AMERICAN ACADEMY OF ACTUARIES'
VARIABLE LIFE RESERVES GUIDELINE WORK GROUP
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RECOMMENDATION TO NAIC LIFE and HEALTH ACTUARIAL TASK FORCE
December 2000

As a short-term measure, the American Academy of Actuaries' Life Reserving Guideline Work Group recommends to the NAIC's Life and Health Actuarial Task Force that the accompanying guideline be adopted for reserving Guaranteed Minimum Death Benefits (GMDBs) on variable life plans. We suggest the following changes from the Draft Actuarial Guideline exposed in September 2000:

1. The mortality and expense charge assumptions for projecting the account value at time of valuation be changed from guaranteed mortality and expense charges to cost of insurance rates based on minimum valuation mortality rates and no expense charges.

   This reduces the possibility of minimizing Attained Age Level Reserves (AALRs) by manipulating the guaranteed charges in the product design. It specifically eliminates the "loophole" identified earlier by the AAA Working Group that existed in earlier drafts of this Guideline.

2. The other change clarifies the consistency of this proposed Guideline to the 1983 Model Variable Life Regulation for flexible premium policies without contingent GMDBs.

Revisions to the September 2000 draft of the Guideline to implement these recommendations are indicated with underlines for new wording and strike-throughs of deleted wording.

A specific upper limit for GMDB reserves such that the total variable life reserves need not exceed "Net Level Premium Reserves" for the GMDB for the remaining guarantee period was considered. This would eliminate the situation that has been discovered where the AALRs can exceed the face amount of the policy. However, the AAA Work Group is divided as to whether or not this provision in the Guideline would actually change an existing regulation, rather than merely clarifying the regulation. It generally seems appropriate, however, that a reserve not be required to exceed the amount of the benefit for which it provides.

If it is desired to implement this Provision, the following paragraph could be inserted in the Guideline:

> "It is possible for the AALR to become excessive. This can occur if the market value drops and then recovers, since the AALR is only released slowly over the remaining future GMDB period. The AALR can be reduced on a policy by policy basis, but not less than zero on any policy, as of the valuation date by the positive excess, if any, of the 'AALR' plus 'Basic Policy Reserve' over the 'Net Level Premium Reserve' for the GMDB guarantee period. The calculation of the 'Net Level Premium Reserve' uses a level net valuation premium calculated from issue and payable to the end of the premium paying period of the GMDB guarantee period as of the valuation date. This premium paying period is

recalculated on each valuation date. The remaining premium paying period would, for example, be zero if no future premiums are required to continue the GMDB guarantee. The mortality and interest assumptions to calculate this limit are the same as those used to value the AALR. “

The AAA Work Group also is still divided on a recommendation for Version X or Version Y.

Because this recommendation will only result in uniformity in calculating GMDBs on variable life products and existing practices in reserving for the basic reserves will continue to vary, we recommend that a comprehensive solution for total variable life reserving be pursued. This requires legal and/or regulatory changes.

Note: The changes recommended by the Academy are underlined and deleted material is shown by a strike-through.

Draft: 9/8/00

The NAIC solicits comments on this draft. Comments should be addressed to Mark Peavy, NAIC, 2301 McGee, Suite 800, Kansas City, Missouri, 64108. E-mail submissions to mpeavy@naic.org are preferred. Please note that there is both a "Version X" and a "Version Y" shown in the "Attained Age Level Reserves" section. The Life and Health Actuarial Task Force will select one of these versions for inclusion in the final Actuarial Guideline.

ACTUARIAL GUIDELINE VL-GMDB

VARIABLE LIFE INSURANCE RESERVES FOR GUARANTEED MINIMUM DEATH BENEFITS

Background

This guideline's primary focus is to clarify the appropriate projection assumptions and methodologies used to determine statutory reserve liabilities for Guaranteed Minimum Death Benefits (GMDBs) offered with variable life insurance products.

