

**1987 VALUATION
ACTUARY HANDBOOK**

Appendix 4

**A Summary of the Postions of Various Industry
Groups with Regard to the Valuation Actuary
Concept as of January 1987**

- Section 4.1** Excerpts from the Report of the Task Force on the Valuation Actuary to the ACLI Board of Directors, August 1986
- Section 4.2** Final Report of the Joint Committee on the Role of the Valuation Actuary
- Section 4.3** Preliminary Report to NAIC Life and Health Actuarial Task Force from Surplus and Solvency Subcommittee of NAIC Standing Technical Advisory Committee October 9 & 10, 1986
- Section 4.4** Draft Recommendation 7 (American Academy of Actuaries paper)

Appendix 4

Section 4.1 Excerpts from the Report of the Task Force on the Valuation Actuary to the ACLI Board of Directors, August 1986

Section 1: Introduction

The Task Force on the Valuation Actuary was established upon the recommendation of the ACLI-HIAA Joint Task Force on Insolvency Prevention. The ACLI Board of Directors, at its meeting on May 7, 1985, approved the recommendation of the Task Force on Insolvency Prevention that "the concept of a 'valuation actuary' should be supported as an important contribution toward developing means to reasonably assure solvency of companies and a special Task Force should be created to study this concept in more detail."

This recommendation was one of six that had been presented by the Task Force on Insolvency Prevention. All were approved by the Board except for a recommendation relating to the regulation of the quality of assets. The Task Force felt that such regulation should not be supported as an insolvency prevention measure since it could lead to over-regulation and to objectionable investment restrictions. However, the Board felt that the subject of the quality of assets should be included in the further discussion of the concept of the valuation actuary.

The Task Force has held several meetings to explore the concept of the valuation actuary, its origin, its progress, its limitations, and the nature of the concept that should be supported by the ACLI as a means to help ensure solvency. This report presents the conclusions of the Task Force and its recommendations for ACLI action.

In its discussions, the Task Force felt it should consider the issue from an industry standpoint and should not become involved in the technical aspects, which should be left largely to the actuarial profession. It has addressed the issue from a management perspective and from the standpoint of the industry's and a company's relationship with the regulatory authorities. The Task Force's objective has been to recommend a course of action that will enhance the prospects that the concept of the valuation actuary will develop in a form that the industry can support. It believes that the timing of any ACLI actions on the subject will be influenced heavily by activities of other interested parties such as the NAIC.

NOTE: Sections 2 through 5 of the Report have been edited and are incorporated in Chapter 1 of this Handbook as Sections 2 through 4.

Section 6: Industry Issues considered by the Task Force

In separating the powers and obligations that are related to the concept of the valuation actuary, the Task Force identified three major areas which might

be addressed by the ACLI, namely, qualification standards, standards of practice, and regulatory obligations imposed on insurance companies.

Qualification standards for valuation actuaries would be determined both by the actuarial profession and by the regulatory authorities. Presumably, the ACLI's concern, whether addressed to the profession or to the regulators, would be that the standards be neither too lenient nor too onerous. The Task Force recognized that, for qualification standards to have any real meaning, they would ultimately have to be enforced by regulatory requirements, and therefore the ACLI would need to have a position in this area when such standards are proposed.

Standards of actuarial practice specify the methodology and scope of the work to be done by actuarial practitioners. These standards originate within the actuarial profession and any ACLI recommendations pertaining to them should properly be addressed to the standards-setting bodies of the profession. This would be somewhat analogous to the ACLI's making presentations to the Financial Accounting Standards Board and other accounting bodies that are deciding the standards of practice which shall govern practicing public accountants.

The regulatory obligations applicable to insurance companies would include the obligation to appoint a valuation actuary, and the regulatory definition of the scope of the job which the valuation actuary must perform. Within this latter area, the Task Force identified a number of questions involving the power and

responsibilities of the valuation actuary and the relationship of those powers and responsibilities to the management and control of life insurance companies. These are discussed in the following paragraphs.

Appointment of Valuation Actuary

The Task Force concluded that, if the concept of the valuation actuary is to make an important contribution toward assuring solvency of companies, the valuation actuary must not be a mere technician. Rather, the valuation actuary must be a part of, or in the confidence of, the company senior management, and the company's Board of Directors must take responsibility for his or her appointment. This could be accomplished by means of a regulatory requirement that the Board of Directors either appoint a valuation actuary for the company or designate a top-ranking management official to appoint one, and to notify the state regulatory authority of such appointments or changes in previous appointments. The valuation actuary would be an employee or consultant just like any other employee or consultant, but charged with the special duty to test the company's reserves and to file a public statement of opinion with the regulator as to the adequacy of the company's reserves. The public opinion on reserve adequacy would be required by regulation.

It is highly desirable that the valuation actuary be an employee of the company, because of the need to know the details of the company's operations and management's future plans. There may, of course, be some companies that will not have valuation actuaries on their staff who may wish to employ a consulting actuary to be the company's valuation actuary. It would be inappropriate for an independent actuary functioning in the capacity of an

auditor to be designated as the company's valuation actuary, although some companies might wish to hire an independent actuary to audit the work of the valuation actuary. In this capacity, the independent actuary doing the audit would not express an opinion on the reserves, but rather would comment on whether or not the work of the valuation actuary conforms to accepted actuarial standards of practice.

Responsibility of the Valuation Actuary

The Task Force recognized that the valuation actuary's responsibility must be related to his or her authority. The valuation actuary is responsible for analyzing risks and advising management as to those within his or her area of expertise. This responsibility is the same as that of any other company employee or consultant who advises the company management as to subjects within the employee's or consultant's area of responsibility. It was recognized that the valuation actuary has no special responsibility for the failure of company management to heed the actuary's advice. As far as mismanagement of the company is concerned, such an inappropriate matching of the cash flows of assets and liabilities, the valuation actuary is responsible for reporting to management on the potential implications of such inappropriate matching as it relates to the reserves for the risks about which the actuary expresses an opinion.

Quality of Assets

Ultimately, the valuation actuary should take into account, in forming an opinion on reserves, the effect of the quality of assets on future cash flows based

on information furnished by experts as to asset quality. However, the actuarial profession has not yet developed any generally accepted methodology and techniques for taking quality of asset information into account in determining the adequacy of reserves. Until such generally accepted methodology and techniques exist, and are codified in standards of professional practice, it would be inappropriate for regulators to require the valuation actuary to make any comments as to the effect of quality of assets on the adequacy of reserves.

Reliance on Opinion of Others

Within the standards of professional practice, the valuation actuary should be able to rely on the opinions of other specialists such as those involved in investments, taxes, reinsurance, etc., or on the opinions of other valuation actuaries, unless other information leads him or her to believe that these opinions are questionable. In that case, he or she should investigate further.

Malpractice Considerations

With increased reliance and responsibility placed on the valuation actuary, there is an increased likelihood that the valuation actuary may be sued for malpractice in the case of an insolvency. Another possibility is that the directors and officers of an insurance company that becomes insolvent may be sued for not heeding the valuation actuary's advice. The liability risks involving the expanded powers and duties of the valuation actuary appear to be similar to those involving other expert professional advice to insurance company boards of directors and other public expressions of professional opinion.

Specific Scenarios of Future Events

The Task Force agreed that the ACLI should not oppose any reasonable regulatory requirements for a minimum number of specified scenarios of future events to be tested by the valuation actuary. It saw two principal advantages to the regulators and valuation actuaries in such requirements. First, the regulators could be assured of some standardization of reporting from the myriad of companies that they must supervise. Second, the requirement for a minimum number of specified scenarios would give the valuation actuary the comfort, from a regulatory point of view, of a safe harbor in deciding what scenarios to test, although professional standards of actuarial practice might require additional scenario testing.

Surplus Management

Some of the proposals being discussed by the actuarial profession envisage the valuation actuary expressing opinions on the adequacy of the company's surplus to meet extreme risk fluctuations, to finance new business, or for other purposes. Some suggest these opinions be made publicly, while others suggest they be in the form of internal reports to company management. This is another area where there does not yet exist generally accepted actuarial methodology or techniques. Therefore, the valuation actuary should not be required by the regulators to give any opinion on the adequacy of a company's surplus. Such an opinion could lead to a new form of potential business liability for a company's directors if they took actions which did not seem to be supported by the actuary's opinion as to the adequacy of the company's surplus.

Further, the Task Force feels strongly that the concept of the valuation actuary should not be a device for regulators to have any greater involvement in the oversight of company surplus levels than they have today.

Cost of the Concept of the Valuation Actuary

Many companies have product lines where the volume of business or the nature of the risk is such that testing is not warranted. The Task Force recognized that the regulators and the actuarial profession may need to develop appropriate exceptions to the concept of the valuation actuary where the valuation actuary can demonstrate that, because of a company's operational scope, it does not require the same degree of testing as is necessary for other companies.

Section 7: Alternatives to the Concept of the Valuation Actuary

The Task Force considered whether the benefits to the public and the industry that might result from reduced insolvencies would make the introduction of the concept of the valuation actuary preferable to other alternatives. The Task Force is convinced that the status quo with regard to regulation of life insurance company insolvencies cannot continue. In the absence of additional preventative measures, there will be more insolvencies and greater assessments arising from unsound marketing practices in an industry that is characterized by ease of entry. An alternative that would force unsound competitors to pay a portion of the cost of their actions would be a prefunded assessment system that takes money from all insurers prior to the occurrence of insolvencies. Still another possibility is a federal guarantee of insurer solvency

along the lines of federal guarantees for depositors in banks and thrift institutions, which would likely bring with it federal regulation. To the degree that the concept of the valuation actuary can effectively aid in reducing the number or size of insolvencies, it would seem preferable to the preceding alternatives.

