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ACTUARIAL CERTIFICATIONS AND OPINIONS RENDERED

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1. The who, what, how and by whom.
2. Underlying methods, principles, practices and so forth--and the disclosure thereof.

MR. LESLIE E. SHAPIRO: Congress, in enacting the Employee Retirement Income Security Act of 1974, (ERISA), observed that defined benefit pension plans as defined in ERISA generally require actuarial estimates of future costs. In estimating pension costs, actuaries must make assumptions about a number of future contingencies and must choose from a number of methods which make use of these assumptions to calculate future plan costs. The amounts required to fund any given pension plan can vary significantly according to the mix of these actuarial assumptions and methods. Consequently, the assumptions and methods used by actuaries are basic to the application of minimum funding standards for those defined benefit pension plans to which ERISA applies.

I am sure none of what I just said is new or startling to actuaries--particularly pension actuaries. What perhaps was new and startling to actuaries during the pendency of ERISA was the articulation of Congress that actuaries who perform services for qualified pension plans and report to the Government regarding these plans should meet a reasonable standard of competence and be held to a standard of reasonableness in choosing their methods and assumptions. Congress recognized that there was no existing Government regulation of the actuarial profession as there is, for example, for the legal and accounting professions. As Executive Director of the Joint Board of the Enrollment of Actuaries, I represent, to the best of my knowledge, the first Federal government agency responsible for the regulation of a segment of your profession.

The Joint Board has complied with its Congressional mandate to promulgate regulations governing the enrollment of individuals who wish to perform actuarial services under ERISA and has, to date, enrolled over 2,500 applicants. Congress also intended that duties relating to the performance of actuarial services under ERISA be established and in this connection referred specifically to regulations governing practice before the Internal Revenue Service by attorneys, certified public accountants and enrolled agents as being a guide. That intention was reflected in the statute by its provision requiring the Board to take disciplinary action against an enrolled actuary shown to be incompetent or who refuses to comply with the rules and regulations established by the Board.

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With that background -- what is required of actuaries by ERISA that resulted in a new look at the actuarial profession?

Simply stated, ERISA requires that an annual report be filed with the Internal Revenue Service and Labor Department with respect to pension plans and that this report shall, in the case of most defined benefit pension plans, include an actuarial statement and opinion signed by the enrolled actuary who thereby assumes responsibility for everything that goes into the preparation of the statement. The enrolled actuary must list in this statement that the report is complete and accurate and that the requirements relating to reasonable actuarial assumptions and methods have been complied with. The reporting requirement is effected through Schedule B, Actuarial Information, of Form 5500. This form is filed by the plan administrator as part of the annual report. Included in this schedule is the following signed statement by the enrolled actuary:

"To the best of my knowledge, the information supplied in this schedule and on the accompanying statement, if any, is complete and accurate, and in my opinion the assumptions used in the aggregate are reasonably related to the experience of the plan and to reasonable expectations, and represent my best estimate of anticipated experience under the plan."

What I have just stated does not appear to be particularly revolutionary. Most enrolled actuaries and, as the Board has found, many who are not, claim to have engaged in the work envisioned by ERISA for most, if not all, of their working careers. The fact that a statement of this kind must now be signed and filed with the Government, therefore, should not seem to be an unreasonable hardship. So what is the importance of this Congress--mandated certification process? I think there are three implications of the concept which are noteworthy.

1. The enrolled actuary is engaged by the plan administrator to act on behalf of the plan participants. Even though the annual statement is filed by the plan administrator and the actuary is generally paid by the plan sponsor, it is the plan participants whose interests he is basically responsible for protecting.
2. As Congress, in recognizing the actuarial profession and assigning it responsibilities, has removed to a great extent the mystique in which some actuaries have shrouded themselves. It is safe to surmise that the law and the regulations adopted to implement ERISA impose on the enrolled actuary various responsibilities which were never before spelled out with this degree of specificity. Failure to comply with those responsibilities presents the possibility of an actuary's liability to an injured plan participant.
3. In addition to such civil liability, the regulations promulgated by the Joint Board have imposed standards of conduct in the discharge of duties required by ERISA of enrolled actuaries. Under regulations currently in proposed form, the Joint Board will have authority to suspend or revoke an actuary's enrollment status if it is found that he or she has failed to discharge any of those required duties.

