

CHAPTER 4

COMPENSATION FOR OCCUPATIONAL DISEASE

#25.00 INTRODUCTION

Section 6 of the *Workers Compensation Act* provides that compensation is payable for occupational disease that is due to the nature of a worker's employment. Section 7 provides that compensation is payable for a certain level of non-traumatic noise-induced hearing loss that results from a worker's employment. This chapter deals with such compensation.

Most compensation cases involve a personal injury (covered in Chapter 3) where it can readily be determined whether the event or series of events leading to such injury arose out of and in the course of employment. The cause of disease, by its nature, is often more difficult to determine. A common difficulty is distinguishing between an injury and a disease (the difference is discussed in #13.10). Even when medical science has identified the cause of a disease in a general sense, it may be difficult to establish with any degree of certainty how and when a worker contracted or developed a disease. Further, workers' compensation does not extend to all diseases, rather only to those that are due to a worker's employment. In these circumstances, determining the extent to which a worker's employment had in producing the disease becomes a critical or central issue.

The question is: was the worker's disability caused by his or her work or by something else such as the operation of natural causes, or by congenital or hereditary disease. The *Workers Compensation Act* provides different ways of dealing with this issue. These are discussed in this chapter.

#25.10 Legislative Requirements

Section 6(1) provides:

"Where

- (a) a worker suffers from an occupational disease and is thereby disabled from earning full wages at the work at which the worker was employed or the death of a worker is caused by an occupational disease; and
 - (b) the disease is due to the nature of any employment in which the worker was employed, whether under one or more employments,
- compensation is payable . . . as if the disease were a personal injury arising out of and in the course of that employment. A health care benefit may be paid although the worker is not disabled from earning full wages at the work at which he or she was employed."

For the diseases to which Section 6(1) of the Act apply, there are three basic requirements for compensability:

1. The worker must be suffering (or in the case of a deceased worker have suffered) from a disease designated or recognized by the Board as an “occupational disease”;
2. The disease suffered by the worker must be or have been “due to the nature of any employment” in which the worker was employed; and
3. The worker must be “disabled from earning full wages at the work” at which he or she was employed as a result of the disease. In the case of a deceased worker, his or her death must have been caused by such disease. This is discussed further in #26.30. This third requirement does not apply to claims for silicosis, asbestosis, or pneumoconiosis (see #29.40) or to claims for non-traumatic noise-induced hearing loss to which Section 7 of the Act apply. Further, a worker need not be disabled by the disease in order to be entitled to health care benefits.

These elements of Section 6 are discussed further in the following sections. The definition of “worker” is covered in Chapter 2.

A disease which is attributed to or is the consequence of a specific event or trauma, or to a series of specific events or traumas, will be treated as a personal injury and will be adjudicated in accordance with the policies set out in Chapter 3.

#26.00 THE DESIGNATION OR RECOGNITION OF AN OCCUPATIONAL DISEASE

Section 1 of the Act defines “occupational disease” as

“any disease mentioned in Schedule B, and any other disease which the board, by regulation of general application or by order dealing with a specific case, may designate or recognize as an occupational disease, and “disease” includes disablement resulting from exposure to contamination” (emphasis added).

There are a great many diseases to which the general public are subject, many of which can be considered ordinary diseases of life. Available medical and scientific understanding about the causes of disease and about the role that employment may play covers a wide range from very good to very poor. Not every disease contracted by every worker is compensable. Deciding when they are is key to the operation of the Act and to adjudicating individual disease claims. It is within this context that decisions must be made as to the compensability of diseases, suffered by workers who are covered by the Act.

To assist in adjudicating the merits of occupational disease claims, to facilitate efficiency and consistency in the decision-making process and to establish an institutional memory (with the additional benefit of providing the working community with confirmation that the Board is aware that a disease may arise as a result of employment activities), the Act provides a means by which the Board may designate or recognize a disease as an “occupational disease”.

There are levels of designation or recognition based on the available medical and scientific evidence and on the Board’s experience in dealing with these diseases. The manner in which a disease is designated or recognized is primarily based on the strength of medical and scientific knowledge about the role employment may have in its causation. The following are the various ways in which an occupational disease may be designated or recognized.

#26.01 Recognition by Inclusion in Schedule B

Any disease listed in the first column of Schedule B is by definition designated or recognized as an occupational disease. This is the highest level of designation or recognition.

The Board lists a disease in Schedule B in connection with a described process or industry wherever it is satisfied from the expert medical and scientific advice it receives that there is a substantially greater incidence of the particular disease in a particular employment than there is in the general population. The questions to be addressed include: is the disease common in that particular employment, and not common amongst the general public? Is it something specific to the employment?

Schedule B is set out in Appendix 2. The application of Schedule B is covered in #26.21. The amendment of Schedule B is covered in #26.60.

#26.02 Recognition under Section 6(4)(b)

Section 6(4)(b) provides that:

“ . . . the board may designate or recognize a disease as being a disease peculiar to or characteristic of a particular process, trade or occupation on the terms and conditions and with the limitations the board deems adequate and proper.”

This provision gives the Board substantial flexibility in its designation or recognition of an occupational disease other than by listing it in Schedule B.

The Board may designate or recognize a disease as being a disease peculiar to or characteristic of a particular process, trade or occupation with respect to future claims in a broad sense, or it may impose a much more limited

designation or recognition by specifying whatever terms or conditions or limitations it deems appropriate.

For example, the Board has recognized osteoarthritis of the first carpometacarpal joint of both thumbs under this section as being applicable to a physiotherapist who was involved in deep frictional massage which placed particular strain on those joints. (1) This recognition is limited to factual situations substantially the same as those that applied to the worker in that decision.

This section may be used to designate or recognize a disease where the expert medical and scientific information is insufficient to cause the Board to include it in Schedule B (with the benefit of the rebuttable presumption that the Act provides), but is sufficient to cause the Board to state for decision-makers (thus establishing an institutional memory) that there is a recognized possibility that the employment contributed to the causation of the disease where the worker was employed in a specific process, trade, or occupation. In these circumstances there is no presumption that this is the case.

#26.03 Recognition by Regulation of General Application

The Board may designate or recognize a disease as an occupational disease “by regulation of general application” (section 1). In these circumstances, the Board designates or recognizes a disease as an occupational disease but without specifying that it is peculiar to or characteristic of a particular process, trade or occupation. The desired institutional memory is thus less specific. The Board has designated or recognized the following as occupational diseases by regulation:

- Bronchitis
- Campylobacteriosis (Diarrhea caused by Campylobacter)
- Carpal Tunnel Syndrome
- Chicken Pox
- Cubital Tunnel Syndrome
- Disablement from Vibrations
- Emphysema
- Epicondylitis (Lateral and Medial)
- Food Poisoning
- Giardia Lamblia Infestation
- Head Lice (Pediculosis Capitis)
- Heart Disease
- Herpes Simplex
- Hypothenar Hammer Syndrome
- Infectious Hepatitis
- Legionellosis

Lyme Disease
 Meningitis
 Mononucleosis
 Mumps
 Plantar Fasciitis
 Radial Tunnel Syndrome
 Red Measles (Rubeola)
 Ringworm
 Rubella
 Scabies
 Serum Hepatitis
 Shigellosis
 Staphylococci Infections
 Stenosing Tenovaginitis (Trigger Finger)
 Streptococci Infections
 Thoracic Outlet Syndrome
 Toxoplasmosis
 Typhoid
 Vinyl Chloride Induced Raynaud's Phenomenon
 Whooping Cough
 Yersiniosis

It is important to distinguish between designation or recognition of an occupational disease under section 6(4)(b) or by regulation of general application, and the addition of a disease to Schedule B under section 6(4)(a). Where the Board concludes that a disease is more likely to occur in connection with a particular employment covered by the Act than elsewhere, it may be added to Schedule B (see policy item #26.01). On the other hand, where the Board concludes that a disease is sometimes due to the nature of a particular employment covered by the Act, but it does not appear that the disease is more likely to occur in connection with that employment than elsewhere (it is not something specific to that employment), the Board may designate or recognize the disease under section 6(4)(b) or by regulation of general application without the rebuttable presumption afforded by inclusion in Schedule B.

Several of the above contagious diseases are not likely to be “. . . due to the nature of any employment in which the worker was employed . . .” except for hospital employees, or workers at other places of medical care.

The authority under the *Act* to designate or recognize a disease under sections 6(4)(a), 6(4)(b) or by regulation of general application rests with the Board of Directors.

EFFECTIVE DATE: February 11, 2003 (as to deletion of reference to the former Governors)
APPLICATION: Not applicable.

#26.04 Recognition by Order Dealing with a Specific Case

The lack of prior designation or recognition by the Board of a disease as an occupational disease by any of the means specified in policy items #26.01, #26.02, or #26.03, does not mean a claim for such disease will not be considered on its merits. Such disease may not have been previously designated or recognized due to weak or a complete absence of medical and scientific information which causally associates such disease with employment. If the merits and justice of an individual claim for such a disease warrant its recognition as an occupational disease, the Board may do so "by order dealing with a specific case" (section 1).

The effect of such an order is to accept the claim for compensation purposes without establishing an institutional memory for decision-makers or an expectation for others who may suffer from that disease that the disease may be due to the nature of some employment. In other words, the disease will be recognized as an occupational disease limited to the specific facts of that individual claim.

This allows an avenue of recognition for unique, meritorious, individual disease claims. As the Board repeatedly encounters such claims for a particular disease, it may determine that a higher level of designation or recognition is warranted for that disease.

An Adjudicator upon investigating an individual claim may find that the condition suffered by the worker is not one listed in the first column of Schedule B, nor is it one which has been previously designated or recognized by the Board as an occupational disease under section 6(4)(b) or by regulation. If the Adjudicator concludes, after seeking appropriate input from both the worker (or their legal representative) and the employer (if a specific employer is identified) that the facts warrant recognition of the worker's condition as an occupational disease, the Adjudicator will refer the claim with a recommendation to that effect to a panel made up of his or her Client Services Manager, (referred to in this section as the "Manager"), and a Board Medical Advisor (referred to in this section as the "Medical Advisor").

If, however, after seeking such input from the worker and employer, the Adjudicator concludes that the facts do not warrant recognition of the worker's condition as an occupational disease, the Adjudicator will disallow the claim without referring it to the panel, and will notify the worker and employer. This is a reviewable decision. The Adjudicator shall advise the Manager that the worker's condition is not one previously designated or recognized by the Board as an occupational disease, the nature of the condition, and the Adjudicator's decision to disallow the claim.

The Manager, upon receipt of a recommendation from the Adjudicator for recognition of the worker's condition as an occupational disease, and after considering and discussing the claim file with the Medical Advisor and after completing any further investigations which he or she considers appropriate, will determine whether the condition reported is one which should be recognized by the Board as an occupational disease for the purposes of that claim. If so, he or she will make an order to that effect which is recorded on the claim file. The Manager will keep a record of all such referrals under this section.

If, after considering a referral under this section, the Manager concludes that the reported condition might not be recognized as an occupational disease, the Manager will first advise the worker (or in the case of a deceased worker, their legal representative) and give him or her an opportunity to respond. A decision of the Manager not to recognize the condition as an occupational disease for the purposes of that claim is a reviewable decision.

Where the Manager makes an order to recognize the condition as an occupational disease for the purposes of that claim, the claim is returned to the Adjudicator who will determine all other relevant issues, including whether the worker is entitled to benefits provided for under the *Act*. The making of such an order by the Manager is a reviewable decision.

Where the Manager is not the Client Services Manager, Occupational Disease Services, he or she will ensure that the Client Services Manager, Occupational Disease Services is provided with written notice of any decisions under policy item #26.04.

The designation or recognition of an occupational disease by inclusion in Schedule B, under section 6(4)(b), or by regulation, does not preclude its recognition by order dealing with a specific case if it occurred prior to its designation or recognition by one of the other alternate methods.

EFFECTIVE DATE: October 1, 2007 – Revised to delete references to memos and memorandums.

HISTORY: March 3, 2003 – consequential changes as to references to review

APPLICATION: Applies on or after October 1, 2007

#26.10 Suffers from an Occupational Disease

Part of the first requirement for compensability is that the worker suffers from, or in the case of a deceased worker the death was caused by, an occupational

disease. Confirming the diagnosis of many occupational diseases may be difficult. This is particularly so for poisoning by some of the metals and compounds listed in Schedule B, the symptoms of which may be similar to the symptoms caused by common complaints that produce fatigue, nausea, headache and the like.

In one Board decision, a worker was advised by the attending physician that he was suffering from lead poisoning and should temporarily withdraw from work. The Board concurred with that advice. Laboratory testing done one month later led to a conclusion that initial tests had been wrong and that the worker never did have lead poisoning. The Board concluded that in these circumstances, where the worker acted reasonably in reliance on medical advice that the Board agreed with, the merits and justice of the claim warranted a conclusion that the worker was suffering from an occupational disease at the time in question even though in retrospect this was proven not to be the case. (2) The cost of compensation paid on a claim of this type is excluded from the employer's experience rating (see #113.10).

#26.20 Establishing Work Causation

The fundamental requirement for a disease to be compensable under Section 6(1) of the *Workers Compensation Act* is that the disease suffered by the worker is "due to the nature of any employment in which the worker was employed whether under one or more employments".

There are two approaches to establishing work causation.

#26.21 Schedule B Presumption

Section 6(3) provides:

"If the worker at or immediately before the date of the disablement was employed in a process or industry mentioned in the second column of Schedule B, and the disease contracted is the disease in the first column of the schedule set opposite to the description of the process, the disease is deemed to have been due to the nature of that employment unless the contrary is proved."

The primary significance of Schedule B is with its use as a means of establishing work causation.

The fundamental purpose of Schedule B is to avoid the repeated effort of producing and analyzing medical and other evidence of work-relatedness for a disease where research has caused the Board to conclude that such disease is specific to a particular process, agent or condition of employment (see #26.01). Once included in Schedule B, it is presumed in individual cases that fit the

disease and process/industry description that the cause was work-related. A claim covered by Schedule B can be accepted even though no specific evidence of work relationship is produced. A review of the available medical and scientific evidence would establish a likely relationship between the disease and the employment. The listing in the Schedule avoids the effort of producing the evidence in every case. Where the research does not clearly relate the disease to particular employments, the disease is not listed in Schedule B and the issue of work-relatedness must be determined on a case-by-case basis (see #26.22).

If at the time a worker becomes disabled by a disease listed in Schedule B, or if immediately before such date, such worker was employed in the process or industry described in the second column of the Schedule opposite to such disease, the worker is entitled to a presumption that the disease was caused by their employment, “unless the contrary is proved”. This presumption applies whether the disease manifests itself while the worker is at work, at home, while away on holidays, or elsewhere. The words “immediately before” used in Section 6(3) are intended to deal with those situations where someone has been employed in the process or industry described in the Schedule, and has left that employment a very short time prior to the onset of the disease.

If a worker becomes disabled by a disease listed in Schedule B but at the relevant time had not been employed in the process or industry described in the Schedule, the claim may still be an acceptable one, however no presumption in favour of work-relatedness would apply. In this event establishing work causation follows the approach covered in #26.22.

Inclusion of the words “unless the contrary is proved” in Section 6(3) means that the presumption is rebuttable. Even though the decision-maker need not consider whether working in the described process or industry is likely to have played a causative role in giving rise to the disease, they must still consider whether there is evidence which rebuts or refutes the presumption of work-relatedness.