For many years, insurance companies have not applied uniform reserve standards to variable life insurance policies in general, and to GMDBs in particular. Four regulatory sources are often looked to for guidance. First, the Standard Valuation Law (SVL) requires that CRVM be based on the present value of future guaranteed benefits. Second, the Variable Life Insurance Model Regulation as revised in 1983 and again in 1989 states "Reserve liabilities for variable life insurance policies shall be established under [SVL] in accordance with actuarial procedures that recognize the variable nature of the benefits provided and any mortality guarantees." Third is the Universal Life Insurance Model Regulation and most recently the Valuation of Life Insurance Policies Model Regulation.

GMDBs are common features of variable life products. Recently, reserve methods for universal life secondary guarantees have been clarified in the Valuation of Life Insurance Policies Model Regulation. These secondary guarantees are similar to GMDBs offered with variable life policies. A Guaranteed Minimum Death Benefit is any guarantee which provides death benefit protection which would not otherwise be provided in the absence of such a guaranteed benefit or provision. An example of a GMDB is a policy in which death benefits continue in-force even if the policy value is zero. This benefit may be contingent on additional qualifications being met, such as cumulative premiums meeting some limit.

Additional examples of GMDBs are provided below. This list is not intended to include all types of GMDBs.

- A Minimum Death Benefit Provision or No Lapse provision where death benefits are guaranteed to remain in-force for a period of time even if the policy value is not greater

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than zero subject only to certain conditions being met such as cumulative premiums meeting a minimum amount, or if a theoretical account value is sufficient to meet a minimum amount.

- Death Benefits that are guaranteed to be at least as large as the original face amount, regardless of investment performance which might generate negative Paid Up Additions on a traditional fixed premium variable life insurance policy.

The Variable Life Insurance Model Regulation defines the reserve methodology for variable life policies. However, currently two versions of the model regulation exist and this results in inconsistent treatment by state. These two versions include the 1983 revisions and the 1989 revisions to the model regulation. Many states have not passed either revision and therefore require direct interpretation of SVL. In practice, companies have interpreted these regulations inconsistently with regard to assumptions and/or application to current products available today. The 1983 version of the regulation treats flexible premium policies differently than scheduled premium policies. The 1983 version of the regulation did not anticipate the types of GMDBs available today which require contingent conditions to be met to maintain a death benefit guarantee, for instance specified premiums must be paid. Thus, confusion exists with regard to which valuation method is appropriate. The 1989 version makes no distinction between the scheduled premium and flexible premium policies.

This Guideline codifies the basic interpretation of reserve liabilities for variable life GMDBs by clarifying the projection assumptions and methodologies that comply with the SVL. Minimum valuation standards that may be used to determine this reserve and are not specifically addressed in this guideline are defined by SVL and other applicable state regulations. This guideline focuses on the methodology of the 1989 revisions to interpret SVL, as we believe the 1989 revision more appropriately considers the types of products and GMDBs available today.

Interpretations of both the 1983 and 1989 versions reflect the comments made in the December 1972 report which concluded that an acceptable GMDB reserve system should have the following characteristics:

1. The GMDB reserve should be held in the general account of the company so that it will be backed by the general assets of the company, most of which are debt obligations valued at amortized cost and, therefore, are of a fixed dollar nature. It would not be proper to hold the GMDB reserve in the separate account, assuming the reserve is not supported by fixed dollar assets but by assets that are moving in the opposite direction from the risk, i.e. value moving downward while the risk increases and vice versa.

2. The GMDB reserve should be adequate to cover the GMDB death claims for the next year in all but the most extreme circumstances so that the regulatory authorities can be assured the company will not run into financial trouble from this source before the next annual statement is filed.

3. The GMDB reserve should react slowly but steadily through an extended period of poor investment experience of the separate account.

