

LIFE PRACTICE NOTE
July 1999

**Compliance with the NAIC Life Illustrations Model Regulation and
Actuarial Standard of Practice No. 24**

Introduction

This practice note was prepared by a work group organized by the Life Insurance Practice Education Committee of the Society of Actuaries at the request of the Committee on Life Insurance of the American Academy of Actuaries. The work group was charged with developing a description of some of the current practices that could be used by illustration actuaries in the United States.

The practice notes represent a description of practices believed by the work group to be commonly employed by actuaries in the United States in 1996. The purpose of the practice notes is to assist actuaries who are faced with the requirement of certifying a disciplined current scale under ASOP 24. However, no representation of completeness is made; other approaches may also be in common use. It should be recognized that the information contained in the practice notes provides guidance, but is not a definitive statement as to what constitutes generally accepted practice in this area. This practice note has not been promulgated by the Actuarial Standards Board or any other authoritative body of the American Academy of Actuaries, nor is it binding on any actuary.

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Comments are welcome as to the appropriateness of the practice notes, desirability of annual updating, validity of substantive disagreements, etc. Comments should be sent to Bob Conover at his Directory address.

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Q. If the actuary is concerned regarding potential legal liability under the Model Regulation, what actions (if any) can the actuary take?

- A.** Legal liability under the Model Regulation will generally be determined under the law of the state(s) that has adopted the regulation (with or without changes), and where a breach of the regulation allegedly occurred. To minimize the risk of liability, the actuary may wish to seek an agreement with the company under which the company agrees to hold the actuary harmless against legal claims brought under the regulation. However, there is no requirement that the actuary obtain such an agreement prior to issuing the illustration opinion.

Legal indemnification is also typically a matter of state law, and the actuary will generally find it prudent to consult with an attorney practicing in the state(s) where the actuary will issue the illustration opinion. However, the actuary and the actuary's counsel may wish to use the following sample indemnification agreement as a starting point from which to draft such an agreement under the laws of a particular state:

SAMPLE
INDEMNIFICATION AND HOLD HARMLESS AGREEMENT

This Agreement is entered into between the Illustration Actuary (“Actuary”) and (“Company” as of)_____. Company has appointed Actuary to perform certain services as described in a letter dated _____. In partial consideration for Actuary agreeing to perform services, Company agrees as follows.

1. Indemnity Company agrees to indemnify and hold harmless Actuary from and against all loss, damages, liability and expense incurred by reason of any claims, actions, suits or governmental investigations or proceedings, brought against or involving them or any of them, which relate to or arise out of the engagement of Actuary by the Company. Company shall not be required to indemnify or hold harmless Actuary, for any damages determined by a court to have resulted from Actuary's gross negligence or deliberate misconduct, provided that Actuary's liability is not based on its reliance on inaccurate or incomplete data or other information provided by Company.

2. Definition of Expense “Expense” shall include all legal expense (including attorney fees) incurred by Actuary in the investigation, defense or settlement of any claim, action, suit or proceeding, and all other reasonable costs and expenses including the services of Actuary based on normal hourly rates (salary), together with Actuary's out-of pocket expense incurred in the investigation, defense or settlement of same.

3. Litigation In the event of any litigation under this Agreement for which Company is obligated to indemnify Actuary, Company may elect to direct the litigation. Provided, however, Company may not elect to direct the litigation if a conflict of interest exists,

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including conflict caused by a claim that Actuary's conduct is excluded from the indemnification/hold harmless provision of section 1 above. In the event of a conflict of interest or if company does not elect to direct the litigation, Actuary shall direct the litigation. The party directing the litigation shall select counsel and settle the matter only with the consent of the other party, which consent shall not be unreasonably withheld.

THE ILLUSTRATION ACTUARY COMPANY

Q. What sort of certification must the illustration actuary make?

- A.** The Model Regulation requires the illustration actuary to certify that the disciplined current scales of non-guaranteed elements for illustrated plans of insurance meet the requirements of the Regulation. A sample certification follows.

The sample certification language is meant to cover a variety of common situations but does not cover all possible situations and may be altered as the actuary deems necessary or appropriate. The actuary is not required or expected to make unaltered use of the sample certification language. To the contrary, the individual actuary is responsible for assuring that the language used in the illustration certification accurately represents the situation and the actuary's opinion. The actuary should not use the sample certification language provided herein as a substitute for language that is more appropriate to a given situation.

Sample Certification

To: Board of Directors, *XYZ Insurance Company*
Insurance Commissioner in the State of *Oregon*

I, *Name, am title or relationship to company* of *XYZ Insurance Company* and am a member of the American Academy of Actuaries in good standing. I was appointed by the Board of Directors of said insurer to be the illustration actuary for *all* plans of insurance subject to the Life Insurance Illustration Regulation (Regulation) for this state. The appointment was documented in the Board minutes dated *October 31, 1996*, a portion of which is attached to this certification. I meet the Academy requirements for making this certification and the requirements of applicable state regulations.

Scales of non-guaranteed elements used in illustrating the plans of insurance described above meet the requirements of the Regulation. The disciplined current scales for these plans are in

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conformity with the Actuarial Standard of Practice for Compliance with the NAIC Life Insurance Illustration Model Regulation (ASOP 24) promulgated by the Actuarial Standards Board except as noted below. Moreover:

- No currently payable scale for business issued within the last five years and within the scope of this certification has been reduced for reasons other than changes in the experience factors underlying the disciplined current scale except as follows.....

- Non-guaranteed elements illustrated for new policies are consistent with those illustrated for similar in force policies, except as follows:.....

- Illustrated non-guaranteed elements for new and in-force policies subject to this regulation are consistent with the non-guaranteed elements amounts actually credited or charged to the same or similar forms, except as follows:...

- The minimum expenses used in the calculation of the disciplined current scale for all policy forms subject to this regulation were Fully Allocated (*alternatively marginally allocated or from a generally recognized expense table approved for this purpose by...*).

I have relied on data supplied by.....in making this certification.

I have used procedures that depart materially from those set forth in ASOP 24 in the following ways.....

Title

Date

Company Name

Address

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Q. What are the time frames contemplated by the terminology “recent historical experience” in determining appropriate experience assumptions for testing the disciplined current scale?

A. The actuary can usually use judgement to determine a reasonable time frame from which data will be analyzed for assumption setting purposes. Many actuaries choose the time frame length to correspond to the economic or business cycle length if the experience data is sensitive to the cycle. Actuarial Standard of Practice 24 requires the experience data to be determinable and credible. Lengthening of the time frame may be appropriate if it is required for credibility purposes.

Once the suitable time frame has been chosen and the data collected, it is common actuarial practice to review the data for possible adjustments to remove suspected or known one-time fluctuations. And, as stated in ASOP 24, if real changes have occurred in the company’s operations, but not enough time has elapsed for them to be reflected in the insurer’s actual experience, many actuaries will nevertheless reflect these changes in the assumptions underlying the disciplined current scale. However, the Model and ASOP 24 do not allow for projected improvements in experience beyond the effective date of the scale underlying the illustrations.

The following represent the range of time frames for specific assumption data that is found in current actuarial practice.

Earned Interest Rates: The most recent month to most recent year. Most actuaries would take into account investment allocation procedures (e.g., portfolio v. new money rate) in setting this time frame.

Expenses: The most recent year is most important; however, some actuaries validate unit expense models using the most recent 3-5 years.

Persistency: Most actuaries would choose a period long enough to smooth fluctuations resulting from changes in economic conditions. A three year period will ensure that two policy durations will be recorded for persisting policies when performing a calendar year study.

Sales Statistics: Most actuaries would take account of the volatility of sales data. If sales are relatively steady some actuaries would

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use three years of annualized production figures for overall levels. Allocation by plan requires more recent data.

Mortality: Three to six years as this is generally considered appropriate for mortality studies conducted by the Society of Actuaries (e.g., 1975-80 Industry Mortality Study). If longer periods are required for credibility at the aggregate plan level, consideration may be given to the use of industry data, properly modified.

Taxes: Taxes are rarely free of fluctuations. Therefore, many actuaries use expected experience and marginal tax rates based on most recent information.

Q. Can experience factors be adjusted to exclude the effects of extraordinary events?

Pertinent Sections of ASOP:

Section 5.3.3 "As used in this standard, *actual experience of an experience factor class* means experience and past trends in experience to the extent that such experience is current, determinable, and credible."

Section 5.3.4 "Relationship of Recent Historical Experience to Disciplined Current Scale — The assumptions underlying an insurer's disciplined current scale should be logically and reasonably related to recent historical experience. Changes in experience should be reflected promptly once they have been determined to be significant and continuing..."

A. An *extraordinary event* may be defined as one that has not occurred regularly in the past and is not expected to occur regularly in the future. Many actuaries would exclude the immediate effects of these types of events when determining experience factors for the disciplined current scale. Other actuaries might prefer to amortize the impact over a period of time, to allow for the possibility that unexpected events occur from time to time. If the event does change experience in a way that is significant and continuing, the Standard requires those changes to be reflected.

For example, if the home office of an insurer is destroyed by fire, the immediate expenses of rebuilding it could be excluded in determining the disciplined current scale. If the new building costs more to operate, that increase in costs would normally be included in the disciplined current scale when the change is determined to be significant and continuing.

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Similarly, it may be appropriate to exclude the immediate effects on lapses of an episode of unfavorable publicity. However, if the publicity changes underlying lapse experience in a way that is significant and continuing, the changes would normally be reflected.

Q. A company's illustrated and currently payable scales are often based on a credited interest rate or factor that is based upon an earned interest rate less a required spread. It is therefore common practice to vary the illustrated and currently payable scales more often than annually as the earned interest rate varies. Does this practice force a re-filing of a new actuarial certification each time interest rates change?

A. With certain exceptions, many actuaries would not refile each time illustrated or payable interest rates are changed. The annual actuarial certification certifies that the illustrated scales currently used are in compliance with the regulation and the ASOP. Certifications are also required for new policies. The only other times certifications are generally required are when errors were discovered or when the actuary determines that (s)he is unable to certify an illustrated scale that the insurer intends to use. In the case of interest rate changes, the actuary often *can* determine that (s)he *would be able* to certify the new scale (so that no re-filing is then needed until the next scheduled annual certification). For example, if the earned interest rate change is based on a change in the experience underlying the DCS and a spread is used to determine the illustrated non-guaranteed elements, then it generally follows (at least for a reasonable range of interest rates) that the new scale will also satisfy the requirements of the regulation. The actuary using a spread approach may want to initially test a range of earned interest rates to satisfy himself or herself that the spread will pass the tests under a range of DCS earned interest rates.

There may also be other acceptable methods besides the spread approach which will allow changes in the interest rate (or other non-guaranteed elements) without requiring certifications more frequently than annually. So long as the actuary has not determined that he or she is unable to certify a new illustration scale, many actuaries will not file a new certification until the next scheduled annual certification.

