

Statement of Principles
concerning

**NON-MELANOTIC MALIGNANT NEOPLASM
OF THE SKIN**

No. 82 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 non-melanotic malignant neoplasm of the skin No. 82 of 2007.

Determination

2. The Repatriation Medical Authority under subsection **196B(3)** and **(8)** of the *Veterans' Entitlements Act 1986* (the VEA):
 - (a) revokes Instrument No. 16 of 2006 concerning non-melanotic malignant neoplasm of the skin and Instrument No. 42 of 2001, as amended by Instrument No. 50 of 2001, concerning malignant neoplasm of the lip epithelium; and
 - (b) determines in their place this Statement of Principles.

Kind of injury, disease or death

3.
 - (a) This Statement of Principles is about **non-melanotic malignant neoplasm of the skin** and **death from non-melanotic malignant neoplasm of the skin**.
 - (b) For the purposes of this Statement of Principles, "**non-melanotic malignant neoplasm of the skin**" means a primary malignant neoplasm arising from the cells of the skin. The skin consists of the membranous tissue which forms the external covering of the

whole of the body, including the lips and the anogenital skin. This definition includes squamous cell carcinoma, carcinoma in situ, basosquamous carcinoma, basal cell carcinoma and Merkel cell carcinoma. This definition excludes malignant melanoma, Paget's disease of the skin, soft tissue sarcoma, carcinoid tumour, non-Hodgkin's lymphoma, Hodgkin's lymphoma and lesions of the mucosa lining the oral (inner) aspects of the lips.

Basis for determining the factors

4. On the sound medical-scientific evidence available, the Repatriation Medical Authority is of the view that it is more probable than not that **non-melanotic malignant neoplasm of the skin** and **death from non-melanotic malignant neoplasm of the skin** can be related to relevant service rendered by veterans 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 exist before it can be said that, on the balance of probabilities, **non-melanotic malignant neoplasm of the skin** or **death from non-melanotic malignant neoplasm of the skin** is connected with the circumstances of a person's relevant service is:
 - (a) having a solar UV exposure factor ratio of at least 1.2 for the affected area at the time of the clinical onset of non-melanotic malignant neoplasm of the skin; or
 - (b) having sunlight exposure to unprotected skin at the affected site for at least 4500 hours while in a tropical area, or having equivalent sunlight exposure in other latitude zones, before the clinical onset of non-melanotic malignant neoplasm of the skin; or
 - (c) having received a course of therapeutic radiation to the affected site at least ten years before the clinical onset of non-melanotic malignant neoplasm of the skin; or

- (d) having received a cumulative equivalent dose of at least 0.5 Sievert of atomic radiation to the affected site where this dose was accumulated at least ten years before the clinical onset of non-melanotic malignant neoplasm of the skin; or
- (e) being exposed to arsenic, as specified, at least ten years before the clinical onset of non-melanotic malignant neoplasm of the skin; or
- (f) being treated with immunosuppressive drugs for a continuous period of at least twenty-four weeks, at least two years before the clinical onset of non-melanotic malignant neoplasm of the skin; or
- (g) having non-Hodgkin's lymphoma before the clinical onset of non-melanotic malignant neoplasm of the skin; or
- (h) having chronic lymphoid leukaemia before the clinical onset of non-melanotic malignant neoplasm of the skin; or
- (i) being infected with human immunodeficiency virus (HIV) at the time of the clinical onset of non-melanotic malignant neoplasm of the skin; or
- (j) undergoing PUVA therapy involving the affected site where:
 - (i) the first PUVA treatment commenced at least five years before the clinical onset of non-melanotic malignant neoplasm of the skin, and
 - (ii) at least fifty PUVA treatments were administered,before the clinical onset of non-melanotic malignant neoplasm of the skin; or
- (k) having cutaneous contact of the affected site with agents containing high concentrations of polycyclic aromatic hydrocarbons (PAHs), as specified, on a cumulative total of at least 2000 days, before the clinical onset of non-melanotic malignant neoplasm of the skin; or
- (l) having cutaneous contact of the affected site with:
 - (i) paraquat; or
 - (ii) bipyridine in the process of paraquat manufacture,on a cumulative total of at least 2000 days before the clinical onset of non-melanotic malignant neoplasm of the skin; or

