Revocation and Determination

of

Statement of Principles

concerning

ACQUIRED CATARACT

ICD CODE: 366

Veterans' Entitlements Act 1986

1. The Repatriation Medical Authority under subsection **196B(2)** of the *Veterans' Entitlements Act 1986* (the Act):

(a) revokes Instrument No.239 of 1995 and Instrument No.117 of 1996; and

(b) determines the following Statement of Principles.

Kind of injury, disease or death

2. (a) This Statement of Principles is about **acquired cataract** and **death from acquired cataract**.

(b) For the purposes of this Statement of Principles, **"acquired cataract"** means an opacity, partial or complete, of one or both eyes, on or in the lens or capsule causing impaired vision or blindness, attracting ICD code 366, but does not include congenital cataract.

Basis for determining the factors

3. The Repatriation Medical Authority is of the view that there is sound medical-scientific evidence that indicates that **acquired cataract and death from acquired cataract** can be related to relevant service rendered by veterans, members of Peacekeeping Forces, or members of the Forces.

Factors that must be related to service

4. Subject to clause 6, the factors set out in at least one of the paragraphs in clause 5 must be related to any relevant service rendered by the person.

Factors

5. The factors that must as a minimum exist before it can be said that a reasonable hypothesis has been raised connecting **acquired cataract** or **death from acquired cataract** with the circumstances of a person's relevant service are:

(a) smoking at least 20 cigarettes per day for at least 20 years before the clinical onset of acquired cataract; or

(b) suffering from diabetes mellitus before the clinical onset of acquired cataract; or

(c) suffering from glaucoma of the affected eye before the clinical onset of acquired cataract; or

(d) undergoing a course of therapeutic radiation to the region of the affected eye before the clinical onset of acquired cataract; or

(e) having been within four kilometres of the epicentre of the atomic bomb explosions on Hiroshima or Nagasaki within seven days of the explosions on those cities, before the clinical onset of acquired cataract; or

(f) suffering penetrating trauma to the lens of the affected eye before the clinical onset of acquired cataract; or

(g) receiving a therapeutic course of corticosteroids for at least twelve months immediately before the clinical onset of acquired cataract; or

(h) having a solar UV damage factor ratio of at least 1.1 before the clinical onset of acquired cataract; or

(j) suffering from diabetes mellitus before the clinical worsening of acquired cataract; or

(k) suffering from glaucoma of the affected eye before the clinical worsening of acquired cataract; or

(m) undergoing a course of therapeutic radiation to the region of the affected eye before the clinical worsening of acquired cataract; or

(n) suffering penetrating trauma to the lens of the affected eye before the clinical worsening of acquired cataract; or

(o) receiving a therapeutic course of corticosteroids for at least twelve months immediately before the clinical worsening of acquired cataract; or

(p) inability to obtain appropriate clinical management for acquired cataract.

Factors that apply only to material contribution or aggravation

6. Paragraphs **5(j) to 5(p)** apply only to material contribution to, or aggravation of, acquired cataract where the person's acquired cataract was suffered or contracted before or during (but not arising out of) the person's relevant service; paragraph 8(1)(e), 9(1)(e), 70(5)(d) or 70(5A)(d) of the Act refers.

Other definitions

7. For the purposes of this Statement of Principles:

"a course of therapeutic radiation" means one or more fractions (treatment portions) of therapeutic radiation given with the aim of achieving palliation or cure with ionising radiation.

"diabetes mellitus" means an endocrine disease characterised by:

(a) a fasting venous plasma glucose concentration equal to or greater than 7.8 millimoles per litre on at least two separate occasions; or

(b) a venous plasma glucose concentration equal to or greater than 11.1 millimoles per litre both within two hours and at two hours after ingestion of 75 grams of glucose,

attracting ICD code 250;

"glaucoma" means one of a group of eye diseases characterised by an increase in intraocular pressure which causes pathological changes in the optic disc and typical defects in the vision, attracting ICD code 365;

"ICD code" means a number assigned to a particular kind of injury or disease in the Australian Version of The International Classification of Diseases, 9th revision, Clinical Modification (ICD-9-CM), effective date

of 1 July 1996, copyrighted by the National Coding Centre, Faculty of Health Sciences, University of Sydney, NSW, and having ISBN 0 642 24447 2;

