COMMONWEALTH OF VIRGINIA

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Administrativ
Letter

1979-21

STATE CORPORATION COMMISSION
BUREAU OF INSURANCE
August 14, 1979

TO: All Domestic Life Insurance Companies

FROM: L. Gerald Roach LGR
Assistant Commissioner
Financial Condition Division

SUBJECT: Adoption of Actuarial Guidelines by Bureau of Insurance

Senate Bill 801, which was enacted during the 1979 session of the Virginia General Assembly, amended the standard valuation and non-forfeiture benefit laws applicable to life insurers transacting business in Virginia. This Act became effective as of July 1, 1979 and is applicable to life insurance and annuity contracts issued by all companies licensed in Virginia, both domestic and foreign. Senate Bill 801 was substantially the same as the 1976 model valuation and non-forfeiture law adopted by the National Association of Insurance Commissioners at its December meeting in 1976.

In addition, effective June 30, 1978, the National Association of Insurance Commissioners also adopted four actuarial guidelines which were intended to establish uniform interpretations of several provisions of the 1976 model law. The purpose of this letter, is to advise you that the Bureau of Insurance has also adopted the National Association of Insurance Commissioners' Actuarial Guidelines effective as of July 1, 1979. As written, these guidelines interprete the provisions of the 1976 model law; therefore, please be advised that any references therein to prior years should be related to the July 1, 1979 effective date of our adoption of these guidelines. Attached for your reference are copies of the four actuarial guidelines.

Actuarial Guideline I, Actuarial Guideline IV and Virginia Code Section 38.1-456(6) shall become operative with respect to policies and contracts valued on the 1958 CSO Mortality Table issued on or after July 1, 1979, unless a company elects to make them retroactively operative with respect to such policies and contracts issued prior to July 1, 1979.

Actuarial Guideline II and Actuarial Guideline III shall become operative with respect to all policies and contracts issued on or after July 1, 1979.

If you have any questions regarding the above, please do not hesitate to call me or Mr. John Jones, Life Actuary at (804) 786-3635.

LGR/dl
Attachments

ACTUARIAL GUIDELINE I

INTERPRETATION OF THE STANDARD VALUATION LAW WITH RESPECT TO THE VALUATION OF POLICIES WHOSE VALUATION NET PREMIUMS EXCEED THE ACTUAL GROSS PREMIUM COLLECTED

1. The purpose of this guideline (items 2 and 3 below) is to clarify the intent of the Standard Valuation Law.

2. The method of valuation promulgated by the model legislation adopted by the NAIC in December 1976 for the valuation of life insurance policies whose valuation net premiums exceed the actual gross premiums collected is a change in method of reserve calculation and not a change in reserve standards.

3. For policies so valued the maximum permissible valuation interest rate and the applicable mortality basis specified is that in effect at the date of issue of such policies.

ACTUARIAL GUIDELINE II

RESERVE REQUIREMENTS WITH RESPECT TO INTEREST RATE GUARANTEES ON ACTIVE LIFE FUNDS HELD RELATIVE TO GROUP ANNUITY CONTRACTS

As part of the determination of the aggregate minimum group annuity reserves, a computation must be made of minimum reserves for deposit administration group annuity funds with interest rate guarantees including all such funds pertaining to possible purchase of group annuities whether such funds are held in a separate account or in a general account, whether shown as premiums, advance premiums, auxiliary funds, etc. and whether the liability is shown as Exhibit 8 or elsewhere. In making such computation, the procedure and minimum standards described below shall be applicable for the December 31 calendar year "y" valuation giving recognition to the dates deposits were made. Where appropriate and with the approval of the commissioner, recognition may be given to the extent and time of application of active life funds to purchase annuities, expense assessments against the funds, and excess of purchase price over minimum reserves. In no event shall the reserve be less than the transfer value, if any, of the fund. Approximate methods and averages may be employed with the approval of the commissioner.

