



AMERICAN ACADEMY *of* ACTUARIES

Report of the American Academy of Actuaries' Variable Annuity Reserve Work Group

**Presented to the National Association of Insurance Commissioners'
Life and Health Actuarial Task Force**

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Variable Annuity Reserve Work Group

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Background

In April and December of 2005, LHATF exposed versions of proposed Actuarial Guideline VACARVM (AG VACARVM). The CTE reserve approach in the 2005 exposures was consistent with the approach recommended by the American Academy of Actuaries' Variable Annuity Reserve Work Group (VARWG) and with the CTE approach in C-3 Phase II which was adopted by the NAIC in 2005. In the December 2005 Report of the VARWG, comments regarding the 2005 AG VACARVM exposures focused almost exclusively on the Standard Scenario, including:

1. attempts to better understand LHATF's intentions for the Standard Scenario (e.g., whether it is meant to be temporary or permanent);
2. attempts to understand the justification for the assumptions in the Standard Scenario;
3. comments on the level of the Standard Scenario vs. CTE reserves; and
4. comments on the number of runs required (including a "projection within a projection" requirement for determining "in-the-moneyness").

Since December, LHATF has only responded to the last item above – the number of runs required for the Standard Scenario was reduced and the determination of "in-the-moneyness" was simplified.

Changes Made in 2006

LHATF has made many other changes to AG VACARVM since December and these changes are reflected in the January 2006 and June 2006 AG VACARVM exposures.

The VARWG believes that because of several of these items, namely the changes made to the Principles, the changes made to contractholder behavior and the movement away from using a prudent best estimate approach for revenue sharing¹, the June 2006 exposure draft should not be considered a principles-based approach.

Additionally, LHATF has made other changes to AG VACARVM since December, and collectively these changes are so significant that the currently exposed CTE reserve approach is no longer consistent with the approach recommended by the VARWG and no longer consistent with the approach adopted in the C-3 Phase II requirements. The current exposure draft also varies significantly from the direction of current principles-based reserve proposals for life insurance and non-variable annuities.

Role of the Standard Scenario versus Other Changes to the Guideline

As noted above, LHATF has not communicated whether it intends the current exposure of the Standard Scenario to be temporary or permanent. Some regulators have indicated that the need for the Standard Scenario is predicated on the desire to have a significant floor initially in place to allow regulators and practicing actuaries to get used to the new requirements and to allow governance and PBA review to be developed and implemented. It also appears, however, that the same issues may be the reason for proposing more conservative components for the CTE reserve (e.g., the higher CTE and changes to the treatment of revenue sharing and contractholder behavior). If this is the case, LHATF should consider which of the approaches, the increased CTE approach or the Standard Scenario, should be used for this purpose since including both produces redundancy.

The VARWG believes that if there is a need for a significant floor to address these transition issues, this is best handled through a temporarily higher Standard Scenario. We also believe that once these issues are addressed, the Standard Scenario should be updated so that it meets the original goal of being a reasonable floor to the CTE reserve.

Attachment to this Report

As one can see from the attachment, the VARWG has comments on several components of the exposed guideline. The attachment is set up to help the reader review these comments and understand the rationale for our suggested changes. This report includes a table (the first ten pages of the attachment) that compares the language for various components of the guideline in the 2005 exposure drafts to corresponding language in the June 2006 exposure. For each of these changes, we offer comments (which are included in the table as well as in endnotes) and recommendations. To facilitate review by LHATF members, the table is organized into the following key topics:

¹ These and other changes are discussed in the attachment.

1. Contractholder Behavior issues;
2. Revenue Sharing issues;
3. Standard Scenario issues;
4. Reserve and CTE level issues; and
5. Other issues.

At the end of the table (the last six pages of the attachment) are the endnotes that provide more details on our comments.

Next Steps

We request an opportunity to review these comments with LHATF or a subgroup of LHATF. In addition, we are more than willing to meet with individual LHATF members to discuss these comments and recommendations in more detail.

The VARWG is committed to addressing the issues identified in this report, and believe that they can be resolved with a concerted effort involving LHATF, the VARWG, and other interested parties.

	April / December 2005 Exposure	June 2006 Exposure	Comments	Recommendation
CONTRACTHOLDER BEHAVIOR ISSUES				
<p><u>Issue:</u> Principle 3</p> <p><u>Location:</u> Section I - Background Page 3</p>	<p>“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 Conditional Tail Expectation Amount 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 Conditional Tail Expectation Amount, the actuary should be guided by evolving practice and expanding knowledge base in the measurement and management of risk.”</p>	<p>Original language removed</p>	<p>This is a major change to Principle 3.</p> <p>The removal of this language implies that the margin for each assumption is to be determined independent of other assumptions.</p> <p>Removing this language is inconsistent with the use of a Conditional Tail Expectation approach. See ENDNOTE ¹ for more discussion on this comment.</p> <p>It also moves the approach further from other risk management approaches used by companies.</p> <p>We believe LHATF needs to communicate its rationale for removing this language.</p>	<p>We recommend that the deleted language be restored to the guideline.</p> <p>If LHATF is unwilling to restore the deleted language, then the VARWG believes the CTE requirement should be deleted in its entirety in favor of a straight percentile approach.</p>
<p><u>Issue:</u> Contractholder Behavior: Irrational Component</p> <p><u>Location:</u> Appendix 9 Page 55</p>	<p>“Behavior formulas may have both rational and irrational components (irrational behavior is defined as situations where some contractholders may not always act in their best financial interest). The rational component should be dynamic, but the concept of rationality need not be interpreted in strict financial terms and might change over time.”</p>	<p>“Behavior formulas may have both rational and irrational components only to the extent justified by experience (irrational behavior is defined as situations where some contractholders may not always act in their best financial interest). The rational component should be dynamic and will change over time as contractholders increase their level of efficiency in exercising their policy options.”</p>	<p>The VARWG believes it is reasonable to assume a certain level of non-financially motivated behavior, even without experience.</p> <p>We also believe the use of the terms “rational” and “irrational” as used in this context may be misconstrued.</p> <p>SEE ENDNOTE ² for additional details and comments.</p>	<p>We recommend that LHATF restore the original language, and clarify the use of the irrational component using the following language:</p> <p><i>“Behavior formulas may have both rational and irrational components (irrational behavior is defined as situations where some contractholders may not always act in their best financial interest). The rational component should be dynamic, and will change over time as contractholders increase their level of efficiency in exercising their policy options but the concept of rationality need not be interpreted in strict financial terms and might change over time in response to observed trends in contractholder behavior based on increased or decreased financial efficiency in exercising their contractual options.”</i></p>