The standard of proof to be applied in determining whether the presumption has been rebutted is proof on a balance of probabilities. This is the same basic standard of proof applicable in the workers’ compensation system. If the evidence is more heavily weighted in favour of a conclusion that it was something other than the employment that caused the disease, then the contrary will be considered to have been proved and the presumption is rebutted. The gathering and weighing of evidence generally is covered in #97.00 through #97.60.

Difficulties may arise in determining whether the worker was employed in the process or industry described in the second column. This often arises because of the use of such words as “excessive” or “prolonged”. While the Board would

like to define more precisely the amount and duration of exposure required instead of using these words, it is usually not possible. The exact amounts will often vary according to the particular circumstances of the work place and the worker, or may not be quantified with sufficient precision by the available research. However, while such words are of uncertain meaning, there is valid reason for inserting them. Individual judgment must be exercised in each case to determine their meaning, having regard to the medical and other evidence available as to what is a reasonable amount or duration of exposure.

EFFECTIVE DATE: June 1, 2004
APPLICATION: All decisions, including appellate decisions, made on or after June 1, 2004.

#26.22 Non-Scheduled Recognition and Onus of Proof

In some cases a worker may suffer an occupational disease not listed in Schedule B. In other cases a worker may suffer from an occupational disease listed in Schedule B but was not employed in the process or industry described opposite to it in the Schedule. In some cases a worker may suffer a disease not previously designated or recognized by the Board as an occupational disease. Here, the decision on whether the disease is due to the nature of any employment in which the worker was employed, is determined on the merits and justice of the claim without the benefit of any presumption. The same is true if for any other reason the requirements of section 6(3) are not met.

For this purpose the Adjudicator will conduct a detailed investigation of the worker's circumstances including information about the worker, their diagnosed condition, and their workplace activities. The Adjudicator is seeking to gather evidence that tends to establish that there is a causative connection between the work and the disease. The Adjudicator will also seek out or may be presented with evidence which tends to show there is no causative connection. The gathering and weighing of evidence generally is covered in policy items #97.00 through #97.60. The Adjudicator is to examine the evidence to see whether it is sufficiently complete and reliable to arrive at a sound conclusion with confidence. If not, the Adjudicator should consider what other evidence might be obtained, and must take the initiative in seeking further evidence. After that has been done, if, on weighing the available evidence, there is then a preponderance in favour of one view over the other, that is the conclusion that must be reached. Although the nature of the evidence to be obtained and the weight to be attached to it is entirely in the hands of the Adjudicator, to be sufficiently complete the Adjudicator should obtain evidence from both the worker and the employer, particularly if the Adjudicator is concerned about the accuracy of some of the evidence obtained.

Since workers' compensation in British Columbia operates on an inquiry basis rather than on an adversarial basis, there is no onus on the worker to prove his or her case. All that is needed is for the worker to describe his or her personal

experience of the disease and the reasons why they suspect the disease has an occupational basis. It is then the responsibility of the Board to research the available scientific literature and carry out any other investigations into the origin of the worker's condition which may be necessary. There is nothing to prevent the worker, their representative, or physician from conducting their own research and investigations, and indeed, this may be helpful to the Board. However, the worker will not be prejudiced by his or her own failure or inability to find the evidence to support the claim. Information resulting from research and investigations conducted by the employer may also be helpful to the Board.

As stated in policy item #97.10, a worker is also assisted in establishing a relationship between the disease and the work by section 99 of the *Act* that provides:

- (1) The Board may consider all questions of fact and law arising in a case, but the Board is not bound by legal precedent.
- (2) The Board must make its decision based upon the merits and justice of the case, but in so doing the Board must apply a policy of the board of directors that is applicable in that case.
- (3) If the Board is making a decision respecting the compensation or rehabilitation of a worker and the evidence supporting different findings on an issue is evenly weighted in that case, the Board must resolve that issue in a manner that favours the worker.

Therefore if the weight of the evidence suggesting the disease was caused by the employment is roughly equally balanced with evidence suggesting non-employment causes, the issue of causation will be resolved in favour of the worker. This provision does not come into play where the evidence is not evenly weighted on an issue.

If the Board has no or insufficient positive evidence before it that tends to establish that the disease is due to the nature of the worker's employment, the Board's only possible decision is to deny the claim.

EFFECTIVE DATE: March 3, 2003 (as to new wording of section 99)
APPLICATION: Not applicable.

#26.30 Disabled from Earning Full Wages at Work

No compensation other than health care benefits are payable to a worker who suffers from an occupational disease (with the exception of silicosis, asbestosis, or pneumoconiosis and claims for hearing loss to which Section 7 of the Act apply) unless the worker "is thereby disabled from earning full wages at the work at which the worker was employed". (3) No compensation is payable in respect

of a deceased worker unless his or her death was caused by an occupational disease (also see Section 6(11) of the Act).

Health care benefits may be paid to a worker who suffers from an occupational disease even though the worker is not thereby disabled from earning full wages at the work at which he or she was employed.

There is no definition of “disability” in the Act. The phrase “disabled from earning full wages at the work at which the worker was employed” refers to the work at which the worker was regularly employed on the date he or she was disabled by the occupational disease. This means that there must be some loss of earnings from such regular employment as a result of the disabling affects of the disease, and not just an impairment of function. For example, disablement for the purposes of Section 6(1) may result from:

- an absence from work in order to recover from the disabling affects of the disease;
- an inability to work full hours at such regular employment due to the disabling affects of the disease;
- an absence from work due to a decision of the employer to exclude the worker in order to prevent the infection of others by the disease;
- the need to change jobs due to the disabling affects of the employment.

A worker who must take time off from his or her usual employment to attend medical appointments is not considered disabled by virtue of that fact alone. However, income loss payments may be made to such a worker (see #83.13).

A change of employment or lay-off from work for the purpose of precluding the onset of a disability does not amount to a disability for this purpose. For time limits with respect to occupational disease claims see #32.55.

#26.50 Natural Degeneration of the Body

It often happens that disability results from the natural aging process. At times the pace of the process and each aspect of it can be influenced by environmental circumstances and activity. Work, leisure activities, genetic factors, air purity, diet, medical care, personal hygiene, personal relations and psychological make-up are all factors that may influence the pace of many kinds of natural degeneration. Where the degeneration is of a kind that affects the population at large, it is difficult for the Board to attempt a measurement of the significance of each occupation on each kind of degeneration. It is also difficult to determine whether a particular occupation had any significant effect in advancing the pace of degeneration compared with other occupations, or compared with a life of leisure. Where a degenerative process or condition is of a kind that affects the population at large, it will not be designated or recognized by the Board as an occupational disease unless employment causation can be established.

If a worker is suffering from a kind of bodily deterioration that affects the population at large, it is not compensable simply because of a possibility that work may be one of the range of variables influencing the pace of that degeneration. For the disability to be compensable, the evidence must establish that the work activity brought about a disability that would probably not otherwise have occurred, or that the work activity significantly advanced the development of a disability that would otherwise probably not have occurred until later.

For example, osteoarthritis in the spine, rheumatoid arthritis, and degenerative disc disease have not been designated or recognized under #26.01, #26.02, or #26.03 as occupational diseases. (4), (5)

#26.55 Aggravation of a Disease

Where a worker has a pre-existing disease which is aggravated by work activities to the point where the worker is thereby disabled, and where such pre-existing disease would not have been disabling in the absence of that work activity, the Board will accept that it was the work activity that rendered the disease disabling and pay compensation. Evidence that the pre-existing disease has been significantly accelerated, activated, or advanced more quickly than would have occurred in the absence of the work activity, is confirmation that a compensable aggravation has resulted from the work.

This must be distinguished from the situation where work activities have the effect of drawing to the attention of the worker the existence of the pre-existing disease without significantly affecting the course of such disease. For example, a worker who experiences hand or arm pain due to an arthritis condition affecting that limb will not be entitled to compensation simply because they experience pain in that limb from performing employment activities. Similarly, a worker with a history of intermittent pain and numbness in a hand/wrist due to a pre-existing

median nerve entrapment (carpal tunnel syndrome) will not be entitled to compensation just because their work activities also produce the same symptoms. To be compensable as a work-related aggravation of a disease, the evidence must establish that the employment activated or accelerated the pre-existing disease to the point of disability in circumstances where such disability would not have occurred but for the employment.

Where the pre-existing disease was compensable, the Adjudicator must decide if the aggravation should be treated as a new claim or as a reopening of an earlier claim.

An aggravation of a pre-existing disease which is attributed to a specific event or trauma, or to a series of specific events or traumas, will be treated as a personal injury and will be adjudicated in accordance with the policies set out in Chapter 3. For example, a worker who injures his or her back while performing a series of awkward lifts at work may suffer an aggravation to an underlying degenerative disc disease, or a worker with subacromial bursitis may strain the shoulder while completing a particular lift.

An aggravation of a pre-existing disease which is not attributed to a specific event or trauma, or to a series of specific events or traumas, will be treated as a disease. For example, a worker with a prior history of carpal tunnel syndrome may aggravate such condition to the point of requiring surgery as a result of several weeks of exposure to vibrating equipment.

Where a compensable aggravation of a pre-existing disease occurs, consideration will be given to relief of costs under Section 39(1)(e) of the Act and to Section 5(5) of the Act. (See #114.40.)

#26.60 Amending Schedule B

Section 6(4)(a) of the *Workers Compensation Act* provides:

“The board may, on the terms and conditions and with the limitations the board deems adequate and proper, add to or delete from Schedule B a disease which the board deems to be an occupational disease, and may in like manner add to or delete from the said Schedule a process or industry.”

This provision gives the Board substantial flexibility in its ability to add to or delete from the list of diseases designated or recognized in Schedule B, and to impose whatever terms, conditions or limitations it considers appropriate in

doing so. It has the same flexibility in its ability to add to or delete from the descriptions of process or industry set out in the second column.

Claims for all of the diseases in Schedule B will be considered in respect of such disease even if the worker was not employed in the process or industry described opposite to the disease in the second column of Schedule B, but without the benefit of the presumption set out in Section 6(3) of the Act. See #26.22.

#27.00 ACTIVITY-RELATED SOFT TISSUE DISORDERS OF THE LIMBS

The terms “cumulative trauma disorder”, “repetitive strain injury”, “repetitive motion disorder”, “occupational overuse syndrome”, “occupational cerviobrachial disorder”, “hand/arm syndrome”, and others, are broad collective terms used to describe a diverse group of soft tissue disorders which may or may not be caused or aggravated by employment activities. A further term (adopted by the World Health Organization) for such disorders where employment may have a significant causative role is “work-related musculoskeletal disorders” or “WMSDs”. Each of these collective terms can be misleading. They may imply the presence of “repetition” or “trauma” or “motion” or “work-relatedness” where in fact the cause of the disorder may be due in whole or in part to other factors. The common elements of the disorders included in these collective terms are that they are related to physical activity and they affect muscles, tendons, and other soft tissues. This chapter adopts the term “activity-related soft tissue disorder” or “ASTD” to describe this group of disorders which may or may not be caused or aggravated by employment activities. This chapter deals with the compensability of ASTDs affecting the limbs.

ASTDs affecting the limbs are typically characterized by discomfort or persistent pain in muscles, tendons, or other soft tissues, at times accompanied by numbness and tingling and muscle weakness (loss of power), with or without physical manifestations. In terms of causation, they are multifactorial, where work activities and work environment may play a significant role in causing or in aggravating, activating, or accelerating them. Fatigue or minor traumatic injury is often the precursor of an ASTD. Included in ASTDs affecting the limbs are a number of known clinical entities (such as tendinitis, epicondylitis, and carpal tunnel syndrome) and to a significantly lesser extent, ill-defined symptom complexes also described as “unspecified disorders” or “multiple-tissue disorders”. In the absence of a described clinical entity, these unspecified disorders are occasionally referred to in terms of the broad collective terms referred to above.

The soft tissue disorders described by these terms have differing etiologies depending on the anatomical structures affected.

Given the different recognition and treatment that certain of these disorders may receive under the *Workers Compensation Act* and under Board policy, it is normally necessary to identify the involved anatomical structures and to determine the specific diagnosed disorder(s) suffered by the worker.

As with other occupational diseases, the question is: was the worker's ASTD caused or aggravated by his or her employment. In the case of ASTDs the answer to this question may be impacted by the following:

- there may not be a direct cause and effect relationship between some employment activity and the ASTD, rather there is an interaction between a number of factors, occupational and non-occupational, that trigger or impact the process;
- little is known about the interaction of certain factors which may impact the process;
- some cases of an ASTD may be idiopathic (occurring without known cause) where a causal agent cannot be identified;
- many of the risk factors that may trigger the onset of an ASTD are part of everyday life; not all ASTDs are caused or aggravated by work;
- some ASTDs may develop over hours while others develop over years;
- two or more ASTDs may exist simultaneously; a second ASTD may occur as the result of adjusting to or compensating for the first;
- individuals react differently to risk factors; some people are more susceptible to ASTDs than others.

Where the strength of association between an employment activity and a specific ASTD is strong, it may be listed in Schedule B with the benefit of the rebuttable presumption provided for in Section 6(3) of the Act. For all other ASTDs, the decision on causation can only be a judgment one makes in the particular circumstances of the claim by weighing the evidence for and against work-relatedness.

#27.10 ASTDs Recognized by Inclusion in Schedule B

Four such ASTDs are recognized as occupational diseases by inclusion in Schedule B; namely bursitis (#27.11), tendinitis, tenosynovitis (#27.12), and hand-arm vibration syndrome (#27.13).

#27.11 Bursitis

Schedule B lists “Knee bursitis (inflammation of the prepatellar, suprapatellar, or superficial infrapatellar bursa)” and “Shoulder bursitis (inflammation of the subacromial or subdeltoid bursa)” as occupational diseases.

A bursa is a sac-like cavity lined with a slippery synovial tissue. It is typically

found at a site of potential friction between tendons and muscles and a bony prominence lying beneath them. The primary purpose of the bursa is to reduce friction between the tissues. By virtue of its anatomical proximity to less flexible structures, a bursa can become inflamed if it is subjected to excessive friction, rubbing or pressure.

Bursitis is inflammation of a bursa. It is most commonly found in the knee involving the prepatellar or superficial infrapatellar bursa. Bursitis may also be caused by general inflammatory diseases (such as rheumatoid arthritis) or by bacterial infections typically following a puncture wound.

A claim for bursitis attributed to a sudden trauma to the knee (such as kneeling on a protruding object), to a sudden trauma to the shoulder, or for an infection of the bursa due to a penetrating wound, will be treated as an injury and will be adjudicated in accordance with the policies set out in Chapter 3. A claim made by a worker diagnosed with bursitis where no specific trauma or penetrating wound has occurred, will be treated as a disease and will be adjudicated in accordance with the policies set out in Chapter 4.

The following guiding principles apply when interpreting terms in Schedule B in connection with shoulder bursitis (Schedule B item 12(b)) and shoulder tendinitis (Schedule B item 13(b) – also see #27.12).

Frequently repeated abduction or flexion of the shoulder joint

In determining whether a particular work task involves “frequently repeated...abduction or flexion of the shoulder joint” consideration is given to such matters as:

- the frequency of the work cycle for the tasks being performed (how often there is abduction or flexion of the shoulder joint greater than sixty degrees);
- the amount of time during a work cycle that the affected muscle/tendon groups of the shoulder are working compared to the amount of time such tissues have to return to a relaxed or resting state;
- the amount of time between work cycles that the affected muscle/tendon groups of the shoulder have to return to a relaxed or resting state;
- whether other activities are performed between work cycles that require motions or muscle contractions that affect the ability of the affected muscle/tendon groups of the shoulder to return to a relaxed or resting state, and if so whether such activities are repetitive in nature.