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4. The GMDB reserve should not cause unnecessary fluctuations in surplus by increasing too rapidly in a sharp market downswing. Also, the reserve should not decrease too rapidly in a sharp market upswing after a period of poor market performance.

This guideline maintains the four principles above in interpreting the Standard Valuation Law as it relates to variable life business and the methods defined in both the 1983 and 1989 versions of the Variable Life Insurance Model Regulation.

Reserve methodologies which recognize the variable nature of GMDB are defined in the Variable Life Insurance Model Regulation and include a One-Year Term reserve recognizing a 1/3 drop in account values, the Attained Age Level Reserve (AALR) methodology and in the 1983 version, a methodology for flexible premium policies. Reserves for GMDBs are held in the general account.

This guideline recognizes the following principles when determining appropriate reserves for GMDB.

- Determine the guaranteed death benefits which are not valued in the basic policy reserves.
- Establish a reserve for these benefits over the period of time in which revenue is collected to pay for such benefits; however, no greater than the period of time these guaranteed benefits are provided.
- Collected revenue should not be de-minimus in order to reduce the reserve.
- The reserve established is in addition to basic reserves.

This guideline interprets the standards for applying these methodologies. This guideline also interprets the projection assumptions to be applied to determine excess guaranteed death benefits. The guideline clarifies the use of the AALR methodology for flexible premium variable life policies with contingent GMDB benefit structures similar to specified premium contracts. This guideline is based on the belief that the 1983 revisions did not anticipate these types of GMDB benefits on flexible premium contracts. Thus, it makes sense to interpret the 1983 revisions for these types of GMDB benefits by applying the AALR methodology when there is a contingent GMDB structure. For flexible premium plans with other types of GMDBs, the flexible premium language of the 1983 revision is used where applicable. ~~Reflecting a 1/3 drop in asset values is used only to develop a one-year term reserve.~~

The AALR methodology, along with the one-year term reserve is generally consistent with the principles above in that additional reserves are established in recognition of all death benefit guarantees not reflected in basic reserves. If multiple guarantees exist all guarantees must be valued and the greatest additional reserve is held. Consecutive GMDBs are treated as a single guarantee. These reserves are funded over the period of time GMDB Revenue will be collected through either policy charges or premiums, however, not to exceed the GMDB benefit period.

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The AALR methodology funds any GMDB Revenue deficiency over the period of time the Revenue is collected, however, no longer than the end of the guarantee period.

GMDB reserves are held in addition to basic reserves unless the appointed actuary provides satisfactory documentation to the state of domicile insurance department stating why such reserves are redundant. For example, for traditional variable life product designs where reserves are generally determined on a tabular basis and use an assumed interest rate (AIR), if basic reserves are determined based on at least the guaranteed face amount, (i.e. ignoring any negative additions) then the guaranteed death benefit is fully reflected in the basic reserves; therefore, an additional GMDB reserve is redundant. Neither this guideline nor the 1989 amendments specifically address traditional variable life product designs, nor does this guideline specifically exclude these designs from its scope.

An additional purpose of this guideline is to emphasize the impact of Sections 3A(3) and 3A(4) in the Valuation of Life Insurance Policies Model Regulation ("XXX") relative to reserving for variable life and variable universal life products.

Scope

The guideline applies to all variable life insurance contracts to which the Standard Valuation Law applies and which provide Guaranteed Minimum Death Benefits (GMDBs) either explicitly or implicitly.

Definitions

~~*Asset Based Charges*: Asset based charges includes all charges that are expressed as a percent of account value.~~

Attained age level reserve (AALR): The AALR is a methodology described in the 1983 and 1989 revisions to the Variable Life Insurance Model Regulation.

Catch-up provision: A Catch-up provision is a provision in the policy that gives the policyholder the right to catch up on any contingent requirements in order to maintain the GMDB.

Guaranteed Period: The guaranteed period is the period of time over which a GMDB is guaranteed regardless of the basic guarantees in the policy. A policy may have multiple guaranteed periods and GMDBs.