Q. Can illustrated non-guaranteed interest credits vary with duration?

A. Nothing in the Model Regulation or ASOP No. 24 specifically forbids this practice. However, several provisions constrain the illustration actuary. Per paragraph 4.G of the regulation, the illustrated scale (including the varying interest credits) must be no greater than the lesser of the currently payable scale and a disciplined current scale (DCS) at all durations. The earned interest assumption underlying the DCS must be fixed for all

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durations per Section 5.3.3.a of the ASOP. Per section 5.3.2 of the ASOP, the actuary may perform the self-support and lapse support tests in the aggregate; i.e., for a policy form. But in doing so, the actuary is advised to recognize any material shifts in the distribution that may be expected to occur toward portions of the business that do not meet the tests in their own right. Many actuaries would want to consider whether varying interest credits might cause such a shift.

In addition, per paragraph 6.C of the regulation, if the interest rate used to determine non-guaranteed elements is shown in the illustration, it may not be greater than the earned interest rate underlying the DCS.

Finally, per Section 6.1 of the ASOP, there are several disclosures that must be contained in the annual certification that relate to the relationships between the currently payable scale, the illustrated scale and the assumptions underlying the DCS. The need for these disclosures may be affected by the existence of an illustrated scale with a varying interest rate. For example, the illustration actuary would be required to disclose if the currently payable scales on the same or similar in force policies were not consistent with any varying rate being illustrated for new policies. In addition, the illustration actuary must also provide a disclosure in the certification whenever the actual credited rates for a given policy form turn out to be lower than what would be payable under the illustrated scale (taking into account any changes consistent with changes in the experience factors underlying the DCS).

In general, the Model Regulation and ASOP No 24 appear to allow the actuary to adopt a disciplined current scale in which the values for a non-guaranteed element assigned to the various classes within a policy form (such as risk class, policy size, policy duration, policyholder choice factors, etc.) vary, so long as these values are used when addressing the testing, illustration and disclosure issues described.

Q. Is it acceptable to illustrate interest credits for policies with large face amounts that are higher than the earned interest rate underlying the disciplined current scale (DCS), so long as policies with low face amounts have their interest credits reduced so that the overall policy form is self-supporting?

A. Nothing in the Model Regulation or ASOP No. 24 specifically forbids this practice. However, several provisions constrain the illustration actuary. Per Section 5.3.2 of the ASOP, the actuary may perform the self-support and lapse support tests in the aggregate, for a policy form. But in doing so, the actuary is advised to recognize any material shifts in the distribution that may be expected to occur toward portions of the business that do not meet the tests in their own right. This advice would be pertinent if the actuary determines that higher interest credits on large face amounts may cause such a shift.

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In addition, per paragraph 6.C of the regulation, if the interest rate used to determine non-guaranteed elements is shown in the illustration, it may not be greater than the earned interest rate underlying the DCS.

Finally, per Section 6.1 of the ASOP, there are various disclosures that must be contained in the annual certification that relate to the relationships between the currently payable scale, the illustrated scale and the assumptions underlying the DCS. The need for these disclosures may be affected by the existence of an illustrated scale with higher interest rates for large policy sizes. For example, the actuary would be required to state whether illustrated non-guaranteed elements for new (and in force) policies are consistent with the non-guaranteed element amounts actually credited or charged to the same or similar form. In addition, the actuary must also provide a disclosure in the certification whenever the actual credited rates for a given policy form turn out to be lower than what would be payable under the illustrated scales for a given policy size (taking into account any changes consistent with changes in the experience factors underlying the DCS).

In general, the Model Regulation and ASOP No. 24 appear to allow the actuary to adopt a disciplined current scale in which the values for a non-guaranteed element assigned to the various classes within a policy form (such as risk class, policy size, policy duration, policyholder choice factors, etc.) vary so long as these values are used when addressing the testing, illustration and disclosure issues described.

Q. The Standard of Practice states, the “earned interest rate factor underlying the disciplined current scale is assumed to be fixed for all illustrated durations.” What interest assumption should the illustration actuary use if new money rates are less than the current portfolio rate, and the portfolio rate is expected to decline?

Pertinent Section of ASOP:

Section 5.3.3.a “The earned interest rate factor underlying the disciplined current scale should be based on the insurer’s recent historical experience, to the extent credible on assets supporting the policy block...on an entirely retrospective basis.... Therefore, the earned interest rate factor underlying the disciplined current scale is assumed to be fixed for all illustrated durations.”

A. According to the Standard of Practice, the earned interest rate factor in the disciplined current scale, whether it is a new money rate or a portfolio rate and regardless of anticipated changes in interest rate, is to be fixed at all durations. If an actuary anticipates portfolio rates will decline in the future, he or she sometimes recommends using a declining interest rate factor in the illustrated scale. This would appear to satisfy the Standard of Practice so long as the

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illustrated scale is not more favorable to the policy owner at any duration than the currently payable scale and is less than or equal to the disciplined current scale.

Q. In determining the earned interest rate factor underlying the DCS, ASOP No. 24 refers to “assets supporting the block.” How are the assets supporting the policy block determined, and how is the earned interest rate factor determined?

Pertinent Section of ASOP:

Section 5.3.3(a) “...An earned interest rate factor is reasonably based on actual recent historical experience if determined on an entirely retrospective basis considering only assets to be supporting the block. Therefore, the earned interest rate factor underlying the disciplined current scale is assumed to be fixed for all illustrated durations. The earned interest rate factor should be developed using the same method that is used to actually allocate investment income to policies. It may be net of investment expenses or, alternatively, investment expenses may be treated separately as expenses. The use of either the portfolio average approach or the investment generation approach is acceptable for the allocation of investment income. The detailed procedures for determining the earned interest rate factor should have a sound theoretical basis.”

A. As stated in ASOP No. 24, the earned interest rate factor is to be determined considering the assets supporting the block using the same method that is used in actual practice to allocate investment income. Consequently, the definition of assets supporting the block may vary among companies or even among blocks within a single company. If assets are segmented, most actuaries would use such segmentations to determine the asset block. In this case the investment income attributable to the block is usually taken to be the actual investment earnings of the assets in the segment. If the block is part of a larger portfolio, a pro rata share of the total portfolio can generally be used. In this case, the investment income may also be based on a pro-rata share (the portfolio method). Alternatively, the company may use different method of assignment (e.g., the investment generation approach). Many actuaries would require the actual amount of assets to be greater than or equal to the reserves of the policy block. Others might require the amount of assets to exceed the basis used for crediting interest (e.g., policy account values).

The Standard of Practice states that the earned interest rate factor of the DCS is assumed to be fixed for all durations. If deterioration is expected, a lower earned interest rate factor is clearly allowable. Also, the illustrated scale may be based on a declining (or increasing) earned interest rate assumption, as long as the scale is not more favorable to the policyholder than the less favorable of the DCS or the currently payable scales.

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The ASOP requires that the earned interest rate factor be developed using procedures that have a sound theoretical basis. Many actuaries determine the earned interest rate factor by dividing investment income derived from a block of assets by the average amount of assets in the block.

An example of a simple formula that could be used to derive the earned interest rate factor is as follows:

$$I = 2I / (A + B - I)$$

where I = earned interest rate factor
 I = investment income
 A = assets at beginning of year
 B = assets at end of year

More complex methods might incorporate the exact timing of income and smooth gains and losses. The earned interest rate factor for a new block of assets might be based on the current market rate of the type of assets expected to be purchased.

Note that the earned interest rate factor is generally not the interest rate credited or illustrated in a scale of non-guaranteed elements. The relationship between the earned interest rate factor and the interest rate credited in a scale of non-guaranteed elements would generally be determined by company practice. Examples of company practice may be to credit the earned rate less a spread, or to base crediting rates on current new money rates.

Q. What is an appropriate earned interest rate assumption for disciplined current scale testing when a company initially follows an investment generation approach to asset segmentation but ultimately combines all assets into a single portfolio after a specified number of years? What are appropriate non-guaranteed credited rates which can be illustrated under this approach?

Pertinent Sections of ASOP:

Section 5.3.3 “The earned interest rate factor underlying the disciplined current scale should be based on the insurer’s recent historical experience, to the extent credible, on the assets supporting the policy block. An earned interest rate factor is reasonably based on actual recent historical experience if determined on an entirely retrospective basis considering only assets supporting the block. Therefore, the earned interest rate factor underlying the disciplined current scale is assumed to be fixed for all illustrated durations. The earned interest rate factor should be developed using the

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same method that is used to actually allocate investment income to policies...The use of either the portfolio average approach or the investment generation approach is acceptable for allocation of investment income. The detailed procedures for determining the earned interest rate factor should have a sound theoretical basis.”

- A. ASOP No. 24 indicates that either a portfolio average approach or an investment generation approach may be used for determining the earned interest rate factor. It also states that the determination of the earned interest rate factor is to be on an entirely retrospective basis considering only assets to be supporting the policy block. ASOP 24 anticipates a fixed earned interest rate factor from policy inception. Most actuaries would not project an increased earned interest rate factor for durations subsequent to policy issue based upon anticipated yields on assets not yet acquired. Therefore, the earned interest rate factor as of the actuarial certification date would be no greater than the recent historical earned rate on a portfolio average basis or the current new money yields on the assets to be acquired by current new premiums (depending on the method actually utilized by the company to allocate investment income to policies).

For a company that allocates investment income on an investment generation approach at policy issue and then combines assets into a portfolio average approach upon the attainment of a certain policy duration, two options appear to be available:

1. Use the new investment generation yield as a level earned interest rate factor in all policy years; or,
2. Use the new investment generation yield as a level earned interest rate factor followed by a lower portfolio average earned interest rate factor once the assets are combined.

Note that an investment generation based earned interest rate factor followed by a higher portfolio average based earned interest rate factor (although potentially realistic) typically involves the use of a projected future yield on assets not yet acquired that exceeds the current new money rate. Many actuaries would be reluctant to adopt such an assumption, even if it reflects the yield on assets currently held.

The illustration actuary may choose to define illustrated credited rates in terms of a “spread” off of the assumed earned interest rate factor or as an actual rate. Current practice in this regard is described in other practice note discussions.

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Q. What is the earned rate for a new money product in year 1 when expenses exceed premium resulting in no assets being purchased?

Pertinent Sections of ASOP:

Section 5.3.3 “The earned interest rate factor underlying the disciplined current scale should be based on the insurer’s recent historical experience, to the extent credible, on the assets supporting the policy block. An earned interest rate factor is reasonably based on actual recent historical experience if determined on an entirely retrospective basis considering only assets supporting the block. Therefore, the earned interest rate factor underlying the disciplined current scale is assumed to be fixed for all illustrated durations. The earned interest rate factor should be developed using the same method that is used to actually allocate investment income to policies...The use of either the portfolio average approach or the investment generation approach is acceptable for allocation of investment income. The detailed procedures for determining the earned interest rate factor should have a sound theoretical basis.”

