LIFE INSURANCE (A) COMMITTEE

Reference:
>   1983 Proc. I p. 446
>   1983 Proc II p. 554

Josephine M. Driscoll, Chairman — Oregon
J. Richard Barnes, Vice-Chairman — Colorado

AGENDA

1.   Model Group Life Definition/Model Act on Mass Marketing.
2.   Report of Life Cost Disclosure Task Force.
3.   Report of Universal and New Life Products Task Force.
4.   Report of Life, Accident and Health Technical Actuarial Group.
5.   Any Other Matters Brought Before the Committee.

CONTENTS

The Life Insurance (A) Committee was called to order at 11 a.m. in the Golden West Room of the Town and Country Hotel in San Diego, California on December 8, 1983. A quorum was present and Josephine M. Driscoll chaired the meeting. The following member states were represented: Oregon, Colorado, District of Columbia, Iowa, Nebraska, North Dakota, Virginia and Wisconsin.

1.   New Group Life Definitions/Mass Marketing Model Act

A discussion was held concerning possible amendments to the NAIC Group Life Insurance Definitions and Group Life Insurance Standard Provisions Model Act. The discussion centered on the manner in which to address the concern over the possibility for reverse competition in some group markets.

A joint American Council of Life Insurance/Health Insurance Association of America task force recommended the adoption of an amendment to Section II of the Model Act which would require that, with respect to a program of insurance which if issued on a group basis would not qualify under Section I of the Act, certain disclosures regarding compensation paid to a policyholder would be made to prospective insureds.

It was argued by Robert E. Younger, chairman of the advisory committee, that the report of that committee dated Oct. 27, 1982 indicated a better solution was to support adoption by the states of the Model Group Life and Health Act in tandem with the Mass-Marketed Life or Health Insurance Model Act.

It was noted by representatives of the associations that serious division within the industry with respect to the in-tandem approach existed and could present obstacles to passage of the acts by the states.

The Committee adopted the amendment (Attachment One) stating it was its belief that the same kinds of protection as described under Section II should be extended to insureds of groups defined in Section I.

Commissioner Roger C. Day (Utah) was recognized and presented a history of this issue as it has been treated by the NAIC. He noted that the new group life and group health definition was instituted as part of the NAIC's effort in deregulation and improved regulation. The basic policy objective has been to create a uniform standard of protection across the entire marketplace, regardless of marketing method used, without creating undue administrative activity or expense burdens for insurance departments or for insurers.

Prior to its December 1980 meeting, the NAIC considered the feasibility of adopting prospective benchmark loss ratios or other compensation limitations to assure the reasonableness of benefits as a prerequisite to lessening the limits applicable to group life and group health definitions.

Subsequent to 1980, discussions were held to reach a compromise solution which entailed disclosure of compensation for those groups which would not have met the prior group life and health definition limits and the creation of a standard of reasonableness which could be used retrospectively to correct abuses rather than create a prospective test. Prior to the NAIC's adoption of the new group health definitions in 1980, the NAIC Task Force on Revision of the Model Bill Defining Group Life Insurance heard a report of the advisory committee chairman which indicated that the simultaneous adoption of the Model Mass Marketing Act with the new group life and health definitions provided a comprehensive solution. Other members of the advisory committee were present at that time and no objection to the suggestion of the advisory committee chairman was raised. Commissioner Day indicated that he had contacted the chairman of the 1980 task force and verified those facts. These historical developments may be immaterial to the position now espoused. The fundamental objective remains the creation of uniform standards of protection that will actually be implemented at the state level and which will require, as a practical matter, a commitment to modify the current group limits to realistic, uniform and enforceable levels which do not create industry incentives to manufacture or exploit loopholes through extra-territorial or marketing method exceptions.

Following Commissioner Day's remarks, the committee decided that a new advisory committee will be formed and given the opportunity to provide the A Committee with alternative standards for adoption at the Portland meeting which may be more appropriately applied to those groups defined in Section I. It is the intent of the A Committee that if acceptable standards cannot be agreed upon, the standards set forth in Section II will be extended to Section I groups. The advisory committee is also to provide in Portland standards that cna be developed for retrospective enforcement of abuse associated with mass marketed policies to groups defined under Section I.

2.   The report of the Life Cost Disclosure Task Force was received and adopted. The following was noted:

a.   Reference to the charge made to the task force at Baltimore with respect to the comparison statement requirements was overlooked. A motion was made and carried by the A Committee to amend the Model Replacement Regulation deleting this requirement.

b.   Mr. Blaine (ACLI) reported that the charge to amend the Industrial Life model was not completed. This was referred to the Life Insurance Council and appropriate language will be funished at the Portland meeting.

3.   Report of the Universal Life Products Task Force

The report of the Universal Life Products Task Force was presented by Commissioner J. Richard Barnes. The report was received and adopted.

4.   Recommendations of the Technical Actuarial Group to the Life (A) Committee (Attachment Two)

I.   Unisex Mortality Tables adopted by the Life (A) Committee is recommended.

II.   Adoption of a Model Regulation Providing for Smokers/Non-Smokers Mortality Tables adopted by the Life (A) Committee as recommended.

III.   Adoption of a Model Regulation Providing for a New Group Annuity Table adopted by the Life (A) Committee as recommended.

IV.   Revision of Actuarial Guideline IV, Joint Life Insurance adopted by the Life (A) Committee as recommended.

V.   Universal Life Model Regulation adopted by the Life (A) Committee Universal Life Task Force.

VI.   Remove Project ld, Guaranteed Issue and Industrial Life Insurance adopted by the Life (A) Committee as recommended.

VII.   Remove Project 3a, Interpretation of Standard Nonforfeiture Law for Individual Deferred Annuities adopted by the Life (A) Committee as recommended.

IX.   Remove Project 6c, Retrospective Valuation and Nonforfeiture Value Procedures adopted by the Life (A) Committee.

X.   Recommendation withdrawn.

XI.   Add Project 2h, Revision of Actuarial Guideline IV, Actuarial Interpretation Regarding Minimum Reserves for Certain Forms of Term Life Insurance to Accommodate the Adoption of the Smokers/Non-smokers Mortality Tables as Valuation Standards. Adopted by the Life (A) Committee as recommended.

XII.   Add Project 3c, Study the Feasibility of Amending the Standard Nonforfeiture Law for Life Insurance so as to Provide an Alternative Retrospective Approach in Defining Minimum Nonforfeiture Values. Adopted by the Life (A) Committee as recommended.

XIII.   Add Project 7, Develop a Requirement With Respect to the Disclosure of the Effective Rate of Yield On All Policies of Insurance or Annuity Contracts. Adopted by the Life (A) Committee as recommended.

XIV.   Add Project 8 to the Agenda of the Manipulation Task Force to Develop a Model Regulation Concerning Disclosure of Non-guaranteed Premiums and Policyholders Dividends Paid by Stock Life Insurance Companies. Recommendation expanded to provide for extension of the Manipulation Task Force Authority to function and adopted by the Life (A) Insurance Committee.

XV. <u>Ask the Universal Life Task Force to Appoint a Group to Develop a Guideline With Respect to Variable Life Insurance for Determining Sufficient Investment Income and Assets to Cover Anticipated Withdrawals</u>. Adopted by the Life (A) Committee as recommended.

5. With respect to the continuation of the Committee's three task forces, motions were made and adopted that each task force be continued.

There being no further business, the Committee adjourned at 1 p.m.

Josephine M. Driscoll, chairman, Oregon; J. Richard Barnes, vice-chairman, Colorado; Margurite C. Stokes, Washington, D.C.; Bruce W. Foudree, Iowa; Michael J. Dugan, Nebraska; J. O. "Bud" Wigen, North Dakota; Juan Antonio Garcia, Puerto Rico; James M. Thomson, Virginia; Thomas P. Fox, Wisconsin.

ATTACHMENT ONE

Proposed Amendments to the
NAIC Group Life Insurance Definitions and
Standard Provisions Model Act

A. Delete Section II (5)

B. Create a new Section III to read as follows:

III.   (1)   With respect to a program of insurance which if issued on a group basis would not qualify under Section I of this Act, if compensaion of any kind will or may be paide to:

        (a)   a policyholder or sponsoring or endorsing entity in the case of a group policy, or

        (b)   a sponsoring or endorsing entity in the case of individual, blanket or franchise policies marketed by means of direct response solicitation,

        the insurer shall cause to be distributed to prospective insureds a written notice that compensation will or may be paid.

  (2)   Such notice shall be distributed

        (a)   whether compensation is direct or indirect, and

        (b)   whether such compensation is paid to or retained by the policyholder or sponsoring or endorsing entity, or paid to or retained by a third party at the direction of the policyholder or sponsoring or endorsing entity, or any entity affiliated therewith by way of ownership, contract or employment.

  (3)   The notice required by this Section shall be placed on or accompany any application or enrollment form provided prospective insureds.

  (4)   The following terms shall have the meanings indicated:

        (a)   "direct response solicitation" means a solicitation through a sponsoring or endorsing entity through the mails, telephone, or other mass communications media;

        (b)   "sponsoring or endorsing entity" means an organization which has arranged for the offering of a program of insurance in a manner which communicates that eligibility for participation in the program is dependent upon affiliation with such organization or that it ensourages participation in the program.

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NAIC Proceedings - 1984 Vol. I

REPORT OF THE TECHNICAL STAFF ACTUARIAL GROUP TO THE (A) LIFE INSURANCE COMMITTEE

San Diego, California
December 8, 1983

CONTENTS

The group has had two meetings since the June 1983 meeting -- at Hollywood, Florida, October 12 and 13, 1983, and at San Diego, December 3 and 4, 1983. Minutes of the meetings can be made available upon request. This report is in four sections and has four attachments.

    The report sections are:

A. A list of projects
B. Synopses of projects
C. Progress reports
D. Recommendations (See also Attachment Two-A)

Progress on each project is reportable to the Committee or task force indicated in Section A.

The statements in this report refer to several committees which are working with the Group. One of these, the committee which is now the Standing Technical Advisory Committee, reports directly to the Group, and it has been assigned to study a number of life insurance topics on the Group's agenda and to make recommendations to the Group. Charles Greeley, of Metropolitan Life Insurance Company, in New York, New York, is Chairman of this Technical Advisory Committee. This report contains other attachments which summarize the current status of the work of the Technical Advisory Committee in connection with specific life insurance topics. Such attachments are mentioned under the appropriate topic heading to which they apply.

SECTION A - LIST OF PROJECTS - LIFE

Advisory Group Labels

AAA   : American Academy of Actuaries
CNVMP : Society of Actuaries Committee on Nonforfeiture and Valuation Mortality
              Problems - Individual Life Insurance and Annuities (formerly the
              Committee To Develop a New Mortality Basis for Individual Annuity
              Valuation)
S of A : Other Society of Actuaries Committees - there is a separate committee
              for each project
STAC   : NAIC Standing Technical Advisory Committee
ACLI   : American Council of Life Insurance Staff
ULAC   : NAIC Universal Life Advisory Committee
              (Chairman - Jim Jackson)
ASVLAC : NAIC Actuarial Staff Variable Life Advisory Committee
A-ULTF : Universal Life Task Force of (A) Life Committee
A-Disc : Life Cost Disclosure Task Force of (A) Life Committee
A-Manip: Manipulation, Lapsation, Dividend Practices and Annuity Disclosure
              Task Force of the (A) Life Committee

	Project	Identification	Advisory Group	Year Complete	Staff Contact	**** Priority	Report To
	1	Experience Tables					
	1a	Smokers/Nonsmokers Mortality	S of A	1983	Montgomery	1	A
	1b	Group Annuitant Mortality	S of A	1983	Montgomery	2	A
***	1c	--					
**	1d	Guaranteed Issue and Industrial Life Mortality					
	1e	Specifications For Preparation of 1980 CSO Mortality Tables	S of A	1984	Montgomery	1	A
	1f	Tests to Indicate the Need for New Tables	CNVMP	1984	Montgomery	3	A
	2	Valuation Interpretations, Guidelines and Model Regulations					
	2a	Reserves for Cash Values Exceeding Basic Policy Reserves	STAC	1984	Montgomery	1	A
***	2b	--					
	2c	Paid Up Life On a Basis More Favorable Than Guaranteed	ACLI	1984	Gorski	2	A
	2d	Revision of Actuarial Guideline VI, Joint Life Insurance	ACLI	1983	Lauer	3	A
***	2e	--					
	2f	Valuation of Deferred Annuities Concerning:					
	2f(1)	Surrender Charges	STAC	1984	Becker	1	A
	2f(2)	Bail-Out Provisions	STAC	1984	White	1	A
	2g	Multiple Life Status Contracts	STAC	1984	Becker	2	A
*	2h	Revision of Actuarial Guideline IV, Actuarial Interpretation Regarding Minimum Reserves for Certain Forms of Term Life Insurance	New	1985	Becker	2	A

  * Proposed new project to be approved by (A) Life Committee at December 1983
     meeting.
 ** Current project proposed to be deleted by the (A) Life Committee at December
     1983 meeting.
*** See "Special Notes" below.
**** In the "Priority" Column "1" indicates a project which is considered of
     the highest priority, "2" indicates a project which is intermediate in
     priority and "3" indicates a project of lower priority.

Project	Identification	Advisory Group	Year Complete	Staff Contact	**** Priority	Report To
3	Nonforfeiture Interpretations, Guide-lines and Model Regulations					
** 3a	--					
** 3b	--					
* 3c	Study the Feasibility of Amending the Standard Nonforfeiture Law for Life Insurance, so as to Provide an Alternative Retrospective Approach in Defining Minimum Nonforfeiture Values	New	1984	Becker	1	A
4	Special Plans					
4a	Universal Life - Review Product of NAIC (A) Task Force on Universal Life	ULAC	1983	Montgomery	1	A-ULTF
4b	Variable Life Guidelines For Model Regulation	ASVLAC	1984	Montgomery	1	A-ULTF
4c	Structured Settlements	STAC	1984	Becker	2	A
5	Actuarial Aspects of Reinsurance Transactions	New	1984	White	1	A
6	Alternate Valuation Concepts					
6a	Minimum Surplus for Risks Assumed	S of A and STAC	1985	Montgomery	1	A
6b	Actuarial Opinion on Adequacy Of Reserves Including the Relation of Liabilities to Assets with Respect to Interest Guarantee Periods	STAC and AAA	1984	Becker	1	A
** 6c	--					
* 7 ***	Effective Yield Disclosure Regulation	New	1984	Montgomery	1	A-Disc
* 8	Disclosure Forms for Indeterminate Premium Policies and Stock Company Participating Policies	AAA	1984	Montgomery	1	A-Manip
9	Norris Decision--Unisex Mortality Tables	CNVMP	1983	Montgomery	1	A

    * Proposed new project to be approved by (A) Life Committee at December 1983 meeting.
  ** Current project proposed to be deleted by the (A) Life Committee at December 1983 meeting.
 *** See "Special Notes" below.
**** In the "Priority" Column "1" indicates a project which is considered of the highest priority, "2" indicates a project which is intermediate in priority and "3" indicates a project of lower priority.

Special Notes

Project 1c "Credit Life and Credit Disability" is now considered a project for the (E) Special Insurance Issues Committee. Project 2b "Valuation - Nonforfeiture Interest Rate Differentials" was completed in June 1983 with the adoption of an actuarial guideline.
Project 2e "Revision of Standard Valuation Law To Apply to Valuations Involving Gross Premiums and Cash Values" has now been combined with Project 2a.
Project 7 "Effective Yield Disclosure Regulation" differs from the former proposed Project 7 "Review Effect of Rapidly Declining Interest Rates on Dynamic Interest Formula" which was never authorized by the (A) Life Committee.

SECTION B.   SYNOPSES OF PROJECTS - LIFE

la.   Experience Table - Smokers/Nonsmokers Mortality

Sets of mortality tables and a model regulation applying to the 1958 CSO
Table and the 1980 CSO Tables are presented for adoption at this meeting.
The tables were developed for use on an interim basis until a complete new
mortality study can be conducted (in five or ten years).

lb.   Experience Tables - Group Annuitant Mortality

The marked improvement in mortality as evidenced by the 1980 CSO and 1983
Individual Annuity Mortality Tables requires the development of a new group
annuitant mortality table which is now presented for adoption as the "1983
Group Annuity Mortality Table" along with a model regulation for the use
of this table.

lc.   Experience Tables - Credit Life Mortality and Credit Disability Morbidity

(Project transferred to (E) Special Insurance Issues Committee.)

ld.   Experience Tables - Guaranteed Issue and Industrial Life Mortality

There is an increasing amount of guaranteed issue and decreasing amount
of industrial insurance. An investigation is needed to see if these blocks
of business are appropriate for the purposes of developing a mortality table.
Because of the wide variation of experience anticipated from company to
company some form of probabilistic approach may be needed in developing
a mortality table. Because such techniques are just now becoming used in
the development of experience tables, this project will likely be very slow
in development. This study would resolve the question of whether or not
Industrial Tables are needed. It will not be possible to conduct this study
in the near future, and it is recommended that this project be removed from
the agenda until such time as the study can be undertaken.

le.   Specifications for Preparation of 1980 CSO Mortality Tables

The development of a standardized approach in presenting 1980 CSO Mortality
Table results is the subject of this topic. From this the NAIC should
consider developing computer programs so that the NAIC Support and Service
Office could furnish reserves and values on request. A set of guidelines
is needed.

lf.   Tests to Indicate the Need for New Tables

These are tests to indicate whether or not new tables of mortality are needed.

2a. Reserves for Cash Values Exceeding Basic Policy Reserves

     Many actuaries in regulation believe that cash values exceeding basic policy
     reserves are guaranteed benefits which should be reserved for in advance.
     This guideline would define the practice concerning such reserves. Amendment
     to the Standard Valuation Law may also be needed to define proper minimum
     reserves for some policies.

2b. Valuation - Nonforfeiture Interest Rate Differentials

     (Project completed in June 1983 with adoption of an actuarial guideline.)

2c. Paid Up Life Insurance on a Basis More Favorable Than Guaranteed

     This guideline is to define the basis for setting up amounts on paid up
     life insurance offered on a basis more favorable than that guaranteed so
     that equity is preserved among all groups of policyholders. If offered
     on the basis of a high interest rate, reserve questions need to be resolved.

2d. Revision of Actuarial Guideline VI, Joint Life Insurance

     This involves a study of this guideline and background material to determine
     if improvement or clarification can be made, and a specific recommendation
     is made for adoption at this meeting.

2e. Revision of the Standard Valuation Law To Apply To Valuations Involving
     Gross Premiums and Cash Values

     Sections 5, 6 and 7 of the model law appear to be ambiguous as to what
     "standards for minimum reserves" should be used for valuations involving
     the use of gross premiums and/or guaranteed cash surrender values. This
     ambiguity needs resolution. (This topic has been combined with 2a above.)

2f(1) Valuation of Deferred Annuities Concerning Surrender Charges

     This guideline is to define the practice of setting up reserves on deferred
     annuities with unconditional surrender charges, and in which two or more
     options available at maturity have different present values.

2f(2) Valuation of Deferred Annuities Concerning "Bail Out" Provision

     This guideline is to define the practice of setting up reserves on deferred
     annuities providing two levels of cash values for certain policy years where
     the higher cash value would be payable if the company declares an interest
     rate below a certain level. A model regulation is needed.

3a. Interpretation of the Standard Nonforfeiture Law For Individual Deferred
     Annuities

     This guideline is basically a restatement of the law in more detail than
     exists in the law, and the topic includes a study of whether a revision
     of Section 4 in the Model law would be advisable. Recommend removal of

this topic until the Standard Nonforfeiture Law for Individual Deferred Annuities is to be revised in general.

3b.   Whole Life Insurance Plans With No Cash Surrender Value

This is the development of a proposed revision of the Standard Nonforfeiture Law for Life Insurance to provide for plans with paid-up nonforfeiture values but no guaranteed cash surrender values, so as to allow a whole life insurance policy with no investment feature. Study indicates this is not feasible now. Recommend disposal of this project.

4a.   Universal Life - Review Product of NAIC (A) Task Force on Universal Life

This is primarily a review of the disclosure and valuation and nonforfeiture value sections of the model regulation prepared by the (A) Task Force which has been essentially developed by an industry advisory committee and the American Council of Life Insurance. Recommend adoption of the proposed model, but assignment to the group of two broader projects concerning the feasibility of a retrospective alternative nonforfeiture law and the expansion of the model disclosure regulation on deferred annuities to provide for disclosure of effective rate of yield for all life insurance policies or annuity contracts sold with an emphasis on rates of interest credited to such policies or contracts.

4b.   Variable Life Guidelines for Model Regulation

In adopting the revisions to Variable Life Insurance Model Regulation to provide for flexible premiums (Universal Life II) for variable life insurance, the Task Force assigned the Technical Actuarial Staff the responsibility for drafting three guidelines:

(1)   The application of the Standard Nonforfeiture Law for Life Insurance to flexible premium variable life insurance. (The drafting of this guideline depends on what is adopted by the Task Force on Universal Life.)

(2)   The determination of sufficient net investment income and readily marketable assets to meet anticipated withdrawals under policies funded by the account.

(3)   The preparation of illustrations specified by the regulation addressing issues regarding guaranteed and nonguaranteed aspects of variable life insurance policies.

4c.   Structured Settlements

This guideline is to define the practice of reserving for benefits arising from settlements of various forms of claims such as court settlements, out-of-court settlements, and other benefits possibly involving annuities on impaired lives.

5. Actuarial Aspects of Reinsurance Transactions

    This guideline is needed to distinguish between true reinsurance involving
    a transfer of an insurance risk, reinsurance of an investment risk, a contract
    of surplus relief arising from various projected claims for reasons other
    than insurance risk or investment risk, and an actual loan agreement. The
    guideline should specify how each situation is to be handled.

6a. Minimum Surplus For Risks Assumed

    This is the basic research needed to define the effects of various risks,
    singly and for various combinations of risks, in the evolution of surplus.
    From this research will develop either a model statute concerning minimum
    surplus or set of tests for determining if an insurer has sufficient surplus.
    This is a very complex study which will revise concepts concerning the
    development of surplus for all lines of insurance including life insurance,
    annuities, health insurance, casualty insurance, indemnity insurance, property
    insurance, and liability insurance.

6b. Actuarial Opinion on The Adequacy of Reserves Including The Relation of
    Liabilities To Assets

    This opinion cannot be required until the professional actuarial groups
    (The Society of Actuaries and The American Academy of Actuaries) have provided
    guidelines for practice and conduct. The Technical Actuarial Staff is working
    with these groups in developing such guidelines. Whenever any NAIC Task
    Force indicates the need for such an opinion, the needs for guidelines must
    be stressed.

6c. Retrospective Valuation and Nonforfeiture Value Procedure

    Although assigned by the (A) Life Committee at the December 1982 meeting
    this is largely redundant with the work of the Universal Life Task Force;
    but would expand the retrospective treatment to all plans in defining
    retrospective valuation and nonforfeiture value procedures. Recommend this
    be deleted as an agenda project except for some nonforfeiture aspects which
    are recommended as a project under Section 3 above.

7. Effective Yield Disclosure Regulation

    This is a review and expansion of the NAIC model regulation on the disclosure
    of the effective rate of yield on annuity contracts, adopted December 1982,
    to include disclosure of the effective rate of yield for those life insurance
    policies and annuity contracts sold with an emphasis on interest rates (see
    recommendation XIII).

8.   Disclosure Forms for Indeterminate Premiums and Stock Company Participating Policies

      This is the development of a model regulation regarding the disclosure of indeterminate premiums and stock company participating dividends. This is the result of work conducted by the Society of Actuaries and under review by the American Academy of Actuaries (see Recommendation XIV).

9.   Norris Decision - Unisex Mortality Tables

      This project was assigned directly as a consequence of the U. S. Supreme Court Norris decision. (See Recommendation I.)

SECTION C.   PROGRESS REPORTS

1a.   Smokers/Non-smokers Mortality

      All recent evidence indicates that smokers and non-smokers have very different mortality rates. Mortality rates for non-smokers are, of course, much lower than for smokers for most attained ages. This means that net premiums for non-smokers should be considerably lower than for smokers for the identical plan of life insurance, and that insurance companies can safely write policies on non-smokers using much lower gross premium rates than for smokers. As the attained age advances, the slopes of the mortality rates for the smoker and non-smoker classes seem to be such that one can not always predict which class will require the larger reserve, for a certain plan of life insurance using the same face amount, issue age and duration. The Group is studying the problem of calculating proper net premiums and reserves for the smoker and non-smoker classes. This problem needs to be resolved urgently. See Recommendation II.

1b.   Group Annuitant Mortality

      The mortality assumptions used in computing reserves for annuities need careful attention. Mortality rates have shown a consistent decline during recent years, and annuity reserves based on outdated mortality assumptions could easily become a hazard to solvency for some insurance companies. In 1982, the new 1983 Table "a" mortality table was developed, primarily for use with individual annuities. The Society of Actuaries has a committee studying mortality under group annuities, and the report of this Society of Actuaries Committee has now been distributed to Society of Actuaries members for exposure. The report describes the 1983 Group Annuity Mortality Table, intended for valuation of group annuities. Robert M. Chmely, of Prudential Life Insurance Company of America, in Florham Park, New Jersey, is Chairman of this Society of Actuaries Committee. See Recommendation III.

ld. Guaranteed Issue and Industrial Life Mortality

In June, 1982, the (A) Committee asked the Group to make a study of the
current level of mortality under industrial life insurance policies. This
study was to include a recommendation as to whether separate industrial
mortality tables could still be justified for new policies. Industrial
life insurance can be considered as a form of guaranteed issue life insurance,
since there is little or no underwriting involved. The Society of Actuaries
does not have the resources at this time to conduct the work needed because
of the higher priority projects which the Society has undertaken for the
Group. See Recommendation VI.

le. Specifications for Preparation of 1980 CSO Mortality Tables

This topic refers to the activity of the Group in monitoring the work of
the Society of Actuaries committee on specifications for the 1980 CSO Tables,
and to other work which may be needed in the future in connection with these
1980 CSO Tables. Godfrey Perrott, of M and R Services, Inc., Seattle,
Washington, is Chairman of the Society of Actuaries Committee. The report
of this Society of Actuaries Committee is now ready but needs some time
for testing with practical results. A set of guidelines is to be developed
for the use of these specifications.

lf. Tests to Indicate the Need for New Tables

Tests to determine when new mortality tables are needed are especially
important in connection with annuity tables, which can become outdated
rapidly. The Society of Actuaries Committee to Recommend a New Mortality
Basis for Individual Annuity Valuation, which recently developed the new
1983 "a" annuity mortality table adopted by the NAIC, is working on this
project. This committee has recently been renamed, and is now the Society
of Actuaries Committee on Nonforfeiture and Valuation Mortality Problems
- Individual Life Insurance and Annuities.

2a. Reserves for Cash Values Exceeding Basic Policy Reserves

This topic is concerned with calculating minimum reserves for those contracts
where cash values exceed the basic policy reserve. The model Standard
Valuation Law has been interpreted differently by actuaries. There seems
to be general agreement that the reserve in any specific year for any specific
contract should not be less than the corresponding cash value, and it should
be noted that the wording of Exhibit 8, line G3, in the Annual Statement
Blank for life insurance companies, implies that any lower reserve is not
acceptable. However, some actuaries believe that good actuarial practice
and the wording of the model Standard Valuation Law require companies to
treat future differences between cash values and basic policy reserves in
later policy years as a definite guaranteed benefit, which must be prefunded.
This interpretation would directly affect net premiums and reserve
calculations, so that the reserve in early policy years may be even larger
than the greater of the basic reserve and the corresponding current cash
value.

Topic 2e of the June 1983 Report has been combined with this topic since the relationship between the two has become almost inseparable. This topic relates to a technical question as to whether the current wording of the model Standard Valuation Law (as revised in December 1980) makes appropriate provisions for the cash values and other nonforfeiture benefits which insurance companies are contractually obligated to provide under life insurance policies that may lapse in the future. The topic also includes review of the reserve required for contracts with gross premiums below a certain minimum level. Sections 5, 6 and 7 of the model law need to be reviewed at this time, and the Group may decide to recommend a revision in the wording of the model law.

Two solutions were presented to this problem by Michael Mateja (Attachment 2-B)and by Paul Sarnoff (Attachment 2-C). That by Mr. Mateja, although more elegant in concept, is very difficult to translate into legislative language. Mr. Sarnoff's draft is in legislative language and is presented as an exposure draft.

2c. Paid-Up Life on a Basis More Favorable Than Guaranteed

The December 1980 amendments to the model Standard Nonforfeiture Law for Life Insurance expressly permit insurance companies to offer paid-up insurance to lapsing policyholders, on a basis more favorable to the policyholder than the contractual guaranteed basis. This topic is concerned with determining the proper minimum reserves for any such paid-up insurance that is actually placed in force. For example, if the amount of such insurance was based on 10% interest earnings by the company, then how should any such paid-up insurance be reserved? The topic, therefore, involves the interpretation of the Standard Valuation Law. A related question, which the Group will need to study, is whether certain proposals for offering paid-up insurance benefits are actuarially unsound or inherently unfair, to such an extent that companies should not be allowed to offer them to their policyholders. One or more Actuarial Guidelines for the NAIC Financial Condition Examiners Handbook will probably be needed in connection with this topic, but no draft wording has been developed as yet. The Group feels that work on this topic is authorized as part of its study of matters relating to the Standard Valuation Law and the Standard Nonforfeiture Laws.

2d. Revision of Actuarial Guideline VI, Joint Life Insurance

The Group has been studying the present Actuarial Guideline VI in the NAIC Financial Condition Examiners Handbook. It has been brought to the attention of the Group that the wording in the Handbook was capable of misinterpretation. This Actuarial Guideline was intended to apply only to the traditional type of joint life insurance policies, where the benefits are payable on the first death. See Recommendation IV.

2f(1)Valuation of Deferred Annuities Concerning Surrender Charges

There appears to be some confusion as to the proper method of calculating
reserves for annuities, where the cash value is determined by deducting
a "surrender charge" from the accumulated fund. Section 4-1, of the model
Standard Valuation Law, describes the method to be used in computing minimum
reserves for annuities in terms of the "greatest of the respective excesses
of the present value of future guaranteed benefits." The law seems clear
in those cases where the guaranteed cash value on the maturity date would
be the same amount as the present value of the guaranteed future income
payments on the maturity date under the various annuity options. However,
the interpretation of Section 4-1 becomes more complex when it is applied
to annuities which have both of the following characteristics: (1) they
use an unconditional "surrender charge" to determine cash values and (2)
they have two or more different amounts which might be considered as the
present value of future benefits on the maturity date. The Group is now
studying annuities with unconditional "surrender charges" to determine if
a new Actuarial Guideline should be developed for the NAIC Financial Condition
Examiners Handbook.

2f(2)Valuation of Deferred Annuities Concerning Bail-Out Provisions

This topic is concerned with determining the proper reserve for an annuity
contract in which there are two levels of guaranteed cash values. The lower
level of cash values would apply in any policy year, where the insurance
company credits excess interest on the accumulated fund at a certain minimum
rate. The higher level of cash values would apply in a policy year, where
the company does credit excess interest below that minimum rate. Typically,
the wording of the contract would generate the higher level of cash values
by providing for the waiver of a conditional "surrender charge" during such
policy years. Such provisions can be considered favorable to policyholders,
in that the provisions encourage insurance companies to pay excess interest
at competitive rates. However, the provisions could also result in a danger
to solvency for the companies, if they are carrying inadequate reserves.
A model regulation applying the Standard Valuation Law to these annuities
appears to be needed. Work on this project has also been requested by action
of the (EX4) Examination Oversight Task Force at its meeting at this (December
1983) session of the NAIC.

3a.   Interpretation of Standard Nonforfeiture Law for Individual Deferred Annuities

There has recently been a great interest in annuity contracts, including
the development of new product designs. It has been alleged that the
definition of minimum cash values in Section 4 of the present model Standard
Nonforfeiture Law for Individual Deferred Annuities may be preventing
insurance companies from offering certain annuities that are in the public

interest. Specifically, these types of annuities use a pattern of "surrender charges" against the accumulated fund at each duration in calculating the corresponding cash value. This "surrender charge" may be temporary, or it may decrease as the duration increases. Such a pattern of "surrender charges" can cause the annuity contract to be in violation of Section 4, even though the cash values would comply with Section 2 and all other sections of the model law. This topic should be reopened at the next general revision of the Standard Nonforfeiture Law for Individual Deferred Annuities. That revision might delete or rewrite Section 4. See Recommendation VII.

3b. Whole Life Insurance Plans with No Cash Surrender Values

This topic relates to a proposal to allow whole life insurance plans without guaranteed cash values. It is generally recognized that such policies would have to be properly disclosed to prospective purchasers, and that they would offer extended term insurance or some other form of paid-up nonforfeiture benefit if the policyholder allows his contract to lapse. The concept would be feasible only if it permits insurance companies to sell such whole life policies at rather substantial discounts in gross premium rates, when compared to the rates for similar policies with guaranteed cash values at levels required by the Standard Nonforfeiture Law for Life Insurance. For example, a 15% discount at most issue ages would probably be sufficient to justify the proposal; a 10% discount might not be sufficient. It should be noted that some changes in the wording of the model Standard Nonforfeiture Law for Life Insurance would have to be made before the proposed new types of policies could be sold, since the present wording of this law would prohibit them. The Standing Technical Advisory Committee has done some initial work in reviewing the proposal. A Task Force of the American Council of Life Insurance was formed to make a more detailed study, and it has determined that this project was not feasible at this time. See Recommendation VIII.

4a. Universal Life - Review Product of NAIC (A) Task Force on Universal Life Insurance

See Recommendation V.

4b. Variable Life Guidelines for Model Regulation

This topic is concerned with the development of three guidelines pertaining to the new NAIC model variable life insurance regulation adopted in December 1982. Specifically, these guidelines would relate to: (1) nonforfeiture values for flexible premium variable life insurance, (2) determination of income and assets to meet anticipated withdrawals, and (3) preparation of illustrations for policyholders. The first of these three guidelines must be consistent with whatever actuarial treatment is prescribed for flexible premium non-variable life plans in the forthcoming model universal life regulation. There is a Variable Products Advisory Committee, which reports directly to the Group and which has already done much valuable work in the development of the new model regulation. This Advisory Committee is awaiting

the adoption of the NAIC Model Regulation on Universal Life before proceeding.

Jerome S. Golden, Chairman of the advisory committee, says that the work on the guideline on determining sufficient investment income and assets to cover anticipated withdrawals was proving to be a difficult assignment for the advisory committee. He believes that this is not exclusively an actuarial problem and that some non-actuarial expertise may be needed to develop the proposed guidelines. Therefore, this Group asks that the Universal Life Task Force or such other task force as may be assigned the construction of variable life guidelines, should assign the project of devising a guideline for determining sufficient investment income and assets to cover anticipated withdrawals to a task force consisting of a more diverse composition than actuaries only.

See Recommendation XV.

4c.   Structured Settlements

This project is concerned with the proper reserving for annuity benefits, which are payable as a result of settlement of casualty lawsuits. These benefits can be considered as immediate annuities on substandard lives, and the main question is determining an appropriate set of mortality rates to use in calculating the reserves. The Standing Technical Advisory Committee has been asked to develop a guideline for mortality assumptions and reserve computations. The Group had considered this topic before, but without reaching conclusions, and the work was suspended for some time. However, structured settlements appear to be rapidly expanding in volume; and the reserve questions are increasing in importance.

5.   Actuarial Aspects of Reinsurance Transactions

This is a study of actuarial aspects of reinsurance transactions, including the proper amount of credit which the ceding insurance company should be allowed to take as an offset against its reserve liability. Such questions are becoming increasingly difficult to answer, because of the great variety and complexity of reinsurance contracts now in use. Some of the contracts do not appear to provide for a clear transfer of risk, and one state insurance department's actuary has stated that they may be intended as "two-way surplus aid agreements."

5a.   Minimum Surplus for Risks Assumed

This topic is concerned with determining an appropriate level of minimum surplus which an insurance company would need in order to cover its contract liabilities in the future. It is an extremely important and complex topic. Work is still at a relatively early stage. The major types of risk have been identified and classified, and study of these risks is progressing. A later stage of the work will involve recommending changes in the Standard Valuation Law to implement the results from these studies. Probably, very

extensive changes in the Standard Valuation Law will be needed. Perhaps an entirely new statute will be developed to replace the Standard Valuation Law. It is also expected that the implementation of these studies will affect accident and health insurance and possibly other types of insurance not covered under the present Standard Valuation Law. The Standing Technical Advisory Committee is assisting the Group in its work on this topic. Several members of this Technical Advisory Committee have done pioneer work in the study of risks and alternate valuation concepts, and the Group is pleased to have this help. Attachment 2-D is a letter from Gregory J. Carney dated October 31, 1983, with some further thoughts on this topic. The Standing Technical Advisory Committee expects to have recommendations for practical applications of this research in 1984 so that implementation can begin.

6b. **Actuarial Opinion on Adequacy of Reserves Including the Relation of Liabilities to Assets with Respect to Interest Guarantee Periods**

The Group is considering the recommendation of such an actuarial opinion in connection with its study of alternate valuation concepts. The New York Department of Insurance is already implementing a form of actuarial opinion in connection with annuities and guaranteed interest contracts. The proposed NAIC Model Regulation on Universal Life Insurance includes a requirement for an actuarial opinion in connection with indexed universal life policies (see Recommendation V). It is very possible that the requirement for an actuarial opinion could be implemented with only minimal changes being required in the statutory wording of the model Standard Valuation Law. However, the Group does not yet have any draft of language which might be used for such an actuarial opinion, or for any changes in the Standard Valuation Law that may be needed. The American Academy of Actuaries Committee on Life Insurance Financial Reporting Principles has recently established a Task Force to work on a proposed actuarial opinion. Allan D. Affleck, a consulting actuary with Milliman and Robertson, Inc., in Seattle, Washington, serves as Chairman of this new Task Force. It should also be noted that the Standing Technical Advisory Committee has been assisting the Group in various aspects of work related to alternate valuation concepts. One possible way of proceeding would be for the new American Academy of Actuaries Task Force to develop a specific proposal for the actuarial opinion, and then for the Technical Advisory Committee to review this proposal and furnish its comments to the Group.

6c. **Retrospective Valuation and Nonforfeiture Value Procedures**

At its meeting in December 1982, the (A) Committee expressed an interest in retrospective valuation procedures, and asked the Group to begin working on such a topic. As assigned to the Group, the topic would involve a study of whether the traditional prospective methods used to determine minimum reserves should be replaced by retrospective methods. ("Prospective" implies looking forward from the valuation date to future benefits the insurance company will provide, and future premiums to be paid by the policyholder. "Retrospective" implies looking back from the valuation date to benefits already provided and premiums already paid since the contract was issued.)

Retrospective methods seem to be better suited to certain newer life insurance plans, such as universal life plans, where it is difficult to place a value on future benefits that would be provided. This method needs particular consideration with respect to minimum nonforfeiture values. For this reason Recommendations IX and XII are presented.

9.   Norris Decision - Unisex Mortality Tables

See Recommendation I.

SECTION D.   RECOMMENDATIONS

I. Unisex Mortality Tables (Attachment 2-A)

This is an amendment to the Unisex Mortality Table Model Regulation adopted on an interim basis by the NAIC Executive Committee September 21, 1983, at Tampa, Florida. The form of this amendment mailed October 31, 1983, provided for five tables. This has been further reviewed, and seven tables are now recommended. Several other changes from the October 31, 1983, mailing are:

1. The sentence concerning the use of the 0% and 100% tables has been revised.

2. Tables of 1000 qx for the blended tables are attached.

3. A description of the method for obtaining 10 year selection factors is attached.

The entire amended regulation should then be adopted by the plenary session.

II. Adoption of a Model Regulation Providing for Smokers/Non-smokers Mortality Tables (Attachment 2-A)

This is essentially as recommended October 31, 1983, except that an editorial change was made in the definition of the 1958 CSO Table (Section 3C of the proposed model regulation).

III. Adoption of a Model Regulation Providing for a New Group Annuity Table (Attachment 2-A)

In addition to the recommended model regulation, tables of the values of qx, the ratio of those dying in year of attained age x to those attaining age x at the beginning of such year are now attached. These tables are extracted from the report of the Society of Actuaries Committee on Annuities Concerning the Development of the 1983 Group Annuity Mortality Table.

IV. Revision of Actuarial Guideline IV, Joint Life Insurance (Attachment 2-A)

V. Universal Life Model Regulation (Recommendation to Universal Life Task Force)

We have reviewed the proposed Model Universal Life Insurance Regulation of the A5 Task Force and its Industry Advisory Committee. We believe the regulation represents a positive step towards an appropriate regulatory framework for universal life insurance products. Universal life insurance policies are gaining a rapidly accelerating share of the new life insurance market, and are in a stage of continuing development and evolution. It should be recognized that this model proposal, upon adoption by the NAIC, must receive continuing scrutiny and refinement to keep up with this development and evolution.

We recommend adoption of the proposed model, but urge its continuing review and refinement, particularly in the area of nonforfeiture and disclosure. Toward this end, we recommend a continuation of the A5 Task Force Advisory Committee on Universal Life either in their current or in a newly reconstituted form.
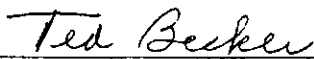
An advisory committee should be appointed to review the interest indexed sections of the Model Universal Life Regulation and expand it to include all interest indexed insurance and annuity products.
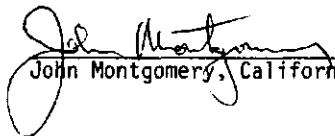
The Technical Staff Actuarial Group is recommending that it be assigned by the Life Insurance (A) Committee to study the feasibility of amending the Standard Nonforfeiture Law for Life Insurance so as to provide an alternative retrospective approach in defining minimum nonforfeiture values. Also, the Group recommends that the requirement for disclosing the effective rate of yield on annuity contracts adopted by the NAIC in December, 1982, be reviewed and expanded to require disclosure of the effective rate of yield on all policies of insurance or annuity contracts which are sold with emphasis on the rate of interest credited to those policies or contracts.

These two study items are broader than Universal Life but would include that product. In any event, the group believes that it is very important that the proposed form of the model regulation be adopted at this time for the sake of consistency of regulation.

VI. Remove Project 1d, Guaranteed Issue and Industrial Life Insurance

VII. Remove Project 3a, Interpretation of Standard Nonforfeiture Law for Individual Deferred Annuities

VIII. Remove Project 3b, Whole Life Insurance Plans With No Cash Surrender Values

IX. Remove Project 6c, Retrospective Valuation and Nonforfeiture Value Procedures (See Recommendation XII below)

X. (Recommendation Withdrawn)

XI. Add Project 2h, Revision of Actuarial Guideline IV, Actuarial Interpretation Regarding Minimum Reserves for Certain Forms of Term Life Insurance (To accomodate the adoption of the Smokers/Non-smokers Mortality Tables as valuation standards.)

XII. Add Project 3c, Study the Feasibility of Amending the Standard Nonforfeiture Law for Life Insurance so as to Provide an Alternative Retrospective Approach in Defining Minimum Nonforfeiture Values

XIII. Add a new Project 7, Develop a Requirement With Respect to the Disclosure of the Effective Rate of Yield on All Policies of Insurance or Annuity Contracts

XIV. Add Project 8 to the Agenda of the Manipulation Task Force to Develop a Model Regulation Concerning Disclosure of Non-guaranteed Premium Rates and Policyholder Dividends Paid By Stock Life Insurance Companies

XV. Ask the Universal Life Task Force to Appoint a Group to Develop a Guideline With Respect to Variable Life Insurance for Determining Sufficient Investment Income and Assets to Cover Anticipated Withdrawals (See Project 4b of Section C Progress Reports above for further details.)

Ted Becker
Ted Becker, Texas

John Montgomery
John Montgomery, California

October 31, 1983

TO: Josephine Driscoll
            Chairperson, NAIC Life (A) Committee

FROM: John O. Montgomery, FSA, MAAA

SUBJECT: Recommendation to the Life (A) Committee

The Life and Health Actuarial Task Force of the NAIC, also known as the Technical Staff Actuarial Group, recommends to the NAIC Life (A) Insurance Committee the adoption of four items at its December 1983 meeting:

I.   An amendment to the Unisex Mortality Table Model Regulation adopted on an interim basis by the NAIC Executive Committee, September 21, 1983 at Tampa, Florida providing for seven representative blends of mortality tables. The entire amended regulation should then be adopted by the plenary session.

II.   Adoption of a model regulation providing for Smoker/Nonsmokers Mortality Tables.

III.   Adoption of a model regulation providing for a new group annuity Mortality Table.

IV.   Revision of Actuarial Guideline VI, Joint Life Insurance.

I.   Unisex Mortality Tables

The model regulation adopted on an interim basis September 21, 1983 by the NAIC Executive Committee provided for "blended" 1980 CSO and 1980 CET Mortality Tables (Attachment Two-A1). To simplify administration and regulation seven tables (only five new tables) have been developed. Those using all males or all females (the present 1980 CSO Male and Female Tables) may be used as blended tables for policies issued prior to January 1, 1985 except as noted in the amendment following. This is purely for convenience sake.

The Task Force recommends that:

Section 4 of the Model Regulation adopted by the NAIC Executive Committee at Tampa, Florida be amended to add a paragraph stating:

"The following tables will be considered as the basis for acceptable tables:

A.   100% Male 0% Female for tables to be designated as the "1980 CSO-A" and "1980 CET-A" tables.

B.   80% Male 20% Female for tables to be designated as the "1980 CSO-B" and "1980 CET-B" tables.

C.   60% Male 40% Female for tables to be designated as the "1980 CSO-C" and "1980 CET-C" tables.

D.   50% Male 50% Female for tables to be designated as the "1980 CSO-D" and "1980 CET-D" tables.

E.   40% Male 60% Female for tables to be designated as the "1980 CSO-E" and "1980 CET-E" tables.

F.   20% Male 80% Female for tables to be designated as the "1980 CSO-F" and "1980 CET-F" tables.

G.   0% Male 100% Female for tables to be designated as the "1980 CSO-G" and "1980 CET-G" tables.

Tables A and G are not to be used with respect to policies issued on or after January 1, 1985 except where the proportion of persons insured is anticipated to be 90% or more of one sex or the other or except for certain policies converted from group insurance. Such group conversions issued on or after January 1, 1986 must use Mortality Tables based on the blend of lives by sex expected for such policies if such group conversions are considered as extensions of the Norris decision. This consideration has not been clearly defined by court or legislative action in all jurisdiction.

Attachment Two-A2 describes the construction of the Tables and Attachment Two-A2 of that attachment for pivotal age 45 shows values of 1000qx for blended Tables B, C, D, E and F. Attachment Two-A3 shows the method by which selection factors may be obtained. Table A is the same as the 1980 CSO Male Table and Table G is the same as the 1980 CSO Female Table.