	April / December 2005 Exposure	June 2006 Exposure	Comments	Recommendation
CONTRACTHOLDER BEHAVIOR ISSUES				
<p><u>Issue:</u> Contractholder Behavior: Use of past experience</p> <p><u>Location:</u> Appendix 9 Page 56</p>	<p>“Unless there is clear evidence to the contrary, behavior should be consistent with past experience and reasonable future expectations. Ideally, contractholder behavior would be modeled dynamically according to the simulated economic environment and/or other conditions. However, it is reasonable to assume a certain level of non-financially motivated behavior. The actuary need not assume that all contractholders act with 100% efficiency in a financially rational manner. Neither should the actuary assume that contractholders will always act irrationally.”</p>	<p>“Unless there is clear evidence to the contrary, behavior assumptions should be no less conservative than past experience. In fact, conservatism shall increase over time as contractholders’ efficiency will increase over time. At any duration for which relevant and fully credible empirical data does not exist, the actuary should adjust behavior assumptions in the direction of the plausible behavior that would maximize the reserve.”</p>	<p>The VARWG requests clarification regarding this new language, including how the determination of “plausible behavior” interacts with the restrictions on using irrational behavior.</p> <p>SEE ENDNOTE ³ for additional comments.</p>	<p>The VARWG recommends the following language:</p> <p><i>“Unless there is clear evidence to the contrary, behavior assumptions should be no less conservative than past experience. In fact, conservatism Margins for contractholder behavior assumptions shall increase over time as it is prudent to assume, without relevant and credible experience or clear evidence to the contrary, that contractholders’ efficiency will increase over time. At any duration for which Where relevant and fully credible empirical data does not exist, the actuary should adjust the margin in behavior assumptions in the direction of the plausible behavior that would maximize increases the Aggregate Reserve.”</i></p>
<p><u>Issue:</u> Contractholder Behavior: Grading, then blending of experience</p> <p><u>Location:</u> Appendix 9 Page 56</p>	<p>No grading formula.</p>	<p>“When relevant and credible empirical data is available for early durations but not for later durations, the assumption shall be graded from the best estimate with margin at the latest duration where the relevant and credible data is available to the plausible assumption that would maximize the reserve five durations beyond where that relevant and credible data is available.</p> <p>[example of formula omitted]</p> <p>The assumption shall be further blended between experience-based and reserve maximizing where data is partially credible at a given duration.”</p>	<p>The VARWG believe this approach is too formulaic and limits the actuary’s ability to apply the judgment and justification called for under a principles-based approach.</p> <p>SEE ENDNOTE ⁴ for more detailed comments.</p>	<p>The VARWG recommends the following language:</p> <p><i>“When relevant and credible empirical data is available for early durations but not for later durations, the margin reflected in the Prudent Best Estimate assumption shall be increased consistent with the definition of Prudent Best Estimate assumptions to reflect the increased uncertainty graded from the best estimate with margin at the latest duration where the relevant and credible data is available to the plausible assumption that would maximize the reserve five durations beyond where that relevant and credible data is available.”</i></p>

	April / December 2005 Exposure	June 2006 Exposure	Comments	Recommendation
CONTRACTHOLDER BEHAVIOR ISSUES				
<p><u>Issue:</u> Contractholder Behavior: Guidance where there is no experience</p> <p><u>Location:</u> Appendix 9 Page 58</p>	<p>“In the absence of relevant and fully credible empirical data, the actuary should set behavior assumptions on the conservative end of the plausible spectrum (consistent with the definition of Prudent Best Estimate).”</p>	<p>“In the case where there is neither an internal nor a relevant external contractholder behavior study, the actuary should establish an assumption that maximizes the reserve.”</p>	<p>This change moves towards prescribed assumptions and towards the extreme end of the range for such assumptions. It is inconsistent with the approach companies use to manage these risks.</p> <p>Since one of the characteristics of a principles-based approach is consistency with companies’ risk management, this requirement moves the reserve approach away from being principles-based.</p> <p>SEE ENDNOTE ⁵ for more detailed discussion.</p>	<p>The VARWG recommends the following language:</p> <p><i>“In determining contractholder 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 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 is used, the assumption shall be adjusted to reflect differences between the two segments. Margins should be applied to 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.</i></p> <p><i>Where relevant and fully credible empirical data does not exist, the actuary should adjust contractholder behavior assumptions in the direction of the plausible range of expected experience that serves to increase the Aggregate Reserve. Such adjustments should be consistent with the definition of Prudent Best Estimate and the Principles described in Section I.”</i></p> <p>If LHATF still believes more guidance is needed, more discussion involving LHATF, the VARWG and other interested parties is needed to resolve.</p>
<p><u>Issue:</u> Contractholder Behavior: Additional requirements</p> <p><u>Location:</u> Appendix 9 Page 58</p>		<p>“Experience for annuities without living benefits is not relevant for use in setting a lapse assumption for in-the-money or at-the-money guaranteed living benefits.”</p>	<p>The VARWG believes this language is too restrictive. Consider a contract in the early durations with a living benefit that has a long waiting period. Lapse experience on contracts without a living benefit may have relevance to the early durations of this contract.</p>	<p>The language should allow for reasonable situations and/or reasonable explanations for using studies involving contracts without living benefits.</p> <p><i>“Experience for annuities 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. <u>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.</u>”</i></p>