Therefore, the enrollment process is only the beginning for the pension actuary under ERISA and the common laws of our country. Once enrolled, an actuary has merely demonstrated a minimum level of knowledge and experience. He or she thereafter will be subject to scrutiny by both the public, vis-a-vis the plan participant, by the government, and by his colleagues who have an interest in seeing that high professional standards are observed. In this connection, it may be of interest that under the Joint Board's regulations it is required that an enrolled actuary exercise due care, skill, prudence and diligence to ensure that:

1. The actuarial assumptions are reasonable in the aggregate, and the actuarial cost method and the actuarial method of valuation of assets are appropriate.
2. The calculations are accurately carried out.
3. The report, any recommendations to the plan administrator and any supplemental advice or explanation relative to the report reflect the results or the calculations.

An enrolled actuary also is required to include in any report or certificate containing actuarial costs or liabilities, a statement or reference describing or clearly identifying the data, any material inadequacies therein and the implications thereof, and the actuarial methods and assumptions employed.

In addition to the above duties which relate to the actuarial certification process, the Joint Board has imposed duties on enrolled actuaries which relate to professional responsibility generally. It is our belief that violation of those regulations has the potential of adversely affecting the enrolled actuary's ability to perform services under ERISA in a responsible manner.

To summarize, Congress has placed specific requirements in ERISA for the performance of actuarial services. In doing so it recognized that the actuarial profession is not a licensed profession. Consequently Congress has provided for the establishment of the Joint Board for the Enrollment of Actuaries to assure that those individuals who wish to provide services under the Act be enrolled. Once enrolled, they must meet a minimum level of competence and be held to an acceptable level of professional responsibility. The result of these observations is that the actuarial profession, or at least a segment thereof, will subject itself more and more to public scrutiny with whatever legal consequences that may have. In addition, enrolled actuaries will have disciplinary action brought against them if they engage in disreputable conduct as set out in the Joint Board Regulations and thereby face the possibility of revocation or suspension of their enrollment status.

MR. CARL R. OHMAN: In June 1975, the National Association of Insurance Commissioners adopted the recommendation of its Blanks Subcommittee to require a statement of actuarial opinion in the Life and Accident and Health Annual Statement Blank, starting in 1975. A number of states, including New York and California, followed with specific instructions on actuarial opinions to be filed with the 1975 annual statements. In December of that year, the American Academy of Actuaries' Committee on Life Insurance Company

Financial Reporting Principles published Recommendation 7 and Interpretations 7A, 7B and 7C on the required statements of actuarial opinion. I would like to comment briefly on what the NAIC requirement entails for U. S. life insurance companies and how at least one company has complied with the requirement during the past three years.

What should a life company statement of actuarial opinion include? Generally, there should be at least three paragraphs: first, a paragraph identifying the actuary (or actuaries) signing the opinion and the actuary's relationship with the company; second, a paragraph outlining the scope of the opinion and describing the tests made in arriving at the opinion; and third, a paragraph describing the actuary's opinion with regard to the specified items. The statement of actuarial opinion may include one or more additional paragraphs, if needed, to state any qualification of the actuary's opinion or to furnish additional explanations.

Who can sign the required statement of actuarial opinion? Certainly, individuals signing statements of actuarial opinion must be "qualified actuaries." Membership in the American Academy of Actuaries appears to be sufficient qualification, subject to the Academy's Guides to Professional Conduct which require that an actuary may give actuarial advice only when he is qualified to do so.

In many (if not most) life insurance companies, the financial reporting responsibility is organized so that one actuary has sufficient knowledge of all the actuarial items for all lines of business to be able to render a single opinion for the company's entire annual statement. In my company, because of its size and organization, we concluded in 1975 that no one actuary could give such an opinion. After considering various alternatives, such as separate statements of actuarial opinion for each of the different parts of the company's business, we finally decided on one statement of actuarial opinion signed by three actuaries: one giving an opinion on the group items in the annual statement, one giving an opinion on the individual items, and a third to assure over-all corporate consistency between the group and individual actuarial determinations.