TABLE B

BLENDED 1980 CSO & 1980 CET MORTALITY TABLES

PIVOTAL AGE IS 45 *** RATIO OF MALE LX TO TOTAL LX IS 80%

BLENDED 1980 CSO TABLE | BLENDED 1980 CET TABLE

AGE	LX	1000QX	AGE	LX	1000QX	AGE	LX	1000QX	AGE	LX	1000QX
0	136260	3.92	50	122860	6.36	0	2437508	5.10	50	2104361	8.27
1	135726	1.04	51	122079	6.90	1	2425077	1.79	51	2086958	8.97
2	135585	.95	52	121237	7.50	2	2420736	1.70	52	2068238	9.75
3	135456	.94	53	120328	8.19	3	2416621	1.69	53	2048073	10.65
4	135329	.91	54	119343	8.96	4	2412537	1.66	54	2026261	11.65
5	135206	.87	55	118274	9.78	5	2408532	1.62	55	2002655	12.71
6	135088	.83	56	117117	10.67	6	2404630	1.58	56	1977201	13.87
7	134976	.79	57	115867	11.58	7	2400831	1.54	57	1949777	15.05
8	134869	.75	58	114525	12.54	8	2397134	1.50	58	1920433	16.30
9	134768	.73	59	113089	13.57	9	2393538	1.48	59	1889130	17.64
10	134670	.72	60	111554	14.72	10	2389996	1.47	60	1855806	19.14
11	134573	.75	61	109912	16.00	11	2386483	1.50	61	1820286	20.80
12	134472	.83	62	108153	17.47	12	2382903	1.58	62	1782424	22.71
13	134360	.94	63	106264	19.16	13	2379138	1.69	63	1741945	24.91
14	134234	1.08	64	104228	21.05	14	2375117	1.83	64	1698553	27.37
15	134089	1.24	65	102034	23.11	15	2370771	1.99	65	1652064	30.04
16	133923	1.39	66	99676	25.29	16	2366053	2.14	66	1602436	32.88
17	133737	1.53	67	97155	27.61	17	2360990	2.28	67	1549748	35.89
18	133532	1.62	68	94473	30.03	18	2355607	2.37	68	1494128	39.04
19	133316	1.69	69	91636	32.66	19	2350024	2.44	69	1435797	42.46
20	133091	1.74	70	88643	35.59	20	2344290	2.49	70	1374833	46.27
21	132859	1.75	71	85488	38.95	21	2338453	2.50	71	1311219	50.64
22	132626	1.73	72	82158	42.84	22	2332607	2.48	72	1244819	55.69
23	132397	1.71	73	78638	47.33	23	2326822	2.46	73	1175495	61.53
24	132171	1.69	74	74916	52.37	24	2321098	2.44	74	1103167	68.08
25	131948	1.65	75	70993	57.84	25	2315435	2.40	75	1028063	75.19
26	131730	1.63	76	66887	63.65	26	2309878	2.38	76	950763	82.75
27	131515	1.61	77	62630	69.70	27	2304380	2.36	77	872087	90.61
28	131303	1.61	78	58265	75.95	28	2298942	2.36	78	793067	98.74
29	131092	1.63	79	53840	82.57	29	2293516	2.38	79	714760	107.34
30	130878	1.65	80	49394	89.83	30	2288057	2.40	80	638038	116.78
31	130662	1.70	81	44957	97.94	31	2282566	2.45	81	563528	127.32
32	130440	1.75	82	40554	107.18	32	2276974	2.50	82	491780	139.33
33	130212	1.83	83	36207	117.65	33	2271282	2.58	83	423260	152.95
34	129974	1.91	84	31947	129.10	34	2265422	2.66	84	358522	167.83
35	129726	2.02	85	27823	141.38	35	2259396	2.77	85	298351	183.79
36	129464	2.14	86	23889	154.17	36	2253137	2.89	86	243517	200.42
37	129187	2.30	87	20206	167.49	37	2246625	3.05	87	194711	217.74
38	128890	2.47	88	16822	181.24	38	2239773	3.22	88	152315	235.61
39	128572	2.68	89	13773	195.54	39	2232561	3.48	89	116428	254.20
40	128227	2.90	90	11080	210.53	40	2224792	3.77	90	86832	273.69
41	127855	3.16	91	8747	226.51	41	2216405	4.11	91	63067	294.46
42	127451	3.42	92	6766	244.13	42	2207296	4.45	92	44496	317.37
43	127015	3.72	93	5114	264.04	43	2197474	4.84	93	30374	343.25
44	126543	4.01	94	3764	289.36	44	2186838	5.21	94	19948	376.17
45	126036	4.35	95	2675	324.89	45	2175445	5.66	95	12444	422.36
46	125488	4.70	96	1806	380.97	46	2163132	6.11	96	7188	495.26
47	124898	5.07	97	1118	477.69	47	2149915	6.59	97	3628	621.00
48	124265	5.45	98	584	657.38	48	2135747	7.09	98	1375	854.59
49	123588	5.89	99	200	1000.00	49	2120605	7.66	99	200	1000.00

TABLE C

BLENDED 1980 CSO & 1980 CET MORTALITY TABLES

PIVOTAL AGE IS 45 *** RATIO OF MALE LX TO TOTAL LX IS 60%

BLENDED 1980 CSO TABLE						BLENDED 1980 CET TABLE					
AGE	LX	1000QX	AGE	LX	1000QX	AGE	LX	1000QX	AGE	LX	1000QX
0	107405	3.67	50	97377	6.01	0	1760557	4.77	50	1529496	7.81
1	107011	.99	51	96792	6.50	1	1752159	1.74	51	1517551	8.45
2	106905	.93	52	96163	7.05	2	1749110	1.68	52	1504728	9.17
3	106806	.90	53	95485	7.68	3	1746171	1.65	53	1490930	9.98
4	106710	.88	54	94752	8.37	4	1743290	1.63	54	1476051	10.88
5	106616	.84	55	93959	9.11	5	1740448	1.59	55	1459992	11.84
6	106526	.81	56	93103	9.88	6	1737681	1.56	56	1442706	12.84
7	106440	.77	57	92183	10.68	7	1734970	1.52	57	1424182	13.88
8	106358	.73	58	91198	11.50	8	1732333	1.48	58	1404414	14.95
9	106280	.73	59	90149	12.39	9	1729769	1.48	59	1383418	16.11
10	106202	.71	60	89032	13.37	10	1727209	1.46	60	1361131	17.38
11	106127	.74	61	87842	14.48	11	1724687	1.49	61	1337475	18.82
12	106048	.80	62	86570	15.79	12	1722117	1.55	62	1312304	20.53
13	105963	.89	63	85203	17.30	13	1719448	1.64	63	1285362	22.49
14	105869	1.01	64	83729	19.01	14	1716628	1.76	64	1256454	24.71
15	105762	1.14	65	82137	20.88	15	1713607	1.89	65	1225407	27.14
16	105641	1.27	66	80422	22.84	16	1710368	2.02	66	1192149	29.69
17	105507	1.38	67	78585	24.90	17	1706913	2.13	67	1156754	32.37
18	105361	1.47	68	76628	27.04	18	1703277	2.22	68	1119310	35.15
19	105206	1.52	69	74556	29.32	19	1699496	2.27	69	1079966	38.12
20	105046	1.56	70	72370	31.92	20	1695638	2.31	70	1038798	41.50
21	104882	1.58	71	70060	34.90	21	1691721	2.33	71	995688	45.37
22	104716	1.58	72	67615	38.38	22	1687779	2.33	72	950514	49.89
23	104551	1.56	73	65020	42.48	23	1683846	2.31	73	903093	55.22
24	104388	1.55	74	62258	47.11	24	1679956	2.30	74	853224	61.24
25	104226	1.53	75	59325	52.16	25	1676092	2.28	75	800973	67.81
26	104067	1.52	76	56231	57.58	26	1672271	2.27	76	746659	74.85
27	103909	1.51	77	52993	63.24	27	1668475	2.26	77	690772	82.21
28	103752	1.53	78	49642	69.13	28	1664704	2.28	78	633984	89.87
29	103593	1.54	79	46210	75.41	29	1660908	2.29	79	577008	98.03
30	103433	1.58	80	42725	82.34	30	1657105	2.33	80	520444	107.04
31	103270	1.63	81	39207	90.17	31	1653244	2.38	81	464736	117.22
32	103102	1.67	82	35672	99.12	32	1649309	2.42	82	410260	128.86
33	102930	1.75	83	32136	109.33	33	1645318	2.50	83	357394	142.13
34	102750	1.83	84	28623	120.58	34	1641205	2.58	84	306598	156.75
35	102562	1.93	85	25172	132.68	35	1636971	2.68	85	258539	172.48
36	102364	2.04	86	21832	145.47	36	1632584	2.79	86	213946	189.11
37	102155	2.20	87	18656	158.84	37	1628029	2.95	87	173487	206.49
38	101930	2.36	88	15693	172.87	38	1623226	3.11	88	137664	224.73
39	101689	2.56	89	12980	187.54	39	1618178	3.33	89	106727	243.80
40	101429	2.78	90	10546	203.08	40	1612789	3.61	90	80707	264.00
41	101147	3.03	91	8404	219.76	41	1606967	3.94	91	59400	285.69
42	100841	3.29	92	6557	238.20	42	1600636	4.28	92	42430	309.66
43	100509	3.56	93	4995	259.26	43	1593785	4.63	93	29291	337.04
44	100151	3.84	94	3700	285.17	44	1586406	4.99	94	19419	370.72
45	99766	4.15	95	2645	322.03	45	1578490	5.40	95	12220	418.64
46	99352	4.47	96	1793	378.56	46	1569966	5.81	96	7104	492.13
47	98908	4.81	97	1114	476.70	47	1560844	6.25	97	3608	619.71
48	98432	5.17	98	583	657.10	48	1551089	6.72	98	1372	854.23
49	97923	5.58	99	200	1000.00	49	1540666	7.25	99	200	1000.00

TABLE D

BLENDED 1980 CSD & 1980 CET MORTALITY TABLES

PIVOTAL AGE IS 45 *** RATIO OF MALE LX TO TOTAL LX IS 50%

	BLENDED 1980 CSD TABLE						BLENDED 1980 CET TABLE				
AGE	LX	1000DX	AGE	LX	1000DX	ABE	LX	1000DX	AGE	LX	1000DX
0	96981	3.54	50	88170	5.83	0	1528592	4.60	50	1332106	7.58
1	96638	.97	51	87656	6.30	1	1521560	1.72	51	1322009	8.19
2	96544	.91	52	87104	6.82	2	1518943	1.66	52	1311182	8.87
3	96456	.89	53	86510	7.42	3	1516422	1.64	53	1299552	9.65
4	96370	.85	54	85868	8.07	4	1513935	1.60	54	1287011	10.49
5	96288	.83	55	85175	8.77	5	1511513	1.58	55	1273510	11.40
6	96208	.79	56	84428	9.50	6	1509125	1.54	56	1258992	12.35
7	96132	.77	57	83626	10.23	7	1506801	1.52	57	1243443	13.30
8	96058	.73	58	82771	10.99	8	1504511	1.48	58	1226905	14.29
9	95988	.72	59	81861	11.81	9	1502284	1.47	59	1209373	15.35
10	95919	.71	60	80894	12.71	10	1500076	1.46	60	1190809	16.52
11	95851	.72	61	79866	13.75	11	1497886	1.47	61	1171137	17.88
12	95782	.78	62	78768	14.96	12	1495684	1.53	62	1150197	19.45
13	95707	.87	63	77590	16.39	13	1493396	1.62	63	1127826	21.31
14	95624	.97	64	76318	18.02	14	1490977	1.72	64	1103792	23.43
15	95531	1.10	65	74943	19.78	15	1488413	1.85	65	1077930	25.71
16	95426	1.21	66	73461	21.64	16	1485659	1.96	66	1050216	28.13
17	95311	1.31	67	71871	23.59	17	1482747	2.06	67	1020673	30.67
18	95186	1.39	68	70176	25.58	18	1479693	2.14	68	989369	33.25
19	95054	1.44	69	68381	27.73	19	1476526	2.19	69	956472	36.05
20	94917	1.48	70	66485	30.16	20	1473292	2.23	70	921991	39.21
21	94777	1.49	71	64480	32.96	21	1470007	2.24	71	885840	42.85
22	94636	1.50	72	62355	36.29	22	1466714	2.25	72	847882	47.18
23	94494	1.49	73	60092	40.20	23	1463414	2.24	73	807879	52.26
24	94353	1.49	74	57676	44.66	24	1460136	2.24	74	765659	58.06
25	94212	1.47	75	55100	49.55	25	1456865	2.22	75	721205	64.42
26	94074	1.47	76	52370	54.80	26	1453631	2.22	76	674745	71.24
27	93936	1.46	77	49500	60.31	27	1450404	2.21	77	626676	78.40
28	93799	1.48	78	46515	66.06	28	1447199	2.23	78	577545	85.88
29	93660	1.51	79	43442	72.23	29	1443972	2.26	79	527945	93.90
30	93519	1.54	80	40304	79.07	30	1440709	2.29	80	478371	102.79
31	93375	1.58	81	37117	86.80	31	1437410	2.33	81	429199	112.84
32	93227	1.64	82	33895	95.68	32	1434061	2.39	82	380768	124.38
33	93074	1.70	83	30652	105.81	33	1430634	2.45	83	333408	137.55
34	92916	1.79	84	27409	117.02	34	1427129	2.54	84	287548	152.13
35	92750	1.88	85	24202	129.11	35	1423504	2.63	85	243803	167.84
36	92576	2.00	86	21077	141.91	36	1419760	2.75	86	202883	184.48
37	92391	2.14	87	18086	155.41	37	1415856	2.89	87	165455	202.03
38	92193	2.31	88	15275	169.55	38	1411764	3.06	88	132028	220.42
39	91980	2.51	89	12685	184.45	39	1407444	3.26	89	102926	239.79
40	91749	2.72	90	10345	200.23	40	1402856	3.54	90	78245	260.30
41	91499	2.97	91	8274	217.23	41	1397890	3.86	91	57878	282.40
42	91227	3.22	92	6477	235.91	42	1392494	4.19	92	41533	306.68
43	90933	3.49	93	4949	257.43	43	1386659	4.54	93	28796	334.66
44	90616	3.75	94	3675	283.81	44	1380364	4.88	94	19159	368.95
45	90276	4.06	95	2632	320.74	45	1373628	5.28	95	12090	416.96
46	89909	4.36	96	1788	377.93	46	1366375	5.67	96	7049	491.31
47	89517	4.68	97	1112	476.61	47	1358628	6.08	97	3586	619.59
48	89098	5.03	98	582	656.44	48	1350368	6.54	98	1364	853.37
49	88650	5.41	99	200	1000.00	49	1341537	7.03	99	200	1000.00

TABLE E

BLENDED 1980 CSO & 1980 CET MORTALITY TABLES

PIVOTAL AGE IS 45 *** RATIO OF MALE LX TO TOTAL LX IS 40%

	BLENDED 1980 CSO TABLE						BLENDED 1980 CET TABLE				
AGE	LX	1000QX	AGE	LX	1000QX	AGE	LX	1000QX	AGE	LX	1000QX
0	88415	3.41	50	80614	5.66	0	1345746	4.43	50	1176481	7.36
1	88114	.95	51	80158	6.10	1	1339784	1.70	51	1167822	7.93
2	88030	.89	52	79669	6.60	2	1337506	1.64	52	1158561	8.58
3	87952	.86	53	79143	7.16	3	1335312	1.61	53	1148621	9.31
4	87876	.84	54	78576	7.77	4	1333162	1.59	54	1137927	10.10
5	87802	.81	55	77965	8.43	5	1331042	1.56	55	1126434	10.96
6	87731	.78	56	77308	9.11	6	1328966	1.53	56	1114088	11.84
7	87663	.76	57	76604	9.79	7	1326933	1.51	57	1100897	12.73
8	87596	.72	58	75854	10.48	8	1324929	1.47	58	1086883	13.62
9	87533	.71	59	75059	11.23	9	1322981	1.46	59	1072080	14.60
10	87471	.70	60	74216	12.05	10	1321049	1.45	60	1056428	15.67
11	87410	.71	61	73322	13.01	11	1319133	1.46	61	1039874	16.91
12	87348	.77	62	72368	14.14	12	1317207	1.52	62	1022290	18.38
13	87281	.84	63	71345	15.50	13	1315205	1.59	63	1003500	20.15
14	87208	.94	64	70239	17.03	14	1313114	1.69	64	983279	22.14
15	87126	1.05	65	69043	18.71	15	1310895	1.80	65	961509	24.32
16	87035	1.15	66	67751	20.46	16	1308535	1.90	66	938125	26.60
17	86935	1.24	67	66365	22.31	17	1306049	1.99	67	913171	29.00
18	86827	1.31	68	64884	24.17	18	1303450	2.06	68	886689	31.42
19	86713	1.36	69	63316	26.18	19	1300765	2.11	69	858829	34.03
20	86595	1.39	70	61658	28.45	20	1298020	2.14	70	829603	36.99
21	86475	1.41	71	59904	31.10	21	1295242	2.16	71	798916	40.43
22	86353	1.42	72	58041	34.27	22	1292444	2.17	72	766616	44.55
23	86230	1.42	73	56052	38.02	23	1289639	2.17	73	732463	49.43
24	86108	1.42	74	53921	42.32	24	1286840	2.17	74	696257	55.02
25	85986	1.40	75	51639	47.05	25	1284048	2.15	75	657949	61.17
26	85866	1.41	76	49209	52.18	26	1281287	2.16	76	617702	67.83
27	85745	1.42	77	46641	57.57	27	1278519	2.17	77	575803	74.84
28	85623	1.44	78	43956	63.21	28	1275745	2.19	78	532710	82.17
29	85500	1.46	79	41178	69.29	29	1272951	2.21	79	488937	90.08
30	85375	1.50	80	38325	76.04	30	1270138	2.25	80	444894	98.85
31	85247	1.55	81	35411	83.72	31	1267280	2.30	81	400916	108.84
32	85115	1.60	82	32446	92.52	32	1264365	2.35	82	357280	120.28
33	84979	1.66	83	29444	102.65	33	1261394	2.41	83	314306	133.45
34	84838	1.75	84	26422	113.82	34	1258354	2.50	84	272362	147.97
35	84690	1.83	85	23415	125.93	35	1255208	2.58	85	232061	163.71
36	84535	1.95	86	20466	138.78	36	1251970	2.70	86	194070	180.41
37	84370	2.09	87	17626	152.39	37	1248590	2.84	87	159058	198.11
38	84194	2.25	88	14940	166.68	38	1245044	3.00	88	127547	216.68
39	84005	2.45	89	12450	181.76	39	1241309	3.20	89	99910	236.29
40	83799	2.66	90	10187	197.78	40	1237337	3.46	90	76302	257.11
41	83576	2.90	91	8172	215.12	41	1233056	3.77	91	56684	279.66
42	83334	3.15	92	6414	234.03	42	1228407	4.10	92	40832	304.24
43	83071	3.41	93	4913	255.85	43	1223371	4.43	93	28409	332.61
44	82788	3.66	94	3656	282.58	44	1217951	4.76	94	18960	367.35
45	82485	3.96	95	2623	319.76	45	1212154	5.15	95	11995	415.69
46	82158	4.24	96	1784	377.41	46	1205911	5.51	96	7009	490.63
47	81810	4.55	97	1111	476.21	47	1199266	5.92	97	3570	619.07
48	81438	4.89	98	582	656.10	48	1192166	6.36	98	1360	852.93
49	81040	5.26	99	200	1000.00	49	1184584	6.84	99	200	1000.00

TABLE F

BLENDED 1980 CSO & 1980 CET MORTALITY TABLES

PIVOTAL AGE IS 45 *** RATIO OF MALE LX TO TOTAL LX IS 20%

| | BLENDED 1980 CSO TABLE | | | | | | BLENDED 1980 CET TABLE | | | | |
AGE	LX	1000DX	AGE	LX	1000DX	AGE	LX	1000DX	AGE	LX	1000DX
0	75108	3.15	50	68862	5.31	0	1080889	4.10	50	950863	6.90
1	74871	.92	51	68496	5.70	1	1076457	1.67	51	944302	7.41
2	74802	.85	52	68108	6.15	2	1074659	1.60	52	937305	8.00
3	74738	.82	53	67687	6.65	3	1072940	1.57	53	929807	8.65
4	74677	.81	54	67237	7.19	4	1071255	1.56	54	921764	9.35
5	74617	.79	55	66754	7.76	5	1069584	1.54	55	913146	10.09
6	74558	.76	56	66236	8.34	6	1067937	1.51	56	903932	10.84
7	74501	.74	57	65684	8.91	7	1066324	1.49	57	894133	11.58
8	74446	.71	58	65099	9.47	8	1064735	1.46	58	883779	12.31
9	74393	.70	59	64483	10.08	9	1063180	1.45	59	872900	13.10
10	74341	.70	60	63833	10.75	10	1061638	1.45	60	861465	13.98
11	74289	.70	61	63147	11.55	11	1060099	1.45	61	849422	15.02
12	74237	.74	62	62418	12.54	12	1058562	1.49	62	836664	16.30
13	74182	.80	63	61635	13.74	13	1056985	1.55	63	823026	17.86
14	74123	.86	64	60788	15.10	14	1055347	1.61	64	808327	19.63
15	74059	.95	65	59870	16.62	15	1053648	1.70	65	792460	21.61
16	73989	1.03	66	58875	18.19	16	1051857	1.78	66	775335	23.65
17	73913	1.09	67	57804	19.81	17	1049985	1.84	67	756998	25.75
18	73832	1.15	68	56659	21.45	18	1048053	1.90	68	737505	27.89
19	73747	1.19	69	55444	23.19	19	1046062	1.94	69	716936	30.15
20	73659	1.22	70	54158	25.19	20	1044033	1.97	70	695320	32.75
21	73569	1.24	71	52794	27.57	21	1041976	1.99	71	672548	35.84
22	73478	1.25	72	51338	30.43	22	1039902	2.00	72	648444	39.56
23	73386	1.27	73	49776	33.92	23	1037822	2.02	73	622792	44.10
24	73293	1.28	74	48088	37.94	24	1035726	2.03	74	595327	49.32
25	73199	1.29	75	46264	42.43	25	1033623	2.04	75	565965	55.16
26	73105	1.30	76	44301	47.33	26	1031514	2.05	76	534746	61.53
27	73010	1.31	77	42204	52.53	27	1029399	2.06	77	501843	68.29
28	72914	1.35	78	39987	58.03	28	1027278	2.10	78	467572	75.44
29	72816	1.38	79	37667	63.98	29	1025121	2.13	79	432298	83.17
30	72716	1.42	80	35257	70.65	30	1022937	2.17	80	396344	91.85
31	72613	1.47	81	32766	78.26	31	1020717	2.22	81	359940	101.74
32	72506	1.52	82	30202	87.04	32	1018451	2.27	82	323320	113.15
33	72396	1.58	83	27573	97.15	33	1016139	2.33	83	286736	126.30
34	72282	1.66	84	24894	108.33	34	1013771	2.41	84	250521	140.83
35	72162	1.74	85	22197	120.52	35	1011328	2.49	85	215240	156.68
36	72036	1.85	86	19522	133.53	36	1008810	2.60	86	181516	173.59
37	71903	1.99	87	16915	147.37	37	1006187	2.74	87	150007	191.58
38	71760	2.15	88	14422	161.93	38	1003430	2.90	88	121269	210.51
39	71606	2.32	89	12087	177.40	39	1000520	3.07	89	95741	230.62
40	71440	2.54	90	9943	193.80	40	997448	3.30	90	73661	251.94
41	71259	2.77	91	8016	211.61	41	994156	3.60	91	55103	275.09
42	71062	3.02	92	6320	231.05	42	990577	3.93	92	39945	300.37
43	70847	3.25	93	4860	253.44	43	986684	4.23	93	27947	329.47
44	70617	3.49	94	3628	280.66	44	982510	4.54	94	18739	364.86
45	70371	3.75	95	2610	318.37	45	978049	4.88	95	11902	413.88
46	70107	4.02	96	1779	376.21	46	973276	5.23	96	6976	489.07
47	69825	4.30	97	1110	475.72	47	968186	5.59	97	3564	618.44
48	69525	4.61	98	582	656.09	48	962774	5.99	98	1360	852.93
49	69204	4.94	99	200	1000.00	49	957007	6.42	99	200	1000.00

II.   Smokers/Nonsmokers Mortality Tables

A model regulation is attached (Attachment Two-A4) providing for 1958 CSO and CET and 1980 CSO and CET Smokers/ Nonsmokers Mortality Tables for use in permitting minimum reserve liabilities and nonforfeiture benefits. The 1958 CSO and CET tables were based on the distribution of smokers/nonsmokers representative of the period used to obtain the basic mortality experience for those tables and were loaded with the loading factors used to derive those tables from the basic tables. The 1980 CSO and CET tables were based on the distribution of smokers vs. nonsmokers during the period of the experience underlying those tables and loaded using the loadings applicable in the construction of the 1980 tables from the basis tables.

Because of the shifts in the proportions of smokers vs. nonsmokers, use of the smokers/nonsmokers tables will not currently reproduce in the aggregate reserves or values calculated using tables not distinguishing by smokers vs. nonsmokers. Tables based on other experience may be used for premium rates and universal life mortality charges; but only the 1958 CSO and CET and 1980 CSO and CET tables provided here may be used for the calculation of minimum policy reserves and non-forfeiture values. The 1958 CSO Tables are male tables; female tables are to be obtained by the age setbacks defined by the Standard Valuation and Nonforfeiture Laws.

The tables attached which are values of 1000 qx are where ANB is "Age Nearest Birthday" and where ALB is "Age Last Birthday":

1	1958 CSO	Male Nonsmokers and Smokers Mortality Tables ANB
2	1958 CET	Male Nonsmokers and Smokers Mortality Table ANB
3	1958 CSO	Male Nonsmokers and Smokers Mortality Tables ALB
4	1958 CET	Male Nonsmokers and Smokers Mortality Table ALB
5	1980 CSO	Female Nonsmokers and Smokers Mortality Table ANB
6	1980 CSO	Male Nonsmokers and Smokers Mortality Table ANB
7	1980 CET	Female Nonsmokers and Smokers Mortality Table ANB
8	1980 CET	Male Nonsmokers and Smokers Mortality Table ANB
9	1980 CSO	Female Nonsmokers and Smokers Mortality Table ALB
10	1980 CSO	Male Nonsmokers and Smokers Mortality Table ALB
11	1980 CET	Female Nonsmokers and Smokers Mortality Table ALB
12	1980 CET	Male Nonsmokers and Smokers Mortality Table ALB

The 1980 CSO Mortality Tables are recommended by the NAIC Technical Staff Actuarial group using those rates shown in the Report of the Society of Actuaries Task Force on Smoker/Nonsmoker Mortality Report dated October 3, 1983. The 1958 CSO Mortality Tables were developed by the staff of the California Department of Insurance using the methodology of the Society of Actuaries Task Force and are also recommended by the NAIC Technical Staff Actuarial group. Since the California Department report is not available elsewhere it is also attached (Attachment Two-A5).

Although eventually some sex blended smoker/nonsmokers tables may be needed, the need is not yet evident.

The Task Force recommends the adoption of this model regulation and the use of the mortality tables mentioned therein for the purposes indicated.

TABLE 1

1958 CSO MALE AND SMOKER AND NON-SMOKER MORTALITY RATES

AGE	NON-SMOKER	SMOKER	AGE	NON-SMOKER	SMOKER	AGE	NON-SMOKER	SMOKER
15	1.46	1.74	45	3.46	6.67	75	68.58	89.23
16	1.53	1.85	46	3.76	7.32	76	74.50	95.68
17	1.60	1.96	47	4.06	8.02	77	81.15	102.54
18	1.64	2.03	48	4.45	8.82	78	88.62	110.80
19	1.65	2.05	49	4.86	9.71	79	96.85	119.44
20	1.64	2.05	50	5.31	10.66	80	105.75	128.60
21	1.62	2.04	51	5.83	11.75	81	115.27	138.20
22	1.63	2.07	52	6.40	12.88	82	125.28	148.05
23	1.63	2.08	53	7.07	14.16	83	135.72	155.05
24	1.64	2.11	54	7.84	15.54	84	146.62	168.22
25	1.64	2.12	55	8.72	17.03	85	158.06	178.62
26	1.65	2.15	56	9.74	18.65	86	170.06	189.26
27	1.66	2.18	57	10.91	20.44	87	182.76	200.21
28	1.67	2.23	58	12.20	22.35	88	196.27	211.61
29	1.69	2.29	59	13.74	24.42	89	210.88	223.70
30	1.71	2.37	60	15.38	26.72	90	226.99	235.85
31	1.73	2.45	61	17.16	29.21	91	244.83	253.34
32	1.75	2.52	62	19.14	31.68	92	265.20	272.12
33	1.79	2.63	63	21.29	34.85	93	286.78	295.50
34	1.83	2.73	64	23.60	38.00	94	316.38	319.13
35	1.88	2.86	65	26.34	41.44	95	351.24	351.24
36	1.95	3.03	66	29.32	45.19	96	400.56	400.55
37	2.04	3.25	67	32.61	49.20	97	488.42	488.42
38	2.15	3.52	68	36.28	53.55	98	665.15	665.15
39	2.28	3.83	69	40.17	58.31	99	1000.00	1000.00
40	2.43	4.19	70	44.34	63.27			
41	2.60	4.62	71	48.74	68.33			
42	2.76	5.04	72	53.32	73.41			
43	2.99	5.55	73	58.07	78.50			
44	3.21	6.09	74	63.11	83.71			

TABLE 3

1958 CSO   MALE   ALB SMOKER AND NON-SMOKER MORTALITY RATES

AGE	NON-SMOKER	SMOKER	AGE	NON-SMOKER	SMOKER	AGE	NON-SMOKER	SMOKER
15	1.49	1.79	45	3.61	6.49	75	71.43	92.30
16	1.56	1.90	46	3.92	7.67	76	77.70	99.08
17	1.62	1.99	47	4.26	8.42	77	84.73	106.60
18	1.64	2.04	48	4.65	9.26	78	92.54	114.87
19	1.65	2.05	49	5.08	10.19	79	101.07	125.73
20	1.63	2.05	50	5.57	11.21	80	110.24	133.07
21	1.62	2.05	51	6.11	12.31	81	119.97	142.76
22	1.63	2.07	52	6.73	13.52	82	130.15	152.65
23	1.63	2.09	53	7.45	14.85	83	140.77	162.70
24	1.64	2.11	54	8.28	16.28	84	151.89	172.94
25	1.64	2.13	55	9.23	17.83	85	163.55	183.42
26	1.65	2.16	56	10.32	19.54	86	175.85	194.16
27	1.66	2.20	57	11.58	21.39	87	188.84	205.26
28	1.68	2.26	58	13.00	23.37	88	202.78	216.94
29	1.70	2.33	59	14.55	25.56	89	217.99	229.45
30	1.72	2.41	60	16.26	27.95	90	234.77	245.99
31	1.74	2.48	61	18.14	30.53	91	253.59	261.57
32	1.77	2.57	62	20.20	33.33	92	275.19	281.25
33	1.81	2.68	63	22.47	36.39	93	300.25	304.28
34	1.85	2.79	64	24.99	39.69	94	330.53	332.14
35	1.91	2.94	65	27.81	43.28	95	370.65	370.65
36	1.99	3.14	66	30.94	47.15	96	433.49	433.49
37	2.09	3.38	67	34.41	51.32	97	549.25	549.25
38	2.21	3.67	68	38.19	55.86	98	750.84	750.84
39	2.35	4.01	69	42.21	60.72	99	1000.00	1000.00
40	2.51	4.40	70	46.49	65.72			
41	2.69	4.83	71	50.97	70.78			
42	2.88	5.29	72	55.63	75.86			
43	3.10	5.82	73	60.51	81.00			
44	3.33	6.38	74	65.76	86.35			

TABLE 4

1958 CET MALE ALB SMOKER AND NON-SMOKER MORTALITY RATES

AGE	NON-SMOKER	SMOKER	AGE	NON-SMOKER	SMOKER	AGE	NON-SMOKER	SMOKER
15	2.24	2.54	45	4.69	9.09	75	92.82	119.93
16	2.31	2.65	46	5.09	9.97	76	100.95	128.73
17	2.37	2.74	47	5.54	10.95	77	110.08	138.49
18	2.39	2.79	48	6.05	12.04	78	120.23	149.22
19	2.40	2.80	49	6.61	13.25	79	131.31	160.72
20	2.38	2.80	50	7.24	14.58	80	143.21	172.85
21	2.37	2.80	51	7.95	16.00	81	155.83	185.43
22	2.38	2.82	52	8.75	17.57	82	169.05	198.28
23	2.38	2.84	53	9.69	19.30	83	182.84	211.32
24	2.39	2.86	54	10.76	21.16	84	197.26	224.02
25	2.39	2.88	55	12.00	23.18	85	212.40	238.22
26	2.40	2.91	56	13.42	25.40	86	228.32	252.16
27	2.41	2.95	57	15.05	27.80	87	245.19	266.37
28	2.43	3.01	58	16.89	30.39	88	263.26	281.70
29	2.45	3.08	59	18.92	33.22	89	282.95	297.91
30	2.47	3.16	60	21.14	36.33	90	304.68	316.03
31	2.49	3.24	61	23.58	39.67	91	329.01	339.14
32	2.52	3.35	62	26.26	43.32	92	356.89	364.82
33	2.56	3.48	63	29.21	47.29	93	389.20	394.32
34	2.60	3.63	64	32.48	51.58	94	426.08	430.28
35	2.66	3.83	65	36.15	56.24	95	479.19	479.19
36	2.74	4.08	66	40.21	61.28	96	557.74	557.74
37	2.84	4.40	67	44.72	66.70	97	697.43	697.43
38	2.96	4.78	68	49.63	72.60	98	883.86	883.86
39	3.10	5.21	69	54.86	78.90	99	1000.00	1000.00
40	3.28	5.73	70	60.42	85.40			
41	3.49	6.28	71	66.24	91.98			
42	3.75	6.88	72	72.29	98.57			
43	4.03	7.57	73	78.64	105.25			
44	4.33	8.29	74	85.44	112.20			

TABLE 5

1980 CSO FEMALE SMOKER AND NON-SMOKER MORTALITY RATES

Age Nearest Birthday

Age	Non-Smoker	Smoker	Age	Non-Smoker	Smoker	Age	Non-Smoker	Smoker
15	0.84	0.94	45	2.99	4.61	75	37.32	46.64
16	0.88	0.99	46	3.19	4.95	76	42.04	51.92
17	0.92	1.04	47	3.41	5.31	77	47.11	57.46
18	0.95	1.09	48	3.65	5.68	78	52.53	62.23
19	0.98	1.13	49	3.90	6.08	79	58.45	69.41
20	1.01	1.16	50	4.19	6.54	80	65.12	76.26
21	1.02	1.18	51	4.50	7.00	81	72.76	84.00
22	1.04	1.21	52	4.85	7.52	82	81.59	92.84
23	1.05	1.23	53	5.26	8.13	83	91.76	102.87
24	1.08	1.27	54	5.68	8.75	84	103.03	114.65
25	1.09	1.29	55	6.13	9.40	85	115.38	126.42
26	1.12	1.34	56	6.59	10.05	86	128.58	139.79
27	1.14	1.38	57	7.05	10.67	87	142.71	152.67
28	1.17	1.42	58	7.49	11.25	88	157.61	167.23
29	1.20	1.48	59	7.96	11.85	89	173.51	181.07
30	1.24	1.55	60	8.51	12.51	90	190.39	197.01
31	1.27	1.61	61	9.16	13.36	91	208.58	214.00
32	1.31	1.68	62	9.93	14.39	92	228.60	232.54
33	1.35	1.75	63	11.01	15.78	93	251.40	253.55
34	1.42	1.86	64	12.23	17.33	94	279.31	279.31
35	1.47	1.94	65	13.55	19.07	95	317.32	317.32
36	1.56	2.09	66	14.97	20.79	96	375.74	375.74
37	1.67	2.28	67	16.41	22.58	97	474.97	474.97
38	1.79	2.49	68	17.86	24.20	98	655.85	655.85
39	1.93	2.73	69	19.41	26.02	99	1000.00	1000.00
40	2.08	3.00	70	21.20	27.95			
41	2.26	3.33	71	23.34	30.45			
42	2.44	3.64	72	25.99	33.55			
43	2.62	3.96	73	29.22	37.33			
44	2.80	4.28	74	33.02	41.74			

TABLE 6

1980 CSO MALE SMOKER AND NON-SMOKER MORTALITY RATES

Age Nearest Birthday

Age	Non-Smoker	Smoker	Age	Non-Smoker	Smoker	Age	Non-Smoker	Smoker
15	1.29	1.65	45	3.32	6.27	75	58.80	83.77
16	1.43	1.87	46	3.59	6.83	76	65.06	91.10
17	1.54	2.05	47	3.88	7.44	77	71.64	98.52
18	1.60	2.16	48	4.19	8.08	78	78.47	105.91
19	1.66	2.26	49	4.54	8.80	79	85.72	113.49
20	1.68	2.31	50	4.91	9.56	80	93.67	121.59
21	1.67	2.33	51	5.35	10.44	81	102.52	130.41
22	1.64	2.30	52	5.86	11.42	82	112.52	140.20
23	1.61	2.26	53	6.43	12.54	83	123.79	151.03
24	1.57	2.21	54	7.09	13.80	84	136.11	162.49
25	1.52	2.14	55	7.82	15.14	85	149.20	174.20
26	1.48	2.08	56	8.63	16.59	86	162.80	185.78
27	1.46	2.06	57	9.49	18.09	87	176.79	197.06
28	1.44	2.04	58	10.42	19.69	88	190.89	209.37
29	1.44	2.06	59	11.47	21.35	89	205.29	221.52
30	1.44	2.10	60	12.64	23.19	90	220.19	233.69
31	1.47	2.17	61	13.94	25.26	91	235.84	246.12
32	1.50	2.24	62	15.42	27.59	92	252.75	259.33
33	1.55	2.35	63	17.11	30.23	93	271.63	276.30
34	1.61	2.48	64	19.02	33.14	94	295.65	298.15
35	1.69	2.63	65	21.13	36.29	95	329.96	329.96
36	1.77	2.81	66	23.40	39.57	96	384.55	384.55
37	1.88	3.04	67	25.86	43.01	97	480.20	480.20
38	2.00	3.30	68	28.50	46.55	98	657.98	657.98
39	2.14	3.60	69	31.38	50.32	99	1000.00	1000.00
40	2.29	3.94	70	34.63	54.48			
41	2.47	4.34	71	38.91	59.09			
42	2.65	4.75	72	42.56	64.33			
43	2.86	5.22	73	47.44	70.23			
44	3.07	5.71	74	52.92	76.66			

TABLE 7

1980 CET FEMALE SMOKER AND NON-SMOKER MORTALITY RATES

Age Nearest Birthday

Age	Non-Smoker	Smoker	Age	Non-Smoker	Smoker	Age	Non-Smoker	Smoker
15	1.59	1.69	45	3.89	5.99	75	48.52	60.63
16	1.63	1.74	46	4.15	6.44	76	54.65	67.50
17	1.67	1.79	47	4.43	6.90	77	61.24	74.70
18	1.70	1.84	48	4.75	7.38	78	68.29	82.20
19	1.73	1.88	49	5.07	7.90	79	75.99	90.23
20	1.76	1.91	50	5.45	8.50	80	84.66	99.14
21	1.77	1.93	51	5.85	9.10	81	94.59	109.20
22	1.79	1.96	52	6.31	9.78	82	106.07	120.69
23	1.80	1.98	53	6.84	10.57	83	119.29	133.73
24	1.83	2.02	54	7.38	11.38	84	133.94	149.05
25	1.84	2.04	55	7.97	12.22	85	149.99	164.25
26	1.87	2.09	56	8.57	13.07	86	167.15	181.73
27	1.89	2.13	57	9.17	13.87	87	185.52	198.47
28	1.92	2.17	58	9.74	14.63	88	204.89	217.40
29	1.95	2.23	59	10.35	15.41	89	225.56	235.39
30	1.99	2.30	60	11.06	16.26	90	247.51	256.11
31	2.02	2.36	61	11.91	17.37	91	271.15	278.20
32	2.06	2.43	62	12.97	18.71	92	297.18	302.30
33	2.10	2.50	63	14.31	20.51	93	326.82	329.62
34	2.17	2.61	64	15.90	22.53	94	363.10	363.10
35	2.22	2.69	65	17.62	24.79	95	412.52	412.52
36	2.31	2.84	66	19.46	27.03	96	488.46	488.46
37	2.42	3.03	67	21.33	29.35	97	617.46	617.46
38	2.54	3.24	68	23.22	31.46	98	852.61	852.61
39	2.68	3.55	69	25.23	33.83	99	1000.00	1000.00
40	2.83	3.90	70	27.56	36.34			
41	3.01	4.33	71	30.34	39.59			
42	3.19	4.73	72	33.79	43.62			
43	3.41	5.15	73	37.99	48.53			
44	3.64	5.56	74	42.93	54.26			

TABLE 8

1980 CET MALE SMOKER AND NON-SMOKER MORTALITY RATES

Age Nearest Birthday

Age	Non-Smoker	Smoker	Age	Non-Smoker	Smoker	Age	Non-Smoker	Smoker
15	2.04	2.40	45	4.32	8.15	75	76.44	108.90
16	2.18	2.62	46	4.67	8.83	76	84.58	118.43
17	2.29	2.80	47	5.04	9.67	77	93.13	128.08
18	2.35	2.91	48	5.45	10.50	78	102.01	137.68
19	2.41	8.01	49	5.90	11.44	79	111.44	147.54
20	2.43	3.06	50	6.38	12.43	80	121.77	158.07
21	2.42	8.08	51	6.96	13.57	81	132.28	169.53
22	2.39	3.05	52	7.62	14.85	82	146.28	182.20
23	2.36	8.01	53	8.36	16.30	83	160.93	196.34
24	2.32	2.96	54	9.22	17.94	84	176.94	211.24
25	2.27	2.89	55	10.17	19.68	85	193.96	226.46
26	2.23	2.83	56	11.22	21.57	86	211.64	241.51
27	2.21	2.81	57	12.34	23.52	87	229.83	256.18
28	2.19	2.79	58	13.55	25.60	88	248.16	272.18
29	2.19	2.81	59	14.91	27.76	89	266.88	287.98
30	2.19	2.85	60	16.43	30.15	90	286.25	303.80
31	2.22	2.92	61	18.12	32.84	91	306.59	319.96
32	2.25	2.99	62	20.05	35.87	92	328.58	337.13
33	2.30	8.10	63	22.24	39.30	93	353.12	359.19
34	2.36	3.23	64	24.73	43.08	94	384.35	387.60
35	2.44	8.42	65	27.47	47.18	95	428.95	428.95
36	2.52	8.65	66	30.42	51.44	96	499.92	499.92
37	2.63	3.95	67	33.62	55.91	97	624.26	624.26
38	2.75	4.29	68	37.05	60.52	98	855.37	855.37
39	2.89	4.68	69	40.79	65.42	99	1000.00	1000.00
40	3.04	5.12	70	45.02	70.82			
41	3.22	5.64	71	49.80	76.82			
42	3.45	6.18	72	55.33	83.63			
43	8.72	6.79	73	61.67	91.30			
44	3.99	7.42	74	68.80	99.66			

TABLE 9

1980 CSO FEMALE SMOKER AND NON-SMOKER MORTALITY RATES

Age Last Birthday

Age	Non-Smoker	Smoker	Age	Non-Smoker	Smoker	Age	Non-Smoker	Smoker
15	0.86	0.96	45	3.09	4.78	75	39.64	49.20
16	0.90	1.01	46	3.30	5.13	76	44.52	54.02
17	0.93	1.06	47	3.53	5.49	77	49.75	60.26
18	0.96	1.11	48	3.77	5.88	78	55.41	66.22
19	0.99	1.14	49	4.04	6.31	79	61.68	72.71
20	1.01	1.17	50	4.34	6.77	80	68.81	79.98
21	1.03	1.19	51	4.67	7.26	81	77.01	88.23
22	1.04	1.22	52	5.05	7.82	82	86.46	97.61
23	1.06	1.25	53	5.47	8.44	83	97.12	108.44
24	1.08	1.28	54	5.90	9.07	84	108.87	120.18
25	1.10	1.31	55	6.36	9.72	85	121.58	132.65
26	1.13	1.36	56	6.82	10.36	86	135.16	145.75
27	1.15	1.40	57	7.27	10.96	87	149.59	159.35
28	1.18	1.45	58	7.72	11.55	88	164.88	173.52
29	1.22	1.51	59	8.23	12.18	89	181.15	188.25
30	1.25	1.58	60	8.83	12.93	90	198.53	204.58
31	1.29	1.64	61	9.57	13.87	91	217.42	222.16
32	1.33	1.71	62	10.49	15.08	92	238.53	241.66
33	1.38	1.80	63	11.62	16.55	93	263.35	264.56
34	1.44	1.90	64	12.89	18.19	94	295.23	295.23
35	1.51	2.01	65	14.26	19.92	95	341.02	341.02
36	1.61	2.18	66	15.68	21.68	96	413.88	413.88
37	1.73	2.38	67	17.13	23.38	97	537.24	537.24
38	1.86	2.61	68	18.63	25.10	98	743.96	743.96
39	2.00	2.86	69	20.30	26.97	99	1000.00	1000.00
40	2.17	3.16	70	22.26	29.18			
41	2.35	3.48	71	24.65	31.98			
42	2.53	3.80	72	27.58	35.41			
43	2.71	4.12	73	31.09	39.49			
44	2.89	4.44	74	35.13	44.14			

TABLE 10

1980 CSO MALE SMOKER AND NON-SMOKER MORTALITY RATES

Age Last Birthday

Age	Non-Smoker	Smoker	Age	Non-Smoker	Smoker	Age	Non-Smoker	Smoker
15	1.36	1.76	45	3.45	6.55	75	61.84	87.27
16	1.48	1.96	46	3.73	7.13	76	68.24	94.63
17	1.57	2.10	47	4.03	7.76	77	74.93	102.02
18	1.63	2.21	48	4.36	8.44	78	81.95	109.49
19	1.67	2.28	49	4.72	9.18	79	89.52	117.30
20	1.68	2.32	50	5.13	10.00	80	97.89	125.71
21	1.66	2.32	51	5.60	10.93	81	107.25	134.96
22	1.63	2.28	52	6.14	11.98	82	117.82	145.21
23	1.59	2.24	53	6.76	13.17	83	129.54	156.29
24	1.55	2.18	54	7.45	14.47	84	142.18	167.83
25	1.50	2.11	55	8.22	15.86	85	155.45	179.44
26	1.47	2.07	56	9.06	17.33	86	169.18	190.84
27	1.45	2.05	57	9.95	18.88	87	183.16	202.54
28	1.44	2.05	58	10.94	20.51	88	197.33	214.73
29	1.44	2.08	59	12.05	22.26	89	211.89	226.85
30	1.45	2.13	60	13.29	24.21	90	227.05	239.08
31	1.48	2.20	61	14.67	26.41	91	243.16	251.80
32	1.52	2.29	62	16.26	28.89	92	260.82	266.55
33	1.58	2.41	63	18.06	31.66	93	281.75	285.47
34	1.65	2.55	64	20.06	34.69	94	309.83	311.27
35	1.73	2.72	65	22.25	37.90	95	351.86	351.86
36	1.82	2.92	66	24.62	41.26	96	420.99	420.99
37	1.94	3.17	67	27.16	44.74	97	541.00	541.00
38	2.07	3.45	68	29.92	48.39	98	745.15	745.15
39	2.21	3.77	69	32.98	52.35	99	1000.00	1000.00
40	2.38	4.14	70	36.44	56.72			
41	2.56	4.54	71	40.39	61.63			
42	2.75	4.98	72	44.95	67.18			
43	2.96	5.46	73	50.11	73.33			
44	3.19	5.99	74	55.78	80.07			

TABLE 11

1980 CET FEMALE SMOKER AND NON-SMOKER MORTALITY RATES

Age Last Birthday

Age	Non-Smoker	Smoker	Age	Non-Smoker	Smoker	Age	Non-Smoker	Smoker
15	1.61	1.71	45	4.02	6.21	75	51.53	63.99
16	1.65	1.76	46	4.29	6.67	76	57.89	71.01
17	1.68	1.81	47	4.59	7.14	77	64.68	78.34
18	1.71	1.86	48	4.90	7.64	78	72.03	86.09
19	1.74	1.89	49	5.25	8.20	79	80.18	94.52
20	1.76	1.92	50	5.64	8.80	80	89.45	103.97
21	1.78	1.94	51	6.07	9.44	81	100.11	114.70
22	1.79	1.97	52	6.57	10.17	82	112.40	126.89
23	1.81	2.00	53	7.11	10.97	83	126.26	140.97
24	1.83	2.03	54	7.67	11.79	84	141.53	156.23
25	1.85	2.06	55	8.27	12.64	85	158.05	172.45
26	1.88	2.11	56	8.87	13.47	86	175.71	189.43
27	1.90	2.15	57	9.45	14.25	87	194.47	207.16
28	1.93	2.20	58	10.04	15.02	88	214.34	225.58
29	1.97	2.26	59	10.70	15.83	89	235.50	244.73
30	2.00	2.33	60	11.48	16.81	90	258.09	265.95
31	2.04	2.39	61	12.44	18.03	91	282.65	288.81
32	2.08	2.46	62	13.64	19.60	92	310.09	314.16
33	2.13	2.55	63	15.11	21.52	93	342.36	343.93
34	2.19	2.65	64	16.76	23.65	94	383.80	383.80
35	2.26	2.76	65	18.54	25.90	95	443.33	443.33
36	2.36	2.93	66	20.38	28.18	96	538.04	538.04
37	2.48	3.13	67	22.27	30.39	97	698.41	698.41
38	2.61	3.39	68	24.22	32.63	98	967.15	967.15
39	2.75	3.72	69	26.39	35.06	99	1000.00	1000.00
40	2.92	4.11	70	28.94	37.93			
41	3.10	4.52	71	32.05	41.57			
42	3.29	4.94	72	35.85	46.03			
43	3.52	5.36	73	40.42	51.34			
44	3.76	5.77	74	45.67	57.38			

TABLE 12

1980 CET MALE SMOKER AND NON-SMOKER MORTALITY RATES

Age Last Birthday

Age	Non-Smoker	Smoker	Age	Non-Smoker	Smoker	Age	Non-Smoker	Smoker
15	2.11	2.51	45	4.40	8.52	75	80.39	113.45
16	2.23	2.71	46	4.85	9.27	76	88.71	123.02
17	2.32	2.85	47	5.24	10.09	77	97.41	132.03
18	2.38	2.96	48	5.67	10.97	78	106.54	142.34
19	2.42	3.03	49	6.14	11.93	79	116.38	152.49
20	2.43	3.07	50	6.67	13.00	80	127.24	163.42
21	2.41	3.07	51	7.28	14.21	81	139.43	175.45
22	2.38	3.03	52	7.98	15.57	82	153.17	188.77
23	2.34	2.99	53	8.79	17.12	83	168.40	202.18
24	2.30	2.93	54	9.69	18.81	84	184.83	218.18
25	2.25	2.86	55	10.69	20.62	85	202.00	233.27
26	2.22	2.82	56	11.78	22.53	86	219.93	248.09
27	2.20	2.80	57	12.94	24.54	87	238.11	263.30
28	2.19	2.80	58	14.22	26.66	88	256.53	279.15
29	2.19	2.83	59	15.67	28.94	89	275.46	294.91
30	2.20	2.88	60	17.28	31.47	90	295.17	310.80
31	2.23	2.95	61	19.07	34.33	91	316.11	327.34
32	2.27	3.04	62	21.14	37.56	92	339.07	346.52
33	2.33	3.16	63	23.48	41.16	93	366.28	371.11
34	2.40	3.32	64	26.08	45.10	94	402.78	404.65
35	2.48	3.54	65	28.93	49.27	95	457.42	457.42
36	2.57	3.80	66	32.01	53.64	96	547.29	547.29
37	2.69	4.12	67	25.31	58.16	97	703.30	703.30
38	2.82	4.49	68	38.90	62.91	98	968.70	968.70
39	2.96	4.90	69	42.87	68.06	99	1000.00	1000.00
40	3.13	5.38	70	47.37	73.74			
41	3.33	5.90	71	52.51	80.12			
42	3.58	6.47	72	58.44	87.33			
43	3.85	7.10	73	65.14	95.33			
44	4.15	7.79	74	72.51	104.09			

III.   Group Annuity Mortality Table

Attached (Attachment Two-A6) is an amendment to the model rule (regulation) for recognizing a new mortality table for use in determining reserve liabilities for group annuities. This amendment provides for a new mortality table, the 1983 GAM Table, for use in determining a minimum reserve standard for group annuity and pure endowment contracts. Previously the NAIC had adopted this model rule for the 1983 Table "a". The Task Force recommends the use of this new table as indicated in the proposed model regulation.