	April / December 2005 Exposure	June 2006 Exposure	Comments	Recommendation
CONTRACTHOLDER BEHAVIOR ISSUES				
<p><u>Issue:</u> Prudent Best Estimate definition</p> <p><u>Location:</u> Section III(B)8)</p> <p>Page 6</p>	<p>“A Prudent Best Estimate assumption would normally be developed by applying a margin for estimation error to the “best estimate” assumption.”</p>	<p>“A Prudent Best Estimate assumption is developed by applying a margin for uncertainty to the “best estimate” assumption. The margin for uncertainty shall include margins for estimation error as well as margins for adverse deviation over the span of economic cycles and over a plausible range of expected experience.”</p>	<p>We believe the language in the Recommendation column is more consistent with the language in the Preamble of the Accounting Practices and Procedures Manual, the language exposed in the model regulation supporting principles-based reserve requirements for life insurance, and with the language developed by the Consistency Work Group of the Academy’s Life Practice Council.</p>	<p>We suggest the following changes to the definition:</p> <p><i>“A Prudent Best Estimate assumption is developed by applying a margin for uncertainty to the “best estimate” assumption. The margin for uncertainty shall include margin provide for estimation error as well as margins for and adverse deviation. <u>The resulting Prudent Best 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 I.</u> “Best estimate” would typically be the actuary’s most reasonable estimate of future experience for a risk factor given all available, relevant information pertaining to the contingencies being valued. Recognizing that assumptions are simply assertions of future unknown experience, the margin for error 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 best estimate assumption).</i></p> <p><i>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.</i></p> <p><i><u>This means that valuation assumptions not stochastically modeled should be consistent with the stated Principles in Section I, be based on any relevant and credible experience that is available, and be set to produce, in concert with other Prudent Best Estimate assumptions, a Conditional Tail Expectation Amount that is consistent with the stated CTE level.</u></i>”</p>

Issue / Location	April / December 2005 Exposure	June 2006 Exposure	Comments	Recommendation
REVENUE SHARING ISSUE				
<p><u>Issue:</u> Revenue Sharing</p> <p><u>Location:</u> Section A1.1)E) Pages 9 - 10</p>	<p>This version included the recommendation of the Academy’s VARWG – Revenue Sharing Income is based on Prudent Best Estimate principles and an actuarial review of agreements using assessment of factors (included in the guideline).</p>	<p>Limits Revenue Sharing Income to that which is “contractually guaranteed to the insurer and its liquidator, receiver, conservator, or statutory successor”</p>	<p>The June 2006 Report from the VARWG (which was handed out at the LHATF meeting in Washington, DC) provides more details on revenue sharing. Please refer to that document for comments.</p> <p>The current exposure assumes that <u>all</u> non-guaranteed revenue sharing income goes away immediately after the valuation date. We believe this is inconsistent with a principles-based approach.</p> <p>We believe LHATF needs to communicate its rationale for including only guaranteed revenue sharing.</p>	<p>The VARWG recommends the language exposed in the April 2005 version of AG VACARVM to assure consistency with C-3 Phase II.</p> <p>One alternative for LHATF to consider as a compromise:</p> <ul style="list-style-type: none"> • Delete section A1.1)E)1)(c) - “the Net Revenue Sharing Income is contractually guaranteed to the insurer and its liquidator, receiver, conservator, or statutory successor.” • Modify section A1.1)E)3) – “The amount of projected Net Revenue Sharing Income shall also reflect a margin for error (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.” • Add section A1.1)E)6) - “The aggregate rate of Net Revenue Sharing Income assumed after the first Y projection years [e.g., 5 years] shall not exceed the lesser of: <ul style="list-style-type: none"> (a) X% per year [e.g., 0.25%] on separate account assets, and (b) the actuary’s prudent best estimate of Net Revenue Sharing Income after reflecting appropriate margins for uncertainty.”

