

CHAPTER 45-04-06

SMOKER/NONSMOKER MORTALITY TABLES

Section

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45-04-06-01. Definitions.

As used in this chapter:

1. "Composite mortality tables" refers to the mortality tables defined in subsections 3 through 6 of this section as they were originally published with rates of mortality that do not distinguish between smokers and nonsmokers.
2. "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 subsections 3 through 6 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 on the NAIC technical staff actuarial group.
3. "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.
4. "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 Nonforfeiture Law for Life Insurance, and referred to in that model as the Commissioners 1958 Standard Ordinary Mortality Table.
5. "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.
6. "1980 CSO Table, with or without ten-year select mortality factor" means that mortality table, consisting of separate rate 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.

History: Effective January 1, 1985.

General Authority: NDCC 28-32-02

Law Implemented: NDCC 26.1-33

45-04-06-02. Alternate tables.

1. For any policy of insurance delivered or issued for delivery in this state after the operative date of subsection 11 of North Dakota Century Code section 26.1-33-24 for that policy form and

before January 1, 1989, at the option of the company and subject to the conditions stated in section 45-04-06-05:

- a. 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
- b. 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.

2. For any policy of insurance delivered or issued for delivery in this state after the operative date of subsection 11 of North Dakota Century Code section 26.1-33-24 for that policy form, at the option of the company and subject to the conditions stated in section 45-04-06-05:
 - a. 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
 - b. 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.

History: Effective January 1, 1985.

General Authority: NDCC 28-32-02

Law Implemented: NDCC 26.1-33

45-04-06-03. Conditions.

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

1. Use composite mortality tables to determine minimum reserve liabilities and minimum cash surrender values and amounts of paid-up nonforfeiture benefits;
2. Use smoker and nonsmoker mortality tables to determine the valuation net premiums and additional minimum reserves, if any, required by North Dakota Century Code section 26.1-35-09 and use composite mortality tables to determine the basic minimum reserves, minimum cash surrender values and amounts of paid-up nonforfeiture benefits; or
3. Use smoker and nonsmoker mortality to determine minimum reserve liabilities and minimum cash surrender values and amounts of paid-up nonforfeiture benefits.

History: Effective January 1, 1985.

General Authority: NDCC 28-32-02

Law Implemented: NDCC 26.1-33

45-04-06-04. Separability.

If any provision of this chapter or 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 is not affected thereby.

History: Effective January 1, 1985.

General Authority: NDCC 28-32-02

Law Implemented: NDCC 26.1-33

45-04-06-05. Effective date.

The effective date of this chapter is January 1, 1985.

History: Effective January 1, 1985.

General Authority: NDCC 28-32-02

Law Implemented: NDCC 26.1-33

TABLE 1
SMOKERS/NONSMOKERS MORTALITY TABLES
FOR USE IN DETERMINING MINIMUM RESERVE LIABILITIES
AND NONFORFEITURE BENEFITS

1958 CSO MALE AN8 SMOKER AND NON-SMOKER MORTALITY RATES

<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>	<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>	<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>
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	4.08	8.02	77	81.15	102.84
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	10.68	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	158.05
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	170.08	189.26
27	1.66	2.18	57	10.91	20.44	87	182.76	200.21
28	1.67	2.23	58	12.26	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	236.85
31	1.73	2.45	61	17.16	29.21	91	244.83	253.34
32	1.75	2.52	62	19.14	31.88	92	265.20	272.12
33	1.79	2.63	63	21.29	34.83	93	288.78	293.80
34	1.83	2.73	64	23.68	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	400.56
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	668.15	668.15
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	2.78	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 2
SMOKERS/NONSMOKERS MORTALITY TABLES
FOR USE IN DETERMINING MINIMUM RESERVE LIABILITIES
AND NONFORFEITURE BENEFITS

1958 CET MALE ANB SMOKER AND NON-SMOKER MORTALITY RATES

<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>	<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>	<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>
15	2.21	2.49	45	4.50	8.67	75	89.15	116.00
16	2.28	2.60	46	4.89	9.52	76	96.85	124.38
17	2.35	2.71	47	5.30	10.43	77	105.50	133.69
18	2.39	2.78	48	5.79	11.47	78	115.21	144.04
19	2.40	2.80	49	6.32	12.62	79	125.91	155.27
20	2.39	2.80	50	6.90	13.88	80	137.48	167.18
21	2.37	2.79	51	7.58	15.28	81	149.85	179.66
22	2.38	2.82	52	8.32	16.74	82	162.86	192.47
23	2.38	2.83	53	9.19	18.41	83	176.44	205.47
24	2.39	2.86	54	10.19	20.20	84	190.51	218.69
25	2.39	2.87	55	11.34	22.14	85	205.48	232.21
26	2.40	2.90	56	12.66	24.25	86	221.10	246.04
27	2.41	2.93	57	14.18	26.57	87	237.59	260.27
28	2.42	2.98	58	15.94	29.06	88	255.15	275.09
29	2.44	3.04	59	17.86	31.75	89	274.14	290.81
30	2.46	3.12	60	19.99	34.74	90	295.09	307.91
31	2.48	3.20	61	22.31	37.97	91	318.28	329.34
32	2.50	3.28	62	24.88	41.44	92	344.76	353.76
33	2.54	3.42	63	27.68	45.28	93	375.41	381.94
34	2.58	3.55	64	30.78	49.40	94	411.29	414.87
35	2.63	3.72	65	34.24	53.87	95	456.61	456.61
36	2.70	3.94	66	38.12	58.75	96	520.73	520.73
37	2.79	4.23	67	42.39	63.96	97	634.95	634.95
38	2.90	4.58	68	47.16	69.62	98	868.60	868.60
39	3.03	4.98	69	52.22	75.80	99	1000.00	1000.00
40	3.18	5.45	70	57.64	82.25			
41	3.36	6.01	71	63.36	88.83			
42	3.61	6.55	72	69.32	95.43			
43	3.89	7.22	73	75.49	102.05			
44	4.17	7.92	74	82.04	108.82			