1983 GAM TABLE
MALES

Age	q	Age	q	Age	q
5	.000342	40	.001238	76	.049388
6	.000318	41	.001370	77	.054758
7	.000302	42	.001527	78	.060678
8	.000294	43	.001715	79	.067125
9	.000292	44	.001932	80	.074070
10	.000293	45	.002183	81	.081484
11	.000298	46	.002471	82	.089320
12	.000304	47	.002790	83	.097525
13	.000310	48	.003138	84	.106047
14	.000317	49	.003513	85	.114836
15	.000325	50	.003909	86	.124170
16	.000333	51	.004324	87	.133870
17	.000343	52	.004755	88	.144073
18	.000353	53	.005200	89	.154859
19	.000365	54	.005660	90	.166307
20	.000377	55	.006131	91	.178214
21	.000392	56	.006618	92	.190460
22	.000408	57	.007139	93	.203007
23	.000424	58	.007719	94	.217904
24	.000444	59	.008384	95	.234086
25	.000464	60	.009158	96	.248436
26	.000488	61	.010064	97	.263954
27	.000513	62	.011133	98	.280803
28	.000542	63	.012391	99	.299154
29	.000572	64	.013868	100	.319185
30	.000607	65	.015592	101	.341086
31	.000645	66	.017579	102	.365052
32	.000687	67	.019804	103	.393102
33	.000734	68	.022229	104	.427255
34	.000785	69	.024817	105	.469531
35	.000860	70	.027530	106	.521945
36	.000907	71	.030354	107	.586518
37	.000966	72	.033370	108	.665268
38	.001039	73	.036680	109	.760215
39	.001128	74	.040388	110	1.000000
		75	.044597		

1983 GAM TABLE
FEMALES

Age	q	Age	q	Age	q
5	.000171	40	.000665	76	.027184
6	.000140	41	.000716	77	.030672
7	.000118	42	.000775	78	.034459
8	.000104	43	.000841	79	.038549
9	.000097	44	.000919	80	.042945
10	.000096	45	.001010	81	.047655
11	.000104	46	.001117	82	.052691
12	.000113	47	.001237	83	.058071
13	.000121	48	.001366	84	.063807
14	.000131	49	.001505	85	.069918
15	.000140	50	.001647	86	.076570
16	.000149	51	.001793	87	.084459
17	.000159	52	.001948	88	.091935
18	.000168	53	.002119	89	.101354
19	.000179	54	.002315	90	.111750
20	.000189	55	.002541	91	.123076
21	.000201	56	.002803	92	.135630
22	.000212	57	.003103	93	.149577
23	.000225	58	.003442	94	.165103
24	.000238	59	.003821	95	.182419
25	.000253	60	.004241	96	.201757
26	.000268	61	.004702	97	.222043
27	.000283	62	.005210	98	.243899
28	.000301	63	.005769	99	.268185
29	.000320	64	.006385	100	.295187
30	.000342	65	.007064	101	.325225
31	.000364	66	.007817	102	.358897
32	.000388	67	.008681	103	.395842
33	.000414	68	.009702	104	.438360
34	.000443	69	.010921	105	.487816
35	.000476	70	.012385	106	.545886
36	.000502	71	.014128	107	.614309
37	.000535	72	.016159	108	.694884
38	.000573	73	.018481	109	.789474
39	.000617	74	.021091	110	1.000000
		75	.023992		

IV.   Revision of Actuarial Guideline VI Joint Life Insurance

Attached (Attachment Two-A7) is a proposed revision of Actuarial Guideline VI Joint Life Insurance and an explanation of the need for such revision. The Task Force recommends adoption of this revision.

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ATTACHMENT TWO-A1

NAIC PROCEDURE FOR PERMITTING SAME MINIMUM NONFORFEITURE STANDARDS FOR MEN AND WOMEN INSURED UNDER 1980 CSO and 1980 CET MORTALITY TABLES
Adopted on an interim basis by NAIC Executive Committee
September 21, 1983

Preamble

The U.S. Supreme Court in its decision in Arizona Governing Committee v. Norris makes it illegal for an employer to make contributions after August 1, 1983 to a defined contribution pension plan if the benefits derived from those contributions differ by sex. Although there is some uncertainty as to the breadth of the Supreme Court's decision, it would seem to require that after August 1, 1983, employer pension plans may need to be funded by life insurance products that have identical nonforfeiture values for men and women. Since the 1980 CSO and 1980 CET Mortality Tables contain mortality rates that vary by both age and sex, it is very difficult if not impossible for companies to determine actual nonforfeiture values that are identical for men and women and also satisfy a sex-differentiated minimum standard. For this reason, this regulation permits the same minimum nonforfeiture standard - for men and women insureds under the 1980 CSO and 1980 CET Mortality Tables.

A few background comments may be helpful in understanding the intent of this regulation.

(1)   No attempt was made to define which policies and situations are covered by the Norris decision and which are not. The breadth of the Norris decision is unclear and may ultimately have to be resolved by further court decisions or federal legislation.

(2)   Insurers are given flexibility to use either:

(a)   the existing tables with mortality rates that vary by age and sex, or

(b)   tables of mortality rates which are a blend of the male and female mortality rates.

(3)   No change is made in minimum valuation standards, since these do not involve any contractual relationship between the insurer and its policyholder clients and the Supreme Court did not address state statutory valuation standards.

(4)   Section 5 is included to make it clear that an insurer who issues the same kind of policy on a sex-distinct basis in some circumstances and on a sex-neutral basis in others shall not be deemed to be in violation of the state unfair discrimination laws.

(5)   A cutoff date of January 1, 1989 is provided in anticipation of a more permanent resolution of this issue by that time.

(6)   The effective date is August 1, 1983, the date the judgement in the Norris decision became effective.

TABLE OF CONTENTS

Section 1.   Authority

This Rule is promulgated by the Commissioner of Insurance pursuant to Section (insert applicable reference to the Standard Nonforfeiture Law for Life Insurance) of the (insert state) Insurance Laws.

Section 2.   Purpose

The purpose of the Rule is to permit individual life insurance policies to provide the same cash values and paid-up non-forfeiture benefits to both men and women. No change in minimum valuation standards is implied by this rule.

Section 3.   Definition

A.   As used in this Rule, "1980 CSO Table, with or without Ten-Year Select Mortality Factor" means that mortality table, consisting of separate rates of mortality for male and female lives, developed by the Society of Actuaries Committee to Recommend New Mortality Tables for Valuation of Standard Individual Ordinary Life Insurance, incorporated in the 1980 NAIC Amendments to the Model Standard Valuation Law and Standard Nonforfeiture Law for Life Insurance, and referred to in those models as the Commissioners 1980 Standard Ordinary Mortality Table, with or without Ten-Year Mortality Factors.

B.   As used in this Rule, "1980 CSO Table (M), with or without Ten-Year Select Mortality Factors" means that mortality table consisting of the rates of mortality for male lives from the 1980 CSO Table, with or without Ten-Year Select Mortality Factor.

C.   As used in this Rule, "1980 CSO Table (F), with or without Ten-Year Select Mortality Factors" means that mortality table consisting of the rates of mortality for female lives from the 1980 CSO Table, with or without Ten-Year Select Mortality Factors.

D.   As used in this Rule, "1980 CET Table" means that mortality table consisting of separate rates of mortality for male and female lives, developed by the Society of Actuaries Committee to Recommend New Mortality Tables for Valuation of Standard Individual Ordinary Life Insurance, incorporated in the 1980 NAIC Amendments to the Model Standard Valuation Law and Standard Nonforfeiture Law for Life Insurance, and referred to in those models as the Commissioners 1980 Extended Term Insurance Table.

E.   As used in this Rule, "1980 CET Table (M)" means that mortality table consisting of the rates of mortality for male lives from the 1980 CET Table.

F.   As used in this Rule, "1980 CET Table (F)" means that mortality table consisting of the rates of mortality for female lives from the 1980 CET Table.

Section 4.   Rule

For any policy of insurance on the life of either a male or female insured delivered or issued for delivery in this state before January 1, 1989 and after the operative date of Section (insert applicable reference corresponding to paragraph 5-c(11) of the NAIC Model Standard Nonforfeiture Law for Life Insurance) for that policy form,

   (i)   a mortality table which is a blend of the 1980 CSO Table (M) and the 1980 CSO Table (F) with or without Ten-Year Select Mortality Factors may at the option of the company be substituted for the 1980 CSO Table, with or without Ten-Year Select Mortality Factors, and

   (ii)   a mortality table which is of the same blend as used in (i) but applied to form a blend of the 1980 CET Table (M) and the 1980 CET Table (F) may at the option of the company be substituted for the 1980 CET Table.

for use in determining minimum cash surrender values and amounts of paid-up nonforfeiture benefits.

Section 5.   Unfair Discrimination

It shall not be a violation of (insert applicable reference to unfair trade practices statute) for an insurer to issue the same kind of policy of life insurance on both a sex distinct and sex neutral basis.

Section 6.   Separability

If any provsiion of this Rule of the application thereof to any person or circumstance is for any reason held to be invalid, the remainder of the regulation and the application of such provision to other persons or circumstances shall not be affected thereby.

Section 7.   Effective Date

The effective date of this Rule is August 1, 1983 to comply with the Norris Decision.

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ATTACHMENT TWO-A2

EXPOSURE DRAFT
BLENDED 1980 CSO and CET MORTALITY TABLES
REPORT OF THE SOCIETY OF ACTUARIES COMMITTEE
ON VALUATION AND NONFORFEITURE MORTALITY PROBLEMS
INDIVIDUAL LIFE INSURANCE AND ANNUITIES
November 28, 1983

The U.S. Supreme Court decision in Arizona Governing Committee v. Norris which prohibited employers from making contributions after August 1, 1983 to a defined contribution pension plan if the benefits to be derived from those contributions differ by sex, created a problem for companies wishing to use the sex - distinct 1980 CSO mortality tables in their pension related policies. In response to this dilemma the Executive Committee of the NAIC, at its September 21, 1983 meeting adopted "an interim procedure authorizing the use of tables that are a 'blend' of the 1980 CSO and CET sex distinct tables for plans impacted by the Norris decision". Commissioner Roger C. Day's October 21 letter to NAIC members, the resolution and a subsequent amendment recommended by the NAIC Technical Staff Actuarial Group (TSAG) are reproduced in Appendix A.

The use of blended mortality tables would take the place of an earlier interim procedure permitting use of the 1980 CSO male mortality tables for calculation of nonforfeiture benefits in policies affected by the Norris decision. However, there was no indication in the resolution as to the proportions of male and female mortality rates nor was the method of blending specified. The TSAG, wishing to make the NAIC Executive Committee's resolution more definite, asked for suggestions from the Society of Actuaries Committee to Develop a New Mortality Basis for Individual Annuity Valuation (subsequently renamed and given a new expanded charge). In a telephone conversation with Robert J. Callahan, FSA, of the New York Insurance Department, on October 6th and in a subsequent report to the TSAG on October 13th, Robert Johansen, the Chairman of the Society Committee, suggested (i) the use of three blended tables, 25%, 50% and 75% male, (ii) use of the TIAA method of blending male and female lxs, and (iii) the use of age 45 or 50 as the pivotal age at which the proportion of males and females would be fixed.

The use of a blended table using lxs where the percentage distribution of males and females is set at a particular age provides mortality rates which tend to follow the natural course of survival of males and females in a group insured at the pivotal age. A copy of the January 4, 1980 TIAA memorandum, filed with some thirty state insurance departments, describing the blending method is included as appendix B.

*   Committee Members:

Gayle E. Emmert   Robert S. Rubinstein
Thomas R. Huber   John H. Welch
Harry I. Klaristenfeld   Richard K. Wong
John B. Kleiman   Robert J. Johansen, Chairman

Because of differences in the relative mortality rates of males and females, there would be a higher proportion of males at the younger ages and a lower proportion at the older ages. This, incidentally is the reason why a simple combining of mortality rates is not appropriate: doing so would overstate the proportion of males at the high ages and result in higher mortality rates than a combined group is likely to experience. At age 70, for example, an average of the male and female mortality rates gives 31.00 vs 30.16 by blending lxs.

The Chairman felt that the effect of a choice of pivotal age would be negligible at the younger ages because the mortality rates are very low at these ages. The choice of a pivotal age would have a somewhat greater effect at the higher ages by changing the proportion of males at these ages, but by using age 45 or 50 there would not be as great an effect at ages 65 through 70 as there would be from using, say, age 30.

The table below shows, for several companies' recent pension life insurance issues, distributions by age based on amounts of insurance.

Table 1

Distribution of Norris - Affected Life Insurance Issued by Several Companies.

Company	A	B	C	D	E '82	E '83*	F '82	F '83*
Issue Age Group			**Males**					
Under 20	0%	0%	0%	1	15	15	0	0
20 - 29	11	6	20	30	49	48	12	9
30 - 39	36	59	32	35	22	23	31	28
40 - 49	32	31	24	20	9	9	31	36
50 - 59	18	4	19		4	4	22	22
60 - 69	3	0	5	14	1	1	4	5
70 & over	0	0			-	-	0	0
			Females					
Under 20	1%	0%	0	1	19	20	0	0
20 - 29	28	11	35	33	42	42	26	25
30 - 39	33	63	31	36	22	22	36	35
40 - 49	21	24	21	19	11	11	24	23
50 - 59	14	2	11		5	5	12	14
60 - 69	3	0	2	11	1	0	2	3
70 & over	0	0			-	-	-	0
			Total					
Under 20	1%	0	0		16	17	0	0
20 - 29	14	8	24		46	45	15	12
30 - 39	35	60	31		23	23	32	30
40 - 49	30	29	24		10	10	30	33
50 - 59	17	3	17		4	4	20	21
60 - 69	3	0	4		1	1	3	4
70 & over	0	0			-	-	0	0

Following the October 13th meeting of the TSAG at which they recommended
adopting the 25%, 50% and 75% blend tables, further analysis was made of the
effects on mortality rates of a choice of pivotal age and percent of male lx
to total lx at the pivotal age. The tables in Appendix C, Comparison of
Change in Pivotal Age or Percent Male LX to Total, show that, for any choice of
pivotal age, the effects are, in fact, small at the young ages. The choice of
pivotal age is, however, significant at the very high ages. The table below
summarizes the results of the tests for the 50% male ratio. The effect is
somewhat less for 25% male and somewhat greater for 75% male.

Effect of Choice of Pivotal Age

Ratio of Male lx to Total lx is 50% at Pivotal Age

Pivotal Age	40	45	50	55	60	65
	Blended 1980 CSO Values of 1000 q x at the Table Age					
Table Age						
20	1.48	1.48	1.48	1.48	1.48	1.50
30	1.54	1.54	1.54	1.54	1.55	1.55
40	2.72	2.72	2.72	2.72	2.72	2.73
50	5.83	5.83	5.84	5.84	5.85	5.87
60	12.70	12.71	12.73	12.74	12.78	12.84
70	30.15	30.16	30.19	30.24	30.34	30.52
80	79.03	79.07	79.11	79.20	79.39	79.72

Ratios (percent) of Male lx to Total lx at the Table Age

	40	45	50	55	60	65
20	50.27	50.36	50.53	50.82	51.39	52.43
30	50.11	50.20	50.37	50.65	51.23	52.27
40	50.00	50.09	50.25	50.54	51.11	52.16
50	49.75	49.84	50.00	50.29	50.86	51.91
60	48.89	48.98	49.14	49.43	50.00	51.05
70	46.16	46.25	46.41	46.70	47.27	48.31
80	39.73	39.82	39.97	40.25	40.80	41.82

Summing up, the choice of age 45 as the pivotal age as compared with other
pivotal ages does not result in any sizeable change in the values of the
mortality rates at the important ages where pension life insurance policies
are likely to be in force and it is more representative of the average issue
age of current business affected by the Norris decision than a higher pivotal
age would be. Use of a younger pivotal age would not have a measureable effect
on mortality rates at the young ages but might result in an understatement of
the surviving male lives at the higher ages because of the longer period over
which the disparate male and female mortality rates operate.

Assuming that age 45 is a satisfactory choice for the pivotal age, the next
task is to examine the choice of percentages of the male lx to the total lx at
the pivotal age. Initially, the Chairman had suggested three blended tables,
25%, 50% and 75% males. Subsequently, one of the Committee members pointed out
that his company would likely be issuing policies to pension plans with as
much as 90 percent males. Looking to provide for such group, a second set of
ratios: 20%, 40%, 60% and 80% was analyzed as a possibility. However, it seems
desirable to include 50% males as well. This would mean five blended tables,
in addition to the existing all-male and all-female, or a total of seven
tables. Perhaps an acceptable solution would be to permit continued use of the
all-male and all- female tables where warranted in addition to the 25%, 50% and
75% blended tables. The tables below show for pivotal age 45 the results of
changing the proportions of males at the pivotal age.

Percent Male/Total*	0%	20%	25%	40%	50%	60%	75%	80%	100%
		Blended 1980 CSO Values of 1000 Qx at the Table Age							
Table age									
20	1.05	1.22	1.27	1.39	1.48	1.56	1.70	1.74	1.90
30	1.35	1.42	1.44	1.50	1.54	1.58	1.64	1.65	1.73
40	2.42	2.54	2.56	2.66	2.72	2.78	2.87	2.90	3.02
50	4.96	5.31	5.39	5.66	5.83	6.01	6.27	6.36	6.71
60	9.47	10.75	11.08	12.05	12.71	13.37	14.38	14.72	16.08
70	22.11	25.19	25.99	28.45	30.16	31.92	34.65	35.59	39.51
80	65.99	70.65	71.92	76.04	79.07	82.34	87.83	89.83	98.84

		Ratios (percent) of Male lx to Total lx at the Table Age							
20	0	20.23	25.27	40.35	50.36	60.35	75.27	80.23	100
30	0	20.13	25.15	40.20	50.20	60.20	75.15	80.13	100
40	0	20.06	25.07	40.09	50.09	60.09	75.07	80.06	100
50	0	19.90	24.88	39.85	49.84	59.85	74.88	79.90	100
60	0	19.35	24.24	39.02	48.98	59.01	74.23	79.34	100
70	0	17.70	22.29	36.45	46.25	56.34	72.08	77.49	100
80	0	14.19	18.07	30.61	39.82	49.81	66.50	72.58	100

* At pivotal age 45.

Since the blended mortality tables are primarily intended for use in
determining cash values, amounts of nonforfeiture paid-up insurance and periods
of extended term insurance, the effect of changes in the percent male was
investigated. Sets of these values for a whole life policy at 4 percent and 6
percent interest were produced by Richard K. Wong, FSA, a member of the
Committee. A comparison for issue age 45, assuming 4 percent interest, is
shown below. Values at 6 percent interest are shown in parentheses.

Percent Male/Total *

	0	25	50	75	100
	Cash Values per $1000 Face Amount				
Duration					
5	41 (27)	44 (30)	47 (33)	51 (36)	54 (39)
10	122 (91)	129 (98)	137 (105)	145 (114)	154 (122)
15	213 (166)	223 (177)	234 (189)	246 (201)	259 (215)
20	315 (257)	326 (270)	339 (284)	354 (299)	370 (317)

	Amount of Reduced Paid-Up Insurance per $1000 Face Amount				
5	120 (122)	123 (127)	127 (132)	131 (137)	135 (142)
10	305 (331)	310 (337)	316 (344)	323 (351)	330 (359)
15	460 (497)	465 (502)	471 (509)	478 (516)	487 (524)
20	592 (632)	595 (634)	599 (638)	605 (644)	613 (651)

	Period of Extended Term Insurance: Years/Days				
5	6/51(4/106)	5/360(4/120)	5/321(4/137)	5/297(4/160)	5/282(4/182)
10	12/125(10/143)	11/181(9/288)	10/316(9/130)	10/141(9/10)	10/8(8/298)
15	14/176(13/46)	13/150(12/54)	12/193(11/140)	11/300(10/293)	11/97(10/131)
20	14/93(13/152)	13/113(12/178)	12/167(11/250)	11/260(11/2)	11/30(10/166)

* At pivotal age 50

Differences are smaller at issue age 35. A comparison at issue age 65 shows
smaller differences in cash values, both plus and minus, in going from 0% males
to 75% males. The table below shows this effect.

Percent Male/Total End of Policy Year	0	25	50	75	100
	Cash Values per $1000 Face Amount				
5	108	110	113	117	124
10	285	284	286	291	301
15	451	447	446	448	456
20	601	594	589	587	591
	Amount of Reduced Paid-Up Insurance per $1000 Face Amount				
5	178	177	177	180	186
10	416	409	405	404	408
15	596	585	577	572	573
20	729	719	709	701	698
	Period of Extended Term Insurance: Years/Days				
5	3/251	3/87	2/327	2/235	2/172
10	5/246	5/53	4/244	4/91	3/331
15	5/287	5/146	4/363	4/224	4/86
20	5/48	4/319	4/222	4/108	3/345

In weighing the use of five tables (100%, 75%, 50%, 25%, 0% male) as opposed to
the use of seven tables (100%, 80%, 60%, 50%, 40% 20% and 0% male), it should
be kept in mind that the choice of an interest rate in calculating cash values
and nonforfeiture benefits has as much or more effect on the values as the
choice of a particular blend of male and female lives. The blended tables can
at most provide some degree of equity to a group of insured lives as a group.
The question of complete equity is not now at issue since the Norris decision
and the Committee, in providing blended CSO and CET tables, is working with a
fait accompli in this regard.

The extended term insurance periods were calculated on the basis of a blended
CET Table obtained for purposes of this report by applying the CET loading
formula to the blended CSO table for each pivotal age and percent male 1x to
total. The CET tables should not be derived by blending the male and female
CET table 1xs.

In calculating the blended CSO tables, the following method was used. Values
of 1x were taken from the tables in the report of Godfrey Perrott's Committee
on Specifications for Monetary Values - 1980 CSO Tables. The values of 1x in
these tables were based on a radix of 200 at age 99. The appended tables
follow this rule.

At the pivotal age in each case, two ratios were formed; the ratio to be applied
to all the male lxs is $MR = (lx^M + lx^F) \times Z/lx^M$ where Z is the chosen
ratio of male lx to total lx; the other, to be applied to the female lxs, is
$FR = (lx^M + lx^F) \times (1 - Z)/lx^F$. MR and FR appear in the tables in
Appendix C. Totals of the adjusted male and female lxs were formed at each age
and used to calculate mortality rates. These mortality rates were then used to
calculate new blended lxs starting from a radix of 200 at age 99. The CET lxs
were also calculated from a radix of 200 at age 99.

Tables of values of lx and 1000 qx for every age and for 25%, 50% and 75% male
lx to total lx at pivotal ages 45 and 50 and for 20%, 40%, 50%, 60% and 80%
male lx to total lx at pivotal age 45 appear in Appendix D and Appendix
E, respectively. The October 13th recommendation from the TSAG called for the
100% Male CSO and CET tables to be designated 1980 CSO-A and 1980 CET-A. The
75% male would be B; the 50%, D; the 25%, D and the 100% female, E.
Presumably, if there were seven tables, using the 20%, 40%, 50%, 60% and 80%
blends, the tables would be identified by the letters A through G.

It is our understanding that the calculation of valuation reserves on the
separate male and female 1980 CSO mortality tables will continue to be
required. This would both assure that adequate reserves will be maintained in
future years and provide some indication of the proportions of policies issued
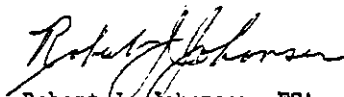on male and female lives.

CRVM reserves and net level reserves were also provided by Richard Wong for the
25%, 50% and 75% blended CSO Tables as well as the 100% male and 100% female
tables. Comparing cash values with the reserves calculated on each blended
table indicates that the cash values are lower than the reserves in each case,
but cash values on a blended male/female table will exceed CRVM reserves on the
all female mortality table. In applying valuation tests to assure that
reserves cover cash values, this fact must be kept in mind. It is suggested
that such tests be made in the aggregate. At the same time, it must be
realized that if the percentage of insured females is actually higher than
would be, in effect, assumed by the use of blended tables, the valuation
reserves may not cover cash values. Appendix F compares statutory cash values
with CRVM reserves and net level reserves for issue age 45, interest at 4% and
mortality rates for 100% male, 75% male, 50% male, 25% male and 100% female.

The short time afforded the Committee for consideration of blended 1980 CSO and
1980 CET mortality tables has not permitted any study of extension of the
method to the proposed Smokers/Non-Smokers mortality tables. If desired, the
methods described in this report could be extended to the Smokers/Non-Smokers
tables.

By its nature, this is a report of the Society of Actuaries Committee on
Valuation and Nonforfeiture Mortality Problems - Individual Life Insurance and
Annuities*. The ideas and tables presented in the report have generally been
agreed to by members of the Committee, including the use of age 45 as the
pivotal age at which the percentages of the male lx to the total lx would be
applied. However, the short time for completion of this task, between the
meeting of the TSAG on October 13th and the mailing of this report to the TSAG
prior to their December 3rd meeting did not leave sufficient time for the
Committee members to review this report and submit their comments prior to the
submission to the TSAG.

Consequently, the Chairman acknowledges his sole responsibility for the
statements in the report. Neither the Executive Committee and nor the Board of
Governors of the Society has seen this report prior to its transmission to the
TSAG.

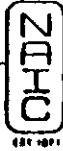* Formerly the Committee to Develop a New Mortality Basis for Individual
Annuity Valuation.

Robert G. Johansen, FSA
Chairman
Society of Actuaries Committee on
Valuation and Nonforfeiture Mortality
Problems - Individual Life
Insurance and Annuities

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M E M O R A N D U M

TO: All NAIC Members

FROM: Roger C. Day, President *Rec*

DATE: October 21, 1983

RE: Norris Decision - NAIC Adoption of Blended 1980 CSO and CET
        Mortality Tables

In my letter of August 29, 1983, I pointed out that in order to
comply with the Norris decision, certain plans of insurance would have to
contain nonforfeiture values which do not vary by sex. This presents a
problem with respect to the 1980 CSO Tables, which are presently sex
distinct.

On September 21, 1983 at Tampa, Florida, the Executive Committee of
the NAIC adopted the recommendation of the (A) Committee for an interim
procedure authorizing the use of tables that are a "blend" of the 1980
CSO and CET sex distinct tables for plans impacted by the Norris
decision. The blended Tables would make it possible for life insurers to
obtain sets of minimum nonforfeiture values that do not differ by sex.

Enclosed is a copy of the proposal as adopted entitled, NAIC
Proposed Procedure for Permitting Same Minimum Nonforfeiture Standards
for Men and Women Insureds Under 1980 CSO and 1980 CET Mortality Tables.
The preamble explains the need for this action and the intent of the
proposed procedure.

Section 5-c.(8)(f) of the Standard Nonforfeiture Law for Life
Insurance permits the substitution for the 1980 CSO and CET Tables of any
ordinary mortality tables that are adopted after 1980 by the NAIC and
approved by regulation promulgated by the Commissioner. Now that the
NAIC has adopted these "blended" tables, state insurance commissioners
may promulgate them under that authority. The NAIC will promulgate a
model regulation to supplement this interim model language after the
Technical Advisory Task Force submits its recommendations at the December
meeting in San Diego.

Because of the need for immediate action to accommodate unisex
policy requirements, I urge you to seriously consider using the language
in the enclosed model on an interim basis.

RCD:ja
Enclosure

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NAIC PROPOSED PROCEDURE FOR PERMITTING SAME MINIMUM

NONFORFEITURE STANDARDS FOR MEN AND WOMEN

INSUREDS UNDER 1980 CSO AND 1980 CET MORTALITY TABLES

Preamble

The U.S. Supreme Court in its decision in _Arizona Governing Committee v. Norris_ makes it illegal for an employer to make contributions after August 1, 1983 to a defined contribution pension plan if the benefits derived from those contributions differ by sex. Although there is some uncertainty as to the breadth of the Supreme Court's decision, it would seem to require that after August 1, 1983, employer pension plans may need to be funded by life insurance products that have identical non-forfeiture values for men and women. Since the 1980 CSO and 1980 CET Mortality Tables contain mortality rates that vary by both age and sex, it is very difficult if not impossible for companies to determine actual nonforfeiture values that are identical for men and women and also satisfy a sex-differentiated minimum standard. For this reason, this regulation permits the same minimum nonforfeiture standards for men and women insureds under the 1980 CSO and 1980 CET Mortality Tables.

A few background comments may be helpful in understanding the intent of this regulation.

(1)　No attempt was made to define which policies and situations are covered by the _Norris_ decision and which are not. The breadth of the _Norris_ decision is unclear and may ultimately have to be resolved by further court decisons or Federal legislation.

(2)　Insurers are given flexibility to use either

(a)　the existing tables with mortality rates that vary by age and sex, or

(b)　tables of mortality rates which are a blend of the male and female mortality rates.

(3)　No change is made in minimum valuation standards, since these do not involve any contractual relationship between the insurer and its policyholder clients and the Supreme Court did not address state statutory valuation standards.

(4)　Section 5 is included to make it clear that an insurer who issues the same kind of policy on a sex-distinct basis in some circumstances and on a sex-neutral basis in others shall not be deemed to be in violation of the state unfair discrimination laws.

(5)　A cutoff date of January 1, 1989 is provided in anticipation of a more permanent resolution of this issue by that time.

(6)　The effective date is August 1, 1983, the date the judgment in the _Norris_ decision became effective.

Table of Contents

Section 1. Authority

This Rule is promulgated by the Commissioner of Insurance pursuant to Section (insert applicable reference to the Standard Nonforfeiture Law for Life Insurance) of the (insert state) Insurance Laws.

Section 2. Purpose

The purpose of this Rule is to permit individual life insurance policies to provide the same cash surrender values and paid-up nonforfeiture benefits to both men and women. No change in minimum valuation standards is implied by this rule.

Section 3. Definitions

A. As used in this Rule, "1980 CSO Table, with or without Ten-Year Select Mortality Factors" means that mortality table, consisting of separate rates of mortality for male and female lives, developed by the Society of Actuaries Committee to Recommend New Mortality Tables for Valuation of Standard Individual Ordinary Life Insurance, incorporated in the 1980 NAIC Amendments to the Model Standard Valuation Law and Standard Nonforfeiture Law for Life Insurance, and referred to in those models as the Commissioners 1980 Standard Ordinary Mortality Table, with or without Ten-Year Select Mortality Factors.

B. As used in this Rule, "1980 CSO Table (M), with or without Ten-Year Select Mortality Factors" means that mortality table consisting of the rates of mortality for male lives from the 1980 CSO Table, with or without Ten-Year Select Mortality Factors."

C. As used in this Rule, "1980 CSO Table (F), with or without Ten-Year Select Mortality Factors" means that mortality table consisting of the rates of mortality for female lives from the 1980 CSO Table, with or without Ten-Year Select Mortality Factors.

D. As used in this Rule, "1980 CET Table" means that mortality table consisting of separate rates of mortality for male and female lives, developed by the Society of Actuaries Committee to Recommend New Mortality Tables for Valuation of Standard Individual Ordinary Life Insurance, incorporated in the 1980 NAIC Amendments to the Model Standard Valuation Law and Standard Nonforfeiture Law for Life Insurance, and referred to in those models as the Commissioners 1980 Extended Term Insurance Table.

E. As used in this Rule, "1980 CET Table (M)" means that mortality table consisting of the rates of mortality for male lives from the 1980 CET Table.

F. As used in this Rule, "1980 CET Table (F)" means that mortality table consisting of the rates of mortality for female lives from the 1980 CET Table.

Section 4. Rule

For any policy of insurance on the life of either a male or female insured delivered or issued for delivery in this state before January 1, 1989 and after the operative date of Section (insert applicable reference corresponding to paragraph 5-c(11) of the NAIC Model Standard Nonforfeiture Law for Life Insurance) for that policy form,

> (1)   a mortality table which is a blend of the 1980 CSO Table (M) and the 1980 CSO Table (F) with or without Ten-Year Select Mortality Factors may at the option of the company be substituted for the 1980 CSO Table, with or without Ten-Year Select Mortality Factors, and

(11)   a mortality..table which is of the same blend
as used in (1) but applied to form a blend of
the 1980 CET Table (M) and the 1980 CET Table
(F) may at the option of the company be substituted
for the 1980 CET Table

for use in determining minimum cash surrender values and amounts of paid-up
nonforfeiture benefits.

Section 5.   Unfair Discrimination

It shall not be a violation of (insert applicable reference to
unfair trade practices statute) for an insurer to issue the same kind
of policy of life insurance on both a sex distinct and sex neutral basis.

Section 6.   Separability

If any provision of this Rule or the application thereof to any
person or circumstance is for any reason held to be invalid, the re-
mainder of the regulation and the application of such provision to
other persons or circumstances shall not be affected thereby.

Section 7.   Effective Date

The effective date of this Rule is August 1, 1983 to comply with
the Morris Decision.

Text of Amendment Recommended by ISAC

Section 4 of the Model Regulation adopted by the NAIC Executive Committee
at Tampa, Florida be amended to add a paragraph stating:

"The following blends will be considered as the basis for acceptable
tables:

A.   100 Male 0% Female for tables to be designated as the "1980
CSO-A" and "1980 CET-A" tables.

B.   75% Male 25% Female for tables to be designated as the "1980
CSO-B" and "1980 CET-B" tables.

C.   50% Male 50% Female for tables to be designated as the "1980
CSO-C" and "1980 CET-C" tables.

D.   25% Male 75% Female for tables to designated as the "1980 ,
CSO-D" and "1980 CET-D" tables.

E.   0% Male 100% Female for tables to be designated as the "1980
CSO-E" and "1980 CET-E" tables.

Blends A and E are not to be used as blended tables for policies
issued on or after January 1, 1986. The same blend must be used
for the 1980 CSO Table and 1980 CET Table for a specific plan".

APPENDIX B

Memorandum

To: File
From: Warren Carter and Eugene Strum, Actuarial Division
Date: January 4, 1980

Re: Construction of the TIAA-CREF Merged-Gender Mortality Table

The Use of Mortality Tables in Determining Annuity Benefits

        Mortality tables developed by actuaries for determining
lifetime annuity benefits are constructed from continuing studies
of the ages at death among large numbers of annuitants of each sex
-- how many who are alive at the beginning of each year of age die
in that year and how many survive to the next age. The larger the
number of lives studied, of course, the more statistically valid
the results will be. The sharing of information among insurance
companies and large trusteed pension plans provides access to the
mortality experience of very large groups of annuitants.

        With the raw data at hand, the mortality rates for men
and women at each age are calculated by dividing the number dying
at each age by the number alive at the beginning of that year of
age. These mortality rates are then "smoothed" to iron out sport
fluctuations, and a margin for future improvements in longevity
is normally introduced at this stage.

        A mortality table is then constructed by applying this
graduated set of mortality rates for each sex to a number of lives
at each age. The first step in this application is to pick a
large number -- any large number will do -- and assign it to a
selected age; e.g., 100,000 lives at age 20. This 100,000 becomes
the nucleus (or radix) of the table, from which the numbers living
at all other ages will be derived by applying the previously calcu-
lated mortality rates.

        The present value (cost) of a life annuity of $1 a year
starting at any given age can then be calculated from the rates
of survival to each subsequent age and an assumed rate of interest.

        In 1976 TIAA-CREF determined, after careful study of its
own annuitant experience, that the widely accepted 1971 IAM (Indi-
vidual Annuity Mortality) Table, with appropriate age setbacks,
most closely fits its own experience, and subsequently adopted
that table.

The Change to a Merged-Gender Mortality Table

        In constructing a mortality table for determining benefit
amounts by age but not by sex, we developed a Merged-Gender Modifi-
cation of the 1971 IAM Table.

We first determined the "amount at risk" on men and on
women starting annuity incomes. This was done by analyzing TIAA-
CREF's population at retirement by accumulation amount, age, sex,
and income option elected. From this analysis, which included
First as well as Second Annuitants (spouses of annuity owners who
elect survivor options), we concluded that a 50/50 male/female
population clustered around age 65 was the most reasonable repre-
sentation of TIAA-CREF's experience. Therefore we selected age
65 as the pivotal age for a 50/50 male/female distribution. We
used 100,000 male lives and 100,000 female lives at age 65 as the
nuclei for the new table, from which the numbers living at all
other ages would be calculated, and from which the merged-gender
grouping at each age (e.g., 200,000 at age 65) would be derived,
as follows:

1. Working in both directions from the 100,000
    male and female nuclei at age 65, we calcu-
    lated the number living and number dying at
    each age above and below 65 for males and
    females separately, using sex-distinct 1971
    IAM Table mortality rates for each age.

2. Then at each age we added the number of men
    living to the number of women living and
    added the number of men dying to the number
    of women dying.

3. Finally, by dividing the total number of
    persons dying at each age by the total number
    of persons living at the beginning of each
    year of age we determined the mortality rate
    on a merged-gender, or "unisex" basis for
    each and every age.

The result is a mortality table showing the merged number
of persons living at each age, the merged number of persons dying
at each age, and the merged-gender mortality rate for each age.

Now to determine the merged-gender present value or cost
of a life annuity of $1 a year starting at any age, we will apply
to the merged-gender mortality table the same actuarial methodology
that is used in calculating annuity costs from sex-distinct tables.

The formula for calculating the merged-gender number
assumed to be living at each age above and below 65 is shown on
the attached page.

$$l_{x_{MGM}} = R_{65_m} \left(\frac{l_{x_m}}{l_{65_m}} \right) + R_{65_f} \left(\frac{l_{x_f}}{l_{65_f}} \right)$$

$l_{x_{MGM}}$ = number living at age x on Merged Gender Table

l_{x_m} = number living at age x on 1971-IAM Table - males

l_{x_f} = number living at age x on 1971-IAM Table - females setback
1.5 years

R_{65_m} = Radix (nucleus) for MGM Table at age 65 - males = 100,000

R_{65_f} = Radix (nucleus) for MGM Table at age 65 - females = 100,000

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$$l_{66_{MGM}} = 100,000 \left(\frac{79,936.0}{81,351.9} \right) + 100,000 \left(\frac{90,604.7}{91,384.1} \right)$$

$$= 98,259.5 \qquad + \qquad 99,147.1 \qquad = \quad 197,406.6$$

$$l_{70_{MGM}} = 100,000 \left(\frac{73,359.0}{81,351.9} \right) + 100,000 \left(\frac{87,038.9}{91,384.1} \right)$$

$$= 90,174.9 \qquad + \qquad 95,245.1 \qquad = \quad 185,420.0$$

$$l_{60_{MGM}} = 100,000 \left(\frac{87,358.2}{81,351.9} \right) + 100,000 \left(\frac{94,601.4}{91,384.1} \right)$$

$$= 107,383.1 \qquad + \quad 103,520.6 \qquad = \quad 210,903.7$$

APPENDIX C

1980 CSO

COMPARISON OF CHANGE IN PIVOTAL AGE OR PERCENT MALE LX TO TOTAL

PIVOTAL AGE IS 40   RATIO MALE LX TO TOTAL LX= Z

Z= 25 %;MR= .339171901   Z= 50 %;MR= .678343803   Z= 75 %;MR= 1.0175157
     FR= 2.8526803   FR= 1.90178686   FR= .950893431

AGE	M/TZ	10000X	AGE	M/TZ	10000X	AGE	M/TZ	10000X
0	25.34	3.21	0	50.44	3.54	0	75.33	3.86
5	25.30	.79	5	50.39	.83	5	75.29	.86
10	25.29	.69	10	50.38	.71	10	75.29	.71
15	25.27	.97	15	50.36	1.10	15	75.27	1.21
20	25.21	1.26	20	50.27	1.48	20	75.21	1.69
25	25.13	1.31	25	50.18	1.47	25	75.13	1.62
30	25.09	1.44	30	50.11	1.54	30	75.09	1.63
35	25.05	1.77	35	50.06	1.88	35	75.05	1.99
40	25.00	2.57	40	50.00	2.72	40	75.00	2.87
45	24.93	3.80	45	49.91	4.06	45	74.93	4.30
50	24.81	5.39	50	49.75	5.83	50	74.81	6.27
55	24.60	7.92	55	49.46	8.77	55	74.59	9.61
60	24.17	11.07	60	48.89	12.70	60	74.16	14.37
65	23.42	17.13	65	47.84	19.77	65	73.35	22.54
70	22.23	25.98	70	46.16	30.15	70	72.01	34.64
75	20.41	43.53	75	43.48	49.52	75	69.77	56.34
80	18.02	71.90	80	39.73	79.03	80	66.42	87.80
85	15.33	121.74	85	35.20	129.06	85	61.97	138.92
90	12.77	194.72	90	30.52	200.22	90	56.85	208.32
95	11.10	318.61	95	27.26	320.77	95	52.93	323.93

PIVOTAL AGE IS 45   RATIO MALE LX TO TOTAL LX= Z

Z= 25 %;MR= .339492851   Z= 50 %;MR= .678985702   Z= 75 %;MR= 1.01847855
     FR= 2.84513942   FR= 1.89675961   FR= .948379807

AGE	M/TZ	10000X	AGE	M/TZ	10000X	AGE	M/TZ	10000X
0	25.40	3.21	0	50.53	3.54	0	75.40	3.86
5	25.36	.79	5	50.48	.83	5	75.36	.86
10	25.36	.70	10	50.47	.71	10	75.35	.71
15	25.34	.98	15	50.45	1.10	15	75.34	1.21
20	25.27	1.27	20	50.36	1.48	20	75.27	1.70
25	25.20	1.32	25	50.27	1.47	25	75.20	1.62
30	25.15	1.44	30	50.20	1.54	30	75.15	1.64
35	25.12	1.77	35	50.15	1.88	35	75.12	1.99
40	25.07	2.56	40	50.09	2.72	40	75.07	2.87
45	25.00	3.80	45	50.00	4.06	45	75.00	4.30
50	24.88	5.39	50	49.84	5.83	50	74.88	6.27
55	24.66	7.93	55	49.55	8.77	55	74.66	9.62
60	24.24	11.08	60	48.98	12.71	60	74.23	14.38
65	23.48	17.13	65	47.93	19.78	65	73.42	22.54
70	22.29	25.99	70	46.25	30.16	70	72.08	34.65
75	20.47	43.54	75	43.57	49.55	75	69.85	56.36
80	18.07	71.92	80	39.82	79.07	80	66.50	87.83
85	15.38	121.77	85	35.29	129.11	85	62.06	138.96
90	12.81	194.74	90	30.59	200.23	90	56.94	208.39
95	11.14	318.70	95	27.32	320.74	95	53.01	323.98

1980 CSO

COMPARISON OF CHANGE IN PIVOTAL AGE OR PERCENT MALE LX TO TOTAL

PIVOTAL AGE IS 50   RATIO MALE LX TO TOTAL LX= Z

Z= 25 %;MR= .340069714   Z= 50 %;MR= .680139427   Z= 75 %;MR= 1.02020914
    FR= 2.83172084   FR= 1.88791389   FR= .943906947

AGE	M/TZ	10000X	AGE	M/TZ	10000X	AGE	M/TZ	10000X
0	25.53	3.22	0	50.70	3.54	0	75.52	3.86
5	25.49	.79	5	50.64	.83	5	75.48	.86
10	25.48	.69	10	50.63	.71	10	75.47	.72
15	25.46	.98	15	50.61	1.09	15	75.46	1.21
20	25.40	1.26	20	50.53	1.48	20	75.39	1.69
25	25.32	1.31	25	50.43	1.47	25	75.32	1.62
30	25.27	1.44	30	50.37	1.54	30	75.27	1.63
35	25.24	1.77	35	50.31	1.89	35	75.24	2.00
40	25.19	2.57	40	50.25	2.72	40	75.19	2.87
45	25.12	3.81	45	50.16	4.05	45	75.12	4.30
50	25.00	5.40	50	50.00	5.84	50	75.00	6.28
55	24.78	7.93	55	49.71	8.77	55	74.78	9.62
60	24.36	11.09	60	49.14	12.73	60	74.35	14.39
65	23.60	17.15	65	48.09	19.80	65	73.54	22.56
70	22.40	26.01	70	46.41	30.19	70	72.21	34.68
75	20.58	43.57	75	43.73	49.59	75	69.98	56.39
80	18.16	71.95	80	39.97	79.11	80	66.64	87.87
85	15.46	121.80	85	35.43	129.15	85	62.21	139.03
90	12.88	194.78	90	30.73	200.26	90	57.10	208.48
95	11.21	318.64	95	27.45	320.80	95	53.17	323.84

PIVOTAL AGE IS 55   RATIO MALE LX TO TOTAL LX= Z

Z= 25 %;MR= .341120488   Z= 50 %;MR= .682240976   Z= 75 %;MR= 1.02336147
    FR= 2.80771505   FR= 1.87181003   FR= .935905016

AGE	M/TZ	10000X	AGE	M/TZ	10000X	AGE	M/TZ	10000X
0	25.75	3.22	0	50.99	3.55	0	75.73	3.87
5	25.71	.79	5	50.93	.83	5	75.69	.87
10	25.70	.69	10	50.92	.70	10	75.69	.72
15	25.68	.98	15	50.90	1.09	15	75.67	1.22
20	25.62	1.27	20	50.82	1.48	20	75.61	1.70
25	25.54	1.32	25	50.72	1.47	25	75.53	1.62
30	25.49	1.44	30	50.65	1.54	30	75.49	1.63
35	25.46	1.77	35	50.60	1.89	35	75.45	2.00
40	25.41	2.56	40	50.54	2.72	40	75.40	2.87
45	25.34	3.81	45	50.45	4.06	45	75.34	4.30
50	25.22	5.41	50	50.29	5.84	50	75.22	6.27
55	25.00	7.94	55	50.00	8.79	55	75.00	9.62
60	24.57	11.10	60	49.43	12.74	60	74.57	14.41
65	23.81	17.17	65	48.38	19.83	65	73.77	22.58
70	22.60	26.05	70	46.70	30.24	70	72.44	34.72
75	20.77	43.63	75	44.02	49.65	75	70.23	56.45
80	18.34	72.00	80	40.25	79.20	80	66.90	87.97
85	15.62	121.85	85	35.70	129.25	85	62.48	139.13
90	13.01	194.79	90	30.98	200.34	90	57.38	208.55
95	11.32	318.74	95	27.69	320.74	95	53.46	324.14

1980 CSO

COMPARISON OF CHANGE IN PIVOTAL AGE OR PERCENT MALE LX TO TOTAL

PIVOTAL AGE IS 60   RATIO MALE LX TO TOTAL LX= Z

Z= 25 %;MR= .343230348   Z= 50 %;MR= .686460697   Z= 75 %;MR= 1.02969105
        FR= 2.76114769   FR= 1.84076513   FR= .920382563

AGE	M/TZ	1000QX	AGE	M/TZ	1000QX	AGE	M/TZ	1000QX
0	26.19	3.23	0	51.56	3.55	0	76.15	3.87
5	26.15	.80	5	51.51	.83	5	76.11	.87
10	26.14	.69	10	51.49	.71	10	76.10	.72
15	26.12	.98	15	51.47	1.10	15	76.09	1.22
20	26.06	1.27	20	51.39	1.48	20	76.03	1.70
25	25.98	1.32	25	51.29	1.48	25	75.95	1.62
30	25.93	1.44	30	51.23	1.55	30	75.91	1.64
35	25.89	1.78	35	51.18	1.88	35	75.87	2.00
40	25.84	2.57	40	51.11	2.72	40	75.83	2.87
45	25.77	3.81	45	51.02	4.06	45	75.76	4.31
50	25.65	5.40	50	50.86	5.85	50	75.64	6.28
55	25.43	7.95	55	50.57	8.80	55	75.43	9.64
60	25.00	11.13	60	50.00	12.78	60	75.00	14.43
65	24.22	17.22	65	48.95	19.89	65	74.21	22.63
70	23.01	26.11	70	47.27	30.34	70	72.89	34.80
75	21.14	43.72	75	44.58	49.81	75	70.70	56.59
80	18.68	72.11	80	40.80	79.39	80	67.40	88.12
85	15.92	121.98	85	36.22	129.45	85	63.02	139.33
90	13.27	194.87	90	31.47	200.47	90	57.94	208.72
95	11.55	318.74	95	28.15	320.76	95	54.03	324.10

PIVOTAL AGE IS 65   RATIO MALE LX TO TOTAL LX= Z

Z= 25 %;MR= .347216208   Z= 50 %;MR= .694432416   Z= 75 %;MR= 1.04164862
        FR= 2.67869074   FR= 1.78579383   FR= .892896912

AGE	M/TZ	1000QX	AGE	M/TZ	1000QX	AGE	M/TZ	1000QX
0	27.00	3.24	0	52.60	3.57	0	76.90	3.88
5	26.96	.80	5	52.55	.83	5	76.87	.87
10	26.95	.70	10	52.54	.71	10	76.86	.72
15	26.94	.98	15	52.52	1.10	15	76.84	1.22
20	26.87	1.28	20	52.43	1.50	20	76.78	1.71
25	26.79	1.33	25	52.33	1.48	25	76.71	1.63
30	26.74	1.45	30	52.27	1.55	30	76.67	1.64
35	26.70	1.77	35	52.22	1.90	35	76.63	2.01
40	26.65	2.58	40	52.16	2.73	40	76.58	2.88
45	26.58	3.82	45	52.07	4.08	45	76.52	4.32
50	26.46	5.43	50	51.91	5.87	50	76.40	6.29
55	26.23	7.98	55	51.62	8.84	55	76.19	9.67
60	25.79	11.18	60	51.05	12.84	60	75.78	14.49
65	25.00	17.30	65	50.00	20.01	65	75.00	22.72
70	23.76	26.24	70	48.31	30.52	70	73.71	34.93
75	21.85	43.90	75	45.62	50.06	75	71.56	56.81
80	19.33	72.33	80	41.82	79.72	80	68.32	88.43
85	16.49	122.18	85	37.20	129.80	85	63.99	139.66
90	13.76	195.01	90	32.38	200.79	90	58.96	209.04
95	11.98	318.83	95	29.00	321.03	95	55.07	324.36