Section 8: Recommendations

After examining the concept of a valuation actuary as a means of helping to assure the solvency of insurance companies, the Task Force recommends that:

1. the ACLI generally support the strengthening of the role of the valuation actuary, by the profession and through regulatory requirements, to the extent that such strengthening does not infringe on proper management prerogatives or generate costs that are out of line with potential benefits;
2. the ACLI support regulatory requirements that would require life insurance company boards of directors to either appoint, or to designate someone to appoint, a qualified actuary who is an employee of the company or someone hired by the company to perform the duties of valuation actuary;
3. the ACLI support regulatory requirements that the valuation actuary make a public statement of actuarial opinion as to the adequacy of the reserves of a life insurance company;

4. the ACLI oppose any regulatory requirements that the valuation actuary report on the adequacy of surplus, and
5. the ACLI not oppose any reasonable regulatory requirements for the valuation actuary to test a minimum number of specified possible future scenarios in developing a statement of actuarial opinion on the adequacy of life insurance company reserves.

The ACLI's position with respect to the concept of the valuation actuary is based on an understanding that the concept would include the following conditions:

1. The regulatory authorities would be no more involved in the oversight of company surplus levels than they are at the present time.
2. There should be appropriate exceptions from testing requirements for products where the valuation actuary demonstrates that the volume of business or the nature of the risk indicates such testing is not warranted.
3. The development and imposition of standards of practice for determining the methodology and techniques used in developing an actuarial opinion should be determined by the profession.

We believe that the concept of the valuation actuary as defined above is one which would contribute toward reducing insolvencies among life insurance companies without interfering with proper management prerogatives. It might

also help to avoid redundant statutory reserve requirements. It should be understood that the concept of the valuation actuary is no panacea for all of the conditions or circumstances that contribute to life insurance company insolvencies. Rather, for those items affecting solvency that can be evaluated by actuarial means, its purpose is to assign responsibility to qualified valuation actuaries who will exercise their best professional judgments to determine the adequacy of life insurance company reserves. We believe that the concept of the valuation actuary contained in our recommendation does this and can be supported throughout the industry. We recommend its adoption as ACLI policy and we respectfully request that our Task Force, having completed its assignment, be discharged.

Arthur C. Cragoe, Franklin Life
John A. Fibiger, The New England
John A. Helms, Life Insurance Company of Georgia
Burton D. Jay, United of Omaha
R. B. Leckie, Manufactureres Life
Richard S. Miller, Tenneco Insurance
William G. Poortvliet, Metropolitan
R. Stephen Radcliffe, American United
Walter Shur, New York Life
Charles H. Stamm, CIGNA
Henry F. Scheig, Aid Association for Lutherans, Chairman

**CURRENT RESPONSIBILITIES OF ACTUARIES
IN CONNECTION WITH STATEMENT OF ACTUARIAL OPINION
IN STATUTORY ANNUAL STATEMENT
(BASED ON ANNUAL STATEMENT INSTRUCTIONS, AND RECOMMENDATIONS
AND INTERPRETATIONS OF AMERICAN ACADEMY OF ACTUARIES)**

1. The annual statement must contain the statement of a qualified actuary setting forth his or her opinion relating to policy reserves and other actuarial items. "Qualified actuary" means a member in good standing of the American Academy of Actuaries, or a person who has otherwise demonstrated his or her actuarial competence to the satisfaction of the insurance regulatory official of the domiciliary state. (Instructions, (1))

2. The statement of actuarial opinion should consist of a paragraph identifying the actuary; a scope paragraph identifying the subjects on which an opinion is to be expressed and describing the scope of the actuary's work; and an opinion paragraph expressing his or her opinion with respect to such subjects. One or more additional paragraphs may be needed in individual cases if the actuary considers it necessary to state a qualification of his or her opinion or to explain some aspect of the annual statement which is not already sufficiently explained in the annual statement. (Instructions, (2))

3. The opening paragraph should generally indicate the actuary's relationship to the company. (Instructions, (4))

4. The scope paragraph should contain a sentence to the effect that the actuary has examined the actuarial assumptions and actuarial methods used in determining policy reserves and related actuarial items. The paragraph should list those items and amounts with respect to which the actuary is expressing an opinion. The list should include, but not be necessarily limited to:
 - (i) Aggregate reserve for life policies and contracts (Exhibit 8).
 - (ii) Aggregate reserve for accident and health policies (Exhibit 9).
 - (iii) Net deferred and uncollected premiums.
 - (iv) Policy and Contract Claims - Liability End of Current Year. (Exhibit 11, Part 1). (Instructions, (5))

The actuary need not extend his or her review to items other than those specified in the Instructions, except possibly in instances where such items are computed by means of a long-term discounting of future payments which are dependent upon the occurrence of events in the future. Examples of such items might include additional reserves for optional modes of settlement at maturity, optional nonforfeiture benefits, additional reserves for excess mortality under group conversion policies, reserves involving life contingencies under separate account contracts, and reserves for group pension deposit type contracts. (Recommendation 7, (2))

The scope paragraph should indicate if the actuary has examined the underlying records or if he or she has not examined them but has relied upon listings and summaries of policies in force prepared by the company. (Instructions, (6) and (7))

5. The opinion paragraph should indicate that, in the actuary's opinion, the reserves and other actuarial items:

- (i) are computed in accordance with commonly accepted actuarial standards consistently applied and are fairly stated in accordance with sound actuarial principles,
- (ii) are based on actuarial assumptions which are in accordance with or stronger than those called for in policy provisions,
- (iii) meet the requirements of the insurance laws of the state of domicile,
- (iv) make a good and sufficient provision for all unmatured obligations of the company guaranteed under the terms of its policies,
- (v) are computed on the basis of assumptions consistent with those used in computing the corresponding items in the annual statement of the preceding year end,
- (vi) include provision for all actuarial reserves and related statement items which ought to be established. (Instructions, (8))

6. "Commonly accepted actuarial standards" and "sound actuarial principles" emerge from the utilization and adaptation of concepts described in actuarial literature. The actuary's judgment in developing the standards

for the actuarial computation must take into account the specific characteristics of the policies with respect to which the actuary is expressing an opinion. (Recommendation 7, (4))

7. A significant element in the examination of actuarial assumptions and methods is a consideration of the policy and contract provisions affecting the reserves or other actuarial items which ought to be established. (Recommendation 7, (5))

8. The actuary is expressing an opinion on the adequacy in the aggregate of all the enumerated reserves. Possible deficiencies for individual components of the total reserves may be offset by margins in other items. In most circumstances, the actuary may be able to form an opinion as to whether the conservative intent of the statutory provision has been met in the selection of valuation assumptions. Where there is evidence that the statutory reserves might not make good and sufficient provision for unmatured obligations, the actuary should make further tests (possibly by a gross premium valuation) before expressing an opinion. The results of a gross premium valuation are considered satisfactory for this purpose if the current reserve on the reserve basis being tested provides an appropriate margin over the excess of the then present value of future benefits and anticipated expenses over the then present value of future guaranteed gross premiums using assumptions selected as of the valuation date reflecting actual and anticipated experience. (Recommendation 7, (7))

9. If there has been any change in the actuarial assumptions or methods from those previously employed, that change should be described. The adoption for new issues of an actuarial assumption or method which differs from a corresponding one used for prior issues is not considered a change for the purpose of this requirement; neither is a change resulting from the periodic updating of experience data, such as for determining claim reserves. (Instructions, (9), and Recommendation 7, (8))

10. If the actuary is unable to form an opinion, the actuary should refuse to issue a statement of actuarial opinion. If the actuary's opinion is adverse or qualified, the actuary should issue an adverse or qualified actuarial opinion explicitly stating the reason(s) for such opinion. The language should indicate the actuary's estimate of the amount of reserve inadequacy. When appropriate, the actuary may identify specific reserve items which are inadequate. If the inadequacy exceeds statement surplus, the qualifying paragraph should so state. (Instructions, (10), and Interpretation 7-C, (2) and (3))

11. If the actuary does not express an opinion as to the accuracy and completeness of the listings and summaries of policies in force, there should be included the statement of a company officer or accounting firm who prepared the underlying data to the effect that the listings and summaries were prepared under the officer's or firm's direction and are accurate and complete to the best of the officer's or firm's knowledge and belief. (Instructions, (11))

The above wording is appropriate where the accounting firm maintains the company inforce inventory. However, the actuary should not indicate reliance on an accounting firm that acts solely as an auditor of the inforce inventory, since it is the intent of the Instructions that the actuary indicate reliance, if at all, on the person or firm directly responsible for maintaining the inforce. (Interpretation 7-A, (2))

12. An actuary stating an actuarial opinion in a Statutory Annual Statement is expressing a personal opinion for which the actuary takes full responsibility, except to the extent to which the opinion indicates reliance on other opinions. However, the actuary will ordinarily make use of other personnel to carry out assignments relative to the matters which the opinion covers. The actuary should not ordinarily indicate, in the opinion, reliance on such other persons. (Interpretation 7-A, (1))
13. Provision is made for splitting the statement of opinion between two or more actuaries in those cases where the financial reporting responsibility is divided among two or more actuaries. (Interpretation 7-A, (3))
14. The actuarial opinion deals with policy and contract liabilities and other actuarial items. Although the valuation bases of invested assets, and their yield, are matters to be considered in adopting reserve valuation assumptions, the statement requirement does not call upon the actuary to express an opinion with regard to the general assets of the company. The NAIC spells out the valuation bases for assets in some considerable detail, and it is expected that the actuary can rely on the company's valuation of

assets in accordance with those procedures, and the resulting yield in determining valuation interest assumptions. (Interpretation 7-B, (1))

15. In forming an opinion as to whether reserves "make a good and sufficient provision for all unmatured obligations of the company...", the actuary should evaluate the actuarial assumptions used by comparison with plausible sets of adverse circumstances and in relation to the time periods over which such circumstances can plausibly be expected to prevail. To hold reserves so great that a company could withstand any conceivable circumstances, no matter how adverse, would imply an excessive level of pricing of the insurance product, and good actuarial practice does not encompass such a degree of conservatism. (Interpretation 7-B, (2))

Attachment B

**ORGANIZATION OF THE ACTUARIAL PROFESSION
TO IMPLEMENT THE VALUATION ACTUARY CONCEPT**

The Joint Committee on the Role of the Valuation Actuary in the United States was established by action of the boards of the American Academy of Actuaries and the Society of Actuaries in December 1983. The Society is the professional body in the United States which is responsible for education and training of life insurance and pension actuaries who are then designated as "fellows" or "associates" of the Society. The Society also supports research in the development of practices for individual actuaries via committees, meetings, seminars, discussions and papers. The Academy is the body which supports the practicing actuary by setting standards of practice and discipline procedures. The Academy generally interacts with various regulators on subjects relating to actuaries.