Generally, tasks that are considered to involve “frequently repeated... abduction or flexion of the shoulder joint” include:

- ones that involve abduction or flexion of the shoulder joint greater than sixty degrees at least once every thirty seconds; or
- ones that are repeated and where at least 50 percent of the work cycle involves abduction or flexion of the shoulder joint greater than sixty degrees and where the muscle/tendon groups of that shoulder have less than 50 percent of the work cycle to return to a relaxed or resting state.

Whether tasks that involve lower work cycle frequencies or greater periods of rest and recovery time than referred to above involve “frequently repeated...abduction or flexion of the shoulder joint”, will require the exercise of judgment based on the circumstances of the individual claim.

Sustained abduction or flexion of the shoulder joint

“Sustained abduction or flexion of the shoulder joint” means that the shoulder joint is held in a static position of abduction or flexion greater than sixty degrees. The greatest pressure is placed on the shoulder bursa when there is between 60 and 120 degrees of abduction or flexion (0 degrees being when the arm is straight down by the side of the torso). The longer the shoulder joint is held in such a static position during the work cycle, and the less time the affected muscle/tendon groups of the shoulder have to return to a relaxed or resting state, the more one is able to conclude that the work involves “sustained abduction or flexion of the shoulder joint”. Conversely, the less time the shoulder joint is held in such a static position during the work cycle, and the more time that the affected muscle/tendon groups of the shoulder have to return to a relaxed or resting state, the less one is able to conclude that the work involves “sustained abduction or flexion of the shoulder joint”.

Significant component of the employment

Use in Schedule B items 12(b) and 13(b) of the words “where such activity represents a significant component of the employment” means that the worker has been performing work activities involving the described use of the shoulder joint for sufficiently long that it is biologically plausible that the inflammation affecting the shoulder has resulted from the work activities. Employment activities that have involved minimal or trivial use of the shoulder joint do not amount to “a significant component of the employment”.

For claims that do not meet the descriptions contained in items 12(a), 12(b) or 13(b) of Schedule B, see #27.20.

#27.12 *Tendinitis and Tenosynovitis*

Schedule B lists “Hand-wrist tendinitis, tenosynovitis (including deQuervain’s tenosynovitis)” and “Shoulder tendinitis” as occupational diseases.

The performance of work often involves positioning and exerting the upper extremities in order to carry out tasks. Tendons carry much of the strain in the performance of certain types of work. If the strain on the tendon is large enough or lasts long enough (resulting in insufficient recovery time), the tendinous tissue may be damaged, leading to an inflammatory response in the tendon or extending to the tendon sheath.

Inflammation of a tendon (tendinitis) and of its synovial sheath (tenosynovitis) may occur at the same time.

Common sites for these inflammations include:

- the shoulder – for example rotator cuff tendinitis, supraspinatus tendinitis (either of which may cause an impingement syndrome), and bicipital tendinitis. Any of these may occasionally lead to frozen shoulder (adhesive capsulitis);
- the hand and wrist – for example deQuervain’s tenosynovitis (inflammation affecting the abductor pollicis longus and the extensor pollicis brevis tendons).

Hand-wrist tendinitis/tenosynovitis and shoulder tendinitis may result from sudden strain placed on the tendons (such as where the tendon is suddenly contracted or stretched with sufficient force to cause immediate damage). Such a claim will be treated as an injury and will be adjudicated in accordance with the policies set out in Chapter 3. A claim made by a worker diagnosed with hand-wrist tendinitis/tenosynovitis or with shoulder tendinitis where no specific event or trauma, or series of events or traumas, has occurred, will be treated as a disease and will be adjudicated in accordance with the policies set out in Chapter 4.

Hand-wrist tendinitis or tenosynovitis

The following guiding principles apply when interpreting terms in Schedule B in connection with hand-wrist tendinitis/tenosynovitis (Schedule B item 13(a)).

Frequently repeated

In determining whether a particular work task involves “frequently repeated” motions or muscle contractions, consideration is given to such matters as:

- the frequency of the work cycle for the tasks being performed (the number of times the same motion or muscle contraction is performed within a specified period);
- the amount of time during a work cycle that the affected muscle/tendon groups are working compared to the amount of time such tissues have to return to a relaxed or resting state;
- the amount of time between work cycles where the affected muscle/tendon groups are able to return to a relaxed or resting state;
- whether other activities are performed between work cycles that cause stresses to be placed on the affected muscle/tendon groups that affect the ability of those tissues to return to a relaxed or resting state, and if so whether such activities are repetitive in nature.

A worker who is performing the same work task(s) again and again without interruption or rest between, is likely required to perform “frequently repeated motions or muscle contractions”.

Generally, tasks (that place strain on the affected tendon(s)) that are considered to involve “frequently repeated motions or muscle contractions” include:

- ones that are repeated at least once every 30 seconds; or
- ones that are repeated and where at least 50 percent of the work cycle is spent performing the same motions or muscle contractions and where the affected muscle/tendon groups have less than 50 percent of the work cycle to return to a relaxed or resting state.

Whether tasks that involve lower work cycle frequencies or greater periods of rest and recovery time than referred to above involve “frequently repeated motions or muscle contractions”, will require the exercise of judgment based on the circumstances of the individual claim.

Significant flexion, extension, ulnar deviation or radial deviation

“Significant flexion, extension, ulnar deviation or radial deviation of the affected hand or wrist” means:

- moving (or holding) the hand or wrist in greater than 25 degrees of flexion, or
- moving (or holding) the hand or wrist in greater than 25 degrees of extension, or
- moving (or holding) the hand or wrist in greater than 10 degrees of ulnar deviation, or
- moving (or holding) the hand or wrist in greater than 10 degrees of radial deviation.

Forceful exertion

“Forceful exertion” of the muscles utilized in handling or moving tools or other objects means that the muscles and tendons which are used are loaded to a significant proportion of the maximum mechanical limit of those tissues. This limit will vary depending on factors such as the size, strength, and fitness level of the individual performing the work.

In determining whether the worker has been engaged in “forceful exertion of the muscles utilized”, consideration is given to such matters as:

- the weight of the tool or work object;
- the manner in which the tool or work object is moved (pushed, pulled, carried, lifted, lowered, gripped, pinched etc);

- the distance the tool or work object is moved;
- the speed at which the tool or work object is moved (extra force may be needed to start or stop moving objects);
- the amount of friction that exists between the tool or work object and the worker's hand (slippery tools may require greater force to grip) or between the tool or work object and other surfaces (greater force may be required to overcome that friction);
- whether tools or work objects are handled using a pinch grip or a power grip (pinch grips exert more force on the tendons of the thumb and fingers);
- whether sustained force must be applied (after an initial force is applied);
- whether the tool or work object is vibrating (greater force may be required to control a vibrating object).

Other evidence may be relevant to determining whether there was "forceful exertion" in the circumstances of the individual claim.

Significant component of the employment

Use in Schedule B item 13(a) of the words "where such activity represents a significant component of the employment" means that the worker has been exposed to the processes described in paragraphs (1), (2), and/or (3) of item 13(a) for sufficiently long that it is biologically plausible that the hand-wrist tendinitis/tenosynovitis has resulted from the work activities. Employment activities that have involved minimal or trivial use of the hand-wrist as described in item 13(a) do not amount to "a significant component of the employment".

For claims that do not meet the descriptions contained in item 13(a) of Schedule B, see #27.20.

Shoulder tendinitis

The policies set out in #27.11 dealing with interpreting the terms "frequently repeated...abduction or flexion of the shoulder joint", "sustained abduction or flexion of the shoulder joint", and "significant component of the employment" apply in interpreting those terms used in Schedule B item 13(b).

#27.13 Hand-Arm Vibration Syndrome (HAVS)

Schedule B lists "Hand-arm vibration syndrome" as an occupational disease. The process or industry described opposite to it is "Where there has been at least 1000 hours of exposure to tools or equipment which cause the transfer of significant vibration to the hand-arm of the claimant". This listing covers the

condition also known as vibration-induced Raynaud's phenomenon or vibration-induced white finger (VWF).

Operators of vibratory tools or equipment may develop physiologic changes induced by that vibration. These tools and equipment include, but are not limited to, chainsaws, pneumatic drills, impact wrenches, chipping hammers, grinders, jackhammers, and polishers. Initial symptoms of these physiologic changes may include persistent numbness and tingling, swelling and/or blanching of the fingers.

The following represents a list of the most important risk factors relevant to the adjudication of all claims for Hand-arm vibration syndrome.

dose:

This is the most important risk factor in the development of HAVS. It is a function of both the level or intensity of the vibration and the duration or length of time exposed to that vibration. It is generally considered that frequencies in the range of 5 to 1500 cycles per second can be hazardous. Intensity is usually measured by the level of acceleration of the vibrating tool (the time rate of change of the speed of the vibrating object measured in metres per second per second, or m/sec^2). The greater the dose of vibration (the greater the acceleration of the vibrating tool and/or the greater the cumulative hours of exposure to the vibration) the lower is the latency period measured from the time of first exposure to the vibration and the onset of symptoms of Hand-arm vibration syndrome.

In order for the presumption to apply in the case of HAVS, there must have been at least 1000 hours of exposure. It should be noted, however, that the condition could occur with exposures less than 1000 hours if the intensity of the exposure is significant. Such cases must be considered on their own merits.

Use of the words "significant vibration" in Schedule B is a recognition that the intensity of vibration experienced by the worker must be significant for the presumption in favour of work causation to apply. Individual judgment must be exercised in each case to determine whether exposure to significant vibration has occurred having regard to the evidence available.

nature of exposure:

Continuous exposure to vibration may increase the risk of developing Hand-arm vibration syndrome when compared to exposure to vibration which is interrupted by rest periods (e.g. 10 minutes of rest during each hour of exposure).

grip force:

The greater the grip force used to grasp the vibrating tool or equipment, the more efficient is the transfer of vibration energy to the hand-arm of the worker and the greater the risk that physiologic changes will occur. For some tools the greater the intensity of the vibration, the greater will be the grip force required to control the tool.

protective equipment:

Anti-vibration gloves may absorb some of the higher frequencies (above 500 cycles per second) and allow workers to maintain hand temperatures and to prevent calluses. Conventional glove designs do little to absorb frequencies below 500 cycles per second. Some of these gloves may actually amplify lower frequencies.

individual susceptibility:

Workers with pre-existing conditions such as connective tissue diseases or vascular diseases may be more susceptible to vibration-induced physiologic changes that may result in Hand-arm vibration syndrome.

In order to conclude that a worker suffers from hand-arm vibration syndrome, it must be concluded that the worker does not suffer from primary Raynaud's disease (which is a recognized clinical entity that has no known cause) or from other non-vibration induced causes of secondary Raynaud's phenomenon. These include, but are not limited to, collagen vascular disease, peripheral vascular disease, or peripheral neuropathies such as carpal tunnel syndrome. The presence or absence of these conditions should be commented upon by the physician who has assessed the worker.

Most compensable injuries and diseases involve an initial period of temporary disability during which temporary total or temporary partial disability benefits are paid. The physical impairment of the worker will usually improve in time until it disappears entirely or becomes permanent. However, in the case of some diseases, there is no initial period of temporary disability; the disability is permanent right from the time it first becomes manifest as a disability and no temporary disability benefits are payable. Hand-arm vibration syndrome is one of these diseases. There are also others. For example, hearing loss caused by exposure to occupational noise. Permanent disability awards are payable in respect of the disabilities caused by these diseases only once a specified minimum level of impairment is reached. Temporary disability benefits are payable in those rare cases where a period of temporary disability results from the disease.

Where a worker claims to have developed a disorder affecting one or both feet as a result of exposure to vibration, such as from standing on a vibrating platform or in vibrating machinery, such claim may be classified either as an injury or a disease, depending on the circumstances (see #13.12 and #27.34). Where such worker claims to have experienced a gradual deterioration in their feet due to exposure to vibration over time, such claim will be treated as an occupational disease. “Disablement from vibrations” has been designated or recognized as an occupational disease by regulation (see #26.03). Such a claim must be considered on its own merits (without the benefit of any presumption).

#27.14 Hypothenar Hammer Syndrome

Hypothenar hammer syndrome has been designated or recognized as an occupational disease by regulation (Section 1 of the Act).

This condition is due to repeated blunt trauma to the ulnar border of the affected hand. It will often occur in workers who use their bare hand as a hammer in order to strike or pound hard objects. The area of the hand where contact is made is usually the hypothenar eminence. Repeated blows to this ulnar portion of the hand can result in thrombosis or aneurysm formation in the branches of the ulnar artery, which in turn can produce a painful lump in the hypothenar area and/or numbness in the fourth or fifth fingers.

There are a number of non-occupational activities which may involve repeated blunt trauma to the ulnar border or other parts of the hand (for example, participation in some martial arts or self defense activities, certain sports, such as handball and baseball catcher, or playing certain percussion instruments). In the investigation of a claim for hypothenar hammer syndrome the adjudicator will determine how and to what extent the worker uses the affected hand in striking or pounding objects in both the occupational and non-occupational settings.

Each claim must be determined according to its own merits. If the evidence in a particular claim indicates that there are factors suggesting both an occupational and non-occupational cause for the hypothenar hammer syndrome, the decision on the claim can only be a judgment one makes in the particular circumstances by weighing the evidence.

#27.20 Tendinitis/Tenosynovitis and Bursitis Claims Where No Presumption Applies

This Section deals with claims where the worker has tendinitis/tenosynovitis or bursitis, but was not at the relevant time “employed in a process or industry mentioned in the second column of Schedule B”.

A claim for compensation will be accepted for a worker who suffers from a disease designated or recognized by the Board as an occupational disease which the evidence establishes as having resulted from employment covered by the Act. Where a worker suffers from an occupational disease listed in Schedule B but was not employed in the process or industry described opposite to the disease in the second column of Schedule B, that simply means that there is no presumption of work causation. In that event, the Adjudicator must still determine on the evidence whether the disease was due to the nature of the employment under Section 6(1) of the Act.

The requirements of the second column of Schedule B are not preconditions or limitations to the acceptance of a claim. There may be other evidence supporting the conclusion that the disease is due to the nature of the worker's employment. It also follows that the requirements of the second column of Schedule B are not the only matters to be considered for that disease in the adjudication of the claim. It is only where the presumption applies that it may be unnecessary to consider such other matters because work causation will already have been established. Additionally there may be situations where the nature of the work activity is such as would ordinarily raise a likelihood of work causation, but there exists other evidence, which suggests a contrary conclusion. For example, both wrists may be affected by the same condition but the worker only ever used one wrist in performing the work, or the worker may be suffering from an underlying disease which itself is capable of producing the condition for which the claim is made (such as rheumatoid arthritis producing a wrist tendinitis). The decision in such a case can only be a judgement one makes by weighing the evidence for and against work causation. An assessment of risk factors related to the employment will normally be the most important consideration in these types of claims. However, this is not the only consideration. Non-occupational risk factors may exist relative to the claim, which tend to refute the conclusion which might ordinarily be suggested by an assessment of the work activity. For a discussion of risk factors see #27.40.

In the investigation of a claim for tendinitis/tenosynovitis or bursitis (in circumstances where no presumption applies) it is incumbent on the Adjudicator to seek out evidence of both occupational and non-occupational exposure to risk factors relevant to the causation of the disorder (see #26.21 regarding the approach when a presumption applies). Non-occupational exposures may be present as a result of participating in sports, hobbies, or certain ordinary activities of daily living. The compensability of such a claim depends on whether or not the employment activities (the occupational exposure to risk factors) played a significant role in producing the inflammatory disorder. The occupational exposure need not be the sole or even the predominant cause; it simply needs to have been a significant cause.