- A.** Various approaches are currently used in determining the earned interest rate factor. Under these circumstances, two approaches currently utilized in actuarial practice are:
1. If the policy block has existing in force policies, the yields on recently purchased assets from the previously sold policies may be used to form an earned interest rate factor assumption for newly issued policies.
 2. For a new policy block, the current yields on assets of the type expected to be used to support the policy block may be used to establish the earned interest rate factor.

Q. How can ownership in other lines of business or subsidiaries be incorporated into the development of an earned interest rate factor?

Pertinent Section of ASOP:

Section 5.3.3(a) “...The earned interest factor should be developed with the same method that is used to actually allocate investment income to policies.”
“...If other lines of business are considered an investment of the illustrated line, gains and losses from such lines may be included consistent with company practice.”

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- A. It is possible for a line of business to “own” another line of business or subsidiary, depending upon corporate structure and internal reporting practices. Such ownership is required by the Standard to be established in connection with asset allocations made to allocate investment income to policies, not derived solely for the purpose of self-support and lapse-support testing. According to such asset allocations, a portion of earnings from the subsidiary usually would flow to the parent line. Intracompany borrowing may transpire by issuing notes from one line to another.

As stated in the Standard of Practice, returns from investments in other lines of business or subsidiaries may be incorporated into the earned interest assumption consistent with company practice. If the other lines are also subject to the Model Regulation, the actuary(ies) may want to coordinate these assumptions. If the parent line assumes a periodic return from a subsidiary, the actuary for the subsidiary might consider an offsetting periodic expense or reduction in interest.

The actuary may wish to smooth recent actual experience if returns have been uneven or if internal borrowing has been short-term in nature.

Q. Section 5.3.3.a of the Standard of Practice states that the earned interest rate factor underlying the disciplined current scale should be based on the insurer's recent historical experience on assets supporting the block. The earned interest rate factor should be developed using the same method that is used to actually allocate investment income in the future. The earned interest rate factor is also assumed to be fixed for all illustrated durations. This seems clear for a new policy at issue, but what should the earned interest rate factor be for an illustration of an existing policy subject to the regulation, where the new money interest rate may differ from the interest rate being earned on the assets supporting the block?

- A. For a company using a portfolio rate of interest factor for a policy form, many actuaries would calculate the illustration of values for an existing policy subject to the regulation based on the portfolio rate. However, the illustration actuary may need to recognize the specific method for determining the investment income generated by the assets supporting the block of business to determine the portfolio rate to be used in existing policy illustrations of contracts subject to the regulation.

For companies using a new money rate in the calculation of illustrated values for an existing policy subject to the regulation, many actuaries would calculate values based on both the new money interest rate and the interest rate for assets already accumulated for the policy. For

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example, one method might be to fix the new money earned interest rate factor in all future years while the earned interest rate factor for assets which are already accumulated for the policy is held constant. This may produce a total interest rate factor which is not level in all future policy years.

Special cases for hybrid investment philosophies may exist, and the illustration actuary may find it preferable to adopt a method in which the interest rate factor reflects actual company experience and practice. Many actuaries would test such methods to be sure the interest rate factor for existing policies is never greater than what can reasonably be produced by the company investment income allocation method, under the assumption that the new money rates remain unchanged in the future.

Q. May mortality improvements or other trends be projected from the end of the recent historical period used as the basis for the disciplined current scale assumptions to the effective date of the scale of non-guaranteed elements?

Pertinent Section of ASOP:

Section 5.3.(4)(a) "Historical experience may exhibit improvements from year to year. Such trends in improvement may not be assumed to continue into the future beyond the effective date of the scale underlying the illustration."

A. The Standard of Practice clearly provides that trends in improvement may be projected to the effective date of the scale, but not beyond that date.

Q. We recently switched from nonsmoker/smoker to tobacco non-user/tobacco user but we do not have any mortality experience with the new classes. Would it be appropriate to test our business by splitting the insurers into 3 groups and testing as follows:

- a) Tobacco non-users tested with nonsmoker mortality,
- b) Nonsmoking tobacco users tested with nonsmoker mortality, and
- c) Smoking tobacco users tested with smoking mortality?

Pertinent Sections of ASOP:

Section 5.3.2 "In performing the self-supporting test for a policy form, the illustration actuary may test the underwriting classification and policy owner choice factors in

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aggregate. The assumed distribution between classes should be based on actual experience if available, recognizing shifts in distribution that may be expected to occur toward any portions of business that do not meet the self-supporting test in their own right.”

Section 5.3.3 “As used in this standard, actual experience of an experience factor class means experience and past trends in experience to the extent that such experience is current, determinable, and credible. When such suitable data are lacking, experience factors may be derived in a reasonable and appropriate manner from actual experience and past trends in experience of other similar classes of business either in the same company, of other companies, or from other sources, generally in that order of preference.

Section 5.4 An insurer may introduce certain changes in the way it conducts its business, which will have a significant positive or negative effect on future experience. If the action has already occurred, but not enough time has elapsed for it to be reflected in the insurer’s actual experience, it may nevertheless be reflected in the assumptions underlying the disciplined current scale...The changes should be real in order to be reflected in the disciplined current scale. An action leading to an expected change in experience should actually have taken place, and not simply be planned for in the future.

A. The ASOP provides for application of reasonable actuarial judgement when a change in practice has been implemented but not enough time has passed for the change to be reflected in the insurer’s own experience.

When the effect of the change in practice is to:

- a) redefine underwriting classifications, and
- b) when there is no evidence to suggest the change in practice will produce a change in the aggregate mortality experience,

many actuaries believe that the expected mortality assumptions for the new classifications generally should replicate aggregate mortality in total.

In this particular example, the former nonsmoking underwriting class is split into non-tobacco users and nonsmoking tobacco users. The premiums charged to the individual policyholders reflect the new underwriting classification segments but the mortality assumption is for the combined nonsmoking class.

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Since ASOP 24 specifically allows aggregation of underwriting classifications for self-support and lapse-support testing, use of the former nonsmoker mortality assumption would generally appear to be appropriate for testing tobacco non-users and nonsmoking tobacco users in the aggregate if a defensible assumption with respect to the distribution of business between those two underwriting classifications is developed.

The smoker classification in this example appears to be unchanged and could either be tested individually or incorporated into the aggregate policy form testing.

In some cases, a change in underwriting classes and rates may be expected to have an important effect on the distribution of risks covered. Section 5.4 would appear to allow the actuary to reflect such expectations in the assumptions underlying the DCS, provided the changes are “real” and the actions leading to the expected change in experience have already taken place.

Q. If a company does not specifically segment assets, are there any other methods in use for allocating investment income among policy forms?

Pertinent Section of ASOP:

Section 5.3.3a “The earned interest rate factor underlying the disciplined current scale should be based on the insurer’s recent historical experience, to the extent credible, on the assets supporting the policy block. ... The earned interest rate factor should be developed using the same method that is used to actually allocate investment income to policies.”

A. Actuarial Standard of Practice No. 24 does not specifically mention asset segmentation as a method of allocating investment income among policy forms. Rather, it requires that the earned interest rate factor be developed using the same method that is used to actually allocate investment income to policies. Asset segmentation is a common practice in the industry that could be used to allocate investment income and determine separate earned interest rate factors for different groups of policy forms. If, in actual practice, a single

portfolio interest rate is used to determine nonguaranteed elements for all policy forms, many actuaries would use the same earned interest rate factor for all policy forms. Another method in common use is the investment-year method. If no method for allocation of investment income to groups of policy forms has been adopted by the company, many actuaries would use a single earned interest rate factor for all policy forms. Alternatively, separate earned

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interest rate factors could be developed based on a judgmental asset segmentation. If a judgmental segmentation were used, many actuaries would attempt to match the characteristics of the asset segments to those of the liability blocks.

Q. How are *direct expenses* and *indirect expenses* defined?

Pertinent Sections of ASOP:

Section 5.3.3(e)(1) "Fully Allocated — ... Direct costs should be charged to the groups of policies generating those costs, and indirect costs should be fully allocated using a sound basis of expense allocation..."

Section 5.3.3(e)(2) "Marginally Allocated — Unit expenses calculated in a manner similar to fully allocated except that indirect expenses such as corporate overhead and general advertising are not allocated to the policy block..."

A. "Direct" and "indirect" costs are not specifically defined in the Standard. The actuary exercises judgment in determining which costs are direct and which are indirect. Corporate overhead and general advertising are examples given in the Standard of indirect expenses. Medical and inspection fees incurred for underwriting a policy are examples of direct expenses. Often expenses that do not vary directly with the volume of business are considered indirect. Some expenses may vary only when a certain threshold change in volume is obtained. The actuary decides how to classify these expenses as direct or indirect. How the company records and manages its expenses will usually be an important consideration in this determination.

The actuary might also consider discussions of expense allocation found in the valuation actuary practice notes: ASOP No. 1, *The Redetermination (or Determination) of Non-Guaranteed Charges and/or Benefits for Life Insurance and Annuity Contracts*; ASOP No. 15, *Dividend Determination and Illustration for Participating Individual Life Insurance Policies and Annuity Contracts*; and articles about pricing methods found in the *Transactions of the Society of Actuaries* or the *Record — Society of Actuaries*.

Q. What methods are likely to be used for allocating overhead to lines of business and policy blocks?

Pertinent Section of ASOP:

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Section 5.3.3.e “...Direct costs should be charged to the groups of policies generating those costs, and indirect costs should be fully allocated using a sound basis of expense allocation....”

A. Actuarial practice regarding the allocation of indirect costs, including overhead expenses, varies widely. First, it is usually important to determine that the expenses being allocated are actually indirect expenses. Per the ASOP, indirect costs are only those expenses that are not directly generated by particular groups of policies. The actuary may consider the company's actual practices for recording expenses in determining which are direct and which are indirect. In some cases, the actuary may develop a new classification of expenses for pricing and illustration purposes. Once the *indirect* expenses are identified, the ASOP then requires that a *sound* basis of expense allocation be used. The term “sound “ is not defined. Some actuaries would consider an allocation to be sound if it is consistent with actuarial soundness, i.e., if this allocation could be maintained without threatening the solvency of the company (Principles of Actuarial Science, TSA XLIV). Other actuaries might consider an allocation to be sound if it can be validated, i.e., if application of the unit expense factors can reproduce recent historical expenses in the aggregate.

Units commonly used to allocate indirect expenses include (but are not limited to): assets, direct expenses, premiums, commissions, volume, policies in force or pre-overhead profits. Allocations generally may be split between in force blocks and new issues. Some policy blocks may be able to support a larger share of overhead expenses than other blocks. Different methods may be appropriate for allocating expenses at different levels. For example, one method may be used for allocating expenses to a line of business, with a different method being used to allocate expenses to individual policy forms within that line. Use of these units, in any combination, would likely be deemed a “*sound basis*” in most instances provided that both the units and total indirect actually used were based on recent experience.

