**Question:**

1. Is there any guidance regarding the appropriate projection length (e.g. 30 years)? Does VM-20 require a specific projection interval?

**Response:**

Regarding the projection length:

VM-20 Section 7.A.1.d requires that the projection period extends far enough into the future so that no obligations remain. However, VM-20 Section 7.A.2 states that the company may use simplifications or modeling efficiency techniques to develop cash flows, if the approach is consistent with VM-20 Section 2.G. The guidance note following VM-20 Section 7.A.2 states that it may be reasonable to assume 100% deaths or 100% surrenders after some appropriate period of time.

Regarding the projection interval:

VM-01, item #43 defines “projection interval” as the time interval used in the cash flow model, and indicates as examples monthly, quarterly and annually. The term “projection intervals” occurs several times in VM-20; however, in no reference is a particular projection interval mandated.

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**Question:**

2. What guidance regarding mortality improvement is given for life insurance? What guidance regarding mortality improvement is given for annuities?

**Response:**

Life insurance:

VM-20 Section 9.C.2.g prescribes that, in constructing a mortality table based on company experience, mortality improvement must not be incorporated beyond the valuation date. However, historical mortality improvement from the central point of the underlying company experience data to the valuation date may be incorporated.

VM-20 Section 9.C.3.g has similar provisions for constructing an industry mortality table from an industry basic table. The improvement for the industry table is specified in tables developed by the SOA and posted to their website as documented in Section 9.C.3.g.

Annuities:

For fixed annuity reserves under the requirements of VM-A and VM-C, the 2012 IAR is based on specified mortality improvement tables.

Modeled reserves for fixed annuities will be addressed in VM-22, which is under construction. For variable annuities, VM-21 Section 12.D permits the application of mortality improvement beyond the valuation date, which stands in contrast to life insurance.

Unlike the mortality assumption, there is no specification as to how to construct the mortality improvement assumption for the modeled reserves. However, VM-21 Section 12.B.5.a.vi. requires that an assumption for mortality improvement, and the support for such an assumption, be documented.

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**Question:**

3. Is there guidance on NPR IUL?

**Response:**

VM-01 definition #54 provides the definition of a secondary guarantee. If the IUL policy has a secondary guarantee, then the policy meets the definition of an ULSG policy that is subject to VM-20 Sections 3.B.5 and 3.B.6, which together define the NPR methodology. If the IUL policy has a conditional guarantee that does not meet the definition of a secondary guarantee as defined in VM-01 definition #54or has no secondary guarantee at all, then it is subject to the requirements of VM-A and VM-C.

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**Question:**

4. If a small subset of policies within a product group (e.g. “Other” life) has a clearly defined hedging strategy, does that mean the small subset of policies is not eligible for the stochastic exclusion test? Could the stochastic reserve still be calculated for the non-hedged business, and then the stochastic scenario results be aggregated for both blocks?

**Response:**

Pursuant to VM-20, Section 6.A.1.b, a company may not exclude a group of policies for which there is one or more clearly defined hedging strategies from the stochastic reserve requirements. Therefore, such a subset of policies would not be eligible for exclusion. Assuming that the hedged and non-hedged blocks belong to the same product group, the stochastic reserve can be calculated for the non-hedged business and then for the hedged business and aggregated as appropriate.

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**Question:**

5. Is a variable universal life policy with a minor secondary guarantee (e.g., for a 20 year period) providing that as long as you pay level premiums the face amount will be paid considered a ULSG under VM-20? If the policy is reserved under VM-20, does AG 37, *Variable Life Insurance Reserves For Guaranteed Minimum Death Benefits* also apply?

**Response:**

The answer to the first question is “yes”. The answer to the second question is “no”. A ULSG product reserved under VM-20 is not subject to existing Actuarial Guidelines.

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**Question:**

6. Is it correct that VM-20 has a 3 year transition but VM-30, VM-31, VM-50 and VM-G do not? How does the PBR report work if you are only using VM-A & VM-C to calculate reserves?

**Response:**

VM-30 has no transition period. Its requirements are similar to but not exactly the same as the requirements of the Actuarial Opinion and Memorandum Regulation (Model #822) in place prior to the January 1, 2017 effective date of the Valuation Manual. VM-31 and VM-G are applicable when VM-20 or VM-21 is applied to products and thus do not apply to policies reserved under VM-A and VM-C. VM-50 (Experience Reporting) is not yet operational so it would not apply until efforts are completed to finalize the process and certain additional edits are adopted which would include when these requirements apply.

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**Question:**

7. How are rated (substandard) policies handled when doing Stochastic Reserve and Deterministic Reserve calculations?

**Response:**

The prudent estimate mortality assumption is to take into consideration substandard risks and mortality. There is provision to make adjustments to the own company mortality assumption (Section 9.C.6) and industry table (Section 9.C.3) to account for the impaired/increased mortality.