Although the risk of developing tendinitis/tenosynovitis or bursitis may be significantly greater where, in the performance of work tasks, two or more risk factors are present at the same time, these inflammatory disorders may result from a particularly frequent, intense or prolonged exposure to a single risk factor. Even though work causation may not be established by virtue of applying the presumption set out in Section 6(3) of the Act, the Adjudicator may conclude that exposure to a single risk factor (whether described in the second column of Schedule B or not) played a significant role in producing the tendinitis/tenosynovitis or bursitis, and that accordingly the claim meets the requirements of Section 6(1) of the Act.

In assessing whether or not a tendinitis/tenosynovitis or bursitis condition is due to the nature of a worker's employment, in circumstances where there is evidence of both occupational and non-occupational exposure to risk factors (relevant to the causation of these inflammatory disorders), consideration is given to such matters as:

- the relative frequency, intensity, and duration of exposure to risk factors encountered in connection with the worker's employment compared to those encountered in non-occupational activities;
- whether the intensity of the forces placed on the affected tissues in connection with the worker's employment activities are likely to produce injury (such as a sudden stretching of tendinous tissues) when compared to such likelihood arising from the intensity of forces encountered in connection with the worker's non-occupational activities;
- the likelihood that the worker's occupational and non-occupational activities may have acted together in the development of the inflammatory disorder in circumstances where the inflamed tissues have had insufficient time to return to a relaxed or resting state due to the combined effects of these activities;
- whether any changes took place in either the employment activities or the non-occupational activities prior to or at the time of onset of symptoms of the inflammatory disorder, noting that performing unaccustomed activities may significantly increase the risk (see reference to "unaccustomed activity" in #27.40);
- whether there is evidence of similar inflammatory disorders occurring in other workers who perform the same type of tasks as those performed by the worker, and whether there is evidence of such disorders occurring in the general population among those who are engaged in the same type of non-occupational activities as those in which the worker is engaged;

- the likelihood that the worker's combined employment activities (where the worker has more than one employment) may have acted together in the development of the inflammatory disorder in circumstances where the inflamed tissues have had insufficient time to return to a relaxed or resting state due to the combined effects of those activities;
- whether the worker has previously suffered injuries, inflammation, or infections associated with the affected tissues, and if so the likely cause of these prior conditions;
- whether there is evidence of a disorder (such as a degenerative tear or infection) at or near the site of the subject condition;
- whether the worker has suffered from any degenerative or systemic disorders (including but not limited to degenerative arthritis, rheumatoid arthritis, gout, systemic lupus erythematosus, connective tissue disease, or inflammatory rheumatological disorder), and if so whether such underlying disorder is the likely cause of the subject inflammatory disorder, or alternatively has had the effect of rendering the worker more susceptible such that shorter, or less frequent, or less intense exposure to risk factors may initiate the subject disorder;
- whether the worker is taking prescription medications, is undergoing any therapy or treatment for any other condition, or is pregnant, and if so whether this is a likely cause of the subject disorder or alternatively has had the effect of rendering the worker more susceptible.

#27.30 ASTDs Recognized by Regulation

The following disorders which may be caused or aggravated by employment activities have been designated or recognized as occupational diseases by regulation (Section 1 of the Act):

- epicondylitis, lateral and medial
- carpal tunnel syndrome
- cubital tunnel syndrome
- radial tunnel syndrome
- thoracic outlet syndrome
- stenosing tenovaginitis (trigger finger)
- disablement from vibrations

As with other diseases recognized by regulation, there is no presumption in favour of causation. These diseases are compensable only if the evidence establishes in the particular case that the disease is due to the nature of any employment in which the worker was employed. These diseases are discussed in further detail in #27.31 through #27.34.

#27.31 Epicondylitis

Epicondylitis is a localized inflammation of the muscle and tendon where they attach to the bone (epicondyles) at either side of the elbow. Inflammation on the lateral side is lateral epicondylitis (sometimes called tennis elbow) and on the medial side is medial epicondylitis (sometimes called golfer's elbow). Medical/scientific research on epicondylitis does not as a whole confirm a strong association with employment activities and its mechanisms of development are obscure. Some individual studies do indicate an excess incidence of epicondylitis in employments with tasks strenuous to the muscle-tendon structures of the arm. One often referred to theory suggests that microtears at the attachment of the muscle to the bone may be due to repetitive activity with high force sufficient to exceed the strength of the collagen fibres of the tendon attachment. This in turn may lead to the formation of fibrosis and granulation tissue.

As the research does not clearly relate epicondylitis to any particular employments, each claim must be determined according to its own merits.

The Board recognizes that where the worker was occupationally performing frequent, repetitive, forceful and unaccustomed movements (including forceful grip) of the wrist that are reasonably capable of stressing the inflamed tissues of the arm affected by epicondylitis, and in the absence of evidence suggesting a non-occupational cause for the worker's epicondylitis condition, a strong likelihood of work causation will exist. These factors are not preconditions to the acceptance of a claim for epicondylitis nor are they the only factors which may be relevant. For example, lateral epicondylitis has been shown to occur in tennis players (some studies showing a strong causative association) who are well accustomed to the motions and forces involved. The issue to be determined in any individual claim is whether the evidence leads to a conclusion that the epicondylitis is due to the nature of the worker's employment.

#27.32 Carpal Tunnel Syndrome

Carpal tunnel syndrome is a condition caused by compression of the median nerve at the wrist. There are many causes of such a median nerve compression, both occupational and non-occupational. Carpal tunnel syndrome occurs in the general population and often without any obvious cause.

Increased pressure on the median nerve may be caused by swelling in the carpal tunnel through which the nerve passes resulting from mechanical irritation of adjacent tissues (tendons or muscles). The nerve may be injured due to the increased pressure on it.

Some theories suggest that repetitive stretching or compression of the median nerve in the carpal tunnel results in inflammation of the tissue. This may lead to tissue scarring and a reduction of the size of the carpal canal resulting in compression of the nerve. Ischemia (restriction of blood flow) may also play a role in causing carpal tunnel syndrome. A gradual thickening of the transverse carpal ligament, which may occur spontaneously with aging, has also been suggested as a possible mechanism.

A comparison of medical/scientific research on carpal tunnel syndrome indicates that work activities utilizing the hand/wrist that involve high repetition associated with high force, prolonged flexed postures of the wrist, high repetition associated with cold temperatures, or the use of hand-held vibrating tools are more likely to be associated with increased risk for carpal tunnel syndrome.

Non-work-related risk factors include diseases or conditions which may contribute to reducing the size of the carpal canal including diabetes mellitus, rheumatoid arthritis, thyroid disorders, gout, ganglion formation, and other non-rheumatic inflammatory diseases. Pregnancy and use of oral contraceptives are associated with increased risk for carpal tunnel syndrome. Other factors for which there is some evidence, at times conflicting, include hysterectomy, excision of both ovaries, age at menopause, obesity, and estrogen imbalances. The size of the carpal canal may be reduced by a Colles' fracture (which may or may not have occurred in the course of employment activities). The existence of such non-work-related factors does not reduce the importance of the nature of the employment activities. See #27.40.

The Board recognizes that where the worker was occupationally performing frequent, repetitive and forceful movements of the hand/wrist, including gripping, (particularly if unaccustomed) that are reasonably capable of stressing the tissues of the hand/arm affected by carpal tunnel syndrome, and in the absence of evidence suggesting a non-occupational cause for the worker's condition, a strong likelihood of work causation will exist. These factors are not preconditions to the acceptance of a claim for carpal tunnel syndrome nor are they the only factors which may be relevant.

Consideration should be given to whether the condition is bilateral (involving both wrists) and whether both became symptomatic at the same or different times, in light of the degree to which each hand/wrist is utilized in carrying out the employment activities. As both hands may not perform identical activities and are therefore subject to different risk factors, a work-related carpal tunnel syndrome may be more likely to be unilateral. Carpal tunnel syndrome due to systemic illness is more likely to be bilateral. Consideration should also be given to whether the symptoms of carpal tunnel syndrome improve with rest (stopping work) or whether they continue to progress or worsen. The latter may suggest a non-occupational cause.

Each claim must be determined according to its own merits. If the evidence in a particular claim indicates that there are factors suggesting both an occupational and non-occupational cause for the carpal tunnel syndrome, the decision on the claim can only be a judgment one makes in the particular circumstances by weighing the evidence for and against an employment relationship. Section 99 of the Act will apply if the possibilities for which there is evidential support are evenly balanced.

#27.33 Other Peripheral Nerve Entrapments and Stenosing Tenovaginitis

Cubital tunnel syndrome (an ulnar nerve compression at the elbow), radial tunnel syndrome (a radial nerve compression at the proximal forearm level laterally) and thoracic outlet syndrome (a neurovascular compression of the brachial plexus at the thoracic outlet/axillary region) are syndromes which typically result in numbness and tingling, pain, and weakness of the upper limb(s). They may be caused or aggravated by occupational or non-occupational activities, particularly in an individual who by virtue of their specific anatomical makeup is susceptible to these disorders.

Stenosing tenovaginitis (or tenovaginitis stenosans) is characterized by a fibrous thickening of the tendon sheath which results in a snapping movement of a finger due to swelling and restricted gliding of the tendon. It is often called “trigger finger”. This condition most commonly involves the flexor tendons of the hand.

Medical research does not clearly relate any of these peripheral nerve entrapments or stenosing tenovaginitis to any particular employments and accordingly each claim must be determined according to its own merits.

#27.34 Disablement from Vibrations

A disablement caused by vibrations may be classified either as an injury or a disease, depending on the circumstances. The distinction is dealt with in more detail in #13.10 and #13.12.

#27.35 Unspecified or Multiple-Tissue Disorders

A worker may suffer from a disorder which is not categorized as any of the clinical entities described in #27.11 through #27.34. He or she may suffer from an unspecified symptom complex, perhaps affecting multiple body regions. The attending physician(s) may state that the worker suffers from “repetitive strain injury”, “cumulative trauma disorder”, “overuse syndrome”, “occupational cerviobrachial syndrome”, or the like, due to the not easily categorized clinical findings. The worker and/or the attending physician may believe that the resulting disability is caused or aggravated by employment activities, even though no event or trauma, or series of events or traumas occurred.

Such a claim must be considered on its own merits. Such consideration takes place even though a clinical entity familiar to the Board has not been diagnosed. The matters referred to in #26.04 (recognition by order dealing with a specific case) would apply to such a claim. The Adjudicator should, however, make whatever inquiries they consider appropriate in the circumstances of the claim to determine whether the worker in fact suffers from one or more of the disorders referred to in #27.11 through #27.34, particularly if the worker's attending physician has diagnosed the disorder using one of the broad collective terms such as "repetitive strain injury".

#27.40 Risk Factors

Determining whether the worker's disorder is due to the nature of any employment in which the worker was employed for any of the disorders referred to in #27.11 through #27.35 requires an analysis of risk factors relevant to the causation of ASTDs. As used here a "risk factor" is a general term for a factor which the medical/scientific research indicates may be relevant to the issue of causation. The presence or absence of some risk factors will suggest occupational causation while the presence or absence of others will suggest non-occupational causation. The decision on any individual claim can only be a judgment one makes by weighing the evidence for and against work-relatedness.

A particular risk factor may be physical/mechanical (such as vibration), or physiological (such as flexion of a joint). Risk factors may act directly in causing an ASTD or they may act indirectly by creating the conditions that may lead to an ASTD. Risk factors are not equal nor can they be consistently ranked in order of importance. Their relative importance will vary with the circumstances of each claim. Individual judgment must be exercised in each case to determine the weight to be given to each risk factor having regard to the available evidence.

For most risk factors, the decision-maker will want to consider each of the following in terms of assessing the potential for that risk factor to cause or contribute to the development of a particular ASTD:

- the *location* of the anatomical structure affected (e.g. the elbow):

The decision-maker should determine what physical motions or activities are performed while carrying out the work duties. Determining what muscle groups, tendons and joints are involved will assist the decision-maker in evaluating whether there is a plausible connection between the work and the disorder. For example, the work may involve repeated gripping of an object, lifting it, rotating it, and placing it down again, such as may be done on a quality control

assembly line. As this work involves frequent supination of the forearm with repetitive movement of the supinators and the tendon attachment to the lateral epicondyle, there is a plausible physiological connection between such work and the development of lateral epicondylitis.

- the *magnitude/intensity* of the risk factor:

This relates to the amount of musculoskeletal load on the body tissues involved or the amount of physical effort the individual has to put into a particular movement or activity. See discussion on force. For example, the magnitude of the effort to tighten a screw with a screwdriver is much higher than that of turning the page of a book, although the same muscle groups are used.

- the *time variation* of the risk factor (frequency):

This relates to the amount of time it takes to perform a particular action/activity (the work cycle) and to the amount of time the affected muscle/tendon groups have to return to a neutral recovery state. One way of looking at this is the ratio of time the affected tissues are loaded versus unloaded. For example, the time variation is greater for an assembly line worker who must tighten a screw to a plate once every 10 minutes than it is for such a worker who does the same task 15 times per minute. For the latter worker, the muscle/tendon groups have little or no time to return to a neutral resting state.

- the *duration* of the risk factor:

This relates to the length of time a person is exposed to a particular task. For example, a person may be exposed to a task that continually uses the same muscle/tendon groups hour after hour, day after day, etc.

The following represents a non-exhaustive list of risk factors relevant to the adjudication of claims for the conditions referred to in #27.11 through #27.35:

Related to the performance of the work

repetition:

- the cyclical use of the same body tissues either as a repeated motion or as repeated muscular effort without movement. The shorter the time variation of a repeated muscle, tendon, or joint movement required to perform a task the less time such tissues will have to return to the resting state for recovery, and the higher the potential for causing an ASTD. The time variation of repetition may be expressed as the frequency of the work cycle.

force:

- the musculoskeletal load on the tissues involved. This load may be manifested on the body through tension (such as muscle tension), pressure (such as increased pressure in the carpal canal), friction (such as between a tendon and its surrounding sheath), or irritation (such as irritation of a peripheral nerve). The greater the magnitude/intensity of the force required by the muscle/tendon group involved, the greater the potential for causing an ASTD and the shorter its latency.

static load:

- when a limb is held or maintained against gravity, or against some other external force. Static loading can also be considered to be present when, upon moving a limb, the musculoskeletal load does not return to zero after each motion. As there are limitations to the body's ability to deal with such sustained loads, the duration and time variation elements become important, as well as task invariability.

task variability:

- the degree to which the task remains unchanged thus causing loading of the same tissues in the same way, particularly if there is no change or interruption in a repeated task. The less varied the task, the less likely are the affected tissues able to return to a resting state for recovery.

awkward postures:

- postures such as where joints are held at or near the end range of motion for that joint, or where loads are supported by passive tissues, or where muscle tension is required to hold the posture (such as

holding the arm straight out at shoulder height). Awkward postures place significant stresses on tendons, muscles and other soft tissues and reduce the tolerances of such tissues. Some postures may adversely affect the physiologic function of the arm as a result of impingements, occlusion of blood flow and the like. Postures to watch for include:

- overhead reaching and lifting
- postures involving static shoulder loads
- sustained shoulder abduction or flexion
- sustained flexion or extension of the wrist
- sustained ulnar deviation of the wrist

local mechanical stresses:

- result from physical contact between body tissues and objects in the work environment such as tools, machinery, and products. This usually involves the knee, shoulder, elbow, wrist and hand. Point pressure may also occur at the sides of fingers where the digital nerves and blood supply are located and may compromise the normal physiological functioning of these body structures.

shock (impact loading):

- may result from kickback or torque resistance such as may occur when using impact wrenches or nut drivers. Shock may also occur if the worker uses a limb as a hammer such as may occur if they are trying to strike something into place.

grip type:

- pinch type grips require about five times higher tendon and muscle loads than a power grip which utilizes the entire hand to grasp an object.

vibration:

- may consist of hand/arm vibration (perhaps secondary to the use of hand-held, vibrating tools) or whole-body vibration (perhaps secondary to sitting in a piece of machinery that vibrates). The greater the duration and/or intensity of the vibration, the higher is the potential for causing an ASTD.

extremes of temperature:

- hot or cold. Cold may have direct damaging effects on the tissue through vascular constriction and other mechanisms or may induce the worker to wear protective clothing, such as gloves, which may in turn impact tissue loading and grip mechanisms.

unaccustomed activity:

- new job task or machine; return to work after a leave or other absence. Resistance to injury is considered to be lower for unaccustomed activity due to a lack of acclimatization/adaptation. The general fitness level of the person may have an impact on this factor

-

Related to the work environment

ergonomic aspects:

- includes poorly designed workstations, poorly designed task methods, and poor tool design. Is the work performed in an ergonomically proper manner? Poor ergonomics may result in, among others, prolonged static loading, awkward postures, local mechanical stresses, and non-optimal work techniques.

work organization:

- the way in which the work tasks are structured, supervised, and processed. The way in which work tasks are organized will affect the way in which the work is performed, and the degree to which affected tissues may be utilized. For example, if overtime is a regular part of the employment, there will be periods of additional loading of muscle/tendon groups. If worker remuneration involves the payment of production incentives (such as piece work), some workers may attempt a faster pace or may take less rest periods. A lack of supervision may result in workers adopting non-approved work techniques.

work behaviour:

- refers to worker behavior such as adopting non-optimal techniques or work habits. Is there worker preference for improper methods?
cognitive demands:

- the amount of mental effort required to perform the work tasks. Cognitive demands can impact the level of muscular tension which may result in muscle overload.

rest breaks/rotation:

- distribution of rest breaks and frequency of job rotation impact the effect of other risk factors; the more rest breaks the greater is the opportunity for tissues to return to a neutral state for recovery; the more the task rotation the lower is the loading of particular muscle/tendon groups.