The Joint Committee published its final report in February of 1985. This report included recommendations on the role of the valuation actuary and on principles for valuation of life insurance companies. The Joint Committee's role now is to coordinate the various efforts under way which relates to implementation of the proposal.

In response to a recommendation by the Joint Committee, the Society established a Committee on Life Insurance Valuation Principles. This Committee has developed a recommended set of principles to guide the valuation

actuary in his or her work. These will be exposed to the Society membership for comment. On the educational front, the Society has a standing Committee on Education and Examination, and a special Committee on Valuation and Related Areas which oversees several task forces responsible for research in basics and practices. The educational literature for the valuation actuary, which will include the theory and techniques needed to perform the valuations, will be developed by these groups.

The Academy Committee on Life Insurance Financial Reporting has been reviewing the standards of practice pertaining to life insurance company statutory valuations. Its work is now being directed toward development of standards consistent with the valuation actuary concept. A new body, now under the auspices of the Academy, but slated to become an independent standards-setting body, is the Interim Actuarial Standards Board. This board will assume the standards-setting role formerly handled by committees such as the Academy Committee on Life Insurance Financial Reporting.

The Academy is the body which sets qualification standards, and its Committee on Qualification Standards has exposed a set of such standards for the valuation actuary. Consistent with this, the Discipline Committee of the Academy is continually reviewing its needs in light of the proposals.

Other actuarial bodies with a vested interest in the proposals are the Conference of Actuaries in Public Practice and the Casualty Actuarial Society. The Conference represents consulting actuaries, from whose ranks would come

many of the qualified valuation actuaries. The Casualty Actuarial Society is to property/casualty actuaries what the Society is to life/pension actuaries. The Conference has a member on the Joint Committee who will serve as a direct liaison. The Conference also has formed a new Life Committee, largely because life insurance consulting is anticipated to become more important as a result of the valuation actuary proposals. The Casualty Society appointed a special task force which reported to its Board that the proposals do have relevance to casualty actuaries. A new task force was appointed in November 1985 to recommend a plan by which the Casualty Society can establish the valuation actuary concept. In addition, they have a member on the Joint Committee.

Other professional activities have included numerous educational and discussion sessions at regular professional meetings of actuaries. Also, there have been two special seminars on the valuation actuary and related techniques. Plans are under way for another seminar in the near future.

Appendix 4, Section 4.2

FINAL REPORT OF THE JOINT COMMITTEE ON THE
ROLE OF THE VALUATION ACTUARY IN THE UNITED STATES

JOINT COMMITTEE ON THE ROLE OF
THE VALUATION ACTUARY IN THE UNITED STATES

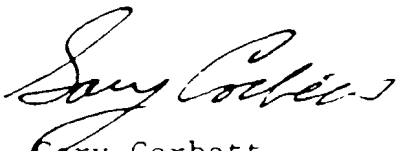
AUGUST 15, 1984

Final Report of the Joint Committee on the Role of the
Valuation Actuary in the United States

Enclosed is the Final Report of the Joint Committee on the Role of the Valuation Actuary in the United States. This Report will be submitted to the Academy and Society Boards in October.

Although the Report has not yet been accepted by the governing bodies, the members of the Joint Committee believe the Report should be made available to all concerned actuaries in order to encourage discussion of the concepts presented in the Report.

Committees of the Academy and Society will deal with the specific recommendations in the Report. If you have any comments you would like these committees to consider, please send them to me at my Yearbook address and I will see they are routed to the appropriate committees. Also, if you have any questions concerning the Report I would be pleased to try to answer them.



Cary Corbett
Chairman
Joint Committee on the Role
of the Valuation Actuary
in the United States

GC/ak

Final Report of the Joint Committee
on the Role of the Valuation Actuary
In the United States

The Joint Committee on the Role of the Valuation Actuary in the United States was established by action of the Academy and Society boards in December 1983. The Joint Committee's charge, detailed in Appendix A, was to make recommendations to the Academy and Society boards concerning:

- 1) The appropriate role for the Valuation Actuary in the United States.
- 2) What is necessary to effect and support this role, including the relative responsibilities of the Academy and Society.

The Joint Committee has addressed only the statutory valuations of life insurance companies. Such valuations must encompass life and health insurance, annuities and all other products sold by life insurance companies. We have not addressed valuations made for other purposes, such as general purpose financial reporting or acquisitions.

Membership

The Joint Committee consists of John Fibiger, Walt Rugland and Virgil Wagner, representing the Academy; and Don Cody, Burt Jay and Gary Corbett (Chairman), representing the Society.

Major Recommendations

The Joint Committee has developed two major recommendations, the first describing the role of the Valuation Actuary; the second, the general principles underlying the valuation of life insurance companies for solvency/solidity purposes.

1) The Valuation Actuary

The Committee recommends that each state enact a statute requiring the directors of a life insurance company licensed in the state to appoint by resolution an actuary to be the Valuation Actuary of the company and to file a certified copy of that resolution and of every subsequent resolution relating to the appointment, dismissal or change of a Valuation Actuary with the appropriate state regulatory authority on a timely basis.

Valuation actuaries who are members of the American Academy of Actuaries would be subject to qualification standards established by the Academy, and accountability would be ensured through the Guides to Professional Conduct and accompanying disciplinary measures. The qualification standards would address the problem of assuring that the Valuation Actuary remain knowledgeable concerning current valuation principles and standards of practice.

3.

The Academy will work with the state regulators to establish analogous standards and measures for valuation actuaries who are not Academy members.

2) Principles Underlying the Valuation of Life Insurance Companies for Solvency/Solidity Purposes

The Committee believes that ultimately the Valuation Actuary should be responsible for the selection of assumptions and the establishment of reserves appropriate under the circumstances. Guidelines for selecting the assumptions and making the calculations would be provided in the form of principles contained in actuarial literature and standards of practice promulgated by the actuarial profession. The availability of such principles and standards, along with the qualification standards for the Valuation Actuary and his/her relationship to management and regulators, as described in the first recommendation, would provide regulators with the confidence level needed.

Until such time as comprehensive valuation principles and standards have been developed, we believe that legal solvency requirements must continue to be defined. The basis of these requirements is the statutory annual statement in which reserves are determined in accordance with the Standard Valuation Law, other statutes and regulations, and statutory accounting principles. These

requirements are accepted as being necessary to provide the regulators and the courts with an identifiable basis for enforcing appropriate remedies in the case of a company failing to meet such requirements.

In addition to the legal solvency requirement, a Statement of Actuarial Opinion would be required from a qualified designated Valuation Actuary that:

- (1) the reserves established, together with the related anticipated policy and investment cash flows make a good and sufficient provision for all future obligations on a basis sufficient to cover future reasonable fluctuations from expected assumptions; and
- (2) that such reserves and additional internally designated surplus, together with the related anticipated policy and investment cash flows, make a good and sufficient provision for all future obligations on a basis sufficient to cover future plausible fluctuations from expected assumptions.

Satisfying Part (1) of the Opinion may require reserves to be established which exceed the legal solvency standard. Any portion of surplus necessary to satisfy Part (2) of the Opinion must be recognized by management (i.e. internally designated). This amount, together with the basis of its determination, would be available for review by regulators,

but would not be required to be published in financial statements. Significant changes in operations or in valuation assumptions during the year must be assessed as to the materiality of their impact on designated surplus.

Documentation of the basis for the Opinion would be provided in the Valuation Actuary's report to management and to the Board of Directors.

In time, when confidence in the protection afforded by the actuarial opinion becomes firmly established, the legal solvency standard should be eliminated. The Valuation Actuary would then be responsible for selecting assumptions for reserves and for additional surplus which he believed to be appropriate under the circumstances. These assumptions and the associated methods would be fully described in the Valuation Actuary's report which would be required to be submitted to regulators on a confidential basis.

Comments on the Recommendations1) The Valuation Actuary

The relationship of the Valuation Actuary to management, owners and regulators received much discussion. Possible relationships ranged from the status quo, where the actuary responsible for valuation is part of the management structure, to a requirement for complete independence of the Valuation Actuary from the company and its owners. The recommended relationship, which is similar to that in Canada, should provide the regulators with sufficient assurance as to the knowledgeable objectivity of the Valuation Actuary.

2) Underlying Valuation Principles

We believe that valuation standards, appropriate for all products under all circumstances, can not be prescribed by statute or regulation. If this were once possible, with traditional products and more stable economic environments, it is certainly not possible today. Judgement by an actuary knowledgeable concerning the specific product, the situation of the company and possible economic environments is necessary in order to calculate reserves appropriate for any given purpose. Such calculations should be based on sound actuarial principles. We agree that, to date, the actuarial profession has neither identified nor promulgated such principles and thus we can not expect regulators to accept a new valuation system when one of its major building

blocks is not in place. But until we require actuaries to go beyond the statutory formulas in valuing life insurance companies, it is unlikely that the necessary energies will be devoted to the task of developing valuation principles.

To solve this "chicken and egg" problem, we are recommending the superimposing of the requirement for a Valuation Actuary's Statement of Actuarial Opinion on statutory solvency requirements. This additional requirement will necessitate the development of valuation principles. It is our expectation that within a few years sufficient principles, and associated standards of practice, will be developed and promulgated that it will be generally agreed that reserves based on such principles and standards should replace outmoded and inflexible statutory requirements.

However, with or without statutory valuation standards, a Statement of Actuarial Opinion by a Valuation Actuary, even assuming appropriate competence and independence, will not necessarily prevent a company from becoming insolvent as a result of current unsound business practices. Audits and reviews, both internal and external, will be necessary to assure the accuracy of asset and liability information. The Academy committee charged with establishing standards of practice for the Valuation Actuary must address the question of the appropriate scope of the Actuarial Opinion. For example, to what extent does it cover the

accuracy of in-force records or the quality of the investment portfolio?