As to the scope of the statement of actuarial opinion, the NAIC instructions require that the opinion cover at least reserves for life policies and contracts, reserves for accident and health policies, outstanding policy and contract claims, and deferred and uncollected premiums. In my company, the actuarial opinions have also covered supplementary contracts without life contingencies, liabilities for post retirement funds and experience fluctuation funds under group insurance policies and certain other liabilities involving life contingencies. I understand that actuarial opinions for some companies have also included provisions for policyholder dividends payable in the following calendar year, though ours have not.

It is suggested in the Academy Recommendation that the scope paragraph list dollar amounts as well as items covered by the opinion. Where two or more actuaries are signing the opinion for different parts of the company's business, the items and amounts can be subdivided and labelled so as to clearly indicate who is giving the opinion as to what.

In my company the actuarial opinions state that the actuaries' separate examinations include such reviews of the actuarial assumptions and actuarial methods, of the underlying basic records, and of the company's asset valuation standards and procedures, as well as such tests of the actuarial calculations, as were considered necessary to give the opinions.

In developing this wording, we gave particular thought to the question of responsibility for review of the underlying basic records and whether the actuary can or should assume this responsibility. After due deliberation, we arrived at a compromise--the statement of actuarial opinion indicates that the actuary responsible for the individual items has relied upon another officer of the company for the accuracy of the in-force records, and a statement signed by that other officer affirming the accuracy of the records is included at the end of the opinion; however, there is no indication of reliance upon another person by the actuary covering the group items, indicating that he has assumed responsibility for reviewing the basic records.

The reference earlier to the actuaries' examinations including a review of the company's asset valuation standards and procedures is worth noting. The NAIC instructions and Academy recommendation and interpretations do not call on the actuary to express an opinion with regard to the general assets of the company. Nonetheless, the actuary should consider the valuation bases used in the annual statement for invested assets, current (and possibly future) yields from such investments, and perhaps also cash flow characteristics of the investment portfolio, in reviewing the appropriateness of the company's reserve valuation assumptions and procedures.

As to the wording of the opinion paragraph in statements of actuarial opinion, among the other specific requirements in the NAIC instruction, the actuary is expected to express an opinion as to whether the reserves and other actuarial items (a) meet the minimum reserve requirements of the company's state of domicile and (b) make a good and sufficient provision for all unmaturred obligations of the company guaranteed under the terms of its policies. The latter clearly requires the actuary to go beyond statutory requirements and could involve a qualified opinion even where the company is in compliance with state minimum valuation laws.

The required life company statements of actuarial opinion have been referred to at times and in various contexts as "actuarial certificates" or "actuarial affidavits." In my company, the statement of actuarial opinion is not treated as an affidavit. It is not notarized and does not constitute a sworn statement; it is simply signed by the actuaries as an opinion. I believe this distinction is an important one. As an actuary, I can state, as a matter of fact, that the company's reserves have been correctly calculated in accordance with specified actuarial assumptions and procedures. I can state, as a matter of fact, that the company's reserves meet the minimum reserve requirements of the state of domicile. However, I cannot state, as a matter of fact, that the reserves make good and sufficient provision for all unmaturred obligations. I can only give my professional opinion on that.

For my company, as I am sure is the case with most other soundly managed life insurance companies, the requirement for such statements of actuarial opinion has not greatly increased the actuaries' burden at year end since

the reviews and tests implied in the statement of opinion have always been part of the company's year end procedures. For such companies, I doubt that the requirement has materially affected the quality of the companies' annual statement reserves and other actuarial liabilities. However, I believe that the requirement has had one beneficial effect, even for such companies, in that it clearly pinpoints responsibility within the company for the annual statement reserve calculations and, particularly for a large company, this can be very useful.

MR. KENNETH T. CLARK: My task is to discuss the "who, what, how, and by whom?" for actuarial certifications and opinions rendered. I shall illustrate with the financial reporting of insurance companies in Canada.