1980 CSO

COMPARISON OF CHANGE IN PIVOTAL AGE OR PERCENT MALE LX TO TOTAL

PIVOTAL AGE IS 40   RATIO MALE LX TO TOTAL LX= Z

Z= 20 %;MR= .271337521 FR= 3.04285898   Z= 40 %;MR= .542675042 FR= 2.28214424   Z= 50 %;MR= .678343803 FR= 1.90178686

AGE	M/T%	10000X	AGE	M/T%	10000X	AGE	M/T%	10000X
0	20.29	3.15	0	40.43	3.41	0	50.44	3.54
5	20.25	.79	5	40.38	.82	5	50.39	.83
10	20.25	.69	10	40.37	.70	10	50.38	.71
15	20.23	.95	15	40.35	1.05	15	50.36	1.10
20	20.18	1.22	20	40.26	1.39	20	50.27	1.48
25	20.11	1.29	25	40.17	1.41	25	50.18	1.47
30	20.07	1.42	30	40.11	1.50	30	50.11	1.54
35	20.04	1.75	35	40.06	1.84	35	50.06	1.88
40	20.00	2.54	40	40.00	2.66	40	50.00	2.72
45	19.94	3.76	45	39.91	3.95	45	49.91	4.06
50	19.84	5.31	50	39.76	5.66	50	49.75	5.83
55	19.66	7.76	55	39.48	8.43	55	49.46	8.77
60	19.30	10.75	60	38.94	12.05	60	48.89	12.70
65	18.65	16.61	65	37.95	18.70	65	47.84	19.77
70	17.65	25.18	70	36.37	28.44	70	46.16	30.15
75	16.13	42.42	75	33.90	47.04	75	43.48	49.52
80	14.15	70.63	80	30.53	76.01	80	39.73	79.03
85	11.96	120.49	85	26.59	125.91	85	35.20	129.06
90	9.890	193.83	90	22.65	197.80	90	30.52	200.22
95	8.560	318.33	95	19.98	319.83	95	27.26	320.77

PIVOTAL AGE IS 45   RATIO MALE LX TO TOTAL LX= Z

Z= 20 %;MR= .271594281 FR= 3.03481538   Z= 40 %;MR= .543188561 FR= 2.27611154   Z= 50 %;MR= .678985702 FR= 1.89675961

AGE	M/T%	10000X	AGE	M/T%	10000X	AGE	M/T%	10000X
0	20.34	3.15	0	40.51	3.41	0	50.53	3.54
5	20.31	.79	5	40.47	.81	5	50.48	.83
10	20.30	.70	10	40.45	.70	10	50.47	.71
15	20.29	.95	15	40.43	1.05	15	50.45	1.10
20	20.23	1.22	20	40.35	1.39	20	50.36	1.48
25	20.17	1.29	25	40.26	1.40	25	50.27	1.47
30	20.13	1.42	30	40.20	1.50	30	50.20	1.54
35	20.10	1.74	35	40.15	1.83	35	50.15	1.88
40	20.06	2.54	40	40.09	2.66	40	50.09	2.72
45	20.00	3.75	45	40.00	3.96	45	50.00	4.06
50	19.90	5.31	50	39.85	5.66	50	49.84	5.83
55	19.71	7.76	55	39.57	8.43	55	49.55	8.77
60	19.35	10.75	60	39.02	12.05	60	48.98	12.71
65	18.71	16.62	65	38.03	18.71	65	47.93	19.78
70	17.70	25.19	70	36.45	28.45	70	46.25	30.16
75	16.18	42.43	75	33.98	47.05	75	43.57	49.55
80	14.19	70.65	80	30.61	76.04	80	39.82	79.07
85	12.00	120.52	85	26.66	125.93	85	35.29	129.11
90	9.920	193.80	90	22.71	197.78	90	30.59	200.23
95	8.590	318.37	95	20.05	319.76	95	27.32	320.74

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1980 CSO

COMPARISON OF CHANGE IN PIVOTAL AGE OR PERCENT MALE LX TO TOTAL

PIVOTAL AGE IS 60   RATIO MALE LX TO TOTAL LX= Z

Z= 20 %;MR= .274584279 FR= 2.9452242			Z= 40 %;MR= .549168558 FR= 2.20891815			Z= 50 %;MR= .686460697 FR= 1.84076513		
AGE	M/TZ	1000QX	AGE	M/TZ	1000QX	AGE	M/TZ	1000QX
0	21.02	3.16	0	41.50	3.42	0	51.56	3.55
5	20.98	.79	5	41.45	.82	5	51.51	.83
10	20.97	.69	10	41.44	.70	10	51.49	.71
15	20.96	.96	15	41.42	1.05	15	51.47	1.10
20	20.90	1.23	20	41.34	1.40	20	51.39	1.48
25	20.84	1.29	25	41.24	1.41	25	51.29	1.48
30	20.80	1.43	30	41.18	1.50	30	51.23	1.55
35	20.76	1.75	35	41.14	1.84	35	51.18	1.88
40	20.72	2.54	40	41.07	2.66	40	51.11	2.72
45	20.66	3.76	45	40.99	3.96	45	51.02	4.06
50	20.56	5.32	50	40.83	5.67	50	50.86	5.85
55	20.37	7.78	55	40.55	8.46	55	50.57	8.80
60	20.00	10.80	60	40.00	12.12	60	50.00	12.78
65	19.34	16.69	65	39.00	18.81	65	48.95	19.89
70	18.31	25.30	70	37.41	28.62	70	47.27	30.34
75	16.74	42.58	75	34.91	47.29	75	44.58	49.81
80	14.70	70.81	80	31.48	76.33	80	40.80	79.39
85	12.43	120.68	85	27.47	126.21	85	36.22	129.45
90	10.30	193.96	90	23.44	198.04	90	31.47	200.47
95	8.920	318.41	95	20.70	319.97	95	28.15	320.76

PIVOTAL AGE IS 65   RATIO MALE LX TO TOTAL LX= Z

Z= 20 %;MR= .277772967 FR= 2.85727012			Z= 40 %;MR= .555545933 FR= 2.14295259			Z= 50 %;MR= .694432416 FR= 1.78579383		
AGE	M/TZ	1000QX	AGE	M/TZ	1000QX	AGE	M/TZ	1000QX
0	21.72	3.17	0	42.52	3.43	0	52.60	3.57
5	21.68	.79	5	42.47	.82	5	52.55	.83
10	21.68	.69	10	42.46	.70	10	52.54	.71
15	21.66	.96	15	42.44	1.06	15	52.52	1.10
20	21.60	1.23	20	42.36	1.41	20	52.43	1.50
25	21.54	1.30	25	42.26	1.42	25	52.33	1.48
30	21.50	1.43	30	42.20	1.51	30	52.27	1.55
35	21.46	1.75	35	42.15	1.84	35	52.22	1.90
40	21.42	2.54	40	42.09	2.66	40	52.16	2.73
45	21.36	3.77	45	42.00	3.97	45	52.07	4.08
50	21.25	5.34	50	41.85	5.70	50	51.91	5.87
55	21.06	7.80	55	41.56	8.50	55	51.62	8.84
60	20.68	10.84	60	41.01	12.18	60	51.05	12.84
65	20.00	16.76	65	40.00	18.92	65	50.00	20.01
70	18.94	25.40	70	38.39	28.79	70	48.31	30.52
75	17.34	42.73	75	35.87	47.54	75	45.62	50.06
80	15.23	70.99	80	32.39	76.62	80	41.82	79.72
85	12.90	120.86	85	28.31	126.53	85	37.20	129.80
90	10.69	194.08	90	24.20	198.27	90	32.38	200.79
95	9.270	318.42	95	21.41	320.01	95	29.00	321.03

1980 CSO

COMPARISON OF CHANGE IN PIVOTAL AGE OR PERCENT MALE LX TO TOTAL

PIVOTAL AGE IS 40   RATIO MALE LX TO TOTAL LX= Z

Z= 50 %;MR= .678343803 FR= 1.90178686			Z= 60 %;MR= .814012564 FR= 1.52142949			Z= 80 %;MR= 1.08535009 FR= .760714745		
AGE	M/TZ	10000X	AGE	M/TZ	10000X	AGE	M/TZ	10000X
0	50.44	3.54	0	60.43	3.67	0	80.28	3.93
5	50.39	.83	5	60.38	.84	5	80.25	.88
10	50.38	.71	10	60.37	.71	10	80.24	.72
15	50.36	1.10	15	60.35	1.14	15	80.23	1.24
20	50.27	1.48	20	60.26	1.56	20	80.18	1.74
25	50.18	1.47	25	60.17	1.53	25	80.11	1.65
30	50.11	1.54	30	60.11	1.58	30	80.07	1.65
35	50.06	1.88	35	60.06	1.93	35	80.04	2.01
40	50.00	2.72	40	60.00	2.78	40	80.00	2.90
45	49.91	4.06	45	59.91	4.15	45	79.94	4.35
50	49.75	5.83	50	59.76	6.01	50	79.84	6.35
55	49.46	8.77	55	59.48	9.11	55	79.65	9.78
60	48.89	12.70	60	58.93	13.37	60	79.28	14.71
65	47.84	19.77	65	57.91	20.86	65	78.58	23.10
70	46.16	30.15	70	56.26	31.90	70	77.42	35.58
75	43.48	49.52	75	53.58	52.13	75	75.48	57.82
80	39.73	79.03	80	49.72	82.31	80	72.50	89.80
85	35.20	129.06	85	44.90	132.66	85	68.49	141.33
90	30.52	200.22	90	39.71	203.08	90	63.73	210.54
95	27.26	320.77	95	35.99	321.94	95	59.98	324.89

PIVOTAL AGE IS 45   RATIO MALE LX TO TOTAL LX= Z

Z= 50 %;MR= .678985702 FR= 1.89675961			Z= 60 %;MR= .814782843 FR= 1.51740769			Z= 80 %;MR= 1.08637712 FR= .758703845		
AGE	M/TZ	10000X	AGE	M/TZ	10000X	AGE	M/TZ	10000X
0	50.53	3.54	0	60.51	3.67	0	80.34	3.92
5	50.48	.83	5	60.46	.84	5	80.31	.87
10	50.47	.71	10	60.45	.71	10	80.30	.72
15	50.45	1.10	15	60.43	1.14	15	80.29	1.24
20	50.36	1.48	20	60.35	1.56	20	80.23	1.74
25	50.27	1.47	25	60.26	1.53	25	80.17	1.65
30	50.20	1.54	30	60.20	1.58	30	80.13	1.65
35	50.15	1.88	35	60.15	1.93	35	80.10	2.02
40	50.09	2.72	40	60.09	2.78	40	80.06	2.90
45	50.00	4.06	45	60.00	4.15	45	80.00	4.35
50	49.84	5.83	50	59.85	6.01	50	79.90	6.36
55	49.55	8.77	55	59.57	9.11	55	79.71	7.78
60	48.98	12.71	60	59.01	13.37	60	79.34	14.72
65	47.93	19.78	65	58.00	20.88	65	78.64	23.11
70	46.25	30.16	70	56.34	31.92	70	77.49	35.59
75	43.57	49.55	75	53.67	52.16	75	75.54	57.84
80	39.82	79.07	80	49.81	82.34	80	72.58	89.83
85	35.29	129.11	85	44.99	132.68	85	68.56	141.38
90	30.59	200.23	90	39.80	203.08	90	63.81	210.53
95	27.32	320.74	95	36.06	322.03	95	60.07	324.89

1980 CSO

COMPARISON OF CHANGE IN PIVOTAL AGE OR PERCENT MALE LX TO TOTAL

PIVOTAL AGE IS 50   RATIO MALE LX TO TOTAL LX= Z

| Z= 50 Z;MR= .680139427 | | | Z= 60 Z;MR= .816167313 | | | Z= 80 Z;MR= 1.08822308 | | |
| FR= 1.88781389 | | | FR= 1.51025112 | | | FR= .755125558 | | |
AGE	M/TZ	10000X	AGE	M/TZ	10000X	AGE	M/TZ	10000X
0	50.70	3.54	0	60.67	3.67	0	80.44	3.93
5	50.64	.83	5	60.62	.85	5	80.41	.87
10	50.63	.71	10	60.61	.71	10	80.40	.72
15	50.61	1.09	15	60.59	1.14	15	80.39	1.24
20	50.53	1.48	20	60.50	1.56	20	80.33	1.74
25	50.43	1.47	25	60.41	1.53	25	80.27	1.65
30	50.37	1.54	30	60.35	1.57	30	80.23	1.66
35	50.31	1.89	35	60.30	1.93	35	80.20	2.01
40	50.25	2.72	40	60.24	2.77	40	80.16	2.90
45	50.16	4.05	45	60.15	4.15	45	80.10	4.36
50	50.00	5.84	50	60.00	6.01	50	80.00	6.36
55	49.71	8.77	55	59.72	9.11	55	79.81	9.79
60	49.14	12.73	60	59.17	13.38	60	79.44	14.72
65	48.09	19.80	65	58.15	20.89	65	78.75	23.12
70	46.41	30.19	70	56.50	31.94	70	77.60	35.61
75	43.73	49.59	75	53.83	52.19	75	75.66	57.87
80	39.97	79.11	80	49.97	82.40	80	72.70	89.87
85	35.43	129.15	85	45.15	132.73	85	68.70	141.42
90	30.73	200.26	90	39.95	203.16	90	63.96	210.56
95	27.45	320.80	95	36.22	321.84	95	60.22	324.95

PIVOTAL AGE IS 55   RATIO MALE LX TO TOTAL LX= Z

| Z= 50 Z;MR= .682240976 | | | Z= 60 Z;MR= .818689172 | | | Z= 80 Z;MR= 1.09158556 | | |
| FR= 1.87181003 | | | FR= 1.49744803 | | | FR= .748724013 | | |
AGE	M/TZ	10000X	AGE	M/TZ	10000X	AGE	M/TZ	10000X
0	50.99	3.55	0	60.94	3.67	0	80.62	3.93
5	50.93	.83	5	60.89	.85	5	80.59	.87
10	50.92	.70	10	60.88	.71	10	80.58	.72
15	50.90	1.09	15	60.86	1.14	15	80.57	1.24
20	50.82	1.48	20	60.78	1.57	20	80.52	1.73
25	50.72	1.47	25	60.69	1.54	25	80.46	1.65
30	50.65	1.54	30	60.63	1.58	30	80.42	1.65
35	50.60	1.89	35	60.58	1.93	35	80.38	2.02
40	50.54	2.72	40	60.52	2.78	40	80.34	2.90
45	50.45	4.06	45	60.43	4.15	45	80.29	4.36
50	50.29	5.84	50	60.28	6.02	50	80.19	6.36
55	50.00	8.79	55	60.00	9.12	55	80.00	9.79
60	49.43	12.74	60	59.45	13.40	60	79.63	14.74
65	48.38	19.83	65	58.44	20.92	65	78.94	23.14
70	46.70	30.24	70	56.79	32.00	70	77.80	35.65
75	44.02	49.65	75	54.12	52.28	75	75.87	57.92
80	40.25	79.20	80	50.26	82.50	80	72.93	89.94
85	35.70	129.25	85	45.44	132.84	85	68.95	141.50
90	30.98	200.34	90	40.23	203.21	90	64.22	210.64
95	27.69	320.74	95	36.48	321.79	95	60.50	325.07

1980 CSO

COMPARISON OF CHANGE IN PIVOTAL AGE OR PERCENT MALE LX TO TOTAL

PIVOTAL AGE IS 60   RATIO MALE LX TO TOTAL LX= Z

Z= 50 %;MR= .686460697 FR= 1.84076513			Z= 60 %;MR= .823752837 FR= 1.4726121			Z= 80 %;MR= 1.09833712 FR= .736306051		
AGE	M/T%	1000QX	AGE	M/T%	1000QX	AGE	M/T%	1000QX
0	51.56	3.55	0	61.49	3.68	0	80.98	3.93
5	51.51	.83	5	61.44	.84	5	80.95	.88
10	51.49	.71	10	61.43	.71	10	80.94	.72
15	51.47	1.10	15	61.41	1.15	15	80.93	1.24
20	51.39	1.48	20	61.32	1.58	20	80.87	1.74
25	51.29	1.48	25	61.23	1.54	25	80.81	1.65
30	51.23	1.55	30	61.17	1.58	30	80.77	1.66
35	51.18	1.88	35	61.12	1.93	35	80.74	2.02
40	51.11	2.72	40	61.06	2.78	40	80.70	2.90
45	51.02	4.06	45	60.98	4.16	45	80.65	4.35
50	50.86	5.85	50	60.82	6.02	50	80.55	6.37
55	50.57	8.80	55	60.55	9.14	55	80.36	9.81
60	50.00	12.78	60	60.00	13.44	60	80.00	14.76
65	48.95	19.89	65	58.99	20.98	65	79.32	23.18
70	47.27	30.34	70	57.35	32.09	70	78.19	35.71
75	44.58	49.81	75	54.68	52.42	75	76.29	58.03
80	40.80	79.39	80	50.83	82.68	80	73.38	90.09
85	36.22	129.45	85	46.00	133.05	85	69.44	141.68
90	31.47	200.47	90	40.78	203.41	90	64.75	210.85
95	28.15	320.76	95	37.01	321.86	95	61.04	324.98

PIVOTAL AGE IS 65   RATIO MALE LX TO TOTAL LX= Z

Z= 50 %;MR= .694432416 FR= 1.78579383			Z= 60 %;MR= .833318899 FR= 1.42863506			Z= 80 %;MR= 1.11109187 FR= .71431753		
AGE	M/T%	1000QX	AGE	M/T%	1000QX	AGE	M/T%	1000QX
0	52.60	3.57	0	62.47	3.69	0	81.61	3.94
5	52.55	.83	5	62.42	.85	5	81.58	.88
10	52.54	.71	10	62.41	.71	10	81.58	.72
15	52.52	1.10	15	62.39	1.15	15	81.56	1.24
20	52.43	1.50	20	62.31	1.58	20	81.51	1.74
25	52.33	1.48	25	62.22	1.54	25	81.45	1.66
30	52.27	1.55	30	62.16	1.59	30	81.42	1.66
35	52.22	1.90	35	62.11	1.94	35	81.39	2.02
40	52.16	2.73	40	62.05	2.79	40	81.35	2.90
45	52.07	4.08	45	61.97	4.17	45	81.29	4.36
50	51.91	5.87	50	61.82	6.03	50	81.19	6.38
55	51.62	8.84	55	61.54	9.17	55	81.02	9.82
60	51.05	12.84	60	61.00	13.51	60	80.66	14.81
65	50.00	20.01	65	60.00	21.09	65	80.00	23.26
70	48.31	30.52	70	58.37	32.27	70	78.90	35.84
75	45.62	50.06	75	55.72	52.70	75	77.04	58.23
80	41.82	79.72	80	51.88	83.03	80	74.19	90.35
85	37.20	129.80	85	47.05	133.43	85	70.32	142.01
90	32.38	200.79	90	41.80	203.69	90	65.70	211.14
95	29.00	321.03	95	37.99	322.08	95	62.03	325.21

APPENDIX D

BLENDED 1980 CSO & 1980 CET MORTALITY TABLES

PIVOTAL AGE IS 45 *** RATIO OF MALE LX TO TOTAL LX IS 25%

BLENDED 1980 CSO TABLE						BLENDED 1980 CET TABLE					
AGE	LX	1000QX	AGE	LX	1000QX	AGE	LX	1000QX	AGE	LX	1000QX
0	77914	3.21	50	71331	5.39	0	1136713	4.17	50	998409	7.01
1	77664	.93	51	70947	5.80	1	1131973	1.68	51	991410	7.54
2	77592	.86	52	70536	6.26	2	1130071	1.61	52	983935	8.14
3	77525	.83	53	70094	6.78	3	1128252	1.58	53	975926	8.81
4	77461	.82	54	69619	7.33	4	1126469	1.57	54	967328	9.53
5	77397	.79	55	69109	7.93	5	1124700	1.54	55	958109	10.31
6	77336	.76	56	68561	8.53	6	1122968	1.51	56	948231	11.09
7	77277	.75	57	67976	9.13	7	1121272	1.50	57	937715	11.87
8	77219	.71	58	67355	9.72	8	1119590	1.46	58	926584	12.64
9	77164	.71	59	66700	10.37	9	1117955	1.46	59	914872	13.48
10	7109	.70	60	66008	11.08	10	1116323	1.45	60	902540	14.40
11	77055	.70	61	65277	11.92	11	1114704	1.45	61	889543	15.50
12	77001	.75	62	64499	12.92	12	1113088	1.50	62	875755	16.80
13	76943	.81	63	63666	14.17	13	1111418	1.56	63	861042	18.42
14	76881	.88	64	62764	15.59	14	1109684	1.63	64	845182	20.27
15	76813	.98	65	61786	17.13	15	1107875	1.73	65	828050	22.27
16	76738	1.06	66	60728	18.76	16	1105958	1.81	66	809609	24.39
17	76657	1.13	67	59589	20.43	17	1103956	1.88	67	789863	26.56
18	76570	1.18	68	58372	22.11	18	1101881	1.93	68	768884	28.74
19	76480	1.23	69	57081	23.92	19	1099754	1.98	69	746786	31.10
20	76386	1.27	70	55716	25.99	20	1097576	2.02	70	723561	33.79
21	76289	1.27	71	54268	28.43	21	1095359	2.02	71	699112	36.96
22	76192	1.30	72	52725	31.37	22	1093146	2.05	72	673273	40.78
23	76093	1.30	73	51071	34.91	23	1090905	2.05	73	645817	45.38
24	75994	1.32	74	49288	39.00	24	1088669	2.07	74	616510	50.70
25	75894	1.32	75	47366	43.54	25	1086415	2.07	75	585253	56.60
26	75794	1.33	76	45304	48.50	26	1084166	2.08	76	552128	63.05
27	75693	1.34	77	43107	53.74	27	1081911	2.09	77	517316	69.86
28	75592	1.37	78	40790	59.26	28	1079650	2.12	78	481176	77.04
29	75488	1.40	79	38373	65.24	29	1077361	2.15	79	444106	84.81
30	75382	1.44	80	35870	71.92	30	1075045	2.19	80	406441	93.50
31	75273	1.49	81	33290	79.54	31	1072691	2.24	81	368439	103.40
32	75161	1.54	82	30642	88.32	32	1070288	2.29	82	330342	114.82
33	75045	1.60	83	27936	98.44	33	1067837	2.35	83	292412	127.97
34	74925	1.68	84	25186	109.59	34	1065328	2.43	84	254992	142.47
35	74799	1.77	85	22426	121.77	35	1062739	2.52	85	218663	158.30
36	74667	1.88	86	19695	134.74	36	1060061	2.63	86	184049	175.16
37	74527	2.02	87	17041	148.51	37	1057273	2.77	87	151811	193.06
38	74376	2.17	88	14510	163.04	38	1054344	2.92	88	122502	211.95
39	74215	2.36	89	12144	178.35	39	1051265	3.11	89	96538	231.86
40	74040	2.56	90	9978	194.74	40	1047996	3.33	90	74155	253.16
41	73850	2.81	91	8035	212.37	41	1044506	3.65	91	55382	276.08
42	73642	3.05	92	6329	231.68	42	1040694	3.97	92	40092	301.18
43	73417	3.29	93	4863	254.00	43	1036562	4.28	93	28017	330.20
44	73175	3.54	94	3628	281.08	44	1032126	4.60	94	18766	365.40
45	72916	3.80	95	2608	318.70	45	1027378	4.94	95	11909	414.31
46	72639	4.08	96	1777	376.52	46	1022303	5.30	96	6975	489.48
47	72343	4.36	97	1108	475.65	47	1016885	5.67	97	3561	618.35
48	72028	4.68	98	581	656.05	48	1011119	6.08	98	1359	852.87
49	71691	5.02	99	200	1000.00	49	1004971	6.53	99	200	1000.00

BLENDED 1980 CSO & 1980 CET MORTALITY TABLES

PIVOTAL AGE IS 45 *** RATIO OF MALE LX TO TOTAL LX IS 50%

BLENDED 1980 CSO TABLE						BLENDED 1980 CET TABLE					
AGE	LX	1000QX	AGE	LX	1000QX	AGE	LX	1000QX	AGE	LX	1000QX
0	96981	3.54	50	88170	5.83	0	1528592	4.60	50	1332106	7.58
1	96638	.97	51	87656	6.30	1	1521560	1.72	51	1322009	8.19
2	96544	.91	52	87104	6.82	2	1518943	1.66	52	1311182	8.87
3	96456	.89	53	86510	7.42	3	1516422	1.64	53	1299552	9.65
4	96370	.85	54	85868	8.07	4	1513935	1.60	54	1287011	10.49
5	96288	.83	55	85175	8.77	5	1511513	1.58	55	1273510	11.40
6	96208	.79	56	84428	9.50	6	1509125	1.54	56	1258992	12.35
7	96132	.77	57	83626	10.23	7	1506801	1.52	57	1243443	13.30
8	96058	.73	58	82771	10.99	8	1504511	1.48	58	1226905	14.29
9	95988	.72	59	81861	11.81	9	1502284	1.47	59	1209373	15.35
10	95919	.71	60	80894	12.71	10	1500076	1.46	60	1190809	16.52
11	95851	.72	61	79866	13.75	11	1497886	1.47	61	1171137	17.88
12	95782	.78	62	78768	14.96	12	1495684	1.53	62	1150197	19.45
13	95707	.87	63	77590	16.39	13	1493396	1.62	63	1127826	21.31
14	95624	.97	64	76318	18.02	14	1490977	1.72	64	1103792	23.43
15	95531	1.10	65	74943	19.78	15	1488413	1.85	65	1077930	25.71
16	95426	1.21	66	73461	21.64	16	1485659	1.96	66	1050216	28.13
17	95311	1.31	67	71871	23.59	17	1482747	2.06	67	1020673	30.67
18	95186	1.39	68	70176	25.58	18	1479693	2.14	68	989369	33.25
19	95054	1.44	69	68381	27.73	19	1476526	2.19	69	956472	36.05
20	94917	1.48	70	66485	30.16	20	1473292	2.23	70	921991	39.21
21	94777	1.49	71	64480	32.96	21	1470007	2.24	71	885840	42.85
22	94636	1.50	72	62355	36.29	22	1466714	2.25	72	847882	47.18
23	94494	1.49	73	60092	40.20	23	1463414	2.24	73	807879	52.26
24	94353	1.49	74	57676	44.66	24	1460136	2.24	74	765659	58.06
25	94212	1.47	75	55100	49.55	25	1456865	2.22	75	721205	64.42
26	94074	1.47	76	52370	54.80	26	1453631	2.22	76	674745	71.24
27	93936	1.46	77	49500	60.31	27	1450404	2.21	77	626676	78.40
28	93799	1.48	78	46515	66.06	28	1447199	2.23	78	577545	85.88
29	93660	1.51	79	43442	72.23	29	1443972	2.26	79	527945	93.90
30	93519	1.54	80	40304	79.07	30	1440709	2.29	80	478371	102.79
31	93375	1.58	81	37117	86.80	31	1437410	2.33	81	429199	112.84
32	93227	1.64	82	33895	95.68	32	1434061	2.39	82	380768	124.38
33	93074	1.70	83	30652	105.81	33	1430634	2.45	83	333408	137.55
34	92916	1.79	84	27409	117.02	34	1427129	2.54	84	287548	152.13
35	92750	1.88	85	24202	129.11	35	1423504	2.63	85	243803	167.84
36	92576	2.00	86	21077	141.91	36	1419760	2.75	86	202883	184.48
37	92391	2.14	87	18086	155.41	37	1415856	2.89	87	165455	202.03
38	92193	2.31	88	15275	169.55	38	1411764	3.06	88	132028	220.42
39	91980	2.51	89	12685	184.45	39	1407444	3.26	89	102926	239.79
40	91749	2.72	90	10345	200.23	40	1402856	3.54	90	78245	260.30
41	91499	2.97	91	8274	217.23	41	1397890	3.86	91	57878	282.40
42	91227	3.22	92	6477	235.91	42	1392494	4.19	92	41533	306.68
43	90933	3.49	93	4949	257.43	43	1386659	4.54	93	28796	334.66
44	90616	3.75	94	3675	283.81	44	1380364	4.88	94	19159	368.95
45	90276	4.06	95	2632	320.74	45	1373628	5.28	95	12090	416.96
46	89909	4.36	96	1788	377.93	46	1366375	5.67	96	7049	491.31
47	89517	4.68	97	1112	476.61	47	1358628	6.08	97	3586	619.59
48	89098	5.03	98	582	656.44	48	1350368	6.54	98	1364	853.37
49	88650	5.41	99	200	1000.00	49	1341537	7.03	99	200	1000.00

BLENDED 1980 CSO & 1980 CET MORTALITY TABLES

PIVOTAL AGE IS 45 *** RATIO OF MALE LX TO TOTAL LX IS 75%

BLENDED 1980 CSO TABLE						BLENDED 1980 CET TABLE					
AGE	LX	1000QX	AGE	LX	1000QX	AGE	LX	1000QX	AGE	LX	1000QX
0	127320	3.86	50	114963	6.27	0	2217214	5.02	50	1917304	8.15
1	126829	1.02	51	114242	6.80	1	2206084	1.77	51	1901678	8.84
2	126700	.94	52	113465	7.39	2	2202179	1.69	52	1884867	9.61
3	126581	.93	53	112626	8.06	3	2198457	1.68	53	1866753	10.48
4	126463	.91	54	111718	8.81	4	2194764	1.66	54	1847189	11.45
5	126348	.86	55	110734	9.62	5	2191121	1.61	55	1826039	12.51
6	126239	.83	56	109669	10.47	6	2187593	1.58	56	1803195	13.61
7	126134	.78	57	108521	11.36	7	2184137	1.53	57	1778654	14.77
8	126036	.74	58	107288	12.27	8	2180795	1.49	58	1752383	15.95
9	125943	.73	59	105972	13.28	9	2177546	1.48	59	1724432	17.26
10	125851	.71	60	104565	14.38	10	2174323	1.46	60	1694668	18.69
11	125762	.75	61	103061	15.62	11	2171148	1.50	61	1662995	20.31
12	125668	.82	62	101451	17.04	12	2167891	1.57	62	1629220	22.15
13	125565	.92	63	99722	18.70	13	2164487	1.67	63	1593135	24.31
14	125449	1.06	64	97857	20.53	14	2160872	1.81	64	1554404	26.69
15	125316	1.21	65	95848	22.54	15	2156961	1.96	65	1512917	29.30
16	125164	1.37	66	93688	24.68	16	2152733	2.12	66	1468589	32.08
17	124993	1.49	67	91376	26.92	17	2148169	2.24	67	1421477	35.00
18	124807	1.58	68	88916	29.27	18	2143357	2.33	68	1371725	38.05
19	124610	1.65	69	86313	31.81	19	2138363	2.40	69	1319531	41.35
20	124404	1.70	70	83567	34.65	20	2133231	2.45	70	1264968	45.05
21	124193	1.70	71	80671	37.92	21	2128005	2.45	71	1207981	49.30
22	123982	1.69	72	77612	41.69	22	2122791	2.44	72	1148428	54.20
23	123772	1.68	73	74376	46.08	23	2117611	2.43	73	1086183	59.90
24	123564	1.65	74	70949	51.00	24	2112465	2.40	74	1021121	66.30
25	123360	1.62	75	67331	56.36	25	2107395	2.37	75	953421	73.27
26	123160	1.59	76	63536	62.07	26	2102400	2.34	76	883564	80.69
27	122964	1.59	77	59592	68.00	27	2097480	2.34	77	812269	88.40
28	122768	1.59	78	55540	74.15	28	2092572	2.34	78	740464	96.40
29	122573	1.61	79	51422	80.66	29	2087675	2.36	79	669083	104.86
30	122376	1.64	80	47274	87.83	30	2082748	2.39	80	598923	114.18
31	122175	1.68	81	43122	95.86	31	2077770	2.43	81	530538	124.62
32	121970	1.73	82	38988	105.00	32	2072721	2.48	82	464422	136.50
33	121759	1.80	83	34894	115.39	33	2067581	2.55	83	401028	150.01
34	121540	1.90	84	30868	126.77	34	2062309	2.65	84	340870	164.80
35	121309	1.99	85	26955	138.96	35	2056844	2.74	85	284695	180.65
36	121068	2.12	86	23209	151.76	36	2051208	2.87	86	233265	197.29
37	120811	2.27	87	19687	165.07	37	2045321	3.02	87	187244	214.59
38	120537	2.44	88	16437	178.86	38	2039144	3.19	88	147063	232.52
39	120243	2.65	89	13497	193.25	39	2032639	3.45	89	112868	251.23
40	119924	2.87	90	10889	208.39	40	2025626	3.73	90	84512	270.91
41	119580	3.13	91	8620	224.60	41	2018070	4.07	91	61617	291.98
42	119206	3.39	92	6684	242.39	42	2009856	4.41	92	43626	315.11
43	118802	3.67	93	5064	262.67	43	2000993	4.77	93	29879	341.47
44	118366	3.97	94	3734	288.20	44	1991448	5.16	94	19676	374.66
45	117896	4.30	95	2658	323.98	45	1981172	5.59	95	12304	421.17
46	117389	4.64	96	1797	380.19	46	1970097	6.03	96	7122	494.25
47	116844	5.00	97	1114	477.69	47	1958217	6.50	97	3602	621.00
48	116260	5.38	98	582	656.50	48	1945489	6.99	98	1365	853.45
49	115635	5.81	99	200	1000.00	49	1931890	7.55	99	200	1000.00

BLENDED 1980 CSO & 1980 CET MORTALITY TABLES

PIVOTAL AGE IS 50 *** RATIO OF MALE LX TO TOTAL LX IS 25%

	BLENDED 1980 CSO TABLE						BLENDED 1980 CET TABLE			
AGE	LX	1000QX	AGE	LX	1000QX	AGE	LX	1000QX	AGE	LX	1000QX
0	78110	3.22	50	71509	5.40	0	1140410	4.19	50	1001627	7.02
1	77858	.93	51	71123	5.80	1	1135632	1.68	51	994596	7.54
2	77786	.86	52	70710	6.27	2	1133724	1.61	52	987097	8.15
3	77719	.84	53	70267	6.78	3	1131899	1.59	53	979052	8.81
4	77654	.82	54	69791	7.34	4	1130099	1.57	54	970427	9.54
5	77590	.79	55	69279	7.93	5	1128325	1.54	55	961169	10.31
6	77529	.76	56	68730	8.54	6	1126587	1.51	56	951259	11.10
7	77470	.75	57	68143	9.13	7	1124886	1.50	57	940700	11.87
8	77412	.71	58	67521	9.73	8	1123199	1.46	58	929534	12.65
9	77357	.71	59	66864	10.37	9	1121559	1.46	59	917775	13.48
10	77302	.69	60	66171	11.09	10	1119922	1.44	60	905403	14.42
11	77249	.71	61	65437	11.92	11	1118309	1.46	61	892347	15.50
12	77194	.75	62	64657	12.94	12	1116676	1.50	62	878516	16.87
13	77136	.81	63	63820	14.18	13	1115001	1.56	63	863739	18.43
14	77074	.88	64	62915	15.59	14	1113262	1.63	64	847820	20.27
15	77006	.98	65	61934	17.15	15	1111447	1.73	65	830635	22.30
16	76931	1.05	66	60872	18.77	16	1109524	1.80	66	812112	24.40
17	76850	1.14	67	59729	20.44	17	1107527	1.89	67	792296	26.57
18	76762	1.18	68	58508	22.13	18	1105434	1.93	68	771245	28.77
19	76671	1.23	69	57213	23.94	19	1103301	1.98	69	749056	31.12
20	76577	1.26	70	55843	26.01	20	1101116	2.01	70	725745	33.81
21	76481	1.28	71	54391	28.44	21	1098903	2.03	71	701208	36.97
22	76383	1.30	72	52844	31.39	22	1096672	2.05	72	675284	40.81
23	76284	1.30	73	51185	34.93	23	1094424	2.05	73	647726	45.41
24	76185	1.32	74	49397	39.04	24	1092180	2.07	74	618313	50.75
25	76084	1.31	75	47469	43.57	25	1089919	2.06	75	586934	56.64
26	75984	1.34	76	45401	48.53	26	1087674	2.09	76	553690	63.09
27	75882	1.34	77	43198	53.77	27	1085401	2.09	77	518758	69.90
28	75780	1.37	78	40875	59.30	28	1083133	2.12	78	482497	77.09
29	75676	1.40	79	38451	65.27	29	1080837	2.15	79	445301	84.85
30	75570	1.44	80	35941	71.95	30	1078513	2.19	80	407517	93.54
31	75461	1.49	81	33355	79.58	31	1076151	2.24	81	369398	103.45
32	75349	1.54	82	30701	88.36	32	1073740	2.29	82	331184	114.87
33	75233	1.60	83	27988	98.46	33	1071281	2.35	83	293141	128.00
34	75113	1.68	84	25232	109.64	34	1068763	2.43	84	255619	142.53
35	74987	1.77	85	22466	121.80	35	1066166	2.52	85	219186	158.34
36	74854	1.87	86	19730	134.75	36	1063479	2.62	86	184480	175.18
37	74714	2.02	87	17071	148.54	37	1060693	2.77	87	152163	193.10
38	74563	2.17	88	14535	163.06	38	1057755	2.92	88	122780	211.98
39	74401	2.36	89	12165	178.39	39	1054666	3.11	89	96753	231.91
40	74225	2.57	90	9995	194.78	40	1051386	3.34	90	74315	253.21
41	74034	2.80	91	8048	212.35	41	1047874	3.64	91	55498	276.06
42	73827	3.05	92	6339	231.74	42	1044060	3.97	92	40177	301.26
43	73602	3.29	93	4870	253.98	43	1039915	4.28	93	28073	330.17
44	73360	3.54	94	3633	281.08	44	1035464	4.60	94	18804	365.40
45	73100	3.81	95	2612	318.64	45	1030701	4.95	95	11933	414.23
46	72821	4.08	96	1780	376.57	46	1025599	5.30	96	6990	489.54
47	72524	4.37	97	1110	475.84	47	1020163	5.68	97	3568	618.59
48	72207	4.67	98	582	656.18	48	1014368	6.07	98	1361	853.03
49	71870	5.02	99	200	1000.00	49	1008211	6.53	99	200	1000.00

BLENDED 1980 CSO & 1980 CET MORTALITY TABLES

PIVOTAL AGE IS 50 *** RATIO OF MALE LX TO TOTAL LX IS 50%

BLENDED 1980 CSO TABLE						BLENDED 1980 CET TABLE					
AGE	LX	10000X	AGE	LX	10000X	AGE	LX	10000X	AGE	LX	10000X
0	97064	3.54	50	88246	5.84	0	1527384	4.60	50	1331024	7.59
1	96720	.98	51	87731	6.30	1	1520358	1.73	51	1320922	8.19
2	96625	.90	52	87178	6.83	2	1517728	1.65	52	1310104	8.88
3	96538	.89	53	86583	7.42	3	1515224	1.64	53	1298470	9.65
4	96452	.86	54	85941	8.08	4	1512739	1.61	54	1285940	10.50
5	96369	.83	55	85247	8.77	5	1510303	1.58	55	1272438	11.40
6	96289	.79	56	84499	9.50	6	1507917	1.54	56	1257932	12.35
7	96213	.76	57	83696	10.24	7	1505595	1.51	57	1242397	13.31
8	96140	.73	58	82839	11.00	8	1503322	1.48	58	1225861	14.30
9	96070	.72	59	81928	11.81	9	1501097	1.47	59	1208331	15.35
10	96001	.71	60	80960	12.73	10	1498890	1.46	60	1189783	16.55
11	95933	.73	61	79929	13.76	11	1496702	1.48	61	1170092	17.89
12	95863	.78	62	78829	14.97	12	1494487	1.53	62	1149159	19.46
13	95788	.87	63	77649	16.41	13	1492200	1.62	63	1126796	21.33
14	95705	.97	64	76375	18.03	14	1489783	1.72	64	1102761	23.44
15	95612	1.09	65	74998	19.80	15	1487221	1.84	65	1076912	25.74
16	95508	1.21	66	73513	21.66	16	1484485	1.96	66	1049192	28.16
17	95392	1.31	67	71921	23.61	17	1481575	2.06	67	1019647	30.69
18	95267	1.38	68	70223	25.61	18	1478523	2.13	68	988354	33.29
19	95136	1.44	69	68425	27.75	19	1475374	2.19	69	955452	36.08
20	94999	1.48	70	66526	30.19	20	1472143	2.23	70	920979	39.25
21	94858	1.49	71	64518	33.00	21	1468860	2.24	71	884831	42.90
22	94717	1.50	72	62389	36.32	22	1465570	2.25	72	846872	47.22
23	94575	1.49	73	60123	40.24	23	1462272	2.24	73	806883	52.31
24	94434	1.49	74	57704	44.69	24	1458997	2.24	74	764675	58.10
25	94293	1.47	75	55125	49.59	25	1455729	2.22	75	720247	64.47
26	94154	1.46	76	52391	54.84	26	1452497	2.21	76	673813	71.29
27	94017	1.47	77	49518	60.37	27	1449287	2.22	77	625777	78.48
28	93879	1.48	78	46529	66.11	28	1446070	2.23	78	576666	85.94
29	93740	1.50	79	43453	72.28	29	1442845	2.25	79	527107	93.96
30	93599	1.54	80	40312	79.11	30	1439599	2.29	80	477580	102.84
31	93455	1.58	81	37123	86.85	31	1436302	2.33	81	428466	112.91
32	93307	1.64	82	33899	95.72	32	1432955	2.39	82	380088	124.44
33	93154	1.70	83	30654	105.87	33	1429530	2.45	83	332790	137.63
34	92996	1.79	84	27409	117.07	34	1426028	2.54	84	286988	152.19
35	92830	1.89	85	24200	129.15	35	1422406	2.64	85	243311	167.90
36	92655	2.00	86	21075	141.95	36	1418651	2.75	86	202459	184.54
37	92470	2.15	87	18083	155.47	37	1414750	2.90	87	165097	202.11
38	92271	2.31	88	15272	169.61	38	1410647	3.06	88	131729	220.49
39	92058	2.50	89	12682	184.49	39	1406330	3.25	89	102684	239.84
40	91828	2.72	90	10342	200.26	40	1401759	3.54	90	78056	260.34
41	91578	2.97	91	8271	217.27	41	1396797	3.86	91	57735	282.45
42	91306	3.22	92	6474	235.98	42	1391405	4.19	92	41428	306.77
43	91012	3.49	93	4946	257.40	43	1385575	4.54	93	28719	334.62
44	90694	3.75	94	3673	283.88	44	1379284	4.88	94	19109	369.04
45	90354	4.05	95	2630	320.80	45	1372553	5.27	95	12057	417.04
46	89988	4.36	96	1786	378.00	46	1365320	5.67	96	7029	491.40
47	89596	4.69	97	1111	476.36	47	1357579	6.10	97	3575	619.27
48	89176	5.03	98	582	656.19	48	1349298	6.54	98	1361	853.05
49	88727	5.42	99	200	1000.00	49	1340474	7.05	99	200	1000.00

BLENDED 1980 CSO & 1980 CET MORTALITY TABLES

PIVOTAL AGE IS 50 *** RATIO OF MALE LX TO TOTAL LX IS 75%

BLENDED 1980 CSO TABLE						BLENDED 1980 CET TABLE					
AGE	LX	1000QX	AGE	LX	1000QX	AGE	LX	1000QX	AGE	LX	1000QX
0	127984	3.86	50	115555	6.28	0	2227822	5.02	50	1926366	8.16
1	127490	1.02	51	114829	6.80	1	2216638	1.77	51	1910647	8.84
2	127360	.95	52	114048	7.39	2	2212715	1.70	52	1893757	9.61
3	127239	.93	53	113205	8.07	3	2208953	1.68	53	1875558	10.49
4	127121	.91	54	112291	8.81	4	2205242	1.66	54	1855883	11.45
5	127005	.86	55	111302	9.62	5	2201581	1.61	55	1834633	12.51
6	126896	.83	56	110231	10.47	6	2198036	1.58	56	1811682	13.61
7	126791	.78	57	109077	11.36	7	2194563	1.53	57	1787025	14.77
8	126692	.75	58	107838	12.28	8	2191205	1.50	58	1760631	15.96
9	126597	.73	59	106514	13.29	9	2187918	1.48	59	1732531	17.28
10	126505	.72	60	105098	14.39	10	2184680	1.47	60	1702593	18.71
11	126414	.75	61	103586	15.63	11	2181469	1.50	61	1670737	20.32
12	126319	.82	62	101967	17.06	12	2178197	1.57	62	1636788	22.18
13	126215	.92	63	100227	18.70	13	2174777	1.67	63	1600484	24.31
14	126099	1.06	64	98353	20.54	14	2171145	1.81	64	1561576	26.70
15	125965	1.21	65	96333	22.56	15	2167215	1.96	65	1519882	29.33
16	125813	1.36	66	94160	24.69	16	2162967	2.11	66	1475304	32.10
17	125642	1.49	67	91835	26.94	17	2158403	2.24	67	1427947	35.02
18	125455	1.59	68	89361	29.29	18	2153568	2.34	68	1377940	38.08
19	125256	1.65	69	86744	31.83	19	2148529	2.40	69	1325468	41.75
20	125049	1.69	70	83983	34.68	20	2143373	2.44	70	1270620	45.68
21	124838	1.71	71	81070	37.93	21	2138143	2.46	71	1213340	49.31
22	124625	1.69	72	77995	41.71	22	2132883	2.44	72	1153510	54.22
23	124414	1.68	73	74742	46.12	23	2127679	2.43	73	1090967	59.96
24	124205	1.66	74	71295	51.04	24	2122509	2.41	74	1025553	66.35
25	123999	1.62	75	67656	56.39	25	2117394	2.37	75	957508	73.31
26	123798	1.60	76	63841	62.11	26	2112376	2.35	76	887313	80.74
27	123600	1.59	77	59876	68.05	27	2107412	2.34	77	815671	88.47
28	123403	1.59	78	55801	74.19	28	2102481	2.34	78	743509	96.45
29	123207	1.61	79	51661	80.71	29	2097561	2.36	79	671798	104.92
30	123009	1.63	80	47491	87.87	30	2092611	2.38	80	601313	114.23
31	122808	1.68	81	43318	95.92	31	2087631	2.43	81	532625	124.70
32	122602	1.73	82	39163	105.05	32	2082558	2.48	82	466207	136.57
33	122390	1.81	83	35049	115.44	33	2077393	2.56	83	402537	150.07
34	122168	1.89	84	31003	126.82	34	2072075	2.64	84	342128	164.87
35	121937	2.00	85	27071	139.03	35	2066605	2.75	85	285721	190.74
36	121693	2.12	86	23307	151.81	36	2060922	2.87	86	234080	197.35
37	121435	2.27	87	19769	165.12	37	2055007	3.02	87	187884	214.66
38	121159	2.44	88	16505	178.94	38	2048801	3.19	88	147553	232.62
39	120863	2.65	89	13552	193.30	39	2042265	3.45	89	113229	251.29
40	120543	2.87	90	10932	208.48	40	2035219	3.73	90	84776	271.02
41	120197	3.13	91	8653	224.63	41	2027628	4.07	91	61800	292.02
42	119821	3.39	92	6709	242.39	42	2019376	4.41	92	43753	315.11
43	119415	3.67	93	5083	262.78	43	2010471	4.77	93	29966	341.61
44	118977	3.98	94	3747	288.18	44	2000881	5.17	94	19729	374.63
45	118503	4.30	95	2667	323.84	45	1990536	5.59	95	12338	420.99
46	117993	4.64	96	1803	380.33	46	1979409	6.03	96	7144	494.43
47	117446	5.00	97	1117	477.88	47	1967473	6.50	97	3612	621.24
48	116859	5.38	98	583	656.77	48	1954684	6.99	98	1368	853.80
49	116230	5.81	99	200	1000.00	49	1941021	7.55	99	200	1000.00