- (m) having lichen sclerosis of the affected site at the time of the clinical onset of non-melanotic malignant neoplasm of the skin; or
- (n) for squamous cell carcinoma, carcinoma in situ, basal cell carcinoma and basosquamous carcinoma only,
 - (i) having cutaneous scarring of the affected site for at least the one year before the clinical onset of non-melanotic malignant neoplasm of the skin; or
 - (ii) having cutaneous ulceration of the affected site for at least the one year before the clinical onset of non-melanotic malignant neoplasm of the skin; or
 - (iii) having an infected cutaneous sinus tract at the affected site for at least the one year before the clinical onset of non-melanotic malignant neoplasm of the skin; or
 - (iv) having cutaneous contact with mustard gas at the affected site at least ten years before the clinical onset of non-melanotic malignant neoplasm of the skin; or
- (o) for squamous cell carcinoma only, smoking at least 10 pack years of cigarettes, or the equivalent thereof in other tobacco products, within the ten years before the clinical onset of non-melanotic malignant neoplasm of the skin; or
- (p) for non-melanotic malignant neoplasm of the anogenital skin only, having human papilloma virus infection of the anogenital skin at the time of the clinical onset of non-melanotic malignant neoplasm of the skin; or
- (q) for non-melanotic malignant neoplasm of the glans penis or prepuce of the penis only, having phimosis for a period of at least two years before the clinical onset of non-melanotic malignant neoplasm of the skin; or
- (r) for non-melanotic malignant neoplasm of the lip only, smoking at least five pack years of cigarettes, or the equivalent thereof in other tobacco products, before the clinical onset of non-melanotic malignant neoplasm of the skin; or

- (s) inability to obtain appropriate clinical management for non-melanotic malignant neoplasm of the skin.

Factors that apply only to material contribution or aggravation

- 7. Paragraph 6(s) applies only to material contribution to, or aggravation of, non-melanotic malignant neoplasm of the skin where the person's non-melanotic malignant neoplasm of the skin 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 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;

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

"agents containing high concentrations of polycyclic aromatic hydrocarbons (PAHs), as specified" means:

- (a) concentrated coal tar distillates;
- (b) creosote;
- (c) crude oil;
- (d) metal working fluids;
- (e) molten bitumen or fumes from molten bitumen;
- (f) shale oil; or
- (g) soot;

"atomic radiation" means ionising radiation excluding:

- (a) natural background radiation;
- (b) therapeutic radiation; and
- (c) radiation from diagnostic procedures;

"being exposed to arsenic, as specified" means:

- (a) consuming arsenic containing compounds (e.g. Fowler's solution) for a cumulative period of at least ninety days;
- (b) consuming drinking water with arsenic content higher than 0.05 ppm (50 µg/l) for a cumulative period of at least 730 days;
- (c) being involved in the manufacture of pesticides containing arsenic for a cumulative period of at least 730 days;
- (d) handling pesticides containing arsenic for a cumulative period of at least 730 days; or
- (e) having clinical evidence of excessive arsenic exposure;

"cumulative equivalent dose" means the total equivalent dose of radiation from all types of ionising radiation. 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;

"death from non-melanotic malignant neoplasm of the skin" in relation to a person includes death from a terminal event or condition that was contributed to by the person's non-melanotic malignant neoplasm of the skin;

"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

<u>Latitude zone</u>	<u>Latitude weighting factor</u>
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;

"human papilloma virus" means a strain of human papilloma virus capable of causing genital warts. Infection with human papilloma virus can occur without clinically obvious evidence of warts;

"immunosuppressive drugs" means drugs or agents administered for the purpose of suppressing immune responses, but does not include inhaled or topical steroids;

"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 per day for a period of one calendar year, or 7300 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 7300 cigarettes, or 7.3 kg of smoking tobacco by weight. Tobacco products means either cigarettes, pipe tobacco or cigars smoked, alone or in any combination;

"paraquat" is a dipyrilidium compound whose dichloride and dimethylsulphate salts are used as contact herbicides;

"phimosis" means the constriction of the preputial orifice so that the prepuce cannot be retracted back over the glans;

"PUVA" means photochemotherapy with oral methoxsalen (psoralen) and ultraviolet A radiation;

"relevant service" means:

- (a) eligible war service (other than operational service) under the VEA; or
- (b) defence service (other than hazardous service) under the VEA; or
- (c) peacetime service under the MRCA;

"sinus tract" means an abnormal channel or fistula permitting the escape of pus;

"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 non-melanotic malignant neoplasm of the skin; 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 non-melanotic malignant neoplasm of the skin, 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 erythema 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 non-melanotic malignant neoplasm of the skin;

"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 non-melanotic malignant neoplasm of the skin 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

"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 clinical onset of non-melanotic malignant neoplasm of the skin;

"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 lip" means the lipstick region of the lip and includes the vermilion borders and commissures of the lips;

"unprotected skin" means skin that is directly exposed to the sun and is not protected by sunscreen, clothing or other physical barrier.

Application

- 10.** This Instrument applies to all matters to which section 120B of the VEA or section 339 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