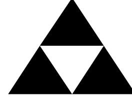

AMERICAN ACADEMY *of* ACTUARIES

Review of the September 2006 AG VACARVM Exposure Draft
from 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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VARWG Review of September 2006 AG VACARVM Exposure Draft

The Variable Annuity Reserves Work Group (VARWG) has reviewed the September Exposure of AG VACARVM ("Current Exposure") from the perspective of (a) consistency with the recommendations in our August 8, 2006 Report to LHATF; and (b) overall reasonableness from an actuarial perspective. In general, changes made in the Current Exposure are supportive of the issues raised by the VARWG on pages 4 through 13 of the August 8 Report ("August 8 Grid").

The following is a list of the items for which we noted some level of variance between the Current Exposure and the August 8 Grid. The items are organized in the same manner as the issues in the August 8 report, and for convenience we have excerpted the pertinent portions of that grid in our discussion below.

Contractholder Behavior:

Reference: Page 4 of August 8 Grid, bottom row:

	2005 Exposures	June 2006 Exposure	Comments	Recommendation
Issue: Contractholder Behavior: Irrational Component Location: Appendix 9 Page 55	"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."	"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."	The VARWG believes it is reasonable to assume a certain level of non-financially motivated behavior, even without experience. We also believe the use of the terms "rational" and "irrational" as used in this context may be misconstrued. SEE ENDNOTE for additional details and comments. [Note: the endnote is not included here. See the August 8 report for the endnote.]	We recommend that LHATF restore the original language, and clarify the use of the irrational component using the following language: *"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."*

The Current Exposure contains the following language relating to the topic of the VARWG's recommendation cited above:

> "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 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."

As can be seen from the excerpt from the August 8 Report shown in the table above, the VARWG recommended that the language used in the 2005 exposure drafts be restored. The language in the 2005 exposure drafts did not include the phrase "only to the extent justified by experience" which was left in the Current Exposure. The recommended language in our August 8 Report excluded this phrase.

We believe the reference to "only to the extent justified by experience" should be eliminated from the Current Exposure. As a result, the correct sentence should be

> "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 in response to observed trends in contractholder behavior based on increased or decreased financial efficiency in exercising their contractual options."

There is a concern that the phrase "only to the extent justified by experience" could be narrowly interpreted. Other sections in the Current Exposure provide guidance and require extensive documentation of the source of assumptions. The VARWG believes that an actuary should be able to use professional judgment in setting assumptions, which should generally be based on available experience, and be able to justify the decisions made in developing assumptions when fully credible experience is not available. However, experience specific to a particular assumption may not be available or may need to be tempered by actuarial judgment, especially since it may be very difficult to determine what behavior is rational and what is irrational.

Reference: Page 6 of August 8 Grid bottom row:

	2005 Exposures	June 2006 Exposure	Comments	Recommendation
Issue: Contractholder Behavior: Additional requirements Location: Appendix 9 Page 58		"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."	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.	The language should allow for reasonable situations and/or reasonable explanations for using studies involving contracts without living benefits. *"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. 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."*

Wording in the Current Exposure includes the wording suggested by the VARWG. In addition, however, the Current Exposure expands the requirements on documentation of experience assumptions for contracts with living benefits.

The VARWG believes that these documentation requirements are helpful in promoting a dialogue between company and regulatory actuaries. However, the language should simply be part of the Appendix 8 documentation and the reference to a "special report" be removed so that the information thereby provided will be afforded the confidentiality protection provided for the Appendix 8 documentation. It may be useful to explicitly state in the guideline that the documentation created for living benefit experience assumptions will be provided the same confidentiality protection as the memorandum supporting the reserve calculation.

Revenue Sharing

Reference: Page 8 of August 8 Grid only row:

	2005 Exposures	June 2006 Exposure	Comments	Recommendation
Issue: Revenue Sharing Location: Section A1.1)E) Pages 9 - 10	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).	Limits Revenue Sharing Income to that which is "contractually guaranteed to the insurer and its liquidator, receiver, conservator, or statutory successor"	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. The current exposure assumes that all non-guaranteed revenue sharing income goes away immediately after the valuation date. We believe this is inconsistent with a principles-based approach. We believe LHATF needs to communicate its rationale for including only guaranteed revenue sharing.	The VARWG recommends the language exposed in the April 2005 version of AG VACARVM to assure consistency with C-3 Phase II. One alternative for LHATF to consider as a compromise: • **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: (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."

