WORKERS' COMPENSATION REPORTER

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Workplace safety and health is our challenge.
Quality rehabilitation and fair compensation is our commitment.
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- *Blue — Governors' Decisions*
- *Green — Appeal Division Decisions*
- *Pink — Miscellaneous*
- *Purple — Review Board Findings*
- *Orange — Court Decisions*

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Decision of the Governors

Number: 37
Date: March 1, 1993
Subject: Abolition of $15.00 Disclosure Fee for the Purpose of Appeals and Certain Other Proceedings

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WHEREAS the Workers' Compensation Board currently charges a $15.00 disclosure fee for the provision of copies of assessment files, claim files and occupational safety and health files to authorized persons for the purpose of appeals and certain other proceedings;

AND WHEREAS the governors of the Workers' Compensation Board consider that this $15.00 disclosure fee should be terminated effective May 1, 1993:

NOW THEREFORE THE GOVERNORS RESOLVE THAT the $15.00 disclosure fee currently charged for the provision of copies of assessment files, claim files and occupational safety and health files for the purpose of appeals and certain other proceedings shall be terminated effective May 1, 1993;

AND THE GOVERNORS FURTHER RESOLVE THAT the *Assessment Policy Manual*, the *Rehabilitation Services and Claims Manual* and the *Occupational Safety and Health Policy and Procedure Manual* shall be amended effective May 1, 1993, to eliminate all references to this fee;

AND THE GOVERNORS FURTHER RESOLVE THAT nothing in this resolution shall be construed as creating any new fees for disclosure of assessment files, claim files or occupational safety and health files for any purposes whatsoever;

AND THE GOVERNORS FURTHER RESOLVE THAT this resolution constitutes a policy decision of the governors.

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Decision of the Governors

Number: **38**
Date: **March 23, 1993**
Subject: **Occupational Safety and Health Regulation Review: Appointment of Members of the Electrical Safety Subcommittee**

WHEREAS the governors of the Workers' Compensation Board have embarked upon a complete review of the *Industrial Health and Safety Regulations*, the *Occupational Environment Regulations*, the *Industrial First Aid Regulations* and the *Workplace Hazardous Materials Information System Regulations* (collectively the "Regulations");

AND WHEREAS, on January 7, 1992, the governors adopted the document entitled "Review and Development of Occupational Safety and Health Regulations" (the "Strategy Document") which defines the process by which the governors will review the Regulations;

AND WHEREAS the Strategy Document contemplates that the Governors' Committee for Regulation Review (the "Governors' Committee") will appoint Specialty Subcommittees to address specific areas of occupational safety and health regulation;

AND WHEREAS the Governors' Committee has decided that there should be a Specialty Subcommittee, called the "Electrical Safety Subcommittee," to assist the governors with the development of regulations for work on or near electrical systems;

AND WHEREAS the Governors' Committee has decided to appoint three persons representative of workers and three persons representative of employers to the Electrical Safety Subcommittee, to appoint an advisor to the Subcommittee from the Electrical Safety Branch of the Ministry of Municipal Affairs, Recreation and Housing and to second employees from the W.C.B. Occupational Safety and Health Division, as necessary, to the Secretariat for Regulation Review to participate on the Subcommittee:

NOW THEREFORE THE GOVERNORS' COMMITTEE FOR REGULATION REVIEW RESOLVES THAT the following persons shall be appointed to the Electrical Safety Subcommittee:

To be Representative of Workers:

Douglas Hill, O.T.E.U.
Bruce Reeds, U.S.W.A.
David Thompson, I.B.E.W. 213

To be Representative of Employers:

A. (Tony) Little, Corporate Safety and Health, B.C. Hydro
Al Webb, A. Webb Electric Ltd.
Bob Wing, Howe Sound Pulp and Paper Ltd.

As Advisor:

Richard Rogers, Certificates and Permits Administrator, Electrical Safety Branch, Ministry of Municipal Affairs, Recreation and Housing

AND THE GOVERNORS' COMMITTEE FOR REGULATION REVIEW FURTHER RESOLVES THAT Bob Bernard and Don Dahr shall be appointed to the Electrical Safety Subcommittee from the W.C.B. Occupational Safety and Health Division through secondment to the Secretariat for Regulation Review.

Decision of the Governors

Number: 39
Date: January 20, 1993
Subject: Occupational Safety and Health Regulation Review: Appointment of Members of the Silviculture Subcommittee

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WHEREAS the governors of the Workers' Compensation Board have embarked upon a complete review of the *Industrial Health and Safety Regulations*, the *Occupational Environment Regulations*, the *Industrial First Aid Regulations* and the *Workplace Hazardous Materials Information System Regulations* (collectively the "Regulations");

AND WHEREAS, on January 7, 1992, the governors adopted the document entitled "Review and Development of Occupational Safety and Health Regulations" (the "Strategy Document") which defines the process by which the governors will review the Regulations;

AND WHEREAS the Strategy Document contemplates that the Governors' Committee for Regulation Review (the "Governors' Committee") will appoint Specialty Subcommittees to address specific areas of occupational safety and health regulation;

AND WHEREAS the Governors' Committee has decided that there should be a Specialty Subcommittee, called the "Silviculture Subcommittee," to assist the governors with the development of regulations for accommodation and sanitary and safety conditions in and around silviculture camps;

AND WHEREAS the Governors' Committee has decided to appoint three persons representative of workers and three persons representative of employers to the Silviculture Subcommittee, to appoint advisors to the Subcommittee from each of the Ministry of Health and the Ministry of Forests and to second employees from the W.C.B. Occupational Safety and Health Division, as necessary, to the Secretariat for Regulation Review to participate on the Subcommittee:

NOW THEREFORE THE GOVERNORS' COMMITTEE FOR REGULATION REVIEW RESOLVES THAT the following persons shall be appointed to the Silviculture Subcommittee:

To be Representative of Workers:

June Hunter
David Manning, B.C. Government Employees' Union
Don Williams, I.W.A. — Canada

To be Representative of Employers:

Dirk Brinkman, Brinkman & Associates Reforestation Ltd.
Joan Thomas, Finlay Forest Industries Ltd.
Bill Williams, Tawa Enterprises Ltd.

As Advisors:

Robin Brown, Silviculture Branch, Ministry of Forests
Gerry Penner, Environmental Health Protection Services, Ministry of Health

AND THE GOVERNORS' COMMITTEE FOR REGULATION REVIEW FURTHER RESOLVES THAT Steve Brown and Ed Bruns shall be appointed to the Silviculture Subcommittee from the W.C.B. Occupational Safety and Health Division through secondment to the Secretariat for Regulation Review.

WORKERS' COMPENSATION
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Decision of the Governors

Number: 40
Date: March 23, 1993
Subject: Occupational Safety and Health Regulation Review: Silviculture Subcommittee Rescindment of Appointments/ Appointment of New Members

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WHEREAS the governors of the Workers' Compensation Board have embarked upon a complete review of the *Industrial Health and Safety Regulations*, the *Occupational Environment Regulations*, the *Industrial First Aid Regulations* and the *Workplace Hazardous Materials Information System Regulations* (collectively the "Regulations");

AND WHEREAS, on January 7, 1992, the governors adopted the document entitled "Review and Development of Occupational Safety and Health Regulations" (the "Strategy Document") which defines the process by which the governors will review the Regulations;

AND WHEREAS the Strategy Document contemplates that the Governors' Committee for Regulation Review (the "Governors' Committee") will appoint Specialty Subcommittees to address specific areas of occupational safety and health regulation;

AND WHEREAS the Governors' Committee decided that there should be a Specialty Subcommittee, called the "Silviculture Subcommittee," to assist the governors in the development of regulations for accommodation and sanitary and safety conditions in and around silviculture camps;

AND WHEREAS on January 20, 1993 the Governors' Committee appointed three persons representative of workers and three persons representative of employers to the Silviculture Subcommittee, appointed advisors from the Ministry of Forests and the Ministry of Health and seconded two employees from the W.C.B. Occupational Safety and Health Division to the Secretariat for Regulation Review to participate on the Subcommittee;

AND WHEREAS two persons appointed to the Ergonomics Subcommittee on January 20, 1993, have resigned from the Subcommittee and the Governors' Committee wishes to appoint two other persons to replace them:

NOW THEREFORE THE GOVERNORS' COMMITTEE FOR REGULATION REVIEW RESOLVES THAT:

1. The appointments of June Hunter and David Manning to the Silviculture Subcommittee are rescinded effective February 22, 1993.

2. David Trites is appointed to the Silviculture Subcommittee effective February 22, 1993 to be representative of workers.

3. Gloria Hiltz (I.W.A.) is appointed to the Silviculture Subcommittee effective February 25, 1993 to be representative of workers.

WORKERS' COMPENSATION

REPORTER

Decision of the Governors

Number: 41
Date: April 5, 1993
Subject: Approval of Regulations for Agricultural Operations

WHEREAS on September 15, 1982, the Workers' Compensation Board determined that employers and workers in or about the industry of farming should be brought within the scope of Part 1 of the *Workers Compensation Act* effective April 4, 1983, and passed Board Minute dated September 15, 1982, which was subsequently gazetted as B.C. Regulation 434/82;

AND WHEREAS B.C. Regulation 434/82 defines the industry of farming to include growing or raising crops, dairying, poultry raising, egg production, raising of livestock for human consumption, breeding of beef cattle for herd improvement, horticulture, beekeeping, aquaculture, fur farming, and breeding of horses, on land with a certain minimum gross value of production and of a certain size;

AND WHEREAS on March 28, 1984, the Workers' Compensation Board amended B.C. Regulation 434/82 by Board Minute dated 28 March 1984, which was gazetted as B.C. Regulation 275/84, and declared that:

> . . . with the exception of the industrial health and safety regulations, all provisions of Part 1 of the *Workers Compensation Act* and all the Board's current practices, procedures and regulations, including those in respect of registration requirements, assessment collection and claims and rehabilitation matters will apply to employers and workers in or about the industry of farming in the same way and to the same extent that they presently apply to workers and employers in or about the other industries within the scope of Part 1 of the *Workers Compensation Act*, provided however, that the industrial health and safety regulations will be used as guidelines for educational and promotional programs relating to industrial health and safety in the farming industry.

> The Board hereby declares that regulations relating to industrial health and safety in the farming industry will be developed with implementation and adjustment periods appropriate to that industry, and
>
> The Board hereby declares that it will continue to administer educational and promotional programs relating to industrial health and safety in the farming industry while said regulations are being developed.;

AND WHEREAS on January 7, 1992, the governors of the Workers' Compensation Board embarked upon a complete review of the occupational safety and health regulations during which, with the involvement of the worker and employer communities in the province, they are reviewing the *Industrial Health and Safety Regulations*, including the *Workplace Hazardous Materials Information System Regulations*, the *First Aid Regulations* and the *Occupational Environment Regulations*;

AND WHEREAS on February 3, 1992, the governors adopted a resolution stating that the development of health and safety regulations for farms and ranches would be made part of the review process;

AND WHEREAS the governors have constituted the Governors' Committee for Regulation Review, the Regulation Advisory Committee and various Specialty Subcommittees composed of worker and employer representatives from industry sectors to assist in the review;

AND WHEREAS in June, 1992, the governors established an Agriculture Subcommittee composed of representatives of workers and employers in the industry and chaired by public interest governor Mark Thompson to develop regulatory proposals for the control of hazards in agriculture and to advise on matters of general regulatory concern;

AND WHEREAS the Agriculture Subcommittee held a series of meetings from July, 1992, to January, 1993, and issued a final report which was reviewed and approved by the Regulation Advisory Committee on February 8, 1993;

AND WHEREAS the final report of the Agriculture Subcommittee included recommendations for hazard specific Draft Regulations for Agricultural Operations which then were made publicly available;

AND WHEREAS, with the approval of the governors, the Workers' Compensation Board gave notice of and held public hearings on March 3 and 4, 1993, with respect to the Draft Regulations for Agriculture Operations, in accordance with Section 71(1) of

the *Workers Compensation Act* and legal advice obtained by the governors concerning the legal requirements that the W.C.B. must fulfil when exercising its statutory authority under Section 71(1);

AND WHEREAS the Governors' Committee for Regulation Review, on the advice of the Regulation Advisory Committee, has presented to the governors the final Regulations for Agricultural Operations attached hereto as Schedule "A", as well as the written submissions from the public hearings and audiotapes of the oral presentations;

AND WHEREAS the Governors' Committee for Regulation Review, on the advice of the Regulation Advisory Committee, has recommended to the governors that Sections 2, 4, 6, and 8 of the *Industrial Health and Safety Regulations* (B.C. Reg. 585/77 as amended by B.C. Reg. 126/82 and 523/82), as they may be amended from time to time, apply to the farming industry as defined in Regulation 434/82, with the exception of aquaculture:

NOW THEREFORE THE GOVERNORS RESOLVE THAT, pursuant to Section 71(1) of the *Workers Compensation Act*, they make the *Regulations for Agricultural Operations* attached hereto as Schedule "A" to apply to all employers, workers and other persons working in or contributing to any agricultural production of the farming industry as defined in B.C. Regulation 434/82, with the exception of aquaculture;

AND THE GOVERNORS FURTHER RESOLVE THAT the Regulations for Agricultural Operations so made shall come into effect on April 28, 1993, except that, if the Regulations specify another effective date for a Regulation, that Regulation shall come into effect on that other date;

AND THE GOVERNORS FURTHER RESOLVE THAT Sections 2, 4, 6, and 8 of the *Industrial Health and Safety Regulations* (B.C. Reg. 585/77 as amended by B.C. Regs. 71/82, 126/82 and 523/82), as they may be amended from time to time, shall apply to the farming industry as defined in Regulation 434/82, with the exception of aquaculture, effective April 28, 1993.

Editors' note: The regulations are published in their entirety in The British Columbia Gazette, *Volume 36, No. 9, dated May 11, 1993.*

Decision of the Governors

Number: 42
Date: June 7, 1993
Subject: Approval of Interest on Disfigurement Awards

WHEREAS Section 23(5) of the *Workers Compensation Act* provides that "where the worker has suffered a serious and permanent disfigurement which the board considers is capable of impairing his earning capacity, a lump sum in compensation may be paid, although the amount the worker was earning before the injury has not been diminished";

AND WHEREAS on June 7, 1993, the governors of the Workers' Compensation Board approved a new policy developed by the W.C.B. president and the Executive Committee for the administration of disfigurement awards under Section 23(5);

AND WHEREAS all disfigurement awards have been held in abeyance since October 2, 1992, pending development and approval of the new policy:

NOW THEREFORE THE GOVERNORS RESOLVE THAT interest shall be paid on each disfigurement award held in abeyance since October 2, 1992, for the portion of the period from October 2, 1992, until June 7, 1993, inclusive, during which each award was held in abeyance, at the interest rate(s) in effect at the time.

WORKERS' COMPENSATION
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Decision of the Appeal Division

Number: 93-0166, 93-0182
Date: February 4, 1993
Panel: Connie Munro, Chief Appeal Commissioner
Subject: Section 96.1

Two separately incorporated but related companies (referred to herein as "the employer") seek a reconsideration of an Appeal Division decision dated December 4, 1991, on the basis that new evidence provides a different picture of the nature of their operations.

By way of background, the employer is a general business contractor which entered into an agreement for the construction of subterranean penstocks and a powerhouse at a power project ("the Project"). As a result of this, by letter dated June 24, 1991, the Assessment Department reclassified the employer from industry classification 070600 (general building classification) to industry classification 072504 (tunnel construction). More specifically, the letter stated that the assessable payroll for the tunnel and subterranean powerhouse construction was assessed under industry classification 072504 which increased the assessments.

The employer appealed the decision of the Assessment Department to the Appeal Division. The December 4, 1991, decision of the Appeal Division confirmed the decision of the Assessment Department.