ATTACHMENT 1

Issue / Location	April / December 2005 Exposure	June 2006 Exposure	Comments	Recommendation
STANDARD SCENARIO ISSUES				
<p><u>Issue:</u> Standard Scenario: SS vs. CTE</p> <p><u>Location:</u> Appendix 3 Pages 18 - 25</p>	<p>In our December 2005 Report, we raised concerns about the level of SS reserve required by the April 2005 version of AG VACARVM vs. the CTE reserves.</p>	<p>In our March 2006 Report, we reiterated our concerns about the level of SS reserve required by the January 2006 version of AG VACARVM vs. the CTE reserves.</p> <p>These concerns were more pronounced due to the option value method.</p>	<p>The VARWG cannot support the Standard Scenario in the current exposure without additional clarification of its intent. See the discussion in ENDNOTE ⁶.</p>	<p>We recommend removal of the Option Value floor (see below).</p> <p>We also recommend LHATF communicate the intent for the Standard Scenario – is it meant to be temporary or permanent?</p>
<p><u>Issue:</u> Standard Scenario: Option Value Method floor</p> <p><u>Location:</u> Section A3.1)B) Page 18</p>	<p>Standard Scenario reserve for each contract is the sum of the Basic Adjusted Reserve and Accumulated Net Revenue, but not less than the contract's cash surrender value.</p>	<p>An Option Value Method floor was added to the Standard Scenario.</p>	<p>SEE ENDNOTE ⁷ for a copy of comments made on this issue in the VARWG's March 2006 Report.</p>	<p>We recommend removal of the Option Value floor.</p>
<p><u>Issue:</u> Standard Scenario: Discount rate</p> <p><u>Location:</u> Section A3.1)B) Page 18</p>	<p>"valuation interest rate . . . specified by the Standard Valuation Law"</p>	<p>"annual effective equivalent of the 10-year constant maturity treasury rate . . . plus 50 basis points. However, [the discount rate] shall not be less than three percent or more than nine percent."</p>	<p>A discount rate based on Treasuries will create greater mismatches between assets and reserves.</p> <p>A discount rate that changes every year, such as one based on Treasuries will also create mismatches with tax reserve.</p>	<p>A discount rate based upon year of issue, such as a valuation interest rate based on the SVL or a rate based on the AFIR should be considered.</p> <p>The VARWG is willing to work with LHATF and other interested parties to provide specific language.</p>

Issue / Location	April / December 2005 Exposure	June 2006 Exposure	Comments	Recommendation
STANDARD SCENARIO ISSUES				
<p><u>Issue:</u> Standard Scenario: Account Value Return Assumption</p> <p><u>Location:</u> Section A3.3)C)1) Page 21</p>	<p>“The margins on Account Value are defined as follows: During the Surrender Charge Period, 0.10% of Account Value; plus the maximum of:</p> <ul style="list-style-type: none"> • 0.20% of Account Value; or • For each of the guaranteed living and death benefits offered with the contract, the explicit contract charges for the benefit(s). If for a given living or death benefit, there is no explicit charge, a charge shall be imputed. . .” <p>[December 2005 version]</p> 	<p>“The margins on Account Value are defined as follows: During the Surrender Charge Period, 0.10% of Account Value; plus the maximum of:</p> <ul style="list-style-type: none"> • 0.20% of Account Value; or • Explicit and optional contract charges for guaranteed living and death benefits.” <p>(This change restored the language to that contained in the April 2005 version.)</p> 	<p>We believe LHATF should communicate its rationale for choosing the revenue levels contained in section A3.3)C)1).</p> <p>SEE ENDNOTE ⁸ for several comments on this issue.</p>	<p>1. We recommend the following changes to the language in question (shown in redline format):</p> <p><i>“The <u>annual</u> margins on Account Value are defined as follows: During the Surrender Charge Period, 0.10% of Account Value; <u>plus guaranteed Revenue Sharing Income, as defined in Section A1.1)E); plus, for each of the guaranteed living and death benefits offered with the contract, the maximum of:</u></i></p> <ul style="list-style-type: none"> • <i>0.20% of Account Value; or</i> • <i>Explicit and optional contract charges for guaranteed living and death benefits.”</i> <p>2. More clarification is needed regarding how to determine the Surrender Charge Period in this context for contracts that have multiple premium contributions.</p>
<p><u>Issue:</u> Standard Scenario: Lapse, Partial Withdrawals and In-the-Moneyess</p> <p><u>Location:</u> Section A3.3)C)3) Pages 21 - 23</p>	<p>“Old” definition of in-the-moneyess</p>	<p>Updated definition</p>	<p>The updated definition uses the term “projection year” throughout the section. However, section A3.3)C)6) allows the use of a projection frequency other than annual.</p>	<p>Use the word “period” rather than “year” throughout the Standard Scenario appendix (in addition to the definition of in-the-moneyess in section A3.3)C)6), there are occurrences in subsections 1) and 4)).</p>

Issue / Location	April / December 2005 Exposure	June 2006 Exposure	Comments	Recommendation
RESERVE / CTE LEVEL ISSUES				
<p><u>Issue:</u> Principle 2</p> <p><u>Location:</u> Section I - Background Page 3</p>	<p>“. . . deemed adequate to cover moderately adverse conditions.”</p>	<p>“. . . deemed adequate to substantially cover the risk associated with the business, with recognition of benefits that concentrate risk in the tail.”</p>	<p>SEE ENDNOTE 9 for comments.</p> <p>We believe LHATF needs to better communicate its rationale for the change.</p>	<p>The VARWG recommends considering alternative language: “. . . deemed to be reasonably conservative over the span of economic cycles.”</p> <p>Both the Academy’s VARWG and Consistency Work Group are studying the use of this language for principles-based reserves.</p>
<p><u>Issue:</u> CTE Level</p> <p><u>Location:</u> Throughout the Guideline</p>	<p>CTE 65</p>	<p>CTE 75</p>	<p>In prior reports, the VARWG commented on considerations, which includes the possibility that CTE 75 will exceed the C-3 Phase II total asset requirements and the proper allocation of the total provision between reserves and RBC. See our December 2005 and March 2006 reports for more details.</p>	<p>We believe LHATF needs to communicate its rationale for choosing CTE 75.</p>
<p><u>Issue:</u> Comparison of CTE to percentile</p> <p><u>Location:</u> Section I - Background Page 2</p>	<p>“Thus for losses that approximate a normal distribution, CTE (65) will approximate the 82.5th percentile.”</p>	<p>Original language removed</p>	<p>Regardless of what CTE level LHATF chooses, we believe the proposed guideline should document the impact of the decision that was made.</p> <p>SEE ENDNOTE 10 for more detailed comments.</p>	<p>We recommend the following changes to the paragraph in question (shown in redline format):</p> <p><i>“Conditional Tail Expectation (CTE) is a statistical risk measure that provides enhanced information about the tail of a distribution above that provided by the traditional use of percentiles. Instead of only identifying a value at a particular percentile and thus ignoring the possibility of extremely large values in the tail, CTE recognizes a portion of the tail by providing the average over all values in the tail beyond the CTE percentile. Thus where the tail of the distribution of losses approximates that of a normal distribution, CTE (75) will approximate the 90th percentile; where the tail is “fatter” than that of a normal distribution, CTE (75) will exceed the 90th percentile; and where the tail is not as “fat” as a normal distribution, CTE (75) will be lower than the 90th percentile. Therefore, for distributions with “fat tails” from low probability, high impact events, such as those covered by the Guideline, the use of CTE will provide a more revealing measure than use of a single percentile requirement.”</i></p>