Related to the individual

age:

- the normal reparative and wound-healing process slows with increased age.

moderate to heavy smoking:

- nicotine may reduce blood flow to the tissues.

previous similar history:

- a history of prior musculoskeletal disorder; previous injury.

inflammatory disorders:

- rheumatoid arthritis, ankylosing spondylitis, systemic sclerosis, polymyositis, colitis and other non-rheumatic inflammatory diseases may result in inflammatory symptoms of the musculoskeletal system.

diabetes mellitus:

- places an individual at greater risk for peripheral neuropathies such as carpal tunnel syndrome.

Medical/scientific literature suggests that ASTDs occur when through the interaction of a number of factors, with the contribution of individual characteristics (coping mechanisms, genetic tendencies, underlying disease processes), the capacity of the person to tolerate or to adapt to the demands being made are exceeded. The risk of this occurring increases where the tissues affected have less opportunity to return to a resting state where recovery and perhaps adaptation occurs.

In assessing the likelihood that the worker's employment activities have played a significant role in causing or aggravating the diagnosed ASTD, the principal risk factors to consider when looking at the work performed are the intensity, duration and frequency (time variation) of:

- repetition
- force,
- posture, and
- vibration

Other risk factors may have more or less significance depending on the circumstances of the claim.

The absence of significant force is not reason in itself to automatically conclude the work activities are unlikely to have caused or aggravated the ASTD. It is simply one relevant factor. The intensity, duration and frequency of the repetition, perhaps combined with the posture, may be sufficient to cause one to conclude the work played a significant causative role.

The risk factors related to the individual will be more or less important depending on the *intensity, duration* and *frequency* of the risk factors related to the performance of the work. Where these latter risk factors cause the decision-maker to conclude that the work creates a relatively high potential for causing or aggravating the ASTD, the risk factors related to the individual may be considered to be less important. On the other hand, they may be considered more important where the risk factors related to the performance of the work cause the decision-maker to conclude that the work does not create such a high potential for causing or aggravating the ASTD. Risk factors related to the individual may be responsible for causing or aggravating the ASTD. They may also, however, render a worker more susceptible where shorter or less intense workplace exposures may cause an ASTD or activate or aggravate a pre-existing disease.

The importance and effect of particular factors in the circumstances of any individual claim is a matter of individual judgment exercised having regard to the medical and other evidence available.

#28.00 CONTAGIOUS DISEASES

There are a number of contagious diseases recognized by the Board as occupational diseases either in Schedule B or by regulation. See #26.03.

A worker is not entitled to compensation simply because he or she contracted the disease while at work. For the disability to be compensable, there must be something in the nature of the employment which had causative significance.

Thus, in these cases of contracting a contagious disease at work, it is a requirement for compensation that either:

1. The nature of the employment created for the worker a risk of contracting a kind of disease to which the public at large is not normally exposed; or
2. The nature of the employment created for the worker a risk of contracting the disease significantly greater than the ordinary exposure risk of the public at large. In this category, it would not be sufficient to show only that the worker meets more people than workers in other occupations, but it would be significant to show that in the particular employment the worker meets a much larger proportion of people with the particular disease than is found in the population at large.

It may help to illustrate these principles:

Example 1 — Suppose an outbreak of meningitis is affecting the community at large. The disease may be spreading at places of work, in the home, at schools, at churches, at social events, at sporting events, and every place where people meet. The Board would not, with regard to each worker suffering from the disease, seek evidence to decide whether that worker contracted the disease at work or elsewhere. The disease would be viewed as a public health problem, not a disease due to the nature of any particular employment, and compensation for the workers involved must be found under general systems relating to sickness benefits, not under workers' compensation.

Example 2 — Suppose there are three cases of meningitis reported in the community. Victim 1 is a tourist from abroad. Victim 2 is a nurse who was engaged in the treatment of Victim 1. Victim 3 is a nurse who was working closely with Victim 2. Here the employment involved a risk of contracting a disease of a kind to which the public at large are not exposed, and the contracting of the disease by Victims 2 and 3 was due to the nature of their employment.

Example 3 — Suppose the disease is one of a low order of contagiousness, and one that does not normally spread through the public at large, but which can be contagious when there is exceptionally close contact, such as may come from two workers constantly holding materials together, or sharing the same room. If, in this situation, a worker catches the disease from a fellow worker, from the employer, or from a client of the employer, with whom the worker has been placed in exceptionally close proximity, it may well be concluded that the disease is due to the nature of the employment. For example, where two

workers share sleeping quarters on board a ship, and one contracts tuberculosis from the other, the worker who contracted tuberculosis from the shipmate may be compensated.

Example 4 — Suppose a courier develops mononucleosis and claims compensation on the ground that in the job he or she meets more people than workers in most occupations and therefore has a greater risk of exposure to contagious diseases. Such a claim would not be allowed. The disease is one that spreads in the population at large, and claims of this nature cannot be allowed or denied by estimating the extent to which each employment involves mixing with the public.

Example 5 — Suppose a maintenance mechanic from British Columbia is sent to repair machinery in use by a customer overseas. While there, the worker contracts a disease that is commonly found among the population at large in that country, but which is not a common disease in British Columbia. That would be compensable. The nature of the employment has exposed the worker to a disease of a kind to which the people of this province are not normally exposed.

There is no requirement that a worker with a contagious disease should name a contact, but there should be some evidence of a contact. For example, if the worker was employed in a hospital, and there were three patients known to be in his or her working area of the hospital suffering from the disease, an inference may be drawn from the circumstantial evidence that the worker contacted the disease there, even though they may not remember the names of the patients, or may not remember whether they actually had contact with them. The strength of this circumstantial evidence would obviously depend partly on the strength of evidence relating to alternative possibilities, such as whether the disease is extremely rare or one that is common in the community elsewhere. In other words, where there is no solid evidence of actual contact, the Adjudicator must still weigh the possibilities on the circumstantial evidence of possible contact and not simply reject the claim without weighing the possibilities.

#28.10 Scabies

Claims for scabies will be accepted if the following three conditions are met:

1. The worker is employed in a hospital, nursing home, or other institution where there is a recognized hazard of contracting an infectious disease, or is directly involved in transporting patients or residents to or from such facilities.
2. There is satisfactory evidence the worker has had contact with an infected patient, resident or co-worker at the place of employment and the condition has occurred within a reasonable period of time following

such contact (measured against the known incubation period for scabies). Evidence that there were persons in the place of employment known to be suffering from scabies is sufficient for this purpose if the worker would normally have direct contact with such persons in the performance of his or her employment duties.

3. The diagnosis of scabies is confirmed by a staff occupational health nurse, or by a physician or other qualified practitioner, and is not simply speculative. Skin scrapings need not be taken in order to give a positive diagnosis of scabies.

If any of the three conditions have not been met, there is likely to be insufficient positive evidence to conclude that the worker suffers from scabies which is due to the nature of his or her employment.

#29.00 RESPIRATORY DISEASES

#29.10 Acute Respiratory Reactions to Substances with Irritating or Inflammatory Properties

Schedule B lists "Acute upper respiratory inflammation, acute pharyngitis, acute laryngitis, acute tracheitis, acute bronchitis, acute pneumonitis, or acute pulmonary edema (excluding any allergic reaction, reaction to environmental tobacco smoke, or effect of an infection)" as an occupational disease. The process or industry listed opposite to it is "Where there is exposure to a high concentration of fumes, vapours, gases, mists, or dust of substances that have irritating or inflammatory properties, and the respiratory symptoms occur within 48 hours of the exposure, or within 72 hours where there is exposure to nitrogen dioxide or phosgene".

There are many agents used in industry and commerce in the province which have irritating or inflammatory properties, and which in sufficient concentrations can produce respiratory symptoms if inhaled. Symptoms associated with the inhalation of such substances can vary from mild transient symptoms (such as a mild burning sensation affecting the eyes, nose and throat) to significant symptoms throughout the respiratory tract (such as dyspnea and respiratory distress). Significant exposure to some substances may result in persistent respiratory symptoms.

Onset of symptoms can occur within a few minutes or several hours of the exposure, depending on the substance. For the presumption in Section 6(3) of the Act to apply, the symptoms must appear within 48 hours of the exposure, unless the exposure is to nitrogen dioxide or phosgene, in which case the onset of symptoms must occur within 72 hours.

A claim for compensation made by a worker who has developed persistent or chronic respiratory symptoms considered to be due to exposure to a substance with irritating or inflammatory properties, must be considered on its own individual merits without the benefit of a presumption in favour of work causation (unless the claim meets the requirements of one of the other items of Schedule B). This includes claims for chronic bronchitis, emphysema, chronic obstructive pulmonary disease, obliterative bronchiolitis, reactive airways dysfunction syndrome (RADS), chronic rhinitis, and conditions considered to be due to exposure to tobacco smoke. The same is true of a claim made by a worker with acute respiratory symptoms where the requirements of Section 6(3) of the Act are not met (see #26.22). Where a worker who develops an acute reaction to a substance with irritating or inflammatory properties subsequently develops a persistent or chronic respiratory condition, a decision will be made based on the merits and justice of that claim on whether the chronic condition is a compensable consequence of the acute reaction.

A claim made by a worker who has inhaled a vapour or gas which was at a temperature high enough to cause thermal injury (such as inhaling steam) will be treated as a claim for a personal injury and will be adjudicated in accordance with the policies set out in Chapter 3.

Use of the words "high concentration" in Schedule B is a recognition that the amount of the particular substance in the air must be significant for the presumption to apply. The manner in which an exposed individual will react will depend on the properties of the substance inhaled (e.g., acidity/alkalinity, chemical reactivity, water solubility, asphyxiating potential) and the amount inhaled. Individual judgment must be exercised in each case to determine whether there was a "high concentration" of the particular substance having regard to the medical and scientific evidence available, including evidence as to the irritating and/or inflammatory properties of that substance.

#29.20 Asthma

Schedule B lists "Asthma" as an occupational disease. The process or industry listed opposite to it is "Where there is exposure to

- (1) western red cedar dust; or
- (2) isocyanate vapours or gases; or
- (3) the dust, fume of vapours of other chemicals or organic material known to cause asthma."

There are many substances which are either known to cause asthma in a previously healthy individual or of aggravating or activating an asthmatic reaction in an individual with a pre-existing asthma condition. The significance

of occupational exposures to these substances may be complicated by evidence that the worker is exposed to such substances in both occupational and non-occupational settings. In the investigation of the claim, the Adjudicator should seek evidence of whether the worker is exposed to any sensitizing substances (obtaining where available any material safety data sheets), on the nature and extent of occupational and non-occupational exposure to such substances, and on whether there is any correlation between apparent changes in airflow obstruction/responsiveness and exposure to such substances. Additional medical evidence may be available in the form of airflow monitoring, expiratory spirometry, inhalation challenge tests, and skin testing for sensitization.

A pre-existing asthma condition is not compensable unless such underlying condition has been significantly aggravated, activated, or accelerated by an occupational exposure. A worker is not entitled to compensation where his or her pre-existing asthma condition is triggered or aggravated by substances which are present in both occupational and non-occupational settings unless the workplace exposure can be shown to have been a significant cause of an aggravation of the condition. A speculative possibility that a workplace exposure to such a substance has caused an aggravation of the pre-existing asthma is insufficient for the acceptance of a claim.

Compensation is not payable because a worker develops an allergy or sensitivity to a substance or substances as a result of their employment. Compensation may be paid where a workplace exposure to the allergen or substance results in an asthmatic reaction.

In the case of a compensable asthma or a reaction of the respiratory tract to a substance with irritating or inflammatory properties, temporary disability benefits are payable until the temporary disability ends or until the worker's symptoms become stabilized. Where the worker's symptoms do not entirely resolve and he or she is left with a permanent impairment of the respiratory system, a disability award may be granted. However, no such award can be made when the worker's symptoms have resolved and they are simply left with the underlying allergy or sensitivity. Not only is the worker not now suffering from the occupational disease set out in Schedule B, but they are not disabled from working. The Board cannot grant a permanent disability award to a person who has the same physical capabilities as they had previous to the occurrence of the occupational disease, but who is precluded from a limited number of occupations because of a remaining allergy or sensitivity. No permanent disability award can be made to a worker with a pre-existing condition when they have returned to their pre-exposure state.

Where a worker who is allergic to western red cedar dust declines to take any employment which involves exposure to that dust, such worker is taking a preventive measure. Compensation is not payable for such preventive measures. However, rehabilitation assistance may be provided to a worker in this situation (see #86.30).

#29.30 Bronchitis and Emphysema

Bronchitis and emphysema are recognized as occupational diseases by regulation under Section 1 of the Act.

Bronchitis and emphysema were recognized by regulation as occupational diseases on July 11, 1975. Medical evidence indicates that it would be an extremely rare case where a worker's employment environment could be shown to be the cause of the bronchitis or emphysema.

Where a person claims compensation in respect of bronchitis or emphysema, the Board considers that a history of heavy or significant cigarette smoking raises a strong inference that the worker's condition is due to the smoking and not to the nature of the employment. Against this inference must be weighed any evidence which supports the claim, but the inference will not be rebutted where the opposing evidence is weak or conflicting.