Both the Assessment Department and the appeal commissioner who rendered the December 4, 1991, decision proceeded on the assumption that the employer was directly involved in the shotcrete work and installation of rockbolts during the actual tunnel construction. The appeal commissioner made it very clear that he relied on this evidence in upholding the decision of the Assessment Department. For instance, he stated:

> . . . Information on the firm file indicates that these companies contracted out the actual tunnelling and lining work to a non-related company but did the shotcrete and rockbolt work with their own workers. The project involved tunnelling, shotcrete work and installation of metal liner in the tunnel. The employers did the shotcrete and rockbolt work only.

Section 30:20:20 of the *Assessment Manual* gives the Board the discretion to look at a number of variables including the assessable annual payroll for the personnel engaged in a separate and distinct activity. In light of the available evidence, the appeal commissioner found the reclassification to be consistent with the terms of the governors' policy.

In a letter dated September 14, 1992, counsel for the employer informed the Appeal Division that his client had not performed the shotcrete work or the installation of the rockbolts. The employer was merely acting as an administrator for the tunnel contractors. Counsel emphasized:

> . . . None of the employees of [my client] were assuming the type of risk which is attendant with actual tunnel construction, and [my client] has no specialized labour for [the Project] generally. [My client] has simply continued to use its general labour force in the performance of its contract.

It is clear from counsel's correspondence with the Appeal Division, including his submissions prior to the December 4, 1991, decision, that he personally had understood his client was directly involved in the shotcrete and installation of rockbolts during the actual tunnel construction.

In support of the employer's request for a reconsideration, counsel explained the mistake as follows (in a letter dated October 23, 1992):

> . . . I prepared a draft submission based upon information which had been taken from the W.C.B. file including a note by the Assessment Officer that [my client] had done shotcrete work. This was an error. The error was noted by [my client] and it was believed by them that they had taken all steps to advise me of the error and the error had been corrected in the final submission to the Board. Unfortunately, the error remained in the final submission to the Panel and remained there only through inadvertence and not through any lack of diligence on the part of [my client] or our firm.

The submission which was filed with the Appeal Division contained the statement ". . . the shotcrete was done directly by the employer . . . ."

Because it was not entirely clear to me whether ["the Project"] was completed, the employer's counsel was requested to provide more facts on the project. In a letter dated November 5, 1992, counsel explained that ["the Project"] has been indefinitely put on hold. The employer contract is, therefore, at an end. Whether they would resume work on the site, if the project goes ahead, is a matter for further negotiations.

Counsel explained further that the agreement involved two separate contracts, the first relating to the construction of the powerhouse and the second relating to the construction of the penstock. With respect to the powerhouse contract, virtually all of the shotcrete and rock bolting work has been completed (by subcontractors). The powerhouse construction itself is approximately 25% complete. With respect to the penstock, a significant amount of shotcrete and rock bolting remains to be done. Counsel stated that if the employer did resume work on the site, they would not be performing any portion of the work as it would be subcontracted.

Preliminary Issue

In requesting a reconsideration, the employers rely on the "new evidence" provision of the *Workers Compensation Act* — namely Section 96.1. This section reads as follows:

> **Reconsideration by appeal division**
>
> 96.1 (1) Subject to this section and sections 58 to 66, a decision of the appeal division is final and conclusive.
>
> (2) A worker, the worker's dependants, the worker's employer or the representative of any of them may apply to the chief appeal commissioner for reconsideration of a decision of the appeal division on the grounds that new evidence has arisen or has been discovered subsequent to the hearing of the matter decided by the appeal division.
>
> (3) Where the chief appeal commissioner considers that the evidence referred to in subsection (2)
>
> (a) is substantial and material to the decision, and
> (b) did not exist at the time of the hearing or did exist at that time but was not discovered and could not through the exercise of due diligence have been discovered,
>
> he may direct that
>
> (c) the appeal division reconsider the matter, or
> (d) the applicant may make a new claim to the board with respect to the matter.

The question arises whether this section applies only to claims matters. Until I started giving attention to this request, I assumed that I had the authority to reconsider decisions concerning employers' assessments and occupational safety and health penalty levies on the basis of new evidence. That is evident, for instance, in Appeal Division Decision No. 92-0923, *Workers' Compensation Reporter*, Vol. 8(5), p. 345. In that decision, I considered but did not allow an employer's reconsideration request on the basis of new evidence.

However, the wording of Section 96.1 suggests a narrower jurisdiction. Subsection 96.1(2) allows "a worker, the worker's dependants, the worker's employer or the representative of any of them" to apply to the chief appeal commissioner "for reconsideration of a decision of the appeal division." The grammatical structure of the provision which starts with "a worker" and then proceeds with "the worker's dependants, the worker's employer . . ." suggests that the impugned decision must involve a worker's claim. Under this interpretation, the Appeal Division would lack the authority to reconsider decisions pertaining to employers' assessment and O.S.H. penalties, in light of new evidence.

In a letter dated November 30, 1992, to the employer's counsel, I invited his submissions on this jurisdictional question.

In a reply dated December 31, 1992, counsel submitted that:

> Section 96.1 is a relatively new section of the *Act* and it appears to have been intended to provide the Chief Appeal Commissioner with jurisdiction to deal with the reconsideration of decisions of the Appeal Division.
>
> At the time s. 96.1(2) was enacted there was no express provision in the *Act* for appeals of employer assessments. Jurisdiction to hear such appeals was granted to the Appeal Board subsequently with the enactment of s. 96(6). In our submissions, all relevant policy considerations suggest that s. 96.1(2) should be interpreted to extend to these new s. 96(6) appeals. All other appeals under s. 96 are subject to this jurisdiction and there is no cogent policy consideration for excluding s. 96(6) appeals from your s. 96.1 jurisdiction. This broad interpretation is consistent with the legislative scheme, the legislative language and the principles of fairness and efficacy.
>
> When new evidence arises after an appeal has been heard, it is fair to reconsider the matter, with the Appeal Tribunal fully apprised of the fresh evidence. Indeed, fairness dictates a

> reconsideration when relevant fresh evidence has arisen. This principle applies to all appeals, independent of the substantive issues at stake. Indeed, it is a rule applied by the Board as well as by our courts. The purpose of s. 96.1(2) is to extend a broad, equitable jurisdiction so that this principle may be acted upon with respect to all appeals heard by the Appeal Board. Moreover, this broad jurisdiction to ensure that the final outcome is fair which is consistent with the strong privative clause which precludes further review of the Appeal Board's final determinations.

Counsel is incorrect in his assumption that appeals on assessment matters were not in existence at the time Section 96.1 was adopted. The *Workers Compensation Amendment Act, 1989* (Bill 27) simultaneously enacted the provisions allowing employers to appeal matters pertaining to an assessment, classification, monetary penalty, apportionment or shifting of cost [Sections 96(6) and 96 (6.1)] and the provision allowing reconsideration on the basis of new evidence.

The Broad Interpretation

I have considered whether the broad interpretation of Section 96.1 advocated by counsel is viable; that is, whether the words of Section 96.1(2) could be reasonably construed as to allow applications pertaining to *all* matters determined by the Appeal Division, whether or not they are claims-related.

Section 96.1(2) does not specifically say that the reconsideration request must involve a worker's claim.

In the first reading of Bill 27, the explanatory note appended to the section adding the reconsideration provision (Section 10) stated: "[Section 10] allows the appeal division to reconsider its decision if substantial new evidence is found." No distinction was drawn between decisions pertaining to workers' claims and other decisions.

Moreover, during the legislative debates, the Minister of Labour and Consumer Services responsible for introducing Bill 27 did not distinguish between workers' appeals and other appeals when discussing reconsideration on the basis of new evidence. In the *Debates of the Legislative Assembly* (Hansard), 3rd Session, 34th Parliament (Thursday, May 11, 1989), the Hon. Lyall Hanson stated:

> The appeal division will also hear employer appeals of W.C.B. assessments and safety penalty levies. Appeal decisions will be final and binding; however, the appeal division will have the power of reconsideration if substantial and material evidence arises or is discovered subsequent to a hearing.

Bearing in mind that Parliamentary materials do not conclusively show legislative intent, it is noteworthy that the above statement does not suggest that the Appeal Division's power of reconsideration on the basis of new evidence stops short of extending to decisions on assessments and monetary penalties.

The reconsideration provision comes right after the broad statutory provision which, among others, allows the Appeal Division to redetermine, on an appeal, matters dealt with by the Review Board as well as Board decisions pertaining to assessments, classification, monetary penalties and apportionment or shifting of cost (see Sections 96(3), 96(6) and 96(6.1)). The place of the reconsideration provision, in the legislative text, might suggest, therefore, that it was intended to apply to the different Appeal Division decisions described in the immediately preceding provision.

The above considerations have to be weighed against the language of Section 96.1. Unlike the provisions which give "an employer" the right to appeal Board decisions pertaining to an assessment, a classification, a monetary penalty, an apportionment or shifting of costs, Section 96.1 refers to "the worker's employer." It does not refer to "an employer."

Hence, the interpretation advocated by counsel enlarges the meaning of the words used in Section 96.1(2) to an extent that verges upon amending the statute as opposed to interpreting it. The correction of drafting mistakes is justified when mistakes are obvious and the context makes it clear the legislature did not mean what it said and that what is substituted is what the legislature did mean. However, this is not the case here.

I also note that counsel's interpretation would lead to the anomalous situation that workers would have the right to apply for reconsideration of a decision other than a claims-related matter under Section 96.1 when they have not been given appeal rights in respect of such decisions.

The Literal Interpretation

A second possible interpretation of Section 96.1(2) would focus on the plain meaning of the words. This approach would lead to the conclusion that Section 96.1 allows the reconsideration of Appeal Division decisions that are, in a broad sense, claims-related. More specifically, the Appeal Division's jurisdiction to reconsider its decisions, on the basis of new evidence, would depend on whether these decisions involved (directly or indirectly) specific claims. In relation to applications by employers, the new evidence provision would apply so long as the employer requesting a reconsideration could be characterized as "a worker's employer."

The obvious strength of this interpretation is that it adheres to the grammatical and ordinary sense of the words used in Section 96.1(2).

The serious weakness of this interpretation is that it leads to what may seem as arbitrary results. Under this interpretation, requests for reconsideration of decisions involving, for example, transfer of costs matters (in connection with Section 10(8)) or relief of claim costs matters (in connection with Section 39(1)(d) and (e)) would fall within the scope of Section 96.1. On the other hand, requests for reconsideration of decisions involving assessments, monetary penalties or a classification would fall outside the scope of Section 96.1. I can see no obvious rationale to such a distinction.

As with the broad approach advocated by counsel, this interpretation would give workers the right to apply for reconsideration of a decision where they have not been given appeal rights in respect of matters listed in Section 96(6) and (6.1). A worker would be in a position to apply for a reconsideration of a Section 39(1)(d) or (e) matter since the conditions under Section 96.1(2) would, strictly speaking, be met. There would be "a worker" and "the worker's employer." However, that worker could not appeal the Section 39(1)(d) or (e) matter under Section 96(6).

It may be argued that the workers' right to apply for a reconsideration, in the case of claims-related matters, flows from the fact that they have some connection to and may have some interest in the matter. The matter, at least, arises out of their particular claim for compensation. This argument has some plausibility. In any event, it is clear that the chief appeal commissioner's powers under Section 96.1 are discretionary. The ultimate decision as to whether a worker's interest is strong enough to trigger a reconsideration will depend on the finding at issue.

The Contextual Interpretation

A third possible interpretation of Section 96.1 would be that the provision empowers the Appeal Division to reconsider only its decisions concerning Review Board findings. This interpretation would be based on the similarity between the language used in Section 96.1(2) and that used in the statutory provisions allowing claims decisions to be appealed first to the Review Board then to the Appeal Division. More specifically, the statutory provision allowing appeals from Review Board findings (Section 91) states that "Where the review board makes a finding under section 90, *the worker, the worker's dependants, the worker's employer or the representative of any of them* may . . . appeal the finding to the appeal division" (emphasis added). Section 90, providing for appeals to the Review Board, uses similar wording: ". . . the worker, or, if deceased, his dependants, or his employer, or a person acting on behalf of the worker, his dependants or employer, may . . . ."

The strength of this third interpretation is that it seeks to harmonize the different parts of the *Act*. The relation of the various provisions to each other is certainly a relevant factor in determining the meaning or scope of some provision.

However, this interpretation departs from the ordinary meaning of the words used in Section 96.1(2); it precludes an employer requesting a reconsideration involving, for example, a Section 10(8) transfer of cost matter even though the words "the worker's employer" may be said to apply to such an employer. Thus, it may be argued that such an interpretation would be overly restrictive.

I note that the opening words of Section 96.1 are "Subject to this section and sections 58 to 66 . . . ." Sections 58 to 66 deal with Medical Review Panel decisions involving workers' claims. That is, the opening words of the section are consistent with the either the literal or the contextual interpretation.

I also note the wording of subsection 3(c) and (d) of Section 96.1 which provides the remedy available when new evidence meets the criteria of 96.1(3) (a) and (b). According to Section 96.1(3)(c) and (d), the chief appeal commissioner may direct that the Appeal Division reconsider the matter, or the applicant may make a *new claim* to the Board with respect to the matter. Again, the inference may be made that the subject matter must be a claim for compensation or claims-related.

The foregoing discussion demonstrates that each of the possible interpretations of Section 96.1 is, to a greater or lesser extent, problematic. Counsel's broad interpretation may appear to be reasonable to the extent that it relies on general common law principles but it is unsupported by the wording of the legislation. Moreover, it would give workers the right to apply for reconsideration of a decision other than a claims-related matter. Although compatible with the appeal rights specified in the legislation, the contextual interpretation that takes into account the wording of other statutory provisions would restrict the employer's right to a reconsideration in excess of the words of Section 96.1. Finally, the interpretation that rests on the literal or plain meaning of the words of Section 96.1 yields what might appear to be somewhat arbitrary results.

I note the absence of governors' policy on the extent of the Appeal Division's jurisdiction as regards the new evidence provision.

There should be no hard and fast rules against departing from a literal approach to statutory interpretation. When such a departure, however, leads to problems at least as complex as those arising from a literal interpretation, a sound approach would be to adhere to a literal interpretation. I have decided, on that basis, to adopt the interpretation based upon the literal or plain meaning of the words used in Section 96.1. Under this interpretation, employers' reconsideration requests pertaining to assessments and

occupational safety and health monetary penalties fall outside of the ambit of Section 96.1

The governors may wish to draw the attention of the legislature to the interpretative problems flowing from the wording of Section 96.1

Findings

I do not have the jurisdiction to consider the request before me under Section 96.1.

The Appeal Division has reconsidered its own decisions on the grounds of a breach of the rules of natural justice. However, in the case before me, the employer does not contend that such a breach occurred.

The Appeal Division decision of December 4, 1991, must, therefore, stand.

I note that it is still open to the employer to provide the Assessment Department with properly documented evidence concerning any future shotcrete and rock bolt work, should it ever resume work on the site. For the purpose of future assessments, the Assessment Department may wish at that point to reconsider the employer's classification, in light of that information.

Editors' note: This decision has been edited for publication.

WORKERS' COMPENSATION
REPORTER

Decision of the Appeal Division

Number: 93-0389
Date: March 19, 1993
Panel: Connie Munro, Chief Appeal Commissioner
Subject: Section 39(1)(e) and Medical Review Panels

The employer is seeking a decision from the Appeal Division on whether a Board decision under Section 39(1)(e) of the *Workers Compensation Act* R.S.B.C. 1979, c. 437 (the "*Act*") may be appealed to a Medical Review Panel.

The Appeal Division decision dated December 6, 1991, denied the employer's request for relief of costs under Section 39. This request concerned a claim involving a worker who had sustained injuries as a result of an assault at work and who was pregnant at the time of this assault. The employer contended that the worker's pregnancy had slowed down her recovery.