Issue / Location	April / December 2005 Exposure	June 2006 Exposure	Comments	Recommendation
OTHER ISSUES (in order of appearance in the Guideline)				
<p><u>Issue:</u> Informational run excluding hedges</p> <p><u>Location:</u> Section A1.1)D) Page 9</p>	<p>No provision.</p>	<p>“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 that meet the standard as stated in Appendix 3.3)D)2).”</p>	<p>The informational model run uses criteria that are different from the Clearly Defined Hedging Criteria established in the guideline.</p> <p>We also believe this should be provided only upon request.</p> <p>SEE ENDNOTE ¹¹ for more detailed comments.</p>	<p>We recommend the following changes to the paragraph in question:</p> <p><i>“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 that meet the standard as stated in Appendix 3.3)D)2) currently held by the company in support of the contracts falling under the scope of the Guideline.”</i></p>
<p><u>Issue:</u> Relationship to RBC Requirements</p> <p><u>Location:</u> Section A1.6) Page 14</p>	<p>“The Guideline anticipates that the projections described herein may be used for the determination of Risk Based Capital (the “RBC requirements”) for some or all of the contracts falling within the scope of the Guideline.”</p> <p>Two differences between AG VACARVM and C3 Phase II are mentioned: the CTE level; and reserves are calculated on a pre-tax basis, while RBC is calculated on an after-tax basis.</p>	<p>No change to this section.</p>	<p>The differences between the calculation in the current exposure of AG VACARVM and that required by C3 Phase II are too extensive to capture in this section.</p>	<p>The statements made in section A1.6) of the current exposure are only correct for the prior versions of the guideline. Unless the guideline is amended, the VARWG recommends that this section be removed or modified.</p>
<p><u>Issue:</u> Compliance with ASOPs</p> <p><u>Location:</u> Section A2.3)A) Page 16</p>	<p>“The actuary shall certify that the work performed has been done in a way that complies with all applicable Actuarial Standards of Practice.”</p>	<p>No change.</p>	<p>There is still an outstanding comment from the Academy’s VARWG.</p>	<p>We recommend the following changes to the paragraph in question:</p> <p><i>“The actuary shall certify that the work performed has been done in a way that <u>substantially</u> complies with all applicable Actuarial Standards of Practice.”</i></p>

Issue / Location	April / December 2005 Exposure	June 2006 Exposure	Comments	Recommendation
OTHER ISSUES (in order of appearance in the Guideline)				
<u>Issue:</u> Modeling of Hedges <u>Location:</u> Appendix 7 Pages 47 - 50		Some wording changes were made, but not all the changes recommended by the VARWG.	The January 2006 Report of the VARWG included several wording changes that were suggested by Academy legal counsel. These changes have not been incorporated into the current exposure of AG VACARVM.	Incorporate the suggested changes.
<u>Issue:</u> Certification Requirements: Required Volatility sensitivity test <u>Location:</u> Section A8.3D)4) Page 54	None.	“One of the [sensitivity] tests shall be on the impact of the market return volatility assumption when market volatility is materially higher than assumed in the generated scenarios.”	This requires companies to generate a new set of stochastic scenarios and rerun the entire CTE reserve. More discussion is needed to better understand the rationale for this, given the effort this would entail (e.g., will all insurance departments want this from all companies? will they review and use this information every year?) Given that the scenario testing provides companies with results over a broad range of equity scenarios, is this required sensitivity test necessary? How would this be applied when the prepackaged scenarios are used?	We recommend that this requirement be removed and, thus, be left to the discretion of the domiciliary commissioner.
<u>Issue:</u> Certification Requirements <u>Location:</u> Section A8.3E) Page 54			Two typos	<ol style="list-style-type: none"> 1. In #6, “judgement” should be “judgment”; and 2. In #7, “Standard Scenario reserve” should be “Standard Scenario Amount”.

ENDNOTES¹ Principle 3

The approach of setting each assumption on a conservative basis rather than setting the conservatism level by selecting the percentile for the CTE measure is more consistent with the concept of ranking the scenario results and setting the reserve at a particular percentile level rather than applying the Conditional Tail Expectation. Thus, if LHATF is unwilling to restore the deleted language, then the VARWG believes the CTE requirement should be scrapped in favor of a straight percentile approach.

² Contractholder Behavior: Irrational Component

The VARWG believes it is reasonable to assume a certain level of non-financially motivated behavior, even without experience. We would note there are many examples where this type of behavior has occurred. In some situations, such behavior would result in assumptions that both decrease and increase reserves. One example of an assumption that increases reserves is a “buy high and sell low” behavior involving the transfer of funds.

