SUPERINTENDENCIA DE
VALORES Y SEGUROS
CHILE

REF.: IMPARTE NUEVAS TABLAS DE MORTALIDAD DE INVALIDOS PARA EL CALCULO DE RESERVAS TECNICAS

C I R C U L A R Nº 465

A todas las entidades de seguros del segundo grupo.

Santiago, Diciembre 27 de 1984.

VISTAS : Las facultades que le confieren los artículos 3º, letras b) y f), y 24º, Nº 2 del D.F.L. Nº 251, de 1931, el artículo 4º, letra a) del D.L. Nº 3.538, de 1980, y el artículo 68 del D.L. Nº 3.500, de 1980, esta Superintendencia ha estimado conveniente aprobar las siguientes tablas de mortalidad de inválidos que los aseguradores y reaseguradores del Segundo Grupo habrán de emplear a contar de esta fecha al establecer sus reservas técnicas.

Estas tablas, que se han denominado MI-85M(para mujeres) y MI-85H (para hombres), han sido elaboradas separadamente, de manera que no corresponde aplicar diferencia de edad alguna entre uno y otro sexo.

Saluda atentamente a Ud.,

FERNANDO ALVARADO ELISSETCHE
SUPERINTENDENTE

La circular Nº 464 fue enviada a todas las entidades aseguradoras del 1º y 2º grupo.

003509

SUPERINTENDENCIA DE
VALORES Y SEGUROS
CHILE

TABLA MI-85 M

La función q_y se obtiene de la ecuación de Makeham

$$q_y = 1 - s \cdot g^{c^y (C-1)}$$

y los valores de las constantes son

C = 1,078598208	
g = 0,998686190	$0 \leq Y \leq 70$
s = 0,990990544	

C = 1,101361529	
g = 0,999697423	$70 \leq Y \leq 110$
s = 0,996745335	

Las funciones D_y y N_y han sido calculadas para el interés técnico obligatorio de 3%.

SUPERINTENDENCIA DE
VALORES Y SEGUROS
CHILE

Y	$q_y * 10^3$	l_y	D_y	N_y
0	9,112	1000000,0000	1000000,00000	24815629,57217
1	9,120	990888,1492	962027,32932	23815629,57217
2	9,129	981851,3500	925489,06589	22853602,24285
3	9,138	972888,4430	890330,74409	21928113,17696
4	9,148	963998,2462	856499,95596	21037782,43287
5	9,159	955179,5531	823946,27317	20181282,47690
6	9,171	946431,1303	792621,17166	19357336,20374
7	9,183	937751,7157	762477,95978	18564715,03207
8	9,197	929140,0152	733471,70797	17802237,07229
9	9,212	920594,7010	705559,18255	17068765,36432
10	9,228	912114,4085	678698,78105	16363206,18177
11	9,245	903697,7330	652850,46993	15684507,40071
12	9,263	895343,2272	627975,72543	15031656,93078
13	9,283	887049,3974	604037,47580	14403681,20536
14	9,305	878814,7004	581000,04645	13799643,72956
15	9,328	870637,5394	558829,10652	13218643,68311
16	9,353	862516,2603	537491,61796	12659814,57659
17	9,380	854449,1474	516955,78632	12122322,95863
18	9,409	846434,4188	497191,01330	11605367,17232
19	9,441	838470,2220	478167,85150	11108176,15901
20	9,474	830554,6286	459857,96038	10630008,30751
21	9,511	822685,6294	442234,06438	10170150,34712
22	9,550	814861,1283	425269,91212	9727916,28274
23	9,593	807078,9368	408940,23761	9302646,37062
24	9,639	799336,7678	393220,72278	8893706,13301
25	9,688	791632,2284	378087,96109	8500485,41023
26	9,741	783962,8141	363519,42341	8122397,44914
27	9,799	776325,9003	349493,42402	7758878,02574
28	9,861	768718,7357	335989,08910	7409384,60171
29	9,928	761138,4336	322986,32551	7073395,51261
30	10,000	753581,9639	310465,79134	6750409,18711

