



Australian Government

Department of Education, Employment and Workplace Relations

**Inquiry into the provisions of the Safety, Rehabilitation and
Compensation Amendment (Fair Protection for Firefighters)
Bill 2011**

**Submission to the Senate Education, Employment and
Workplace Relations Legislation Committee**

August 2011

Safety, Rehabilitation and Compensation Amendment (Fair Protection for Firefighters) Bill 2011

Executive Summary

This submission will present information relating to issues associated with the Safety Rehabilitation and Compensation Amendment (Fair Protection for Firefighters) Bill 2011 (the Bill).

- The Bill was introduced Monday 4 July 2011 and proposes to make specific amendments to the *Safety Rehabilitation and Compensation Act 1988* (the SRC Act) for the benefit of firefighters.
- The SRC Act covers approximately 2,800 firefighters, the majority of whom are employed by the ACT Government. This represents approximately eight per cent of the Australian firefighting labour force. The remainder would be covered under state and territory workers' compensation legislation.
- Specifically, the Bill provides, in specific circumstances, an additional legislative entry point to enable firefighters to obtain workers' compensation when they develop certain cancers.
- Currently, most workers' compensation legislation in Australia and New Zealand contain entry points for the consideration of liability for occupational diseases including cancer. One entry point is the "employment contribution" test, the other is "deemed diseases".
- The "employment contribution" test under the SRC Act requires that for a disease to be considered work-related, it must be contributed to by employment, to a significant degree.
- In contrast, an employee who acquires a "deemed disease" has the benefit of a rebuttable presumption that the disease was contributed to by employment.
- Most workers' compensation jurisdictions in Australia and New Zealand (including the Commonwealth) base their list of deemed diseases upon the International Labour Organization's (ILO) List of Occupational Diseases. The ILO list of occupational diseases is considered the state-of-the-art development in the identification and recognition of occupational diseases and was last revised in 2010.
- Currently, a disease will only be considered suitable for 'deeming' arrangements if there is scientific evidence of a causal link between exposure to particular toxic chemicals and a specific disease.

- This high evidentiary threshold balances the need to ensure that payments are only made for work-related diseases with the desire to not burden unfairly individual claimants by forcing them to re-establish what are already well accepted scientific arguments.
- The relationship between firefighting work and certain types of cancer are the subject of a number of studies conducted both in Australia and overseas.
- In the time available, the Department has not yet been able to form a comprehensive policy position on this complex issue. In addition, although the review of the literature suggests that an elevated incidence of cancer can occur in firefighters, and a correlational link between firefighters and certain types of cancer has been observed, the precise relationship and any associated causality remains unclear.
- Nevertheless, the Department agrees that there are significant barriers for firefighters in demonstrating a causal relationship between their work and particular forms of cancer. Each fire is different and unpredictable and therefore the exact nature of the toxins that firefighters may be exposed to and in what quantities would be very difficult to know with any certainty.
- Therefore, the Department considers that there is merit in investigating further whether a different approach to workers' compensation for firefighters is required. However, in order to protect the overall integrity of the scheme, it will be important to determine what implications a different approach for firefighters might have vis-a-vis other occupations where there is also a *possible* (but not clinically *proven*) link between work and certain diseases. The Department has not been able to consider this issue further in the time provided.
- In addition to the broader policy implications, the Bill as currently drafted raises a number of specific questions to which no information regarding the rationale for the current approach is available. This includes:
 - whether bush firefighters and volunteer firefighters should be covered,
 - the treatment of Australian Defence Force firefighters covered under the *Military Rehabilitation and Compensation Act 2004*, and
 - issues such as post-employment eligibility time frames.
- Finally, Safe Work Australia may be best placed to coordinate a national approach to the workers' compensation coverage of firefighters, and occupational cancers, in consultation with state and territory governments and key union and employer groups. This may enable a consistent approach to workers' compensation arrangements for all firefighters in Australia.

Section 1 – Overview and Purpose of the Bill

Safety, Rehabilitation and Compensation Amendment (Fair Protection for Firefighters) Bill 2011

The Bill was introduced to the House of Representatives on Monday 4 July 2011 by Mr Adam Bandt, MP (Greens Party). It was co-sponsored by Ms Maria Vamvakinou MP (ALP) and Mr Russell Broadbent MP (Liberal Party).