Guaranteed Minimum Death Benefit (GMDB): A Guaranteed Minimum Death Benefit (GMDB) is any guarantee which provides continued death benefit protection which would not otherwise be provided in the absence of such a guaranteed benefit or provision. A policy may have multiple GMDBs.

One-Year Term (OYT) reserve: The OYT reserve covers a period of no more than one year following a 1/3 drop in the account value. This reserve is fully described in the 1989 revision to

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the Variable Life Insurance Model Regulation. This guideline clarifies the methodology and the assumptions used to determine OYT reserves.

Projection Assumptions: The Projection Assumptions are used to determine guaranteed death benefits. This projection of policy values uses the following assumptions:

1. ~~1. Guaranteed cost~~ Cost of insurance rates are ~~used~~equal to the minimum valuation mortality.
2. ~~Guaranteed policy charges are utilized including: guaranteed sales charges, guaranteed administrative charges and other guaranteed policy charges excluding asset based charges.~~
3. ~~Contingent requirements to maintain the GMDB are assumed to be met on the valuation date as well as in subsequent years. To the extent contingent requirements are prepaid, future contingent requirements as assumed to be met in the future until they are required to maintain the GMDB.~~The GMDB is assumed to be in effect for the maximum period of the GMDB. All minimum requirements necessary to maintain the GMDB in force subsequent to the valuation date are assumed to be met at the latest point in time sufficient to maintain the GMDB through its maximum period. Contingent requirements, if any, required to reinstate or catch-up as of the valuation date are assumed to occur on the valuation date. If the GMDB would continue in effect subsequent to the valuation date with no additional actions required, contingent requirements are assumed not to resume until the latest point in time which would prevent the termination of the GMDB.
4. The general account policy values and separate account policy values are projected at the valuation interest rate. The assumed interest rate, if any, is used when determining the OYT reserve.
5. The guaranteed period covered is determined assuming all contingent requirements are met.
6. Policy options and benefits are assumed to continue unchanged as of the valuation date. Examples include fixed and variable account allocation and the death benefit option.

GMDB Revenue: GMDB Revenue is policy charges or premium, either implicit or explicit. These charges or premiums may or may not be explicitly stated to cover GMDB benefits. An example of an implicit premium is a positive premium necessary to maintain a target account value in order to maintain benefits.

Separate Account Death Benefit (SADB): The SADB is the death benefit that would be payable in absence of the GMDB.

*Term cost***:** Term costs are based on the guaranteed minimum death benefits in excess of the death benefits that would be provided in absence of such guarantee based on a projection of policy values using the Projection Assumptions defined above. These costs are then discounted to the valuation date. The term costs are based on minimum valuation mortality standards and a discount rate not to exceed the maximum valuation interest rate.

1/3-Asset Drop: A 1/3 reduction in separate account values that is used in the calculation of the one-year term reserve. This 1/3 drop is not applied to fixed account values.

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Text

1. Basic Reserves:

Basic Reserves include the reserve held for death benefits provided in the absence of a GMDB. Reserve liabilities for variable life insurance policies shall be established consistent with the methodologies described in the Standard Valuation Law and in accordance with actuarial procedures that recognize the variable nature of the benefits provided and any mortality guarantees. Reserve methods described in the Variable Life Insurance Model Regulation and the Universal Life Insurance Model Regulation may be appropriately utilized to determine reserve liabilities such that application of these methods is consistent with the principles of the Standard Valuation Law.

2. Guaranteed Minimum Death Benefit Reserves:

Additional reserves are required to provide for liabilities of GMDB provisions which provide benefits that would not be provided in the absence of the guarantee. In measuring these liabilities, the basic reserve provides for death benefits which occur in the absence of the guarantee. GMDB reserves provide for the contingency of death occurring when the guaranteed minimum death benefit exceeds the death benefit that would be paid in absence of the guarantee. A consistent reserve methodology should be used regardless of whether a contract has scheduled premiums or flexible premiums.

