Title 210 - NEBRASKA DEPARTMENT OF INSURANCE

Chapter 42 - RULE FOR RECOGNIZING MORTALITY TABLES FOR USE IN DETERMINING RESERVE LIABILITIES FOR ANNUITIES

001. Statutory authority.

This Rule is promulgated by the Director of Insurance under the authority granted by Neb. Rev. Stat. §§ 44-101.01 and 44-404 8907and §44-101.0 1.

002. Purpose.

The purpose of this Rule is to recognize the following mortality tables for use in determining the minimum standard of valuation for annuity and pure endowment contracts: the 1983 Table "a," the 1983 Group Annuity Mortality (1983 GAM) Table, the Annuity 2000 Mortality Table, and the 2012 Individual Annuity Reserving (2012 IAR) Table, and the 1994 Group Annuity Reserving (1994 GAR) Table.

003. Definitions.

> 003.01 As used in this Rule "-1983 Table 'a'"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.

> 003.02 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.

> 003.03 As used in this Rule "1994 GAR Table" means that mortality table developed by the Society of Actuaries Group Annuity Valuation Table Task Force and shown on pages 866-867 of Volume XLVII of the *Transactions of the Society of Actuaries* (1995).

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003.04 As used in this Rule "Annuity 2000 Mortality Table" means that mortality table developed by the Society of Actuaries Committee on Life Insurance Research and shown on page 240 of Volume XLVII of the *Transactions of the Society of Actuaries* (1995).

003.05 As used in this Rule, "Period table" means a table of mortality rates applicable to a given calendar year (the Period).

003.06 As used in this Rule, "Generational mortality table" means a mortality table containing a set of mortality rates that decrease for a given age from one year to the next based on a combination of a Period table and a projection scale containing rates of mortality improvement.

003.07 As used in this Rule "2012 IAR Table" means that Generational mortality table developed by the Society of Actuaries Committee on Life Insurance Research and containing rates, q_x^{2012+n}, derived from a combination of the 2012 IAM Period Table and Projection Scale G2, using the methodology stated in Section 005.

003.08 As used in this Rule, "2012 Individual Annuity Mortality Period Life (2012 IAM Period) Table" means the Period table containing loaded mortality rates for calendar year 2012. This table contains rates, q_x^{2012}, developed by the Society of Actuaries Committee on Life Insurance Research and is shown in Appendices 1-2.

003.09 As used in this Rule, "Projection Scale G2 (Scale G2)" is a table of annual rates, $G2_x$, of mortality improvement by age for projecting future mortality rates beyond calendar year 2012. This table was developed by the Society of Actuaries Committee on Life Insurance Research and is shown in Appendices 3-4.

004. Individual annuity or ~~page~~ pure endowment contracts.

004.01 Except as provided in subsections 004.02 and 004.03 of this section, the 1983 Table ""a"" is 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 August 24, 1979.

004.02 Except as provided in subsection 004.03 of this section, either the 1983 Table "a" or the Annuity 2000 Mortality Table shall be used for determining the minimum standard of valuation for any individual annuity or pure endowment contract issued on or after January 1, 1987.

004.03 Except as provided in subsection 004.04 of this section, the Annuity 2000 Mortality Table shall be used for determining the minimum standard of valuation for any individual annuity or pure endowment contract issued on or after January 1, 1999.

004.04 Except as provided in subsection 004.05 of this section, the 2012 IAR Mortality Table shall be used for determining the minimum standard of valuation for any individual annuity or pure endowment contract issued on or after January 1, 2015.

004.~~04~~ 05 The 1983 Table ""a"" without projection is to be used for determining the minimum standards of valuation for an individual annuity or pure endowment contract issued on or after January 1, 1999, solely when the contract is based on life contingencies and is issued to fund periodic benefits arising from:

(1) ~~(1)~~ Settlements of various forms of claims pertaining to court settlements or out-of-court settlements from tort actions;

~~1.~~ (2) Settlements involving similar actions such as workers' compensation claims; or

(3) (3) Settlements of long-term disability claims where a temporary or life annuity has been used in lieu of continuing disability payments.

005. Application of the 2012 IAR Mortality Table.

In using the 2012 IAR Mortality Table, the mortality rate for a person age x in year (2012 + n) is calculated as follows:

$$q_x^{2012+n} = q_x^{2012}(1-G2_x)^n$$

The resulting q_x^{2012+n} shall be rounded to three decimal places per 1,000, e.g., 0.741 deaths per 1,000. Also, the rounding shall occur according to the formula above, starting at the 2012 periodic table rate.

For example, for a male age 30, $q_x^{2012} = 0.741$
$q_x^{2013} = 0.741 * (1 − 0.010) \wedge 1 = 0.73359$, which is rounded to 0.734
$q_x^{2014} = 0.741 * (1 − 0.010) \wedge 2 = 0.7262541$, which is rounded to 0.726

A method leading to incorrect rounding would be to calculate
q_x^{2014} as $q_x^{2013} * (1 − 0.010)$, or 0.734 * 0.99 = 0.727

It is incorrect to use the already rounded q_x^{2013} to calculate q_x^{2014}

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0056. Group annuity or pure endowment contracts.

