value of the assets equals the approximate value of statutory reserves at the start of the projection.~~

- d. ~~For an asset portfolio that supports both policies and contracts that are subject and not subject to these requirements, the company shall determine an equitable method to apportion the total amount of starting assets between the subject and non-subject policies and contracts.~~

2. Valuation of Projected Assets

For purposes of determining the projected accumulated deficiencies, the value of projected assets shall be determined in a manner consistent with their value at the start of the projection. ~~However, for derivative instruments that are used in hedging and that are not assumed to be sold during a particular projection interval, the company may account for them at amortized cost in an appropriate manner elected by the company.~~

For assets assumed to be purchased during a projection, the value shall be determined in a manner consistent with the value of assets at the start of the projection that have similar investment characteristics.

3. Separate Account Assets

For purposes of determining the starting asset amounts in Section 34.D.1 and the valuation of projected assets in Section 34.D.2, assets held in a separate account shall be summarized into asset categories determined by the ~~actuary~~ company as discussed in Section 34.A.2.

4. General Account Assets

- a. General account assets shall be projected, net of projected defaults, using assumed investment returns consistent with their book value and expected to be realized in future periods as of the date of valuation. Initial assets that mature during the projection and positive cash flows projected for future periods shall be invested ~~at interest rates, which, at in a manner that is representative of and consistent with the option of the actuary, are one of company's investment policy, subject to the following requirements:~~

- i. ~~The final maturities and cash flow structures of assets purchased in the model, such as the patterns of gross investment income and principal repayments or a fixed or floating rate interest basis, shall be determined by the company as part of the model representation;~~
- ii. ~~The combination of price and structure for fixed income investments and derivative instruments associated with fixed income investments shall appropriately reflect the projected U.S. Treasury curve along the relevant scenario and the requirements for gross asset spread assumptions stated below;~~

iii. For purchases of public non-callable corporate bonds, follow the requirements defined in VM-20 Sections 7.E, 7.F, and 9.F. The prescribed spreads reflect current market conditions as of the model start date and grade to long-term conditions based on historical data at the start of projection year four;

iv. The forward interest rates implied by the swap curve in effect as of the valuation date. For transactions of derivative instruments associated with fixed income investments, reflect the prescribed assumptions in VM-20 Section 9.F for interest rate swap spreads;

v. For purchases of other fixed income investments, if included in the model investment strategy, set assumed gross asset spreads over U.S. Treasuries in a manner that is consistent with, and results in reasonable relationships to, the prescribed spreads for public non-callable corporate bonds and interest rate swaps.

b. Notwithstanding the above requirements, the model investment strategy and any non-prescribed asset spreads shall be adjusted as necessary so that the aggregate reserve is not less than that which would be obtained by substituting an alternative investment strategy in which all fixed income reinvestment assets are public non-callable corporate bonds with gross asset spreads, asset default costs, and investment expenses by projection year that are consistent with a credit quality blend of 50% PBR credit rating 6 (A2/A) and 50% PBR credit rating 3 (Aa2/AA).

Policy loans, equities and derivative instruments associated with the execution of a clearly defined hedging strategy are not affected by this requirement.

Drafting Note: this limitation is being referred to LATF for review.

~~Policy loans, equities and derivative instruments associated with the execution of a clearly defined hedging strategy are not affected by this requirement.~~

c. Any disinvestment shall be modeled in a manner that is consistent with the company's investment policy and that reflects the company's cost of borrowing where applicable, provided that the assumed cost of borrowing is not lower than the rate at which positive cash flows from invested assets are reinvested in the same time period taking into account duration, ratings, and other attributes of the borrowing mechanism. Gross asset spreads used in computing market values of assets sold in the model shall be consistent with, but not necessarily the same as, the gross asset spreads in Section 4.D.4.a.iii and Section 4.D.4.a.v, recognizing that initial assets that mature during the projection may have different characteristics than modeled reinvestment assets.

Guidance Note: this limitation is being referred to LATF for review. The simple language above ("provided that the assumed cost of borrowing is not lower than the rate at which positive cash flows are reinvested in the same time period") is not intended to impose a literal requirement. It is intended to reflect a general concept to prevent excessively optimistic borrowing assumptions for funding future deficiencies. It is recognized that borrowing parameters and rules can be complicated, such that modeling limitations may not allow for literal compliance, in

every time step, as long as the reserve is not materially impacted. However, if the company is unable to fully apply this restriction, prudence dictates that a company shall not allow borrowing assumptions to materially reduce the reserve consistently higher average cost of borrowing relative to the reinvestment rate for the same period. In general, it would be inappropriate to assume consistently lower borrowing costs for consecutive model periods or material amounts of borrowing.

5. Cash Flows from Invested Assets

- a. Cash flows from general account fixed income assets, including starting and reinvestment assets, shall be reflected in the projection as follows:
 - i. Model gross investment income and principal repayments in accordance with the contractual provisions of each asset and in a manner consistent with each scenario.
 - ii. Reflect asset default costs as prescribed in VM-20 Section 9.F and anticipated investment expenses through deductions to the gross investment income.
 - iii. Model the proceeds arising from modeled asset sales and determine the portion representing any realized capital gains and losses.
 - iv. Reflect any uncertainty in the timing and amounts of asset cash flows related to the paths of interest rates, equity returns, or other economic values directly in the projection of asset cash flows. Asset defaults are not subject to this requirement, since asset default assumptions must be determined by the prescribed method in VM-20 Sections 7.E, 7.F, and 9.F.
- b. Cash flows from general account equity assets (i.e., non-fixed income assets having substantial volatility of returns such as common stocks and real estate), including starting and reinvestment assets, shall be reflected in the projection as follows:
 - i. Determine the grouping for asset categories and the allocation of specific assets to each category in a manner that is consistent with that used for separate account assets, as discussed in Section 4.A.2.
 - ii. Project the gross investment return including realized and unrealized capital gains in a manner that is consistent with the stochastically generated scenarios.
 - iii. Model the timing of an asset sale in a manner that is consistent with the investment policy of the company for that type of asset. Reflect expenses through a deduction to the gross investment return using prudent estimate assumptions.

Guidance Note: The swap curve is based on the Federal Reserve H.15 interest swap rates. The rates are for a fixed rate payer in return for receiving three month LIBOR. One place where these rates can be found is www.federalreserve.gov/releases/h15/default.htm.

- b. The 200 interest rate scenarios available as prescribed for Phase I, C 3 RBC calculation, coupled with the separate account return scenarios by mating them up with the first 200 such scenarios and repeating this process until all separate account return scenarios have been mated with a Phase I scenario.
- e. Interest rates developed for this purpose from a stochastic model that integrates the development of interest rates and the separate account returns.

~~When the option described in (a)—the forward interest rates implied by the swap curve—is used, an amount shall be subtracted from the interest rates to reflect the current market expectations about future interest rates using the process described in Section 3.E.1.~~

~~The actuary may switch from (a) to (b), from (a) to (c) or from (b) to (c) from one valuation date to the next, but may not switch in the other direction without approval from the domiciliary commissioner.~~

E. Projection of Annuitization Benefits (Including GMIBs and GMWBs)

1. Assumed Annuitization Purchase Rates at Election

For purposes of projecting annuitization benefits (including annuitizations stemming from the election of a GMIB~~), and withdrawal amounts from GMWBs~~, the projected annuitization purchase rates shall be determined assuming that market interest rates available at the time of election are the interest rates used to project general account assets, as determined in Section 3.D.4. ~~However, where the interest rates used to project general account assets are based upon the forward interest rates implied by the swap curve in effect as of the valuation date (i.e., the option described in Section 3.D.4.a is used, herein referred to as a point estimate), the margin between the cost to purchase an annuity using the guaranteed purchase basis and the cost using the interest rates prevailing at the time of annuitization shall be adjusted as discussed below.~~ 4.D.4.

~~If a point estimate is being used, it is important that the margin assumed reflects the current market expectations about future interest rates at the time of annuitization, as described more fully below, and a downward adjustment to the interest rate assumed in the purchase rate basis. The latter adjustment is necessary since a greater proportion of contract holders will select an annuitization benefit when it is worth more than the cash surrender value than when it is not. As a practical matter, this effect can be approximated by using an interest rate assumption in the purchase rate basis that is 0.30% below that implied by the forward swap curve, as described below.~~

~~To calculate market expectations of future interest rates, the par or current coupon swap curve is used (documented daily in Federal Reserve H.15 with some interpolation needed). Deriving the expected rate curve from this swap curve at a future date involves the following steps:~~

- ~~a. Calculate the implied zero coupon rates. This is a well-documented “bootstrap” process. For this process, we use the equation $100 - C^n * (v + v^2 + \dots + v^n) + 100v^n$ where the “ v^i ” terms are used to stand for the discount factors applicable to cash flows 1, 2, ..., n years hence and C^n is the n-year swap rate. Each of these discount factors is based on the forward curve and, therefore, is based on a different rate (i.e., “ v^2 ” does not equal v times v). Given the one-year swap rate, one can solve for v . Given v and the two-year swap rate, one can then back into v^2 , and so on.~~
- ~~b. Convert the zero coupon rates to one-year forward rates by calculating the discount factor needed to get from v^{i-1} to v^i .~~
- ~~c. Develop the expected rate curve.~~

~~This recognizes that, for example, the five-year forward one-year rate is not the rate the market expects on one-year instruments five years from now. The reason is that as the bond gets shorter, the “risk premium” in the rate diminishes. This is sometimes characterized as “rolling down” the yield curve. Table A shows the~~

historic average risk premium at various durations. From this table, one can see that to get the rate the market expects a one-year swap to have five years from now, one must subtract the risk premium associated with six-year rates (0.95%) and add back that associated with one-year rates (0.50%). This results in a net reduction of 0.45%.

Table A: Risk Premium by Duration

Duration	Risk Premium	Duration	Risk Premium
1	0.500%	6	0.950%
2	0.750%	7	1.000%
3	0.750%	8	1.100%
4	0.850%	9+	1.150%

The Exhibit below combines the three steps. Column A through Column D convert the swap curve to the implied forward rate for each future payment date. Column E through Column H remove the current risk premium, add the risk premium t years in the future (the Exhibit shows the rate curve five years in the future), and uses that to get the discount factors to apply to the one-year, two-year, ... five-year cash flows five years from now.

Exhibit: Derivation of discount rates expected in the future

	A	B	C	D	E	F	G	H
1 2 3	Projection Years	Swap Curve Rate	PV of Zero Coupon	Forward 1 Year Rate	Risk Premium	Risk Premium 5-Years Out	Expected Forward Rate In 5 Years	PV of Zero Coupon in 5-Years
4	1	2.57%	0.97494	2.5700%	0.5000%			
5	2	3.07%	0.94118	3.5879%	0.75000%			
6	3	3.44%	0.90302	4.2251%	0.75000%			
7	4	3.74%	0.86231	4.7208%	0.85000%			
8	5	3.97%	0.82124	5.0010%	0.90000%			
9	6	4.17%	0.77972	5.3249%	0.95000%	0.50000%	4.8749%	0.95352
10	7	4.34%	0.73868	5.5557%	1.00000%	0.75000%	5.3057%	0.90547
11	8	4.48%	0.69894	5.6860%	1.10000%	0.75000%	5.3360%	0.85961
12	9	4.60%	0.66050	5.8209%	1.15000%	0.85000%	5.5209%	0.81463
13	10	4.71%	0.62303	6.0131%	1.15000%	0.90000%	5.7631%	0.77024
14	Cell formulas for Projection Year 10		=(1-B13 *SUM (\$C\$4:C12))/ (1+B13)	=(C12/C13)- 1		=E8	=D13- E13+F13	=H12/(1+ G13)

Where interest rates are projected stochastically using an integrated model, although one would “expect” the interest rate n years hence to be that implied for an appropriate duration asset by the forward swap curve as described above, there is a steadily widening confidence interval about that point estimate with increasing time until the annuitization date. The “expected margin” in the purchase rate is less than that produced by the point estimate based on the expected rate, since a greater

proportion of contract holders will have an annuitization benefit whose worth is in excess of cash surrender value when margins are low than when margins are high. As a practical matter, this effect can be approximated by using a purchase rate margin based on an earnings rate 0.30% below that implied by the forward swap curve. If a stochastic model of interest rates is used instead of a point estimate, then no such adjustment is needed.

2. Projected Election of ~~Guaranteed Minimum Income Benefit~~GMIBs, GMWBs and Other Annuitization Options
 - a. For contracts projected to elect annuitization options (including annuitizations stemming from the election of a GMIB~~;~~) or for projections of GMWB benefits once the account value has been depleted, the projections may assume one of the following at the ~~actuary's company's~~ option:
 - i. The contract is treated as if surrendered at an amount equal to the statutory reserve that would be required at such time for ~~the payout annuity benefits~~a fixed payout annuity benefit equivalent to the guaranteed benefit amount (e.g. GMIB or GMWB benefit payments).
 - ii. The contract is assumed to stay in force, and the projected periodic payments are paid, and the Working Reserve is equal to one of the following:
 - (a) The statutory reserve required for the payout annuity, if it is a fixed payout annuity.
 - ~~iii. ii. ii.~~ ~~ii.~~ If it is a variable payout annuity, the working reserve for a variable payout annuity.
 - a.b. If the projected payout annuity is a variable payout annuity containing a floor guarantee (such as a GPAF) under a specified contractual option, only option (ii) under Section 4.E.2.a above shall be used.
 - c. Where mortality improvement is used to project future annuitization purchase rates, as discussed in Section 4.E.1 above, mortality improvement also shall be reflected on a consistent basis in either the determination of the reserve in Section 4.E.2.a.i- above or the projection of the periodic payments in Section 4.E.2.a.ii.

3. Projected Statutory Reserve for Payout Annuity Benefits

If the statutory reserve for payout annuity benefits referenced above in Section 4.E.2.a requires a parameter that is not determined in a formulaic fashion ~~such that in reflecting the projected statutory reserve of a payout annuity benefit in the future,~~ the company must make a reasonable and supportable assumption regarding this parameter.

Guidance Note: F.

Relationship to RBC Requirements

These requirements anticipate that the projections described herein may be used for the determination of RBC for some or all of the contracts falling within the scope of these requirements. There are several differences between these requirements and the RBC requirements, and among them for the topics covered within Section 4.A to 4.E are two major differences. First, the CTE level is different — CTE (70) for these requirements and

~~CTE (90) for the RBC requirements. Second, identical. However, while the projections described in these requirements are performed on a basis that ignores federal income tax. That is, under these requirements, the accumulated deficiencies do not include, a company may elect to conduct the projections for calculating the RBC requirements by including projected federal income tax in the cash flows and reducing the discount interest rates used to discount the scenario greatest present value (i.e., the interest rates determined in Section 3.D.4. contain no reduction for reflect the effect of federal income tax). Under the RBC requirements, the projections do include projected as described in the RBC requirements. A company that has elected to calculate RBC requirements in this manner may not switch back to using a calculation that ignores the effect of federal income tax, and the discount interest rates used in the RBC requirement do contain a reduction for federal income tax without approval from the domiciliary commissioner.~~

1. To further aid the understanding of these requirements and any instructions relating to the RBC requirement, it is important to note the equivalence in meaning between the following terms, subject to the differences noted above:
 - a. The accumulated deficiency, the amount that is added to the starting asset amount in Section 2.D, is similar to the additional asset requirement referenced in the RBC requirement.
 - b. The CTE amount referenced in these requirements is similar to the total asset requirement referenced in the RBC requirement.

F. Frequency of Projection and Time Horizon

1. Use of an annual cash-flow frequency ("timestep") is generally acceptable for benefits/features that are not sensitive to projection frequency. The lack of sensitivity to projection frequency should be validated by testing wherein the company should determine that the use of a more frequent (i.e., shorter) time step does not materially increase reserves. A more frequent time increment always should be used when the product features are sensitive to projection period frequency.

2. Care must be taken in simulating fee income and expenses when using an annual time step. For example, recognizing fee income at the end of each period after market movements, but prior to persistency decrements, normally would be an inappropriate assumption. It also is important that the frequency of the investment return model be linked appropriately to the projection horizon in the liability model. In particular, the horizon should be sufficiently long so as to capture the vast majority of costs (on a present value basis) from the scenarios.

Guidance Note: As a general guide, the forecast horizon should not be less than 20 years.

G. Compliance with ASOPs

When determining ~~the CTE amounts~~ stochastic reserve using projections, the analysis shall conform to the ~~ASOPs~~ as promulgated from time to time by the ~~Actuarial Standards Board~~ ASB.

Under these requirements, ~~the~~an actuary ~~must will~~ make various determinations, verifications and certifications. The company shall provide the actuary with the necessary information sufficient to permit the actuary to fulfill the responsibilities set forth in these requirements and responsibilities arising from applicable ~~ASOP, including ASOP No. 23, Data Quality~~ ASOPs.

H. Compliance with Principles

When determining the CTE amount using projections, any interpretation and application of the requirements of these requirements shall follow the principles discussed in Section 1.B.

Section 4: Reinsurance and Statutory Reporting Issues

Section 5: Reinsurance Ceded

A. Treatment of Reinsurance Ceded in the Aggregate Reserve

1. Aggregate Reserve ~~Net of Pre- and Prior to Post-~~Reinsurance Ceded

As noted in Section 23.B, the aggregate reserve is determined ~~both pre-reinsurance ceded and net of post-reinsurance ceded~~. Therefore, it is necessary to determine the components needed to determine the aggregate reserve (i.e., the ~~additional standard scenario projection amount, and either the CTE amount stochastic reserve determined using projections and/or the CTE amount reserve determined using the Alternative Methodology, as applicable~~) on ~~both bases a net of post-reinsurance ceded basis. In addition, as noted in Section 23.B, it may be necessary to determine the aggregate reserve determined on a "direct pre-reinsurance ceded basis, or prior to reflection of reinsurance ceded. Where this is needed, each of these components shall be determined prior to ignoring the effect of reinsurance ceded.~~ Sections 45.A.2 through Section 45.A.4 discuss ~~methods adjustments to inputs~~ necessary to determine these components on both a "~~net of post-reinsurance~~" ceded and a "~~prior to pre-reinsurance~~" ceded basis. Note that due allowance for reasonable approximations may be used where appropriate.

2. ~~CTE Amount Stochastic Reserve~~ ~~Determined Using Projections~~

In order to determine the aggregate reserve ~~net of post-reinsurance ceded~~, accumulated deficiencies, scenario ~~greatest present values reserves~~ and the resulting ~~CTE amount stochastic reserve~~ shall be determined reflecting the effects of reinsurance treaties that meet the statutory requirements that would allow the treaty to be accounted for as reinsurance within ~~the projections statutory accounting~~. This involves including, where appropriate, all anticipated reinsurance premiums or other costs and all reinsurance recoveries, where both premiums and recoveries are determined by recognizing any limitations in the reinsurance treaties, such as caps on recoveries or floors on premiums.

In order to determine the ~~CTE amount prior to stochastic reserve pre-reinsurance ceded~~, accumulated deficiencies, scenario ~~greatest present values reserves~~ and the resulting ~~CTE amount stochastic reserve~~ shall be determined ignoring the effects of reinsurance ~~ceded~~ within the projections. One acceptable approach involves a projection based on the same starting asset amount as for the aggregate reserve ~~net of post-reinsurance ceded~~ and by ignoring, where appropriate, all anticipated reinsurance premiums or other costs and all reinsurance recoveries in the projections.

3. ~~CTE Amount Reserve~~ Determined using the Alternative Methodology

If a company chooses to use the Alternative Methodology, as allowed in Section 23.E, it is important to note that the methodology produces reserves on a ~~prior to pre-reinsurance ceded~~ basis. Therefore, where reinsurance is ceded, the Alternative Methodology must be modified to reflect the reinsurance costs and reinsurance recoveries under the reinsurance treaties in the determination of the aggregate reserve ~~net of post-reinsurance ceded~~. In addition, the Alternative Methodology, unadjusted for reinsurance, shall be applied to the

contracts falling under the scope of these requirements to determine the ~~Aggregate Reserve prior to aggregate reserve pre-reinsurance ceded.~~ Aggregate Reserve prior to aggregate reserve pre-reinsurance ceded.

4. Additional Standard Scenario Projection Amount

Where reinsurance is ceded, the additional standard ~~scenario projection~~ amount shall be calculated as described in Section 56 to reflect the reinsurance costs and reinsurance recoveries under the reinsurance treaties. ~~If it is necessary, the~~ The additional standard ~~scenario projection~~ amount shall ~~be also be~~ calculated ~~prior to pre-reinsurance ceded~~ using the methods described in Section 56, but ignoring the effects of the reinsurance ceded.

B. _____

Section 6: Requirements for the Additional Standard Projection Amount

Aggregate Reserve to Be Held in the General Account

~~The amount of the reserve held in the general account shall not be less than the excess of the aggregate reserve over the sum of the basic reserve, as defined in Section 5.B, attributable to the variable portion of all such contracts.~~

C. Actuarial Certification and Memorandum

1. Actuarial Certification

~~Actuarial certification of the work done to determine the aggregate reserve shall be required. A qualified actuary (referred to throughout these requirements as “the actuary”) shall certify that the work performed has been done in a way that substantially complies with all applicable ASOP. The scope of this certification does not include an opinion on the adequacy of the aggregate reserve, the company’s surplus or the company’s future financial condition. The actuary also shall note any material change in the model or assumptions from that used previously and the estimated impact of such changes.~~

~~Section 10 contains more information on the contents of the required actuarial certification.~~

Guidance Note: The adequacy of total company reserves, which includes the aggregate reserve, is addressed in the company’s actuarial opinion as required by VM-30.

2. Required Memorandum

~~An actuarial memorandum shall be constructed documenting the methodology and assumptions upon which the aggregate reserve is determined. The memorandum also shall include sensitivity tests that the actuary feels appropriate, given the composition of the company’s block of business (i.e., identifying the key assumptions that, if changed, produce the largest changes in the aggregate reserve). This memorandum shall have the same confidential status as the actuarial memorandum supporting the actuarial opinion and shall be available to regulators upon request.~~

~~Section 10 contains more information on the contents of the required memorandum.~~

Guidance Note: This is consistent with Section 3A(4)(h) of the Standard Valuation Law, which states: “Except as provided in paragraphs (l), (m) and (n), documents, materials or other information in the possession or control of the Department of Insurance that are a memorandum in support of the opinion, and any other material provided by the company to the commissioner in connection with the memorandum, shall be confidential by law and privileged, shall not be subject to [insert open records, freedom of information, sunshine or other appropriate phrase], shall not be subject to subpoena, and shall not be subject to discovery or admissible in evidence in any private civil action. However, the commissioner is authorized to use the documents, materials or other information in the furtherance of any regulatory or legal action brought as a part of the commissioner’s official duties.”

3. CTE Amount Determined Using the Alternative Methodology

~~Where the Alternative Methodology is used, there is no need to discuss the underlying assumptions and model in the required memorandum. Certification that expense, revenue, fund mapping and product parameters have been properly reflected, however, shall be required.~~

Section 10 contains more information on the contents of the required actuarial certification and memorandum.

4. Material Changes

If there is a material change in results due to a change in assumptions from the previous year, the memorandum shall include a discussion of such change in assumptions and an estimate of the impact it has on the results.

Section 5: Standard Scenario Requirements

A. Overview

1. Application to Determine Reserves

A1. Determining the Additional Standard Projection Amount

a. The additional standard scenario reserve projection amount shall be the larger of zero and an amount determined in aggregate for each of the all contracts falling under the scope of these requirements by applying Section 5.C. This includes, excluding those contracts to which the Alternative Methodology is applied.

The standard scenario reserve for a contract with guaranteed living benefits or guaranteed death benefits is based on a projection of, by calculating the account value based on specified returns for supporting assets equal to the account value. An initial drop is applied to the supporting assets and account value on the valuation date. Subsequently, account values are projected at specified rates earned by the supporting assets less contract and fund charges. The assumptions for the projection of account values and margins are prescribed in Section 5.C.3. For any contract with guarantees, the standard scenario reserve includes the greatest present value of the benefit payments in excess of account values applied over the present value of revenue produced by the margins.

2. The Standard Scenario Amount

The standard scenario amount is defined in Section 2.C of these requirements as the aggregate of the reserves determined by applying the Standard Scenario Method to each of the contracts falling under the scope of these requirements. Except as provided in Section 5.C.2.a, the Standard Scenario Prescribed Projections Amount equals the sum over all contracts of the standard scenario reserve determined for each contract as of the statement date by one of two methods: the Company-Specific Market Path (CSMP) method or the CTE with Prescribed Assumptions (CTEPA) method. Unfloored CTE70 (adjusted) and Unfloored CTE65 (adjusted), and then combining them as defined below. The company shall assess the impact of aggregation on the additional standard projection amount.

Guidance Note: The following outlines one method that may be used to assess the impact of aggregation. If a company plans to use a different method, they should discuss that method with their domiciliary commissioner.

If a company uses the CSMP method, the benefit of aggregation is determined using the following steps, based on Path A, and using prescribed assumptions and discount rates used to calculate prescribed Amount A:

1. Calculate the present value of each contract's accumulated deficiency up through the duration of the aggregate GPVAD. When determining the contract accumulated deficiency: (a) contract starting assets equal CSV, (b) contract level starting assets include both separate account and general account assets, and exclude any hedge assets, (c) discount rate for the PVAD is the NAER, and (d) for a contract that terminates prior to the duration of the GPVAD, there will no longer be liability cash flows, but assets (positive or negative) continue to accumulate.

2. The impact of aggregation is the sum of the absolute value of the negative amounts from step 1 above.

If a company uses the CTEPA method, it should apply steps 1 and 2 above to each model point, using the same scenario used for the cumulative decrement analysis, and using that scenario's NAER as the discount rates for discounting the accumulated deficiency from the time of the GPVAD. For GMWBs and hybrid GMIBs that use the Withdrawal Delay Cohort Method as specified in VM-21 Section 6.C.5, cash flows for each contract or for each model point shall be determined as the aggregate across all of the constituent cohorts of the contract or model point.

The Standard Scenario Method requires the standard scenario amount to not be less than the sum over all contracts of the standard scenario reserve determined for the contract as of the statement date as described in Section 5.C, where the discount rate is equal to DR , which is defined as the valuation interest rate specified by the Standard Valuation Law for annuities valued on an issue year basis, using Plan Type A and a guarantee duration greater than 10 years but not more than 20 years. The presence of guarantees of interest on future premiums and/or cash settlement options is to be determined using the terms of the contracts.

3. Illustrative Application of the Standard Scenario to a Projection or Model Office

If the CTE Amount is determined based on a projection of an in-force prior to the statement date and/or by

b. The additional standard projection amount shall be calculated based on the scenario reserves, as discussed in Section 4.B, with certain prescribed assumptions replacing the company prudent estimate assumptions. As is the case in the projection of a scenario in the calculation of the stochastic reserve, the scenario reserves used to calculate the additional standard projection amount are based on an analysis of asset and liability cash flows produced along certain equity and interest rate scenario paths.

2. Inforce In force Used for the Additional Standard Projection Amount

If the stochastic reserve is determined by the use of a model office, which is a grouping of contracts into representative cells, then additional determinations of Section 5.A.2 shall be performed on the prior in force and/or the model office. The calculations are for illustrative purposes to assist in validating the reasonableness of the projection and/or the model office.

The following table identifies the illustrative additional determinations required by this section using the discount rate, DR , as defined in Section 5.A.2. The additional

determinations required are based on how the CTE shall be replaced with a seriatim in force prior to the projection or Alternative Methodology is applied. For completeness, the table also includes the determinations required by Section 5.A.2.

- a. ~~Run A in the table is required for all companies by Section 5.A.2. No needed to calculate the additional determinations are required standard projection amount if the CSMP method described in Section 6.B.2. a company's stochastic or alternative methodology result is calculated on individual contracts as of the statement date.~~
- b. ~~A used. If the company that uses a model office as of the statement date elects to determine its stochastic or alternative methodology result must provide an calculate the additional determination for standard projection amount using the CTEPA method described in Section 6.B.2.b, it may continue to use the same model office based on the discount rate DR, run B.~~
- iv. ~~A company grouping of contracts, or one that uses a contract by contract listing of a prior in force is no less granular than the grouping that was used to determine is the stochastic or alternative methodology with result PS and then projects requirements to the statement date with result S must provide an reserve, provided that, using such a grouped in force in force does not materially reduce the additional determination for the prior in force based on the discount rate DR, run C.~~
- d. ~~A company that uses a model office of a prior in force to determine its stochastic or alternative methodology requirements with result PM and then projects requirements to the statement date with result S must provide an additional determination for the prior model office based on the discount rate DR, run D.~~

Standard Scenario Run	VM-21 Variations	Validation Measures	
		Model Office Projection	Projection of Prior In Force
A. Valuation on the statement date on in force — contracts with discount rate DR	None	None	None
B. Valuation on the statement date on the — model office with discount rate DR	If not material to model office validation	A/B compare to 1.00	None
C. Valuation on a prior in force date on prior — In force contracts with discount rate DR	If not material to projection validation	None	A/C—S/PS compare to 0
D. Valuation on a prior in force date on a model — office with discount rate DR	If not material to model office or projection validation	(A/D—S/PM) compare to 0	

Modification of the requirements in Section 5.C when applied to a prior in force or a model office is permitted if such modification facilitates validating the standard projection of in force or the model office. All such modifications should be documented.

- B. ~~Basic and Basic Adjusted Reserve Application of Actuarial Guideline XXXIII Determining CARVM Reserves for Annuity Contracts With Elective Benefits (AG 33) in the AP&P Manual~~
- 1. ~~The basic reserve for a given contract shall be determined by applying statutory statement valuation requirements applicable immediately prior to adoption of these requirements to~~

~~the contract ignoring any guaranteed death benefits in excess of account values or guaranteed living benefits applying proceeds in excess of account values.~~

~~2. The calculation of the basic reserve shall assume a return on separate account assets based on the year of issue statutory valuation rate less appropriate asset-based charges, including charges for any guaranteed death benefits or guaranteed living benefits. It also shall assume a return for any fixed separate account and general account options equal to the rates guaranteed under the contract.~~

~~3. The basic reserve shall be no less than the cash surrender value on the valuation date.~~

~~4. The basic adjusted reserve shall be amount that determined based on Section 5.B.1 and Section 5.B.2, except that in Section 5.B.1, free partial withdrawal provisions shall be disregarded when determining surrender charges in applying the statutory statement valuation requirement prior to adoption of these requirements. Section 5.B.3 shall not apply to the basic adjusted reserve would result from using a serial in force in force.~~

~~C. Standard Scenario Reserve Application of the Standard Scenario Method~~

B. Additional Standard Projection Amount

1. General

Where not inconsistent with the guidance given here, the process and methods used to determine the Additional Standard Scenario Reserve Projection Amount under either the Standard Scenario Method CSMP method or the CTEPA method shall be the same as required in the calculation of the CTE amount stochastic reserve as described in Section 23.D of these requirements. Any additional assumptions needed to determine the additional standard scenario reserve projection amount shall be explicitly documented.

2. In force Used for the Additional Standard Projection Amount

If the stochastic reserve is determined by the use of a model office, which is a grouping of contracts into representative cells, the model office shall be replaced with a serial in force prior to the projection needed to calculate the additional standard projection amount if the CSMP method described in Section 6.B.3 a.i is used. If the company elects to calculate the additional standard projection amount using the CTEPA method described in Section 6.B.3 a.ii, it may continue to use the same model office grouping of contracts, or one that is no less granular than the grouping that was used to determine the stochastic reserve, provided that, using such a grouped in force does not materially reduce the additional standard projection amount that would result from using a serial in force.

32. Results for the Standard Scenario Projection Method Calculation Methodology

a. The company shall determine the Prescribed Projections Amount by following either the Company Specific Market Path (CSMP) Method or the CTE with Prescribed Assumptions (CTEPA) Method below. A company may not change the method used from one valuation to the next without approval of the domiciliary commissioner.

3. Calculation Methodology

a. CSMP Method:

i. The company shall apply this method to a seriatim in-force;

ii. Calculate the scenario reserve, as defined in VM-01 and discussed further in Section 4.B, for each of the prescribed market paths outlined in Section 6.B.56 using the same method and assumptions as those that the company uses to calculate scenario reserves for purposes of determining the CTE70 (adjusted)², as outlined in Section 9.C. These scenario reserves shall collectively be referred to as Company Standard Projection Set;

iii. Recalculate all of the scenario reserves in the Company Standard Projection Set using the same method as that outlined in step (a) above, but substituting the assumptions prescribed by Section 6.C and using the modeled in-force prescribed by Section 6.A.2. These recalculated scenario reserves shall collectively be referred to as Prescribed Standard Projection Set;

iv. Identify the market path from the Company Standard Projection Set such that the scenario reserve is closest to the CTE70 (adjusted), designated as Path A. This scenario reserve shall be referred to as Company Amount A;

v. Identify the following four market paths:

- two paths with the same starting interest rate as Path A but equity shocks +/- 5% from that of Path A, and;

- two paths with the same equity fund returns as Path A but the next higher and next lower interest rate shocks, pursuant to ???.

From the four paths, identify the Path B whose reserve value is:

- If Company Amount A is lower than CTE70 (adjusted), the smallest reserve value that is greater than CTE70 (adjusted);
- If Company Amount A is greater than CTE70 (adjusted), the greatest reserve value that is less than CTE70 (adjusted).

If none of the 4 paths satisfy the stated condition, discard the identified Path A, and redo steps iii and iv using the scenario next closer to CTE70 (adjusted) to be the new Path A in step iii.

For the path so identified shall be designated as Path B, and the scenario reserve shall be referred to as Company Amount B;

vi. Identify-Recalculate the scenario reserves in the Prescribed Standard Projection Set that are derived from for Path A and Path B using the same method as outlined in step 4ii above but substituting the assumptions prescribed in Section 6.C and using the modeled in force prescribed by Section 6.B.2. These

² Throughout this Section 6, references to CTE70 (adjusted) shall also mean the Stochastic Reserve for a company that does not have a CDHS as discussed in Section 4.A.4.a.

scenario reserves in the Prescribed Standard Projection Set shall be referred to as Prescribed Amount A and Prescribed Amount B, respectively;

~~viii.~~ vi. Calculate the Prescribed Projections Amount as:

Prescribed Projections Amount

=Prescribed Amount A + (CTE70 (adjusted) – Company Amount A)

$$\times \left(\frac{\text{Prescribed Amount B} - \text{Prescribed Amount A}}{\text{Company Amount B} - \text{Company Amount A}} \right)$$

b. CTEPA Method:

i. If the company used a model office to calculate the CTE Amount, then the company may continue to use the same model office, or one that is no less granular than the model office that was used to determine the CTE Amount, provided that the company shall maintain consistency in the grouping method used from one valuation to the next.

ii. Calculate the Prescribed Projections Amount as the CTE70 (adjusted) using the same method as that outlined in Section 9.C (or which is the same as the stochastic reserves following Section 4.A.4.a for a company that does not have a CDHS) but substituting the assumptions prescribed by Section 6.C. The calculation of this Prescribed Projections Amount also requires that the scenario reserve for any given scenario be equal to or in excess of the cash surrender value in aggregate on the valuation date for the group of contracts modeled in the projection.

c. Once the Prescribed Projections Amount is determined by one of the two methodologies above, then the company shall

~~d.~~ Reduce the Prescribed Projections Amount by the Company's CTE70 (adjusted). The difference shall be referred to as the Unbuffered Additional Standard Projection Amount;

~~ed.~~ Reduce the Unbuffered Additional Standard Projection Amount by an amount equal to the difference between i and ii, where i and ii are calculated in the following manner:

i. Calculate the Unfloored CTE70 (adjusted), using the same procedure as CTE70(adjusted) but without requiring that the scenario reserve for any scenario be no less than the cash surrender value in aggregate on the valuation date

ii. Calculate the Unfloored CTE65 (adjusted), which is calculated in the same way as Unfloored CTE70 (adjusted) but averaging the 35 percent (instead of 30 percent) largest values

~~fec.~~ The For each contract, the standard scenario reserve is the reserve based on a or b where:

- a. ~~For contracts without any guaranteed benefits, where not subsequently disapproved by the domiciliary commissioner, the standard scenario reserve is the basic reserve described in Section 5.B.1, Section 5.B.2 and Section 5.B.3.~~
- b. ~~For all other contracts, the standard scenario reserve is equal to the greater of each surrender value on the valuation date and the quantity i + ii - iii, where:~~
 - i. ~~Is the basic adjusted reserve calculated for the contract, as described in Section 5.B.4.~~
 - ii. ~~Is the greater of zero and the greatest present value at the discount rate measured as of the end of each projection year of the negative of the accumulated net revenue described below using the assumptions described in Section 5.C.3. The accumulated net revenue at the end of a projection year is equal to (a) + (b) - (c), where:~~
 - a) ~~Is the accumulated net revenue at the end of the prior projection year accumulated at the discount rate to the end of the current projection year. The accumulated net revenue at the beginning of the projection (i.e., time 0) is zero.~~
 - b) ~~Are the margins generated during the projection year on account values accumulated at the discount rate to the end of the projection year (the factors and assumptions to be used in calculating the margins and account values are in Section 5.C.3.~~
 - c) ~~Are the contract benefits in excess of account values applied, individual reinsurance premiums and individual reinsurance benefits payable or receivable during the projection year accumulated at the discount rate to the end of the projection year. Individual reinsurance is defined in Section 5.C.3.b.~~

~~additional standard projection~~ Amount shall subsequently be the larger of the quantity calculated in Section 6.B.23.d and zero.

~~34.~~ Modeled Reinsurance

~~Cash flows associated with reinsurance shall be projected in the same manner as that used in the calculation of the stochastic reserve as described in Section 3 of these requirements.~~

~~45.~~ Modeled Hedges

~~Cash flows associated with hedging shall be projected in the same manner as that used in the calculation of the CTE70 (adjusted) as discussed in Section 9.C or Section 4.A.4.a for a company without a CDHS.~~

~~56.~~ Market Paths for CSMP Method

~~If the company elects the CSMP method described in Section 6.B.23.a, the Aadditional Sstandard Pprojection Aamount shall be determined from the scenario reserves calculated for the prescribed market paths defined below. Each prescribed market path shall be defined by an initial equity~~

fund stress and an initial interest rate stress, after which equity fund returns steadily recover and interest rates revert to the same long term mean.

All combinations of prescribed equity fund return scenarios and interest rate scenarios shall be considered prescribed Standard Projection market paths. Accordingly, each company shall calculate scenario reserves for a minimum of 40 market paths.

- a. Equity Fund Returns. Eight equity fund return market paths shall be used. These market paths differ only in the prescribed gross return in the first projection year.

The eight prescribed gross returns for equity funds in the first projection year shall be negative 25% to positive 10%, at 5% intervals. These gross returns shall be projected to occur linearly over the full projection year. After the first projection year, all prescribed equity fund return market paths shall assume total gross returns of 3.0% per annum.

If the eight prescribed equity fund market paths are insufficient for a company to calculate the ~~A~~Additional ~~S~~Standard ~~P~~projection ~~A~~amount via steps (i) ~~t~~through (vii) outlined in Section 6.B.23.a, then the company shall include additional equity fund market paths that increase or decrease the prescribed gross returns in the first projection year by 5% increments at a time.

- b. Interest Rates. Five interest rate market paths shall be used.

The five prescribed interest rate market paths shall differ in the starting U.S. Treasury rates used to generate the mean interest rate path. Specifically, the following five sets of starting U.S. Treasury rates shall be used:

- i. The actual U.S. Treasury rates as of the valuation date;
- ii. The actual U.S. Treasury rates as of the valuation date, reduced at each point on the term structure by 25% of the difference between the U.S. Treasury rate as of the valuation date and 0.01%;
- iii. The actual U.S. Treasury rates as of the valuation date, reduced at each point on the term structure by 50% of the difference between the U.S. Treasury rate as of the valuation date and 0.01%;
- iv. The actual U.S. Treasury rates as of the valuation date, reduced at each point on the term structure by 75% of the difference between the U.S. Treasury rate as of the valuation date and 0.01%;
- v. The actual U.S. Treasury rates as of the valuation date, increased at each point on the term structure by 25% of the difference between the U.S. Treasury rate as of the valuation date and 0.01%.

For each of these five sets of starting U.S. Treasury rates, the prescribed interest rate market path is defined as the interest rate path generated by the prescribed interest rate scenario generator (described in Section 8.B) when the applicable set of starting rates is the initial yield curve for the generator and all random variables in the generator are set to zero across all time periods. The starting U.S. Treasury rates should not change any prescribed parameters in the generator, including the mean reversion parameter. **After creating each vector of rates, the time 0 (valuation date) values should be set back to actual US treasury rates as of the valuation date so that the model will validate to current market values.**

If the five prescribed interest rate market paths are insufficient for a company to calculate the Additional Standard Projection Amount via steps (i) ~~t~~through (vii) outlined in Section 6.B.23.a, then the company shall include additional interest rate market paths that

increase or decrease the prescribed starting U.S. Treasury rates at each point on the term structure by increments equal to 25% of the difference between the U.S. Treasury rate as of the valuation date and 0.01%. The lowest interest rate to be used in this analysis is 0.01%.

For projecting swap rates along the prescribed interest rate market paths, companies shall assume that the swap-to-Treasury spread term structure in effect as of the valuation date persists throughout each market path. The lowest swap rate to be used in this analysis is 0.01%.

- c. Indices and Returns That Are Not Scenario-Specific. The following market indicators and fund returns are constructed in a consistent manner across all prescribed market paths:

- ~~iii. Is the contract's allocation of the value of hedges and aggregate reinsurance as described in Section 5.C.4. Aggregate reinsurance is defined in Section 5.C.3.b.~~

~~No reinsurance shall be considered in the standard scenario amount if such reinsurance does not meet the statutory requirements that would allow the treaty to be accounted for as reinsurance. The actuary shall determine the projected reinsurance premiums and benefits reflecting all treaty limitations and assuming any options in the treaty to the other party are exercised to decrease the value of reinsurance to the reporting company (e.g., options to increase premiums or terminate coverage). The positive value of any reinsurance treaty that is not guaranteed to the insurer or its successor shall be excluded from the value of reinsurance. The commissioner may require the exclusion of a reinsurance treaty or any portion of a reinsurance treaty if the terms of the reinsurance treaty or the portion required to be excluded serves solely to reduce the calculated standard scenario reserve without also reducing risk on scenarios similar to those used to determine the CTE reserve. Any reinsurance reflected in the standard scenario reserve shall be appropriate to the business and not merely constructed to exploit "foreknowledge" of the components of the Standard Scenario Method.~~

3. ~~Assumptions for Use in Section 5.C.2.b.ii. for Accumulated Net Revenue and Account Values~~

- a. ~~Account value return assumptions~~

~~The bases for return assumptions on assets supporting the account value are shown in Table I. The "initial" returns shall be applied to the account value supported by each asset class on the valuation date as immediate drops, resulting in the account value at time 0. The "Year 1," "Years 2–5" and "Year 6+" returns for the equity, bond and balanced classes are gross annual effective rates of return and are used (along with other decrements and/or increases) to produce the account value as of the end of each projection interval. For purposes of this section, money market funds supporting account value shall be considered part of the bond class.~~

Table I

Table 6.1: Returns and Indicators

Returns & indicators	InitialAll projection years

Equity-ClassBond fund returns	-13.5%Equal to the 5-year trailing average of the 5-year U.S. Treasury rate, plus an earned spread of 100 bps per annum. In the first projection year, additionally adjust the projected return by an amount equal to 20% of the prescribed gross equity fund return – with the same directionality, reflected in a linear fashion over the full projection year			
Money market fund returns	Follow the three-month U.S. Treasury rate projected in the prescribed scenario			
Balanced fund returns	Reflect the equity and bond allocations as of the valuation date and any expected asset rebalancing in the projection consistent with fund operations			
Bond ClassGeneral account reinvestment rate	4.85%Consistent with the manner in which general account assets – including starting assets, reinvestment assets, and additional invested assets as defined in Section 4.B.3 – are reflected via the method outlined in Section 4.D.4 and Section 4.D.5, including the requirement in Section 4.D.5.a for fixed income assets			
Balanced-Class	-8.1%	0%	4.34%	5.24%
Fixed Separate Accounts and General Account (net)account returns	0%At the option of the company, either (i) follow the company's documented crediting practices; or (ii) equal to the larger of the contract's minimum guaranteed crediting rate and the general account earned rate less 200 bps. For reinsurers that do not have visibility into the ceding company's direct writer's general account earned rate, the company shall project the ceding company's direct writer's general account earned rate as the 5-year trailing average of the 5-year U.S. Treasury rate, plus an earned spread of 100 bps per annum			
Implied and realized volatility	Follow the forward volatilities implied by the implied volatility term structure in effect as of the valuation date			
Foreign exchange rates	Follow the exchange rates implied by spot exchange rates as of the valuation date and the relevant interest rate term structures			

The fixed fund rate is the greater

C. Prescribed Assumptions

1. Assignment of the minimum rate-Guaranteed Benefit Type

- a. Assumptions shall be set for each contract in accordance with the contract's guaranteed in the contract or 4% but benefit type, where a number of common benefit types are specifically defined in VM-01 (e.g., GMDB, GMIB, GMWB, etc.). In addition, a simple 403(b) VA contract shall be defined as a variable annuity contract that
 - i. is issued within a 403(b) retirement savings plan, and
 - ii. does not greater have a VAGLB and does not have a GMDB with guaranteed benefit basis growth.

~~a-b.~~ Certain VAGLB products have features that can be described by multiple types of guaranteed benefits. If the VAGLB can be described by more than the current rates being credited to fixed funds on the one of the definitions in VM-01 for the purpose of determining the additional standard projection amount, the company shall select the guaranteed benefit type that it deems best applicable and shall be consistent in its selection from one valuation date to the next. For instance, if a VAGLB has both lifetime GMWB and non-lifetime GMWB features and the company determines the lifetime GMWB is the most prominent component, assumptions for all contracts with such a VAGLB shall be set as if the VAGLB were only a lifetime GMWB and did not contain any of the non-lifetime GMWB features. If such assumptions produce a higher Additional Standard Projection Amount, If the reverse is true company determines the non-lifetime GMWB is the most prominent component, assumptions for all contracts with such a VAGLB shall be set as if the VAGLB were only a non-lifetime GMWBs and did not contain any of the lifetime GMWB features.

~~Account values shall be projected using the appropriate gross rates from Table I for equity, bond and balanced classes applied to the supporting assets less all fund and contract charges according to the provisions of the funds and contract and applying the fixed funds rate from Table I as if it were the resulting net rate after deduction for fund or contract charges.~~

~~The annual margins on account value are defined as follows:~~

~~c. i. During the~~ If a contract cannot be classified into any categories within a given assumption the company shall determine the defined benefit type with the most similar benefits and risk profile as the company's benefit and utilize the assumption prescribed for this benefit.

2. Maintenance Expenses

Maintenance expense assumptions shall be determined as the sum of (a) plus (b) if the company is responsible for the administration or (c) if the company is not responsible for the administration of the contract:

- a. Each contract for which the company is responsible for administration incurs an annual expense equal to \$100 in the first projection year, increased by an assumed annual inflation rate of 2.0% for subsequent projection years;
- b. 7 basis points of the projected account value for each year in the projection.
- c. Each contract for which the company is not responsible for administration (e.g., if the contract were assumed by the company in a reinsurance transaction in which only the risks associated with a guaranteed benefit rider were transferred) incurs an annual expense equal to \$35 in the first projection year, increased by an assumed annual inflation rate of 2.0% for subsequent projection years.

Guidance Note: The framework adopted by the VAIWG includes review and possible updating of these assumptions every 3 to 5 years.

3. ~~Guarantee Actuarial Present Value~~

~~The Guarantee Actuarial Present Value (“GAPV”) is used in the determination of the Withdrawal Delay Cohort Method (Section 6.C.5), full surrender charge amortization period, as determined following the step outlined in Section 5.C.5:~~

- ~~a) 0.20% of account value; plus~~
- ~~b) Any net revenue sharing income, as defined in rates (Section 3.A.5., that is contractually guaranteed to the insurer and its liquidator, receiver, and statutory successor; plus~~
- ~~c) For all of the guaranteed living benefits of a given contract combine, the greater of:
 - ~~i) 0.20% of account value; or~~
 - ~~ii) Explicit6.C.6), annuitization rates (Section 6.C.7), and optional contract charges for guaranteed living benefits; plus~~~~

Guidance Note: ~~This excludes any guaranteed living benefit that is added to the contract simply for the purpose of increasing the revenue allowed under this section.~~

- ~~d) For all guaranteed death benefits of a given contract combined, the greater of:
 - ~~i) 0.20% of account value; or~~
 - ~~ii) Explicit and optionalother voluntary contract charges for guaranteed death benefits.~~~~

Guidance Note: ~~This excludes any guaranteed death benefit that is added to the contract simply for the purpose of increasing the revenue allowed under this section.~~

- ~~ii. After the surrender charge amortization period:~~

~~The amount determined in (i) above; plus 50% of the excess, if any, of all contract charges (excluding net revenue sharing income) over the sum of i.(a), i.(c) and i.(d) above.~~

~~However, on fixed funds after the surrender charge period, a margin of up to the amount in (i) above plus 0.4% may be used.~~

~~b. Reinsurance credit~~

~~Individual reinsurance is defined as reinsurance where the total premiums for and benefits of the reinsurance can be determined by applying the terms of the reinsurance to each contract covered without reference to the premiums or benefits of any other contract covered and summing the results over all contracts covered. Reinsurance that is not individual is aggregate.~~

~~Individual reinsurance premiums projected to be payable on ceded risk and receivable on assumed risk shall be included in the projected net revenue. Similarly, individual reinsurance benefits projected to be receivable on ceded risk and payable on assumed risk shall be included in the projected net revenue. No aggregate reinsurance shall be included in projected net revenue.~~

e. ~~Lapses, partial withdrawals and in the moneyness~~

~~Partial withdrawals elected as guaranteed living benefits, see Section 5.C.3.g, or required contractually (e.g., a contract operating under an automatic withdrawal provision on the valuation date) are to be deducted from the account value in each projection interval consistent with the projection frequency used, as described in terminations (Section 5.C.3.f, and according to the terms of the contract. No other partial withdrawals, including free partial withdrawals, are to be deducted from account value. All lapse rates should be applied as full contract surrenders.~~

~~For purposes of determining the dynamic lapse assumptions shown in Table II below, a guaranteed living benefit is in the money (ITM) for any projection interval if the account value at the beginning of the projection interval is less than the current value of the guaranteed living benefit (as defined below) also at the beginning of that projection interval.~~

~~The current value of the guaranteed living benefit at the beginning of any projection interval is either the amount of the current lump sum payment (if exercisable) or the 6.C.11). The GAPV represents the actuarial present value of future lump sum or income payments. More specific guidance is provided below. For the purpose of determining the present value, the discount rate shall be equal to DR as defined in Section 5.A.2. If future living benefit payments are life contingent (i.e., either the right of future exercise or the right to future income benefits expires with the death of the annuitant or the owner), then the company shall determine the present value of such payments using the mortality table specified in Section 5.C.3.e.~~

~~If a guaranteed living benefit associated with a guaranteed benefit. For the purpose of calculating the GAPV, such payments shall include the portion that is exercisable (withdrawal can start or paid out of the contract holder's Account Value.~~

~~The GAPV shall be calculated in the case of following manner:~~

a. ~~If a guaranteed minimum withdrawal benefit (GMWB), has begun) at the beginning of the projection interval, then the current value of the guaranteed living benefit is exercisable immediately, then the GAPV shall be determined assuming immediate or continued exercise of that benefit unless otherwise specified in a subsequent subsection of Section 6.C.3.~~

b. ~~If a guaranteed living benefit is not exercisable immediately (e.g., due to because of minimum age or duration/contract year requirements) at the beginning of that projection interval, then the current value of the guaranteed living benefit), then the GAPV shall be determined assuming exercise of the guaranteed living benefit at the earliest possible future projection interval. If the right to exercise the guaranteed living benefit is contingent on the survival of the annuitant or the owner, then the current value of the guaranteed living benefit shall assume survival to the date of exercise using the mortality table time unless otherwise specified in a subsequent subsection of Section 5.6.C.3.e.~~

c. Determination of the ~~current value~~GAPV of a guaranteed ~~living~~ benefit that is exercisable or payable at a future projection interval shall take account of any guaranteed growth in the basis for the guarantee (e.g., where the basis grows according to an index or an interest rate~~); as well as survival to the date of exercise using the mortality table specified in Section 6.C.3.h.~~

~~For a GMWB, the current value shall be determined assuming the earliest penalty-free withdrawal of guaranteed benefits after withdrawals begin and by applying the constraints of any applicable maximum or minimum withdrawal provisions. If the GMWB is currently exercisable and the right to future GMWB payments is contingent upon the survival of the annuitant or owner, then the current value shall assume survival using the mortality table specified in Section 5.C.3.e. After a GMWB that has payments that are contingent upon the survival of the annuitant or owner has commenced, then the current value shall assume survival using the Annuity 2000 Mortality Table.~~

~~For an unexercised GMIB, the current value shall be determined assuming the option with a reserve closest to the reserve for a 10-year certain and life option. The reserve values and the value of the GMIB on the assumed date of exercise shall be determined using the discount rate *DR* specified in Section 5.A.2. and for life-contingent payments, the Annuity 2000 Mortality Table. The current value of an unexercised GMIB, however, shall be set equal to the account value if the contract holder can receive higher income payments on the assumed date of exercise by electing the same option under the normal settlement option provisions of the contract.~~

~~For the purpose of applying the lapse assumptions specified in Table II below or contract holder elections rates specified in Section 5.C.3.g, the contract shall be considered “out of the money” (OTM) for a projection interval if the current value of the guaranteed living benefit at the beginning of the projection interval is less than or equal to the account value at the beginning of the same projection interval. If the current value of the guaranteed living benefit at the beginning of the projection interval is greater than the account value also at the beginning of the projection interval, the contract shall be considered ITM, and the percent ITM shall equal:~~

$$100 * ((\text{current value of the guaranteed living benefit} / \text{account value}) - 1)$$

~~If a contract has multiple living benefit guarantees, then the guarantee having the largest current value shall be used to determine the percent in the money.~~

Table II—Lapse Assumptions

d. Once a GMWB is exercised, the contract holder shall be assumed to withdraw in each subsequent contract year an amount equal to 100% of the GMWB’s guaranteed maximum annual withdrawal amount in that contract year.

e. If account value growth is required to determine projected benefits or product features, then the account value growth shall be assumed to be 0% net of all fees chargeable to the account value.

f. If a market index is required to determine projected benefits or product features, then the required index shall be assumed to remain constant at its value during the projection interval.

g. The GAPV for a GMDB that terminates at a certain age or in a certain contract year shall be calculated as if the GMDB does not terminate. **Benefit features such as guaranteed growth in the GMDB benefit basis may be calculated so that no additional benefit basis growth occurs after the GMDB termination age or date defined in the contract.**

h. The mortality assumption used shall follow the 2012 IAM Basic Mortality Table, improved to December 31, 2017 using Projection Scale G2 but not applying any additional mortality improvement in the projection.

Guidance Note: Projecting mortality to a specific date rather than the valuation date in the above step is a practical expedient to streamline calculations. This date should be considered an experience assumption to be periodically reviewed and updated as LATF reviews and updates the assumptions used in the Standard Projection.

i. The discount rate used shall be the 10-year U.S. Treasury bond rate on the valuation date unless otherwise specified in a subsequent subsection of Section 6.C.3.

j. For hybrid GMIBs, two types of GAPVs shall be calculated: the Annuitization GAPV and the Withdrawal GAPV. The Annuitization GAPV is determined as if the hybrid GMIB were a traditional GMIB such that the only benefit payments used in the GAPV calculation are from annuitization. The Withdrawal GAPV is determined as if the hybrid GMIB were a lifetime GMWB with the same guaranteed benefit growth features and, at each contract holder age, a guaranteed maximum withdrawal amount equal to the partial withdrawal amount below which partial withdrawals reduce the benefit by the same dollar amount as the partial withdrawal amount and above which partial withdrawals reduce the benefit by the same proportion that the withdrawal reduces the account value.

4. Partial Withdrawals

Partial withdrawals required contractually or previously elected (e.g., a contract operating under an automatic withdrawal provision, or that has voluntarily enrolled in an automatic withdrawal program, on the valuation date) are to be deducted from the Account Value in each projection interval consistent with the projection frequency used, as described in Section 6.D, and according to the terms of the contract. However, if a GMWB or hybrid GMIB contract's automatic withdrawals results in partial withdrawal amounts in excess of the GMWB's guaranteed maximum annual withdrawal amount or the maximum amount above which withdrawals reduce the GMIB basis by the same dollar amount as the withdrawal amount (the "dollar-for-dollar maximum withdrawal amount"), such automatic withdrawals shall be revised such that they equal the GMWB's guaranteed maximum annual withdrawal amount or the GMIB's dollar-for-dollar maximum withdrawal amount.

For any contract not on an automatic withdrawal provision as described in the preceding paragraph, Depending on the guaranteed benefit type, other partial withdrawals shall be projected as follows but shall not exceed the free partial withdrawal amount above which surrender charges are incurred:

a. For simple 403(b) VA contracts, the partial withdrawal amount each year shall equal the following percentages, based on the contract holder's attained age:

Table 6.2: Partial Withdrawals, 403(b)

Attained Age	Percent of account value
59 and under	0.5%
60 – 69	2.0%
70 – 74	3.0%
75 and over	4.0%

ab. For contracts that do not have VAGLBs but that have GMDBs that offer guaranteed growth (i.e., benefit growth that does not depend on the performance of the Account Value) in the benefit basis, the partial withdrawal amount each year shall equal 2.0% of the Account Value.

bc. For contracts that do not have VAGLBs but that have GMDBs that do not offer guaranteed growth in the benefit basis, the partial withdrawal amount each year shall equal 3.5% of the Account Value.

ed. For contracts with (1) traditional GMIBs that do not offer guaranteed growth in the benefit basis or (2) GMABs, the partial withdrawal amount each year shall equal to 2.0% of the Account Value.

de. For contracts with traditional GMIBs that offer guaranteed growth in the benefit basis, the partial withdrawal amount each year shall equal 1.5% of the Account Value.

ef. For contracts with GMWBs and Account Values of zero, the partial withdrawal amount shall be the guaranteed maximum annual withdrawal amount.

fg. For contracts with Lifetime GMWBs or hybrid GMIBs that, in the contract year immediately preceding that during the valuation date, withdrew a non-zero amount not in excess of the GMWB's guaranteed annual withdrawal amount or the GMIB's dollar-for-dollar maximum withdrawal amount, the partial withdrawal amount shall be 90% of the guaranteed annual withdrawal amount or the GMIB's dollar-for-dollar maximum withdrawal amount each year until the contract Account Value reaches zero.

gh. For other contracts with Lifetime GMWBs or hybrid GMIBs, no partial withdrawals shall be projected until the projection interval (the "initial withdrawal period") determined using the "withdrawal delay cohort method" as described in Section 6.C.5. During the initial withdrawal period and thereafter, the partial withdrawal amount shall be 90% of the GMWB's guaranteed annual withdrawal amount or the GMIB's dollar-for-dollar maximum withdrawal amount each year until the contract Account Value reaches zero.

hi. For contracts with Non-lifetime GMWBs that, in the contract year immediately preceding that during the valuation date, withdrew a non-zero amount not in excess of the GMWB's guaranteed annual withdrawal amount, the partial withdrawal amount shall be 70% of the GMWB's guaranteed annual withdrawal amount each year until the contract Account Value reaches zero.

ji. For other contracts with Non-lifetime GMWBs, no partial withdrawals shall be projected until the projection interval (the “initial withdrawal period”) determined using the “withdrawal delay cohort method” as described in Section 6.C.5. During the initial withdrawal period and thereafter, the partial withdrawal amount shall be 70% of the guaranteed annual withdrawal amount each year until the contract Account Value reaches zero.

jk. There may be instances where the company has certain data limitations, e.g., with respect to policies that are not enrolled in an automatic withdrawal program but have exercised a non-excess withdrawal in the contract year immediately preceding the valuation date (Section 6.C.4.gf and Section 6.C.4.ih). The company may employ an appropriate proxy method if it does not result in a material understatement of the reserve.

kl. For simple 403(b) VA contracts, the partial withdrawal amount each year shall equal the following percentages, based on the contract holder’s attained age:

Attained Age	During Surrender Charge Period Percent of account value		
Death Benefit Only Contracts 59 and under	0.5%		
All Guaranteed Living Benefits-OTM	5%	10%	
		ITM < 10%	10% ≤ ITM < 20%
			20% ≤ ITM
Any Guaranteed Minimum Accumulation Benefit ITM 60 — 69	2.0%		
Any Other Guaranteed Living Benefits ITM 70 — 74	3.0%		
75 and over	4.0%		

5. Withdrawal Delay Cohort Method

To model the initial withdrawal for certain GMWBs and hybrid GMIBs as discussed in Section 6.C.4.gf, the actuary shall adopt a modeling approach whereby a contract is split into several copies (referred to as “cohorts”), each of which is subsequently modeled as a separate contract with a different initial withdrawal period. The contract Account Value, bases for guaranteed benefits, and other applicable characteristics shall be allocated across the cohorts based on different weights that are determined using the method discussed below in this section.

For example, assume that the method discussed below results in the creation of two cohorts: the first, weighted 70%, has an initial withdrawal period of two years after the valuation date, and the second, weighted 30%, has an initial withdrawal period of ten years after the valuation date. The contract shall therefore be split into two copies; the first copy shall have Account Value and guaranteed benefit bases equal to 70% of those of the original contract and the second copy shall have Account Value and guaranteed benefit bases equal to 30% of those of the original contract. The first copy shall be projected to begin withdrawing in two years, while the second shall be projected to begin

withdrawing in ten years. The cash flows from both copies shall thereafter be aggregated to yield the final cash flows of the overall contract.