A more detailed description of the principles we propose should underly the valuation of life insurance companies for solvency/solidity purposes can be found in Principles of Valuation Reserves, Assets Needed, Solvency and Solidity. This memo, reproduced in part as Appendix B, was written by Don Cody for the Joint Committee.

The Effecting and Supporting of the Major Recommendations

The second charge to the Joint Committee requested that we determine what must be done to effect and support the recommended role in the following areas:

- a) Law and regulations
- b) Research
- c) Education and training
- d) Principles/standards of practice

In the third charge we were to address how the profession should organize to accomplish the tasks identified in the second charge. In this section of the report we have combined our response to these two charges.

a) Changes in laws and regulations

We appreciate that our recommendations would call for extensive revision to the laws and regulations of all the states respecting the valuations of life insurance companies. Such revisions can occur only with the support of the NAIC and of the life insurance industry. We would look to the Academy to propose the necessary changes to establish the position of Valuation Actuary and the requirement for a Statement of Actuarial Opinion. Close co-ordination with the NAIC technical groups and the appropriate industry committees would be required.

b) Research

Research necessary to support the Valuation Actuary should be the responsibility of the Society. We recommend that such research be co-ordinated by the Committee on Life Insurance Company Valuation Principles.

c) Education and Training

The Society must address education and training needs for both students and practicing actuaries. The E and E Committees must provide appropriate education in the principles and standards governing the valuation of life insurance companies for all prospective FSAs who will be called upon to provide actuarial opinions on such valuations.

A greater need, at least for some years, will be to educate valuation actuaries, not exposed to the new valuation system in their formal education, in the principles and standards of the new system. The responsibility for such education should lie with the Society's Services to Members Policy Committee, working closely with the Committee on Life Insurance Company Valuation Principles and with the appropriate Academy committees.

d) Principles/Standards of Practice

The Society is responsible for developing principles of actuarial science, as opposed to standards of actuarial practice. In the valuation area, this will be the responsibility of the Committee on Life Insurance Company Valuation Principles. The Joint Committee's recommendations, when adopted by the Academy and Society boards, will form the framework for the work of this committee. The resulting principles should be applicable to both Canada and the U.S. but the standards necessary to implement the principles might well vary.

The Academy is the U.S. organization responsible for codifying standards of actuarial practice through the promulgation of Recommendations and Interpretations. The Academy's Committee on Life Insurance Financial Reporting

Principles is the body currently responsible for codification in the area of life insurance company valuation. It, or its successor committees, will continue in this role within the proposed structure headed by the Actuarial Standards Board.

Beyond the work and committee structures described above, we recommend the establishment of a steering committee to:

- (1) communicate and co-ordinate with other organizations, such as the ACLI, NALC and NAIC; and
- (2) co-ordinate the work of the designated Academy and Society committees.

Until such a steering committee is established, the present Joint Committee will function in this role.

Other Activities of the Joint Committee

In Appendix C, are listed all activities undertaken or initiated by the Joint Committee that are not described elsewhere in the report.

We respectfully request approval of this report and that the Academy and Society take immediate steps to implement our recommendations.

American Academy

of Actuaries

John Fibiger

Walter S. Rugland

Virgil Wagner

Society of Actuaries

Donald Cody

Burton Jay

Gary Corbett (Chairman)

GC/jo

APPENDIX A

1. Determine the appropriate role for the valuation actuary in the United States, including:
 - a. Scope - e.g., assets as well as liabilities
 - b. Nature of statement to be signed by the valuation actuary
 - c. Judgment v. statutes and regulations
 - d. Qualifications required to be a valuation actuary

2. Determine what must be done to effect and support this role, including:
 - a. Changes in laws and regulations
 - b. Research
 - c. Education and training
 - d. Principles/standards of practice

3. Determine how the above is to be accomplished, including:
 - a. Relations and coordination with other bodies (e.g., NAIC, ACLI, CAS, CIA, AICPA)
 - b. Split of assignments between Academy and Society
 - c. Committees/task forces required within each organization

APPENDIX B

Principles of Valuation Reserves, Assets Needed, Solvency and Solidity

(Prepared for the AAA-SOA Joint Committee on Role of Valuation Actuary in the U.S.)

We have discussed the potential scope of responsibility of the valuation actuary in the broadest context (a) for the Opinion as to the good sufficiency of statutory reserves to assure solvency and (b) for a possible Report to Management as to (i) the availability of assets needed (surplus needed) for capacity utilized by in-force and (ii) for vitality surplus for change and growth, to assure solidity. While there is much traditional literature and much additional modern literature produced recently by the SOA Committee on Valuation, its four Task Forces and AAA Committees, no concise recitation of principles exists.

This presentation applies primarily to statutory financials, but relationships to GAAP financials and to pricing are touched on. While traditional concepts of reserves and surplus are not essentially inconsistent with modern concepts as presented here, it is desirable to put them aside because they have been so oversimplified in practice that they can produce incorrect determinations in some situations, e.g. interest sensitive products.

Background material is abstracted in my January 20, 1984 "Literature Available for Continuing Education of a Valuation Actuary", produced for this Joint Committee. This presentation represents my own perceptions of the research findings of the SOA Committee on Valuation and Related Problems and its four Task Forces.

1. Principles of Valuation Reserves and Contingency Surplus

In a statutory or GAAP balance sheet, aggregate assets held are apportioned among valuation reserves (and other liabilities), contingency surplus needed for capacity utilized by in-force, and vitality surplus for growth and change. The modern approach defines valuation reserves as assets needed to assure good and sufficient provision for contract obligations at a specified level of probability of ruin e.g., 5%. Assets needed to assure good and sufficient provision for contract obligations at a much lower level of probability of ruin e.g., 1%, 0.1%, 0.01%, are the sum of the valuation reserves and the contingency surplus needed for capacity utilized by in-force. The research of the SOA Committee on Valuation and Related Problems and its four Task Forces has identified the risks and illustrated procedures for making determinations within this conceptual framework. For reasons of practicability, the procedures involve translating levels of probability into universes of scenarios and basing reserves and contingency surplus needed on a "worst" scenario in the universe.

Levels of probability of ruin illustrated above need further research. The level of probability of ruin chosen for reserves is very important to the balance sheet. For instance, a higher level, like 10%, would make nominal insolvency much less likely but would put a greater burden on surplus adequacy and Early Warning tests to assure solidity.

1.1 Valuation Reserves

Considering the relatively high level of probability of ruin (5% or ?%), the extent of variation in actuarial parameters from expected to be contemplated in valuation reserves can be characterized as follows:

- . C-3 Risk (Interest Rate Environment) is paramount in interest sensitive products and other high reserve products with voluntary book value withdrawal privileges. It can be especially high where asset cash flow and liability cash flow are seriously mismatched.
- . C-2 Risk (Claims, Expenses) can be large in disability and medical coverages, but smaller "normal" variations will occur in contracts involving mortality, provided appropriate reinsurance is used.
- . C-1 Risk (Defaults and Common Stocks). Barring concentrated or speculative investments, reasonable capital losses can be anticipated as a charge against investment income.

1.2 Contingency Surplus Needed for Capacity Utilized by In-force.

These constitute additional amounts of assets held to assure good and sufficient provision for contract obligations at a much lower level of probability of ruin (1%, 0.1%, 0.01%, 0.001%) depending on the choice of management as recommended by the valuation actuary and acceptable to regulators. The additional risks contemplated here are of a catastrophic nature, not likely to occur within expected lifetime of a particular class of contracts:

- . C-1 Risk: The Great Depression (deflationary); a very serious high variable interest rate environment with inflation, followed by an extended stagflation; a serious earthquake.
- . C-2 Risk: Disability claims correlated with C-1 Risk; epidemic; large variation in total death claims in a small company; a quantum jump in medical care claims; very poor underwriting of medical care or disability coverage in association or sponsored group; expenses in C-1 Risk inflation.
- . C-3 Risk: Very large and sustained upside or downside interest movement; C-1 or C-2 Risk realized in a dangerous C-3 Risk environment.

It is important to note that assets needed to cover this contingency surplus for capacity utilized are not available to provide vitality surplus for growth and change essential to a viable healthy company. This causes a constraint on the level of probability chosen (ability to grow and change versus assurance of protection against adversity.)

1.3 Release from Risk

Statutory valuation reserves (and GAAP valuation reserves) are release from risk mechanisms in that they control the release of margins and the emergence of profit. The greater the loadings in actuarial factors, the slower is this release. If contingency surplus for capacity utilized is added to the reserves, the slower is the release of margins from the total of reserves and surplus.

1.4 Solvency

Nominal insolvency occurs when the sum of statutory reserves, other liabilities, and minimum statutory capital exceeds statutory book value assets. Rehabilitation status (actual insolvency) can occur only under court order petitioned by the State Insurance Department. Involved in the consideration by the court would be a careful scrutiny of all asset and liability items. Also, rehabilitation action would be preceded by negotiation with other companies as to possible purchase or merger.

It is seen, therefore, that statutory reserves established by the valuation actuary as good and sufficient provision for contract obligations are only an early ingredient of the rehabilitation process. Nevertheless, since the valuation actuary may find that he must establish reserves higher in aggregate than SVL minimum reserves, statutes and regulations must be amended to give him the responsibility and authority to establish such higher reserves.

1.5 Solidity

This implies contingency surplus needed for capacity utilized for in-force at a designated low probability level of ruin is available. More strongly, it implies the availability of additional vitality surplus for growth and change. Solidity is a prerogative of management, becoming of interest to regulators when early warning flags are flying. Thus, solidity is a matter to be addressed in the Valuation Actuary's Report to Management and in Insurance Departments' triennial examinations. Decreasing solidity always precedes nominal insolvency except where unforeseen catastrophes occur.

