Revocation and Determination

of

Statement of Principles
concerning

ACQUIRED CATARACT

ICD-10-AM CODES: H25, H26, H28.1, H28.2

Veterans' Entitlements Act 1986

1. The Repatriation Medical Authority under subsection **196B(3)** of the *Veterans' Entitlements Act 1986* (the Act):

(a) revokes Instrument No.147 of 1996; and

(b) determines in its place 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 acquired opacification of the lens or lens capsule of the eye which causes visual impairment, attracting ICD-10-AM code H25, H26, H28.1 or H28.2.

Basis for determining the factors

3. On the sound medical-scientific evidence available, the Repatriation Medical Authority is of the view that it is more probable than not that **acquired cataract and death from acquired cataract** can be related to relevant service rendered by veterans or members of the Forces.

Factors that must be related to service

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

Factors

5. The factors that must exist before it can be said that, on the balance of probabilities, **acquired cataract** or **death from acquired cataract** is connected with the circumstances of a person's relevant service are:

(a) having a solar UV damage factor ratio of at least 1.2 for the face at the time of the clinical onset of acquired cataract; or

(b) smoking at least 20 pack years of cigarettes or the equivalent thereof in other tobacco products before the clinical onset of acquired cataract; or

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

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

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

(f) having received a cumulative equivalent dose of 1.0 Sievert (Sv) of atomic radiation to the eye before the clinical onset of acquired cataract; or

(g) suffering physical trauma to the eyeball of the affected eye before the clinical onset of acquired cataract; or

(h) being treated with oral, topical or inhalational corticosteriods as specified within the 10 years immediately before the clinical onset of acquired cataract; or

(j) suffering a thermal burn to the lens of the affected eye within the seven days immediately before the clinical onset of acquired cataract; or

(k) suffering an electrical injury within the two years immediately before the clinical onset of acquired cataract; or

(m) being treated with a drug as specified before the clinical onset of acquired cataract; or

(n) suffering from intra-ocular inflammation of the affected eye before the clinical onset of acquired cataract; or

(o) for cortical and subcapsular cataract only, suffering from chronic hypocalcaemia at the time of the clinical onset of acquired cataract; or

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

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

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

(s) having received a cumulative equivalent dose of 1.0 Sievert of atomic radiation to the eye before the clinical worsening of acquired cataract; or

(t) suffering physical trauma to the eyeball of the affected eye before the clinical worsening of acquired cataract; or

(u) being treated with oral, topical or inhalational corticosteriods as specified within the 10 years before the clinical worsening of acquired cataract; or

(v) suffering a thermal burn to the lens of the affected eye within the seven days before the clinical worsening of acquired cataract; or

(w) suffering an electrical injury within the two years before the clinical worsening of acquired cataract; or

(x) being treated with a drug as specified before the clinical worsening of acquired cataract; or

(y) suffering from intra-ocular inflammation of the affected eye before the clinical worsening of acquired cataract; or

(z) for cortical and subcapsular cataract only, suffering from chronic hypocalcaemia at the time of the clinical worsening of acquired cataract; or

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

Factors that apply only to material contribution or aggravation

6. Paragraphs **5(p) to 5(za)** 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) or 70(5)(d) of the Act refers.

Inclusion of Statements of Principles

7. In this Statement of Principles if a relevant factor applies and that factor includes an injury or disease in respect of which there is a Statement of Principles then the factors in that last mentioned Statement of Principles apply in accordance with the terms of that Statement of Principles.