31	10,078	746046,1441	298408,86734	6439943,39577
32	10,162	738527,6304	286797,62962	6141534,52843
33	10,252	731022,9081	275614,82332	5854736,89882
34	10,350	723528,2817	264843,83734	5579122,07550
35	10,455	716039,8649	254468,68015	5314278,23816
36	10,569	708553,5699	244473,95651	5059809,55801
37	10,691	701065,0971	234844,84522	4815335,60150
38	10,823	693569,9236	225567,07766	4580490,75628
39	10,966	686063,2926	216626,92742	4354923,67863
40	11,119	678540,2018	208022,24060	4138296,76121
41	11,285	670995,3924	199707,01715	3930285,62061
42	11,463	663423,3383	191702,29304	3730578,60346
43	11,656	655818,2347	183985,17301	3538876,31042
44	11,864	648173,9880	176544,30447	3354891,13740
45	12,088	640484,2061	169368,76200	3178346,83294
46	12,329	632742,1890	162448,03268	3008987,07093
47	12,590	624940,9209	155772,00213	2846530,03826
48	12,871	617073,0637	149330,94151	2690758,03613
49	13,173	609130,9518	143115,49510	2541427,09461
50	13.500	601106,6894	137116,66875	2398211,59951
51	13,852	592991,6499	131325,81903	2261194,93076
52	14,232	584777,4786	125734,64320	2129869,11173
53	14,641	576455,0989	120335,16994	2004134,46853
54	15,082	568015,2230	115119,75086	1883799,29860
55	15,558	559448,2673	110081,05277	1768679,54774
56	16,071	550844,3736	105212,05071	1658598,49497
57	16,624	541893,4372	100506,02179	1553386,44426
58	17,220	532885,1430	95956,53988	1452880,42247
59	17,862	523709,0097	91557,47094	1356923,88259
60	18,555	514354,4450	87302,96931	1265366,41165

61	19,301	504810,8112	83187,48462	1178063,44234
62	20,105	495067,5045	79205,70959	1094875,96772
63	20,972	485114,0485	75352,67848	1015670,25813
64	21,906	4749940,198	71623,66626	940317,57965
65	22,913	464536,0752	68014,23858	868693,91339
66	23,997	453892,3040	64520,24213	800679,67481
67	25,166	443000,1797	61137,80567	736159,43268
68	26,424	431851,8547	57863,34143	675021,62701
69	27,780	420440,5474	54693,54687	617158,28559
70	29,240	408760,7745	51625,40646	562464,73872
71	31,836	396808,6078	48656,19356	510839,33226
72	34,687	384175,8805	45735,12986	462183,13870
73	37,817	3700850,0849	42862,84357	416448,00884
74	41,253	356825,7036	40040,68537	373585,16527
75	45,022	342105,7433	37270,78263	333544,47989
76	49,157	326703,3736	34556,08563	296273,69727
77	53,690	310643,6391	31900,40251	261717,61164
78	58,658	293965,1837	29308,41754	229817,20913
79	64,098	276721,9103	26785,68735	200508,79159
80	70,054	258984,4718	24338,60873	173723,10424
81	76,570	240841,4633	21974,35094	149384,49551
82	83,694	222400,1636	19700,74622	127410,14457
83	91,476	203786,6524	17526,13226	107709,39835
84	99,970	185145,1137	15459,14175	90183,26609
85	109,234	166636,1437	13508,43725	74724,12434
86	119,326	148433,8937	11682,39148	61215,68718
87	130,308	130721,9293	9988,72139	49533,29571
88	142,246	113687,7642	8434,08457	39544,57432
89	155,204	97516,1352	7023,66003	31110,48975
90	169,249	82381,2333	5760,73723	24086,82972