APPENDIX C

- 1) We prepared an article, which appeared in The Actuary, describing the charge and work of the Joint Committee.
- 2) We have distributed, under the auspices of the Society's Services to Members Policy Committee, Literature Available for Continuing Education of the Valuation Actuary. This is a seven-page memo, written by Don Cody, which summarizes the literature developed by the Society's Committee on Valuation and Related Problems and materials available from other sources.
- 3) We have arranged with the Financial Reporting Section of the Society to sponsor a One Day Open Forum for Valuation Actuaries in Chicago on October 3.
- 4) We recommended to the Society's Program Committee and to the Financial Reporting Section that the Section be responsible for the entire program at the May 1985 Society meeting in St. Louis. One track of this program will be devoted to valuation.
- 5) We recommended to the Society's Executive Committee the establishment of a Task Force on Actuarial Principles. This recommendation was accepted. The basic charge to this Task Force is to recommend the Society's role in determining actuarial principles and how this role is to be performed.
- 6) We recommended to the Society's Board of Governors the appointment of a Committee on Life Insurance Company Valuation Principles. This recommendation was accepted.
- 7) We have reviewed the activities underway within the Academy relating to standards of practice, qualification standards, and relations with accountants. We have determined that these activities are consistent with our recommendations.

Appendix 4, Section 4.3

PRELIMINARY REPORT
TO NAIC LIFE & HEALTH ACTUARIAL TASK FORCE
FROM SURPLUS & SOLVENCY SUBCOMMITTEE
OF NAIC STANDING TECHNICAL ADVISORY COMMITTEE
OCTOBER 9 AND 10, 1986

At the Boston NAIC meeting, the following project was authorized:

Revision of the Standard Valuation Law

Commence study toward reconstitution of the standard valuation law, including, among other things, (a) incorporating the concept of the Valuation Actuary, (b) considering solvency determination, and (c) coordinating life, health, annuity, credit and miscellaneous lines of business.

Conceptual and drafting support is to be provided by the Standing Technical Advisory Committee and such groups from which it requests assistance.

This preliminary report informs the Task Force of the approach deemed necessary by the Surplus & Solvency Subcommittee. With Task Force concurrence, we will commence activity accordingly.

Major Thrust of a Reconstituted Valuation Law

As stated in the charge, a reconstituted valuation law must focus on the current state of the industry and anticipated future developments. The project definition anticipates this by incorporating a role for the Valuation Actuary, maintaining a basis for solvency determination, and requiring consistency among all lines of business within life and health insurance companies.

We believe that the basic intent of valuation is to assure asset adequacy.

Another important purpose of valuation is to assist in determining whether the company is currently meeting minimum solvency requirements. The concepts of solvency and adequacy are closely related, but they are not the same. Solvency calls for a legally determined test to be passed. Adequacy is more comprehensive and requires appropriate provision for the defined company functions being analyzed.

Concept

We believe that the NAIC should ultimately have as its objective for valuation a focus on overall asset adequacy as reflected in current and projected balance sheet solidity. Do current and projected assets support the company's current and projected liabilities?

Our discussions indicate that the actuarial profession does not have the necessary techniques refined to the state where this objective can be attained fully in the near term. Additionally, the industry has too many operational issues relating to the current valuation law which need to be separately addressed before such significant change might be made in the structure of the law.

However, it is important to keep this ultimate objective in mind and to move toward it with an interim step which addresses current needs and utilizes available techniques.

We believe the life insurance industry, regulators, and actuarial profession, are currently prepared to work with a reconstituted valuation law which puts significant credence in a qualified actuary's opinion on the sufficiency of reported reserves relative to the assets supporting them to provide for in force benefit provisions. This opinion would be based on cash flow analysis or other emerging technologies. Consistent with this level of reconstituted valuation methodology, there must be a companion focus on improving the opportunity for efficient use of capital within life insurance companies.

The remainder of our report will detail our current thoughts with regard to the issues which must be addressed in the context of both the long term and near term objectives for reconstitution of the standard valuation law.

Long Term

We have a long term view of the reconstituted valuation law which emphasizes current and projected balance sheet solidity. The actuarial focus on this, in the long term, must be an opinion on the adequacy of all assets.

To set the stage for a proposal incorporating this thrust, four major efforts of research and development are required:

1. The actuary must be prepared to give an opinion on asset adequacy. To do this, an accounting method must be developed which can support the financial information necessary to provide for such opinions, and the actuarial techniques necessary to support the opinion must be refined.
2. Earnings as reported within the life insurance business must be restructured so as not to be a function of the balance sheet used by the actuary in providing an opinion on asset adequacy. Research is required to understand this issue and suggest accounting designs which can be made to focus on appropriate earnings statements.
3. An appropriate method must be established for determining legal solvency. One aspect of it must be a clear definition of its reference to the actuarial opinion. This requires a definitive basis for solvency, and a solvency test entirely separate from an opinion on asset adequacy -- the adequacy opinion test focuses on an extended going-business assumption; the solvency test has a basis in actual current accounts as legally defined.

4. Tax reserves must be established by tax rules which are not directly related to accounting methodology dependent on either the solvency test or the asset adequacy opinion, but still reflect available funds and earnings expectations.

This long term view is not attainable in one step. Significant scientific basis for it is lacking, and companies have current operational discomfort with many of the concepts. On the other hand, we believe it best expresses the NAIC objective for valuation.

At the March 1987 meeting we will report further on research and development plans.

Near Term

We have a near term view which focuses on current available techniques, and reflects activities actuaries and the industry seem ready to undertake. It calls for two significant interrelated components:

1. An actuarial opinion that focuses on the adequacy of the assets supporting reported reserves to provide for in force benefit provisions. This opinion will be based on cash flow analysis or other emerging technologies, as appropriate.
2. A solvency test that is dynamic, providing increased capital efficiency to those companies with effective risk management processes. The demonstration of the effectiveness of the risk management procedures will be accomplished using the methodologies of the actuary's opinion on reserve adequacy.

We believe this is a development we can undertake now! Actuaries are developing the principles and procedures to provide these opinions, and reasonable results can be expected in the near term. It is a required step on the way to the long term objective, and addresses a current, critical emphasis that must be made on efficiency of capital for life insurers.

Action

Our objective is to provide a detailed discussion paper of this concept in a year, and a proposed draft model in 18 months. We have initiated discussions with potential working groups.

We plan to pursue this approach unless there is Task Force objection. Work groups will be set up in response to NAIC requests through us. They will be under sponsorship of professional and industry groups and be assigned specific tasks. Quarterly reports will be provided to the Task Force.

Surplus & Solvency Subcommittee of the
NAIC Standing Technical Advisory Committee
to the Life & Health Actuarial Task Force

9/26/86

Appendix 4, Section 4.4

DRAFT RECOMMENDATION 7
(American Academy of Actuaries paper)

INTRODUCTION

The final report of the Joint Committee on the Role of the Valuation Actuary in the United States was adopted by the governing boards of both the American Academy of Actuaries and the Society of Actuaries in 1984. In adopting the report, both bodies agreed to work toward implementation of the report recommendations. In July, 1985, the Committee on Life Insurance Financial Reporting Principles released a Discussion Draft to Academy members containing standards of practice for valuation actuaries. This included a revised opinion, Recommendation 7 and Interpretations. The Committee has reviewed the approximately 35 responses received, and this current draft reflects our consideration of these responses. In particular, the current draft has been expanded to include consideration of C-1, C-2 and C-3 risks.

In March, 1986, the NAIC adopted Guideline XIV proposed by the Standing Technical Advisory Committee regarding the actuarial opinion for life and health insurers. This Guideline will be included in the NAIC Examiner's Handbook for use with December 31, 1986 statutory statements. The Guideline permits the regulator to request the actuary to furnish an Actuarial Report and a cash flow adequacy analysis under various future interest rate scenarios. The Actuary has published an advisory note on this topic which the actuary may wish to refer to.

Our work to date is a response to the requests made of the Academy, and is in anticipation that such opinions will become increasingly prevalent in the future. For some time it is likely that any Statement of Opinion about cash flow adequacy will be in addition to the current required actuarial opinion. Eventually the cash flow certification could supplant the current one. When the July 1985 Discussion Draft was released, it was thought an expanded actuarial opinion would be universally required as early as 1987. Based on the Committee's understanding of the current timetable, a full-scale implementation of such an expanded opinion would not take place before 1989.

The Committee is working with the Academy's legal counsel to review the legal implications of the broader actuarial statement of opinion. This is clearly an area of great concern to a number of respondents, and needs to be more thoroughly discussed.

The Academy would like continued discussion and research so that a final revised Recommendation and Interpretations can be prepared before the time such opinions are required. We would like to reflect the thinking of as broad a base as possible within the profession and wish to provide ample opportunity for discussion.

As a result of work by the Society of Actuaries Committee on Valuation and Related Problems and others, four general areas of risk faced by an insurance company were identified. They are, in brief:

- C-1 The risk of loss due to asset default or impairment of value.
- C-2 The risk of loss due to inadequate product pricing.
- C-3 The risk of loss due to interest rate fluctuations.
- C-4 General business risk not encompassed by C-1, C-2 or C-3.

Explicit recognition of the above risks is an emerging area of practice for today's actuary. As of this writing, there are many unanswered questions and much of the relevant actuarial theory and principles are still in developmental stages. We anticipate that further Academy input, as well as Society of Actuaries' research, will provide the required input prior to final adoption. Based on responses received and other continuing research in the area, the Committee will reevaluate its position and timetable.

C-1 RISK

The C-1 risk is the loss due to default or impairment of value of an invested asset. Some examples are:

- Corporate bond defaults
- Mortgage defaults
- Decline in the market value of stocks
- Destruction of facilities supporting a revenue bond

The overall extent of C-1 risk is related to the quality and diversity of invested assets.

In evaluating the extent of C-1 risk, the actuary may need to rely on the expertise of investment officers. The actuary may also be guided by historical default experience for investments of comparable quality. The actuary should also consider the portfolio's diversity across companies, industries and geographic locations. It may be possible to reflect C-1 risk by assuming an overall reduction in net investment yields, but the actuary should be aware this is a simplifying assumption, and should be satisfied it does not materially distort the analysis of cash flow. Computer simulation of various default scenarios across the insurance company's investment portfolio may provide useful insight into the cash flow implications of C-1 risk, and whether it can be appropriately reflected by a reduction in net investment yields.

