Statement of Principles
concerning

PTERYGIUM

No. 75 of 2007

for the purposes of the

Veterans' Entitlements Act 1986
and
Military Rehabilitation and Compensation Act 2004

Title

1. This Instrument may be cited as Statement of Principles concerning pterygium No. 75 of 2007.

Determination

2. The Repatriation Medical Authority under subsection **196B(2)** and **(8)** of the *Veterans' Entitlements Act 1986* (the VEA):

(a) revokes Instrument No. 45 of 2001, as amended by Instrument No. 53 of 2001, concerning pterygium; and

(b) determines in their place this Statement of Principles.

Kind of injury, disease or death

3. (a) This Statement of Principles is about **pterygium** and **death from pterygium**.

(b) For the purposes of this Statement of Principles, **"pterygium"** means a wing-like, abnormal triangular fold of membrane, in the interpalpebral fissure, extending from the conjunctiva to the cornea, being immovably united to the cornea at its apex, firmly attached to the sclera throughout its middle portion, and merged with the conjunctiva at its base.

(c) Pterygium attracts ICD-10-AM code H11.0.

(d) In the application of this Statement of Principles, the definition of **"pterygium"** is that given at paragraph 3(b) above.

Basis for determining the factors

4. The Repatriation Medical Authority is of the view that there is sound medical-scientific evidence that indicates that **pterygium** and **death from pterygium** can be related to relevant service rendered by veterans, members of Peacekeeping Forces, or members of the Forces under the VEA, or members under the *Military Rehabilitation and Compensation Act 2004* (the MRCA).

Factors that must be related to service

5. Subject to clause 7, at least one of the factors set out in clause 6 must be related to the relevant service rendered by the person.

Factors

6. The factor that must as a minimum exist before it can be said that a reasonable hypothesis has been raised connecting **pterygium** or **death from pterygium** with the circumstances of a person's relevant service is:

(a) having a solar UV exposure factor ratio of at least 1.1 for the face at the time of the clinical onset of pterygium; or

(b) having sunlight exposure to the unprotected eye for at least 2250 hours while in a tropical area, or having equivalent sunlight exposure in other latitude zones, before the clinical onset of pterygium; or

(c) having heavy exposure of the affected eye to dust, for an average of at least 20 hours per week for at least the two years before the clinical onset of pterygium; or

(d) inability to obtain appropriate clinical management for pterygium.

Factors that apply only to material contribution or aggravation

7. Paragraph **6(d)** applies only to material contribution to, or aggravation of, pterygium where the person's pterygium was suffered or contracted before or during (but not arising out of) the person's relevant service.

Inclusion of Statements of Principles

8. 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 as in force from time to time.

Other definitions

9. For the purposes of this Statement of Principles:

"a tropical area" means any area between the Tropic of Capricorn (23º 27' South) and the Tropic of Cancer (23º 27' North);

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

"equivalent sunlight exposure in other latitude zones" means the cumulative hours of sunlight exposure equivalent to that specified for a tropical area, calculated by multiplying the hours of exposure in each latitude zone by the latitude weighting factor for the zone as per the latitude weighting factor schedule and adding together the result for each zone:

Latitude weighting factor schedule

Latitude zone	*Latitude weighting factor*
a latitude between 23° 27' South and 23° 27' North	1.0
a latitude from > 23° 27' to 35°	0.75
a latitude from > 35° to 45°	0.5
a latitude from > 45° to 65°	0.25;

"heavy exposure of the affected eye to dust" means exposure of the affected eye to dust in an environment where the person is covered in dust and is without eye protection;

"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), Fifth Edition, effective date of 1 July 2006, copyrighted by the National Centre for Classification in Health, Sydney, NSW, and having ISBN 1 86487 772 3;

"relevant service" means:

(a) operational service under the VEA;
(b) peacekeeping service under the VEA;
(c) hazardous service under the VEA;

(d) warlike service under the MRCA; or
(e) non-warlike service under the MRCA;

"solar UV exposure factor ratio" means the value obtained by applying the solar UV exposure factor ratio formula;

"solar UV exposure factor ratio formula" means:

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

where:

"total lifetime UV exposure 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 pterygium; and

"non-service UV exposure 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 pterygium, 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 $_{cum}$ (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 pterygium;

"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 pterygium 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 sites

column 1	column 2
Face	0.15
Hand	0.25
Leg	0.25
Arm	0.40
Back	0.50

"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 pterygium;

"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;

"the unprotected eye" means an eye exposed to sunlight and not protected by UV screening devices.

Application

10. This Instrument applies to all matters to which section 120A of the VEA or section 338 of the MRCA applies.

Date of effect

11. This Instrument takes effect from 4 July 2007.

Dated this twentieth day of June 2007

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

KEN DONALD
CHAIRPERSON

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