91	184,448	68438,2752	4646,34665	18326,09249
92	200,866	55814,9785	3678,96867	13679,74584
93	218,565	44603,6690	2854,35961	10000,77717
94	237,606	34854,8574	2165,52992	7146,41757
95	258,040	26573,1467	1602,90077	4980,88765
96	279,912	19716,2228	1154,64943	3377,98688
97	303,255	14197,4239	807,23271	2223,33745
98	328,090	9791,9816	546,05361	1416,10474
99	354,419	6646,5193	356,21239	870,05113
100	382,225	4290,8637	223,26582	513,83874
101	411,465	2650,7878	133,91070	290,57292
102	442,071	1560,0803	76,51561	156,66222
103	473,940	870,4146	41,44690	80,14661
104	506,936	457,8907	21,16852	38,69971
105	540,888	225,7692	10,13342	17,53120
106	575,582	103,6533	4,51687	7,39777
107	610,767	43,9923	1,86120	2.88091
108	646,152	17,1233	0,70334	1,01970
109	681,414	6,0590	0,24163	0,31636
110	1000,000	1,9303	0,07474	0,07474

SUPERINTENDENCIA DE
VALORES Y SEGUROS
CHILE

TABLA MI-85 H

La función q_x se obtiene de la ecuación de Makeham

$$q_x = 1 - s \cdot g^{c^x (c-1)}$$

y los valores de las constantes son :

c = 1,072963417		
g = 0,996723467	$0 \leq x \leq 70$	
s = 0,985449773		
c = 1,086562220		
g = 0,998624505	$70 \leq x \leq 110$	
s = 0,992050395		

Las funciones D_x y N_x han sido calculadas para el interés técnico obligatorio de 3%.

SUPERINTENDENCIA DE
VALORES Y SEGUROS
CHILE

x	$q_x * 10^3$	l_x	D_x	N_x
0	14,786	1000000,0000	1000000,00000	21805521,09758
1	14,803	985213,8259	956518,27757	20805521,09758
2	14,822	970629,3239	914911,22999	19849002,82001
3	14,842	956242,7956	875097,61871	18934091,59001
4	14,863	942050,5533	836999,71509	18058993,97130
5	14,886	928048,9182	800543,14918	17221994,25621
6	14,910	914234,2176	765656,76416	16421451,10704
7	14,936	900602,7822	732272,47730	15655794,34287
8	14,965	887150,9435	700325,14703	14923521,86558
9	14,995	873875,0310	669752,44574	14223196,71855
10	15,027	860771,3693	640494,73801	13553444,27281
11	15,062	847836,2753	612494,96435	12912949,53480
12	15,099	835066,0549	585698,52954	12300454,57045
13	15,140	822457,0000	560053,19624	11714756,04091
14	15,183	810005,3853	535508,98303	11154702,84467
15	15,229	797707,4650	512018,06694	10619193,86164
16	15,278	785559,4693	489534,69006	10107175,79470
17	15,331	773557,6010	468015,07041	9617641,10464
18	15,388	761698,0318	447417,31651	9149626,03423
19	15,449	749976,8990	427701,34593	8702208,71772
20	15,515	738390,3010	408828,80690	8274507,37179
21	15,585	726934,2951	390763,00396	7865678,56489
22	15,661	715604,8914	373468,82642	7474915,56092
23	15,742	704398,0508	356912,67995	7101446,73451
24	15,828	693309,6805	341062,42157	6744534,05456
25	15,922	682335,6299	325887,29695	6403471,63299
26	16,022	671471,6869	311357,88084	6077584,33604
27	16,129	660713,5742	297446,02010	5766226,45520
28	16,244	650056,9452	284124,77898	5468780,43510
29	16,368	639497,3807	271368,38720	5184655,65612
30	16,500	629030,3852	259152,19004	4913287,26892