To the extent that the application of these valuation procedures and standards would require a company to establish aggregate minimum reserves for group annuities and related funds in excess of reserves which it would not otherwise hold if these valuation procedures and standards did not apply, such company shall set up additional reserve liability shown in its general account or in a separate account, whether shown in Exhibit 8 or elsewhere.

For funds received:

(1) Prior to calendar year 1976, follow the procedure used at that time.

(2) In calendar year 1976 or later, follow the minimum standards described below:

(a) Contracts having no guaranteed interest rates in excess of 6% on future contributions to be received more than one year subsequent to the valuation date.

The minimum reserve shall be equal to the sum of the minimum reserves for funds attributable to contributions received in each calendar year.

Where V_y = Minimum reserve for funds attributable to contributions received in calendar year y

$V_y = [C_y x (1 + i_{gy})^n] / (1 + i_{py})^n$

C_y = Portion of guaranteed fund attributable to contributions received in calendar year y

i_{gy} = Interest rate guaranteed under the contract with respect to funds attributable to contributions received in calendar year y

i_{py} = Lowest of:

(1) The net new money rate credited by the company on group annuity funds attributable to contributions received in calendar year y less .005; or

(2) i_{gy}; or

(3) i_{my}; where

i_{my} = (i) for calendar years y + 1 through y + 10, the values shown in the table of values of i_{my} distributed each year by the Central Office of the National Association of Insurance Commissioners;

(ii) for calendar years y + 11 and later, .060.

n = Number of guarantee years, and fractions thereof, remaining as of the December 31 valuation.

(b) Contracts having guaranteed interest rates in excess of 6% on future contributions to be received more than one year subsequent to the valuation date.

The same procedures as set forth under (a) above shall be used except that the deduction under (1) of i_{py} shall be .01 instead of .005 and i_{my} for calendar years y + 1 through y + 10 shall be reduced by .005.

Table of Values of i_{my}
(Effective for the December 31, 1977 Valuation)

Calendar Year y in Which Contributions Were Received*	Value of i_{my} for Calendar Years y + 1 Through y + 10
1976	.089
1977	.087

*Note: These factors were based upon gross new money rates for reporting annuity writing companies less .01.

ACTUARIAL GUIDELINE III

INTERPRETATION OF MINIMUM CASH SURRENDER BENEFIT UNDER STANDARD NONFORFEITURE LAW FOR INDIVIDUAL DEFERRED ANNUITIES

Section 6 of the model bill as written does not require that cash surrender benefits be paid; but where they are paid, it requires that such cash surrender benefits grade into maturity value using an interest rate not more than one percent higher than the rate specified in the contract for accumulating net considerations. While this method will be suited for contracts having a sales load at issue, it may create a problem for contracts having surrender charges for cash surrender.

For contracts providing cash surrender values, the cash surrender value at maturity shall be at least equal to the minimum nonforfeiture amount at maturity as defined in section 4. For purposes of calculating cash surrender values prior to maturity, the term "maturity value" in the Standard Nonforfeiture Law for Individual Deferred Annuities shall mean the cash surrender value at maturity.

ACTUARIAL GUIDELINE IV

ACTUARIAL INTERPRETATION REGARDING MINIMUM RESERVES FOR CERTAIN FORMS OF TERM LIFE INSURANCE

Scope

This interpretation recommended by the NAIC Technical Task Force to Review Valuation and Nonforfeiture Value Regulation deals only with term life insurance without cash values which the owner has the unilateral right to maintain in force until its stated expiry date, subject only to the payment of required premiums which vary (generally increasing on a per $1000 basis) during the term of the policy and under which premium rates are guaranteed to the stated final expiry. This interpretation applies only to such term plans valued on the 1958 CSO Mortality Table for the current term period.

Ten-year renewable term, five-year renewable term and one-year renewable term to a stated age with generally increasing premiums are titles commonly given to such policies, but this interpretation concerns itself with the actual coverage provided and is not controlled by the name given the coverage.