The following steps shall be used to construct the cohorts and determine the weights attributed to each cohort. These steps shall be conducted for each issue age for each GMWB and hybrid GMIB product that the company possesses in the modeled ~~in force~~ in force.

a. Calculate the GMWB GAPV or the Withdrawal GAPV (for hybrid GMIBs) for each potential age of initiating withdrawals (“initial withdrawal age”) until the end of the projection period or the contract holder reaches age 120 if sooner. In each of these GAPV calculations:

i. The calculation shall ignore the instructions of Section 6.C.3.d and instead assume that the contract holder takes no partial withdrawals until the initial withdrawal age;

ii. The calculation shall ignore the instructions of Section 6.C.3.i and instead use a discount rate assuming a 10-year U.S. Treasury bond rate of 3.0%;

~~iii.~~ The GAPV for each initial withdrawal age shall be expressed in present value terms taking into account survival from issue to the initial withdrawal age, as well as time value of money during that period. For instance, if the issue age is 55, then the GAPV for an initial withdrawal age of 60 shall take into account survival of the annuitant or owner to age 60 using the mortality table specified in Section 6.C.3.h as well as the time value of money from age 55 to age 60.

b. Raise each of the GAPV to the second power and multiply all of the resultant GAPV² values corresponding to initial withdrawal ages below 60 by 50%.

c. For tax-qualified GMWB contracts, scale each of the adjusted GAPV² values by a single multiplier such that the sum of the scaled GAPV² values equals 0.95.

d. For non-qualified GMWB contracts, scale each of the adjusted GAPV² values by a single multiplier such that the sum of the scaled GAPV² values equals 0.80.

e. For tax-qualified hybrid GMIB contracts, scale each of the adjusted GAPV² values by a single multiplier such that the sum of the scaled GAPV² values equals 0.85.

f. For non-qualified hybrid GMIB contracts, scale each of the adjusted GAPV² values by a single multiplier such that the sum of the scaled GAPV² values equals 0.60.

g. For contracts that offer guaranteed growth in the benefit basis or one-time bonuses to the benefit basis, add the following to the adjusted and scaled GAPV² values corresponding to the initial withdrawal age that occurs immediately after the termination of the guaranteed growth or the one-time bonus. If there is more than one such initial withdrawal age, the addition shall be made to the initial withdrawal age with the higher GAPV.

$$\begin{aligned}
& 0.95 - \sum_{i=\text{Issue Age}}^{\text{Initial WD Age}} \text{GAPV}_{\text{Adjusted,Scaled}}^2, \text{ if contract is a tax-qualified GMWB} \\
& 0.80 - \sum_{i=\text{Issue Age}}^{\text{Initial WD Age}} \text{GAPV}_{\text{Adjusted,Scaled}}^2, \text{ if contract is a non-qualified GMWB} \\
0.35 \times & \left(0.85 - \sum_{i=\text{Issue Age}}^{\text{Initial WD Age}} \text{GAPV}_{\text{Adjusted,Scaled}}^2, \text{ if contract is a tax-qualified hybrid GMIB} \right. \\
& \left. 0.60 - \sum_{i=\text{Issue Age}}^{\text{Initial WD Age}} \text{GAPV}_{\text{Adjusted,Scaled}}^2, \text{ if contract is a non-qualified hybrid GMIB} \right)
\end{aligned}$$

h. Scale the adjusted and scaled GAPV^2 values at all future initial withdrawal ages (i.e., all ages greater than the initial withdrawal age that occurs immediately after the termination of the guaranteed growth or the one-time bonus with the greatest GAPV , as identified in the preceding step) such that the sum of the revised GAPV^2 values equals 0.95 for tax-qualified GMWB contracts, 0.80 for non-qualified GMWB contracts, 0.85 for tax-qualified hybrid GMIB contracts, and 0.60 for non-qualified hybrid GMIB contracts.

i. For tax-qualified contracts, add the following to the revised GAPV^2 corresponding to an initial withdrawal age of 71.

$$\begin{aligned}
& 0.95 - \sum_{i=\text{Issue Age}}^{\text{Initial WD Age}} \text{GAPV}_{\text{Adjusted,Scaled}}^2, \text{ if contract is a tax-qualified GMWB} \\
0.50 \times & \left(0.85 - \sum_{i=\text{Issue Age}}^{\text{Initial WD Age}} \text{GAPV}_{\text{Adjusted,Scaled}}^2, \text{ if contract is a tax-qualified hybrid GMIB} \right)
\end{aligned}$$

j. Scale the revised GAPV^2 values at all future initial withdrawal ages (i.e., all ages greater than 71, as identified in the preceding step) such that the sum of the revised GAPV^2 values equals 0.95 for tax-qualified GMWB contracts and 0.85 for tax-qualified hybrid GMIB contracts again.

k. For ease of calculation, the company may discard certain withdrawal ages and use others as representative. For example, for odd-numbered issue ages, discard the initial withdrawal ages that are odd-numbered, and for even-numbered issue ages, discard initial withdrawal ages that are even-numbered. One cohort shall subsequently be constructed for each of the remaining initial withdrawal ages.

Guidance Note: The instructions in Section 6.C.5 are meant to improve computational tractability for companies that have large ~~in force~~ ~~in force~~ portfolios; accordingly, companies may also elect not to discard any initial withdrawal ages in constructing the withdrawal cohorts. Additionally, if necessary to avoid unmanageable computational intensity, companies may discard more initial withdrawal ages in constructing withdrawal cohorts, or assign only a small number of withdrawal cohorts to each contract via random sampling.

l. The weight assigned to each of the cohorts constructed in Section 6.C.5 shall equal the revised GAPV² value of the corresponding initial withdrawal age less the revised GAPV² value of the initial withdrawal age in the preceding cohort (i.e., two years smaller for the example given in Section 6.C.5.k).

m. Construct a final cohort that is modeled not to take a partial withdrawal in the contract lifetime. This final cohort (“never withdraw cohort”) shall be assigned a weight of 0.05 for tax-qualified **GMWB** contracts and 0.20 for non-qualified **GMWB** contracts, 0.15 for tax-qualified hybrid GMIB contracts, and 0.40 for non-qualified hybrid GMIB contracts.

n. The cohorts and their associated weights as determined in Section 6.C.5.a through Section 6.C.5.k are for a contract with attained age equal to its issue age. Because the discount rate used in this determination is fixed, these calculations only need to be performed once for a given set of contracts with a certain issue age, guaranteed benefit product, and tax status.

o. For a contract with a contract holder attained age exceeding its issue age and that must still follow the Withdrawal Delay Cohort Method, cohorts with initial withdrawal ages less than the attained age on the valuation date shall be discarded. The remaining cohorts shall be scaled such that the sum of their re-scaled weights equals 1. For example, for a sample contract with issue age 58 and attained age 64 on the valuation date, the cohorts with initial withdrawal ages less than 64 should be discarded, and the weights of all remaining cohorts shall be re-scaled by dividing by the difference between 1 and the weight of the original cohort with initial withdrawal age of 64.

6. Full Surrenders.

The full surrender rate for all contracts shall be calculated based on the Standard Table for Full Surrenders as detailed below in Table 46.3, except for simple 403(b) VA contracts. The Standard Table for Full Surrender prescribes different full surrender rates depending on the contract year and the in-the-moneyness (“ITM”) of the contract’s guaranteed benefit.

The ITM of a contract’s guaranteed benefit shall be calculated based on the ratio of the guaranteed benefit’s GAPV to the contract’s account value. Depending on the guaranteed benefit type, the ratio shall be adjusted via the following calculations:

a. For GMDBs, the ITM shall be calculated as 75% of the ratio between the GMDB GAPV and the contract account value.

b. For GMABs, the ITM shall be calculated as 150% of the ratio between the GMAB GAPV and the contract account value.

c. For traditional GMIBs and all GMWBs, the ITM shall be calculated as 100% of the ratio between the GMIB or GMWB GAPV, calculated as described in Section 6.C.3, and the contract account value.

d. For hybrid GMIBs, the ITM shall be calculated as 100% of the ratio between
i. the larger of its Annuitization GAPV and its Withdrawal GAPV, calculated as described in Section 6.C.3 and Section 6.C.5, and

ii. the contract account value.

Table 6.34 – Standard Table for Full Surrenders

ITM	In surrender charge period, or in policy years 1-3 for contracts without surrender charges	First year after the surrender charge period	Subsequent years, or in policy years 4 and onwards for contracts without surrender charges
Under 50%	4.0%	25.0%	15.0%
50-75%	3.0%	18.0%	10.0%
75-100%	2.5%	12.0%	7.0%
100-125%	2.5%	8.0%	4.5%
125-150%	2.5%	6.0%	3.0%
150-175%	2.5%	5.0%	2.5%
175-200%	2.5%	4.5%	2.0%
Over 200%	2.5%	4.0%	2.0%

For contracts that have both a VAGLB and a GMDB, the full surrender rate projected shall be the lower of the full surrender rate obtained from the Standard Table for Full Surrender using the GMDB's ITM and that using the VAGLB's ITM.

For GMAB contracts, the full surrender rate of the remaining contract shall be modeled in accordance with that prescribed for any remaining benefits in the contract, except that for a contract with no other living benefits, the projected full surrender rate shall be 50% in the contract year immediately following the maturity of the guaranteed benefit.

At each projection interval, if or GMWB or hybrid GMIB contracts, for all contract years in which a withdrawal is projected that have taken a withdrawal not in excess of the GMWB's guaranteed maximum annual withdrawal amount or the GMIB's dollar-for-dollar maximum withdrawal amount as of the valuation date or in a prior projection interval, the full surrender rate obtained from the Standard Table for Full Surrender shall be multiplied by 60%.

For contracts with no minimum guaranteed benefits, ITM is 0% and the row in the table for ITM < 50% would apply.

Notwithstanding all of the instructions above, the full surrender rate for a GMWB contract shall be 0% if the account value is zero.

e. For simple 403(b) VA contracts, the full surrender rate projected shall be the lower of:

i. the full surrender rate obtained from the Standard Table for Full Surrender based on the ITM of the contract's GMDB, and

ii. the applicable full surrender rate from the following table:
 following table provides the full surrender rates:

Table 6.34. Full Surrender Incidence Rates, 403(b)

Full Surrender for simple 403(b) VA contracts			
Attained Age	In surrender charge period	First policy year after the surrender charge period	Subsequent policy years, or contracts without a surrender charge period
59 and under	2.0%	4.0%	4.0%
60 – 69	4.0%	11.0%	8.0%
70 – 74	4.0%	11.0%	8.0%
75 and over	2.0%	5.0%	5.0%

7. Annuityizations

- The annuityization rate for contracts that do not have a GMIB shall be 0% at all projection intervals. For GMIB contracts, the annuityization rate shall be synonymous with the benefit exercise rate. As such, the annuityization rate is 0% in projection intervals during which the GMIB is not exercisable.
- The annual annuityization rate for a traditional GMIB contract that is immediately exercisable in the projection interval and that has an account value greater than zero, shall follow the Standard Table for Traditional GMIB Annuityization as detailed below in Table H6.5. The Standard Table for Annuityization prescribes different annuityization rates depending on whether the contract is in the first contract year in which the GMIB is exercisable or in a subsequent contract year.

Table H6.5. Standard Table for Traditional GMIB Annuityization

Annuityization GAPV	First year of exercisability	Subsequent years
0-100% of Account Value	0.0%	0.0%
100-125% of Account Value	5.0%	2.5%
125-150% of Account Value	10.0%	5.0%
150-175% of Account Value	15.0%	7.5%
175-200% of Account Value	20.0%	10.0%
200%+ of Account Value	25.0%	12.5%

- The annual annuityization rate for a hybrid GMIB contract that is immediately exercisable in the projection interval and that has an Account Value greater than zero shall be determined via the following steps:
- If the GMIB's Withdrawal GAPV exceeds its Annuityization GAPV, the GMIB's Annuityization GAPV exceeds the contract's account value, and the contract is not in the last three years in which the GMIB is exercisable, then the annual annuityization rate shall be 0.25%.
- If the GMIB's Annuityization GAPV exceeds or equals its Withdrawal GAPV, and the contract is not in the last three years in which the GMIB is

exercisable, then the annual annuitization rate shall follow the Standard Table A for Hybrid GMIB Annuitization as detailed below in Table ~~III~~6.6.

f. If the contract is in the last three years in which the GMIB is exercisable, then the annual annuitization rate shall follow the Standard Table B for Hybrid GMIB Annuitization as detailed below in Table ~~IV~~6..7.

g. Otherwise, the annual annuitization rate shall be zero.

Table ~~III~~6.6:- Standard Table A for Hybrid GMIB Annuitization

Annuitization GAPV	Annual annuitization rate
0-100% of Account Value	0.0%
100-125% of Account Value	0.5%
125-150% of Account Value	1.0%
150-175% of Account Value	1.5%
175-200% of Account Value	2.0%
200%+ of Account Value	2.5%

Table ~~IV~~6.7: Standard Table B for Hybrid GMIB Annuitization

Annuitization GAPV	Annual annuitization rate
0-100% of Account Value	0.0%
100-125% of Account Value	5.0%
125-150% of Account Value	10.0%
150-175% of Account Value	15.0%
175-200% of Account Value	20.0%
200-225% of Account Value	25.0%
225-250% of Account Value	30.0%
250%+ of Account Value	35.0%

h. If during any projection interval, the GAPV of another guarantee on the contract – e.g., a GMDB – exceeds the Annuitization GAPV, the annual annuitization rate in that projection interval shall be further adjusted to equal 50% of the annual annuitization rate determined via the calculations detailed above, but not to exceed 12.5%. For these calculations, the Annuitization GAPV and Withdrawal GAPV shall follow the definition described in Section 6.C.3.

i. The annuitization rate for all GMIB contracts shall be 100% immediately after the Account Value reaches zero. As discussed in Section 6.C.10, contractual features that terminate the GMIB upon account value depletion shall be voided such that the account value depletion event does not terminate the GMIB.

8. Account transfers and future deposits

a. No transfers between funds shall be assumed in the projection ~~used to determine the greatest present value amount required under Section 5.C.2.b.ii~~ unless required by the contract (e.g., transfers from a dollar cost averaging fund or contractual rights given to the insurer to implement a contractually

specified portfolio insurance management strategy or a contract operating under an automatic re-balancing option). When transfers must be modeled, to the extent not inconsistent with contract language, the allocation of transfers to funds must be in proportion to the contract's current allocation to funds.

~~Margins generated during a projection interval on funds supporting account value are transferred to the accumulation of net revenue and are subsequently accumulated at the DR. Assets for each class supporting account values are to be reduced in proportion to the amount held in each asset classes at the time of transfer of margins or any portion of account value applied to the payment of benefits.~~

- b. ~~No~~Except for simple 403(b) VA contracts, no future deposits to account value shall be assumed unless required by the terms of the contract to prevent contract or guaranteed benefit lapse, in which case they must be modeled. When future deposits must be modeled, to the extent not inconsistent with contract language, the allocation of the deposit to funds must be in proportion to the contract's current allocation to such funds.

e. ~~Mortality~~

~~Mortality at 70% of the 1994 Variable Annuity MGDB Mortality Tables (1994 MGDB tables) through age 85 increasing by 1% each year to 100% of the 1994 MGDB tables at age 115 shall be assumed in the projection used to determine the greatest present value amount required under Section 5.C.2.b.ii.~~

f. ~~Projection frequency~~

~~The projection used to determine the greatest present value amount required under Section 5.C.2.b.ii shall be calculated using an annual or more frequent time step, such as quarterly. For time steps more frequent than annual, assets supporting account values at the start of a year may be retained in such funds until year end (i.e., margin earned during the year will earn the fund rates instead of the DR until year end) or removed after each time step. However, the same approach shall be applied for all years. Similarly, projected benefits, lapses, elections and other contract holder activity can be assumed to occur annually or at the end of each time step, but the approach shall be consistent for all years.~~

g. ~~Contract holder election rates~~

~~Contract holder election rates for exercisable ITM guaranteed living benefits other than GMWBs shall be 5% per annum in every projection interval where the living benefit is less than 10% ITM, 15% per annum in every projection interval where the living benefit is 10% or more ITM and less than 20% ITM, and 25% per annum in every projection interval where the living benefit is 20% or more ITM. In addition, the election rate for an exercisable ITM guaranteed living benefit shall be 100% at the last model duration to elect such benefit. This 100% election rate shall be used when a guaranteed minimum accumulation benefit is at the earliest date that the benefit is exercisable and ITM. However, the contract holder election rate for any exercisable ITM guaranteed living benefit shall be zero if exercise would cause the extinction of a guaranteed living benefit having a larger current value. For this purpose, GMDBs are not benefits subject to election.~~

~~For guaranteed minimum withdrawal benefits, a partial withdrawal, if allowed by contract provisions, equal to the applicable percentage in Table III applied to the~~

contract's maximum allowable partial withdrawal shall be assumed. However, if the contract's minimum allowable partial withdrawal exceeds the partial withdrawal from applying the rate in Table III to the contract's maximum allowable partial withdrawal, then the contract's minimum allowable partial withdrawal shall be assumed.

Table III—Guaranteed Withdrawal Assumptions

- c. For simple 403(b) VA contracts, total deposits to account value in any projected future policy year shall be modeled as a percentage of the total deposits from the immediately preceding policy year. The percentage shall be determined based on the following table:

Table 6.48: Deposit Rates, 403(b)

Attained Age Less Than 50	Percent of prior year's deposits	Attained Age 50 to 59
Withdrawals do not reduce other elective guarantees that are in the money ⁵⁴ and under	50	90%
Withdrawals reduce elective guarantees that are in the money ⁵⁵ through 69	25	80%
70 and over	0	0%

e.d.

h. Indices

If an interest index is required to determine projected benefits or reinsurance obligations, the index must assume interest rates have not changed since the last reported rates before the valuation date. If an equity index is required, the index shall be consistent with the last reported index before the valuation date, the initial drop in equity returns, and the subsequent equity returns in the standard scenario projection. The sources of information and how they are used to determine the indexes shall be documented and, to the extent possible, consistent from year to year.

4. Assumptions for use in Section 5.C.2.b.iii.

a. The value of aggregate reinsurance

The value of aggregate reinsurance shall be calculated separately from the accumulated net revenue. The value of aggregate reinsurance is the discounted value, using the statutory valuation rate described in the following paragraph, of the excess of (a) the projected benefit payments from the reinsurance; over (b) the projected gross reinsurance premiums, where (a) and (b) are determined under the assumptions described in Section 5.C.3 for all applicable contracts in aggregate.

In order for the value of the aggregate reinsurance to be consistent with the underlying standard scenario reserve, the discount rate shall be a weighted average of the valuation rates (*DR*) of the contracts that are supported by the aggregate reinsurance treaty. The weights used to determine this discount rate shall be reasonably related to the risks that are being covered by the aggregate reinsurance (e.g., account value or values of guaranteed benefits) and shall be applied

consistently from year to year. If an appropriate method to determine this discount rate does not exist, the value of the aggregate reinsurance shall be determined using the statutory valuation rate in effect on the valuation date for annuities valued on an issue year basis using Plan Type A and a guarantee duration greater than 10 years but not more than 20 years, determined assuming there are cash settlement options but no interest guarantees on future premiums.

a. ~~The value of approved hedges~~

~~The value of approved hedges shall be calculated separately from the accumulated net revenue. The value of approved hedges is the difference between: a) the discounted value at the one year constant maturity treasury (CMT) as of the valuation date of the pre-tax cash flows from the approved hedges; less b) their statement values on the valuation date.~~

Guidance Note: For purposes of this section, the term CMT refers to the nominal yields on actively traded non-inflation indexed issues adjusted to constant maturities, as released daily by the Federal Reserve Board. As of this writing, the current and historical one-year rates may be found at www.federalreserve.gov/releases/h15/data/Business_day/H15_TCMNOM_Y1.txt, and the current and historical five-year rates may be found at www.federalreserve.gov/releases/h15/data/Business_day/H15_TCMNOM_Y5.txt.

~~To be an approved hedge for purposes of the standard scenario reserve, a derivative or other investment has to be an actual asset held by the company on the valuation date; be used as a hedge supporting the contracts falling under the scope of these requirements; and comply with any statutes, laws, or regulations (including applicable documentation requirements) of the domiciliary state or jurisdiction related to the use of derivative instruments.~~

~~The domiciliary commissioner may require the exclusion of any portion of the value of approved hedges upon a finding that the company's documentation, controls, measurement, execution of strategy or historical results are not adequate to support a future expectation of risk reduction commensurate with the value of approved hedges.~~

~~The cash flow projection for approved hedges that expire in less than one year from the valuation date should be based on holding the hedges to their expiration. For hedges with an expiration of one year or more, the value of hedges should be based on liquidation of the hedges one year from the valuation date. Where applicable, the liquidation value of hedges shall be consistent with the assumed returns in the standard scenario from the start of the projection to the date of liquidation, Black-Scholes pricing, a risk-free rate equal to the five-year CMT as of the valuation date and the annual volatility implicit as of the valuation date in the statement value of the hedges when the statement value of hedges are valued with Black-Scholes pricing and a risk-free rate equal to the 5-year CMT as of the valuation date.~~

Guidance Note: Conceptually, the item being hedged, the contract guarantees and the approved hedges are accounted for at the average present value of the worst 30% of all scenarios, the tail scenarios for a CTE (70) measure. However, the statement value of approved hedges is at market. Therefore, the standard scenario value of approved hedges is a proxy of the adjustment needed to move approved hedges from a market value to a tail value.

~~There is no credit in the standard scenario for dynamic hedging beyond the credit that results from hedges actually held on the valuation date.~~

e. ~~Allocation of the value of hedges and the value of aggregate reinsurance~~

~~The value of approved hedges and aggregate reinsurance shall be allocated to the contracts which are supported by the applicable aggregate reinsurance agreements and approved hedges. A contract's allocation shall be the lesser of the amount in Section 5.C.2.b.ii for the contract or the product of (a) and (b) where:~~

(a). ~~Is the sum of the value of the applicable approved hedges plus the value of the applicable aggregate reinsurance for all contracts supported by the same hedges and/or the Aggregate reinsurance agreement.~~

~~and~~

(b). ~~Is the ratio of the amount in Section 5.C.2.b.ii for the contract to the sum of the amount in Section 5.C.2.b.ii for all contracts supported by the same hedges and/or the Aggregate reinsurance agreement.~~

v. ~~Retention of components~~

~~For the seriatim standard scenario reserve on the statement date under Section 5.A.2, the actuary should have available to the commissioner the following values for each contract:~~

i. ~~The standard scenario reserve prior to adjustment under Section 5.C.4.e.~~

ii. ~~The standard scenario reserve net of the adjustment in Section 5.C.4.e.~~

5. ~~Determination of the Surrender Charge Amortization Period to Be Used in Section 5.C.3.a.i and Section 5.C.3.a.ii.~~

~~The purpose of the surrender charge amortization period is to help determine how much of the surrender charge is amortized in the basic adjusted reserve portion of the standard scenario amount and how much needs to be amortized in the accumulated net revenue portion. Once determined, the surrender charge amortization period determines the duration over which the lower level of margins, as described in Section 5.C.3.a.i, is used. After that duration, the higher level of margins, as described in Section 5.C.3.a.ii, is used.~~

~~A separate surrender charge amortization period is determined for each contract and is based on amounts determined in the calculation of the basic adjusted reserve for that contract. A key component of the calculation is the amount of the surrender charge that is not amortized in the basic adjusted reserve calculation for that contract. This is represented by the difference between the account value and the cash surrender value projected within the basic adjusted reserve calculation for the contract.~~

~~The surrender charge amortization period for a given contract is determined by following the steps:~~

a. ~~Measure the duration of the greatest present value used in the basic adjusted reserve.~~

~~The basic adjusted reserve is determined for a contract by taking the greatest present value of a stream of projected benefits. The benefit stream that determines~~

the greatest present value typically includes an “ultimate” event (e.g., 100% surrender, 100% annuitization or maturity). The “BAR duration” is the length of time between the valuation date and the projected “ultimate” event.

- b. Determine the amount of the surrender charge not amortized in the basic adjusted reserve.

The surrender charge not amortized in the basic adjusted reserve is the difference between the projected account value and the projected cash surrender value at the BAR duration (i.e., at the time of that projected “ultimate” event). This value for a given contract shall not be less than zero.

- e. Determine the surrender charge amortization period before rounding.

This equals [i times ii] plus iii, where:

- i. Equals the ratio of the amount determined in step 2 to the account value on the valuation date.
- ii. Equals 100.
- iii. Equals the BAR duration determined in step 1.

- d. Determine the surrender charge amortization period for the contract.

This is the amount determined in step e, rounded to the nearest number that represents a projection duration, taking into account the projection frequency described in Section 5.C.3.f. For example, if Step e produces a value of 2.15 and the projection frequency is quarterly, then the surrender charge amortization period for the contract is 2.25.

Section 69. Mortality

The mortality rate for a contract holder with age x in year $(2012 + n)$ shall be calculated using the following formula, where q_x denotes mortality from the 2012 IAM Basic Mortality Table multiplied by the appropriate factor (F_x) from Table 46.9 and $G2_x$ denotes mortality improvement from Projection Scale G2:

$$q_x^{2012+n} = q_x^{2012}(1 - G2_x)^n * F_x$$

Table 46.9

Attained Age (x)	F_x for VA with GLB	F_x for All Other
<u><=65</u>	<u>80.0%</u>	<u>100.0%</u>
<u>66</u>	<u>81.5%</u>	<u>102.0%</u>
<u>67</u>	<u>83.0%</u>	<u>104.0%</u>
<u>68</u>	<u>84.5%</u>	<u>106.0%</u>
<u>69</u>	<u>86.0%</u>	<u>108.0%</u>
<u>70</u>	<u>87.5%</u>	<u>110.0%</u>
<u>71</u>	<u>89.0%</u>	<u>112.0%</u>
<u>72</u>	<u>90.5%</u>	<u>114.0%</u>

<u>73</u>	<u>92.0%</u>	<u>116.0%</u>
<u>74</u>	<u>93.5%</u>	<u>118.0%</u>
<u>75</u>	<u>95.0%</u>	<u>120.0%</u>
<u>76</u>	<u>96.5%</u>	<u>119.0%</u>
<u>77</u>	<u>98.0%</u>	<u>118.0%</u>
<u>78</u>	<u>99.5%</u>	<u>117.0%</u>
<u>79</u>	<u>101.0%</u>	<u>116.0%</u>
<u>80</u>	<u>102.5%</u>	<u>115.0%</u>
<u>81</u>	<u>104.0%</u>	<u>114.0%</u>
<u>82</u>	<u>105.5%</u>	<u>113.0%</u>
<u>83</u>	<u>107.0%</u>	<u>112.0%</u>
<u>84</u>	<u>108.5%</u>	<u>111.0%</u>
<u>85</u>	<u>110.0%</u>	<u>110.0%</u>
<u>86</u>	<u>110.0%</u>	<u>110.0%</u>
<u>87</u>	<u>110.0%</u>	<u>110.0%</u>
<u>88</u>	<u>110.0%</u>	<u>110.0%</u>
<u>89</u>	<u>110.0%</u>	<u>110.0%</u>
<u>90</u>	<u>110.0%</u>	<u>110.0%</u>
<u>91</u>	<u>110.0%</u>	<u>110.0%</u>
<u>92</u>	<u>110.0%</u>	<u>110.0%</u>
<u>93</u>	<u>110.0%</u>	<u>110.0%</u>
<u>94</u>	<u>110.0%</u>	<u>110.0%</u>
<u>95</u>	<u>110.0%</u>	<u>110.0%</u>
<u>96</u>	<u>10109.0%</u>	<u>10109.0%</u>
<u>97</u>	<u>10108.0%</u>	<u>10108.0%</u>
<u>98</u>	<u>10107.0%</u>	<u>10107.0%</u>
<u>99</u>	<u>10106.0%</u>	<u>10106.0%</u>
<u>100</u>	<u>10105.0%</u>	<u>10105.0%</u>
<u>101</u>	<u>08104.0%</u>	<u>08104.0%</u>
<u>102</u>	<u>06103.0%</u>	<u>06103.0%</u>
<u>103</u>	<u>04102.0%</u>	<u>04102.0%</u>
<u>104</u>	<u>02101.0%</u>	<u>02101.0%</u>
<u>>=105</u>	<u>100.0%</u>	<u>100.0%</u>

10. Account Value Depletions

The following assumptions shall be used when a contract's Account Value reaches zero:

- a) If the contract has a GMWB, the contract shall take partial withdrawals that are equal in amount each year to the guaranteed maximum annual withdrawal amount.

b) If the contract has a GMIB, the contract shall annuitize immediately. If the GMIB contractually terminates upon account value depletion, such termination provision is assumed to be voided in order to approximate the contract holder's election~~ing~~ to annuitize immediately before the depletion of the account value.

c) If the contract has any other guaranteed benefits, including a GMDB, the contract shall remain in-force. If the guaranteed benefits contractually terminate upon account value depletion, such termination provisions are assumed to be voided in order to approximate the contract holder's retaining adequate Account Value to maintain the guaranteed benefits in-force. At the option of the company, fees associated with the contract and guaranteed benefits may continue to be charged and modeled as collected even if the account value has reached zero. While the contract must remain in-force, benefit features may still be terminated according to contractual terms other than account value depletion provisions.

11. Other Voluntary Contract Terminations.

For contracts that have other elective provisions that allow a contract holder to terminate the contract voluntarily, the termination rate shall be calculated based on the Standard Table for Full Surrenders as detailed above in Table 4-6.3 with the following adjustments:

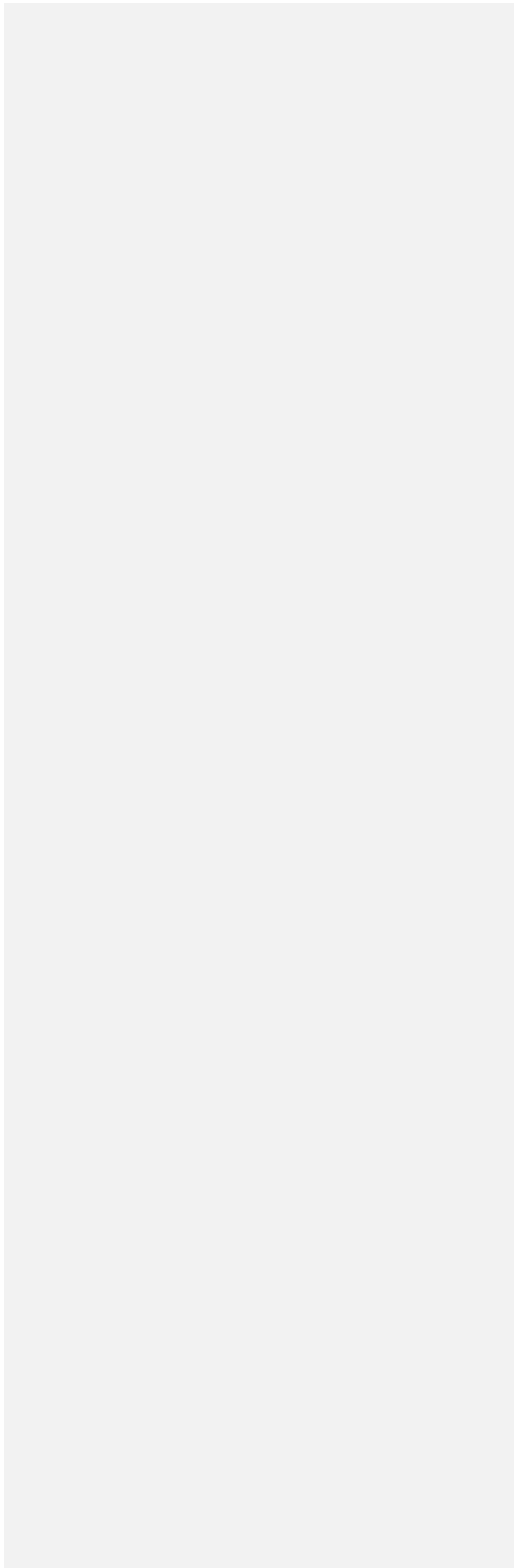
a) If the contract holder is not yet eligible to terminate the contract under the elective provisions, the termination rate shall be zero.

b) After the contract holder becomes eligible to terminate the contract under the elective provisions, the termination rate shall be determined using the "Subsequent years" column of Table 4-6.3.

c) In using Table 4-6.3, the ITM of a contract's guaranteed benefit shall be calculated based on the ratio of the guaranteed benefit's GAPV to the termination value of the contract. The termination value of the contract shall be calculated as the GAPV of the payment stream that the contract holder is entitled to receive upon termination of the contract; if the contract holder has multiple options for the payment stream, the termination value shall be the highest GAPV of these options.

d) For GMWB or hybrid GMIB contracts that have taken a withdrawal not in excess of the GMWB's guaranteed maximum annual withdrawal amount or the GMIB's dollar-for-dollar maximum withdrawal amount as of the valuation date or in a prior projection interval, for all contract years in which a withdrawal is projected, the termination rate obtained from Table 4-6.3 shall be additionally multiplied by 60%.

For calculating the ITM of a hybrid GMIB, the guaranteed benefit's GAPV shall be the larger of the Annuitization GAPV or the Withdrawal GAPV.



VM-21: Requirements for Principle-Based Reserves for Variable Annuities

Section 7: Alternative Methodology

A. General Methodology

1. General Methodology Description

a. For variable deferred annuity contracts that either contain no guaranteed benefits or only GMDBs, including “earnings enhanced death benefits,” (i.e., no VAGLBs), the ~~CTE amount~~reserve may be determined by using the method outlined below rather than by using the approach described in Section 23.C and Section 3.D (i.e., based on projections), provided the approach described in Section 23.D has not been used in prior valuations or else approval has been obtained from the domiciliary commissioner.

b. The ~~CTE amount~~reserve determined using the Alternative Methodology for a group of contracts with GMDBs shall be determined as the sum of amounts obtained by applying factors to each contract in force as of a valuation date and adding this to the contract’s cash surrender value. ~~The resulting CTE amount shall not be less than the cash surrender value in aggregate for the group of contracts to which the Alternative Methodology is applied.~~

Guidance Note: c. The amount that is added to ~~an individual~~ contract’s cash surrender value may be negative, zero or positive, thus resulting in a reserve for a given contract that could be less than, equal to or greater than the cash surrender value. ~~The resulting reserve in aggregate shall not be less than the greater of the cash surrender value or the reserve determined by applying Guideline XXXIII in VM-C, each in aggregate for the group of contracts to which the Alternative Methodology is applied.~~

d. The ~~CTE amount~~reserve determined using the Alternative Methodology for a group of contracts that contain no guaranteed benefits shall be determined using an application of ~~AG 33~~Guideline XXXIII in VM-C, as described below.

Guidance Note: The term “contracts that contain no guaranteed benefits” means that there are no guaranteed benefits at any time during the life of the contract (past, present or future).

e. For purposes of performing the Alternative Methodology, materially similar contracts within the group may be combined together into subgroups to facilitate application of the factors. Specifically, all contracts comprising a “subgroup” must display substantially similar characteristics for those attributes expected to affect reserves (e.g., definition of guaranteed benefits, attained age, contract duration, years-to-maturity, market-to-guaranteed value, asset mix, etc.). Grouping shall be the responsibility of the actuary but may not be done in a manner that intentionally understates the resulting reserve.

~~f. The Alternative Methodology, as described in this section, produces a pre-reinsurance-ceded reserve. The post-reinsurance-ceded reserve is discussed in Section 5.3.~~

~~g. Instructions and factors for the Alternative Method can be found on the website of the American Academy of Actuaries at: <http://www.actuary.org/content/c3-phase-ii-rbc-and-reserves-project>~~

2. Definitions of Terms Used in ~~this~~This Section

- a. Annualized Account Charge Differential: This term is the charge as percentage account value (revenue for the company) minus the expense as percentage of account value.
- b. Asset Exposure: Asset exposure refers to the greatest possible loss to the insurance company from the value of assets underlying general or separate account contracts falling to zero.
- c. Benchmark: Benchmarks have similar risk characteristics to the entity (e.g., asset class, index or fund) to be modeled.
- d. Deterministic Calculations: In a deterministic calculation, a given event (e.g., asset returns going up by 7% and then down by 5%) is assumed to occur with certainty. In a stochastic calculation, events are assigned probabilities.
- e. Foreign Securities: These are securities issued by entities outside the U.S. ~~and Canada.~~
- f. Grouped Fund Holdings: Grouped fund holdings relate to guarantees that apply across multiple deposits or for an entire contract instead of on a deposit-by-deposit basis.
- g. Guaranteed Value: The guaranteed value is the benefit base or a substitute for the account value (if greater than the account value) in the calculation of living benefits or death benefits. The methodology for setting the guaranteed value is defined in the variable annuity contract.
- h. High-Yield Bonds: High-yield bonds are below investment grade, with NAIC ratings (if assigned) of 3, 4, 5 or 6. Compared to investment grade bonds, these bonds have higher risk of loss due to credit events. Funds ~~containing securities~~ predominately containing securities that are not NAIC rated as 1 or 2 (or similar agency ratings) are considered to be high-yield.
- i. Investment Grade Fixed Income Securities: Securities with NAIC ratings of 1 or 2 are investment grade. Funds containing securities predominately with NAIC ratings of 1 or 2 or with similar agency ratings are considered to be investment grade.
- j. Liquid Securities: These securities can be sold and converted into cash at a price close to its true value in a short period of time.
- k. Margin Offset: Margin offset is the portion of charges plus any revenue-sharing allowed under Section ~~34~~.A.5 available to fund claims and amortization of the unamortized surrender charges allowance.
- l. Multi-Point Linear Interpolation: This methodology is documented in mathematical literature and calculates factors based on multiple attributes categorized with discrete values where the attributes' actual values may be between the discrete values.
- m. Model Office: A model office converts many contracts with similar features into one contract with specific features for modeling purposes.

- ~~n. Pre-Packaged Scenarios: The prepackaged scenarios are the year-by-year asset returns that may be used (but are not mandated) in projections related to the alternative methodology. These scenarios are available on the Academy website.~~
- ~~en.~~ Quota-Share Reinsurance: In this type of reinsurance treaty, the same proportion is ceded on all cessions. The reinsurer assumes a set percentage of risk for the same percentage of the premium, minus an allowance for the ceding company's expenses.
- ~~po.~~ Resets: A reset benefit results in a future minimum guaranteed benefit being set equal to the contract's account value at previous set date(s) after contract inception.
- ~~qp.~~ Risk Mitigation Strategy: A risk mitigation strategy is a device to reduce the probability and/or impact of a risk below an acceptable threshold.
- ~~q.~~ Risk Profile: Risk profile in these requirements relates to the prescribed asset class categorized by the volatility of returns associated with that class.
- ~~sr.~~ Risk Transfer Arrangements: A risk transfer arrangement shifts risk exposures (e.g., the responsibility to pay at least a portion of future contingent claims) away from the original insurer.
- ~~ts.~~ Roll-Up: A roll-up benefit results in the guaranteed value associated with a minimum contractual guarantee increasing at a contractually defined interest rate.
- ~~ut.~~ Volatility: Volatility refers to the annualized standard deviation of asset returns.
3. Contract-by-Contract Application for Contracts That Contain No Guaranteed Living or Death Benefits
- The Alternative Methodology reserve for each contract that contains no guaranteed living or death benefits shall be determined by applying ~~AG 33, Guideline XXXIII in VM-C.~~ The application shall assume a return on separate account assets equal to the ~~year of issue~~ valuation interest rate ~~for a non-variable annuity with similar features issued during the first calendar quarter of the same calendar year~~ less appropriate ~~asset-based~~asset-based charges. It also shall assume a return for any fixed separate account and general account options equal to the rates guaranteed under the contract.
- ~~The reserve for such contracts shall be no less than the cash surrender value on the valuation date, as defined in Section 1.E.2.~~
4. Contract-by-Contract Application for Contracts That Contain GMDBs ~~only~~Only
- For each contract, factors are used to determine a dollar amount, equal to $R \times (CA + FE) + GC$ (as described below), that is to be added to that contract's cash surrender value as of the valuation date. The dollar amount to be added for any given contract may be negative, zero or positive. The factors that are applied to each contract shall reflect the following attributes as of the valuation date.
- The contractual features of the variable annuity product.
 - The actual issue age, period since issue, attained age, years-to-maturity and gender applicable to the contract.
 - The account value and composition by type of underlying variable or fixed fund.

- d. Any surrender charges.
- e. The GMDB and the type of adjustment made to the GMDB for partial withdrawals (e.g., proportional or dollar-for-dollar adjustment).
- f. Expenses to be incurred and revenues to be received by the company as estimated on a prudent estimate basis ~~as described in Section 1.E.2.i~~ and complying with the requirements for revenue sharing as described in Section ~~34.A.5~~.

5. Factor Components

Factors shall be applied to determine each of the following components.

Guidance Note: Material to assist in the calculation of the components is available on the Academy website at:

CA = Provision for amortization of the unamortized surrender charges calculated by the insurer based on each contract's surrender charge schedule, using prescribed assumptions, except that lapse rates shall be based on the insurer's prudent estimate, but with no provision for federal income taxes or mortality.

FE = Provision for fixed dollar expenses less fixed dollar revenue calculated using prescribed assumptions, the contract's actual expense charges, the insurer's anticipated actual expenses and lapse rates, both estimated on a prudent estimate basis, and with no provision for federal income taxes or mortality.

GC = Provision for the costs of providing the GMDB less net available spread-based charges determined by the formula $F \times GV - G \times AV - R$, where GV and AV are as defined in Section ~~67.C.1~~.

R = A scaling factor that is a linear function of the ratio of the margin offset to total account charges (W) and takes the form ~~$R(\beta_1, \beta_2) = \beta_1 + \beta_2 \times W$~~ . The intercept and slope factors for this linear function may vary according to:

- Product type.
- Pro-rata or dollar-for-dollar reductions in guaranteed value following partial withdrawals.
- Fund class.
- Attained age.
- Contract duration.
- Asset-based charges.
- 90% of the ratio of account value to guaranteed value, determined in the aggregate for all contracts sharing the same product characteristics.

Tables of factors for F , G , ~~β_1~~ and ~~β_2~~ values reflecting a 65% confidence interval and ignoring federal income tax are available from the NAIC. In calculating ~~$R(\beta_1, \beta_2)$~~ directly from the linear function provided above, the margin ratio W must be constrained to values greater than or equal to 0.2 and less than or equal to 0.6.

Interpolated values of F , G and R (calculated using the linear function described above) for all contracts having the same product characteristics and asset class shall be derived from the pre-calculated values using multi-point linear interpolation over the following four contract-level attributes:

- a. Attained age.
- b. Contract duration.
- c. Ratio of account value to GMDB.
- d. The total of all asset-based charges, including any fund management fees or allowances based on the underlying variable annuity funds received by the insurer.

The gross asset-based charges for a product shall equal the sum of all contractual asset-based charges plus fund management fees or allowances based on the underlying variable annuity funds received by the insurer determined by ~~complying with the requirements for on a~~ prudent estimate described in Section 4.E.2.4.basis and revenue sharing described in Section 34.A.5. Net asset-based charges equal gross asset-based charges less any company expenses assumed to be incurred expressed as a percentage of account value. All expenses that would be assumed if ~~the CTE amount a stochastic reserve~~ ~~was~~ being computed as described in Section 34.A.1 should be reflected either in the calculation of the net ~~asset-based asset-based~~ charges or in the expenses reflected in the calculation of the amount FE .

No adjustment is made for federal income taxes in any of the components listed above.

For purposes of determining the ~~CTE amount reserve~~ using the Alternative Methodology, any interpretation and application of the requirements of these requirements shall follow the principles discussed in Section 1.B.

B. Calculation of CA and FE

1. General Description

Components CA and FE shall be calculated for each contract, thus reflecting the actual account value and GMDB, as of the valuation date, which is unique to each contract.

Components CA and FE are defined by deterministic “single-scenario” calculations that account for asset growth, interest and inflation at prescribed rates. Mortality is ignored for these two components. Lapse rates shall be determined on a prudent estimate basis ~~as described in Section 1.E.2.4.~~ Lapse rates shall be adjusted by the formula shown below (the dynamic lapse multiplier), which bases the relationship of the GMDB (denoted as GV in the formula) to the account value (denoted as AV in the formula) on the valuation date. Thus, projected lapse rates are smaller when the GMDB is greater than the account value and larger when the GMDB is less than the account value.

$$\lambda = \min \left[U, \max \left[L, 1 - M \times \left(\frac{GV}{AV} - D \right) \right] \right]$$

$$\lambda = \min \left[U, \max \left[L, 1 - M \times \left(\frac{GV}{AV} - D \right) \right] \right], \text{ where } U=1, L=0.5, M=1.25, \text{ and } D=1.1.$$

Field Code Changed

Present values shall be computed over the period from the valuation date to contract maturity at a discount rate of 5.75%.

Projected fund performance underlying the account values is as shown in the table below. Unlike the *GC* component, which requires the entire account value to be mapped, using the fund categorization rules set forth in Section 67.D, to a single “equivalent” asset class (as described in Section 67.D.3), the *CA* and *FE* calculation separately projects each variable subaccount (as mapped to the eight prescribed categories shown in Section 67.D using the net asset returns shown in the following table). If surrender charges are based wholly on deposits or premiums as opposed to account value, use of this table may not be necessary.

Table 7.1: Guaranteed Rates by Asset Class

Asset Class / Fund	Net Annualized Return
Fixed Account	Guaranteed Rate
Money Market	0%
Fixed Income (Bond)	0%
Balanced	-1%
Diversified Equity	-2%
Diversified International Equity	-3%
Intermediate Risk Equity	-5%
Aggressive or Exotic Equity	-8%

2. Component *CA*

Component *CA* is computed as the present value of the projected change in surrender charges plus the present value of an implied borrowing cost of 25 bps at the beginning of each future period applied to the surrender charge at such time.

This component can be interpreted as the “amount needed to amortize the unamortized surrender charge allowance for the *persisting* policies plus the implied borrowing cost.” By definition, the amortization for non-persisting lives in each time period is exactly offset by the collected surrender charge revenue (ignoring timing differences and any waiver upon death). The unamortized balance must be projected to the end of the surrender charge period using the net asset returns and Dynamic Lapse Multiplier, both as described above, and the year-by-year amortization discounted also as described above. For simplicity, mortality is ignored in the calculations. Surrender charges and free partial withdrawal provisions are as specified in the contract. Lapse and withdrawal rates are determined on a prudent estimate basis, and may vary according to the attributes of the business being valued including, but not limited to, attained age, contract duration, etc.

3.2. Component *FE*

Component *FE* establishes a provision for fixed dollar expenses (e.g., allocated costs, including overhead expressed as “per contract” and those expenses defined on a “per

contract” basis) less any fixed dollar revenue (e.g., annual administrative charges or contract fees) through the earlier of contract maturity or 30 years. *FE* is computed as the present value of the company’s assumed fixed expenses projected at an assumed annual rate of inflation starting in the second projection year. This rate grades uniformly from the current inflation rate (CIR) into an ultimate inflation rate of 3% per annum in the 8th year after the valuation date. The CIR is the greater of 3% and the inflation rate assumed for expenses in the company’s most recent asset adequacy analysis for similar business.

C. Calculation of the *GC* Component

1. *GC* Factors

GC is calculated as $F - \frac{GV}{AV} - G - \frac{AV}{R}$, where *GV* is the amount of the GMDB and *AV* is the contract account value, both as of the valuation date. *F*, *G* and the slope and intercept for the linear function used to determine *R* (identified symbolically as β_1 and β_2) are pre-calculated factors available from the NAIC and known herein as the “pre-calculated factors.” The factors shall be interpolated as described in Section 67.C.6 and modified as necessary as described in Section 67.C.7 and Section 67.C.8.

2. Five Steps

There are five major steps in determining the *GC* component for a given contract:

- a. Classifying the asset exposure, as specified in Section 67.C.3.
- b. Determining the risk attributes, as specified in Section 67.C.4 and Section 67.C.5.
- c. Retrieving the appropriate nodal factors from the factor grid, as described in Section 67.C.5.
- d. Interpolating the nodal factors, where applicable (optional), as described in Section 67.C.6.
- e. Applying the factors to the contract values.

3. Classifying Asset Exposure

For purposes of calculating *GC* (unlike what is done for components *CA* and *FE*), the entire account value for each contract must be assigned to one of the eight prescribed fund classes shown in Section 67.D, using the fund categorization rules in Section 67.D.

4. Product Designs

Factors *F*, *G* and $R(\beta_1, \beta_2)$ are available with the pre-calculated factors for the following GMDB product designs:

- a. Return of premium (ROP).
- b. Premiums less withdrawals accumulated at 3% per annum, capped at 2.5 times premiums less withdrawals, with no further increase beyond age 80 (“ROLL3”).
- c. Premiums less withdrawals accumulated at 5% per annum, capped at 2.5 times premiums less withdrawals, with no further increase beyond age 80 (“ROLL5”).

- d. An annual ratchet design (maximum anniversary value), for which the guaranteed benefit never decreases and is increased to equal the previous contract anniversary account value, if larger, with no further increases beyond age 80 (~~“(MAV)”~~).
 - e. A design having a guaranteed benefit equal to the larger of the benefits in designs ~~3c~~ and ~~4d~~, above (~~“(HIGH)”~~).
 - f. An enhanced death benefit (~~“(EDB)”~~) equal to 40% of the net earnings on the account (i.e., 40% of account value less total premiums paid plus withdrawals made), with this latter benefit capped at 40% of premiums less withdrawals.
5. Other Attributes
- Factors F , G and $R(\beta_1, \beta_2)$ are available within the pre-calculated factors for the following set of attributes:
- a. Two partial withdrawal rules—one for contracts having a pro-rata reduction in the GMDB and another for contracts having a dollar-for-dollar reduction.
 - b. The eight asset classes described in Section ~~67~~.D.2.
 - c. Eight attained ages, with a five-year age setback for females.
 - d. Five contract durations.
 - e. Seven values of GV/AV .
 - f. Three levels of asset-based income.
6. Interpolation of F , G and $R(\beta_1, \beta_2)$
- a. Apply to a contract having the product characteristics listed in Section ~~67~~.E.1 and shall be determined by selecting values for the appropriate partial withdrawal rule and asset class and then using ~~multi-point~~ linear interpolation among published values for the last four attributes shown in Section ~~67~~.C.5.
 - b. Interpolation over all four dimensions is not required, but if not performed over one or more dimensions, the factor used must result in a conservative (higher) value of GC . However, simple linear interpolation using the AV/GV ratio is mandatory. In this case, the company must choose nodes for the other three dimensions according to the following rules: next highest attained age, nearest duration and nearest annualized account charge differential, as listed in Section ~~67~~.E.3 (i.e., capped at +100 and floored at -100 bps).
 - c. For $R(\beta_1, \beta_2)$, the interpolation should be performed on the scaling factors R calculated using β_1, β_2 , using the ratio of margin offset to total asset charges (W), not on the factors β_1 and β_2 themselves.
- d. ~~An Excel workbook, Excel add-in and companion dynamic link library (.dll) program is available from the NAIC that can be used to determine the correct values and perform the multi-point linear interpolation.~~
 - e. ~~The instructions referenced in Section 7.A.1.f above include guidance on determining the correct values and performing the multipoint linear interpolation. Alternatively, published documentation can be referenced on performing multi-point linear interpolation and the required 16 values determined using a~~

key that is documented in the table *Components of Key Used for GC Factor Look-Up* located in [Section 67.E.36](#) below.

7. Adjustments to *GC* for Product Variations ~~and~~ Risk Mitigation/Transfer

In some cases, it may be necessary to make adjustments to the published factors due to:

- a. A variation in product form wherein the definition of the guaranteed benefit is materially different from those for which factors are available ~~(see, (See~~ [Section 67.C.8\)](#).
- b. A risk mitigation or other management strategy, other than a hedging strategy, that cannot be accommodated through a straightforward and direct adjustment to the published values.

Adjustments may not be made to *GC* for hedging strategies.

Any adjustments to the published factors must be fully documented and supported through stochastic analysis. Such analysis may require stochastic simulations, but would not ordinarily be based on full in-force projections. Instead, a representative “model office” should be sufficient. Use of these adjusted factors must be supported by a periodic review of the appropriateness of the assumptions and methods used to perform the adjustments, with changes made to the adjustments when deemed necessary by such review.

Note that minor variations in product design do not necessarily require additional effort. In some cases, it may be reasonable to use the factors/formulas for a different product form (e.g., for a roll-up GMDb near or beyond the maximum reset age or amount, the ROP GMDb factors/formulas shall be used, possibly adjusting the guaranteed value to reflect further resets, if any). In other cases, the reserves may be based on two different guarantee definitions and the results interpolated to obtain an appropriate value for the given contract/cell. Likewise, it may be possible to adjust the Alternative Methodology results for certain risk transfer arrangements without significant additional work (e.g., quota-share reinsurance without caps, floors or sliding scales would normally be reflected by a simple pro-rata adjustment to the “gross” *GC* results).

However, if the contract design is sufficiently different from those provided and/or the risk mitigation strategy is nonlinear in its impact on the ~~CTE amount~~ [reserve](#), and there is no practical or obvious way to obtain a good result from the prescribed factors/formulas, any adjustments or approximations must be supported using stochastic modeling. Notably this modeling need not be performed on the whole portfolio, but can be undertaken on an appropriate set of representative policies.

8. Adjusting *F* and *G* for Product Design Variations

This subsection describes the typical process for adjusting *F* and *G* factors due to a variation in product design. Note that *R* (as determined by the slope and intercept terms in the factor table) would not be adjusted.

- a. Select a contract design among those described in [Section 67.C.4](#) that is similar to the product being valued. Execute cash-flow projections using the documented assumptions (see table of *Liability Modeling Assumptions & Product Characteristics* in [Section 67.E.1](#) and table of *Asset-Based Fund Charges* in [Section 67.E.2](#)) and the ~~prepackaged~~ [scenarios from the prescribed generator](#) for a set of

representative cells (combinations of attained age, contract duration, asset class, AV/GMDB ratio and asset-based charges). These cells should correspond to nodes in the table of ~~pre-calculated~~ precalculated factors. Rank (order) the sample distribution of results for the present value of net cost. Determine those scenarios that comprise CTE (65).

Guidance Note: Present value of net cost = PV [guaranteed benefit claims in excess of account value] – PV [margin offset]. The discounting includes cash flows in all future years (i.e., to the earlier of contract maturity and the end of the horizon).

- b. Using the results from step 1, average the present value of cost for the CTE (65) scenarios and divide by the current guaranteed value. For the J^{th} cell, denote this value by F_J . Similarly, average the present value of the margin offset revenue for the same subset of scenarios and divide by account value. For the J^{th} cell, denote this value by G_J .
- c. Extract the corresponding ~~pre-calculated~~ precalculated factors. For each cell, calibrate to the published tables by defining a “model adjustment factor” (denoted by asterisk) separately for the “cost” and “margin offset” components:

$$F_J^* = \frac{f}{F_J} \text{ and } G_J^* = \frac{g}{G_J}$$

$$F_J^* = \frac{f(\tilde{\theta})}{F_J} \text{ and } G_J^* = \frac{g(\tilde{\theta})}{G_J}$$

- d. Execute “product specific” cash-flow projections using the documented assumptions and ~~prepackaged~~ scenarios from the prescribed generator for the same set of representative cells. Here, the company should model the actual product design. Rank (order) the sample distribution of results for the present value of net cost. Determine those scenarios that comprise CTE (65).
 - e. Using the results from step d, average the present value of cost for the CTE (65) scenarios and divide by the current guaranteed value. For the J^{th} cell, denote this value by $F_J^* F_J$. Similarly, average the present value of margin offset revenue for the same subset of scenarios and divide by account value. For the J^{th} cell, denote this value by $G_J^* G_J$.
 - f. To calculate the ~~CTE amount~~ reserve for the specific product in question, the company should implement the Alternative Methodology as documented, but use $F_J^* F_J \times F_J^*$ in place of F and $G_J^* G_J \times G_J^*$ instead of G . The same R factors as appropriate for the product evaluated in step 1 shall be used for this step (i.e., the product used to calibrate the cash-flow model).
9. Adjusting GC for Mortality Experience

The factors that have been developed for use in determining GC assume male mortality at 100% of the 1994 Variable Annuity MGDB ALB Mortality Table. Females use a 5-year age setback. Companies electing to use the Alternative Methodology that have not conducted an evaluation of their mortality experience shall use these factors, or shall adjust the factors using the methodology below to apply the mortality defined in Section 11.C. for products without VAGLB. Other companies should use the procedure described below

to adjust for the actuary's ~~Prudent Estimate~~ prudent estimate of mortality. The development of ~~Prudent Estimate~~ prudent estimate mortality shall follow the requirements and guidance of Section 112. Once a company uses the modified method for a block of business, the option to use the unadjusted factors is no longer available for that part of its business. In applying the factors to actual in-force business, a five-year age setback should be used for female annuitants.

- a. ~~(This step only applies to companies which have conducted an evaluation of their mortality experience).~~ Develop a set of mortality assumptions based on ~~Prudent Estimate~~ prudent estimate assumptions. In setting these assumptions, the actuary shall be guided by the definition of ~~Prudent Estimate~~ prudent estimate and the principles discussed in Sections ~~110~~ and ~~121~~.
- b. Calculate two sets of ~~net single premiums (NSP)~~ NSPs at each attained age: one valued using 100% of the 1994 Variable Annuity MGDB Age Last Birthday (ALB) Mortality Table (with the aforementioned five-year age setback for females), one valued using the appropriate percentage of the 2012 IAM Basic Table with projection scale G2 Age Last Birthday (ALB) for companies that have not established a prudent estimate mortality assumption, and the other one using prudent estimate mortality if that has been established by the company. These calculations shall assume an interest rate of 3.75% and a lapse rate of 7% per year.
- c. The GC factor is multiplied by the ratio, for the specific attained age being valued, of the NSP calculated using the prudent estimate mortality for blocks with those assumptions or the NSP calculated using the adjusted 2012 IAM Basic Table for blocks without a prudent estimate assumption to the NSP calculated using the 1994 Variable Annuity MGDB ALB Mortality Table. The base factors for females use the values (with the aforementioned five-year age setback for females).

D. Fund Categorization

1. Criteria

The following criteria should be used to select the appropriate factors, parameters and formulas for the exposure represented by a specified guaranteed benefit. When available, the volatility of the long-term annualized total return for the fund(s)—or an appropriate benchmark—should conform to the limits presented. For this purpose, “long-term” is defined as twice the average projection period that would be applied to test the product in a stochastic model (generally, at least 30 years).

Where data for the fund or benchmark are too sparse or unreliable, the fund exposure should be moved to the next higher volatility class than otherwise indicated. In reviewing the asset classifications, care should be taken to reflect any additional volatility of returns added by the presence of currency risk, liquidity (bid – ask) effects, short selling and speculative positions.

2. Asset Classes

Variable subaccounts must be categorized into one of the following eight asset classes. For purposes of calculating CA or FE, each contract will have one or more of the following asset classes represented, whereas for component GC, all subaccounts will be mapped into a single asset class.

- a. Fixed account: This class is credited interest at guaranteed rates for a specified term or according to a “portfolio rate” or “benchmark” index. This class offers a minimum positive guaranteed rate that is periodically adjusted according to company policy and market conditions.
 - b. Money market/short-term: This class is invested in money market instruments with an average remaining term-to-maturity of less than 365 days.
 - c. Fixed income: This class is invested primarily in investment grade fixed income securities. Up to 25% of the funds within this class may be invested in diversified equities or high-yield bonds. The expected volatility of the returns for this class will be lower than the balanced fund class.
 - d. Balanced: This class is a combination of fixed income securities with a larger equity component. The fixed income component should exceed 25% of the portfolio. Additionally, any aggressive or “specialized/exotic” equity component should not exceed one-third (33.3%) of the total equities held. Should the fund violate either of these constraints, it should be categorized as an equity fund. This class usually has a long-term volatility in the range of 8%–13%.
 - e. Diversified equity: This class is invested in a broad-based mix of U.S. and foreign equities. The foreign equity component (maximum 25% of total holdings) must be comprised of liquid securities in well-developed markets. Funds in this class would exhibit long-term volatility comparable to that of the S&P 500. These funds should usually have a long-term volatility in the range of 13%–18%.
 - f. Diversified international equity: This class is similar to the diversified equity class, except that the majority of fund holdings are in foreign securities. This class should usually have a long-term volatility in the range of 14%–19%.
 - g. Intermediate risk equity: This class has a mix of characteristics from both the diversified and aggressive equity classes. This class has a long-term volatility in the range of 19%–25%.
 - h. Aggressive or exotic equity: This class comprises more volatile funds where risk can arise from: underdeveloped markets, uncertain markets, high volatility of returns, narrow focus (e.g., specific market sector), etc. This class (or market benchmark) either does not have sufficient history to allow for the calculation of a long-term expected volatility, or the volatility is very high. This class would be used whenever the long-term expected annualized volatility is indeterminable or exceeds 25%.
3. Selecting Appropriate Investment Classes

The selection of an appropriate investment type should be done at the level for which the guarantee applies. For guarantees applying on a deposit-by-deposit basis, the fund selection is straightforward. However, where the guarantee applies across deposits or for an entire contract, the approach can be more complicated. In such instances, the approach is to identify for each contract where the “grouped holdings” fit within the categories listed and to classify the associated assets on this basis.

A seriatim process is used to identify the “grouped” fund holdings, to assess the risk profile of the current fund holdings (possibly calculating the expected long-term volatility of the funds held with reference to the indicated market proxies) and to classify the entire “asset

exposure” into one of the specified choices. Here, “asset exposure” refers to the underlying assets (separate and/or general account investment options) on which the guarantee will be determined. For example, if the guarantee applies separately for each deposit year within the contract, then the classification process would be applied separately for the exposure of each deposit year.

In summary, mapping the benefit exposure (i.e., the asset exposure that applies to the calculation of the guaranteed minimum death benefits) to one of the prescribed asset classes is a ~~multi-step~~^{multistep} process:

- Map each separate and/or general account investment option to one of the prescribed asset classes. For some funds, this mapping will be obvious, but for others, it will involve a review of the fund’s investment policy, performance benchmarks, composition and expected long-term volatility.
- Combine the mapped exposure to determine the expected long-term “volatility of current fund holdings.” This will require a calculation based on the expected long-term volatility for each fund and the correlations between the prescribed asset classes as given in the table “*Correlation Matrix for Prescribed Asset Classes*” in Section 67.D.4.
- Evaluate the asset composition and expected volatility (as calculated in step b) of current holdings to determine the single asset class that best represents the exposure, with due consideration to the constraints and guidelines presented earlier in this section.
- In step a, the company should use the fund’s actual experience (i.e., historical performance, inclusive of reinvestment) only as a guide in determining the expected long-term volatility. Due to limited data and changes in investment objectives, style and/or management (e.g., fund mergers, revised investment policy, different fund managers, etc.), the company may need to give more weight to the expected long-term volatility of the fund’s benchmarks. In general, the company should exercise caution and not be overly optimistic in assuming that future returns will consistently be less volatile than the underlying markets.
- In step ~~(b)~~₂, the company should calculate the “volatility of current fund holdings” (for the exposure being categorized) by the following formula:

$$\sigma = \sqrt{\sum_{i=1}^n \sum_{j=1}^n w_i w_j \rho_{ij} \sigma_i \sigma_j}$$

$$\sigma = \sqrt{\sum_{i=1}^n \sum_{j=1}^n w_i w_j \rho_{ij} \sigma_i \sigma_j}$$

Using the volatilities and correlations in the following table where

$$w_i = \frac{AV_i}{\sum_k AV_k} \quad w_i = \frac{AV_i}{\sum_k AV_k}$$

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is the relative value of fund i expressed as a proportion of total contract value, ρ_{ij} is the correlation between asset classes i and j, and σ_i is the volatility of asset class i. An example is provided after the table.

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4. Correlation Matrix for Prescribed Asset Classes

Table 7.2: Correlation Matrix for Prescribed Asset Classes

Annual Volatility		Fixed Account	Money Market	Fixed Income	Balanced	Diverse Equity	Intl Equity	Interm Equity	Aggr Equity
1.0%	Fixed Account	1	0.50	0.15	0	0	0	0	0
1.5%	Money Market	0.50	1	0.20	0	0	0	0	0
5.0%	Fixed Income	0.15	0.20	1	0.30	0.10	0.10	0.10	0.05
10.0%	Balanced	0	0	0.30	1	0.95	0.60	0.75	0.60
15.5%	Diverse Equity	0	0	0.10	0.95	1	0.60	0.80	0.70
17.5%	Intl Equity	0	0	0.10	0.60	0.60	1	0.50	0.60
21.5%	Interm Equity	0	0	0.10	0.75	0.80	0.50	1	0.70
26.0%	Aggr Equity	0	0	0.05	0.60	0.70	0.60	0.70	1

5. Fund Categorization Example

As an example, suppose three funds (fixed income, diversified U.S. equity and aggressive equity) are offered to clients on a product with a contract level guarantee (i.e., across all funds held within the contract). The current fund holdings (in dollars) for five sample contracts are shown in the following table:

Table 7.3: Fund Categorization Example

	1	2	3	4	5
MV Fund X (Fixed Income)	5,000	4,000	8,000	-	5,000
MV Fund Y (Diversified Equity)	9,000	7,000	2,000	65,000	-
MV Fund Z (Aggressive Equity)	1,000	4,000	-	45,000	5,000
Total Market Value	15,000	15,000	10,000	10,000	10,000
Total Equity Market Value	10,000	11,000	2,000	10,000	5,000
Fixed Income % (A)	33%	27%	80%	0%	50%
Fixed Income Test ($A \geq 75\%$)	No	No	Yes	No	No
Aggressive % of Equity (B)	10%	36%	n/a	450%	100%
Balanced Test ($A \geq 25\%$ & $B \leq 33.3\%$)	Yes	No	n/a	No	No
Volatility of Current Fund Holdings	10.9%	13.2%	5.3%	19.2%	13.4%

Fund Classification	Balanced	Diversified ³	Fixed Income	Intermediate	Diversified

As an example, the “volatility of current fund holdings” for contract #1 is calculated as $\sqrt{A + B}$ where:

$$A = \left(\frac{5}{15} \times 0.05 \right)^2 + \left(\frac{9}{15} \times 0.155 \right)^2 + \left(\frac{1}{15} \times 0.26 \right)^2$$

$$B = 2 \cdot \left(\frac{5}{15} \cdot \frac{9}{15} \right) (0.1 \times 0.05 \times 0.155) + 2 \cdot \left(\frac{5}{15} \cdot \frac{1}{15} \right) (0.05 \times 0.05 \times 0.26) + 2 \cdot \left(\frac{9}{15} \cdot \frac{1}{15} \right) (0.7 \times 0.155 \times 0.26)$$

$A = 0.0092$ and $B = 0.0026$. So, the volatility for contract #1 is $\sqrt{0.0092 + 0.0026} = 0.109$ or 10.9%

³ Although the volatility suggests “balanced fund,” the balanced fund criteria were not met. Therefore, this “exposure” is moved “up” to diversified equity. For those funds classified as diversified equity, additional analysis would be required to assess whether they should be instead designated as “diversified international equity.”