Q. May indirect expenses be allocated to corporate lines, fraternal activities or other non-life insurance operations?

Pertinent Section of ASOP:

Sec 5.3.3.e “Fully Allocated - Unit expenses recently incurred at the company and actually allocated to the policy block.” “...indirect costs should be fully allocated using a sound basis of expense allocation....”

A. Yes, in most instances, so long as it can be documented that a sound basis is used for fully allocating overhead expenses (See page 21 for a definition of “sound”). The ASOP refers to

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expenses *actually* allocated to the policy block. Thus, one way to document that expenses were allocated appropriately would be to use the full expense allocations that are actually used in financial statements of the company (e.g., statutory, GAAP or other management reporting). While other methods of allocation may also be *sound*, it may be more difficult to *document* that such methods are sound and that they are not being used for the purpose of manipulating expense allocations to create misleading sales illustrations. For example, in the absence of financial statements that provide documentation, it may be difficult to demonstrate the soundness of allocating overhead expenses to a corporate line that are greater than the revenue expected to be generated by that line (e.g., investment income and dividends from assets “owned” by the corporate line).

Q. What flexibility does the actuary have in varying the overhead allocation method in order to make the illustrations for some products more or less competitive?

Pertinent Section of ASOP:

Sec 5.3.3.e “...indirect costs should be fully allocated using a sound basis of expense allocation....”

A. In practice, there are often business reasons to make some *products* more competitive than others. The business objectives of the company and an analysis of its competitors may cause a company to want to vary its competitive position in one market versus another. Within the limits of applicable product regulations (e.g., those regarding policy design, illegal discrimination, etc.), pricing actuaries usually have the flexibility to make *products* more or less competitive based on the company’s business objectives. It is a stated goal of the Model Regulation to ensure that *illustrations* do not mislead purchasers of life insurance products. Thus, within the limits of the illustration regulation and the ASOP, it would generally be reasonable for *illustrations* to reflect the relative competitive position of the *products* so as not to mislead purchasers. There can be sound methods of expense allocation that will also satisfy varying competitive objectives. So long as a sound method is used as part of a disciplined current scale, the illustration actuary typically has flexibility in choosing an expense allocation method that satisfies competitive objectives. (See page 21 for a discussion of “sound”).

In some instances, the allocation of indirect expenses can affect the competitiveness of products and thus the ability of a company to sell products. In determining whether an allocation of indirect expenses is sound, actuaries may choose to take into account the level of sales of each product that can be expected given that product’s relative competitiveness.

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Q. For fraternal companies, must fraternal expenses be allocated to life business for the purpose of the self-support and lapse-support tests?

Pertinent Sections of ASOP:

Sec 5.3.3(e) "Fully Allocated — Unit expenses recently incurred at the company and actually allocated to the policy block." "...indirect costs should be fully allocated using a sound basis of expense allocation...."

A. Per the ASOP, indirect costs should be fully allocated using a *sound* basis of expense allocation. Professional judgment may be required to evaluate the soundness of a given basis of expense allocation. For example, some actuaries might consider a sound basis to be the one that provides the highest expectation for allocated expenses to be covered by the expected marginal profits from each life policy block or non-life line of business. With this approach, the actuary might allocate fraternal expenses to a fraternal line of business to the extent that future revenues from the fraternal line could be expected to support such expenses. Any expenses not allocated to the fraternal line would then generally be included with other indirect costs and allocated appropriately to the life (and other non-life) lines of business. Depending on the allocation philosophy, other sound approaches to the allocation of expenses to fraternal lines may also be possible. (See page 21 for further discussion of "sound").

The ASOP refers to expenses *actually* allocated to the policy block. Thus, one way to document that expenses were allocated appropriately would be to use the full expense allocations that are actually used in financial statements of the company (e.g., statutory, GAAP, or other management reporting).

Q. How is inflation taken into account in determining disciplined current scale expense factors?

Pertinent Section of ASOP:

Section 5.3.4(b) "Similarly, if trends indicate that significant and continuing deterioration in an experience factor has occurred or, in the actuary's judgment is likely to occur between the date of the historical experience and the effective date of the scale

underlying the illustration, the actuary should recognize such deterioration in determining the assumptions to be used."

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- A. The ASOP does not require that the effects of inflation after the effective date of the scale be taken into account in establishing the disciplined current scale expense assumptions. Note that the disciplined current scale expense assumptions may differ from the assumptions actually used to establish the non-guaranteed elements.

The ASOP requires the actuary to determine whether a significant and continuing deterioration in expenses has occurred or is likely to occur between the recent historical period on which the assumptions are based and the effective date of the scale. In forming this judgment, some actuaries depend on such considerations as the recent trends in expenses of the company and the length of time between the recent historical period and the effective date. Others may take into account general price and wage inflation as indicated by government or other indices. If judged to be significant and continuing, the ASOP requires the actuary to recognize any such deterioration in the disciplined current scale assumption.

Q. How should one-time expenses be handled?

Pertinent Sections of the ASOP:

Section 5.3.3.e.1 “...Nonrecurring costs, such as systems development costs, may be spread over a reasonable number of years (e.g., system lifetime) in determining the allocable expenses for a particular year.”

Section 5.3.4. “...Changes in experience should be reflected promptly once they have been determined to be significant and continuing.”

- A. One time expenses that are significant and continuing (for example, systems development costs) are required by the Standard to be included in determining allocatable expenses. One time expenses that are not significant or that are not expected to be continuing (for example, the cost of rebuilding an office after a fire) presumably may be excluded from fully allocated expenses. Of course, it presumably would also be acceptable to include them. Within this broad limitation, the actuary may presumably exercise judgment in determining which one time costs will be included and which will be excluded from fully allocated expenses. The rationale for such judgments is then documented.

It may seem inconsistent to consider some one time expenses to be continuing. However, many actuaries believe there can be situations, such as product development or systems development, where the expenses associated with a particular project are “one time”, but the

expectation is that the resources will continue to be used on “one time” projects in the future. These actuaries include these significant and continuing “one time” expenses in fully

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allocated expenses. Alternatively, some actuaries spread these types of expenses over a reasonable number of years. For systems development costs, the Standard specifies the expected system lifetime. As an alternative, a non recurring cost could be amortized over the period during which the benefits related to the expense are expected to accrue. The actuary may find it helpful to consider the accounting treatment of such costs.

Q. In an effort to improve efficiency or increase customer service, companies will sometimes look to create new processes. During the research and development (R&D) phase of these efforts, the company will often experience increased expenses. These expenses may be overhead expenses, but they could also be direct variable expenses. In some cases, the process may only be used for a single policy form during this R&D phase with the intent to use it for other forms when the process is fully developed. What flexibility does the actuary have in the allocation of these R&D expenses to avoid the burden of these excess expenses on, say, a single policy form?

Pertinent Sections of ASOP:

Sec 5.3.3(e) “Fully Allocated — Unit expenses recently incurred at the company and actually allocated to the policy block. Direct costs should be charged to the groups of policies generating those costs.” “...indirect costs should be fully allocated using a sound basis of expense allocation...” “Nonrecurring costs...may be spread over a reasonable number of years...”

A. Some actuaries consider R&D costs to be a significant and continuing expense on the theory that an ongoing business will necessarily spend a certain amount on R&D each year. Other actuaries prefer to treat R&D as a one-time expense since the share of the R&D related to a given policy form is nonrecurring. If R&D costs are nonrecurring, the ASOP allows for the possibility that these costs be spread over a reasonable number of years. Per the ASOP, direct costs must be allocated to the group of policies generating those costs. In some situations there may be an issue as to how policy forms are to be grouped for the purpose of allocating those costs. For example, if R&D costs are being incurred for the ultimate benefit of a larger group of policy forms, many actuaries may choose to allocate direct R&D costs to this larger group of policies.

For the treatment of one-time expenses, see page 28.

For indirect R&D costs, see page 29.

Q. If a company elects to use the generally recognized expense table or the marginally allocated method, expenses most likely won't be consistent with the allocation of expenses

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in the company's annual statement. Must fully allocated expenses be consistent with the allocation by line of business in the company's annual statement?

Pertinent Sections of ASOP:

Sec 5.3.3(e) "Fully allocated — Unit expenses recently incurred at the company and actually allocated to the policy block. Direct costs should be charged to the groups of policies generating those costs." "...indirect costs should be fully allocated using a sound basis of expense allocation..." "Nonrecurring costs...may be spread over a reasonable number of years..."

Sec 6.3 "The illustration actuary should maintain documentation...[of the] description of, and rationale for, the mortality, persistency, expense, and tax assumptions."

A. Generally, expense allocations should be *consistent* with the allocation of expenses in one of the annual statements since, per the ASOP, unit expenses should be based on expenses actually allocated to the policy block. Note that this doesn't necessarily mean that expense allocations are required to be exactly the same. There may be a number of situations where the expense allocations for testing purposes would not have to be identical to those in the annual statement. For example, the ASOP allows for nonrecurring expenses to be spread over future years. In determining unit expenses, the ASOP appears to permit the actuary to use judgment in determining how to use recent experience in order to ensure that the experience is current, determinable and credible (see page 3). In addition, there may be statutory requirements for the allocation of expenses in the annual statement that may not be consistent with the "sound basis of expense allocation" called for by the ASOP. Finally, a company may have more than one method of expense allocation in place (GAAP statements, other management reporting, pricing). One of these methods may be more appropriate for the purposes of the Model Regulation. Any of these reasons may cause the expense allocations used to be different from those in the annual statement.

Per section 6.3 of the ASOP, the illustration actuary should maintain a description of and rationale for the expense assumptions actually used in the development of the disciplined current scales. As part of this documentation, many actuaries would include the rationale for any differences with the company's annual statement allocation method.

Q. When you use the Generally Recognized Expense Table are you tied to those unit factors for developing the disciplined current scale for each policy form?

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Pertinent Section of the ASOP:

Section 5.3.3 e.3. “...The comparison and choice of expense assumptions are to be made in aggregate for all policy forms...”

Pertinent Section of the Model Regulation:

Section 4.K. (1) ...The insurer may choose to designate each year the method of determining assumed expenses for all policy forms from the following:

- A. If a company chooses to use the generally recognized expense table (GRET) as the source of the minimum assumed expenses for a given year, then to be in compliance with the Model Regulation that table must be used for all policy forms in the aggregate.

Some actuaries are comfortable using the GRET as a “safe harbor” allowing deviations but ensuring that expenses in the aggregate equal those derived from the GRET for all policy forms. For example these actuaries may believe it to be appropriate to consider deviations from the GRET for certain forms of coverage, say term vs. permanent. The ASOP would require the actuary to document the rationale for any such deviation. Some regulators have expressed, i.e., a concern that deviations could lead to gaming.