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**Question:**

8. May a qualified actuary function both as the company’s appointed actuary and as a qualified actuary assigned responsibilities under VM-G Section 1.B?

**Response:**

Yes.

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**Question:**

9. What submissions are required by the Valuation Manual for year-end 2017 and are there additional Model Audit Rule Controls that should be considered?

**Response:**

The VM-31 report will be needed once reserves are under PBR; i.e., if the Company chooses not to adopt PBR until 2020, the VM-31 report will not be needed until 2020. Note that VM-30 changes to the asset adequacy opinion go into effect at year-end 2017, regardless as to whether or not PBR is being issued. There will be additional exhibits in the Annual Statement starting for year-end 2017 that will need to be filled out by all life insurers, including the VM-20 Supplement. Model Audit Rule controls requirements have not changed. It is assumed that companies will develop additional Model Audit Rule controls for any new models that will back PBR reserves.

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**Question:**

10. When testing whether a ULSG policy meets the nonmaterial secondary guarantee requirement in VM, Section II.D (the companywide exemption), should one us the unloaded 2017 CSO table or the 2015 VBT?

**Response:**

 In testing the ULSG nonmateriality provision, one would use the unloaded 2017 CSO table.

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**Question:**

11. Can a single premium life product pass the deterministic exclusion test (DET)? There are no future gross premiums. Is a DR calculation required?

**Response:**

According to VM20 Section 6 (B) (2), “a group of policies passes the deterministic reserve exclusion test if the company demonstrates that the sum of the valuation net premiums for all future years for the group of policies… is less than the sum of the corresponding anticipated gross premiums for such policies.” Since the future net and gross premiums are zero, the valuation net premiums are not less than the gross premiums, so a single premium life product cannot pass the DET. Therefore a DR calculation is required.

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**Question:**

12. What are the requirements for combining term riders with the base policy for reserve calculations?

**Response:**

The requirements are given in the Valuation Manual, Section II, “Riders and Supplemental Benefits”.

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**Question:**

13. Deterministic (DR) and Stochastic Reserve (SR) are computed on inforce blocks, i.e., after the policies are already in force. This implies that underwriting and issue costs have already been incurred. Thus, do underwriting-type costs even come into play at all in DR and SR?

**Response:**

Acquisition costs would not be in the reserve if they occurred prior to the valuation date. However, there are some instances where first year costs would be in the modeling; e.g., any remaining first year commissions and related expenses.

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**Question:**

14. What set of cash surrender values (and based on what premiums) are to be used in calculating the present value of future cash surrender benefits for the ULSG net premium reserve? Does the present value of future cash surrender values actually affect the calculation of the ULSG net premium reserve? In what way?

**Response:**

The net premium reserve for a ULSG policy is the greater of the reserve calculated under Section 3.B.5 (without regard to secondary guarantees) and the reserve calculated under Section 3.B.6 (taking account of secondary guarantees). Section 3.B.7 indicates that future benefits include cash surrender benefits and are before reinsurance and before netting of the repayment of any policy loans. The actuarial present value of future benefits is needed to calculate the valuation net premium (VNP) and thus affects the expense allowance for ULSG reserves. Actuarial present values are calculated using interest, mortality and lapse assumptions described in Section 3.C. Since the lapse assumption for the 3.B.5 reserve is zero for all durations, the actuarial present value of cash surrender value benefits is also zero, so the method of calculation is moot. For the 3.B.6 reserve, the lapse assumptions are not zero, but are specified in Section 3.C.3.c. The level gross premium is the premium that will keep the policy in force until the end of the (longest) secondary guarantee period (e.g., the specified premium for a cumulative premium ULSG policy) when accumulated at the secondary guarantee interest, mortality and expense assumptions (not lapse assumptions). This accumulation is used to produce cash surrender values at each duration which are the values used in calculating the actuarial present value of cash surrender benefits. The cash surrender values cannot, of course, be negative.

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**Question:**

15. Analysis of Increase in Reserves: Line 6.1 for Excess over NPR implies that it is a subset of “Change in Basis” from Exhibit 5A. If a product initially held the DR or SR as the reported reserve and then held the NPR at the next valuation date, is this considered a change in basis?

**Response:**

What constitutes a “Change in Basis” is defined in Statements of Statutory Accounting Principles No. 51, item 37. It states in part that “Reserve changes resulting from the application of principle-based reserving methodology including, but not limited to, updating assumptions based on reporting entity, industry or other experience, and having the reported reserve transition between net premium reserve, deterministic reserve or stochastic reserve, as required under existing guidance, shall not be considered a change in valuation basis.”

Please review the Statements of Statutory Accounting Principles as found in the NAIC Accounting Practice and Procedures Manual for further details.

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**Question:**

16. Section 4.A.4.a includes “other applicable revenue”.  What other applicable revenue is anticipated to be included here?