Section A1.1.)E) of the Current Exposure contains specific values of .25% and 5 years for the variables "X" and "Y" as contained in the August 8 Report.

As can be seen from the recommendation portion of the excerpt from our August Report contained in the table above, the VARWG continues to recommend the language from the April 2005 version of AG VACARVM. Nonetheless, the addition of the formula in section A1.1)E)6) and the values provided in the Current Exposure would not seem unreasonable if LHATF believes there is the need for a specific rule rather than a more general principles-based approach. However, there may well be situations where some

companies would find these values too low while others may find it acceptable. The VARWG takes no position on the appropriateness of the specific values but would prefer requirements that would allow the valuation actuary to set these values based on the company's Revenue Sharing agreements.

Standard Scenario

Reference: Page 9 of August 8 Grid, top row:

	2005 Exposures	June 2006 Exposure	Comments	Recommendation
Issue: Standard Scenario: SS vs. CTE Location: Appendix 3 Pages 18 - 25	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.	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. These concerns were more pronounced due to the option value method.	The VARWG cannot support the Standard Scenario in the current exposure without additional clarification of its intent. See the discussion in ENDNOTE. [Note: the endnote is not included here. See the August 8 report for the endnote.]	We recommend removal of the Option Value floor (see below). We also recommend LHATF communicate the intent for the Standard Scenario – is it meant to be temporary or permanent?

The Current Exposure addresses the concerns of the VARWG by eliminating the option value floor from the Standard Scenario. However, the VARWG also raised concerns in the above excerpt from our August Report about the need for additional clarification of the intent of a Standard Scenario. These concerns still exist.

Reference: Page 9 of August 8 Grid, bottom row:

	2005 Exposures	June 2006 Exposure	Comments	Recommendation
Issue: Standard Scenario: Discount rate Location: Section A3.1)B) Page 18	"valuation interest rate . . . specified by the Standard Valuation Law"	"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."	A discount rate based on Treasuries will create greater mismatches between assets and reserves. A discount rate that changes every year, such as one based on Treasuries will also create mismatches with tax reserve.	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. The VARWG is willing to work with LHATF and other interested parties to provide specific language.

The VARWG suggested the use of a discount rate based on the year of issue and the Current Exposure generally incorporates this suggestion. However, we believe additional clarification is needed.

Section A 3.1) B) 2) of the Current Exposure specifies the use of "DR, which is defined as 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, reduced by 50 basis points."

The VARWG considered whether DR is well-defined in that it takes five parameters to determine a valuation rate of interest: (i) the presence of Cash Settlement Options, (ii) whether there is an Interest Rate Guarantee on Future Considerations, (iii) Issue Year versus Change in Funds methodology, (iv) Plan Type, and (v) Guarantee Duration. It appears that the first two items in the list are not explicitly specified in the Current Exposure. Presumably, this means that it would depend on the characteristics of the contract guarantees being modeled.

Also, with respect to the specification of Guarantee Duration, there are two different rates available under the Standard Valuation Law; one for a guarantee duration over 10 years and less than 20; and another for a guarantee duration more than 20. The specific guarantee duration to be used should be further clarified (probably for Guarantee Duration greater than 10 years and less than 20).

A lesser concern revolves around the question of what happens if the rates are no longer determined because of changes to the SVL.

Finally, we also note that, while the prior version added 50 basis points to a 10 Year Treasury Rate; the new version subtracts 50 basis points from the valuation rate. The VARWG understands that this was done so that the resulting rates might approximate the rates resulting from the previous definition of DR. However, the VARWG believes no reduction in rates is necessary.

