REVOKED

Statement of Principles

# CHRONIC SOLAR SKIN DAMAGE

**ICD CODES: 692.74, 702.0**

Veterans' Entitlements Act 1986
subsection 196B(2)

1. Being of the view that there is sound medical-scientific evidence that indicates that **chronic solar skin damage** and **death from chronic solar skin damage** can be related to operational service rendered by veterans, peacekeeping service rendered by members of Peacekeeping Forces and hazardous service rendered by members of the Forces, the Repatriation Medical Authority determines, under subsection 196B(2) of the *Veterans' Entitlements Act 1986* (the Act), that the factors that must as a minimum exist before it can be said that a reasonable hypothesis has been raised connecting **chronic solar skin damage** or **death from chronic solar skin damage** with the circumstances of that service, are:

   (a) being a prisoner of war of Japan before the clinical onset of non melanotic neoplasm of the skin; or

   (b) having a solar UV damage factor ratio of at least 1.1; or

   (c) inability to obtain appropriate clinical management for the chronic solar skin damage.

2. Subject to clause 3 (below) at least one of the factors set out in paragraphs **1(a) to 1(c)** must be related to any service rendered by a person.

3. The factor set out in paragraph **1(c)** applies only where:

(a) the person's **chronic solar skin damage** was contracted before a period, or part of a period, of service to which the factor is related; and

(b) the relationship suggested between the **chronic solar skin damage** and the particular service of a person is a relationship set out in paragraph 8(1)(e), 9(1)(e), 70(5)(d), or 70(5A)(d) of the Act.

4. For the purposes of this Statement of Principles:

**"chronic solar skin damage"** means a range of pathological skin changes, including solar keratosis and dermatosis, attracting ICD code 692.74 or 702.0;

**"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 1995, copyrighted by the National Coding Centre, Faculty of Health Sciences, University of Sydney, NSW, and having ISBN 0 642 22235 5;

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

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

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 $_{cum}$ (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 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)"** is the numerical value calculated by the formula:

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

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 |

**"$ERF_n$"** 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;

**"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 3.1 (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 3.1 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:

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

**"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 entire life, 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)]"** 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 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)"** 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 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 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 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.

## 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 |

Dated this **Eighteenth** day of **July** 1995

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

KEN DONALD
CHAIRMAN