"penetrating trauma to the lens" means penetrating injury to the lens of the affected eye and can include surgical procedures to the lens of the affected eye, attracting ICD code 871 or 998.89;

"relevant service" means:

(a) operational service; or
(b) peacekeeping service; or
(c) hazardous service;

"solar UV damage factor ratio" means the value obtained by applying the solar UV damage factor ratio formula. This may be calculated by using the computer program, UV Risk Version 3.3 (created by the Australian Radiation Laboratory using Microsoft® Visual Basic™ Programming System for Windows™ Professional Edition, Version 3.0) to the data concerning the exposure of the person to ultra violet (UV) radiation;

Note: (this note does not form part of the instrument) The computer program UV Risk Version 3.3 can be run on a personal computer with at least 8 megabytes of Random Access Memory, using the Microsoft® Windows™ version 3.1 graphical user interface. Further information may be obtained from the Department of Veterans' Affairs, PO Box 21, Woden ACT 2606.

"solar UV damage factor ratio formula" means:

$$\frac{\text{total lifetime UV damage factor}}{\text{non-service UV damage factor}}$$

where:

"total lifetime UV damage factor" means the numerical value calculated by the formula:

$$[\text{MED}_{\text{cum}}(a,T)]^{\beta-1} \sum_{t-0}^{T} \text{PAE}(n,M,a) \text{ at age } (T-t) \cdot t^{\alpha-\beta}$$

for the person's entire life, and where:

"a" has the value of five and is a numerical constant associated with the age dependence of the cumulative incidence;

"b" has the value of two and is a biological amplification factor;

"a" is an anatomical body site;

"M" is a specified month of the year;

"MED" means minimal erythemal dose, where one MED is equal to 200 Joules of radiation per square metre of skin;

"[MED $_{cum}$ (a,T)]" is the cumulative solar UV dose to the skin for any given anatomical body site for the person's age at the time of the assessment;

"n" has the value specified in column 2 of Table 1 opposite the item in column 1 of that Table for each of the specified life activities set out in column 1:

Table 1—specified life activities

column 1	column 2
Service workday	1
Service weekend	2
Service recreation period one	3
Service recreation period two	4
Civilian workday	5
Civilian weekend	6
Civilian recreation period one	7
Civilian recreation period two	8

"PAE" means personal ambient exposure in MEDs, calculated for each and every month of a person's life based on an estimate of a typical month during each of the five year periods between the ages of 0 and 20 years and each of the ten year periods thereafter;

"PAE (n,M,a)"means the number calculated by the formula:

$$\sum_{n-1}^{n-8} MAE\,(M,L_n) \cdot ABF_a \cdot EF_n \cdot TRF_n \cdot ESF_n \cdot CPF_n \cdot ERF_n \cdot W_n$$

where:

"ABF_a" is the anatomical body factor, and has the value specified in column 2 of Table 2 opposite the item in column 1 of that Table for each of the various body sites set out in column 1:

Table 2—body site

column 1	column 2
Face	0.15

"CPF_n" is the clothing protection factor, and has the value assigned to a particular anatomical site proportionately according to the amount of protection provided by clothing and sun screen, ranging from a value of 1.00 for no protection to a value of 0.05 for full cover with heavy clothing for a given specified life activity in column 1 of Table 1;

"EF_n" is the exposure factor, and has the value specified in column 2 of Table 3 opposite the item in column 1 of that Table for different exposure situations set out in column 1:

Table 3—exposure situations

column 1	column 2
Indoor	0.10
Mainly indoor	0.20
Indoor and outdoor	0.35
Mainly outdoor	0.50
Outdoor	0.60

"ERFn" is the environment reflectance factor, and has the value specified in column 2 of Table 4 opposite the item in column 1 of that Table for the different environment types set out in column 1:

Table 4—environment types

column 1	column 2
Urban	0.95
Rural	1.00
Maritime	1.00

where:

"Urban" means a location that is either a city or a town;

"Rural" means a location that is bushland, pastoral, or agricultural setting;