The Bill seeks to introduce presumptive legislation for a class of employees (firefighters), if employed for specified lengths of time, in order to deem certain cancers contracted by them to be work related, unless the contrary is established.

If firefighters develop the specified cancers as a result, their disease will be deemed to be work related and therefore compensable. These cancers, and the associated qualifying periods of employment specified in the bill, are:

- primary site brain cancer (5 years)
- primary site bladder cancer (15 years)
- primary site kidney cancer (15 years)
- primary non-Hodgkins lymphoma (15 years)
- primary leukaemia (5 years)
- primary site breast cancer (10 years)
- primary site testicular cancer (10 years)

The proposed amendment will reverse the onus of proof required for certain cancers. Rather than the employee having to demonstrate the illness was work-related before they are compensated, the onus will be on the employer to produce evidence that the specified cancers contracted by firefighters were not due to their work.

The Bill, in its current form, will not operate retrospectively. Therefore the specified cancers will only be compensable if the cancer manifests after the amendment is made.

Safety, Rehabilitation and Compensation Act 1988

Each state and territory has its own workers compensation legislation. Coverage of the SRC Act is limited to Commonwealth employees, ACT Government employees and the employees of licensed entities. As a result, coverage of the SRC Act is limited to only a relatively small proportion of the Australian workforce.

The SRC Act sets up the workers' compensation and rehabilitation framework for the Comcare scheme. It establishes a fully funded premium based system and a licensed self-insurance based system of compensation and rehabilitation for employees who are injured in the course of their employment. The scheme covers approximately 211,000 Australian and ACT government employees and approximately 163,000 employees of self-insured licensees (as of 30 June 2010).

It provides a comprehensive benefit structure that includes:

- the payment of the reasonable cost of medical treatment
- income replacement for periods of incapacity for work
- payment of a lump sum for permanent impairment
- payment for rehabilitation programs.

In general, access to benefits under the SRC Act depends upon whether or not the injury, illness or disease can be demonstrated, on the balance of probabilities, to be work related.

Section 5B of the SRC Act

Section 5B of the SRC Act defines *disease* to mean an ailment suffered by an employee, or an aggravation of such an ailment, that was contributed to, to a significant degree, by the employee's employment.

Sub section 7(1) of the SRC Act

Sub section 7(1) of the SRC Act enables the Minister to specify certain diseases are related to employment of a specific kind, unless the contrary can be proven. This presumes that certain diseases (specified by the Minister), that are contracted by an employee in a specific kind of employment, are related to that employment.

The current list of diseases/toxins and employments declared under sub section 7(1) of the SRC Act is at Attachment A.

As the list is based on the ILO's List of Occupational Diseases, the declared list specifies only those diseases/toxins for which clinical links have been established between the development of a particular disease and exposure to a particular toxin in the course of a person's employment.

Claims by firefighters under SRC Act

There have been an extremely small number of occupational cancers claimed by firefighters in the Commonwealth scheme over the past 20 years or so. None of the claims were for those cancers listed in the Bill.

Some firefighters and their representatives have raised concerns that this reflects the significant practical difficulties that firefighters have in accessing workers' compensation laws. In particular, firefighters may not necessarily know what toxins they have been exposed to over the course of their employment, which creates difficulties in establishing causation as a result of the nature of employment. It may also act as a barrier in accessing subsection 7(1) of the SRC Act. These difficulties are discussed later in the submission.

Section 2 - Coverage of Firefighters under the SRC Act

Employees covered by the Bill

The Bill as currently drafted covers all employees classified as firefighters under the SRC Act, including those engaged on a volunteer basis and those who predominately fight bushfires.

There are currently approximately 2,800 employees classified as firefighters under the SRC Act. Of these, around 2000 are employed by the ACT Government (including volunteers), over 700 by Air Services Australia, over 100 by the Department of Sustainability, Environment, Water, Population and Communities, and one or two in other agencies.

The largest impact of this measure therefore will be on ACT Government firefighters comprising Fire Brigade Officers, Urban Fire Fighters, State Emergency Service, Rural Fire Service and ACT Fire Brigade Community Fire Units covered under the SRC Act as a result of the ACT being declared a 'Commonwealth authority' for the purposes of that Act.