We believe the use of the terms “rational” and “irrational”, as they are used in this context, may be misconstrued. The definition of “irrational behavior” given in Appendix 9 is based on the contractholder not always acting in their best financial interest. We believe the concept that is intended here either also includes or exclusively involves whether the contractholder behavior occurs when it is the most detrimental to the company.

For example, if a living benefit is significantly in-the-money, it may be detrimental to the company for the contractholder to retain the contract (i.e., refrain from lapsing). However, if the contractholder does in fact lapse the contract in this situation, it may be a rational behavior if the contract is lapsed to pay for, say, an unforeseen medical bill.

Another example is a situation where a contractholder has a guaranteed minimum payment (through either a GMIB or a GMWB) that is in the money. It may be rational for this contractholder to delay payment (particularly at younger ages) if he or she is not in need of an additional source of income.

In this regard, we believe the concept of Prudent Best Estimate assumptions should allow for some amount of irrational behavior. We also believe the concept of Prudent Best Estimate assumptions should result in the amount of irrational behavior decreasing as the uncertainty of the assumption increases, but not to the extreme, as suggested by the current exposure.

In addition, it is not clear what is meant by “The rational component . . . will change over as contractholders increase their level of efficiency in exercising their policy options”. Is this a requirement to update assumptions once contractholder behavior changes? Is it a requirement to assume that margins should increase with uncertainty?

³ Contractholder Behavior: Use of past experience

The VARWG requests clarification regarding what it meant by the concept “plausible behavior that maximizes the reserve”, how LHATF intends the actuary to determine this behavior and how it is intended to interact with other components of the Guideline (such as the prohibition of using irrational behavior) before we can comment on the appropriateness of the proposed language.

In addition, it is not clear what is meant by “In fact, conservatism shall increase over time as contractholders’ efficiency will increase over time”. Is this a requirement to update assumptions once contractholder behavior changes? What happens if efficiency doesn’t increase?

⁴ Contractholder Behavior: Grading, then blending of experience

The VARWG has several comments:

- The VARWG believes the proposal to grade-in assumptions to financial efficiency on page 56 is overly focused on each duration rather than allowing a broader concept such as duration segments. It is common to use experience for durations a few years past the end of the surrender charge period for all future durations (e.g., years 10 and on). This practice would not seem to be permitted under the proposed changes.

- The VARWG also believes the proposed language is too rigid because it limits the actuary’s ability to apply judgment to certain situations. It therefore moves the calculation of reserves under AG VACARVM away from a principles-based approach. LHATF should consider that there could be situations where this approach is inappropriate. One simple example is where a significant surrender charge schedule ends during the grade-in period.
- There may be some contractholder behaviors that don’t vary by duration. One example is withdrawals that are not subject to surrender charges; another is fund transfers.
- It is not clear how this approach would interact with dynamic formulas. In other words, this requires (in rough terms) the relevant experience to be graded to the “plausible behavior” over five years, then to be blended with “maximizing behavior”. To which of these items would the dynamic formula apply?
- The VARWG would like to better understand the need for both grading to the “plausible behavior” and then blending with the “maximizing behavior” in the same formula, as it is proposed in the current exposure.

⁵ Contractholder Behavior: Guidance where there is no experience

The VARWG has several comments:

- This language implies that the actuary must use 100% utilization and 0% lapses (i.e., the assumption that would maximize the reserve) unless the company has relevant experience or a relevant study? If so, then any company that writes GMIBs, for example, will have to use 100% utilization for in-the-money benefits unless they have a study of GMIB utilization. Is this what LHATF intends or should “an assumption that maximizes the reserve” be changed to “a plausible assumption that would increase the Aggregate Reserve”? If not, we request that LHATF reconsider this requirement, since it results in an approach that is inconsistent with the way companies manage their risks.
- We see two situations where requiring the extreme assumption of 100% utilization and 0% lapses could be harmful to companies:
 - First, companies that hedge will be forced to choose between hedging the statutory reserve and hedging the economic risk. Either approach will be potentially harmful to companies for the following reasons. Hedging the statutory reserve will result in economic losses as experience develops which is different from the 100% utilization assumptions. Hedging the economic risk would require the company to use assumptions for the hedges that are significantly different from those used to determine reserves and the result will be a mismatch between the value of hedging assets and the statutory reserve.
 - Second, companies will be reluctant to develop and offer new products and benefits that reduce or diversify risks, since they will be required to hold overly conservative reserves for these new products/benefits.
- The proposed language does not seem to address the real problems associated with that approach.

It is not clear what specifically is meant by the term “maximizes the reserve.” The stochastic reserve is an aggregate calculation (that is, the overall result is affected by all the contracts) for each scenario and the final result is the average of the Greatest Present Value of Accumulated Deficiencies (GPVAD) over the worst x% of scenarios. There are several possible interpretations to the directive of maximizing the reserve. Does the actuary consider the group of contracts that are affected by the assumption or the entire group of contracts that are combined in the aggregation process? Does the actuary consider a few of the likely valuation scenarios or rather, through an iterative process, all the scenarios that will be included in the worst x% of results? The literal reading of the directive is to maximize the final answer: that is, to find a set of assumptions that maximizes the GPVAD at a particular duration for each scenario across the worst x% of scenarios.

Once the concept is clearly defined, there may be considerable computational difficulty in implementing the concept since it is possible that the direction and/or magnitude of a margin for an independent assumption could be different when combined with other assumptions. More importantly, the resulting set of assumptions may be totally irrational and in conflict with other guidance in Appendix 9 of AG VACARVM.