005006.01 Except as provided in subsections 005006.02 and 005006.03 of this section, the 1983 GAM Table, the 1983 Table "a" and the 1994 GAR Table are recognized and approved as group annuity mortality tables for valuation and, at the option of the company, any one of these tables may be used for purposes of valuation for any annuity or pure endowment purchased on or after August 24, 1979 under a group annuity or pure endowment contract.

005006.02 Except as provided in subsection 005006.03 of this section, either the 1983 GAM Table or the 1994 GAR Table shall be used for determining the minimum standard of valuation for any annuity or pure endowment purchased on or after January 1, 1987 under a group annuity or pure endowment contract.

005006.03 The 1994 GAR Table shall be used for determining the minimum minimum standard of valuation for any annuity or pure endowment purchased on or after January 1, 1999 under a group annuity or pure endowment contract.

006007. Application of the 1994 GAR Table.

In using the 1994 GAR Table, the mortality rate for a person age x in year (1994 + n) is calculated as follows:

$$q_x{}^{1994+n} = q_x{}^{1994} (1 - \sim\text{AAX}\underline{AA_x})^{-n}$$

where the $q_x{}^{1994}$ and AA_x~~s~~ are as specified in the 1994 GAR Table.

~~007~~008. 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.

~~008~~009. Operative date.

The operative date of this Rule is January 1, ~~1999~~2015.

APPENDIX 1

2012 IAM Period Table
Female, Age Nearest Birthday

AGE	$1000 \cdot q_x^{2012}$	AGE	$1000 \cdot q_x^{2012}$	AGE	$1000 \cdot q_x^{2012}$	AGE	$1000 \cdot q_x^{2012}$
0	1.621	30	0.300	60	3.460	90	88.377
1	0.405	31	0.321	61	3.916	91	97.491
2	0.259	32	0.338	62	4.409	92	107.269
3	0.179	33	0.351	63	4.933	93	118.201
4	0.137	34	0.365	64	5.507	94	130.969
5	0.125	35	0.381	65	6.146	95	146.449
6	0.117	36	0.402	66	6.551	96	163.908
7	0.110	37	0.429	67	7.039	97	179.695
8	0.095	38	0.463	68	7.628	98	196.151
9	0.088	39	0.504	69	8.311	99	213.150
10	0.085	40	0.552	70	9.074	100	230.722
11	0.086	41	0.600	71	9.910	101	251.505
12	0.094	42	0.650	72	10.827	102	273.007
13	0.108	43	0.697	73	11.839	103	295.086
14	0.131	44	0.740	74	12.974	104	317.591
15	0.156	45	0.780	75	14.282	105	340.362
16	0.179	46	0.825	76	15.799	106	362.371
17	0.198	47	0.885	77	17.550	107	384.113
18	0.211	48	0.964	78	19.582	108	400.000
19	0.221	49	1.051	79	21.970	109	400.000
20	0.228	50	1.161	80	24.821	110	400.000
21	0.234	51	1.308	81	28.351	111	400.000
22	0.240	52	1.460	82	32.509	112	400.000
23	0.245	53	1.613	83	37.329	113	400.000
24	0.247	54	1.774	84	42.830	114	400.000
25	0.250	55	1.950	85	48.997	115	400.000
26	0.256	56	2.154	86	55.774	116	400.000
27	0.261	57	2.399	87	63.140	117	400.000
28	0.270	58	2.700	88	71.066	118	400.000
29	0.281	59	3.054	89	79.502	119	400.000
						120	1000.000

APPENDIX 2

2012 IAM Period Table
Male, Age Nearest Birthday

AGE	$1000 \cdot q_x^{2012}$	AGE	$1000 \cdot q_x^{2012}$	AGE	$1000 \cdot q_x^{2012}$	AGE	$1000 \cdot q_x^{2012}$
0	1.605	30	0.741	60	5.096	90	109.993
1	0.401	31	0.751	61	5.614	91	123.119
2	0.275	32	0.754	62	6.169	92	137.168
3	0.229	33	0.756	63	6.759	93	152.171
4	0.174	34	0.756	64	7.398	94	168.194
5	0.168	35	0.756	65	8.106	95	185.260
6	0.165	36	0.756	66	8.548	96	197.322
7	0.159	37	0.756	67	9.076	97	214.751
8	0.143	38	0.756	68	9.708	98	232.507
9	0.129	39	0.800	69	10.463	99	250.397
10	0.113	40	0.859	70	11.357	100	268.607
11	0.111	41	0.926	71	12.418	101	290.016
12	0.132	42	0.999	72	13.675	102	311.849
13	0.169	43	1.069	73	15.150	103	333.962
14	0.213	44	1.142	74	16.860	104	356.207
15	0.254	45	1.219	75	18.815	105	380.000
16	0.293	46	1.318	76	21.031	106	400.000
17	0.328	47	1.454	77	23.540	107	400.000
18	0.359	48	1.627	78	26.375	108	400.000
19	0.387	49	1.829	79	29.572	109	400.000
20	0.414	50	2.057	80	33.234	110	400.000
21	0.443	51	2.302	81	37.533	111	400.000
22	0.473	52	2.545	82	42.261	112	400.000
23	0.513	53	2.779	83	47.441	113	400.000
24	0.554	54	3.011	84	53.233	114	400.000
25	0.602	55	3.254	85	59.855	115	400.000
26	0.655	56	3.529	86	67.514	116	400.000
27	0.688	57	3.845	87	76.340	117	400.000
28	0.710	58	4.213	88	86.388	118	400.000
29	0.727	59	4.631	89	97.634	119	400.000
						120	1000.000