C-2 RISK

The C-2 risk is the risk of inadequate pricing of an insurance product. This includes the risk of adverse experience with any of the non-investment factors underlying the gross premium (e.g. mortality, morbidity, lapse rates, expense levels, etc.). Evaluation of C-2 risk is a traditional area of actuarial expertise, but it will be necessary to incorporate it within the overall framework of a combination of risks. Specifically, the actuary should

consider the effects of adverse experience on future insurance cash flows under various assumptions. In this way the actuary can determine a range of insurance cash flows under reasonable and plausible deviations from expected experience. These cash flows can then be incorporated in any models using future interest rate scenarios in conjunction with C-1 and C-3 risk evaluation. Alternatively, a more elaborate model could provide for variations in insurance cash flows as an additional scenario parameter. The latter approach might be appropriate for products of a highly investment nature, where surrenders or policy loan activity could be assumed to vary with prevailing interest rates and company interest crediting practices.

C-3 RISK

The C-3 risk is the risk of loss associated with future variations in prevailing interest rates. Fluctuations in interest rates and changes in yield curve patterns affect the timing and amount of future cash flows for both investment and insurance contracts. They affect the market value of assets, the ability to re-invest at profitable yields, the exercise of bond call provisions, prepayments of mortgages, and policy loan and surrender activity. Of the four risks identified above, C-3 risk has received the most attention, and a considerable body of research in the area of asset/liability matching is available.

One way to measure C-3 risk is by projecting future insurance and investment cash flows under various future yield curve scenarios. The proposed Revised Recommendation 7 and current Interpretation 11-A discuss this procedure in considerable detail.

C-4 RISK

The C-4 risk represents all residual business risks not covered by C-1, C-2 and C-3. This includes future unforeseen governmental actions, mismanagement of the company, fraud, or any number of other virtually unpredictable events which could materially impair the company's ability to continue as a "going concern". Clearly it is a difficult task to place an objective value on the magnitude of C-4 risk a company faces. Some recognition could be given to this risk by running a corporate model under reasonable and plausible adverse future circumstances (e.g. possible changes in federal income taxation, etc.) to estimate the company's exposure to various future possibilities. The committee feels that little can be quantified at this time, however.

A. COMBINATION OF RISKS

In the final analysis, all of the above risks must be recognized in an overall evaluation of an insurance company's financial position. The essence of this analysis is a corporate cash flow model whereby one projects future insurance and investment cash flows arising from existing policies and assets under various scenarios of future interest rate yield curves and other experience factors. A proposal before the NAIC would make the required reserve the greater of the statutory minimum reserve and the amount of invested assets needed to mature all existing inforce contracts under all reasonable deviations from expected

experience. The additional amount of invested assets (if any) in excess of the reserve needed to mature all existing contracts under the worst plausible deviations from expected experience is the internally designated surplus amount.

One approach to this analysis is a fairly complex corporate cash flow model which permits internally consistent cash flow analysis under a broad range of values for all relevant experience factors. Such a model would incorporate a good deal of scenario testing and resulting sensitivity analysis.

An alternative would be a more restricted model designed to permit scenario testing of future yield curves, but incorporating independently determined "worst case" cash flows from other experience factors. This would reduce the model's complexity, but requires assurances that "worst case" possibilities have indeed been accounted for, and the responsiveness of insurance cash flows to prevailing interest rates (or more generally, the correlation of risks) has been properly recognized.

Combination of risks is an area where considerable research is still taking place and more definitive actuarial methodology will emerge. It is also anticipated that more detailed guidance will become available in the selection of various cash flow parameters. As always, simplifications and approximate methods can be adopted, provided the actuary is satisfied they do not materially distort the analysis.

REVISED STATEMENT OF ACTUARIAL OPINION

Identification of Actuary

I, (name) (affiliation) _____ am associated with the firm of Consulting Actuaries, and am a member of the American Academy of Actuaries and meet its qualifications to act as Valuation Actuary. I am the Consulting Actuary for _____ Life Insurance Company and have been involved in the determination and/or examination of policy reserves and certain other actuarial items included in the Annual Statement of the Company for year ending December 31, 19__.

or:

I, (name) _____, am (title) _____ of the _____ Life Insurance Company and am a member of the American Academy of Actuaries and meet its qualifications to act as Valuation Actuary. I have been involved in the determination and/or examination of policy reserves and certain other actuarial items included in the Annual Statement of the Company for year ending December 31, 19__.

Scope

I have examined the actuarial assumptions and actuarial methods used in determining policy reserves and related actuarial items listed in the schedule attached hereto, as shown in the Annual Statement of the Company, as prepared for filing with state regulatory officials, as of December 31, 19__.

I have considered the provisions of the Company's inforce policies and the related administrative expenses. I have considered any reinsurance agreements pertaining to the policies, the characteristics of the Company's assets, and the investment policy adopted by the Company as they might affect future insurance and investment cash flows under the policies and invested assets. My examination included such tests and calculations as I considered necessary to form the opinion stated below.

The cash flow tests were conducted on a going-concern basis under internally consistent sets of assumptions with reasonable margins for adverse deviations for certain paths of future interest rates. Particular attention was given to those provisions and characteristics that might cause future insurance and investment cash flows to vary with changes in the level of prevailing interest rates.

In other respects, my examination included such review of the actuarial assumptions and methods, as well as such tests of the actuarial calculations as I considered necessary under the circumstances.

Reliance

In making my examination, I have relied upon listings and summaries of policies in force and other associated data prepared by (name) (title). In addition, I have relied upon, (title) for stockholder dividend assumptions (or other items). I relied on the stated investment policy of the Company and on projected investment cash flows and distribution and quality of assets as provided by (name) (title), of the company.

Opinion

In my opinion as of December 31, 19__:

1. The policy reserves and other liabilities listed in the schedule attached hereto:
 - I. Are computed in accordance with commonly accepted actuarial standards consistently applied and are fairly stated, in accordance with sound actuarial principles.
 - II. Are based on actuarial assumptions which produce reserve at least as great as those called for in any policy or contract provision as to reserve basis and method and are in accordance with all other policy or contract provisions.
 - III. Meet the requirements of the insurance laws of the State of (domicile).
 - IV. Are computed on the basis of assumptions consistent with those used in computing the corresponding items in the Annual Statement of the Life Insurance Company for the year ending December 31, 19__.
 - V. Include provision for all actuarial reserves and related actuarial liabilities which ought to be established.
2. The anticipated investment cash flows arising from an allocation of assets equal to reserves and other liabilities, plus anticipated considerations to be received from the in-force policies make appropriate provision, according to presently accepted actuarial standards of practice, for the anticipated cash flows required by contractual obligations and the related expenses of the Company.

Limitation of this Opinion

This opinion is completed annually as required by statute. The impact of unanticipated events subsequent to the date of this opinion is beyond the

scope of this opinion. The cash flow portion of this opinion should be viewed recognizing that the company's future experience will not exactly follow all the assumptions used in the cash flow projections.

Signature Block

INVESTMENT DATA

1. The Actuarial Opinion places reliance on the stated investment policy of the Company as provided by the Chief Investment Officer. The information is required by law as part of the company's annual filings. Following is an example of the type of information required.
2. In general, the company must be able to identify the amount and types of mutually exclusive assets currently being held by the company with respect to three categories of liabilities plus capital:
 - a. Policies for which future benefits (including dividends under participating policies and excess interest under non-participating policies), or premiums, are dependent on the company's investment earnings,
 - b. Policies for which future interest credits are linked to an external index.
 - c. Policies for which future benefits are not a direct function of the company's investment earnings.
 - d. The company's capital (if any) and surplus.

The information required to be on file varies for each of the four categories. The following information will be provided:

3. Policies Dependent on Company's Investment Earnings

A description of how the benefits dependent on the investment earnings will be determined, including:

- a. The anticipated relationship between the investment earnings rate and the benefits.
- b. The allocation of interest credits, if more than one interest rate applies to different portions of the policy value.

The insurer's investment policy, which includes a description of the following:

- a. How the insurer plans to address the reinvestment risks.
- b. How the insurer plans to address the risk of capital loss on cash outflows.
- c. How the insurer plans to address the risk that its earned rate may fall below minimum contractual interest rates guaranteed in the policy.

- d. The amount and type of assets currently held.
- e. The amount and type of assets expected to be acquired in the future.

A description of any interest guarantees currently in effect.

4. Policies Linked to an External Index

A description of how the interest credits are determined, including:

- a. A description of the index.
- b. The relationship between the value of the index and the actual interest rate to be credited.
- c. The frequency and timing of determining the interest rate.
- d. The allocation of interest credits, if more than one rate of interest applies to different portions of the policy value.

The insurer's investment policy, which includes a description of the following:

- a. How the insurer plans to address the reinvestment risks.
- b. How the insurer plans to address the risk of capital loss on cash outflows.
- c. How the insurer plans to address the risk that appropriate investments may not be available in sufficient quantities.
- d. How the insurer plans to address the risk that the indexed interest rate may fall below the minimum contractual interest rate guaranteed in the policy.
- e. The amount and type of assets currently held for interest indexed policies.
- f. The amount and type of assets expected to be acquired in the future.
- g. If policies are linked to an index for a specified period less than to the maturity date of the policy, a description of the method used (or currently contemplated) to determine interest credits upon the expiration of such period,
- h. A description of any interest guarantee in addition to, or in lieu of, the index.
- i. A description of any maximum-premium limitations and the conditions under which they apply.

5. Policies Not Dependent on the Company's Investment Earnings

The insurer's investment policy, which includes a description of the following:

- a. How the insurer plans to address the reinvestment risks.
- b. How the insurer plans to address the risk of capital loss on cash outflows.
- c. How the insurer plans to address the risk that its earned rate may fall below the level needed to provide the benefits guaranteed under its policies,
- d. The amount and type of assets currently held,
- e. The amount and type of assets expected to be acquired in the future.