31	16,642	618651,3837	247452,60082	4654135,07888
32	16,795	608355,7185	236247,05542	4406682,47806
33	16,958	598138,6467	225513,96899	4170435,42264
34	17,134	587995,3380	215232,69455	3944921,45365
35	17,322	577920,8723	205383,48326	2729688,75910
36	17,524	567910,2392	195947,44705	3524305,27584
37	17,740	557958,3367	186906,52232	3328357,82879
38	17,973	548059,9720	178243,43597	3141451,30647
39	18,222	538309,8625	169941,67257	2963207,87051
40	18,489	528402,6379	161985,44333	2793266,19793
41	18,776	518632,8440	154359,65648	2631280,75460
42	19,084	508894,9475	147049,88914	2476921,09812
43	19,414	499183,3428	140042,36057	2329871,20897
44	19,768	489492,3605	133323,90674	2189828,84841
45	20,147	479816,2782	126881,95627	2056504,94167
46	20,554	470149,3337	120704,50754	1929622,98540
47	20,991	460485,7407	114780,10702	1808918,47786
48	21,459	450819,7080	109097,82878	1694138,37084
49	21,961	441145,4620	103647,25519	1585040,54206
50	22,500	431457,2726	98418,45851	1481393,28687
51	23,078	421749,4839	93401,98367	1382974,82836
52	23,697	412016,5492	88588,83199	1289572,84470
53	24,361	402253,0710	83970,44583	1200984,01270
54	25,073	392453,8466	79538,69406	1117013,56687
55	25,836	382613,9199	75285,85853	1037474,87281
56	26,655	372728,6388	71204,62110	962189,01428
57	27,532	362793,7204	67288,05161	890984,39318
58	28,472	352805,3225	63529,59628	823696,34157
59	29,480	342760,1229	59923,06684	760166,74529
60	30,561	332655,4065	56462,63006	700243,67846

61	31,719	322489,1598	53142,79766	643781,04840
62	32,960	312260,1734	49958,41655	590638,25074
63	34,289	301968,1520	46904,65919	540679,83419
64	35,714	291613,8316	43977,01403	493775,17500
65	37,240	281199,1024	41171,27573	449798,16097
66	38,875	270727,1378	38483,53526	408626,16097
67	40,627	260202,5268	35910,16945	370143,34998
68	42,502	249631,4078	33447,82991	334233,18053
69	44,510	239021,6024	31093,43115	300785,35063
70	46,660	228382,7453	38844,13767	269691,91948
71	49,939	217726,4066	26697,34974	240847,78181
72	53,489	206853,3731	24625,35094	214150,43207
73	57,331	195788,9953	22629,28720	189525,08113
74	61,488	184564,1646	20710,60344	166895,79393
75	65,985	173215,5987	18871,01007	146185,19048
76	70,846	161786,0147	17112,43847	127314,18041
77	76,099	150324,1570	15436,98474	110201,74195
78	81,773	138884,6452	13846,84104	94764,75721
79	87,899	127527,6044	12344,21422	80917,91617
80	94,509	116318,0422	10931,23189	68573,70195
81	101,637	105324,9440	9609,83732	57642,47005
82	109,318	94620,0633	8381,67483	48032,63273
83	117,589	84276,4009	7247,96904	39650,95790
84	126,490	74366,3839	6209,40217	32402,98886
85	136,059	64959,7775	5265,99483	26193,58669
86	146,338	51121,3950	4416,99729	20927,59185
87	157,368	47908,6950	3660,79822	16510,59456
88	169,191	40369,3937	2994,85950	12849,79634
89	181,850	33539,2394	2415,68449	9854,93684
90	195,386	27440,1238	1918,82710	7439,25235

91	209,840	22078,7047	1498,94654	5520,42525
92	225,251	17445,7084	1149,91023	4021,47872
93	241,655	13516,0459	864,94354	2871,56849
94	259,086	10249,8212	636,82069	2006,62495
95	277,572	7594,2337	458,08662	1369,80426
96	297,136	5486,2864	321,29569	911,71763
97	317,793	3856,1150	219,24979	590,42194
98	339,550	2630,6701	145,21730	371,17215
99	362,405	1737,4259	93,11530	225,95485
100	386,343	1107,7740	57,64063	132,83955
101	411,335	679,7936	34,34135	75,19892
102	437,338	400,1708	19,62675	40,85757
103	464,291	225,1610	10,72159	21,23082
104	492,116	120,6207	5,57636	10,50923
105	520,714	61,2612	2,74965	4,93287
106	549,965	29,3616	1,27948	2,18323
107	579,728	13,2138	0,55904	0,90375
108	609,840	5,5534	0,22811	0,34470
109	640,119	2,1667	0,08641	0,11660
110	1000,000	0,7798	0,03019	0,03019