I am offering you a short course in "How to certify" and a long course in "How to render an opinion".

The short course in how to certify, is simply this: do not. It seems to me the words "certify" and "certificate" are inappropriate for a report by an actuary about the professional work he has done. "To certify" means to guarantee. It is appropriate for a bank to certify a cheque; i.e., to guarantee that the account has enough money to cover the cheque. Here we have a plain fact that can be verified by a simple clerical operation. Similarly, it is appropriate for a title insurance company to guarantee the title to your house. The question of title is clear-cut which can be verified with a high degree of confidence. The function of the title insurance company is to provide an indemnification in those few cases where the verification process is faulty. Having regard to the nature of his work, however, the actuary cannot properly certify the amount of reserves. He can report what he has done, he can give his opinion, but for him to certify the amount is at best a misuse of language and at worst a deception of an unsophisticated public.

However, for life insurance in Canada, there has for many years been a requirement for an actuary to make a pronouncement of which the key words are as follows: I certify that the amount of reserves is not less than the amount defined by law and in my opinion the amount makes good and sufficient provision for all the unmatured obligations of the company guaranteed under the terms of its policies.

Fortunately, a new law has been passed and it will take effect this year or next year. The Canadian Institute of Actuaries has a Committee on Financial Reporting which is making recommendations about how the profession should cope with the new law. These recommendations have not yet been voted on by the profession, so they have no official standing, and indeed some of them are controversial.

The new law deals with financial reporting in what we call the "government statement" (this is analogous to the NAIC Blank) and the published financial statements. The company must appoint two professionals: an auditor and a valuation actuary. The valuation actuary must be an F.C.I.A. The requirement for an auditor and an actuary is not new. What is new is the increased status of the actuary. The new law requires the valuation actuary to be appointed by the company's Board of Directors, for the Superintendent of Insurance to be notified of the appointment and of any change to the appointment.

There is an interesting provision in the new law about the duties of the auditor. The requirement for the auditor to state his opinion about the company's operations is followed by these words:

... and in so stating, he may accept any reserve included in the annual statement in respect of which the valuation actuary has given his opinion....

In other words, the auditor does not have to audit the work of the valuation actuary.

It is interesting that there is no comparable provision for the actuary to rely on the auditor (or a company officer) respecting the accuracy of the policy files on which the valuation rests. The valuation actuary must take responsibility for the accuracy of those files.

The valuation actuary has to make a report for the government statement and the report must include his opinion that:

- (a) the rate or rates of interest and the rate or rates of mortality, accident, sickness or other contingencies used in calculating the reserve are appropriate to the circumstances of the company and the policies in force;
- (b) The method used to calculate the reserve produces a reserve in respect of each life insurance policy that is not less than the reserve produced by the use of the methods described in the subsection 82(4) and (7);
- (c) the reserve makes good and sufficient provision for all the unmatured obligations guaranteed under the terms of the policies in force.

That is for the government statement. For any published financial statement, the opinion of the valuation actuary must be included. The CIA Committee on Financial Reporting has drafted the following standard language:

I have made the valuation of actuarial liabilities of the XYZ Life Insurance Company for its balance sheet at 31 December 1976 and its income statement for the year then ended. In my opinion (i) the valuation conforms to the Recommendations for Insurance Company Financial Reporting of the Canadian Institute of Actuaries, (ii) the amount of the actuarial liabilities makes proper provision for the obligations payable in the future under the company's policies, and (iii) a proper charge on the account of those liabilities has been made in the income statement.

As I mentioned earlier, this has not yet been voted on by the profession. The only controversial feature is the reference to the Recommendations on Financial Reporting; some of our members think that the reference should be omitted.

With respect to casualty insurance we have made a small beginning for an actuary's opinion respecting loss reserves and loss adjustment expenses in general insurance. The old law required an actuary's opinion respecting reserves for non-cancellable accident and sickness policies. The new law extends this to losses which are payable in installments. A general insurance company needing these reserves must therefore appoint a valuation actuary to make a report on them for its government statement. It will be interesting to see how the requirement for an actuarial opinion in general insurance evolves in the years to come.