Note that there are different GRET factors for different distribution systems. If the GRET is used in a given year for one distribution system, to be in compliance with the Model Regulation, the appropriate GRET factors must be used for all other distribution systems.

Q. The GRET report indicates that “premiums for single premium products should be multiplied by 6% prior to the application of the percent of premium factor.” It also states that in the development of the expense factors “single premiums were weighted using 6% after reduction for any dividends applied.” In using the GRET table to estimate expenses, should premiums for single premium products be reduced by an estimate of “dividends applied” prior to multiplying by 6%?

- A. The use of a 6% adjustment was taken from LOMA’s expense study methods and is apparently intended to represent the reduced sales overhead as a percent of premium inherent in single premium business. The reduction of the data from the single premium line of the annual statement for dividends applied evidently was done in order to arrive at a premium number that represented the volume of single premium business which was produced by the distribution system and to which the percent of premium factor should be applied.

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Consistent with the method that was used to develop the GRET, the single premium for an illustrated product would usually be reduced for any dividends applied in the first policy year before the application of the 6% multiplier and the percent of premium expense factor.

Q. Are there other non-level premium products whose first-year premium is reduced prior to applying the GRET percent of premium factor?

A. The percent of premium expense factor of the GRET is an acquisition expense factor which is applied only in the first year and represents that portion of the sales overhead associated with a product which is not paid in the form of a commission. The factors that have been developed for the GRET have used unadjusted statutory data which typically would include only those premiums allocated to the first year of products in companies' annual statements.

The only leeway that a company has in the application of the percent of premium factor to non-level premium products, e.g., universal life with substantial pour-in premiums, would be to use differing percent of premium factors on a product by product basis such that the GRET expenses were reproduced on an aggregate basis. The different percent of premium factors and their multipliers would then result in a weighted product equal to the GRET percent of premium factor multiplied by total anticipated first year premium (adjusted as necessary for single premium products).

Consistent with the method that was used to develop the GRET, a company would not apply the 6% single premium adjustment factor to universal life pour-in premiums.

For a company that sells a large proportion of universal life with pour-ins, the GRET may not be the best choice for the illustration actuary. The GRET was derived from published information and is not as exact as a detailed functional cost study. It is to be hoped that, in the future, refinements will be made to the development of GRET expense factors, including potential adjustments for universal life pour-in premiums.

Q. Actuarial Standard of Practice No. 24 states that investment income "may be net of expenses, or, alternatively, investment expenses may be treated separately as expenses". Does the GRET reflect investment expenses?

Pertinent Section of the ASOP

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Section 5.3.3.a. "The earned interest rate factor ... may be net of expenses, or, alternatively, investment expenses may be treated separately as expenses".

A. The GRET expenses factors were derived from annual statement data which excluded those expenses which had been allocated to investments. Therefore, when the GRET factors are used, investment related expenses are considered separately, either as an addition to the expenses produced by the GRET factors or as a reduction to investment income.

Q. Suppose a policy form is sold through multiple distribution channels. How is the GRET applied in such cases? For example, does one pick the predominant distribution system and apply those factors, or is some sort of proration done?

A. The GRET factors for different distribution systems were derived from data for companies which were predominately in the given line of business. The GRET was derived from published information and is not as exact as a detailed functional cost study. It is anticipated that in the future, refinements will be made to the development of expense factors by distribution system. Therefore, at the present time, either proration or the use of the set of factors applicable to the predominant line of business could be done. The one restriction under the Model is that a company may not use the GRET for one line of business and fully allocated expenses for another line.

Q. Some insurers establish non-guaranteed elements without making a specific charge for federal income tax. How should federal income tax be taken into account in establishing the disciplined current scale for such policies?

Pertinent Section of the ASOP:

Section 5.3.(3)(c) "Taxes —The cash flows used in carrying out the self-supporting test should include cash flows arising from all applicable taxes. All income taxes, except the additional tax associated with the differential earnings rate, should be recognized in accordance with their impact by duration in the self-supporting test..."

A. According to the ASOP, the method for taking taxes into account in setting non-guaranteed elements generally need not be the same as the method for taking taxes into account in carrying out the self-supporting test. For example, a scale of non-guaranteed elements could be established without a charge for federal income tax, assuming that tax would be paid from

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any profits realized on the business. However, in carrying out the self-supporting test, the Standard requires the actuary to include the cash flows arising from all applicable taxes. Many actuaries use approximate methods to determine these cash flows. This appears to be permitted by the Standard, provided these methods recognize the impact of taxes by duration.

Q. Section 5.3.3.c of the Standard of Practice states: “All income taxes, except the additional tax associated with the differential earnings rate, should be recognized in accordance with their impact by duration in the self-supporting test.” What does this mean with respect to reflection of the mutual company add-on tax?

A. The mutual company add-on tax may be omitted in computing the self-supporting test. Many actuaries include this tax in computing the self-supporting test if its inclusion does not cause a policy form that would otherwise fail the test to pass. Using a simplified assumption for this tax, rather than a more detailed approach which would take into account the impact of the tax by duration, is also a current actuarial practice.

Q. The Model Regulation and the ASOP refer to a disciplined current scale that is based on underlying experience factors. However, the regulation and ASOP do not explicitly describe how to calculate the disciplined current scale once the appropriate factors are determined. How are disciplined current scales calculated?

Pertinent Section of ASOP:

Sec 2.2 “Disciplined Current Scale — Any scale of non-guaranteed elements that satisfies the required tests set forth herein, using assumptions that are reasonably based on actual recent historical experience.”

A. Per ASOP No. 24, a *disciplined current scale* (DCS) is *any* scale of non-guaranteed elements that satisfy the required tests. Non-guaranteed elements have many forms (e.g., dividend scales, universal life charges/credits, indeterminate premiums). Within each form, there may be many variations as to how non-guaranteed elements are typically calculated (e.g., various types of dividend formulae, different methods of calculating universal life account values, termination dividends, various types of bonuses, etc.). Neither the Model nor the Standard restrict how non-guaranteed elements may be calculated. In some situations, non-guaranteed elements may be calculated by formulae directly from the underlying experience factors. Dividends on participating policies are often calculated in this manner. In other situations, non-guaranteed scales (calculated by other means) may be indirectly based on underlying experience factors through the use of empirical profit or cash flow testing. The non-guaranteed elements for universal life and indeterminate premium plans are often calculated

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in this way. The actuary may also want to refer to ASOP No. 1 and ASOP No. 15 for additional guidance regarding the determination of non-guaranteed elements.

Regardless of how it is calculated, any scale of non-guaranteed elements may be a DCS provided that it can be demonstrated that it satisfies the required tests. The required tests prescribe the calculation of the accumulated policy cash flows at future points in time, assuming that the non-guaranteed scale being tested is in effect and assuming the DCS experience assumptions. In order for the scale to be disciplined, the ASOP requires that these accumulated policy cash flows equal or exceed the corresponding surrender value on or after the 15th policy anniversary (20th for second-to-die policies) or expiry, if sooner.

Thus, there is likely to be more than one scale of non-guaranteed elements (for a given set of experience factors) that satisfy the requirements of a DCS. The dynamics of the required tests may drive the pattern of the DCS that the actuary chooses. In practice, many actuaries

experiment with applying the tests to different patterns of non-guaranteed elements before choosing a DCS that allows for an illustrated scale that meets the requirements of the Model and the standard while satisfying the marketing objectives of the company.

Q. Are disciplined current scales required to be used in determining currently payable scales and generating inforce illustrations? Can a DCS and a currently payable scale cross over by duration?

Pertinent Sections of ASOP:

Sec 1.1 ...This standard does not provide guidance with regard to amounts that are actually credited or charged to policyowners.

Sec 2.5 Illustrated Scale - A scale of non-guaranteed elements currently being illustrated that is not more favorable to the policyowner than the lesser of the disciplined current scale and the currently payable scale.

A. Neither the regulation or ASOP No. 24 provide guidance as to how currently payable scales are determined. ASOP No. 1 and ASOP No. 15 provide guidance on the determination of non-guaranteed elements and dividends, respectively. However, these two ASOPs do not discuss a DCS. Thus, neither the Model Regulation nor any ASOP requires the DCS to be used for the purpose of determining currently payable scales.

Any illustrated scale (including inforce illustrations) must not be greater than the lesser of the DCS or the currently payable scale. If the actuary can determine that illustrated values will

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never be greater than the DCS or the currently payable scale, then it would generally not be necessary to use the DCS directly in the process of generating the illustrated scale. However, depending on the structures involved in each scale, it may be that the actuary cannot make such a determination. In this case, it may be necessary to use the DCS and currently payable scales in order to make the required comparisons.

Since the regulation doesn't regulate the currently payable scale, it may be possible for the DCS and the currently payable scale to cross over by duration. For example, the DCS may be lower than the currently payable scale in year 5, with the opposite true in year 6. If this is the case, then both scales must be considered when making required comparisons.

Q. May a disciplined current scale be changed more often than annually? Must a changed scale be refiled?

Pertinent Sections of ASOP:

Sect. 2.2 Disciplined Current Scale - Any scale of non-guaranteed elements that satisfies the required tests set forth herein, using assumptions that are reasonably based on actual recent historical experience.

Sect. 5.3.4 ...Changes in experience should be reflected promptly once they have been determined to be significant and continuing.

Sect. 6.5 ...The certification should not be considered to be in error if it would have been...not issued solely because of data or information concerning events that occurred subsequent to the certification date.

A. The Model and the ASOP discuss annual testing and certification of scales and testing and certification prior to issuing new policy forms. Nothing in the ASOP would prevent an actuary from changing and retesting a scale more frequently. Changes in interest rates or a new mortality study might raise this issue. Many actuaries may try to anticipate such changes through some type of sensitivity testing during the regular self-support and lapse-support tests. Others may not.

Refiling the certification for a scale changed between annual certifications is probably not necessary in most instances. The regulation requires an annual certification for all policy forms using illustrations and a certification before a new policy form is illustrated. Prompt notification is required by the regulation upon discovery of an error in a previous certification.

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Q. How are assumptions for similar products sold by affiliated companies in a holding company structure determined?

Pertinent Section of ASOP:

Section 5.3.3 “...*actual experience of an experience factor class* means experience and past trends in experience to the extent that such experience is current, determinable, and credible. When such suitable data are lacking, experience factors may be derived in a reasonable and appropriate manner from actual experience and past trends in experience of other similar classes of business either in the same company, of other companies, or from other sources, generally in that order of preference.”

A. A literal interpretation of ASOP No. 24 would suggest that unique experience factors be developed for each policy form of each company where credible data are available. Where significant differences in experience exist among products sold by affiliated companies and credible data are available, many actuaries would develop unique experience factors. However, it may be reasonable to assume that similar products sold by affiliated companies would have similar experience, if the sales take place in similar markets, if administrative and investment functions are centralized, etc. Further, internal record-keeping practices may make it difficult to differentiate experience between affiliated companies. Since using data of other companies is allowed by the ASOP, the ASOP appears to permit the common actuarial practice of using the combined data of affiliated companies to develop a single set of experience factors to be used by the similar products of affiliated companies.