6. Capital and Surplus

A description of the amount and types of assets currently held by the insurer with respect to its capital and/or surplus, whether such capital and/or surplus is held (entirely or partially) as a separate line in the insurer's annual statement or whether it is allocated (entirely or partially) to the insurer's various lines of business.

The insurer's investment policy for the assets supporting the insurer's capital and/or surplus.

**REVISED RECOMMENDATION 7: STATEMENT OF ACTUARIAL OPINION
FOR LIFE INSURANCE COMPANY STATUTORY ANNUAL STATEMENTS**

1. This recommendation delineates the responsibility of the actuary in signing the type of statement of actuarial opinion which is described in the Instructions to the NAIC life and health blank as adopted at the June 1975 meeting of the NAIC Blanks subcommittee and amended in 19__ . Such opinion relates to the policy and contract reserves, cash flow adequacy opinion and other actuarial items contained in an Annual Statement of a life insurance company to a State Regulatory authority, i.e., the "Statutory Statement."
2. The statement of actuarial opinion should include: 1) a paragraph giving the actuary's name and relationship with the company and a statement that the actuary meets the Academy's qualification standards to act as the Valuation Actuary; 2) a paragraph identifying the items in which an opinion is to be expressed and describing the scope of the actuary's work; 3) a paragraph indicating the persons and data relied on by the actuary in forming the opinion and the items of reliance; 4) a paragraph expressing the actuary's opinion with regard to such relied upon data, and 5) a paragraph outlining any limitations the actuary feels are appropriate. A separate paragraph(s) may be needed in individual cases if the actuary considers it necessary to qualify the opinion or to explain some aspect of the Annual Statement which is not already sufficiently explained in the Annual Statement.
3. The instructions require that such a statement express the opinion of the actuary as to whether reserves and other actuarial items meet the following basic requirements: (Basic Opinion)
 - I. Are computed in accordance with commonly accepted actuarial standards consistently applied and are fairly stated in accordance with sound actuarial principles,
 - II. Are based on actuarial assumptions which produce reserves at least as great as those called for in any policy or contract provision as to reserve basis and method, and are in accordance with all other policy or contract provisions,
 - III. Meet the requirements of the state of (state of domicile),
 - IV. Are computed on the basis of assumptions consistent with those used in computing the corresponding items in the annual statement of the preceding year end,
 - V. Include provision for all actuarial reserves and related statement items which ought to be established.

In addition, the instructions require that such a statement express the opinion of the actuary as to whether the anticipated investment cash flows from assets (allocated in an amount equal to reserves and other actuarial

liabilities, including the MSVR), plus anticipated considerations to be received are appropriate according to presently accepted standards of practice to satisfy policy obligations and related expenses of the company under its current in-force policies (Cash Flow Opinion). Where reserves in excess of basic actuarial amounts are required in order to form the cash flow opinion, the amount of such reserve should be included in exhibit 8 or on a separate line of page 3 of the annual statement.

4. During the course of this work, the actuary may rely on data from certain individuals within the insurance company in order to form the opinion. The actuary may wish to rely on another individual for the accuracy of the policy valuation inventory. The investment officer is required to provide investment related data detailing information as to the investment policy of the company. In addition the actuary may rely on the investment officer to provide projected asset cash flows and distribution and quality of assets for use in the actuary's tests. In some instances the actuary may wish to rely on management's representations as to the level of future policyholder or shareholder dividends, etc. When another person is relied upon, the actuary should obtain a written representation from the appropriate party along with other support required. When any reliance is made, the person(s) and items of reliance should be enumerated in the opinion.
5. The Basic Statement of Actuarial Opinion should list the items and amounts on which the actuary expresses an opinion. The list should include but not necessarily be limited to the aggregate reserve for life policies and contracts (Exhibit 8 of the Statement), aggregate reserves for accident and health policies (Exhibit 9 of the Statement), net deferred and uncollected premiums, and policy and contract claims (Exhibit 11, part 1 of the Statement). The actuary need not extend his or her review to items other than those specified in the instructions, except possibly in instances where such items are computed by means of a long-term discounting of future payments which are contingent upon the occurrence of future events. Examples of such items might include additional reserves for optional modes of settlement at maturity, optional non-forfeiture benefits, additional reserves for excess mortality under group conversion policies, reserves involving life contingencies under separate account contracts, reserves for group pension deposit type contracts, and other such items if not included in Exhibits 8, 9, and 11, part 1. The actuary should affirm that provision has been made for all actuarial items which ought to be established in accordance with 3(i) through 3(v) of Recommendation 7.
6. A description of the calculation of any additional cash flow reserve should be available in the Actuarial Report to the company's management, along with a disclosure of the assumptions utilized. This report should be available for scrutiny by regulatory authorities but should be considered confidential.
7. "Commonly accepted actuarial standards" and "sound actuarial principles" emerge from the utilization and adaptation of concepts described in actuarial literature. Such literature includes the Recommendations and

Interpretations of the American Academy of Actuaries; the professional journals of the Society of Actuaries, the Conference of Actuaries in Public Practice and the Casualty Actuarial Society; recognized actuarial textbooks; and regulations of the National Association of Insurance Commissioners and of State Insurance Departments. Although the Study Notes for candidates for membership in the Society of Actuaries are also valuable parts of the literature, it should be kept in mind that the Study Notes are intended primarily to teach basic principles rather than to specify operating instructions. The actuary's judgement in applying the standards for the actuarial computation must take into account the specific characteristics of the policies with respect to which the actuary is expressing an opinion.

8. A significant element in the examination of actuarial assumptions and methods is a consideration of the policy and contract provisions affecting the basic reserves. The following is a list of examples -- not intended to be complete -- of policy provisions which should be considered: the contractual treatment of fractional premiums paid beyond the date of death; interest guarantees under premium or retirement deposit funds; conversion rights under renewable and convertible term policies; rate guarantees under optional settlement provisions; extended benefits under group policies; maternity benefits; interest guarantees; interest indexing; surrender and loading charges; guaranteed non-forfeiture values and surrender options; mortality guarantees; expense guarantees; A&H rate increase potential; and the indexing of policy benefits.
9. Significant elements in the examination of future cash flows include, but are not limited to: interest rate scenarios selected and the manner in which other assumptions vary as interest rates change; investment strategies; reinsurance agreements; loans and repayments; lapse, mortality and expense assumptions; any taxes payable; dividends; and reasonable margins for adverse deviation.
10. The actuary should also consider the valuation requirements of the state of domicile of the company on whose reserves the opinion is being expressed. The actuary should be aware of the prescribed valuation procedures; the minimum reserve basis and valuation method applicable to each policy; and the applicability of any aggregate test of reserve adequacy prescribed in the state's valuation law.
11. If there is any change in the actuarial assumptions or methods from those previously employed, that change should be mentioned in the actuarial statement. The adoption for new issues of an actuarial assumption or method which differs from a corresponding assumption or method for prior issues for basic reserve items is not a change in actuarial assumptions or methods within the meaning of this paragraph. Similarly, where the determination of reserves or claim liabilities is based on the periodic updating of experience data, such updating is not a change in actuarial assumptions or methods within the meaning of this paragraph. Examples could include reserves or claim liabilities for recently incurred claims (e.g., within two years or less) under disability and accident and health policies.

Assumptions utilized for cash flow projections should be updated annually, including those relating to prior year's issues. For this portion of the opinion, it is not necessary to disclose changes from the prior year's assumption.

12. It is important to note that the actuary is expressing an opinion as to the adequacy of the investment cash flows plus anticipated considerations to meet future contractual obligations and related expenses. This implies an identification of future cash flows from the company's in-force policies and assets as well as the sensitivity of the various items to interest rate changes. Cash flows arising from policies to be sold after the valuation date are not to be considered. Expenses should be determined under a "going concern assumption." That is, anticipated levels of new business should be recognized in arriving at expense assumptions and a portion of overhead expenses should be allocated to in force business. Appropriate provision for inflation should be made.

For a given interest rate scenario, the actuary must choose a set of assumptions which are internally consistent and appropriate to the scenario. The actuary should test reserves utilizing all scenarios prescribed by the NAIC as well as other scenarios which the actuary feels should be tested to gain an insight into the sensitivity of the cash flow requirements to external interest rates. The actuary may wish to calculate "breakpoint interest rates", at which level current reserves become insufficient and describe them in the Actuarial Report.

In conceptual terms, the actuary tests that the investment cash flows, plus anticipated considerations, are adequate to meet contractual obligations and related expense, using consistent assumptions with sufficient margins to cover future reasonable deviations from expected assumptions. At the same time, the actuary should disclose in the Actuarial Report to company management the amount of additional surplus, if any, required to meet the same test, but using assumptions with sufficient margins to cover future plausible deviations from expected assumptions, including provisions for C-1 and C-2 risk testing.

While the actuary's work and opinion is not intended to assess the projected statutory solvency of the company over the long term, if the actuary determines that under the selected assumptions the company is projected to become statutorily insolvent in the near term, this conclusion should be disclosed in the Actuarial Report.

13. In order to project future cash flows, the actuary should consider the investment policy adopted by the company and the characteristics of the company's assets as well as any planned program for sale or exchange of assets. As used in this context, the characteristics of the assets refer to the timing and amount of the contractually scheduled or permitted payments of investment yield and principal specified under the terms the company's assets.

Projections of investment and insurance cash flows should be made under various assumptions as to future interest rates and other experience factors recognizing those contractual provisions and characteristics of the company's policies and investments that might cause future cash flows to vary with changes in the level of prevailing interest rates. The distribution and quality of invested assets should be considered in the determination of reserves and designated surplus.

14. It is appropriate to state any limitations of the opinion. For example, cash flow projections are based on assumptions which may not materialize. Also unanticipated events subsequent to the date of the projections, such as discretionary management decisions, external forces (C-4 risk) etc., may arise, and the actuary should so state this. The actuary should be satisfied, however, that all known items have been considered and that due care and professional procedures have been followed.