In order to maximize the reserve, the customer’s behavior must be modeled using knowledge about what will happen at future durations, but neither the contractholder nor the company knows what the future will hold. This could mean assuming 100% lapses in some circumstances (because future experience is good) and in other circumstances a 0% lapse rate. If the GPVAD is at duration “t” in one scenario and at duration “u” in another scenario, the reserve maximization may require 100% usage at different durations despite the fact that from the customer’s viewpoint there may be little difference in the two scenarios.

- Based on the discussion above, the VARWG concludes the result of this approach would conflict with the guidance offered earlier in Appendix 9: “Remain logically consistent across the scenarios tested; Represent plausible outcomes; and Lead to appropriate, but not excessive, asset requirements.”
- We tend to focus attention on lapses and withdrawals when discussing contractholder behavior, but there are others implicitly or explicitly assumed in our projections. Assumptions that "maximize reserve" when no credible experience exists may lead to some extreme behaviors in other behaviors, (e.g., transferring all funds to fixed funds or have a larger dump in of premium).
- The following are excerpts from comments made in the VARWG December 2005 Report concerning the used of prescribed assumptions. We believe they are pertinent to this issue.
 - a) There are several places in AG VACARVM where this **issue is already addressed**:
 - In Section III(B)8), the definition of Prudent Best Estimate states that assumptions are 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*”; and
 - “*Recognizing that assumptions are simply assertions of future unknown experience, the margin for error should be directly related to uncertainty in the underlying risk factor. The greater the uncertainty is, 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 best estimate assumption).*”
 - Appendix 9 – *Contractholder Behavior* states that “[i]n the absence of relevant and fully credible empirical data, the actuary should set behavior assumptions on the conservative end of the plausible spectrum (consistent with the definition of Prudent Best Estimate).”
 - There are several places in AG VACARVM that require sensitivity testing to be described and sensitivity testing is encouraged in Appendix 9 to understand the materiality of making alternate assumptions.
 - b) Prescribed assumptions move the approach **further away** from being a principles-based approach.
 - LHATF should consider that the use of prescribed assumptions will likely decrease the consistency between models and processes used to internally measure and monitor risk with those used for statutory reserves.
 - This is contrary to one of the goals of principles-based approaches, which is to increase consistency between internal risk measurements and statutory financial reporting.
 - LHATF should also consider the possibility of unwittingly specifying assumptions (or combination of assumptions) that will produce significant unforeseen consequences (whether intentional or unintentional) such as inadequate or excessive reserves.
 - This effect is one that the principles-based approach is designed to avoid.
 - c) LHATF should consider the following three-pillared **alternative to prescribed assumptions**, which is implicitly embedded in AG VACARVM and the current C-3 Phase II methodology.
 1. **Research.** Since the focus is on assumptions where little or no relevant data is available, traditional experience studies are not possible.
 - One example of current research is the SOA’s engagement in a Delphi study to better understand the persistency of preferred mortality discounts.
 - Regulatory involvement such as membership on Project Oversight Groups or close monitoring of such studies will help regulators evaluate regulatory judgments under a principles-based approach.
 2. **NAIC LHATF meetings.** Historically the focus of LHATF meetings has been on either the refinement of existing statutory formula reserve requirements or the development of new requirements. Under a principles-based approach, the focus of LHATF meetings could change to a review and discussion of literature and studies that are being used by actuaries to support assumptions in cases with little or no experience in support of the assumptions.
 - The reviews and discussions would lead to a better understanding of the strengths and weakness of existing studies. This knowledge could be applied by regulators, peer reviewers and modeling actuaries to better use existing studies.

3. **Highlighting Generally Accepted Practice.** As noted above, AG VACARVM and C-3 Phase II address what the actuary must do to determine assumptions where little or no experience is available. To the extent that LHATF finds these provisions not to be detailed enough, regulatory reviews of principles-based approaches (such as C-3 Phase II) could focus in more detail on actuarial practice in this area.
- Using this information, current and future reserve and capital requirements that include principles-based approaches could be restructured to better highlight what is considered accepted (or required) practices.
 - ⇒ Examples of such items may include the consistency of best estimate assumptions used for reserves with those used for pricing or internal risk management purposes, identification of methods used to properly quantify the margin for uncertainty needed to develop a "Prudent Best Estimate" assumption, and sensitivity testing to determine the significance of uncertainty in an assumption.

⁶ Standard Scenario: SS vs. CTE

The VARWG believes the discussion of the issues involving the Standard Scenario would be facilitated by a better understanding of LHATF's intentions for the Standard Scenario (e.g., whether the level of the Standard Scenario is meant to be temporary or permanent) and the justification for the assumptions in the Standard Scenario.

In the December 2005 and March 2006 reports, we expressed our belief that:

- *the Standard Scenario could provide benefits if it were a simple calculation set at a minimal floor level; and*
- *resolving the issues surrounding the Standard Scenario would be more readily achieved by focusing on the intent of this component and getting more direction and feedback.*

It is important to note that at the March 2006 NAIC meeting, members of LHATF communicated that the intent is for the Standard Scenario to produce reserves that are lower than those calculated using the CTE approach unless the company used aggressive assumptions. Therefore, it appears that there is some agreement with setting the Standard Scenario as a minimal floor.