Background Information

Historically, reserves on one-year renewable term policies have consisted of a basic reserve for the current term period of one-half the cost of insurance for the current term period, plus a deficiency reserve, if any. The application of the commissioners reserve valuation method to determine basic reserves and deficiency reserves for such policies is subject to varying interpretations as noted in Walter O. Menge's paper, "Commissioners Reserve Valuation Method" written at the time of construction of the Standard Valuation Law.

> . . . the adaptation of the commissioners reserve valuation method to fit policies for which the gross premium varies from year to year becomes a problem of generalization which, from a purely theoretical viewpoint, has an infinite number of possible solutions, some of which are practical and others of which are impractical.[1]

and

> For these reasons, it seems desirable not to formulate at this time any fixed rules for the valuation of these unusual types of policies and riders. The second paragraph of section 4 of the Standard Valuation Law does not define the method of valuation of such contracts but requires that the method used, whatever it may be, must be consistent with that employed for uniform premium policies providing uniform insurance benefits, thus leaving open the possibility of a choice of several consistent methods.[2]

Acceptable Approaches

Two approaches to "consistent" reserves are suggested. The unitary policy approach considers such policies as variable premium policies up to the mandatory expiry date. Under this approach the valuation net premiums are a uniform percentage of gross premiums with the percentage fixed at issue date. If appropriate deficiency reserves are held, this approach has great appeal. However, it is susceptible to manipulation and illogical results. Reserves according to this approach should be acceptable only if the company can demonstrate that actual reserves, including deficiency reserves, for all renewable term business valued using this approach are of the same general magnitude as would occur using an approved method as defined below.

The other approach is to hold policy reserves for only the current period of years (not necessarily equal to the renewal period) during which the required premium per $1000 remains level, including deficiency reserves if appropriate. Additional reserves are established where net premiums, calculated on a basis which reflects current mortality, exceed gross premiums for future periods of level premiums. Although not speaking directly to valuation problems in this instance, the Hooker Committee report said:

> The question was raised whether a policy providing term insurance for several years, automatically followed by permanent insurance, should be considered as two separate policies for the purpose of the Act. In the Committee's opinion, the respective portions may be treated separately if the portion providing permanent insurance takes the Company's regular rate at the then attained age. The rated age provision in the law appears to cover this point. However, the Committee draws a distinction between policies providing purely term insurance followed by permanent insurance at the company's published rate at the attained age of conversion, the policies providing for an initial premium such that the increased premium at a subsequent duration differs from that for a new policy at the attained age. The latter case obviously constitutes a single policy to which the formula should be applied at the outset.[3]

The second sentence of the above quotation lends support to the approach of separating successive periods of level premiums.

Under this interpretation, an approved method is any method which produces reserves greater than or equal to the sum of policy reserves, including deficiency reserves, for the current period of level premiums calculated on the basis of the applicable mortality and interest standards and reserve method specified in the Standard Valuation Law plus additional reserves calculated according to the following basis applied uniformly to all such policies.

> The present value of the excess of test premiums for future periods of level premiums for which gross premiums are guaranteed over the respective gross premiums, such test premiums and present values being calculated on the mortality table attached to this interpretation and 4½% interest.

In case a future gross premium exceeds the test premium, the excess shall be considered zero and not a negative amount. This is in accordance with the principle of anticipating no future profits but providing for all future losses.

Reinsured Business

If reinsurance is assumed under an agreement in which the reinsurer reserves the right to raise premiums to a level at least as great as the net valuation premiums, the reinsurer is not required to establish deficiency reserves or additional reserves, and the ceding company is not permitted to take credit for such reserves on the portion of the business which is reinsured.

If a reinsurance agreement guarantees future reinsurance premiums, the reinsurer should establish deficiency reserves and additional reserves as required by this interpretation for the period for which reinsurance premiums are guaranteed, and the ceding company may take credit for such reserves against its deficiency and additional reserves on the portion of the business which is reinsured to the extent permitted by law.