The majority of these firefighters, and in particular the volunteer firefighters in the ACT, are engaged in fighting bushfires. There are approximately 330 firefighters engaged primarily in fighting structural fires and vehicle fires in the ACT (Fire Brigade officers) and 700 firefighters in Air Services Australia who are engaged in fighting a varying proportion of structural and vehicle fires as part of their employment.

Based on ABS Labour Force Statistics (November 2010), it is estimated that employed firefighters covered by the SRC Act represent approximately eight per cent of the Australian firefighting labour force. The remainder would be covered under state and territory legislation for workers' compensation.

Military Rehabilitation and Compensation Act 2004

The proposed amendment to implement presumptive legislation for firefighters under the SRC Act will not be applicable to Australian Defence Force (ADF) firefighters who are covered from 1 July 2004 under the *Military Rehabilitation and Compensation Act 2004* (MRCA). This will lead to different treatment entitlements for members and former members of the ADF, depending on the date of their injury, disease or death. There is no available information on the rationale for this.

Claims made for injury, disease or death prior to 1 July 2004 are covered by either the SRC Act or the *Veterans' Entitlements Act 1986* (VEA). The relevant Act depends on a number of factors: the date of the injury, disease or death; whether peacetime or operational service; and the length of service.

Claims under the VEA and MRCA are determined using Statements of Principle (SoP). The SoPs are legislative instruments that set out the factors which can connect particular

injuries, diseases or death with service. SoPs are determined by the Repatriation Medical Authority (RMA).

SoPs alone determine what factors could cause a medical condition that is the subject of a claim. In order for a claim to succeed at least one of the SoP factors must be related to service.

The introduction of presumptive legislation for firefighters under the SRC Act would create a situation where claimants under the VEA and MRCA must satisfy at least one of the SoP factors connecting the injury, disease or death to service, while those under the SRC Act would not need to link their injury disease or death to their service.

Section 3 – Background to presumptive legislation

Principles of presumptive Legislation

A presumption in law is a rule of law which permits a court to assume a fact is true until such time as there is a preponderance (greater weight) of evidence which disproves or outweighs (rebutts) the presumption. Each presumption is based upon a particular set of apparent facts paired with established laws, logic, reasoning or individual rights. A presumption is rebuttable in that it can be refuted by factual evidence. One can present facts to persuade the judge that the presumption is not true.

Subclause 7(8) of the Bill sets up a presumption that if an employee suffers a specified disease, and the employee was employed as a fire-fighter, and the fire-fighter was so employed for the relevant period of time, then the disease is compensable under the Act. This is a reverse onus of proof situation.

However, it does not mean that the employee's claim will automatically be accepted. The employer may provide evidence to show that the disease is due to some other factor that is not employment related and, if that evidence is sufficiently strong, it may rebut the presumption that the disease is employment related. As in all claims, the decision maker has to be satisfied, on the balance of probabilities, that the disease is due to the person's employment. Nevertheless, in the case of the proposed subclause 7(8), the decision maker will be starting with the presumption that, if the condition is a listed disease, and all the other factors are met, then the disease is compensable.

Current presumptive laws (deemed diseases) in Commonwealth legislation and other Australian and NZ jurisdictions

All jurisdictions in Australia and New Zealand, except Queensland, include in their workers' compensation legislation lists of chemicals and biological agents, the exposure to which has been directly linked to certain diseases, based on those in the ILO's List of Occupational Diseases.

As Queensland does not have provision for deemed diseases in its workers' compensation legislation, all claims in that State are considered under the general injury and disease provisions.

ILO list of occupational diseases

In order to assist countries in their prevention, recording, notification and, if applicable, compensation of diseases caused by work, the ILO created a List of Occupational Diseases as a result of the Workmen's Compensation (Occupational Diseases) Convention (Revised), 1934, which Australia ratified in 29 April 1959. The List reflects best practice in the identification and recognition of occupational diseases.