APPENDIX 3

Projection Scale G2
Female, Age Nearest Birthday

AGE	$G2_x$	AGE	$G2_x$	AGE	$G2_x$	AGE	$G2_x$
0	0.010	30	0.010	60	0.013	90	0.006
1	0.010	31	0.010	61	0.013	91	0.006
2	0.010	32	0.010	62	0.013	92	0.005
3	0.010	33	0.010	63	0.013	93	0.005
4	0.010	34	0.010	64	0.013	94	0.004
5	0.010	35	0.010	65	0.013	95	0.004
6	0.010	36	0.010	66	0.013	96	0.004
7	0.010	37	0.010	67	0.013	97	0.003
8	0.010	38	0.010	68	0.013	98	0.003
9	0.010	39	0.010	69	0.013	99	0.002
10	0.010	40	0.010	70	0.013	100	0.002
11	0.010	41	0.010	71	0.013	101	0.002
12	0.010	42	0.010	72	0.013	102	0.001
13	0.010	43	0.010	73	0.013	103	0.001
14	0.010	44	0.010	74	0.013	104	0.000
15	0.010	45	0.010	75	0.013	105	0.000
16	0.010	46	0.010	76	0.013	106	0.000
17	0.010	47	0.010	77	0.013	107	0.000
18	0.010	48	0.010	78	0.013	108	0.000
19	0.010	49	0.010	79	0.013	109	0.000
20	0.010	50	0.010	80	0.013	110	0.000
21	0.010	51	0.010	81	0.012	111	0.000
22	0.010	52	0.011	82	0.012	112	0.000
23	0.010	53	0.011	83	0.011	113	0.000
24	0.010	54	0.011	84	0.010	114	0.000
25	0.010	55	0.012	85	0.010	115	0.000
26	0.010	56	0.012	86	0.009	116	0.000
27	0.010	57	0.012	87	0.008	117	0.000
28	0.010	58	0.012	88	0.007	118	0.000
29	0.010	59	0.013	89	0.007	119	0.000
						120	0.000

APPENDIX 4

Projection Scale G2
Male, Age Nearest Birthday

AGE	$G2_x$	AGE	$G2_x$	AGE	$G2_x$	AGE	$G2_x$
0	0.010	30	0.010	60	0.015	90	0.007
1	0.010	31	0.010	61	0.015	91	0.007
2	0.010	32	0.010	62	0.015	92	0.006
3	0.010	33	0.010	63	0.015	93	0.005
4	0.010	34	0.010	64	0.015	94	0.005
5	0.010	35	0.010	65	0.015	95	0.004
6	0.010	36	0.010	66	0.015	96	0.004
7	0.010	37	0.010	67	0.015	97	0.003
8	0.010	38	0.010	68	0.015	98	0.003
9	0.010	39	0.010	69	0.015	99	0.002
10	0.010	40	0.010	70	0.015	100	0.002
11	0.010	41	0.010	71	0.015	101	0.002
12	0.010	42	0.010	72	0.015	102	0.001
13	0.010	43	0.010	73	0.015	103	0.001
14	0.010	44	0.010	74	0.015	104	0.000
15	0.010	45	0.010	75	0.015	105	0.000
16	0.010	46	0.010	76	0.015	106	0.000
17	0.010	47	0.010	77	0.015	107	0.000
18	0.010	48	0.010	78	0.015	108	0.000
19	0.010	49	0.010	79	0.015	109	0.000
20	0.010	50	0.010	80	0.015	110	0.000
21	0.010	51	0.011	81	0.014	111	0.000
22	0.010	52	0.011	82	0.013	112	0.000
23	0.010	53	0.012	83	0.013	113	0.000
24	0.010	54	0.012	84	0.012	114	0.000
25	0.010	55	0.013	85	0.011	115	0.000
26	0.010	56	0.013	86	0.010	116	0.000
27	0.010	57	0.014	87	0.009	117	0.000
28	0.010	58	0.014	88	0.009	118	0.000
29	0.010	59	0.015	89	0.008	119	0.000
						120	0.000