E. Tables

1. Liability Modeling Assumptions and Product Characteristics used for GC Factors

Table 7.E.14: Liability Modeling Assumptions and Product Characteristics used for GC Factors

Asset Based Charges (MER)	Vary by fund class. See Section 67.E.2.
Base Margin Offset	100 bps per annum.
GMDB Description	1. ROP = return of premium. 2. ROLL3 = 3% roll-up, capped at 2.5% premium, frozen at age 80. 3. ROLL5 = 5% roll-up, capped at 2.5% premium, frozen at age 80. 4. MAV = annual ratchet (maximum anniversary value), frozen at age 80. 5. HIGH = Higher of 5% roll-up and annual ratchet. 6. EDB = 40% Enhanced death benefit (capped at 40% of deposit). Note that the pre-calculated factors were originally calculated with a combined ROP benefit, but they have been adjusted to remove the effect of the ROP. Thus, the factors for this benefit five are solely for the EDB.
Adjustment to GMDB Upon Partial Withdrawal	Separate factors for “pro-rata by market value” and “dollar-for-dollar.”
Surrender Charges	Ignored (i.e., zero). Included in the CA component.
Single Premium/Deposit	\$100,000. No future deposits; no intra-contract fund rebalancing.
Base Contract Lapse Rate (Total Surrenders)	Pro-rata by MV: 10% p.a. at all contract durations (before dynamics). Dollar-for-dollar: 2% p.a. at all contract durations (no dynamics).
Partial Withdrawals	Pro-rata by MV: None (i.e., zero). Dollar-for-dollar: Flat 8% p.a. at all contract durations (as a % of AV). No dynamics or anti-selective behavior.
Mortality	100% of the 1994 Variable Annuity MGDB Mortality Table (MGDB 94 ALB). For reference, 1000qx rates at ages 65 and 70 for 100% of MGDB 94 ALB Male are 18.191 and 29.363, respectively. Note: Section 67.C.9 allows modification to this assumption.
Gender/Age Distribution	100% male. Methodology accommodates different attained ages. A five-year age setback will be used for female annuitants.
Max. Annuitization Age	All policies terminate at age 95.
Fixed Expenses	Ignored (i.e., zero). Included in the FE component.
Annual Fee and Waiver	Ignored (i.e., zero). Included in the FE component.
Discount Rate	5.75% pre-tax.
Dynamic Lapse Multiplier (Applies only to policies where GMDB is adjusted “pro-rata by MV” upon withdrawal)	$\lambda = \min \left[U, \max \left[L, 1 - M \times \left(\frac{GV}{AV} - D \right) \right] \right]$ $\lambda = \min \left[U, \max \left[L, 1 - M \times \left(\frac{GV}{AV} - D \right) \right] \right]$

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2. Asset-Based Fund Charges (bps per annum)

Table 7.E-25. Asset-Based Fund Charges (bps per annum)

Asset Class/Fund	Account Value Charge
Fixed Account	0
Money Market	110
Fixed Income (Bond)	200
Balanced	250
Diversified Equity	250
Diversified International Equity	250
Intermediate Risk Equity	265
Aggressive or Exotic Equity	275

3. Components of Key Used for GC Factor Look-Up

Table 7.E-36. Components of Key Used for GC Factor Look-Up

(First Digit always "1")

Contract Attribute	Key: Possible Values and Description
Product Definition, P	0 : 0 Return-of-premium. 1 : 1 Roll-up (3% per annum). 2 : 2 Roll-up (5% per annum). 3 : 3 Maximum anniversary value (MAV). 4 : 4 High of MAV and 5% roll-up. 5 : 5 Enhanced death benefit (excludes the ROP GMDB, which would have to be added separately if the contract in question has an ROP). ~~benefit~~
GV Adjustment Upon Partial Withdrawal, A	0 : 0 Pro-rata by market value. 1 : 1 Dollar-for-dollar.
Fund Class, F	0 : 0 Fixed Account. 1 : 1 Money Market. 2 : 2 Fixed Income (Bond). 3 : 3 Balanced Asset Allocation. 4 : 4 Diversified Equity. 5 : 5 International Equity. 6 : 6 Intermediate Risk Equity. 7 : 7 Aggressive ~~+~~ Exotic Equity.
Attained Age (Last Birthday), X	0 : 35 4 : 65 1 : 45 5 : 70 2 : 55 6 : 75 3 : 60 7 : 80
Contract Duration (years-since-issue), D	0 : 0.5 ~~1 : 3.5~~ ~~2 : 6.5~~ 3 : 9.5 ~~1 : 3.5~~ 4 : 12.5 ~~2 : 6.5~~

Account Value-to-Guaranteed Value Ratio, ϕ	0 : 0.25 4 : 1.25 1 : 0.50 5 : 1.50 2 : 0.75 6 : 2.00 3 : 1.00
Annualized Account Charge Differential from ~~A4.5)B)~~ Section 7.E.2 Assumptions	0 : -100 bps 1 : +0 2 : +100

VM-21: Requirements for Principle-Based Reserves for Variable Annuities

Section 78: Scenario Calibration Criteria Generation

A. General

1. This section outlines the requirements for the stochastic cash-flow models used to simulate interest rates, fund performance returns, and implied volatility to be used in the modeled projections. Specifically, it prescribes scenario generators and the associated parameters for interest rates, as well as investment returns for general account equity assets and separate account fund returns. In addition, this section sets certain standards that must be satisfied and offers guidance to the actuary in the development and validation of the scenario models. Background material and analysis are presented to support the recommendation. The section focuses on the S&P 500 as a proxy for returns on a broadly diversified fund returns, implied volatility scenarios, and non-prescribed scenario generators. It U.S. equity fund, but there is also advice on how the techniques and requirements would apply to other types of funds. General discusses general modeling considerations such as the number of scenarios and projection frequency are also.

Guidance Note: For more details on the development of these scenario generators, see the Academy recommendations on the development of the Equity Generator (Recommended Approach for Setting Regulator Risk-Based Capital Requirements for Variable Annuities and Similar Products presented to NAIC Capital Adequacy Task Force in June 2005) and the Interest Rate Generator (Report from the American Academy of Actuaries' Economic Scenario Work Group to the NAIC Life Risk Based Capital Working Group and Life and Health Actuarial Task Force - December 2008).

The scenarios discussed:

Guidance Note: For more details on the development of these requirements, including the development of the calibration points, see the Academy recommendation on C-3 Phase II RBC.

- ~~1-2.~~ The calibration points given in this section are applicable to gross investment returns (before the deduction of any fees or charges). To determine the net returns appropriate for the projections required by these requirements, the actuary company shall reflect applicable fees and contract holder charges in the development of projected account values. The projections also shall include the costs of managing the investments and converting the assets into cash when necessary.
- ~~2-3.~~ As a general rule, funds with higher expected returns should have higher expected volatilities, and in the absence of well-documented mitigating factors (e.g., a highly reliable and favorable correlation to other fund returns), they should lead to higher reserve total asset requirements.

Guidance Note: While the model need not strictly adhere to “mean-variance efficiency,” prudence dictates some form of consistent risk/return relationship between the proxy investment funds. In general, it would be inappropriate to assume consistently “superior” expected returns (i.e., risk/return point above the frontier).

State or path dependent models are not prohibited, but must be justified by the historic data and meet the calibration criteria. To the degree that the model uses mean reversion or path dependent dynamics, this must be well supported by research and clearly documented in the memorandum supporting the required actuarial certification.

3.4. The For non-prescribed generators, the interest rate, equity scenarios, and implied volatility scenarios used to determine reserves must be available in an electronic format spreadsheet to facilitate any regulatory review.

B. Gross Wealth Ratios

Gross wealth ratios derived from the stochastic return scenarios for use with a separate account variable fund category for diversified U.S. equities must satisfy calibration criteria consistent with that for the S&P 500 shown in the following table. Under these calibration criteria, gross wealth ratios for quantiles less than 50% may not exceed the value from the table corresponding to the quantile, while at quantiles greater than 50%, gross wealth ratios may not be less than the corresponding value for the quantile from the table. Gross wealth ratios must be tested for holding period one, five, 10 and 20 years throughout the projections, except as noted in Section 7.C.

The “wealth factors” are defined as gross accumulated values (i.e., before the deduction of fees and charges) with complete reinvestment of income and maturities, starting with a unit investment. These can be less than 1, with “1” meaning a zero return over the holding period.

S&P 500 Total Return Gross Wealth Ratios at the Calibration Points

Calibration Point	One Year	Five Year	Ten Year	Twenty Year
2.5%	0.78	0.72	0.79	
5.0%	0.84	0.81	0.94	1.51
10.0%	0.90	0.94	1.16	2.10
90.0%	1.28	2.17	3.63	9.02
95.0%	1.35	2.45	4.36	11.70
97.5%	1.42	2.72	5.12	

The scenarios need not strictly satisfy all calibration points, but the actuary should be satisfied that any differences do not materially reduce the resulting reserves. In particular, the actuary should be mindful of which tail most affects the business being valued. If reserves are less dependent on the right (left) tail for all products under consideration (e.g., a return of premium guarantee would primarily depend on the left tail, an enhanced death benefit equal to a percentage of the gain would be most sensitive to the right tail, etc.), it is not necessary to meet the right (left) calibration points.

Guidance Note: See the preamble to the AP&P Manual for an explanation of materiality.

For models that require starting values for certain state variables, long term (“average” or “neutral”) values should be used for calibration. The same values should normally be used to

initialize the models for generating the actual projection scenarios unless an alternative assumption can be clearly justified. It should be noted that a different set of initialization parameters might produce scenarios that do not satisfy all the calibration points shown in the above table. However, the S&P 500 scenarios used to determine reserves must meet the calibration criteria.

Guidance Note: For example, a stochastic log volatility (SLV) model requires the starting volatility. Also, the regime switching lognormal model requires an assumption about the starting regime.

Guidance Note: A clear justification exists when state variables are observable or “known” to a high degree of certainty and not merely estimated or inferred based on a “balance of probabilities.”

C. Calibration Requirements Beyond 20 Years

It is possible to parameterize some path and/or state dependent models to produce higher volatility (and/or lower expected returns) in the first 20 years in order to meet the calibration criteria, but with lower volatility (and/or higher expected returns) for other periods during the forecast horizon. While this property may occur for certain scenarios (e.g., the state variables would evolve over the course of the projection and thereby affect future returns), it would be inappropriate and unacceptable for a company to alter the model parameters and/or its characteristics for periods beyond year 20 in a fashion not contemplated at the start of the projection and primarily for the purpose(s) of reducing the volatility and/or severity of ultimate returns.

Guidance Note: Such adjustments must be clearly documented and justified by the historic data.

D. Other Funds

Calibration of other markets (funds) is left to the judgment of the actuary, but

B. Prescribed Interest Rate Scenario Generator

1. U.S. Treasury interest rate curves shall be determined on a stochastic basis using the prescribed interest rate scenario generator with prescribed parameters, or a non-prescribed generator that meets the requirements described in Section 8.E.
2. The prescribed interest rate scenario generator can be found on the Society of Actuaries' website address, www.soa.org/tables-calcs-tools/research-scenario/. The prescribed parameters for the prescribed interest rate scenario generator shall be those included in the prescribed interest rate scenario generator, and shall use the mean reversion point for the 20-year U.S. Treasury bond rate based on the following formula, with the result rounded to the nearest 0.25%:

$$\begin{aligned} & 20\% \text{ of the median 20-year U.S. Treasury bond rate over the last 600 months} \\ & + 30\% \text{ of the average 20-year U.S. Treasury bond rate over the last 120 months} \\ & + 50\% \text{ of the average 20-year U.S. Treasury bond rate over the last 36 months.} \end{aligned}$$

The mean reversion point for use in the generator changes once per calendar year, in January, and is based on historical rates through the end of the prior calendar year. While the mean reversion point is dynamic depending on the start date of a scenario, it remains

constant (rather than dynamic) across all time periods after the scenario start date, for purposes of generating the scenario.

3. For this formula, the historical 20-year U.S. Treasury bond rate for each month shall be the rate reported for the last business day of the month. Treasury interest rates can be found at the website: www.treas.gov/offices/domestic-finance/debt-management/interest-rate/yield_historical_main.shtml.

C. Prescribed Total Investment Return Scenario Generator for Equity Assets and Separate Account Funds

1. Total investment return paths for general account equity assets and separate account fund returns shall be determined on a stochastic basis using the prescribed economic scenario generator with prescribed parameters.

Guidance Note: In lieu of the prescribed economic generators, the company may substitute scenarios from a non-prescribed economic generator that meets the requirements described in Section 8.E.

2. The prescribed economic scenario generator can be found on the Society of Actuaries' website address, www.soa.org/tables-calcs-tools/research-scenario/. The prescribed parameters for the **prescribed economic** scenario generator shall be those included in the prescribed **economic** scenario generator. A **more complete** description of the generator and development of assumptions is contained in the Academy report referenced in the Guidance Note following Section 8.A.1 above.
3. The company shall map each of the proxy funds defined in Section 4.A.2 to the fund returns projected by the prescribed economic scenario generator. This mapping process may involve blending the accumulation factors from two or more of the prescribed fund returns to create the projected returns for each proxy fund. If a proxy fund cannot be appropriately mapped to some combination of the prescribed returns, the company shall determine an appropriate return using a non-prescribed scenario generator and disclose the methodology underlying the non-prescribed scenario generator.
- ~~4.~~ In using **non-prescribed** scenario generators to determine the return for proxy funds that cannot be mapped to the prescribed **economic** generator, the scenarios so generated must be consistent with the calibration points in the table in Section 7.B. ~~general relationships between risk and return observed in the fund returns from the prescribed scenario generator.~~ This does not imply a strict functional relationship between the model parameters for various markets/funds, but it would generally be inappropriate to assume that a market or fund consistently "outperforms" (lower risk, higher expected return relative to the efficient frontier) over the long term.

~~The actuary shall document the actual 1-, 5-, 10- and 20-year wealth factors of the scenarios at the same frequencies as in the "S&P 500 Total Return Gross Wealth Ratios at the Calibration Points" table in Section 7.D. The annualized mean and standard deviation of the wealth factors for the 1-, 5-, 10- and 20-year holding periods also must be provided. For equity funds, the actuary shall explain the reasonableness of any significant differences from the S&P 500 calibration points.~~

2-5. When parameters are fit to historic data without consideration of the economic setting in which the historic data emerged, the market price of risk may not be consistent with a reasonable long-term model of market equilibrium. One possibility for establishing “consistent” parameters (or scenarios) across all funds would be to assume that the market price of risk is constant (or nearly constant) and governed by some functional (e.g., linear) relationship. That is, higher expected returns can only be garnered by assuming greater risk.

Guidance Note: As an example, the standard deviation of log returns often is used as a measure of risk. Specifically, two return distributions R_X and R_Y would satisfy the following relationship:

$$\text{Market Price of Risk} = \left(\frac{E[R_X] - r}{\sigma_X} \right) = \left(\frac{E[R_Y] - r}{\sigma_Y} \right)$$

$$\text{Market Price of Risk} = \left(\frac{E[R_X] - r}{\sigma_X} \right) = \left(\frac{E[R_Y] - r}{\sigma_Y} \right)$$

Where $E[R]$ and σ are respectively the (unconditional) expected returns and volatilities, and r is the expected risk-free rate over a suitably long holding period commensurate with the projection horizon. One approach to establish consistent scenarios would set the model parameters to maintain a near-constant market price of risk.

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3-6. A closely related method would assume some form of “mean-variance” efficiency to establish consistent model parameters. Using the historic data, the mean-variance (alternatively, “drift-volatility”) frontier could be constructed from a plot of (mean, variance) pairs from a collection of world market indices. The frontier could be assumed to follow some functional form, with the coefficients determined by standard curve fitting or regression techniques. Recognizing the uncertainty in the data, a “corridor” could be established for the frontier. Model parameters would then be adjusted to move the proxy market (fund) inside the corridor.

Guidance Note: The function forms quadratic polynomials, and logarithmic functions tend to work well.

4-7. Clearly, there are many other techniques that could be used to establishing consistency between the scenarios. While appealing, the above approaches do have drawbacks, and the [actuary company](#) should not be overly optimistic in constructing the model parameters or the scenarios.

Guidance Note: For example, mean-variance measures ignore the asymmetric and fat-tailed profile of most equity market returns.

~~Funds can be grouped and projected as a single fund if such grouping is not anticipated to materially reduce reserves. However, care should be taken to avoid exaggerating the benefits of diversification. The actuary must document the development of the investment return scenarios and~~

be able to justify the mapping of the company's variable accounts to the proxy funds used in the modeling.

E. Correlation of Fund Returns

8. In constructing the scenarios for the proxy funds, the company may require parameter estimates for a number of different market indices. When more than one index is projected, it is generally necessary to allow for correlations in the simulations. For each proxy fund not within the scope of the prescribed economic generator, the company must consider the following:

- a. The Market Price of Risk, as defined in the Guidance Note found in Section 8.C.5, implied in the projected fund returns when compared against the Market Price of Risk for all funds generated by the prescribed scenario generator should produce reasonable relationships. In calculating the Market Price of Risk, the company shall use an expected risk-free rate consistent with the long-term risk-free rate used in determining the Market Price of Risk or equivalent quantities in the calibration of the prescribed scenario generator; and
- b. The average correlations, across all scenarios and all time periods, of the projected fund returns with the fund returns generated by the prescribed scenario generator should be in a reasonable range.

The company may also consider any other information that provides assurance that the returns for proxy funds not generated using a prescribed scenario generator do not consistently outperform over the long term if the company believes that the Market Price of Risk and correlations described above are misleading or not relevant.

5-9. It is not necessary to assume that all markets are perfectly positively correlated, but an assumption of independence (zero correlation) between the equity markets would inappropriately exaggerate the benefits of diversification. An examination of the historic data suggests that correlations are not stationary and that they tend to increase during times of high volatility or negative returns. As such, the actuary company should take care not to underestimate the correlations in those scenarios used for the reserve calculations.

If the projections include the simulation

D. Implied Volatility Scenarios

The projection of implied volatility scenarios for interest rates (other, equities, or other asset classes) is left to the judgment of the company, but the scenarios so generated must satisfy the following properties:

1. At each projection time step, all projected implied volatility surfaces must be arbitrage free after considering appropriate transaction costs;
2. Relationships between the projected implied volatility scenarios, the scenarios for the underlying asset investment returns, and the realized volatility of the scenarios for the underlying asset returns should be consistent with relationships observed in historical data;

For instance, projected implied volatility should generally exhibit positive correlation with the realized volatility of the scenarios for the underlying asset returns over the same time period. In addition, it would also be appropriate to assume that projected implied volatility generally exhibits negative correlation with the short-term performance of the underlying asset over the same time period;

3. For a company not using the safe harbor described in Section 9.C.8B.5, any implied volatility scenarios generated using a non-prescribed scenario generator shall not result in a **Total Asset Requirement** TAR less than for discounting surplus strain), as well as that obtained by assuming that the implied volatility level – at all in-the-moneyness levels – at a given time step in a given scenario is equal to the realized volatility of the underlying asset scenario over the same time period. In other words, the TAR shall not be reduced by assumptions of any realizable spread between implied volatility and realized volatility. For purposes of demonstrating compliance with this standard, a company may rely on only the values from the stochastic calculations and exclude impacts from the additional standard projection and the alternative methodology.

E. Use of non-prescribed Scenario Generators

At the option of the company, interest rates and total investment return scenarios for equity assets and separate account fund returns, the processes may be independent generated in part or in full using non-prescribed scenario generators in lieu of the prescribed economic generators, provided that the actuary can demonstrate that this assumption (i.e., zero correlation) does not result in a TAR that is materially underestimate lower than the TAR resulting reserves from the use of the scenarios from the prescribed economic generators as defined in B, and C. above. As defined in the RBC instructions, TAR is defined to be the sum of the reserve that results from the application of these VM 21 requirements plus the C 3 RBC amount determined by step 4 of the 7 step process in the Life RBC formula page LR027 instructions for 2020. For purposes of demonstrating compliance with this standard, a company may rely on only the values from the stochastic calculations and exclude impacts from the additional standard projection and the alternative methodology.

F. Number of Scenarios and Efficiency in Estimation

1. For straight Monte Carlo simulation (with equally probable “paths” of fund returns), the

number of scenarios should typically equal or exceed 1000. The appropriate number will depend on how the scenarios will be used and the materiality of the results. The [actuarycompany](#) should use a number of scenarios that will provide an acceptable level of precision.

2. Fewer than 1,000 scenarios may be used provided that the [actuarycompany](#) has determined through prior testing (perhaps on a subset of the portfolio) that the CTE values so obtained materially reproduce the results from running a larger scenario set.
3. Variance reduction and other sampling techniques are intended to improve the accuracy of an estimate more efficiently than simply increasing the number of simulations. Such methods can be used provided the [actuarycompany](#) can demonstrate that they do not lead to a material understatement of results. Many of the techniques are specifically designed for estimating means, not tail measures, and could in fact reduce accuracy (and efficiency) relative to straight Monte Carlo simulation.

Guidance Note: With careful implementation, many variance reduction techniques can work well for CTE estimators. For example, see Manistre, B.J. and Hancock, G. (2003), “Variance of the CTE Estimator,” 2003 Stochastic Modeling Symposium, Toronto, September 2003.

4. The above requirements and warnings are not meant to preclude or discourage the use of valid and appropriate sampling methods, such as Quasi Random Monte Carlo (QRMC), importance sampling or other techniques designed to improve the efficiency of the simulations (relative to pseudo-random Monte Carlo methods). ~~However, the actuary should maintain documentation that adequately describes any such techniques used in the projections. Specifically, the documentation should include the reasons why such methods can be expected not to result in systematic or material under-statement of the resulting reserves compared to using pseudo-random Monte Carlo numbers.~~

~~G. — Frequency of Projection and Time Horizon~~

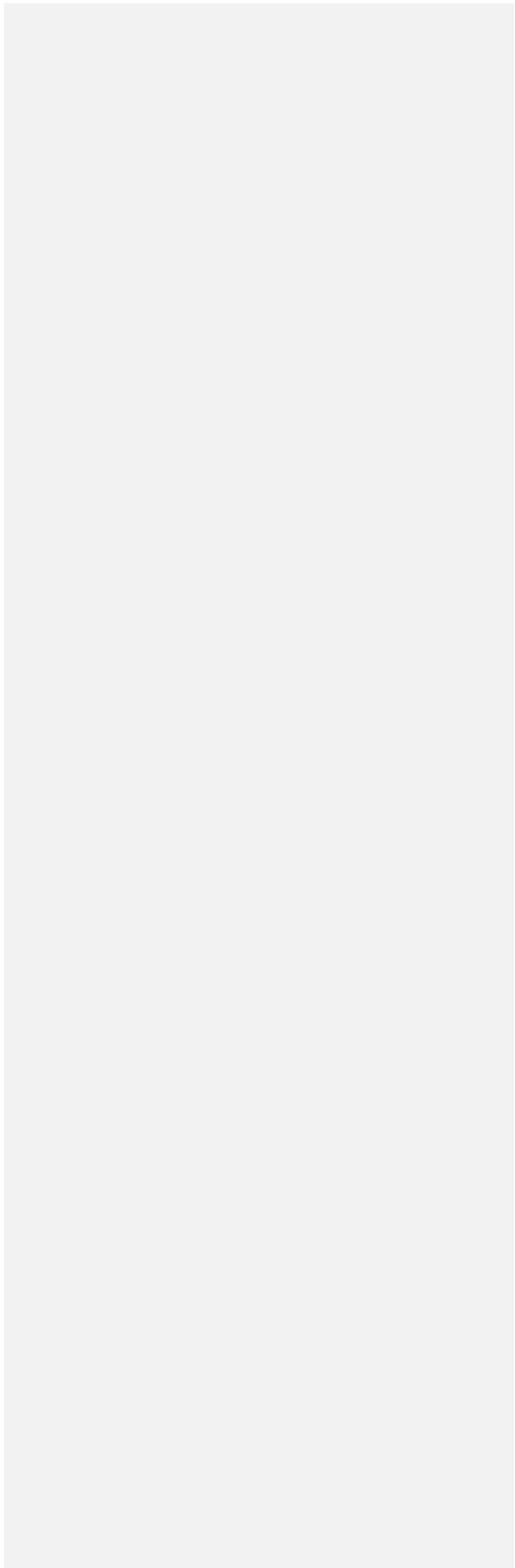
~~Use of an annual cash flow frequency (“timestep”) is generally acceptable for benefits/features that are not sensitive to projection frequency. The lack of sensitivity to projection frequency should be validated by testing wherein the actuarycompany should determine that the use of a more frequent (i.e., shorter) time step does not materially increase reserves. A more frequent time increment always should be used when the product features are sensitive to projection period frequency.~~

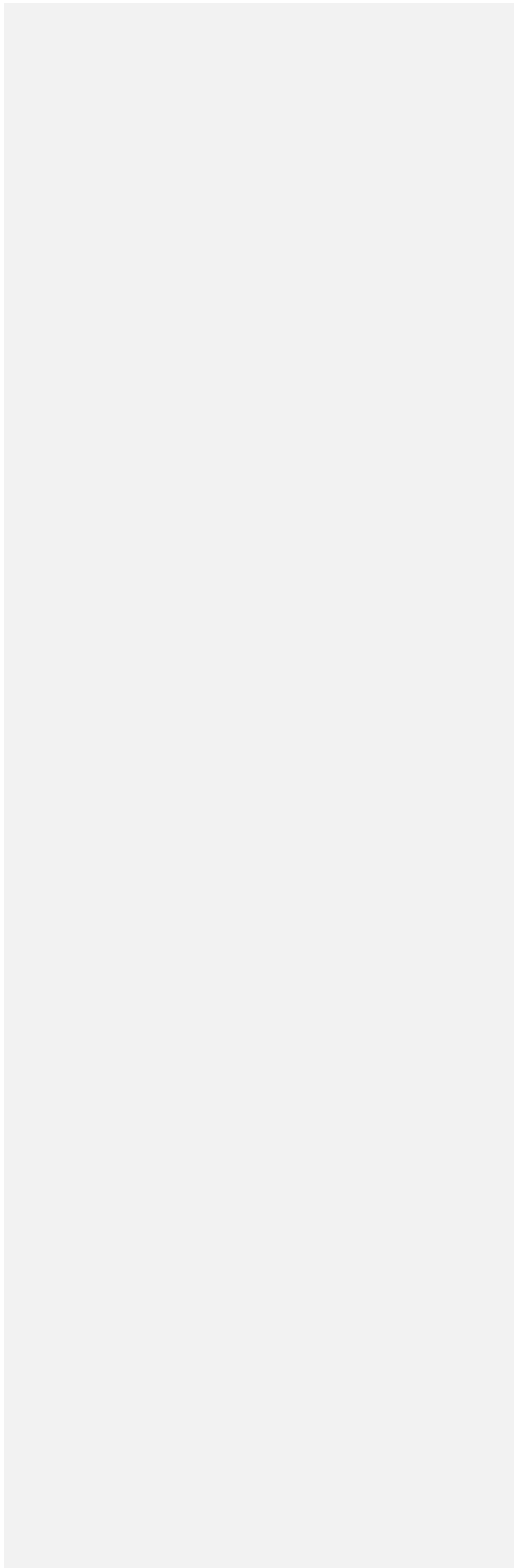
~~Care must be taken in simulating fee income and expenses when using an annual time step. For example, recognizing fee income at the end of each period after market movements, but prior to persistency decrements, normally would be an inappropriate assumption. It also is important that the frequency of the investment return model be linked appropriately to the projection horizon in the liability model. In particular, the horizon should be sufficiently long so as to capture the vast majority of costs (on a present value basis) from the scenario.~~

~~**Guidance Note:** As a general guide, the forecast horizon should not be less than 20 years.~~

~~H. — Prepackaged Scenarios~~

~~The Academy has provided 10,000 scenarios on its website~~





VM 21: Requirements for the 19 asset classes below.

Guidance Note: The prepackaged scenarios can be found at <https://www.soa.org/Files/Zip/research-economic-generators.zip> and are fully documented at <https://www.soa.org/Files/Research/Projects/research-2016-economic-scenario-generators.pdf>.

Guidance Note: Because the reserves calculated using projections involve cash flow projections, the prepackaged scenarios were developed under the “real world” probability measure (as opposed to a “risk neutral” basis). Therefore, the prepackaged scenarios may not be appropriate for purposes of projecting the market value of future hedge instruments within a projection (to the extent such instruments are used in the projections). For this purpose, it may be more appropriate to use risk neutral scenarios to determine the market value of hedge instruments in the cash flow projections that are based on real world scenarios.

1. — 3 month Treasury Yields
2. — 6 month Treasury Yields
3. — 1 year Treasury Yields
4. — 2 year Treasury Yields
5. — 3 year Treasury Yields
6. — 5 year Treasury Yields
7. — 7 year Treasury Yields
8. — 10 year Treasury Yields
9. — 20 year Treasury Yields
10. — 30 year Treasury Yields
11. — Money Market/Short Term
12. — U.S. Intermediate Term Government Bonds
13. — U.S. Long Term Corporate Bonds
14. — Diversified Fixed Income
15. — Diversified Balanced Allocation
16. — Diversified Large Capitalized U.S. Equity
17. — Diversified International Equity
18. — Intermediate Risk Equity
19. — Aggressive or Specialized Equity

The scenarios are available as gross monthly accumulation factors (or Treasury yields) over a 30-year horizon in comma-separated value format (*.csv). These scenarios have been appropriately correlated so that the k^{th} scenario for each asset class must be used together and considered one

“future investment return scenario.” Hence, the scenarios can be combined (by blending the accumulation factors) to create additional “proxy” scenarios for the company’s funds.

Guidance Note: It is inappropriate to misalign the ordering of scenarios (e.g., scenario J for “Diversified U.S. Equity” cannot be combined with scenario K for “Diversified International Equity,” where $J \neq K$).

Guidance Note: It is important to blend the accumulation factors (not the returns) in order to achieve the desired asset mix.

For example, suppose the actuary wanted to construct scenarios for a “balanced fund” that targets a 60/40 allocation between bonds and U.S. equities. If we denote $[AF^X]$ as the matrix of accumulation factors for asset class X, then the balanced scenarios would be defined by $[AF^{Bal}] = 0.60 \times [AF^{Bond}] + 0.40 \times [AF^{S\&P\ 500}]$. Care should be taken to avoid exaggerating the benefits of diversification. The actuary shall document the development of the investment return scenarios and be able to justify the mapping of the company’s variable accounts to the proxy funds used in the modeling.

The Treasury yields are expressed as nominal semi-annual bond equivalent yields in decimal format. All other returns are expressed as periodic (not cumulative) market accumulation factors (i.e., monthly “gross wealth ratios”). Interest rates are assumed to change at the start of each month; hence, the value in column T applies for month T-1. The market accumulation factor in column T represents the growth in month T-1.

If all or a portion of these scenarios are used, then the actuary shall verify that the scenario calibration criteria are met.

Section 8: Allocation of the Aggregate Principle-Based Reserves to the Contract Level for Variable Annuities

Section 2 states that the aggregate reserve shall be allocated to the contracts falling within the scope of these requirements. When the CTE amount is greater than the standard scenario amount, this allocation requires that the excess be allocated to the contracts falling within the scope of these requirements.

A. Allocation when the Aggregate Reserve Equals the CTE Amount

1. Single Subgrouping

When the aggregate reserve is equal to the CTE amount and the CTE amount is determined in aggregate for all contracts falling within the scope of these requirements (i.e., a single grouping), as described in Section 2.D, the excess of the CTE amount over the standard scenario amount shall be allocated to each contract on the basis of the difference between the standard scenario reserve and the cash surrender value on the valuation date for the contract. If the cash surrender value is not defined or not available, the standard scenario amount will be the basis of allocation.

Guidance Note: Note that since the standard scenario reserve for a contract is, by definition, greater than or equal to the cash surrender value, it is understood that the difference between the standard scenario reserve and the cash surrender value for each contract will never be less than zero.

2. Multiple Subgroupings

When the aggregate reserve is equal to the CTE amount and the CTE amount is determined using more than one sub-grouping, as described in Section 2.D, the allocation of the excess of the CTE amount over the standard scenario amount shall reflect that sub-grouping of contracts used to determine the CTE amount, as described in Section 2.D.

For example, when the CTE amount is determined using sub-grouping, the excess of the aggregate (i.e., the total for all contracts within the scope of these requirements) CTE amount over the aggregate standard scenario amount shall be allocated only to those contracts that are part of sub-groupings whose contributions to the CTE amount exceed their contribution to the standard scenario amount.

In the case of such sub-groupings, the excess of the aggregate CTE amount over the aggregate standard scenario amount shall be allocated to each sub-grouping in proportion to the difference between the CTE and the standard scenario reserve for each sub-grouping for which that excess is positive.

Once the allocation to each sub-grouping is determined, the excess of the reserve allocated to such sub-grouping over the standard scenario amount determined for that sub-grouping shall be allocated to each contract within that sub-grouping on the basis of the difference between the standard scenario reserve and the cash surrender value on the valuation date for the contracts. If the cash surrender value is not defined or not available, the standard scenario amount will be the basis of allocation.

As an example, consider a company with the results of the following three sub-groupings:

Sub-grouping	A	B	C	Total
Conditional Tail Expectation Amount	28	40	52	120
Standard-Scenario Amount	20	45	30	95
Aggregate Reserve				120
(1) – (2)	8	-5	22	25
Allocation	6.67	0	18.33	25

In this example, the excess of the CTE amount over the standard scenario amount, in aggregate, equals 25 (i.e., the “Total” column of row 1 less row 2, or 120 – 95). This excess of 25 would be allocated only to those contracts that are part of sub-groupings whose contributions to the CTE amount exceed their contributions to the standard scenario amount. In this example, that would be contracts in sub-groupings A and C (since in sub-grouping B, the contribution to the standard scenario amount exceeds the contribution to the CTE amount). Therefore, the excess of 25 would be allocated to the contracts in sub-groupings A and C in proportion to the difference between the CTE amount and the standard scenario reserve for those sub-groupings (i.e., row 4). In this example, the total difference between the CTE amount and the standard scenario reserve for the contracts in sub-groupings A and C equals 8 + 22, or 30. This would result in 8/30 of the excess of the CTE amount over the standard scenario amount (or 6.67) to be allocated to the contracts in sub-grouping A and 22/30 of the excess of the CTE amount over the standard scenario amount (or 18.33) to be allocated to the contracts in sub-grouping C as shown on row (5) above.

In this example, the allocation of the aggregate reserve to contracts within sub-grouping B would equal the standard scenario reserve for those contracts (as described in Section 8.B

below). For sub-groupings A and C, the difference between the allocation of the aggregate reserve to each of those sub-grouping and the standard scenario amount determined for each of those sub-grouping would be allocated to each contract within each of those sub-groupings based on the difference between the standard scenario reserve and the cash surrender value for each of the contracts within the relevant sub-group. The result would be an allocated aggregate reserve for a given contract that would be equal to the standard scenario reserve for that contract plus the amount of the difference between a) and b) below that is allocated to that contract, where:

- a. — Equals the allocation of the aggregate reserve to that contract's sub-grouping.
- b. — Equals the standard scenario amount determined for that contract's sub-grouping.

B. — Allocation when the Aggregate Reserve equals the Standard Scenario Amount

The standard scenario amount, as required by Section 2.C, is calculated on a contract by contract basis, as described in Section 5. Therefore, when the aggregate reserve is equal to the standard scenario amount, the reserve allocated to each contract shall be the reserve calculated for each contract under the Standard Scenario method.

Section 9: Modeling of Hedges under a CDHS

A. Initial Considerations

1. ~~The Subject to the guidance in~~ Section 9.C.2., the appropriate costs and benefits of hedging instruments that are currently held by the company in support of the contracts falling under the scope of these requirements ~~(excluding those that involve the offsetting of the risks associated with variable annuity guarantees with other products outside of the scope of these requirements, such as equity indexed annuities)~~ shall be included in the calculation of the ~~CTE amount~~stochastic reserve, determined in accordance with Section 23.D and Section 3.D (i.e., CTE amount using projections). ~~4.D.~~

~~1-2.~~ If the company is following a clearly defined hedging strategy (“~~hedging strategy~~CDHS”), in accordance with an investment policy adopted by the board of directors, or a committee of board members, the company shall take into account the costs and benefits of hedge positions expected to be held by the company in the future along each scenario based on the execution of the hedging strategy and is eligible to reduce the amount of the ~~CTE amount~~stochastic reserve using projections otherwise calculated. The investment policy must clearly articulate the company's hedging objectives, including the metrics that drive rebalancing/trading. This specification could include maximum tolerable values for investment losses, earnings, volatility, exposure, etc. in either absolute or relative terms over one or more investment horizons vis-à-vis the chance of occurrence. Company management is responsible for developing, documenting, executing and evaluating the investment strategy, including the hedging strategy, used to implement the investment policy.

~~2-3.~~ For this purpose, the investment assets refer to all the assets, including derivatives supporting covered products and guarantees. This also is referred to as the investment portfolio. The investment strategy is the set of all asset holdings at all points in time in all scenarios. The hedging portfolio, which also is referred to as the hedging assets, is a subset of the investment assets. The hedging strategy is the hedging asset holdings at all points in time in all scenarios. There is no attempt to distinguish what is the hedging portfolio and what is the investment portfolio in this section. Nor is the distinction between investment strategy and hedging strategy formally made here. Where necessary to give effect to the intent of this section, the requirements applicable to the hedging portfolio or the hedging strategy are to apply to the overall investment portfolio and investment strategy.

~~3.4.~~ This particularly applies to restrictions on the reasonableness or acceptability of the models that make up the stochastic cash-flow model used to perform the projections, since these restrictions are inherently restrictions on the joint modeling of the hedging and non-hedging portfolio. To give effect to these requirements, they must apply to the overall investment strategy and investment portfolio.

~~The cost and benefits of hedging instruments that are currently held by the company in support of the contracts falling under the scope of these requirements shall be included in the stochastic cash-flow model used to calculate the CTE amount in accordance with Section 2.D (the “model”). If the company is following a clearly defined hedging strategy, the model shall take into account the cost and benefits of hedge positions expected to be held by the company in the future based on the operation of the hedging strategy.~~

~~4.5.~~ Before either a new or revised hedging strategy can be used to reduce the amount of the ~~CTE amount~~~~stochastic reserve~~ otherwise calculated, the hedging strategy should be in place (i.e., effectively implemented by the company) for at least three months. The company may meet the time requirement by having evaluated the effective implementation of the hedging strategy for at least three months without actually having executed the trades indicated by the hedging strategy (e.g., mock testing or by having effectively implemented the strategy with similar annuity products for at least three months).

~~These requirements do not supersede any statutes, laws or regulations of any state or jurisdiction related to the use of derivative instruments for hedging purposes and should not be used in determining whether a company is permitted to use such instruments in any state or jurisdiction.~~

B. **Background Modeling Approaches**

1. The analysis of the impact of the hedging strategy on cash flows is typically performed using either one of two **types of** methods as described below. Although a hedging strategy normally would be expected to reduce risk provisions, the nature of the hedging strategy and the costs to implement the strategy may result in an increase in the amount of the ~~CTE amount~~~~stochastic reserve~~ otherwise calculated.
2. The fundamental characteristic of the first **type of** method, referred to as the “explicit method,” is that ~~all hedging positions, both the currently held positions and those expected to be held in the future, their resulting cash flows~~ are included in the stochastic cash-flow model used to determine the scenario ~~greatest present value~~~~reserve~~, as discussed in Section ~~23.D~~, for each scenario.
3. The fundamental characteristic of the second **type of method**~~method approach~~, referred to as ~~an~~~~the~~ “implicit method,” is that the effectiveness of the current hedging strategy ~~(including currently held hedge positions)~~ on future cash flows is evaluated, in part or in whole, outside of the stochastic cash-flow model. ~~There are multiple ways that this type of modeling can be implemented.~~ In this case, the reduction to the ~~CTE amount~~~~stochastic reserve~~ otherwise calculated should be commensurate with the degree of effectiveness of the hedging strategy in reducing accumulated deficiencies otherwise calculated.
4. Regardless of the methodology used by the company, the ultimate effect of the current hedging strategy (including currently held hedge positions) on the ~~CTE amount~~~~stochastic reserve~~ needs to recognize all risks, associated costs, imperfections in the hedges and hedging mismatch tolerances associated with the hedging strategy. The risks include, but are not limited to: basis, gap, price, parameter estimation and variation in assumptions (mortality, persistency, withdrawal, annuitization, etc.). Costs include, but are not limited to: transaction, margin (opportunity costs associated with margin requirements) and administration. In addition, the reduction to the ~~CTE amount~~~~stochastic reserve~~ attributable to the hedging strategy may need to be limited due to the uncertainty associated with the company’s ability to implement the hedging strategy in a timely and effective manner. The

level of operational uncertainty varies indirectly with the amount of time that the new or revised strategy has been in effect or mock tested.

Guidance Note: No hedging strategy is perfect. A given hedging strategy may eliminate or reduce some but not all risks, transform some risks into others, introduce new risks, or have other imperfections. For example, a delta-only hedging strategy does not adequately hedge the risks measured by the “Greeks” other than delta. Another example is that financial indices underlying typical hedging instruments typically do not perform exactly like the separate account funds, and hence the use of hedging instruments has the potential for introducing basis risk.

4.5. A safe harbor approach is permitted for CDHS reflection for those companies whose modeled hedge assets comprise only linear instruments not sensitive to implied volatility. For companies with option-based hedge strategies, electing this approach would require representing the option-based portion of the strategy as a delta-rho two-Greek hedge program. The normally-modeled option portfolio would be replaced with a set of linear instruments that have the same first-order Greeks as the original option portfolio. No hedging strategy is perfect. A given hedging strategy may eliminate or reduce some but not all risks, transform some risks into others, introduce new risks, or have other imperfections. For example, a delta-only hedging strategy does not adequately hedge the risks measured by the “Greeks” other than delta. Another example is that financial indices underlying typical hedging instruments typically do not perform exactly like the separate account funds, and hence the use of hedging instruments has the potential for introducing basis risk.

C. Calculation of CTE Amount Stochastic Reserve (Reported)

1. The company ~~should begin by calculating “CTE amount shall calculate CTE70 (best efforts)”~~ — the results obtained when the CTE amount CTE70 is based on incorporating the ~~hedging strategy~~ CDHS (including both currently held and future hedge positions) into the stochastic cash-flow model on a best efforts basis, including all of the factors and assumptions needed to execute the ~~hedging strategy~~ CDHS (e.g., stochastic implied volatility). The determination of CTE70 (best efforts) may utilize either explicit or implicit modeling techniques.

2. The company shall calculate a CTE70 (adjusted) by recalculating the CTE70 assuming the company has no CDHS, therefore following the requirements of Section 4.A.4.a. ~~dynamic hedging strategy, and shall reflect either:~~

a. ~~Only hedge positions held by the company on the valuation date; or~~

b. ~~No hedge positions — in which case the hedge positions held on the valuation date are replaced with cash and/or other general account assets in an amount equal to the aggregate market value of these hedge positions. The cash may then be invested following the company’s investment strategy.~~

~~The determination of CTE70 (adjusted) may utilize either explicit or implicit modeling techniques.~~

3. Because most models will include at least some approximations or idealistic assumptions, ~~CTE amount~~ CTE70 (best efforts) may overstate the impact of the hedging strategy. To compensate for potential overstatement of the impact of the hedging strategy, the ~~company shall recalculate the CTE amount assuming the company has no dynamic hedging strategy (i.e., reflect only hedge positions held by the company on the valuation date). The result so obtained is called “CTE amount (adjusted).”~~ In some situations, the determination of CTE amount (adjusted) may include both ~~direct and indirect techniques.~~ value for the stochastic reserve is given by:

Finally, the reported value for the CTE amount is given by:

$$\text{CTE Amount (reported)} = E \times \text{CTE Amount}$$

$$\text{Stochastic reserve} = \text{CTE70 (best efforts)} + (1 - E) \times \text{CTE Amount} \\ - \frac{\text{CTE Amount} \times \max[0, \text{CTE70 (adjusted)} - \text{CTE70 (best efforts)}]}{\text{CTE Amount}}$$

4. The company shall specify a value for E (an “effectiveness” or “error factor”) that reflects the range from 5% to 100% to reflect the company’s view as to the potential error resulting from the level of sophistication of the stochastic cash-flow model and its ability to properly reflect the parameters of the hedging strategy (i.e., the “Greeks” being covered by the strategy) as well as the associated costs, risks, and benefits. E will be no greater than 0.70. As the sophistication of the stochastic cash-flow model increases, the value for E increases (i.e., the greater the ability of the CTE amount (best efforts) stochastic model to capture all risks and uncertainties, the higher the value of E). If the value of E may be as low as 5% only if the model used to determine the CTE amount (best efforts) effectively reflects all of the parameters used in the hedging strategy, the value of E may be up to 0.70. If certain economic risks are not hedged, yet the model does not generate scenarios that sufficiently capture those risks, E must be in the lower end of the range. If hedge cash flows are not modeled directly, E will be no greater than 0.30. Simplistic likelihood of error. Likewise, simplistic hedge cash-flow models will have a value of E in the low range between 0.00 and 0.70, higher likelihood of error.

5. The company shall demonstrate that it conducts a formal back-test, based on an analysis of at least the most recent 12 months, to assess how well the model is able to replicate the hedging strategy in a way that justifies the determination of the value used for E .

6. Such a back-test shall involve one of the following analyses:

- a. For companies that model hedge cash flows directly (“explicit method”), replace the stochastic scenarios used in calculating the CTE70 (best efforts) with a single scenario that represents the market path that actually manifested over the selected back-testing period and compare the projected hedge asset gains and losses against the actual hedge asset gains and losses – both realized and unrealized – observed over the same time period. For this calculation, the model assumptions may be replaced with parameters that reflect actual experience during the back-testing period. In order to isolate the comparison between the modeled hedge strategy and actual hedge results for this calculation, the projected liabilities should accurately reflect the actual liabilities throughout the back-testing period; therefore, adjustments that facilitate this accuracy (e.g. reflecting actual experience instead of model assumptions, including new business, etc.) are permissible.

To support the choice of a low value of E , the company should ascertain that the projected hedge asset gains and losses are within close range of 100 percent – e.g., 80 to 125 percent – of the actual hedge asset gains and losses. The company may also support the choice of a low value of E by achieving a high R-squared – e.g., 0.80 or higher – when using a regression analysis technique.

- b. For companies that model hedge cash flows implicitly by quantifying the cost and benefit of hedging using the fair value of the hedged item, (a) “implicit method”, or “cost of reinsurance method”), calculate the delta, rho, and vega coverage ratios in each month over the selected back-testing period in the following manner:

- i. Determine the hedge asset gains and losses – both realized and unrealized – incurred over the month attributable to equity, interest rate, and implied volatility movements;
 - ii. Determine the change in the fair value of the hedged item over the month attributable to equity, interest rate, and implied volatility movements. The hedged item should be defined in a manner that reflects the proportion of risks hedged – for example, if a company elects to hedge 50% of a contract’s market risks, it should quantify the fair value of the hedged item as 50% of the fair value of the contract;
 - iii. Calculate the delta coverage ratio as the ratio between (i~~a~~) and (ii~~b~~) attributable to equity movements;
 - iv. Calculate the rho coverage ratio as the ratio between (i~~aa~~) and (ii~~bb~~) attributable to interest rate movements;
 - v. Calculate the vega coverage ratio as the ratio between (i~~aa~~) and (ii~~bb~~) attributable to implied volatility movements.
 - vi. To support the company’s choice of a low value of E, the company should be able to demonstrate that the delta and rho coverage ratios are both within close range of 100 percent – e.g., 80 to 125 percent – consistently across the back-testing period.
 - vii. In addition, the company should be able to demonstrate that the vega coverage ratio is within close range of 100 percent in order to use the prevailing implied volatility levels as of the valuation date in quantifying the fair value of the hedged item for the purpose of calculating CTE70 (best efforts). Otherwise, the company shall quantify the fair value of the hedged item for the purpose of calculating CTE70 (best efforts) in a manner consistent with the realized volatility of the scenarios captured in the ~~Conditional-Tail Expectation CTE~~ CTE (best efforts).
- c. Companies that do not model hedge cash flows explicitly, but that also do not use the implicit ~~method~~ ~~method~~ as outlined in Section 9.C.6.b above, shall conduct the formal back-test in a manner that allows the company to clearly illustrates the appropriateness of the selected method for reflecting the cost and benefit of hedging as well as the value used for E.
7. A company that does not have 12 months of experience to date shall set E to a value ~~no greater~~ that reflects the amount of experience available, and the degree and nature of any change to the hedge program. For a material change in strategy, with no history, E should be at least 0.50. However, E may be lower than 0.30,50 if some reliable experience is available and/or if the change in strategy is a refinement rather than a substantial change in strategy.

Ⓓ

Guidance Note: The following examples are provided as guidance for determining the E factor when there has been a change to the hedge program:

- The error factor should be temporarily large (e.g. $\geq 50\%$) for substantial changes in hedge methodology (e.g. moving from a fair-value based strategy to a stop-loss strategy) where the company has not been able to provide a meaningful simulation of hedge performance based on the new strategy.

~~8. A safe harbor approach is permitted for CDHS reflection for those companies whose modeled hedge assets comprise only linear instruments not sensitive to implied volatility. For companies with option-based hedge strategies, electing this approach would require representing the option-based portion of the strategy as a delta rho two Greek hedge program. The normally modeled option portfolio would be replaced with a set of linear instruments that have the same first-order Greeks as the original option portfolio.~~

D. Additional Considerations for CTE70 (best efforts)

If the company is following a CDHS, the fair value of the portfolio of contracts falling within the scope of these requirements shall be computed, and compared to the CTE70 (best efforts) and to the CTE70 (adjusted) values. If the CTE70 (best efforts) is below both the fair value and the CTE70 (adjusted) value, the company should be prepared to explain why that result is reasonable.

For the purposes of this analysis, the stochastic reserves and fair value calculations shall be done without requiring the scenario reserve for any given scenario to be equal to or in excess of the cash surrender value in aggregate for the group of contracts modeled in the projection.

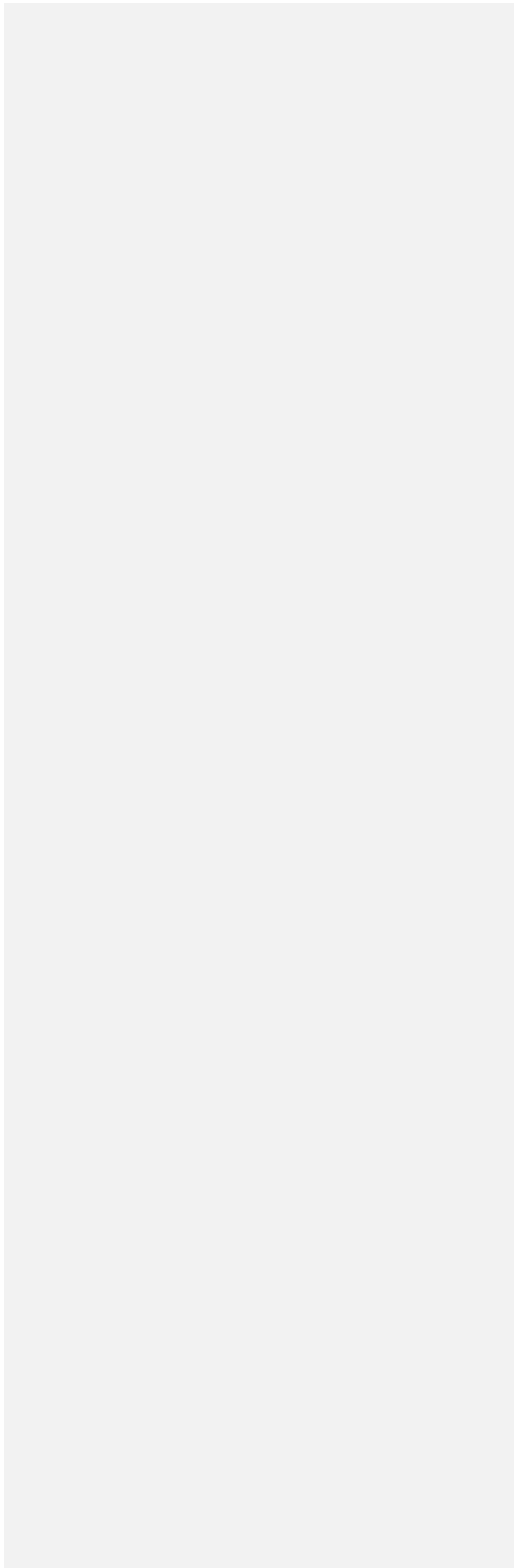
E. Specific Considerations and Requirements

1. As part of the process of choosing a methodology and assumptions for estimating the future effectiveness of the current hedging strategy (including currently held hedge positions) for purposes of reducing the ~~CTE amount~~stochastic reserve, the ~~actuary~~company should review actual historical hedging effectiveness. The ~~actuary~~company shall evaluate the appropriateness of the assumptions on future trading, transaction costs, other elements of the model, the strategy, the mix of business and other items that are likely to result in materially adverse results. This includes an analysis of model assumptions that, when combined with the reliance on the hedging strategy, are likely to result in adverse results relative to those modeled. The parameters and assumptions shall be adjusted (based on testing contingent on the strategy used and other assumptions) to levels that fully reflect the risk based on historical ranges and foreseeable future ranges of the assumptions and parameters. If this is not possible by parameter adjustment, the model shall be modified to reflect them at either anticipated experience or adverse estimates of the parameters.
2. A discontinuous hedging strategy is a hedging strategy where the relationships between the

sensitivities to equity markets and interest rates (commonly referred to as the Greeks) associated with the guaranteed contract holder options embedded in the variable annuities and other in-scope products and these same sensitivities associated with the hedging assets are subject to material discontinuities. This includes, but is not limited to, a hedging strategy where material hedging assets will be obtained when the variable annuity account balances reach a predetermined level in relationship to the guarantees. Any hedging strategy, including a delta hedging strategy, can be a discontinuous hedging strategy if implementation of the strategy permits material discontinuities between the sensitivities to equity markets and interest rates associated with the guaranteed contract holder options embedded in the variable annuities and other in-scope products and these same sensitivities associated with the hedging assets. There may be scenarios that are particularly costly to discontinuous hedging strategies, especially where those result in large discontinuous changes in sensitivities (Greeks) associated with the hedging assets. Where discontinuous hedging strategies contribute materially to a reduction in the ~~CTE amount~~stochastic reserve, the ~~actuary~~company must evaluate the interaction of future trigger definitions and the discontinuous hedging strategy, in addition to the items mentioned in the previous paragraph. This includes an analysis of model assumptions that, when combined with the reliance on the discontinuous hedging strategy, may result in adverse results relative to those modeled.

3. A strategy that has a strong dependence on acquiring hedging assets at specific times that depend on specific values of an index or other market indicators may not be implemented as precisely as planned.
4. The combination of elements of the stochastic cash-flow model—including the initial actual market asset prices, prices for trading at future dates, transaction costs and other assumptions—should be analyzed by the ~~actuary~~company as to whether the stochastic cash-flow model permits hedging strategies that make money in some scenarios without losing a reasonable amount in some other scenarios. This includes, but is not limited to:
 - a. ~~1.~~—Hedging strategies with no initial investment that never lose money in any scenario and in some scenarios make money.
 - b. ~~2.~~—Hedging strategies that, with a given amount of initial money, never make less than accumulation at the one-period risk free rates in any scenario but make more than this in one or more scenarios.
5. If the stochastic cash-flow model allows for such situations, the ~~actuary~~company should be satisfied that the results do not materially rely directly or indirectly on the use of such strategies. ~~In addition, the actuary should disclose the situations and provide supporting documentation as to why the actuary believes the situations are not material for determining the CTE amount.~~ If the results do materially rely directly or indirectly on the use of such strategies, the strategies may not be used to reduce the ~~CTE amount~~stochastic reserve otherwise calculated.
6. In addition to the above, the method used to determine prices of financial instruments for trading in scenarios should be compared to actual initial market prices. ~~If there are substantial discrepancies, the actuary should disclose the substantial discrepancies and provide supporting documentation as to why the model based prices are appropriate for determining the CTE amount.~~ In addition to comparisons to initial market prices, there should be testing of the pricing models that are used to determine subsequent prices when scenarios involve trading financial instruments. This testing should consider historical relationships. For example, if a method is used where recent volatility in the scenario is one of the determinants of prices for trading in that scenario, then that model should approximate actual historic prices in similar circumstances in history.

~~E.~~—Certification and



The actuary must provide a certification that the values for E , CTE amount (adjusted) and CTE amount (best efforts) were calculated using the process discussed above and that the assumptions used in the calculations were reasonable for the purpose of determining the CTE amount. The actuary shall document the method(s) and assumptions (including data) used to determine CTE amount (adjusted) and CTE amount (best efforts) and maintain adequate documentation as to the methods, procedures and assumptions used to determine the value of E .

The actuary must provide a certification as to whether the clearly defined hedging strategy is fully incorporated into the stochastic cash flow model and any supplementary analysis of the impact of the hedging strategy on the CTE amount. The actuary must document the extent to which elements of the hedging strategy (e.g., time between portfolio rebalancing) are not fully incorporated into the stochastic cash flow model and any supplementary analysis to determine the impact, if any. In addition, the actuary must provide a certification and maintain documentation to support the certification that the hedging strategy designated as the clearly defined hedging strategy meets the requirements of a clearly defined hedging strategy, including that the implementation of the hedging strategy in the stochastic cash flow model and any supplementary analysis does not include knowledge of events that occur after any action dictated by the hedging strategy (i.e., the model cannot use information about the future that would not be known in actual practice).

A financial officer of the company (e.g., chief financial officer [CFO], treasurer or chief investment officer [CIO]) or a person designated by them who has direct or indirect supervisory authority over the actual trading of assets and derivatives must certify that the hedging strategy meets the definition of a clearly defined hedging strategy and that the clearly defined hedging strategy is the hedging strategy being used by the company in its actual day to day risk mitigation efforts.

Section 10: Certification Requirements

A. Management Certification

Management must provide signed and dated written representations as part of the valuation documentation that the valuation appropriately reflects management's intent and ability to carry out specific courses of actions on behalf of the entity where such is relevant to the valuation.

B. Actuarial Certification

1. General Description

The certification shall be provided by a qualified actuary and consist of at least the following:

- a. A paragraph identifying the actuary and his or her qualifications.
- b. A scope paragraph identifying the reserves as of the valuation date for contracts included in the certification categorized by the approaches used to determine the reserves (e.g., Alternative Methodology, projections, standard scenario).
- c. A reliance paragraph describing those areas, if any, where the certifying actuary has relied on other experts:
 - i. A reliance statement from each of those relied on should accompany the certification.
 - ii. The reliance statements should note the information being provided and a statement as to the accuracy, completeness or reasonableness, as applicable, of the information.