Decisions by the ILO's panel of experts to incorporate specific diseases in the List of Occupational Diseases take into account the following general criteria:

- i) there is a causal relationship with a specific agent, exposure or work process;
- ii) they occur in connection with the work environment and/or in specific occupations;
- iii) they occur among groups of persons concerned with a frequency which exceeds the average incidence within the rest of the population; and
- iv) there is scientific evidence of a clearly defined pattern of disease following exposure and plausibility of cause.

Most jurisdictions in Australia and New Zealand list some of the toxins cited by the ILO List of Occupational Diseases in their deemed diseases schedules in their workers' compensation legislation. However, the Department notes that not all jurisdictions' lists of deemed diseases have been updated to reflect the current ILO List, including the Commonwealth jurisdiction.

Presumptive legislation in the United States of America (USA) and Canada

As of April 2009, presumptive legislation regarding occupational cancers for firefighters is in place in 24 states in the United States of America (USA). Eight other states have presumptive legislation for firefighters pending. Within the USA, presumptive legislation is not uniform, and varies greatly between the states in both the cancers addressed, and the requirements necessary to receive benefits.

In Canada, nine of the 12 provinces currently have in force presumptive legislation for firefighters. Ninety per cent of these provinces recognise the cancers listed in the Bill.

However, it is important to note that many jurisdictions in North America exempt from the presumptive legislation firefighters who are engaged as volunteers. While British Columbia's presumptive legislation does not exclude volunteer firefighters, it does exclude firefighters who predominantly fight bushfires. The studies on which the legislation is based were mainly concerned with those engaged in metropolitan ('structural') firefighting. In addition, workers' compensation coverage in the US and Canada differs from Australia, so the compensation and cost implications of presumptive coverage may also be quite different.

The Bill as it is currently drafted covers mostly bush firefighters and volunteer firefighters, in addition to those engaged as structural firefighters. There is no available information on the rationale for this.

Section 4 - Key considerations

Difficulties in establishing causation between employment and cancer

According to the Australasian Faculty of Occupational Medicine (2003), most environmental and occupational carcinogens are difficult to identify. The number of physical, chemical, biological and psychosocial factors affecting workers' health is constantly changing. Assigning the origin of a disease to specific employment can be problematic because outside activities may also contribute to the contraction of the disease.

The reasons most environmental carcinogens are difficult to identify include the fact that the identification of the different influences/factors that lead to the contraction of a cancer is not easy, especially when the relevant occupational exposures may have occurred many years earlier and been poorly documented.

There are many thousands of chemicals which are in use in industry today, some of which are known to cause cancer, and some are known not to be associated with cancer. There are also many chemicals for which the evidence is not yet strong enough to determine whether or not they are carcinogenic.

The difficulty in proving causation for firefighters is compounded by the fact that each fire is different and unpredictable. Isolating and identifying what toxins are released and in what quantities is difficult, as this occurs in changing combinations, and at different temperatures at each location. As such, it is recognised that these circumstances are different to most other occupations that may be more readily able to demonstrate regular and consistent exposure to identified toxins.

The difficulties in establishing the causation between firefighting and disease has also been raised with the Department by the United Firefighters Union of Australia (UFUA). The UFUA advises that firefighters are reluctant to lodge a claim for these cancers because of the perceived difficulties in establishing a connection to work, and in order to avoid the stress involved in pursuing a claim to completion.

Evidence base

The *Comparison of Workers' Compensation Arrangements in Australia and New Zealand*, produced by Safe Work Australia, includes the schedules of recognised occupational diseases for each jurisdiction. These schedules refer to diseases as 'generally accepted by the medical profession to be caused by' the chemical/biological agent/practice listed.

This recognition of causality is a fundamental basis of the current workers' compensation framework. However, the Department recognises that firefighters in metropolitan areas are potentially exposed to a large number and variety of toxic agents in fighting structural fires. Therefore, it may not be possible to identify the specific toxic agents which may be responsible for any increased rates of certain cancers.

The number and variety of studies on this topic is indicative of the complexity and difficult nature of the task.

The Commonwealth Department of Health and Ageing (DoHA) has advised that the best available research on cancer risk among firefighters is the World Health Organization International Agency for Research on Cancer (IARC) 2010 Monograph. It is independent, peer reviewed and is the most recent methodologically robust overview of the research.