"Maritime" means either on the sea, lake, major river, or directly adjacent to such a body of water;

"ESF_n" is the environment shade factor, and has the value specified in column 2 of Table 5 opposite the item in column 1 of that Table for the different environment shade types set out in column 1:

Table 5—environment shade types

column 1	column 2
Dense shade	0.50
Moderate shade	0.70
Light shade	0.90
No shade	1.00

where:

"Dense shade" means a location that is predominantly under dense shade, such as jungle or dense forest;

"Moderate shade" means a location that is predominantly under moderate shade, such as open forest or high density housing;

"Light shade" means a location that is predominantly under light shade, such as lightly timbered country or low density housing;

"No shade" means a location that is predominantly without shade, such as open fields, tundra, beach, or ocean;

"$MAE(M,L_n)$" is the average daily ambient exposure for month, M, in location, L, assuming a long term average cloud cover, being the value, obtained from the Table set out in Schedule 1, that is contained in the row that corresponds to the particular latitude (rounded to the nearest five degrees) and is contained in the column that corresponds to the month of the year that is the particular

month under consideration, for each specified life activity;

"TRF_n" is the terrain reflectance factor, and has the value specified in column 2 of Table 6 opposite the item in column 1 of that Table for the different terrain types set out in column 1:

Table 6—terrain types

column 1	column 2
Brown	1.02
Black	1.04
Green	1.05
Open water	1.08
Sand	1.16
Snow	1.40

where:

"Black" means a terrain predominantly of black material such as asphalt;

"Brown" means a terrain predominantly of bare soil, clay, or buildings;

"Green" means a terrain predominantly of green vegetation;

"Open Water" means an environment surrounded by water;

"Sand" means a terrain predominantly of light material such as white or yellow sand;

"Snow" means a terrain that is predominantly covered in snow;

"W_n" is an estimate of the number of days in a month in which a specified life activity in column 1 of Table 1 is performed, and where, for the purposes of this definition, every month is taken to have 30.4375 days;

"t" is the age in months of the person for the particular specified activity;

"T" is the age in months of the person at the time of assessment;

and,

"non-service UV damage factor" means the numerical value calculated by the formula:

$$[\text{MED}_{\text{cum}}(a,T)]^{\beta-1} \cdot \sum_{t-0}^{T} \text{PAE}(n,M,a) \text{ at age } (T-t) \cdot t^{\alpha-\beta}$$

for the person's entire life, with the PAE for each month of the person's period or periods of relevant service being the arithmetic mean of the PAE for each and every month of the person's life, other than the period or periods of relevant service, where:

"a" has the value of five and is a numerical constant associated with the age dependence of the cumulative incidence;

"b" has the value of two and is a biological amplification factor;

"a" is an anatomical body site;

"M" is a specified month of the year;

"MED" means minimal erythemal dose, where one MED is equal to 200 Joules of radiation per square metre of skin;

"[MED $_{\text{cum}}$ (a,T)]" means the cumulative solar UV dose to the skin for any given anatomical body site for the person's age at the time of the assessment;

"n" has the value specified in column 2 of Table 7 opposite the item in column 1 of that Table for each of the specified life activities set out in column 1:

Table 7—specified life activities

column 1	column 2
Service workday	1
Service weekend	2
Service recreation period one	3
Service recreation period two	4
Civilian workday	5
Civilian weekend	6
Civilian recreation period one	7
Civilian recreation period two	8

"PAE" means personal ambient exposure in MEDs, calculated for each and every month of a person's life based on an estimate of a typical month during each of the five year periods between the ages of 0 and 20 years and each of the ten year periods thereafter;

"PAE (n,M,a)" is the numerical value calculated by the formula:

$$\sum_{n-1}^{n-8} MAE\,(M,L_n) \cdot ABF_a \cdot EF_n \cdot TRF_n \cdot ESF_n \cdot CPF_n \cdot ERF_n \cdot W_n$$

where:

"ABF_a" is the anatomical body factor, and has the value specified in column 2 of Table 8 opposite the item in column 1 of that Table for each of the various body sites set out in column 1:

Table 8—body site

column 1	column 2
Face	0.15

"CPF_n" is the clothing protection factor, and has the value assigned to a particular anatomical site proportionately according to the amount of protection provided by clothing and sun screen, ranging from a value of 1.00 for no protection to a value of 0.05 for full cover with heavy clothing for a given specified life activity in column 1 of Table 7;

"EF_n" is the exposure factor, and has the value specified in column 2 of Table 9 opposite the item in column 1 of that Table for different exposure situations set out in column 1:

Table 9—exposure situations

column 1	column 2
Indoor	0.10
Mainly indoor	0.20
Indoor and outdoor	0.35
Mainly outdoor	0.50
Outdoor	0.60

"ERFn" is the environment reflectance factor, and has the value specified in column 2 of Table 10 opposite the item in column 1 of that Table for the different environment types set out in column 1:

Table 10—environment types

column 1	column 2
Urban	0.95
Rural	1.00
Maritime	1.00

where;

"Urban" means a location that is either a city or a town;

"Rural" means a location that is bushland, pastoral, or agricultural setting;

"Maritime" means either on the sea, lake, major river, or directly adjacent to such a body of water;

"ESF_n" is the environment shade factor, and has the value specified in column 2 of Table 11 opposite the item in column 1 of that Table for the different environment shade types set out in column 1:

Table 11—environment shade types

column 1	column 2
Dense shade	0.50
Moderate shade	0.70
Light shade	0.90
No shade	1.00

where:

"Dense shade" means a location that is predominantly

under dense shade, such as jungle or dense forest;

"Moderate shade" means a location that is predominantly under moderate shade, such as open forest or high density housing;

"Light shade" means a location that is predominantly under light shade, such as lightly timbered country or low density housing;

"No shade" means a location that is predominantly without shade, such as open fields, tundra, beach, or ocean;

"$MAE(M,L_n)$" is the average daily ambient exposure for month, M, in location, L, assuming a long term average cloud cover, being the value, obtained from the Table set out in Schedule 1, that is contained in the row that corresponds to the particular latitude (rounded to the nearest five degrees) and is contained in the column that corresponds to the month of the year that is the particular month under consideration, for each specified life activity;

"TRF_n" is the terrain reflectance factor, and has the value specified in column 2 of Table 12 opposite the item in column 1 of that Table for the different terrain types set out in column 1:

Table 12—terrain types

column 1	column 2
Brown	1.02
Black	1.04
Green	1.05
Open water	1.08
Sand	1.16
Snow	1.40

where:

"Black" means a terrain predominantly of black material such as asphalt;

"Brown" means a terrain predominantly of bare soil, clay, or buildings;

"Green" means a terrain predominantly of green vegetation;

"Open Water" means an environment surrounded by water;

"Sand" means a terrain predominantly of light material such as white or yellow sand;

"Snow" means a terrain that is predominantly covered in snow;

"W_n" is an estimate of the number of days in a month in which a specified life activity in column 1 of Table 7 is performed, and where, for the purposes of this definition, every month is taken to have 30.4375 days;

"t" is the age in months of the person for the particular specified activity;

"T" is the age in months of the person at the time of assessment;

"therapeutic radiation" means medical treatment by irradiation to the person with gamma rays, x-rays, alpha particles or beta particles.

Schedule 1

Average daily MED calculated for the given month and latitude
Data assumes long-term average cloud cover