However, the VARWG cannot support the Standard Scenario in the current exposure for the following reasons:

- *It appears as if this version will not produce the targeted minimal floor level; and*
- *It appears that the option-value will add complexity to the Standard Scenario*

If LHATF believes there is a need for a Standard Scenario that temporarily does not meet the goals that were previously communicated, particularly if it is needed to address transitional issues, then it is critical for LHATF to communicate this.

⁷ Standard Scenario: Option Value Method floor

Comments from March 2006 Report of the VARWG:

- If LHATF wishes to pursue this approach, the calculation will need to be described in more detail to properly assess the impact of this proposal. For example, it is not clear how a "lattice-type approach" would be applied in this context.
- Using an option-value approach as a component of a floor reserve that also incorporates two other very different reserve calculations is likely to create mismatches. This would occur when the reserve on one valuation date is based on one basis (such as the option-value calculation) and then another basis (such as the CTE calculation) on a subsequent valuation date. These types of changes would very likely occur with three very different reserve bases and the resulting reserves could interact with assets (including hedge assets) in unanticipated ways from period to period.
- An option-value calculation might need to be validated to the market value of financial options. During times of economic stress, however, option markets have shown some tendency toward material daily volatility and large bid-to-asked spreads, which could create "illogical" short term reserving volatility relative to the underlying risk.
- The description in the 1/25/06 Document appears to require a seriatim (contract-by contract) calculation, which would make it more computationally difficult than the CTE calculation, and further stress company and regulatory resources (people and systems) dedicated to variable annuity reserves and risk-based capital. Resources spent on the option-value calculation will likely diminish efforts to improve upon the stochastic CTE process for some companies.

- The option-value calculation ignores a significant portion of the revenue produced by the underlying VA contract above that needed to support the Basic Adjusted Reserve.
- While an option-value calculation could theoretically be an appropriate basis for reserves for VA contracts, it may be premature to incorporate such an approach into AG VACARVM at this point in time.

Although there are some similarities to the CTE calculation required by AG VACARVM, adding an option-value calculation would move AG VACARVM in a completely different direction than we have worked toward over the last three years.

If an option-value approach is desired, we believe one could be developed, but it would involve a significant amount of time and effort to develop and refine such an approach.

⁸ Standard Scenario: Account Value Return Assumption

The VARWG has the following comments:

- The use of the Surrender Charge Period to differentiate the level of margins may work well for single premium contracts, but its use for contracts with subsequent premiums will create unintended results.
- Limiting the revenue to “explicit and optional contract charges” may result in unintended results. For example, two different contracts that offer identical living and death benefits and that have the same total charges may have different levels of revenue allowed by A3.3)C)1). This would occur if one contract had explicit revenue for both benefits and the other had explicit revenue for only one (or none) of the benefits. The reserve for the two contracts could be quite different, even though the risk to the company is the same.
- It is not clear why Revenue Sharing income is excluded from the margin included in the Standard Scenario.
- No rationale has ever been given for the levels of margin included in the Standard Scenario.

⁹ Principle 2

The language in the current exposure, “deemed adequate to substantially cover the risk associated with the tail”, implies a reserve level that is at or beyond the Total Asset Requirement level required for RBC. The language also implies a reserve level greater than the standard set in the Accounting Practices and Procedures Manual (APPM) for statutory conservatism (paragraph 30 of the manual’s Preamble uses the phrase “reasonably conservative”).

We believe the original wording (“deemed adequate to cover moderately adverse conditions.”) is appropriate, since it is consistent with language in Actuarial Standard of Practice No. 22 - *Statements of Opinion Based on Asset Adequacy Analysis by Actuaries for Life or Health Insurers*, section 3.4.2:

3.4.2 *Adequacy of Reserves and Other Liabilities* - *When forming an opinion, the actuary should consider whether the reserves and other liabilities being tested are adequate under moderately adverse conditions, in light of the assets supporting such reserves and other liabilities. To hold reserves or other liabilities so great as to withstand any conceivable circumstances, no matter how adverse, would usually imply an excessive level of reserves or liabilities.*

The VARWG would like to consider using language consistent with the Preamble of the APPM “deemed to be reasonably conservative over the span of economic cycles”. The VARWG is working with the Academy’s Consistency Work Group to study whether this language is more appropriate for principles-based reserves.

We believe LHATF needs to communicate its rationale for making the change to this Principle.

¹⁰ Comparison of CTE to percentile

Regardless of what CTE level LHATF chooses, we believe the proposed guideline should document the impact of the decision that was made. For example, if LHATF chooses CTE 75, it should be acknowledged that the decision was made with the knowledge that it produces reserves that could exceed the 90th percentile.

The rationale for using a CTE approach (rather than requiring a fixed percentile) is that the CTE better recognizes the tail risk; so that the corresponding percentile is “adjusted” to account for the risk inherent in the distribution. That is, a given CTE level corresponds to a higher percentile for distributions with fat tails.

For example, both company and Academy models show that CTE 75 is generally greater than the 90th percentile for both in-the-money and out-of-the-money benefits. This is due to the fact that distribution of the stochastic modeling generally has fatter tails than a normal distribution.

¹¹ Informational run excluding hedges

The informational model run uses criteria that are different from the Clearly Defined Hedging Criteria established in the guideline. This could potentially result in situations where the actuary has to include some derivative instruments that were included in the original CTE calculation, but has to exclude other derivative instruments. The determination of which of these derivative instruments are included and which are excluded in the informational run will use criteria that are different than those used to include them in the original CTE calculation. We believe this will create confusion and the need for a separate set of models to handle the two different sets of criteria.

In addition, since it is not clear whether all insurance departments will use this information, we think the informational run should only be provided upon request. This will assure there won't be any unnecessary work performed by either companies or insurance departments.