IARC undertook a meta-analysis of previous studies to investigate whether occupational exposure as a firefighter is carcinogenic in humans.

IARC stated that, "exposures of firefighters vary considerably depending on their job activities, and only crude measures of exposure, such as duration of employment and number of runs, have been used in these studies. Despite these limitations, increased risks for some cancers were found for firefighters in the meta-analysis." (pg 557).

The Department has been advised by the UFUA that the list of cancers and latency periods developed for the Bill were based on a number of recognised studies (see Le Masters et al 2006; Guidotti 2002, 2004 and 2007; Bates et al 2001).

Current research activities

The Department is also aware of two current research proposals which may provide additional information on the strength of the correlation between occupational exposure as a firefighter and the subsequent development of certain types of cancer.

In April 2010, the US Fire Administration and the National Institute for Occupational Safety and Health announced a multi-year study to examine the potential for increased risk of cancer among firefighters due to exposures to contaminants such as smoke and soot in the line of duty. The study will include over 18 000 current and retired career firefighters. It aims to determine whether more cancers than expected occurred among the cohort, and whether cancers are associated with exposures to the contaminants to which the firefighters may have been exposed.

Noting the study's multi-year timeframe however, it is unlikely that any outcome will be known in the short term.

In Australia, Monash University and the Australasian Fire and Emergency Service Authorities Council (AFAC) are undertaking a three-year Australasian cohort study of professional and volunteer firefighters to examine the health and job records of firefighters across several states going back 30 years. The study will seek to determine

the rate of certain health outcomes, including cancer associated with occupational firefighting and which types of firefighting jobs in Australia pose the most risk.

According to AFAC, the cohort study could include prospectively collected exposure information from the Australian Incident Reporting System (AIRS) database, making it a unique study. AIRS is a nationally agreed data standard which takes a systematic approach to collecting, recording and reporting information about responses to incidents and emergencies attended primarily by fire services. Work is being undertaken to assess the ability to incorporate fire and hazardous material exposure information from the AIRS databases into the study.

AFAC advises that many of the previous studies in Europe, North America and Australasia over the past 50 years have been small, that none have included good information about fire exposure or lifestyle influences, and that few have included female firefighters and volunteers.

Section 5 – other considerations

Process to align workers' compensation arrangements

Governments in all jurisdictions in Australia are currently working towards greater consistency in workers' compensation arrangements.

Safe Work Australia (SWA) is an Australian Government statutory agency established in 2009, and is jointly funded by the Commonwealth, state and territory governments facilitated through an intergovernmental agreement signed in July 2008.

SWA represents a partnership between governments, unions and industry. Together the state and territory governments, unions and industry members work towards the goal of reducing death, injury and disease in the workplace. Specifically, Safe Work Australia has a range of functions relating to workers' compensation. These are to:

- develop national policy relating to workers' compensation
- undertake research and conduct data analysis on workers' compensation matters
- develop proposals relating to:
 - harmonising workers' compensation arrangements across the Commonwealth, states and territories, and
 - national workers' compensation arrangements for employers with workers in more than one of those jurisdictions.

SWA has issued a National Workers' Compensation Action Plan 2010-2013. One of the action areas identified under the Plan is to 'investigate and report on options for nationally consistent definitions for the purposes of workers' compensation'. As part of this Plan, SWA's Strategic Issues Group on Workers' Compensation has appointed a Temporary Advisory Group, which among other things, is tasked with reporting on 'policy options for a nationally consistent legislative approach to deemed diseases'. The

report, the investigations for which will commence in early 2012, is scheduled to be completed by the end of 2012.

Other groups of employees

Relating to previous discussion regarding the difficulties in establishing causation, there may be other groups of employees, for example police and paramedics, that could be exposed to risks of occupational cancer from unidentified toxins. These groups may benefit from similar forms of presumptive legislation as they too may have difficulty in establishing causation.

As the work environment of paramedics and police is constantly changing, these groups may be unwittingly exposed to a range of toxic chemicals during the course of their work. These groups may be able to provide evidence of a higher incidence rate, but as with firefighters may also experience difficulties identifying the individual toxins to which they have been exposed due to the constantly changing working environment.