- d. ~~A paragraph certifying that the reserve was calculated in accordance with the principles and these requirements.~~
- e. ~~A paragraph certifying that the assumptions used for these calculations are prudent estimate assumptions for the products, scenarios and purpose being tested.~~
- f. ~~A paragraph stating that the qualified actuary is not opining on the adequacy of the company's surplus or its future financial condition.~~

C. ~~Supporting Memorandum~~

1. ~~General Description~~

~~A supporting memorandum shall be created to document the methodology and assumptions used to determine the aggregate reserve. The information shall include the comparison of the standard scenario amount to the CTE amount required by Section 2.A in the determination of the aggregate reserve.~~

2. ~~Alternative Methodology using Published Factors~~

a. ~~If a seriatim approach was not used, disclose how contracts were grouped.~~

b. ~~Disclosure of assumptions to include:~~

i. ~~Component CA~~

- a) ~~Mapping to prescribed asset categories.~~
- b) ~~Lapse and withdrawal rates.~~

ii. ~~Component FE~~

- a) ~~Determination of fixed dollar costs and revenues.~~
- b) ~~Lapse and withdrawal rates.~~
- c) ~~Inflation rates.~~

iii. ~~Component GC~~

- a) ~~Disclosure of contract features and how the company mapped the contract form to those forms covered by the Alternative Methodology factors.~~
 - 1) ~~Product definition — If not conservatively assigned to a published factor, company specific factors or stochastic modeling is required.~~
 - 2) ~~Partial withdrawal provision.~~
 - 3) ~~Fund class — Disclose the process used to determine the single asset class that best represents the exposure for a contract. If individual funds are mapped into prescribed categories, the process used to map the individual funds should be disclosed.~~

- 4) ~~Attained age.~~
 - 5) ~~Contract duration.~~
 - 6) ~~Ratio of account value to guaranteed value.~~
 - 7) ~~Annualized account charge differential from base assumption.~~
 - b) ~~Derivation of equivalent account charges.~~
 - c) ~~Derivation of margin offset.~~
 - d) ~~Disclosure of interpolation procedures and confirmation of node determination.~~
 - e. ~~Disclosure, if applicable, of reinsurance that exists and how it was handled in applying published factors (for some reinsurance, creation of company specific factors or stochastic modeling may be required) and discuss how reserves before reinsurance were determined.~~
3. ~~Alternative Factors Based on Company Specific Factors~~
- a. ~~Disclosure of requirements consistent with published factors, as noted in Section 10.C.2.~~
 - b. ~~Stochastic analysis supporting adjustments to published factors should be fully documented. This analysis needs to be submitted when initially used and be available upon request in subsequent years. Adjustments may include:~~
 - i. ~~Contract design.~~
 - ii. ~~Risk mitigation strategy (excluding hedging).~~
 - iii. ~~Reinsurance.~~
4. ~~Stochastic Modeling~~
- a. ~~Assets~~
 - i. ~~Description, including type and quality.~~
 - ii. ~~Investment and disinvestment assumptions.~~
 - iii. ~~Description of assets used at the start of the projection.~~
 - iv. ~~Source of asset data.~~
 - v. ~~Asset valuation basis.~~
 - vi. ~~Documentation of assumptions.~~
 - a) ~~Default costs.~~
 - b) ~~Prepayment functions.~~

- e) ~~Market value determination.~~
 - d) ~~Yield on assets acquired.~~
 - e) ~~Mapping and grouping of funds to modeled asset classes.~~
- vii. ~~Hedging strategy.~~
 - a) ~~Documentation of strategy.~~
 - b) ~~Identification of current positions.~~
 - c) ~~Description of how strategy was incorporated into modeling.~~
 - 1) ~~Basis risk, gap risk, price risk, assumption risk.~~
 - 2) ~~Methods and criteria used to estimate the a priori effectiveness of the hedging strategy.~~
 - d) ~~Documentation required for specific consideration raised in Section 9.D.~~
 - e) ~~Documentation and certification required by Section 9.E.~~
- b. ~~Liabilities~~
 - i. ~~Product descriptions.~~
 - ii. ~~Source of liabilities.~~
 - iii. ~~Grouping of contracts.~~
 - ~~iv. Reserve method and modeling (e.g., working reserves were set to CSV).~~
 - v. ~~Investment reserves.~~
 - vi. ~~The handling of reinsurance in the models, including how reserves gross of reinsurance were modeled.~~
 - vii. ~~Documentation of assumptions (i.e., list assumptions, discuss the sources and the rationale for using the assumptions).~~
 - a) ~~Premiums and subsequent deposits.~~
 - b) ~~Withdrawal, lapse and termination rates.~~
 - 1) ~~Partial withdrawal (including treatment of dollar for dollar offsets on GMDBs and VAGLBs, and required minimum distributions).~~
 - 2) ~~Lapses/surrenders.~~
 - c) ~~Crediting strategy.~~
 - d) ~~Mortality.~~

- e) ~~Annuitization rates.~~
- f) ~~Income purchase rates.~~
- g) ~~GMLB and GMWB utilization rates.~~
- h) ~~Commissions.~~
- i) ~~Expenses.~~
- j) ~~Persistency bonuses.~~
- k) ~~Investment/fund choice.~~
- l) ~~Revenue sharing.~~
- m) ~~Asset allocation, rebalancing and transfer assumptions.~~
- 1) ~~Dollar cost averaging.~~

viii. ~~The section showing the assumptions used for lapse and utilization assumptions for contracts with guaranteed living benefits in the development of the CTE amount, as described in Section 11.G.~~

e. ~~Scenarios~~

- i. ~~Description of scenario generation for interest rates and equity returns~~
 - a) ~~Disclosure of the number “n” of scenarios used and the methods used to determine the sampling error of the CTE (70) statistic when using “n” scenarios.~~
 - b) ~~Time step of model (e.g., monthly, quarterly, annual).~~
 - c) ~~Correlation of fund returns.~~
- ii. ~~Calibration~~
 - a) ~~Gross wealth ratios for equity funds.~~
 - 1) ~~Disclosure of adjustments to model parameters, if any.~~
 - 2) ~~Disclosure of 1 year, 5 year and 10 year wealth factors, as well as mean and standard deviation.~~
 - b) ~~Consistency of other funds to equity funds.~~
 - c) ~~Correlation between all funds.~~
 - d) ~~Estimate of market return volatility assumptions underlying the generated scenarios compared to actual observed volatility underlying market values.~~
- iii. ~~Extent of use of prepackaged scenarios and support for mapping variable accounts to proxy funds.~~

- d. ~~Description and results of sensitivity tests performed. At the request of the domiciliary commissioner, the company shall provide a sensitivity test showing an estimate of the impact of the market return volatility assumption when market volatility is materially higher than assumed in the generated scenarios.~~
- e. ~~Documentation of all material changes in the model or assumptions from that used previously and the estimated impact of such changes. This documentation, or a summary of this documentation, shall be included in an executive summary or some other prominent place in the memorandum.~~
- f. ~~A description of the methods used to validate the model and a summary of the results of the validation testing.~~

5. ~~Standard Scenario~~

- a. ~~For the amounts in b, c and d below, report the basic adjusted reserve in Section 5.C.2.b.i, the projection requirements in Section 5.C.2.b.ii, the value of aggregate reinsurance in Section 5.C.4.a, the value of hedges in Section 5.C.4.b, the total allocation of the value of approved hedges and aggregate reinsurance in Section 5.C.2.b.iii and the standard scenario reserve.~~
- b. ~~Report the standard scenario amount as of the valuation date.~~
- c. ~~If applicable, report the standard scenario amount on the in force prior to the valuation date that was used to project the reserve requirements to the valuation date.~~
- d. ~~If applicable, report the standard scenario amount on the model office used to represent the in force.~~
- e. ~~Discuss modifications, if any, in the application of the standard scenario requirements to produce the amounts in b, c and d above.~~
- f. ~~Document any assumptions, judgments or procedures not prescribed in the standard scenario method or in these requirements that are used to produce the standard scenario amount.~~
- g. ~~If applicable, provide documentation of approval by the commissioner to use the basic reserve as the standard scenario amount.~~
- h. ~~Document the company's calculation of DR.~~
- i. ~~Document the allocation of funds to equity, bond, balanced and fixed classes.~~
- j. ~~Provide a statement by the actuary that none of the reinsurance treaties included in the standard scenario serve solely to reduce the calculated standard scenario reserve without also reducing risk on scenarios similar to those used to determine the CTE reserve. This should be accompanied by a description of any reinsurance treaties that have been excluded from the standard scenario along with an explanation of why the treaty was excluded.~~

Section 11: Contract Holder Behavior Assumptions

A. General

Contract holder behavior assumptions encompass actions such as lapses, withdrawals, transfers, recurring deposits, benefit utilization, option election, etc. Contract holder behavior is difficult to predict accurately, and variance in behavior assumptions can significantly affect the results. In the absence of relevant and fully credible empirical data, the actuary company should set behavior assumptions on the conservative end of the plausible spectrum (consistent with the definition of prudent estimate) as guided by Principle 3 in Section I.B.

In setting behavior assumptions, the actuary company should examine, but not be limited by, the following considerations:

1. Behavior can vary by product, market, distribution channel, fund performance, time/product duration, etc.
2. Options embedded in the product may affect behavior.
3. Options Utilization of options may be elective or non-elective in nature. Living benefits often are elective, and death benefit options are generally non-elective.
4. Elective contract holder options may be more driven by economic conditions than non-elective options.
5. As the value of a product option increases, there is an increased likelihood that contract holders will behave in a manner that maximizes their financial interest (e.g., lower lapses, higher benefit utilization, etc.).
6. Behavior formulas may have both rational and irrational components (irrational behavior is defined as situations where some contract holders may not always act in their best financial interest). The rational component should be dynamic dynamic, but the concept of rationality need not be interpreted in strict financial terms and might change over time in response to observed trends in contract holder behavior based on increased or decreased financial efficiency in exercising their contractual options.
7. Options that are ancillary to the primary product features may not be significant drivers of behavior. Whether an option is ancillary to the primary product features depends on many things such as:
 - a. For what purpose was the product purchased?
 - b. Is the option elective or non-elective?
 - c. Is the value of the option well-known?
8. External influences, including emergence of viatical/life settlement companies, may affect behavior.

B. Aggregate vs. Individual Margins

As noted in Section I.E.2.i, prudent1. Prudent estimate assumptions are developed by applying a margin for uncertainty to the anticipated experience assumption. The issue of whether the level of the margin applied to the anticipated experience assumption is determined in aggregate or independently for each and every behavior assumption is discussed in Principle 3 in Section I.B. which states:

2. The choice of a conservative estimate for each assumption may result in a distorted measure of the total risk. Conceptually, the choice of assumptions and the modeling

decisions should be made so that the final result approximates what would be obtained for the CTE amount stochastic reserve at the required CTE level if it were possible to calculate results over the joint distribution of all future outcomes. In applying this concept to the actual calculation of the CTE amount stochastic reserve, the actuary company should be guided by evolving practice and expanding knowledge base in the measurement and management of risk.

23. Although this principle discusses the concept of determining the level of margins in aggregate, it notes that the application of this concept shall be guided by evolving practice and expanding knowledge. From a practical standpoint, it may not always be possible to completely apply this concept to determine the level of margins in aggregate for all behavior assumptions.
34. Therefore, the actuary company shall determine prudent estimate assumptions independently for each behavior (e.g., mortality lapses and benefit utilization), using the requirements and guidance in this section and throughout these requirements, unless the actuary company can demonstrate that an appropriate method was used to determine the level of margin in aggregate for two or more behaviors.

C. Sensitivity Testing

The impact of behavior can vary by product, time period, etc. Sensitivity testing of assumptions is required and shall be more complex than, for example, base lapse assumption minus 1% across all contracts. A more appropriate sensitivity test in this example might be to devise parameters in a dynamic lapse formula to reflect more out-of-the-money contracts lapsing and/or more holders of in-the-money contracts persisting and eventually using the guarantee. The actuary company should apply more caution in setting assumptions for behaviors where testing suggests that stochastic modeling results are sensitive to small changes in such assumptions. For such sensitive behaviors, the actuary company shall use higher margins when the underlying experience is less than fully relevant and credible.

D. Specific Considerations and Requirements

1. Within materiality considerations, the actuary company should consider all relevant forms of contract holder behavior and persistency, including, but not limited to, the following:
 - a. Mortality (additional guidance and requirements regarding mortality is contained in Section 4211).
 - b. Surrenders.
 - c. Partial withdrawals (systematic and elective).
 - d. Fund transfers (switching/exchanges).
 - e. Resets/ratchets of the guaranteed amounts (automatic and elective).
 - f. Future deposits.
2. It may be acceptable to ignore certain items that might otherwise be explicitly modeled in an ideal world, particularly if the inclusion of such items reduces the calculated provisions. For example:

- a. The impact of fund transfers (intra-contract fund “switching”) might be ignored, unless required under the terms of the contract (e.g., automatic asset re-allocation/rebalancing, dollar cost averaging accounts, etc.).
- b. Future deposits might be excluded from the model, unless required by the terms of the contracts under consideration and then only in such cases where future premiums can reasonably be anticipated (e.g., with respect to timing and amount).

3. However, the ~~actuary~~company should exercise caution in assuming that current behavior will be indefinitely maintained. For example, it might be appropriate to test the impact of a shifting asset mix and/or consider future deposits to the extent they can reasonably be anticipated and increase the calculated amounts.

4. Normally, the underlying model assumptions would differ according to the attributes of the contract being valued. This would typically mean that contract holder behavior and persistency may be expected to vary according to such characteristics as (this is not an exhaustive list):

- a. Gender.
- b. Attained age.
- c. Issue age.
- d. Contract duration.
- e. Time to maturity.
- f. Tax status.
- g. Fund value.
- h. Investment option.
- i. Guaranteed benefit amounts.
- j. Surrender charges, transaction fees or other contract charges.
- k. Distribution channel.

5. Unless there is clear evidence to the contrary, behavior assumptions should be no less conservative than past experience. Margins for contract holder behavior assumptions shall assume, without relevant and credible experience or clear evidence to the contrary, that contract holders’ efficiency will increase over time.

6. In determining contract holder behavior assumptions, the company shall use actual experience data directly applicable to the business segment (i.e., direct data) if it is available. In the absence of direct data, the company should then look to use data from a segment that ~~are~~is similar to the business segment (i.e., other than direct experience), whether or not the segment is directly written by the company. If data from a similar business segment are used, the assumption shall be adjusted to reflect differences between the two segments. Margins shall reflect the data uncertainty associated with using data from a similar but not identical business segment. ~~The actuary shall document any significant similarities or differences between the two business segments, the data quality of the similar business segment, and the adjustments and the margins applied.~~

7. Where relevant and fully credible empirical data do not exist for a given contract holder behavior assumption, the actuary company shall set the contract holder behavior assumption to reflect the increased uncertainty such that the contract holder behavior assumption is shifted towards the conservative end of the plausible range of expected experience that serves to increase the aggregate stochastic reserve. If there are no relevant data, the actuary company shall set the contract holder behavior assumption to reflect the increased uncertainty such that the contract holder behavior assumption is at the conservative end of the range. Such adjustments shall be consistent with the definition of prudent estimate, with the principles described in Section 1.B.3, and with the guidance and requirements in this section.
8. Ideally, contract holder behavior would be modeled dynamically according to the simulated economic environment and/or other conditions. It is important to note, however, that contract holder behavior should neither assume that all contract holders act with 100% efficiency in a financially rational manner nor assume that contract holders will always act irrationally. These extreme assumptions may be used for modeling efficiency if the result is more conservative.

E. Dynamic Assumptions

1. Consistent with the concept of prudent estimate assumptions described earlier, the liability model should incorporate margins for uncertainty for all risk factors that are not dynamic (i.e., the non-scenario tested assumptions) and are assumed not to vary according to the financial interest of the contract holder.
2. The actuary company should exercise care in using static assumptions when it would be more natural and reasonable to use a dynamic model or other scenario-dependent formulation for behavior. With due regard to considerations of materiality and practicality, the use of dynamic models is encouraged, but not mandatory. Risk factors that are not scenario tested, but could reasonably be expected to vary according to a stochastic process, or future states of the world (especially in response to economic drivers) may require higher margins and/or signal a need for higher margins for certain other assumptions.
3. Risk factors that are modeled dynamically should encompass the plausible range of behavior consistent with the economic scenarios and other variables in the model, including the non-scenario tested assumptions. The actuary company shall test the sensitivity of results to understand the materiality of making alternate assumptions and follow the guidance discussed above on setting assumptions for sensitive behaviors.

F. Consistency with the CTE Level

1. All behaviors (i.e., dynamic, formulaic and non-scenario tested) should be consistent with the scenarios used in the CTE calculations (generally, the approximately top one-third 30% of the loss distribution). To maintain such consistency, it is not necessary to iterate (i.e., successive runs of the model) in order to determine exactly which scenario results are included in the CTE measure. Rather, in light of the products being valued, the actuary company should be mindful of the general characteristics of those scenarios likely to represent the tail of the loss distribution and consequently use prudent estimate assumptions for behavior that are reasonable and appropriate in such scenarios. For variable annuities, these “valuation” scenarios would typically display one or more of the following attributes:
 - a. Declining and/or volatile separate account asset values.
 - b. Market index volatility, price gaps and/or liquidity constraints.

c. Rapidly changing interest rates.

2. The behavior assumptions should be logical and consistent both individually and in aggregate, especially in the scenarios that govern the results. In other words, the actuary company should not set behavior assumptions in isolation, but give due consideration to other elements of the model. The interdependence of assumptions (particularly those governing customer behaviors) makes this task difficult and by definition requires professional judgment, but it is important that the model risk factors and assumptions:

a. Remain logically and internally consistent across the scenarios tested.

b. Represent plausible outcomes.

c. Lead to appropriate, but not excessive, asset requirements.

4. The actuary company should remember that the continuum of “plausibility” should not be confined or constrained to the outcomes and events exhibited by historic experience.

5. Companies should attempt to track experience for all assumptions that materially affect their risk profiles by collecting and maintaining the data required to conduct credible and meaningful studies of contract holder behavior.

G. Additional Considerations and Requirements for Assumptions Applicable to Guaranteed Living Benefits

Experience for contracts without guaranteed living benefits may be of limited use in setting a lapse assumption for contracts with in-the-money or at-the-money guaranteed living benefits. Such experience may only be used if it is appropriate (e.g., lapse experience on contracts without a living benefit may have relevance to the early durations of contracts with living benefits) and relevant to the business and is accompanied by documentation that clearly demonstrates the relevance of the experience, as discussed in the following paragraph.

The supporting memorandum required by Section 10 shall include a separately identifiable section showing the assumptions used for lapse and utilization assumptions for contracts with guaranteed living benefits in the development of the CTE amount. This section shall be considered part of the supporting memorandum and shall show the formulas used to set the assumptions and describe the key parameters affecting the level of the assumption (e.g., age, duration, in the moneyness, during and after the surrender charge period). The section shall include a summary that shows the lapse and utilization rates that result from various combinations of the key parameters. The section shall show any experience data used to develop the assumptions and describe the source, relevance and credibility of that data. If relevant and credible data were not available, the section should discuss how the assumption is consistent with the requirement that the assumption is to be on the conservative end of the plausible range of expected experience. The section also shall discuss the sensitivity tests performed to support the assumption. This separately identifiable section shall be made available on a stand-alone basis if requested by the domiciliary commissioner. If it is requested, the section shall have the same confidential status as the supporting memorandum and the actuarial memorandum supporting the actuarial opinion, as discussed in Section 4.C.2.

Regarding lapse assumptions for contracts with guaranteed living benefits, the section shall include, at a minimum, the following:

1. Actual to expected lapses on two bases, where “expected” equals one of the following:

a. Prudent estimate assumptions used in the development of the CTE amount.

b. ~~_____~~ The assumptions used in the standard scenario.

2. ~~_____~~ The lapse assumptions used in the development of CTE amount and corresponding actual experience separated by:

a. ~~_____~~ Logical blocks of business (based on company's assessment).

b. ~~_____~~ Duration. (At a minimum, this should show during the surrender charge period vs. after the surrender charge period.)

c. ~~_____~~ In the money/loss (consistent with how dynamic assumptions are determined).

d. ~~_____~~ Age (to the extent age affects the election of benefits lapse).

This data shall be separated by experience incurred in the following periods:

i. ~~_____~~ In the past year.

ii. ~~_____~~ In the past three years.

iii. ~~_____~~ All years.

Section 12

Section 11: ~~Specific~~ Guidance and Requirements for Setting Prudent Estimate Mortality Assumptions

A. Overview

1. Intent

The guidance and requirements in this section apply ~~to~~^{for} setting prudent estimate mortality assumptions when determining ~~the CTE amount (whether using projections either the stochastic reserve or the reserve for any contracts determined using the Alternative Methodology).~~. The intent is for prudent estimate mortality assumptions to be based on facts, circumstances and appropriate actuarial practice, with only a limited role for unsupported actuarial judgment. (Where more than one approach to appropriate actuarial practice exists, the ~~actuary~~^{company} should select the practice that the ~~actuary~~^{company} deems most appropriate under the circumstances.)

2. Description

Prudent estimate mortality assumptions ~~shall be~~ determined by first developing expected mortality curves based on either available experience or published tables. Where necessary, margins ~~shall be~~ applied to the experience to reflect data uncertainty. The expected mortality curves ~~shall then be~~ adjusted based on the credibility of the experience used to determine the expected mortality curve. Section ~~42.11.B~~ addresses guidance and requirements for determining expected mortality curves, and Section ~~42.11.C~~ addresses guidance and requirements for adjusting the expected mortality curves to determine prudent estimate mortality.

Finally, the credibility-adjusted tables shall be adjusted for mortality improvement (where such adjustment is permitted or required) using the guidance and requirements in Section ~~42.11.D~~.

3. Business Segments

For purposes of setting prudent estimate mortality assumptions, the products falling under the scope of these requirements shall be grouped into business segments with different mortality assumptions. The grouping ~~of a minimum, should reflect whether the contracts contain either VAGLBs or do not, where the no-VAGLB segments would include both contracts with no guaranteed benefits ~~or~~ and contracts with only GMDBs (i.e., no VAGLBs ~~or~~ contain VAGLBs as well as~~. The grouping should also generally follow the pricing, marketing, management and/or reinsurance programs of the company. ~~Where less refined segments are used for setting the mortality assumption than is used in business management, the documentation should address the impact, if material, of the less refined segmentation on the resulting reserves.~~

4. Margin for Data Uncertainty

The expected mortality curves that are determined in Section ~~42.11.B~~ may need to include a margin for data uncertainty. The margin could be in the form of an increase or a decrease in mortality, depending on the business segment under consideration. The margin shall be applied in a direction (i.e., increase or decrease in mortality) that results in a higher reserve. A sensitivity test may be needed to determine the appropriate direction of the provision for uncertainty to mortality. The test could be a prior year mortality sensitivity analysis of the business segment or an examination of current representative cells of the segment.

For purposes of this section, if mortality must be increased (decreased) to provide for uncertainty, the business segment is referred to as a plus (minus) segment.

It may be necessary, because of a change in the mortality risk profile of the segment, to reclassify a business segment from a plus (minus) segment to a minus (plus) segment to the extent compliance with this section requires such a reclassification.

B. Determination of Expected Mortality Curves

1. Experience Data

In determining expected mortality curves, the company shall use actual experience data directly applicable to the business segment (i.e., direct data) if it is available. In the absence of direct data, the company should then look to use data from a segment that is similar to the business segment (i.e., other than direct experience). See Section 42.11.B.2. for additional considerations. Finally, if there is no data, the company shall use the applicable table, as required in Section 42.11.B.3.

2. Data Other Than Direct Experience

If expected mortality curves for a segment are being determined using data from a similar business segment (whether or not directly written by the company), the actuary shall document any similarities or differences between the two business segments (e.g., type of underwriting, marketing channel, average policy size, etc.). The actuary also shall document the data quality of the mortality experience of the similar business.

Adjustments shall be applied to the data to reflect differences between the business segments, and margins shall be applied to the adjusted expected mortality curves to reflect the data uncertainty associated with using data from a similar but not identical business segment. The actuary shall document the adjustments and the margins applied.

To the extent the mortality of a business segment is reinsured, any mortality charges that are consistent with the company's own pricing and applicable to a substantial portion of the mortality risk also may be a reasonable starting point for the determination of the company's expected mortality curves. The actuary shall document the application of such reinsurance charges and how they were used to set the company's expected mortality curves for the segment.

3. No Data Requirements

When little or no experience or information is available on a business segment, the company shall use expected mortality curves that would produce expected deaths no less than using 100% of the 1994 Variable Annuity MGDB Mortality Table for a plus segment the appropriate percentage (F_x) from Table 1 of the 2012 IAM Basic Table with projection scale G2 for contracts with no VAGLBs and expected deaths no greater than 100% of the appropriate percentage (F_x) from Table 1 of the 2000 2012 IAM Basic Mortality Table for a minus segment with projection scale G2 for contracts with VAGLBs. If mortality experience on the business segment is expected to be atypical (e.g., demographics of target markets are known to have higher [lower] mortality than typical), these "no data" mortality requirements may not be adequate.

$$q_x^{2012+n} = q_x^{2012} (1 - G2_x)^n * F_x$$

Table 11.1

Attained Age (x)	<u>E_x for VA with GLB</u>	<u>E_x for All Other</u>
<=65	80.0%	100.0%
66	81.5%	102.0%
67	83.0%	104.0%
68	84.5%	106.0%
69	86.0%	108.0%
70	87.5%	110.0%
71	89.0%	112.0%
72	90.5%	114.0%
73	92.0%	116.0%
74	93.5%	118.0%
75	95.0%	120.0%
76	96.5%	119.0%
77	98.0%	118.0%
78	99.5%	117.0%
79	101.0%	116.0%
80	102.5%	115.0%
81	104.0%	114.0%
82	105.5%	113.0%
83	107.0%	112.0%
84	108.5%	111.0%
85	110.0%	110.0%
86	110.0%	110.0%
87	110.0%	110.0%
88	110.0%	110.0%
89	110.0%	110.0%
90	110.0%	110.0%
91	110.0%	110.0%
92	110.0%	110.0%
93	110.0%	110.0%
94	110.0%	110.0%
95	110.0%	110.0%
96	109.0%	109.0%
97	108.0%	108.0%
98	107.0%	107.0%
99	106.0%	106.0%
100	105.0%	105.0%
101	104.0%	104.0%
102	103.0%	103.0%
103	102.0%	102.0%
104	101.0%	101.0%
>=105	100.0%	100.0%

4. Additional Considerations Involving Data

The following considerations shall apply to mortality data specific to the business segment for which assumptions are being determined (i.e., direct data discussed in Section 42.11.B.1 or other than direct data discussed in Section 42.11.B.2).

a. Underreporting of Deaths

Mortality data shall be examined for possible underreporting of deaths. Adjustments shall be made to the data if there is any evidence of underreporting. Alternatively, exposure by lives or amounts on contracts for which death benefits were in the money may be used to determine expected mortality curves. Underreporting on such exposures should be minimal; however, this reduced subset of data will have less credibility.

b. Experience by Contract Duration

Experience of a plus segment shall be examined to determine if mortality by contract duration increases materially due to selection at issue. In the absence of information, the actuarycompany shall assume that expected mortality will increase by contract duration for an appropriate select period. As an alternative, if the actuarycompany determines that mortality is affected by selection, the actuarycompany could apply margins to the expected mortality in such a way that the actual mortality modeled does not depend on contract duration.

c. Modification and Relevance of Data

Even for a large company, the quantity of life exposures and deaths are such that a significant amount of smoothing may be required to determine expected mortality curves from mortality experience. Expected mortality curves, when applied to the recent historic exposures (e.g., three to seven years), should not result in an estimate of aggregate number of deaths less (greater) than the actual number deaths during the exposure period for plus (minus) segments. ~~If this condition is not satisfied, the actuary must document the rationale in support of using expected mortality that differs from recent mortality experience.~~

In determining expected mortality curves (and the credibility of the underlying data), older data may no longer be relevant. The “age” of the experience data used to determine expected mortality curves should be documented. ~~There should be commentary in the documentation on the relevance of the data (e.g., any actual and expected changes in markets, products and economic conditions over the historic and projected experience).~~

d. Other Considerations

In determining expected mortality curves, consideration should be given to factors that include, but are not limited to, trends in mortality experience, trends in exposure, volatility in year-to-year A/E mortality ratios, mortality by lives relative to mortality by amounts, changes in the mix of business and product features that could lead to mortality selection.

~~5. Documentation Requirements~~

~~a. All Segments~~

~~The documentation should include any material considerations necessary to understand the development of mortality assumptions for the statutory valuation even if such considerations are not explicitly mentioned in this section. The documentation should be explicit when material judgments were required and such judgments had to be made without supporting historic experience.~~

~~The documentation shall:~~

- ~~i. Explain the rationale for the grouping of contracts into different segments for the determination of mortality assumptions, and characterize the type and quantity of business that constitute each segment.~~
- ~~ii. Describe how each segment was determined to be a plus or minus segment.~~
- ~~iii. Summarize any mortality studies used to support mortality assumptions, quantify the exposures and corresponding deaths, describe the important characteristics of the exposures, and comment on unusual data points or trends.~~
- ~~iv. Document the age of the experience data used to determine expected mortality curves, and comment on the relevance of the data.~~
- ~~v. Document the mathematics used to adjust mortality based on credibility, and summarize the result of applying credibility to the mortality segments.~~
- ~~vi. Discuss any assumptions made on mortality improvements, the support for such assumptions and how such assumptions adjusted the modeled mortality.~~
- ~~vii. Describe how the expected mortality curves compare to recent historic experience, and comment on any differences.~~
- ~~viii. Discuss how the mortality assumptions are consistent with the goal of achieving the required CTE level over the joint distribution of all future outcomes, in keeping with Principle 3.~~

~~If the study was done on a similar business segment, identify the differences in the business segment on which the data were gathered and the business segment on which the data were used to determine mortality assumptions for the statutory valuation. Describe how these differences were reflected in the mortality used in modeling.~~

~~If mortality assumptions for the statutory valuation were based in part on reinsurance rates, document how the rates were used to set expected mortality (e.g., assumptions made on loadings in the rates and/or whether the assuming company provided their expected mortality and the rationale for their assumptions).~~

~~b. Plus Segments~~

~~For a plus segment, the documentation also shall discuss the examination of the mortality data for the underreporting of deaths and experience by duration, and describe any adjustments that were made as a result of the examination.~~

e. ~~Minus Segments~~

~~For a minus segment, the documentation also shall discuss how the mortality deviations on minus segments compare to those on any plus segments. To the extent the overall margin is reduced, the documentation should include support for this assumption.~~

C. Adjustment for Credibility to Determine Prudent Estimate Mortality

1. Adjustment for Credibility

The expected mortality curves determined in Section 42.11.B shall be adjusted based on the credibility of the experience used to determine the curves in order to arrive at prudent estimate mortality. The adjustment for credibility shall result in blending the expected mortality curves with a mortality table consistent with a statutory valuation mortality table. For ~~a plus segment~~ **contracts with no VAGLBs**, the table shall be consistent with **100% of the 1994 Variable Annuity MGDB Table the appropriate percentage (F_x) from Table 1 of the 2012 IAM Basic Table with projection scale G2 and (or a more recent mortality table adopted by the NAIC to replace this table).** ~~For a minus segment for~~ **contracts with VAGLBs**, the table shall be consistent with **100% the appropriate percentage (F_x) from Table 1 of the 2000 Annuity 2012 IAM Basic Mortality Table (or a more recent mortality table adopted by the NAIC to replace that table) with projection scale G2.** The approach used to adjust the curves shall suitably account for credibility.

Guidance Note: For example, when credibility is zero, an appropriate approach should result in a mortality assumption consistent with 100% of the statutory valuation mortality table used in the blending.

2. Adjustment of Statutory Valuation Mortality for Improvement

For purposes of the adjustment for credibility, the statutory valuation mortality table for a plus segment may be and the statutory valuation mortality table for a minus segment must be adjusted for mortality improvement. Such adjustment shall reflect **Projection Scale G2** ~~applicable published industrywide experience~~ from the effective date of the respective statutory valuation mortality table to the experience weighted average date underlying the data used to develop the expected mortality curves (discussed in Section 42.11.B).

3. Credibility Procedure

The credibility procedure used shall:

- a. Produce results that are reasonable ~~in the professional judgment of the actuary.~~
- b. Not tend to bias the results in any material way.
- c. Be practical to implement.
- d. Give consideration to the need to balance responsiveness and stability.
- e. Take into account not only the level of aggregate claims but the shape of the mortality curve.
- f. Contain criteria for full credibility and partial credibility that have a sound statistical basis and be appropriately applied.

~~Documentation of the credibility procedure used shall include a description of the procedure, the statistical basis for the specific elements of the credibility procedure and any material changes from prior credibility procedures.~~

4. Further Adjustment of the Credibility-Adjusted Table for Mortality Improvement

The credibility-adjusted table used for plus segments may be and the credibility adjusted ~~date-table~~ used for minus segments must be adjusted for **mortality improvement using Projection scale G2**~~applicable published industrywide experience~~ from the experience weighted average date underlying the company experience used in the credibility process to the valuation date.

Any adjustment for mortality improvement beyond the valuation date is discussed in Section ~~42.11~~.D.

D. Future Mortality Improvement

The mortality assumption resulting from the requirements of Section ~~42.11~~.C shall be adjusted for mortality improvements beyond the valuation date if such an adjustment would serve to increase the resulting ~~CTE amount stochastic reserve~~. If such an adjustment would reduce the ~~CTE amount stochastic reserve~~, such assumptions are permitted, but not required. In either case, the assumption must be based on current relevant data with a margin for uncertainty (increasing assumed rates of improvement if that results in a higher reserve or reducing them otherwise).

Appendix 1: 1994VM-21: Requirements for Principle-Based Reserves for Variable Annuity MGDB Mortality Annuities

Section 12: Allocation of the Aggregate Reserves to the Contract Level

Section 2.F. states that the aggregate reserve shall be allocated to the contracts falling within the scope of these requirements. That allocation should be done for both the pre- and post- reinsurance ceded reserves.

The contract-level reserve for each contract shall be the sum of the following:

- A. The contract's cash surrender value; and
- B. An allocated portion of the excess of the aggregate reserve over the aggregate cash surrender value.
 1. For a variable payout annuity or other contracts without a defined cash surrender value, the "cash surrender value" to use in this calculation shall be the amount defined in Section 3.G. which is used to determine the minimum general account reserve.
 2. The excess of the aggregate reserve over the aggregate cash surrender value shall be allocated to each contract based on a measure of the risk of that product relative to its cash surrender value in the context of the company's inforce in force contracts. The measure of risk should consider the impact of risk mitigation programs, including hedge programs and reinsurance, that would impact the risk of the product. The specific method of assessing that risk and how it contributes to the company's aggregate reserve shall be defined by the company. The method should provide for an equitable allocation based on risk analysis. For contracts valued under the alternative methodology, the alternative methodology calculations provide a contract level calculation that may be a reasonable basis for allocation.
 3. As an example, consider a company with the results of the following three contracts:

Table 12.1ABC: Sample Allocation of Aggregate Reserve

FEMALE Age Last Birthday

Contract (i)	1	2	3	Total
Cash Surrender Value, C	28	40	52	120
Risk adjusted measure, R	38	52	50	
Aggregate Reserve				140
Allocation Basis for the excess of the Aggregate Reserve over the Cash Surrender Value $A_i = \text{Max}(R_i - C_i, 0)$	10	12	0	22
Allocation of the excess of the Aggregate Reserve over the Cash Surrender Value $L_i = (A_i) / \Sigma A_i * [\text{Aggregate Reserve} - \Sigma C_i]$	9.09	10.91	0.00	20
Contract-level reserve $C_i + L_i$	37.09	50.91	52.00	140.00
45 0.274 38 0.739 64 6.460 84 75.973 107 507.867				
46 0.298 39 0.805 62 7.396 85 84.432 108 522.924				
47 0.315 40 0.874 63 8.453 86 94.012 109 534.964				

18	0.326	41	0.943	64	9.611	87	104.874	110	543.622
19	0.333	42	1.007	65	10.837	88	116.968	111	548.526
20	0.337	43	1.064	66	12.094	89	130.161	112	550.000
21	0.340	44	1.121	67	13.318	90	144.357	113	550.000
22	0.343	45	1.186	68	14.469	91	159.461	114	550.000
23	0.344	46	1.269	69	15.631	92	175.424	115	1000.000

MALE Age Last Birthday									
AGE	1000q _x	AGE	1000q _x	AGE	1000q _x	AGE	1000q _x	AGE	1000q _x
1	0.587	24	0.760	47	2.366	70	29.363	93	243.533
2	0.433	25	0.803	48	2.618	71	32.169	94	264.171
3	0.350	26	0.842	49	2.900	72	35.268	95	285.199
4	0.293	27	0.876	50	3.223	73	38.558	96	305.931
5	0.274	28	0.907	51	3.598	74	42.106	97	325.849
6	0.263	29	0.935	52	4.019	75	46.121	98	344.977
7	0.248	30	0.959	53	4.472	76	50.813	99	363.757
8	0.234	31	0.981	54	4.969	77	56.327	100	382.606
9	0.231	32	0.997	55	5.543	78	62.629	101	401.942
10	0.239	33	1.003	56	6.226	79	69.595	102	422.569
11	0.256	34	1.005	57	7.025	80	77.114	103	445.282
12	0.284	35	1.013	58	7.916	81	85.075	104	469.115
13	0.327	36	1.037	59	8.907	82	93.273	105	491.923
14	0.380	37	1.082	60	10.029	83	101.578	106	511.560
15	0.435	38	1.146	61	11.312	84	110.252	107	526.441
16	0.486	39	1.225	62	12.781	85	119.764	108	536.732
17	0.526	40	1.317	63	14.431	86	130.583	109	543.602
18	0.558	41	1.424	64	16.241	87	143.012	110	547.664
19	0.586	42	1.540	65	18.191	88	156.969	111	549.540
20	0.613	43	1.662	66	20.259	89	172.199	112	550.000
21	0.642	44	1.796	67	22.398	90	188.517	113	550.000
22	0.677	45	1.952	68	24.581	91	205.742	114	550.000
23	0.717	46	2.141	69	26.869	92	223.978	115	1000.000

FEMALE Age-Nearest Birthday									
AGE	1000q _x	AGE	1000q _x	AGE	1000q _x	AGE	1000q _x	AGE	1000q _x
1	0.628	24	0.344	47	1.316	70	16.239	93	184.435
2	0.409	25	0.344	48	1.427	71	17.687	94	201.876
3	0.306	26	0.348	49	1.549	72	19.523	95	220.252
4	0.229	27	0.356	50	1.690	73	21.696	96	239.561
5	0.207	28	0.372	51	1.855	74	24.107	97	259.807
6	0.194	29	0.392	52	2.050	75	26.832	98	281.166
7	0.181	30	0.415	53	2.256	76	29.954	99	303.639
8	0.162	31	0.441	54	2.465	77	33.551	100	326.956
9	0.154	32	0.470	55	2.713	78	37.527	101	350.852
10	0.155	33	0.499	56	3.030	79	41.826	102	375.056
11	0.163	34	0.530	57	3.453	80	46.597	103	401.045
12	0.175	35	0.565	58	3.973	81	51.986	104	428.996
13	0.195	36	0.605	59	4.569	82	58.138	105	456.698
14	0.223	37	0.652	60	5.250	83	64.885	106	481.939
15	0.256	38	0.707	61	6.024	84	72.126	107	502.506
16	0.287	39	0.771	62	6.898	85	80.120	108	518.642
17	0.309	40	0.839	63	7.897	86	89.120	109	531.820
18	0.322	41	0.909	64	9.013	87	99.383	110	541.680
19	0.331	42	0.977	65	10.215	88	110.970	111	547.859
20	0.335	43	1.037	66	11.465	89	123.714	112	550.000
21	0.339	44	1.091	67	12.731	90	137.518	113	550.000
22	0.342	45	1.151	68	13.913	91	152.286	114	550.000
23	0.344	46	1.222	69	15.032	92	167.926	115	1000.000

MALE Age Nearest Birthday

AGE	1000qx	AGE	1000qx	AGE	1000qx	AGE	1000qx	AGE	1000qx
1	0.701	24	0.738	47	2.246	70	28.068	93	234.658
2	0.473	25	0.782	48	2.486	71	30.696	94	255.130
3	0.393	26	0.824	49	2.751	72	33.688	95	276.308
4	0.306	27	0.860	50	3.050	73	36.904	96	297.485
5	0.280	28	0.892	51	3.397	74	40.275	97	317.953
6	0.268	29	0.922	52	3.800	75	44.013	98	337.425
7	0.257	30	0.948	53	4.239	76	48.326	99	356.374
8	0.238	31	0.971	54	4.706	77	53.427	100	375.228
9	0.230	32	0.992	55	5.234	78	59.390	101	394.416
10	0.233	33	1.003	56	5.854	79	66.073	102	414.369
11	0.245	34	1.004	57	6.601	80	73.366	103	436.572
12	0.267	35	1.006	58	7.451	81	81.158	104	460.741
13	0.302	36	1.020	59	8.385	82	89.339	105	484.644
14	0.352	37	1.054	60	9.434	83	97.593	106	506.047
15	0.408	38	1.111	61	10.629	84	105.994	107	522.720
16	0.463	39	1.182	62	12.002	85	115.015	108	534.237
17	0.509	40	1.268	63	13.569	86	125.131	109	542.088
18	0.544	41	1.367	64	15.305	87	136.815	110	546.908
19	0.573	42	1.481	65	17.192	88	150.191	111	549.333
20	0.599	43	1.599	66	19.208	89	164.944	112	550.000
21	0.627	44	1.725	67	21.330	90	180.886	113	550.000
22	0.658	45	1.867	68	23.489	91	197.834	114	550.000
23	0.696	46	2.037	69	25.700	92	215.601	115	1000.000

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In this example, the Aggregate Reserve exceeds the aggregate Cash Surrender Value by 20. The 20 is allocated proportionally across the three contracts based on the allocation basis of the larger of (i) zero and (ii) a risk adjusted measure based on reserve principles. Contracts 1 and 2 therefore receive 45% (9/22) and 55% (11/22), respectively, of the excess Aggregate Reserve. As Contract 3 presents no risk in excess of its cash surrender value, it does not receive an allocation of the excess Aggregate Reserve.

**Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force
Amendment Proposal Form**

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Elaine Lam, John Bruins, and members of the VM-21 Reporting Drafting Group.

Move current VM-21 reporting requirements from VM-21 itself to VM-31, and make updates to language and requirements to reflect new VM Framework.

5/16/2019 – Re-exposure draft incorporates:

- 1) Approved APFs affecting VM-31 (e.g., VAWG changes) through 5/14/19 LATF meeting
- 2) Comments from ACLI

5/7/2019 – Re-exposure draft incorporates:

- 1) Approved APFs from VAWG changes (through 5/2/2019 LATF meeting)
- 2) Corrections to cross-references throughout VM-31 and VM-G
- 3) Deletion of resolved drafting notes
- 4) Comments from Craig Chupp (VA), Karen Jiang (TX), John Robinson (MN), and Alice Fontaine
- 5) Update for VM-21 changes during exposure period (e.g., additional disclosure requirement for phase-in)

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

The document is the Valuation Manual Jan. 1, 2019 Edition, NAIC Adoptions through September 10, 2018, as amended by adopted APFs (2018-11, 2018-17, 2018-50, 2018-51, 2018-53, 2018-54, 2018-55, 2018-61, 2018-62, 2019-05, 2019-07, 2019-08, 2019-10, 2019-11, 2019-15, 2019-16 and 2019-25). The location in the document is throughout various subsection of VM-31 and VM-G (to update a cross-reference due to proposed changes to VM-31).

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached pages.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

The reasons for the amendment are stated in 1. above. The specific changes in the proposal are redlined in the attached pages.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
3/7/19			
Notes: APF 2019-28 VM-31 Revision			

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Appendix

ISSUE:

Cross-references in VM-G need to be updated due to proposed changes to VM-31. This page of the APF updates the cross-references within VM-G. The remaining pages of the APF attach VM-31 in its entirety, with redlines showing the proposed edits for VM-31.

SECTION:

VM-G Section 3.A.6.d.ii

REDLINE:

ii. The ~~certifications~~ from the Investment Officer on Investments and Qualified Actuary on Investments, as provided in VM-31 Sections 3.~~ED~~.13.a and 3.~~ED~~.13.b, ~~and VM-31 Sections 3.F.16.a and 3.F.16.b.~~

Commented [EL21]: APF 2018-53 adopted 5/14/19

VM-31: PBR Actuarial Report Requirements for Business Subject to a Principle-Based Valuation

Table of Contents

Section 1: Purpose	31-1
Section 2: General Requirements	31-1
Section 3: PBR Actuarial Report Requirements	31-21

Section 1: Purpose

The purpose of this section is to establish the minimum reporting requirements for policies or contracts subject to a principle-based valuation according to the methods defined in VM-20 and VM-21.

Section 2: General Requirements

- A. Each year a company shall prepare, under the direction of one or more qualified actuaries, as assigned by the company under the provisions of VM-G, a PBR Actuarial Report if the company computes a deterministic reserve or a stochastic reserve or performs an exclusion test for any policy as defined in VM-20, or computes an aggregate reserve for any contract as defined in VM-21.

A company that does not compute any deterministic or stochastic reserves under VM-20 for a group of policies as a result of the policies in that group passing the exclusion tests as defined in VM-20 Section 6 must still develop a sub-report for that group of policies that addresses the relevant requirements of Section 3.

The PBR Actuarial Report shall consist of an Executive Summary, a Life ~~PBR Actuarial Summary, a Life Report, a Variable Annuity Summary (or VA Summary), and a Variable Annuity PBR Actuarial Report, (or VA Report),~~ as applicable. The Life ~~PBR Actuarial Report and the Variable Annuity PBR Actuarial~~ VA Report shall each contain one or more sub-reports, with each such sub-report covering one or more groups of policies, model segments, or contracts. Each such sub-report shall be prepared by the qualified actuary assigned responsibility for such groups of policies or contracts under the provisions of VM-G. The PBR Actuarial Report must include documentation and disclosure sufficient for another actuary qualified in the same practice area to evaluate the work.

- B. The PBR Actuarial Report must include descriptions of all material decisions made and information used by the company in complying with the minimum reserve requirements and must comply with the minimum documentation and reporting requirements set forth in Section 3.
- C. The Executive Summary, Life Summary, and VA Summary of the PBR Actuarial Report, as provided in Section 3.B, Section 3.C and Section 3.E, shall be submitted to the company's domiciliary commissioner no later than April 1 of the year following the year to which the PBR Actuarial Report applies. The entire PBR Actuarial Report, as provided by the entirety of Section 3, shall be submitted upon request to the company's domiciliary commissioner no later than April 1 of the year following the year to which the PBR Actuarial Report applies or within 30 days, if requested after April 1. Similarly, the company shall submit the entire PBR Actuarial Report or the Executive Summary, Life Summary, and VA Summary upon request, to the ~~insurance~~ commissioner of any other jurisdiction in which the company is licensed.
- D. The company shall retain on file, for at least seven years from the date of filing, sufficient documentation so that it will be possible to determine the procedures followed, the analyses performed, the bases for assumptions and the results obtained in a principle-based valuation.

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E. The PBR Actuarial Report shall be submitted in searchable PDF form, in which the narrative uses a font size no smaller than 11 point. However:

1. This requirement shall in no way preclude the use of graphs and charts.
2. As needed, large arrays of data should be submitted alongside the PDF file in the form of spreadsheets. The PDF document shall make specific reference to such accompanying files. Such companion files shall be considered to be part of the PBR Actuarial Report for regulatory review purposes.

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Section 3: PBR Actuarial Report Requirements

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A. The PBR Actuarial Report shall contain a table of contents with associated page numbers. The PBR Actuarial Report shall retain and follow the order of the requirements ~~provided in Section 3.B and Section 3.C, and then be followed by Section 3.D listed herein.~~ If only policies ~~subject to valued under~~ VM-20 are included, then Section 3.D ~~is E~~ and Section 3.F are not applicable. If only contracts ~~subject to valued under~~ VM-21 are included, then Section 3.B.3, Section 3.B.5, Section 3.B.6-C and Section 3.CD are not applicable. The PBR Actuarial Report shall keep the corresponding headers for each requirement and include an explanatory statement for any requirement that is not applicable.

B. ~~Executive Summary~~ – The PBR Actuarial Report shall contain a single ~~executive summary~~ Executive Summary at the beginning of the report ~~that which~~ addresses all sub-reports. The ~~executive summary~~ Executive Summary shall include the following:

1. Qualified Actuary – An opening paragraph identifying the qualified actuary ~~who that~~ has been assigned by the company to prepare each sub-report of the PBR Actuarial Report, the qualifications of the qualified actuary and the relationship of the qualified actuary to the company.
2. Policies and/or Contracts – A description of the policies ~~subject to valued under~~ VM-20 and/or contracts ~~subject to valued under~~ VM-21 and the groups of policies or contracts covered by each sub-report, including descriptions of key product features that impact risk, such as death benefit guarantees, living benefit guarantees, or any other guarantees.
3. Life PBR High-Level Results – Summarized separately for business valued under VM-20 and business valued under VM-21, for the current and prior year, and on both a pre- and post-reinsurance-ceded basis, a table of the final reported reserve amounts, policy or contract counts, face amounts (for policies under VM-20) or inforce account values (for contracts under VM-21) and any other metrics helpful to the understanding of the company's overall level of reserves under a principle-based valuation. A template is provided below for reference.

	Post-Reinsurance-Ceded		Pre-Reinsurance-Ceded	
	Current Year (YYYY)	Prior Year (YYYY-1)	Current Year (YYYY)	Prior Year (YYYY-1)
<u>Life Insurance valued under VM-20</u>				
<u>- Total VM-20 Reserve</u>				
<u>- Face Amount</u>			N/A	N/A
<u>- Policy Count</u>			N/A	N/A

VA valued under VM-21				
- Total VM-21 Reserve				
- Account Value			N/A	N/A
- Contract Count			N/A	N/A

Guidance Note: Since AG 43 references the reserve requirements of VM-21, any contracts within the scope of AG 43 are considered to be valued under VM-21 and should be documented as such within this PBR Actuarial Report.

C. Life Summary – ~~A summary~~ The PBR Actuarial Report shall contain a Life Summary of the critical elements of all sub-reports of the Life ~~PBR Actuarial~~ Report as detailed in Section 3.CD. In particular, this ~~summary~~ Life Summary shall include:

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a1. Materiality – A description of the rationale for determining whether a decision, information, assumption, risk, or other element of a principle-based valuation under VM-20 has a material impact on the modeled reserve. Such rationale could include criteria such as a percentage of reserves, a percentage of surplus, and/or a specific monetary value, as appropriate.

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b2. Material Risks – A summary of the material risks within the principle-based valuation under VM-20 subject to close monitoring by the board, the company, the qualified actuary, or any ~~state insurance~~ regulators in jurisdictions in which the company is licensed. Include any significant information required to be provided to the board pursuant to VM-G, such as elements materially inconsistent with the company's overall risk assessment processes.

e3. Changes in Reserve Amounts – A description of any material changes in reserve amounts from the prior year and an explanation for the changes.

e4. Changes in Methods – A description of any significant changes from the prior year in the methods used to model cash flows or other risks, or used to determine assumptions and margins, and the rationale for the changes.

e5. Assets and Risk Management – A brief description of the asset portfolio, and the approach used to model risk management strategies, such as hedging, and other derivative programs, including a description of any clearly defined hedging strategies.

#6. Consistency ~~Between~~ Life Sub-Reports – A brief description of any material differences in methods, assumptions, or risk management practices between groups of policies ~~or contracts~~ covered in separate Life sub-reports, to the extent that they are not explained by variations in product features, and the rationale for such differences.

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47. Closing Section – A closing section with the signature, credentials, title, telephone number and ~~email~~ email address of the qualified actuary (or qualified actuaries) responsible for the ~~executive summary~~ Life Summary, the company name and address, and the date signed.

5. ~~8.~~ Supplement Part 1 – A copy of Part 1 of the VM-20 Reserves Supplement from the annual ~~financial~~ statement blank.

69. Supplement Part 2 – A copy of Part 2 of the VM-20 Reserves Supplement from the annual ~~financial~~ statement blank.

D. Life PBR Actuarial Report – This subsection establishes the PBR Actuarial Life Report requirements for individual life insurance policies ~~subject to~~ valued under VM-20.

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The company shall include in the Life ~~PBR Actuarial~~ Report and in any sub-report thereof:

1. Assumptions and Margins – A summary of valuation assumptions and margins, including:

a. Listing – A listing of the final prudent estimate assumptions and margins for the major risk factors and a description of any changes in anticipated experience assumptions or margins since the last PBR Actuarial Report.

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b. Methods – Description of the methods used to determine assumptions and margins, including the sources of experience and how changes in such experience are monitored.

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c. Other Considerations – Description of any considerations helpful in or necessary to understanding the rationale behind the development of assumptions and margins, even if such considerations are not explicitly mentioned in the *Valuation Manual*.

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2. Cash-Flow Models – The following information regarding the cash-flow model(s) used by the company in performing a principle-based valuation under VM-20:

a. Modeling Systems – Description of the modeling system(s) used for both assets and liabilities. Each description should include identification of the model vendor when external, identification of the model version number, discussion of the degree of customization in the model, and discussion of the extent and function of supporting tools (e.g. pre-processing or post-processing in a spreadsheet or database software). If more than one modeling system is used, a description of how the modeling systems interact.

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b. Model Segments – Description and rationale for the organization of the policies and assets into model segments, consistent with the guidance from VM-20 Section 7.A.1.b and VM-20 Section 7.D.2.

c. Grouping ~~Within~~within Model Segments (Deterministic) – Description of the approach and rationale used to group assets and policies for the deterministic reserve calculation within each model segment.

A clear indication shall be provided of how the company met the requirements of Section 2.G. of VM-20 with respect to the grouping of policies. It shall be documented that, upon request, information may be obtained that is adequate to permit the audit of any subgroup of policies to ensure that the reserve amount calculated using a seriatim (policy-by-policy) liability model produces a reserve amount not materially higher than the reserve amount calculated using the grouped liability model.

d. Grouping ~~Within~~within Model Segments (Stochastic) – Description of the approach and rationale used to group assets and policies for the stochastic reserve calculation within each model segment if different from the approach used in paragraph 2.c.

e. Calculation and Model Validation – Description of the approach used to validate model calculations for NPR, DR, and SR, including:

i. How the model was evaluated for appropriateness and applicability,

- including a thorough explanation of how the company became comfortable with the model (e.g., specific model controls, independent reviews performed, etc.).
- ii. How the model results compare with actual historical experience.
 - iii. Tables showing numerical static and dynamic validation results, and commentary on these results.
 - iv. Which risks, if any, are not included in the model.
 - v. Any limitations of the model that could materially impact the NPR, DR, or SR.
- f. Projection Period – Disclosure of the length of projection period and comments addressing the conclusion that no material amount of business remains at the end of the projection period for both the deterministic and stochastic models.
- g. Reinsurance Cash Flows – Description of how reinsurance cash flows are modeled.
- h. Deterministic Reserve Method – Identification of the deterministic reserve method applied for each model segment, either the gross premium valuation method outlined in VM-20 Section 4.A or the direct iteration method outlined in VM-20 Section 4.B.
3. Mortality – The following information regarding the mortality assumptions used by the company in performing a principle-based valuation under VM-20:
- a. Mortality Segments – Description of each mortality segment and the rationale for selecting the policies to include in each mortality segment.
 - b. Company Experience – If company experience is used, a description and summary of the company experience mortality rates for each mortality segment, including a summary of the company experience mortality rates for any aggregate class that mortality rates are based on pursuant to VM-20 Section 9.C.2.d.
 - c. Industry Tables – Description of the industry basic table used for each mortality segment, including:
 - i. For mortality segments where industry basic tables are used in lieu of company experience at all durations, a discussion of why company experience data is limited or unavailable and the rationale for the choice of industry basic table to the extent not covered in Section 3.C.3.e and Section 3.C.3.f below.
 - ii. For mortality segments where company experience with margins is graded to industry basic table with margins per VM-20 Section 9.C.6.b, the rationale for the choice of industry basic table to the extent not covered in Section 3.C.3.e and Section 3.C.3.f below.
 - d. Aggregate Company Experience – If the company bases mortality rates on more aggregate company experience pursuant to VM-20 Section 9.C.2.d:
 - i. Documentation that when the mortality segments are weighted together, the total amount of expected claims is not less than the aggregate company experience data for the group.

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- ii. If underwriting processes are treated as similar pursuant to VM-20 Section 9.C.2.d.iii, a description, summary, and citation of the third-party proprietary experience studies or published medical, clinical, or other published studies used to support the expectations regarding mortality. The full reports and analyses for any third-party proprietary experience studies shall be submitted upon request, shall be considered part of the PBR Actuarial Report, and shall be kept confidential to the same extent as is prescribed by law with respect the rest of the PBR Actuarial Report.
 - iii. If underwriting processes are treated as similar pursuant to VM-20 Section 9.C.2.d.iv, a description, explanation, and summary of results for the most recent retrospective demonstration.
- e. Relative Risk Tool – Description, rationale and results of applying the Relative Risk Tool to select the industry basic table(s), and a summary of the analysis performed to evaluate the relationship between the Relative Risk Tool and the anticipated mortality established for mortality segments where the mortality assumption is affected by the application of the Relative Risk Tool. If underwriting-based justification not involving the Relative Risk Tool is being applied, provide similar analysis applicable to the company's methods.
- f. Alternative Data Sources – If company experience mortality rates for any mortality segment are not based on the experience directly applicable to the mortality segment (whether or not the data source is from the company), a summary containing the following:
 - i. The source of data, including a detailed explanation of the appropriateness of the data, and the underlying source of data, including how the company experience mortality rates were developed, graduated and smoothed.
 - ii. Similarities or differences noted between policies in the mortality segment and the policies from the data source (e.g., type of underwriting, marketing channel, average policy size, etc.).
 - iii. Adjustments made to the experience mortality rates to account for differences between the mortality segment and the data source.
 - iv. The number of deaths and death claim amounts by major grouping and including: age, gender, risk class, policy duration and other relevant information.
- g. Adjustments to Company Experience Mortality – If the company makes adjustments to company experience mortality rates:
 - i. Rationale for the adjustments.
 - ii. For adjustments due to changes in risk selection and/or underwriting practices, a description, summary, and citation of the published medical, clinical, or other published studies used to support the adjustments, including rationale and support for use of the study (or studies).
 - iii. Documentation of the mathematics used to adjust the mortality.
 - iv. Summary of any other relevant information concerning adjustments to the experience mortality, including the removal of policies insuring impaired

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lives and those for which there is a reasonable expectation, due to conditions such as changes in premiums or other policy provisions, that policyholder behavior will lead to mortality results that vary significantly from those that would otherwise be expected.

- h. Credibility – The following items related to credibility:
 - i. Identification of the method used to determine credibility percentage(s) for the company's mortality exposure period, including a listing of the credibility percentage that was used in VM-20 Section 9.C.6.b for each mortality segment, and an indication of whether each such credibility percentage was determined at the mortality segment level or at a higher level using aggregate mortality experience.
 - ii. A statement confirming that the credibility level was calculated using the data from the company's mortality experience study, based on uncapped amounts of insurance.
 - iii. For each credibility percentage that was used in VM-20 Section 9.C.6.b, the numerical values of all credibility formula inputs, along with calculation steps. For the Limited Fluctuation Method, this shall include r , z , m , σ , and the resulting value of Z . For the Bühlmann Empirical Bayesian Method, this shall include A , B , C , and the resulting value of Z .
- i. Adjustments for Mortality Improvement – Description of and rationale for any adjustments to the mortality assumptions for mortality improvement up to the valuation date. Such description shall include the assumed start and end dates of the improvements and a table of the annual improvement percentage(s) used, separately for company experience and the industry basic table(s), along with a sample calculation of the adjustment (e.g., for a male preferred nonsmoker age 45).
- j. Adjustments to Mortality for Impaired Lives or Policyholder Behavior – Discussion of and rationale for any adjustments to mortality assumptions for impaired lives or policyholder behavior. Such discussion shall include (a) information on the percentage of business that is on impaired lives, (b) whether impaired lives were included or excluded from the mortality study upon which company experience mortality was based, and (c) discussion of the derivation of post-level term mortality assumptions as a function of policyholder behavior assumptions.
- k. Setting Prudent Estimate Assumptions for Mortality – If company experience is used, a summary of the approach used to determine the final set of prudent estimate assumptions for mortality, including:
 - i. The start and ending period of time used to grade company experience to the industry basic table, including the approach used to grade company experience mortality rates to the industry table for advanced ages (attained age 100 and up).
 - ii. Description and results of any smoothing technique used.
 - iii. Description of any adjustments that were made to ensure reasonable relationships are maintained between mortality segments that reflect the underwriting class or risk class of each mortality segment.

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Commented [EL13]: APF 2019-08 adopted 4/4/2019.

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- iv. Description and justification of the mortality rates the company actually expects to emerge, and a demonstration that the anticipated experience assumptions are no lower than the mortality rates that are actually expected to emerge. The description and demonstration should include the level of granularity at which the comparison is made (e.g., ordinary life, ~~term~~Term only, preferred term, etc.)
 - l. Adjustments to Mortality Margins – Description and rationale of any adjustments made to increase margins above the prescribed margin.
 - m. Actual to Expected Mortality Analysis – Summary of the results of an actual to expected (without margins) analysis at least once every three years, or, for mortality segments for which mortality rates are based on more aggregate company experience pursuant to VM-20 Section 9.C.2.d.vi, at least annually for each individual mortality segment separately until such time as the estimated change in expected mortality has been shown to be stable and unlikely to change based on further review. For purposes of this analysis, the expected mortality shall be that last determined under VM-20 Section 9.C.2.e.
4. Policyholder Behavior – The following information regarding each policyholder behavior assumption used by the company in performing a principle-based valuation under VM-20:
- a. Data Reliability – Discussion of the reliability of the data and an explanation of why the data is reasonable and appropriate for this purpose.
 - b. Sparse Data – Explanation of how assumptions were determined for periods that were based on less than fully credible or relevant data.
 - c. Actual to Expected Policyholder Behavior Analysis – At least every three years, or more frequently as required by VM-20 Sections 9.A.2 and 9.D.1, the results of an actual to expected analysis, including:
 - i. Definitions of the actual basis and expected basis used in all A/E ratios shown.
 - ii. Comments addressing the conclusions drawn from the analysis.
 - d. Margins and Sensitivity Tests – Rationale for the particular margins used and a description of testing performed to determine the size and direction of the margins by duration, including how the results of sensitivity tests were used in connection with setting the margins.
 - e. Impact of ~~NGE~~Non-Guaranteed Elements – How changes in NGE affect the policyholder behavior assumptions.
 - f. Scenario-Dependent Dynamic Formulas – Description of any scenario-dependent dynamic formula.
 - g. Changes from Prior Year – Changes in anticipated experience assumptions and/or margins since the last PBR Actuarial Report.
 - h. Flexible Premiums – For policies that give policyholders flexibility in timing and amount of premium payments, the results of sensitivity tests related to the following premium payment patterns: minimum premium payment, no further

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- premium payment, pre-payment of premium assuming a single premium and pre-payment of premiums assuming level premiums.
- i. Anti-Selective Lapses – Specific to lapses, a description of and rationale regarding adjustments to lapse and mortality assumptions to account for potential anti-selection.
 - j. Competitor Rates – Competitor rate definition and usage.
5. Expenses – The following information regarding the expense assumptions used by the company in performing a principle-based valuation under VM-20:
- a. Allocating Expenses to PBR Policies – Methodology used to allocate expenses to the individual life insurance policies subject to a principle-based valuation under VM-20.
 - b. Allocating Expenses to Model Segments – Methodology used to apply the allocated expenses to model segments or sub-segments within the cash-flow model.
 - ~~c. Inflation Assumption and source.~~
 - ~~d. Expense Margins – Methodology used to determine margins.~~
6. Assets – The following information regarding the asset assumptions used by the company in performing a principle-based valuation under VM-20:
- a. Starting Assets – The amount of starting assets supporting the policies subject to a principle-based valuation under VM-20, and the method and rationale for determining such amount.
 - b. Asset Selection – Method used and rationale for selecting the starting assets and apportioning the assets between the policies subject to a principle-based valuation under VM-20 and those policies not subject to principle-based valuation under VM-20.
 - c. Asset Segmentation – Method used and rationale for allocating the total asset portfolio into multiple segments, if applicable.
 - d. Asset Description – Description of the starting asset portfolio, including the types of assets, duration and their associated quality ratings.
 - e. Market Values – Method used to determine projected market value of assets (if needed for assumed asset sales).
 - f. Risk Management – Detailed description of model risk management strategies, such as, hedging and other derivative programs, including any clearly defined hedging strategies, specific to the groups of policies covered in this sub-report and not discussed in the Executive Life Summary Section 3.C.5B.3.d.
 - g. Foreign Currency Exposure – Analysis of exposure to foreign currency fluctuations.

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- h. Maximum Net Spread Adjustment Factor – Summary of the results of the steps for determining the maximum net spread adjustment factor for each model segment, including the method used to determine option adjusted spreads for each existing asset.
- i. NAERNet Asset Earned Rates – A complete listing of the path of NAERnet asset earned rates for each model segment calculated for the deterministic reserve, if using the gross premium valuation method outlined in VM-20 Section 4.A.
- j. Investment Expenses – Description of the investment expense assumptions.
- k. Prepayment, Call and Put Functions – Description of any prepayment, call and put functions.
- l. Asset Collar – If required under the criteria described in VM-20 Section 7.D.3, documentation that supports the conclusion that the modeled reserve is not materially understated as a result of the estimate of the amount of starting assets.
- m. Residual Risks and Frictional Costs – With respect to modeling of derivative programs if a company assumes that residual risks and frictional costs have a value of zero, a demonstration that a value of zero is an appropriate expectation.
- n. Policy Loans – Description of how policy loans are modeled, including documentation that if the company substitutes assets that are a proxy for policy loans, the modeled reserve produces reserves that are no less than those produced by modeling existing loan balances explicitly.
- o. General Account Equity Investments – Description of an approach and rationale used to group general account equity investments, ~~including non-registered indexed products~~, including an analysis of the proxy construction process that establishes the relationship between the investment return on the proxy and the specific equity investment category.
- p. Separate Account Funds – Description of the approach and rationale used to group separate account funds and subaccounts, including analysis of the proxy construction process that establishes a firm relationship between the investment return on the proxy and the specific variable funds.
- q. Mapping Stochastic Economic Paths to Fund Performance – Description of method to translate stochastic economic paths into fund performance.
- r. Modeled Company Investment Strategy and Reinvestment Assumptions – Description of the modeled company investment strategy used in the demonstration of compliance required by VM-31 Section 3.D.6.s, including asset reinvestment and disinvestment assumptions, and documentation supporting the appropriateness of the modeled company investment strategy compared to the actual investment policy of the company.
- s. Modeled Investment Strategy – Documentation demonstrating compliance with VM-20 Section 7.E.1.g, showing that the modeled reserve is the higher of that produced using the modeled company investment strategy and the alternative investment strategy.
- t. Number of Scenarios – Number of scenarios used for the stochastic reserves and the rationale for that number.