The principles set out above do not mean that a worker who has never smoked cigarettes or has smoked an insignificant amount will automatically be compensated for any bronchitis and emphysema. Evidence will still have to be produced that the disease is due to the nature of the employment. The advantage such a worker will have is that a major non-occupational cause of these diseases will have been eliminated. (7)

#29.40 Pneumoconioses and Other Specified Diseases of the Lungs

The guiding legislation in compensation for pneumoconioses is provided in Sections 6(3) and 6(7) through 6(11) of the *Workers Compensation Act*. Pneumoconiosis is a general medical term used to describe certain lung diseases due to deposition of particulate matter in the lungs.

#29.41 Silicosis

Schedule B lists "Silicosis" as an occupational disease. The process or industry described opposite to it is "Where there is exposure to airborne silica dust including metalliferous mining and coal mining". This later description does not exclude the presumption from applying to workers exposed to airborne silica dust engaged in employments other than metalliferous mining and coal mining.

By virtue of Section 6(8) of the Act, a worker in the metalliferous mining industry or coal mining industry who becomes disabled from uncomplicated silicosis or from silicosis complicated with tuberculosis is entitled to compensation for total or partial disability. Where death results from the disability, the dependants of the worker are entitled to compensation. However, neither a worker nor a

dependant is entitled to compensation for the disability or death unless the worker:

- (a) has been a resident of the province for a period of at least three years last preceding his or her disablement, or unless at least two-thirds of their exposure to dust containing silica was in this province; and
- (b) was free from silicosis and tuberculosis before being first exposed to dust containing silica in the metalliferous mining or coal mining industry in this province; and
- (c) has been a worker exposed to dust containing silica in the metalliferous mining or coal mining industry in the province for a period or periods aggregating three years preceding his or her disablement, or for a lesser period if the worker was not exposed to dust containing silica anywhere except in this province.

“Silicosis” is defined in Section 6(7) as “. . . a fibrotic condition of the lungs caused by the inhalation of silica dust”. “Metalliferous mining industry” is defined in Section 1 to include “the operations of milling and concentrating, but does not include any other operation for the reduction of minerals”.

#29.42 Meaning of Disabled from Silicosis

The restrictions contained in Section 6(1) do not apply to silicosis. It is, therefore, not a requirement of a claim for silicosis that there should be a lessened capacity for work, or that the worker should be disabled from earning full wages at the work at which he or she was employed.

It is a requirement in a claim for silicosis that the worker be “disabled” from the silicosis, or from silicosis complicated with tuberculosis. There is no definition of “disability” in the Act, and the Board has not attempted any comprehensive definition. If a worker has a condition of an internal organ which is so slight as to be unnoticeable to that person, and which causes no significant discomfort or other ill effects, that is not a “disability”.

It can be difficult to fix the date for commencing the pension when there is no change of jobs or reduction in earnings to mark the inception of the disability. No general rules can be laid down for this purpose. The Adjudicator must decide the question according to the available evidence. However, if the evidence does not clearly establish when the disability commenced, and there is no evidence of the existence of a disability prior to the receipt of a particular medical report, the Adjudicator may properly decide that, according to the available evidence, the disability commenced on the date of the medical examination which was the subject of that report.

There may also be a difficulty in fixing the worker's average earnings when such worker is not employed at the time when the disability commenced. The Adjudicator should generally refer back to the employment or employments in which the worker was most recently engaged and base any pension on the previous earnings thus discovered.

#29.43 Exposure to Silica Dust Occurring Outside the Province

Where the three criteria set out in #29.41 are met, there will be no reduction in benefits according to the proportion of exposure to silica dust occurring outside the province versus that within. The Board will therefore pay full compensation to the worker without regard to the extent of exposure to silica dust outside the province. (8)

#29.45 Pneumoconiosis

When a worker has sustained pulmonary injury by a disabling form of pneumoconiosis as a result of exposure to dust conditions that are deemed by the Board to have contributed to the development of the disease in employment in the province in an industry in which that disease is an occupational disease under the Act, such worker or their dependants is or are entitled to compensation only if the worker was free from pneumoconiosis and tuberculosis before being first exposed to those dust conditions in the province, and if the worker's residence and exposure to the dust conditions have been of the duration required to entitle a worker to compensation for silicosis under #29.41. (9)

Schedule B lists "Other pneumoconioses" as an occupational disease. The process or industry described opposite to it is "Where there is exposure to the airborne dusts of coal, beryllium, tungsten carbide, aluminum or other dusts known to produce fibrosis of the lungs".

#29.46 Asbestosis

Schedule B lists "Asbestosis" as an occupational disease. The process or industry described opposite to it is "Where there is exposure to airborne asbestos dust".

A worker need not necessarily have worked directly with asbestos for the presumption to apply. The exposure may be a secondary exposure, such as working in an area where asbestos was used as insulation which was for years in a friable or decayed condition.

#29.47 Diffuse Pleural Thickening or Fibrosis and Benign Pleural Effusion

Schedule B lists "Diffuse pleural thickening or fibrosis, whether unilateral or bilateral" as an occupational disease. The process or industry described

opposite to it is “Where there is exposure to airborne asbestos dust and the claimant has not previously suffered and is not currently suffering collagen disease, chronic uremia, drug-induced fibrosis, tuberculosis or other infection, trauma, or disease capable of causing pleural thickening or fibrosis.”

Schedule B also lists “Benign pleural effusion, whether unilateral or bilateral” as an occupational disease. The process or industry described opposite to it is “Where there is exposure to airborne asbestos dust and the claimant has not previously suffered and is not currently suffering collagen disease, chronic uremia, tuberculosis or other infection, trauma, or disease capable of causing pleural effusion.”

These items in Schedule B recognize that diffuse pleural thickening or fibrosis whether unilateral or bilateral, and benign pleural effusion, whether unilateral or bilateral, are likely to be due to the nature of the employment of workers exposed to airborne asbestos dust where the other known causes of the disease can be excluded.

#29.48 Mesothelioma

Schedule B lists “Mesothelioma (pleural or peritoneal)” as an occupational disease. The process or industry described opposite to it is “Where there is exposure to airborne asbestos dust.” Mesothelioma is a malignancy arising from the mesothelial tissue. As with Asbestosis, the exposure to airborne asbestos dust may be a secondary exposure.

#29.50 Presumption Where Death Results from Ailment or Impairment of Lungs or Heart

Section 6(11) provides that:

“Where a deceased worker was, at the date of his death, under the age of 70 years and suffering from an occupational disease of a type that impairs the capacity of function of the lungs, and where the death was caused by some ailment or impairment of the lungs or heart of non-traumatic origin, it must be conclusively presumed that the death resulted from the occupational disease.”

This provision does not apply to deaths occurring before July 1, 1974.

The question whether the deceased suffered from an “. . . occupational disease of a type that impairs the capacity of function of the lungs, . . .” is not determined by the failure or success of any claim made in the deceased’s lifetime. Thus, the Board can decide that there was such a disease at the date of death, even though it disallowed a claim made by the worker in respect of that disease. Alternatively, it can now conclude that there is no such disease, notwithstanding it accepted a claim made by the worker before his or her death

in respect of the same condition. This can well happen because often there is new evidence available following a death, typically in the form of an autopsy report which may be the best evidence available.

Once the age of the worker and the conditions set out in Section 6(11) have been established, it is conclusively presumed that the death resulted from the occupational disease. This presumption cannot be rebutted by contrary evidence.

If the deceased worker was over 70 years of age or for some other reason the presumption cannot be applied, medical and other evidence must be examined to determine whether the death resulted from the occupational disease

#30.00 CANCERS

Mesothelioma is covered in #29.48.

#30.10 Bladder Cancer

Schedule B lists "Primary cancer of the epithelial lining of the urinary bladder, ureter or renal pelvis" as an occupational disease. The process or industry described opposite to it is "Where there is prolonged exposure to beta-naphthylamine, benzidine, or 4-nitrodiphenyl". In adjudicating a claim for bladder cancer it is incumbent on the Board officer to assess whether the worker has had prolonged exposure to any of the substances listed in Item 4(h) of Schedule B.

In addition to the chemicals listed in Schedule B, the Board recognizes that aluminum smelter workers exposed to coal tar pitch volatiles have an increased incidence of bladder cancer.

Claims for bladder cancer from aluminum smelter workers which do not meet the descriptions contained in Schedule B are adjudicated on the basis of cumulative (or total) exposure to benzo-a-pyrene, a constituent of coal tar pitch volatiles. In the adjudication of such a claim the following principles and procedures apply:

1. If the disease develops within 10 years of a worker's first exposure to benzo-a-pyrene, it will not normally be considered to have resulted from that exposure.
2. In determining the severity of a worker's exposure, regard will, where the information is available, be given to the following ranking of exposure:

Ranking of Exposure	Exposure to B.S.M. (mg/m³)
Zero	0
Low	0.1
Medium	0.6
High	1.5

B.S.M. refers to benzene soluble materials.

- To determine a worker's total occupational exposure, the years which the worker has spent in each job will be multiplied by the concentration of B.S.M. determined for that job by the rankings referred to above. For example, five years in a high risk job will produce a total exposure to B.S.M. of 7.5 mg/m³ years (5 multiplied by 1.5). The worker's total or cumulative exposure to benzene-soluble materials is the sum of the exposures calculated for each job.

Any exposure which occurred in the 10 years immediately preceding the date the bladder cancer was first diagnosed shall be excluded from this calculation.

- To convert benzene-soluble materials exposure to benzo-a-pyrene exposure, the worker's total exposure to benzene-soluble materials (expressed in milligrams per cubic metre years or mg/m³ years) is multiplied by 11.0. The result (total or cumulative benzo-a-pyrene exposure) is expressed in micrograms per cubic metre years or µg/m³ years.
- The worker's relative risk of having developed bladder cancer as a result of his/her employment in the aluminum smelter is then determined by comparing the worker's cumulative exposure to benzo-a-pyrene (calculated in accordance with the above principles) with the relative risk figures contained in the following table:

Cumulative Exposure to Benzo-a-pyrene	Relative Risk
0	1.00
5	1.16
10	1.32
15	1.48
20	1.64
25	1.80
30	1.96
31.25	2.00
35	2.12
40	2.28

45	2.44
50	2.60
60	2.92
70	3.24
80	3.56
90	3.88

Note: These numbers take into account scientific uncertainty and are based on the upper 95% confidence limit of the exposure-response relationship.

Where the worker's corresponding relative risk is equal to 2.00 or greater, it will be considered that the bladder cancer resulted from such employment and the claim will be accepted.

6. Where, having applied the above principles, the worker's relative risk is less than 2.00, or where the information necessary to calculate the worker's relative risk is not available, a detailed investigation will be carried out by the Board Officer into the worker's job history to determine whether the level of exposure assessed for that worker is reasonable. Relevant considerations may include special work assignments, hours of overtime, individual work practices, and any other characteristics of the workplace or work environment which may have had an impact on the duration and intensity of the exposure. If, following this investigation, it is concluded that the worker's relative risk is less than 2.00, it will be considered that the bladder cancer is not due to the worker's employment in the aluminum smelter and the claim will be disallowed.
7. Where the employer and the worker, through the worker's union, reach an agreement as to the total exposure of the worker to benzene-soluble materials in mg/m^3 years or to benzo-a-pyrene in $\mu\text{g}/\text{m}^3$ years, the Board is not bound to accept this amount and may follow the investigation and determination procedures outlined above. The amount agreed by the employer and the union may, however, be accepted in lieu of the investigation and determination procedures set out above if the agreed amount appears reasonable in the known circumstances of the case.
8. Smoking is a strong non-occupational risk factor for bladder cancer. Smoking and exposure to benzo-a-pyrene act synergistically in increasing the risk of developing bladder cancer. If the worker's relative risk calculated in accordance with the above principles is 2.00 or greater, the worker's smoking history will not change the conclusion that the bladder cancer was due to the employment.

#30.20 Gastro-intestinal Cancer

Schedule B lists “Gastro-intestinal cancer (including all primary cancers associated with the oesophagus, stomach, small bowel, colon and rectum excluding the anus, and without regard to the site of the cancer in the gastro-intestinal tract or the histological structure of the cancer)” as an occupational disease.

The process or industry described opposite to Gastro-intestinal cancer is “Where there is exposure to asbestos dust if during the period between the first exposure to asbestos dust and the diagnosis of gastro-intestinal cancer there has been a period of, or periods adding up to, 20 years of continuous exposure to asbestos dust and such exposure represents or is a manifestation of the major component of the occupational activity in which it occurred.”

Gastro-intestinal cancer suffered by a worker who has not been exposed to asbestos fibres in the course of their employment, or whose exposure to such fibres does not substantially have the duration, continuity and extent described in the second column of Schedule B, will not normally be considered to be due to employment.

Where there has been less than 20 years of continuous exposure to asbestos fibres, such that the presumption in Section 6(3) does not apply, but there has been substantial compliance with the requirements of the second column of Schedule B, the Adjudicator will consider whether the evidence indicates that the gastro-intestinal cancer is due to the nature of the worker’s employment. Whether or not the compliance is substantial is a matter of judgment for the Adjudicator. The greater the gap between the worker’s period of exposure and the 20-year period, the less likely is the compliance to be substantial and the less likely is the disease to be due to the nature of the employment. (10)

#30.50 Contact Dermatitis

Schedule B lists “Contact dermatitis” as an occupational disease. The process or industry described opposite to it is “Where there is excessive exposure to irritants, allergens or sensitizers ordinarily causative of dermatitis”.

The payment of temporary disability benefits and permanent disability pensions are subject to the same general principles as are set out in #29.20 in respect of asthma or a reaction of the respiratory tract to a substance with irritating or inflammatory properties. Therefore, there is no disability for the purpose of the *Workers Compensation Act* unless the worker has an actual loss of body function or physical impairment resulting from the dermatitis which causes the worker to be disabled from earning full wages at the work at which he or she was employed.

Temporary disability benefits are payable while the disability is a temporary one, but cease when it disappears or stabilizes or becomes permanent. If the worker's symptoms do not entirely resolve and they are left with a permanent impairment, a disability award may be granted. However, neither temporary disability benefits nor a permanent disability pension is payable simply because the worker has developed a susceptibility to react to a certain substance as a result of his or her work which causes periods of temporary impairment if he or she is exposed to the particular substance, but otherwise causes no complaints. Rehabilitation assistance may be provided to assist the worker in obtaining alternative employment which does not expose him or her to the substance in question (see #86.30).

#30.70 Heart Conditions

Heart-related conditions which arise out of and in the course of a person's employment and which are attributed to a specific event or cause or to a series of specific events or causes are generally treated as personal injuries. They are therefore adjudicated in accordance with the policies set out in Chapter 3. If the heart-related condition of a worker is one involving a gradual onset and is not attributed to a specific event or cause or to a series of events or causes, the claim will be adjudicated under Section 6 of the Act. (See #15.10 and #15.15).

#31.00 HEARING LOSS

There are two bases on which compensation can be paid for hearing loss:

- (a) If the hearing loss is traumatic and work-related, compensation is paid as with any other injury under Section 5(1) and, if a permanent disability results, a pension is awarded in accordance with the scale provided for in the Permanent Disability Evaluation Schedule (for hearing loss that is secondary to an injury see #22.00).
- (b) If the hearing loss has developed gradually over time as a result of exposure to occupational noise, it is treated as an occupational disease. However, the provisions of Section 6 do not apply unless the worker ceased to be exposed to causes of hearing loss prior to September 1, 1975. In all other cases, Section 7 of the Act applies. If the provisions of Section 6 of the Act apply to the claim, the worker may be entitled to the payment of health care in the form of hearing aids even if they were not disabled from earning full wages at the work at which they were employed (see #26.30).