Q. A company may have several policy form numbers for a single product that vary by underwriting class or certain product features. In this situation, what is the definition of a policy form for the purpose of aggregating results of self-support and lapse-support tests?

Pertinent Section of Actuarial Standard of Practice:

Section 5.3.2 “... In performing the self-supporting test for a policy form, the illustration actuary may test the underwriting classification and policy owner choice factors in aggregate. The assumed distribution between classes should be based on actual experience if available, recognizing shifts in distribution that may be expected to occur toward any portions of the business that do not meet the self-supporting test in their own right.”

A. It can be argued that policy form numbers that vary by underwriting classifications or policy owner choices are no different in aggregate than a single policy form number with a variety

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of underwriting classes and policy owner choices. Using this argument, many actuaries will treat policy form numbers under the same product as a single policy form for the purpose of performing the self-support test in aggregate.

As stated in ASOP No. 24, the actuary assumes a distribution among classes and recognizes expected shifts in distribution toward portions of the business that fail the self-support test. These distributions are to be based on actual experience, if available. The actuary would generally assume such a distribution among policy forms, and any expected shifts in distribution, in the same manner.

The actuary might consider developing additional documentation of the rationale for combining such policy form numbers as well as the difference among them.

Q. If a policy form is sold with different rates depending on the circumstances (e.g., a group form sold to groups with differing characteristics), is the form with its different rates to be considered a single policy form, or is each set of rates treated as a separate policy form for purposes of passing the self-support and lapse-support tests independently?

Pertinent Section of ASOP:

5.3.2 The *Model* requires the scale for every policy form illustrated by an insurer to be self-supporting according to the assumptions underlying the insurer's disciplined current scale. . . . The actuary should not assume that a policy form will be subsidized by another policy form, or by any other source. . . . In performing the self-supporting test for a policy form, the illustration actuary may test the underwriting classification and policy owner choice factors in aggregate. The assumed distribution between classes

should be based on actual experience if available, recognizing shifts in distribution that may be expected to occur toward any portions of the business that do not meet the self-supporting test in their own right.

A. This question asks for guidance as to what is considered a "policy form." Neither the regulation nor the standard defines this term.

The standard specifically states that underwriting classification and policy owner choice factors may be tested in the aggregate. It therefore appears that cases can be aggregated if the differences could be characterized as differences in underwriting classification and/or policy owner choice factors. Differences in rates among different groups generally result from differences in the underwriting characteristics of the groups, or from the preferences of the policy owner. Therefore, provided that the benefit and premium patterns for the groups are

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similar, it may be reasonable to combine the groups for testing purposes. As mentioned in the last sentence of ASOP No. 24, Section 5.3.2, anticipated shifts in distribution (among cases, in this instance) should be appropriately reflected in the assumptions used in performing the tests.

Q. How may riders be tested for self-support and lapse-support?

Pertinent Section of ASOP:

Section 5.3.2 “... Policy owner choices reflected in the preparation of an illustration include, but are not limited to, the size of policy, premium payment pattern, dividend option, riders, and policy loans.

In performing the self-supporting test for a policy form, the illustration actuary may test the underwriting classification and policy owner choice factors in aggregate. The assumed distribution between classes should be based on actual experience if available, recognizing shifts in distribution that may be expected to occur toward any portions of the business that do not meet the self-supporting test in their own right.”

- A. The combination of the base policy and rider is subject to the relevant tests for the combination to meet the requirements of the Model and the ASOP. Some actuaries would test riders independently while others would perform the tests in aggregate with the base policy forms to which they are attached. If a rider and the base policy can pass the tests independently, they would not usually be tested in aggregate. However, if either the rider or the policy cannot pass the test independently, many actuaries would test them together. As with all policies which have flexible benefits, actuaries frequently consider the expected utilization of riders, as well as possible shifts in utilization. When testing the combination of a policy and a particular rider, these actuaries would often use experience assumptions reflecting the combined benefits. For example, the addition of a term rider may force more stringent underwriting and thus higher expenses and lower mortality. Actuaries often consider such possible interaction when determining assumptions to be used in testing.

For some types of riders and supplemental benefits, such as waiver of premium or children’s term coverage, the benefits are not explicitly included in the illustration. These types of riders typically either increase the illustrated premiums without any increase in illustrated benefits (a typical participating whole life illustration) or they may reduce illustrated benefits with no reduction in illustrated premiums (a typical universal life illustration). Since these riders are typically conservatively priced, it would be unusual for their inclusion to cause an illustration to fail the lapse or self-supporting tests. These types of benefits typically have no cash values or benefits which can be elected by policy owners, so the self-supporting and

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lapse support tests become tests of whether accumulated cash flows under these benefits are positive. Many actuaries believe it is not necessary to test such riders explicitly.

Q. What practices are utilized by actuaries to recognize “shifts in distribution that may be expected to occur toward any portions of the business that do not meet the self-support test in their own right,” as required by ASOP Section 5.3.2 ?

Pertinent Section of the ASOP:

Section 5.3.2 In performing the self-supporting test for a policy form, the illustration actuary may test the underwriting classification and policy owner choice factors in aggregate. The assumed distribution between classes should be based on actual experience, if available, recognizing shifts in distribution that may be expected to occur toward any portions of the business that do not meet the self-supporting test in their own right.

A. If self-support tests are run on cells representing different combinations of underwriting classifications and policyowner choice factors, it may occur that some cells pass while others do not. When combining such cells to produce an aggregate test, it is usually necessary to make assumptions as to the distribution of business among classes. For a newly developed policy form, it is common practice to use assumptions based on experience of similar policy forms and judgment. However, if the cells are not equally profitable, the Standard requires the illustration actuary to assume a reasonable shift in distribution toward portions of the business which are not self-supported.

For self supporting tests of an existing policy form, the actuary may look at actual underwriting classification distributions and actual distributions of policyowners choice factors. Again, if cells are not equally profitable, many actuaries would assess the credibility of assumptions based on actual data and determine the amount, if any, of additional shifting of business toward portions which are not self-supporting that may be expected.

Q. With respect to the self-support and lapse support tests, does the term *accumulated cash flow* mean *asset share*? Are reserves part of this cash flow?

Pertinent sections of ASOP:

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Sec 5.3.2 "...at every illustrated point in time..., the accumulated value of the policy cash flows, using the disciplined current scale and its underlying assumptions, should be equal to or greater than the illustrated policy owner value, i.e., the cash surrender values and any other illustrated benefits available..."

A. ASOP No. 7 defines a "cash flow" as "any receipt or disbursement of cash." Increases and decreases in reserves are thus not cash flows. ASOP No. 24 appears to use the term "cash flow" consistently with ASOP No. 7.

Most actuaries consider an asset share to be accumulation of cash flows. However, the assumptions used to determine the cash flows may be different for an asset share and a self-support or lapse support test. For example, the interest rate used to calculate an asset share (which would generally be based on the expected investment return on accumulated assets) may not be equivalent to the interest rate required for the tests (which is a level earned interest rate factor based on recent historical experience). The asset share lapse rate assumption is unlikely ever to be zero.

Q. The self-support and lapse-support tests as defined in the *Model* and the Standard of Practice require that, for all illustrated points in time, accumulated cash flows be no less than the total policy owner value available. If product pricing is normally done on a calendar-year basis, may these tests be done on a calendar-year basis or must a policy-year basis be used?

Pertinent Sections of ASOP:

Section 5.3.2 "As specified by the *Model*, the illustration actuary should use the following self-support test: at every illustrated point in time starting with the fifteenth policy anniversary (with the twentieth policy anniversary for second-or-later-to-die policies), the accumulated value of the policy cash flows, using the disciplined current scale and its underlying assumptions, should be equal to or greater than the illustrated policy owner value, i.e., the cash surrender values and any other illustrated benefit amounts available at the policy owner's election."

Section 5.3.5 "This additional test requires that the policy form in question be self-supporting under the same assumptions and with the same level of aggregation as described in section 5.3.2, changing only the persistency assumption."

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- A. According to the *Model* and the Standard of Practice, the accumulated cash flows must not be less than total policy owner values at points shown in the illustration on or after the 15th anniversary.

This indicates that policy-year cash flows probably should be used if policy-year values are illustrated.

However, the illustration actuary may be able to demonstrate that the illustration passes the self-support and lapse-support tests using calendar-year cash flows in the calculation. This might require an analysis of how calendar-year values relate to values at “illustrated points in time.”

- Q. If it is company practice to distribute current investment earnings on surplus in the dividend scale annually, how can this be reflected in the self support and lapse support tests for new business and for in-force business?**

Pertinent Sections of the ASOP:

- Section 5.3.2. second paragraph — “... the illustration actuary should use the following self-supporting test: at every illustrated point in time starting with the fifteenth policy anniversary, (with the twentieth policy anniversary for second or later to die policies), the accumulated value of the policy cash flows, using the disciplined current scale and its underlying assumptions, should be equal to or greater than the illustrated policy owner value...”
- Section 5.3.6. last paragraph — “In the context of in-force illustrations, distributions of accumulated surplus or prior gains to an in-force policy block may be included in the disciplined current scale and in non-guaranteed elements to be illustrated to the extent that such distributions are (1) currently being paid to the policy owners by the insurer, and (2) there is the intent and ability to continue to do so. Such distributions may be used in conducting the tests for self-support and lapse-support.”
- Section 6.1.c The certification should contain ...” a statement as to whether illustrated non-guaranteed elements for new and in-force policies are consistent with the non-guaranteed element amounts actually credited or charged to the same or similar forms.”

- A. For in-force policies the ASOP specifically permits distribution of accumulated surplus or prior gains, and hence distributions of investment income earnings on surplus, to be used in conducting the lapse support and self-supporting tests. The income supporting such

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distribution is presumably allocated to policy form and by duration consistent with actual company practice in distributing the income in the dividend scale and considering the company's ability and intent to continue this practice.

ASOP No. 24 does not address whether this kind of distribution may be included in illustrated dividends for new business. Both the Model and the ASOP instruct the actuary to disclose any inconsistency between illustrated non-guaranteed elements and non-guaranteed elements actually paid. In order to preserve consistency between paid and illustrated non-guaranteed elements, many actuaries would reflect the company's actual practice for distributing investment earnings on surplus in illustrations for new business as well as in-force. The ASOP criteria of "intent and ability to continue" would presumably apply. Thus for new business, it could be acceptable to include such a distribution of investment income on surplus in the accumulated policy cash flows for the self-supporting and lapse support tests, but only to the extent the policy form would accumulate surplus, and thus investment income on surplus, under projections using the disciplined current scale and its underlying assumptions. Again, such investment income could be included as policy cash flows to be accumulated in conducting the lapse support and self-supporting tests.