Reference: Page 10 of August 8 Grid, top row:

	2005 Exposures	June 2006 Exposure	Comments	Recommendation
Issue: Standard Scenario: Account Value Return Assumption Location: Section A3.3)C)1) Page 21	"The margins on Account Value are defined as follows: During the Surrender Charge Period, 0.10% of Account Value; plus the maximum of: 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. . ." [December 2005 version]	"The margins on Account Value are defined as follows: During the Surrender Charge Period, 0.10% of Account Value; plus the maximum of: 0.20% of Account Value; or Explicit and optional contract charges for guaranteed living and death benefits." (This change restored the language to that contained in the April 2005 version.)	We believe LHATF should communicate its rationale for choosing the revenue levels contained in section A3.3)C)1). SEE ENDNOTE for several comments on this issue. [Note: the endnote is not included here. See the August 8 report for the endnote.]	1. We recommend the following changes to the language in question (shown in redline format): *"The annual margins on Account Value are defined as follows:* *During the Surrender Charge Period, 0.10% of Account Value; 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:* • *0.20% of Account Value; or* • *Explicit and optional contract charges for guaranteed living and death benefits."* 2. More clarification is needed regarding how to determine the Surrender Charge Period in this context for contracts that have multiple premium contributions.

There were two recommendations made in our August Report. The first proposed new language for the margins on Account Value that are assumed in the calculation of Accumulated Net Revenue. These changes have been incorporated into A 3.3) C) 1) a) of the Current Exposure.

The second recommendation suggested a need for clarification that would address the determination of the "Surrender Charge Period" for contracts with recurring premiums and rolling surrender charges. No specific approach was recommended within the VARWG August Report. However, a new section, commented upon in "Other Comment #4," below, was added to the Current Exposure to resolve this issue.

Other Comments on Standard Scenario:

1. There is a missing parenthesis from the formula in section A3.3) C) 3). It should read as follows: 100*((Current Value of the guaranteed living benefit / Account Value) -1)
2. In the first paragraph of Subsection 7 of Section A3.3) C): Contractholder Election Rates, there is reference to "Guaranteed Maturity Annuity Benefit". It is not clear what this is referencing. It would seem to be a typographical error and should perhaps be "Guaranteed Minimum Income Benefit" instead.
3. In Section A3.3) D), captioned as "Assumptions for use in Section A3.3) B) 2) (c)":

a. In Subsection 1: The Current Exposure substitutes the wording: “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 reduced by 50 bps” for the rate DR. This appears to make sense to the VARWG (considering the comments made on the valuation rate above).

b. In Subsection 2: The Current Exposure continues the same wording as in prior exposure drafts which references DR. Since DR has been redefined in the Current Exposure to be a statutory valuation interest rate based on calendar year of issue and this subsection deals with a cash flow stream that is going to involve many different contracts, the VARWG suggests that the wording used in Subsection 1 (i.e., “using the statutory valuation rate in effect on the valuation date. . .”) also be used here.

4. In Section A3.3) E) –“ Determination of the Surrender Charge Amortization Period”, the VARWG believes this new approach is not unreasonable and that it will address the issue regarding recurring purchase payments and rolling surrender charges identified in the bottom row of the grid on page 10 of the VARWG August Report.

Reserve / CTE Level

Reference: Page 11 of August 8 Grid middle row

	2005 Exposures	June 2006 Exposure	Comments	Recommendation
Issue: CTE Level Location: Throughout the Guideline	CTE 65	CTE 75	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.	We believe LHATF needs to communicate its rationale for choosing CTE 75.

The prior draft (June 2006) used a CTE level of 75, while earlier drafts used a level of 65. The Current Exposure uses a level of 70.

The VARWG continues to believe that this is an important decision and as noted in the August 8 Report, the rationale for choosing a specific level needs to be articulated and communicated. The rationale should recognize the allocation between the reserve and required surplus components of the statutory balance sheet.

Reference: Page 11 of August 8 Grid bottom row

	2005 Exposures	June 2006 Exposure	Comments	Recommendation
Issue: Comparison of CTE to percentile Location: Section I - Background Page 2	"Thus for losses that approximate a normal distribution, CTE (65) will approximate the 82.5th percentile."	Original language removed	Regardless of what CTE level LHATF chooses, we believe the proposed guideline should document the impact of the decision that was made. **SEE ENDNOTE** for more detailed comments. [Note: the endnote is not included here. See the August 8 report for the endnote.]	We recommend the following changes to the paragraph in question (shown in redline format): *"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 providinges 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, Ffor 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."*

The Current Exposure, like the 2005 exposure drafts, relates the CTE level to a percentile based on a standard normal loss distribution. This affects the recommendation in the August 8 Report. The specific percentile corresponding to CTE 70 (i.e., 88th percentile) has been verified by the VARWG.