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- u. Scenario Reduction Techniques – If a scenario reduction technique is used, a description of the technique and documentation of how the company determined that the technique meets the requirements of Section 2.G. of VM-20.
7. Revenue-Sharing Assumptions – The following information regarding the revenue-sharing assumptions used by the company in performing a principle-based valuation under VM-20:
- a. Agreements and Guarantees – Description of revenue-sharing agreements and the nature of any guarantees underlying the revenue-sharing income included in the projections, including: the terms and limitations of the agreements; relationship between the company and the entity providing the revenue-sharing income; benefits and risk to the company and the entity providing the revenue-sharing income of continuing the arrangement; the likelihood that the company will collect the revenue-sharing income during the term of the agreement; the ability of the company to replace the services provided by the entity providing the revenue-sharing income; and the ability of the entity providing the revenue-sharing income to replace the service provided by the company.
 - b. Amounts Included – The amount of revenue-sharing income and a description of the rationale for the amount of revenue-sharing income included in the projections, including any reduction for expenses.
 - c. Revenue-Sharing Margins – The level of margin in the prudent estimate assumptions for revenue-sharing income and description of the rationale for the margin for uncertainty.
8. Reinsurance – The following information regarding the reinsurance assumptions used by the company in performing a principle-based valuation under VM-20:
- a. Agreements – For those reinsurance agreements included in the calculation of the minimum reserve as per VM-20 Section 8.A, a description of each reinsurance agreement, including, but not limited to, the type of agreement, the counterparty, the risks reinsured, the portion of business reinsured and whether the agreement complies with the requirements of the credit for reinsurance under the terms of the AP&P Manual.
 - b. Assumptions – Description of reinsurance assumptions used to determine the cash flows included in the model.
 - c. Separate Stochastic Analysis – To the extent that a single deterministic valuation assumption for risk factors associated with certain provisions of reinsurance agreements will not adequately capture the risk of the company, a description of the separate stochastic analysis that was used outside the cash-flow model to quantify the impact on reinsurance cash flows to and from the company. The description should include which variables are modeled stochastically.
 - d. Multiple Agreement Allocation Method – If a policy is covered by more than one reinsurance agreement, description of ~~the~~ method to allocate reinsurance cash flows from each agreement.
 - e. Counterparty Assets – Pursuant to VM-20 Section 8.C.14, if the company concludes that modeling the assets supporting reserves held by a counterparty is not necessary, documentation of the testing and logic leading to that conclusion.

- f. Pre-Reinsurance-Ceded Minimum Reserve – Description and rationale for methods and assumptions used in determining the pre-reinsurance-ceded minimum reserve that differ from methods and assumptions used in determining the minimum reserve (post-reinsurance-ceded), including support that such methods and assumptions are consistent with VM-20 Section 8.D.2.

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9. Non-Guaranteed Elements (NGE) – The following information, where applicable, regarding the NGE assumptions used by the company in performing a principle-based valuation under VM-20:

- a. Modeling – Description of the approach used to model NGEs, including a discussion of how future NGE amounts were adjusted in scenarios to reflect changes in experience and including how lag in timing of any change in NGE relative to date of recognition of change in experience was reflected in projected NGE amounts.
- b. NGE Margins – Description of the approach to establish a margin for conservatism.
- c. Past Practices and Policies – Description of how the ~~company's~~ company's past NGE practices and established NGE policies were reflected in projected NGE amounts, including a discussion of the impact of interest rates or other market factors on past and projected premium scales, cost of insurance scales, and other NGEs.
- d. Consistency – Description of the following: (i) whether and how projected levels of NGEs in the model are consistent with experience assumptions used in each scenario; and (ii) whether and how policyholder behavior assumptions are consistent with the NGE assumed in the model.
- e. Conditional Exclusion – State if and how the provision in Section 7.C.5 of VM-20 allowing conditional exclusion of a portion of an NGE is used.
 - i. If used, discuss whether the provision is used for any purpose other than recognition of subsidies for participating business.
 - ii. If used, discuss how prevention of double counting of assets is ensured.

Guidance Note: Examples of considerations include: (1) if the subsidy is provided by a downstream company, and the carrying value of the downstream company is reported as an asset on the company's books, where is the offsetting liability reported; or (2) if the subsidy is provided by another block of business within the company, is the subsidy included in cash-flow testing of the "other block-~~ing~~".

- f. Interest Crediting Strategy – Description of interest crediting strategy.

- ~~g.~~ Interest Bonus – Description of any interest bonuses included in the model.

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10. Exclusion Tests – The following information regarding the deterministic and stochastic exclusion tests, if calculated:

- a. Exclusion Test Policies – Identification and description of each group of policies using the deterministic and stochastic exclusion tests, including contract type and risk profile, and rationale for each grouping of policies.

- b. Type of ~~SET~~Stochastic Exclusion Test – Identification of each group of policies ~~that~~which the company elects to exclude from stochastic reserve requirements and the ~~SET~~stochastic exclusion test used (passing the ~~SET~~stochastic exclusion ratio test, or stochastic exclusion demonstration test, or certification that the group of policies does not contain material interest, tail or asset risk). For any group of policies for which a prior year's result is being invoked as to the passing of the stochastic exclusion demonstration test or the certification that policies are not subject to material interest rate risk, a statement indicating which prior year's result it was.
 - c. SERTStochastic Exclusion Ratio Test – For groups of policies for which the stochastic exclusion ratio test is used, the following data on a post-reinsurance-ceded basis calculated in accordance with VM-20 Section 6.A.2 and on a pre-reinsurance-ceded basis calculated in accordance with VM-20 Section 8.D.2:
 - i. The adjusted deterministic reserve for each of the 16 scenarios.
 - ii. The values of a, b, and c.
 - iii. The value of the test ratio $(b - a) / c$.
 - d. Stochastic Exclusion Demonstration Test – For groups of policies for which the stochastic exclusion demonstration test is used, the rationale for using the demonstration test, identification of which acceptable demonstration method listed under VM-20 Section 6.A.3.b was applied or a statement that another method acceptable to the ~~insurance~~ commissioner was applied, and the details of the demonstration supporting the exclusion in the initial exclusion year and at least once every three calendar years subsequent to the initial exclusion year.
 - e. Certification Method – For groups of policies for which the certification method is used, support for the certification including supporting analysis and tests.
 - f. Fallback Results – If the stochastic exclusion demonstration test or the certification method was successfully used for any group of policies for which the stochastic exclusion ratio test was initially attempted but failed, the company shall so indicate and show the unsuccessful SERT results.

Similarly, if the stochastic exclusion ratio test was successfully used for any group of policies for which the stochastic exclusion demonstration test under the method of VM-20 Section 6.A.3.b.iii or VM-20 Section 6.A.3.b.iv was initially attempted but failed, the company shall so indicate and show the results of the unsuccessful stochastic exclusion demonstration test.
 - g. ~~DET~~Deterministic Exclusion Test – For groups of policies for which the ~~DET~~deterministic exclusion test is performed, the results of the ~~DET~~deterministic exclusion test for each group of policies.
11. Additional Information – The following additional information:
- a. Impact of Margins for Each Risk Factor – For each group of policies for which a separate deterministic reserve is calculated, the impact of margins on the deterministic reserve for each risk factor, or group of risk factors, that has a material impact on the deterministic reserve, determined by subtracting (i) from (ii):

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- i. The deterministic reserve for that group of policies, but with the reserve calculated based on the anticipated experience assumption for the risk factor and prudent estimate assumptions for all other risk factors.
- ii. The deterministic reserve for that group of policies as reported.

Guidance Note: Pursuant to VM-20, margins must increase the reserve, so the impact of each margin, as calculated by subtracting (i) from (ii) above, must be positive.

- b. ~~Impact of Aggregate~~ Impact of Margins – For each group of policies for which a separate deterministic reserve is calculated, the aggregate impact of all margins on the deterministic reserve for that group of policies, determined by subtracting (i) from (ii):

- i. The deterministic reserve for that group of policies, but with the reserve calculated based on anticipated experience assumptions for all risk factors prior to the addition of any margins.
- ii. The deterministic reserves for that group of policies as reported.

- c. Impact of Implicit Margins – For purposes of the disclosures required in ~~44-11a~~ and ~~44-11b~~ above:

- i. If the company believes the method used to determine anticipated experience mortality assumptions includes an implicit margin, the company can adjust the anticipated experience assumptions to remove this implicit margin. For example, to the extent the company expects mortality improvement after the valuation date, any such mortality improvement is an implicit margin and, therefore, is an acceptable adjustment to the anticipated experience assumptions for this reporting purpose only. If any such adjustment is made, the company shall document the rationale and method used to determine the anticipated experience assumption.
- ii. Since the company is not required to determine an anticipated experience assumption or a prudent estimate assumption for risk factors that are prescribed for the deterministic reserve (i.e., interest rates movements, equity performance, default costs and net spreads on reinvestment assets), when determining the impact of margins, the prescribed assumption shall be deemed to be the prudent estimate assumption for the risk factor, and the company can elect to determine an anticipated experience assumption for the risk factor, based on the company's anticipated experience for the risk factor. If this is elected, the company shall document the rationale and method used to determine the anticipated experience assumption.

- d. Sensitivity Tests – For each distinct product type for which margins were established:

- i. List the specific sensitivity tests performed for each risk factor or combination of risk factors.
- ii. Indicate whether the reserve was calculated based on the anticipated experience assumptions or prudent estimate assumptions for all other risk factors while performing the tests.

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iii. Provide the numerical results of the sensitivity tests.

iv. Explain how the results of sensitivity tests were used or considered in developing assumptions.

Guidance Note: If a model segment contains multiple distinct product types (e.g. ART, Level Term), (i) through (iv) should be done for each product type.

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e. Material Risks Not Fully Reflected – A description of material risks not fully reflected in the cash-flow model used to calculate the stochastic reserve, including:

i. A description of each element of the cash-flow model for which this provision has been made in the stochastic reserve (e.g., risk factors, policy benefits, asset classes, investment strategies, risk mitigation strategies, etc.).

ii. A description of the approach used by the company to provide for these risks in the stochastic reserve outside the cash-flow model, a summary of the rationale for selecting this approach and the key assumptions justifying the underlying approach.

iii. If there is more than one model element included in this provision, clarifying whether a separate provision was determined for each element, or collectively for groups of two or more elements and explaining the methodology, supporting rationale and key assumptions for how separate provisions were combined.

f. Allocation for Deterministic Reserve – For each group of policies for which a deterministic reserve is calculated and an allocation is performed as described in VM-20 Section 4.C, disclosure of the ratio (i) to (ii), in which the respective components are:

i. The deterministic reserves for that group of policies as reported.

ii. The sum of the deterministic reserves calculated separately for each VM-20 Reserving Category within that group of policies.

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g. Impact of Aggregation for Stochastic Reserve – For each group of policies for which a stochastic reserve is calculated, the impact of aggregation on the stochastic reserve, including a discussion of material risk offsets across different product types within a VM-20 Reserving Category that were modeled together.

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h. Calculations as of the Valuation Date – The following information:

i. A statement confirming that the NPR was calculated based on policies inforce as of the valuation date.

ii. If the DR and/or SR were calculated as of the valuation date, a statement confirming that the calculations were based on the following items: policies inforce, starting assets, and the starting yield curve as of the valuation date, and the prescribed Table A and Tables F through J in effect on the valuation date.

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- i. Calculations as of a Date Preceding the Valuation Date – If the DR and/or SR were calculated as of a date preceding the valuation date (i.e. if the dates of any of the items listed in Section 3.€D.11.h.ii preceded the valuation date):
 - i. The dates used for each item listed in Section 3.€D.11.h.ii, separately for the DR and/or SR.
 - ii. A description of the methodology used to determine the adjustment required by VM-20 Section 2.E, along with the adjustment amount and an explanation that justifies why it produces a reserve that is not materially less than a reserve calculated as of the valuation date.
 - j. Approximations, Simplifications, and Modeling Efficiency Techniques – A description of each approximation, simplification, or modeling efficiency technique used in reserve calculations, and a statement that the required VM-20 Section 2.G demonstration is available upon request and shows that 1) the use of each approximation, simplification, or modeling efficiency technique does not understate the reserve by a material amount, and 2) the expected value of the reserve is not less than the expected value of the reserve calculated that does not use the approximation, simplification, or modeling efficiency technique.
 - k. ULSG Detail – Breakdown of ULSG reserve results (NPR, DR, and SR) into Variable UL, Indexed UL, and regular UL components, both pre- and post-reinsurance, along with case counts and face amounts.

Any given UL policy is to be classified in its entirety as either Variable UL, Indexed UL, or regular UL. If a ULSG policy satisfies the definition of a variable life insurance policy (even if it contains options for indexed funds or fixed funds), that policy should be classified as variable for this VM-31 reporting purpose. If it does not, but it satisfies the definition of an Indexed UL policy, it should be classified as Indexed.
 - l. PIMR – Description of the methodology used to derive the PIMR balance on the projection start date and allocate it among the model segments, and the dollar amount of each such portion of PIMR.
12. Reliance Descriptions and Statements – A description of those areas where the qualified actuary relied on others for data, assumptions, projections or analysis in performing the principle-based valuation under VM-20 and a reliance statement from each individual on whom the qualified actuary relied that includes:
- a. Reliance Listing – The name, title, telephone number, ~~email-mail~~ address and qualifications of the individual, along with the individual’s company name and address, and the information provided.
 - b. Reliance Statements – A statement as to the accuracy, completeness or reasonableness, as applicable, of the information provided, along with a signature and the date signed.
13. Certifications
- a. Investment Officer on Investments – A certification from a duly authorized investment officer that the modeled company investment strategy is representative of and consistent with the company’s investment policy.

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- b. Qualified Actuary on Investments – A certification by a qualified actuary, not necessarily the same qualified actuary that has been assigned responsibility for the PBR Actuarial Report or this sub-report, that the modeling of any clearly defined hedging strategies was performed in accordance with VM-20 and in compliance with all applicable ASOPs and the alternative investment strategy as defined in VM-20 Section 7.E.1.g reflects the prescribed mix of assets with the same WAL as the reinvestment assets in the company investment strategy.
- c. Senior Management on Internal Controls – A certification from senior management regarding the effectiveness of internal controls with respect to the principle-based valuation under VM-20, as provided in Section 12B(2) of Model #820.
- d. Qualified Actuary on Interest Rate and Volatility Risks – Certification, by the qualified actuary assigned responsibility under VM-G for a group of policies that qualifies for exclusion from the requirement to calculate a stochastic reserve under the provisions of VM-20, Section 6.A.1.a.iii, that this group of policies is not subject to material interest rate risk or asset return volatility risk.
- e. Qualified Actuary on Accordance with VM-20 and Model #820 and VM-20 – Certification by the qualified actuary, for the groups of policies for which responsibility was assigned, that the principle-based valuation was performed in accordance with the requirements outlined in VM-20 and the relevant sections of Model #820 and VM-20.
- f. Qualified Actuary on Assumptions and Margins – Certification by the qualified actuary, for the groups of policies for which responsibility was assigned, that the assumptions used in the principle-based valuation under VM-20, other than assumptions used for risk factors that are prescribed or stochastically modeled, are prudent estimate assumptions and the margins applied therein are appropriate.
14. Closing Paragraph – A closing paragraph with the signature, credentials, title, telephone number and email-mail address of the qualified actuary, the company name and address, and the date signed.
- D. Variable Annuity-E. VA Summary – The PBR Actuarial Report shall contain a VA Summary of the critical elements of all sub-reports of the VA Report as detailed in Section 3.F. In particular, this VA Summary shall include:
1. Materiality – A description of the rationale for determining whether a decision, information, assumption, risk, or other element of a principle-based valuation under VM-21 has a material impact on the modeled reserve. Such rationale could include criteria such as a percentage of reserves, a percentage of surplus, and/or a specific monetary value, as appropriate.
 2. Material Risks – A summary of the material risks within the principle-based valuation under VM-21 subject to close monitoring by the board, the company, the qualified actuary, or any regulators in jurisdictions in which the company is licensed. Include any summary metrics used to monitor the risk, such as the level of in-the-moneyness by benefit type as of the valuation date. Also, include any significant information required to be provided to the board pursuant to VM-G, such as elements materially inconsistent with the company's overall risk assessment processes.
 3. Changes in Reserve Amounts – A description of any material changes in reserve amounts from the prior year and an explanation for the changes, including the results of any

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supporting analysis such as an attribution analysis or waterfall chart. A table shall be attached to the summary, listing the aggregate reserve amount, reserve component amounts, and key statistics for the business valued under VM-21, including but not limited to the stochastic reserve, additional standard projection amount, alternative methodology reserve, account values, cash surrender value, and contract count. A template is provided below for reference.

	Post-Reinsurance-Ceded		Pre-Reinsurance-Ceded	
	Current Year (YYYY)	Prior Year (YYYY-1)	Current Year (YYYY)	Prior Year (YYYY-1)
Total VM-21 Reserve				
Stochastic Reserve (SR)				
- SR Amount				
- CTE 70 (best efforts)				
- CTE 70 (adjusted)				
- E Factor			N/A	N/A
Standard Projections				
- Additional Standard Projection Amount				
- Prescribed Projections Amount				
- Unbuffered Additional Standard Projection Amount				
- Unfloored CTE 70 (adjusted)				
- Unfloored CTE 65 (adjusted)				
Alternative Methodology (AM)				
- AM Reserve				
- AM Reserve (without floor)				
- Cash Surrender Value Floor				
- Reserve Floor under Guideline No. XXXIII in VM-C				
Phase-In Components				
R1			N/A	N/A
R2			N/A	N/A
A			N/A	N/A
B			N/A	N/A
C			N/A	N/A
D				
Summary Statistics				
- Separate Account Value			N/A	N/A
- General Account Value			N/A	N/A
- Total Account Value			N/A	N/A
- Cash Surrender Value			N/A	N/A
- Contract Count			N/A	N/A
RBC Amount				
- CTE 98 (pre-tax)			N/A	N/A
- CTE 98 (post-tax)			N/A	N/A

- Effect of Phase-In			N/A	N/A
- Effect of Smoothing			N/A	N/A

4. Changes in Methods – A description of any significant changes from the prior year in the methods used to model cash flows or other risks, or used to determine assumptions and margins, and the rationale for the changes.
 5. Assets and Risk Management – A brief description of the general account asset portfolio, and the approach used to model risk management strategies, such as hedging and other derivative programs, including a description of any clearly defined hedging strategies, and any material changes to the hedging strategy from the prior year.
 6. Consistency between VA Sub-Reports – A brief description of any material differences in methods, assumptions, or risk management practices between groups of contracts covered in separate VA sub-reports, to the extent that they are not explained by variations in product features, and the rationale for such differences.
 7. Closing Section – A closing section with the signature, credentials, title, telephone number and e-mail address of the qualified actuary (or qualified actuaries) responsible for the VA Summary, the company name and address, and the date signed.
 8. Supplement Part 1 – A copy of Part 1 of the Variable Annuities Supplement from the annual statement blank.
 9. Supplement Part 2 – A copy of Part 2 of the Variable Annuities Supplement from the annual statement blank.
- F. VA Report – This subsection establishes the ~~PBR Actuarial~~ VA Report requirements for variable annuity contracts ~~subject to~~ valued under VM-21.
- The company shall ~~follow~~ include in the ~~certification~~ VA Report and in any sub-report thereof:
1. Liabilities – The following information regarding the liabilities included in the principle-based valuation under VM-21:
 - a. Product Descriptions – Description of key product features that impact risk, including mortality and expense (M&E) charges, death benefit guarantees, living benefit guarantees, and any premium or persistency bonuses, to the extent not discussed in Section 3.B.2.
 - b. Liability Data Source – Description of source(s) of liability data.
 - ~~c. Grouping of Contracts – Discussion of how groups of contracts are defined, and how contracts are allocated to those groups.~~
 - ~~cd.~~ Alternative Methodology Scope – Identification of products whose reserve was determined using the Alternative Methodology, including description of their key product features (e.g., whether they contain no guarantee living or death benefits, or contain GMDBs only), total account value, and contract count.
 2. Cash-Flow Models – The following information regarding the cash-flow model(s) used by the company in performing a principle-based valuation under VM-21:
 - a. Modeling Systems – Description of the modeling system(s) used for both assets and liabilities. If more than one modeling system is used, a description of how the

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modeling systems interact and how the results from different modeling systems are combined to determine the aggregate reserve.

- b. Model Segments – Description and rationale for the organization of the contracts and assets into model segments, if any, as referenced in VM-21 Section 3.D.
 - c. Model Validation – Description of the approach used to validate model calculations within each model segment for the models used to determine the stochastic reserve, including: how the models were evaluated for appropriateness and applicability; how the model results compare with actual historical experience; what, if any, risks are not included in the models; the extent to which correlation of different risks is reflected in the margins; and any material limitations of the models.
 - d. Projection Period – Disclosure of the length of projection period and comments addressing the conclusion that no material amount of business remains at the end of the projection period for the models used to determine the stochastic reserve.
 - e. Approximations and Simplifications – Description of any approximations and simplifications used in cash flow projections calculations and not described in a different section of this report, including documentation that these did not materially reduce the resulting reserve.
 - f. ~~Compressed Liability~~ Model Cells – If a compressed liability model is used, as allowed by VM-21 Section 4.A.3, a statement that the assignment of contracts to model cells was not done in a manner that intentionally understates the resulting reserve. Also, upon request by the domiciliary commissioner, include information to permit the audit of any subgroup of contracts to ensure that the reserve amount calculated using a seriatim (contract-by-contract) liability model produces a reserve amount not materially higher than the reserve amount calculated using the compressed liability model.
 - g. Scenario Reserve Method – Identification of the method used to determine the scenario reserve, either (1) the method described in VM-21 Section 4.B.2 and VM-21 Section 4.B.3 or (2) the direct iteration method described in VM-21 Section 4.B.4.
3. Liability Assumptions and Margins – A listing of the assumptions and margins used in the projections to determine the stochastic reserve, including a discussion of the source(s) and the rationale for each assumption:
- a. Premiums and Subsequent Deposits – Description of premiums and subsequent deposits.
 - b. Interest Crediting Strategy – Description of the interest crediting strategy.
 - c. Commissions – Description of commissions, including any commission chargebacks.
 - d. Expenses Other than Commissions – Description and listing of insurance company expenses other than commissions, such as overhead, including:
 - i. Method used to allocate expenses to the contracts included in a principle-based valuation under VM-21.

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- ii. Method used to apply the allocated expenses to model segments or sub-segments within the cash-flow model.
 - iii. Method used to determine margins.
- e. Partial Withdrawals – Description and listing of partial withdrawal rates, including treatment of dollar-for-dollar offsets on GMDBs and VAGLBs, and required minimum distributions.
- f. Lapses and Full Surrenders – Description and listing of lapse or full surrender rates, including:
 - i. For contracts with VAGLBs, two comparisons of actual to expected lapses where “expected” equals (1) anticipated experience assumptions used in the development of the stochastic reserve, and (2) the assumptions used in the development of the additional standard projection amount, and the “actual” is separated by logical blocks of business, duration (e.g., during and after surrender charge period), in-the-moneyness (consistent with dynamic assumptions), and age (to the extent age affects the election of benefits lapse). These data shall be separated by experience incurred in the past year, the past three years, and all years.
 - ii. If experience for contracts without VAGLBs is used in setting lapse assumptions for contracts with in-the-money or at-the-money VAGLBs, then a detailed explanation of the appropriateness of the assumption and a demonstration of the relevance of the experience to the business.
- g. Annuity Benefits – Description of assumptions for purposes of projecting annuitization benefits (excluding annuitizations stemming from the election of a GMIB and withdrawal amounts from GMWBs, which are addressed in Section 3.F.3.h below), including:
 - i. Description and listing of assumptions regarding rates of annuitization.
 - ii. Description and listing of income purchase assumptions.
 - iii. Disclosure of any parameters not determined in a formulaic fashion in the projection of statutory reserve of payout annuity benefits in the future.
- h. GMIB and GMWB Utilizations – Description and listing of GMIB and GMWB utilization assumptions (such as rates and withdrawal/income amounts), including:
 - i. Formulas used to set the assumptions.
 - ii. Key parameters affecting the level of the assumption (e.g., age, duration, in-the-moneyness, during and after the surrender charge period).
 - iii. Summary of utilization rates from various combinations of key parameters.
 - iv. Description of the experience data used to develop the assumptions including the source, relevance, and credibility of the experience data used.
 - v. If relevant and credible data were not available, a discussion of how the assumption is consistent with the requirement that the assumption is to be

on the conservative end of the plausible range of expected experience.

vi. Discussion of the sensitivity tests performed to support the assumption.

vii. Description of the method or approach adopted to model the assumptions, including a description of any simplifications applied to improve computational tractability such as discarding developed cohorts.

i. Mortality – Description of the mortality ~~assumptions and margins~~ for all segments, including:

i. Rationale for the grouping of contracts into different segments for the determination of mortality assumptions, and the type and quantity of business that constitutes each segment.

ii. Description of how each segment was determined to be a plus or minus segment, and results of sensitivity tests performed, if any.

iii. Summary of any mortality studies used to support mortality assumptions, including quantification of the exposures and corresponding deaths, description of the important characteristics of the exposures, and discussion of any unusual data points or trends.

iv. Description of the age of the experience data used to determine expected mortality curves and the relevance of the data.

~~viii.~~ Description of the credibility procedure, the statistical basis for the specific elements of the credibility procedure, and any material changes from prior credibility procedures.

vi. Description of the mathematics used to adjust mortality based on credibility, and summary of the result of applying credibility to the mortality segments.

vii. Discussion of any assumptions made on mortality improvements, the support for such assumptions, and how such assumptions adjusted the modeled mortality.

viii. Description of how the expected mortality curves compare to recent historic experience, and discussion of any differences.

~~viii.~~ix. Discussion of how the mortality assumptions are consistent with the goal of achieving the required CTE level over the joint distribution of all future outcomes, in keeping with Principle 3 of VM-21.

ix. If the study was done on a similar business segment, description of the differences in the business segment on which the data were gathered and the business segment on which the data were used to determine mortality assumptions for the principle-based valuation under VM-21, and how these differences were reflected in the mortality used in modeling.

xi. If mortality assumptions were based in part on reinsurance rates, description of how the rates were used to set expected mortality (e.g., assumptions made on loadings in the rates and/or whether the assuming company provided their expected mortality and the rationale for their

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assumptions).

xii. For a plus segment, discussion of the examination of the mortality data for the underreporting of deaths and experience by duration, and description of any adjustments made as a result of the examination.

xiii. For a minus segment, discussion of how the mortality deviations on minus segments compare to those on any plus segments. To the extent the overall margin is reduced, include support for this assumption.

~~xiii. Description of the credibility procedure, the statistical basis for the specific elements of the credibility procedure, and any material changes from prior credibility procedures.~~

j. **PolicyContract Loans** – Disclosure of whether **policycontract** loans are modeled, and if so, ~~Description of how policy loans~~ they are modeled, including documentation that if the company substitutes assets that are a proxy for **policycontract** loans, the modeled reserve produces reserves that are no less than those produced by modeling existing loan balances explicitly.

k. Other Considerations – Description of any considerations helpful in or necessary to understanding the rationale behind the development of assumptions and margins, even if such considerations are not explicitly mentioned in the *Valuation Manual*.

4. Starting Assets – The following information regarding the starting assets used by the company in performing a principle-based valuation under VM-21, as it applies to the calculation of post-reinsurance-ceded amounts:

a. Amount – The amount of starting assets, listed separately as separate account assets and general account assets, supporting the contracts valued under VM-21 at the start of the projections, and the method and rationale for determining such amounts.

b. Asset Description – Description of the starting general account asset portfolio, including the types of assets, terms to maturity, duration and associated quality ratings for fixed income assets.

c. Hedge Assets – The value of hedge assets in the general account asset portfolio, and a description of currently held hedge positions.

d. Asset Selection – Method used and rationale for selecting the starting assets and apportioning the assets between the contracts valued under VM-21 and those contracts not valued under VM-21.

e. Asset Data Source – Description of source(s) of asset data.

f. Asset Valuation Basis – Description of the asset valuation basis.

g. Pre-Tax Interest Maintenance Reserves (PIMR) – Discussion of the treatment of ~~all PIMR considered~~ for purposes of the principle-based valuation under VM-21, whether included or excluded, and rationale for the treatment.

~~Drafting Note: Asset Valuation Reserve (AVR) has been stricken from the current draft of VM-21 Section 4.A.7. Need to monitor the language in the final adopted~~

Commented [EL47]: Move this section to be between subsections (iv) and (v) above. (Comment from Alice Fontaine)

Commented [EL248]: Replace “policy” with “contract” (comment from ACLI)

Commented [EL49]: Comment from John Robinson (MN)

Commented [EL50]: Comment from John Robinson (MN)

~~version of VM 21, and maintain consistency as it relates to whether information related to AVR should be requested here in VM 31.~~

Commented [EL51]: Delete drafting note. Keep reference to AVR stricken from VM-31.

5. Separate Account Assets – The following information regarding the separate account asset assumptions used by the company in performing a principle-based valuation under VM-21:

- a. Investment / Fund Choice – Description of investment and/or fund choices, as well as fund fees.
- b. Asset Allocation – Description of asset allocation, rebalancing and transfer assumptions, including any dollar cost averaging arrangements.
- c. Grouping of Funds – Description of the approach and rationale used to group separate account funds and subaccounts.

Commented [EL52]: Comment from Alice Fontaine

6. General Account Assets – The following information regarding the general account asset assumptions used by the company in performing a principle-based valuation under VM-21:

- a. Investment Strategy and Reinvestment Assumptions – Description of the asset investment strategy used in the model, including asset reinvestment and disinvestment assumptions, and documentation supporting the appropriateness of the model investment strategy compared to the actual investment policy of the company.
- b. Alternative Investment Strategy – Documentation that the model investment strategy does not produce a stochastic reserve that is less than the stochastic reserve that would result by assuming an alternative investment strategy based on the limitations defined in VM-21 Section 4.D.4.b.
- c. Grouping of Equity Investments – Description of the approach and rationale used to group general account equity investments.
- d. Prepayment, Call and Put Functions – Description of any prepayment, call and put functions.
- e. Investment Expenses – Description of the investment expense assumptions.
- f. Market Values – Method used to determine projected market value of assets (if needed for assumed asset sales).
- g. Foreign Currency Exposure – Analysis of exposure to foreign currency fluctuations.
- h. Maximum Net Spread Adjustment Factor – Summary of the results of the steps for determining the maximum net spread adjustment factor, including the method used to determine option adjusted spreads for each existing asset.
- i. Additional Assets – If the direct iteration method was not used, a summary of the amounts of additional assets needed to fund the present value of the accumulated deficiency, including a description of the calculation process and the types of assets included.

- j. Net Asset Earned Rates (NAER) – If the direct iteration method was not used, a description of the vectors of NAER, including graphs or tables of summary statistics helpful to the understanding of the NAER vectors produced for each scenario, with a statement that a complete listing of NAER will be made available in electronic spreadsheet format upon request.
 - k. Asset Risks Reflected – Discussion of any other asset risks reflected in the principle-based valuation under VM-21, as listed in VM-21 Section 1.C.2.a, not otherwise discussed in the VA Report.
7. Revenue-Sharing Assumptions – The following information regarding the revenue-sharing assumptions used by the company in performing a principle-based valuation under VM-21:
- a. Agreements and Guarantees – Description of revenue-sharing agreements and the nature of any guarantees underlying the revenue-sharing income included in the projections, including: the terms and limitations of the agreements; relationship between the company and the entity providing the revenue-sharing income; benefits and risk to the company and the entity providing the revenue-sharing income of continuing the arrangement; the likelihood that the company will collect the revenue-sharing income during the term of the agreement; the ability of the company to replace the services provided by the entity providing the revenue-sharing income; and the ability of the entity providing the revenue-sharing income to replace the service provided by the company.
 - b. Amounts Included – The amount of revenue-sharing income and a description of the rationale for the amount of revenue-sharing income included in the projections, including any reduction for expenses.
 - c. Revenue-Sharing Margins – The level of margin in the prudent estimate assumptions for revenue-sharing income and description of the rationale for the margin for uncertainty. Also, a demonstration that the amounts of net revenue-sharing income and margins included do not exceed the limits set forth in VM-21 Section 4.A.5.f.
8. Hedging and Risk Management – The following information regarding the hedging and risk management assumptions used by the company in performing a principle-based valuation under VM-21:
- a. Strategies – Detailed description of risk management strategies, such as hedging and other derivative programs, including any clearly defined hedging strategies (CDHS), specific to the groups of contracts covered in this sub-report.
 - i. Descriptions of basis risk, gap risk, price risk, and assumption risk.
 - ii. Methods and criteria for estimating the a priori effectiveness of the strategy.
 - iii. Results of any reviews of actual historical hedging effectiveness.
 - b. CDHS – Documentation for any hedging strategy that meets the requirements contained within VM-21 to be a CDHS.

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- c. Strategy Changes – Discussion of any changes to the hedging strategy during the past 12 months, including identification of the change, reasons for the change, and implementation date of the change.
- d. Hedge Modeling – Description of how the hedge strategy was incorporated into modeling, including:
 - i. Differences in timing between model and actual strategy implementation.
 - ii. For a company that does not have a CDHS, disclosure of the method used to consider hedge assets included in the starting assets, either (1) including the asset cash flows in the projection model, or (2) replacing the hedge positions with cash and/or other general account assets in an amount equal to the market value of the hedge positions, as discussed in VM-21 Section 4.A.4.a.
 - iii. Evaluations of the appropriateness of the assumptions on future trading, transaction costs, other elements of the model, the strategy, and other items that are likely to result in materially adverse results.
 - iv. If residual risks and frictional costs are assumed to have a value of zero, a demonstration that a value of zero is an appropriate expectation.
 - v. Any discontinuous hedging strategies modeled, and where such discontinuous hedging strategies contribute materially to a reduction in the stochastic reserve, any evaluations of the interaction of future trigger definitions and the discontinuous hedging strategy, including any analyses of model assumptions that, when combined with the reliance on the discontinuous hedging strategy, may result in adverse results relative to those modeled.
 - vi. Disclosure of any situations where the modeled hedging strategies make money in some scenarios without losing a reasonable amount in some other scenarios, and explanation of why the situations are not material for determining the ~~stochastic reserve~~ CTE 70 (best efforts).
 - vii. Results of any testing of the method used to determine prices of financial instruments for trading in scenarios against actual initial market prices, including how the testing considered historical relationships. If there are substantial discrepancies, disclosure of the substantial discrepancies and documentation as to why the model-based prices are appropriate for determining the stochastic reserve.
 - viii. Any model adjustments made when calculating CTE 70 (adjusted), in particular, any liquidation or substitution of assets for currently held hedges.
- e. Error Factor (*E*) and Back-Testing – Description of *E*, the error factor, and formal back-tests performed, including:
 - i. The value of *E*, and the approach and rationale for the value of *E* used in the reserve calculation.
 - ii. For companies that model hedge cash flows using the explicit method, as described in VM-21 Section 9.C.6.a, and have 12 months of experience,

Commented [EL53]: Comment from John Robinson (MN)

- an analysis of at least the most recent 12 months of experience and the results of a back-test showing that the model is able to replicate the hedging results experienced in a way that justifies the value used for E. Include at least a ratio of the actual change in market value of the hedges to the modeled change in market value of the hedges at least quarterly.
- iii. For companies that model hedge cash flows using the implicit method, and have 12 months of experience, as described in VM-21 Section 9.C.6.b, the results of a back-test in which (a) actual hedge asset gains and losses are compared against (b) proportional fair value movements in hedged liability, including:
 - a) Delta, rho and vega coverage ratios in each month over the back-testing period, which may be presented in a chart or graph.
 - b) The implied volatility level used to quantify the fair value of the hedged item as well as the methodology undertaken to determine the appropriate level used.
 - iv. For companies that do not model hedge cash flows using either the explicit method or the implicit method, as described in VM-21 Section 9.C.6.c, and have 12 months of experience, the results of the formal back-test conducted to validate the appropriateness of the selected method and value used for E.
 - v. For companies that do not have 12 month of experience, the basis for the value of E chosen based on the guidance provided in VM-21 Section 9.C.7, considering the actual history available and the degree and nature of any changes made to the hedge strategy.
 - f. Safe Harbor for CDHS – If electing the safe harbor approach for CDHS, as discussed in VM-21 Section 9.C.8, a description of the linear instruments used to model the option portfolio.
 - g. Hedge Model Results – Disclosure of whether the calculated CTE 70 (best efforts) is below both the fair value and CTE 70 (adjusted), and if so, justification for why that result is reasonable, as discussed in VM-21 Section 9.D.
9. Scenario Generation – The following information regarding the scenario generation for interest rates and equity returns used by the company in performing a principle-based valuation under VM-21, as it applies to the calculation of the stochastic reserve and CTEPA (if used):
- a. Sources – Identification of the sources or generators used to produce the scenarios.
 - b. Number of Scenarios – Number of scenarios used, rationale for that number, methods used to determine the sampling error of the CTE 70 statistic when using the selected number of scenarios, and documentation that any resulting understatement in reserve, as compared with that resulting from running additional scenarios, is not material, as discussed in VM-21 Section 8.F.
 - c. Scenario Reduction Techniques – If a scenario reduction technique is used, a description of the technique and documentation of how the company determined that the technique does not lead to a material understatement of results.

- d. Time-Step – Identification of the time-step of the model (e.g., monthly, quarterly, annual), and results of testing performed to determine that use of a more frequent time-step does not materially increase reserves, as discussed in VM-21 Section 8.G.1.
- e. Proxy Construction – Description of the proxy construction process that establishes a firm relationship between the investment return on the proxy and the grouped separate account funds or equity investments in the general account, as discussed in VM-21 Section 4.A.2.
- f. Mapping Stochastic Economic Paths to Fund Performance – Description of method to translate stochastic economic paths into fund performance.
- g. Proxy Funds Not Within Scope of Prescribed Scenario Generator – For any proxy fund returns generated by a non-prescribed scenario generator (e.g., volatility control funds and any funds projected dynamically in the liability model), description of:
 - i. The market price of risk implied in the projected fund returns.
 - ii. A correlation matrix that illustrates the average correlations across all scenarios and all time periods of the projected fund returns with the fund returns generated by the prescribed generator.
 - iii. Any other information that provides assurance that the returns for proxy funds generated using a non-prescribed scenario generator do not consistently outperform over the long term if the company believes that the market price of risk and correlations described above are misleading or not relevant.
- h. Implied Volatility – Whether using the prescribed scenario generator or a non-prescribed scenario generator, a description of the implied volatility including:
 - i. Discussion of the modeling process used to generate implied volatility surfaces and how they meet the requirements defined in VM-21 Section 8.D.
 - ii. Documentation that scenarios generated do not result in a lower TAR by assuming any realizable spread between implied volatility and realized volatility.
- i. Non-Prescribed Scenario Generator – If using non-prescribed scenario generators in lieu of the prescribed generator, either in part or in full, a summary including:
 - i. Description of the models used for interest rates, fixed income returns, equity returns, and/or volatility and discussion of model calibration.

Guidance Note: Examples of models include, but are not limited to: (1) Vasicek, Hull-White, Cox-Ingersoll-Ross for interest rate models, (2) Merton, reduced-form, ratings-based for fixed income models, or (3) Black-Scholes, Heston, Bates for equity and/or volatility models. Model calibration refers to the process of reflecting the company's view of future market dynamics into their risk-modeling environment.

 - ii. If vendor software is used, identification of vendor, software name, and

- version number.
 - iii. Identification of whether the scenario generators were developed for VM-21 purposes, or adopted from another purpose such as pricing or asset adequacy testing. If the latter, discussion of any adjustments made for VM-21 purposes, and rationale for the adjustments.
 - iv. A statement that the interest rate, equity, and implied volatility scenarios used to determine reserves are available upon request in an electronic spreadsheet format to facilitate any regulatory review.
 - v. Documentation that scenarios generated do not result in a TAR that is materially lower than the TAR resulting from scenarios generated from the prescribed generator.
 - vi. Discussion of any correlation that exists in the development of interest rate and equity scenarios.
10. Reinsurance – The following information regarding the reinsurance assumptions used by the company in performing a principle-based valuation under VM-21:
- a. Agreements – For those reinsurance agreements included in the calculation of the aggregate reserve as per VM-21 Section 5, a description of each reinsurance agreement, including, but not limited to, the type of agreement, the counterparty, the risks reinsured, the portion of business reinsured and whether the agreement complies with the requirements of the credit for reinsurance under the terms of the AP&P Manual. Include identification of both affiliated and non-affiliated, as well as captive and non-captive, relationships.
 - b. Assumptions – Description of reinsurance assumptions used to determine the cash flows included in the model.
 - c. Modeling – Description of how post-reinsurance-ceded reserves are modeled.
 - d. Separate Stochastic Analysis – Description of any separate stochastic analysis that was used outside the cash-flow model to quantify the impact on reinsurance cash flows to and from the company, include which variables are modeled stochastically.
 - e. Multiple Agreements – If contracts are covered by more than one reinsurance agreement, description of how reinsurance cash flows from the multiple agreements interact and are reflected in the cash-flow model.
 - f. Pre-Reinsurance-Ceded Aggregate Reserve – Description and rationale for methods and assumptions (including liability assumptions, asset assumptions, and starting asset amounts) used in determining the pre-reinsurance-ceded aggregate reserve if they differ from methods and assumptions used in determining the aggregate reserve post-reinsurance-ceded.
11. Alternative Methodology – The following information regarding the alternative methodology used by the company:
- a. Grouping – Statement that a seriatim approach was used, or a description of how contracts were grouped, if a seriatim approach was not used.

- b. Assumptions – For contracts with GMDBs, disclosure of assumptions in the alternative methodology using published factors, including:
 - i. For component CA, the mapping to prescribed asset categories, lapse rates, and withdrawal rates.
 - ii. For component FE, the determination of fixed dollar costs and revenues, lapse rates, withdrawal rates, and inflation rates.
 - iii. For component GC:
 - a) Description of contract features and disclosure of mapping contract-level attributes to alternative methodology factors, including product definition, partial withdrawal provision, fund class, attained age, contract duration, ratio of account value to guaranteed value, and annualized account charge differential from base assumption.
 - b) Derivation of equivalent account charges and margin offset.
 - c) Disclosure of interpolation procedures and confirmation of node determination.
 - c. Reinsurance – For contracts with GMDBs, disclosure, if applicable, of reinsurance that exists and how it was handled in applying published factors (for some reinsurance, creation of company-specific factors or stochastic modeling may be required) and discussion of how reserves before reinsurance were determined.
 - d. Company-Specific Factors – For contracts with GMDBs, if company-specific factors are used, documentation of the stochastic analysis supporting adjustments to the published factors. Adjustments may include contract design, risk mitigation strategy (excluding hedging), or reinsurance.
 - e. Impact of Floors – For contracts with GMDBs, discussion of whether the alternative methodology reserve was impacted by the floors described in VM-21 Section 7.A.1, and disclosure of the alternative methodology reserve without regard to any floor, the cash surrender value, and the reserve under Guideline No. XXXIII in VM-C.
12. Additional Standard Projection Amount – The following information regarding the calculations to determine the additional standard projection amount performed by the company:
- a. Method – Disclosure of the method used for the additional standard scenario projection amount, either the Company Specific Market Path (CSMP) method or the Conditional Tail Expectation with Prescribed Assumptions (CTEPA).
 - b. Company Specific Market Path (CSMP) – If using the CSMP method, a summary including:
 - i. Disclosure (in tabular form) of all scenario reserves in the Company Standard Projection Set and the scenario reserves from Market Paths A and B from the Prescribed Standard Projection Set, as described in VM-21 Section 6.B.2. If available, include disclosure of all scenario reserves from the Prescribed Standard Projection Set.

- ii. Summary of results from a cumulative decrement projection along Path A (where Path A is described in VM-21 Section 6.B.2.a), under the assumptions outlined in VM-21 Section 6.C. Such a cumulative decrement projection shall include, at the end of each projection year, the projected proportion (expressed as a percent of the total projected account value) of persisting contracts as well as the allocation of projected decrements across death, full surrender, account value depletion, elective annuitization, and other benefit election.
 - iii. Summary of results from a cumulative decrement projection, identical to (ii) above, but replacing all assumptions outlined in VM-21 Section 6.C with the corresponding assumptions used in calculating Company Amount A.
 - iv. The data sources used to obtain the implied volatility term structure and spot exchange rates in effect as of the valuation date in the prescribed market paths defined in VM-21 Section 6.B.5.
- c. Conditional Tail Expectation with Prescribed Assumptions (CTEPA) – If using the CTEPA method, a summary including:
 - i. Disclosure (in tabular form) of the scenario reserves using the same method and assumptions as those used by the company to calculate CTE 70 (adjusted) as outlined in VM-21 Section 9.C (or the stochastic reserves following VM-21 Section 4.A.4.a for a company that does not have a CDHS), as well as the corresponding scenarios reserves substituting the assumptions prescribed by VM-21 Section 6.C.
 - ii. Summary of results from a cumulative decrement projection along the scenario whose reserve value is closest to the CTE 70 (adjusted), as outlined in VM-21 Section 9.C (or the stochastic reserves following VM-21 Section 4.A.4.a for a company that does not have a CDHS), under the assumptions outlined in VM-21 Section 6.C. Such a cumulative decrement projection shall include, at the end of each projection year, the projected proportion (expressed as a percent of the total projected account value) of persisting contracts as well as the allocation of projected decrements across death, full surrender, account value depletion, elective annuitization, and other benefit election.
 - iii. Summary of results from a cumulative decrement projection, identical to (ii) above, but replacing all assumptions outlined in VM-21 Section 6.C with the corresponding assumptions used in calculating the stochastic reserve.
- d. Model Comparison – Discussion of any differences between the cash-flow models used to determine the additional standard projection amount and those used to determine the stochastic reserve, including any differences in the model validations performed and how the models were evaluated for appropriateness and applicability.
- e. Prior Date – If the additional standard projection amount was developed as of a date prior to the valuation date, disclosure of the prior date, the additional standard projection amount of the inforce on the prior date, and an explanation of why the use of such date will not produce a material change in the results compared to if the results were based on the valuation date. Such explanation shall describe the

process the qualified actuary used to determine the adjustment, the amount of the adjustment, and the rationale for why the adjustment is appropriate.

- f. Benefits Not Described – Regarding the assumptions in VM-21 Section 6.C, discussion of any benefit type proxy chosen or other approximations applied for benefit types not described in the aforementioned section, and the rationale for the chosen proxy or approximations.
- g. Data Limitations – Regarding the partial withdrawal assumption in VM-21 Section 6.C.4, discussion of any proxy method used due to data limitations (e.g., with respect to policies that are not enrolled in an automatic withdrawal program but have exercised a non-excess withdrawal in the ~~policy~~contract year immediately preceding the valuation date), with documentation that supports the conclusion that the proxy method does not result in a material understatement of the reserve.
- h. Discarding Withdrawal Ages – Regarding the withdrawal delay cohort method in VM-21 Section 6.C.5, disclosure of whether certain withdrawal ages were discarded or others used as representative as described in VM-21 Section 6.C.5.k, including discussion of the appropriateness of the chosen method.
- i. Modifications – Discussion of any modifications in the application of the requirements to produce the additional standard projection amount.
- j. Assumptions Not Prescribed – Discussion of any assumptions with judgments or procedures used to produce the additional standard projection amount that are not prescribed and not the same as used in the calculation of stochastic reserve.
- k. Reinsurance – Description of any reinsurance treaties that have been excluded from the calculation of the additional standard projection amount along with an explanation of why the treaty was excluded, as well as a confirmation that none of the reinsurance treaties included serve solely to reduce the calculated additional standard projection amount without also reducing risk on scenarios similar to those used to determine the stochastic reserve.
- l. Other Considerations – To the extent not discussed elsewhere in the VA Report, description of any material assumptions, margins, and other considerations helpful in or necessary to understanding the rationale behind the development of assumptions and margins used in the calculation of the additional standard projection amount, as well as ~~disclosure of any analysis that has been performed to highlight the major drivers of the result.~~
- m. Impact of Aggregation – Disclosure of the impact of aggregation, and discussion of the method used to determine the impact, pursuant to VM-21 Section 6.A.1.a.

Guidance Note: The following outlines one method that may be used to assess the impact of aggregation. If a company plans to use a different method, they should discuss that method with their domiciliary commissioner.

If a company uses the CSMP method, the benefit of aggregation is determined using the following steps, based on Path A, and using prescribed assumptions and discount rates used to calculate prescribed Amount A:

1. Calculate the present value of each contract's accumulated deficiency up through the duration of the aggregate GPVAD. When determining the contract accumulated deficiency: (a) contract starting assets equal CSV;

Commented [EL254]: Replace "policy" with "contract" (comment from ACLI)

Commented [EL255]: Revise language for clarity (comment from ACLI)

Commented [EL56]: Comment from Karen Jiang, TX

Commented [EL57]: Add reference to VM-21 location where the aggregation method will be moved (see APF 2019-47).

Commented [EL58]: APF 2019-47 will move this language to VM-21 Section 6.A.1.a, so we can delete this guidance note and drafting note.

(b) contract level starting assets include both separate account and general account assets, and exclude any hedge assets, (c) discount rate for the PVAD is the NAER, and (d) for a contract that terminates prior to the duration of the GPVAD, there will no longer be liability cash flows, but assets (positive or negative) continue to accumulate.

2. The impact of aggregation is the sum of the absolute value of the negative amounts from step (1) above.

If a company uses the CTEPA method, it should apply steps (1) and (2) to each model point, using the same scenario used for the cumulative decrement analysis, and using that scenario's NAER as the discount rates for discounting the accumulated deficiency from the time of the GPVAD. For GMWBs and hybrid GMMBs that use the Withdrawal Delay Cohort Method as specified in VM 21 Section 6.C.5, cash flows for each contract or for each model point shall be determined as the aggregate across all of the constituent cohorts of the contract or model point.

Drafting Note: For expediency, this suggested calculation of the aggregation benefit is currently being outlined above as a Guidance Note in VM 31. There has been discussion about the proper location for this guidance, whether within VM 21 as a requirement, within VM 21 as a Guidance Note, or within VM 31 as a Guidance Note.

13. Additional Information – The following additional information:

a. Per-Contract Amounts – Description of the basis for the allocation to per-contract amounts, in accordance with VM-21 Section 12.

Commented [EL59]: Comment from John Robinson (MN)

b. Phase-In – If electing a phase-in period, as described in VM-21 Section 2.B, discussion of the phase-in calculation including:

i. Regarding the determination of R2 (i.e., the reserve as of January 1, 2020) following the VM-21 requirements in the 2019 NAIC *Valuation Manual*, disclosure of all changes from the December 31, 2019 reserve reported and documented in the 2019 *VA Summary and VA Report* PBR Actuarial Report (or AG 43 actuarial memorandum). Such changes should include changes in reinsurance agreements (e.g., recaptures) and other significant changes in inforce policies.

Commented [EL60]: References to “VA Summary” and “VA Report” are only valid for 2020 reports and on. (Comment from Craig Chupp, VA)

ii. Regarding the determination of R1 (i.e., the reserve as of the valuation date following the VM-21 requirements on or after January 1, 2020), disclosure of deviations from R2 in areas such as inforce contracts, scenario generation, or other aspects that should parallel the R2 calculation. Also include disclosure of deviations from the methods and factors used for 2020 reserve and documented in the 2020 VA Summary and VA Report for those areas that should parallel those used for the 12/31/2020 reserves.

iii. Disclosure of any scaling factors applied to the phase-in amount due to material changes in the book of business, as well as any other modifications of the remaining phase-in amount.

Commented [EL61]: Due to ACLI suggested changes to Phase-In language in VM-21

14. Risk-Based Capital (RBC) – If electing to include documentation of the RBC calculation in the PBR Actuarial Report, the following information regarding the risk-based capital, as described in the Life Risk Based Capital instructions LR027:

- a. Documentation and discussion of assumptions or methods that differ from those used for the reserve calculations.
- b. Description of the results of the modeling and analysis, including a table displaying each of the seven steps of the RBC calculation.
- c. Description of the process to split the resulting RBC into interest and market components, and the results of that split.
- d. If the alternative methodology was used, documentation of any non-prescribed factors and the basis for those factors.
- e. State the method the company used to recognize the impact of federal income tax. If the company used the specific tax recognition, disclosure of the result of the macro tax adjustment method.

~~Drafting Note: There has been some discussion about the proper location for the RBC reporting requirements. A suggestion has been made to create a new requirement specifically for RBC reporting, which would contain references to these PBR Actuarial Report requirements.~~

Commented [EL62]: Delete drafting note. Keep RBC reporting requirements here in VM-31.

15. Reliance Descriptions and Statements – A description of those areas where the qualified actuary relied on others for data, assumptions, projections or analysis in performing the principle-based valuation under VM-21 and a reliance statement from each individual on whom the qualified actuary relied that includes:

- a. Reliance Listing – The name, title, telephone number, e-mail address and qualifications of the individual, along with the individual’s company name and address, and the information provided.
- b. Reliance Statements – A statement as to the accuracy, completeness or reasonableness, as applicable, of the information provided, along with a signature and the date signed.

16. Certifications – The following certifications:

- a. Investment Officer on Investments – A certification from a duly authorized investment officer that the modeled asset investment strategy, ~~including any clearly defined hedging strategy (CDHS),~~ is consistent with the company’s current investment strategy, except where the modeled reinvestment strategy may have been substituted with the alternative investment strategy, ~~and also any CDHS meets the requirements of a CDHS.~~
- b. Qualified Actuary on Investments – A certification by a qualified actuary, not necessarily the same qualified actuary that has been assigned responsibility for the PBR Actuarial Report or this sub-report, that the modeling of any clearly defined hedging strategies was performed in accordance with VM-21 and in compliance with all applicable ASOPs.
- c. Senior Management on Internal Controls – A certification from senior management regarding the effectiveness of internal controls with respect to the principle-based valuation ~~under VM-21,~~ as provided in Section 12B(2) of Model #820.

Commented [EL63]: Need to specify CDHS (comment from Craig Chupp, VA)

Commented [EL64]: Delete comma for clarity (comment from John Robinson, MN)

Commented [EL65]: Need to add certification that CDHS requirements are met (comment from Craig Chupp, VA)

Commented [EL66]: For consistency

de. Qualified Actuary on Accordance with VM-21 and Model #820 – Certification by the qualified actuary, for the groups of contracts for which responsibility was assigned, that the principle-based valuation was performed in accordance with the principles and requirements outlined in VM-21 and the relevant sections of Model #820.

Commented [EL67]: Correct subsection lettering

ef. Qualified Actuary on Assumptions and Margins – Certification by the qualified actuary, for the groups of contracts for which responsibility was assigned, that the assumptions used in the principle-based valuation under VM-21 are prudent estimate assumptions for the products, scenarios, and purpose being tested.

Commented [EL68]: Correct subsection lettering

Commented [EL69]: For consistency (Comment from Craig Chupp, VA)

17. Closing Paragraph – A closing paragraph with the signature, credentials, title, telephone number and e-mail address of the qualified actuary, the company name and address, and the date signed.

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**Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force
Amendment Proposal Form***

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

American Academy of Actuaries' Life Reserves Work Group.

Allow products with immaterial deposits in accounts with a clearly defined hedging strategy (CDHS) to be eligible for exclusion from Stochastic Reserve requirements

2. Identify the document, including the date if the document is "released for comment," and the location in the document where the amendment is proposed:

Valuation Manual, Jan. 1, 2019 Edition. VM-20: *Requirements for Principle-based Reserves for Life Products.*

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on "track changes" in Word®) version of the verbiage. (You may do this through an attachment.)

See Attachment A.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

VM-20 does not allow a group of policies where a CDHS is used to be considered for exemption from Stochastic Reserve requirements.

This APF would allow groups of policies to be eligible for exclusion from stochastic reserve requirements if a CDHS supports a feature of the product that has such low utilization that it is not modeled due to immateriality. Section 7.B.1 includes the statement "The company shall reflect the effect of all material product features, both guaranteed and non-guaranteed."

* This form is not intended for minor corrections, such as formatting, grammar, cross-references or spelling. Those types of changes do not require action by the entire group and may be submitted via letter or email to the NAIC staff support person for the NAIC group where the document originated.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
3/11/19			
Notes: APF 2019-29			

Attachment A: Proposed changes

~~Section 6.A.1.b~~

~~A company may not exclude from stochastic reserve requirements a group of policies for which there is one or more clearly defined hedging strategies from stochastic reserve requirements associated with a product feature to be modeled pursuant to Section 7.B.1.~~

Proposed Alternate 6.A.1.b:

A company may not exclude a group of policies for which there is one or more clearly defined hedging strategies from stochastic reserve requirements, except in the case where all clearly defined hedging strategies are solely associated with product features that are determined to not be material under VM-20 Section 7.B.1 due to low utilization.

**Life Actuarial (A) Task Force/ Health Actuarial (B) Task
Force
Amendment Proposal Form**

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Mike Boerner, Texas Department of Insurance. Edits are applied to the Life PBR Exemption portion of the LATF adopted APF 2018-08 as provided on the Industry tab of the NAIC website. Edits remove the condition for a non-qualified actuarial opinion and provide the domiciliary commissioner greater flexibility in applying PBR to the ordinary life business for which an exemption is requested. Edits for re-exposure are made in track mode to provide some correction to achieve the intended flexibility for allowing the exemption for ordinary life business, except for lines not allowed for exemption, and provide for adjustments in verbiage to simplify a reading of these requirements.

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), Section II, (1) Life Insurance Products, Subsection D, Life PBR Exemption, as amended by APF 2018-08 on the Industry tab of the NAIC website.

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached Appendix.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

A qualified actuarial opinion would not necessarily be a reason for applying PBR to all issues in that calendar year otherwise subject to VM-20. Therefore, this requirement is removed. In addition, greater flexibility is provided to the domiciliary commissioner in applying PBR to the ordinary life business for which an exemption is requested. Edits for re-exposure are provided in track mode to achieve this and to simplify a reading of these requirements.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
3/21/19			
Amendment Proposal Form 2019-31: Revised for re-exposure to 5/23. <i>Last sentence in D1 revised with simpler verbiage that is the same as the re-exposure and can be considered without re-exposing.</i>			

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Appendix

D. Life PBR Exemption

1. A company meeting ~~all of the following conditions in D.2 below~~ may file a statement of exemption for ordinary life insurance policies, ~~except for policies in D.3 below~~, issued directly or assumed during the current calendar year, that would otherwise be subject to VM-20. Such statement must be filed with the domiciliary commissioner prior to July 1 of that year certifying that conditions ~~D.2-a and 2-b are~~ met based on premiums ~~and other values~~ from the prior calendar year annual statement ~~and certifying that condition 2-b is to be met as of the current calendar year end valuation date~~. The statement of exemption must also be included with the NAIC filing for the second quarter of that year.

The domiciliary commissioner may reject such statement prior to September 1 and require the company to follow the requirements of VM-20 for ~~all or a specified portion of~~ the ordinary life policies ~~covered by the statement~~.

Commented [MR1]: This change was considered but not adopted.

2. Conditions for Exemption:

a. The company has less than \$300 million of ordinary life premiums¹ and, if the company is a member of an NAIC group of life insurers, the group has combined ordinary life premiums¹ of less than \$600 million;

~~and~~

~~b. The appointed actuary has provided an unqualified opinion on the reserves for the prior calendar year;~~

~~and~~

~~3.e-b. Policies Excluded from the Life PBR Exemption:~~

~~a. Every ULSG policy with a issued or assumed by the company with an issue date on or after Jan. 1, 2020, and in force on the company's annual financial statement for the current calendar year end valuation date only has~~ secondary guarantees that ~~does not~~ meet the VM-01 definition of a "non-material secondary guarantee."

~~4.3-~~ Each exemption, or lack of an exemption, applies only to policies issued or assumed in the current year and applies to all future valuation dates for those policies. The minimum reserve requirements for the ordinary life policies subject to the exemption are those pursuant to applicable methods required in VM-A and VM-C using the mortality as defined in VM-20 Section 3.C.1 and VM-M Section 1.H.

¹ Premiums are measured as direct plus reinsurance assumed from an unaffiliated company from the ordinary life line of business reported in the prior calendar year life/health annual financial statement, Exhibit 1, Part 1, Column 3, "Ordinary Life Insurance" excluding premiums for Guaranteed Issue policies and preneed life contracts and excluding amounts that represent the transfer of reserves in force as of the effective date of a reinsurance assumed transaction and are reported in Exhibit 1 Part 1, Column 3 as ordinary life insurance premium. Prenneed is as defined in VM-02.

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

This APF was prepared by Mike Boerner, Texas Department of Insurance.

This APF is intended to reduce allocation of a deterministic or stochastic reserve in excess of the net premium reserve to policies which did not generate such excess. This also is believed to reduce reinsurance allocation concerns as conveyed by the American Academy of Actuaries Reinsurance Work Group. Addresses VAWG #25.

2. Identify the document, including the date if the document is "released for comment," and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), VM-20 Section 2.C

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on "track changes" in Word®) version of the verbiage. (You may do this through an attachment.)

C. The reserve for each product group as determined in Section 2.A.1, Section 2.A.2 or Section 2.A.3 shall be allocated to each policy within that product group in the same proportion as the minimum NPR for that policy to the minimum NPR for the product group with the exception to make best efforts to minimize allocating the deterministic or stochastic reserve in excess of the net premium reserve, with any adjustment for due and deferred premiums, to policies which did not produce this excess. A clear example is to use the NPR per policy in Section 2.A.3.a as the allocated reserve per policy given no deterministic or stochastic reserve is used in Section 2.A.3.a.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

Reduce allocation of a deterministic or stochastic reserve in excess of the net premium reserve to policies which did not generate this excess.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
3/21/19			
Notes: APF 2019-32			

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Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force

Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

This APF was jointly prepared by the Staff of Office of Principle-Based Reserving, California Department of Insurance and NAIC Support Staff.

This APF addresses recommendation #27 from VAWG's 10/24/2018 memo regarding PBR Recommendations and Referrals to LATF.

2. Identify the document, including the date if the document is "released for comment," and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), VM-31 Section 3.C.8.a

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on "track changes" in Word®) version of the verbiage. (You may do this through an attachment.)

Please see Appendix attached.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

Please see attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
3/26/19			
Notes: APF 2019-35 (CA OPBR/NAIC PBR) Adopted 5/9/19 with Alternative Language			

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Appendix

ISSUE:

Make it clearer that a given reinsurance agreement involves a captive.

SECTIONS:

VM-31, Section 3.C.8.a

REDLINE:

8. ~~Reinsurance~~ The following information regarding the reinsurance assumptions used by the company in performing a principle-based valuation:
- a. ~~Agreements~~ For those reinsurance agreements included in the calculation of the minimum reserve as per VM-20 Section 8.A, a description of each reinsurance agreement, including, but not limited to, the type of agreement, the counterparty, the risks reinsured, the portion of business reinsured, whether one party to the reinsurance agreement is a captive of the other, and whether the agreement complies with the requirements of the credit for reinsurance under the terms of the AP&P Manual.

Alternative Language:

8. Reinsurance – The following information regarding the reinsurance assumptions used by the company in performing a principle-based valuation:
- a. Agreements – For those reinsurance agreements included in the calculation of the minimum reserve as per VM-20 Section 8.A, a description of each reinsurance agreement, including, but not limited to, the type of agreement, the counterparty, the risks reinsured, the portion of business reinsured, identification of both affiliated and non-affiliated, as well as captive and non-captive, or similar relationships, and whether the agreement complies with the requirements of the credit for reinsurance under the terms of the AP&P Manual.