Without knowing the extent to which other groups may also experience these same challenges, it is difficult to definitively understand the broader implications taking a presumptive approach to this issue may have.

Post-employment eligibility

Further, many of the jurisdictions in the USA which have presumptive legislation in place for firefighters restrict the right to access that presumptive legislation by imposing a time limit on post-employment eligibility. This cap varies from state to state, with a significant number of jurisdictions imposing a limit of five years or less after ceasing employment as a firefighter.

The Department has not been able to conduct a full assessment of this issue in the time given, but considers that this would be a critical consideration in deciding whether or not to create new presumptive legislation in the absence of robust clinical evidence.

Section 6 – Summary

Workers' compensation legislation in Australia, with the exception of Queensland, currently deems that diseases arising from exposure to certain toxins are 'workplace diseases' for the purposes of determining a person's eligibility to receive compensation. In other words, the disease is deemed to be caused by their employment unless the contrary is established. The toxins listed in legislation differ slightly between jurisdictions but in each case are supported by clinical evidence of a causal link between exposure to each of them and certain diseases. This reflects a fundamental principle of Australian workers' compensation legislation to ensure that schemes fulfil their primary purpose of properly compensating people for diseases which relate to their work.

However, the Department recognises that the nature of modern firefighting work in metropolitan areas is difficult to accommodate within the traditional workers'

compensation framework. The toxins that a metropolitan firefighter may be exposed to, and the level to which they are exposed, is difficult to know with any certainty. This reflects the dynamic nature of firefighting and is a complicating factor that may not apply to workers in most other occupations.

The Department also recognises there is a body of evidence that suggests metropolitan firefighters, at least on the basis of some overseas studies, experience higher incidences of cancer which is possibly related to their work. In the limited time available, the Department was not able to seek expert advice to assist it in comprehensively understanding the merit of the current body of evidence. The Department considers that there would be merit in engaging an independent body to examine the evidence provided in the studies performed to date, and provide advice as to whether there is sufficient evidence for pursuing presumptive legislation for some or all of the cancers listed in the Bill.

Further given the unique circumstances apparent a more flexible approach for firefighters may be warranted. However, this would represent a departure from the current principles underpinning workers' compensation legislation in Australia. As such, the Bill has implications for workers' compensation arrangements more broadly, including whether or not there are workers in other occupations that might be similarly categorised.

In addition, it raises a number of specific questions to which there is no available information regarding the rationale for the current drafting. This includes whether or not bush firefighters and volunteer firefighters should be covered, the treatment of ADF firefighters covered by the MRC Act, and whether or not time limits regarding post employment eligibility should apply. Without information regarding the rationale for the current drafting of the Bill regarding these matters, it is difficult to understand the potential impact on the scheme.

Finally, the Bill as currently worded only covers a very small number of the total firefighting force in Australia. It has also been brought forward for consideration in an environment where governments in all jurisdictions are working towards greater consistency in workers' compensation arrangements. Therefore, the Department considers that there would be merit in further considering this issue on a national basis, to achieve consistency for all Australian metropolitan firefighters.

Declarations under s 7(1) Specified diseases and specified employments

Occupational diseases

1. Occupational asthma caused by sensitising agents or irritants.
2. Bronchopulmonary diseases caused by hard-metal dust.
3. Bronchopulmonary diseases caused by cotton dust (byssinosis), or flax, hemp or sisal dust.
4. Pneumoconioses caused by sclerogenic mineral dust (silicosis, anthraco-silicosis, asbestosis) and silico-tuberculosis, provided that silicosis is an essential factor causing the resultant incapacity, impairment or death.
5. Extrinsic allergic alveolitis and its sequela.
6. Diseases caused by beryllium or its toxic compounds.
7. Diseases caused by cadmium or its toxic compounds.
8. Diseases caused by phosphorus or its toxic compounds.
9. Diseases caused by chromium or its toxic compounds.
10. Diseases caused by manganese or its toxic compounds.
11. Diseases caused by arsenic or its toxic compounds.
12. Diseases caused by mercury or its toxic compounds.
13. Diseases caused by lead or its toxic compounds.
14. Diseases caused by fluorine or its toxic compounds.