If the actuary decided not to include this distribution in determining the illustrated scale for either new business or in-force policies, then the actuary would be required by the Model and the Standard of Practice to disclose the inconsistency between illustrated non-guaranteed elements and the non-guaranteed elements actually credited or charged to the same or similar forms.

The subject of this question is dividends; the answer would be similar for other types of non-guaranteed elements if they reflect past earnings.

Q. For a bonus or other benefit dependent upon qualification standards:

- 1. Are policyholders who disqualify themselves in years one through five considered in the lapse-support test?**
- 2. What premium payment pattern should be assumed in performing the lapse-support test?**

Pertinent Section of the ASOP:

Section 5.3.5: The Model prohibits illustration of non-guaranteed elements that are deemed to be lapse-supported, and establishes an additional test to demonstrate compliance with this requirement. This additional test requires that the policy form in question be self supporting under the same assumptions and with the same level of aggregation as described in section 5.3.2, changing only the persistency assumption. The modified persistency rate assumption will use persistency rates underlying the disciplined current scale for the first 5 policy years

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and 100% policy persistency thereafter. Where benefits are conditional upon policy continuation or certain premium payment patterns, the lapse-support test should be constructed under the assumption that all policies in force at the end of year five and surviving to the date of such benefits will qualify for these benefits.

- A. Section 5.3.2 requires that the Illustration Actuary perform the self-supporting test reflecting the expected premium payment pattern of the policy form in question. Section 5.3.5 states that normally only the persistency assumption should be changed for the lapse-supported illustration test. Section 5.3.5, also gives further direction to handle the lapse support test in situations where benefits, such as a bonus, are conditional upon policy continuation or certain premium payment patterns. Under the Model, the test is to be constructed so that all policies in force at the end of year five and surviving to (i.e., not dying before) the date of benefits qualify for the benefits. Assuming that the benefit would be paid even if conditions are not met would be seen by many actuaries as inappropriate. One way to overcome this problem may be to assume that all surviving policyholders meet the terms of the conditional benefits, for example, by assuming a premium payment pattern for all survivors that satisfies the benefit conditions. Alternatively, a lapse-support test could be constructed by assuming all policyholders who survive to the end of the fifth policy year qualify for the bonus even though they do not pay the required premium payment pattern or meet the conditions required for the bonus. Many actuaries would consider this a very conservative test of the non-lapse-support requirement. The actuary may be able to develop other demonstrations which show the sufficiency of cash flows under the assumption that all policyholders who survive to the fifth policy year receive the conditional benefits.

If the policy has such conditional benefits, some actuaries would feel it is appropriate, in addition to the tests discussed above, to also perform the basic lapse-support test described in Section 5.3.5, using the self support test with the expected premium payment pattern and substituting 100% persistency after the fifth policy year.

- Q. The illustrated cash value must not be greater than the lesser of the DCS cash value and the currently payable scale cash value at any duration. Does this mean that each illustrated cash value must be compared to the DCS and the current scale at each duration? If the DCS or the current scale forces a lower illustrated value, must this lower value be used in the roll forward calculation of future illustrated cash values?**

Pertinent Sections of Model:

Section 4.G “Illustrated scale” means a scale of non-guaranteed elements currently being illustrated that is not more favorable to the policyowner than the lesser of:

- (1) the disciplined current scale; or
- (2) the currently payable scale.”

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Section 4.F (2) “ ‘Non-guaranteed elements’ means the premiums, benefits, values, credits or charges ... that are not guaranteed or not determined at issue.”

Pertinent Section of ASOP:

Sec 5.3.1 "The illustrated scale must not be more favorable to the policy owner than the currently payable scale at any duration. In addition, the illustrated scale must meet the requirements of a disciplined current scale..."

A. To meet the requirements of the ASOP and the regulation, it would generally be acceptable to determine each scale (i.e., illustrated, DCS, and current) independently and make the required comparisons at each duration. However, the actuary could develop an illustrated scale that is itself a DCS, so that no DCS comparison would then generally be necessary. Similarly, the factors underlying the illustrated scale could be chosen so that the illustrated values are always less than or equal to the current scale as well as the DCS. In these cases, at the point of illustration, a duration-by-duration comparison would generally not be necessary.

The ASOP and the regulation require that the illustrated value not be more favorable than the DCS and the current scale at each duration. It does not explicitly address how the illustrated values are to be calculated. Thus, if the approach actually used requires a duration by duration comparison for each illustrated value, it would generally not be necessary to use the lower value (due to the comparison) in the roll forward calculation of future illustrated values

Q. Should the policy cash flows used for the self-support and lapse-support tests include policy loans, loan interest and loan repayments?

Pertinent sections of the ASOP:

ASOP Sec 5.3.2 ...Policyowner choices reflected in the preparation of the illustration include, but are not limited to, the size of the policy, premium payment patterns, dividend options, riders and policy loans.

In performing the self-supporting test for a policy form, the illustration actuary may test the underwriting classification and policyowner choice factors in aggregate. The assumed distribution between classes should be based on actual experience available, recognizing shifts in distribution that may be expected to occur toward any portions of the business that do not meet the self-supporting test in their own right.

A. ASOP Section 5.3.2 lists policy loans as an example of a policyowner choice factor that should be considered when performing the self-support and lapse-support tests. ASOP No. 7

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defines cash flow as “...any receipt or disbursement of cash”. Thus, cash policy loans, repayments and the cash payment of loan interest would all appear to be examples of items that would be included in policy cash flows. Capitalization of loan interest and premium loans would generally not appear to be examples of policy cash flow (although the occurrence of these activities may ultimately affect cash flow by affecting cash values or cash premium receipts).

Section 5.3.2 goes on to say that the actuary may test policyowner choice factors in the aggregate, assuming a distribution between classes based on actual experience available, recognizing shifts in distribution that may occur toward non-self supporting cells. With policy loans, many actuaries will consider whether the use of these options would cause an illustration to fail a test. For example, if policy loan options provide an earnings spread that is greater than the one that would be provided by the DCS earned interest factor, many actuaries would conclude that policy loan cells could be ignored for the purpose of the aggregate tests. Low volumes of policy loan activity would also be a consideration.

On the other hand, some contracts provide, for example, a “zero-cost loan” (i.e., one that provides no spread between the loan rate and credited rate). If actual experience shows the volume of such loans to be high, many actuaries would reflect these loans in performing the aggregate tests given the possibility that these cells may cause the policy form to fail the tests.

If the actuary determines to reflect loan activity, the actuary may do so by directly modeling test cells with explicit assumptions for policy loan patterns and repayments. But there may be other simplifying approaches that the actuary could take. For example, the actuary possibly could reduce the earned interest rate factor, to reflect an assumed portion of the assets that earn policy loan interest rates rather than reflecting policy loans directly. Actuaries may develop other simplifying approaches as well.

Q. Suppose a company sells a two-tier life product, e.g., a product which offers a higher cash earned value if the policyholder upon lapse receives that amount in periodic payments. How are the self-support and lapse-support tests applied to these illustrated benefits?

A. Some actuaries might reflect this “dual election” situation in one model, which may be complex to build. Other actuaries might use two separate models. One model would assume 100% of eligible persisting policyholders elect illustrated annuity benefits at each successive duration. The second model would assume 100% of the persisting policyholders elect the cash surrender values at each successive duration. If the policy form passes the tests in both

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models, the actuary may be satisfied that the policy form would pass the tests under any combination of the two available benefit elections.

Several techniques may be used to calculate the “value” of the illustrated annuity benefits for those policyholders electing the benefit at any single duration:

Some actuaries may use a Present Value Method. They would calculate the present value of future periodic payments the policyholder would receive, including related expenses. This present value calculation relies upon the Model’s requirement to discount based on the factors underlying the disciplined current scale. If the accumulated cash flow is larger than this present value, the illustrated benefits generally would be considered to pass the tests for elections made at that duration. Other durations would be tested in a similar fashion.

Other actuaries may use the Full Cash Flow Method. This method projects the accumulation of the cash flows as the illustrated benefits and expected expenses are subtracted. At the end of the projection period, if the accumulated cash flow is positive, the tests generally are passed for the elections made at that duration. Other durations would be tested in a similar fashion.

Still other actuaries might simply compare the accumulated cash flows to the reserves, account value or similar values. They may consider these values to represent the present value of future benefits. In applying this method, the actuary may want to consider that the illustrated benefits (the periodic payments) are required by the Model to be supportable on the factors underlying the disciplined current scale.

Since the factors underlying the disciplined current scale are used for both methods, the Full Cash Flow Method usually is actuarially equivalent to the Present Value Method. The Full Cash Flow Method typically provides additional information about the incidence of benefits on a year by year basis.

Q. With regard to policies in force one year or more, how will illustration actuaries decide when they need to develop a new DCS and test whether an illustrated scale meets the self-support and lapse-support tests?

Pertinent sections of the ASOP:

ASOP Sec 5.3.6 - The illustration actuary may certify that a scale...is in compliance...if the following apply:

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- a. the currently payable scale has not been changed...and...experience does not warrant changes less favorable to the policyowner...or
- b. the currently payable scale has been changed...only to the extent that changes are reasonably consistent with changes in experience assumptions underlying the disciplined current scale, or
- c. the currently payable scale has been made less favorable...and the change is more than current experience would necessitate.

If none of the conditions in a), b) and c) above is met, the illustration actuary should review and revise the experience factors...to a new disciplined current scale.... The illustrated scale must meet the self-support and lapse-support tests...

- A.** Section 5.3.6 of ASOP No.24 stipulates conditions whereby the illustration actuary can certify compliance without having to re-perform the self-support and lapse-support tests. To meet these conditions, the illustration actuary compares changes in the currently payable scale since the last certification to changes in the experience assumptions underlying the DCS since the last certification. Generally, so long as any change to the currently payable scale is not relatively more favorable to the policyholder than the change in the experience underlying the DCS, the illustration actuary may certify compliance without performing the tests.

ASOP No.24 does not specifically address how these comparisons should be made in practice. This ASOP also does not address how currently payable scales (or changes to currently payable scales) are to be determined. ASOP No.1 and ASOP No.15 provide guidance in the determination of currently payable scales.

The application of this provision is fairly straightforward in the simple case where it's the company's practice to have the DCS, the currently payable scale, and the illustrated scales all be equal. In these situations, many actuaries would just satisfy themselves that any change to the illustrated scale was not more favorable to the policyholder than the change underlying the DCS experience. Once satisfied, no self-support or lapse support tests would generally be necessary. For example, if the underlying DCS earned interest factor decreased by 50 basis points, then many actuaries would apply ASOP Section 5.3.6 if the interest rate factor used in the illustrated scale was also reduced by 50 basis points or more.