REASONING:

Clarity.

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form*

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Brian Bayerle, ACLI. Identifies in Section II – Reserve Requirements that for certain deposit-type contracts VM-22 is applicable for the maximum valuation interest rates.

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

2019 Valuation Manual adopted September 10, 2018; Section II – Reserve Requirements for Deposit-Type Contracts.

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

Last year, updates to VM-22 included an expansion of products within scope. Some of these products fall under “Deposit-Type Contracts” rather than “Annuities”. In Section II – Reserve Requirements, the Annuities section makes clear that for certain products VM-22 is applicable for the maximum valuation interest rates. This APF would port this language to the Deposit-Type Contract section.

* This form is not intended for minor corrections, such as formatting, grammar, cross-references or spelling. Those types of changes do not require action by the entire group and may be submitted via letter or email to the NAIC staff support person for the NAIC group where the document originated.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
03/27/19			
Notes: APF 2019-36 rev. ~~4/4/19~~ 5/22/19			

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II. Reserve Requirements

Annuity Products

- A. This subsection establishes reserve requirements for all contracts classified as annuity contracts as defined in SSAP No. 50 in the AP&P Manual.
- B. Minimum reserve requirements for variable annuity contracts and similar business, specified in VM-21, Requirements for Principle-Based Reserves for Variable Annuities, shall be those provided by VM-21. The minimum reserve requirements of VM-21 are considered PBR requirements for purposes of the *Valuation Manual*.
- C. Minimum reserve requirements for fixed annuity contracts are those requirements as found in VM-A and VM-C as applicable, with the exception of the minimum requirements for the valuation interest rate for single premium immediate annuity contracts, and other similar contracts, issued after Dec. 31, 2017, including those fixed payout annuities emanating from host contracts issued **on or** after Jan. 1, 2017, and on or before Dec. 31, 2017. The maximum valuation interest rate requirements for those contracts and fixed payout annuities are defined in VM-22, Maximum Valuation Interest Rates for Income Annuities.

Deposit-Type Contracts

- A. This subsection establishes reserve requirements for all contracts classified as deposit-type contracts defined in SSAP No. 50 in the AP&P Manual.
- B. Minimum reserve requirements for deposit-type contracts are those requirements as found in VM-A, ~~and VM-C, and VM-22~~ as applicable, ~~with the exception of the minimum requirements for the valuation interest rate for deposit type contracts, and other similar contracts, issued after Dec. 31, 2017, including those deposit type contracts emanating from host contracts issued after Jan. 1, 2017, and on or before Dec. 31, 2017. The maximum valuation interest rate requirements for those contracts and fixed payout annuities are defined in VM-22, Maximum Valuation Interest Rates for Income Annuities.~~

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form*

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Brian Bayerle, ACLI – Clarify VM-G requirements on groups of policies that have passed certain exclusion tests.
2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

2019 Valuation Manual adopted September 10, 2018; VM-G.
3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached.
4. State the reason for the proposed amendment? (You may do this through an attachment.)

Companies may pass the exclusion tests outlined in VM-20 Section 6 using asset adequacy models which have governance outlined under existing requirements. The purpose of this amendment is to limit the VM-G requirements applicable when not using a deterministic reserve as defined in VM-20 Section 4.A to pass the exclusion tests.

* This form is not intended for minor corrections, such as formatting, grammar, cross-references or spelling. Those types of changes do not require action by the entire group and may be submitted via letter or email to the NAIC staff support person for the NAIC group where the document originated.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
3/27/19			
Notes: APF 2019-37			

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VM-G

VM-G: Appendix G – Corporate Governance Guidance for Principle-Based Reserves

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Section 4: Responsibilities of Qualified Actuaries	G-4

Section 1: Introduction, Definition and Scope

- A. A principle-based approach to the calculation of reserves places the responsibility for actuarial and financial assumptions with respect to the determination of sufficient reserves on individual companies, as compared with reserves determined strictly according to formulas prescribed by regulators. This responsibility requires that sufficient measures are established for oversight of the function related to principle-based reserves.

The corporate governance guidance provided in VM-G is applicable only to a principle-based valuation calculated according to methods defined in VM-20 and VM-21.

For a company that does not compute any deterministic or stochastic reserves under VM-20 as a result of passing the exclusion tests as defined in VM-20 Section 6, and does not calculate any reserves under VM-21, VM-G Sections 2 and 3 below are generally not applicable; the requirements of Section 4 are still applicable. However, if the company calculated the SERT using the deterministic reserve method outlined in VM-20 Section 6.A.2.b.i.a, or the Stochastic Exclusion Demonstration Test outlined in VM-20 Section 6.A.3, then VM-G Sections 2 and 3 are applicable.

Guidance Note: Given requirements in AG 43 are intended to be the same as those in VM-21, if a company chooses to aggregate business subject to AG 43 with business subject to VM-21 in calculating the reserve, then the provisions in VM-G apply to this aggregate principle-based valuation.

- B. In carrying out the responsibility described in Section 1.A for each group of policies and contracts subject to Section 12 of Model #820, the company shall assign to one or more qualified actuaries the responsibilities indicated in Section 4.A.
- C. For the purposes of VM-G:
1. The term “group of insurance companies” means a set of insurance companies in a holding company system (for purposes of applicable insurance holding company system acts) that is designated as a group of insurance companies by the senior management of any holding company that is a holding company of all the insurance companies in such set of insurance companies.

2. The terms “board” and “board of directors” mean: (a) the board of an insurance company that has not been designated to be part of a group of insurance companies; or (b) the board of a single company within a group of insurance companies that is designated by the senior management of any holding company of all the insurance companies in such group of insurance companies, or a committee of such board, consisting of members of such board, duly appointed by such board and authorized by such board to perform functions substantially similar to those described in this section.

Guidance Note: The group of companies is a group of life insurers designated by senior management for purposes of managing the PBR process, and the board is the appropriate board responsible for those companies.

3. The term “senior management” includes the highest ranking officers of an insurance company or group of insurance companies with responsibilities for operating results, risk assessment and financial reporting (e.g., the chief executive officer [CEO], chief financial officer [CFO], chief actuary and chief risk officer [CRO]) and such other senior officers as may be designated by the insurance company or group of insurance companies.

- D. Section 2 and Section 3 below, while not expanding the existing legal duties of a company’s board of directors and senior management, provide guidance that focuses on their roles in the context of principle-based valuations. **Section 2 and Section 3 are not applicable for companies meeting the requirements to be exempt from Section 2 and Section 3 as outlined in Section 1.A above.**

While existing governance standards encompass adequate and appropriate standards for oversight of PBR, Section 2 and Section 3 below describe guidance for the roles of the board of directors and senior management, in light of their existing duties as applied in the context of PBR. It is not intended to create new duties but rather to emphasize and clarify how their duties apply to the PBR actuarial valuation function of an insurance company or group of insurance companies. To the extent that any law or regulation conflicts with the guidance described herein, such other law or regulation shall prevail, and the conflicting parts of this section VM-G shall not apply.

Section 2: Guidance for the Board

- A. Commensurate with the materiality of PBR in relationship to the overall risks borne by the insurance company and consistent with its oversight role, the board is responsible for:
1. Overseeing the process undertaken by senior management to identify, and correct where needed, any material weakness in the internal controls of the insurance company or group of insurance companies with respect to a principle-based valuation.
 2. Overseeing the infrastructure (consisting of policies, procedures, controls and resources) in place to implement principle-based valuation processes.
 3. Receiving and reviewing the reports and certifications referenced in Section 3.A.6.
 4. Interacting with senior management to resolve questions and collect additional information as the board requests.

5. Documenting the review and actions undertaken by the board, relating to the principle-based valuation function, in the minutes of all board meetings where such function is discussed.

Section 3: Guidance for Senior Management

- A. Senior management is responsible for directing the implementation and ongoing operation of the principle-based valuation function. This includes:
 1. Ensuring that an adequate infrastructure (consisting of the policies, procedures, controls, and resources) has been established to implement the principle-based valuation function.
 2. Reviewing the elements of the principle-based valuation (consisting of the assumptions, methods and models used to determine PBR of the insurance company or group of insurance companies) that have been put in place, and whether these elements of the principle-based valuation appear to be consistent with, but not necessarily identical to, those for other company risk assessment processes, while recognizing potential differences in financial reporting structures and any prescribed assumptions or methods.
 3. Reviewing and addressing any significant and unusual issues and/or findings in light of the results of the principle-based valuation processes and applicable sensitivity tests of the insurance company or group of insurance companies.
 4. Ensuring the adoption of internal controls with respect to the principle-based valuations of the insurance company or group of insurance companies that are designed to provide reasonable assurance that all material risks inherent in the liabilities and assets subject to such valuations are included, and that such valuations are made in accordance with the *Valuation Manual* and regulatory requirements and actuarial standards. Senior management is responsible for ensuring that an annual evaluation is made of such internal controls and for communicating the results of that evaluation to the board of directors.
 5. Determining that:
 - a. Resources are adequate to carry out the modeling function with skill and competence.
 - b. A process exists that ensures that models and procedures produce the intended results relative to the principle-based valuation objectives as outlined in Section 12.A of Model #820.
 - c. A process exists that validates data for determination of model input assumptions, other than input assumptions that are prescribed in law, regulation or the *Valuation Manual* for use in determining PBR.
 - d. A process exists that is appropriately designed to ensure that model input is appropriate given the experience of the insurance company or group of insurance companies, other than model inputs that are prescribed in law, regulation or the *Valuation Manual* for use in determining PBR.

- e. A process exists that reviews principle-based valuations to find and limit material errors and material weaknesses (such process (a) to provide a credible ongoing effort to improve model performance where material errors and weaknesses exist, and (b) to include a regular cycle of model validation that includes monitoring of model performance and stability, review of model relationships, and testing of model outputs against outcomes).
 - f. A review procedure and basis for reliance on principle-based valuation processes has been established that includes consideration of reporting on the adequacy of PBR, the implementation of policies, reporting and internal controls, and the work of the appointed actuary.
6. Facilitating the board's oversight role by reporting to the board, no less frequently than annually, regarding such matters as:
- a. The infrastructure (consisting of the policies, procedures, controls and resources) that senior management has established to support the PBR actuarial valuation function.
 - b. The critical risk elements of the valuation as applicable—related to the assumptions, methods and models—and their relationship to those for other risk assessment processes, noting differences in financial reporting structures and any prescribed assumptions or methods.
 - c. The level of knowledge and experience of senior management personnel responsible for monitoring, controlling and auditing PBR.
 - d. Reports related to governance of PBR, including:
 - i. The certification of the effectiveness of internal controls with respect to the PBR, as provided in Section 12.B.(2) of Model #820.
 - ii. The certification from a duly authorized investment officer that the modeled asset investment strategy is consistent with the company's current investment strategy and the actuarial certification regarding the modeling of clearly defined hedging strategies, as provided in VM-31 Section 3.C.13.

Section 4: Responsibilities of Qualified Actuaries

- A. The responsibilities assigned by the company to one or more qualified actuaries with respect to a group of policies or contracts under Section 1.B are:
- 1. The responsibility for overseeing the calculation of PBR for that group of policies or contracts;
 - 2. The responsibility for verifying that:
 - a. The assumptions, methods and models that are used in determining PBR; and
 - b. The company's documented internal standards used in the principle-based valuation processes, the company's documented internal controls and documentation used for such

reserves,

appropriately reflect the requirements of the *Valuation Manual* for that group of policies or contracts. In particular, the qualified actuaries are required to certify that the assumptions used in the principle-based valuation, other than assumptions that are prescribed in the *Valuation Manual* or by law or regulation, or that pertain to risk factors that are modeled stochastically, are prudent estimates, as defined in VM-01, with appropriate margins. The qualified actuaries are not required to verify the appropriateness of any prescribed assumptions, methods or models but are required to verify that they are being used as required.

3. The responsibility for providing a summary report to the board and to senior management on the valuation processes used to determine and test PBR, the principle-based valuation results, the general level of conservatism incorporated into the company's PBR, the materiality of PBR in relationship to the overall liabilities of the company, and significant and unusual issues and/or findings.

If Sections 2 and 3 are not applicable because the company met the requirements to be exempt from Section 2 and Section 3 as outlined in Section 1.A, this particular reporting to board and senior management is limited to notifying senior management if the company is at risk of failing either exclusion test, and if so, reporting on the company's readiness to calculate deterministic and stochastic reserves.

4. The responsibility for preparing the PBR Actuarial Report with respect to that group of policies or contracts, as described in VM-31.
5. The responsibility for disclosing to the company's external auditors and regulators any significant unresolved issues regarding the company's PBR held with respect to that group of policies or contracts.

B. A qualified actuary assigned responsibilities under Section 1.B with respect to a group of policies or contracts may be required to make any certification required by the *Valuation Manual*, but is not required, except in regard to any responsibilities he or she may have as the appointed actuary under VM-30, to opine upon or certify the adequacy of the aggregate reserve for that group of policies or contracts, the company's surplus or the company's future financial condition.

C. The responsibilities of the appointed actuary are described in VM-30.

Exposure of Amendment Proposal 2019-38

Proposal to use the 2001 CSO Table for GI as the minimum nonforfeiture standard for GI business issued after 12/31/19.

Commenters are asked to offer alternative recommendations (e.g., a margin less than the 75%, a table other than the 2001 CSO for the CSGI table, an approach that recognizes company experience, etc.)

The APF is exposed for a public comment period ending April 28, 2019. Send comments to Reggie Mazyck (RMazyck@NAIC.Org)

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force

Amendment Proposal Form*

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Rhonda Ahrens, Nebraska Department of Insurance

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

2019 Valuation Manual, VM-02 Section 5.E.

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

VM 02 Section 5.E:

E. Guaranteed Issue Life Insurance

The minimum nonforfeiture standard values for GI life insurance policies issued before Jan. 1, 2020, shall be determined using the ultimate form of the 2001 CSO Table. The company may elect to use the 2017 CSO Table in place of the 2001 CSO ultimate table for policies issued Jan. 1, 2017, through Dec. 31, 2019.

The minimum nonforfeiture standard values for GI life insurance policies issued after Dec. 31, 2019, shall be determined using the ~~2017 Commissioners Standard Guaranteed Issue Mortality Tables (2017 CSGI) defined in VM-M~~ ultimate form of the 2001 CSO Table. The company may elect to use the ~~2017 CSGI 2017 Commissioners Standard Guaranteed Issue Mortality Tables (2017 CSGI) defined in VM-M~~ in place of the 2001 CSO ultimate tables for policies issued during calendar year 2019.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

The 2017 CSGI table was originally approved by LATF in 2018. Unfortunately, the original analysis of the table failed to consider all the issues associated with guaranteed issue products. Additional analysis by companies trying to implement the table have shown that use of the table is likely to disrupt the guaranteed issue market by making the products less viable due to pricing, cross-subsidization, nonforfeiture, and other concerns. This APF would maintain the 2001 CSO as the required table for guaranteed issue for 2020 and later issues. LATF will continue to monitor the emerging experience for guaranteed issue products and the appropriateness of the 2001 CSO table for this business. This redline only edits VM-02 to change the table for nonforfeiture for GI, but the analogous change to the table for reserves is also being made, due to the following Valuation Manual Section II.B language:

“For guaranteed issue life contracts issued after Dec. 31, 2018, mortality tables are defined in VM Appendix M – Mortality Tables (VM-M), and the same table shall be used for reserve requirements as is used for minimum nonforfeiture requirements as defined in VM-02, Minimum Nonforfeiture Mortality and Interest.”

* This form is not intended for minor corrections, such as formatting, grammar, cross-references or spelling. Those types of changes do not require action by the entire group and may be submitted via letter or email to the NAIC staff support person for the NAIC group where the document originated.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
Notes: APF 2019-38			

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form

Dates: Received	Reviewed by Staff	Distributed	Considered
04/16/2019	RM		
Notes: VM APF 2019-39 (CA OPBR & NAIC PBR)			

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

This APF was jointly prepared by the Staff of Office of Principle-Based Reserving, California Department of Insurance and NAIC Support Staff.

This APF develops an **interim solution for 2020** to address recommendation #26 from VAWG's 10/24/2018 memo regarding PBR Recommendations and Referrals to LATF.

2. Identify the document, including the date if the document is "released for comment," and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), as amended by APF 2018-48, VM-20 Section 8.C

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on "track changes" in Word®) version of the verbiage. (You may do this through an attachment.)

Please see the attached Appendix.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

Please see the attached Appendix.

NAIC Staff Comments:

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Appendix

ISSUE:

During the review of 2017 PBR reports, regulators noted wide variance in the modeled future YRT premium rates. During the review of the 2018 PBR reports, regulators noted that this wide variance was persisting. This wide variance does not appear to be driven by differences in the situations of, and increases likely to be experienced by, the different companies. Companies expressed uncertainty in how to develop this prudent estimate assumption. Many companies also expressed a desire that additional guidance be added to the *Valuation Manual* on this aspect of PBR.

While regulators were concerned with the lack of support for the assumptions applied in the PBR reports, this appeared to be an inevitable result of the difficulty of determining an appropriate prudent estimate assumption for future YRT premium rates. Regulators found that even more concerning was the apparent unfairness across companies that the diverse approaches created.

Several proposals have been put forward. One recent suggestion was to go with a $\frac{1}{2}$ cx approach as an interim measure until a consensus can be developed around something more principles-based. This APF sets forth language for this interim solution.

SECTIONS:

VM-20 Section 8.C

REDLINE OPTION 1:

VM-20 Section 8.C

C. Reflection of Reinsurance Cash Flows in the Deterministic Reserve or Stochastic Reserve

For policies issued on or after 1/1/2020, and optionally for policies issued on or after 1/1/2017 and before 1/1/2020:

For non-guaranteed YRT reinsurance ceded or assumed, the cash-flow modeling requirements in Sections 8.C.1 through 8.C.14 below do not apply since non-guaranteed YRT reinsurance ceded or assumed does not need to be modeled; see Section 8.C.18 below. YRT shall include other reinsurance arrangements that are similar in effect to YRT.

In calculations of the deterministic reserve or stochastic reserve pursuant to Section 4 and Section 5:

.....

18. For policies issued on or after 1/1/2020, and optionally for policies issued on or after 1/1/2017 and before 1/1/2020:

When the reinsurance ceded or assumed is on a non-guaranteed YRT or similar basis, the corresponding reinsurance cash flows do not need to be modeled. Rather, for a ceding company, the post-reinsurance-ceded DR or SR shall

be the pre-reinsurance-ceded DR or SR pursuant to Section 8.D.2 plus any applicable provision pursuant to Section 8.C.15 and Section 8.C.17, minus the NPR reinsurance credit from Section 8.B. For an assuming company, the DR or SR for the business assumed on a non-guaranteed YRT or similar basis shall be set equal to the NPR from Section 3.B.8 plus any applicable provision pursuant to Section 8.C.16 and Section 8.C.17. In the case where there are also other reinsurance arrangements that are not on a non-guaranteed YRT or similar basis, the reinsurance credit shall include the modeled reinsurance credit reflecting those other reinsurance arrangements. In particular, where there are also other reinsurance arrangements that are dependent on the non-guaranteed YRT or similar arrangements, actuarial judgment shall be used to project cash flows consistent with the above outlined treatment for non-guaranteed YRT or similar arrangements.

Guidance Note: The above method is an interim approach. A longer-term solution to YRT is intended to be adopted by regulators, after regulators and industry have had additional time to consider and evaluate the variety of approaches that have been put forward as potential longer-term solutions.

REDLINE OPTION 2:

~~For non-guaranteed YRT reinsurance ceded or assumed, the cash-flow modeling requirements in Sections 8.C.1 through 8.C.14 below do not apply since non-guaranteed YRT reinsurance ceded or assumed does not need to be modeled; see Section 8.C.18 below. YRT shall include other reinsurance arrangements that are similar in effect to YRT.~~

~~In calculations of the deterministic reserve or stochastic reserve pursuant to Section 4 and Section 5:~~

.....

~~18. When the reinsurance ceded or assumed is on a non-guaranteed YRT or similar basis, the corresponding reinsurance cash flows do not need to be modeled. Rather, for a ceding company, the post reinsurance ceded DR or SR shall be the pre-reinsurance-ceded DR or SR pursuant to Section 8.D.2 plus any applicable provision pursuant to Section 8.C.15 and Section 8.C.17, minus the NPR reinsurance credit from Section 8.B. For an assuming company, the DR or SR for the business assumed on a non-guaranteed YRT or similar basis shall be set equal to the NPR from Section 3.B.8 plus any applicable provision pursuant to Section 8.C.16 and Section 8.C.17. In the case where there are also other reinsurance arrangements that are not on a non-guaranteed YRT or similar basis, the reinsurance credit shall include the modeled reinsurance credit reflecting those other reinsurance arrangements. In particular, where there are also other reinsurance arrangements that are dependent on the non-guaranteed YRT or similar arrangements, actuarial judgment shall be used to project cash flows consistent with the above outlined treatment for non-guaranteed YRT or similar arrangements.~~

Guidance Note: The above method is an interim approach. A longer-term solution to YRT is intended to be adopted by regulators, after regulators and industry have had additional time to consider and evaluate the variety of approaches that have been put forward as potential longer-term solutions.

REASONING:

1. As PBR becomes mandatory in 2020, the 2020 *Valuation Manual* should include clear guidance on the handling of YRT reinsurance.
2. While this treatment is mandatory for 2020, it is intended to be an optional approach for 2019 as well, while other approaches are being more thoroughly vetted.
3. Note that if the approach currently used or planned to be used by a company for modeling YRT is clearly more conservative than this approach, the company is permitted but not required to continue to hold the resulting higher reserve.

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

This APF was prepared jointly by NAIC Support Staff and the Office of Principle-Based Reserving, California Department of Insurance. The APF addresses VAWG recommendation #32.

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), VM-20 Sections 2.A and 3.D

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

Please see Appendix attached.

Note: The term “product group” will be replaced with “Reserving Category” if APF 2018-55 is adopted for the January 1, 2020 edition of the Valuation Manual.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

Please see attached Appendix.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
4/19/19			
Notes: VM APF 2019-43 (CA OPBR_NAIC PBR)			

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Appendix

ISSUES:

1. Lack of clarity on rules for NPR floor and for due/deferred premium calculations, which has resulted in inconsistent interpretation and ultimately inconsistent reporting among companies. SSAP 51 specifies that deferred premiums are based on the net (“reduced by loading”) premium. In the NPR for Term, the year one valuation net premiums are zero and so due/deferred premiums are also zero.
2. While most companies interpreted VM-20 Section 3.D as applying a simple (½)cx floor or something equivalent, some others did not. We propose revising to go with the (½)cx type of approach for simplicity and consistency with common practice in the NPR.

SECTIONS:

VM-20 Sections 2.A and 3.D

REDLINE:

(new) Section 2.A.1.c

- c. The due and deferred premium asset, if any, shall be based on the valuation net premiums computed in accordance with Section 3.B.4.a, for the base policy, determined without regard to any NPR floor amount from Section 3.D.1. The valuation net premium is zero in the first policy year for policies in the Term product group. Since the due and deferred premium asset and unearned premium reserve are based on the valuation net premium, it follows that these are also zero in the first policy year.

Guidance Note: ~~The valuation net premium is zero in the first policy year for policies in the Term product group. Since the due and deferred premium asset and unearned premium reserve are based on the valuation net premium, it follows that these are also zero in the first policy year. This may not be the case for riders that use a different reserving method.~~

(new) Section 2.A.2.c

- c. The due and deferred premium asset, if any, shall be based on the valuation net premiums computed in accordance with Section 3.B.5, for the base policy, determined without regard to any NPR floor amount from Section 3.D.2.

Section 3.D

D. NPR Calculation and Cash Surrender Value Floor

1. For policies other than universal life policies, the NPR shall not be less than the greater of:

- a. The cost of insurance to the next paid to date. The cost of insurance for this purpose shall be based on ~~determined-the policy year in which the valuation date falls,~~ using the mortality tables for the policy prescribed in Section 3.C.
- b. The policy cash surrender value calculated as of the valuation date and in a manner that is consistent with that used in calculating the NPR on the valuation date.

2. For a universal life policy, the NPR shall not be less than the greater of:

- a. The amount needed to cover the cost of insurance to the next processing date on which cost of insurance charges are deducted with respect to the policy. The cost of insurance for this purpose shall be ~~determined~~ based on the policy year in which the valuation date falls, using the mortality tables for the policy prescribed in Section 3.C and shall be based upon the net amount at risk. “Cost of insurance” as used here refers to the valuation mortality rate, not the UL policy’s contractual cost of insurance or expense charges.

~~Guidance Note: “Cost of insurance” as used here refers to the valuation mortality rate, not the UL policy’s contractual cost of insurance or expense charges.~~

- b. The policy cash surrender value calculated as of the valuation date and in a manner that is consistent with that used in calculating the NPR on the valuation date.

REASONING:

1. Clarity
2. Simplicity
3. Consistency among companies

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form

Dates: Received	Reviewed by Staff	Distributed	Considered
4/19/19			
Notes: VM APF 2019-44			

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

This APF was jointly prepared by the Office of Principle-Based Reserving, California Department of Insurance, and NAIC Support Staff.

This APF addresses recommendations #3 and #4 from VAWG's 10/24/2018 memo regarding PBR Recommendations and Referrals to LATF.

2. Identify the document, including the date if the document is "released for comment," and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), VM-31 Section 3.B with redlined changes from APF 2019-28, with additional redlined changes for this APF.

Notes:

This APF changes VM-31 Section 3.B in APF 2019-28, so these APFs should be reviewed together. If APF 2018-55 is adopted, "VM-20 product group" will change to "VM-20 Reserving Category".

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on "track changes" in Word®) version of the verbiage. (You may do this through an attachment.)

Please see the attached Appendix for red-lined verbiage. Note that this APF also includes a template.

Section VII of the VAWG paper entitled *2017 Principle-Based Reserves (PBR) Review Report* noted potential ways to convey information more efficiently and effectively, including the use of tables or spreadsheets as appropriate. To support this effort, four templates are under development.

The intent is that all four templates would be contained in a single spreadsheet that companies would download from the NAIC website and provide as part of their PBR Actuarial Report.

This APF includes two spreadsheets:

PBR Actuarial Report Templates (Templates A and B).xlsx

Sample PBR Actuarial Report Templates (Templates A and B).xlsx

The first spreadsheet will eventually contain all four PBR Actuarial Report templates along with instructions on how to complete them. Templates A and B are included in the spreadsheet for this APF.

The second spreadsheet will eventually contain the same four templates filled out with sample data illustrating how they would look when completed. For this APF, examples for Templates A and B are included in the spreadsheet.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

Please see the attached Appendix.

NAIC Staff Comments:

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Appendix

ISSUE:

The following VAWG Recommendations were made to address issues found during the review of the 2017 PBR Actuarial Reports:

- VAWG #3: Provide a breakdown of modeled business by direct and assumed, target market, distribution channel, and product features
- VAWG #4: Describe the scope/volume of business subject to each underwriting approach (full, accelerated, simplified issue, guaranteed issue), and how the underwriting approach was reflected in the mortality assumptions and margins.

SECTIONS:

VM-31, Section 3.B

REDLINE:

VM-31 Section 3.B

2. Groups of Policies and/or Contracts – A description listing of the groups of policies subject to valued under VM-20 and/or contracts subject to valued under VM-21 and the groups of policies or contracts covered by each sub-report, including descriptions of key product features that impact risk, such as death benefit guarantees, living benefit guarantees, or any other guarantees.
3. Policies – A summary of the base policies within each VM-20 product group, using PBR Actuarial Report Templates A and B located on the NAIC website (link to be determined). Include the items below and any other information necessary to fully describe the company's distribution of business.
 - a. For direct business, use PBR Actuarial Report Template A located on the NAIC website (link to be determined) to provide descriptions of each base policy product type and underwriting process (including a description of the process, the time period in which it was used, and the level of any additional margin), with a breakdown of policy count and face amount by base policy product type and underwriting process. Also include the target market, primary distribution system, and key product features that impact risk.
 - b. For assumed business, use PBR Actuarial Report Template B to provide information on the type of reinsurance, the base policy product type, and the assuming company's underwriting process (including a description of the process, whether the assuming company used an underwriting process separate and distinct from the ceding company, and the level of any additional margin), with a breakdown of the assumed policy count and face amount by type of reinsurance, base policy product type, and underwriting process.
4. Contracts – A description of the contracts valued under VM-21, including descriptions of the target market, primary distribution system, and key product features that impact risk, such as death benefit guarantees, living benefit guarantees, or any other guarantees.

[Subsequent paragraphs re-numbered.]

PBR Actuarial Report Templates and Examples



PBR Actuarial Report
Templates (Templates



Sample PBR Actuarial
Report Templates (Te

REASONING:

This information will help regulators to evaluate mortality assumptions and margins, as well as aggregation of mortality experience.

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form*

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Brian Bayerle, ACLI – Insert a trigger into the experience reporting requirements in the event of a experience reporting agent experiencing a material deficiency identified in the external audit, an identified security breach, or other material trigger.

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

2019 Valuation Manual adopted September 10, 2018; VM-50 Section 3.B.6 and VM-51 Section 2.D

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

The current requirements of VM-50 and VM-51 may conflict with other requirements in the event of the Experience Reporting agent experiencing a material security issue. This APF would require a deferral of the data submission process until the issue has been remediated. The Experience Reporting Agent would notify the appropriate NAIC committee, and work with the committee on developing a modified data submission schedule.

* This form is not intended for minor corrections, such as formatting, grammar, cross-references or spelling. Those types of changes do not require action by the entire group and may be submitted via letter or email to the NAIC staff support person for the NAIC group where the document originated.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
4/24/19			
Notes: VM APF 2019-46			

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VM-50 Section 3.B:

B. Role and Responsibilities of the Experience Reporting Agent

1. Based on requirements of VM-51, the Experience Reporting Agent may design its data collection procedures to ensure it is able to meet these regulatory requirements. The Experience Reporting Agent will provide sufficient notice to reporting companies of changes, procedures and error tolerances to enable the companies to adequately prepare for the data submission.
2. The Experience Reporting Agent will aggregate the experience of companies using a common set of classifications and definitions to develop industry experience tables.
3. The Experience Reporting Agent will seek to enter into agreements with a group of state insurance departments for the collection of information under statistical plans included in VM-51. The number of states that contract with the Experience Reporting Agent will be based on achieving a target level of industry experience prescribed by VM-51 for each line of business in preparing an industry experience table.
 - a. The agreement between the state insurance department(s) and the Experience Reporting Agent will be consistent with any data collection and confidentiality requirements included within Model #820 and the *Valuation Manual*. Those state insurance departments seeking to contract with the Experience Reporting Agent will inform the Experience Reporting Agent of any other state law requirements, including laws related to the procurement of services that will need to be considered as part of the contracting process.
 - b. Use of the Experience Reporting Agent by the contracting state insurance departments does not preclude those state insurance departments or any other state insurance departments from contracting independently with another Experience Reporting Agent for similar data required under this *Valuation Manual* or other data purposes.
4. The Life Actuarial (A) Task Force or Health Actuarial (B) Task Force will be responsible for the content and maintenance of the experience reporting requirements. The Life Actuarial (A) Task Force or Health Actuarial (B) Task Force or a working group will monitor the data definitions, quality standards, appendices and reports described in the experience reporting requirements to assure that they take advantage of changes in technology and provide for new regulatory and company needs.
5. To ensure that the experience reporting requirements will continue to be useful, the Life Actuarial (A) Task Force or Health Actuarial (B) Task Force will seek to review each statistical plan on a periodic basis at least once every five years. The Life Actuarial (A) Task Force or Health Actuarial (B) Task Force should have regular dialogue, feedback and discussion of this topic. In seeking feedback and engaging in discussions, the Life Actuarial (A) Task Force or Health Actuarial (B) Task Force shall include a broad range of data users, including state insurance regulators, consumer representatives, members of professional actuarial organizations, large and small companies, and insurance trade organizations.
6. The Experience Reporting Agent will obtain and undergo ~~periodic~~ **at least annual** external audits to validate that controls with respect to data security and related topics are consistent with industry standards and best practices. **The Experience Reporting Agent will provide a copy of any report prepared in connection with such an audit, upon a company's request. In the event of a material deficiency identified in the external audit or in the event of an identified security breach impacting the Experience Reporting Data, (including a failure to provide evidence of remediation**

~~of material deficiencies identified in the external audit report findings), material deficiencies in policy documents, an inability to substantiate the existence of material policies, an identified security breach, a failure to provide an annual attestation regarding the results of any penetration testing or other evaluation, failure to provide evidence of remediation of any material deficiencies identified in such other evaluation, or other material trigger, the Experience Reporting Agent shall notify the Life Actuarial (A) Task Force or Health Actuarial (B) Task Force NAIC and the states that have directed the Experience Reporting Agent to collect this information of the nature and extent of such an issue. In the event of an identified security breach impacting Experience Reporting Data, the Experience Reporting Agent shall also notify any insurer whose data was impacted. Upon good cause shown, the Experience Reporting Agent will take reasonable actions to protect the data under its control, including that the data submission process shall may be suspended until the security issue has been remediated. If data submission is suspended under this Section, the Experience Reporting Agent will work with the states that have directed collection to issue appropriate guidance modifying the requirements of VM 51- Section 2.D. The term “good cause” shall mean that there is the chance of irreparable harm upon continuing the transmission of the data to the Experience Reporting Agent. Once the security issue has been remediated, the Experience Reporting Agent shall notify the Life Actuarial (A) Task Force or Health Actuarial (B) Task Force NAIC and the states that have directed the Experience Reporting Agent to collect this information. The Experience Reporting Agent shall work in conjunction with the Life Actuarial (A) Task Force or Health Actuarial (B) Task Force NAIC and the states that have directed the Experience Reporting Agent to collect this information to develop a revised data submission schedule for any deferred submissions. The revised schedule shall provide for reasonable timing for companies to provide such data.~~

VM-51 Section 2.D:

D. Process for Submitting Experience Data Under This Statistical Plan

Data for this statistical plan for mortality shall be submitted on an annual basis. Each company required to submit this data shall submit the data using the Regulatory Data Collection (RDC) online software submission application developed by the Experience Reporting Agent. For each data file submitted by a company, the Experience Reporting Agent will perform reasonability and completeness checks, as defined in Section 4 of VM-50, on the data. The Experience Reporting Agent will notify the company within 30 days following the data submission of any possible errors that need to be corrected. The Experience Reporting Agent will compile and send a report listing potential errors that need correction to the company.

Data for this statistical plan for mortality will be compiled using a calendar year method. The reporting calendar year is the calendar year that the company submits the experience data. The observation calendar year is the calendar year of the experience data that is reported. The observation calendar year will be two years prior to the reporting calendar year. For example, if the current calendar year is 2018 and that is the reporting calendar year, the company is to report the experience data that was in-force or issued in calendar year 2016, which is the observation calendar year.

Given an observation calendar year of 20XX, the calendar year method requires reporting of experience data as follows:

- i. Report policies in force during or issued during calendar year 20XX.

- ii. Report terminations that were incurred in calendar year 20XX and reported before July 1, 20XX+1. However, exclude rescinded policies (e.g., 10-day free look exercises) from the data submission.

For any reporting calendar year, the data call will occur during the second quarter, and data is to be submitted according to the requirements of the *Valuation Manual* in effect during that calendar year. Data submissions must be made by Sept. 30 of the reporting calendar year. Corrections of data submissions must be completed by Dec. 31 of the reporting calendar year.

~~The above data submission requirements shall be suspended in the event of any material data security issue identified in VM-50 Section 3.B.6 until the issue is remediated. A revised submission schedule shall be developed per the requirements of VM-50 Section 3.B.6.~~

Exposure of APF 2019-52
Standard for Selecting Material Risks

Note that the APF is focused on setting a standard for the selection of material risks, as opposed to setting a standard for materiality based on percentage of a PBR reserves or some similar base amount.

Exposed for public comment through May 24, 2019
Comments can be sent to Reggie Mazyck (RMazyck@NAIC.Org)

Dates: Received	Reviewed by Staff	Distributed	Considered
4/30/19			
Notes: VM APF 2019-52 (CA APF BR)			

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

This APF was prepared jointly by NAIC Support Staff and the Office of Principle-Based Reserving, California Department of Insurance. The APF addresses VAWG recommendation #5.

This APF is also meant to clarify how to identify a material risk for PBR, rather than introduce new requirements. In addition, specific to VM-20 Section 9.B.1, this APF is re-categorizing some risks that were previously “generally considered material” to being material risks “in some cases.”

5/28/2019: Draft has been updated to reflect the version that NAIC/CA propose for adoption based on formal and informal feedback. These all simply do not adopt part of the exposed edits –none of them propose new edits.

1. **Only make the change to Section I to strike “only”. Do not adopt other changes that had been proposed for Section I.**
2. **Based on #1, remove references to being pursuant to Section I in VM-20 Sections 2.H and 9.B.4.**
3. **In VM-20 Section 2.H, remove word “relative” in the first sentence.**
4. **In VM-20 Section 9.B.1, Don’t strike “, but are not limited to,”.**

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition, as amended by APF 2018-66):
Section I Overview of Reserve Concepts, VM-01, VM-20, and VM-31

Note: Amendments proposed to VM-31 Section 3.C in this APF include the amendments proposed to the same section in the original exposure of APF 2019-28.

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached Appendix.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

See attached Appendix.

NAIC Staff Comments:

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Appendix

ISSUE:

A concern that arose from the review of the 2017 PBR Actuarial Reports was that a number of companies set a materiality standard based on a percentage of total company reserves or surplus. Effectively this means that an item impacting PBR would not be considered material unless the dollar impact was much greater than the PBR reserve itself.

VAWG Recommendation #5 is to require a more appropriate standard for selecting material risks.

SECTIONS:

Overview of Reserve Concepts under Section I, VM-01, VM-20, VM-31

REDLINE:

Section I, Introduction

Authority and Applicability

Overview of Reserve Concepts

A principle-based valuation must ~~only~~ reflect risks that are:

1. Associated with the policies or contracts being valued, or their supporting assets.
2. Determined to be capable of materially affecting the reserve.

VM-01

- The term “margin” means an amount included in the assumptions, ~~except when the assumptions are prescribed,~~ used to determine the modeled reserve that incorporates conservatism in the calculated value consistent with the requirements of the various sections of the *Valuation Manual*. It is intended to provide for estimation error and adverse deviation.

(New) VM-20 Section 2.H

H. The company shall establish for the DR and SR, a standard containing the criteria for determining whether an assumption, risk factor or other element of the principle-based valuation has a material impact on the size of the reserve. This standard shall be applied when identifying material risks. Such a standard shall also apply to the NPR with respect to VM-20 Section 2.G.

Guidance Note: For example, the standard may be expressed as an impact of more than X dollars or Y% of the reserve, whichever is greater, where X and Y are chosen in a manner that is meant to stand the test of time and not need periodic revision.

The standard is based on the impact relative to the size of the NPR, DR, and SR as opposed to the impact relative to the overall financial statement (e.g. total company reserves or surplus). Reviewing items that may lead to a material misstatement of the financial statement in the current year is appropriate in its own context, but it is not appropriate for identifying material risks for PBR, which itself is an emerging risk.

Note that the criteria apply to the NPR, DR, and SR, and not just the final reported reserve. For example, if the DR is less than the NPR, the criteria still apply to the DR.

The standard also applies to exclusion tests, as they are an element of the principle-based valuation.

VM-20 Section 9.A.1

A. General Assumption Requirements

1. The company shall use prudent estimate assumptions in compliance with this section for each risk factor that is not ~~prescribed or is not~~ stochastically modeled by applying a margin to the anticipated experience assumption for the risk factor, if such risk factor has been categorized as a material risk.

VM-20 Section 9.A.7

7. The company shall sensitivity test risk factors that are not stochastically modeled and examine the results of sensitivity testing to understand the materiality of prudent estimate assumptions impact on the modeled reserve. The company shall update the sensitivity tests periodically as appropriate, ~~considering the materiality of the results of the tests.~~ The company may update the tests less frequently when the tests show less sensitivity of the modeled reserve to changes in the assumptions being tested or the experience is not changing rapidly. Providing there is no material impact on the results of the sensitivity testing, the company may perform sensitivity testing:

- a. Using samples of the policies in force rather than performing the entire valuation for each alternative assumption set.

- b. Using data from prior periods.

Guidance Note: Sensitivity testing every risk factor on an annual basis is not required.

For some risk factors, it may be reasonable, in lieu of sensitivity testing, to employ statistical measures for margins, such as adding one or more standard deviations to the anticipated experience assumption.

VM-20 Section 9.B.1

1. The company shall determine an explicit set of initial margins for each material ~~assumption~~risk independently (that is, without regard to any margins in other risk factors and ignoring any correlation among risk factors). Next, if applicable, the level of a particular initial margin may be adjusted to take into account the fact that risk factors are not normally 100% correlated. However, in recognition that risk factors may become more heavily correlated as circumstances become more adverse, the initially determined margin may only be reduced to the extent the company can demonstrate that the method used to justify such a reduction is reasonable, considering the range of scenarios contributing to the CTE calculation or considering the scenario used to calculate the deterministic reserve as applicable or considering appropriate adverse circumstances for risk factors not stochastically modeled. It is not permissible to adjust the initial margin to recognize, in whole or in part, implicit or prescribed margins that are present, or are believed to be present, in other risk factors.

~~If not~~ Risks that are stochastically modeled (e.g., interest rates, equity returns) or have prescribed assumptions that are generally margins (e.g., mortality, revenue sharing), shall be considered material risks. Other risks generally considered to be material include, but are not limited to, mortality, morbidity, interest, equity returns, lapses/premium persistency, YRT premiums, maintenance expenses, lapses, and inflation. In some cases, the list of material risks may also include morbidity, acquisition expenses, partial withdrawals, policy loans and, term conversions, non-guaranteed elements, and/or option elections that contain an element of anti-selection.

VM-20 Section 9.B.4

4. A margin is permitted but not required for assumptions ~~when variations in the assumptions that~~ do not ~~have~~ represent material ~~impact on the modeled reserve~~risks.

VM-31 Section 3.C

- a1. VM-20 Materiality — ~~A description of the rationale for determining whether a decision, information, assumption, risk, or other element of a principle-based valuation under VM-20 has a material impact on the modeled reserve. Such rationale could include criteria such as a percentage of reserves, a percentage of surplus, and/or a specific monetary value, as appropriate. The standard established by the company pursuant to VM-20 Section 2.H.~~
- b2. Material-Monitored Risks and Findings or Concerns – A summary of:
- a. ~~†~~The material risks within the principle-based valuation under VM-20 and other risks that are subject to close monitoring by the board, the company, the qualified actuary, or any ~~state insurance~~ regulators in jurisdictions in which the company is licensed. ~~Include any significant information required to be provided to the board pursuant to VM-G, such as elements materially inconsistent with the company's overall risk assessment processes, and~~
 - b. Any significant unresolved issues regarding the principle-based valuation under VM-20 in accordance with VM-G Section 4.A.5.
- Guidance Note:** Risks that are subject to close monitoring include items pursuant to VM-G Section 3.A that necessitate a heightened degree of oversight for the implementation or ongoing operation of the principle-based valuation function under VM-20. These may include risks relating to a process, procedure, control, or resource. An example might be that the company is closely monitoring the adequacy of resources and level of knowledge for PBR.
- e3. Changes in Reserve Amounts – A description of ~~any material~~ the changes in reserve amounts from the prior year to the current year and ~~an explanation for why~~ the changes are reasonable.

VM-31 Section 3.C.9.b

- b. NGE Margins – Description of the approach to establish a margin for conservatism, if applicable.

REASONING:

See the Issue section above.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
5/6/2019			
Notes: VM APF 2019-53 (CA OPBR APF-DM)			

**Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force
Amendment Proposal Form**

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Staff of Office of Principle-Based Reserving, California Department of Insurance,
Clarify types of smoothing that are permitted in developing company experience mortality rates.
2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition, as amended by approved APF 2018-42), VM-20
Sections 9.C.2.g and 9.C.6.c
3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached Appendix. These proposed changes are for clarification only and as such are **non-substantive in nature**.
4. State the reason for the proposed amendment? (You may do this through an attachment.)

See attached Appendix.

W:\National Meetings\2015\...\TF\LHA\

Appendix

ISSUE:

Add clarifying language to ensure that smoothing is not done in a way that results in understated company experience mortality rates, as requested by some LATF members during the LATF discussion when APF 2018-42 was adopted.

Additional language is added to the language that was added in VM-20 Section 9.C.2.g by APF 2018-42. Also, VM-20 Section 9.C.6.c should have a clarifying sentence that any smoothing to adjust for relationships within a segment should be done in a way that does not cause an understatement in expected claims, like 9.C.6.d does when discussing smoothing to adjust for cross-segment relationships.

For reference, VM-20 Section 9.C.6.d states:

The company may adjust the resulting mortality rates within each mortality segment to ensure the resulting prudent estimate produces a reasonable relationship with assumptions in other mortality segments that reflects the underwriting class or risk class of each mortality segment. **Such adjustments must be done in a manner that does not result in a material change in total expected claims for all mortality segments in the aggregate. (emphasis added)**

We have used similar language for consistency in VM-20 Sections 9.C.2.g and 9.C.2.d.

SECTION:

VM-20 Sections 9.C.2.g and 9.C.2.d

REDLINE:

VM-20 Section 9.C.2.g

Company experience mortality rates shall be based on amount of insurance, not number of policies. The amounts of insurance used in the numerators of the mortality rates shall be computed consistently with how the amounts in the denominators are calculated. A ceiling on the amount of insurance for a given policy is not permitted. Smoothing and graduation may generally be used in developing company experience mortality rates if it is done in a manner that does not result in a material change in total expected claims. However, in the case of catastrophic, non-recurring events, this does not preclude actuarially appropriate adjustments to company experience mortality rates, even if such adjustments result in a material change in total expected claims.

VM-20 Section 9.C.6.c

Smoothing may be used within each mortality segment to ensure that an appropriate relationship exists by attained age within each mortality segment. Such smoothing must be done in a manner that does not result in a material change in total expected claims for the mortality segment.

REASONING:

See issue statement.

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form

Dates: Received	Reviewed by Staff	Distributed	Considered
5/6/2019			
Notes: VM APF 2019-54 (CA OPBR/NAIC PBR)			

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

This APF was jointly prepared by the Office of Principle-Based Reserving, California Department of Insurance, and NAIC Support Staff.

This APF addresses recommendation #2 from VAWG's 10/24/2018 memo regarding PBR Recommendations and Referrals to LATF.

2. Identify the document, including the date if the document is "released for comment," and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2019 edition), VM-31 Section 3.C.12

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on "track changes" in Word®) version of the verbiage. (You may do this through an attachment.)

See attached Appendix.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

See attached Appendix.

NAIC Staff Comments:

W:\National Meetings\2015\...\TF\LHA\

Appendix

ISSUE:

The reporting requirements for riders and supplemental benefits need to be added.

VAWG Recommendation #2: Provide a description of all riders and supplemental benefits, whether there is a separate premium, and the reserve approach used, i.e. calculated as part of the base policy, or separately

SECTIONS:

VM-31 (New) Section 3.C.12 – adding section to request information on riders and supplemental benefits

REDLINE:

VM-31 (New) Section 3.C.12

12. Riders and Supplemental Benefits – The following information on the riders and supplemental benefits attached to the base policies subject to VM-20:

- a. A brief description of the coverage provided and a list of the products to which the rider or supplemental benefit is attached;
- b. Whether the rider or supplemental benefit has a separate premium or charge;
- c. For the NPR, deterministic reserve, and stochastic reserve separately, an indication of whether the rider or supplemental benefit was valued with the base policy or separately, and a brief description of the valuation methodology used;
- d. For the NPR, deterministic reserve, and stochastic reserve separately, whether the rider or supplemental benefit had a non-zero reserve and whether the reserve amount was included in the respective column of Part 1 of the VM-20 Reserves Supplement;
- e. Any other information necessary to fully describe the company's riders and supplemental benefits and the reserve methodology used.

[Subsequent paragraphs re-numbered.]

REASONING:

See the Issue section.

Dates: Received	Reviewed by Staff	Distributed	Considered
5/16/19			
Notes: APF 2019-55			

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form*

- Identify yourself, your affiliation and a very brief description (title) of the issue.

Reggie Mazyck, NAIC
- Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed: VM-20
- Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

VM-20 Criteria for CDHS

L. Clearly Defined Hedging Strategy

1. A clearly defined hedging strategy must identify:

- The specific risks being hedged (e.g., cash flow, policy interest credits, delta, rho, vega, etc.).
- The hedge objectives.
- The risks that are not hedged (e.g., variation from expected mortality, withdrawal, and other utilization or decrement rates assumed in the hedging strategy, etc.).
- The financial instruments used to hedge the risks.
- The hedge trading rules, including the permitted tolerances from hedging objectives.
- The metrics for measuring hedging effectiveness.
- The criteria used to measure hedging effectiveness.
- The frequency of measuring hedging effectiveness.
- The conditions under which hedging will not take place.
- The person or persons responsible for implementing the hedging strategy.
- Areas where basis, gap or assumption risk related to the hedging strategy have been identified.
- The circumstances under which hedging strategy will not be effective in hedging the risks.

~~2. A clearly defined hedging strategy may be dynamic, static, or a combination of dynamic and static.~~

~~3. Hedging strategies involving the offsetting of the risks associated with other products outside of the scope of these requirements is not a clearly defined hedging strategy.~~

- State the reason for the proposed amendment? (You may do this through an attachment.)

The sentence from VM-20 Section 7.L.2 has been moved to the CDHS definition in VM-01, while the life insurance and variable annuity specific CDHS criteria remain in VM-20 and VM-21, respectively.

* This form is not intended for minor corrections, such as formatting, grammar, cross-references or spelling. Those types of changes do not require action by the entire group and may be submitted via letter or email to the NAIC staff support person for the NAIC group where the document originated.

Actuarial Guideline XLIII

CARVM FOR VARIABLE ANNUITIES

Table of Contents

Section I	Background
Section II	Scope
Section III	Reserve Requirements
Section IV	Effective Date and Transition

Section I) Background

This Actuarial Guideline (Guideline) interprets the standards for the valuation of reserves for variable annuity and other contracts involving certain guaranteed benefits similar to those offered with variable annuities. The Guideline codifies the basic interpretation of the Commissioners Annuity Reserve Valuation Method (CARVM) by clarifying the assumptions and methodologies that will comply with the intent of the Standard Valuation Law. It also applies similar assumptions and methodologies to contracts that contain characteristics similar to those described in the scope, but that are not directly subject to CARVM.

In developing the Guideline, two regulatory sources provided guidance. First, the Standard Valuation Law defines CARVM as the greatest present value of future guaranteed benefits. Second, the NAIC Model Variable Annuity Regulation (VAR) states that the “reserve liability for variable annuities shall be established pursuant to the requirements of the Standard Valuation Law in accordance with actuarial procedures that recognize the variable nature of the benefits provided and any mortality guarantees.”

During 2019 this Guideline was amended to follow the reserve requirements provided in VM-21 of the *Valuation Manual*. This was done for uniformity for all coverages within scope regardless of whether they were issued prior to or on and after the operative date of the *Valuation Manual*. This was also done to reflect the extensive analysis carried out by the NAIC, Oliver Wyman consulting for the NAIC, and industry participants for improvements to the variable annuity framework.

Section II) Scope

- A) The Guideline applies to contracts, and product features on contracts, issued on or after January 1, 1981 and prior to the date that the *Valuation Manual* becomes effective in the applicable jurisdiction, whether directly written or assumed through reinsurance, falling into any of the following categories:
- 1) Variable deferred annuity contracts subject to the Commissioner’s Annuity Reserve Valuation Method (CARVM), whether or not such contracts contain Guaranteed Minimum Death Benefits (GMDBs), or Variable Annuity Guaranteed Living Benefits (VAGLBs);
 - 2) Variable immediate annuity contracts, whether or not such contracts contain GMDBs or VAGLBs;
 - 3) Group annuity contracts that are not subject to CARVM, but contain guarantees

similar in nature¹ to GMDBs, VAGLBs, or any combination thereof; and

- 4) All other products that contain guarantees similar in nature to GMDBs or VAGLBs, even if the insurer does not offer the mutual funds or variable funds to which these guarantees relate, where there is no other explicit reserve requirement.²

If such a benefit is offered as part of a contract that has an explicit reserve requirement and that benefit does not currently have an explicit reserve requirement:

 - a) The Guideline shall be applied to the benefit on a standalone basis (i.e., for purposes of the reserve calculation, the benefit shall be treated as a separate contract);
 - b) The reserve for the underlying contract is determined according to the explicit reserve requirement; and
 - c) The reserve held for the contract shall be the sum of a) and b).
- B) The company may elect to apply these requirements to contracts and product features on contracts, whether directly written or assumed through reinsurance, falling into any of the categories defined in Section II.A. and issued prior to January 1, 1981
- C) The Guideline does not apply to contracts falling under the scope of the NAIC Model Modified Guaranteed Annuity Regulation (Model #255); however, it does apply to contracts listed above that include one or more subaccounts containing features similar in nature to those contained in Modified Guaranteed Annuities (e.g., market value adjustments).
- D) Separate account annuity contracts that guarantee an index and do not offer GMDBs or VAGLBs are excluded from the scope of the Guideline.

Section III) Reserve Requirements

- A) Reserves shall be determined by following the requirements in VM-21 from the version of the NAIC *Valuation Manual* applicable for that valuation date. For purposes of determining reserves, at the election of the company, the contracts subject to this Guideline may be aggregated with the contracts subject to VM-21 of the *Valuation Manual*. Alternatively, the company may elect to not aggregate the contracts subject to this Guideline with those subject to VM-21 of the *Valuation Manual*, and value these as a separate group of contracts.

¹ The term “similar in nature,” as used in sections II(A)3) and II(A)4) is intended to capture both current products and benefits as well as product and benefit designs that may emerge in the future. Examples of the currently known designs are listed in footnote #2 below. Any product or benefit design that does not clearly fit the Scope should be evaluated on a case-by-case basis taking into consideration factors that include, but are not limited to, the nature of the guarantees, the definitions of GMDB and VAGLB in VM-01 and whether the contractual amounts paid in the absence of the guarantee are based on the investment performance of a market-value fund or market-value index (whether or not part of the company’s separate account).

² For example, a group life contract that wraps a GMDB around a mutual fund would generally fall under the scope of the Guideline since there is not an explicit reserve requirement for this type of group life contract. However, for an individual variable life contract with a GMDB and a benefit similar in nature to a VAGLB, the Guideline would generally apply only to the VAGLB-type benefit, since there is an explicit reserve requirement that applies to the variable life contract and the GMDB.

- B). The development of the reserves shall be documented following the requirements in VM-31 of the NAIC *Valuation Manual* applicable for that valuation date.

Section IV) Effective Date and Transition

- A) This Actuarial Guideline applies for valuations on or after January 1, 2020. The phase-in provisions of VM-21 also apply for the contracts and product features subject to the Guideline.
- B) **A company may elect to apply these requirements for the valuation on December 31, 2019 in lieu of the requirements of the prior version of this Guideline. If so elected, the reserves will be established by following the requirements of VM-21 from the 2020 NAIC *Valuation Manual* and the documentation requirements of VM-31 from the 2020 NAIC *Valuation Manual*.**

*Adopted by the Executive (EX) Committee and Plenary, Pending
Adopted by the Property and Casualty Insurance (C) Committee, 3/28/19*

A REGULATOR'S GUIDE TO PET INSURANCE

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INTRODUCTION

In December 2016, an insurer in the pet health insurance (pet insurance) industry voiced concerns to the Producer Licensing (D) Task Force regarding the use of limited lines licensing for pet insurance. The insurer recommended that pet insurance be removed from the *State Licensing Handbook* (Handbook) Uniform Licensing Standard (ULS) No. 37 – Surplus Line Exam as a limited line. It was the insurer’s opinion that a full property/casualty (P/C) line should be required to sell, solicit or negotiate pet insurance. Reasons cited include: 1) tremendous growth in the pet insurance market; 2) policy premiums that far exceed the cost of the covered item; i.e., the pet; and 3) complex policies with multiple coverage options and exclusions. Traditionally, limited lines products are designed to be incidental to the sale of another product, which, according to the insurer, is not the case with pet insurance. The Task Force decided it needed to better understand the complexities of pet insurance before offering guidance regarding the type of producer license required to sell the product. As a result, the Task Force made a referral to the Property and Casualty Insurance (C) Committee to draft a comprehensive white paper providing information on coverage options, product approval, marketing, ratemaking, claims practices and regulatory concerns.

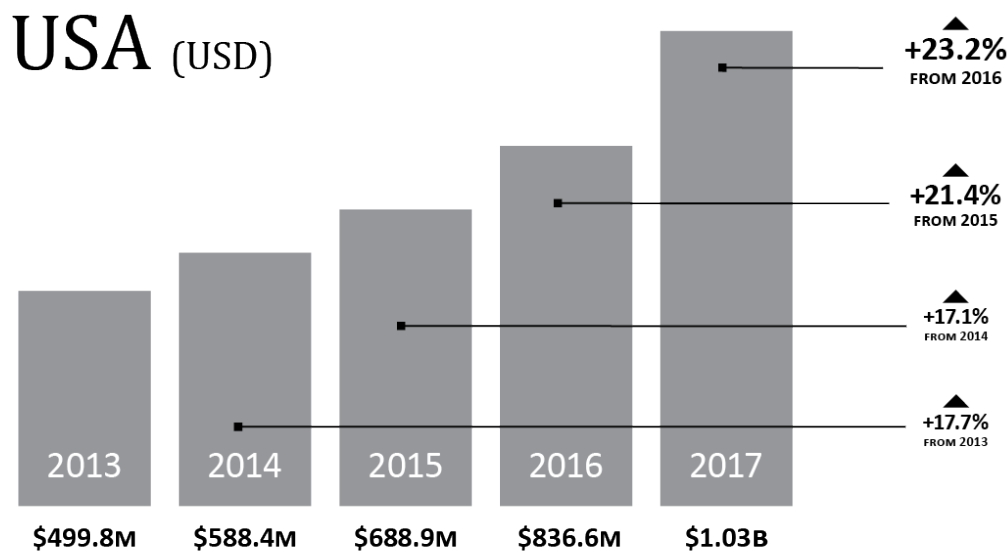
As discussed during the Property and Casualty Insurance (C) Committee’s meeting at the 2018 Spring National Meeting, the Committee formed a drafting group to develop a white paper to provide an overview of the pet insurance industry. This white paper represents the Committee’s findings. Please note that all websites and companies discussed in this paper are included for research only and are not endorsements by the NAIC.

Pet insurance provides accident and illness coverage for family-owned pets, primarily dogs and cats. Although pet insurance is classified and regulated as P/C insurance, it bears many similarities to human health insurance with annual coverage offered at an actuarially determined rate subject to various conditions and exclusions. This coverage was started in the U.S. in 1980 and has grown significantly since that time.

The North American Pet Health Insurance Association (NAPHIA) represents more than 99% of the U.S. and Canada pet insurance industry as an advocacy group. As shown in Figure 1, the total premium volume for NAPHIA members in 2017 was approximately \$1.03 billion in the U.S.,

representing 23.2% growth over the prior year. The growth of the P/C insurance industry as a whole was only 4.7% from 2016 to 2017. The direct written premium in the U.S. (including the territories) was approximately \$640 billion in 2017, so while the pet insurance market is growing faster than the total P/C market, pet insurance still represents a small percentage of the total.

FIGURE 1. PET INSURANCE PREMIUM VOLUME



SOURCE: North American Pet Health Insurance Association. State of the Industry Report 2018.
naphia.org/industry/research-and-reports/terms-conditions-use-state-industry-report

According to a survey conducted by the American Pet Products Association (APPA),¹ in 2017, approximately 68% of U.S. households, or 84.65 million families, owned at least one pet (dog, cat or other). 60 million of these households owned at least one dog, and 47 million of the households owned at least one cat. There are significant opportunities for growth in the pet insurance market, with approximately 90 million household dogs and 95 million household cats in the U.S. According to the NAPHIA, as shown in Figure 2 below, approximately 1.5 million dogs and 300,000 cats were insured in 2017, meaning fewer than 2% of dogs and less than 0.5% of cats owned in the U.S. were insured in 2017. As shown in Figure 2, the number of insured dogs and cats increased by 17.5% from 2016 to 2017.

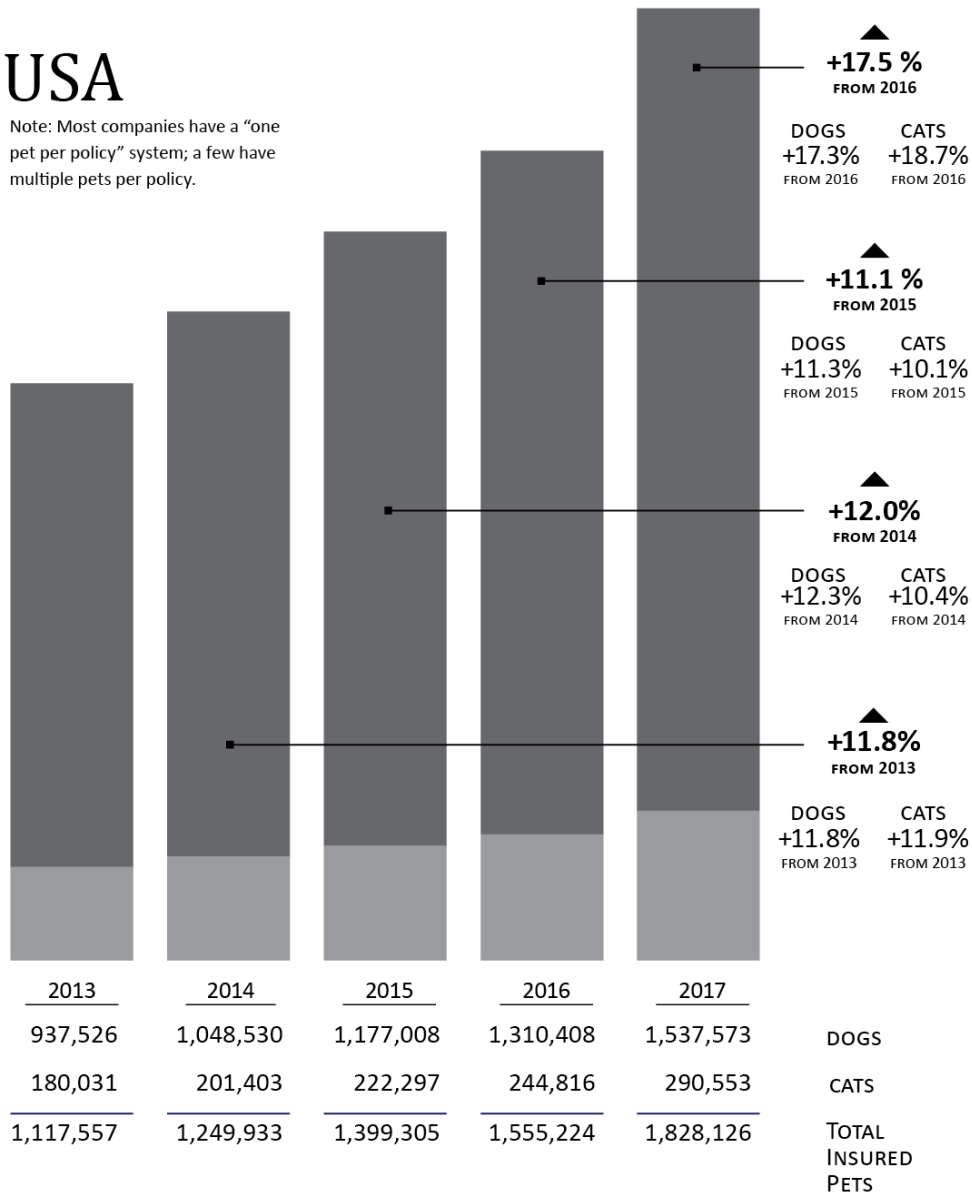
¹ https://americanpetproducts.org/Uploads/MemServices/GPE2017_NPOS_Seminar.pdf

FIGURE 2. TOTAL INSURED PETS

TOTAL INSURED PETS

USA

Note: Most companies have a “one pet per policy” system; a few have multiple pets per policy.