Latitude	January	February	March	April	May	June	July	August	September	October	November	December
85°N	0.00	0.10	0.10	0.10	0.10	1.00	1.00	0.10	0.10	0.10	0.10	0.00
80°N	0.00	0.10	0.20	1.00	2.00	3.00	3.00	2.00	0.50	0.10	0.10	0.00
75°N	0.00	0.10	0.50	2.00	3.00	5.00	5.00	3.00	1.00	0.20	0.10	0.00
70°N	0.00	0.21	0.90	2.95	5.81	7.83	8.01	5.17	1.97	0.44	0.07	0.00
65°N	0.21	0.62	1.66	4.13	7.06	9.42	9.49	6.72	3.11	1.08	0.35	0.18
60°N	0.41	1.03	2.42	5.30	8.32	11.11	11.05	8.38	4.28	1.72	0.60	0.35
55°N	0.62	1.44	3.18	6.48	9.94	12.71	12.71	10.14	5.76	2.61	0.90	0.53
50°N	0.82	1.85	3.95	7.66	11.66	14.37	14.46	12.01	7.37	3.64	1.22	0.71
45°N	1.97	3.46	5.97	9.67	13.35	16.25	15.98	14.68	9.69	5.62	2.67	1.79
40°N	3.12	5.06	7.99	11.68	15.03	18.24	17.51	17.60	12.15	7.66	4.28	2.87
35°N	4.51	7.00	10.45	14.18	17.56	20.58	19.72	19.54	14.74	9.94	6.00	4.24
30°N	6.03	9.10	13.07	16.81	20.25	23.07	22.03	21.48	17.48	12.35	7.86	5.76
25°N	8.86	12.36	16.41	19.68	22.04	22.89	21.58	21.17	18.59	14.74	10.39	8.38
20°N	11.77	15.73	19.91	22.69	23.88	22.68	21.10	20.72	19.57	17.14	12.91	11.01
15°N	14.02	17.69	20.55	21.94	21.88	19.98	19.14	19.27	18.72	17.51	14.81	13.06
10°N	16.07	19.41	20.93	21.04	19.83	17.38	17.26	17.81	17.65	17.47	16.35	14.87
5°N	17.89	19.98	20.28	19.82	18.20	16.31	16.42	17.37	18.68	18.38	17.09	16.49
Equator	19.58	20.35	19.50	18.60	16.65	15.23	15.58	16.93	19.73	19.28	17.73	18.03
5°S	19.41	20.20	19.64	19.81	17.95	16.49	17.39	19.53	22.03	21.63	20.12	19.16
10°S	19.07	20.03	19.76	20.67	18.58	16.95	18.39	21.54	24.12	24.05	22.67	20.16
15°S	23.08	23.28	22.11	19.86	15.96	14.10	15.46	18.73	22.52	24.21	24.43	23.55
20°S	25.26	24.18	21.92	17.36	12.73	10.81	11.94	15.38	19.95	24.03	26.40	25.74
25°S	25.63	23.95	20.30	14.64	9.97	7.91	8.76	11.77	16.29	20.70	24.36	25.80
30°S	25.96	23.59	18.60	11.97	7.32	5.25	5.85	8.45	12.87	17.56	22.39	25.85
35°S	22.99	20.31	15.45	9.42	5.53	3.99	4.38	6.46	10.23	14.48	19.13	22.54
40°S	20.18	17.23	12.51	7.06	3.90	2.80	3.05	4.66	7.82	11.66	16.13	19.45
45°S	17.42	14.15	9.57	5.00	2.62	1.79	2.00	3.29	5.90	9.57	13.77	16.92
50°S	15.74	12.14	7.43	3.18	1.30	0.75	0.90	1.87	4.15	7.68	12.20	15.53
55°S	14.16	10.46	6.08	2.49	1.00	0.57	0.67	1.46	3.40	6.68	10.87	13.99
60°S	12.57	8.78	4.74	1.80	0.69	0.38	0.45	1.04	2.64	5.68	9.53	12.45
65°S	10.98	7.09	3.39	1.11	0.38	0.19	0.22	0.62	1.89	4.68	8.20	10.92
70°S	9.40	5.41	2.05	0.42	0.08	0.00	0.00	0.21	1.14	3.68	6.86	9.38
75°S	6.00	3.00	1.00	0.20	0.10	0.00	0.00	0.10	1.00	2.50	4.00	5.00
80°S	3.00	1.50	0.50	0.10	0.10	0.00	0.00	0.00	0.50	1.50	1.50	2.00
85°S	1.00	0.50	0.10	0.10	0.10	0.00	0.00	0.00	0.10	1.00	1.00	2.00

Application

8. This Instrument applies to all matters to which section 120A of the Act applies.

Dated this Twenty-sixth day of September 1996

The Common Seal of the)
Repatriation Medical Authority)
was affixed to this instrument)
in the presence of:)

KEN DONALD
CHAIRMAN