Adequacy of Reserves

Although the above alternative is acceptable as meeting the intent of the Standard Valuation Law, this does not in any way relieve the certifying actuary of the insurance company from exercising his own best judgment with respect to the appropriate reserves. In particular, the actuary should consider term contracts of this nature when he states his opinion that aggregate reserves "make a good and sufficient provision for all unmaturity obligations of the company guaranteed under the terms of its policies" and "include provision for all actuarial reserves and related statement items which ought to be established."[4]

References

1. The Record, American Institute of Actuaries, Vol. XXXV, 1946, p. 270.

2. Ibid., p. 300.

3. 1947 NAIC Proceedings, 257.

4. Instructions for Completing NAIC Life and Health Annual Statement Blank, 1976, p. 1.

MORTALITY RATES

The basic source of the rates is the modern CSO (27 Transactions of the Society of Actuaries 624). These rates are age nearest birthday (ANB) rates, and age last birthday (ALB) rates were obtained by the same process as was used to obtain the 1958 CSO (ALB) rates. Beginning with the age 71 rates, these rates were interpolated into the 1958 CSO such that ages 75 and up are 1958 CSO rates.

The resulting q_x values were then individually subjected to a maximum of the 1958 CSO rates for males and the 1958 CSO rates set back six years for females (six-year setback according to the methods described in 11 Transactions of the Society of Actuaries 1060, for the three-year setback.)

	Male		Female	
	ANB	ALB	ANB	ALB
0	0.00498	0.0032443	0.00498	0.0032443
1	0.00150	0.0014700	0.00150	0.0014700
2	0.00144	0.0014001	0.00138	0.0013500
3	0.00136	0.0013300	0.00132	0.0012900
4	0.00130	0.0012701	0.00126	0.0012350
5	0.00124	0.0012151	0.00121	0.0011850

	Male		Female	
	ANB	ALB	ANB	ALB
6	0.00119	0.0011701	0.00116	0.0011400
7	0.00115	0.0011349	0.00112	0.0011050
8	0.00112	0.0011150	0.00109	0.0010850
9	0.00111	0.0011100	0.00108	0.0010800
10	0.00111	0.0011150	0.00108	0.0010850
11	0.00112	0.0011350	0.00109	0.0010950
12	0.00115	0.0011751	0.00110	0.0011050
13	0.00120	0.0012349	0.00111	0.0011150
14	0.00127	0.0013100	0.00112	0.0013000
15	0.00135	0.0013899	0.00114	0.0011500
16	0.00143	0.0014699	0.00117	0.0011900
17	0.00151	0.0015550	0.00121	0.0012350
18	0.00160	0.0016400	0.00126	0.0012900
19	0.00168	0.0017149	0.00132	0.0013550
20	0.00175	0.0017850	0.00139	0.0014250
21	0.00182	0.0018449	0.00146	0.0015000
22	0.00186	0.0018749	0.00154	0.0015800
23	0.00189	0.0019000	0.00162	0.0016549
24	0.00191	0.0019199	0.00169	0.0017150
25	0.00193	0.0019450	0.00174	0.0017649
26	0.00196	0.0019750	0.00179	0.0018100
27	0.00199	0.0020099	0.00183	0.0018449
28	0.00203	0.0020549	0.00186	0.0018749
29	0.00208	0.0021049	0.00189	0.0019000
30	0.00212	0.0021350	0.00191	0.0019199
31	0.00215	0.0021699	0.00193	0.0019450
32	0.00219	0.0022099	0.00196	0.0019750
33	0.00223	0.0022601	0.00199	0.0020099
34	0.00229	0.0023299	0.00203	0.0020549
35	0.00237	0.0024199	0.00208	0.0021049
36	0.00247	0.0025300	0.00213	0.0021600
37	0.00259	0.0026699	0.00219	0.0022199
38	0.00275	0.0028448	0.00225	0.0022850
39	0.00294	0.0030449	0.00232	0.0023600
40	0.00315	0.0032698	0.00240	0.0024549
41	0.00339	0.0035198	0.00251	0.0025750
42	0.00365	0.0037947	0.00264	0.0027199
43	0.00394	0.0040996	0.00280	0.0029049
44	0.00426	0.0044296	0.00301	0.0031297
45	0.00460	0.0047896	0.00325	0.0033898
46	0.00498	0.0051945	0.00353	0.0036848
47	0.00541	0.0056394	0.00384	0.0040048
48	0.00587	0.0061293	0.00417	0.0043496
49	0.00639	0.0066740	0.00453	0.0047245
50	0.00696	0.0072789	0.00492	0.0051345