**Response:**

At first, the only "other applicable revenue" I can imagine are the rider charges (vs. gross premium payments).  This would be relevant when the reserve for the rider is determined separately from the base policy.  Looking at Section 7.B.1, this term would appear to also include sub item 7.B.1.f. = revenue sharing income (net of applicable expenses) and "other applicable revenue".

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**Question:**

17. Section 4.A.4.b includes cash flows between the general and separate account.  Do you know what is actually expected to be included here?  Is this for policyholder transfers between the fixed and variable accounts?

**Response:**

It is my understanding that this item is for policyholder transfers between the fixed and variable accounts that occur as policyholder behavior or the natural operation of the policy.  This would be consistent with Section 7.B.1.d and the Guidance Note there.  The AAA VM20 Practice Note  (Q5.5) is also consistent with this interpretation.

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**Question:**

18. Section 4.A.4.e includes future derivative cash flows as “premium and related amounts”. Isn’t this already included in the net asset earned rate?

**Response:**

VM-20 makes a distinction between “derivative liability programs” and “derivative asset programs”.  Net cash flows from derivative liability programs are to be included in liability cash flows as “premiums and related amounts” per section 4.A.4.e.    Net cash flows from derivative asset programs are to be included in net investment earnings and included in the numerator of the NAER per section 7.H.2.c.ii.

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**Question:**

19. Section 4.A.5 includes transactions “associated with non-hedging derivative programs”.  What type of non-hedging derivative programs is this section referring to?

**Response:**

If we look to Section 7.K.1, second sentence, it references the following:

" The company shall also include the appropriate costs and benefits of anticipated future derivative instrument transactions associated with the execution of a clearly defined hedging strategy, as well as the appropriate costs and benefits of anticipated future derivative instrument transactions associated with non-hedging derivative programs (e.g., replication, income generation) undertaken as part of the investment strategy supporting the policies, provided they are normally modeled as part of the company’s risk assessment and evaluation processes.

The Guidance Note in VM-20 Section 7.K.1 discusses this paragraph. The VM-01 definition of the term “derivative program” also uses the same language.

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**Question:**

20. For the Term lapse rates in Section 3.C.3.b, do you know how the 10% and 6% rates were determined?

**Response:**

The 10% and 6% were rough estimates of general lapse for term policies, ultimately set at a level that produced the proper level and pattern of the resulting reserves, as compared to deterministic reserves.  The lapse rates were kept level since, for a level-premium term product, a decreasing lapse produces a pattern of higher reserves.

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**Question:**

21. For the cash surrender value floors in Sections 3.D.1.b and 3.D.2.b, it states the policy cash surrender value is calculated as of the valuation date and in a manner that is consistent with that used in calculating the net premium reserve on the valuation date.  What is meant by the phrase “in a manner that is consistent with that used in calculating the net premium reserve on the valuation date?”  Wouldn’t this just be the actual policy cash surrender value?

**Response:**

This language was primarily meant to adjust for premium mode and how mode was considered in reserves.  For example, comparing a mean reserve with no adjustment to the cash value of a policy on a monthly premium basis will create differences in value.  Similarly, adjustments may be necessary for a policy with an annual premium but issued in January vs. December.

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**Question:**

22. Regarding the deterministic reserve, Scenario 12 is described in Appendix 1 as a uniformly decreasing scenario for 20 years followed by a flat return thereafter.  However, in using the economic scenario generator on the Society’s website, Scenario 12 does not uniformly decrease. The rest of the stochastic exclusion test scenarios do not appear to follow the description in VM-20 either.  We reached out to Donna Claire who contacted the SOA Economic Scenario Generator Group.  Since the 12/31/2016 20 year rate was less than the mean reversion parameter, rates actually increased under Scenario 12. I will forward their response separately.

**Response:**

The description “uniform downward shocks” does not mean that the resulting rates decrease year-over-year.  These are calibrated shocks to the drivers of the stochastic process which selects rates out of the probability distribution, so that the resulting rate will be biased below the 50th percentile for each model duration for 20 years.  Since the 50th percentile scenario (called Baseline) is an increasing scenario (it starts at the current rate and eventually grades to the mean reversion parameter), Scenario 12 will just produce “less of an increase” or could keep rates generally flat as shown below.  It depends to what extent the upward drift and the calibrated downward shock offset each other through the projection.  Think of them as two forces working in opposing directions.

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**Question:**

23. We are not sure what is required under Section 4.C.

**Response:**

You must provide a deterministic reserve for each product group.  The simplest way to do this is to apply the steps in Section 4 for each product group separately and you are done.  However, if you calculate a total DR that covers more than one product group and that total does not equal the individually calculated product group DRs then you must allocate the total using the individually calculated DRs in order to derive allocated individual product group DRs.  I think this was put in place in order to recognize possible offsetting of risks that could lower the total DR when allocated back to derive individual product group DRs.  However, if there is no difference or very little difference then Section 4 should be simplified just to require calculating a DR for each product group.

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