The employer sought to appeal the December 6, 1991, decision to a Medical Review Panel. By letter dated April 3, 1992, addressed to the employer, the medical appeals officer concluded that this was not appealable to a Medical Review Panel because its subject matter was not a worker's entitlement to compensation. The medical appeals officer relied on #103.11 of the *Rehabilitation Services and Claims Manual* which states that an appeal to a Medical Review Panel is "confined to situations which affect the rights of a worker to compensation."

The employer appealed the April 3, 1992, decision of the medical appeals officer to the Review Board. In findings dated October 1, 1992, the Review Board concluded that it does not have the jurisdiction to decide whether an appeal to a Medical Review Panel is available to this employer. The Review Board reasoned that its jurisdiction is limited to reviewing decisions made "with respect to a worker." The Review Board did not view the decision by the medical appeals officer to be a decision "with respect to a worker."

By letter dated October 13, 1992, addressed to the Appeal Division, the employer is seeking a decision from the Appeal Division as to the correctness of the April 3, 1992, determination of the medical appeals officer. Because the Review Board found that it lacked the jurisdiction to consider the employer's appeal, the Appeal Division may

proceed on the basis outlined in Appeal Division Decision No. 1 in the *Workers' Compensation Reporter*, Vol. 7(1), p. 37:

> The Appeal Division will, however, consider appeals from Review Board findings on "preliminary matters" where the finding would constitute a final determination.

The Employer's Submissions

The employer's representative argues that part of policy #103.11 contravenes Section 58(4) of the *Act*. The part of the policy impugned states:

> Section 39(1)(e) allows the Board to relieve a class or subclass of employers of the costs of a claim where a portion of the disability has resulted from an enhancement produced by a pre-existing disease, condition or disability. *An appeal to a Medical Review Panel is not available against a decision under that section. The appeal is confined to situations which affect the rights of a worker to compensation*.
>
> (emphasis added)

Subsection 58(4) of the *Act* provides that:

> Whenever the employer or former employer of a worker, not later than 90 clear days after the making of a medical decision by the board, expresses himself in writing to the board as being aggrieved by that medical decision and sends with that writing a certificate from a physician certifying that in his opinion there is or may be a bona fide medical dispute to be resolved, with sufficient particulars to define the question in issue, the worker shall be examined by a medical review panel appointed in the manner provided in this section.

The employer's representative contends that there is no requirement in the legislation that the medical issue be ". . . confined to situations which affect the rights of a worker . . . ." The employer's representative reasons that if the legislation had intended this restriction, the wording of Section 58(4) would have been different. Other provisions in the *Act* are worded restrictively so as to cover only claims matters. For instance, Section 90(1) refers to "a decision under this *Act* with respect to a worker." This has been interpreted to mean that only claims matters are appealable to the Review Board. The wording of Section 58(4) is, however, broader which implies, according to the employer's representative, that it was not the intent of the legislators to restrict the availability of Medical Review Panel appeals to claims matters.

Analysis

The wording of Section 58(4) is clearly compatible with broad appeal rights. The only explicit requirements imposed by that provision are that the decision be a medical decision, that the employers (or former employers) contest it in writing within 90 days, that they provide a medical certificate certifying that there is or may be a bona fide medical dispute to be resolved, and that the certificate defines the question in issue. At first blush, nothing in the wording of Section 58(4) suggests that the contested medical decision must be a claims decision — that is, a decision directly concerning a worker's entitlement to compensation. Subsection 58(4) would seem, therefore, to allow employers to appeal non-claims decisions to Medical Review Panels. But, by the same token, Section 58(3) would seem to allow workers to appeal non-claims decisions to Medical Review Panels. This provision reads as follows:

> Whenever a worker, not later than 90 clear days after the making of a medical decision by the board, expresses himself in writing to the board as being aggrieved by that medical decision and sends with that writing a certificate from a physician certifying that in the opinion of the physician there is a bona fide medical dispute to be resolved, with sufficient particulars to define the question in issue, the worker shall be examined by a medical review panel appointed in the manner provided in this section.

The wording of Section 58(3) would suggest that a worker may appeal a Board decision to grant an employer relief of costs under Section 39(1)(e) to the extent that this is a medical decision. Yet a worker has no interest in the outcome of such a decision.

A basic principle of statutory interpretation is that a provision must be read in the context of the entire statute. Regardless of its wording, a statutory provision cannot be interpreted in isolation. It derives its meaning in part from its wording but also from the relationship it bears to other relevant statutory provisions and the overall scheme of the legislation. What appears to be a straightforward provision may be ambiguous in the context of the entire statute. Conversely, a seemingly ambiguous provision may become clear when read in conjunction with other provisions.

Legislative history and external sources of legislative intent including Commission reports are also important tools of statutory interpretation.

A determination of whether policy #103.11 of the *Manual* is lawful requires an analysis of Section 58(4) in relation to other medical appeal provisions and Section 39(1)(e), having regard to the legislative history of these provisions and their intent as can be gleaned from the relevant Commission reports.

Relief Of Costs Under Section 39(1)(e)

Subsection 39(1)(e) of the *Act* creates what has been commonly referred to as a "second injury" fund or an "enhancement" fund. It is intended to relieve a particular employer from the costs of a compensable disability when the disability is enhanced by reason of a pre-existing disease, condition or disability. The rationale for this kind of fund is that it will encourage employers to offer employment to people with a disability, or with a condition that may lead to a disability. In his 1966 Report, Mr. Justice Tysoe discussed the principle that industry should pay for the enhancement of the disabling effect of a compensable injury over and above what it would be if there was no pre-existing impairment. He accepted this principle, stating at p. 200 that "in this sense and to this extent, industry must . . . take a man as it finds him." It is significant that he emphasized at p. 200 that the existence of the type of fund he had in mind:

> has no effect whatever on the amount of the compensation benefits receivable by a workman. It is solely for the benefit of employers without in any way being detrimental to workmen. It is no more than a means of redistributing the cost of compensation amongst employers in particular cases.

Mr. Justice Tysoe proceeded to recommend that the Board should be given express powers to set up and operate a second injury fund. Section 37(1)(e) of the *Workmen's Compensation Act, 1968,* R.S.B.C. 1968, c. 59 expressly gave the Board these powers. The language of the provision directing the Board to create this fund has not changed over the years.

Medical Review Panel Appeals

The history of the present appeal system to Medical Review Panels goes back to the early 1950s. In his 1952 report on the W.C.B., Chief Justice Sloan discussed at some length the advisability of creating a medical appeal body to which workers and employers could resort if dissatisfied with decisions of the Board on medical questions. It is quite clear from Chief Justice Sloan's discussion (on pp. 143–47) that the type of decisions he had in mind were decisions involving contested or doubtful medical matters in the context of claims entitlement.

Following Chief Justice Sloan's 1952 recommendations, the first effort to frame legislation conferring upon the worker the right to apply for a review to someone outside the Board against a decision of the Board on a purely medical question was made in 1954. Section 29 of the *Workmen's Compensation Act Amendment Act, 1954*, S.B.C. 1954, c. 54 enacted a new provision which stated:

Chapter 370 is further amended by inserting the following as section 54A:—

"54A. When a workman applies to the Board for compensation under this *Act* and claims:—

"(*a*) A greater disability than that found by the Board; or

"(*b*) A continuance of compensation beyond the period allowed by the Board; or

"(*c*) Error on the part of the Board in some feature or circumstance of his claim as affected by his physical condition; or

"(*d*) That the medical opinion upon which the disputed finding was made is erroneous or incomplete;

and makes a request in writing to the Board for an examination under this section, the Board, after consultation with the workman's attending physician and the injured workman or someone authorized to act on his behalf, shall each appoint from a panel of not less than three specialists one duly qualified medical practitioner in the particular class of injury or ailment in respect of which the workman has claimed compensation, such specialist having been previously nominated by a duly recognized medical association, and these two duly qualified medical practitioners so appointed shall examine the workman and certify to the Board as to:—

"(*a*) The condition of the workman:

"(*b*) His fitness for employment:

"(*c*) If unfit, the cause of such unfitness:

"(*d*) The extent of his temporary or permanent disability by reason of the injury in respect of which he has claimed compensation; and

"(*e*) Such other matters as may, in his opinion or in the opinion of the Board, be pertinent to the claim;

and such certificate shall be conclusive as to the matters certified, unless the Board at any time directs otherwise. A signed copy of such certificate shall be supplied to the workman.

"(2) The Board shall notify the workman by registered mail of the names and addresses of the duly qualified medical practitioners recommended by the duly recognized medical association; and if the workman does not, within fourteen days after the mailing of the notice, advise the Board of

his selection, the Board may then proceed to select two such duly qualified medical practitioners to examine the workman.

"(3) The Board may also, pursuant to subsection (1), of its own motion, refer a claim to two such duly qualified medical practitioners, and they shall together examine the workman and certify in the manner provided in subsection (1) of this section.

"(4) The costs of all such references shall be payable out of the Accident Fund as part of the administrative expenses of the Board."

I note that, although Chief Justice Sloan had recommended extending this appeal right to employers as well as to workers, the 1954 provision only extended this right to workers. I do not know why employers were left out in 1954.

The section was changed in 1955. Again, there is no mention of employers' appeal rights in the 1955 version. Section 15 of the *Workmen's Compensation Act Amendment Act, 1955*, S.B.C. 1955, c. 91 worded workers' appeal rights to a medical appeal body, in part as follows:

54A (1) When a workman applies to the Board for compensation under this *Act* and claims:—

(a) A greater functional disability than that found by the Board; or

(b) A continuance of compensation beyond the period allowed by the Board; or

(c) That the medical opinion upon which the disputed finding was made is erroneous or incomplete;

and makes a request in writing to the Board accompanied by a certificate from a physician certifying that in the opinion of such physician there is a bona fide medical dispute to be resolved, with sufficient particulars thereof to define the question in issue, the workman shall be examined by a specialist appointed in the manner provided in this section.

Other changes were made in 1959. The provision framing the workers' right to appeal to a Medical Review Panel was left substantially unchanged. However, a new provision now extended the same right to employers; workers' and employers' appeal rights were couched in very similar language. Section 18 of the *Workmen's Compensation Act Amendment Act, 1959*, S.B.C. 1959, c. 95 provided, in part, that:

(3) (*a*) When a workman applies to the Board for compensation under this *Act* and alleges
(i) a greater functional disability than that found by the Board; or
(ii) a continuance of compensation beyond the period allowed by the Board; or
(iii) that the medical opinion upon which the disputed findings was made is erroneous or incomplete,

and makes a request in writing to the Board, accompanied by a certificate from a physician certifying that in the opinion of such physician there is a bona fide medical dispute to be resolved, with sufficient particulars to define the question in issue, the workman shall be examined by a Medical Review Panel appointed in the manner provided in this section; or

(*b*) When the employer or former employer of a workman alleges
(i) that the workman has a lesser functional disability than that found by the Board; or
(ii) that compensation has been or is being continued beyond the period that should be allowed; or
(iii) that the medical opinion upon which the disputed finding was made is erroneous or incomplete,

and makes a request in writing to the Board accompanied by a certificate from a physician certifying that in his opinion there is or may be a bona fide medical dispute to be resolved, with sufficient particulars to define the question in issue, the workman shall be examined by a Medical Review Panel appointed in the manner provided in this section.

The wording "there is or *may be* a bona fide medical dispute" (emphasis added) in the provision dealing with the employers' appeal rights is understandable since, in this case, the physician providing the certificate may not have had the opportunity to examine the worker. The standard to be met is, accordingly, lower.

In his 1966 report, Mr. Justice Tysoe discussed the medical review appeal system at length. He prefaced this discussion by stating:

Intent of the Section

The intent of the section is to give workmen and employers a right of review of decisions of the Board by a panel of medical doctors consisting of a Chairman appointed by the Lieutenant-Governor in Council and two independent specialists "in the

> particular class of injury or ailment in respect of which the workman has claimed compensation" where
>
> (*a*) a workman alleges a greater functional disability than that found by the Board, or a continuance of compensation should be allowed beyond the period allowed by the Board, or that the medical opinion upon which the disputed findings was made is erroneous or incomplete;
>
> (*b*) the employer or former employer of a workman alleges that the workman has a lesser functional disability than that found by the Board, or that compensation has been or is being continued beyond the period that should be allowed, or that the medical opinion upon which the disputed finding was made is erroneous or incomplete.

Mr. Justice Tysoe then proceeded to discuss several matters including the Panel's procedures and jurisdiction, Medical Review Panel certificates and the finality of Medical Review Panel decisions.

Mr. Justice Tysoe recommended several changes to the provisions dealing with medical appeals, including a change to the wording of the provision extending appeal rights to workers and employers (and former employers). The specific reason he recommended changes be made to these provisions was to ensure that the doctor's certificate and not the worker's allegations determine the availability of a Medical Review Panel examination. He recommended, therefore, that the first portion of the provisions dealing with workers and employers appeal right "be changed so that it will read somewhat as follows: 'Whenever a workman (employer or former employer) expresses himself in writing to the Board as being aggrieved by a medical decision made by the Board, accompanied by a certificate from a physician . . . .'"

It is noteworthy that, like Chief Justice Sloan, Mr. Justice Tysoe discussed appeals to Medical Review Panels in relation to claims decisions.

Sections 55(3)(a) and (b) of the *Workmen's Compensation Act, 1968*, R.S.B.C. 1968, c. 59 incorporated Mr. Justice Tysoe's recommendations. Sections 55(3)(a) and (b) provided that:

> (3) (*a*) Whenever a workman, not later than ninety clear days after the making of a medical decision by the Board, expresses himself in writing to the Board as being aggrieved by that medical decision and sends with that writing a certificate from a physician certifying that in the opinion of such physician there is a bona fide medical dispute to be resolved, with sufficient

particulars to define the question in issue, the workman shall be examined by a Medical Review Panel appointed in the manner provided in this section; or

(*b*) Whenever the employer or former employer of a workman, not later than ninety clear days after the making of a medical decision by the Board, expresses himself in writing to the Board as being aggrieved by that medical decision and sends with that writing a certificate from a physician certifying that in his opinion there is or may be a bona fide medical dispute to be resolved, with sufficient particulars define the question in issue, the workman shall be examined by a Medical Review Panel appointed in the manner provided in this section.

There was a very minor change in the wording of these provisions in 1979 when the word "worker" was substituted for the word "workman."

Since 1968, the only substantive change to these provisions was effected in 1991. Section 18 of Bill 15 *Miscellaneous Statutes Amendment Act (No. 2), 1991* allowed workers and employers to appeal medical findings by the Review Board as well as medical decisions by the Board to a Medical Review Panel. It stated:

(3) A worker is entitled to be examined by a medical review panel if, not later than 90 clear days after the making of a medical finding by the review board or a medical decision by the board, the worker

(a) writes to the board expressing that the worker is aggrieved by the medical finding or decision, and

(b) sends with the writing a certificate from a physician certifying that, in the physician's opinion, there is a bona fide medical dispute to be resolved, and stating sufficient particulars define the question in issue.

(4) An employer or former employer of a worker is entitled to have the worker examined by a medical review panel if, not later than 90 clear days after the making of a medical finding by the review board or a medical decision by the board, the employer or former employer

(a) writes to the board expressing that the employer or former employer is aggrieved by the medical finding or decision, and

(b) sends with the writing a certificate from a physician certifying that, in the physician's opinion, there is or may be a bona fide medical dispute to be resolved, and stating sufficient particulars to define the question in issue.

When viewed in the context of the relevant Commission Reports, the legislative history of the provisions dealing with Medical Review Panel appeals certainly shows an intent to give workers and employers appeal rights as regards claims decisions but it does not show a similar intent as regards non-claims decisions. Mr. Justice Tysoe's description of the intent of the provisions on Medical Review Panel appeals suggests very strongly that he associated these provisions only with claims matters. Although Mr. Justice Tysoe discussed Medical Review Panel appeals at length, he never mentioned the availability of these appeals to employers seeking relief of costs. This is particularly significant, in light of the fact that he analyzed the subject of a second injury fund and, as indicated earlier, his recommendations in that regard, as well as in regards to the medical review appeal provisions, were adopted in 1968.