APPENDIX E

BLENDED 1980 CSO & 1980 CET MORTALITY TABLES

PIVOTAL AGE IS 45 *** RATIO OF MALE LX TO TOTAL LX IS 80%

BLENDED 1980 CSO TABLE   BLENDED 1980 CET TABLE

AGE	LX	1000QX	AGE	LX	1000QX	AGE	LX	1000QX	AGE	LX	1000QX
0	136260	3.92	50	122860	6.36	0	2437508	5.10	50	2104361	8.27
1	135726	1.04	51	122079	6.90	1	2425077	1.79	51	2086958	8.97
2	135585	.95	52	121237	7.50	2	2420736	1.70	52	2068238	9.75
3	135456	.94	53	120328	8.19	3	2416621	1.69	53	2048073	10.65
4	135329	.91	54	119343	8.96	4	2412537	1.66	54	2026261	11.65
5	135206	.87	55	118274	9.78	5	2408532	1.62	55	2002655	12.71
6	135088	.83	56	117117	10.67	6	2404630	1.58	56	1977201	13.87
7	134976	.79	57	115867	11.58	7	2400831	1.54	57	1949777	15.05
8	134869	.75	58	114525	12.54	8	2397134	1.50	58	1920433	16.30
9	134768	.73	59	113089	13.57	9	2393538	1.48	59	1889130	17.64
10	134670	.72	60	111554	14.72	10	2389996	1.47	60	1855806	19.14
11	134573	.75	61	109912	16.00	11	2386483	1.50	61	1820286	20.80
12	134472	.83	62	108153	17.47	12	2382903	1.58	62	1782424	22.71
13	134360	.94	63	106264	19.16	13	2379138	1.69	63	1741945	24.91
14	134234	1.08	64	104228	21.05	14	2375117	1.83	64	1698553	27.37
15	134089	1.24	65	102034	23.11	15	2370771	1.99	65	1652064	30.04
16	133923	1.39	66	99676	25.29	16	2366053	2.14	66	1602436	32.88
17	133737	1.53	67	97155	27.61	17	2360990	2.28	67	1549748	35.89
18	133532	1.62	68	94473	30.03	18	2355607	2.37	68	1494128	39.04
19	133316	1.69	69	91636	32.66	19	2350024	2.44	69	1435797	42.46
20	133091	1.74	70	88643	35.59	20	2344290	2.49	70	1374833	46.27
21	132859	1.75	71	85488	38.95	21	2338453	2.50	71	1311219	50.64
22	132626	1.73	72	82158	42.84	22	2332607	2.48	72	1244819	55.69
23	132397	1.71	73	78638	47.33	23	2326822	2.46	73	1175495	61.53
24	132171	1.69	74	74916	52.37	24	2321098	2.44	74	1103167	68.08
25	131948	1.65	75	70993	57.84	25	2315435	2.40	75	1028063	75.19
26	131730	1.63	76	66887	63.65	26	2309878	2.38	76	950763	82.75
27	131515	1.61	77	62630	69.70	27	2304380	2.36	77	872087	90.61
28	131303	1.61	78	58265	75.95	28	2298942	2.36	78	793067	98.74
29	131092	1.63	79	53840	82.57	29	2293516	2.38	79	714760	107.34
30	130878	1.65	80	49394	89.83	30	2288057	2.40	80	638038	116.78
31	130662	1.70	81	44957	97.94	31	2282566	2.45	81	563528	127.32
32	130440	1.75	82	40554	107.18	32	2276974	2.50	82	491780	139.33
33	130212	1.83	83	36207	117.65	33	2271282	2.58	83	423260	152.95
34	129974	1.91	84	31947	129.10	34	2265422	2.66	84	358522	167.83
35	129726	2.02	85	27823	141.38	35	2259396	2.77	85	298351	183.79
36	129464	2.14	86	23889	154.17	36	2253137	2.89	86	243517	200.42
37	129187	2.30	87	20206	167.49	37	2246625	3.05	87	194711	217.74
38	128890	2.47	88	16822	181.24	38	2239773	3.22	88	152315	235.61
39	128572	2.68	89	13773	195.54	39	2232561	3.48	89	116428	254.20
40	128227	2.90	90	11080	210.53	40	2224792	3.77	90	86832	273.69
41	127855	3.16	91	8747	226.51	41	2216405	4.11	91	63067	294.46
42	127451	3.42	92	6766	244.13	42	2207296	4.45	92	44496	317.37
43	127015	3.72	93	5114	264.04	43	2197474	4.84	93	30374	343.25
44	126543	4.01	94	3764	289.36	44	2186838	5.21	94	19948	376.17
45	126036	4.35	95	2675	324.89	45	2175445	5.66	95	12444	422.36
46	125488	4.70	96	1806	380.97	46	2163132	6.11	96	7188	495.26
47	124898	5.07	97	1118	477.69	47	2149915	6.59	97	3628	621.00
48	124265	5.45	98	584	657.38	48	2135747	7.09	98	1375	854.59
49	123588	5.89	99	200	1000.00	49	2120605	7.66	99	200	1000.00

BLENDED 1980 CSO & 1980 CET MORTALITY TABLES

PIVOTAL AGE IS 45 *** RATIO OF MALE LX TO TOTAL LX IS 60%

BLENDED 1980 CSO TABLE						BLENDED 1980 CET TABLE					
AGE	LX	1000QX	AGE	LX	1000QX	AGE	LX	1000QX	AGE	LX	1000QX
0	107405	3.67	50	97377	6.01	0	1760557	4.77	50	1529496	7.81
1	107011	.99	51	96792	6.50	1	1752159	1.74	51	1517551	8.45
2	106905	.93	52	96163	7.05	2	1749110	1.68	52	1504728	9.17
3	106806	.90	53	95485	7.68	3	1746171	1.65	53	1490930	9.98
4	106710	.88	54	94752	8.37	4	1743290	1.63	54	1476051	10.88
5	106616	.84	.55	93959	9.11	5	1740448	1.59	55	1459992	11.84
6	106526	.81	56	93103	9.88	6	1737681	1.56	56	1442706	12.84
7	106440	.77	57	92183	10.68	7	1734970	1.52	57	1424182	13.88
8	106358	.73	58	91198	11.50	8	1732333	1.48	58	1404414	14.95
9	106280	.73	59	90149	12.39	9	1729769	1.48	59	1383418	16.11
10	106202	.71	60	89032	13.37	10	1727209	1.46	60	1361131	17.38
11	106127	.74	61	87842	14.48	11	1724687	1.49	61	1337475	18.82
12	106048	.80	62	86570	15.79	12	1722117	1.55	62	1312304	20.53
13	105963	.89	63	85203	17.30	13	1719448	1.64	63	1285362	22.49
14	105869	1.01	64	83729	19.01	14	1716628	1.76	64	1256454	24.71
15	105762	1.14	65	82137	20.88	15	1713607	1.89	65	1225407	27.14
16	105641	1.27	66	80422	22.84	16	1710368	2.02	66	1192149	29.69
17	105507	1.38	67	78585	24.90	17	1706913	2.13	67	1156754	32.37
18	105361	1.47	68	76628	27.04	18	1703277	2.22	68	1119310	35.15
19	105206	1.52	69	74556	29.32	19	1699496	2.27	69	1079966	38.12
20	105046	1.56	70	72370	31.92	20	1695638	2.31	70	1038798	41.50
21	104882	1.58	71	70060	34.90	21	1691721	2.33	71	995688	45.37
22	104716	1.58	72	67615	38.38	22	1687779	2.33	72	950514	49.89
23	104551	1.56	73	65020	42.48	23	1683846	2.31	73	903093	55.22
24	104388	1.55	74	62258	47.11	24	1679956	2.30	74	853224	61.24
25	104226	1.53	75	59325	52.16	25	1676092	2.28	75	800973	67.81
26	104067	1.52	76	56231	57.58	26	1672271	2.27	76	746659	74.85
27	103909	1.51	77	52993	63.24	27	1668475	2.26	77	690772	82.21
28	103752	1.53	78	49642	69.13	28	1664704	2.28	78	633984	89.87
29	103593	1.54	79	46210	75.41	29	1660908	2.29	79	577008	98.03
30	103433	1.58	80	42725	82.34	30	1657105	2.33	80	520444	107.04
31	103270	1.63	81	39207	90.17	31	1653244	2.38	81	464736	117.22
32	103102	1.67	82	35672	99.12	32	1649309	2.42	82	410260	128.86
33	102930	1.75	83	32136	109.33	33	1645318	2.50	83	357394	142.13
34	102750	1.83	84	28623	120.58	34	1641205	2.58	84	306598	156.75
35	102562	1.93	85	25172	132.68	35	1636971	2.68	85	258539	172.48
36	102364	2.04	86	21832	145.47	36	1632584	2.79	86	213946	189.11
37	102155	2.20	87	18656	158.84	37	1628029	2.95	87	173487	206.49
38	101930	2.36	88	15693	172.87	38	1623226	3.11	88	137664	224.73
39	101689	2.56	89	12980	187.54	39	1618178	3.33	89	106727	243.80
40	101429	2.78	90	10546	203.08	40	1612789	3.61	90	80707	264.00
41	101147	3.03	91	8404	219.76	41	1606967	3.94	91	59400	285.69
42	100841	3.29	92	6557	238.20	42	1600636	4.28	92	42430	309.66
43	100509	3.56	93	4995	259.26	43	1593785	4.63	93	29291	337.04
44	100151	3.84	94	3700	285.17	44	1586406	4.99	94	19419	370.72
45	99766	4.15	95	2645	322.03	45	1578490	5.40	95	12220	418.64
46	99352	4.47	96	1793	378.56	46	1569966	5.81	96	7104	492.13
47	98908	4.81	97	1114	476.70	47	1560844	6.25	97	3608	619.71
48	98432	5.17	98	583	657.10	48	1551089	6.72	98	1372	854.23
49	97923	5.58	99	200	1000.00	49	1540666	7.25	99	200	1000.00

BLENDED 1980 CSO & 1980 CET MORTALITY TABLES

PIVOTAL AGE IS 45 *** RATIO OF MALE LX TO TOTAL LX IS 50%

	BLENDED 1980 CSO TABLE						BLENDED 1980 CET TABLE				
AGE	LX	1000QX	AGE	LX	1000QX	AGE	LX	1000QX	AGE	LX	1000QX
0	96981	3.54	50	88170	5.83	0	1528592	4.60	50	1332106	7.58
1	96638	.97	51	87656	6.30	1	1521560	1.72	51	1322009	8.19
2	96544	.91	52	87104	6.82	2	1518943	1.66	52	1311182	8.87
3	96456	.89	53	86510	7.42	3	1516422	1.64	53	1299552	9.65
4	96370	.85	54	85868	8.07	4	1513935	1.60	54	1287011	10.49
5	96288	.83	55	85175	8.77	5	1511513	1.58	55	1273510	11.40
6	96208	.79	56	84428	9.50	6	1509125	1.54	56	1258992	12.35
7	96132	.77	57	83626	10.23	7	1506801	1.52	57	1243443	13.30
8	96058	.73	58	82771	10.99	8	1504511	1.48	58	1226905	14.29
9	95988	.72	59	81861	11.81	9	1502284	1.47	59	1209373	15.35
10	95919	.71	60	80894	12.71	10	1500076	1.46	60	1190809	16.52
11	95851	.72	61	79866	13.75	11	1497886	1.47	61	1171137	17.88
12	95782	.78	62	78768	14.96	12	1495684	1.53	62	1150197	19.45
13	95707	.87	63	77590	16.39	13	1493396	1.62	63	1127826	21.31
14	95624	.97	64	76318	18.02	14	1490977	1.72	64	1103792	23.43
15	95531	1.10	65	74943	19.78	15	1488413	1.85	65	1077930	25.71
16	95426	1.21	66	73461	21.64	16	1485659	1.96	66	1050216	28.13
17	95311	1.31	67	71871	23.59	17	1482747	2.06	67	1020673	30.67
18	95186	1.39	68	70176	25.58	18	1479693	2.14	68	989369	33.25
19	95054	1.44	69	68381	27.73	19	1476526	2.19	69	956472	36.05
20	94917	1.48	70	66485	30.16	20	1473292	2.23	70	921991	39.21
21	94777	1.49	71	64480	32.96	21	1470007	2.24	71	885840	42.85
22	94636	1.50	72	62355	36.29	22	1466714	2.25	72	847882	47.18
23	94494	1.49	73	60092	40.20	23	1463414	2.24	73	807879	52.26
24	94353	1.49	74	57676	44.66	24	1460136	2.24	74	765659	58.06
25	94212	1.47	75	55100	49.55	25	1456865	2.22	75	721205	64.42
26	94074	1.47	76	52370	54.80	26	1453631	2.22	76	674745	71.24
27	93936	1.46	77	49500	60.31	27	1450404	2.21	77	626676	78.40
28	93799	1.48	78	46515	66.06	28	1447199	2.23	78	577545	85.88
29	93660	1.51	79	43442	72.23	29	1443972	2.26	79	527945	93.90
30	93519	1.54	80	40304	79.07	30	1440709	2.29	80	478371	102.79
31	93375	1.58	81	37117	86.80	31	1437410	2.33	81	429199	112.84
32	93227	1.64	82	33895	95.68	32	1434061	2.39	82	380768	124.38
33	93074	1.70	83	30652	105.81	33	1430634	2.45	83	333408	137.55
34	92916	1.79	84	27409	117.02	34	1427129	2.54	84	287548	152.13
35	92750	1.88	85	24202	129.11	35	1423504	2.63	85	243803	167.84
36	92576	2.00	86	21077	141.91	36	1419760	2.75	86	202883	184.48
37	92391	2.14	87	18086	155.41	37	1415856	2.89	87	165455	202.03
38	92193	2.31	88	15275	169.55	38	1411764	3.06	88	132028	220.42
39	91980	2.51	89	12685	184.45	39	1407444	3.26	89	102926	239.79
40	91749	2.72	90	10345	200.23	40	1402856	3.54	90	78245	260.30
41	91499	2.97	91	8274	217.23	41	1397890	3.86	91	57878	282.40
42	91227	3.22	92	6477	235.91	42	1392494	4.19	92	41533	306.68
43	90933	3.49	93	4949	257.43	43	1386659	4.54	93	28796	334.66
44	90616	3.75	94	3675	283.81	44	1380364	4.88	94	19159	368.95
45	90276	4.06	95	2632	320.74	45	1373628	5.28	95	12090	416.96
46	89909	4.36	96	1788	377.93	46	1366375	5.67	96	7049	491.31
47	89517	4.68	97	1112	476.61	47	1358628	6.08	97	3586	619.59
48	89098	5.03	98	582	656.44	48	1350368	6.54	98	1364	853.37
49	88650	5.41	99	200	1000.00	49	1341537	7.03	99	200	1000.00

BLENDED 1980 CSO & 1980 CET MORTALITY TABLES

PIVOTAL AGE IS 45 *** RATIO OF MALE LX TO TOTAL LX IS 40%

BLENDED 1980 CSO TABLE   BLENDED 1980 CET TABLE

AGE	LX	1000QX	AGE	LX	1000QX	AGE	LX	1000QX	AGE	LX	1000QX
0	88415	3.41	50	80614	5.66	0	1345746	4.43	50	1176481	7.36
1	88114	.95	51	80158	6.10	1	1339784	1.70	51	1167822	7.93
2	88030	.89	52	79669	6.60	2	1337506	1.64	52	1158561	8.58
3	87952	.86	53	79143	7.16	3	1335312	1.61	53	1148621	9.31
4	87876	.84	54	78576	7.77	4	1333162	1.59	54	1137927	10.10
5	87802	.81	55	77965	8.43	5	1331042	1.56	55	1126434	10.96
6	87731	.78	56	77308	9.11	6	1328966	1.53	56	1114088	11.84
7	87663	.76	57	76604	9.79	7	1326933	1.51	57	1100897	12.73
8	87596	.72	58	75854	10.48	8	1324929	1.47	58	1086883	13.62
9	87533	.71	59	75059	11.23	9	1322981	1.46	59	1072080	14.60
10	87471	.70	60	74216	12.05	10	1321049	1.45	60	1056428	15.67
11	87410	.71	61	73322	13.01	11	1319133	1.46	61	1039874	16.91
12	87348	.77	62	72368	14.14	12	1317207	1.52	62	1022290	18.38
13	87281	.84	63	71345	15.50	13	1315205	1.59	63	1003500	20.15
14	87208	.94	64	70239	17.03	14	1313114	1.69	64	983279	22.14
15	87126	1.05	65	69043	18.71	15	1310895	1.80	65	961509	24.32
16	87035	1.15	66	67751	20.46	16	1308535	1.90	66	938125	26.60
17	86935	1.24	67	66365	22.31	17	1306049	1.99	67	913171	29.00
18	86827	1.31	68	64884	24.17	18	1303450	2.06	68	886689	31.42
19	86713	1.36	69	63316	26.18	19	1300765	2.11	69	858829	34.03
20	86595	1.39	70	61658	28.45	20	1298020	2.14	70	829603	36.99
21	86475	1.41	71	59904	31.10	21	1295242	2.16	71	798916	40.43
22	86353	1.42	72	58041	34.27	22	1292444	2.17	72	766616	44.55
23	86230	1.42	73	56052	38.02	23	1289639	2.17	73	732463	49.43
24	86108	1.42	74	53921	42.32	24	1286840	2.17	74	696257	55.02
25	85986	1.40	75	51639	47.05	25	1284048	2.15	75	657949	61.17
26	85866	1.41	76	49209	52.18	26	1281287	2.16	76	617702	67.83
27	85745	1.42	77	46641	57.57	27	1278519	2.17	77	575803	74.84
28	85623	1.44	78	43956	63.21	28	1275745	2.19	78	532710	82.17
29	85500	1.46	79	41178	69.29	29	1272951	2.21	79	488937	90.08
30	85375	1.50	80	38325	76.04	30	1270138	2.25	80	444894	98.85
31	85247	1.55	81	35411	83.72	31	1267280	2.30	81	400916	108.84
32	85115	1.60	82	32446	92.52	32	1264365	2.35	82	357280	120.28
33	84979	1.66	83	29444	102.65	33	1261394	2.41	83	314306	133.45
34	84838	1.75	84	26422	113.82	34	1258354	2.50	84	272362	147.97
35	84690	1.83	85	23415	125.93	35	1255208	2.58	85	232061	163.71
36	84535	1.95	86	20466	138.78	36	1251970	2.70	86	194070	180.41
37	84370	2.09	87	17626	152.39	37	1248590	2.84	87	159058	198.11
38	84194	2.25	88	14940	166.68	38	1245044	3.00	88	127547	216.68
39	84005	2.45	89	12450	181.76	39	1241309	3.20	89	99910	236.29
40	83799	2.66	90	10187	197.78	40	1237337	3.46	90	76302	257.11
41	83576	2.90	91	8172	215.12	41	1233056	3.77	91	56684	279.66
42	83334	3.15	92	6414	234.03	42	1228407	4.10	92	40832	304.24
43	83071	3.41	93	4913	255.85	43	1223371	4.43	93	28409	332.61
44	82788	3.66	94	3656	282.58	44	1217951	4.76	94	18960	367.35
45	82485	3.96	95	2623	319.76	45	1212154	5.15	95	11995	415.69
46	82158	4.24	96	1784	377.41	46	1205911	5.51	96	7009	490.63
47	81810	4.55	97	1111	476.21	47	1199266	5.92	97	3570	619.07
48	81438	4.89	98	582	656.10	48	1192166	6.36	98	1360	852.93
49	81040	5.26	99	200	1000.00	49	1184584	6.84	99	200	1000.00

BLENDED 1980 CSO & 1980 CET MORTALITY TABLES

PIVOTAL AGE IS 45 *** RATIO OF MALE LX TO TOTAL LX IS 20%

BLENDED 1980 CSO TABLE						BLENDED 1980 CET TABLE					
AGE	LX	10000X	AGE	LX	10000X	AGE	LX	10000X	AGE	LX	10000X
0	75108	3.15	50	68862	5.31	0	1080889	4.10	50	950863	6.90
1	74871	.92	51	68496	5.70	1	1076457	1.67	51	944302	7.41
2	74802	.85	52	68106	6.15	2	1074659	1.60	52	937305	8.00
3	74738	.82	53	67687	6.65	3	1072940	1.57	53	929807	8.65
4	74677	.81	54	67237	7.19	4	1071255	1.56	54	921764	9.35
5	74617	.79	55	66754	7.76	5	1069584	1.54	55	913146	10.09
6	74558	.76	56	66236	8.34	6	1067937	1.51	56	903932	10.84
7	74501	.74	57	65684	8.91	7	1066324	1.49	57	894133	11.58
8	74446	.71	58	65099	9.47	8	1064735	1.46	58	883779	12.31
9	74393	.70	59	64483	10.08	9	1063180	1.45	59	872900	13.10
10	74341	.70	60	63833	10.75	10	1061638	1.45	60	861465	13.98
11	74289	.70	61	63147	11.55	11	1060099	1.45	61	849422	15.02
12	74237	.74	62	62418	12.54	12	1058562	1.49	62	836664	16.30
13	74182	.80	63	61635	13.74	13	1056985	1.55	63	823026	17.86
14	74123	.86	64	60788	15.10	14	1055347	1.61	64	808327	19.63
15	74059	.95	65	59870	16.62	15	1053648	1.70	65	792460	21.61
16	73989	1.03	66	58875	18.19	16	1051857	1.78	66	775335	23.65
17	73913	1.09	67	57804	19.81	17	1049985	1.84	67	756998	25.75
18	73832	1.15	68	56659	21.45	18	1048053	1.90	68	737505	27.89
19	73747	1.19	69	55444	23.19	19	1046062	1.94	69	716936	30.15
20	73659	1.22	70	54158	25.19	20	1044033	1.97	70	695320	32.75
21	73569	1.24	71	52794	27.57	21	1041976	1.99	71	672548	35.84
22	73478	1.25	72	51338	30.43	22	1039902	2.00	72	648444	39.56
23	73386	1.27	73	49776	33.92	23	1037822	2.02	73	622792	44.10
24	73293	1.28	74	48088	37.94	24	1035726	2.03	74	595327	49.32
25	73199	1.29	75	46264	42.43	25	1033623	2.04	75	565965	55.16
26	73105	1.30	76	44301	47.33	26	1031514	2.05	76	534746	61.53
27	73010	1.31	77	42204	52.53	27	1029399	2.06	77	501843	68.29
28	72914	1.35	78	39987	58.03	28	1027278	2.10	78	467572	75.44
29	72816	1.38	79	37667	63.98	29	1025121	2.13	79	432298	83.17
30	72716	1.42	80	35257	70.65	30	1022937	2.17	80	396344	91.85
31	72613	1.47	81	32766	78.26	31	1020717	2.22	81	359940	101.74
32	72506	1.52	82	30202	87.04	32	1018451	2.27	82	323320	113.15
33	72396	1.58	83	27573	97.15	33	1016139	2.33	83	286736	126.30
34	72282	1.66	84	24894	108.33	34	1013771	2.41	84	250521	140.83
35	72162	1.74	85	22197	120.52	35	1011328	2.49	85	215240	156.68
36	72036	1.85	86	19522	133.53	36	1008810	2.60	86	181516	173.59
37	71903	1.99	87	16915	147.37	37	1006187	2.74	87	150007	191.58
38	71760	2.15	88	14422	161.93	38	1003430	2.90	88	121269	210.51
39	71606	2.32	89	12087	177.40	39	1000520	3.07	89	95741	230.62
40	71440	2.54	90	9943	193.80	40	997448	3.30	90	73661	251.94
41	71259	2.77	91	8016	211.61	41	994156	3.60	91	55103	275.09
42	71062	3.02	92	6320	231.05	42	990577	3.93	92	39945	300.37
43	70847	3.25	93	4860	253.44	43	986684	4.23	93	27947	329.47
44	70617	3.49	94	3628	280.66	44	982510	4.54	94	18739	364.86
45	70371	3.75	95	2610	318.37	45	978049	4.88	95	11902	413.88
46	70107	4.02	96	1779	376.21	46	973276	5.23	96	6976	489.07
47	69825	4.30	97	1110	475.72	47	968186	5.59	97	3564	618.44
48	69525	4.61	98	582	656.09	48	962774	5.99	98	1360	852.92
49	69204	4.94	99	200	1000.00	49	957007	6.42	99	200	1000.00

POLICY:WHOLE LIFE

————— ISSUE AGE 45

APPENDIX F RUN DATE1983/11/18

MORTALITY:1980 CSO ANB ULT 100ZM/000ZF	1980 CSO ANB ULT 100ZM/000ZF	1980 CSO ANB ULT 100ZM/000ZF
INTEREST : 4.000%	4.000%	4.000%
PERIODS :SINGLE INTEREST RATE	SINGLE INTEREST RATE	SINGLE INTEREST RATE
IMMEDIATE DEATH BENEFITS	IMMEDIATE DEATH BENEFITS	IMMEDIATE DEATH BENEFITS
CONTINUOUS PREMIUMS	CONTINUOUS PREMIUMS	CONTINUOUS PREMIUMS

FACTORS :	NAP=	20.88627	B' =	20.88627	B' =	20.88627
	NFE=	2.17033	B'' =	1.02013	B'' =	0.00000
	NFR=	0.00000	ALPHA=	4.56022	ALPHA=	20.88627
	E' =	36.10784				

ATT AGE	DUR	STATUTORY CASH VALUE	CRVM RESERVES	NET LEVEL RESERVES
46	1	0.00	0.00	16.69
47	2	0.00	17.35	33.75
48	3	16.93	35.09	51.19
49	4	35.41	53.23	69.03
50	5	54.27	71.74	87.23
51	6	73.52	90.63	105.81
52	7	93.14	109.89	124.74
53	8	113.06	129.44	143.97
54	9	133.28	149.28	163.48
55	10	153.73	169.36	183.22
56	11	174.42	189.67	203.19
57	12	195.33	210.19	223.37
58	13	216.48	230.96	243.79
59	14	237.87	251.95	264.43
60	15	259.49	273.17	285.30
61	16	281.32	294.60	306.37
62	17	303.32	316.19	327.60
63	18	325.41	337.87	348.92
64	19	347.53	359.58	370.27
65	20	369.63	381.27	391.60
66	21	391.67	402.91	412.87
67	22	413.64	424.47	434.07
68	23	435.56	445.98	455.23
69	24	457.44	467.46	476.35
70	25	479.27	488.89	497.42
71	26	501.00	510.22	518.39
72	27	522.51	531.33	539.15
73	28	543.68	552.11	559.58
74	29	564.34	572.38	579.52
75	30	584.42	592.09	598.90

POLICY:WHOLE LIFE
------ ISSUE AGE 45

MORTALITY:1980 CSO ANB ULT 050%M/050%F	1980 CSO ANB ULT 050%M/050%F	1980 CSO ANB ULT 050%M/050%F
INTEREST : 4.000%	4.000%	4.000%
PERIODS :SINGLE INTEREST RATE	SINGLE INTEREST RATE	SINGLE INTEREST RATE
IMMEDIATE DEATH BENEFITS	IMMEDIATE DEATH BENEFITS	IMMEDIATE DEATH BENEFITS
CONTINUOUS PREMIUMS	CONTINUOUS PREMIUMS	CONTINUOUS PREMIUMS

FACTORS :	NAP= 18.66173	B` = 18.66173	B` = 18.66173
	NFE= 1.92906	B`` = 0.87689	B`` = 0.00000
	NFR= 0.00000	ALPHA= 4.05893	ALPHA= 18.66173
	E` = 33.32716		

ATT AGE	DUR	STATUTORY CASH VALUE	CRVM RESERVES	NET LEVEL RESERVES
46	1	0.00	0.00	14.92
47	2	0.00	15.51	30.20
48	3	14.03	31.37	45.83
49	4	30.55	47.61	61.82
50	5	47.46	64.21	78.18
51	6	64.71	81.17	94.88
52	7	82.33	98.48	111.93
53	8	100.28	116.11	129.30
54	9	118.52	134.03	146.95
55	10	137.05	152.23	164.88
56	11	155.86	170.71	183.09
57	12	174.97	189.48	201.58
58	13	194.41	208.58	220.39
59	14	214.21	228.03	239.55
60	15	234.38	247.85	259.07
61	16	254.88	267.99	278.91
62	17	275.69	288.43	299.05
63	18	296.73	309.10	319.41
64	19	317.91	329.91	339.91
65	20	339.17	350.79	360.48
66	21	360.46	371.71	381.09
67	22	381.85	392.73	401.79
68	23	403.32	413.81	422.56
69	24	424.94	435.06	443.49
70	25	446.75	456.48	464.59
71	26	468.67	478.02	485.81
72	27	490.60	499.56	507.03
73	28	512.41	520.99	528.14
74	29	533.94	542.14	548.97
75	30	555.07	562.90	569.42

POLICY:WHOLE LIFE
------ ISSUE AGE 45

MORTALITY:1980 CSO ANB ULT 075ZM/025ZF 1980 CSO ANB ULT 075ZM/025ZF 1980 CSO ANB ULT 075ZM/025ZF
INTEREST : 4.000%   4.000%   4.000%
PERIODS :SINGLE INTEREST RATE   SINGLE INTEREST RATE   SINGLE INTEREST RATE
          IMMEDIATE DEATH BENEFITS   IMMEDIATE DEATH BENEFITS   IMMEDIATE DEATH BENEFITS
          CONTINUOUS PREMIUMS   CONTINUOUS PREMIUMS   CONTINUOUS PREMIUMS

FACTORS : NAP=   19.75455   B` =   19.75455                B` =   19.75455
           NFE=   2.04604   B`` =   0.94572                B`` =   0.00000
           NFR=   0.00000   ALPHA= 4.31291   ALPHA= 19.75455
           E` =   34.69319

ATT AGE	DUR	STATUTORY CASH VALUE	CRVM RESERVES	NET LEVEL RESERVES
46	1	0.00	0.00	15.78
47	2	0.00	16.41	31.93
48	3	15.45	33.20	48.46
49	4	32.92	50.36	65.35
50	5	50.78	67.90	82.61
51	6	69.00	85.79	100.22
52	7	87.58	104.03	118.17
53	8	106.48	122.59	136.44
54	9	125.66	141.43	154.98
55	10	145.13	160.54	173.79
56	11	164.83	179.89	192.83
57	12	184.80	199.50	212.13
58	13	205.05	219.38	231.70
59	14	225.59	239.56	251.56
60	15	246.41	260.00	271.68
61	16	267.53	280.74	292.09
62	17	288.87	301.69	312.71
63	18	310.36	322.79	333.48
64	19	331.94	343.99	354.34
65	20	353.53	365.19	375.21
66	21	375.13	386.40	396.08
67	22	396.69	407.57	416.92
68	23	418.31	428.79	437.81
69	24	439.96	450.06	458.74
70	25	461.67	471.38	479.72
71	26	483.38	492.69	500.70
72	27	505.00	513.93	521.60
73	28	526.39	534.93	542.27
74	29	547.38	555.55	562.56
75	30	567.88	575.67	582.37

POLICY:WHOLE LIFE
----- ISSUE AGE 45

MORTALITY:1980 CSO ANB ULT 025%M/075%F	1980 CSO ANB ULT 025%M/075%F	1980 CSO ANB ULT 025%M/075%F
INTEREST : 4.000%	4.000%	4.000%
PERIODS :SINGLE INTEREST RATE	SINGLE INTEREST RATE	SINGLE INTEREST RATE
IMMEDIATE DEATH BENEFITS	IMMEDIATE DEATH BENEFITS	IMMEDIATE DEATH BENEFITS
CONTINUOUS PREMIUMS	CONTINUOUS PREMIUMS	CONTINUOUS PREMIUMS

FACTORS :		
NAP= 17.60590	B' = 17.60590	B' = 17.60590
NFE= 1.81887	B'' = 0.81171	B'' = 0.00000
NFR= 0.00000	ALPHA= 3.82395	ALPHA= 17.60590
E' = 32.00738		

ATT AGE	DUR	STATUTORY CASH VALUE	CRVM RESERVES	NET LEVEL RESERVES
46	1	0.00	-0.00	14.08
47	2	0.00	14.64	28.52
48	3	12.69	29.64	43.31
49	4	28.33	45.02	58.47
50	5	44.33	60.74	73.97
51	6	60.69	76.82	89.82
52	7	77.39	93.23	106.00
53	8	94.43	109.99	122.52
54	9	111.81	127.07	139.36
55	10	129.48	144.43	156.48
56	11	147.49	162.13	173.93
57	12	165.82	180.14	191.69
58	13	184.55	198.55	209.84
59	14	203.70	217.38	228.40
60	15	223.31	236.65	247.40
61	16	243.32	256.32	266.79
62	17	263.74	276.39	286.58
63	18	284.45	296.74	306.64
64	19	305.37	317.30	326.91
65	20	326.43	338.00	347.32
66	21	347.59	358.79	367.82
67	22	368.91	379.74	388.48
68	23	390.40	400.87	409.31
69	24	412.16	422.25	430.39
70	25	434.19	443.91	451.74
71	26	456.47	465.81	473.33
72	27	478.87	487.82	495.03
73	28	501.24	509.81	516.71
74	29	523.43	531.61	538.21
75	30	545.26	553.07	559.36

POLICY:WHOLE LIFE
------ ISSUE AGE 45

MORTALITY:1980 CSO ANB ULT 000ZM/100ZF	1980 CSO ANB ULT 000ZM/100ZF	1980 CSO ANB ULT 000ZM/100ZF
INTEREST : 4.000%	4.000%	4.000%
PERIODS :SINGLE INTEREST RATE	SINGLE INTEREST RATE	SINGLE INTEREST RATE
IMMEDIATE DEATH BENEFITS	IMMEDIATE DEATH BENEFITS	IMMEDIATE DEATH BENEFITS
CONTINUOUS PREMIUMS	CONTINUOUS PREMIUMS	CONTINUOUS PREMIUMS

FACTORS :	NAP= 16.58401	$B^{'}$ = 16.58401	$B^{'}$ = 16.58401
	NFE= 1.71488	$B^{''}$ = 0.75240	$B^{''}$ = 0.00000
	NFR= 0.00000	ALPHA= 3.56324	ALPHA= 16.58401
	$E^{'}$ = 30.73001		

ATT AGE	DUR	STATUTORY CASH VALUE	CRVM RESERVES	NET LEVEL RESERVES
46	1	0.00	0.00	13.30
47	2	0.00	13.83	26.95
48	3	11.48	28.02	40.95
49	4	26.26	42.55	55.29
50	5	41.40	57.44	69.98
51	6	56.90	72.68	85.02
52	7	72.77	88.28	100.41
53	8	88.97	104.21	116.13
54	9	105.52	120.49	132.19
55	10	122.42	137.10	148.58
56	11	139.66	154.06	165.31
57	12	157.31	171.41	182.43
58	13	175.40	189.19	199.98
59	14	194.00	207.49	218.03
60	15	213.12	226.29	236.58
61	16	232.77	245.60	255.64
62	17	252.88	265.38	275.15
63	18	273.38	285.54	295.04
64	19	294.16	305.97	315.20
65	20	315.11	326.57	335.53
66	21	336.28	347.39	356.07
67	22	357.66	368.41	376.81
68	23	379.30	389.69	397.81
69	24	401.31	411.33	419.16
70	25	423.69	433.33	440.87
71	26	446.44	455.70	462.94
72	27	469.37	478.25	485.19
73	28	492.40	500.89	507.53
74	29	515.27	523.38	529.72
75	30	537.86	545.60	551.64

TO: Mr. Ted Becker, Chairman, TSAG

FROM: Robert J. Johansen, Chairman
        Society of Actuaries Committee
        on Valuation and Nonforfeiture
        Mortality Problems - Individual Life Insurance and Annuities

RE: Select Factors for Blended 1980 CSO Mortality Tables

The select factors for use with the 1980 CSO tables are different for
males and females but select factors for use with the blended 1980 CSO
tables must themselves be blended.

The tables of ratios of male lx to total lx shown in the report of our
Committee indicate that for most of the insuring ages the ratios of
males and females in the blended tables do not differ significantly
from the ratio at the pivotal age. This suggests that the pivotal
age ratio can be used for all ages.

The select factors must also be weighted for the relative male and
female mortality rates. Considering the nature of the select factors
and the need for a practicable solution, it seems reasonable to assume
that female mortality is 60% of male mortality. Using the pivotal
age ratios (=z) and assuming female mortality is 60% of male mortality
the blended factors can be obtained from:

$$^{z}F_t^T = \left[z/100 \times F_t^M + 0.6\,(1-z/100)\,F_t^F \right] \div \left[z/100 + 0.6\,(1-z/100) \right]$$

where Z is the ratio % at the pivotal age of lx male to lx total and
F_t^M and F_t^F are the male and female selection factors for year t and
$^{z}F_t^t$ is the selection factor applicable to the blended CSO table

having Z% male lx to total lx at the pivotal age.

NAIC Proceedings - 1984 Vol. I

PROPOSED NAIC MODEL RULE (REGULATION)

PERMITTING SMOKER/NONSMOKER MORTALITY TABLES

FOR USE IN DETERMINING MINIMUM RESERVE LIABILITIES

AND NONFORFEITURE BENEFITS

Table of Contents

Section 1. Authority

This Rule is promulgated by the Commissioner of Insurance pursuant to Section (insert applicable reference to the Standard Nonforfeiture Law for Life Insurance) of the (insert state) Insurance Laws.

Section 2. Purpose

The purpose of the Rule is to permit the use of mortality tables that reflect differences in mortality between smokers and nonsmokers in determining minimum reserve liabilities and minimum cash surrender values and amounts of paid-up nonforfeiture benefits for plans of insurance with separate premium rates for smokers and nonsmokers.

Section 3 Definition

A. As used in this Rule, "1980 CSO Table, with or without Ten-Year Select Mortality Factor" means that mortality table, consisting of separate rates of mortality for male and female lives, developed by the Society of Actuaries Committee to Recommend New Mortality Tables for Valuation of Standard Individual Ordinary Life Insurance, incorporated in the 1980 NAIC Amendments to the Model Standard Valuation Law and Standard Nonforfeiture Law for Life Insurance, and referred to in those models as the Commissioners 1980 Standard Ordinary Mortality Table, with or without Ten-Year Select Mortality Factors. The same select factors will be used for both smokers and nonsmokers tables.

B. As used in this Rule, "1980 CET Table means that mortality table consisting of separate rates of mortality for male and female lives, developed by the Society of Actuaries Committee to Recommend New Mortality Tables for Valuation of Standard Individual Ordinary Life Insurance, incorporated in the 1980 NAIC Amendments to the Model Standard Nonforfeiture Law for Life Insurance, and referred to in those models as the Commissioners 1980 Extended Term Insurance Table.

C. As used in this Rule, "1958 CSO Table" means that mortality
table developed by the Society of Actuaries Special Committee on
New Mortality Tables, incorporated in the NAIC Model Standard
'onforfeiture Law for Life Insurance, and referred to in that model
 as the Commissioners 1958 Standard Ordinary Mortality Table.

D. As used in this Rule, "1958 CET Table" means that mortality table'
developed by the Society of Actuaries Special Committee on New Mortality
Tables, incorporated in the NAIC Model Standard Nonforfeiture Law for Life
Insurance, and referred to in that model as the Commissioners 1958 Extended
Term Insurance Table. ·

E. As used in this Rule, the phrase "smoker and nonsmoker mortality
tables" refers to the mortality tables with separate rates of mortality for
smokers and nonsmokers derived from the tables defined in A through D of this
section which were developed by the Society of Actuaries Task Force on
Smoker/Nonsmoker Mortality and the California Insurance Department staff and
recommended by the NAIC Technical Staff Actuarial Group.

F. As used in this Rule, the phrase "composite mortality tables" refers
to the mortality tables defined in A through D of this section as they were
originally published with rates of mortality that do not distinguish between
smokers and nonsmokers.

Section 4   Alternate Tables

A. For any policy of insurance delivered or issued for delivery
in this state after the operative date of section (insert applicable
-eference corresponding to paragraph 5-c (11) of the NAIC Model
.tandard Nonforfeiture Law for Life Insurance) for that policy
form and before January 1, 1989, at the option of the company and
subject to the conditions stated in section 5 of this Rule,

    (i) the 1958 CSO Smoker and Nonsmoker Mortality Tables
        may be substituted for the 1980 CSO Table, with or
        without Ten-Year Select Mortality Factors, and

    (ii) the 1958 CET Smoker and Nonsmoker Mortality Tables may
        be substituted for the 1980 CET Table

for use in determining minimum reserve liabilities and minimum cash surrender
values and amounts of paid-up nonforfeiture benefits.

Provided that for any category of insurance issued on female lives with
minimum reserve liabilities and minimum cash surrender values and amounts of
paid-up nonforfeiture benefits determined using the 1958 CSO or 1958 CET
Smoker and Nonsmoker Mortality Tables, such minimum values may be calculated
according to an age not more than six years younger than the actual age of the
insured.

Provided further that the substitution of the 1958 CSO or
1958 CET Smoker and Nonsmoker Mortality Tables is available only if
made for each policy of insurance on a policy form delivered or
issued for delivery on or after the operative date for that policy
form and before a date not later than January 1, 1989.

B. For any policy of insurance delivered or issued for delivery in this state after the operative date of section (insert applicable reference corresponding to paragraph 5-c (11) of the NAIC Model Standard Nonforfeiture Law for Life Insurance) for that policy form, at the option of the company and subject to the conditions stated in section 5 of this Rule,

(i) the 1980 CSO Smoker and Nonsmoker Mortality Tables, with or without Ten-Year Select Mortality Factors, may be substituted for the 1980 CSO Table, with or without Ten-Year Select Mortality Factors, and

(ii) the 1980 CET Smoker and Nonsmoker Mortality Tables may be substituted for the 1980 CET Table

for use in determining minimum reserve liabilities and minimum cash surrender values and amounts of paid-up nonforfeiture benefits.

Section 5.   Conditions

For each plan of insurance with separate rates for smokers and nonsmokers an insurer may

(i) use composite mortality tables to determine minimum reserve liabilities and minimum cash surrender values and amounts of paid-up nonforfeiture benefits,

(ii) use smoker and nonsmoker mortality tables to determine the valuation net premiums and additional minimum reserves, if any, required by section (insert applicable reference corresponding to section 7 of the NAIC Model Standard Valuation Law) and use composite mortality tables to determine the basic minimum reserves, minimum cash surrender values and amounts of paid-up nonforfeiture benefits, or

(iii) use smoker and nonsmoker mortality to determine minimum reserve liabilities and minimum cash surrender values and amounts of paid-up nonforfeiture benefits.

Section 6.   Separability

If any provision of this Rule of the application thereof to any person or circumstance is for any reason held to be invalid, the remainder of the regulation and the application of such provision to other persons or circumstances shall not be affected thereby.

Section 7.   Effective Date

The effective date of this Rule is January 1, 1984.

REPORT ON 1958 CSO SMOKER/NONSMOKER
TABLES DERIVED FROM CERTAIN ASSUMPTIONS
AS TO THE DISTRIBUTION OF SMOKERS AND
NONSMOKERS AND THEIR MORTALITY

JOHN T. GILCHRIST, F.S.A.

ABSTRACT

The 1958 CSO tables are composite smoker and nonsmoker tables. The lesser mortality being experienced by nonsmokers permits lower gross premiums; however, the lowering of gross premiums is inhibited by deficiency reserve requirements. Separate tables are needed. The 1958 CSO table has been accordingly separated into its components, and the results are presented herewith.

I.   THE APPROACH

The approach used is the same as that of the Task Force of the Society of Actuaries on smoker/nonsmoker mortality. Their methods for the separation of the 1980 CSO tables have been applied to the 1958 CSO table. A ratio of smoker/nonsmoker mortality is required together with a ratio of smoker/nonsmoker participants. These ratios permit a separation of the composite table into its parts. The formula is applied to the Basic table, which is then loaded.

II.   ASSUMPTIONS

Two approaches to the selection of the ratios have been considered. One approach is to use the distributions prevailing at the time the table was prepared, another the ratios at the time when the policies are to be issued. The former would seem to be appropriate for separation of the table into the underlying experience, the latter would produce aggregate reserves more in keeping with the aggregate reserves on the composite table for the current distribution of business. Both arguments are persuasive, only one can be used, but the former was chosen since that represents more closely the experience contributing to the construction of the 1958 CSO Tables. Use of the smoker/nonsmoker distribution at date of issue will bring out aggregate, reserves and minimum nonforfeiture values differing from the 1958 CSO tabular reserves and values due to the shift in smoker/nonsmoker distribution since the tables were developed. In real life the distribution of smokers will differ from the assumptions as they will be the current and future distributions so that any expectation of reproducing aggregate reserves on current issues is inappropriate. Decisions are required about the loading formula. Loadings of the form of the reciprocal of an annuity serve to maintain the same dollar reserve, the only effect of the loading being to increase or decrease deficiency reserves. Another approach could be to use the same dollar loads for both the smoker and nonsmoker tables as was used in deriving the composite table. The latter approach was used by the Society Committee for the 1980 CSO tables and this precedent has been followed here using the 1958 CSO loads.

It should be pointed out that no studies have been disseminated on deficiency requirements, although there are hints of such work in the Guertin Reports of the 1940s. Until such studies are made, the determination of what constitutes an appropriate load is quite an arbitrary matter and can be argued interminably as long as the basic facts are not available.

The basic and final 1958 CSO tables used are those published in the Proceedings of the National Association of Insurance Commissioners 1959 Vol. I, pages 224 and 225. The ratios selected were applied to the basic table and the margins as published were added to the result.

Ratios applicable to the 1958 CSO experience do not seem to be directly available. The best estimate seems to be to use general population experience. Tables 2 and 4 in the Appendix to the 1979 Report of the Surgeon General was involved in the determination of the 1980 split by the Society of Actuaries Special Committee which used the data from the 1970s for the split. Using data from the same source for the 1950's set of ratios was developed for the 1958 CSO tables.

III.   CONSTRUCTION OF CSO TABLES

The separate tables were derived from the composite table using formulae developed as follows:

> Let a = the ratio of smokers in the total populations involved, b = the ratio of smoker to nonsmoker mortality
> Then the nonsmoker q equals the composite q divided by $(1 - a + a \times b)$
> And the smoker q equals the nonsmoker q multiplied by b.

These formulae were applied to the basic q s published in the 1977 Proceedings of the National Association of Insurance Commissioners. A loading equal to the composite loading used in developing the 1958 CSO tables was then added to each of the resulting tables.

IV.   CONSTRUCTION OF CET TABLES

These tables were derived from the loaded 1958 CSO smokers, nonsmokers, male and female tables by applying to each table the loading formula used for the 1958 CSO and 1980 CSO composite tables viz. the greater of 75 deaths per thousand or 30% of the CSO Table.

V.   CONSTRUCTION OF AGE LAST BIRTHDAY TABLES

Somewhat different processes were used in deriving age last birthday tables from the age nearest birthday tables for the 1958 CSO and 1980 CSO tables. The 1958 CSO process was followed here. The formula assumes a uniform distribution of deaths and is as follows:

$$q_x = [q_{(x)} + (1 - q_{(x)})q_{(x+1)}]/(2 - q_{(x)}).$$

This formula was applied to each of the four age nearest birthday tables independently of each other.

VI.   SEX

The 1980 procedure was to use sex-distinct valuation tables and then distribute the mortality rates according to the separate male and female ratios of smokers to nonsmokers and smokers to the composite. This method was considered for the 1958 tables. However, the original tables are not sex-distinct, but rather rely on age set-back procedures. These age set-back procedures are also incorporated into the Standard Nonforfeiture and Valuation Laws. Current controversies over the use of unisex rates will also be averted by not having separately prepared tables which would add to the various situations which can be introduced into unisex arguments. Under these circumstances it seemed more appropriate to sacrifice some actuarial purity and maintain consistency with the present 1958 CSO procedures. Accordingly only male tables are presented. Female tables can be generated by using whatever age set-back might be desired.

VII.   TABLES

There are four tables attached.

Table I shows a selection of the proposed rates, along with those for the 1958 CSO table for comparison purposes.

Table II shows the basic data and the derivation of the basic smoker/nonsmoker tables.

Table III shows the loadings, and the resulting loaded rates for smoker/nonsmoker classifications.

Table IV shows for comparison minimum cash values at 5 1/2% and reserves at 4 1/2% - separate and composite.

Table V shows the 1958 CSO loaded tables for smokers and nonsmokers, the loadings used to develop the 1958 CET tables, and the resulting CET tables.

Table VI shows the four age nearest birthday (ANB) tables and the four age last birthday (ALB) tables derived from the four age nearest birthday tables. *[Editor's Note: These tables appear at 402-409.]*

VIII.   REFERENCES

Report of the Committee for the Preparation of Monetary Table: 1958 CSO and CET tables on the Age Last Birthday Basis TSA XIII page 607.

Report of the Industry Actuarial Advisory Committee TSA X page 693.

Report of the Industry Actuarial Advisory Committee Proceedings NAIC 1959 Vol. I page 213.

1980 CSO and 1980 CET Mortality Tables on an Age Last Birthday Basis TSA XXXIII page 671.

Society of Actuaries Task Force on Smoker/Nonsmoker Mortality Report - October 3, 1983.

TABLE 1

COMPARATIVE Q s*1000
Age Nearest Birthday

		Age	Derived 58 CSO	1980 CSO Note 1
MALE	Nonsmoker	25	1.64	1.52
		45	3.36	3.32
		65	26.34	21.13
	Smoker	25	2.12	2.14
		45	6.67	6.27
		65	41.44	36.29

Note 1 - final report of the Society Committee.

DIVISION OF 58 CSO *MALE* BASIC TABLE INTO SMOKER AND NON-SMOKER COMPONE...