Section 7(1) provides that "Where a worker suffers loss of hearing of non-traumatic origin, but arising out of and in the course of employment . . ., that is a greater loss than the minimum set out in Schedule D, the worker is entitled to compensation . . ." Schedule D is set out in #31.40.

Schedule B lists “Neurosensory hearing loss” as an occupational disease. Medical research indicates that it is only hearing loss of a neurosensory nature which is caused by exposure to noise over time (although this type of hearing loss may also result from other causes unrelated to exposure to noise). As a result, the Board’s responsibility is limited to compensating workers for occupationally-induced neurosensory hearing loss. This is further emphasized in Section 7 of the Act which requires that the loss of hearing be of non-traumatic origin and that it arise out of and in the course of employment.

In situations where a hearing loss is partly due to causes other than occupational noise exposure, the total hearing impairment is initially measured using pure tone air conduction pursuant to Schedule D. Having done this, in order to comply with the Act, other measures, such as bone conduction tests, are carried out to assess the portion of the total loss which is neurosensory and the portion which is due to other causes.

Having made this determination, the factual evidence on the claim is then assessed to determine whether all, or only part of, the neurosensory loss is due to occupational exposure to causes of hearing loss in British Columbia as required by the Act. The resulting portion of the worker’s total impairment is then assessed for a pension using the percentage ranges listed in Schedule D.

Tinnitus alone is not considered to be a pensionable condition. It is recognized, however, that tinnitus, in combination with a pensionable degree of hearing loss, may have an impact on a worker’s employability and affect the amount of the resulting pension.

#31.10 Date of Commencement of Section 7

Section 7(5) of the Act provides as follows:

“Compensation under this section is not payable in respect of a period prior to September 1, 1975; but future compensation under this section is payable in respect of loss of hearing sustained by exposure to causes of hearing loss in the Province either before or after that date, unless the exposure to causes of hearing loss terminated prior to that date.”

Section 7 expressly applies only to hearing loss of non-traumatic origin which can only mean loss of hearing over some period of time as a cumulative effect. Therefore “terminated” as used in Section 7(5) means the end once and for all of a course of exposure to causes of hearing loss. Exposure is not terminated as long as the worker continues to undergo exposure arising out of and in the

course of the worker's employment in British Columbia, no matter how intermittent or how far apart periods of exposure might be. Only retirement or other cessation from employment in industries which expose the worker to causes of hearing loss qualify as "termination". Subsequent exposure for any period of time in bona fide employment allows for consideration of compensation under Section 7.

Only exposure to noise in industries under Part 1 of the Act after September 1, 1975 should be considered to determine whether or not a worker qualifies for compensation under Section 7.

If a worker's exposure to causes of hearing loss terminated prior to September 1, 1975, no compensation is payable under Section 7 whatever may be the reasons for this termination. No exception can be made if, for instance, the termination came about because a previous compensable injury forced the worker to leave his or her employment. A worker whose exposure ceased prior to September 1, 1975 may be entitled to health care (hearing aids) under Section 6 of the Act.

#31.20 Amount and Duration of Noise Exposure Required by Section 7

A claim is acceptable where, as a minimum, evidence is provided of continuous work exposure for two years or more at eight hours per day at 85 dBA or more, and when other evidence does not disclose any cause of hearing loss not related to work. The Board considers it reasonable to set the 85 dBA minimum standard for compensation purposes and then to allow a restricted measure of discretion for the acceptance of claims where the evidence is abundantly clear that the worker is extraordinarily susceptible and has been affected by exposure to noise at a lesser level.

The *Industrial Health & Safety Regulations* in effect at the time of the enactment of Section 7 set 90 dBA for eight hours of worker exposure as the maximum permissible limit for noise in industry. However, it was recognized from all available information that to retain this standard for claims purposes would result in an inability to accept claims on behalf of approximately 15% of the worker population who are unusually susceptible to ill effects from noise below 90 dBA. As a result the *Industrial Health & Safety Regulations* effective on January 1st, 1978, retained 90 dBA criterion for the employment environment, but the 85 dBA standard was retained for compensation purposes. (11)

The Board does not accept evidence of the wearing of individual hearing protection as a bar to compensation. However, in the case of soundproof booths, where evidence shows that the booth was used regularly, was sealed and was generally effective, it may be difficult to accept that the work environment in question contributed to the hearing loss demonstrated.

Where the exposure to occupational noise in British Columbia is 5% or less of the overall exposure experienced by the worker, the claim is disallowed. Such a minimal degree of exposure is insufficient to warrant a pensionable degree of disability. Where the exposure to occupational noise in British Columbia is 90% or greater of the total exposure, a claim is allowed for the total hearing loss suffered by the worker. For percentages between 5 and 90, the claim is allowed for only that percentage of the hearing loss which is attributable to occupational noise in British Columbia, and the Board will accept responsibility for all health care costs related to the total hearing loss including the provision of hearing aids.

It has been suggested that after 10 years of exposure further loss is negligible. Generally speaking, the evidence is that the first 10 years has a significant effect at higher frequencies. However, where lower frequencies are concerned (up to 2,000 hz.) hearing loss continues after that time and may, in fact, accelerate in those later years. Therefore, since the disability assessment under Schedule D relies on frequencies of 500, 1,000 and 2,000 hz., no adjustments for duration of exposure are made.

#31.30 Application for Compensation under Section 7

Section 7(6) provides that “An application for compensation under this section must be accompanied or supported by a specialist’s report and audiogram or by other evidence of loss of hearing that the Board prescribes”.

Where a worker has already applied for compensation for hearing loss under section 6, a separate application under section 7 may sometimes be required. However, it will not be insisted upon if it serves no useful purpose. Therefore, no separate application need be made where all the evidence necessary to make a reasonable decision is available without it.

The original application need not be accompanied by a report and audiogram by a physician outside the Board. The Board will obtain the necessary medical evidence.

EFFECTIVE DATE: March 3, 2003 (as to deletion of references to appeal and reconsideration)

APPLICATION: Not applicable.

#31.40 Amount of Compensation under Section 7

No temporary disability payments are made to workers suffering from non-traumatic hearing loss.

Hearing loss pensions are determined on the basis of audiometric tests conducted at the Audiology Unit of the Board or on the basis of prior audiometric tests conducted closer in time to when the worker was last exposed to

hazardous occupational noise if in the Board’s opinion the results of such earlier tests best represent the true measure of the worker’s hearing loss which is due to exposure to occupational noise.

Section 7(3.1) of the Act provides:

“The board may make regulations to amend Schedule D in respect of

- (a) the ranges of hearing loss,
- (b) the percentages of disability, and
- (c) the methods or frequencies to be used to measure hearing loss.”

Where the loss of hearing amounts to total deafness measured in the manner set out in Schedule D, but with no loss of earnings resulting from the loss of hearing, Section 7(2) provides that compensation shall be calculated as for a disability equivalent to 15% of total disability. Where the loss of hearing does not amount to total deafness, and there is no loss of earnings resulting from the loss of hearing, Section 7(3) provides that compensation shall be calculated as for a lesser percentage of total disability, and, unless otherwise ordered by the Board, shall be based on the percentages set out in Schedule D. Schedule D is set out below.

SCHEDULE D

Non-Traumatic Hearing Loss

Complete loss of hearing in both ears equals 15% of total disability. Complete loss of hearing in one ear with no loss in the other equals 3% of total disability.

Loss of Hearing in Decibels Measured in Each Ear in Turn	Percentage of Total Disability	
	Ear Most Affected PLUS Ear Least Affected	
0-27	0	0
28-32	0.3	1.2
33-37	0.5	2.0
38-42	0.7	2.8
43-47	1.0	4.0
48-52	1.3	5.2
53-57	1.7	6.8
58-62	2.1	8.4
63-67	2.6	10.4
68 or more	3.0	12.0

The loss of hearing in decibels in the first column is the arithmetic average of thresholds of hearing measured in each ear in turn by pure tone, air conduction audiometry at frequencies of 500, 1000 and 2000 Hertzian waves, the measurements being made with an audiometer calibrated according to standards prescribed by the Board.

In assessing permanent disability awards under Section 7, there is no automatic allowance for presbycusis. In some cases, however, the existence of presbycusis may be relevant in deciding whether the worker has suffered a hearing loss due to their employment. The age adaptability factor is not applied to awards made under Section 7.

Where a worker has an established history of exposure to noise at work, and where there are other non-occupational causes or components in the worker's loss of hearing, and where this non-occupational component cannot be accurately measured using audiometric tests, then "Robinson's Tables" will apply. "Robinson's Tables" will only be applied where there is some positive evidence of non-occupational causes or components in the worker's loss of hearing (for example, some underlying disease) and will not be applied when the measured hearing loss is greater than expected and there is only a speculative possibility without evidential support that this additional loss is attributable to non-occupational factors.

"Robinson's Tables" were statistically formulated to calculate the expected hearing loss following a given exposure to noise. In applying these tables, the cumulative period of noise exposure is calculated. A factor for aging is then added. For pension purposes, the resulting calculation is then compared on "Robinson's Tables" to the worst 10% of the population (i.e., at the same levels and extent of noise exposure, 90% of individuals will have better hearing than the worker).

In some cases, it will be found that a worker has already suffered a conductive hearing loss in one ear, unrelated to their work, which might well have afforded some protection against work-related noise-induced hearing loss in that ear. The normal practice in this situation would be to allocate the higher measure in Schedule D (the "ear least affected" column) to the other ear which has the purely noise-induced hearing loss.

A difficulty occurs where the worker is not employed at the time when their disability commenced. If there are no current earnings on which to base the pension, the Adjudicator should generally refer back to the employments in which the worker was most recently engaged and base the pension on their previous earnings thus discovered.

EFFECTIVE DATE: August 1, 2003
APPLICATION: To all section 23(1) assessments and reassessments undertaken with reference to the *Permanent Disability Evaluation Schedule* on or after August 1, 2003.

#31.50 Loss of Earnings Awards under Section 7

Where loss or reduction of earnings results from the loss of hearing, Section 7(4) provides that compensation shall be calculated by reference to the projected loss of earnings, or by another method of estimating loss of earnings or impairment of earning capacity that the Board adopts; but in no case shall the compensation be less than that provided under Subsection (2) or (3).

Compensation is not payable simply because a worker changes employment in order to preclude the development of hearing loss. As with any other occupational disease, there must be physical impairment from the disease before there can be compensation in any form. In other words, compensation is payable for a disability that has been incurred, not for the prevention of one that might occur.

Where a noise-induced hearing loss has been incurred, if a worker then changes employment to a lower paid but quieter job, that triggers consideration by the Board of a loss of earnings pension notwithstanding that it may seem reasonable that with hearing protection, the worker may have stayed at the former employment. There is no obligation to stay in the employment with hearing protection rather than take lower paying work and claim compensation. Compensation in such cases is, as in all other cases, based on physical impairment. The drop in earnings may be the triggering device that renders the worker eligible for compensation, but it is not part of the formula for calculating the amount.

#31.60 Reopenings of Section 7 Pension Decisions

Where the loss of hearing of a worker in receipt of a pension under section 7 is retested and there is a significant change in the worker's hearing, the following applies.

1. Where the retest records a deterioration in the worker's hearing and the new findings warrant an increase under Schedule D of the *Act*, the pension decision is reopened and the pension award is increased.
2. If the retest shows an improvement in the worker's hearing of a degree greater than 10 decibels, the worker's pension decision is reopened. Where this occurs, two further considerations would apply.
 - (a) Where the worker has been paid the pension in the form of a lump-sum payment, the worker is advised in writing that his or her hearing has improved to the point where such a payment would no longer appear justified or appropriate. However, in those cases, no attempt is made by the Board to seek a refund.

- (b) Where the worker's pension is being paid in the form of a periodic monthly payment, the payments are reduced or terminated, whichever is applicable, and the worker is informed in writing of the reasons and of the right to request a review of the decision by the Review Division.

If the retest suggests there is an improved level of hearing than that upon which the original pension was set, but the improvement is within a range, up to and including 10 decibels, the pension decision is not reopened.

EFFECTIVE DATE: March 3, 2003 (as to references to reopening, review and the Review Division)

APPLICATION: Not applicable.

#31.70 Compensation for Non-Traumatic Hearing Loss under Section 6

A worker will only be entitled to compensation for non-traumatic hearing loss under Section 6(1) if their exposure to causes of hearing loss terminated prior to September 1, 1975. "Neurosensory hearing loss" is one of the occupational diseases listed in Schedule B of the Act. The process or industry described opposite to it is "Where there is prolonged exposure to excessive noise levels".

Section 55 of the *Workers Compensation Act* sets out the time limits within which an application for compensation must be filed. Subsection (4) of the present Section 55 provides:

"This section applies to an injury or death occurring on or after January 1, 1974 and to an occupational disease in respect of which exposure to the cause of the occupational disease in the Province did not terminate prior to that date."

The result of this provision is that where a worker's exposure to causes of hearing loss terminated prior to January 1, 1974, the present Section 55 does not apply and one must look to the provision which was repealed on the enactment of this section.

Under the previous Section 55 (then numbered 52), a claim is, subject to Subsection (4), barred unless an application for compensation, or in the case of health care, proof of disablement, is filed within one year after the day upon which disablement by industrial disease occurred. The Board has no general power to waive these requirements and extend the time period in which an application must be submitted beyond the period set out in Section 52(4). To determine what is meant by "disablement" in this provision, one must refer back to Section 6(1) of the Act which provides in part that no compensation, other than

health care, is payable in respect of an occupational disease unless the worker is “. . . thereby disabled from earning full wages at the work at which the worker was employed . . .” The one-year time period under the previous and current Section 55 does not begin to run until the worker becomes disabled from earning full wages within the meaning of Section 6(1). It follows that in cases where the exposure to causes of hearing loss terminated prior to January 1, 1974, and no disablement within the meaning of Section 6(1) has yet occurred, health care can always be provided, whether or not an application for compensation has been received from the worker and regardless of the length of time which has elapsed since their exposure terminated. Once the disablement from earning full wages occurs, the worker then has one year to submit an application for compensation (if they have not already done so) or proof of disablement. If no application for compensation or proof of disablement has been received by the end of this period, the worker’s claim becomes completely barred even though they may previously have received compensation in the form of health care. If the worker submits proof of disablement, but no application for compensation, by the end of this period only compensation in the form of health care is payable. (12)

#31.80 Commencement of Pension Benefits under Sections 6 and 7

1. The following applies to claims for loss of hearing of non-traumatic origin.
2. Where compensation is being awarded under Section 6, then, subject to Section 55, pension benefits shall be calculated to commence as of the date upon which the worker first became disabled from earning full wages at the work at which the worker was employed.
3. Where compensation is being awarded under Section 7 in respect of a loss of earnings or impairment of earnings capacity, then, subject to Section 55, pension benefits shall be calculated to commence as of the date when the worker first suffered such loss of earnings or impairment of earnings capacity, or as of September 1, 1975, whichever is the later.
4. Where compensation is being awarded under Section 7 but not in respect of any loss of earnings or impairment of earning capacity, then, subject to Section 55, pension benefits shall be calculated to commence as of the earlier of either the date of application or the date of first medical evidence that is sufficiently valid and reliable for the Board to establish a pensionable degree of hearing loss under Schedule D of the Workers Compensation Act. Where the date of application is used as the commencement date, subsequent testing must support a pensionable degree of hearing loss as of the date of application. In no case will pension benefits under Section 7(3) commence prior to September 1, 1975.

#31.90 Assessment of Pensions for Traumatic Hearing Loss under Section 5(1)

Disabilities arising from traumatic hearing loss covered by Section 5 of the Act are assessed in accordance with the Permanent Disability Evaluation Schedule, Items 91 to 103. See Appendix 4, pages A4-6 and A4-7.