When a contract provides multiple GMDBs and/or multiple guarantee periods, a reserve is established based on the guaranteed period which produces the greatest reserve as of the valuation date. Consecutive GMDBs are treated as a single guarantee period. The reserve methodology reflects all potential guarantee periods assuming that contingent requirements are met such as: contingent premiums paid, Catch-up Provisions or any pre-funding of contingent requirements.

For a policy under the 1989 revisions or a flexible premium policy with contingent GMDBs similar to a specified premium contract under the 1983 revision, the GMDB reserve equals the greater of (1) and (2) where (1) equals "the aggregate total of term costs" (OYT) which covers a period of no more than one year following a 1/3 Asset Drop in the separate account value, and (2) equals the AALR as described below.

For a~~a~~ flexible premium policy ~~policy~~ under the 1983 revisions not covered above, (where the GMDB guarantee is not contingent on any policyholder requirement), ~~the GMDB~~ reserve ~~equals the greater of (1) and (2) where (1) equals "the aggregate total of term costs" which covers a period of no more than one year following a 1/3 Asset Drop in the separate account value, and (2) equals the AALR as described below~~liabilities for any guaranteed minimum death benefit shall be maintained in the general account of the insurer and shall be not less than the aggregate total of the term costs, if any, covering the period provided for in the guarantee not otherwise provided for by the reserves held in the separate account assuming an immediate one-third

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depreciation in the current value of the assets of the separate account followed by a net investment return equal to the valuation interest rate..

a) One Year Term Reserves (OYT):

This reserve component equals the "aggregate total of term costs", if any, covering a period of one full year from the valuation date, or, if less, covering the period of time death benefits are provided which are not otherwise provided for by the basic reserves. This reserve assumes any contingent requirements to maintain the GMDB are met by reflecting any Catch-up Provisions or any pre-funding of contingent requirements.

"Aggregate total term costs" equals the present value of guaranteed minimum death benefits in excess of death benefits that would be provided in absence of such guarantee, if any, prior to the end of one full year or the end of the guaranteed period if sooner. Death benefits are determined by projecting the policy value following a 1/3 -Asset Drop and using the Projection Assumptions defined above. Present values are determined using valuation mortality rates and the maximum valuation interest rate.

b) Attained Age Level Reserves (AALR):

This reserve component allows for funding GMDBs over no longer than the guaranteed period. This reserve assumes contingent requirements are met to maintain the GMDB and reflect any prepaid contingent requirements or Catch-up provisions. This reserve component exists until no later than the end of the guarantee period if, on any prior valuation, date projected policy values resulted in guaranteed minimum death benefits in excess of death benefits that would be provided in absence of such guarantee. To the extent long term favorable investment performance results in redundant reserves, the valuation actuary may request permission from the state of domicile insurance department to release all or a portion of the redundant GMDB reserves. This projection of account value assumes no 1/3-Asset Drop and the Projection Assumptions defined above.

The AALR reserve component shall not be less than zero and shall equal the "residue," as described in paragraph (1) below, of the prior year's AALR on the contract, with any such "residue," increased or decreased by a "payment" computed on an attained age basis as described in paragraph (2) below.

(1) The "residue" of the prior year's AALR on each variable life insurance contract shall not be less than zero and shall be determined by adding interest at the maximum valuation interest rate to such prior year's reserve, deducting the tabular claims based on the "excess", if any, of the guaranteed minimum death benefit over the death benefit that would be payable in absence of such guarantee, and dividing the result by the tabular probability of survival. Hence, tabular costs are only deducted for years where, in the absence of the guarantee, coverage would be less than the guaranteed coverage.