Mr. Justice Tysoe viewed Sections 39(1)(e) and 58(4) as covering separate grounds with questions of entitlement to compensation underlying Section 58(4) and questions of redistribution of compensation costs underlying Section 39(1)(e). By pointing out that the second injury fund is not intended in any way to be detrimental to a worker, Mr. Justice Tysoe was implicitly closing the door to Medical Review Panel appeals on Section 39(1)(e) matters. An appeal to a Medical Review Panel inevitably reopens questions pertaining to a worker's entitlement to compensation. Section 61(1) of the *Act* obligates the Medical Review Panel to examine the worker and certify to the Board as to:

> The decision of a majority of the panel is the decision of the panel, and within a reasonable time after the examination of the worker the chairman shall certify to the board as to
>
> (a) the condition of the worker;
> (b) the existence or non-existence of a disability;
> (c) if there is a disability, its nature and extent, but not stated in terms of percentage of disability of the whole body;
> (d) if there is a disability, its cause and, if there is more than one cause, how much of the disability is related to one cause and how much to another; and
> (e) if the worker, though no longer disabled, claims that he had a longer period of disability, total or partial, than that allowed him by the board, then and in that event whether he was in fact disabled as a result of the happening or incident which caused the disability for a longer period than that allowed him by the board, and if so, for what longer period he was disabled and the nature and extent of his disability during the period beyond that allowed him by the board, but not stated in terms of percentage of disability of the whole body.

Section 61(7) of the *Act* obligates the Board "to review the claim" after receipt of the Medical Review Panel certificate. According to Section 65 of the *Act*, this certificate is binding on the Board. Analogous provisions were in the legislation at the time Mr. Justice Tysoe wrote his report. If indeed the intent had been to allow Medical Review Panel appeals on Section 39(1)(e) matters, the possibility of a resulting change in the worker's entitlement would have been recognized. Yet Mr. Justice Tysoe explicitly ruled out that very possibility.

I also note the language of Section 59(1) of the *Act* which deals with the appointment of Medical Review Panels. This provision states that:

> 59. (1) On receipt of the expression in writing made under section 58(3) or (4), or on a decision being made under section 58(5), the board shall, within a reasonable period of time, by notice by registered mail, require the worker and his employer each to nominate, from the list mentioned above, within 8 days after receipt of the notice, one specialist in the particular class of injury or ailment in respect of which *the worker has claimed compensation*, but no specialist may be a member of a medical review panel who:
> (a) examines workers on behalf of the employer;
> (b) has treated the worker
> (c) has acted as a consultant in the treatment of the worker; or
> (d) is a partner of, or practises medicine together with such specialist, and there shall not be on the same panel specialists who are partners or who practise medical together
>
> (emphasis added)

The language used in this provision is consistent with the notion that Sections 58(3) and (4) provide appeal mechanisms in the case of decisions bearing upon workers' claims.

In light of the above considerations, I cannot find policy #103.11 to be unlawful. Although a strict reading of Section 58(4) would suggest that this policy unduly limits employers' access to Medical Review Panels, a comprehensive reading of all the relevant statutory provisions, having regard to their legislative history and the Commission Reports, shows otherwise. Relief of costs under Section 39(1)(e) was never intended to interfere with a worker's entitlement to compensation. Authorizing employers to resort to Section 58(4) appeals on a Section 39(1)(e) matter would result in a review of a worker's entitlement to compensation under the terms of the other Medical Review Panel appeal provisions. Policy #103.11 simply recognizes that this

would defeat the legislative intent. The policy is, therefore, in keeping with the legislative spirit while respecting the overall scheme of the *Act*.

The appeal is, therefore, denied. A Board decision on a Section 39(1)(e) matter may not be appealed to a Medical Review Panel.

Editors' note: This decision has been edited for publication.

WORKERS' COMPENSATION

REPORTER

Decision of the Appeal Division

Number: 93-0390, 93-0391
Date: March 19, 1993
Panel: Connie Munro, Chief Appeal Commissioner
Subject: Section 96(2) — Proportionate Entitlement and Loss of Earnings Awards

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The worker seeks a reconsideration of the prior commissioners' decision of January 30, 1990. The prior commissioners found the worker to be unemployable. They concluded this was the result of both compensable and non-compensable disabilities and, therefore, adjusted his loss-of-earnings pension downwards.

In 1971, while employed as a construction labourer, the worker sustained an injury to his back. He subsequently underwent several surgical procedures to his lower back. He stopped working in 1985. The worker's employment history is described on the file as having included six months as a deckhand on a tug boat, several months as a security guard, 9½ years as a cook on the railway, 5½ years as a construction labourer and 8 years as a motor operator with the Department of Highways.

The prior commissioners' decision of January 30, 1990, concerned the Review Board finding of November 23, 1987. The Review Board found that the worker has a back disability resulting from a compensable injury. The Review Board also found that the worker had "difficulty communicating because of a number of non-compensable impediments, i.e. his cerebral palsy, speech difficulty and general lack of communicative skills both in reading and writing." In light of that, the Review Board concluded that "the combination of both non-compensable problems and his compensable disability have rendered this worker unemployable." It returned the file to the Board for an assessment of the worker's pension on a loss-of-earnings basis, requesting the Board "to determine the percentage that both compensable and non-compensable factors contribute to the worker's present state of unemployability."

In a letter dated September 19, 1988, the director of Appeals Administration informed the worker that the prior commissioners were reconsidering the Review Board finding. They derived the authority to undertake such a review under the former Section 96(2) of the pre-June 1991 legislation.

Pending the outcome of the prior commissioners' review, the Board rendered an interim decision. In a letter dated December 5, 1988, addressed to the worker, the project officer stated that his compensable disability remained equal to 10% of a totally disabled person. He decided "that the compensable elements account for 80% of [the worker's] reduced employability and the non-compensable elements account for 20% of [the worker's] reduced employability."

In a decision letter dated March 13, 1989, the director, Appeals Administration, informed the worker that the prior commissioners accepted the finding that his back complaints resulted from his 1971 compensable injury. They were unable to accept, however, the conclusion of the Review Board that he was totally unemployable and, therefore, asked a rehabilitation consultant to carry out a further assessment.

In his July 13, 1989, memo to the prior commissioners, the rehabilitation consultant (who had been the project officer at the time of the December 5, 1988, interim decision) concluded that "the worker is truly not employable when viewing him within the global context of his compensable and non-compensable disabilities." He reiterated the views expressed in his December 5, 1988 letter, namely, that 80% of the worker's unemployability related to the compensable injury and 20% related to the non-compensable factors including cerebral palsy and hearing loss. He noted that the worker's non-compensable disabilities had been estimated at 20% of total disability.

The worker's union representative made a number of submissions on his behalf. As regards the application of proportionate entitlement to this worker's claim, he acknowledged it was consistent with Board policy but argued that, in this case, any pre-existing disability was already reflected in the worker's average earnings; therefore, the application of proportionate entitlement would put the worker in "double jeopardy."

In a decision letter dated January 30, 1990, the director, Appeals Administration, informed the worker that the commissioners accepted the evidence he was totally unemployable as a result of all his disabilities. They held, however, that the rehabilitation consultant's decision to attribute 80% of the worker's unemployability to his compensable disability was unjustified. According to them, "even [50%] is giving [the worker] the benefit of doubt when regard is had to the fact that [his] non-compensable disabilities are equal to 20% of total as opposed to 10% of total for [his] back." The commissioners rejected the argument that the application of proportionate entitlement to this worker's case was inappropriate.

The worker tried to appeal the prior commissioners' decision to a Medical Review Panel. The senior medical appeal officer denied his request for a Medical Review Panel examination.

The worker then appealed the senior medical appeal officer's decision to the Review Board. By memo dated June 12, 1992, to the chairman of the Board of Governors, the Review Board panel expressed concerns relating to the January 30, 1990, commissioners' decision. The chairman referred the matter to the chief appeal commissioner.

Analysis

The worker has not presented new evidence. Nor has he argued that the prior commissioners' decision contravened the *Canadian Charter of Rights and Freedoms*. My authority to reconsider this decision depends, therefore, on whether it was based on an error of law.

The general issue arising out of the January 30, 1990, decision is whether the *Workers Compensation Act*, R.S.B.C. 1979, c. 437 (the "*Act*") authorizes the application of proportionate entitlement to loss of earnings awards.

The principle that the Board's liability must be limited where a worker suffers from a pre-existing disability is commonly known as "proportionate entitlement." Subsection 5(5) of the *Act* provides that:

> Where the personal injury or disease is superimposed on an already existing disability, compensation shall be allowed only for the proportion of the disability following the personal injury or disease. The measure of the disability attributable to the personal injury or disease shall, unless otherwise shown, be the amount of the difference between the worker's disability before and disability after the occurrence of the personal injury or disease.

The *Act* provides for two methods of compensating permanent partial disabilities. Subsection 23(1) provides for compensation based on physical impairment. It reads as follows:

> Where permanent partial disability results from the injury, the impairment of earning capacity shall be estimated from the nature and degree of the injury, and the compensation shall be a periodic payment to the injured worker of a sum equal to 75% of the estimated loss of average earnings resulting from the impairment, and shall be payable during the lifetime of the worker or in another manner the board determines.

Subsection 23(3) provides for compensation that takes into account the worker's loss of earnings. It reads as follows:

> Where the board considers it more equitable, it may award compensation for permanent disability having regard to the difference between the average weekly earnings of the worker before the injury and the average amount which he is earning or is able to earn in some suitable occupation after the injury, and the compensation shall be a periodic payment of 75% of the difference, and regard shall be had to the worker's fitness to continue in the occupation in which he was injured or to adapt himself to some other suitable employment or business.

Policy #44.31 in the *Rehabilitation Services and Claims Manual* (the "*Manual*") deals with the application of proportionate entitlement to the dual system. It states in part:

> In every case where there was a pre-existing disability, the Board has to decide whether the loss of earnings experienced by the worker after the injury is wholly the result of the compensable disability or partly the result of the pre-existing disability. If it decides that the whole loss is the result of the compensable disability, no reduction in the pension is made under Section 5(5). If it decides that a portion of the loss is attributable to the pre-existing disability, a pension is only awarded for the portion attributable to the compensable disability.
>
> The Board feels that this is fair to claimants in that it allows for the fact that their pre-injury earnings may already have been reduced by the pre-existing disability. On the other hand, it ensures that the Board does not become responsible for loss of earnings which are really attributable to the delayed or progressive effect of non-compensable pre-existing disabilities. The Board recognizes that it is often difficult in practice to properly allocate the causes of a loss of earning where there is pre-existing disability, but do not feel that it is any more difficult than other decisions that have to be made under the *Act*, or that this difficulty justifies a different interpretation of Section 5(5).
>
> The Board's previous practice has been that, in applying proportionate entitlement, no account is taken of already existing disabilities in parts of the body other than the one affected by the work injury. This is a reasonable position when the pension is

> being assessed on a physical impairment basis under Section 23(1) since the concern is solely with the degree of loss of body function in the injured part. *However, the same is not the case with pensions assessed on a projected loss of earnings basis under Section 23(3).* The concern there is with the worker's capacity to obtain employment and this capacity can be affected by disabilities in other parts of the body. *The Board has concluded that if a loss of earnings experienced by a worker after an injury is partly the result of a disability in another part of the body, Section 5(5) can be applied.*
>
> (emphasis added)

The same policy was operative at the time the prior commissioners rendered the impugned decision. The policy appears to have been based on Decision No. 394 in the *Workers' Compensation Reporter*, Vol. 6 (1985). This decision discussed the application of proportionate entitlement to loss of earnings awards in the following terms:

> The effect of [s. 5(5)] in relation to projected loss of earnings pensions has been considered under several previous Board decisions. Three possible interpretations of the section can be drawn from these decisions as follows:
>
> A. There should be no reduction in the pension by virtue of Section 5(5) because, since the claimant was working prior to the injury, the effect of his pre-existing disability was already reflected in his pre-injury earnings. To make a reduction would be, in effect, to penalize the worker twice over for the effects of the pre-existing disability.
>
> B. There should always be a reduction in the pension where there was a pre-existing disability because the section obliges the Board to do this. Furthermore, although the pre-injury earnings may not, in fact, have been reduced by the effect of the pre-existing disability, the combined effect of the pre-existing and compensable disabilities may produce a much greater loss of earnings than the compensable disability would itself have produced.
>
> C. In every case where there was a pre-existing disability, the Board has to decide whether the loss of earnings experienced by the worker after the injury is wholly the result of the compensable disability or partly the result of the pre-existing

> disability. If it decides that the whole loss is the result of the compensable disability, no reduction in the pension is made under Section 5(5). If it decides that a portion of the loss is attributable to the pre-existing disability, a pension is only awarded for the portion attributable to the compensable disability.

Having considered these alternative interpretations, the commissioners feel that C, which represents the current practice, is the proper interpretation of Section 5(5) with regard to projected loss of earnings pensions. It is fair to claimants in that it allows for the fact that their pre-injury earnings may already have been reduced by the pre-existing disability. On the other hand, it ensures that the Board does not become responsible for losses of earnings which are really attributable to the delayed or progressive effect of non-compensable pre-existing disabilities. The commissioners recognize that it is often difficult in practice to properly allocate the causes of a loss of earnings where there is pre-existing disability, but do not feel that it is any more difficult than other decisions that have to be made under the *Act*, or that this difficulty justifies a different interpretation of Section 5(5).

The Board's previous practice has been that, in applying proportionate entitlement, no account is taken of already existing disabilities in parts of the body other than the one affected by the work injury. This is a reasonable position when the pension is being assessed on the basis of a physical impairment under Section 23(3). The concern there is with the worker's capacity to obtain employment and this capacity can be affected by disabilities in other parts of the body. The commissioners have concluded that if a loss of earnings experienced by a worker after an injury is partly the result of a disability in another part of the body, Section 5(5) can be applied.

At the end of Decision No. 394, the panel explicitly stated that the decision was replacing a number of earlier decisions, including Decision No. 33, *Workers' Compensation Reporter*, Vol. 1 (1974).

Decision No. 33 had enunciated a very different theory, namely:

> The doctrine of proportionate entitlement under Section 6(5) only applies where an injury is "superimposed" on an already existing disability. *It has no application when there are separate disabilities relating to different parts of the body*. This has long been the accepted view when partial disability is being measured by the physical impairment method, and *we see no ground for taking a different view when it is being measured by the projected loss of earnings method*.

> The effect of the first disability on earnings has already been determined by the state of the market. If that disability had no effect on earnings, there is surely no reason why compensation should be any the less because of its existence. Conversely, if the first disability did have an effect on earnings, then that effect is already reflected in the level of compensation. This is so because the "average earnings" used as a starting point in the measurement of compensation is the earnings of the worker at the time of the second disability. Thus to take those average earnings as a starting point in the calculation and then to make a further deduction because of the first disability would involve making a downward adjustment for the existence of that disability twice over.
>
> (emphasis added)

Essentially, Decision No. 33 put forward two rather different propositions. The first, narrower proposition is simply that proportionate entitlement has no application to the loss of earnings method when it does not apply to the physical impairment method. It does not apply to the physical impairment method when separate disabilities relating to different parts of the body are involved.

The second proposition is broader. It concerns the effects of a pre-existing disability on earnings. It implies that proportionate entitlement has no application to loss of earnings pensions in general inasmuch as market forces determine the effect of a pre-existing disability on a worker's earnings. On that assumption, there is no need to consider the level of a pre-existing disability when a compensable injury occurs.