The more general situation (where scales are not all equal) may be more complex. In particular, the currently payable scale may have a completely different basis with different values compared to the DCS or the illustrated scale. In these situations, the actuary may want to first determine how to apply the "safe harbor" [Ed. note: What does this refer to?] and then determine how this translates into the changes needed (if any) to the inforce illustrated scale.

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Changes in the currently payable scale are often arrived at by developing new factors that are directly used in formulae to generate the new currently payable scale. For example, a new interest rate factor may be plugged into the dividend formula for a participating policy or into the account value calculation for a universal life policy. In applying ASOP Section 5.3.6, the illustration actuary may be able to make a direct comparison of these underlying factor changes with the corresponding changes to the experience underlying the DCS, just as described above in the simple case.

In other cases, the changes to the underlying factors may not be as easily compared. Changes may affect multiple factors in different ways so that conclusions cannot be drawn from a comparison of individual factors. Or currently payable scale factors may not correspond directly to the DCS experience factors. For example, a change to the premiums in an indeterminate premium plan may reflect a blend of underlying assumption changes. Or a universal life account value formula may reflect underlying expenses in the cost of insurance charge instead of in an explicit expense factor. In these cases, many actuaries might use various other methods to determine whether the changes were reasonably consistent. The actuary may be able to compare the *assumptions* that underlie the change in the currently payable scale to those underlying the DCS, even though those assumptions do not directly enter into the currently payable scale formula (i.e., the underlying assumptions could be those used to empirically arrive at the currently payable scale in a profit study or cash flow test). Another approach would be to generate a new DCS based on the new underlying factors and compare changes to the DCS to the changes in the currently payable scale. Still another approach would be to develop a hypothetical currently payable scale based on the new assumptions underlying the DCS and to then compare this hypothetical scale to the actual currently payable scale.

In these more complex cases, once ASOP Section 5.3.6 is satisfied, the actuary may determine how the illustrated scale is to be changed. While the self-support and lapse-support tests do not have to be performed, under the Model Regulation the illustrated scale still must not be more favorable than the lesser of the DCS and the currently payable scale. To ensure this, many actuaries would modify the current DCS to consistently reflect the changes in the underlying DCS assumptions and make the required illustrated scale comparison using the new currently payable scale and the revised DCS. Alternatively, the actuary may be able to conclude that the illustrated scale itself will satisfy the required relationships to the currently payable scale and the DCS by making consistent changes to the factors underlying the illustrated scale.

Finally, some actuaries may be able to avoid or delay additional testing on inforce blocks by designing the original DCS on a more conservative basis. For example, the DCS may be based on a 7% earned interest rate, even though recent experience would call for an 8% rate.

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In this case, ASOP Section 5.3.6 could be applied so long as the interest spread was greater than or equal to the original spread, using the 7% earned rate.

Q. For inforce illustrations, once it is determined that the self-support and lapse-support tests must be re-performed, how is actual past experience-to-date to be reflected?

Pertinent sections of the ASOP:

ASOP Sec 5.3.6 ...The illustrated scale must meet the self-support and lapse-support tests...using actual experience and actual paid scales of nonguaranteed elements from the date of issue to the present and a scale not greater than the disciplined current scale from the present forward.

In the context of in-force illustrations, distributions of accumulated surplus or prior gains to an in-force policy block may be included in the disciplined current scale and in non-guaranteed elements to be illustrated to the extent that such distributions are (1) currently being paid to the policyowners by the insurer, and (2) there is the intent and ability to continue to do so. Such distributions may be used in conducting the tests for self-support and lapse-support.

A. In practice, many companies will likely maintain currently payable scales consistent with changes in the underlying DCS. This will allow them to satisfy conditions set forth in ASOP Section 5.3.6 and avoid the complexity involved in re-performing the tests on inforce policy blocks. If testing is required however, section 5.3.6 of the ASOP requires that past actual experience and actual paid scales of nonguaranteed elements from the date of issue be used for the policy form being tested. The accumulated cash flows so generated may be supplemented by accumulated surplus or prior gains in order to project future accumulated cash flows in conducting the self-support and lapse-support tests using the current DCS. In practice, past cash flows may be calculated by the illustration actuary in various ways.

First, the ASOP allows for the aggregation of various assumptions for the purpose of performing the self-support and lapse-support tests. An inforce block of policies may represent a wide range of issue years with varying sales mixes, experience, policyowner choice factors and other factors. The actuary may need to make various aggregation assumptions in order to reasonably model and re-test an inforce block of business.

Actual past experience may be reflected in various ways. One way used by some actuaries would be to maintain a history of the experience factors underlying the DCS and to use these factors to generate a historical cash flow model. Other actuaries may maintain an ongoing historical policyholder surplus account (e.g., participating policyholder surplus accounts used for determining dividends) that could be nominally segregated by the appropriate inforce policy blocks so that the current account balance represents the accumulated value of past

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experience and paid non-guaranteed elements. These balances could be used as the starting accumulated cash flow that, along with the current DCS, is used to project future accumulated cash flows.

Q. How are reinsurance arrangements treated in developing a disciplined current scale and performing the self-support and lapse-support tests?

Background

Many different types of reinsurance arrangements exist in the marketplace today, including the following:

1. Reinsurance arrangements where the reinsurer acquires a significant portion of the direct insurance issued for one or more policy forms. These arrangements can be made for a large percentage of the insurance, typically 50% to 100% of the business, on an automatic basis, and the ceding company may be dependent on the reinsurer for some of the pricing assumptions underlying the business. The arrangements can be structured with expense allowances that are not directly related to the ceding company's direct expenses. Reinsurance charges may be guaranteed or non-guaranteed.
2. Reinsurance arrangements can be structured where individual cases are ceded to a reinsurer at lower net cost than the cost the ceding insurer would have on the business and where it is financially advantageous for the ceding company to reinsure the case.
3. Arrangements, which may or may not be classified as reinsurance, where the "ceding company" directly issues the product of the "reinsurer," using the ceding company's policy form(s). In these cases, it is possible that the reinsurer may directly be responsible for the pricing, administration, and valuation of the business and the ceding company does not participate at all in the business.

These types of arrangements (and others) may present the illustration actuary with problems with respect to the Model Regulation and the Standard of Practice in that the accumulated value of cash flows are dependent on the assumptions the reinsurer uses to price the business.

Pertinent Sections of the Regulation:

Section 6, Part B When using an illustration in the sale of a life insurance policy, an insurer or its producers or other authorized representatives shall not ... (9) ... use an

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illustration that is "lapse supported" or (10) ... use an illustration that is not "self-supporting."

- Section 11, The board of directors of each insurer shall appoint one or more illustration actuaries.
Parts A and B The illustration actuary shall certify ... that the illustrated scales ... meet the requirements of this regulation.

Pertinent Sections of ASOP:

- Section 6.1 The illustration actuary should certify annually ... stating that the scales used in illustrating non-guaranteed elements are in compliance with the requirements set forth in the *Model*.
- Section 5.3.3 As used in this standard, *actual experience of an experience factor class* means experience and past trends in experience to the extent that such experience is current, determinable, and credible.

A. Several issues can be discussed with respect to reinsurance, including the following:

1. Who may appropriately serve as illustration actuary for a policy form when reinsurance make the policy cash flows dependant on reinsurance experience to a large extent?
2. Are cash flows related to a reinsurance arrangement "assumptions underlying the insurer's disciplined current scale?"
3. How are reinsurance cash flows and the reinsurance arrangement taken into account in performing the self-support and lapse-support tests?

The Model Regulation requires that the illustrated scale of each illustrated policy form meet the requirements of the regulation, and that the company board of directors appoint an illustration actuary to certify to that effect. This is required regardless of any reinsurance arrangement. Neither the Model Regulation nor the Standard of Practice requires that the illustration actuary be an employee of the direct writing company, and it is possible that the company might appoint an illustration actuary who is a consultant or an employee of the reinsurance company, subject to the conflict of interest provisions of the Code of Professional Conduct. The terms and responsibilities of the reinsurance arrangement may serve as a guide to the board in appointing an illustration actuary for the policy form.

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For some reinsurance arrangements, the terms of the treaty may also provide insight in structuring the cash flows for the self-support and lapse-support tests. The reinsurance arrangement may provide guarantees regarding the nature of cash flows between the ceding company and the reinsurer. In this case, many actuaries would agree that cash flows specified by the reinsurance arrangement may reasonably be included in the self-support and lapse-support tests. If cash flows are not guaranteed, it usually will be necessary for the illustration actuary to exercise judgment to determine the use of reinsurance cash flows in the tests. Many actuaries would use such cash flows if they could convince themselves (for example, by examining the language of the agreement and the reinsurer's past history with respect to similar arrangements) that the reinsurance cash flows represent best estimates of future cash flows under the constraints set forth by the Model and the Standard (e.g., no projection of mortality improvement). If not, then such actuaries might consider adding some conservatism to the reinsurance cash flows. Also, some actuaries might take into account the long-term ability of the reinsurer to assume such risks before utilizing reinsurer cash flows.

The degree of conservatism may depend on whether the inclusion of reinsurance cash flows is necessary in order to pass the self-supporting and lapse support tests. If such inclusion is essential, many actuaries would be inclined to review the reinsurer's contractual responsibilities in light of the risks implied by the tests, and to adopt a conservative stance.

Several possible arrangements might exist between the ceding company and the reinsurer about sharing data regarding a policy form that is reinsured. Depending on the circumstances, the illustration actuary may need to rely on information from one or both companies to structure the accumulated value of cash flow testing for the regulation. There may be cases where it is appropriate to use data from both the ceding company and the reinsurer in developing assumptions underlying the disciplined current scale. In performing the self-support and lapse-support tests, ASOP No. 23, *Data Quality*, may be helpful.

There are several appropriate actuarial practices that could exist with such reinsurance arrangements:

1. The reinsurance arrangement could be taken as an integral part of the accumulated value of cash flows for the self-support and lapse-support tests. Many actuaries would consider this appropriate if the reinsurance is automatic and the cash flows of the arrangement are guaranteed.
2. The reinsurance agreement could be reduced to a net reinsurance cost (or benefit), perhaps on an underwriting class, issue age, and/or durational basis for the purposes of accumulating the cash flows of the policy form. The illustration actuary might

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consider this appropriate if the reinsurance eliminates certain risks entirely (e.g., certain classes of substandard risk) and can easily be estimated as a net cost. If the reinsurance is determined to be a net benefit to the ceding company and will exist only on a small part of the insurance issued on the policy form, many actuaries would consider it reasonable to ignore the reinsurance for the purposes of the tests.

3. The reinsurance cost could be calculated or estimated on an overall basis and considered part of the "general business expense" of the ceding company and allocated in a similar manner to general overhead. The illustration actuary might consider this appropriate if the ceding company is not directly participating in the risk.

Of course, some combination of the above actions might be appropriate or other practices might fit the particular circumstances.