The reference to the "normal distribution", however, should be changed to the "standard normal distribution".

Other Issues

Reference: Page 12 of August 8 Grid middle row.

	2005 Exposures	June 2006 Exposure	Comments	Recommendation
Issue: Relationship to RBC Requirements Location: Section A1.6) Page 14	"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." 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.	No change to this section.	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.	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.

The Current Exposure contains the language in Section A1.6) relating the general method used for RBC and reserves.

It is desirable that the same model could be used for both RBC and reserves. However, the VARWG believes the appropriateness of this wording needs to be reviewed prior to LHATF actually adopting a final version of the guideline as it may no longer be appropriate to include this wording.

Additional Changes Recommended by the VARWG:

1. While the VARWG was reviewing the Current Exposure, we noticed that there is a typographical error in Section A8.3) D) 4) of Appendix 8 inasmuch as the second "of" in the second sentence should be eliminated.

2. In addition, we understand that an issue was raised by members of the Academy's Life Reinsurance Work Group's Risk Transfer Subgroup of the Academy's Life Financial Soundness and Risk Management Committee regarding the reference in the Current Exposure to the NAIC Life and Health Reinsurance Agreements Model Regulation. The Subgroup is looking at the application of the risk transfer requirements to principles-based reserves and members of that subgroup asked the VARWG to consider whether the reference to the NAIC Life and Health Reinsurance Agreements Model Regulation needed to be modified to facilitate any changes to the application of risk transfer requirements to principles-based reserves.

   The VARWG noted that the reference to the NAIC model regulation was modified in the exposed Principles-based Reserves for Life Insurance Model Regulation. References to reinsurance treaties meeting "the requirements of the NAIC Life and Health Reinsurance Agreements Model Regulation" were changed to reinsurance treaties meeting "the requirements for accounting as reinsurance".

   The VARWG reviewed the Current Exposure and propose that the three references to the NAIC Life and Health Reinsurance Agreements Model Regulation be changed as follows (italics were added in all of the excerpts below to show where suggested changes are made).

   a. Section IV)B) - Impact of Reinsurance Ceded – change:

      "Where reinsurance is ceded for all or a portion of the contracts, both components in the above general description (and thus the Aggregate Reserve) shall be determined net of any reinsurance treaties that *are eligible for reinsurance credit under the NAIC Life and Health Reinsurance Agreements Model Regulation*."

      To: "Where reinsurance is ceded for all or a portion of the contracts, both components in the above general description (and thus the Aggregate Reserve) shall be determined net of any reinsurance treaties that *meet the requirements for accounting as reinsurance*."

   b. Section A2.1)B) - Conditional Tail Expectation Amount Determined using Projections – change:

      "In order to determine the Aggregate Reserve net of reinsurance ceded, Accumulated Deficiencies, Scenario Greatest Present Values, and the resulting Conditional Tail Expectation Amount shall be determined reflecting the effects of reinsurance treaties

that *are eligible for reinsurance credit under the NAIC Life and Health Reinsurance Agreements Model Regulation* within the projections."

To: "In order to determine the Aggregate Reserve net of reinsurance ceded, Accumulated Deficiencies, Scenario Greatest Present Values, and the resulting Conditional Tail Expectation Amount shall be determined reflecting the effects of reinsurance treaties that *meet the requirements for accounting as reinsurance* within the projections."

c. Section A3.3)B)3) - B) Results for the Standard Scenario Method – change:

"No reinsurance shall be considered in the Standard Scenario Amount if such reinsurance *is ineligible for reinsurance credit under the NAIC Life and Health Reinsurance Agreements Model Regulation*."

To: "No reinsurance shall be considered in the Standard Scenario Amount if such reinsurance *does not meet the requirements for accounting as reinsurance*."