In summation, it is my understanding that from 1974 until 1985 the Board did not apply proportionate entitlement to loss of earnings pensions when separate disabilities relating to different parts of the body were involved. Decision No. 394 changed this and set a policy which remains operative today. I note though that, between 1986 and 1988, the *Manual* contained both policies. During that period, the policy set in Decision No. 33 was not deleted from the *Manual*, even though the Board then followed the policy set in Decision No. 394.

The fact pattern before me involves separate disabilities relating to different parts of the body. Hence, the specific question that arises is whether the legislation intended Section 5(5) to apply to this type of situation.

The provision enacting proportionate entitlement was inserted in the legislation in 1959 (see Section 4(4) of the *Workmen's Compensation Act Amendment Act, 1959*, S.B.C. 1959, c. 95). This provision read as follows:

> Where the personal injury consists of injury or disease in part due to the employment and in part due to causes other than the employment or where the personal injury aggravates, accelerates or activates a disease or condition existing prior to the injury, compensation shall be allowed for such proportion of the disability as may reasonably be attributed to the personal injury sustained.

In the wake of Mr. Justice Tysoe's 1966 Report, this provision was amended (see Section 6(5) of the *Workmen's Compensation Act*, R.S.B.C. 1968, c. 59). The new wording was as follows:

> Where the personal injury or disease is superimposed on an already existing disability, compensation shall be allowed only for such proportion of the disability that exists following the personal injury or disease as may reasonably be attributed to such personal injury or disease. The measure of the disability attributable to such personal injury or disease shall, *prima facie*, be the amount of the difference between the workman's disability before and disability after the occurrence of the personal injury or disease.
>
> (emphasis added)

It is significant that this wording replicated Mr. Justice Tysoe's recommended wording.

The most recent change to the provision on proportionate entitlement was in 1979. The provision was amended as follows [see the *Workers Compensation Act*, R.S.B.C. 1979, c. 437 s. 5(5)]:

> Where the personal injury or disease is superimposed on an already existing disability, compensation shall be allowed only for the proportion of the disability following the personal injury or disease that may reasonably be attributed to the personal injury or disease. The measure of the disability attributable to the personal injury or disease shall, unless it is otherwise shown, be the amount of the difference between the worker's disability before and disability after the occurrence of the personal injury or disease.

The phrase introduced by Mr. Justice Tysoe, namely, "where the personal injury or disease is superimposed on an already existing disability" was left untouched. This phrase must be understood, therefore, in light of Mr. Justice Tysoe's views on the application of proportionate entitlement.

In discussing the concept of proportionate entitlement, the Tysoe Report stated unambiguously:

> It should be remembered that the principle of the subsection is applied only where the injury is to that part of the body which was previously defective.
>
> p. 217

At no point in his discussion, did Mr. Justice Tysoe suggest a broadening of this principle to include cases in which separate disabilities affect different parts of the body.

I note that the legislation contained a loss of earnings provision almost identical to the current Section 23(3) when Mr. Justice Tysoe made his recommendations, although up until 1973 the Board never used the loss-of-earnings method in permanent partial disability cases.

The *Concise Oxford Dictionary* defines the verb "superimpose" as follows:

> . . . lay (a thing) on something else

The *Websters' Third New International Dictionary* defines the verb "superimpose" as follows:

> 1: to place in a covering position: overlay. 2a: to cause to become attached, united coexistent, or interrelated in the manner of a layer, stratum, or accretion. b: to add or impose without integrating: attach as an unassimilated entity.

Although not determinative, the dictionary meaning of the verb "superimpose" in the provision enacting the principle of proportionate entitlement is consistent with the notion that this principle applies only when the work-related injury or disease and the pre-existing disability affect the same part of the body.

I have considered whether, for the purpose of Section 23(3) of the *Act*, the word "disability" could be interpreted in an economic sense — that is, in the sense of a loss of earnings. If that were the proper interpretation in the context of Section 23(3), the personal injury or disease would be "superimposed" on an already existing permanent loss of earnings due to a previous injury or disease. But, if there is an already existing permanent loss of earnings, proportionate entitlement would be clearly inappropriate.

In light of the above considerations, I find that a necessary condition for the application of proportionate entitlement is that the pre-existing disability(ies) be in the part of the body that is affected by the work injury or disease. I see no support in the language of the *Act*, its legislative evolution or the relevant Commission reports for a broadening of this principle so as to include separate disabilities affecting different parts of the body.

In fact, the language of the provision dealing with the loss of earnings method would seem to rule out, prima facie, the application of proportionate entitlement to any loss of earnings awards. The provision states that the Board "may award compensation for permanent disability having regard to the difference between the average weekly earnings of the worker before the injury and the average amount which he is earning or is able to earn in some suitable occupation after the injury, and the compensation *shall* be a periodic payment of 75% of the *difference* . . ." (emphasis added). This wording gives the Board no discretion as to how to apply the loss of earnings method. The only discretion the Board has under Section 23(3) is whether to apply this method. Whereas the requirement found in Section 5(5) can be integrated with the wording of Section 23(1), it cannot be integrated with that of Section 23(3).

Section 5(5) requires the Board to determine the proportion of that disability that may reasonably be attributed to a work injury or disease. The wording used in Section 23(1) gives the Board enough latitude to estimate the impairment of earning capacity with reference to the apportioned disability. The wording is that the Board shall estimate this impairment from "the nature and degree of the injury." On the other hand, Section 23(3) specifies that compensation "shall be a periodic payment of 75% of the difference between the average weekly earnings of the worker before the injury and the average amount which he is earning or is able to earn in some suitable occupation after the injury." The language is directive and would seem to allow for little flexibility. However, the matter of the application of proportionate entitlement to loss of earnings pensions in general is not currently before me. Therefore, I make no finding in that regard.

I have concluded that the current governors' policy has no basis in the *Act* to the extent that it allows the application of proportionate entitlement to loss of earnings awards by taking into account pre-existing disabilities in parts of the body other than the one affected by the work injury.

The disposition of the particular case involves the question of whether the prior commissioners' decision of January 30, 1990 was wrong in law. In Decision No. 92-0818 (*Workers' Compensation Reporter*, Vol. 8(3), p. 211), I stated that to determine the lawfulness of the prior commissioners' decisions, the proper test to apply is, in general, the patently unreasonable test. The criterion is whether the decision is at all viable in light of the *Act* and the terms of statute. I specified in Decision No. 92-0818 that if the

construction given by the prior commissioners to a statutory provision is viable, the Appeal Division will not find an error of law on the basis that there is a better or more exact interpretation.

In the present case, I do not find the prior commissioners' decision of January 30, 1990, viable in light of the language and intent underlying Section 5(5) which is the only provision in the *Act* authorizing proportionate entitlement. Admittedly, the prior commissioners' decision was consistent with Board policy. But, as indicated earlier, this policy had no support in the *Act*. It is noteworthy that the prior commissioners never explicitly mentioned Section 5(5) in the impugned decision.

I conclude that the January 30, 1990, decision of the prior commissioners was wrong in law and set it aside. Proportionate entitlement has no application to this worker's loss of earnings award.

The matter will be referred to the Claims Division to carry out the necessary adjustments to this worker's pension.

Editors' note: This decision has been edited for publication.

WORKERS' COMPENSATION
REPORTER

Decision of the Appeal Division

Number: 93-0399
Date: March 22, 1993
Panel: Cassandra Kobayashi
Subject: Extension of Time to Appeal

The worker appeals the Review Board finding dated June 10, 1992. The Review Board denied an extension of time to appeal a disability award of May 12, 1989. That decision granted a 5% functional award, and determined there was no additional loss of earnings as a result of the injury even though the worker could not return to work as a heavy duty mechanic.

The reasons for appeal to the Appeal Division are stated on the Notice of Appeal. It is explained that the worker has appealed a later pension decision, but the earlier one may affect the outcome on the second appeal. As well, the Notice of Appeal states, "the decision requires me to have a greater understanding of the W.C.B. than what I have." It is also argued that neither the worker nor employer is prejudiced by granting the extension of time.

In denying the worker's request for an extension of time, the Review Board noted that the appeal was filed November 25, 1991, more than two years beyond the statutory 90-day period to appeal. They also noted the worker had been advised of his right to appeal in the decision letter. He also had initiated an appeal to the Review Board from a previous decision in February 1989. The Review Board goes on to state, "There is no reference in your many letters to the Workers' Compensation Board, or in the Review Board findings of September 1, 1989, to any dispute with the pension of May 12, 1989." With respect, I disagree. It is evident that the worker disagreed orally and in writing with the pension assessment.

The disability award was based on an examination by a Board doctor in December 1988. The worker then participated in a vocational evaluation. In Memo #51, January 27, 1989, the rehabilitation consultant reported that he discussed with the worker the examination results and Industrial Department assessment. The memo states:

> The worker was most unhappy with both assessments indicating that neither reflected an accurate picture of his disability. He felt that 5% of total disability, on a functional basis, was absurd considering the disability in his back and both legs.

The worker wrote a three-page letter to the Board on January 31, 1989, requesting disclosure of his file, in which he referred to the termination of wage loss benefits, and his pension:

> Your rehab consultant offered for my injuries and the permanent damage a very high 5% disability hand out this is comparible from what I understand and equal to loosing the tip of one finger. May it be know that before I had the accident I consisted of 100% and that my back — legs — feet were in good shape and that I did not have a chronic weak back.
>
> (reproduced as written)

In another letter dated April 1, 1989, the worker advised the rehabilitation consultant that his claim was retroactively accepted by London Life, and the Canada Pension Plan, "which brings us back to the W.C.B. assessment." The worker asks:

> Since there have been changes in regards to permanent disability by the other organizations I would like your help in reevaluating my present situation with the W.C.B. can I now qualify for additional benefits . . .
>
> As I was abandoned on your recommendation I would like you to investigate my present situation and the new developments and if at all possible reconsider your previous decisions.

The worker apparently believed that the rehabilitation consultant had decided the pension, as evidenced by his January 31, 1989, letter and a letter dated March 15, 1989, "Yes, that is one $ more than [the rehabilitation consultant] offered for partial disabilities."

As noted above, the worker expressed disagreement in writing with the proposed 5% pension award. These letters were written before the actual pension decision letter was issued in May 1989, but after the rehabilitation consultant discussed the award with the worker. However, the fact that the worker did initiate an appeal to the Review Board prior to the disability decision being made indicates he was aware of the right to appeal and the procedures. The Notice of Appeal to the Review Board was filled out within a week of the February 16, 1989, decision which terminated Code R benefits.

There is evidence that the worker attempted to argue the disability award on that appeal. The Notice of Appeal states he was seeking, "Wage loss, medical aid, calculations of earnings higher disability or the total unrestricted use of my lower back, legs and feet as prior to the accident." Exhibit #1, a written submission by the worker on his own behalf, stated:

> The fact is I am still stuck with the nerve damage and will be for ever as per [the doctor's] reports. Assistance and help to obtain decent employment and or retraining as requested I did not get one cent of cooperation. At my age your are to old to invest in . . . .
>
> My old employer did not hire me back, I was not recalled, neither am I in any union any more. Do for being abandoned by the W.C.B. I was forced to take anything to make a living without any help from as I have explained from the W.C.B. other than the 4 appeal notices.
>
> (reproduced as written)

The governors' published policy in item #99.22 provides that if a worker complains orally about a decision, the worker will be referred to the pamphlet explaining appeals to the review board. If the complaint about a decision is in writing, the decision-maker "will treat the letter as an appeal from the decision and forward it with the claim file to the review board."

I note a letter from the Review Board dated February 9, 1989, acknowledging a letter expressing a desire to appeal an unidentified decision, and sending a Notice of Appeal to the worker. The next correspondence from the Review Board lists two appeals, but the file contains no Notice of Appeal for the second appeal. This suggests that the Review Board initiated an appeal without a formal Notice of Appeal.

The Review Board *Policies and Procedures Manual* contains a set of criteria for deciding applications for an extension of time to appeal. The second criterion is whether the worker had a continued intention to appeal before the time period expired, along with satisfactory reasons for the delay.

I find the worker did express disagreement with the pension decision as soon as he was informed of the 5% assessment. He then pursued an appeal to the Review Board and then an appeal to the commissioners which he apparently thought would address the pension issue. A decision was rendered by the Appeal Division in September 1991. The appeal under consideration was filed in November 1991. The worker's explanation for his delay in filing the appeal is that "the decision requires me to have a greater understanding of the W.C.B. than what I have." The worker's experience is that one of his appeals to the Review Board was initiated without a formal Notice of Appeal. In these circumstances, I find that an extension of time should be granted.

THE APPEAL IS ALLOWED.

Editors' note: This decision has been edited for publication.

WORKERS' COMPENSATION

REPORTER

Decision of the Appeal Division

Number: 93-0329
Date: March 4, 1993
Panel: P. Michael O'Brien
Subject: Subjective Complaints of Pain

The worker appeals the October 5, 1992, finding of the Workers' Compensation Review Board. That finding concurred with the December 11, 1991, decision of a claims adjudicator terminating wage-loss benefits effective December 5, 1991.

An oral hearing was held on February 12, 1993. The worker represented himself.

Background and Evidence

The worker suffered compensable low back injuries in a motor vehicle accident on August 28, 1991. He was treated conservatively by his family physician, and eventually referred to an orthopaedic specialist who saw him on November 21, 1991. The specialist felt that the worker's physiotherapy treatments were not helping him and therefore prescribed a different physiotherapy regime.

The worker was seen in an at-Board medical examination on December 5, 1991. The Board doctor found no objective evidence of disability, rather concluding that there were "non-organic findings . . . exaggerated response . . . functional overlay . . . ."

On that basis the claims adjudicator terminated the worker's benefits.

The Review Board gave five reasons for denying the worker's claim and he responded to each of those at the oral hearing before the Appeal Division.

First, the Review Board said that they could not conclude that the worker was disabled past December 5, 1991, but rather he simply had no work to return to and, therefore, wished to remain on compensation. They made this finding on the basis of the Board doctor's comment to that effect.

At the oral hearing the worker submitted a notarized copy of a lease agreement guaranteeing his use of a taxi cab for the period January 12, 1991 to January 12, 1992. The worker said that the Christmas and New Year's period was the busiest time for taxi drivers and also, therefore, the most lucrative, and if he had been able to work he would surely have done so.

Second, the Review Board said that the worker should have at least attempted a return to work on the basis of the Board doctor's advice to him. The worker's response was that he did not trust that advice, as he had found her examination to be quite painful and also his family physician gave him the opposite advice. In that regard, both the attending physician's partner in his report of December 6, 1991, and the orthopedic specialist, in his report of December 12, 1991, said that the worker was not fit to return to work.

Third, the Review Board found the worker's reasons for changing employment to be questionable. The worker was unsure as to what the Review Board meant by that, but said that his reason for changing employment in January 1992 was that he still did not think he could drive a taxi cab 12 hours a day as sitting for prolonged periods continued to bother his back. For that reason he sought employment as a security guard, a field in which he had previous experience. He said that such employment allowed him to alternately sit, stand and walk and, therefore, was not as hard on his back.

Fourth, the Panel of the Review Board found that they had difficulty accepting that there was no change in the worker's condition during the period from his compensable injury until December 1991. The worker's response was that it was not until the orthopedic specialist changed his physiotherapy program that he started to notice some improvement. He also submitted a medical/legal opinion from the orthopedic specialist dated August 25, 1992. The specialist said that for the period of November 21, to December 12, 1991, the worker demonstrated "stiffness of his back to about 50 percent of normal movement." He said that by December 5, 1991, the worker had demonstrated only "a minor degree of improvement."

Last, the Review Board panel made reference to the Board doctor's numerous non-organic findings and functional overlay. The worker's response to that was that he had always been very straightforward in telling his story and he had no understanding of why the Board doctor would make such a comment. The Panel notes that although the Board doctor made that comment, she also says that "distraction tests such as axial loading and simulated rotation were negative." What the Panel reads that to mean is that their two tests which are designed to trick a patient who is simulating his pain did not do so in the worker's case. One would expect, of course, that were a person faking their symptoms such simulation tests would expose them.