Other definitions

8. For the purposes of this Statement of Principles:

"a course of therapeutic radiation" means one or more fractions (treatment portions) of ionising radiation administered with the aim of achieving palliation or cure with gamma rays, x-rays, alpha particles or beta particles;

"atomic radiation" means ionising radiation excluding:
(i) natural background radiation;
(ii) therapeutic radiation; and
(iii) radiation from diagnostic procedures;

"being treated with a drug as specified" means:

(a) for anterior subcapsular cataract only, receiving a cumulative dose of at least 1500 grams of phenothiazines; or
(b) for anterior subcapsular cataract only, receiving amiodarone therapy for a cumulative period of at least 365 days; or
(c) receiving a cumulative dose of at least 400 grams of allopurinol;

"being treated with oral, topical or inhalational corticosteroids as specified" means:

(a) applying topical corticosteroids to the cornea of the affected eye equivalent to a cumulative dose of 200 drops of 0.1% dexamethasone; or

(b) applying topical corticosteroids to the skin for a total of at least 730 days; or
(c) taking oral corticosteroids equivalent to a cumulative dose of 1800 mg of prednisone; or
(d) using inhalational corticosteroids equivalent to a cumulative dose of 1000 mg of beclomethasone;

"cumulative equivalent dose" means the total equivalent dose of atomic radiation from all types of radiation (eg alpha, gamma). It accounts for the differences in biological effectiveness of various types of radiation and allows doses from different radiations to be combined. Each component is calculated by multiplying the absorbed dose in a particular tissue or organ for a given type of radiation by the radiation weighting factor for that radiation. The unit of equivalent dose is the Sievert (Sv);

"death from acquired cataract" in relation to a person includes death from a terminal event or condition that was contributed to by the person's acquired cataract;

"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;

"electrical injury" means:

(a) lightning strike resulting in loss of consciousness or burns; or
(b) electric shock from at least 220 voltage current resulting in loss of consciousness or burns;

"glaucoma" means open-angle glaucoma or angle-closure glaucoma;

"ICD-10-AM code" means a number assigned to a particular kind of injury or disease in The International Statistical Classification of Diseases and Related Health Problems, 10th revision, Australian Modification (ICD-10-AM), Second Edition, effective date of 1 July 2000, copyrighted by the National Centre for Classification in Health, Sydney, NSW, and having ISBN 1 86487 271 3;

"pack years of cigarettes or the equivalent thereof in other tobacco products" means a calculation of consumption where one pack year of

cigarettes equals twenty tailor made cigarettes (being the "standard" cigarette pack contents) per day for a period of one calendar year, or 7 300 cigarettes. One tailor made cigarette approximates one gram of tobacco or one gram of cigar or pipe tobacco by weight. One pack year of tailor made cigarettes equates to 7 300 cigarettes, or 7.3kg of smoking tobacco by weight. Tobacco products means either cigarettes, pipe tobacco or cigars smoked, alone or in any combination;

"physical trauma " means:

(a) penetrating injury; or
(b) intraocular surgery; or
(c) blunt trauma resulting in symptoms and signs lasting at least three days;

"relevant service" means:

(a) eligible war service (other than operational service); or
(b) defence service (other than 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:

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

for the person's lifetime to the time of the clinical onset of acquired cataract; 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 lifetime to the time of the clinical onset of acquired cataract, 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:

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

"β" 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)]" 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 clinical onset of acquired cataract;

"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 (n_1)	1
Service weekend (n_2)	2
Service recreation period one (n_3)	3
Service recreation period two (n_4)	4
Civilian workday (n_5)	5
Civilian weekend (n_6)	6
Civilian recreation period one (n_7)	7
Civilian recreation period two (n_8)	8

"PAE" means personal ambient exposure in MEDs, calculated for each and every month of a person's life to the time of the clinical onset of acquired cataract 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:

$$\sum_{n_1}^{n_8} \text{MAE}\,(M,L_n) \cdot \text{ABF}_a \cdot \text{EF}_n \cdot \text{TRF}_n \cdot \text{ESF}_n \cdot \text{CPF}_n \cdot \text{ERF}_n \cdot W_n$$

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 sites

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 clinical onset of acquired cataract;

"terminal event" means the proximate or ultimate cause of death and includes:

(a) pneumonia;
(b) respiratory failure;
(c) cardiac arrest;
(d) circulatory failure; or
(e) cessation of brain function.

Application

9. This Instrument applies to all matters to which section 120B of the Act applies.

Dated this **Twenty-fourth** day of **May** 2001

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

KEN DONALD
CHAIRMAN

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