	Male		Female	
	ANB	ALB	ANB	ALB
51	0.00760	0.0079487	0.00535	0.0055894
52	0.00830	0.0086833	0.00583	0.0060941
53	0.00907	0.0094931	0.00636	0.0066541
54	0.00992	0.0103777	0.00695	0.0072739
55	0.01084	0.0113373	0.00760	0.0079586
56	0.01184	0.0123718	0.00832	0.0087133
57	0.01291	0.0134813	0.00911	0.0095330
58	0.01406	0.0146954	0.00996	0.0104227
59	0.01534	0.0160594	0.01089	0.0113922
60	0.01679	0.0176229	0.01190	0.0124467
61	0.01847	0.0194410	0.01300	0.0136010
62	0.02043	0.0215483	0.01421	0.0148703
63	0.02269	0.0239454	0.01554	0.0162642
64	0.02523	0.0265873	0.01700	0.0177882
65	0.02798	0.0294192	0.01859	0.0194568
66	0.03090	0.0323913	0.02034	0.0212802
67	0.03393	0.0354581	0.02224	0.0232634
68	0.03704	0.0386344	0.02431	0.0254260
69	0.04029	0.0419942	0.02657	0.0277884
70	0.04377	0.0456324	0.02904	0.0303751
71	0.04889	0.0509783	0.03175	0.0332207
72	0.05454	0.0568096	0.03474	0.0363609
73	0.06056	0.0629801	0.03804	0.0398247
74	0.06684	0.0694158	0.04168	0.0436032
75	0.07337	0.0761643	0.04561	0.0476512
76	0.07918	0.0823059	0.04979	0.0519144
77	0.08570	0.0892151	0.05415	0.0563373
78	0.09306	0.0969267	0.05865	0.0608855
79	0.10119	0.1053509	0.06326	0.0656105
80	0.10998	0.1143924	0.06812	0.0706525
81	0.11935	0.1239481	0.07337	0.0761643
82	0.12917	0.1339226	0.07918	0.0823059
83	0.13938	0.1442973	0.08570	0.0892151
84	0.15001	0.1551241	0.09306	0.0969267
85	0.16114	0.1664679	0.10119	0.1053509
86	0.17282	0.1783921	0.10998	0.1143924
87	0.18513	0.1910205	0.11935	0.1239481
88	0.19825	0.2045732	0.12917	0.1339226
89	0.21246	0.2193681	0.13938	0.1442973
90	0.22814	0.2358223	0.15001	0.1551241
91	0.24577	0.2544375	0.16114	0.1664679
92	0.26593	0.2758218	0.17282	0.1783921
93	0.28930	0.3006685	0.18513	0.1910205
94	0.31666	0.3306957	0.19825	0.2045732
95	0.35124	0.3706446	0.21246	0.2193681

	Male		Female	
	ANB	ALB	ANB	ALB
96	0.40056	0.4334881	0.22814	0.2358223
97	0.48842	0.5492489	0.24577	0.2544375
98	0.66815	0.7507962	0.26593	0.2758218
99	1.00000	1.0000000	0.28930	0.3006685
100			0.31666	0.3306957
101			0.35124	0.3706446
102			0.40056	0.4334881
103			0.48842	0.5492489
104			0.66815	0.7507962
105			1.00000	1.0000000