REVISED INTERPRETATION 7-B: ADEQUACY OF RESERVES AND CASH FLOWS

This interpretation supporting the cash flow portion of Recommendation 7 provides more detailed guidance for the actuary than is usually the case. This is a deliberate effort on the part of the Committee to provide guidance in an area where methodology is currently developing for the first time. Because new techniques are likely to emerge in the near future, it should be remembered that these interpretations are guidelines and that other approaches and techniques are acceptable. The actuary should be prepared to demonstrate they are satisfactory in a specific situation. Thus, while these interpretations contain many guidelines and suggestions, it should not be inferred that other approaches are prohibited.

1. The actuary should review the contract provisions under the policies being tested, identifying those provisions (i.e., future considerations and contractual payments) that can materially affect future insurance cash flows.
2. In testing the adequacy of future cash flows, the actuary will need to project future cash flows arising from the policies under various paths of future interest rates -- both insurance cash flows from the contractual obligations and investment cash flows from the assets held and to be acquired by the company in support of the policies. When making such projections, the actuary should employ assumptions which contain sufficient margins to cover reasonable unfavorable (i.e., lowering positive cash flows) deviations from expected assumptions.

In projecting insurance cash flows, the actuary should consider contractual provisions as well as non-contractual conditions or assumptions that can affect future cash flows. For example, the following contractual provisions and assumptions are among those that should be considered by the actuary:

- a) the amounts and incidence of guaranteed benefit payments including guaranteed cash or nonforfeiture values and other benefits,
- b) the amounts and incidence of dividend payments or interest credits which vary in accordance with the company's established practices,
- c) the likely amounts and incidence of policy loans, partial withdrawals and surrenders, recognizing surrender charges or other penalties, if any,
- d) the likely amounts and incidence of future considerations to be received and the amount of sales and related compensation to be paid,
- e) the amount of future maintenance and allocated overhead expenses,
- f) the amount of future premium, income, and other taxes to be paid,
- g) the impact of premium changes for non-guaranteed life and health policies.

Each of the above should be examined to determine the extent to which future insurance cash flows may vary due to changes in the prevailing interest rates. For example, the incidence of future premium payments, partial withdrawals, surrenders, health and disability benefits, policy loans, etc. may be expected to vary with interest rates, and expenses may increase with inflation.

In selecting appropriate values for these and other assumptions, the actuary should normally assume that the company will continue on a going-concern basis. The assumption of a going-concern basis may lead to the use of some assumptions which are different than those which would be suggested by current experience. If the results of the tests lead to actuary to question whether the company can continue to operate as a going-concern over the near term future, the actuary should appropriately qualify the opinion.

3. The Instructions require each company to submit a description of the amount and type of assets held by the company for various types of business. In addition, the company is required to file its investment policy. In expressing an opinion, the actuary may rely on the investment policy of the company, as filed, and on projected investment cash flows and distribution and quality of invested assets provided by the company's Chief Investment Officer. Similarly, the actuary should consider anticipated future management actions as they influence insurance cash flows. For example, management's plan for modifying premiums on non-guaranteed premium products, establishing credited interest rates and mortality changes at levels different than the minimum guaranteed levels of the policies, A&H rate increases, unit expenses reductions, etc. should be considered.

In projecting investment cash flows, the actuary, or the officer on whom the actuary may be relying, should pay particular attention to those characteristics of the invested assets that can affect future cash flows, such as:

- a) the types of investments and whether future investment cash flows are fixed or variable (e.g., due to equity features in the investment),
- b) the amounts and incidence of scheduled (or expected) investment earnings,
- c) the amounts and incidence of scheduled repayments of principal,
- d) early repayment provision (e.g., call provisions),
- e) the expected marketability of the investments (e.g., private placement bonds and mortgages vs. public issues),
- f) the impact of hedging, options or similar investment strategies,

- g) investment related expenses and taxes, as applicable,
- h) cash flows anticipated for planned programs of sale or exchange of assets.

Each of the above should be examined to determine the extent to which future investment cash flows may vary due to changes in prevailing interest rates. For example, as interest rates fall, non-scheduled repayments of principal may be expected to rise; as interest rates rise, such repayments may decline. Each assumption should be fully consistent within the entire set of assumptions, and appropriate to the interest rate scenario.

The projections of investment cash flows should include investment earnings and repayments of principal, not only from the invested assets held by the company on the valuation date, but also from assets to be acquired after the valuation date. This requires an explicit assumption in the projections as to how any future net positive cash flows will be invested, with particular emphasis on the durations of such investments and the extent to which the durations of future investments may vary with prevailing interest rates at the time of acquisition. Similar assumptions are also required for interest rates and durations of borrowed money. Such assumptions will vary with the prevailing interest rates at the time of borrowing, if borrowed funds are needed to cover future negative cash flows at any time during the projection period. It should be noted that, in general, the cost of borrowing money may be greater than the prevailing interest rate that can be earned on a similar duration asset.

To the extent assets are assumed to be sold, either to cover future negative cash flows at any time during the projection period or for other reasons, (e.g., planned programs of sale or exchange of assets) an explicit assumption about the capital gains or losses needs to be made.

The actuary is expected to review the reasonableness of any relied upon information, including the schedule of investment earnings and repayment of principal and proceeds from the sale or exchange of assets supporting the contracts, and the extent to which these cash flows may vary with changes in future interest rates. However, it is not expected that the actuary will be called upon to express an opinion with regard to the underlying quality of the assets and with regard to the risk of asset default as to interest and/or principal.

5. Among the most important assumptions in the projections of insurance and investment cash flows are various paths of future interest rates being tested. Testing on a single path of future interest rates, even if the path is deemed most likely by the actuary, is insufficient. Similarly, a simple extrapolation of recent rates is not enough. A number of different paths need to be tested in the calculations. The NAIC will provide a minimum number of scenarios to be tested; however, the actuary should expand those, as appropriate. The impact of inverted yield curves should be tested.

The paths of interest rates, and the projection period used in the tests, should extend far enough into the future to provide for the major portion of the future runout of insurance cash flows from the contractual obligations on the valuation date as well as future investment cash flows from assets held on the valuation date. Paths to be tested should include several with future interest rates higher than those prevailing on the valuation date, and several with lower future interest rates. A useful test is to assume a path with rates increasing (or decreasing) during the period immediately following the valuation date, followed by a period of decreasing (or increasing) rates, and then to repeat this cycle into future periods. A level path of future interest rates may also be useful as a reference. Variations by yield curve slope would also be valuable for interest sensitive products.

Tests should cover as many alternative interest rate paths as the actuary deems necessary to generate an understanding of the dynamics relating the insurance and investment cash flows. The range of paths tested should be broad enough to enable the actuary to form an opinion that the cash flows make appropriate provision for the contractual obligations under the policies under reasonable sets of assumptions. Grouping, approximations, modeling and other acceptable actuarial techniques may be employed.

6. In one approach to arrive at a basis for expressing an opinion, the insurance and investment cash flows could be added together (or netted) for each future year (or other unit of time) and the results accumulated forward to a common date, or the insurance and investment cash flow streams may be accumulated separately, and then combined on the common date. Thus, the interest rate applicable to each particular year for accumulating or discounting is the generated IYM rate for that year inherent in the asset accumulation process.

The method of accumulating or discounting cash flows should be consistent with the techniques used in the projections themselves. The rates used to accumulate the cash flow streams should be the aggregate set of interest rates, and related durations for investing of future cash flows, assumed under the particular interest rate scenario.

Another possible approach would be to project the total cash flow, including insurance and investment cash flows, with reinvestment of net positive cash flows during the projection period and borrowing or selling of assets to cover net negatives, and then determination of the "market value" of any remaining assets and/or borrowed funds at the end of the projection period. Such market value would be based on the assumption that interest rates after such date would be frozen at the prevailing rate on that date which, though not necessarily a valid assumption, should not materially impact on the overall calculations.

If the "net market value" of remaining assets and borrowed funds on such date exceeds the value of liabilities at the date, the cash flows would be deemed to be appropriate to meet the contractual obligations on that interest rate path; if not, the cash flows would be deemed not appropriate on that path.

7. For the actuary to express an unqualified opinion, the tests must be met based on assumptions selected by the actuary which contain sufficient margins to cover future reasonable deviations from expected assumptions. The amount of additional internally designated surplus, if any, is determined using assumptions which contain sufficient margins to cover future plausible deviations from expected assumptions. The actuary's opinion, with respect to the appropriateness of projected cash flows or surplus, does not imply that the cash flows would be adequate under every conceivable adverse circumstance, no matter how remote. Good actuarial practice does not require that the actuary's tests include paths of future interest rates that, while possible, can be considered remote.
8. Normally the actuary will begin these tests using cash flows arising from assets which have an NAIC value equal to the statutory reserve and other liabilities. If the testing indicates that the investment cash flows plus anticipated considerations do "make appropriate provision for the contractual obligations of the company...", then the actuary can express an unqualified opinion.

If this test is not met, then the company would need to increase reserves and allocate sufficient additional assets so that the actuary can express an unqualified opinion. If under these circumstances the company does not increase reserves to the needed level, the actuary must qualify the opinion. The qualified opinion should describe the additional amount of reserves and related assets that would be needed in order to express an unqualified opinion.

9. In addition to expressing an opinion, the actuary is expected to submit an Actuarial Report, as defined in Opinion A-3, to company management. Such report should disclose the actuarial assumptions and methods employed by the actuary, the scope of the actuary's work and the results of the actuary's tests. In particular, the actuary should indicate the various amounts of surplus, if any, required (in addition to current reserve amounts) under each of the interest paths tested. If the required amount of surplus on the most unfavorable path exceeds the remaining assets, this deficiency should be noted in the report.

If the results of the tests lead to actuary to question the company's ability to continue as a going concern into the longer term future (e.g., 5 to 10 years), or to continue paying the current or anticipated levels of discretionary benefits and/or shareholder dividends over this period, this should be disclosed in the Actuarial Report.

**NOTE: INTERPRETATIONS 7-A AND 7-C WOULD REMAIN
UNCHANGED FROM THEIR CURRENT FORM.**