TABLE II

AGE	PERCENT SMOKERS	RATIO OF SMOKER TO NON-SMOKER MORTALITY LEVELS	58 CSO BASIC 1000 Q	BASIC NON-SMOKER 1000 Q	BASIC SMOKER 1000 Q
15	0.6	1.50	0.56	0.56	0.64
16	1.8	1.51	0.63	0.62	0.95
17	6.1	1.53	0.70	0.68	1.04
18	12.6	1.55	0.76	0.71	1.15
19	23.2	1.57	0.80	0.71	1.11
20	37.5	1.60	0.84	0.69	1.10
21	50.0	1.63	0.87	0.66	1.08
22	53.8	1.66	0.89	0.66	1.10
23	56.5	1.69	0.91	0.65	1.10
24	58.8	1.72	0.92	0.65	1.12
25	61.0	1.75	0.93	0.64	1.12
26	62.6	1.78	0.95	0.64	1.14
27	63.5	1.82	0.97	0.64	1.16
28	63.9	1.87	1.00	0.64	1.20
29	64.1	1.93	1.04	0.65	1.25
30	64.2	2.00	1.08	0.66	1.32
31	64.2	2.07	1.13	0.67	1.39
32	64.2	2.13	1.18	0.68	1.45
33	64.1	2.18	1.24	0.71	1.55
34	64.0	2.22	1.31	0.74	1.64
35	63.9	2.25	1.41	0.78	1.76
36	63.7	2.28	1.53	0.84	1.92
37	63.4	2.31	1.68	0.92	2.13
38	63.0	2.34	1.88	1.02	2.39
39	62.6	2.37	2.10	1.13	2.68
40	62.2	2.40	2.36	1.26	3.02
41	61.7	2.43	2.65	1.41	3.43
42	61.1	2.45	2.95	1.56	3.82
43	60.4	2.47	3.28	1.74	4.30
44	59.6	2.49	3.64	1.93	4.81
45	58.9	2.50	4.03	2.14	5.35
46	58.3	2.49	4.46	2.39	5.95
47	57.7	2.48	4.94	2.66	6.60
48	57.1	2.47	5.47	2.97	7.34
49	56.6	2.46	6.06	3.32	8.17
50	56.1	2.45	6.71	3.70	9.07
51	55.5	2.43	7.42	4.14	10.05
52	54.8	2.40	8.19	4.63	11.11
53	53.9	2.36	9.03	5.21	12.33
54	52.8	2.31	9.94	5.88	13.57
55	51.5	2.25	10.93	6.65	14.96
56	50.1	2.18	12.02	7.55	16.47
57	48.6	2.11	13.22	8.59	18.13
58	47.0	2.03	14.54	9.80	19.90
59	45.4	1.96	15.98	11.13	21.82

TABLE III

AGE	MALE SMOKER BASIC 1000 Q	MARGIN	LOADED MALE SMOKER 1000 U	MALE NON-SMOKER BASIC 1000 Q	MARGIN	LOADED MALE NON-SMOKER 1000 Q
15	0.84	0.90	1.74	0.56	0.90	1.46
16	0.94	0.91	1.85	0.62	0.91	1.53
17	1.04	0.92	1.96	0.68	0.92	1.60
18	1.10	0.93	2.03	0.71	0.93	1.64
19	1.11	0.94	2.05	0.71	0.94	1.65
20	1.10	0.95	2.05	0.69	0.95	1.64
21	1.08	0.96	2.04	0.66	0.96	1.62
22	1.10	0.97	2.07	0.66	0.97	1.63
23	1.10	0.98	2.08	0.65	0.98	1.63
24	1.12	0.99	2.11	0.65	0.99	1.64
25	1.12	1.00	2.12	0.64	1.00	1.64
26	1.14	1.01	2.15	0.64	1.01	1.65
27	1.16	1.02	2.16	0.64	1.02	1.66
28	1.20	1.03	2.23	0.64	1.03	1.67
29	1.25	1.04	2.29	0.65	1.04	1.69
30	1.32	1.05	2.37	0.66	1.05	1.71
31	1.39	1.06	2.45	0.67	1.06	1.73
32	1.45	1.07	2.52	0.68	1.07	1.75
33	1.55	1.08	2.63	0.71	1.08	1.79
34	1.64	1.09	2.73	0.74	1.09	1.83
35	1.76	1.10	2.86	0.78	1.10	1.88
36	1.92	1.11	3.03	0.84	1.11	1.95
37	2.13	1.12	3.25	0.92	1.12	2.04
38	2.39	1.13	3.52	1.02	1.13	2.15
39	2.68	1.15	3.83	1.13	1.15	2.28
40	3.02	1.17	4.19	1.26	1.17	2.43
41	3.43	1.19	4.62	1.41	1.19	2.60
42	3.82	1.22	5.04	1.56	1.22	2.78
43	4.30	1.25	5.55	1.74	1.25	2.99
44	4.81	1.28	6.09	1.93	1.28	3.21
45	5.35	1.32	6.67	2.14	1.32	3.46
46	5.95	1.37	7.32	2.39	1.37	3.76
47	6.60	1.42	8.02	2.66	1.42	4.08
48	7.34	1.48	8.82	2.97	1.48	4.45
49	8.17	1.54	9.71	3.32	1.54	4.85
50	9.07	1.61	10.68	3.70	1.61	5.31
51	10.06	1.69	11.75	4.14	1.69	5.83
52	11.11	1.77	12.88	4.63	1.77	6.40
53	12.30	1.86	14.16	5.21	1.86	7.07
54	13.58	1.96	15.54	5.88	1.96	7.84
55	14.96	2.07	17.03	6.65	2.07	8.72
56	16.46	2.19	18.65	7.55	2.19	9.74
57	18.12	2.32	20.44	8.59	2.32	10.91
58	19.89	2.46	22.35	9.80	2.46	12.26
59	21.81	2.61	24.42	11.13	2.61	13.74

TABLE III

AGE	MALE SMOKER BASIC 1000 Q	MARGIN	LOADED MALE SMOKER 1000 Q	MALE NON-SMOKER BASIC 1000 Q	MARGIN	LOADED MALE NON-SMOKE 1000 Q
60	23.94	2.78	26.72	12.60	2.78	15.38
61	26.23	2.98	29.21	14.18	2.98	17.16
62	28.67	3.21	31.88	15.93	3.21	19.14
63	31.35	3.48	34.83	17.81	3.48	21.29
64	34.21	3.79	38.00	19.89	3.79	23.68
65	37.30	4.14	41.44	22.20	4.14	26.34
66	40.66	4.53	45.19	24.79	4.53	29.32
67	44.24	4.96	49.20	27.65	4.96	32.61
68	48.11	5.44	53.55	30.84	5.44	36.28
69	52.36	5.95	58.31	34.22	5.95	40.17
70	56.78	6.49	63.27	37.85	6.49	44.34
71	61.27	7.06	68.33	41.68	7.06	48.74
72	65.76	7.65	73.41	45.67	7.65	53.32
73	70.25	8.25	78.50	49.82	8.25	58.07
74	74.82	8.89	83.71	54.22	8.89	63.11
75	79.66	9.57	89.23	59.01	9.57	68.58
76	85.35	10.33	95.68	64.17	10.33	74.50
77	91.66	11.18	102.84	69.97	11.18	81.15
78	98.66	12.14	110.80	76.48	12.14	88.62
79	106.24	13.20	119.44	83.65	13.20	96.85
80	114.26	14.34	128.60	91.41	14.34	105.75
81	122.63	15.57	138.20	99.70	15.57	115.27
82	131.20	16.85	148.05	108.43	16.85	125.28
83	139.87	18.18	158.05	117.54	18.18	135.72
84	148.66	19.56	168.22	127.06	19.56	146.62
85	157.60	21.02	178.62	137.04	21.02	158.06
86	166.71	22.55	189.26	147.53	22.55	170.08
87	176.06	24.15	200.21	158.61	24.15	182.76
88	185.75	25.86	211.61	170.41	25.86	196.27
89	195.99	27.71	223.70	183.17	27.71	210.88
90	207.09	29.76	236.85	197.23	29.76	226.99
91	221.28	32.06	253.34	212.77	32.06	244.83
92	237.43	34.69	272.12	230.51	34.69	265.20
93	255.97	37.83	293.80	250.95	37.83	288.78
94	277.37	41.76	319.13	274.62	41.76	316.38
95	303.03	48.21	351.24	303.03	48.21	351.24
96	343.36	57.20	400.56	343.36	57.20	400.55
97	409.79	78.63	488.42	409.79	78.63	488.42
98	522.62	145.53	668.15	522.62	145.53	668.15
99	708.55	291.45	1000.00	708.55	291.45	1000.00
100	1000.00	0.00	1000.00	1000.00	0.00	1000.00

CASH VALUES   MALE 5.5%

TABLE IV

			58 CSU LOADED			
ISSUE		58 CSU				COMPOSITE
AGE	YEAR	ANB	SMOKER	NON-SMOKER	% SMOKER	CASH VALUES
25						
	2	0.00	0.00	0.00	0.635	U.--
	3	0.00	0.00	0.00	0.634	U.-
	4	0.00	1.02	0.00	0.641	U.--
	5	4.80	8.68	1.19	0.642	6.--
	10	43.32	52.75	34.81	0.639	46.-/
	15	91.26	107.30	77.62	0.622	96.--
	20	148.24	171.23	130.50	0.589	154.--
	35	380.77	405.53	354.12	0.438	376.--
	NET	8.36790	9.35067	7.28223	0.610	8.54--
45						
	2	0.00	0.00	0.00	0.577	0.--
	3	12.94	17.12	11.99	0.571	14.--
	4	29.38	35.64	27.72	0.566	32.--
	5	46.22	54.51	43.99	0.561	49.--
	10	135.93	153.27	133.41	0.515	145.--
	15	233.38	256.83	233.46	0.458	2--.7-
	20	335.05	360.01	338.55	0.358	360.--
	35	619.16	628.22	629.03	0.185	626.--
	NET	21.30134	24.73001	18.38242	0.589	22.10--
65						
	2	18.15	19.81	20.68	0.327	20.--
	3	49.87	51.92	53.60	0.313	53.0/
	4	81.19	83.35	86.04	0.300	85.23
	5	112.02	113.92	117.98	0.288	116.--
	10	260.25	257.59	270.83	0.232	267.?-
	15	400.93	391.78	413.35	0.185	404.--
	20	521.40	502.41	534.52	0.150	527.7-
	35	1000.00	1000.00	1000.00	0.100	1000.--
	NET	63.38279	73.61048	59.37852	0.358	64.-/--

RESERVES MALE 4.5% CRVM

TABLE IV

58 CSO LOADED

ISSUE AGE	YEAR	58 CSO ANB	SMOKER	NON-SMOKER	% SMOKER	COMPOSITE RESERVES
25						
	2	7.09	8.02	6.23	0.635	7.37
	3	14.49	16.59	12.74	0.639	13.07
	4	22.20	25.11	19.55	0.641	23.13
	5	30.22	34.16	26.65	0.642	31.49
	10	75.49	85.17	67.12	0.639	76.53
	15	129.73	145.93	116.56	0.622	134.35
	20	192.15	214.95	175.36	0.589	196.69
	35	419.42	454.10	407.24	0.436	427.76
	NET	8.65055	9.71592	7.53102	0.610	8.86451
45						
	2	17.30	19.42	16.44	0.577	18.15
	3	34.96	39.18	33.37	0.571	23.52
	4	52.98	59.24	50.79	0.566	55.57
	5	71.33	75.96	68.69	0.561	74.79
	10	167.47	184.25	165.05	0.515	174.94
	15	269.17	291.38	269.69	0.438	279.19
	20	372.72	396.38	376.77	0.358	383.79
	35	650.89	657.99	660.76	0.185	660.25
	NET	22.03307	25.44829	19.27043	0.589	22.49314
65						
	2	33.54	34.07	34.91	0.327	34.54
	3	66.66	67.45	69.33	0.313	68.74
	4	99.23	100.02	103.11	0.300	102.16
	5	131.18	131.61	136.26	0.288	134.92
	10	283.13	278.69	293.06	0.252	289.73
	15	424.62	413.74	436.47	0.185	432.25
	20	544.02	523.73	556.56	0.156	551.54
	35	1000.00	1000.00	1000.00	0.100	1000.00
	NET	65.48545	74.37812	60.48104	0.358	65.45514

Table V

58 CET MALE AND

AGE	58 CSO LOADED SMOKER 1000 Q	LARGER OF .75 OR 300 Q	58 CET LOADED SMOKER 1000 Q	58 CSD LOADED NON-SMOKER 1000 Q	LARGER OF .75 OR 300 Q	58 CET LOADED NON-SMOKER 1000 Q
15	1.74	0.75	2.49	1.46	0.75	2.21
16	1.85	0.75	2.60	1.53	0.75	2.28
17	1.96	0.75	2.71	1.60	0.75	2.35
18	2.03	0.75	2.78	1.64	0.75	2.39
19	2.05	0.75	2.80	1.65	0.75	2.40
20	2.05	0.75	2.80	1.64	0.75	2.39
21	2.04	0.75	2.79	1.62	0.75	2.37
22	2.07	0.75	2.82	1.63	0.75	2.38
23	2.08	0.75	2.83	1.63	0.75	2.38
24	2.11	0.75	2.86	1.64	0.75	2.39
25	2.12	0.75	2.87	1.64	0.75	2.39
26	2.15	0.75	2.90	1.65	0.75	2.40
27	2.18	0.75	2.93	1.66	0.75	2.41
28	2.23	0.75	2.98	1.67	0.75	2.42
29	2.29	0.75	3.04	1.69	0.75	2.44
30	2.37	0.75	3.12	1.71	0.75	2.46
31	2.45	0.75	3.20	1.73	0.75	2.48
32	2.52	0.76	3.28	1.75	0.75	2.50
33	2.63	0.79	3.42	1.79	0.75	2.54
34	2.73	0.82	3.55	1.83	0.75	2.58
35	2.86	0.86	3.72	1.88	0.75	2.63
36	3.03	0.91	3.94	1.95	0.75	2.70
37	3.25	0.98	4.23	2.04	0.75	2.79
38	3.52	1.06	4.58	2.15	0.75	2.90
39	3.83	1.15	4.98	2.28	0.75	3.03
40	4.19	1.26	5.45	2.43	0.75	3.18
41	4.62	1.39	6.01	2.60	0.78	3.35
42	5.04	1.51	6.55	2.78	0.83	3.61
43	5.55	1.67	7.22	2.99	0.90	3.89
44	6.09	1.83	7.92	3.21	0.96	4.17
45	6.67	2.00	8.67	3.46	1.04	4.50
46	7.32	2.20	9.52	3.70	1.13	4.84
47	8.02	2.41	10.43	4.08	1.22	5.30
48	8.82	2.65	11.47	4.45	1.34	5.79
49	9.71	2.91	12.62	4.86	1.46	6.32
50	10.68	3.20	13.88	5.31	1.59	6.90
51	11.75	3.53	15.28	5.83	1.75	7.58
52	12.88	3.86	16.74	6.40	1.92	8.32
53	14.16	4.25	18.41	7.07	2.12	9.19
54	15.54	4.66	20.20	7.84	2.35	10.19
55	17.03	5.11	22.14	8.72	2.62	11.34
56	18.65	5.60	24.25	9.74	2.92	12.66
57	20.44	6.13	26.57	10.91	3.27	14.18
58	22.35	6.71	29.06	12.26	3.68	15.94
59	24.42	7.33	31.75	13.74	4.12	17.86

58 CET MALE AND

TABLE V(Contd.)

AGE	58 CSO LOADED SMOKER 1000 Q	LARGER OF .75 OR 300 Q	58 CET LOADED SMOKER 1000 Q	58 CSO LOADED NON-SMOKER 1000 Q	LARGER OF .75 OR 300 Q	58 CET LOADED NON-SMOKER 1000 Q
60	26.72	8.02	34.74	15.38	4.61	19.44
61	29.21	8.76	37.97	17.16	5.15	22.31
62	31.68	9.56	41.44	19.14	5.74	24.65
63	34.83	10.45	45.28	21.29	6.34	27.65
64	38.00	11.40	49.40	23.68	7.10	30.75
65	41.44	12.43	53.87	26.34	7.90	34.24
66	45.19	13.56	58.75	29.32	8.80	38.12
67	49.20	14.76	63.96	32.61	9.78	42.39
68	53.55	16.07	69.62	36.28	10.88	47.15
69	58.31	17.49	75.80	40.17	12.05	52.22
70	63.27	18.98	82.25	44.34	13.30	57.64
71	68.33	20.50	88.83	48.74	14.62	63.36
72	73.41	22.02	95.43	53.32	16.00	69.32
73	78.50	23.55	102.05	58.07	17.42	75.49
74	83.71	25.11	108.82	63.11	18.93	82.04
75	89.23	26.77	116.00	68.58	20.57	89.15
76	95.68	28.70	124.38	74.50	22.35	96.85
77	102.84	30.85	133.69	81.15	24.35	105.50
78	110.80	33.24	144.04	88.62	26.59	115.21
79	119.44	35.83	155.27	96.85	29.06	125.91
80	128.60	38.58	167.18	105.75	31.73	137.48
81	138.20	41.46	179.66	115.27	34.58	149.85
82	148.05	44.42	192.47	125.28	37.58	162.85
83	158.05	47.42	205.47	135.72	40.72	176.44
84	168.22	50.47	218.69	146.62	43.99	190.61
85	178.62	53.59	232.21	158.06	47.42	205.48
86	189.26	56.78	246.04	170.06	51.02	221.10
87	200.23	60.06	260.27	182.76	54.83	237.57
88	211.61	63.48	275.09	196.27	58.88	255.15
89	223.70	67.11	290.81	210.88	63.26	274.14
90	236.85	71.06	307.91	226.99	68.10	295.09
91	253.34	76.00	329.34	244.83	73.45	318.28
92	272.12	81.64	353.76	265.20	79.56	344.76
93	293.80	88.14	381.94	288.78	86.63	375.41
94	319.13	95.74	414.87	316.38	94.91	411.29
95	351.24	105.37	456.61	351.24	105.37	456.61
96	400.56	120.17	520.73	400.56	120.17	520.73
97	488.42	146.53	634.95	488.42	146.53	634.95
98	668.15	200.45	868.60	668.15	200.45	868.60
99	1000.00	0.00	1000.00	1000.00	0.00	1000.00

PROPOSED AMENDMENTS TO NAIC MODEL RULE (REGULATION)
FOR RECOGNIZING A NEW ANNUITY MORTALITY TABLE
FOR USE IN DETERMINING RESERVE LIABILITIES FOR ANNUITIES

(Underlining indicates additions. Brackets indicate deletions.)

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Section 1.   Authority

This Rule is promulgated by the Commissioner of Insurance pursuant to Section (insert applicable reference to the Standard Valuation Law) of the (insert state) Insurance Statute.

Section 2.   Purpose

The purpose of this Rule is to recognize new mortality tables, 1983 Table "a" and 1983 GAM Table, for use in determining the minimum standard of valuation for annuity and pure endowment contracts.

Section 3.   Definitions

A.   As used in this Rule "1983 Table 'a' " means that mortality table developed by the Society of Actuaries Committee to Recommend a New Mortality Basis for Individual Annuity Valuation and adopted as a recognized mortality table for annuities in June 1982 by the National Association of Insurance Commissioners

B.   As used in this Rule "1983 GAM Table" means that mortality table developed by the Society of Actuaries Committee on Annuities and adopted as a recognized mortality table for annuities in December 1983 by the National Association of Insurance Commissioners.

Section 4.   Individual Annuity or Pure Endowment Contracts

A.   The 1983 Table "a" is \|a\| recognized and approved as an individual annuity mortality table for valuation and, at the option of the company, may be used for purposes of determining the minimum standard of valuation for any individual annuity or pure endowment contract issued on or after (insert effective date of 1976 amendments to the Standard Valuation Law \|.\|).

B.   The 1983 Table "a" is to be used for determining the minimum standard of valuation for any individual annuity or pure endowment contract issued on or after (insert date on or after the effective date of this regulation).

Section 5.   Group Annuity or Pure Endowment Contracts

A.   The 1983 GAM Table and the 1983 Table "a" are recognized and approved as group annuity mortality tables for valuation and, at the option of the company, either table may be used for purposes of valuation for any annuity or pure endowment purchased on or after (insert effective date of 1976 amendments to the Standard Valuation Law) under a group annuity or pure endowment contract.

B.   The 1983 GAM Table is to be used for determining the minimum standard of valuation for any annuity or pure endowment purchased on or after (insert date on or after effective date of this regulation) under a group annuity or pure endowment contract.

Section 6 [5-].   Separability

If any provision of this Rule or the application thereof to any person or circumstances is for any reason held to be invalid, the remainder of the regulation and the application of such provision to other persons or circumstances shall not be affected thereby.

Section 7 [6-].   Effective Date

The effective date of this Rule is _____

****

ATTACHMENT TWO-A7

Ted Becker, A.S.A.
Life Actuary
Texas Board of Insurance
1110 San Jacinto
Austin, Texas 78786

Dear Ted:

    RE: Actuarial Guideline VI

At the Technical Staff Actuarial Group meeting in St. Louis I agreed to prepare a draft of suggested changes to Actuarial Guideline VI relating to joint life insurance. My first attempt is enclosed.

My concern with the existing guideline and the previously suggested revision is that the language is not sufficiently direct, leaving the guideline subject to differing interpretations. My understanding is that the intent of the guideline is to indicate that joint whole life or joint nineteen pay life are to be used in applying the Standard Nonforfeiture and Valuation laws to joint life insurance. It is also my understanding that nothing more is intended by the guideline. These understandings are reflected in the enclsoed draft. If my understandings are incorrect, it is obvious that there will need to be another draft.

I hope that my reference to "life status(es)" is sufficiently clear. This is one part of my draft that should be looked at carefully. The last sentence of my draft shows two alternatives. I would prefer to use the alternative that reads "also applies." This still begs the question of whether a last-to-die policy can be based on a table involving a single last-to-die status. I gather that it is the intention of our group to continue to beg this question. If the proposed text can be made sufficiently clear, there should be no need for background material.

Tony Spano has written to me requesting a copy of my draft and offering to comment on it. Therefore, I am sending a copy of this letter and the draft to Tony. Please see that this letter is distributed to other people who are interested in the topic.

Sincerely,
J. Alan Lauer
Deputy Insurance Commissioner
Commonwealth of Pennsylvania

ACTUARIAL GUIDELINE VI
INTERPRETATION REGARDING USE OF SINGLE LIFE OR JOINT LIFE MORTALITY TABLES
Draft 20 June 1983

The Standard Valuation Law and the Standard Nonforfeiture Law for Life Insurance apply to policies which provide joint life insurance benefits as well as to policies which provide single life insurance benefits. References in these laws to plans such as "nineteen year premium whole life" or "a whole life policy . . . with uniform premiums for the whole of life" are to be interpreted as references to such plans based on the same life status(es) as the policy for which minimum reserves or non-forfeiture benefits are being determined. For example, if the net level annual premium on the nineteen year premium whole life plan is needed to calculate the minimum reserve for a policy which insures two lives and pays a benefit at the first death, the premium is to be that for a policy which insures two lives and pays a death benefit at the first death. The same principle would apply to a policy which insures only one life, or a policy which pays a benefit at the first death of more than two lives. The principle also applies to a policy that pays a benefit on the death of t-th life of n lives (t is greater than 1 but less than or equal to n).

151 Farrington Avenue
Hartford, Connecticut 06156

Michael E. Mateja
Vice President and Actuary
Corporate Actuarial
(203) 273-2151

February 1, 1982

Mr. Anthony T. Spano
Actuary
American Council of Life Insurance
1850 K Street, N.W.
Washington, D.C. 20006

RE: TASK FORCE ON NON-LEVEL PREMIUM OR BENEFIT POLICIES

Dear Mr. Spano:

The purpose of this letter is to present a brief summary of
the findings of the subject Task Force and suggest that these
findings may be of interest to groups working to revise the
Standard Valuation and Non-Forfeiture Laws. While the efforts
of the Task Force focused on policies with unusual premium or
benefit patterns, the findings included concepts which I believe
are generally applicable to all life insurance policies.

The report of the Task Force to the ACLI Actuarial Committee
defines the problem and describes the proposed solution in
considerable detail. The following descriptions focus on the
problem and the proposed solution at a conceptual level.

Minimum Cash Values

The analysis which the Task Force conducted revealed one
rather simple principle that represents the cornerstone of the
proposal. The non-forfeiture factor (i.e., the uniform
percentage of the gross premium) must accumulate sufficient
premium over the scheduled premium-paying period to mature the
promised benefits which, in the case of a whole life plan, is
simply an endowment for the face amount. The problem for certain
non-level premium and benefit policies has been that the non-
forfeiture factor applicable over the entire premium-paying
period accumulates too little premium during the early policy
years to mature benefits during that period. Schematically, the
problem is as follows where the curve represents the progression
of minimum cash values based on the standard non-forfeiture
factor and E is a cash value or endowment available at age (x+t).
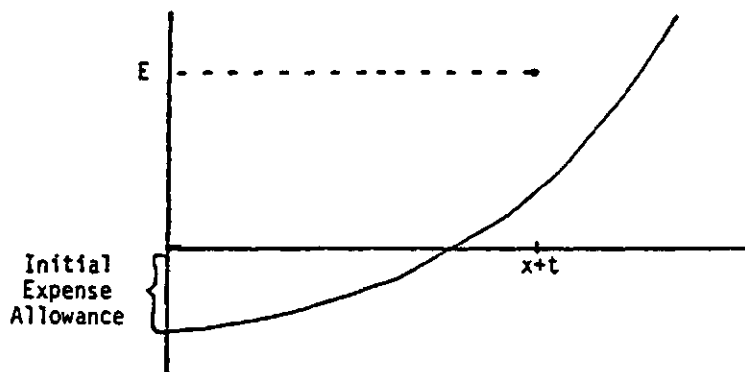
In order to develop minimum cash values that grade to E, a new
non-forfeiture factor, higher than that based on the scheduled
premium-paying period, must be developed reflecting all death
benefits prior to (x+t), the initial expense allowance and the
cash value and endowment benefits available at (x+t). This, in
somewhat oversimplified terms, is the essence of the recommendation
developed by the Task Force.

Two major concerns were expressed with respect to the Task Force
recommendation. The first was that when a policy provides any
cash benefit, E, in excess of minimum cash values based on the
standard non-forfeiture factor, the recommendation produced
increased cash values at all earlier durations. Many insurers
offer plans which provide minimum cash values for a period of
years and then grade to the NLP reserve at the 20th year. Such
plans would require higher than minimum cash values at the early
durations in accordance with the Task Force proposal.

The second concern, expressed primarily by the writers of deposit
whole life business, was that cash values were available much too
soon and in amounts so large that they would force material
increases in price.

The Task Force never formally addressed these concerns as the
initiative to solve the perceived problem followed a less technical
or more expedient course. I was part of a group here at Ætna
which developed the following proposal that is consistent with
the work of the Task Force and would permit the non-forfeiture
factor to vary over the benefit period in such a way as to be
responsive to the above concerns while preserving the principle
that sufficient premium should be accumulated to mature all death,
endowment and cash value benefits.

Let $\beta_{0,t}$ represent the non-forfeiture factor sufficient to provide
all death benefits prior to t, the initial expense allowance
and the cash and endowment benefits available at t.

Thus,

$$\beta_{0,t} = \frac{PV_0(D)_{\overline{t|}} + PV_0(E_t) + PV_0(CV_t) + E^{SNF}}{PV_0(G)_{\overline{t|}}}$$

Where: $E_t + CV_t >$ minimum cash value based on $\beta_{0,w}$, the standard
                   non-forfeiture factor based on the
                   scheduled benefit period,

$PV_0(D)_{\overline{t|}}$ represents the present value of death
                   benefits from issue to t,

$PV_0(E_t)$ represents the present value of the
                   endowment benefit payable at t,

$PV_0(CV_t)$ represents the present value of the cash
                   value available at t,

E^{SNF} represents the initial expense allowance,

$PV_0(G)_{\overline{t|}}$ represents the present value of gross
                   premiums from issue to t.

The proposal is to permit $\beta_{0,t}$ to vary subject to certain rules
such that the following $\beta_{0,t}$ condition holds.

$$\beta_{0,t} \cdot PV_0(G)_{\overline{t|}} = \beta_{0,s_1} \cdot PV_0(G)_{\overline{s_1|}} + \beta_{s_1,s_2} \cdot PV_0(G)_{\overline{s_2-s_1|}} + \cdots$$

$$+ \beta_{s_m,t} \cdot PV_0(G)_{t-s_m}$$

Where: β_{0,s_1} is the non-forfeiture factor applicable
                     from issue to duration s_1,

$PV_0(G)_{\overline{s_1|}}$ is the present value at issue of gross
                     premiums payable to duration s_1,

β_{s_1,s_2} is the non-forfeiture factor applicable
                     from duration s_1 to duration s_2,

$PV_0(G)_{\overline{s_2-s_1|}}$ is the present value at issue of gross
                     premium payable from duration s_1 to
                     duration s_2,

s_m is the beginning of the final grading
                     period.

Other symbols are consistent with the above definitions.

Our limited testing indicated that rules along the following lines should apply to the modified non-forfeiture factors.

1. $\emptyset_{0,s_1} > .8 \cdot \emptyset_{0,t}$ and $0_{s_m,s_{m-1}} > \emptyset_{0,s_1}$

    This rule would permit deferral of the emergence of cash values by accumulating a lower percentage of the gross premium during the initial policy years.

2. If $t \leq 10$, $s_1 = t-s_1$, $= \frac{t}{2}$ s_1 not to less than $t/2$

    If $t > 10$, $s_1 = 5$ and $s_j - s_{j-1} \geq 5$

    This rule would require that each modified non-forfeiture factor apply for a period of at least five years or half the benefit period if the benefit period is less than ten years. The practical effect would be to produce reasonably smooth grading of minimum cash values.

Schematically, the proposed minimum cash values would be as follows:
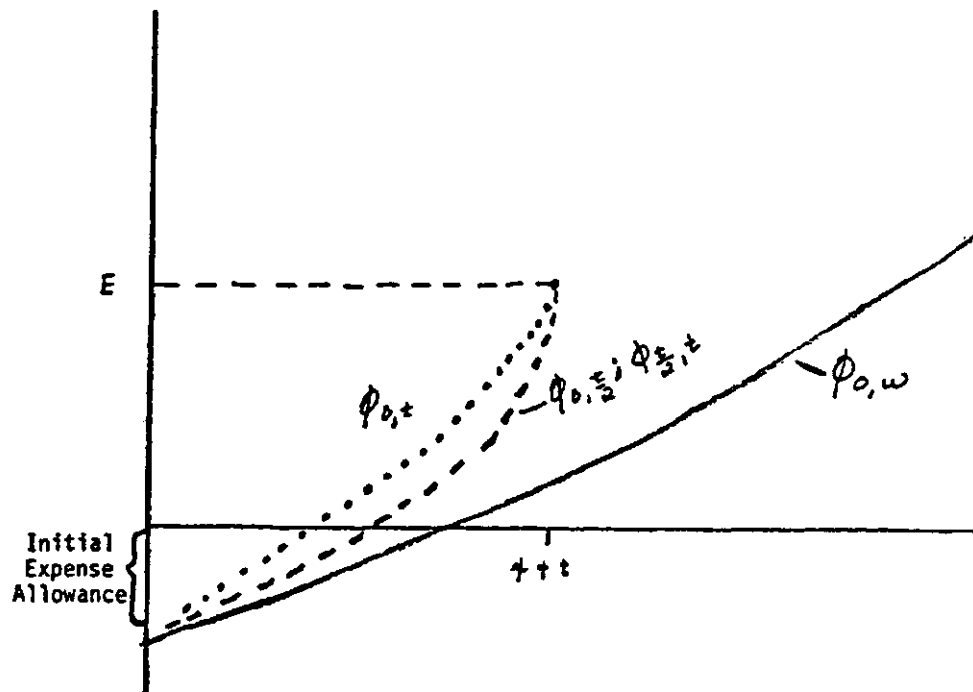
The dotted line represents the minimum cash values based on the
non-forfeiture factor $\emptyset_{0,t}$; the dashed line represents the cash
values based on the non-forfeiture factors developed in accordance
with the proposed approach; the solid line represents minimum
cash values based on the current standard non-forfeiture factor
$\emptyset_{0,w}$.

Assuming no further endowment benefits are payable, minimum cash
values beyond t should grade from any cash value available at
t to the face amount at w.

The proposal is relatively simple and easy to understand when
only one endowment or "pegged" CV is payable. Exhibit I presents
the general case which unfortunately becomes quite complicated to
accommodate all conceivable cash benefit and premium patterns.
There is, however, a discipline to control the process of developing
minimum cash values which would produce consistent and reasonable
results for even the most unusual plan.

Minimum Valuation Reserves

The proposal for minimum valuation reserves is conceptually
consistent with the proposal for minimum cash values since the
underlying problem is the same, i.e., for certain non-level premiums
and benefit policies the valuation factor applicable over the
entire premium-paying period accumulates too little premium
during the early policy years to mature benefits during that
period. The proposal would be to assure that the valuation
factor accumulates sufficient premium (based on valuation
assumptions as to mortality and interest) to mature death, endowment
and cash value benefits as they fall due.

For policies that provide a cash value or endowment benefit as
illustrated in the non-forfeiture section, the appropriate
valuation factor would be as follows.

$$\emptyset_{0,t}^{SV} = \frac{PV_0(D)_{\overline{t|}} + PV_0(E_t) + PV_0(CV_t) + E^{SV}}{PV_0(G)_{\overline{t|}}}$$

Where: E^{SV} is the valuation expense allowance and all
other symbols are consistent with previous
definitions. For the plan under consideration,
note that

$$\emptyset_{0,t}^{SV} > \emptyset_{0,w}^{SV}$$

The condition implied by this inequality means that a greater
percentage of gross premium is required to mature policy benefits
during the first t years compared to the corresponding percentage
required to mature policy benefits over the duration of the
contract. Whenever this situation occurs, it is indicative of a
condition which has been called "post funding". When this
condition exists, the present value of valuation premiums payable
after some duration, t, is greater than the present value of
benefits payable after duration t. The regulatory issue is
whether under any circumstances post funding should be permitted
for valuation purposes. It seems clear in the case of the plan
providing a cash value or endowment at t that post funding is
not appropriate, but there are many other circumstances where
post funding occurs with non-level premium and benefit policies.
In my opinion, post funding can never be justified as an
appropriate valuation practice. It is fundamentally an unsound
business practice to provide benefits with the expectation of
paying for those benefits from future premiums which the insured
is under no obligation to pay.

Exhibit II presents a general statement of the valuation proposal.
In simplest terms, the proposal would assure that on the basis of
applicable valuation assumptions, sufficient valuation premium
is accumulated so that all benefits can be matured as they fall
due. We have routinely accepted the fact that for level premium
and benefit plans the valuation premium is adequate to meet
benefits as they fall due. The proposal would assure that the
valuation premiums for all policies are consistent with the
valuation premiums for level premium and benefit policies in
this regard.
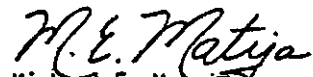
If the proposal is adopted, valuation assumptions would become
the critical determinant of reserve levels rather than the
particular configuration of premiums and benefits under the plan
which are now manipulated to produce lower valuation reserves.
With the adoption of a new valuation mortality table and the
introduction of the dynamic valuation concept, the industry
could expect that valuation assumptions would be realistic
on an ongoing basis.

*   *   *   *   *   *   *   *   *   *   *

The Task Force never addressed the potential application of
its concept to policies such as Universal Life and Irreplaceable
Life. I am not sufficiently familiar with these new products to
understand that the concepts would be helpful. I am sending
a copy of this letter to Bill Tozer so that his group will at
least be generally aware of the findings of our Task Force.

Finally; it is perhaps appropriate to qualify the ideas
presented above as not necessarily the unanimous opinion of
the Task Force. As you may know, we never reached concensus
within the Task Force so it would be somewhat presumptuous
of me to indicate that all Task Force members supported the
findings presented above.

Very truly yours,

Michael E. Mateja
Vice President & Actuary
Corporate Actuarial

MEM/lb

cc: W. M. Bolton
     G. S. Bucher
     B. A. Halstead, Jr.
     C. A. Lewis
     R. A. Miller, III
     P. E. Sarnoff
     G. N. See
     W.   Tozer

<u>EXHIBIT I</u>

General Statement of Methodology
for Determining
<u>Minimum Cash Values</u>

I. Determine Minimum Cash Values in Accordance with Current Provisions of
Standard Non-Forfeiture Law

$$\text{Min } CV_t = PV_t(D) + PV_t(E) - PV_t(P^A)$$

Where: $PV_t(D)$ = present value at t of future death benefits

$PV_t(E)$ = present value at t of future endowment benefits

$PV_t(P^A)$ = present value at t of future adjusted premiums

E^{SNF} = non-forfeiture expense allowance

$P_t^A = \phi_{0,w} \cdot G_t$

$\phi_{0,w} = \dfrac{PV_0(D) + PV_0(E) + E^{SNF}}{PV_0(G)}$ = standard non-forfeiture factor

Thus, P_t^A is proportional to gross premiums.

II. If At Any Duration t, Scheduled Cash Value and Endowment Benefits Are
Greater Than the Minimum Cash Value Determined in I Above, Determine
Amended Non-Forfeiture Factors in Accordance with the Procedures Below.

A. Let t_i represent a duration where the scheduled cash value and
endowment benefits are greater than the minimum cash values
determined in I above. Assume there are m-1 such durations, and
let $t_m = w$, the end of the scheduled benefit period.

B. Determine duration α_1 such that

$$\phi_{0,\alpha_1} = \begin{array}{c} \text{max as i} \\ \text{varies from} \\ \text{1 to m} \end{array} \left\{ \dfrac{PV_x(D)_{\overline{t_i|}} + PV_x(E)_{\overline{t_i|}} + PV_x(CV_{t_i}) + E^{SNF}}{PV_x(G)_{\overline{t_i|}}} \right\}$$

EXHIBIT I (CONT.)

C. Non-forfeiture factors applicable during the period from issue to α_1 may vary from ϕ_{0,α_1} such that

$$\sum_0^{\alpha_1} \phi_{0,\alpha_1} \cdot v^t \cdot {}_tp \cdot G_t = \sum_0^{s_1} \phi_{0,s_1} \cdot v^t \cdot {}_tp \cdot G_t +$$

$$\sum_{s_1}^{s_2} \phi_{s_1,s_2} \cdot v^t \cdot {}_tp \cdot G_t \quad + \quad \sum_{s_{m-1}}^{s_m} \phi_{s_{m-1},s_m} \cdot v^t \cdot {}_tp \cdot G_t +$$

$$\sum_{s_m}^{\alpha_1} \phi_{s_m,\alpha_1} \cdot v^t \cdot {}_tp \cdot G_t$$

The following rules apply to the determination of the non-forfeiture factors.

1. $\phi_{0,s_1} > .8 \phi_{0,\alpha_1}$ and $\phi_{s_{m-1},s_n} > \phi_{0,s_1}$

2. If $\alpha_1 \leq 10$, $s_1 = \alpha_1 - s_1 = \dfrac{\alpha_1}{2}$

   If $\alpha_1 > 10$, $s_1 = 5$ and $s_m - s_{m-1} \geq 5$

D. The non-forfeiture factor subsequent to duration α_1 is determined by establishing a duration α_2 such that

$$\phi_{\alpha_1,\alpha_2} = \begin{array}{c} \text{max of all} \\ t_1 > 1 \end{array} \left\{ \frac{PV_{x+\alpha_1}(D)_{\overline{t_1}} + PV_{x+\alpha_1}(E)_{\overline{t_1}} + PV_{x+\alpha_1}(CV_{t_1}) - CV_i}{PV_{x+\alpha_1}(G)_{\overline{t_1}}} \right.$$

Minimum cash values between α_1 and α_2 based on the non-forfeiture factor ϕ_{α_1,α_2} would grade from the cash value at α_1 to the ϕ_{α_1,α_2} cash value and endowment benefits at α_2.

E. The process continues as defined by D above until $\alpha_j = t_m = w$.

EXHIBIT II

General Statement of Methodology
for Determining
Minimum Valuation Reserves

I. Determine Valuation Factor Required to Mature Policy Benefits to Each
    Policy Duration and Determine the Maximum of All Such Valuation Factors.
    Thus,

$$\phi_{0,\alpha_1} = \begin{array}{c} \max \text{ as } s \\ \text{varies from} \\ 1 \text{ to } w \end{array} \left\{ \frac{PV_x(D)_{\overline{s}|} + PV_x(E)_{\overline{s}|} + PV_x(CV_s) + E^{CRVM}}{PV_x(G)_{\overline{s}|}} \right\}$$

ϕ_{0,α_1} is the required valuation factor applicable from issue to
duration α_1.

II. For Durations Subsequent to α_1, Determine the Valuation Factors Required
    to Mature Policy Benefits   to Each Policy Duration Subsequent to
    α_1 and Determine the Maximum of All Such Valuation Factors. Thus,

$$\phi_{\alpha_1,\alpha_2} = \begin{array}{c} \max \text{ as } s \\ \text{varies from} \\ (\alpha_1+1) \text{ to } w \end{array} \left\{ \frac{PV_{x+\alpha_1}(D)_{\overline{s}|} + PV_{x+\alpha_1}(E)_{\overline{s}|} + PV_{x+\alpha_1}(CV_s) - CV_{x+\alpha_1}}{PV_{x+\alpha_1}(G)_{\overline{s}|}} \right\}$$

III. The Process in II Continues until $\alpha_j = w$.

IV. In General,

$$\text{Min } V_t = PV_{x+t}(D)_{\overline{\alpha_j}|} + PV_{x+t}(E)_{\overline{\alpha_j}|} - \phi_{\alpha_{j-1},\alpha_j} \cdot PV_{x+t}(G)_{\ddot{\alpha}_j}$$

$$\alpha_{j-1} < t \leq \alpha_j$$

where the symbol $_{\overline{\alpha_j}|}$ represents the duration from (x+t) to α_j

The Prudential Insurance Company of America
Group and Financial Services Office
56 North Livingston Avenue
Roseland, NJ 07068
Tel. 201-994-8590

Paul E. Sarnoff, F.S.A., A.C.A.S.
Vice President and Associate Actuary

November 16, 1983

Mr. John O. Montgomery
Chief Actuary and Deputy
   Insurance Commissioner
California Insurance Department
600 So. Commonwealth Avenue
Los Angeles, CA 90005

Dear John:

I expect to attend the December 3 and 4 meeting of the Technical Staff
Actuarial Group, because the matter of statutory valuation interpreta-
tions for reserves for cash values exceeding basic policy reserves has
become of crucial importance. The reason for that is the pending
federal income tax bill, which defines life insurance reserves for tax
purposes as a very low Commissioner's Reserve Valuation Method reserve,
or the cash surrender value, if greater. I am hopeful that this topic
will receive a full discussion that will lead to the resolution of the
statutory valuation issue.

The federal definition produces an inappropriate and unjustified
deferral of cost to future years, as we have previously discussed. I
know that you have been considering the method Mike Mateja described in
our task force report. That method provides a logically coherent
approach to the proper design of cash surrender values as well as
reserves, in order to prevent post-funding, or what I refer to as the
inappropriate deferral of cost to future years. Under Mike's method, it
is necessary to compute each reserve factor with reference to preceding
reserve factors, in order to provide a smoother flow of reserves from
duration to duration.

In almost all situations, Mike's method produces virtually identical results to the method I have been describing. However, my method is free of the need to compute each reserve factor with reference to the reserve factors that immediately precede it. My method can be described as producing the smallest reserve that can be justified as being in compliance with the minimum standards of interest and mortality prescribed in the valuation law, and producing a proper match between premium revenue and cost that is fundamental to the Commissioner's Reserve Valuation Method.

Also, as you know, the standard nonforfeiture law now contains a 5-year grading requirement that deals with the high cash value problem. Hence, it is no longer so important to adopt the Mateja method for nonforfeiture values. While I believe the absence of conservatism in my method compared with Mike's should make mine more attractive, I would support his as well, because of the importance of getting something done soon.

I enclose a copy of some draft language that would bring about the method I have described. I have not tried to write up Mike's method because I believe it would be very difficult to do.

As I mentioned before, the new federal income tax legislation places a heavy penalty on an insurer holding reserves greater than the federal maximum tax reserves. A key feature of the present standard valuation law which prevents an insurer from reducing its reserves to that maximum level is the provision in section 6 of the standard valuation law, which provides in part that the reserve interest rate may not exceed the nonforfeiture value interest rate. It is essential that this provision be removed from the standard valuation law, but it is desirable that, in removing it, we substitute a more refined restraint, to prevent an insurer from falling into the same trap of inappropriate deferral of cost as is present in the Stark/Moore federal maximum tax reserves.

I know you can appreciate the tremendous significance of the proposed federal income tax changes. These laws will place great pressure upon insurers to reduce reserves, and a responsible way to do so must be in place by 1984 at the latest.

Sincerely,

Paul Jarrett

PES:pah

cc: Ted Becker
     John Booth
     Robert Callahan
     Charles Greeley
     Alan Lauer
     Mike Mateja
     William White

4. Except as otherwise provided in sections four-a and seven, the re-
serve[s] according to the commissioners reserve valuation method, for the life
insurance and endowment benefits of any [policies] policy providing for a
uniform amount of insurance and requiring the payment of uniform premiums shall
be the [excess, if any,] greatest of the respective excesses of the present
[value] values, at the date of valuation, of [such] the future guaranteed
benefits which would be provided for by such [policies] policy up to the end of
each respective policy year and including any pure endowment and cash surrender
value available at the end of such year, over the [then] respective present
values, at such valuation date, of any future modified net premiums [therefor]
as defined in this paragraph corresponding to premiums which would fall due on
and after such date and prior to the end of such year. The modified net
premiums used in computing any excess as defined in this paragraph for any such
policy shall be such uniform percentage of the respective contract premiums for
such benefits which are due prior to the end of the policy year used in defining
such excess that the present value, at the date of issue of the policy, of all
such modified net premiums shall be equal to the sum of the then present value
of such benefits provided for by the policy up to the end of such year and
including any pure endowment and cash surrender value available at the end of
such year, and the excess of (a) over (b), as follows:

   (a) A net level annual premium equal to the present value, at the date
       of issue, of such benefits provided for after the first policy
       year, divided by the present value, at the date of issue, of an
       annuity of one per annum payable on the first and each subsequent
       anniversary of such policy on which a premium falls due; provided,
       however, that such net level annual premium shall not exceed the
       net level annual premium on the nineteen year premium whole life

plan for insurance of the same amount at an age one year higher
than the age at issue of such policy.

(b)   A net one year term premium for such benefits provided for in the
first policy year.

Provided that for any life insurance policy issued on or after January 1,
198- and before January 1, 1989 for which the contract premium in the first
policy year exceeds that of the second year and for which no comparable addi-
tional benefit is provided in the first year for such excess and which provides
an endowment benefit or a cash surrender value or a combination thereof in an
amount greater than such excess premium, the reserve according to the commis-
sioners reserve valuation method as of any policy anniversary occurring on or
before the assumed ending date defined herein as the first policy anniversary on
which the sum of any endowment benefit and any cash surrender value then avail-
able is greater than such excess premium shall, except as otherwise provided in
section seven, be [the greater of the reserve as of such policy anniversary
calculated as described in the preceding paragraph and] the reserve as of such
policy anniversary calculated as described in [that] the preceding paragraph,
but with (i) the value defined in subparagraph (a) of that paragraph being
reduced by fifteen per cent of the amount of such excess first year premium,
(ii) all present values of benefits and premiums being determined without
reference to premiums or benefits provided for by the policy after the assumed
ending date, (iii) the policy being assumed to mature on such date as an endow-
ment, and (iv) the cash surrender value provided on such date being considered
as an endowment benefit. In making the above [comparison] calculation the
mortality and interest bases stated in section three and three-b shall be used.

Provided further that at the option of the company, reserves for contracts
issued prior to January 1, 19   (Insert the year of the effective date of this

amendatory act if such falls on January 1, otherwise insert the year following
the year of the effective date) may be valued according to the commissioners
reserve valuation method as defined by the law as of the day before the effec-
tive date of this amendatory act.

Reserves according to the commissioners reserve valuation method for: (i)
life insurance policies providing for a varying amount of insurance or requiring
the payment of varying premiums; (ii) group annuity and pure endowment contracts
purchased under a retirement plan or plan of deferred compensation, established
or maintained by an employer (including a partnership or sole proprietorship) or
by an employee organization, or by both, other than a plan providing individual
retirement accounts or individual retirement annuities under Section 408 of the
Internal Revenue Code, as now or hereafter amended; and (iii) [disability and
accidental death benefits in all policies and contracts; and (iv)] all other
benefits, except life insurance and endowment benefits in life insurance pol-
icies and benefits provided by all other annuity and pure endowment contracts,
shall be calculated by a method consistent with the principles of the preceding
paragraphs of this section. Reserves according to the commissioners reserve
valuation method for disability and accidental death benefits in all policies
and contracts shall be calculated on the net level premium method.

4 (a) (No Change)

5. If a company avails itself of the option stated in the third paragraph
of section four, in [In] no event shall [a] such company's aggregate reserves
for all life insurance policies, excluding disability and accidental death
benefits, issued on or after the effective date of this Act, be less than the
aggregate reserves calculated in accordance with the methods set forth in
sections four, four-a, seven and eight taking into account that the company

elected the option available under such section four, and the mortality table or tables and rate or rates of interest used in calculating nonforfeiture benefits for such policies.

6. Reserves for all policies and contracts issued prior to the effective date of this Act may be calculated, at the option of the company, according to any standards which produce greater aggregate reserves for all such policies and contracts than the minimum reserves required by the laws in effect immediately prior to such date.

Reserves for any category of policies, contracts or benefits as established by the commissioner, issued on or after the effective date of this Act, may be calculated, at the option of the company, according to any standards which produce greater aggregate reserves for such category than those calculated according to the minimum standard herein provided, but the rate or rates of interest used for policies and contracts, other than annuity and pure endowment contracts, shall not be higher than the corresponding rate or rates of interest used in calculating any nonforfeiture benefits provided therein.

Any such company which at any time shall have adopted any standard of valuation producing greater aggregate reserves than those calculated according to the minimum standard herein provided may, with the approval of the commissioner, adopt any lower standard of valuation, but not lower than the minimum herein provided.

7. If in any contract year the gross premium charged by any life insurance company on any policy or contract is less than the valuation net premium for the policy or contract calculated by the method used in calculating the reserve thereon according to section four but using the minimum valuation standards of mortality and rate of interest, the minimum reserve required for such policy or contract shall be the greater of either the reserve calculated according to the

mortality table[,] and rate of interest actually used, and the method [actually used] stated in section four for such policy or contract, or the reserve calculated by [the] such method [actually used for such policy or contract] but using the minimum valuation standards of mortality and rate of interest and replacing the valuation net premium by the actual gross premium in each contract year for which the valuation net premium exceeds the actual gross premium. The minimum valuation standards of mortality and rate of interest referred to in this section are those standards stated in sections three and three-b.