SOURCE: North American Pet Health Insurance Association. State of the Industry Report 2018.
naphia.org/industry/research-and-reports/terms-conditions-use-state-industry-report

HISTORY

The first “pet insurance”² policy was issued in 1890 in Sweden and focused on horses and livestock. In 1924, the first policy covering a dog was issued in Sweden. In 1947, the first pet insurance policy was issued in the United Kingdom (UK). In Sweden and the UK, modern pet insurance policies are designed with the ability to cover pet medical costs and liability to third parties for the action of pets. Sweden has a requirement that dog owners must maintain liability coverage and, as a result, 60–70% of pet owners retain pet insurance. In the UK, 25–30% of dog and/or cat owners maintain pet insurance.

The first pet policy in the U.S. was issued in 1982 by Veterinary Pet Insurance (VPI). VPI was founded by a veterinarian from Orange County, CA. For the majority of the 1980s and 90s, VPI had a near monopoly over the U.S. market. In the early 2000s, additional companies joined the market. At the time, VPI had approximately 80% of the market. As shown in Figure 3 below, VPI, which was purchased by Nationwide and operating under that name, maintained more than 35% of the market for pet insurance in 2017. The market has grown significantly from the 1980s. Figure 1 above shows the remarkable growth over the past five years alone.

Figure 3 shows the 2017 U.S. premiums written by the top five insurers and branding entities with their 2017 premiums written established for the sale of pet insurance. Branding entities are programs that can be underwritten and sold by multiple insurers and are subject to change. Additionally, insurers may underwrite a variety of pet insurance programs. Branding entities may have programs underwritten by multiple insurers, and insurers may underwrite for multiple brands. The use of brand names is common in the industry which, without proper disclosure can cause confusion for state insurance regulators and consumers in determining the entity with a duty to indemnify.

² The use of the term “pet insurance” in this paper does not refer to insurance policies that cover horses and livestock, commonly referred to as “blood stock,” which provide indemnity for animal mortality. The term “pet insurance” in this paper refers to the products commonly covering dogs and cats and providing indemnity for the cost of dogs’ and cats’ medical treatment. All of the participants in the market cover cats and dogs. A few participants also cover horses and exotic animals kept as pets.

FIGURE 3. TOP SELLERS

COMPANY/BRANDING ENTITY	USD (IN MILLIONS)	MARKET SHARE
Nationwide	\$ 374.60	36.33%
Trupanion	\$ 191.60	18.58%
Healthy Paws Pet Insurance and Foundation	\$ 123.20	11.95%
Petplan Pet Insurance	\$ 83.60	8.11%
Crum & Forster Pet Insurance Group	\$ 69.20	6.71%
Other	\$ 188.80	18.32%
TOTAL	\$ 1,031.00	100.00%

SOURCE: North American Pet Health Insurance Association. State of the Industry Report 2018.
naphia.org/industry/research-and-reports/terms-conditions-use-state-industry-report

Although the U.S. market has been growing by 15% or 20% a year for the last five years, it still only covers approximately 1% of the estimated 1.1 million dogs and cats kept as pets in the U.S. As noted in Figure 4, pet insurance coverage is concentrated in larger urban areas, with California and New York being the largest markets. However, over the last two decades, product offerings have expanded as additional insurers have entered the market. Caution should be used when contemplating data contained in Figures 1–4. Data for these figures was provided by the industry association NAPHIA, not the states or the NAIC. Data contained in Figures 1–4 include NAPHIA members only and, therefore, are not exhaustive of the entire market for pet insurance. As discussed later in the paper, premiums and losses for pet insurance policies are contained in the inland marine line of business on the NAIC annual financial statement; therefore, data for pet insurance, specifically, is indeterminate at this time.

A few states have initiated data calls or market conduct examinations concerning pet insurance. Massachusetts’ data call was designed to identify pet insurance writers and their premium volume in the state. New Hampshire published a report of its data call, revealing that 20 companies filed forms in the System for Electronic Rate and Form Filing (SERFF) in 2017, but only nine reported premiums from 2015 through 2017. The two largest companies accounted for 59% of the market in New Hampshire in 2017.

FIGURE 4. POLICIES AND PREMIUMS BY STATE

2017	Number of Policies	Number of Policies (%)	Gross Written Premium (\$)	Gross Written Premium (%)
U.S.	1,832,592		\$ 1.03 B	
Alabama	7,254	0.4%	\$3.79 M	0.4%
Alaska	5,720	0.3%	\$2.62 M	0.3%
Arizona	34,485	1.9%	\$19.21 M	1.9%
Arkansas	2,862	0.2%	\$1.35 M	0.1%
California	362,727	19.8%	\$219.54 M	21.4%
Colorado	53,986	2.9%	\$30.81 M	3.0%
Connecticut	39,215	2.1%	\$22.65 M	2.2%
Delaware	6,497	0.4%	\$4.24 M	0.4%
District of Columbia	8,444	0.5%	\$3.87 M	0.4%
Florida	116,855	6.4%	\$64.94 M	6.3%
Georgia	31,757	1.7%	16.11 M	1.6%
Hawaii	9,073	0.5%	\$5.19 M	0.5%
Idaho	5,003	0.3%	\$2.51 M	0.2%
Illinois	62,149	3.4%	\$34.53 M	3.4%
Indiana	15,336	0.8%	\$7.40 M	0.7%
Iowa	6,522	0.4%	\$3.01 M	0.3%
Kansas	6,981	0.4%	\$3.28 M	0.3%
Kentucky	8,848	0.5%	\$4.21 M	0.4%
Louisiana	9,724	0.5%	\$4.76 M	0.5%
Maine	8,371	0.5%	\$4.35 M	0.4%
Maryland	45,449	2.5%	\$25.70 M	2.5%
Massachusetts	86,703	4.7%	\$48.83 M	4.8%
Michigan	27,642	1.5%	\$14.10 M	1.4%
Minnesota	17,552	1.0%	\$8.85 M	0.9%
Mississippi	2,815	0.2%	\$1.35 M	0.1%
Missouri	13,363	0.7%	\$6.38 M	0.6%
Montana	2,759	0.2%	\$ 1.28 M	0.1%
Nebraska	3,961	0.2%	\$1.96 M	0.2%
Nevada	26,574	1.5%	\$14.67 M	1.4%
New Hampshire	15,452	0.8%	\$8.58 M	0.8%
New Jersey	104,884	5.7%	\$61.96 M	6.0%
New Mexico	6,336	0.3%	\$3.26 M	0.3%
New York	179,133	9.8%	\$106.52 M	10.4%
North Carolina	40,557	2.2%	\$21.51 M	2.1%
North Dakota	1,065	0.1%	\$0.52 M	0.1%
Ohio	35,968	2.0%	\$18.24 M	1.8%
Oklahoma	4,829	0.3%	\$2.31 M	0.2%
Oregon	27,086	1.5%	\$15.15 M	1.5%
Pennsylvania	87,570	4.8%	\$46.10 M	4.5%
Puerto Rico	1,024	0.1%	\$0.70 M	0.1%
Rhode Island	9,451	0.5%	\$5.05 M	0.5%
South Carolina	16,776	0.9%	\$7.96 M	0.8%
South Dakota	1,034	0.1%	\$0.95 M	0.1%
Tennessee	15,405	0.8%	\$9.70 M	0.9%
Texas	93,529	5.1%	\$46.64 M	4.5%
Utah	7,987	0.4%	\$3.91 M	0.4%
Vermont	4,455	0.2%	\$3.55 M	0.3%
Virginia	60,310	3.3%	\$33.75 M	3.3%
Washington	69,667	3.8%	\$36.93 M	3.6%
West Virginia	5,052	0.3%	\$1.71 M	0.2%
Wisconsin	16,395	0.9%	\$8.63 M	0.8%

SOURCE: North American Pet Health Insurance Association. State of the Industry Report 2018.

naphia.org/industry/research-and-reports/terms-conditions-use-state-industry-report

A study of the more developed markets in other countries may help identify points of concern and direct the governing of pet insurance products in the U.S. There are no filing or producer licensing requirements in the UK or Sweden, so no instructive elements can be gleaned from their experience on these two issues. The Canadian market is similar to the U.S. market in both products and market penetration, having developed over a similar time period. Pet insurers report that 70% of sales are initiated online, and 30% of sales are initiated through call centers.

California is the only state with a law specifically governing pet insurance³. California Insurance Codes 12880–12880.4 were created in 2014 and can be found in Appendix 2. The laws require pet insurers to disclose baseline information regarding reimbursement benefits; preexisting condition limitations; and a clear explanation of limitations of coverage including coinsurance, waiting periods, deductibles, and annual or lifetime policy limits. The California laws also provide consumers with a 30-day “free look” period in which a pet insurance policy can be returned for a full refund. An earlier version of this bill attempted to prevent exclusions for preexisting conditions but was vetoed by the Governor of California. A pet insurance bill was introduced, but not enacted, in New York.

None of the failed bills or the California statute address producer or adjuster licensing. Most states require a full P/C license to sell, solicit or negotiate pet insurance, while a few states—Idaho, New Jersey, Rhode Island and Virginia—allow for use of a limited lines license.

CARRIERS

As noted above, insurance companies commonly advertise pet insurance products using the insurers’ brand name (a practice referred to as “branding”) rather than the insurance company name. Branding is common practice in many lines of business, not limited to pet insurance, and with proper disclosure it should not present any legal or regulatory concerns. Additionally, it is commonplace in the pet insurance market for branded entities to change underwriters for their pet insurance program with some frequency. This makes it difficult for examiners to identify licensed entities associated with the sale of pet insurance products and track compliance with regulatory

³ California has a pending bill, CA AB 1535, that would require pet insurers to provide additional disclosures to consumers.

requirements. When insurers use a brand name, the insured must read the fine print at the bottom of the advertisement, application or website to find the identity of the underwriting company. In addition to use of brand names, one to three agencies may sell the pet insurance products for an insurer under a specified brand name. The agency communicates with the consumer and receives applications. In most cases, the agency is also responsible, as a third-party administrator (TPA), for claims processing and answering consumer inquiries. This practice can cause confusion for consumers in determining the entity responsible for paying claims and who should be named if they need to file a complaint with the state insurance department.

COVERAGE OPTIONS

Two coverage types are available through a majority of carriers selling pet insurance: 1) accident only; and 2) accident and illness. According to the NAPHIA, 98% of policies written in 2017 were for accident and illness insurance, which may include embedded wellness, while 2% were accident only. The average premium for accident and illness plans was approximately \$516, while the average premium for accident only plans was approximately \$181 per pet in the U.S. in 2017.

Some veterinary clinics offer agreements for preventive care. If the agreement is a two-party contract between the veterinarian and consumer where no risk is transferred or assumed and no third party is involved, these plans are not insurance. However, these may cause confusion for consumers as they may be construed as insurance. State insurance regulators should be aware that these exist, as they may be called upon to review the structure of the agreement.

Coverage options vary by carrier. Most companies write coverage for dogs and cats only. One carrier also has policies for exotic pets, such as reptiles and birds. Consistent with human or non-pet coverage, plans have varying deductibles, copayments and limits. In most cases, pet owners must pay the vet directly and wait to be reimbursed by the insurance carrier or account administrator. Reimbursement methods differ. Some include a benefit schedule based on illness or injury and coverage level. There are waiting periods and pre-coverage exams required in many cases. Pets must be above the minimum and below the maximum age limits to begin coverage. Many carriers exclude coverage for pets less than eight weeks old or older than 12 years. Exclusions exist for preexisting conditions, and there may be limitations on coverage for hereditary

or congenital conditions as well. Definitions of conditions are inconsistent across policies and, therefore, may have varying impacts on the consumer's ability to receive reimbursement for claims. Appendix 1 contains a glossary of terms as defined in California Assembly Bill No. 2056, Chapter 896, requiring use of the specified terms for all policies that are marketed, issued, amended, renewed or delivered to a California resident, on or after July 1, 2015. While there are many different policies on the market today with various coverage options, most policies include:

- **Two primary coverage types: accident only, or accident and illness plans.** Comprehensive policies may cover reasonable and necessary veterinary expenses that occur during the policy period for medical management, diagnosis or treatment of a pet's condition. Veterinary expenses or services include medical advice, diagnosis, care or treatment provided by a veterinarian. Other services and medical expenses that may be covered include the costs of the visit, prescription drugs, food, supplements and medical equipment, surgical procedures, physical therapy, and dental procedures.
- **Optional wellness and preventive coverage.** Such coverage may be available, which covers veterinary expenses during the policy period for preventive treatment or treatment provided to preserve or improve general nutrition or health when there are no underlying symptoms of an associated diagnosed medical condition. This typically includes vaccinations, flea and heartworm medication, wellness exams, blood tests, radiographs, heartworm tests, screens, urinalysis, deworming, pet identification (microchip), spaying or neutering, dental cleaning, genetic certification, etc.
- **Different plan options.** Pet health insurers may offer different plan options or tiers with varying policy limits.
- **Description of the veterinarians and clinics that may be used under the plan.**
- **Limits, which may be annual, lifetime, per procedure, per incident or a combination.** Optional coverages may have special limits.
- **Copayments applicable to the cost of each procedure, an overall limit or other basis.** Generally, there is a coinsurance percentage and/or deductible.
- **Waiting periods for injury, illness and orthopedic care.** Pet health waiting periods are usually broken up into two separate periods for illness and injury, but other pet health insurers may add longer waiting periods for specific coverages such as orthopedics or cruciate ligament events, etc. Although most of the definitions in pet

health policies for waiting periods include the language “these waiting periods are waived for continuous renewal,” the waiting periods may apply again if there are policy changes.

- **Policy exclusions, which often include exclusions for preexisting conditions.** Some may even exclude coverage in renewal policies for conditions diagnosed or treated in prior coverage periods. Many policies also exclude coverage for congenital and heredity conditions, such as hip dysplasia, heart defects, cataracts and diabetes. Other typical exclusions may include: preventive treatment or wellness care; dental care; vaccinations; flea prevention; spaying or castration; behavioral training/therapy or treatment; procedures, services or supplements for a condition not covered by the policy; service or procedures not performed or prescribed by a licensed veterinarian; over-the-counter food or supplies; boarding or accommodation; transportation; grooming; membership fees; experimental and/or investigative treatment that is not within the standard of care; diagnosis, treatment, tests or procedures associated with breeding etc.
- **A schedule or plan for recovery of benefits.** Most plans include a reimbursement model, meaning the insured must pay out of pocket to the veterinarian and be reimbursed by the insurer. Only one carrier in the market today pays the veterinarian directly.
- **Nondiscretionary arbitration provisions.** Many contracts contain nondiscretionary arbitration provisions. Alternatively, some pet insurance policies contain language that set forth an arbitration process that requires peer review of the treatment provided by a veterinarian as opposed to engaging in an arbitration process conducted through the American Arbitration Association (AAA).

The coverage options and policy details associated with pet insurance are like those found in human health insurance. However, pet insurance is regulated and reported as P/C coverage because pets are considered property under the law. Provisions for in-network providers, co-insurance or co-payment, exclusions for preexisting conditions, age limits, and waiting periods are more like health insurance than P/C coverage.

Consumers may want to research policy provisions on their own prior to purchase. There are several consumer websites that provide guidance on pet insurance products. Consumers should also be aware that the price of insurance may increase substantially as the animal gets older. These websites also provide additional information on some of the policy provisions identified in the prior paragraphs.

POLICY FORMS

State law governs the requirements for policy review in a given line of business. State law may govern that the state is use and file, file and use, or prior approval. File and use means the form must be filed with the state insurance regulator but can be used before approval is obtained. Use and file means the form can be used before it is filed with the state insurance regulator. Prior approval requires that all insurance policy forms, riders and endorsements be approved by the state insurance commissioner/superintendent/director prior to being issued and sold to the public. While prior approval provides the highest level of oversight because policy forms cannot be used until approved, use and file, and file and use still provide states with the oversight to review filings for compliance with state-specific requirements.

A basic insurance policy form is an insurance contract delineating the terms, provisions and conditions of an insurance product. It includes endorsements and applications of which written application is required and is to be attached to the policy or be part of the contract.

Although state regulation of insurance was initially designed to prevent insurer insolvency, regulatory jurisdiction has evolved over the decades to protect consumers.⁴ Policy form review is an integral part of market regulation. Policy forms are reviewed to ensure statutory compliance and that products are fair and not harmful to consumers. Regulatory review also helps insurance companies, as examiners may catch errors, inconsistencies, ambiguous or misleading language, and omission before products are offered to the public. This helps improve the quality of products offered and promotes consumer confidence.

⁴ Kline, R., 1999. *A Regulator's Introduction to the Insurance Industry*, accessed at https://www.naic.org/documents/prod_serv_marketreg_rij_zb.pdf.

Policy form filings may be submitted through SERFF in most states. Currently, six states and the territories are not using SERFF for policy filing review. Policy form filings are generally submitted separately for each program. Insurers must be properly licensed for the appropriate line of business prior to submission of a form filing. Regulatory analysts review the policy forms submitted in the SERFF form filing to check for compliance issues relative to federal and state law, regulation, legislation or mandated language, and any state-specific advisory letters or bulletins issued by the state insurance commissioner/superintendent/director.

MARKETING STRATEGIES

Pet insurance may be sold via online marketing, veterinary clinics, pet stores, shelters and animal support and rescue organizations, or word of mouth referrals. Pet insurance may also be sold as part of an employee benefit package or through licensed insurance producers. The most common distribution methods are web-based marketing and referrals from veterinary clinics or friends and family. Veterinary offices, clinics or hospitals may promote pet insurance products to their customers or allow placement of printed materials throughout their office. Printed marketing materials may refer consumers to a website to obtain further information about a product. Materials sometimes include an application or phone number for the insurance company, a licensed insurance producer, or TPA. The veterinarian may partner with one brand exclusively or provide customers with brochures or pamphlets on several different brands. In addition, kennels and breeding clubs may promote coverage for pets or even have preferred carriers for specific breeds. Also, some organizations include information on pet insurance on their website to educate consumers about pet insurance and assist consumers in making comparisons among coverage options. However, as of this writing, none of that information has been vetted by the NAIC.

The fastest growing form of distribution is through an employee benefit package. Coverage may be sponsored in part by the employer or entirely employee paid. Special employee pricing is sometimes offered with group discounts. According to Nationwide, 50% of Fortune 500 companies offered pet insurance as an employee benefit in 2017.

LICENSING

To encourage uniformity, the Producer Licensing Uniformity (D) Working Group developed the ULS within the Handbook. Adopted originally in 2002, the ULS is a guide for state insurance regulators to use in their producer licensing process. In the November 2011 update, ULS No. 37 was added to address non-core limited lines licensure. Pet insurance was mentioned as an example, and a definition of “limited lines pet insurance” was included to mean an insurer designee, such as a managing general underwriter, managing general agent (MGA), or limited lines producer of pet insurance. As of September 2018, four states—Idaho, New Jersey, Rhode Island and Virginia—offer pet insurance as a non-core limited line.

Several market conduct enforcement actions on pet insurers were reported from 2015 to 2016. The issues identified in these actions included unlicensed sales, illegal inducements and rebating, improper use of rates, and unlawful claims practices.

The Producer Licensing (D) Task Force has held several meetings to discuss the type of license states should require of producers who are to sell, solicit or negotiate pet insurance policies.⁵ “Negotiate” is defined in the *Producer Licensing Model Act* (#218) as “the act of conferring directly with or offering advice directly to a purchaser or prospective purchaser of a particular contract of insurance concerning any of the substantive benefits, terms or conditions of the contract, provided that the person engaged in that act either sells insurance or obtains insurance from insurers for purchasers.” State insurance regulators agree that pet insurance should not be sold by unlicensed individuals, but they agree that what level of licensure and what steps should require licensure are open topics of discussion.

There is an open debate as to whether insurance producers and claims adjusters (in states where claims adjusters are licensed) should be required to have a full P/C license or a limited lines license to sell pet insurance. According to Model #218,⁶ in order to obtain a resident license for the P/C line of authority, one must pass a written examination. According to the Handbook, states that require pre-licensing shall require 20 credit hours of pre-licensing education per major line of

⁵ 2017 Summer and Fall National Meeting *Proceedings*.

⁶ <https://www.naic.org/store/free/MDL-218.pdf>.

authority. The six major lines of authority identified in the Handbook are: 1) life; 2) accident and health (A&H) or sickness; 3) property; 4) casualty; 5) variable life and variable annuity; and 6) personal lines. Limited lines are considered alternatives to the major lines of authority. The products offered and the licensing requirements for limited lines tend to be more limited in scope. Except for crop and surety, pre-licensing examinations are not required for limited lines. Under both reciprocity standards set forth in Model #218 and the ULS, pre-licensing education is not required for nonresident applicants or nonresident producers who change their state of residency. Additionally, 24 credits of continuing education (CE) are required for each biennial compliance period only if the producer holds a license in one of the six major lines of authority. The Handbook also states that a person licensed as a limited lines producer in his or her home state shall receive a nonresident limited lines producer license, granting the same scope of authority as granted under the license issued by the provider's home state. This may be problematic if the type of license is inconsistent across states for a specified line of authority. A benefit of having the full licensing requirements is that education and testing requirements for licensure ensures that producers are competent and qualified to sell insurance to consumers, ultimately resulting in consumer protection. Alternatively, some take the position that the individuals most able to provide information on pets and pet insurance are those outside of the traditional insurance distribution channels. They may also argue that, under ULS No. 37, the traditional pre-licensing, testing and continuing legal education (CLE) do not include topics specific to pets or pet insurance; as such, the limited lines license model is more appropriate. As noted in the excerpt below, individuals offering insurance on a limited lines basis must receive a program of instruction or training subject to review by the insurance department.

In June 2015, the New Jersey Department of Banking and Insurance, Division of Insurance adopted N.J.A.C. 11:17-2.4 adding pet insurance to the list of limited lines coverage. The proposed rule cited the following reasons: 1) pet insurance products are offered by pet stores, veterinarian offices, pet training facilities, and other similar establishments, and are incidental to the services offered by such businesses; and 2) the knowledge and training needed to offer the product is unrelated to typical property and casualty insurance products and, as such, qualifies pet insurance as a limited line.

In November 2015, the former Producer Licensing Uniformity (D) Working Group adopted the following addition to ULS No. 37 in the Handbook:

“A state is not required to implement any non-core limited line of authority for which a state does not already require a license or which is already encompassed within a major line of authority; however, the states should consider products where the nature of the insurance offered is incidental to the product being sold to be limited line insurance products. If a state offers non-core limited lines (such as pet insurance or legal expense insurance), it shall do so in accordance with the following licensing requirements. Individuals who sell, solicit or negotiate insurance, or who receive commission or compensation that is dependent on the placement of the insurance product, must obtain a limited line insurance producer license. The individual applicant must: 1) obtain the limited lines insurance producer license by submitting the appropriate application form and paying all applicable fees as set forth in applicable state law; and 2) receive a program of instruction or training subject to review by the insurance department.”

The Working Group defined pet insurance as “health insurance coverage including, but not limited to, coverage for injury, illness and wellness for pets such as birds, cats, dogs and rabbits.”

Another issue to consider regarding producer licensing is claims handling. One approach could be to require the business to hold or maintain a license and designate one person to be licensed within the organization. This is similar to the license required for portable electronics insurance which is sold to cover the cost of repair or replacement of the electronic device being sold. Employees assisting in claims handling would not be required to be licensed under certain circumstances if their claim-related activity was limited to pet insurance. Due to the complex coverage options offered by pet insurance policies, it may not be in the best interest of the consumer to allow unlicensed individuals to adjust pet insurance claims. Alternatively, adjusters must review veterinary records, including non-standard pet health codes, which may require technical knowledge and expertise in animal science. This is not dissimilar to other lines of business in which subject matter experts (SMEs) work in conjunction with licensed adjusters or adjusters need specialized training to effectively handle claims where a high level of technical knowledge is

required. A combination of adjuster training and access to SMEs is needed to properly adjust pet insurance claims. Other lines of business may have separate licensing requirements for producers and adjusters requiring a full property casualty license for producers and a limited lines license for adjusters.

RATES

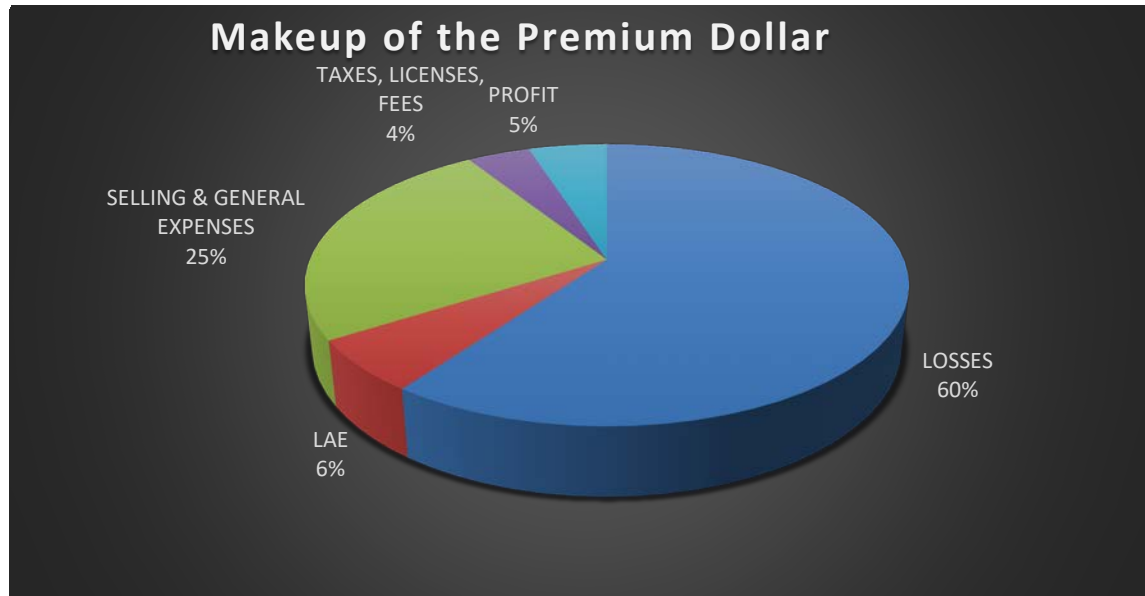
Pet insurance is regulated as a P/C insurance line of business included in the annual statement under inland marine. There is no specific financial reporting line for pet insurance, which makes it difficult to track the premiums attributable to pet insurance. Like most P/C lines, the rates and rating rules are regulated by the department of insurance (DOI) of the state in which the policies are written. SERFF contains a specific sub-type of insurance for pet insurance plans (9.0004). However, its use is not consistent in all states. For instance, in Rhode Island, pet insurance policies are filed under inland marine, a personal insurance code, rather than under the pet sub-type of insurance. Florida and, until recently, Virginia require pet insurance to be filed under livestock. Proposed rates and rating rules are frequently scrutinized by insurance professionals working within or under contract for the DOI to ensure that the rates are not inadequate, excessive or unfairly discriminatory.

When an insurer initiates a pet insurance program in a given state, and each time it wishes to change the rates and/or rating rules, the insurer files its proposal, with supporting documentation and various state-specific information, with the DOI. The DOI reviews the filing and either approves or disapproves the insurer's plan. State-specific filing guidance can be found at each state DOI's website. (See https://www.serff.com/serff_filing_access.htm.)

Like in other lines of insurance, for pet policies, the rate or premium charged is intended to cover the three basic costs of the insurer: 1) claim costs (also known as losses); 2) the insurer's expenses; and 3) a profit provision. The claim costs represent the largest portion of the insurance premium dollar (60%–70% for most P/C lines) and include loss adjustment expenses (LAEs). The expenses of the insurer include commissions paid to agents, general operating expenses, premium taxes, and other fees paid to the states. The profit provision (also known as profit and contingencies) affords a reasonable return on the insurer's invested capital. A significant amount of capital must be

available to guard against poor claim experience and catastrophes. Figure 5 shows the typical components of each premium dollar charged for pet insurance.

FIGURE 5. MAKEUP OF THE PREMIUM DOLLAR



As discussed in detail under the coverage options section above, many pet insurance carriers offer more than one health plan. By far the most common is an “accident and illness” plan covering both fortuitous injuries, as well as health issues of the pet (subject to various limitations and exclusions). A less expensive alternative is an accident-only plan, which may cost around 60% less than an accident and illness plan. Most policies are written on an annual basis.

For an additional charge, typical plan options can include (on a bundled or unbundled basis):

- Preventive/wellness care
- Dental care
- Spay/neuter
- Cancer treatment
- Diabetes coverage
- Inherited/congenital conditions
- Behavioral therapy
- Prescription coverage

- Alternative medicine
- Lost pet recovery
- Ambulance care
- Euthanasia/cremation/funeral coverage
- Accidental death benefit
- Travel/vacation coverage
- Boarding/kenneling (unforeseen circumstances)

Few insurers offer preventive or wellness as a stand-alone coverage. It is typically offered as an add-on to an accident and illness policy.

RATING

To understand pet insurance rates, one can think of an overall rate level and a rate structure. The overall rate level is usually represented by a base rate. A base rate is the starting point before various rate structure modifications are made. The rate structure can be viewed as a set of tables of multiplicative factors that modify the base rate according to various risk characteristics.

Given a rate structure, the base rate can be viewed as a scaling factor that adjusts the overall rate level to an appropriate magnitude. Consider a highly simplified example in which the rate structure recognizes two species (dog and cat) and two geographic classifications (rural and urban). Let us say the rate structure has the following rating factors:

Species	Geographic Class	
	Rural	Urban
Dog	1.00	2.00
Cat	0.60	1.20

In this rate structure, all else equal, the cat necessitates 40% less cost than the dog, and urban areas entail 100% more cost than rural areas. Of course, the insurer must select an overall dollar rate level to apply to the four rating factors as appropriate. Let us say the insurer selects an annual base rate of \$300. Then, a table of annual rates can be laid out as the above table of rating factors, multiplied by \$300, which represents the dollar-denominated scaling factor for the rating system:

Species	Geographic Class	
	Rural	Urban
Dog	\$300	\$600
Cat	\$180	\$360

Building the rates upon an overall rate level and rate structure allows the insurer to easily analyze and adjust rates over time. Inflation in veterinary costs will cause the base rate to increase over time. The rate structure will often stay stable for years at a time. Modest adjustments may be needed due to changes in cost drivers. Insurers typically monitor known cost drivers for increases over time.

Pet insurance rate structures are relatively similar across insurers, but they will have some variances in the risk characteristics, the rating factors for those risk characteristics, or both. Insurers generally use the same rate structure in all the states where they operate, but there may be exceptions based on a company initiative or state regulatory requirement.

Policy premium is the amount charged to the insured for coverage. An installment fee may be applied if the insured elects to pay for the insurance in installments rather than paying in full at the beginning of the policy term. Installment fees typically vary from \$1 to \$6 per pay period, depending on the insurer and the mode of payment (electronic funds transfer [EFT], credit card, etc.). An insurer may charge other fees such as non-sufficient fund fees, late fees, and reinstatement fees. These ancillary fees generally vary from \$10 to \$30 each. All fees, including ancillary fees, must be properly disclosed in rate filings along with supporting documentation.

RATING VARIABLES

A rating variable is a characteristic of a rating plan. Typical rating variables for pet insurance include geographic area, deductible, copay, limit, species, pet age, breed, etc. These rating variables are discussed in more detail below.

Geographic Area

Pet insurance rates generally vary by state and often by territory within the state. These territories are usually drawn along the boundaries of counties or ZIP code groupings. Generally, the rates will be higher in urban areas due to higher costs of veterinary services and other socioeconomic factors. For pet insurance, geographic rating factors may range from 1.000 on the low end to 2.000 for the highest cost areas in the U.S.

Deductible

A deductible is the amount of money an insured has agreed to pay for pet treatment before the insurer begins paying out on provided coverage. The deductible is intended to ensure that the insured seeks only necessary pet health treatment and pays for much or all of the smaller claims, with the insurer paying out only for larger claims. Discounts are provided for higher deductibles, resulting in lower annual premiums. Typical deductibles range from \$50 to \$250, although higher deductible plans can be purchased at a substantial premium savings.

Deductibles are typically provided by insurers on a per incident or annual basis. Some insurers allow the insured to select either annual or per incident options, while others only have one reimbursement method. Coverage typically costs more with an annual deductible because it tends to result in a higher cost for the insurer and lower cost for the insured. Coverage with an annual deductible routinely costs 4–6% more than a per incident deductible plan.

Co-Insurance or Copay

The co-insurance percentage (sometimes referred to as copay) is the percentage of loss the insured has agreed to pay after the deductible is satisfied. Much like the deductible, the co-pay is intended to encourage the insured to use the insurance judiciously, with some “skin in the game” in partnering with the insurer to keep costs at a necessary and reasonable level. Copays are usually provided as multiples of 10; i.e., 10%, 20%, 30% and possibly higher. As compared with a 10% co-pay, a 20% co-pay can save between 5% and 25% of the insurance cost, depending on the insurer. Premium discounts are provided for out-of-pocket costs in the form of the copayments for the insured. Plans with 0% copay may be available for a higher premium amount.

Limit

Insurance policy limits are the maximum dollar amount an insurer will pay for claims. Policy limits are normally expressed on a per incident basis, as well as an aggregate policy term basis. Many insurers have both per incident and aggregate limits for one policy. Few insurers also use maximum lifetime limits; i.e., for the life of the pet. Higher limits are more expensive because they could ultimately result in higher claim payments for the insurer. An illustration follows:

Deductible	\$100		
Deductible Type	Per Incident		
Copay	20%		
Per Incident Limit	\$1,000		
Annual Limit	\$10,000		
(1) Amount Charged for Pet Treatment	\$75	\$150	\$1,500
(three different scenarios shown)			
(2) Amount Paid by Insurer	\$0	\$40	\$1,000
(3) Amount Paid by Insured	\$75	\$110	\$500

NOTES:

\$75 treatment: $\$0 = \$75 - \$100$, subject to a minimum of \$0

\$150 treatment: $\$40 = (\$150 - \$100) \times (100\% - 20\%)$

\$1,500 treatment: $\$1,000 = (\$1,500 - \$100) \times (100\% - 20\%)$, subject to a maximum of \$1,000; i.e., the per incident limit

$(3) = (1) - (2)$

Also: If there had been 12 \$1,500 treatments in the course of an annual policy term, the insurer would have paid the first 10 only at \$1,000 each, since the insurer's annual limit (maximum liability) of \$10,000 would have been reached at that point.

Species

Most pet insurance carriers offer insurance for dogs and cats. Only one insurer offers coverage for other types of animals, such as birds and reptiles, under its exotics policy.

Pet Age

Most insurers will not cover pets less than eight weeks old or more than 12 years old. Health risks tend to be greater for these age ranges. For both dogs and cats, older pets can cost two to four times as much, depending on the insurer.

A few insurers use the age at which the pet was initially enrolled for health insurance, either in addition to or in lieu of the pet's current age. Use of initial enrollment age allows an insurer to guard against adverse selection (e.g., an older pet in failing health being insured for the first time). If the exact age of a pet is not known, the insurer may ask the insured to obtain an estimate from the pet's veterinarian. At least one insurer uses four different age curves for dogs depending on their weight. Typically, the heavier the dog, the steeper the age curve.

Breed

There are more than 100 dog breeds and around 50 cat breeds. Some of the most common dog breeds in the U.S. are Mixed Breed, Labrador Retriever, Golden Retriever, German Shepherd, Rottweiler, Bulldog, Poodle, Terrier and Boxer. Common cat breeds are the American Shorthair, Maine Coon, Oriental, Persian, Ragdoll, Siamese, Sphynx, Birman and Abyssinian. Most insurers group the breeds into 10 or 12 rating categories, with each category assigned a rating factor. Smaller dogs and mixed breeds are frequently in the lower rating categories, while larger pure bred dogs are assigned to the higher rating categories. Dogs in the highest rated category can cost 50–75% more than the lowest rated group. Cost variances for cats tend to be less. The cat breed factor curve will usually be significantly flatter, with the highest rated costing 0–50% more versus the lowest rated breed. This reflects the fact that breeds are significantly more homogeneous for cats than dogs in terms of size, build and other characteristics.

Multi-Pet

Many insurers offer a multi-pet discount because of the reduced administrative expenses per pet for a multi-pet policy. Multi-pet discounts are often in the 5–10% range.

Group Marketing

Many insurers offer a group marketing discount, also known as an association or affiliation discount. Marketing discounts recognize the cost efficiencies of partnering with different types of organizations in promoting the insurer's product and offering seminars, pamphlets and other services that strive to lower pet health costs. Typical partners include designated corporate groups—i.e., group benefit plans—affinity groups, strategic partners and veterinary clinics, for which the employees and/or members may receive the discount. Group marketing discounts are often in the 5–10% range.

Miscellaneous

Other rating variables used by some insurers include:

- Policy term; i.e., pro rata factor if other than one year.
- Waiting period length (discount for longer periods).
- Renewal discount.
- Claim-free discount.
- Pet gender; i.e., females rated about 5% less than males.
- Spay/neuter discount.
- Wellness plan discount.
- Predictive test discount.
- Exam fee coverage (discount for exclusion).
- Microchip/identification tattoo discount.
- Service or therapy dog discount (or surcharge).
- Military discount.
- Animal health employee discount.
- Shelter adoptee discount.
- Automated clearing house (ACH) payment discount.
- Premium paid-in-full discount; i.e., no installment plan used.

- Online enrollment/paperless policy administration discount.

RATING EXAMPLE

For a typical accident and illness plan, an illustrative and hypothetical example of the workup of a rate follows:

Overall Rate Level:

Annual Base Rate*	\$300

*Reflects:

Geographic Area	#1
Deductible	\$100
Deductible Type	Per Incident
Co-Pay	10%
Per Incident Limit	\$1,000
Annual Limit	\$10,000
Species	Dog
Pet Age	Less than 1 year
Breed Group	1
Multi-Pet	No
Group Marketing Member	No

Rate Structure Adjustments:

Geographic Area (#3)	1.160
Deductible (\$150)	0.955
Deductible Type (Annual)	1.060
Co-Pay (20%)	0.925
Per Incident Limit (\$2,000)	1.280
Annual Limit (\$10,000)	1.000
Species (Dog)	1.000
Pet Age (5)	1.240
Breed Group (4)	1.050
Multi-Pet (No)	1.000

Group Marketing Member (Yes) 0.950
Final Rate \$516; i.e., $\$300 \times 1.160 \times \dots \times 0.950$

RATEMAKING

Ratemaking represents the estimation of a set of rates needed to manage an insurance program. Rating uses a set of rates to determine which rate is appropriate for a particular risk given its risk characteristics. Generally, ratemaking is performed by an actuary; rating is performed by an underwriter. An overview of actuarial science is provided in Appendix 3.

Actuarial Standards of Practice (ASOPs) set forth principles and considerations for an actuary estimating costs associated with the transfer of risk. Principle 1, Principle 2 and Principle 3 from the Casualty Actuarial Society's (CAS) *Statement of Principles Regarding Property and Casualty Insurance Ratemaking* are particularly relevant:

- Principle 1: A rate is an estimate of the expected value of future costs.
- Principle 2: A rate provides for all costs associated with the transfer of risk.
- Principle 3: A rate provides for the costs associated with an individual risk transfer.

Adherence to these principles should lead to P/C rates that are reasonable, not excessive, and not unfairly discriminatory.

Some of the most important ASOPs published by the Actuarial Standards Board (ASB) that pertain to pet insurance ratemaking include:

- ASOP 12 – Risk Classification
- ASOP 13 – Trending Procedures in Property/Casualty Insurance
- ASOP 23 – Data Quality
- ASOP 25 – Credibility Procedures
- ASOP 29 – Expense Provisions in Property/Casualty Insurance Ratemaking
- ASOP 30 – Treatment of Profit and Contingency Provisions and the Cost of Capital in Property/Casualty Insurance Ratemaking
- ASOP 41 – Actuarial Communications

RATEMAKING EXAMPLE

If the actuary can estimate the expected losses for a given policy and knows the expense structure, he/she can estimate the needed rate as a grossing up of the expected losses. This approach is often used at the onset of an insurance program.

BASIC RATEMAKING FORMULA
A simple example

Suppose:

- Only cash flows are:
 - Premium
 - Losses (L) of \$240
 - Expenses (E) of 33.3%
(all expenses variable with premium)

Then:

- $\text{Premium} = L / (100.0\% - E)$
 $= \$240 / (100.0\% - 33.3\%)$
 $= \$360$

So, here's the transaction:

```
graph LR; A[Collect $360 in rate] --> B[Then pay 33.3% expenses $120]; B --> C[And have $240 left to pay claims]
```

As the insurance program grows and develops a significant amount of premium, the actuary will normally analyze the performance annually to determine the indicated rate change. The goal is to estimate how much the premiums would need to be adjusted to bring the relationship between losses and premiums (loss ratio) in line with the targeted loss ratio as implied by the expense structure. An example is provided below.

Overall Rate Indication

A simple example

Assume all expenses are variable with premium and add to 33.3% of premium.
Earned premium and incurred losses have been “adjusted to current levels.”

<u>Accident Year</u>	<u>Earned Premium</u>	<u>Incurred Losses</u>	<u>Loss Ratio</u>
2013	125,000	50,000	40.0%
2014	370,000	209,000	56.5%
2015	490,000	220,000	44.9%
2016	600,000	355,000	59.2%
2017	720,000	395,000	54.9%
Total/ Average	\$2,305,000	\$1,229,000	53.3%
Expected and Projected Loss Ratio		53.3%	
Permissible Loss Ratio (= 100.0% - 33.3%)		66.7%	
Indicated Rate Change		-20.1%	

Notes: Loss Ratio = (Incurred Losses)/(Earned Premium): -20.1% indication = 53.3%/66.7% - 1

Example of Rate Structure Change:

Assuming the book of business is equally weighted among rural dogs, rural cats, urban dogs and urban cats, the rating factors are as follows:

Species	Geographic Class	
	Rural	Urban
Dog	1.000	2.000
Cat	0.600	1.200

Average rating factor = 1.200 = (25% x 1.000) + (25% x 0.600) + (25% x 2.000) + (25% x 1.200)

Average rate = \$360 = (\$300 base rate) x (1.200 average rating factor)

If the loss experience in the rural category is 10% better than expected and the urban experience is 25% better than expected (overall experience 20% better than expected), then the indicated rating factors would be:

Species	Geographic Class	
	Rural	Urban
Dog	0.900	1.500
Cat	0.540	0.900

Average rating factor = 0.960 = (25% x 0.900) + (25% x 0.540) + (25% x 1.500) + (25% x 0.900)

The rural dog is intended to be the starting point in the rating system with a factor of 1.000, so all four factors need to be multiplied by 1.111 to rebase the starting point.

Species	Geographic Class	
	Rural	Urban
Dog	1.000	1.667
Cat	0.600	1.000

Average rating factor = 1.067 = (25% x 1.000) + (25% x 0.600) + (25% x 1.667) + (25% x 1.000)

The average rate started at \$360 and the experience came in 20% better than expected, so the new system should have an average rate of \$288 (\$360 x [100% – 20%]). Because the new rate structure has an average rating factor of 1.067, the new base rate should be \$270 (\$288 / 1.067).

ANNUAL STATEMENT DATA

Pet insurance is a health insurance policy for a pet. This is a relatively new product to the insurance market and is regulated as P/C. Pet insurance is filed within the NAIC *Financial Annual Statement on the Exhibit of Premiums and Losses* (state page) for inland marine (line 09). This is unique to P/C because the policy is not purchased to insure an animal for purely monetary reasons. Pet owners purchase this type of insurance to protect their pet's health and help manage the cost of

veterinary bills. Coverage includes veterinary care plan insurance policies. Veterinary care plan policies provide coverage for the insured's pet in the event of illness or accident. Insurance companies report total premium for pet insurance under inland marine insurance, which may include other coverages such as travel insurance, jewelry, and other scheduled personal property. As a result, determining the exact premium volume for a product within the inland marine line is challenging. The NAPHIA provides premiums by state in its annual *State of the Market Report* for a fee. However, the information does not provide a breakdown by company, and such information would likely require a separate data call or modification to the NAIC *Financial Annual Statement*. Modification could include a separate line item on the state page specifically for pet insurance.

Although inland marine (line 09) of the state page will account for most pet insurance data, additional data may be found under farmowners multiple peril (line 03), commercial multiple-peril (line 05), and aggregate write-ins for other lines of business (line 34). Also, depending on the type of animal insured, there could be additional categories in other inland marine areas, such as livestock (line 9.0001). Finally, homeowners policies (line 04 on the state page) may include insurance coverage if a pet causes someone injury, as in a dog bite. However, homeowners insurance covers the owner's liability only and does not provide medical coverage for the insured's pet. Several exclusions, including specified dog breeds, apply.

CLAIMS PRACTICES

According to the NAPHIA's 2018 *State of the Industry Report*, approximately 1.83 million pets in the U.S. were covered by pet insurance, with 98% of those being accident and illness policies, earning insurers more than \$1 billion in premiums. In a high frequency, low severity product line, how claims are handled has a significant impact on an insurer's profit, as well as its ability to attract and maintain customers.

State insurance regulators have historically identified claim practice concerns through the tracking of consumer complaints. However, this information is not readily available for pet insurance for a couple of reasons. The first reason is pet insurance is not separately identified in most state complaint databases. To remedy this lack of information, states using State Based Systems (SBS) could include a separate item in the complaints section for pet insurance. The second reason for

the lack of information regarding consumer complaints tied to pet insurance could be because consumers do not know how to file claims or which entity they should report due to the use of brand names.

The NAPHIA provided complaints data representing the number of complaints reported to the state DOI for each of its member companies. The total represents the minimum number of complaints reported, as it does not include information for all companies, nor does it consider complaints filed directly with the insurer or via any method other than those filed directly with the state DOI. According to the NAPHIA, in 2017, a total of 320 complaints were filed with a DOI. This represents a 0.0174% complaint ratio (320 complaints/1.8 million policies). Without a measurable system to track all complaints specific to pet insurance, it is difficult to determine if the low complaint volume is attributable to consumer satisfaction with the products available in the market.

To supplement the data obtained from the NAPHIA, independent research into pet insurance claim practices was conducted using available online consumer review resources such as <https://www.consumeradvocate.org>, <https://www.consumeraffairs.com>, <https://www.consumerreports.org> and the Better Business Bureau.

Online consumer reviews found on these pages suggest that complaints against pet insurers fall into categories similar to those of other P/C lines of business: claim delay, claim denial, and partial or insufficient claim payments.

Some complaints may be attributed to the consumer's misunderstanding of coverage and the policy terms and conditions. Restrictions, waiting periods, fee schedules, excluded preexisting, and congenial and hereditary conditions are often not obvious to the consumer until after they have a loss. Companies can serve their policyholders better by providing clear and understandable information regarding:

- Whether congenital and hereditary conditions (such as hip dysplasia, heart defects, cataracts or diabetes) are covered.

- How reimbursement is calculated (based on the actual vet bill, a benefit schedule, or usual and customary rates).
- Whether the deductible is on a per-incident or annual basis.
- Whether there are limits or caps applied (per incident, per year, age, or over the pet's lifetime).
- Whether there is an annual contract that determines if anything diagnosed in the prior year of coverage would be considered a preexisting condition and excluded from coverage in subsequent policy terms.
- What conditions may be considered preexisting.
- How to appeal claim denials.
- Whether the vet is paid directly by the insurance carrier or the insured must pay the vet and be reimbursed by the carrier.

A Feb. 13, 2018, NAIC Consumer Alert⁷ lists other critical details that a consumer should know, including, but not limited to:

- Can I choose any veterinarian?
- Does the policy cover annual wellness exams?
- Are prescriptions covered?
- Are spaying and neutering covered?
- How long does it take to pay a claim?
- Does the plan have end of life benefits?

California recognized the need for coverage disclosure. Assembly Bill No. 2056, which can be found in Appendix 2, requires insurers to disclose the basis or formula on which the insurer determines claim payments, the benefit schedule used, and the usual and customary fee limitation. Disclosures must be made within the policy and through a link on the main page of the insurer's website.

⁷ NAIC, 2018. "Pet Insurance: It Could Save Your Pet's Life, Could Save You Money."

According to the *Los Angeles Times*,⁸ a 2016 report found that 37% of all pet insurance claims were denied in California. No commensurate figure for the U.S. could be found, but one could extrapolate similar numbers. The subject of the article was a nearly \$13,000 claim that was denied, appealed and denied again. It was not until the *Los Angeles Times* stepped in to do an exposé that the claim was paid.

In most cases, especially in emergency situations, the expense is incurred before the insured has an opportunity to check with the insurer regarding coverage. This is another point of contrast, with most other types of property coverage where an adjuster may conduct an appraisal before most expenses are incurred.

REGULATORY CONCERNS

Although pet insurance products have been around for many years, the demand for insurers willing to offer the coverage have increased. The regulatory framework and reporting requirements may be less familiar to the more recent entrants to the market. Development of a model to place all carriers on a level playing field may benefit insurers and consumers. State insurance regulators have identified several concerns that might be served by the development of a model act. Insurance regulation is in place to ensure consumer protection and includes requirements for licensure, reporting, policy procedures, marketing and sales. Market conduct activity is a concern for all insurance products, and the issues presented are not representative of the entire pet insurance industry.

In 2013, the Washington State Office of the Insurance Commissioner (OIC) began monitoring a pet insurer due to suspected use of non-licensed producers to market and sell its pet insurance products. The Washington OIC launched a targeted market conduct examination on July 15, 2014. The examination was conducted to address concerns regarding: failure to disclose the legal company name in operations; use of non-licensed producers to market and sell pet insurance; use of the brand name, implying that it is an insurance company; use of non-filed or approved policy

⁸ Lazarus, D., 2018. "Be Ready to Fight If a Pet Insurer, Like a People Insurer, Denies a Valid Claim," *Los Angeles Times*, accessed at <http://www.latimes.com/business/lazarus/la-fi-lazarus-pet-insurance-denials-20180126-story.html>.

forms; and offering discounts not included in approved filings.⁹ These issues are exacerbated by the use of brand names and the changing landscape of insurer to branding entity relationships.

Market Conduct Concerns

Conducting Business in Legal Insurer Name

Marketing by brand name causes confusion not only for consumers, but also for employees of the agencies, TPAs, and partners such as veterinary clinics and hospitals.

According to the *Unfair Trade Practices Act*¹⁰ (#880), “making, publishing, disseminating, circulating or placing before the public, or causing, directly or indirectly to be made, published, disseminated, circulated, or placed before the public, in a newspaper, magazine or other publication, or in the form of a notice, circular, pamphlet, letter or poster, or over any radio or television station, or in any other way, an advertisement, announcement or statement containing any assertion, representation or statement with respect to the business of insurance or with respect to any insurer in the conduct of its insurance business, which is untrue, deceptive or misleading” is considered an unfair trade practice.

If consumers have difficulty identifying the underwriter, they may not know how to file a complaint with the state DOI. Branding entities may change underwriters or use multiple underwriters, making it difficult even for state insurance regulators to track the insurer with a duty to indemnify claims. Additionally, consumers may file complaints instead with the branding entity, agency or insurer directly. Review of various social media sites reveals a growing number of consumer complaints regarding claims handling and marketing practices. Due to confusion as to the direct underwriter, these complaints may never be effectively reported. Often, consumers have complaints regarding conditions or what is actually covered in the policy. The California bill addressed these issues by requiring insurers to provide certain disclosures, including the policy exclusions and claim reimbursement methods to policyholders, as well as post them on the

⁹ <https://www.insurance.wa.gov/sites/default/files/documents/american-pet-insurance-company-exam-report.pdf>

¹⁰ <https://www.naic.org/store/free/MDL-880.pdf?25>

insurer's website. Without proper reporting, these issues do not get addressed with the underwriting carrier. Failure to maintain a complete record of all the complaints insurers receive since the date of its last examination is considered an unfair trade practice according to Model #880.

If a model act is drafted, it should address the disclosure of the statutory insurance company to the consumer.

Use of Non-licensed Producers to Market and Sell Pet Insurance

During the Washington OIC's targeted market conduct exam, it was determined that a pet insurer used appointed agencies to market and sell its pet insurance policies. Both entities were licensed producers; although, they employed unlicensed, non-appointed call center representatives to solicit and sell policies to consumers.

Additional insurance departments have found that some pet insurance products are being marketed through unlicensed producers, including veterinarians. In some instances, veterinarians and their staff are incentivized to market specific products with potential for rewards like gift cards, products or even paid vacations. Use of non-licensed personnel for the marketing of insurance products creates a need for additional regulatory investigations and may result in insurer examination.

Form and Filing Review and Oversight

Pet insurance products are subject to Model #880 and filed with the state. Unfortunately, it has been found that some branding entities have marketed policy language and rates not filed with the state DOI. There are also concerns regarding premium waivers, unfiled discounts, and satisfaction guarantees made when products are sold. Some pet insurance branding entities offer discounts and/or coupons through online retail sites or flyers and business cards left in veterinarian offices, animal shelters and retail stores. Any discounts or coupons should be reported by the pet insurance carrier and filed with the state DOI.

Additionally, it has been found that pre-dispute arbitration clauses are being used in some pet insurance products. States may want to determine if that is appropriate for this personal line product.

As with many insurance products, consumers may not fully understand the products offered for sale to them. These policies can contain exclusions for coverage due to preexisting or congenital conditions. Treatment of preexisting conditions and how they are applied to the policy are of concern to state insurance regulators. Preexisting conditions should be thoroughly defined, including whether a condition found in one policy term would be excluded in future terms and if a relative condition could be excluded because it may have resulted from a preexisting condition. Coverage options may be added back through additional riders in some, but not all, instances. Plans may also have annual or lifetime limits for payment. The billing process varies by carrier and brand/agency/TPA. Consumers either must pay out of pocket and be reimbursed or billing software may be set up for the insurer to pay the veterinarian directly.

Lack of Pet Specific Product Data

Premium Data

States may have difficulty measuring growth in their individual markets without a known resource such as the NAIC annual statement because pet insurance does not have its own line. Pet insurance products are to be reported under inland marine, which incorporates several miscellaneous coverages. This makes it difficult to measure the pet insurance market specifically. Therefore, state insurance regulators may want to explore the determination of market share in a coordinated manner through the NAIC. As discussed above, this could be through a specific data call or modification to the NAIC annual financial statement.

Complaint Data

Complaint data may be difficult to identify for pet insurance, specifically as it is not always labeled as such in the NAIC state-based system complaint tracking database, the NAIC consumer

information source, or individual state complaint tracking resources. The lack of data regarding complaint data, specifically for pet insurance products, could be partially remedied by the modification to allow pet products to be easily identified in complaint databases. Additional concerns regarding complaints due to the use of brand names are outlined above.

Reciprocal Producer Licensing

Some states may grant a limited lines pet insurance producer license. If these producers apply to another state that does not have a limited lines pet insurance license, depending on the state reciprocity rules, the producer may be granted a full lines P/C producer license, limiting the producer to the authority provided by the resident state. For example, Idaho issues a resident limited lines producer license for pet insurance; however, Washington does not offer this limited line. In a reciprocal licensing approach, Washington would issue a non-resident producer P/C license to the Idaho resident, restricting this producer to the authority granted in Idaho. It should be noted that there is no way to reflect that this license is restricted to pet insurance, and the national licensing database as well as the Washington website will reflect the non-resident license issued as a P/C line of authority.

States should address with clarity the licensing obligations for the sale, solicitation and negotiation of this product and, if applicable in the individual state, the licensing obligations for claims adjustment. For states that permit limited line producer licenses, products will need to be filed that align with the authority permitted by the limited license. Producers will also require monitoring to make sure they are not selling homeowners or other products that exceed the limited line authority.

RESOURCES

www.naic.org/cipr_topics/topic_pet_insurance.htm

www.naic.org/documents/cmte_ex_pltf_producer_licensing_exposure_pet_insurance_presentation.pdf

<https://www.aspcapetinsurance.com/research-and-compare/pet-insurance-basics/pet-insurance-basics/>

APPENDICES

Appendix 1: Glossary of Terms

Chronic condition means a condition that can be treated or managed, but not cured.

Congenital anomaly or disorder means a condition that is present from birth, whether inherited or caused by the environment, which may cause or otherwise contribute to illness or disease.

Hereditary disorder means an abnormality that is genetically transmitted from parent to offspring and may cause illness or disease.

Pet insurance means an individual or group insurance policy that provides coverage for veterinary expenses.

Preexisting condition means any condition for which a veterinarian provided medical advice, the pet received treatment for, or the pet displayed signs or symptoms consistent with the stated condition prior to the effective date of a pet insurance policy or during any waiting period.

Veterinarian means an individual who holds a valid license to practice veterinary medicine from the Veterinary Medical Board pursuant to Chapter 11 of Division 2 of the Business and Professions Code or other appropriate licensing entity in the jurisdiction in which he or she practices.

Veterinary expenses means the costs associated with medical advice, diagnosis, care or treatment provided by a veterinarian, including, but not limited to, the cost of drugs prescribed by a veterinarian.

Waiting or affiliation period means the period of time specified in a pet insurance policy that is required to transpire before some or all of the coverage in the policy can begin.

Source: California Assembly Bill No. 2056, Chapter 896.

Appendix 2: California Assembly Bill No. 2056, Chapter 896

An act to add Part 9 (commencing with Section 12880) to Division 2 of, the Insurance Code, relating to insurance.

[Approved by Governor September 30, 2014. Filed with Secretary of State September 30, 2014.]

legislative counsel's digest

AB 2056, Dababneh. Insurance: pet insurance.

Existing law governs the business of insurance and authorizes the Insurance Commissioner to provide oversight over the insurance industry including, life and disability insurance, health insurance, workers' compensation, and liability insurance. The commissioner is authorized to, among other things, conduct investigations and bring enforcement actions against insurers for violations of the laws governing the business of insurance.

This bill would regulate pet insurance policies that are marketed, issued, amended, renewed, or delivered, whether in California, to a California resident, on or after July 1, 2015, regardless of the situs of the contract or master group policyholder, or the jurisdiction in which the contract was issued or delivered. The bill would define certain terms and specify certain disclosures a pet insurer is required to make to consumers. The bill would also require an insurer transacting pet insurance in this state to disclose, among other things, whether the policy excludes coverage because of a preexisting condition, a hereditary disorder, a congenital anomaly, or a chronic condition, and would require that pet insurance policies have a free look cancellation period of not less than 30 days, as provided.

This bill would authorize the commissioner to hold a hearing to determine if an insurer is in violation of the provisions governing pet insurance and to assess a civil penalty, which is to be determined by the commissioner but not to exceed \$5,000 for each violation, or \$10,000 for a willful violation. The hearing would be required to be conducted pursuant to the Administrative Procedure Act, except as specified, and a person found to be in violation may have the proceedings reviewed by means of any remedy pursuant to a specified statute or the Administrative Procedure Act. The bill would authorize the commissioner to adopt reasonable rules and regulations, as necessary, in accordance with the Administrative Procedure Act in order to implement these requirements.

The people of the State of California do enact as follows:

SECTION 1. Part 9 (commencing with Section 12880) is added to Division 2 of the Insurance Code, to read:

PART 9. PET INSURANCE

12880. For purposes of this part, the following definitions shall apply:

- (a) “Chronic condition” means a condition that can be treated or managed, but not cured.
- (b) “Congenital anomaly or disorder” means a condition that is present from birth, whether inherited or caused by the environment, which may cause or otherwise contribute to illness or disease.
- (c) “Hereditary disorder” means an abnormality that is genetically transmitted from parent to offspring and may cause illness or disease.
- (d) “Pet insurance” means an individual or group insurance policy that provides coverage for veterinary expenses.
- (e) “Preexisting condition” means any condition for which a veterinarian provided medical advice, the pet received treatment for, or the pet displayed signs or symptoms consistent with the stated condition prior to the effective date of a pet insurance policy or during any waiting period.
- (f) “Veterinarian” means an individual who holds a valid license to practice veterinary medicine from the Veterinary Medical Board pursuant to Chapter 11 (commencing with Section 4800) of Division 2 of the Business and Professions Code or other appropriate licensing entity in the jurisdiction in which he or she practices.
- (g) “Veterinary expenses” means the costs associated with medical advice, diagnosis, care, or treatment provided by a veterinarian, including, but not limited to, the cost of drugs prescribed by a veterinarian.
- (h) “Waiting or affiliation period” means the period of time specified in a pet insurance policy that is required to transpire before some or all of the coverage in the policy can begin.

12880.1. A policy of pet insurance that is marketed, issued, amended, renewed, or delivered, whether or not in California, to a California resident, on or after July 1, 2015, regardless of the situs of the contract or master group policyholder, or the jurisdiction in which the contract was issued or delivered, is subject to this part.

12880.2. (a) An insurer transacting pet insurance in California shall disclose all of the following to consumers:

(1) If the policy excludes coverage due to any of the following:

- (A) A preexisting condition.
- (B) A hereditary disorder.
- (C) A congenital anomaly or disorder.
- (D) A chronic condition.

- (2) If the policy includes any other exclusion, the following statement: “Other exclusions may apply. Please refer to the exclusions section of the policy for more information.”
- (3) Any policy provision that limits coverage through a waiting or affiliation period, a deductible, coinsurance, or an annual or lifetime policy limit.
- (4) Whether the insurer reduces coverage or increases premiums based on the insured’s claim history.
- (b) (1) If a pet insurer uses any of the terms in paragraph (1) of subdivision (a) in a policy of pet insurance, the insurer shall use the definition of those terms as set forth in Section 12880 and include the definition of the term in the policy. The pet insurer shall also make that definition available through a link on the main page of the insurer’s Internet Web site.
- (2) Nothing in this subdivision or Section 12880 in any way prohibits or limits the types of exclusions pet insurers may use in their policies, nor does it require pet insurers to have any of the limitations or exclusions defined in Section 12880.
- (c) A pet insurer shall clearly disclose a summary description of the basis or formula on which the insurer determines claim payments under a pet insurance policy within the policy and through a link on the main page of the insurer’s Internet Web site.
- (d) A pet insurer that uses a benefit schedule to determine claim payment under a pet insurance policy shall do both of the following:
- (1) Clearly disclose the applicable benefit schedule in the policy.
- (2) Disclose all benefit schedules used by the insurer under its pet insurance policies through a link on the main page of the insurer’s Internet Web site.
- (e) A pet insurer that determines claim payments under a pet insurance policy based on usual and customary fees, or any other reimbursement limitation based on prevailing veterinary service provider charges, shall do both of the following:
- (1) Include a usual and customary fee limitation provision in the policy that clearly describes the insurer’s basis for determining usual and customary fees and how that basis is applied in calculating claim payments.
- (2) Disclose the insurer’s basis for determining usual and customary fees through a link on the main page of the insurer’s Internet Web site.
- (f) The insurer shall create a summary of all policy provisions required in subdivisions (a) through (e), inclusive, into a separate document titled “Insurer Disclosure of Important Policy Provisions.”
- (g) The insurer shall post the “Insurer Disclosure of Important Policy Provisions” document required in subdivision (f) through a link on the main page of the insurer’s Internet Web site.

- (h) (1) In connection with the issuance of a new pet insurance policy, the insurer shall provide the consumer with a copy of the “Insurer Disclosure of Important Policy Provisions” document required pursuant to subdivision (f) in at least 12-point type when it delivers the policy.