MR. DONALD E. TRUDEAU: The effort to formulate a recommendation for a statement of Actuarial Opinion for Fire and Casualty Insurance Company Statutory Annual Statements has been spearheaded by the American Academy of Actuaries Committee on Fire and Casualty Insurance Company Financial Reporting Principles. The thrust of the committee's activities during the past year has been to draft a recommendation which delineates the responsibilities of the actuary in rendering an opinion. This draft has followed closely the format of Recommendation 7 of the American Academy of Actuaries.

One of the first areas which the Committee concerned itself with was deciding which elements of the Fire and Casualty Insurance Company Statutory Annual Statements should be subject to the rendering of an actuarial opinion.

It was decided that the elements should include but not necessarily be limited to the liabilities stated on page 3 of the statement, primarily losses, loss adjustment expenses, contingent commissions and other similar charges, unearned premiums and the excess of statutory reserves over statement reserves. Provisions for voluntary reserves would be optional.

In the context of financial reporting, a major area of interest to the professional actuary is that of less reserve adequacy. A qualified casualty actuary is trained to express an opinion as to whether such loss reserves:

- (a) are computed in accordance with commonly applied actuarial methods and in accordance with sound actuarial principles
- (b) are based on actuarial assumptions which are at least as strong as those called for in any policy or contract provision as to reserve basis and method
- (c) meet the requirement of the insurance laws of the state of domicile
- (d) make a good and sufficient provision for all unmatured obligations of the company under the terms of the policy.

"Commonly accepted actuarial standards" and "sound actuarial principles" emerge from the utilization and adaptation of concepts described in casualty actuarial literature. Such literature presently contains several acceptable methods for the evaluation of loss reserves. The Casualty Actuarial Society's

Statement of Actuarial Principles regarding loss and loss adjustment expense liabilities contains certain definitions, considerations and a recommendation of procedures which should be reviewed by the actuary in this context.

Assessing loss reserves is an attempt to predict future events and cannot be done with absolute certainty. There are many imponderables affecting loss reserving for certain lines of business. Certain of these such as inflation, legislative change and judicial opinion contribute to the uncertain appraisal of reserves. Nevertheless, the actuary can state an opinion that appropriate methods and reserve assumptions have been utilized.

It is also important to note that the actuary is expressing an opinion on the adequacy in the aggregate of all the enumerated reserves and that possible deficiencies for individual components of the total reserve may be offset by margin in other items. Some actuaries believe that the claim reserve is not a point estimate, but an ultimate estimate along with corresponding probability and as such is a mathematical expectation of the ultimate value of all unpaid claim liabilities. Therefore, the actuary could only certify the adequacy of reserves if his tests indicate that there was a high probability that the ultimate liability would be within an accepted percentage of statement value.

The rendering of an actuarial opinion for elements of the Fire and Casualty Insurance Company Annual Statement other than loss and loss adjustment expense reserves also requires the use of commonly accepted actuarial standards and sound actuarial principles. The body of actuarial literature includes sufficient example in this regard.

A major consideration of the Committee was to review the actuarial qualifications necessary in order to render any Statement of Opinion concerning the elements of a Fire and Casualty Statutory Annual Statement. The American Academy of Actuaries and the Casualty Actuarial Society are the only public bodies of actuaries dedicated to the advancement of non-life actuarial knowledge. Quoting from the Casualty Actuarial Society's Constitution:

"The objects of the Society shall be to advance the knowledge of actuarial science as applied to the problems of insurance, other than life insurance, and to promote and maintain high standards of conduct and competence within the actuarial profession."

and from the American Academy of Actuaries' Articles of Incorporation:

"The purpose or purposes for which the corporation is organized are: ...

- (c) To promote education in actuarial science and the interchange of information among actuaries and among the various actuarial organizations:
- (d) To establish, promote and maintain high standards of conduct and competence within the actuarial profession."

All members are governed by a guide to professional conduct. Therefore, the reviewing actuary should be both a member of the American Academy of Actuaries and have passed Parts 5, 6, and 7 of the examinations of the 1977 Syllabus of the Casualty Actuarial Society.