Provided that for any life insurance policy issued on or after January 1, 198- and before January 1, 1989 for which the gross premium in the first policy year exceeds that of the second year and for which no comparable additional benefit is provided in the first year for such excess and which provides an endowment benefit or a cash surrender value or a combination thereof in an amount greater than such excess premium, the foregoing provisions of this section seven shall be applied [as if the method actually used in calculating the reserve for such policy were the method described in section four,] ignoring the second paragraph of section four. The minimum reserve at each policy anniversary of such a policy shall be the greater of the minimum reserve calculated in accordance with section four, including the second paragraph of that section, and the minimum reserve calculated in accordance with this section seven.

The Variable Annuity Life Insurance Company
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GREGORY J. CARNEY
Vice President and Chief Actuary

The Honorable Roger C. Day
Commissioner Of Insurance
State Of Utah Department Of Insurance
326 South 5th East
Salt Lake City, Utah   84102

October 31, 1983

Dear Commissioner Day:

The insurance industry over the past ten years has undergone significant change. The introduction of interest sensitive products, first in annuities, then in life insurance, has changed our industry. The emphasis is now on competitive deferred annuities, low cost term insurance and universal life. Competition with a deregulated financial services industry for the consumer savings dollar is intense and interest sensitive products are leading the way.

The insurance industry is somewhat unique in its assessment of its assets and liabilities for interest sensitive products. It provides its clients with the equivalent of a long term tax deferred interest rate, while allowing the client the full privilege of antiselection against it. Because of the individual insurance laws, the client can surrender at book value, regardless of the market value of the assets. Additionally, many companies allow a free surrender if the new credit rate drops below a certain floor. The availability of a Section 1035 tax free exchange aids the client in antiselecting against the company, and many states have exempted annuities from their replacement regulations which makes replacing these interest sensitive products an easier chore. All of this is coupled with a surrender charge which is limited by the Standard Non-Forfieture Law and, at best, allows the company to recover its expenses but not any margin for investment antiselection by the client.

Given the above liabilities for the interest sensitive product, consider the investments of the insurance industry. As an industry, we invest in bonds, mortgages, private placements and forward commitments. The problem that exists with our investments is that the same antiselection that we offer to our clients is given to the instruments in which we invest. For example, as interest rates decrease, mortgage prepayments and bond refinancing increase, which increases the industry's cash flow at a time when our clients are not increasing their flow. On the other hand, as interest rates increase, the investment cash flows dry up at a time when the client is selecting against us and the cash flow is needed.

AN AMERICAN GENERAL COMPANY

Actuaries study and try to price risk. Actuaries have identified three basic risks associated with insurance. The risk of loss from asset depreciation has been identified as the C-1 risk. The risk of loss from pricing deficiencies, e.g., inadequate mortality or morbidity tables, has been designated the C-2 risk. The risk of loss from changes in the interest rate environment has been designated as the C-3 risk.

It would, perhaps, be an understatement to indicate that the C-3 risk is the most important risk that the industry must handle in its shift to interest sensitive products. The Society of Actuaries has provided for significant research in the area of C-3 risk under the direction of Carl Ohman, Chairman of the Task Force to Study the Risk of Loss From Changes in the Interest Rate Environment, and Don Cody, Chairman of the Society of Actuaries Committee On Valuation. More work needs to be done and education of actuaries, management and regulators is critical to its success.

An example may be most appropriate. Assume a company has one annuity product which provides for a one year interest guarantee and assume it invests only in one year commercial paper. In this case, it appears the company has exactly matched assets and liabilities and is completely "safe". Unfortunately, if six months later, interest rates spike, then it would be in the clients interest to move to a company paying a higher rate. Also, unfortunately, the commercial paper is selling below book value and, depending on the magnitude and timing, could result in significant problems for our "perfectly matched" company. Well, then, the answer must be to invest shorter, for example six months or 90 day paper, because the additional liquidity will provide us with the needed cushion. The problem here is that the company now has the very real risk of not being able to meet its one year guarantee because of reinvestment problems and the volatility of short term interest rates.

While the above is an extreme example and one that would fall into an acceptable risk category, either this product or that degree of matching is not prevalent in the real world because the rate of interest that the company could pay would be non-competitive with other insurance companies and other financial institutions. The result is an extension of the investment time horizon on the asset side in recognition of the fact that a 100% liquidation will not, in practice, occur. Of course, the farther out the investment time horizon, the greater the C-3 risk associated with that decision.

Mismatching is not necessarily bad. For example, most companies were mismatched on the short side during the period from 1979-1982 because of the inverted yield curve prevalent during that time. Similarly, had a company mismatched long in early to mid 1982, it would have made significant investment profits.

The basic question that must be addressed is what degree of risk from mismatching of assets and liabilities is acceptable? A related question is can management in its pursuit of an investment profit incur a level of risk that may make the insurer insolvent? Can regulators or actuaries in their certification be responsible for mismanagement of the investment decisions of the insurer?

In the quantification of C-3 risk, actuaries work with the present value of cash flows from both the asset and liability side under various interest scenarios. Assume that in assessing the C-3 risk, only two possible scenarios were possible, e.g., a rapidly increasing interest rate environment or a rapidly decreasing interest rate environment. Assume that the results show the company extremely profitable under one scenario and insolvent under the other scenario. What, if anything, can or should be done to the company or its management with a 50% change of failing?

These are serious questions that must be answered as we address the risks associated with the insurance industry and the potential solutions to help prevent future insolvencies.

The insurance industry competes against financial service industries that are deregulating. Is this the answer for the insurance industry? The answer, of course, is yes, if we assume that the market will dictate an appropriate price level. In order for that to occur, the industry must understand the market and price their products accordingly.

Two examples come to mind quickly. First, consider the insurance of municipal bonds with regard to performance. Because of insurance company guarantees, the rating on the bonds is improved and the municipality pays a lower interest rate than without the insurance. The cost of the insurance is less than the interest differential so the municipality is in a better position by paying the premium. In effect, the insurance industry is betting against the market in the determination of the cost.

The second example is in the annuity field. The annuity contract provides the contractholder with a series of options:

1. High current interest rate (upper end of interest spectrum).
2. Long-term interest rate guarantees.
3. Book value cash out privilege (liquidity).
4. Long-term mortality guarantees.
5. Tax deferred of interest build-up.
6. Low or no sales charge.
7. 1035 tax free exchange.
8. Avoid cost of probate.
9. Death benefit greater than cash surrender benefit.
10. Free surrender provision.

The above list is not meant to be exhaustive. The point is that Wall Street would very likely price the cost of those options differently than the insurance industry has. Since variable products pass to the consumer the investment risk, their non-popularity with the consumer indicates that the risk/reward division between fixed and variable products may not be appropriately priced.

The above indicates concern with regard to deregulation but one must also be concerned with increased regulation vis-a-vis our competitors. If the insurance industry is to remain viable, then the regulatory activity must remain delicately balanced with that of our competitors.

The insurance industry is a risk industry. We make our profit from taking risk. We can not be risk adverse but we must be compensated for the risk we take. In the interest sensitive product area, we must be able to be compensated for the investment risk. Our current laws restrict this availability if we are to compete with other financial institutions. We need changes in the Standard Non-Forfieture Law that allow individual products to have market value adjustments. We need to have the availability of higher surrender charges to compensate for the investment risk, not just the recoverability of expenses. Elimination of Section 1035 and inclusion of annuities in the replacement regulations of all states would also be helpful.

Insurance company management needs to be responsive. The coordination between Marketing, Investments and Actuarial must be improved to more adequately assess the risk implications of given programs. Changes in the Standard Valuation Law for products with and without market value adjustments or surrender charges to offset investment risk can help to bring about this cost assessment of product design. C-3 risk quantification and analysis could be required for products which do not have market value or investment offsetting surrender charges. Increased actuarial education on the investment side, increased importance to the Actuarial Opinion and independence of the Valuation Actuary are needed steps but will take time to introduce, if the job is to be done properly.

In summary, I believe that the NAIC, under your direction, can implement the following changes quickly:
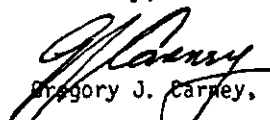
1. Modify the Standard Non-Forfeiture Law to allow market value adjustments for individual contracts.

2. Modify the Standard Non-Forfeiture Law to allow surrender charges which may be used to compensate for investment antiselection.

3. Encourage states to adopt an Annuity Replacement Regulation.

4. Require C-3 risk analysis and testing for interest sensitive products which have not adopted the safeguards of steps 1 or 2 as part of annual reporting requirements.

These changes are designed to allow a company to design a product which can be competitive with other financial institutions while maintaining a reasonable risk/reward combination. Those companies that choose not to take advantage of the changes, would then be required to show a degree of prudence in their investment matching program.

Legislation which requires arbitrary minimum surplus standards will not work because each company's risk will be different for each product and investment strategy utilized. Similarly, regulations can not work to legislate against bad management. The goal of all of us should be to create an environment where the industry can develop and appropriately price our products while providing the regulatory safeguards of prudent money management. I believe the above changes are necessary to create that environment.

I appreciate this opportunity to express my opinions to you. It is important to note that these opinions are my own and do not necessarily reflect those of my employer or any group of which I am a member.

Sincerely,

Gregory J. Carney, F.S.A., M.A.A.A.
C.L.U., F.L.M.I.
Vice President & Chief Actuary

GJC/nah

LIFE COST DISCLOSURE (A) TASK FORCE

Reference:
>   1983 Proc. I p. 522
>   1983 Proc. II p. 603

J. Richard Barnes, Chairman -- Colorado
Gerald Grimes, Vice-Chairman — Oklahoma

AGENDA

1.   Final Consideration of Cost Disclosure Model Regulation.
2.   Discuss Draft of Model Replacement Regulation.
3.   Any Other Matters Brought Before the Task Force.

CONTENTS

The Life Cost Disclosure (A) Task Force met in the California Room of the Town and Country Hotel in San Diego, California at 8:30 a.m. on December 7, 1983. A quorum was present and J. Richard Barnes chaired the meeting. The following task force members were present: J. Richard Barnes, Chairman (Colorado); Johnnie L. Caldwell (Georgia); Don H. Miller (Indiana); Kevin Sullivan (Nevada); William P. Daves, Jr. (Texas); James M. Thomson (Virginia) and Thomas P. Fox (Wisconsin).

There having been no meeting of the Task Force in Tampa, there were no minutes of the Tampa meeting to review and adopt.

The first item on the agenda was final consideration of the Cost Disclosure Model Regulation. Anthony T. Spano, actuary with the American Council of Life Insurance, made a presentation of the summary of the work which his group has done. A copy of his comments is attached at Attachment One. Attached as Attachment Two is the final draft as prepared by Mr. Spano and others working with him.

John Montgomery (California) expressed his concern that there is no effective rate of yield provision in disclosure. In other words, it does not provide proper formula for calculating this. He also indicated that that subject needs considerable further study. Mr. Montgomery's recommendation was that the proposed Model Cost Disclosure Regulation be adopted but that a special advisory committee or subtask force be appointed immediately to study and come up with a rate of return formula to be added to the Cost Disclosure Regulation at a later time. He indicated that this will take considerable study but should be done expeditiously.

In connection with the effective rate of return question, Bob Hunter (National Insurance Consumer Organization) stated that his organization has been responding to requests for analyses of rate of returns on various policies and they have a formula which they have been using. Their fee is $25 for each report that they provide to individuals who request it. He offered to provide guidance and information as to how they are doing it, even though their procedure and service is copyrighted.

Marvin Van Cleave (Wisconsin) expressed concern that the proposed regulation did not provide for disclosure at the point of sale. He further expressed concern that the Buyers Guide, by reference to "smaller index number generally represents a better buy," does not clearly differentiate between the use of the two different cost comparison indexes that might be used by different companies. He also supported Mr. Montgomery's statement on the need for developing and illustrating an effective rate of yield system.

Ed Chandwick (Georgia) reflected that he has similar concerns of those of Mr. Van Cleave. It was moved, seconded, and unanimously adopted that the Nov. 14, 1983 draft of the proposed revision of the NAIC Life Insurance Solicitation Model Regulation be adopted by this Task Force and recommended to the NAIC for adoption by it. The motion further included a provision that an appropriate advisory committee be promptly appointed to commence the study and development of a uniform basis for arriving at an effective rate of yield. *[Editor's Note: In adopting the proposed revision, the Model's title was changed from "Life Insurance Solicitation" to "Life Insurance Disclosure."]*

Jim Jackson (Transamerica Occidental Insurance Company) commended the Task Force for adopting the model regulation now, and then continue with further updating. He felt, as does the Task Force, that it does cover all present products. Further, that it can be updated as new products come along.

Mr. Van Cleave, one of the three members of the sub-task force to consider further the exposure draft of the model replacement regulation, submitted his report, a copy of which is Attachment Three. The Task Force unanimously received and adopted that report.

There being nothing further to come before the Task Force, the meeting adjourned at 9:38 a.m.

J. Richard Barnes, chairman, Colorado; Gerald Grimes, vice-chairman, Oklahoma; Margurite C. Stokes, Washington, D.C.; Johnnie L. Caldwell, Georgia; Don H. Miller, Indiana; Kevin Sullivan, Nevada; Joseph F. Murphy, New Jersey; William P. Daves, Jr., Texas; James M. Thomson, Virginia; Thomas P. Fox, Wisconsin.

ATTACHMENT ONE

STATEMENT ON BEHALF OF THE AMERICAN COUNCIL OF LIFE INSURANCE
TO THE NAIC (A) COMMITTEE LIFE COST DISCLOSURE TASK FORCE

December 7, 1983

My name is Anthony T. Spano, Actuary with the American Council of Life Insurance. This statement is presented on behalf of the Council, whose 593 member companies account for about 95 percent of the life insurance in force in the United States.

It was slightly over four years ago that your Task Force held its first meeting to consider a revised Life Insurance Solicitation Model Regulation. A year and a half ago, this proposed revised Model Regulation was exposed in draft form at your June 1982 meeting. Some details in that draft were changed, various improvements were made, and a revised draft was presented at your December 1982 meeting. This version that is before you today incorporated a few additional refinements, mainly designed to simplify and enhance the disclosure process. It is important to point out, though, that the changes made since the original draft have not been fundamental. The basic substance of the June 1982 draft has remained intact.

The primary purpose of this revision is to bring the current model regulation up to date. We all know about the many product innovations of the last several years, some of them incorporating nontraditional concepts. Universal life insurance and indeterminate-premium or adjustable-premium plans are two principal examples. The drafters of the current regulation

could not contemplate those products, and they are not handled effecively in that regulation. Neither are they reflected in the current Life Insurance Buyer's Guide that is included with the regulation and that can be such a useful source of information for the general public. The proposed changes will correct this problem.

As you know, a model regulation for universal life insurance is also being considered at this meeting. The regulation will cover various regulatory subjects, including disclosure requirement, but its drafters have been very careful to point out that it is designed to be supplemental in nature. That is, the regulation will not supersede existing requirements; it will supplement them. This makes it all the more important that a revised solicitation regulation be adopted here. The universal life regulation, standing alone, cannot do the job. There has to be a basic regulation on the particular subject in place which the universal life regulation can supplement by bringing in special or more detailed requirements. As I indicated, the current solicitation regulation does, using the same framework as for other life insurance plans.

Besides accommodating the new products, the revised solicitation regulation reflects some other significant improvements that clearly will help both the consumer and the regulator. The most substantive of these relates to the disclosure of dividend practices to policyholders and to the disclosure of unusual patterns of premiums and benefits to regulators and policyholders. These are new requirements and are included in the revised regulation in accordance with recommendations presented to the NAIC in June 1981. The recommendations on dividend practices were made by a committee of the American Academy of Actuaries; those on unusual patterns of premiums and benefits were made by the NAIC Advisory Committee on Manipulation. The proposed regulation also entitles new and existing policyholders to request additional information about future premiums, benefits and other items affecting policy costs.

Also noteworthy are new provisions for disclosure to existing policyholders and changes to accommodate the features of the NAIC Model Policy Loan Interest Rate Bill, which now is in effect in almost all states. Finally, the Buyer's Guide has been overhauled, not only to take account of the recent product developments, but also to make it more readable; these improvements should greatly enhance the guide's usefulness.

One detail that I would like to call to your attention related to Appendix C of the proposed regulation. This appendix is designed to show the numerical values, called "test limits," to be used in testing for the unusual patterns of premiums and benefits to which I referred. The Drafting Note in Appendix C indicates that the test limits illustrated apply only to a traditional type of whole life policy and that additional research needs to be done on this subject for other plans and higher issue ages. We would emphasize that the Council stands ready to assist your Task Force and the NAIC in this effort.

We can now complete more than four years of extensive effort. The proposal before you has been the product of very careful consideration by various organizations and many individuals. The lengthy period of exposure has permitted thoughtful reflection and refinement. We can say with confidence that this document is in tune with today's marketplace.

Adoption of these proposed revisions would be another convincing demonstration of the responsiveness of insurance regulation to changing needs. Important for all of us is that these enhancements will help us achieve our mutual objective of a well-informed consumer. We strongly recommend your endorsement of this regulation.

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ATTACHMENT TWO

Bracketing [ ] indicates deletion; underlining indicates new material.

Proposed Revision of
NAIC Life Insurance Solicitation Model Regulation

LIFE INSURANCE [SOLICITATION] DISCLOSURE MODEL REGULATION

COMMENT: Since new subsection 5(c) contains requirements applicable to existing policies, the name of the regulation should be revised to indicate that it applies in more situations than just solicitation.

Table of Contents.

COMMENT: The changes evident here are discussed in each pertinent annotation.

Section 1. Authority.

This rule is adopted and promulgated by (title of supervisory authority) pursuant to sections (4(1) (a) of the Unfair and Deceptive Acts and Practices in the Business of Insurance Act) of the insurance code.

Section 2. Purpose.

(A)   The purpose of this regulation is to require insurers to deliver to purchasers of life insurance[,] information which will improve the buyer's ability to select the most appropriate plan of life insurance for [his] the buyer's needs, improve the buyer's understanding of the basic features of the policy which has been purchased or which is under consideration, and improve the ability of the buyer to evaluate the relative costs of similar plans of life insurance.

        COMMENT: These are editorial changes to improve grammar and delete a sex-specific pronoun.

(B)   This regulation does not prohibit the use of additional material which is not in violation of this regulation or any other (state) statute or regulation.

Section 3. Scope.

(A)   Except [as hereafter exempted] for the exemptions specified in Section 3(B), this regulation shall apply to any solicitation, negotiation or procurement of life insurance occurring within this state.

        COMMENT: The drafters do not intend this revision to be a substantive change in the applicability of this regulation. It is intended merely as a clarification.

        Subsection 5(C) only shall apply to any existing nonexempt policy held by a policyowner residing in this state. This regulation shall apply to any issuer of life insurance contracts, including fraternal benefit societies.

        COMMENT: Subsection 5(C) is new, and it applies to existing policies.. The purpose of the new sentence in this subsection is to clarify when those requirements apply. For purposes of this regulation, the regulation of the policyowner's domiciliary state would apply notwithstanding the existence or absence of applicable regulations in the state of issue.

(B)   Unless [otherwise] specifically included, this regulation shall not apply to:

        1.   Annuities.
        2.   Credit life insurance.
        3.   Group life insurance.
        4.   Life insurance policies issued in connection with pension and welfare plans as defined by and which are subject to the federal Employee Retirement Income Security Act of 1974 29 U.S.C. §1001 et seq. (ERISA) as amended.

        COMMENT: This addition is made merely as clarification.

        5.   Variable life insurance under which the [death benefits and cash values vary in accordance with unit values of investments held in] amount or duration of the life insurance varies according to the investment experience of a separate account.

        SOURCE: Exposure Draft of the NAIC Variable Life Insurance Model Regulation, Art. II, §19. The text of § 19 may be found at page 770 of Volume 3 of the Compilation of Subcommittee and Task Force Reports of the NAIC's June 1982 Meeting.

COMMENT: The purpose of both the deletion and addition in this section is to update the definition of variable life insurance. New product designs include as features of variable or asset-based contracts premiums that are not fixed in amount or timing. Under a flexible premium variable life insurance policy, insurance coverage would continue as long as amounts available under the policy are sufficient to support deductions for the cost of insurance and other charges. Thus, it may be the duration of insurance coverage, rather than the amount of death benefit, which varies with investment experience. The drafters have revised the definition to include either design.

Section 4. Definitions.

For the purposes of this regulation, the following definitions shall apply:

[(a)] (A)   Buyer's Guide. A Buyer's Guide is a document which contains, and is limited to, the language contained in [the] Appendix A to this regulation or language approved by (title of supervisory authority).

(B)   Cash Dividend. A Cash Dividend is the current illustrated dividend which can be applied toward payment of the gross premium.

(C)   Contribution Principle. The Contribution Principle is a basic principle of dividend determination adopted by the American Academy of Actuaries with respect to individual life insurance policies issued by mutual companies. The Academy report, The Recommendations of the Committee on Dividend Principles and Practices (January 1981), describes this principle as the distribution of the aggregate divisible surplus among policies in the same proportion as the policies are considered to have contributed to divisible surplus. In a broad sense the Contribution Principle underlies the essential equity implied by participating business.

SOURCE: II 1981 NAIC Proc. 643-759, 647, 739, 754; American Academy of Actuaries, Report of the Committee on Dividend Principles and Practices (June 1980) (hereinafter cited Academy Report).

COMMENT: The definition was presented to the NAIC in June 1981 as part of the report of the (C3) Task Force on Manipulation, Lapsation, Dividend Practices and Annuity Disclosure. It is used in subsections 5(B)(1) and 5(C)(2) of this proposed regulation. Those provisions impose a duty on insurers to notify both new and existing policyowners if any policy's dividend calculations do not comply with the Contribution Principle. As drafted this definition and those subsections apply to mutual companies only. The Academy's Committee on Dividend Principles and Practices plans to develop orderly transition rules concerning accepted dividend practices for participating policies issued by stock companies.

(D)   Current Dividend Scale. The Current Dividend Scale is a schedule that exhibits dividends to be distributed if there is no change in the basis of these dividends after the time of illustration.

COMMENT: The Current Dividend Scale is a disclosure item in subsections 4(J), 4(M)(5)(g), 4(M)(8), 4(M)(9), 5(C)(1), 6(A)(2), 7(D), and 7(H).

(E)   Current Rate Schedule. The Current Rate Schedule is a schedule showing the premiums that will be charged or the cash values or death or other benefits that will be available if there is no change in the basis of these items after the time of illustration.

COMMENT: Recent policy designs have incorporated features that the company can change during the contract term. The expense or mortality rates, for example, are in some instances changeable. The Current Rate Schedule appears as a disclosure item in subsections 4(J), 4(M)(5)(g), 4(M)(9), 5(C)(1), 7(D), and 7(H).

(F)   Discontinuity Index. The Discontinuity Index is the sum of the backward second differences squared in the Yearly Prices of Death Benefits (per 1,000) for policy years 8 through 23. Examples of calculations appear in Appendix B of this regulation.

SOURCE: II 1981 NAIC Proc. 646-48, 739-40, 754-59. The Discontinuity Index was presented to the NAIC at its June 1981 meeting by the (C3) Task Force on Manipulation, Lapsation, Dividend Practices and Annuity Disclosure.

COMMENT: The purpose of the test is to disclose manipulation, which has been defined as an unrealistically attractive progression of premiums, dividends, and benefits that has no acceptable rationale. II 1980 NAIC Proc. 828-40, 830. Subsection 5(A)(3) imposes the discontinuity test on newly issued policies. The object of the

test is to reveal to the regulator and effected policyowner which policies have unusually large changes in year-to-year costs. The test detects irregularities in the otherwise smooth progression of the net result of offsetting the dividends and annual changes in cash value against the annual premium. The test limits used to separate policies with undue irregularities are set out in Appendix C of this regulation. Those limits apply only to traditional types of whole life policies; other test limits should be developed for other plans. Test limits for issue ages over 45 are also necessary.

[(C)   Equivalent Level Annual Dividend. The Equivalent Level Annual Dividend is calculated by applying the following steps:

1.   Accumulate the annual cash dividends at five percent interest compounded annually to the end of the tenth and twentieth policy years.

2.   Divide each accumulation of Step 1. by an interest factor that converts it into one equivalent level annual amount that, if paid at the beginning of each year, would accrue to the values in Step 1. over the respective periods stipulated in Step 1. If the period is ten years, the factor is 13.207 and if the period is twenty years, the factor is 34.719.

3.   Divide the results of Step 2. by the number of thousands of the Equivalent Level Death Benefit to arrive at the Equivalent Level Annual Dividend.]

COMMENT: The drafters propose to eliminate this definition because some recent types of contracts have premiums or benefits that the company can change. For those plans the portion of the policy's cost which is not guaranteed can be generated by elements other than just dividends. The concept of the Equivalent Level Annual Dividend (ELAD) is succeeded by that of Cost Comparison Indexes calculated on both guaranteed and illustrated bases as defined in subsection 4(J). Indexes calculated on both of these bases are intended to help consumers distinguish between guaranteed and nonguaranteed costs, as was the ELAD.

[(D)] (G)   Equivalent Level Death Benefit. The Equivalent Level Death Benefit of a policy or term life insurance rider is an amount calculated as follows:

1.   Accumulate the [guaranteed] amount payable upon death, regardless of the cause of death, at the beginning of each policy year for ten and twenty years at five percent interest compounded annually to the end of the tenth and twentieth policy years respectively.

2.   Divide each accumulation of step 1. by an interest factor that converts it into one equivalent level annual amount that, if paid at the beginning of each year, would accure to the value in step 1. over the respective periods stipulated in step 1. If the period is ten years, the factor is 13.207 and if the period is twenty years, the factor is 34.719.

COMMENT: The term "guaranteed" has been eliminated to accommodate flexible premium and benefit policies. For all policies the calculation would be done using the stated or assumed death benefit for each year as shown in the Policy Summary (subsection 4(M) (5) (C)).

[(E)] (H)   Generic Name. A Generic Name [means] is a short title [which] that is descriptive of the premium and benefit patterns of a policy or a rider.

COMMENT: This is an editorial change to conform this definition with others in this section.

(I)   Investment Generation Method. The Investment Generation Method is the method of determining dividends so that dividends for policies issued in specified years or groups of years reflect investment earnings on funds attributable to those policies.

SOURCE: II 1981 NAIC Proc. 646-760, 733, 754, See Academy Report at 9, 13, 24, 29-30.

COMMENT: The actuarial profession has stated formally that either the investment generation method of allocating and illustrating investment income or the portfolio average method is considered generally accepted practices. Academy Report at 24. Its 1980 report recommending certain dividend principles and practices suggested, however, that the existence of different methods of reflecting investment earnings in dividend illustrations should be disclosed to consumers. Academy Report at 12-15. The Academy made several recommendations, many of which were presented to the NAIC in June 1981 and appear in these revisions.

[(F)] (J)   [Life Insurance] Cost Comparison Indexes.

1.   [Life Insurance] Surrender Cost Comparison Index - Illustrated Basis. The [Life Insurance] Surrender Cost Comparison Index - Illustrated Basis is calculated by applying the following steps:

a.   Determine the [guaranteed] cash surrender value, if any, available at the end of the tenth and twentieth policy years, based on the company's Current Rate Schedule.

b.   For participating policies, add the terminal dividend payable upon surrender, if any, to the accumulation of the annual Cash Dividends at five percent interest compounded annually to the end of the period selected and add this sum to the amount determined in step a.

c.   Divide the result of step b. (step a. for [guaranteed-cost] nonparticipating policies) by an interest factor that converts it into an equivalent level annual amount that, if paid at the beginning of each year, would accrue to the value in step b. (step a. for [guaranteed cost] nonparticipating policies) over the respective periods stipulated in step a. If the period is ten years, the factor is 13.207 and if the period is twenty years, the factor is 34.719.

d.   Determine the equivalent level premium by accumulating each annual premium payable for the basic policy or rider, based on the company's Current Rate Schedule, at five percent interest compounded annually to the end of the period stipulated in step a. and dividing the result by the respective factors stated in step c. ([t] This amount is the annual premium payable for a level premium plan).

e.   Subtract the result of step c. from step d.

f.   Divide the result of step e. by the number of thousands of the Equivalent Level Death Benefit, using the company's Current Rate Schedule to determine the amount payable upon death for purposes of Section 4(G)1, to arrive at the [Life Insurance] Surrender Cost Comparison Index - Illustrated Basis.

2.   Surrender Cost Comparison Index - Guaranteed Basis. The Surrender Cost Comparison Index - Guaranteed Basis is calculated by applying the steps indicated in 1. above but assuming that the company charges the maximum premiums and provides the minimum cash values and, for purposes of Section 4(G)1, provides the minimum death benefits allowed by the policy, and, if the policy is participating, pays no dividends.

[2] 3. [Life Insurance] Net Payment Cost Comparison Index - Illustrated Basis. The [Life Insurance] Net Payment Cost Comparison Index - Illustrated Basis is calculated in the same manner as the comparable [Life Insurance] Surrender Cost Comparison Index - Illustrated Basis except that the cash surrender value and any terminal dividend are set at zero.

4.   Net Payment Cost Comparison Index - Guaranteed Basis. The Net Payment Cost Comparison Index - Guaranteed Basis is calculated in the same manner as the comparable Surrender Cost Comparison Index - Guaranteed Basis except that the cash surrender value is set at zero.

COMMENT: Because some recent types of contracts have premiums or benefits that the company can change without the consent of the policyowner, Cost Comparison Indexes would be calculated on both guaranteed and illustrated basis. This is intended to help consumers distinguish between guaranteed and nonguaranteed costs. See Comment immediately preceding subsection 4(G) regarding elimination of Equivalent Level Annual Dividend.

The other revisions in subsection 4(J) are editorial. One set of revisions changes the names of the indexes. The modifier "Life Insurance" has been deleted because it is redundant. The modifier "Comparison" has been added to emphasize that the indexes measure only relative, not absolute, costs. The other set of revisions accommodates flexible premium-flexible benefit policies by replacing the term "guaranteed-cost" with the term "nonparticipating."

(K)   Nonguaranteed Factor. A Nonguaranteed Factor is any premium, benefit, or other item entering into the calculation of the Surrender Cost Comparison Index - Illustrated Basis that can be changed by the company without the consent of the policyowner.

COMMENT: The policy factors included are the cash surrender value, the terminal dividend payable on surrender, the annual premium, and the amount payable on death.

(L)   Policy Data. The Policy Data is a display or schedule of numerical values, both guaranteed and nonguaranteed, for each policy year for a series of designated policy years, of the following information: illustrated annual, other periodic, and terminal dividends; premiums; death benefits; cash surrender values; and endowment benefits.

SOURCE: II 1981 NAIC Proc. 739-60, 754.

COMMENT: The definition appears in the June 1981 report of the (C3) Task Force on Manipulation, Lapsation, Dividend Practices, and Annuity Disclosure. The purpose of the definition is to provide a shorthand way to refer to those policy values which must be disclosed to any existing or prospective policyholders who request it. Refer to subsections 5(A)(2) and to 5(C)(1).

[G] (M)   Policy Summary. [For the purposes of this regulation,] The Policy Summary [means] is a written statement describing the elements of the policy, including, but not limited to:

1.   A prominently placed title as follows: STATEMENT OF POLICY COST AND BENEFIT INFORMATION.

2.   The name and address of the insurance agent[,] or, if no agent is involved, a statement of the procedure to be followed in order to receive responses to inquiries regarding the Policy Summary.

3.   The full name and home office or administrative office address of the company in which the life insurance policy is to be or has been written.

4.   The Generic Name of the basic policy and each rider.

5.   The following amounts, where applicable, for the first five policy years and representative policy years thereafter sufficient to clearly illustrate the premium and benefit patterns, including, but not necessarily limited to, the years for which [Life Insurance] Cost Comparison Indexes are displayed and the earlier of at least one age from sixty through sixty-five [or] and policy maturity [whichever is earlier] :

a.   The annual premium for the basic policy.

b.   The annual premium for each optional rider.

c.   The [Guaranteed] amount payable upon death, at the beginning of the policy year regardless of the cause of death, other than suicide[,] or other specifically enumerated exclusions, which is provided by the basic policy and each optional rider, with benefits provided under the basic policy and each rider shown separately.

d.   The total [guaranteed] cash surrender values at the end of the year with values shown separately for the basic policy and each rider.

e.   The Cash Dividends payable at the end of the year with values shown separately for the basic policy and each rider. (Dividends need not be displayed beyond the twentieth policy year.)

f.   Any [Guaranteed] endowment amounts payable under the policy which are not included under [guaranteed] cash surrender values above.

COMMENT: These are editorial changes to conform the form of this subsection to other usages in this draft.

g.   If the policy has a Nonguaranteed Factor, the maximum premium, minimum amount payable upon death, minimum cash value, and minimum endowment amounts allowed by the policy. These amounts may be shown in addition on the basis of the company's Current Rate Schedule and Current Dividend Scale.

COMMENT: The amounts that are described in subsections 4(M)(5)(a)-(f), are the illustrated or current amounts payable. Subsection 4(M)(5)(g) requires the insurer to show those same amounts according to the contract's guarantee, so that a consumer has readily available information about the maximum premium and minimum benefits.

6. The effective policy loan annual percentage interest rate, if the policy contains this provision, specifying whether this rate is applied in advance or in arrears. If the policy loan interest rate is [variable] adjustable, the Policy Summary [includes the maximum annual percentage rate.] shall also indicate that the annual percentage rate will be determined by the company in accordance with the provisions of the policy and the applicable law.

SOURCE: See I 1981 NAIC Proc. 535-6 (text of the NAIC Model Policy Loan Interest Rate Bill).

COMMENT: Changing the term "variable" to "adjustable" conforms this section to the language in the NAIC Model Policy Loan Interest Rate Bill. Under that Model, now adopted in about two-thirds of the states, the maximum rate can be indexed and can change during the period the loan is outstanding. Therefore, the phrase requiring the Policy Summary to include the maximum annual percentage rate is obsolete and has been deleted. A provision has been added that would require the Policy Summary to put the policyowner on notice that the rate may change. Section 3(e) of the Model Policy Loan Interest Rate Bill contains further requirements for notifying a borrowing policyholder of the effective rate.

7. The [Life Insurance] Cost Comparsion Indexes for ten and twenty years but in no case beyond the premium-paying period. Indexes shall be shown on the Guaranteed Basis as defined in Section 4(J) 2 and 4(J) 4 and, if there are dividends or a Nonguaranteed Factor, shall also be shown on the Illustrated Basis as defined in Sections 4(J)1 and 4(J)3. Separate indexes [are] shall be displayed for the basic policy and for each optional term life insurance rider. Such indexes need not be included for optional riders which are limited to benefits, such as accidental death benefits, disability waiver of premium, preliminary term life insurance coverage of less than [12] twelve months and guaranteed insurability benefits, nor for [the] any basic policies or optional riders covering more than one life.

COMMENT: The principal change is a provision for showing indexes on both guaranteed and illustrated basis in view of the elimination of the Equivalent Level Annual Dividend. The other changes are editorial.

[8. The Equivalent Level Annual Dividend, in the case of participating policies and participating optional term life insurance riders, under the same circumstances and for the same durations at which Life Insurance Cost Indexes are displayed.]

[9] 8. A Policy Summary which includes dividends shall also include a statement that dividends are based on the company's [c] Current [d] Dividend [s] Scale and are not guaranteed [in addition to a statement in close proximity to the Equivalent Level Annual Dividend as follows: An explanation of the intended use of the Equivalent Level Annual Dividend is included in the Life Insurance Buyer's Guide.]

COMMENT: The purpose of these changes is to eliminate reference to the Equivalent Level Annual Dividend.

9. If the policy has a Nonguaranteed Factor, a statement indicating which cost factors are not guaranteed and that such factors are based on the company's Current Dividend Scale or Current Rate Schedule.

COMMENT: This new Provision incorporates an instruction for nonguaranteed cost factors similar to that for dividends. Note that the insurer is required also to inform the policyowner on the Policy Summary exactly which factors may be changed without his or her consent.

10. [A] This statement in close proximity to the [Life Insurance] Cost Comparison Indexes [as follows] : "An explanation of the intended use of these indexes is provided in the Life Insurance Buyer's Guide."

11. The date on which the Policy Summary is prepared. The Policy Summary must consist of a separate document. All information required to be disclosed must be set out in such a manner as to not minimize or render any portion thereof obscure. Any amounts which remain level for two or more years of the policy may be represented by a single number if it is clearly indicated what amounts are applicable for each policy year. Amounts in item 5 of this section shall be listed in total, not on a per thousand nor per unit basis. If more than one insured is covered under one policy or rider, [guaranteed] death benefits shall be displayed separately for each insured or for each class of insureds if death benefits do not differ within the class. Zero amounts shall be displayed [as zero and shall not be displayed] as a blank space.

COMMENT: All but one of these changes are editorial. The substantive revision would allow the Policy Summary to exhibit zero amounts as a blank space.

(N)   Portfolio Average Method. The Portfolio Average Method is the method of determining dividends so that, except for
       the effect of policy loans, dividends reflect investment earnings on funds attributable to all policies whenever issued.

SOURCE: II 1981 NAIC Proc. 755-56 (text of the Advisory Committee's Report to the (C3) Task Force on Manipula-
           tion, Lapsation, Dividend Practices, and Annuity Disclosure); id. at 738 (text of the American Academy of
           Actuaries' Report on Dividend Principles and Practices to the same (C3) Task Force).

COMMENT: This definition should be read together with subsection 4(I), which is the definition of the Investment
           Generation method of allocating investment income. The operative subsections using these definitions are 5(B)
           (2), 5(B) (3), 5(B) (4), 5(C) (2)(b), and 5(C) (2)(c). These sections apply to existing and newly issued partici-
           pating policies of a mutual life insurer. They implement the disclosure of dividend practices recommended
           both by the American Academy of Actuaries and the NAIC's Advisory Committee on Manipulation.

(O)   Yearly Price of Death Benefits. The Yearly Price of Death Benefits per $1,000 is calculated by applying the following
       formula:

       $$YP = (P-Dv-(CVCv-CVP))/(F(.001)$$
       Where YP =   Yearly Price of Death Benefits per $1,000
             P =   Annual premium
             CVP = Sum of the cash value and terminal dividend at the end of the preceding year
             CVC = Sum of the cash value and terminal dividend at the end of the current year
             D =   Annual dividend
             F =   Face amount
             V =   1/(1.05)

SOURCE: II 1981 NAIC Proc. at 755 (text of the Report of the Advisory Committee on Manipulation to the (C3)
           Task Force on Manipulation, Lapsation, Dividend Practices, and Annuity Disclosure); II 1980 NAIC Proc.
           at 831-35, 838 (text of earlier Report of the same Advisory Committee).

COMMENT: This definition defines an amount used in the calculation of the Discontinuity Index (see subsection 4(F)).
           The Yearly Price of Death Benefits has no other function in this proposed regulation.

Section 5. [Disclosure Requirements.] Duties of Insurers.

COMMENT: This change is intended to make the heading more descriptive of this section's content.

(A)   Requirements Applicable Generally.

[(A)] 1.   The insurer shall provide, to all prospective purchasers, a Buyer's Guide and a Policy Summary prior to
           accepting the applicant's initial premium or premium deposit, provided however that:

           a.   [unless] If the policy for which application is made or its Policy Summary contains an unconditional
                 refund provision of at least ten days [or unless the Policy Summary contains such an unconditional
                 refund offer in which event], the Buyer's Guide and Policy Summary must be delivered with the policy
                 or prior to delivery of the policy.

COMMENT: These are editorial changes.

[(C)]   b.   [In the case of policies whose] If the Equivalent Level Death Benefit of the policy for which applica-
                 tion is made does not exceed $5,000, the requirement for providing a Policy Summary will be satis-
                 fied by delivery of a written statement containing the information described in Section 4[(G)] (M),
                 items 2, 3, 4, 5a, 5b, 5c, 6, 7, 9, 10, and 11.

COMMENT: The purpose of the change in the first three lines of subsection 5(A)(1)(b) is to clarify that the application of
           this provision is determined at the time of application. The balance of the changes require a statement relating
           to the nonguaranteed nature and the basis of any nonguaranteed factor and also accomodate the revised
           section designations.

[(B)   The insurer shall provide a Buyer's Guide and a Policy Summary to any prospective purchaser upon request.]

2.   If any prospective purchaser requests a Buyer's Guide, a Policy Summary, or Policy Data, the insurer shall provide the item or material requested. Unless otherwise requested, the Policy Data shall be provided for policy years one through twenty.

SOURCE: II 1981 NAIC Proc. at 755 (text of the Advisory Committee on Manipulation to the NAIC's (C3) Task Force on Manipulation, Lapsation, Dividend Practices, and Annuity Disclosure).

COMMENT: The substantive change in this provision is to require the insurer to provide certain policy data if the prospective insured requests it. That information is defined in subsection 4(L) as the premiums and benefits of the policy, shown on both a guaranteed and illustrated basis. If requested to provide such information, the insurer should provide it for the first twenty years of the contract unless the consumer requests it for a longer or shorter period. Though the Advisory Committee on Manipulation had recommended that the presumption be 30 years instead of 20, the drafters felt that the administrative benefits of continuing the current presumption outweighed the costs of switching to the longer. Moreover, the provision allows the prospective policyholder to request Policy Data for a period of any duration.

3.   If the Discontinuity Index of any policy exceeds:

    a.   Any of the test limits for discontinuity set forth in Appendix C herein, the insurer shall, prior to the sale of any such policy, provide to the (title of supervisory authority) a statement identifying as accurately as possible the specific policy premium or benefit causing the policy's Discontinuity Index to exceed the test limits. Upon request of the (title of supervisory authority), the insurer shall also provide to the (title of supervisory authority) the Policy Data for policy years one through thirty, and the Discontinuity Index and its component calculations.

    b.   The test limit set forth in Appendix C herein for the applicant's issue age, the insurer shall provide:

        i.   The following statement displayed prominently on the Policy Summary and on all other sales material that show or incorporate a Cost Comparison Index: "This policy has an unusual pattern of premiums or benefits that may make comparison with the cost indexes of other policies unreliable. You should discuss this with your agent or this company. A statement of year-by-year information is available."

        ii.   If the prospective purchaser requests it, a statement identifying as accurately as possible the specific policy premium or benefit causing the policy's Discontinuity Index to exceed the applicable test limit.

SOURCE: II 1981 NAIC Proc. at 754 (text of the Report of the Advisory Committee on Manipulation to the NAIC's (C3) Task Force on Manipulation, Lapsation, Dividend Practices, and Annuity Disclosure); II 1980 NAIC Proc. at 831-40 (text of earlier Report of the same Advisory Committee).

COMMENT: The object of this provision is to make available to regulators and effected policyowners certain information about policies that seem to have an unrealistically attractive progression of costs or benefits without any acceptable rationale. (Refer to the definition of the term "Discontinuity Index" in subsection 4(F).) If a policy exceeds any of the test limits in Appendix C, the insurer must so inform the regulator before it can issue the policy. At the same time the insurer must tell the regulator in writing which premium or benefit is causing the policy to exceed the test limits. The regulator may request that the insurer also give him or her the Policy Data for policy years 1-30 as well as the Discontinuity Index itself and its component calculations.

    As an additional measure, if a policy as applied for exceeds the test limit for the applicant's particular age, then the company must put a warning on the Policy Summary. That warning must also appear on any sales material that contains any of the cost comparison indexes. If the applicant requests, the insurer must furnish an explanation.

(B)   Requirements Applicable to Participating Policies Issued by Mutual Companies.

    If a mutual life insurance company illustrates policyowner dividends that are calculated in a manner or on a basis that:

    1.   Deviates substantially from the Contribution Principle, the Policy Summary and all other sales material showing illustrated policyowner dividends must display prominently the following statement: "The illustrated dividends for this policy have not been determined in accordance with the Contribution Principle. Contact this company for further information."

2. Uses the Portfolio Average Method, the Policy Summary and all other sales material showing illustrated policyowner dividends must include the following statement: "Illustrated dividends reflect current investment earnings on funds applicable to all policies and are based on the Current Dividend Scale. Refer to your Buyer's Guide for further information."

3. Uses the Investment General Method, the Policy Summary and all other sales material showing illustrated policyowner dividends must include the following statement: "Illustrated dividends reflect current investment earnings on funds attributable to policies issued since 19 – and are based on the Current Dividend Scale. Refer to your Buyer's Guide for further information." *Drafting note: Insert at * the earliest year of the issue-year grouping used to determine the investment earnings on currently issued policies.

4. Uses any combination of the Portfolio Average Method and the Investment Generation Method, the Policy Summary and all other sales material showing illustrated policyowner dividends must include an appropriate statement, analagous to the statements required by Sections 5(B) 2 and 5(B) 3, indicating how current investment earnings are reflected in illustrated dividends.

SOURCE: II 1981 NAIC Proc. at 754-56 (text of the Report of the Advisory Committee on Manipulation to the NAIC's (C3) Task Force on Manipulation, Lapsation, Dividend Practices, and Annuity Disclosure); Academy Report at 12-14; II 1981 NAIC Proc. at 738 (text of the Report of the American Academy of Actuaries Committee on Dividend Principles and Practices to the NAIC's (C3) Task Force on Manipulation, Lapsation, Dividend Practices, and Annuity Disclosure).

COMMENT: The requirements in this section apply only to policies newly issued by mutual companies. Parallel requirements for existing policies issued by mutual companies appear in the following subsection. There are currently no principles governing the dividend practices of participating policies issued by stock companies. Consequently these proposed revisions contain no requirements applicable to stocks' participating policies. The American Academy of Actuaries will be completing its work on how dividends should be determined for those policies. Those principles could be incorporated into this regulation at that time.

            Basically this section requires most mutuals to tell prospective policyholders and applicants something about how investment income is allocated. The reason that disclosure is important is that the method of allocating investment income affects the comparability of dividend illustrations. For example, "when recent investment rates exceed portfolio average rates, it would be expected that a lower cost than one using a portfolio average method. The reverse of this cost relationship would occur when recent investment rates are lower than portfolio average rates." Academy Report at 14. Disclosure of the method of investment income allocation is also important because dividends paid on the basis of new money rates are likely to be more volatile than those paid on the basis of an average rate.

            The section also requires mutuals to tell prospective policyowners or applicants if their illustrated dividends are not calculated in accordance with the Contribution Principle. If the mutual uses the Contribution Principle, no disclosure of that is required since its use is generally accepted practice. Academy Report at 18. The principle itself is defined in subsection 4(C).

(C)   Requirements Applicable to Existing Policies

       1. If a policyowner residing in this state requests it, the insurer shall provide Policy Data for that policy. Unless otherwise requested, the Policy Data shall be provided for twenty consecutive years beginning with the previous policy anniversary. The statement of Policy Data shall include cash dividends according to the Current Dividend Scale, the amount of outstanding policy loans, and the current policy loan interest rate. Policy values shown shall be based on the dividend option in effect at the time of the request. The insurer may charge a reasonable fee, not to exceed $-, for the preparation of the statement.

       2. If a mutual life insurance company:

           a. Deviates substantially from the Contribution Principle, it shall annually advise each affected policyowner residing in this state that the dividend paid that year was not determined in accordance with the Contribution Principle and that the policyowner may contact the company for further information.

b. Is determining dividends, as of the effective date of this regulation, using the Investment Generation Method, it shall, within eighteen months of such date, advise each affected policyowner residing in this state that the dividend for the policy reflects current investment earnings on funds applicable to policies issued from 19* through 19*. This requirement shall not apply to policies for which the amount payable upon death under the basic policy as of the date when advice would otherwise be required does not exceed $5,000. *Drafting Note: Insert at * the applicable years of issue.

c. Changes its method of determining dividend scales on existing policies from or to the Investment Generation Method, it shall, no later than when the first dividend is payable on the new basis, advise each affected policyowner residing in this state of this change and of its implication on dividends payable on affected policies. This requirement shall not apply to policies for which the amount payable upon death under the basic policy as of the date when advice would otherwise be required does not exceed $5,000.

SOURCE: II 1981 NAIC Proc. at 756 (text of the Report of the Advisory Committee on Manipulation to the NAIC's (C3) Task Force on Manipulation, Lapsation, Dividend Practices, and Annuity Disclosure).

COMMENT: This section imposes one additional type of disclosure on all insurers. That is to provide current information about his or her policy to any existing insured who asks for it. As in subsection 5(A)(2), the drafters chose to assume, as a matter of administrative practicality, that unless the insured requested otherwise, the information would be furnished for a period of 20 years. It is important to note that the Policy Data would be based on the company's then-current assumptions and on the particular options chosen by the insured. Also note that the insurer is allowed to charge a reasonable fee for this service, but this draft does not specify the amount of that fee.

Subsection 5(C)(2), like subsection 5(B), applies only to mutual insurers. First, any mutual that does not comply with the Contribution Principle must so advise each effected policyowner who resides in any state where this regulation is effective. The mutual must do that in each year that the dividend paid did in fact deviate. Second, if a mutual is using the Investment Generation Method to allocate investment income as of the effective date of this proposed regulation, then it must so notify each effected policyowner who resides in any state where this regulation is effective. The mutual has 18 months to provide that notice. Finally, if the mutual changes its method of allocating dividends from or to the Investment Generation Method after the effective date of this regulation, then it must tell those policyowners. It must tell them how the change will affect their dividends no later than when the first dividend is payable on the new basis.