Version X *[(A)-(B) not allowed Negative]*

(2) The "payment" used to increase or decrease the "residue" above shall be computed so that the present value of a level payment of

Version Y *[(A)-(B) allowed Negative]*

(2) The "payment" used to increase or decrease the "residue" above shall be computed so that the present value of a level payment of

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that amount each year over the future period for which GMDB Revenue will be collected under the contract is equal to (A) minus (B) minus (C), where, (A) is the present value of future guaranteed minimum death benefits. The future guaranteed minimum death benefits are the projected future death benefits including the GMDB. (B) is the present value of the projected future death benefits that would be payable in the absence of the GMDB. The guaranteed benefit for (A) and (B) should be calculated for the life of the policy. Both (A) and (B) are calculated based on the Projection Assumptions.

This results in A-B equal to the PV of the guaranteed death benefit in excess of the death benefit that would be provided in absence of such guarantee. Thus A-B is never less than zero.

(C) is any "residue," as described in paragraph (1) above, of the prior year's AALR on such variable contract. Minimum standards of valuation mortality assumptions and maximum valuation interest rates are used to determine present values and net level payments. The period of time in which GMDB Revenue will be collected is limited to the period of time policy values are sufficient to collect policy charges or the period of time contingent requirements will be paid to maintain the GMDB. In no event will the time period be greater than the time to the end of the guarantee period. It should also be noted that the "payment" may be negative resulting in the reserve running off over the remaining guarantee period.

that amount each year over the future period for which GMDB Revenue will be collected under the contract is equal to (A) minus (B) minus (C), where, (A) is the present value of future guaranteed minimum death benefits. The future guaranteed minimum death benefit is the GMDB. This is not determined based on a projection. (B) is the present value of the projected future death benefits that would be payable in the absence of the GMDB. The benefits specified in (B) are calculated for the life of the policy based on the Projection Assumptions.

This results in A-B equal to the difference between two present values, thus A-B can be negative.

(C) is any "residue," as described in paragraph (1) above, of the prior year's AALR on such variable contract. Minimum standards of valuation mortality assumptions and maximum valuation interest rates are used to determine present values and net level payments. The period of time in which GMDB Revenue will be collected is limited to the period of time policy values are sufficient to collect policy charges or the period of time contingent requirements will be paid to maintain the GMDB. In no event will the time period be greater than the time to the end of the guarantee period. It should also be noted that the "payment" may be negative resulting in the reserve running off over no later than the remaining guarantee period.

c) Other Flexible Premium Policies under the 1983 revisions not included above:

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The present value of potential guaranteed minimum death benefits in excess of death benefits that would be provided in absence of such guarantee is determined by using minimum standards of valuation mortality assumptions and maximum valuation interest rates.

3. Other Issues:

Sections 3A(3) and 3A(4) of "XXX" state the following:

3A(3): This regulation shall not apply to any variable life insurance policy that provides for life insurance, the amount or duration of which varies according to the investment experience of any separate account or accounts.

3A(4): This regulation shall not apply to any variable universal life insurance policy that provides for life insurance, the amount or duration of which varies according to the investment experience of any separate account or accounts.

The language of these sections is clear. The reserving for variable life and variable universal life is in no way affected by the provisions of "XXX." In particular, the 19-year select factors and the "X" factor are not applicable to the calculation of reserves for variable life and variable universal life products.

Effective Date

This guideline affects all variable life insurance contracts issued. Where the application of this Guideline produces higher reserves than the company had otherwise established by their previously used interpretation, such company must comply with this guideline effective December 31, 2001. However, such company may request a grade in period, not to exceed three (3) years, from the domiciliary Commissioner upon satisfactory demonstration of the previous interpretation and that such delay of implementation will not cause a hazardous financial condition or potential harm to its policyholders.

Application of this guideline to in-force policies to develop the current residue portion of the AALR may not be feasible, as such future payments as defined in the AALR methodology will based on the residue, if any, as of 12/31/2000. In such cases, the residue as of 12/31/2000 will be deemed to be '0.'

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