Also submitted in evidence at the Review Board hearing was a medical opinion from the attending physician stating that it was his opinion that the worker was disabled from December 6, 1991, to January 20, 1992.

Reasons for Decision

I find that the weight of evidence leads to a conclusion that the worker continued to be disabled, as a result of his compensable motor vehicle accident, until January 20, 1992.

I accept the worker's evidence that he had work available to him as it is supported by Exhibit #1 referred to above.

I also accept that the worker did not return to work on the advice of his family doctor. I find nothing unusual about that. It seems entirely appropriate that where a worker has a long-standing relationship with a medical practitioner he would prefer that doctor's opinion to that of a stranger employed by the Compensation Board. I also accept the worker's evidence with respect to his reasons for changing his occupation, as that seems eminently logical to me. If he found that he was not able to continue working as a taxi driver as a result of his continued, albeit lesser, low back pain, it seems reasonable he would seek out a different type of employment, and where possible would rely on his previously established employment skills to do so.

The alleged lack of improvement over the first three months of therapy following his compensable injury, is not quite correct. The orthopedic specialist clearly found that there was some minor improvement over that period, but also concluded that the nature of physiotherapy treatment that the worker was receiving was inappropriate. As a consequence he ordered changes to that regime and that resulted in sufficient improvement for the worker to return to work in a matter of a month and a half. Last, in respect to the Board doctor's non-organic findings and functional overlay, this is not supported fully by the results of her own examination. The worker apparently did not exhibit pain on axial loading nor on simulated rotation. Had he done so, that would clearly support a finding of simulation. The worker did object strongly to completing various test maneuvers when he experienced pain as a result of them. The only way that can be construed to be simulation or exaggeration is if one were to conclude that the pain was simply not there. I have no basis on which to do so.

I accept the Review Board's reasoning with respect to the desirability of objective medical evidence to support a worker's claim of disability. On the other hand, I also accept that subjective complaints of pain, where they are not found to be simulated, can also be disabling. The Board recognizes the validity of subjective complaints in the *Rehabilitation Services and Claims Manual*, where provision is made for the awarding of permanent partial disability pensions on the basis of subjective complaints. Clearly the

assessment of subjective complaints is most difficult. In order to accept them, there must be a conclusion that the worker is credible and it is always desirable to have opinions with respect to those subjective complaints from more than one source. In the case at hand, we have opinions from both the orthopedic specialist and the attending physician that the worker's subjective complaints are real. The contrary opinion is given by the Board doctor. The worker's credibility is, in my view, enhanced by his willingness to return to work as soon as he felt he was able to do so, even though it required changing his employment. At the oral hearing the worker presented himself as a straightforward young man, even under the circumstances of having been through three separate levels of the adjudication systems and having his claim denied at all three levels. Despite this he was not antagonistic, although he was forceful in pursuing his claim. In other words, I found his behavior entirely consistent with what one would expect under the circumstances.

I am, therefore, prepared to accept the worker's subjective complaints of pain and further accept that these subjective complaints disabled him from his regular work as a taxi driver during the period of December 5, 1991, to January 20, 1992.

I allow the appeal. The file is returned to the Compensation Services Division for the calculation of wage-loss and medical aid benefits for the period noted.

Editors' note: This decision has been edited for publication.

WORKERS' COMPENSATION
REPORTER

Decision of the Appeal Division

Number: 93-0630
Date: April 30, 1993
Panel: Sonja Hadley
Subject: Section 96(2)

This is a request for a review pursuant to Section 96(2) of the *Workers Compensation Act* of two prior commissioners' decisions dated May 15, 1967, and November 6, 1990. The request is contained in a letter and submissions from counsel for the worker dated July 14, 1992; December 10, 1992; February 8, 1993; and March 6, 1993. The accident employer has not participated in the appeal. The Appeal Division has the authority to hear this application as a consequence of the following resolution of the Board of Governors approved January 6, 1992:

> RESOLVED THAT the Appeal Division of the Workers' Compensation Board of British Columbia shall exercise the authority of the Workers' Compensation Board of British Columbia under section 96(2) of the *Workers Compensation Act* to reopen, rehear and redetermine any decision made by the former Commissioners prior to June 3, 1991, where the Chief Appeal Commissioner finds that the decision was based upon an error of law or involved or involves an issue under the *Canadian Charter of Rights and Freedoms*; . . .

Section 96(2) of the *Act* provides:

> . . . the board may at any time at its discretion reopen, rehear and redetermine any matter, except a decision of the appeal division, which has been dealt with by it or by an officer of the board.

It is submitted by counsel that the 1990 majority commissioners' decision involved fatal procedural errors of law. These errors are identified as the following:

> (i) The Commissioners who decided the case were not identified by name; and,

(ii) The Commissioners who decided the case did not sign their names to the decision; and,

(iii) The dissenting Commissioner did not have his or her reasons published as part of the decision.

It is further submitted that another procedural error of law in the November 6, 1990, commissioners' decision was a failure to hold an oral hearing. It is submitted that in this case a W.C.B. doctor made a highly prejudicial finding that the worker was "malingering." It is submitted that the failure to allow the worker an oral hearing at which he could give evidence and be cross-examined under oath in order to counter "a highly damning medical opinion" is a breach of the rules of natural justice.

Additionally, it is submitted that the November 6, 1990, decision involved an error of law because of "the complete confusion of the substantive issues involved in the reconsideration application." Counsel states that the two issues (facial nerve loss and disfigurement) are "completely muddled, just as they were in 1967." It is stated that the two majority commissioners in 1990 treated the 1967 commissioners' discretion to refuse a lump sum disfigurement award in the same way as the decision to refuse a functional award for facial paralysis and nerve loss. It is stated that this is clearly unreasonable and a fatal error of law. It is stated that the commissioners retroactively applied a "loss of earnings" perspective — contrary to item #39.00 of the governors' policy — instead of reviewing the propriety of the 1967 decision viewed from the perspective of the facts as they existed as of May 15, 1967.

Counsel further submits that it was:

> . . . an error of law for the Commissioners in 1967 to make a decision without an oral hearing, without further enquiry, without submissions or representations; to fail to send out a decision letter; to not identify themselves; to not sign anything; to not give any reasons for the denial; and to confuse, apparently [the worker's] eligibility for a S. 23(1) loss of facial nerve #7 with a cosmetic disfigurement award; and, finally, to refuse awards for hearing impairment, vision impairment, facial nerve loss and facial disfigurement on a critically unexamined allegation of malingering and on the discretionary judgment that there was no loss of earnings.

Counsel requests that the Appeal Division issue a subpoena to Dr. A, directing him to give information under oath before the Appeal Division concerning his November 22, 1966, opinion letter. In that letter, Dr. A examined the worker regarding

his deafness and loss of vision on the left side. Dr. A stated that he felt the worker's claim of complete loss of vision in the left eye and complete loss of hearing in the left ear was probably completely false. His diagnosis was "malingering, ear and eye."

Background

The worker was injured on September 9, 1965, when he was struck below the left ear with a flying tooth from a bandsaw at a distance of 50'. He suffered a left shoulder injury as well as a complete lesion of the left facial (seventh cranial) nerve. A left facial-accessory nerve anastamosis was performed on February 21, 1966. On July 2, 1966, Dr. B, a neurosurgeon, reported that the worker should be considered as having permanent facial nerve paralysis on one side for purposes of assessing his disability and compensation. The worker was awarded a 7% disability pension for his left arm disability at the shoulder in 1966. The worker maintained that he suffered a total lack of vision, and hearing on the left side as a result of the accident. In a P.P.D. exam dated January 10, 1967, the Board doctor gave the opinion that the worker was malingering with regard to his loss of sensation, hearing, and vision on the left side.

On April 3, 1967, the worker's union wrote to the W.C.B. that no consideration had been given to compensate the worker for his apparent loss of vision and loss of hearing. The union asked that the Board of Review consider such an award. In a letter dated April 17, 1967, the worker was informed that the Review Board had recommended that his claim remain "finalled as paid" as it was not considered that he had any entitlement with respect to his left ear or left eye under the 1965 claim.

In a memo to the Board dated May 15, 1967, it was stated that the worker's file had been reviewed by the Disability Awards Committee with regard to any facial disfigurement resulting from the injuries suffered. It was stated that the Committee, on reviewing the coloured photographs on file, did not feel there was a sufficient degree of cosmetic defect to warrant consideration of an award. The claim was then referred to the commissioners for their decision. Under this memo, there are the initials of three commissioners with the added comments "no award," "Agree with above. Memo #19 is interesting," and "Photographs in album."

A letter to the worker by a disability awards officer dated June 23, 1967, advised him that his claim had again been reviewed and that it was considered that he had been adequately compensated for the degree of disability he had as a result of the injury suffered in the 1965 accident.

The neurosurgeon's final assessment of the facial paralysis in June 1969 was that the worker had a complete facial nerve paralysis and there was no chance of recovery. In response, a memo to file by a Board physician dated June 27, 1969, stated:

> One wonders if workman should be re-examined at Head Office. However, colored photographs have been presented to the Disability Awards Committee and also to the Commissioners and it was agreed there was no cosmetic defect warranting considering of an award. To my knowledge we have never awarded for facial nerve paralysis except on a cosmetic impairment basis. It is really not an impairment of earning power nor a disability. Recommend the claim remain as finalled. The P.P.D. award is correct.

A letter to the worker dated August 13, 1969, by the disability awards officer informed him as to the Board's position on his claim. It explained that the commissioners had decided there was not sufficient cosmetic defect to warrant the payment of an award, and that the Board of Review had not accepted the left ear and left eye complaints. The letter did not make any mention of consideration of the worker's entitlement to an award under what was then Section 22(1)(a) of the *Act* for facial nerve loss.

In a letter dated October 17, 1986, the disability awards officer responded to a request by the worker's counsel for a pension for his left eye as well as his facial disfigurement. He advised that no award had been made for disfigurement in light of a decision of the commissioners, and that the left eye and left ear complaints had not been accepted after careful review by the Board of Review.

In February 1988 counsel asked the director of Claims for a meeting regarding pension entitlement for the facial disfigurement, facial nerve loss and possible vision loss. No meeting took place, but the director replied that the best approach would be to have a medical examination conducted. However, the disability awards manager advised counsel on January 17, 1989, that the commissioners had ruled in 1967 that no cosmetic impairment was warranted. It was stated that any further submissions *in this regard* must go to the commissioners. As a result, counsel wrote to the commissioners on February 16, 1990. He asked for a reconsideration of the commissioners' decision of May 15, 1967, not to award the worker a pension for *either* his left-sided seventh cranial nerve paralysis or the resulting cosmetic disfigurement. It was submitted that it did not appear that the Board disputed the paralysis existed but the worker had simply not been compensated for this impairment. An oral hearing was requested.

The commissioners, in their majority decision of November 6, 1990, refused counsel's request for an oral hearing and reconsideration of the May 15, 1967, decision.

They stated in part:

> They consider that the former Commissioners who reached the 1967 decision had a discretion as to whether, in spite of the absence of an actual loss of earnings at the time, an award should be made in recognition of a potential impairment of earning capacity in the future. The Commissioners find no basis on which to conclude that the former Commissioners fettered or improperly *exercised that discretion*. They note that your earnings history over the years since 1967 appears consistent with the decision not to recognize an impairment of earning capacity in your particular case. The Commissioners have concluded that no significant new evidence or other grounds have been submitted which warranted reconsideration of the former Commissioners' decision pursuant to Section 96(2) of the *Act*.
>
> (emphasis added)

At a Review Board hearing dated April 8, 1992, counsel requested findings from the panel concerning the worker's entitlement to a pension for left facial nerve loss related to the 1965 injury. Counsel contended that although the disability awards officer did not specifically refer to this issue in the decision letter of April 11, 1988, he simply had overlooked the facial nerve loss issue in refusing to reconsider the worker's entitlement to a disfigurement and loss of hearing award. The Review Board stated, in its findings of June 30, 1992:

> Although the panel accepts that the Disability Awards Officer was refusing to reconsider [the worker's] entitlement regarding his facial nerve loss, we find that we have no authority to address the worker's entitlement regarding that condition. Although the May 15, 1967 decision of the Disability Awards Committee, confirmed by the Commissioners, specifically addresses only [the worker's] entitlement to a disfigurement award, a November 6, 1990 Commissioners' decision addresses [the worker's] entitlement to *both* a disfigurement award and an award for facial nerve paralysis. This panel therefore concludes that it has no jurisdiction to address this issue.

Legislation

In 1967, Sections 22(1)(a) and 22(2) of the *Workmen's Compensation Act* stated:

> 22(1)(a) Where permanent partial disability results from the injury, the impairment of earning capacity shall be estimated from the nature and degree of the injury, and the compensation shall be a periodical payment to the injured workman of a sum equal to seventy-five per centum of the estimated loss of average earnings resulting from such impairment, and shall be payable during the lifetime of the workman or in such other manner as the Board may determine.
>
> 22(2) Notwithstanding subsection (1), where in the circumstances the amount which the workman was able to earn before the accident has not been substantially diminished, the Board may, in case the workman is seriously and permanently disfigured about the face or head, or otherwise permanently injured, recognize an impairment of earning capacity, and may allow a lump sum in compensation.

Preliminary Issues

Counsel has asked the Appeal Division to subpoena Dr. A regarding his allegation that the worker was malingering with respect to his left eye and left ear hearing loss. In this regard, the left-sided traumatic hearing loss is an issue currently being investigated by Compensation Services. The vision loss was an issue being decided by the Board of Review in 1967 and was not dealt with by the commissioners in either 1967 or 1990. The issue on which counsel wishes the Appeal Division to subpoena Dr. A to give evidence is not an issue before it as the prior commissioners only dealt with the issue of facial disfigurement. That issue does not involve any allegation of malingering.

Analysis

In considering this application, the first question is whether the prior commissioners' decisions were based on an error of law. In considering this question, I am guided by a decision of the chief appeal commissioner in Decision 92-0818 (*Workers' Compensation Reporter*, Vol. 8(3), p. 211) in which she decided, in general, the standard of review is that the decision is so patently unreasonable that it cannot be rationally supported by the relevant legislation.

The commissioners' decision of November 6, 1990, dealt with a reconsideration request of the May 15, 1967, commissioners' decision. The commissioners found no basis on which to conclude that the former commissioners fettered or improperly exercised the discretion given them under what is now Section 23(5). The commissioners in 1990 concluded that no significant new evidence or other grounds had been submitted which warranted a reconsideration of the former commissioners' decision pursuant to Section 96(2) of the *Act*. It is correct that the commissioners were not identified by name, did not sign their names to the decision, and the dissenting commissioner did not have his or her reasons published. Although this failure may not have inspired confidence in the decision-making process, it was a longstanding practice of the Board. The *Act* did not require such a procedure. Counsel does not identify how these procedures constitute an error of law, nor how the commissioners' decision in 1990 was based on such an error, if it existed.

The majority of the commissioners refused to have an oral hearing. Counsel submits this is another error of law and a breach of the rules of natural justice as the worker needed to give evidence and be cross-examined under oath in order to counter medical opinion that he was malingering. I agree that an oral hearing would have been highly beneficial if the allegation of malingering was relevant to the issue on appeal. However, the allegation of malingering never involved the worker's facial disfigurement; rather, as stated, it related to his left vision and left hearing loss. Neither of these issues were decided by the commissioners in either 1967 or 1990. The right to be heard does not necessarily involve a right to an oral hearing. It means that an adequate opportunity must be given to present a case. Such an opportunity was given to the worker and his counsel in 1990. Therefore, I find that the failure to hold an oral hearing in 1990 did not constitute an error of law.