TABLE 3

SMOKERS/NONSMOKERS MORTALITY TABLES
FOR USE IN DETERMINING MINIMUM RESERVE LIABILITIES
AND NONFORFEITURE BENEFITS

1958 CSO MALE ALB SMOKER AND NON-SMOKER MORTALITY RATES

<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>	<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>	<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>
15	1.49	1.79	45	3.61	6.99	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	123.73
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	175.83	194.16
27	1.66	2.20	57	11.58	21.39	87	188.84	205.28
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	243.99
31	1.74	2.48	61	18.14	30.53	91	253.59	261.37
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

SMOKERS/NONSMOKERS MORTALITY TABLES
FOR USE IN DETERMINING MINIMUM RESERVE LIABILITIES
AND NONFORFEITURE BENEFITS

1958 CET MALE ALB SMOKER AND NON-SMOKER MORTALITY RATES

<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>	<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>	<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>
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	224.62
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	266.57
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	316.68
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	394.52
34	2.60	3.63	64	32.48	51.58	94	428.08	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

SMOKERS/NONSMOKERS MORTALITY TABLES
FOR USE IN DETERMINING MINIMUM RESERVE LIABILITIES
AND NONFORFEITURE BENEFITS

1980 CSO FEMALE SMOKER AND NON-SMOKER MORTALITY RATES

<u>Age Nearest Birthday</u>								
<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>	<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>	<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>
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	63.23
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	9.98	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

SMOKERS/NONSMOKERS MORTALITY TABLES
FOR USE IN DETERMINING MINIMUM RESERVE LIABILITIES
AND NONFORFEITURE BENEFITS

1980 CSO MALE SMOKER AND NON-SMOKER MORTALITY RATES

<u>Age Nearest Birthday</u>								
<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>	<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>	<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>
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	151.07
24	1.57	2.21	54	7.09	13.80	84	136.11	162.41
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

SMOKERS/NONSMOKERS MORTALITY TABLES
FOR USE IN DETERMINING MINIMUM RESERVE LIABILITIES
AND NONFORFEITURE BENEFITS

1980 CET FEMALE SMOKER AND NON-SMOKER MORTALITY RATES

<u>Age Nearest Birthday</u>								
<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>	<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>	<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>
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	164.35
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

SMOKERS/NONSMOKERS MORTALITY TABLES
FOR USE IN DETERMINING MINIMUM RESERVE LIABILITIES
AND NONFORFEITURE BENEFITS

1980 CET MALE SMOKER AND NON-SMOKER MORTALITY RATES

<u>Age Nearest Birthday</u>								
<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>	<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>	<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>
15	2.04	2.40	45	4.32	8.15	75	76.44	108.90
16	2.18	2.62	46	4.67	8.88	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	3.01	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	3.08	51	6.96	13.57	81	133.28	169.53
22	2.39	3.05	52	7.62	14.85	82	146.28	182.26
23	2.36	3.01	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	3.10	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	3.42	65	27.47	47.18	95	428.95	428.95
36	2.52	3.65	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	3.72	6.79	73	61.67	91.30			
44	3.99	7.42	74	68.80	99.66			

TABLE 9

SMOKERS/NONSMOKERS MORTALITY TABLES
FOR USE IN DETERMINING MINIMUM RESERVE LIABILITIES
AND NONFORFEITURE BENEFITS

1980 CSO FEMALE SMOKER AND NON-SMOKER MORTALITY RATES

<u>Age Last Birthday</u>								
<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>	<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>	<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>
15	0.86	0.96	45	3.09	4.78	75	39.64	49.22
16	0.90	1.01	46	3.30	5.13	76	44.52	54.62
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

SMOKERS/NONSMOKERS MORTALITY TABLES
FOR USE IN DETERMINING MINIMUM RESERVE LIABILITIES
AND NONFORFEITURE BENEFITS

1980 CSO MALE SMOKER AND NON-SMOKER MORTALITY RATES

<u>Age Last Birthday</u>								
<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>	<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>	<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>
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	97.88	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

SMOKERS/NONSMOKERS MORTALITY TABLES
FOR USE IN DETERMINING MINIMUM RESERVE LIABILITIES
AND NONFORFEITURE BENEFITS

1980 CET FEMALE SMOKER AND NON-SMOKER MORTALITY RATES

<u>Age Last Birthday</u>								
<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>	<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>	<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>
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	57.88	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	141.38	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	189.48
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	45.57	57.38			

TABLE 12

SMOKERS/NONSMOKERS MORTALITY TABLES
FOR USE IN DETERMINING MINIMUM RESERVE LIABILITIES
AND NONFORFEITURE BENEFITS

1980 CET MALE SMOKER AND NON-SMOKER MORTALITY RATES

<u>Age Last Birthday</u>								
<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>	<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>	<u>Age</u>	<u>Non-Smoker</u>	<u>Smoker</u>
15	2.11	2.51	45	4.49	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	132.63
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	203.16
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	202.09	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	35.31	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			