The Financial Reporting Committee will soon be providing language analogous to that of:

- Interpretation 7-A: Responsibility of the actuary and others
- Interpretation 7-B: Adequacy of reserves
- Interpretation 7-C: Qualification of Actuary's Statement of Opinion.

The Committee and a coordinating Task Force is in the process of developing a positive program of suggested implementation for certification. We have developed strong lines of communication with Commissioner Bell of the N.A.I.C. with whom certain members of the Committee and Task Force are working very closely. As many of you are aware, there has been increasing pressure in the N.A.I.C. during the past few years on the question of certification or opinion. The Committee feels a definitive implemented plan must be presented this year.

MR. RICHARD H. SNADER: In June of 1977 the Casualty Actuarial Society's Committee on Loss Reserves was given the difficult but important assignment of drafting a statement of loss reserving principles. Obviously, such principles will be needed for the guidance of actuaries if they are expected to render opinions concerning the accuracy of loss reserves.

Only an experienced loss reserve practitioner can truly appreciate what an awesome task the committee faced. Loss reserving is, in many respects, an individual craft. Practices and techniques vary endlessly, it seems, from company to company. What principles there are, are known more from oral history and tradition than from the printed word. The magnitude of the task was compounded by the seemingly impossible requirement to have an initial draft completed by the end of 1977.

Although a little befuddled at the outset, the committee quickly resolved that a two phase approach would be required. The first phase would consist of an interim statement designed to make material available to actuaries as soon as possible. The interim statement is intended to provide a general overview of the subject and define basic concepts. Emphasis is placed on the things an actuary must take into consideration in establishing and evaluating loss reserves. Specific methodology and procedures are not addressed directly. Instead, reference is made, in the form of a supplemental reading list, to existing published material on the subject.

The statement is considered to be interim primarily because of the possibility of replacing the reading list with a complete discussion of procedures and practices during phase two. In the second phase, it is envisioned that a series of statements and opinions on specific issues and problems will be prepared from time to time and eventually accumulate into a body of loss reserving principles which, it is expected, will become generally accepted. The interim statement of phase one can be regarded as the first such statement.

One of the first tasks to be undertaken in the second phase will be the development of specific mathematical notation to describe the loss reserving process. It is hoped, if we do our work well, that the notation will be general enough to become standard for future articles and papers on loss reserving. The various techniques, which abound in the literature, can then be described in terms of standard loss reserve notation, possibly showing that each technique is a special case of some general model and that each special case results from the underlying assumptions employed. With standard notation the common thread that links many techniques together can be discerned. Concepts that are difficult to express in words, and which may be only vaguely understood, can be illustrated.

The tedious work of drafting the interim statement proceeded through the Summer and Fall of 1977. The draft was then presented to the Casualty Actuarial Society Board of Directors at the annual meeting in November, and it was decided at that time to release it to the entire membership as a discussion memorandum. Responses to the discussion memorandum were requested by December 31. All the replies were carefully reviewed, and a revised draft was submitted to the Board of Directors for consideration at its March, 1978 meeting. The revised draft was accepted by the Board as a report of the committee and, as such, it will be printed in the 1978 Proceedings.

Loss reserving is an extremely complex process. As you can imagine, obtaining agreement from a group of actuaries on specific principles is hardly a simple task. Many issues were considered and resolved. Some were avoided. No issue proved more vexing than the one dealing with the confidence interval associated with loss reserve estimates. Simply stated, the problem before the committee was to determine if anything should be said regarding confidence intervals. A special subcommittee of the American Academy's Financial Reporting Committee has already taken a tentative position in its draft recommendation regarding the statement of actuarial opinion for fire and casualty statutory annual statements. The subcommittee proposes to say, in part:

"...The actuary should certify the adequacy of the reserves only if his tests indicate that there is a high probability that the ultimate liability will be within an accepted percentage of the statement value."

It is further noted by the subcommittee that a minimum percentage certainty, such as 85%, may be specified. In which case the job of the certifying actuary will be to ascertain that the amount of variation meets at least this confidence interval.