The next ground advanced by counsel is that the former commissioners "muddled" the substantive issues, i.e. the functional award for facial nerve loss and a cosmetic award for disfigurement. I find in this regard that the substantive issue before the commissioners has been clearly decided. Counsel had requested that the commissioners reconsider, pursuant to Section 96(2) of the *Act*, the May 15, 1967, commissioners' decision not to award a pension for left-sided seventh cranial nerve paralysis *or* cosmetic disfigurement. However, the fact of the matter is that the May 15, 1967, decision *only* dealt with cosmetic disfigurement. It did not deal with a pension for left-sided seventh nerve cranial paralysis. Therefore, the issue of a Section 23(1) pension for such impairment was not before the commissioners in 1990 for them to reconsider, although requested by counsel to do so. Although the commissioners *addressed* the worker's entitlement to an award for facial nerve paralysis, they did not *decide* this issue.

Furthermore, in reading the commissioners' 1990 decision, it is clear to this panel that the issue before them was the discretion of the commissioners in 1967 to make an award for disfigurement in recognition of a potential impairment of earning capacity in

the future, in spite of the absence of an actual loss of earnings at the time. This wording was based on what was then Section 22(2) of the *Act* which dealt with disfigurement awards. The fact that the commissioners in 1990 found no basis on which to conclude that the commissioners, in 1967, fettered or improperly exercised their discretion leads me to the conclusion that the commissioners, in 1990, were dealing with Section 22(2) rather than Section 22(1)(a) of the 1967 *Act*. Section 22(1)(a) was not a discretionary section whereas Section 22(2) was. The former commissioners in 1967 would have had no discretion to exercise had they been considering an award under Section 22(1)(a). Therefore, I do not agree with counsel's submission that there has been a "muddling" of the substantive issues in connection with Sections 22(1)(a) and 22(2).

With respect to the commissioners' decision of May 15, 1967, I find no evidence that this decision is so patently unreasonable that it cannot be rationally supported by the relevant legislation. The commissioners at that time were considering whether there was a sufficient degree of cosmetic defect to warrant the consideration of an award. The comments by the commissioners are capable of being interpreted that, in coming to this conclusion, they reviewed coloured photographs of the worker in an album. I do not agree with counsel that they refused awards for hearing impairment, facial nerve loss, and vision impairment. They made no such decisions. Further, as explained earlier, the allegation of malingering did not relate to the worker's facial disfigurement. There is no evidence that the commissioners' decision not to grant an award for disfigurement was based on an allegation of malingering with respect to left vision and hearing loss. Indeed, it is difficult to comprehend how such an allegation could be seen to be relevant with respect to disfigurement when the pictures in the album would be objective evidence of such disfigurement.

For the reasons given earlier, I find that it was not an error of law for the commissioners in 1967 to make a decision without an oral hearing, to not identify themselves and to not sign anything. I do not agree that they confused the worker's eligibility for a Section 22(1)(a) loss of facial nerve #7 with a Section 22(2) disfigurement award. Clearly, only the issue of a disfigurement award was considered and decided by the commissioners in 1967. It is true that a decision letter was not sent out by the commissioners. However, shortly after, on June 23, 1967, the disability awards officer communicated the commissioners' decision to the worker. Unfortunately, his letter did not specifically refer to disfigurement and his wording was broad enough that it could have been taken to mean that the commissioners had considered vision loss, hearing loss, facial nerve loss, or some unknown factor. This possible broad interpretation was corrected, however, with the disability awards officer's letter to the worker of August 13, 1969. I find that this letter correctly stated the commissioners' decision. I agree that it would have been preferable and fairer for the commissioners to have issued a decision letter, with reasons, at the time of their decision. However, the failure to do so does not constitute an error of law.

It is also true that the worker did not have the opportunity to make submissions or representations prior to the commissioners' decision. I note in the regard that neither the worker nor his representative had requested compensation for the facial disfigurement, or appealed the lack thereof to the Board of Review. By present-day standards, the worker would expect to have an opportunity to make representations before a decision was made affecting him. However, the law with respect to procedural fairness has evolved. In the 1960s several judicial decisions held that the rules of natural justice applied only to judicial or quasi-judicial functions. Moreover, there was judicial authority for the proposition that a judicial characterization was incompatible with a discretionary power. In this case, the commissioners in 1967 were exercising a discretionary power. I find that, by the standards of the day, the failure to give the worker an opportunity to make submissions did not constitute an error of law.

For the above reasons, and after having reviewed all of the evidence and submissions on this issue, I can find no basis on which to conclude the commissioners' decisions were so patently unreasonable that they cannot be supported by the relevant legislation. The request for reconsideration is therefore denied.

Having come to that conclusion, I would add that the worker has never been issued a decision letter by either an officer of the Board, Board of Review, or commissioners, regarding his entitlement to a Section 23(1) award for his left-sided facial nerve paralysis. A Board physician, in his memo to file dated June 27, 1969, stated that:

> To my knowledge we have never awarded for facial nerve paralysis except on a cosmetic impairment basis. It is really not an impairment of earning power or a disability.

This reasoning was the basis of the physician's recommendation that the file remain as "finalled." However, counsel has submitted excerpts from the A.M.A. Guides to the Evaluation of Permanent Impairment showing that complete unilateral paralysis of the facial nerve is assessed at 10–15% impairment. The Board physician's recommendation did not translate itself into a decision by an officer of the Board that was communicated to the worker in writing. Correspondence after that date with the worker, while indicating on numerous occasions that decisions had been made in the past with regards to his entitlement, specifically omitted any reference to the worker's left-sided seventh cranial nerve paralysis. Therefore, I find that the new evidence submitted by counsel, i.e. the A.M.A. Guides, with respect to assessed impairment of complete unilateral paralysis of the facial nerve, should be considered by the Disability Awards Department. The worker should be examined with respect to his entitlement pursuant to Section 23(1) of the *Act* for his left-sided seventh cranial nerve paralysis and a decision communicated in writing to the worker after such an examination.

Editors' note: This decision has been edited for publication.

Decision of the Appeal Division

Number: 10
Date: May 27, 1993
Panel: Connie Munro, Chief Appeal Commissioner
Subject: Delegation by the Chief Appeal Commissioner

Section 85(8) of the *Workers Compensation Act* provides:

> The chief appeal commissioner may delegate in writing any of his powers and duties to an appeal commissioner subject to any terms and conditions set out in the delegation.

I hereby reappoint Paul Petrie, appeal commissioner, to serve as registrar of the Appeal Division on the same basis set out in Appeal Division Decision Number 2 (*Workers' Compensation Reporter*, Vol. 7(1), p. 53).

I hereby delegate to Cassandra Kobayashi, appeal commissioner, the same powers and duties as are delegated to the registrar, but limited to situations where both I and the registrar have determined ourselves to be exposed to a possible or actual conflict of interest or appearance of bias with respect to a given case.

I hereby delegate to appeal commissioners Sonja Hadley, Thomas Kemsley, and Paul Petrie, the same authority as was set out in Appeal Division Decision No. 8 (*Workers' Compensation Reporter*, Vol. 8(5): p. 331) to determine whether grounds have been provided for reconsideration of a decision of the former commissioners. This delegation is pursuant to Section 17(5) of the *Workers Compensation Amendment Act, 1989,* and Section 96(2) of the *Workers Compensation Act* and the January 6, 1992, resolution of the Board of Governors (Governors' Decision No. 8, *Workers' Compensation Reporter*, Vol. 7(4), p. 171).

These delegations are effective from June 3, 1993, until June 2, 1994.

In the Supreme Court of British Columbia

Between: The Burlington Northern Railroad
And: Workers' Compensation Board

Reasons for Judgment of The Honourable Mr. Justice Low

April 30, 1993

A.K. WOOSTER, Esq.	appearing for the Petitioner
S. NIELSEN, Esq. and G.W. MASSING, Esq.	appearing for the Respondent
W.M. EVERETT, Esq.	appearing for Canadian Forest Products
R.M. MACKENZIE, Esq.	appearing for the City of New Westminster

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THE COURT: (Oral) I find that a judicial review now of the 1975 decision of the Workers' Compensation Board to shift the cost of the claim of Karen Firth under section 10(8) of the *Workers Compensation Act* from her employer, Canfor, to the petitioner, The Burlington Northern Railroad, would, as contemplated by section 11 of the *Judicial Review Procedure Act*, cause substantial prejudice or hardship to the Board, Canfor, the City of New Westminster and to Ms. Firth.

After considering the authorities cited by counsel and the circumstances of this case, I have reached this decision for several reasons:

(1) Almost eighteen years went by from the Board's decision in May of 1975 to the filing on December 8, 1992 of the petition now before the court. Burlington did not dispute the 1975 decision at any time in the interim. After the decision, the Board fixed the cost of the claim to Burlington at $86,000. Burlington was content to abide the Board's decision as to liability for compensation until, as it must have always known might happen, the claim was increased following an application in 1985 by Ms. Firth when it became apparent her brain injury made her unsuitable for further employment after Canfor closed the plant in which she had been working and had been able to function. The additional cost to Burlington was $300,000 which I understand represents

the present value of a pension increase awarded to Ms. Firth by the Board, a decision made following submissions on behalf of Burlington and from which Burlington unsuccessfully sought judicial review in this court in 1992. It was not until Burlington reached the end of the line in its attempts to avoid payment of additional compensation that it decided to bring this petition challenging the 1975 decision of the Board. In those circumstances, it must be said that Burlington acquiesced in the Board's power and jurisdiction to make the decision as to liability in 1975 on the basis of the evidence before it. It also implicitly waived the right to seek judicial review of the decision, to the extent it has such a right under the privative section of the *Workers Compensation Act*.

(2) Burlington's delay in attacking the 1975 decision is patently unreasonable and a reversal now of that decision would cause substantial prejudice and hardship to the Board in the performance of its statutory duties, with respect to this case and generally. On rehearing, the Board would have to review the circumstances of an accident which occurred in August, 1973, some twenty years ago. The 1975 decision was made, without objection as I understand it, solely on the basis of witness statements and other documents. No *viva voce* evidence has been preserved. It would be almost impossible for the various concerned parties to attempt to reconstruct, through evidence, either the scene of the accident or how it physically occurred. The Board would be severely hampered in any attempt to properly adjudicate the matter, a result brought about solely by the delay of Burlington in seeking a quashing of the 1975 decision and a rehearing of the issue. A reversal of the 1975 decision with the resulting imposition of liability on Canfor or the City of New Westminster, would give the party newly suffering liability the right to seek review of the various decisions of the Board as to the amount of compensation. The Board should be able to conduct its business without that sort of uncertainty and the unnecessary additional administrative costs that inevitably would be incurred. Although section 11 of the *Judicial Review Procedure Act* specifically says that judicial review is not barred by effluxion of time, at some point there must be finality to the decisions of the Board. The point of finality in this case, if not in all cases, should be seen to be reached substantially prior to eighteen years after the decision. Permitting a review in the circumstances of this case, would invite reviews in other cases many years down the road and would tend to inject undesirable uncertainty into the conduct of the Board's business, contrary to the interests of both workers and employers covered by the legislation.

(3) I find that both Canfor and the City of New Westminster both would be prejudiced in attempting to deal with the issue decided by the Board in 1975 some twenty years after the accident and some eighteen years after the Board's decision. They could not now present evidence to the Board in support of their respective positions on the issue of causation of the accident. It would be almost impossible for them to put their cases together and adequately brief counsel.

(4) There is one more reason for refusal of the court to hear this petition on the merits because of Burlington's delay that is perhaps more compelling than all the others. It would put the quantum of Ms. Firth's compensation at risk. Canfor or the City would have the standing to challenge the amount of the compensation if one of them was held responsible for the accident on a rehearing of the issue by the Board following a quashing by this court of the Board's 1975 decision. I believe the Board fixed her compensation in 1987, six years ago. A review of that decision would be most unfair to her at this late date, but that would be a possible, if not probable, result following success by Burlington in the presentation of this petition and on a rehearing of the liability issue by the Board. I find that risk to Ms. Firth to be a substantial prejudice to her under section 11 of the *Judicial Review Procedure Act*.

The extensive delay in this case is both unreasonable and inadequately explained. The arguments are compelling that the court should not exercise its discretion in favour of Burlington.

I find it unnecessary to consider the argument that this type of application is subject to a six-year limitation period under section 3(4) of the *Limitation Act*.

The petition is dismissed with costs on scale 3.

In the Supreme Court of British Columbia

Between: **Patricia Florence Isaac, and the infants, Thomas David Isaac, David Thomas Isaac, Cyril Kimball Isaac and Myrna Carol Isaac, by their Guardian ad litem, Patricia Florence Isaac**
And: **Workers' Compensation Board**

Reasons for Judgment of The Honourable Mr. Justice Meredith

January 11 and 12, 1990

Counsel for the petitioners: Caroline McCool

Counsel for the respondent: Scott H. Nielsen

This is an application under the *Judicial Review Procedures Act* to set aside a decision of the commissioners of the Workers' Compensation Board. To succeed the petitioners must show, at least, that the commissioners were in error to the extent that their decision was beyond their jurisdiction.

I agree with the decision and with the reasons upon which it is founded.

The commissioners allowed an appeal from a decision of the Board of Review. This extract from the decision of the Board is explanatory:

> This is a widow's appeal from a decision of the Claims Adjudicator of the Workers' Compensation Board that was transmitted in a letter dated March 5th, 1984. In that letter the appellant was informed that because the Necoslie Indian Band Council was not registered with the Workers' Compensation Board for logging operations at the time of her husband's death and as the Indian Band is not required by law to register with the Workers' Compensation Board for any operations, municipal or otherwise as it is optional, her claim for benefits as a result of her husband's death was denied.

This appeal was filed on March 16th, 1984 and it is contended that the Indian Band is required by law to register for its logging operations and as such therefore the deceased's death arose out of and in the course of his employment.

The facts of this case are not in dispute and they are as set out in the appellant's file and are as follows. The deceased and his widow were married on August 1, 1970. From this marriage four children were born and currently reside with the widow. The deceased was a member of the Necoslie Indian Band and was employed by the Band Council as a faller. Furthermore the deceased was working for the Necoslie Indian Band Council on the Necoslie Indian Reserve at the time of death on January 18, 1984. On January 18th, 1984 the Necoslie Indian Band Council was registered with the Workers' Compensation Board for coverage of Indian Band operations but it was not registered for logging coverage.

The issue involved in this appeal is purely legal, and the argument put forth by the widow's legal representative is as follows.

There are two issues in this appeal.

The first relates to whether logging is an industrial undertaking listed under Schedule A of the *Workers Compensation Act.*

With respect to the first issue, reference was made in the representative's submission to Section 2(1) of the *Workers Compensation Act*, which states as follows:

> "This part applies to employers and workers (b) in or about the operation of industrial undertakings listed in Schedule A"

We find that Schedule A is a list of industrial undertakings which specifically includes logging.

Reference was also made to Sections 36, 38 and 39 of the *Workers Compensation Act*. These relate to assessments for the "Accident Fund" and all contain the word "shall". Reference was also made to Section 29 of the *Interpretation Act* (R.S.B.C. 1979 c 206) which states that "shall" is to be construed as imperative.

> We find that the Necoslie Indian Band was required to register with the Workers' Compensation Board and be assessed for its logging operations.

The Board of Review held that the application of the petitioners for compensation under the *Act* be allowed.

The commissioners reversed the ruling. The effect of their decision was to confirm the decision of the claims adjudicator for the reasons that are referred to.

Three commissioners apparently initially reviewed the decision of the Board of Review. Mrs. Isaac was informed:

> Your claim has been reviewed by a panel of three commissioners. They would have to conclude that under existing Board practice, your claim would have to be rejected since Indian Band Councils are not subject to compulsory coverage under the *Workers Compensation Act*. The commissioners have decided to review this practice before making a final decision on your claim. This review will, however, take some time since it will be necessary to consult with other interested parties. The effect of the Board's allowing your claim would be that the Necoslie Indian Band Council and other similar organizations in the province would be required to register with the Board as employers and pay assessments to the Board. This would be a major step which it would not be proper to take without obtaining the views of all those affected. You will, of course, have an opportunity to make submissions to the Board in support of your position.