Employment involving exposure to risk

- Employment processes involving asthmagenic agents
- Employment involving exposure to hard-metal dust
- Employment involving exposure to cotton dust, or flax, hemp or sisal dust.
- Employment involving exposure to sclerogenic mineral dust
- Employment involving exposure to the inhalation of organic dusts
- Employment involving exposure to beryllium or its toxic compounds
- Employment involving exposure to cadmium or its toxic compounds.
- Employment involving exposure to phosphorus or its toxic compounds
- Employment involving exposure to chromium or its toxic compounds.
- Employment involving exposure to manganese or its toxic compounds.
- Employment involving exposure to arsenic or its toxic compounds.
- Employment involving exposure to mercury or its toxic compounds.
- Employment involving exposure to lead or its toxic compounds.
- Employment involving exposure to fluorine or its toxic compounds

- | | |
|--|---|
| 15. Diseases caused by carbon disulphide. | Employment involving exposure to carbon disulphide. |
| 16. Diseases caused by toxic halogen derivatives of aliphatic or aromatic hydrocarbons | Employment involving exposure to toxic halogen derivatives of aliphatic or aromatic hydrocarbons |
| 17. Diseases caused by benzene or its toxic homologues. | Employment involving exposure to benzene or its toxic homologues. |
| 18. Diseases caused by toxic nitro- and amino-derivatives of benzene or its homologues. | Employment involving exposure to toxic nitro- and amino-derivatives of benzene or its homologues. |
| 19. Diseases caused by nitroglycerin or other nitric acid esters. | Employment involving exposure to nitroglycerin or other nitric acid esters. |
| 20. Diseases caused by alcohols, glycols or ketones. | Employment involving exposure to alcohols, glycols or ketones. |
| 21. Diseases caused by asphyxiants: carbon monoxide, hydrogen cyanide or its toxic derivatives, hydrogen sulphide. | Employment involving exposure to carbon monoxide, hydrogen cyanide or its toxic derivatives, hydrogen sulphide. |
| 22. Diseases caused by vibration (disorders of muscles, tendons, bones, joints, peripheral blood vessels or peripheral nerves). | Employment involving exposure to vibration. |
| 23. Diseases caused by work in compressed air. | Employment involving exposure to compressed air. |
| 24. Diseases caused by ionising radiation. | Employment involving exposure to the action of ionising radiation. |
| 25. Skin diseases caused by physical, chemical or biological agents not included under other items. | Employment involving exposure to the risk concerned. |
| 26. Primary epitheliomatous cancer of the skin caused by tar, pitch, bitumen, mineral oil, anthracene, or the compounds, products or residues of these substances. | Employment involving exposure to tar, pitch, bitumen, mineral oil, anthracene, or the compounds, products or residues of these substances. |
| 27. Lung cancer or mesotheliomas caused by asbestos | Employment involving exposure to asbestos. |
| 28. Occupational infectious or parasitic diseases. | Employment carrying a particular risk of contamination including: <ul style="list-style-type: none"> (a) Health or Laboratory Work; (b) Veterinary work; (c) Work handling animals, animal carcasses, parts of such carcasses, or merchandise which may have been contaminated by animals, animal carcasses, or parts of such carcasses. |

References

Australasian Faculty of Occupational Medicine – Occupational Cancer – A guide to prevention, assessment and investigation May 2008

Bates, M.N; Fawcett, J.; Garrett, N. et al Is Testicular Cancer an Occupational Disease of Firefighters? *American Journal of Industrial Medicine* 40: 263-270 (2001)

Guidotti, T.L and Goldsmith, D.F Report to the Workers Compensation Board of Manitoba on the Association between Selected Cancers and the Occupation of Firefighter 28 March 2002

Guidotti, T.L Cancer among firefighters in 2004: Interpreting the Evidence *A Report to the British Columbia Professional Firefighters Association* 15 September 2004

Guidotti, T.L "Evaluating causality for occupational cancers: the example of firefighters." *Occupational Medicine* 2007; 57:466–471

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans
Volume 98 (2010), Painting, Firefighting and Shiftwork

Le Masters, G.K; Genaidy A.M; Succop, P; Cancer risk among firefighters: A review and meta-analysis of 32 studies *JOEM Volume 48, Number 11, November 2006*