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- (2) In addition, the pet insurance policy shall have clearly printed thereon or attached thereto a notice stating that, after receipt of the policy by the owner, the policy may be returned by the insured for cancellation by delivering it or mailing it to the insurer or to the agent through whom it was purchased.
- (A) The period of time set forth by the insurer for return of the policy shall be clearly stated on the notice, and this free look period shall be not less than 30 days. The insured may return the policy to the insurer or the agent through whom the policy was purchased at any time during the free look period specified in the notice.
- (B) The delivery or mailing of the policy by the insured pursuant to this paragraph shall void the policy from the beginning, and the parties shall be in the same position as if a policy or contract had not been issued.
- (C) All premiums paid and any policy fee paid for the policy shall be refunded to the insured within 30 days from the date that the insurer is notified of the cancellation. However, if the insurer has paid any claim, or has advised the insured in writing that a claim will be paid, the 30-day free look right pursuant to this paragraph is inapplicable and instead the policy provisions relating to cancellation apply to any refund.
- (i) The disclosures required in this section shall be in addition to any other disclosure requirements required by law or regulation.

12880.3. (a) A person who violates a provision of this part is liable to the state for a civil penalty to be determined by the commissioner, not to exceed five thousand dollars (\$5,000) for each violation, or, if the violation was willful, a civil penalty not to exceed ten thousand dollars (\$10,000) for each violation. The commissioner may establish the acts that constitute a distinct violation for purposes of this section. However, when the issuance, amendment, or servicing of a policy or endorsement is inadvertent, all of those acts constitute a single violation for purposes of this section.

- (b) The penalty imposed by this section shall be imposed by and determined by the commissioner pursuant to Section 12880.4. The penalty imposed by this section is appealable by means of any remedy provided by Section 12940 or by Chapter 5 (commencing with Section 11500) of Part 1 of Division 3 of Title 2 of the Government Code.

12880.4. (a) Whenever the commissioner shall have reason to believe that a person has engaged or is engaging in this state in a violation of this article, and that a proceeding by the commissioner in respect thereto would be to the interest of the public, he or she shall issue and serve upon that person an order to show cause containing a statement of the charges in that respect, a statement of that person’s potential liability under this part, and a notice of a hearing thereon to be held at a time and place fixed therein, which shall not be less than 30 days after the service thereof, for the purpose of determining whether the commissioner should issue an order to that person to pay the penalty imposed by Section 12880.3 and to cease and desist those methods, acts, or practices, or any of them, that violate this article.

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(b) If the charges or any of them are found to be justified, the commissioner shall issue and cause to be served upon that person an order requiring that person to pay the penalty imposed by Section 12880.3 and to cease and desist from engaging in those methods, acts, or practices found to be in violation of this part.

(c) The hearing shall be conducted in accordance with the Administrative Procedure Act (Chapter 5 (commencing with Section 11500) of Part 1 of Division 3 of Title 2 of the Government Code), except that the hearings may be conducted by an administrative law judge in the administrative law bureau when the proceedings involve a common question of law or fact with another proceeding arising under other Insurance Code sections that may be conducted by administrative law bureau administrative law judges. The commissioner and the appointed administrative law judge shall have all the powers granted under the Administrative Procedure Act.

(d) The person shall be entitled to have the proceedings and the order reviewed by means of any remedy provided by Section 12940 or by the Administrative Procedure Act.

12880.5. The commissioner may adopt reasonable rules and regulations, as are necessary to administer this part, in accordance with the rulemaking provisions of the Administrative Procedure Act (Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code).

Appendix 3: Overview of Actuarial Science

Considering the ratemaking discussion in this paper, a few words about actuarial science may be helpful.

Actuarial science is the discipline that applies mathematical and statistical methods to evaluate risk in insurance and other business endeavors. Actuaries are professionals who become experts in their field based upon years of education and experience.

Many universities have undergraduate and graduate degree programs in actuarial science. The actuarial profession is well-known for its rigorous professional examinations which must be passed to be recognized as a Fellow of the Society of Actuaries (FSA) or Fellow of the Casualty Actuarial Society (FCAS).

Actuarial science represents several interesting fields, including mathematics, probability theory, statistics, accounting, finance, economics, information technology, law and insurance.

In the U.S., there are several actuarial societies serving various functions:

- The Society of Actuaries (SOA)
- The CAS
- The American Academy of Actuaries (Academy)
- The ASB (part of the AAA)

In the P/C insurance company arena, the most common functions that an actuary serves are ratemaking (also known as pricing) and loss reserving. Ratemaking represents the estimation of future costs, and thereby needed premium, for future policies; loss reserving represents the estimation of future claims payments for policies already written by the insurance entity. Such future claims payments represent an important liability for the insurer and also play an important role in the ratemaking process because future costs are estimated based on past costs along with inflation and other adjustments.

Most P/C actuaries work for an insurance company or reinsurance company; some work for a consulting or brokerage firm; and others work for a state DOI, a college or university, a rating bureau, a modeling firm, or other type of entity.

PROJECT HISTORY

A REGULATOR'S GUIDE TO PET INSURANCE

1. Description of the Project, Issues Addressed, etc.

In December 2016, an insurer in the pet health insurance (pet insurance) industry voiced concerns to the Producer Licensing (D) Task Force regarding the use of limited lines licensing for pet insurance. The insurer recommended that pet insurance be removed from the *State Licensing Handbook* Uniform Licensing Standard (ULS) #37 as a limited line. It was the insurer's opinion that a full property/casualty (P/C) line should be required to sell, solicit or negotiate pet insurance. Reasons cited include: 1) tremendous growth in the pet insurance market; 2) policy premiums that far exceed the cost of the covered item—i.e., the pet; and 3) complex policies with multiple coverage options and exclusions. Traditionally, limited lines products are designed to be incidental to the sale of another product which, according to the insurer, is not the case with pet insurance. The Task Force decided that it needed to better understand the complexities of pet insurance before offering guidance regarding the type of producer license required to sell the product. As a result, the Task Force made a referral to the Property and Casualty Insurance (C) Committee to draft a comprehensive white paper providing information on coverage options, product approval, marketing, ratemaking, claims practices and regulatory concerns.

During the 2018 Spring National Meeting, the Property and Casualty Insurance (C) Committee formed a drafting group to develop a white paper to provide an overview of the pet insurance industry. Pursuant to the charge “to consider the development of a white paper reviewing the coverage options, product approval, marketing, rating, and claims practices related to pet insurance,” the white paper provides context regarding the origination of pet insurance and identifies recent market growth, industry practices, coverage options, the current regulatory environment, claims history and regulatory concerns.

2. Name of Group Responsible for Drafting the Model and States Participating

A drafting group, formed under the Property and Casualty Insurance (C) Committee, made up of the following state insurance regulators worked on the draft *A Regulator's Guide to Pet Insurance*: California, Colorado, Kansas, Louisiana, Maryland, Massachusetts, New Hampshire, Ohio, Rhode Island and Washington.

3. Project Authorized by What Charge and Date First Given to the Group

During a conference call held on Nov. 9, 2017, the Property and Casualty Insurance (C) Committee adopted a charge based on a referral from the Producer Licensing (D) Task Force, “to consider the development of a white paper reviewing the coverage options, product approval, marketing, rating and claims practices related to pet insurance.” During the 2018 Spring National Meeting, the Property and Casualty Insurance (C) Committee formed a drafting group to develop the white paper.

4. A General Description of the Drafting Process (e.g., drafted by a subgroup, interested parties, the full group, etc.). Include any parties outside the members that participated.

Drafting group conference calls were open to all state insurance regulators and interested parties opting to participate. Drafting commenced April 25, 2018, with monthly calls through September and bi-weekly calls through October. The drafting states were California, Colorado, Kansas, Louisiana, Maryland, Massachusetts, New Hampshire, Ohio, Rhode Island and Washington. The following interested parties were also involved throughout the drafting process: North American Pet Health Insurance Association (NAPHIA), American Insurance Association (AIA), Crum & Forster, Chubb, Allianz, State National, Nationwide, Locke Lord, Trupanion, Fairfax, INS Companies, Westmont Associates, Polsinelli, and NAIC funded consumer representatives Birny Birnbaum (Center for Economic Justice—CEJ) and Brenda J. Cude (University of Georgia).

5. A General Description of the Due Process (e.g., exposure periods, public hearings or any other means by which widespread input from industry, consumers and legislators was solicited)

Several drafts of the white paper were exposed to the drafting group between April and October 2018. Interested parties and interested state insurance regulators provided content and comments on the white paper throughout that time. The Property and Casualty Insurance (C) Committee exposed the white paper for comment at the 2018 Fall National Meeting. Comments were collected through Dec. 21, 2018. Four comment letters were received. The white paper was revised based on the comments received and adopted by the Property and Casualty Insurance (C) Committee during its March 28, 2019, conference call.

6. A Discussion of the Significant Issues (items of some controversy raised during the due process and the group's response)

Through the development of the white paper, the drafting group identified deficiencies in credible, un-biased data sources relative to premiums, losses and claims specific to pet insurance. Massachusetts, along with other states, suggested that the NAIC add pet insurance as a separate line of business in the annual financial statement. As noted in the white paper, pet insurance is currently included under inland marine (line 09). Alternatively, data specific to pet insurance could be collected through a separate property supplement, as was done with the cybersecurity insurance coverage supplement. Either change to the NAIC annual financial statement would require a proposal to the Blanks (E) Working Group.

Claims information specific to pet insurance is included in the white paper; however, no data sources were found that could be verified by state insurance regulators. Several state insurance regulators suggested that NAIC systems be modified to collect claims specific to pet insurance.

As noted above, comments were collected throughout the drafting process. As appropriate, comments received were integrated into the white paper. Several interested parties offered suggestions for the licensing of pet insurance producers and/or adjusters. While these comments were helpful to facilitate the discussion, they were not integrated into the white paper as it was determined that a final recommendation was outside the scope of the charge. One carrier recommended the ULS be revised to eliminate pet insurance as an example of a non-core limited line for producers. Another carrier expressed support for pet insurance to be licensed as a non-core limited line for producers. A third carrier voiced concern regarding the licensure of adjusters and the need for animal health science knowledge and technical training not customary for a traditional P/C adjuster. The arguments for each perspective were included in the white paper for state insurance regulator's consideration, but no final recommendation was made, as that was determined to be outside of the scope of the white paper.

7. Any Other Important Information (e.g., amending an accreditation standard)

During the March 28, 2019, conference call of the Property and Casualty Insurance (C) Committee, the Committee's chair, Superintendent Elizabeth Kelleher Dwyer (RI), appointed a Pet Insurance (C) Working Group to review the white paper and consider drafting a model law in order to address regulatory issues related to pet insurance.

w:\drafts\project history\white papers\PetInsWP PH.docx

Property & Casualty Market Conduct Annual Statement
Private Flood Data Call & Definitions

Line of Business: Private Flood

Reporting Period: January 1, 20XX through December 31, 20XX

Filing Deadline: April 30, 20XX

Contact Information

MCAS Administrator	The person responsible for assigning who may view and input company data.
MCAS Contact	The person most knowledgeable about the submitted MCAS data. This person can be the same as the MCAS Administrator.
MCAS Attestor	The person who attests to the completeness and accuracy of the MCAS data.

Interrogatories

Provide an answer for each of the six product types, unless otherwise instructed.

		Stand-alone policies		Endorsement to a Homeowners Policy		Endorsement to a Property Policy Other Than Homeowners	
		First Dollar Coverage	Excess Coverage	First Dollar Coverage	Excess Coverage	First Dollar Coverage	Excess Coverage
1.	Does the reporting company write private flood policies or endorsements? (Y/N)						
2.	Were private flood policies or endorsements in force during the reporting period? (Y/N)						

Property & Casualty Market Conduct Annual Statement
Private Flood Data Call & Definitions

3.	In which annual statement lines of business on the state page of the statutory annual statement does the company report private flood experience?						
4.	Were there private flood policies or endorsements in-force during the reporting period that provided Personal Property coverage? (Y/N)						
5.	Were there private flood policies or endorsements in-force during the reporting period that provided Loss of Use coverage? (Y/N)						
6.	Was the Company still actively writing private flood coverage in the state at year end? (Y/N)						
7.	Has the company had a significant event/business strategy that would affect data for this reporting period? Y/N (If yes, please explain in the appropriate column of interrogatory 7A						
7A	Explanation for Interrogatory 7						
8.	Has this block of business or part of this block of business been sold, closed or moved to another company during the year? Y/N (If yes, please explain in the appropriate column of interrogatory 8A.						
8A.	Explanation for Interrogatory 8						

Property & Casualty Market Conduct Annual Statement
Private Flood Data Call & Definitions

9.	How does company treat subsequent supplemental payments on previously closed claims (or additional payments on a previously reported claim)? Re-open original claim/open new claim. If re-open original claim, report 1. If open new claim, report 2. If other, report 3.						
10.	Does the number of policies or endorsements in force at the beginning of the reporting period in this report match the number of policies or endorsements in force at the end of the reporting period for the first prior year report? (Y/N) If you answered No in one or more of the product types, please answer interrogatories 10a, 10b and 10c for the relevant product type.						
10(a)	Number of policies or endorsements in force at end of reporting period in the first prior year report.						
10(b)	The value of the number of policies or endorsements in force at the beginning of the reporting period in this report minus the number of policies or endorsements in force at the end of the reporting period for the first prior year report.						
10(c)	The reason for the difference.						
11.	Claims Comments						
12.	Underwriting Comments						

Private Flood Claims Activity

Property & Casualty Market Conduct Annual Statement
Private Flood Data Call & Definitions

	Description	Stand-alone policies		Endorsement to a Homeowners Policy		Endorsement to a Property Policy Other Than Homeowners	
		First Dollar Coverage	Excess Coverage	First Dollar Coverage	Excess Coverage	First Dollar Coverage	Excess Coverage
	State Indicator (State for which data is being submitted) Automatically loaded						
	NAIC Company Code Automatically loaded						
	NAIC Group Code Automatically loaded						
	Coverage Identifier Automatically loaded						
1.	Number of claims open at the beginning of the period						
2.	Number of claims opened during the period						
3.	Number of claims closed during the period, with payment						
4.	Number of claims closed during the period, without payment						
5.	Number of claims open at the end of the period						
6.	Median days to final payment						
7.	Number of claims closed with payment within 0-30 days						
8.	Number of claims closed with payment within 31-60						

Property & Casualty Market Conduct Annual Statement
Private Flood Data Call & Definitions

	Description	Stand-alone policies		Endorsement to a Homeowners Policy		Endorsement to a Property Policy Other Than Homeowners	
		First Dollar Coverage	Excess Coverage	First Dollar Coverage	Excess Coverage	First Dollar Coverage	Excess Coverage
	days						
9.	Number of claims closed with payment within 61-90 days						
10.	Number of claims closed with payment within 91-180 days						
11.	Number of claims closed with payment within 181-365 days						
12.	Number of claims closed with payment beyond 365 days						
13.	Number of claims closed without payment within 0-30 days						
14.	Number of claims closed without payment within 31-60 days						
15.	Number of claims closed without payment within 61-90 days						
16.	Number of claims closed without payment within 91-180 days						
17.	Number of claims closed without payment within 181-365 days						

Property & Casualty Market Conduct Annual Statement
Private Flood Data Call & Definitions

	Description	Stand-alone policies		Endorsement to a Homeowners Policy		Endorsement to a Property Policy Other Than Homeowners	
		First Dollar Coverage	Excess Coverage	First Dollar Coverage	Excess Coverage	First Dollar Coverage	Excess Coverage
18	Number of claims closed without payment beyond 365 days						

Property & Casualty Market Conduct Annual Statement
Private Flood Data Call & Definitions

Private Flood Underwriting

		Stand-alone policies		Endorsement to a Homeowners Policy		Endorsement to a Property Policy Other Than Homeowners	
		First Dollar Coverage	Excess Coverage	First Dollar Coverage	Excess Coverage	First Dollar Coverage	Excess Coverage
	State Indicator (State for which data is being submitted) Automatically loaded						
	NAIC Company Code Automatically loaded						
	NAIC Group Code Automatically loaded						
1.	Number of private flood policies or endorsements in force at the beginning of the reporting period?						
2.	Number of private flood policies or endorsements written during the reporting period?						
3.	Number of private flood policies or endorsements in force at the end of the reporting period?						
4.	Dollar amount of direct premium written during the reporting period for private flood policies or endorsements.						
5.	Number of Company-Initiated non-renewals during the period for private flood policies.						
6.	Number of cancellations for non-pay or non-sufficient funds for private flood policies or						

Property & Casualty Market Conduct Annual Statement
Private Flood Data Call & Definitions

	endorsements.						
7.	Number of cancellations at the insured's request for private flood policies or endorsements.						
8.	Number of Company-Initiated cancellations that occur in the first 59 days after effective date, excluding rewrites to an affiliated company for private flood policies or endorsements.						
9.	Number of Company-Initiated cancellations that occur 60 to 90 days after effective date, excluding rewrites to an affiliated company for private flood policies or endorsements.						
10.	Number of Company-Initiated cancellations that occur greater than 90 days after effective date, excluding rewrites to an affiliated company for flood policies or endorsements.						

Private Flood Lawsuits and Complaints

Number of lawsuits open at beginning of the period
Number of lawsuits opened during the period
Number of lawsuits closed during the period
Number of lawsuits closed during the period with consideration for the consumer
Number of lawsuits open at end of period
Number Of Complaints Received Directly From Any Person or Entity Other than the DOI

Property & Casualty Market Conduct Annual Statement Private Flood Data Call & Definitions

Definitions:

Private Flood Insurance– Coverage that insures residential property against the peril of flood.

Include:

- Mobile/manufactured homes intended for use as a dwelling.
- Individual unit condo coverage
- Stand-alone policies
- Endorsements or riders to residential property insurance policies
- First dollar and excess policies

Exclude:

- NFIP policies
- Commercial policies
- Condo master policies
- Lender-placed or creditor-placed policies.
- Private flood written on a surplus lines basis

Report experience for Private Flood regardless of whether the coverage is provided as a stand-alone policy or endorsement or rider to another residential property insurance policy and regardless of the line of business in the statutory annual statement in which the experience is reported and regardless of whether the coverage is first dollar or excess.

Cancellations – Includes all cancellations of the policies where the cancellation effective date is during the reporting year. The number of cancellations should be reported on a policy basis regardless of the number of dwellings insured under the policy.

Report cancellations separately for:

- Policies cancelled for non-payment of premium or non-sufficient funds.
 - o These should be reported every time a policy cancels for the above reasons. (i.e., if a policy cancels for non-pay three times in a policy period, and is reinstated each time; each cancellation should be counted.)
- Policies cancelled at the insured's request.
- Policies cancelled for underwriting reasons.

Exclude:

- Policies cancelled for 're-write' purposes where there is no lapse in coverage.

Cancellations within the first 59 days – Company-initiated cancellations for new business where the notice of cancellation was issued within the first 59 days after the original effective date of the policy.

- The calculation of the number of days is from the original inception date of the policy, not the renewal date.
- This time frame should be used regardless of individual state requirements related

Property & Casualty Market Conduct Annual Statement Private Flood Data Call & Definitions

to the 'underwriting' period for new business.

- The notice of cancellation is the date the cancellation notice was mailed to the insured.

Cancellations from 60 to 90 days – Company-initiated cancellations where the notice of cancellation was issued 60 to 90 days after the original effective date of the policy.

- The calculation of the number of days is from the original inception date of the policy, not the renewal date.
- This time frame should be used regardless of individual state requirements related to the 'underwriting' period for new business.
- The notice of cancellation is the date the cancellation notice was mailed to the insured.

Cancellations greater than 90 days – Company-initiated cancellations where the notice of cancellation was issued more than 90 days after the original effective date of the policy.

- The calculation of the number of days is from the original inception date of the policy, not the renewal date.
- This time frame should be used regardless of individual state requirements related to the 'underwriting' period for new business.

The notice of cancellation is the date the cancellation notice was mailed to the insured.

Claim - A request or demand for payment of a loss that may be included within the terms of coverage of an insurance policy or endorsement. Each insured reporting a loss is counted separately. Each reserve opened is counted separately; a single event may result in multiple private flood claims if there are multiple coverages provided in the policy or endorsement.

Exclude:

- An event reported for "information only".
- An inquiry of coverage if a claim has not actually been presented (opened) for payment.
- A potential claimant if that individual has not made a claim nor had a claim made on his or her behalf.

Claims Closed With Payment – Claims closed with payment where the claim was closed during the reporting period regardless of the date of loss or when the claim was received. The number of days to closure, however, should be measured as the difference between the date of the final payment and the date the claim was reported or between the date of the final payment and the date the request for supplemental payment was received. See also "Date of Final Payment".

Exclude:

- Claims where payment was made for company loss adjustment expenses if no payment was made to an insured/claimant.
- Claims that are closed because the amount claimed is below the insured's deductible.

Clarification:

- If a claim is reopened for the sole purpose of refunding the insured's deductible, do not count it as a paid claim.

Property & Casualty Market Conduct Annual Statement Private Flood Data Call & Definitions

- For claims where the net payment is \$0 due to subrogation recoveries, report the number of claims in which any amount was paid to the insured; do not net the payment with subrogation recoveries when counting the number of paid claims

Calculation Clarification:

- For each coverage identifier, the sum of the claims closed with payment across each closing time interval should equal the total number of claims closed with payment during the reporting period.

Handling Additional Payment on Previously Reported Claim / Subsequent Supplemental Payment for claims closed with payment during the reporting period:

- If a claim is reopened for a subsequent supplemental payment, count the reopened claim as a new claim. Calculate a separate aging on that supplemental payment from the time the request for supplemental payment was received to the date of the final payment was made.

Claims Closed Without Payment – Claims closed with no payment made to an insured. The number of days to closure is the difference between the date the claim was closed and the date the claim was reported and/or reopened. See also “Date of Final Payment”.

Include:

- All claims that were closed during the reporting period regardless of the date of loss or when the claim was received.
- Claims where no payment was made to an insured even though payment was made for company loss adjustment expenses.
- A demand for payment for which it was determined that no relevant policy was in-force at the time of the loss if a claim file was set up and the loss was investigated.
- Claims that are closed because the amount claimed is below the insured's deductible.

Calculation Clarification:

- For each coverage identifier, the sum of the claims closed without payment across each closing time interval should equal the total number of claims closed without payment during the reporting period.

Complaint – any written communication that expresses dissatisfaction with a specific person or entity subject to regulation under the state's insurance laws. An oral communication, which is subsequently converted to a written form in order to be analyzed and acted upon, will meet the definition of a complaint for this purpose.

Include:

- Any complaint regardless of the subject of the complaint (claims, underwriting, marketing, etc.)
- Complaints received from third parties.

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Date of Final Payment – The date final payment was issued to the insured/claimant.

Calculation Clarification:

- If partial payments were made on the claim, the claim would be considered closed with payment if the final payment date was made during the reporting period regardless of the date of loss or when the claims was received.
- Report a claim as “closed with payment” or “closed without payment” if it is closed in the company’s claims system during the reporting period (even if the final payment was issued in a prior reporting period).
- If a claim remains open at the end of the reporting period (even though a final payment has been issued) it should be reported as open. Only when the claim is closed in the company’s claims system, would you report the days to final payment.

Example:

- A claim is open on 11/1/00 and final payment is made on 12/1/00. The claim is left open until 2/1/01 to allow time for supplemental requests.
- The claim would be reported as open in the “00” MCAS submission and closed in the “01” MCAS submission.
- The number of days to final payment would be calculated as 30 days and reported in the “01” MCAS submission.

Date the Claim was Reported – The date an insured or claimant first reported his or her loss to either the company or insurance agent.

Direct Written Premium - The total amount of direct written premium for all policies covered by the market conduct annual statement (new and renewal) written during the reporting period.

Calculation Clarification:

- Premium amounts should be determined in the same manner as used for the financial annual statement state page exhibit.
- If premium is refunded or additional premium is written during the reporting period (regardless of the applicable policy effective date), the net effect should be reported.
- If there is a difference of 20% or more between the Direct Written Premium for stand-alone private flood reported for market conduct annual statement and the Direct Written Premium reported on the financial annual statement state page exhibit line 2.5, provide an explanation for the difference when filing the market conduct annual statement in order to avoid inquiries from the regulator receiving the market conduct annual statement filing.
- Reporting shall not include premiums received from or losses paid to other carriers on account of reinsurance assumed by the reporting carrier, nor, shall any deductions be made by the reporting carrier for premiums added to or for losses recovered from other carriers on account of reinsurance ceded.

Property & Casualty Market Conduct Annual Statement

Private Flood Data Call & Definitions

Endorsement to a Homeowners Policy - means the offer of private flood through an addition to a homeowners policy through endorsement, rider, amendment or any other means.

Endorsement to a Property Insurance Policy Other Than Homeowners - means the offer of private flood through an addition to a property insurance policy other than a homeowners policy through endorsement, rider, amendment or any other means.

Lawsuit—An action brought in a court of law in which one party, the plaintiff, claims to have incurred a loss as a result of the action of another party, the defendant.

For purposes of reporting lawsuit in the MCAS blank:

- Include only lawsuits brought by an applicant for insurance, a policyholder or a beneficiary as a plaintiff against the reporting insurer or its agent as a defendant;
- Include all lawsuits, whether or not a hearing or proceeding before the court occurred;
- Do not include arbitrations of any sort;
- If one lawsuit seeks damages under two or more policies, count the number of policies involved as the number of lawsuits. For example, if one lawsuit seeks damages under three policies, count the action as three lawsuits;
- If one lawsuit has two or more complainants, report the number of complainants as the number of lawsuits. For example, if one lawsuit has two complainants, report two lawsuits. If the lawsuit is a class action, see instructions for treatment of class action lawsuits;
- Report a lawsuit in the jurisdiction in which the policy was issued with the exception of class action lawsuits;
- Treatment of class action lawsuits: Report the opening and closing of a class action lawsuit once in each state in which a potential class members reside. Include an explanatory note with your submission stating the number of class action lawsuits included in the data and the general cause of action.

Lawsuits Closed During the Period with Consideration for the Consumer—A lawsuit closed during the reporting period in which a court order, jury verdict, or settlement resulted in payment, benefits, or other thing of value, i.e., consideration, to the applicant, policyholder, or beneficiary in an amount greater than offered by the reporting company before the lawsuit was brought.

Median Days to Final Payment – The median value for all claims closed with payment during the period.

Calculation for losses with one final payment date during the reporting period:

- Date the loss was reported to the company to the date of final payment.

Calculation for losses with multiple final payment dates during the reporting period:

Property & Casualty Market Conduct Annual Statement Private Flood Data Call & Definitions

- Date the request for supplemental payment received to the date of final payment (for each different final payment date.)

Exclude:

- Subrogation payments.

Calculation Clarification / Example:

- To determine the Median Days to Final Payment you must first determine the number of days it took to settle each claim. This is the difference between the date the loss was reported to the company, or the date the request for supplemental payment was received, to the date of final payment. The Median Days to Final Payment is the median value of the number of days it took to settle all claims closed with payment during the period.

Median - A median is the middle value in a distribution arranged in numerical order (either lowest to highest or highest to lowest). If the distribution contains an odd number of elements, the median is the value above and below which lie an equal number of values. If the distribution contains an even number of elements, the median is the average of the two middle values. It is not the arithmetic mean (average) of all of the values.

Consider the following simple example of the number of days it took to settle each of the following seven claims:

	Nbr 1	Nbr 2	Nbr 3	Nbr 4	Nbr 5	Nbr 6	Nbr 7
Days to Settle	2	4	4	5	6	8	20

In this situation, the Median Days to Final Payment would be 5 because it is the middle value. There are exactly 3 values below the median (2, 4, & 4) and 3 values above the median (6, 8, 20). If the data set had included an even number of values, then the median would be the average of the two middle values as demonstrated below.

	Nbr 1	Nbr 2	Nbr 3	Nbr 4	Nbr 5	Nbr 6
Days to Settle	2	4	5	6	8	20

$$\text{Median Days to Final Payment} = (5 + 6)/2 = 5.5$$

The median should be consistent with the paid claim counts reported in the closing time intervals.

Example: A carrier reports the following closing times for paid claims.

Property & Casualty Market Conduct Annual Statement Private Flood Data Call & Definitions

Closing Time# of Claims

< 30	22
31-60	13
61-90	18
91-180	11
181-365	12
>365	15

The sum of the claims reported across each closing time interval is 91, so that the median is the 46th claim. This claim falls into the closing time interval “61-90 days.” Any reported median that falls outside of this range (i.e. less than 61 or greater than 90) will indicate a data error.

NAIC Company Code – The five-digit code assigned by the NAIC to all U.S. domiciled companies which filed a Financial Annual Statement with the NAIC.

NAIC Group Code – The code assigned by the NAIC to identify those companies that are a part of a given holding company structure. A zero indicates that the company is not part of a holding company.

New Business Policy Written – A newly written agreement that puts insurance coverage into effect during the reporting period.

Exclude:

- ‘Re-written’ policies unless there was a lapse in coverage.

Non-Renewals – A policy for which the insurer elected not to renew the coverage for circumstances allowed under the “non-renewal” clause of the policy.

Include:

- All company-initiated non-renewals of the policies where the non-renewal effective date is during the reporting period.

Exclude:

- Policies where a renewal offer was made and the policyholder did not accept the offer.
- Instances where the policyholder requested that the policy not be renewed.

Calculation Clarification:

- The number of nonrenewals should be reported on a policy basis regardless of the number of dwellings insured under the policy.

Policies or Endorsements In-Force - Coverage, through the relevant policy or endorsement,

Property & Casualty Market Conduct Annual Statement
Private Flood Data Call & Definitions

was in effect at some point in time during the specified time frame. Time frames used in this MCAS include at the end of the prior reporting period, at the beginning of the current reporting period, at any point during the current reporting period and at the end of the current reporting period.

Stand-alone private flood: Private flood insurance provided through a policy providing only coverage for the peril of flood.

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_____ (Section in Chapter 24 of the Market Regulation Handbook TBD)—Conducting the Mental Health Parity and Addiction Equity Act (MHPAEA) Related Examination

Introduction

The intent of _____ (Section in Chapter 24 of the Market Regulation Handbook TBD)—Conducting the Mental Health Parity and Addiction Equity Act (MHPAEA) Related Examination in the *Market Regulation Handbook* is primarily to provide guidance when reviewing insurers whose business includes major medical policies offering mental health and/or substance use disorder coverage.

The examination standards in Chapter 24—Conducting the Health Examination of the *Market Regulation Handbook* provide guidance specific to all health insurers, but large group coverage may or may not include mental health and/or substance use disorder coverage. _____ (Section in Chapter 24 of the Market Regulation Handbook TBD) strictly applies to examinations to determine compliance with the Paul Wellstone and Pete Domenici Mental Health Parity and Addiction Equity Act of 2008 (MHPAEA) found at 42 U.S.C. 300gg-26 and its implementing regulations found at 45 CFR §146.136 and 45 CFR §147.160, and is to be used for plans that offer mental health and/or substance use disorder benefits.

Generally, MHPAEA regulations require that any financial requirement (FR) (e.g., copayments, deductibles, coinsurance, or out-of-pocket maximums) or quantitative treatment limitation (QTL) (e.g., day or visit limits) imposed on mental health and substance use disorder (MH/SUD) benefits not be more restrictive than the predominant financial requirement or treatment limitation of that type that applies to substantially all medical and surgical benefits, on a classification-by-classification basis, as discussed below. With regard to any nonquantitative treatment limitation (NQTL) (e.g., preauthorization requirements, fail-first requirements), MHPAEA regulations prohibit imposing an NQTL with respect to MH/SUD benefits in any classification unless, under the terms of the plan as written and in operation, any processes, strategies, evidentiary standards, or other factors used in applying the NQTL to MH/SUD benefits in the classification are comparable to, and are applied no more stringently than, the processes, strategies, evidentiary standards, or other factors used in applying the limitation to medical/surgical (M/S) benefits in the same classification.

MHPAEA applies to major medical group and individual health insurance. Mental health and substance use disorder treatment are essential health benefits under the Patient Protection and Affordable Care Act, so examination of individual and small group ACA-compliant plans will include parity analysis. In the large group market, an insurer's plan is not required to cover mental health and/or substance use disorder services. If the insurer's large group plan does cover mental health and/or substance use disorder services, parity requirements apply. MHPAEA does not apply to excepted benefit plans, nor to short-term limited duration insurance. Some states may have mental health parity requirements that are stricter than federal requirements.

Federal law relies on state insurance regulators as the first-line enforcers of health reform provisions in the individual, small group, and large group insurance markets.

Examination Standards

Each examination standard includes a citation to MHPAEA or its implementing regulations, but additional information can be found in federal guidance documents and state law or state interpretation of federal law. Please note that the federal government periodically updates its guidance documents related to MHPAEA. Examiners should refer to the U.S. Departments of Labor, Health and Human Services, and the Treasury for any updates or new MHPAEA guidance. MHPAEA allows states to enact statutes or regulations that are stricter than federal requirements. Examiners should contact their state's legal division for assistance and interpretation of federal guidance, as well as any additional state requirements. Where there is a reasonable interpretation of MHPAEA, that reasonable interpretation should be given due consideration.

Collaboration Methodology

The development of state market conduct compliance tools for MHPAEA will result in enhanced state collaboration, to provide more consistent interpretation and review of parity standards.

LIST OF QUESTIONS

Question 1.

Is this insurance coverage exempt from MHPAEA (45 CFR §146.136(f))? If so, please indicate the reason (e.g., retiree-only plan, excepted benefits (45 CFR §146.145(b)), short term, limited duration insurance,* small employer exemption (45 CFR §146.136(f)), increased cost exemption (45 CFR §146.136(g)).

**Under the Public Health Services Act (as added by HIPAA), short term limited duration insurance is excluded from the definition of individual health insurance coverage (45 CFR. §144.103).*

Question 2.

If not exempt, does the insurance coverage provide MH and/or SUD benefits in addition to providing M/S benefits?

Unless the insurance coverage is exempt or does not provide MH/SUD benefits (note that MH/SUD is one of the EHBs for non-grandfathered coverage in the individual and small group markets), continue to the following sections to examine compliance with requirements under MHPAEA.

Question 3.

Are all conditions that are defined as being or as not being a mental health condition, a substance use disorder or a medical condition defined in a manner that is consistent with generally recognized independent standards of current medical practice?

See 45 CFR §146.136(a). This section provides definition of “mental health benefits” and “substance use disorder benefits”.

Question 4.

Does the insurance coverage provide MH/SUD benefits in every classification in which M/S benefits are provided?

Under the MHPAEA regulations, the six classifications of benefits are:

- 1) inpatient, in-network;*
- 2) inpatient, out-of-network;*
- 3) outpatient, in-network;*
- 4) outpatient, out-of-network;*
- 5) emergency care; and*
- 6) prescription drugs.*

See 45 CFR §146.136(c)(2)(ii).

Because parity analysis for this standard is at the classification level, data must be collected for each classification. An example data collection tool is provided, which collects information needed to answer this question.

Question 5.

If the plan includes multiple tiers in its prescription drug formulary, are the tier classifications based on reasonable factors (such as cost, efficacy, generic versus brand name, and mail order versus pharmacy pick-up) determined in accordance with the rules for NQTLs at 45 CFR §146.136(c)(4)(i), and without regard to whether the drug is generally prescribed for MH/SUD or M/S benefits? Explain how the plan’s tiering methodology for MH/SUD prescription drugs is comparable to and are applied no more stringently than the tiering methodology for M/S prescription drugs.

See 45 CFR §146.136(c)(3)(iii)(A).

Question 6.

If the plan includes multiple network tiers of in-network providers, is the tiering based on reasonable factors (such as quality, performance, and market standards) determined in accordance with the rules for NQTLs at 45 CFR §146.136(c)(4)(i), and without regard to whether a provider provides services with respect to MH/SUD benefits or M/S benefits? Explain how the plan’s tiering methodology for MH/SUD network tiers are comparable to and are applied no more stringently than the tiering methodology for M/S network tiers.

See 45 CFR §146.136(c)(3)(iii)(B).

Question 7.

Does the plan comply with the parity requirements for aggregate lifetime and annual dollar limits, including the prohibition on lifetime dollar limits or annual dollar limits for MH/SUD benefits that are lower than the lifetime or annual dollar limits imposed on M/S benefits? List the services subject to lifetime or annual limits, separated into MH/SUD and M/S benefits.

See 45 CFR §146.136(b). This prohibition applies only to dollar limits on what the plan would pay, and not to dollar limits on what an individual may be charged. If a plan or issuer does not include an aggregate lifetime or annual dollar limit on any M/S benefits, or it includes one that applies to less than one-third of all M/S benefits, it may not impose an aggregate lifetime or annual dollar limit on MH/SUD benefits. 45 CFR §146.136(b)(2). Also note that the parity requirements regarding lifetime and annual dollar limits only apply to the provision of MH/SUD benefits that are not EHBs because lifetime limits and annual dollar limits are prohibited for EHBs, including MH/SUD services.

Question 8.

Does the plan impose any financial requirements (e.g., deductibles, copayments, coinsurance, and out-of-pocket maximums) or quantitative treatment limitations (e.g., annual, episode, and lifetime day and visit limits) on MH/SUD benefits in any classification that is more restrictive than the predominant financial requirement or quantitative treatment limitation of that type that applies to substantially all M/S benefits in the same classification? Demonstrate compliance with this standard by completing the attached data collection tool.

See 45 CFR §146.136(c)(2). Because parity analysis is at the classification level and analysis is based on the dollar amount for expected benefits paid, data must be collected per classification. An example data collection tool is provided, which collects information needed to answer this question.

Financial Requirements (FRs) include deductibles, copayments, coinsurance, and out-of-pocket maximums. 45 CFR §146.136(c)(1)(ii). Quantitative Treatment Limitations (QTLs) include annual, episode, and lifetime day and visit limits, such as number of treatments, visits, or days of coverage. 45 CFR §146.136(c)(1)(ii).

If a plan includes a FR (copayment or coinsurance) or QTL (session or day limit) for MH/SUD benefits, the first step is to identify the comparison point by looking at M/S benefits for that classification. Determine whether the FR or QTL applies to at least two-thirds (“substantially all”) of the M/S benefits in that classification. For purposes of determining whether a type of FR or QTL applies to at least two-thirds of all M/S benefits in a classification, the FR or QTL is considered to apply regardless of the magnitude or level of that type of FR or QTL. For example, a copayment, coinsurance, session or day limit is considered to apply to the benefits regardless of the dollar amount, coinsurance percentage, or number of sessions or days for that type of FR or QTL. The portion of M/S benefits subject to the FR or QTL is based on the dollar amount of expected payments for M/S benefits in a year. If the type of FR or QTL applies to less than two-thirds of the M/S benefits in a classification, then that type of FR or QTL cannot be applied to MH/SUD benefits in that classification. If the type of FR or QTL applies to two-thirds or more of the M/S benefits in the classification, as determined under 45 CFR §146.136(c)(3)(i)(A), the examiner will go to the next step to look at the level of the FR or QTL, for example the specific copayment dollar amount, coinsurance percentage, or limitation on number of sessions or days.

If the type of FR or QTL is imposed on at least two-thirds of the M/S benefits in a classification, then the “level” (e.g., copayment dollar amount, coinsurance percentage, or limitation on number of days or sessions) is analyzed to determine the “predominant” level. In this second step, the examiner will look at the M/S benefits to which the FR or QTL applies and find the “predominant” level of the limitation—this means the specific dollar amount, coinsurance percentage, or limitation on number of sessions or days that applies to more than 50% of the M/S benefits in that classification subject to the FR or QTL. The FR or QTL imposed on MH/SUD benefits cannot be more restrictive than the predominant level.

If less than 50% of the M/S benefits that are subject to the FR or QTL in a classification are subject to a certain “level” of FR or QTL, levels of the FR or QTL can be combined to reach 50% of the M/S benefits in the classification, with the least restrictive level within the combination being the level that can be applied to MH/SUD benefits in the classification.

Question 9.

Does the plan apply any cumulative financial requirement or cumulative QTL for MH/SUD benefits in a classification that accumulates separately from any cumulative financial requirement or QTL established for M/S benefits in the same classification? Demonstrate compliance with this standard by completing the attached data collection tool.

See 45 CFR §146.136(c)(3)(v). For example, a plan may not impose an annual \$250 deductible on M/S benefits in a classification and a separate \$250 deductible on MH/SUD benefits in the same classification. Cumulative financial requirements are financial requirements that determine whether or to what extent benefits are provided based on accumulated amounts and include deductibles and out-of-pocket maximums (but do not include aggregate lifetime or annual dollar limits because those two terms are excluded from the meaning of financial requirements). 45 CFR §146.136(a).

Cumulative financial requirements and treatment limitations are also subject to the predominant and substantially all tests in Question 7.

Question 10.

Does the plan impose Non-Quantitative Treatment Limitations (NQTLs) on MH/SUD benefits in any classification? If so, demonstrate compliance with parity requirements by completing the attached data collection tool.

Examples of NQTLs (not exclusive):

- a) Medical management standards limiting or excluding benefits based on medical necessity or medical appropriateness, or based on whether the treatment is experimental or investigative;
- b) Prior authorization and ongoing authorization requirements;
- c) Concurrent review standards;
- d) Formulary design for prescription drugs;
- e) For plans with multiple network tiers (such as preferred providers and participating providers), network tier design;
- f) Standards for provider admission to participate in a network, including reimbursement rates;
- g) Plan or insurer's methods for determining usual, customary and reasonable charges;
- h) Refusal to pay for higher-cost therapies until it can be shown that a lower-cost therapy is not effective (also known as "fail-first" policies or "step therapy" protocols);
- i) Restrictions on applicable provider billing codes;
- j) Standards for providing access to out-of-network providers;
- k) Exclusions based on failure to complete a course of treatment;
- l) Restrictions based on geographic location, facility type, provider specialty, and other criteria that limit the scope or duration of benefits for services provided under the plan; and
- m) Any other non-numerical limitation on MH/SUD benefits.

Note that not every NQTL needs an evidentiary standard. There is flexibility under MHPAEA for plans to use NQTLs. The focus is on finding out what processes and standards the plan actually uses.

See 45 CFR §146.136(c)(4) and pages 14-20 of the Self-Compliance Tool for the Mental Health Parity and Addiction Equity Act (MHPAEA) for analysis advice available at <https://www.dol.gov/sites/default/files/ebsa/about-ebsa/out-activities/resource-center/publications/compliance-guide-appendix-a-mhpaea.pdf>.

Question 11.

Does the insurer comply with MHPAEA disclosure requirements including (1) criteria for medical necessity determinations for MH/SUD benefits, and (2) the reasons for any denial?

See 45 CFR §146.136(d)(1) and (2).

Note that the state's grievance procedure and external review statutes may contain additional disclosure requirements.

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Adopted by the Market Conduct Examination Standards (D) Working Group 12-19-18
Adopted by the Market Regulation and Consumer Affairs (D) Committee on 4-8-19

DATA COLLECTION TOOL FOR MENTAL HEALTH PARITY ANALYSIS

Most parity analysis examines benefits by comparing MH/SUD to M/S within a classification. 45 CFR §146.136(c)(2)(i). The exception is aggregate lifetime or annual dollar limits (to the extent the plan is not prohibited from imposing such limits under Federal or State law), which are examined for the plan as a whole. 45 CFR §146.136(b). The following is intended to simplify data collection for parity analysis at the classification level. Examiners may find it helpful to identify a person with MHPAEA experience, from the state's legal or health policy division, to interpret results after data is received from the insurer.

GUIDANCE FOR PLACING BENEFITS INTO CLASSIFICATIONS:

MH/SUD and M/S benefits must be mapped to one of six classifications of benefits: (1) inpatient in-network, (2) inpatient out-of-network, (3) outpatient in-network, (4) outpatient out-of-network, (5) prescription drugs, and (6) emergency care. 45 CFR §146.136(c)(2)(ii).

- The “inpatient” classification typically refers to services or items provided to a beneficiary when a physician has written an order for admission to a facility, while the “outpatient” classification refers to services or items provided in a setting that does not require a physician’s order for admission and does not meet the definition of emergency care.
- “Office visits” are a permissible sub-classification separate from other outpatient services.
- The term “emergency care” typically refers to services or items delivered in an emergency department setting or to stabilize an emergency or crisis, other than in an inpatient setting.
- Some benefits, for example lab and radiology, may fit into multiple classifications depending on whether they are provided during an inpatient stay, on an outpatient basis, or in the emergency department.
- Insurers should use the same decision-making standards to classify all benefits, so that the same standard applies to M/S and MH/SUD benefits. For example, if a plan classifies care in skilled nursing facilities and rehabilitation hospitals for M/S benefits as inpatient benefits, it must classify covered care in residential treatment facilities for MH/SUD benefits as inpatient benefits.

FINANCIAL REQUIREMENTS AND QUANTITATIVE TREATMENT LIMITATIONS:

Types of Financial Requirements (FRs) include deductibles, copayments, coinsurance, and out-of-pocket maximums. 45 CFR §146.136(c)(1)(ii). Types of Quantitative Treatment Limitations (QTLs) include annual, episode, and lifetime day and visit limits, for example number of treatments, visits, or days of coverage. 45 CFR §146.136(c)(1)(ii). A two-part analysis applies to financial requirements (FRs) and quantitative treatment limitations (QTLs). In general, MHPAEA regulations require that any FR or QTL imposed on MH/SUD benefits not be more restrictive than the predominant level of financial requirement or treatment limitation of that type that applies to substantially all medical/surgical benefits in a classification.

If the plan applies a cumulative FR or QTL (a FR or QTL that determine whether or to what extent benefits are provided based on accumulated amounts), the FR or QTL must not accumulate separately from any established for M/S benefits in a classification.

Adopted by the Market Conduct Examination Standards (D) Working Group 12-19-18
Adopted by the Market Regulation and Consumer Affairs (D) Committee on 4-8-19

FINANCIAL REQUIREMENTS AND QUANTITATIVE TREATMENT LIMITATIONS						
	Inpatient In-Network (if network tiers, may separate into tiers in accordance with 45 CFR §146.136(c)(3)(iii)(B))	Inpatient Out-of-Network	Outpatient In-Network (Issuer can choose to have subclassifications for Outpatient Office Visits, and Other Outpatient Services) (if network tiers, may separate into tiers in accordance with 45 CFR §146.136(c)(3)(iii)(B))	Outpatient Out-of-Network (Issuer can choose to have subclassifications for Outpatient Office Visits, and Other Outpatient Services)	Emergency Care	Prescription Drugs
Does the plan provide MH/SUD benefits?						
Does the plan provide M/S benefits?						
Total dollar amount of <u>all</u> plan payments for M/S benefits expected to be paid for the relevant plan year						
List each financial requirement that applies to the classification for MH/SUD benefits:						
For each type of financial requirement that applies to MH/SUD benefits, list the expected percentage of plan payments for M/S benefits in each classification that are subject to that same type of financial requirement:						
For each level of each type of financial requirement that applies to at least 2/3rds of all M/S/ benefits in the classification, list the expected percentage of plan payments for M/S benefits subject to that financial requirement, that are subject to that level:						

Adopted by the Market Conduct Examination Standards (D) Working Group 12-19-18

Adopted by the Market Regulation and Consumer Affairs (D) Committee on 4-8-19

FINANCIAL REQUIREMENTS AND QUANTITATIVE TREATMENT LIMITATIONS, CONT'D						
	Inpatient In-Network (if network tiers, may separate into tiers in accordance with 45 CFR §146.136(c)(3)(iii)(B))	Inpatient Out-of-Network	Outpatient In-Network (Issuer can choose to have subclassifications for Outpatient Office Visits, and Other Outpatient Services) (if network tiers, may separate into tiers in accordance with 45 CFR §146.136(c)(3)(iii)(B))	Outpatient Out-of-Network (Issuer can choose to have subclassifications for Outpatient Office Visits, and Other Outpatient Services)	Emergency Care	Prescription Drugs
Does the plan impose a separate cumulative financial requirement or QTL for MH/SUD benefits that accumulates separately from any cumulative financial requirement or QTL for M/S benefits?						
List each QTL that applies to the classification for MH/SUD benefits:						
For each type of QTL that applies to MH/SUD benefits, list the expected percentage of plan payments for M/S benefits in each classification that are subject to that same type of QTL:						
For each level of each type of QTL that applies to at least 2/3rds of all M/S benefits in the classification, list the expected percentage of plan payments for M/S benefits subject to that QTL, that are subject to that level:						

NON-QUANTITATIVE TREATMENT LIMITATIONS:

Non-Quantitative Treatment Limitations include but are not limited to medical management techniques such as step therapy and pre-authorization requirements. Coverage cannot impose a NQTL with respect to MH/SUD benefits in any classification unless, under the terms of the plan as written and in operation, any processes, strategies, evidentiary standards, or other factors used in applying the NQTL to MH/SUD benefits in the classification are comparable to, and are applied no more stringently than, the processes, strategies, evidentiary standards, or other factors used in applying the limitation with respect to M/S benefits in the classification. Note that not every NQTL needs an evidentiary standard. There is flexibility under MHPAEA for plans to use NQTLs. The focus is on finding out what processes and standards the plan actually uses.

All plan standards that are not FRs or QTLs and that limit the scope or duration of benefits for services are subject to the NQTL parity requirements. This includes restrictions such as geographic limits, facility-type limits, and network adequacy.

The following data collection chart is modeled after a tool used in federal MHPAEA examinations. Insurers who have completed “Table 5” for NQTLs may substitute those documents for completion of this chart.

NON-QUANTITATIVE TREATMENT LIMITATIONS			
<i>Submit a separate form for each benefit plan design.</i> Plan Name: Date: Contact Name: Telephone Number: Email: Line of Business (HMO, EPO, POS, PPO): Contract Type (large group, small group, individual): Benefit Plan Effective Date: Benefit Plan Design(s) Identifier(s):			
Area	Medical/Surgical Benefits	Mental Health/Substance Use Disorder Benefits	Explanation
	Summarize the plan’s applicable NQTLs, including any variations by benefit	Summarize the plan’s applicable NQTLs, including any variations by benefit	Describe the processes, strategies, evidentiary standards or other factors used to apply the NQTLs. Explain how the application of these factors is consistent with 45 CFR §146.136(c)(4). Provide the relevant pages of the documents in which the NQTLs are described and list this documentation in the space provided below. Please include in this column an explanation of how the MH/SUD benefits compare to M/S benefits
A. Definition of Medical Necessity What is the definition of medical necessity?			

NON-QUANTITATIVE TREATMENT LIMITATIONS, CONT'D			
Area	Medical/Surgical Benefits	Mental Health/Substance Use Disorder Benefits	Explanation
	Summarize the plan's applicable NQTLs, including any variations by benefit	Summarize the plan's applicable NQTLs, including any variations by benefit	Describe the processes, strategies, evidentiary standards or other factors used to apply the NQTLs. Explain how the application of these factors is consistent with 45 CFR §146.136(c)(4). Provide the relevant pages of the documents in which the NQTLs are described and list this documentation in the space provided below. Please include in this column an explanation of how the MH/SUD benefits compare to M/S benefits
B. Prior Authorization Review Process Include all services for which prior authorization is required. Describe any step therapy or "fail first" requirements and requirements for submission of treatment request forms or treatment plans. Inpatient, In-Network:			
Outpatient, In-Network: Office Visits:			
Outpatient, In-Network: Other Outpatient Items and Services:			
Inpatient, Out-of-Network:			
Outpatient, Out-of-Network: Office Visits:			
Outpatient, Out-of-Network: Other Items and Services:			

NON-QUANTITATIVE TREATMENT LIMITATIONS, CONT'D			
Area	Medical/Surgical Benefits	Mental Health/Substance Use Disorder Benefits	Explanation
	Summarize the plan's applicable NQTLs, including any variations by benefit	Summarize the plan's applicable NQTLs, including any variations by benefit	Describe the processes, strategies, evidentiary standards or other factors used to apply the NQTLs. Explain how the application of these factors is consistent with 45 CFR §146.136(c)(4). Provide the relevant pages of the documents in which the NQTLs are described and list this documentation in the space provided below. Please include in this column an explanation of how the MH/SUD benefits compare to M/S benefits
C. Concurrent Review Process, including frequency and penalties for all services. Describe any step therapy or "fail first" requirements and requirements for submission of treatment required forms or treatment plans. Inpatient, In-Network:			
Outpatient, In-Network: Office Visits:			
Outpatient, In-Network: Other Outpatient Items and Services:			
Inpatient, Out-of-Network:			
Outpatient, Out-of-Network: Office Visits:			
Outpatient, Out-of-Network: Other Items and Services:			
D. Retrospective Review Process, including timeline and penalties. Inpatient, In-Network:			
Outpatient, In-Network: Office Visits:			
Outpatient, In-Network: Other Outpatient Items and Services:			
Inpatient, Out-of-Network:			
Outpatient, Out-of-Network: Office Visits:			
Outpatient, Out-of-Network: Other Items and Services:			

NON-QUANTITATIVE TREATMENT LIMITATIONS, CONT'D			
Area	Medical/Surgical Benefits	Mental Health/Substance Use Disorder Benefits	Explanation
	Summarize the plan's applicable NQTLs, including any variations by benefit	Summarize the plan's applicable NQTLs, including any variations by benefit	Describe the processes, strategies, evidentiary standards or other factors used to apply the NQTLs. Explain how the application of these factors is consistent with 45 CFR §146.136(c)(4). Provide the relevant pages of the documents in which the NQTLs are described and list this documentation in the space provided below. Please include in this column an explanation of how the MH/SUD benefits compare to M/S benefits
E. Emergency Services			
F. Pharmacy Services Include all services for which prior authorization is required, any step therapy or "fail first" requirements, any other NQTLs. Tier 1:			
Tier 2:			
Tier 3:			
Tier 4:			

NON-QUANTITATIVE TREATMENT LIMITATIONS, CONT'D			
Area	Medical/Surgical Benefits	Mental Health/Substance Use Disorder Benefits	Explanation
	Summarize the plan's applicable NQTLs, including any variations by benefit	Summarize the plan's applicable NQTLs, including any variations by benefit	Describe the processes, strategies, evidentiary standards or other factors used to apply the NQTLs. Explain how the application of these factors is consistent with 45 CFR §146.136(c)(4). Provide the relevant pages of the documents in which the NQTLs are described and list this documentation in the space provided below. Please include in this column an explanation of how the MH/SUD benefits compare to M/S benefits
G. Prescription Drug Formulary Design How are formulary decisions made for the diagnosis and medically necessary treatment of medical, mental health and substance use disorder conditions?			
Describe the pertinent pharmacy management processes, including, but not limited to, cost-control measures, therapeutic substitution, and step therapy:			
What disciplines, such as primary care physicians (internists and pediatricians) and specialty physicians (including psychiatrists) and pharmacologists, are involved in development of the formulary for medications to treat medical, mental health and substance use disorder conditions?			
H. Case Management What case management services are available?			
What case management services are required?			
What are the eligibility criteria for case management services?			

NON-QUANTITATIVE TREATMENT LIMITATIONS, CONT'D			
Area	Medical/Surgical Benefits	Mental Health/Substance Use Disorder Benefits	Explanation
	Summarize the plan's applicable NQTLs, including any variations by benefit	Summarize the plan's applicable NQTLs, including any variations by benefit	Describe the processes, strategies, evidentiary standards or other factors used to apply the NQTLs. Explain how the application of these factors is consistent with 45 CFR §146.136(c)(4). Provide the relevant pages of the documents in which the NQTLs are described and list this documentation in the space provided below. Please include in this column an explanation of how the MH/SUD benefits compare to M/S benefits
I. Process for Assessment of New Technologies Definition of experimental/investigational:			
Qualifications of individuals evaluating new technologies:			
Evidence consulted in evaluating new technologies:			
J. Standards for Provider Credentialing and Contracting Is the provider network open or closed?			
What are the credentialing standards for physicians?			
What are the credentialing standards for licensed non-physician providers? Specify type of provider and standards; e.g., nurse practitioners, physician assistants, psychologists, clinical social workers?			
What are the credentialing/contracting standards for unlicensed personnel; e.g., home health aides, qualified autism service professionals and paraprofessionals?			
K. Exclusions for Failure to Complete a Course of Treatment Does the plan exclude benefits for failure to complete treatment?			

Adopted by the Market Conduct Examination Standards (D) Working Group 12-19-18
Adopted by the Market Regulation and Consumer Affairs (D) Committee on 4-8-19

NON-QUANTITATIVE TREATMENT LIMITATIONS, CONT'D			
Area	Medical/Surgical Benefits	Mental Health/Substance Use Disorder Benefits	Explanation
	Summarize the plan's applicable NQTLs, including any variations by benefit	Summarize the plan's applicable NQTLs, including any variations by benefit	Describe the processes, strategies, evidentiary standards or other factors used to apply the NQTLs. Explain how the application of these factors is consistent with 45 CFR §146.136(c)(4). Provide the relevant pages of the documents in which the NQTLs are described and list this documentation in the space provided below. Please include in this column an explanation of how the MH/SUD benefits compare to M/S benefits
L. Restrictions that Limit Duration or Scope of Benefits for Services Does the plan restrict the geographic location in which services can be received; e.g., service area, within the state, within the United States?			
Does the plan restrict the type(s) of facilities in which enrollees can receive services?			
M. Restrictions for Provider Specialty Does the plan restrict the types of provider specialties that can provide certain M/S and/or MH/SUD benefits?			
List of Documents Referenced Above <i>List each document referenced above, including reference to exhibit number, file name, or other identifying information for examiners.</i>			

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**Report of the
FINANCIAL REGULATION STANDARDS AND ACCREDITATION (F) COMMITTEE**

The Financial Regulation Standards and Accreditation (F) Committee met Aug. 2, 2019, in regulator-to-regulator session, pursuant to paragraph 7 (consideration of individual state insurance department's compliance with NAIC financial regulation standards) of the NAIC Policy Statement on Open Meetings, to 1) discuss state-specific accreditation issues; and 2) vote to award continued accreditation to the insurance departments of Montana, Pennsylvania and Utah.

The Financial Regulation Standards and Accreditation (F) Committee met Aug. 3, 2019. During this meeting, the Committee:

1. Adopted its Spring National Meeting minutes.
2. Adopted its 2020 proposed charges, which remain unchanged from its 2019 charges.
3. Adopted revisions to the Part A: Laws and Regulations Preamble of the Financial Regulation Standards and Accreditation Program to include fraternal benefit societies in regard to principle-based reserving (PBR) where specifically referenced in the Liabilities and Reserves standard.
4. Adopted revisions to Part D: Organization, Licensing and Change of Control of Domestic Insurers. The revisions include updates to reflect current practices and expansion of the standards to redomestications, effective Jan. 1, 2020. In addition, Part D will be included in the review team's recommendation, with the result that the outcome can affect a state's accredited status, effective Jan. 1, 2022.
5. Exposed proposed revisions to the Self-Evaluation Guide/Interim Annual Review to incorporate the revisions to Part D for a 30-day public comment period ending Sept. 6.
6. Exposed proposed revisions to the Review Team Guidelines for procedures for troubled companies for a 30-day public comment period ending Sept. 6. The revisions provide further information on timely and effective communication of a troubled or potentially troubled company between the domiciliary and non-domiciliary states.
7. Discussed the accreditation impact of the 2019 revisions to the *Credit for Reinsurance Model Law* (#785) and the *Credit for Reinsurance Model Regulation* (#786). The states are encouraged to begin adoption of provisions that are substantially similar to the 2019 revisions to Model #785 and Model #786, and consideration of a formal accreditation standard will follow the normal process, which includes public discussion and exposure.

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Date: 7/17/19

State Implementation Reporting of NAIC-Adopted Model Laws and Regulations

Executive (EX) Committee

- Adoption of the new ***Insurance Data Security Model Law (#668)***—This model was adopted by the Executive (EX) Committee and Plenary at the 2017 Fall National Meeting. Six states have enacted this model.

Life Insurance and Annuities (A) Committee

- Amendments to the ***Separate Accounts Funding Guaranteed Minimum Benefits Under Group Contracts Model Regulation (#200)***—These revisions were adopted by the Executive (EX) Committee and Plenary at the 2016 Fall National Meeting. One state has enacted these revisions to the model.
- Amendments to the ***Standard Nonforfeiture Law for Individual Deferred Annuities (#805)***—These revisions were adopted by the Executive (EX) Committee and Plenary at the 2017 Summer National Meeting. Two states have enacted these revisions to the model.

Health Insurance and Managed Care (B) Committee

- Amendments to the ***Health Insurance Reserves Model Regulation (#10) (Cancer Expense Table)***—These revisions were adopted by the Executive (EX) Committee and Plenary at the 2017 Spring National Meeting. Four states have enacted these revisions to the model.
- Amendments to the ***Health Carrier Prescription Drug Benefit Management Model Act (#22)***—These revisions were adopted by the Executive (EX) Committee and Plenary at the 2018 Spring National Meeting. NAIC staff are not aware of any state activity regarding this model.
- Amendments to the ***Accident and Sickness Insurance Minimum Standards Model Act (#170)***—These revisions were adopted by the Executive (EX) Committee and Plenary at the 2019 Spring National Meeting. NAIC staff are not aware of any state activity regarding this model.
- Amendments to the ***Long-Term Care Insurance Model Act (#640)***—These revisions were adopted by the Executive (EX) Committee and Plenary at the 2016 Fall National Meeting. NAIC staff are not aware of any state activity regarding this model.
- Amendments to the ***Long-Term Care Insurance Model Regulation (#641)***—These revisions were adopted by the Executive (EX) Committee and Plenary at the 2014 Summer National Meeting. Three states have enacted these revisions to the model.
- Adoption of the ***Limited Long-Term Care Insurance Model Act (#642)***—This model was adopted by the Executive (EX) Committee and Plenary at the 2018 Fall National Meeting. NAIC staff are not aware of any state activity regarding this model.
- Adoption of the ***Limited Long-Term Care Insurance Model Regulation (#643)***—This model was adopted by the Executive (EX) Committee and Plenary at the 2018 Fall National Meeting. NAIC staff are not aware of any state activity regarding this model.

- Amendments to the ***Model Regulation to Implement the NAIC Medicare Supplement Insurance Minimum Standards Model Act (#651)***—These revisions were for consistency with the federal Medicare Access and CHIP Reauthorization Act of 2015 (MACRA) and were adopted by the Executive (EX) Committee and Plenary at the 2016 Summer National Meeting. Twenty-three states have enacted these revisions to the model.

Property and Casualty Insurance (C) Committee

- Adoption of the ***Travel Insurance Model Act (#632)***—This model was adopted by the Executive (EX) Committee and Plenary at the 2018 Fall National Meeting. Six states have enacted this model.

Market Regulation and Consumer Affairs (D) Committee

- Amendments to the ***Privacy of Consumer Financial and Health Information Regulation (#672)***—These revisions were adopted by the Executive (EX) Committee and Plenary at the 2017 Spring National Meeting. Nine states have enacted these revisions to the model.

Financial Condition (E) Committee

- Amendments to the ***Life and Health Insurance Guaranty Association Model Act (#520)***—These revisions were adopted by the Executive (EX) Committee and Plenary at the 2016 Fall National Meeting. Twenty-five states have enacted elements of this model.
- Amendments to the ***Credit for Reinsurance Model Law (#785)***—These revisions were adopted by the Executive (EX) Committee and Plenary during the June 26, 2019 conference call. NAIC staff are not aware of any state activity regarding this model.
- Amendments to the ***Credit for Reinsurance Model Regulation (#786)***—These revisions were adopted by the Executive (EX) Committee and Plenary during the June 26, 2019 conference call. NAIC staff are not aware of any state activity regarding this model.
- Amendments to the ***Term and Universal Life Insurance Reserve Financing Model Regulation (#787)***—These revisions were adopted by the Executive (EX) Committee and Plenary at the 2016 Fall National Meeting. Four states have enacted this model.

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