Please note that the last two requirements, subsections 5(C)(2)(b) and (c), which require a mutual to advise its existing policyowners about its method of investment income allocation, do not apply to policies with a face amount of $5,000 or less. The drafters felt such requirements were not cost-effective for such small policies. The provision requiring notification of deviation from the Contribution Principle would, of course, apply.

Section 6. Special Plans. This section modifies the application of this regulation as indicated for certain special plans of life insurance:

COMMENT: Since the NAIC adopted the current regulation in 1976, a number of new types of policies have been designed. Application of the current regulation to those policies has been uncertain and perhaps not uniform. This section is intended to make that application clear and consistent.

(A) Enhanced Ordinary Life Policies. An Enhanced Ordinary Life Policy is a participating policy which has the following characteristics for all issue ages:

1. The basic policy has a guaranteed death benefit that reduces after an initial period of one or more years to a basic amount; and

2. A special dividend option that provides (a) a combination of immediate paid-up additions and one-year term insurance or (b) deferred paid-up additions, either of which on the basis of the Current Dividend Scale will provide a combined death benefit (reduced basic amount plus paid-up additions plus one-year term insurance) at least equal to the initial face amount.

The crossover point of an Enhanced Ordinary Life Policy is the first policy anniversary at which the sum of the reduced basic amount and paid-up additions equals or exceeds the initial death benefit.

For these policies:

1.   The cash value of benefits purchased by dividends payable on or before the crossover point is included in the cash surrender value for the purpose of Section 4(J) 1.a.

2.   The death benefit purchased by dividends payable on or before the crossover point is included in the amount payable upon death for the purpose of Section 4(G) 1.

3.   Dividends payable after the crossover point are assumed to be paid in cash for the purpose of Section 4(J) 1.b.

SOURCE: I 1982 NAIC Proc. at 400, 405-06 (text of the Statement of the American Council of Life Insurance to the NAIC's (A) Committee's Task Force on Life Insurance Cost Disclosure).

COMMENT: In calculating the relative cost indexes, dividends credited on or before the crossover point are applied under the dividend option that produces the level death benefit. Thus, those indexes are not reduced by dividends due on or before that point, but the cash values and death benefits that the dividends purchased are taken into account.

                 After the crossover point, the calculations of the relative cost indexes assume that dividends are used to reduce premiums since the level death benefit that this approach produces is usually the basic on which the policy is bought.

(B)   Flexible Premium and Benefit Policies. For policies, commonly called "universal life insurance policies," which:

1.   Permit the policyowner to vary, independently of each other, the amount or timing of premium payments, or the amount payable on death; and

2.   Provide for a cash value that is based on separately identified interest credits and mortality and expense charges made to the policy:

All indexes and other data shall be displayed assuming specific schedules of anticipated premiums and death benefits at issue.

In addition to all other information required by this regulation, the Policy Summary shall indicate when the policy will expire based on the interest rates and mortality and other charges guaranteed in the policy and the anticipated or assumed annual premiums shown in the Policy Summary.

COMMENT: The drafters declined to specify the schedules of premiums and benefits to be assumed in calculating relative cost indexes for these policies. They felt that the specific schedule that the applicant desired was a much more appropriate and more useful assumption. These assumptions should, of course, be stated on any display. Note that this section also requires that the Policy Summary must indicate when the policy will expire based on those guarantees and the assumed premium schedule.

(C)   Multitrack Policies. For policies which allow a policyowner to change or convert the policy from one plan or amount to another, the Policy Summary:

1.   Shall display all indexes and other data assuming that the option is not exercised; and

2.   May display all indexes and other data using a stated assumption about the exercise of the option.

COMMENT: An example of the type of policy subject to this subsection is adjustable life.

(D)   Policies with Any Rate Subject to Continued Insurability. For policies which allow a policyowner a reduced premium rate if the insured periodically submits evidence of continued insurability, the Policy Summary;

1.   Shall display cost indexes and other data assuming that the insured always qualifies for the lowest premium;

2. Shall display cost indexes and other data assuming that the company always charges the highest premiums allowable; and

3. Shall indicate the conditions that must be fulfilled for an insured to qualify periodically for the reduced rate.

SOURCE: I 1982 NAIC Proc. at 401, 406 (text of the Statement of the American Council of Life Insurance to the NAIC's (A) Committee's Task Force on Life Insurance Cost Disclosure).

COMMENT: These are commonly known as "revertible term policies." The drafters recommended this approach because the cost is not completely under the insured's control. The cost can be affected by changes in the insured's health and the insurer's underwriting standards.

(E) For all other special plans of life insurance, an insurer shall provide or deliver both a Policy Summary substantially similar to that described in Section 4(M) and a Buyer's Guide. Use of those materials shall be deemed to be substantial compliance with this regulation unless the (title of supervisory authority) makes a finding that such disclosure materials misrepresent a material term or condition of the contract or omit a material fact.

COMMENT: This subsection makes this proposed regulation able to accommodate new product designs. It requires an insurer selling a policy that meets none of the definitions contained in this regulation to deliver or provide a Policy Summary that is substantially similar to that otherwise required by this regulation. An insurer using such a Policy Summary can assume that it is in substantial compliance with this proposed regulation until the commissioner makes a finding that the summary misrepresents a material term or condition of the contract or omits a material fact.

Section 7[6]. General Rules.

(A) Each insurer shall maintain, at its home office or principal office, a complete file containing one copy of each document authorized and used by the insurer [for use] pursuant to this regulation. Such file shall contain one copy of each authorized form for a period of three years following the date of its last authorized use.

COMMENT: The purpose of this proposed revision is to clarify that the insurer must keep a copy of each document both filed and used.

(B) An agent shall inform the prospective purchaser, prior to commencing a life insurance sales presentation, that he or she is acting as a life insurance agent and inform the prospective purchaser of the full name of the insurance company which [he] the agent is representing to the buyer. In sales situations in which an agent is not involved, the insurer shall identify its full name.

COMMENT: The purpose of this proposed revision is to eliminate a gender-specific reference.

(C) Terms such as financial planner, investment advisor, financial consultant, or financial conseling shall not be used in such a way as to imply that the insurance agent is primarily [generally] engaged in an advisory business in which compensation is unrelated to sales unless such is actually the case.

COMMENT: The purpose of this proposed revision is to clarify what an agent may not do: No agent may imply that his primary business is noncommissioned unless that is true.

(D) Any reference to a [policy] dividend[s] or other Nonguaranteed Factor must include a statement that such item is [dividends are] not guaranteed [.] and is based on the company's Current Dividend Scale or Current Rate Schedule. If a dividend or Nonguaranteed Factor would be reduced by the existence of a policy loan, a statement to this effect must be included in any reference to such dividend or Nonguaranteed Factor.

COMMENT: The purpose of this proposed revision is to broaden the scope of this provision. All policy cost factors that are not guaranteed must be so designated. The last sentence would be applicable where the company uses a procedure commonly known as "direct recognition," under which policy dividends or, for example, interest credits under universal life insurance policies reflect the extent of loan activity on a policy-by-policy basis.

(E)   A system or presentation which does not recognize the time value of money through the use of appropriate interest adjustments shall not be used for comparing the cost of two or more life insurance policies. Such a system may be used for the purpose of demonstrating the cash-flow pattern of a policy if such presentation is accompanied by a statement disclosing that the presentation does not recognize that, because of interest, a dollar in the future has less value than a dollar today.

(F)   A presentation of costs or benefits, other than that required pursuant to this regulation, shall not display guaranteed and nonguaranteed factors [benefits] as a single sum unless they are shown separately in close proximity thereto.

(G)   Any statement regarding the use of the [Life Insurance] Cost Comparison Indexes shall include an explanation to the effect that the indexes are useful only for the comparison of the relative costs of two or more similar policies.

(H)   A [Life Insurance] Cost Comparison Index which reflects a dividend or Nonguaranteed Factor [dividends or an Equivalent Level Annual Dividend] shall be accompanied by a statement that it is based on the company's [c] Current [d] Dividend [s] Scale or Current Rate Schedule and is not guaranteed.

COMMENT: The purpose of the revisions proposed in these subsections are to broaden their effect to conform them to the balance of the material in the proposed regulation.

[(I)   For the purposes of this regulation, the annual premium for a basic policy or rider, for which the company reserves the right to change the premiums, shall be the maximum annual premium.]

COMMENT: The drafters propose to eliminate this provision since it is superseded by other provisions in this proposed regulation.

Section [7] 8. Failure to Comply.

Failure of an insurer to provide or deliver a Buyer's Guide, [or] a Policy Summary, or Policy Data as provided in Sections 5 and 6 shall constitute an omission which misrepresents the benefits, advantages, conditions or terms of an insurance policy.

COMMENT: Subsections 5(A)(3) and 5(C)(1) require an insurer to deliver the Policy Data if an existing or prospective insured requests it. To make that requirement operative, the phrase "or Policy Data" is inserted here. Likewise section 6 lists requirements applicable to special plans; that notation is included here to require insurers' compliance.

Section 9. Separability. If any provisions of this rule be held invalid, the remainder shall not be affected.

COMMENT: This is a standard provision usually added to administrative rules to protect nonoffending provisions.

Section [8] 10. Effective Date. This rule shall [apply to all solicitations of life insurance which commence on or after] became effective (insert a date at least six months following adoption by the regulatory authority.)

COMMENT: The drafters recommend that the rule be adopted with an effective date delayed at least six months.

APPENDIX A

Life Insurance Buyer's Guide

The language in the Buyer's Guide is limited to that contained in the following pages of this Appendix, or to language approved by (title of supervisory authority). However, companies can vary the type style and format and are encouraged to enhance the readability, design, and attractiveness of the Buyer's Guide.

****

DATE: November 30, 1983

TO: Life Cost Disclosure (A) Task Force

FROM: Sub-task Force to Consider Further the Exposure Draft of the Model Replacement Regulation

This sub-task force was appointed at the meeting of the *Life Cost Disclosure (A) Task Force* June 14, 1983. Each state was strongly urged to immediately review the exposure draft of a Model Life Insurance Replacement Regulation offered by the American Council of Life Insurance and send written comments to each of the sub-task force members. Interested industry persons were also to make written comments.

We have received written suggestions from Raymond H. Riss, Assistant Vice President, Fireman's Fund American Life Insurance Company, and have had general comments from Robert Demichelis of the American Council of Life Insurance. Fireman's Fund American Life offered an analysis and critique of the exposure draft, but takes the position that the preferred action by NAIC is adoption of a model regulation combining replacement requirements with life insurance solicitation and annuity disclosure rules. The Indiana representatives on the sub-task force, Chief Deputy W.F. Shanner, furnished an analysis of the ACLI exposure draft and a revision of it.

The sub-task force has not had an opportunity to review all of these suggestions sufficiently to make a firm recommendation for proposed changes in the NAIC model regulation. Therefore, we recommend that this information and that offered at the June 14, 1983 meeting of the Task Force be accepted for the information and guidance of those states which may be considering revising their life insurance replacement regulation.

M.E. Van Cleave, Wisconsin
Don H. Miller, Indiana
William P. Daves, Jr., Texas

MANIPULATION, LAPSATION, DIVIDEND PRACTICES AND ANNUITY DISCLOSURE (A) TASK FORCE

Reference:
> 1983 Proc. I p. 569
> 1983 Proc. II p. 612

Kevin Sullivan, Chairman—Nevada
Thomas J. Caldarone, Jr., Vice-Chairman—Rhode Island

[Editor's Note: The Manipulation, Lapsation, Dividend Practices and Annuity Disclosure (A) Task Force did not meet during the NAIC 1983 Winter Annual Meeting in San Diego. The task force was discharged by the Executive Committee. See p. 34.]

UNIVERSAL AND OTHER NEW PLANS (A) TASK FORCE

Reference:
    1983 Proc. I p. 580
    1983 Proc. II p. 614

J. Richard Barnes, Chairman — Colorado
Peter W. Gillies, Vice-Chairman — Connecticut

AGENDA

1.   Review and Adopt Tampa Minutes.
2.   Report of Industry Advisory Committee.
3.   Report on Model Universal Life Regulation.
4.   Any Other Matters Brought Before the Task Force.

CONTENTS

The Universal and Other New Plans (A) Task Force met inthe California Room of the Town and Country Hotel in San Diego, California, at 9 a.m. on December 6, 1983. A quorum was present. J. Richard Barnes (Colorado) chaired the meeting with the following task force members present: J. Richard Barnes, Chairman (Colorado); Linda Garner (Arkansas); Bruce A. Bunner (California); Daniel D. Briscoe (Kentucky); Michael J. Dugan (Nebraska); James P. Corcoran (New York); George Fabe (Ohio); Roger T. Smith (South Carolina) and Thomas P. Fox (Wisconsin).

There having been no meeting in Tampa, no minutes were adopted.

James M. Jackson, counsel for Transamerica Occidental Life, Chairman of the advisory committee on Universal Life, reported on that committee's work. It has met 11 times in the past 12 months in numerous different locations from Washington, D.C., to Los Angeles. This made it accessible to all interested parties and organizations. Members of the American Academy of Actuaries, American Council of Life Insurance, NAIC Technical Staff Actuarial Group (TSAG), commissioners and many others were kept fully informed of all input and progress. A copy of their final product is attached (Attachment One).

John Montgomery (TSAG) reported on that group's review of the proposed model regulation. It recommends adoption of the proposed model. It also recommends continuation of service for further refinement as it is implemented. It also recommends that TSAG continue its input on this subject.

William Tozer, actuary for Kentucky Central Life and chairman of the ACLI Committee on Valuation and Nonforfeiture of Special Products, gave a detailed report of its studies and review. His committee recommends adoption. A copy of his written comments is attached to this report (Attachment Two).

Maureen McGrath, counsel for ACLI, stated that her organization recommends the adoption of the model.

Steve Kellison, executive director of the American Academy of Actuaries, reported that the academy recommends adoption. He also recommended continuation of the advisory committee.

It was moved, seconded and unanimously adopted that the task force recommend to the NAIC that it adopt the proposed model.

It was further moved, seconded and unanimously adopted that the advisory committee be continued with such changes in membership as may be appropriate. Its mission will be to continue review of the regulation as it is adopted and implemented by various states. The TSAG will also be asked for its appropriate input.

A third motion was made, seconded and adopted to recommend the appointment of another advisory committee to study update of interest index for use with other products. Such index would be based on that of the Model Universal Life Regulation.

The chairman sincerely thanked all who had worked so hard on the model.

With no further business to come before the task force, the meeting adjourned at 9:50 a.m.

J. Richard Barnes, chairman, Colorado; Peter W. Gillies, vice-chairman, Connecticut; Linda Garner, Arkansas; Bruce A. Bunner, California; Daniel D. Briscoe, Kentucky; Michael J. Dugan, Nebraska; Joseph F. Murphy, New Jersey; James P. Corcoran, New York; George Fabe, Ohio; Rogers T. Smith, South Carolina; Richard G. Shaw, West Virginia; Thomas P. Fox, Wisconsin.

ATTACHMENT ONE

November 14, 1983

To: Advisory Committee to the Universal Life Insurance and Other New Plans (A) Task Force
        Other Interested Persons

Attached please find the final draft of the Model Regulation on Universal Life Insurance. We anticipate that this Model Regulation will be favorably received at the upcoming NAIC meetings in December. Thank you for your interest in and contributions to the Model Regulation.

Very truly yours,

Diana M. Marchesi
Assistant Counsel

November 14, 1983

To: The Honorable J. Richard Barnes
        Chairman, Universal Life Insurance and Other New Plans Task Force

        Task Force Members

Attached is a copy of the final work product of the advisory committee. Each of the advisory committee members worked diligently and constructively over the course of the past year and a half on this interesting and challenging project. I am most appreciative of them and of the many other regulatory, industry and trade association people whose efforts, ideas and energy have contributed substantially to this model regulation.

Thank you for the opportunity of working on a model regulation in an area critically in need of a uniform treatment and approach by the state insurance regulatory authorities.

James M. Jackson, Counsel
Chairman
Advisory Committee

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UNIVERSAL LIFE INSURANCE
MODEL REGULATION

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UNIVERSAL LIFE INSURANCE MODEL REGULATION

ARTICLE I: AUTHORITY

Section 1.   Authority.

This regulation is promulgated under the authority of Section (insert applicable section), of the Insurance Laws of (insert state), and is effective (insert date).

ARTICLE II: PURPOSE

Section 1.   Purpose

The purpose of this regulation is to supplement existing regulations on life insurance policies in order to accommodate the development and issuance of universal life insurance plans.

(Note: It is the position of the drafters of this regulation that universal life insurance is simply another, competing type of life insurance which should be treated, to the extent possible, in the same regulatory manner as other life insurance products. This regulation is designed to address those areas where universal life insurance does not "fit" into the existing regulatory framework. This regulation does not supersede existing requirements relating to filing, solicitation, advertising, etc., but is supplementary to them.)

ARTICLE III: DEFINITIONS

As used in this regulation:

Section 1.   Universal Life Insurance Policy.

"Universal life insurance policy" means any individual life insurance policy under the provisions of which separately identified interest credits (other than in connection with dividend accumulations, premium deposit funds, or other supplementary accounts) and mortality and expense charges are made to the policy. A universal life insurance policy may provide for other credits and charges, such as charges for the cost of benefits provided by rider.

(Note: This regulation is specifically designed for individual life insurance policies. It is not intended, however, to prohibit the issuance of group universal life insurance policies. States are free to adopt whatever portions of this regulation which are appropriate for group insurance and which are in accordance with State law. Unlike the unitary nature of traditional whole life insurance, a distinguishing feature of universal life insurance is the existence of an indeterminate policy value from which specified periodic charges are deducted and to which specified periodic interest is credited at a rate not determined at issue. This indeterminate policy value feature with separately identified charges and credits may or may not have a premium pattern predetermined by the insurer at issue. Valuation and nonforfeiture treatment of these products varies depending upon the nature of the premium pattern. To distinguish these treatments, a definitional distinction has been made between "flexible" and "fixed" premium policy forms.)

Section 2.   Flexible Premium Universal Life Insurance Policy.

"Flexible premium universal life insurance policy" means a universal life insurance policy which permits the policyowner to vary, independently of each other, the amount or timing of one or more premium payments or the amount of insurance.

Section 3.   Fixed Premium Universal Life Insurance Policy.

"Fixed premium universal life insurance policy" means a universal life insurance policy other than a flexible premium universal life insurance policy.

Section 4.   Interest-Indexed Universal Life Insurance Policy.

"Interest-indexed universal life insurance policy" means any universal life insurance policy where the interest credits are linked to an external referent.

(Note: This definition is not intended to include those policies which only have a variable policy loan interest rate provision, but have no other link to an external referent.

This regulation presently addresses only the indexing of interest credits. The regulation does not preclude the indexing of other factors, e.g. mortality or expenses. Should other products be developed which involve the indexing of factors other than interest credits, this regulation may require modification. The regulation does not preclude insurance departments from adding requirements regarding the indexing of such other factors.)

Section 5.   Net Cash Surrender Value.

"Net Cash Surrender Value" means the maximum amount payable to the policyowner upon surrender.

Section 6.   Cash Surrender Value.

"Cash Surrender Value" means the Net Cash Surrender Value plus any amounts outstanding as policy loans.

Section 7.   Policy Value.

"Policy Value" means the amount to which separately identified interest credits and mortality, expense, or other charges are made under a universal life insurance policy.

(Note: Universal life insurance policies may use designated amounts for different purposes. These include the following: the base upon which interest credits are calculated; the amount subtracted from the policy's face value to determine net amount at risk for calculation of mortality charges, and the amount paid upon surrender. These amounts may all be the same or may be different. For purposes of this regulation, these amounts do not define policy value, although they may be coincidentally equal to that amount as defined above.

Care should be taken not to place undue emphasis on the policy or "account" value. Very often the policy value is not directly available to the policyowner. Instead, the policy value is an intermediate step used to determine benefits actually available to the policyowner such as cash surrender values, net cash surrender values, death benefits, or maturity values. The benefits actually provided the policyowner should be considered in establishing valuation and nonforfeiture standards.

Section 8.   May.

"May" is permissive.

Section 9.   Shall.

"Shall" is mandatory.

Section 10.   Commissioner.

"Commissioner" (Director, Superintendent) means the Insurance Commissioner (Director, Superintendent) of this state.

<u>ARTICLE IV: SCOPE</u>

<u>Section 1.   Scope.</u>

This regulation encompasses all individual universal life insurance policies except those policies defined under Article II, Section 19 of the NAIC Model Variable Life Insurance Regulation.

<u>ARTICLE V: VALUATION</u>

<u>Section 1.   Requirements.</u>

The minimum valuation standard for universal life insurance policies shall be the Commissioners Reserve Valuation Method, as described below for such policies, and the tables and interest rates specified below. The terminal reserve for the basic policy and any benefits and/or riders for which premiums are not paid separately as of any policy anniversary shall be equal to the net level premium reserves less (C) and less (D), where:

Reserves by the net level premium method shall be equal to ((A) - (B))r where (A), (B) and r are as defined below:

    (A) is the present value of all future guaranteed benefits at the date of valuation.

    (B) is the quantity $\dfrac{\text{PVFB}}{\ddot{a}_x}(\ddot{a}_x + t)$ where PVFB is the present value.

    of all benefits guaranteed at issue assuming future Guaranteed Maturity Premiums are paid by the policyowner and taking into account all guarantees contained in the policy or declared by the insurer.

$\ddot{a}_x$ and $\ddot{a}_{x+t}$ are present values of an annuity of one per year payable on policy anniversaries beginning at ages x and x+t respectively, and continuing until the highest attained age at which a premium may be paid under the policy. (x) is defined as the issue age and (t) is defined as the duration of the policy.

The Guaranteed Maturity Premium for flexible premium universal life insurance policies shall be that level gross premium, paid at issue and periodically thereafter over the period during which premiums are allowed to be paid, which will mature the policy on the latest maturity date, if any, permitted under the policy (otherwise at the highest age in the valuation mortality table), for an amount which is in accordance with the policy structure.[1] The Guaranteed Maturity Premium is calculated at issue based on all policy guarantees at issue (excluding guarantees linked to an external referent). The Guaranteed Maturity Premium for fixed premium universal life insurance policies shall be the premium defined in the policy which at issue provides the minimum policy guarantees.[2]

r is equal to one, unless the policy is a flexible premium policy and the policy value is less than the Guaranteed Maturity Fund, in which case r is the ratio of the policy value to the Guaranteed Maturity Fund.

The Guaranteed Maturity Fund at any duration is that amount which, together with future Guaranteed Maturity Premiums, will mature the policy based on all policy guarantees at issue.

(C) is the quantity $((a) - (b))\dfrac{\ddot{a}_{x+t}}{\ddot{a}_x} r$, where (a) - (b) is as described in [Section Four of the Standard Valuation Law, as

amended in 1980] for the plan of insurance defined at issue by the Guaranteed Maturity Premiums and all guarantees contained in the policy or declared by the insurer.

$\ddot{a}_{x+t}$ and $\ddot{a}_x$ are defined in (B) above.

(D) is the sum of any additional quantities analogous to (C) which arise because of structural changes[3] in the policy, with each such quantity being determined on a basis consistent with that of (C) using the maturity date in effect at the time of the change.

The Guaranteed Maturity Premium, the Guaranteed Maturity Fund and (B) above shall be recalculated to reflect any structural changes in the policy. This recalculation shall be done in a manner consistent with the descriptions above.

Future guaranteed benefits are determined by (1) projecting the greater of the Guaranteed Maturity Fund and the policy value, taking into account future Guaranteed Maturity Premiums, if any, and using all guarantees of interest, mortality, expense deductions, etc., contained in the policy or declared by the insurer; and (2) taking into account any benefits guaranteed in the policy or by declaration which do not depend on the policy value.

All present values shall be determined using (i) an interest rate (or rates) sepcified by [the Standard Valuation Law, as amended in 1980] for policies issued in the same year; (ii) the mortality rates specified by [the Standard Valuation Law, as amended in 1980] for policies issued in the same year or contained in such other table as may be approved by the Commissioner for this purpose; and (iii) any other tables needed to value supplementary benefits provided by a rider which is being valued together with the policy.

(Note: To the extent that the insurer declares guarantees more favorable than those in the policy (contractual guarantees), such declared guarantees shall be applicable to the determination of future guaranteed benefits.

The mortality and interest bases for calculating present values are the minimum standards in the Standard Valuation Law.

Ever since the adoption of the original Standard Valuation Law (SVL) in 1942, provision has been made for valuation calculations on the basis of substandard mortality. (See Section 3(g) of SVL.) While this provision has been used infrequently in the past, it is anticipated that substandard mortality will be more frequently utilized in universal life insurance, given its flexible nature, to reflect the mortality classification assigned to the policy by the insurer.

1.   The maturity amount shall be the initial death benefit where the death benefit is level over the lifetime of the policy except for the existence of a minimum-death-benefit corridor, or, shall be the specified amount where the death benefit equals a specified amount plus the policy value or cash surrender value except for the existence of a minimum-death-benefit corridor.

2.   The Guaranteed Maturity Premium for both flexible and fixed premium policies shall be adjusted for death benefit corridors provided by the policy. The Guaranteed Maturity Premium may be less than the premium necessary to pay all charges. This can especially happen in the first year for policies with large first year expense charges.

3.   Structural changes are those changes which are separate from the automatic workings of the policy. Such changes usually would be initiated by the policyowner and include changes in the guaranteed benefits, changes in latest maturity date, or changes in allowable premium payment period.

In effecting structural changes, consistent methods are prescribed when calculating reserves. Several such methods are possible, but perhaps the simplest such method would be that of maintaining proportionality between the Guaranteed Maturity Fund and Guaranteed Maturity Premium values and the current face amount. In applying this method, Guaranteed Maturity Fund and Guaranteed Maturity Premium values could be calculated per dollar of face amount and simply multiplied by the new face amount. This would eliminate much of the complexity involved in other methods.)

Section 2.   Alternative Minimum Reserves.

If, in any policy year, the Guaranteed Maturity Premium on any universal life insurance policy is less than the valuation net premium for such policy, calculated by the valuation method actually used in calculating the reserve thereon but using the minimum valuation standards of mortality and rate of interest, the minimum reserve required for such contract shall be the greater of (1) or (2).

(1)   The reserve calculated according to the method, the mortality table, and the rate of interest actually used.

(2)   The reserve calculated according to the method actually used but using the minimum valuation standards of mortality and rate of interest and replacing the valuation net premium by the Guaranteed Maturity Premium in each policy year for which the valuation net premium exceeds the Guaranteed Maturity Premium.

For universal life insurance reserves on a net level premium basis, the valuation net premium is $\dfrac{PVFB}{\ddot{a}_x}$ and for reserves on a

Commissioners Reserve Valuation Method, the valuation net premium is $\dfrac{PVFB}{\ddot{a}_x} + \dfrac{(a)-(b)}{\ddot{a}_x}$.

ARTICLE VI: NONFORFEITURE

Section 1.   Minimum Cash Surrender Values for Flexible Premium Universal Life Insurance Policies.

Minimum cash surrender values for flexible premium universal life insurance policies shall be determined separately for the basic policy and any benefits and riders for which premiums are paid separately. The following requirements pertain to a basic policy and any benefits and riders for which premiums are not paid separately.

The minimum cash surrender value (before adjustment for indebtedness and dividend credits) available on a date as of which interest is credited to the policy shall be equal to the accumulation to that date of the premiums paid minus the accumulations to that date of (i) the benefit charges, (ii) the averaged administrative expense charges for the first policy year and any insurance-increase years, (iii) actual administrative expense charges for other years, (iv) initial and additional acquisition expense charges not exceeding the initial or additional expense allowances, respectively, (v) any service charges actually made (excluding charges for cash surrender or election of a paid-up nonforfeiture benefit) and (vi) any deductions made for partial withdrawals; all accumulations being at the actual rate or rates of interest at which interest credits have been made unconditionally to the policy (or have been made conditionally, but for which the conditions have since been met), and minus any unamortized unused initial and additional expense allowances.

Interest on the premiums and on all charges referred to in items (i) - (vi) above shall be accumulated from and to such dates as are consistent with the manner in which interest is credited in determining the policy value.

The benefit charges shall include the charges made for mortality and any charges made for riders or supplementary benefits for which premiums are not paid separately. If benefit charges are substantially level by duration and develop low or no cash values, then the Commissioner shall have the right to require higher cash values unless the insurer provides adequate justification that the cash values are appropriate in relation to the policy's other characteristics.[4]

The administrative expense charges shall include charges per premium payment, charges per dollar of premium paid, periodic charges per thousand dollars of insurance, periodic per policy charges, and any other charges permitted by the policy to be imposed without regard to the policyowner's request for services.

The averaged administrative expense charges for any year shall be those which would have been imposed in that year if the charge rate or rates for each transaction or period within the year had been equal to the arithmetic average of the corresponding charge rates which the policy states will be imposed in policy years two through twenty in determining the policy value.

The initial acquisition expense charges shall be the excess of the expense charges, other than service charges, actually made in the first policy year over the averaged administrative expense charges for that year. Additional acquisition expense charges shall be the excess of the expense charges, other than service charges, actually made in an insurance-increase year over the averaged administrative expense charges for that year. An insurance-increase year shall be the year beginning on the date of increase in the amount of insurance by policyowner request (or by the terms of the policy).

Service charges shall include charges permitted by the policy to be imposed as the result of a policyowner's request for a service by the insurer (such as the furnishing of future benefit illustrations) or of special transactions.

The initial expense allowance shall be the allowance provided by [items (ii), (iii) and (iv) of section five] or by [items (ii) and (iii) of section five-c(1)], as applicable, of [the Standard Nonforfeiture Law for Life Insurance, as amended in 1980] for a fixed premium, fixed benefit endowment policy with a face amount equal to the initial face amount of the flexible premium universal life insurance policy, with level premiums paid annually until the highest attained age at which a premium may be paid under the flexible premium universal life insurance policy, and maturing on the latest maturity date permitted under the policy, if any, otherwise at the highest age in the valuation mortality table. The unused initial expense allowance shall be the excess, if any, of the initial expense allowance over the initial acquisition expense charges as defined above.

If the amount of insurance is subsequently increased upon request of the policyowner (or by the terms of the policy), an additional expense allowance and an unused additional expense allowance shall be determined on a basis consistent with the above and with [section five-c(5) of the Standard Nonforfeiture Law for Life Insurance as amended in 1980], using the face amount and the latest maturity date permitted at that time under the policy.

The unamortized unused initial expense allowance during the policy year beginning on the policy anniversary at age x+t (where x is the issue age) shall be the unused initial expense allowance multiplied by $\dfrac{\ddot{a}_{x+t}}{\ddot{a}_x}$ where $\ddot{a}_{x+t}$ and $\ddot{a}_x$ are present values of an annuity of one per year payable on policy anniversaries beginning at ages x+t and x, respectively, and

continuing until the highest attained age at which a premium may be paid under the policy, both on the mortality and interest bases guaranteed in the policy. An unamortized unused additional expense allowance shall be the unused additional expense allowance multiplied by a similar ratio of annuities, with $\ddot{a}_x$ replaced by an annuity beginning on the date as of which the additional expense allowance was determined.

(Note: The drafters chose a whole life initial expense allowance for several reasons. Although highly flexible, universal life insurance is generally considered a permanent life insurance plan. Most companies encourage a premium level which will provide lifetime insurance protection. Every universal life insurance policy of which the drafters are aware has a "net level premium" that could be computed which would guarantee permanent protection. As a result, it is expected that most universal life insurance policies will be sold as permanent plans.

Traditional whole life insurance, which is accorded a permanent plan expense allowance by the Standard Nonforfeiture Law (SNFL), is much more flexible than is often realized. Premiums may be stopped with term coverage resulting, policy loans can result in "stop and go" premiums, or a vanishing premium arrangement can be effected, all without the permanent plan expense allowance being affected. The SNFL does not require cash values for many forms of term insurance. All other permanent plans develop an expense allowance greater than that for whole life insurance under the SNFL.

The alternative of basing the initial expense allowance on a policyowner's "planned premium" was considered but rejected as artificial and subject to substantial manipulation by agents and/or insurers.

4. Because this product is still developing, it is recommended that benefit charges not be restricted and regulatory treatment of cash values be limited to that contained in this section for several reasons. First, further restrictions would limit the development of the product. Second, added restrictions would discourage insurers from reducing non-guaranteed current benefit charges because such reductions could require reduced future benefit charges that could be financially unsound for the insurer. Third, market pressures will encourage insurers to limit benefit charges.)

Section 2.   Minimum Cash Surrender Values for Fixed Premium Universal Life Insurance Policies.

For fixed premium universal life insurance policies, the minimum cash surrender values shall be determined separately for the basic policy and any benefits and riders for which premiums are paid separately. The following requirements pertain to a basic policy and any benefits and riders for which premiums are not paid separately.

The minimum cash surrender value (before adjustment for indebtedness and dividend credits) available on a date as of which interest is credited to the policy shall be equal to ((A) - (B) - (C) - (D)), where:

     (A)   is the present value of all future guaranteed benefits.

     (B)   is the present value of future adjusted premiums. The adjusted premiums are calculated as described in [sections 5 and 5-a or in paragraph (1) of section 5-c], as applicable, of [the Standard Nonforfeiture Law for Life Insurance, as amended in 1980]. If section 5-c, paragraph (1) is applicable, the nonforfeiture net level premium is equal to the quantitiy $\dfrac{PVFB}{\ddot{a}_x}$ where PVFB is the present value of all benefits guaranteed at issue assuming future premiums are paid by the policyowner and all guarantees contained in the policy or declared by the insurer.

$\ddot{a}_x$ is the present value of an annuity of one per year payable on policy anniversaries beginning at age x and continuing until the highest attained age at which a premium may be paid under the policy.

     (C)   is the present value of any quantities analogous to the nonforfeiture net level premium which arise because of guarantees declared by the insurer after the issue date of the policy. $\ddot{a}_x$ shall be replaced by an annuity beginning on the date as of which the declaration became effective and payable until the end of the period covered by the declaration.

     (D)   is the sum of any quantities analogous to (B) which arise because of structural changes[3] in the policy.

Future guaranteed benefits are determined by (1) projecting the policy value, taking into account future premiums, if any, and using all guarantees of interest, mortality, expense deductions, etc., contained in the policy or declared by the insurer; and (2) taking into account any benefits guaranteed in the policy or by declaration which do not depend on the policy value.

All present values shall be determined using (i) an interest rate (or rates) specificed by [the Standard Nonforfeiture Law for Life Insurance, as amended in 1980], for policies issued in the same year and (ii) the mortality rates specified by

[the Standard Nonforfeiture Law for Life Insurance, as amended in 1980] for policies issued in the same year or contained in such other table as may be approved by the Commissioner for this purpose.

> (Note: The types of quantities included in (C) are increased current interest rate credits guaranteed for a future period, decreased current mortality rate charges guaranteed for a future period, or decreased current expense charges guaranteed for a future period.

> 3.   See Note "3" on page 6.)

Section 3.   Minimum Paid-Up Nonforfeiture Benefits.

If a universal life insurance policy provides for the optional election of a paid-up nonforfeiture benefit, it shall be such that its present value shall be at least equal to the cash surrender value provided for by the policy on the effective date of the election. The present value shall be based on mortality and interest standards at least as favorable to the policyowner as (1) in the case of a flexible premium universal life insurance policy, the mortality and interest basis guaranteed in the policy for determining the policy value, or (2) in the case of a fixed premium policy the mortality and interest standards permitted for paid-up nonforfeiture benefits by [the Standard Nonforfeiture Law for Life Insurance, as amended in 1980]. In lieu of the paid-up nonforfeiture benefit, the insurer may substitute, upon proper request not later than sixty days after the due date of the premium in default, an actuarially equivalent alternative paid-up nonforfeiture benefit which provides a greater amount or longer period of death benefits, or, if applicable, a greater amount or earlier payment of endowment benefits.

> (Note: It is possible that policies will have secondary guarantees. Such guarantees should be taken into consideration when computing minimum paid-up nonforfeiture benefits.

> To preserve equity between policies on a premium paying basis and on a paid-up basis, present values must comply with Article VI, Section 1 for flexible premium universal life insurance policies and with Article VI, Section 2, for fixed premium policies.

> Ever since the adoption of the original Standard Nonforfeiture Law (SNFL) in 1942, provision has been made for nonforfeiture calculations on the basis of substandard mortality. (See sections 5, 5-a, and 5-c of paragraph 8(c) of SNFL.) While this provision has been used infrequently in the past, it is anticipated that substandard mortality will be more frequently utilized in universal life insurance, given its flexible nature, to reflect the mortality classification assigned to the policy by the insurer.

> A charge may be made at the surrender of the policy provided that the result after the deduction of the charge is not less than the minimum cash surrender value required by this Article.)

ARTICLE VII: MANDATORY POLICY PROVISIONS

The policy shall provide the following:

Section 1.   Periodic Disclosure to Policyowner.

The policy shall provide that the policyowner will be sent, without charge, at least annually, a report which will serve to keep such policyowner advised as to the status of the policy. The end of the current report period must be not more than three months previous to the date of the mailing of the report. Specific requirements of this report are detailed in Article IX.

> (Note: Fixed premium universal life insurance policies may be required to contain a table of cash surrender or non-forfeiture values, by law. Such a table of values is of little use for a flexible premium policy, since the premiums cannot be determined, and therefore, such table should not be required to be included in the policy. Periodic disclosure to the policyowner is designed to fulfill the purpose of such a table of values, which, because of the nature of universal life insurance, cannot be determined at issue for a flexible premium policy.)

Section 2.   Illustrative Reports.

The policy shall provide for an illustrative report which will be sent to the policyowner upon request. Minimum requirements of such report are the same as those set forth in Article VIII. The insurer may charge the policyowner a reasonable fee for providing the report.

Section 3.   Policy Guarantees.

The policy shall provide guarantees of minimum interest credits and maximum mortality and expense charges. All values and data shown in the policy shall be based on guarantees. No figures based on nonguarantees shall be included in the policy.

(Note: Minimum and maximum guarantees are in addition to any index guarantees. If "guaranteed" credits and/or charges are also the "current" credits and/or charges, such amounts may be inlcuded in the policy if clearly labelled. The maturity date is not considered a guarantee for purposes of this section.)

Section 4.   Calculation of Cash Surrender Values.

The policy shall contain at least a general description of the calculation of cash surrender values including the following information:

1.   The guaranteed maximum expense charges and loads.

2.   Any limitation on the crediting of additional interest. Interest credits shall not remain conditional for a period longer than twelve months.

3.   The guaranteed minimum rate or rates of interest.

4.   The guaranteed maximum mortality charges.

5.   Any other guaranteed charges.

6.   Any surrender or partial withdrawal charges.

Section 5.   Changes in Basic Coverage.

If the policyowner has the right to change the basic coverage, any limitation on the amount or timing of such change shall be stated in the policy. If the policyowner has the right to increase the basic coverage, the policy shall state whether a new period of contestability and/or suicide is applicable to the additional coverage.

Section 6.   Grace Period and Lapse.

The policy shall provide for written notice to be sent to the policyowner's last known address at least thirty days prior to termination of coverage.

A flexible premium policy shall provide for a grace period of at least thrity days (or as required by state statute) after lapse.   Unless otherwise defined in the policy, lapse shall occur on that date on which the net cash surrender value first equals zero.

(Note: Fixed premium policies shall contain a provision providing for a standard grace period as required by state law.)

Section 7.   Misstatement of Age or Sex.

If there is a misstatement of age or sex in the policy, the amount of the death benefit shall be that which would be purchased by the most recent mortality charge at the correct age or sex. The Commissioner may approve other methods which are deemed satisfactory.

Section 8.   Maturity Date.

If a policy provides for a "maturity date", "end date", or similar date, then the policy shall also contain a statement, in close proximity to that date, that it is possible that coverage may not continue to the maturity date even if scheduled premiums are paid in a timely manner, if such is the case.

ARTICLE VIII: DISCLOSURE REQUIREMENTS

Section 1.   Disclosure Requirements.

In connection with any advertising, solicitation, negotiation, or procurement of a universal life insurance policy:

    1.   Any statement of policy cost factors or benefits shall contain:
        a.   The corresponding guaranteed policy cost factors or benefits, clearly identified.
        b.   A statement explaining the nonguaranteed nature of any current interest rates, charges, or other fees applied to the policy, including the insurer's rights to alter any of these factors.
        c.   Any limitations on the crediting of interest, including identification of those portions of the policy to which a specified interest rate shall be credited.

(Note: Policy cost factors are those amounts which affect the price per thousand of life insurance coverage or other benefits. They include: interest, mortality, expense charges and fees, including any surrender or withdrawal charges, but not persistency assumptions.)

    2.   Any illustration of the policy value shall be accompanied by the corresponding net cash surrender value.

    3.   Any statement regarding the crediting of a specific current interest rate shall also contain the frequency and timing by which such rate is determined.

    4.   If any statement refers to the policy being interest-indexed, the index shall be described. In addition, a description shall be given of the frequency and timing of determining the interst rate and of any adjustments made to the index in arriving at the interest rate credited under the policy.

    5.   Any illustrated benefits based upon nonguaranteed interest, mortality, or expense factors shall be accompanied by a statement indicating that these benefits are not guaranteed.

    6.   If the guaranteed cost factors or initial policy cost factor assumptions would result in policy values becoming exhausted prior to the policy's maturity date, such fact shall be disclosed, including notice that coverage will terminate under such circumstances.

(Note: It is not intended that this Article conflict with or supersede the Model Act on Unfair Trade Practices or Model Regulations on Advertising and Solicitation. This Article supplements those models to the extent that they do not contemplate universal life insurance policy forms and covers those areas which appear to be most subject to misunderstandings by the public.)

ARTICLE IX: PERIODIC DISCLOSURE TO POLICYOWNER

Section 1.   Requirements.

The policy shall provide that the policyowner will be sent, without charge, at least annually, a report which will serve to keep such policyowner advised of the status of the policy. The end of the current report period shall be not more than three months previous to the date of the mailing of the report.

Such report shall include the following:

    1.   The beginning and end of the current report period.

    2.   The policy value at the end of the previous report period and at the end of the current report period.

    3.   The total amounts which have been credited or debited to the policy value during the current report period, identifying each by type (e.g., interest, mortality, expense and riders).

    4.   The current death benefit at the end of the current report period on each life covered by the policy.

    5.   The net cash surrender value of the policy as of the end of the current report period.

    6.   The amount of outstanding loans, if any, as of the end of the current report period.

7.   For fixed premium policies: If, assuming guaranteed interest, mortality and expense loads and continued scheduled premium payments, the policy's net cash surrender value is such that it would not maintain insurance in force until the end of the next reporting period, a notice to this effect shall be included in the report.

8.   For flexible premium policies: If, assuming guaranteed interest, mortality and expense loads, the policy's net cash surrender value will not maintain insurance in force until the end of the next reporting period unless further premium payments are made, a notice to this effect shall be included in the report.

ARTICLE X: INTEREST-INDEXED UNIVERSAL LIFE INSURANCE POLICIES

Section 1.   Initial Filing Requirements.

The following information shall be submitted in connection with any filing of interest-indexed universal life insurance policies ("interest-indexed policies"). All such information received shall be treated confidentially to the extent permitted by law.

1.   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.

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

   a.   how the insurer addressed 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 or not 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.

3.   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.

4.   A description of any interest guarantee in addition to or in lieu of the index.

5.   A description of any maximum premium limitations and the conditions under which they apply.

Section 2.   Additional Filing Requirements.

1.   Annually, every insurer shall submit a Statement of Actuarial Opinion by the insurer's actuary similar to the example contained in Section 3 of this Article.

2.   Annually, every insurer shall submit a description of the amount and type of assets currently held by the insurer with respect to its interest-indexed policies.

3.   Prior to implementation, every domestic insurer shall submit a description of any material change in the insurer's investment strategy or method of determining the interest credits. A change is considered to be material if it would affect the form or definition of the index (i.e., any change in the information supplied in Section 1 above) of if it would significantly change the amount or type of assets held for interest-indexed policies.

(Note: Interest-indexed products present unique aspects which, due to the unknown future values of the index, are not precisely addressed by current valuation laws. The drafters have considered and rejected approaches to valuation which would require the setting of arbitrary reserves and/or the arbitrary dedication of specific amounts of surplus as being neither logical nor workable. In requiring the filing and evaluation of the above items, together with an annual actuarial opinion, the drafters have attempted to preserve the basic principle of the valuation laws, which is to maintain the ability of the insurer to meet its future contractual obligations.

It is assumed that the evaluation of the information provided in this Article together with the experience of insurers in writing indexed forms will lead to a more scientific approach to valuation in the future.

The drafters believe that by focusing attention on cash flows and the quality and quantity of assets supporting indexed policy liabilities, most of the risks associated with indexed products can be addressed by insurers and regulators in a manner which will provide adequate protection to the public while permitting experimentation and diversity in minimizing the uncertainty associated with the valuation of these products.)

Section 3.   Statement of Actuarial Opinion for Interest-Indexed Universal Life Insurance Policies.

I, _____(name)_____ , and _____(position or relationship to Insurer)_____

for the XYZ Life Insurance Company (The Insurer) in the state of _____(State of Domicile of Insurer)_____ .

I am a member of the American Academy of Actuaries (or if not, state other qualifications to sign annual statement actuarial opinions).

I have examined the interest-indexed universal life insurance policies of the Insurer in force as of December 31, 19XX, encompassing____ number of policies and $ _____of insurance in force.

I have considered the provisions of the policies. I have considered any reinsurance agreements pertaining to such policies, the characteristics of the identified assets and the investment policy adopted by the Insurer as they affect future insurance and investment cash flows under such policies and related assets. My examination included such tests and calculations as I considered necessary to form an opinion concerning the insurance and investment cash flows arising from the policies and related assets.

I relied on the investment policy of the Insurer and on projected investment cash flows as provided by _____
Chief Investment Officer of the Insurer.[5]

The tests were conducted under various assumptions as to future interest rates, and 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 my opinion, the anticipated insurance and investment cash flows referred to above make good and sufficient provision for the contractual obligations of the Insurer under these insurance policies.

_____
Signature of Actuary

(Note: The American Academy of Actuaries has offered to prepare appropriate guidelines which will delineate the various responsibilities of the actuary in signing the Statement of Actuarial Opinion included in this regulation. Upon publication, these guidelines will become a part of the body of actuarial literature which describes Generally Accepted Actuarial Principles and Practice.

5.   If the actuary does not choose to rely on an investment officer for the projected investment cash flows, this statement should be modified to show the extent of the actuary's reliance.

If the actuary has not examined the underlying records, but has relied upon listings and summaries of policies in force, an appropriate statement of such reliance should be included here.)

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The NAIC in December, 1980, adopted the 1980 Amendments to the Standard Valuation and Nonforfeiture Laws. Those Amendments in Section 8 of the Valuation Law and Section 6 of the Nonforfeiture Law state that the Commissioner shall promulgate regulations for minimum reserve and nonforfeiture standards for plans that were not contemplated by the Standard Valuation and Nonforfeiture Laws.

The ACLI was asked to recommend a model regulation to implement those sections for Universal Life Insurance. As a result, the ACLI appointed a Task Force in February 1981, to respond to this request.

The Task Force consisted of actuaries from 14 companies with myself as chairman. The three largest writers of Universal Life Insurance were represented in the Task Force. The Task Force met 19 times with approximately 50% of the sessions multi-day sessions. Thousands of actuarial man-hours have been invested by the Task Force in this project.

By the fall of 1981 the Task Force had a recommendation that was proposed to the ACLI Actuarial Committee. The Actuarial Committee consists of actuaries from 21 different companies. In November 1981, the ACLI sent the Task Force proposal to all 590 member companies. These member companies represent 95% of all the insurance in force in the U.S.

The Task Force proposal was also exposed to over 1,000 actuaries at the annual meeting of the Society of Actuaries in October 1981.

In April 1982, the Task Force made a report to the Technical Staff Actuarial Group of the NAIC. A representative of the Task Force has attended every subsequent meeting of TSAG and reported on this project.

In 1982 the NAIC appointed your Task Force to recommend a regulation of not only valuation and nonforfeiture, but all aspects of Universal Life Insurance. As a result, action was deferred on the ACLI Task Force proposal.

The current proposal before you includes the ACLI Task Force work on valuation and nonforfeiture. During our work on this project we have also received comments from over 50 other actuaries and we have made changes where it was felt appropriate and legally permitted.

It was suggested that this regulation be similar to the Annuity Nonforfeiture Law. We felt that since Universal Life is life insurance and the 1980 amendments require that any such regulation be consistent with the standard law, that basing a life insurance regulation on an annuity, rather than life insurance law, was not legally permitted.

The character of comments from actuaries has changed with time. Originally, the comments offered suggestions for changes in the regulation. Now the comments are questions of interpretation and implementation.

As a result I strongly recommend that this proposed regulation be adopted. This will permit the actuarial profession to conduct forums and seminars to allow actuaries to more fully educate themselves on the subject and to discuss the implications and interpretations of this regulation.

This regulation is only the first step in the supervision of Universal Life Insurance. Actuarial guidelines should be developed to aid in applying and interpreting this general regulation to specific situations. Also, this model regulation should be continually modified in the future to maintain its effectiveness as Universal Life changes. A model regulation for Universal Life Insurance is urgently needed now.

Essentially all major companies -- stocks and mutuals -- are either selling a Universal Life Policy or developing one to sell in the near future. Congress is attempting to rewrite the Life Insurance Company Tax Act and probably will succeed before you meet in June.

The AICPA is beginning discussions on the accounting aspects of Universal Life. A model NAIC regulation could be very persuasive in directing these two bodies in the correct direction. Various insurance departments and other groups have deferred any action awaiting a recommendation from this Task Force.

I encourage the adoption of the proposed model regulation so that these groups may act in a relatively uniform manner.

Thank you.

William Tozer