In a recent article in The Actuarial Review, Robert Bailey of the NAIC staff discussed the question at some length. He contends that the public will not be satisfied unless it can have information on what the range of results are likely to be for unpaid claims. He reasons that the appraisal of the degree of uncertainty associated with the reserve estimate is "at the very core of actuarial work".

Arguments can be presented, however, in favor of walking along a different path. Even though statistical theory indicates that the determination of a loss reserve confidence interval should be possible, many actuaries feel that the technology does not exist within the insurance industry to make such a determination feasible at this time. It is wrong, they say, to commit the profession to a principle more advanced than the state of the art.

Divided and undecided, the committee sought guidance from the Board of Directors, and it was subsequently determined that the interim statement would be silent regarding the loss reserve confidence interval. However, failure to include a specific principle in the interim statement of phase one certainly does not preclude its inclusion in phase two. It is, after all, the purpose of phase two to consider questions which are beyond the scope of the interim statement. Recognizing that the subject requires further attention, the Board of Directors instructed the Committee on Loss Reserves to continue working on the problem.

This particular issue is a clear example of our "Expanding Actuarial Horizons." In keeping with the theme of this meeting, it is entirely appropriate to issue a challenge to the actuarial profession. If, as it is feared, the technology does not exist to define the band of uncertainty associated with the loss reserve estimate, the profession should resolve to develop the required technology at the earliest possible moment. Articles, papers and discussions are needed to point the way and to stimulate further research. Otherwise, we may find ourselves relegated to a minor role in a vital area of actuarial work. As pointed out in Robert Bailey's article, "How we as actuaries respond to this complex situation will be a measure of our profession".

MR. ALLAN GREENBERG: Mr. Clark you mentioned that actuaries in Canada are now being required to extend an opinion on reserves where claim payments are over an extended period of time. My first question is, how extended? The second question is in respect to an opinion on liabilities for life companies, is there any understanding of materiality in the opinion given by Canadian actuaries?

MR. CLARK: As to the first question, the law is silent on the duration of the installments. To me that means that there are at least two, or, as a practical matter, that they are installments that are being paid for more than a year. With regard to the second question, recommendations that are being put to the Canadian Institute of Actuaries and which will be voted on by the profession define professional practice in some detail. The point is very strongly made that materiality permeates all of the actuaries work and that if a thing is not material, approximations are permitted.

MR. CHARLES HACHEMEISTER: It should be pointed out that there is a substantial difference between a situation on the life side and the casualty side with regard to the obligation of the casualty actuary in making reserve recommendations to management. There does not exist any minimum standard for casualty reserves. The reason for this is that the reserves are subject to substantial fluctuation to the point that non actuaries can begin to

get into the guessing game and start to believe that they have as good an opinion as the actuaries themselves. Thus, management may begin to decide that the actuary is wrong. So it puts the casualty actuary in a much more difficult position in upholding his professional position.

MR. OHMAN: Your statement is correct with regard to the life insurance reserves in the life insurance company annual statement, however most life insurance companies have very substantial liabilities, perhaps not in terms of dollars overall, but very substantial nonetheless for health or group life claims. These outstanding claim reserve estimates take on the same characteristic of the reserves of casualty companies, and the concern of management setting reserves for casualty companies does have a counterpart in life insurance companies with regard to their non-life reserves."

MR. MARTIN ADLER: There are many variable assumptions that go into casualty reserving and I wonder whether actuaries are indeed the only people who are capable of forming an intelligent opinion as to how valid the assumptions of the future contingencies are. For example, what is an appropriate rate of inflation, and how will this affect loss payments.

MR. CLARK: Certainly, I would have to admit and I hope that each one of us would admit that we are not as qualified as we should like to be to cope with the very difficult problems of making an appropriate valuation. I think we can claim, though, that as a profession we have the best overall expertise for making a determination as to reserves. The actuary is not precluded from consulting other expertises or consulting expert persons in other professions such as an economist if he wants to better his knowledge about such things as, say, inflation. But no other profession can make the claim to a comprehensive technique for coping with future uncertainties. We may be far from perfect and we have to strive to make ourselves better, but I still think that we are number one.