To determine the percentage of disability in a case of bilateral traumatic hearing loss, a calculation is first made of the average hearing thresholds in the three frequencies of the speech range, i.e. 500 Hz, 1,000 Hz, and 2,000 Hz. A deduction is then made of 0.5 decibels for each year the claimant's age exceeds 50 to allow for presbycusis. This is done for each ear.

The net decibel loss in each ear is then translated into a percentage of disability by taking the nearest figure in the schedule. For example, if the net loss is 48 decibels, the percentage for 50 decibels is taken, i.e. 1.3%. An enhancement factor is also applied. This involves adding to the percentage of disability which the schedule allots to the poorer ear nine times the percentage it allots to the better ear. (13)

#32.00 OTHER MATTERS

#32.10 Psychological/Emotional Conditions

The Board does accept claims for personal injury where the injury consists of a psychological condition or the psychological condition is a consequence of a physical injury. (14) However, the Board has not recognized any psychological or emotional conditions as occupational diseases related to employment.

#32.15 Alcoholism

Alcoholism and alcohol-related cirrhosis of the liver have not been recognized by the Board as occupational diseases. (15)

Research indicates that many factors may be operative in causing alcoholism. While employment is one of the suggested factors, the evidence does not clearly support a conclusion that employment does have causative significance or that, if it does, it has particular significance over and above the others. It appears rather as just one factor, along with the alcoholic's individual physiology and psychology, their family, social and cultural surroundings and their own personal inability to control consumption.

#32.20 Physical and Emotional Exhaustion

Physical and emotional exhaustion has not been recognized by the Board as an occupational disease. In a claim made for compensation for a state of physical and emotional exhaustion alleged to have been caused by the stress of work, it

was concluded that there was insufficient evidence that employment, as opposed to other factors in the worker's life, were of causative significance in producing this condition. (16)

#32.50 "Date of Injury" for Occupational Disease

For purposes of establishing a wage rate on a claim for occupational disease (determining the average earnings and earning capacity of the worker at the time of the injury), the Adjudicator will consider the occurrence of the injury as the date the worker first became disabled by such disease. A worker will be considered disabled for this purpose when they are no longer able to perform their regular employment duties and as such would in the ordinary course sustain a loss of earnings as a result. This date may or may not correspond with the date the worker was first diagnosed with the occupational disease.

The date of the worker's first seeking treatment by a physician or qualified practitioner for the occupational disease is used for administrative purposes. For example, this date will be used where there is no period of disability. Where the worker's condition was not at that time diagnosed as an occupational disease, the relevant date is the date the occupational disease is first diagnosed. These dates may also, in the absence of evidence to the contrary, be used as the date of disablement for the purpose of determining compensation entitlement under Section 55 of the Act.

EFFECTIVE DATE: October 1, 2007 – Revised to delete reference to assigning a claim number.

APPLICATION: Applies on or after October 1, 2007

#32.55 *Time Limits and Delays in Applying for Compensation*

A person must apply for compensation for death or disablement due to an occupational disease within the time limits set out in Section 55 of the Act. That person can be the worker or the worker's dependant(s) if the worker has died. People who delay in applying for compensation may lose or limit their right to compensation because the Board can only consider an application on its merits if the requirements of Section 55 are met. One of the purposes of these time limits is to ensure the Board is given early notice of the claim so that the relevant evidence can be obtained when it is more readily available.

A person applying for compensation for an occupational disease must generally do so within one year of the date of death or disablement (in most cases a disablement will precede any death). There are exceptions as noted below. If the worker is alive and if the occupational disease has never caused a disablement, then time has not yet started to elapse for the purposes of Section 55. Section 55(2) says in part:

- (2) Unless an application is filed, or an adjudication made, within one year after the date of . . . death or disablement from occupational disease,

no compensation is payable, except as provided in subsection (3), (3.1), (3.2), and (3.3).

Under the terms of a predecessor to the current Section 55, a claim must be denied if a person applies to the Board more than one year after the worker's most recent disablement or after the worker's death if:

- the death occurred before January 1, 1974, or
- the most recent disablement occurred before January 1, 1974 and the exposure to the cause of the occupational disease in British Columbia did not continue beyond that date.

#32.56 Applicants Who File Within Three Years

The Board may consider paying compensation benefits even though a person applies more than one year after the death or disablement due to the occupational disease if:

- he or she applies within three years after the death or disablement, and
- special circumstances precluded applying within one year.

Section 55(3) says:

- (2) If the board is satisfied that there existed special circumstances which precluded the filing of an application within one year after the date referred to in subsection (2), the board may pay the compensation provided by this Part if the application is filed within 3 years after that date.

For a discussion of special circumstances, see #93.22.

If special circumstances do not exist, the Board cannot consider the claim, unless it meets Section 55(3.2), because the application will be out of time.

#32.57 Applicants Who File Beyond Three Years

A person who applies more than three years after the date of death or disablement due to the occupational disease might still receive compensation benefits under Section 55(3.1). If special circumstances precluded applying within one year, the Board may still consider starting compensation benefits from the date the Board received the application. However, the Board cannot consider compensation benefits for periods before that date, unless the claim meets Section 55(3.2).

Section 55(3.1) says:

(3.1) The board may pay the compensation provided by this Part for the period commencing on the date the board received the application for compensation if

- (a) the board is satisfied that special circumstances existed which precluded the filing of an application within one year after the date referred to in subsection (2), and
- (b) the application is filed more than 3 years after the date referred to in subsection (2).

As stated before, if special circumstances do not exist, the Board cannot consider the claim, unless it meets Section 55(3.2), because the application will be out of time.

#32.58 Newly Recognized Occupational Diseases

As noted in policy item #25.00, it is often more difficult to determine whether a person's employment caused a disease than to determine whether it caused a personal injury. Our knowledge about the role a particular kind of employment may have in causing various diseases changes over time. In recognition of this difficulty, part of section 55 applies only to claims for occupational disease.

The Board may consider paying compensation benefits for a death or disablement due to an occupational disease if all three of the following conditions apply:

1. At the time of the worker's death or disablement, the Board does not have sufficient medical or scientific evidence to recognize the disease as an occupational disease for this worker's kind of employment (even though the Board may have recognized it as an occupational disease for other kinds of employment).
2. The Board subsequently obtains sufficient medical or scientific evidence to cause it to recognize the disease as an occupational disease for this worker's kind of employment.
3. The application for compensation is made within three years after the date the Board recognized the disease as an occupational disease for this worker's kind of employment.

Section 55(3.2) says:

(3.2) The Board may pay the compensation provided by this Part if

- (a) the application arises from death or disablement due to an occupational disease,

- (b) sufficient medical or scientific evidence was not available on the date referred to in subsection (2) for the Board to recognize the disease as an occupational disease and this evidence became available on a later date, and
- (c) the application is filed within 3 years after the date sufficient medical or scientific evidence as determined by the Board became available to the Board.

If, after July 1, 1974, and before August 26, 1994, the Board has considered an application and has determined that all or part of the claim cannot be paid because of the wording of section 55 then in effect, the Board may now under section 55(3.3) reconsider the claim and pay compensation for those periods previously denied if it meets the requirements of section 55(3.2).

Section 55(3.3) says:

(3.3) Despite section 96(1), if, since July 1, 1974, the Board considered an application under the equivalent of this section in respect of death or disablement from occupational disease, the Board may reconsider that application, but the Board must apply subsection (3.2) of this section in that reconsideration.

For example, in the 1970s sufficient medical or scientific evidence was not available for the Board to recognize an association between exposure to coal tar pitch volatiles in aluminum smelters and an excess risk of bladder cancer. It was not until the late 1980s that sufficient evidence became available for the Board to recognize such an association. (However, the Board had earlier recognized that there was an association between bladder cancer and prolonged exposure to certain chemicals used primarily in the manufacture of rubber and dyes. In 1980 “primary cancer of the epithelial lining of the urinary bladder” was added to Schedule B, with a corresponding presumption in favour of causation where the worker had prolonged exposure to any of three listed chemicals.) On March 13, 1989, the Board issued a policy directive recognizing bladder cancer as an occupational disease for workers employed in aluminum smelting, dependent on the concentration and length of exposure to coal tar pitch volatiles.

Section 55(3.2) allows the Board to consider the payment of compensation benefits for any worker disabled by bladder cancer who was exposed to sufficient doses of coal tar pitch volatiles while employed in the aluminum smelting industry if:

- the exposure did not end before January 1, 1974, and
- the Board received the application not later than March 13, 1992.

Section 55(3.3) allows the Board to reconsider any claims for bladder cancer that meet the requirements of section 55(3.2) and to pay compensation for any periods previously denied because of the wording of the earlier section 55 in effect since July 1, 1974. Sections 55(3.2) and (3.3) went into effect on August 26, 1994. If a claim for bladder cancer is filed after March 13, 1992, then the requirements of sections 55(2), (3), or (3.1) must be met before compensation can be paid.

EFFECTIVE DATE: March 3, 2003 (as to new wording of section 55(3.3))
APPLICATION: Not applicable.

#32.59 Discretion to Pay Compensation

As stated in policy item #93.22, even though special circumstances may have precluded the filing of the application within one year, the Board has discretion under section 55 whether or not to pay compensation. In exercising that discretion, the Board considers whether the time elapsed since the death or disability due to the occupational disease has prejudiced its ability to investigate the merits of the claim, including determining whether the worker was disabled from earning full wages at the work at which he or she was employed.

The Board considers the availability of evidence, such as:

- medical records about the worker's state of health at relevant times (cause of death in the case of a deceased worker)
- employment records that may document exposures to contaminants or hazardous processes, or periods of disability that may have been due to the occupational disease
- evidence from co-workers or others who may know about the worker's employment activities.

The Board will generally decide not to pay compensation if so much time has elapsed that it cannot reasonably obtain sufficient evidence to determine whether:

- the worker's disease was causally connected to the employment, or
- the worker was disabled by the disease when claimed.

A request for review by the Review Division may be made on a Board decision not to pay compensation.

Where a worker has experienced more than one period of disablement from the occupational disease for which the worker intends to claim, then each period of disablement will have to be individually considered to determine if the requirements of section 55 are met with respect to that period.

EFFECTIVE DATE: March 3, 2003 (as to reference to Review Division)
APPLICATION: Not applicable.

#32.60 Preventive Measures and Exposures

Once the basic requirements of a claim for a compensable injury or occupational disease have been met, the Board can accept responsibility for reasonable preventive or curative measures which are a normal part of the treatment of the resulting condition. For example, if a nurse pricks his or her finger with a contaminated hypodermic needle, just used for injecting a patient suspected of having infectious hepatitis, the Board will pay for a gamma globulin injection. This would be so even if the actual needle prick itself did not require treatment.

In order for an exposure to a disease or contaminant to be compensable, the worker must either sustain a personal injury or suffer from an occupational disease. An exposure which does not result in a personal injury or occupational disease does not meet the requirements of the Act in terms of compensability. Section 1 provides that "occupational disease" includes "*disablement* resulting from exposure to contamination" (emphasis added). No matter how appropriate it may be for a worker to be provided with prophylactic health care, particularly following an exposure to an infectious agent, the Board does not have the statutory authority to pay for such health care where the worker has not sustained a personal injury or is suffering from an occupational disease, even if the exposure places the worker at risk for developing an occupational disease.

In the event of such an exposure, any medical or other expenses that the worker may incur to prevent the onset of an injury or disease must remain the responsibility of the worker or the employer. For example, the Board would not pay for a measles vaccine for a nurse who came in contact with a patient who had that disease. In those circumstances, the nurse has not sustained either a personal injury nor an occupational disease. In one case, a laboratory assistant accidentally spilled over a hand blood from a patient infected with hepatitis. The worker already had an infected hangnail on that hand. The Board could not accept responsibility for the subsequent treatment with gamma globulin as there was no evidence of the worker suffering an injury or occupational disease. The treatment was for the purpose of preventing the onset of a disease.

It may help to further illustrate these principles. The Board would not pay for preventive health care benefits with respect to the following exposures (unless an occupational disease results):

- an ambulance attendant who has the blood of a suspected Hepatitis B carrier splashed onto a hand which had pre-existing cuts from gardening at home;
- a pipefitter who unknowingly works in an area containing asbestos insulation.

The Board would pay for reasonable health care benefits with respect to the following occupational exposures:

- a lab technician who in the course of employment cuts a finger on the sharp edge of a broken specimen bottle;
- a teacher who contracts ringworm at the time of an outbreak of this disease in the classroom.

No compensation is payable to a worker who withdraws from work or changes employment as a result of the worker believing (no matter how well-founded that belief may be) that further exposure to the conditions at work would create a risk of causing an injury or disease which does not yet exist. This is so even if the belief is based on information which comes from the Board itself.

Temporary total or temporary partial disability benefits are payable for a compensable occupational disease until any temporary disability terminates or until the worker's symptoms become stabilized. Such benefits are not payable to a worker who remains off work or who changes employment to prevent a reoccurrence of an occupational disease that has resolved, or to prevent an aggravation, activation, or acceleration of an occupational disease which has stabilized or plateaued. However, vocational rehabilitation assistance may be provided to a worker in this situation (see #86.30). Where the worker is left with a permanent impairment, the worker may be entitled to a permanent disability pension.

#32.80 Federal Government Employees

The rights of employees of the Federal Government to compensation for occupational disease are set out in Section 4 of the *Government Employees Compensation Act*. This provides that an employee who . . . is disabled by reason of an industrial disease due to the nature of the employment; and . . . the dependants of an employee whose death results from such . . . industrial disease . . . are, notwithstanding the nature or class of such employment, entitled to receive compensation at the same rate and under the same conditions as are provided under the law of the province where the employee is usually employed. Section 4(4) of this Act applies a similar provision to railway employees of the Federal Government.

The meaning of "employee" is discussed in #8.10. The place where an employee is usually employed is discussed in #24.00.

#32.85 *Meaning of “Industrial Disease” under Government Employees Compensation Act*

“Industrial Disease” is defined in Section 2 to mean “any disease in respect of which compensation is payable under the law of the province where the employee is usually employed respecting compensation for workmen and the dependents of deceased workmen”.

Any employee who is disabled by reason of any disease that is not an occupational disease but is due to the nature of the employment and peculiar to or characteristic of the particular process, trade or occupation in which the employee is employed at the time the disease was contracted (17) and the dependants of a deceased employee whose death is caused by reason of such a disease, are entitled to receive compensation at the same rate as they would be entitled to receive under the *Government Employees Compensation Act* if the disease were an occupational disease, and the right to and the amount of such compensation is determined by the same board, officers or authorities and in the same manner as if the disease were an occupational disease.

Notes

- (1) Decision No. 231, 3 W.C.R. 87
- (2) Decision No. 3, 1 W.C.R. 11
- (3) S.6(1)(a)
- (4) Decision No. 99, 2 W.C.R. 15
- (5) Decision No. 205, 3 W.C.R. 16
- (6) ~~ODSC Charter, 8 W.C.R. 135~~ **Deleted**
- (7) Decision No. 207, 3 W.C.R. 21
- (8) An agreement entered into pursuant to Section 8.1 of the Act may supersede
- (9) S.6(10)
- (10) Decision No. 232, 3 W.C.R. 91
- (11) Decision No. 267, 3 W.C.R. 188
- (12) See #93.24
- (13) See Chapter 6
- (14) See #13.20 and #22.33-34
- (15) Decision No. 348, 5 W.C.R. 127
- (16) Decision No. 102, 2 W.C.R. 25
- (17) *Government Employees Compensation Act, S.8(1)(a)*