Copies of that letter went to Necoslie Indian Band Council and to Karen Wight, who represented the petitioners before the Board of Review. I do not know who the other interested parties were. But the letter to Mrs. Isaac from the Director of Appeals administration reporting the final decision of the commissioners says:

> As part of that review, Mr. Bates would be contacting the various interested parties. He has done this, but has been unable to obtain any response.

It is not surprising that the Necoslie Indian Band Council and perhaps other Band Councils, all of whom would be affected by the decision, did not respond. They could not support the petitioner's claim without conceding that the provisions of the *Act* extended to employers and employees on an Indian Reserve. This they would not want to do.

I think I can do no better than to adopt the reasons of the commissioners set forth in their letter dated 26 March 1987 to Mrs. Isaac. I extract portions of that letter which explain the reasoning of the commissioners with which I agree:

> Your husband suffered a fatal accident on January 18, 1984, while employed as a faller in a logging operation carried on by the Necoslie Indian Band. He was a member of the Band. The question at issue is whether the Band's operations are subject to compulsory coverage under the *Workers Compensation Act* and the Band was required to be registered as an employer with the Board. Your claim can only be accepted if it was required to register.
>
> Section 91(24) of the *Constitution Act* assigns exclusive legislative authority over "Indians, and lands reserved for the Indians" to the Parliament of Canada. This means that legislation of a provincial legislature which is specifically directed at Indians is beyond its authority. However, the courts have held that provincial legislation of general application may apply to Indians except where it incidentally affects or derogates from an Indian's "Indianness". Where an Indian's "Indianness" is affected by some of the provisions of such legislation, then the other provisions of the legislation may still apply.
>
> Pursuant to its authority under the *Constitution Act,* Parliament has enacted the *Indian Act*. Section 88 of that Act provides as follows:
>
>> Subject to the terms of any treaty and any other Act of the Parliament of Canada, all laws of general application from time to time in force in any province are applicable to and in respect of Indians in the province, except to the extent that such laws are inconsistent with this Act or any order, rule regulation or by-law made thereunder, and except to the extent that such laws make provision for any matter for which provision is made by or under this Act.
>
> The commissioners have concluded that, while on surface the *Workers Compensation Act* may appear to be a law of general application, its compulsory provisions do not apply to Indian Bands because certain essential provisions affect the "Indianness" of Indians or conflict with provisions of the *Indian Act*.

In order to explain this conclusion, it is necessary to set out the main elements of the *Workers Compensation Act*. The *Act*, firstly, requires the Board to enact and enforce regulations and do other things necessary to prevent the occurrence of employment injuries or diseases and to pay compensation to workers who experience such injuries or diseases or to the dependants of workers who die as a result of them. Secondly, the financing of these activities is provided for by provisions of the *Act* which require the Board to levy and collect assessments from the employers who are covered by it. Employers are divided into classes and subclasses and sufficient assessments must be collected from each of these to pay for the costs to which it gives rise. There are thus two essential parts of the system, neither of which can exist without the other.

As matters now stand, there may be no actual conflict between the first of these two elements and Indian status. The Board could possibly pay compensation and carry out health and safety activities without infringing provisions of the *Indian Act*. However the commissioners refer you to the following sections of the Act.

> 73. The Governor in Council may make regulations
> . . . . .
>
> (g) to provide medical treatment and health services for Indians;
> (h) to provide compulsory hospitalization and treatment for infectious diseases among Indians;
> (i) to provide for the inspection of premises on reserves and the destruction, alteration or renovation thereof;
> . . . . .
> (k) to provide for sanitary conditions in private premises on reserves as well as in public places on reserves;
>
> 81. The council of a Band may make by-laws not inconsistent with this Act or with any regulations made by the Governor in Council or the Minister, for any or all of the following purposes, namely;
>
> (a) to provide for the health of residents on the reserve and to prevent the spreading of contagious and infectious diseases;
> . . . . .

(h) the regulation of the construction, repair and use of buildings, whether owned by the Band or by individual members of the Band;

It seems to the commissioners that there is a potential for the Governor in Council or an Indian Band making regulations or by-laws under these provisions which would conflict with the terms of the *Workers Compensation Act*. The Board could be faced with the difficult situation of coverage under the Act fluctuating between different persons and times as regulations or by-laws were enacted or changed or different bands made different by-laws. Furthermore, with respect to health and safety, two of the major sanctions which the Board has for enforcing its requirements are to close down the employer's operations and to levy penalty assessments. The former would likely conflict with the terms of the *Indian Act* and the latter would raise the same problems as are discussed below with regard to the second of the two elements of the system set out above, namely the financial provisions of the *Act*.

The conflict raised by these financial provisions is, in the commissioners' opinion, of crucial significance. In this connection, the commissioners refer you to the following provisions of the *Indian Act.*

> 87. Notwithstanding any other Act of the Parliament of Canada or any Act of the legislature of a province, but subject to Subsection (2) and to Section 83, the following property is exempt from taxation, namely:
>
> (a) the interest or an Indian or a Band in reserve or surrendered lands; and
> (b) the personal property of an Indian or Band situated on a reserve;
>
> and no Indian or Band is subject to taxation in respect of the ownership, occupation, possession, or use of any property mentioned in paragraph (a) or (b) or is otherwise subject to taxation in respect of any such property . . .

> 89. (1) Subject to this Act, the real and personal property of an Indian or a Band situated on a reserve is not subject to charge, pledge, mortgage, attachment, levy, seizure, distress or execution in favour or at the instance of any person other than an Indian.

> The commissioners consider that one or both of these provisions would make it impossible for the Board to collect assessments from Indian Bands. Either the initial levying of an assessment would violate Section 87 of the *Indian Act* or, even if the levying was authorized, Section 89 would prevent the Board from obtaining payment from the band's property if it declined to pay. Since the Board cannot carry out health and safety activities or pay compensation if it has not first collected sufficient money from employers to pay these activities, the non-application of the financial provisions to Indian bands means that none of the provisions of Part 1 of the *Workers Compensation Act* can be applied compulsorily in their case.

> In the result, the commissioners have decided not to implement the Review Board finding. Your claim must be denied on the grounds that your husband at the time of his death was not a worker covered by Part 1 of the *Workers Compensation Act*.

As I think the commissioners were not in error, I dismiss the petition for the reasons given.

The petitioner has also invoked the provisions of section 15 of the *Charter of Rights* providing for freedom from discrimination. The *Indian Act* provides for and protects the rights of Indians. It does not put Indians at a disadvantage by discriminating "against them". In my view the section has no application.

Editors' note: This decision is currently under appeal to the Court of Appeal of British Columbia.

Consumer Price Index Adjustments

Date: June 14, 1993

WHEREAS section 25 of the *Workers Compensation Act* requires the Board to determine as of July 1, 1993, a ratio by comparing the Consumer Price Index for April 1993 with the Consumer Price Index for October 1992, and by applying that ratio to adjust those periodical payments of compensation referred to in subsection (2), and to adjust each dollar amount mentioned in the *Act*, except those referred to in subsection (5);

AND WHEREAS the Board is advised that the Consumer Price Index for April 1993 was 129.9 and for October 1992 was 128.5, giving a ratio of 1.01089494;

THE BOARD HEREBY DETERMINES that the ratio applicable under Section 25(1) is 1.01089494;

AND THAT all periodical payments of compensation described in Section 25(2) shall be adjusted by applying that ratio as of the 1st day of July, 1993;

AND THAT the British Columbia Regulation numbered 468/92 be repealed as of the 1st day of July, 1993;

AND THAT all dollar amounts referred to in all sections of the *Act* described in Section 25(4) shall be adjusted as follows:

Section No.	January 1, 1993 Dollar Amount	Change to	July 1, 1993 New Dollar Amount
3(5)(c)	87.14		88.09
13(2)	17,429.80		17,619.70
	3,486.00		3,523.98
17(2)	2,091.51		2,114.30
	697.18		704.78
	697.18		704.78
17(3)(a)(ii)	226.51		228.98
17(3)(c)	731.93		739.90
17(3)(d)	34,859.43		35,239.22
	3,486.00		3,523.98
	31,373.43		31,715.24

Section No.	January 1, 1993 Dollar Amount	Change to	July 1, 1993 New Dollar Amount
17(3)(e)	731.93		739.90
17(3)(f)(iii)(B)	226.51		228.98
17(3)(g)	24,401.65		24,667.50
17(3)(h)(i)	400.86		405.23
17(3)(h)(ii)	400.86		405.23
17(3)(i)(ii)	400.86		405.23
17(13)	1,743.05		1,762.04
18(1)	303.31		306.61
	94.13		95.16
22(2)	1,133.00		1,145.34
29(2)	261.44		264.29
33(5)	1,133.00		1,145.34
35(5)	156.22		157.92
71(8)	17,429.80		17,619.70
73(2)	34,859.43		35,239.22
74(3)	174,297.29		176,196.25
75(2)	34,859.43		35,239.22
75(3)	3,486.00		3,523.98
77(2)	3,486.00		3,523.98
Schedule C	731.93		739.90

AND pursuant to Section 25(4), all sections containing such dollar amounts are deemed to be amended accordingly.

Maximum Wage Rate Adjustments

Date: May 25, 1993

WHEREAS Section 33 of the *Workers Compensation Act* requires the Board to determine the maximum wage rate to be applicable for the following calendar year in the manner therein prescribed;

AND WHEREAS the Board is of the opinion that the sum of fifty-one thousand two hundred fifty-four dollars and ninety-three cents ($51,254.93) represents the same relationship to the sum of forty thousand dollars ($40,000.00) as the annual average of wages and salaries in the province of British Columbia for the year 1992 bears to the annual average of wages and salaries in the said province for the year 1984;

AND WHEREAS the said *Act* provides that the resulting figure may be rounded to the nearest one hundred dollars ($100.00);

THE BOARD HEREBY DETERMINES that the maximum wage rate to be applicable for the year 1994 under Section 33 of the *Workers Compensation Act* is fifty-one thousand three hundred dollars ($51,300.00);

AND THAT in subsection (6) of the said section, the sum of fifty thousand six hundred dollars ($50,600.00) appearing therein will be changed as at the first day of January, 1994, to read fifty-one thousand three hundred dollars ($51,300.00).

WORKERS' COMPENSATION
REPORTER

1992 Annual Report — Medical Review Panel Department

Date: **March 1993**

Formation of the Medical Review Panel (M.R.P.) Department

The Medical Review Panel process evolved out of concern for achieving fair, cost effective and final resolution of difficult medical issues involved in occupational injury/ disease claims.

Occupational injury and disease claims can be difficult and expensive for workers' compensation systems to resolve. They can raise complex medical issues — diagnosis, causation, the extent of current and future disability, and apportionment between work-related and non-work-related causes. The resolution of these cases in a fair manner requires the evaluation of specialized technical evidence by the parties and the adjudicators. Many question the ability of lay decision-makers to accurately evaluate conflicting medical opinions brought before them by parties having differing interests in order to produce fair decisions.

The *Workers Compensation Act* recognizes the significance of medical issues in the adjudication process by providing for a right of appeal to a panel of three physicians independent of the Workers' Compensation Board.

Decision making by Medical Review Panels is a unique and significant process in the dispute resolution systems in the British Columbia Workers' Compensation system. The Medical Review Panel is the final decision maker on matters pertaining to the medical questions on the appeal. The decision of the M.R.P. is binding on the Board.

There is an exquisite balance in the relationship of the M.R.P. process to the Workers' Compensation Board. On the one hand, there is a need for independence from the Board; on the other hand, the compilation of data upon which an M.R.P. can make a judgmental decision is dependent upon the Board's resources and personnel. This sensitive balance is important to preserve and maintain.

To further the independence of the M.R.P. process and to eliminate any arguments regarding conflicts of interest involving the Appeal Division or the Board's administration, the Board of Governors made a decision in 1991 to remove the M.R.P. administration from the Appeal Division and make it a separate entity as a department with its own geographically separate unit. The position of registrar, M.R.P., was created as well as the managerial position within the department. The M.R.P. Department reports to and is responsible to the chairman of the Board of Governors and administers the M.R.P. process.

New and Expanded Facility and Staff Additions

In May 1992, the department moved to new facilities on the 5th floor of the Richmond Administration Building. New staff additions were made, including a secretary, a clerk steno, and a medical appeals officer.

In December 1992, the facility was expanded to include two medical appeals officer offices and a conference room.

Activities of the Department

1. **The Medical Review Panel Report**

   In September 1991, the governors of the Workers' Compensation Board commenced an examination of the M.R.P. process. Dr. Leonard C. Jenkins, an independent physician, was retained to conduct an independent study. The results of this study, *A Review of the Administrative, Policy, and Procedural Functions of the M.R.P. Process, with identification of Issues and Recommendations*, were presented to the governors at their August 17, 1992, meeting. Public distribution of the report commenced in late October 1992.

   The report was intended to serve as:

   - a public document for information and education on the current administrative, policy and procedural function of the M.R.P. process;
   - an identifier of issues within the process
   - a list of recommendations aimed at facilitating and improving the process.

   The implementation process of the recommendations is currently evolving.

Copies of the M.R.P. Report may be obtained from Films & Posters, W.C.B., Box 5350, Vancouver, B.C. V6B 5L5.

2. **Medical Review Panel Education Days**

The *Act* intends that the panel members receive the support, education, and training necessary to be competent in their roles.

The *First M.R.P. Education Day for M.R.P. Chairmen was held on May 29, 1992*, at the Workers' Compensation Board. The M.R.P. chairmen had not met as a group since May 1990 and very infrequently prior to that date. There was a recognized need to have an update on the significant changes and future directions of the Board, having a direct bearing on M.R.P. processes and chairmen's activities. Other subjects and processes that were discussed were principles of natural justice, medical/legal terminology usage and impact on M.R.P. certificates, the claims adjudication process and the M.R.P. statistics. An open forum of discussion of issues identified in the M.R.P. process (and previously circulated to the chairmen) occupied the afternoon of the Education Day.

The Second M.R.P. Education Day for M.R.P. Chairmen was held on November 19, 1992 at the Workers' Compensation Board. The full M.R.P. Department staff also attended this meeting. Subjects discussed were: M.R.P. chairmanship; leadership and independent public stewardship; the changing W.C.B.; M.R.P. Department update and 1992 statistics; chronic back pain; and chronic pain syndrome. The afternoon was spent reviewing Dr. Jenkins' report with special focus on an Advisory Committee of elected chairmen.

3. **Performance/Outcomes of the M.R.P.**

(a) **Frequency of Use**

In 1992 a total of 574 new M.R.P. applications were received. The majority resulted from appeals of the Appeal Division decisions and referrals (61.3%). Other sources were appeals from decisions by Board officers (19.9%), findings by Review Board (18.3%) and by the former commissioners (0.5%). (See Table 1.)

Applications thus continued to increase in 1992, as did the numbers awaiting consideration. During 1992, 574 applications were received. This represents a 14.8% increase over 1991. As of December 31, 1992, 649 applications are active.

The specialties that were used in M.R.P. in 1992 are consistent with previous years. For instance, in both 1991 and 1992, 13 different specialties were used. Orthopaedic surgery is by far the most commonly used specialty (72.5% of panels). Other specialties utilized in 1992 included:

Specialty	Percentage
Neurology	10.0%
Respiratology	3.3%
Rheumatology	2.7%
Otolaryngology	1.8%
Internal Medicine	1.3%
Cardiology	1.3%
Plastic Surgery	1.3%
Psychiatry	1.3%
Dermatology	0.4%
Ophthalmology	0.4%
Urology	0.4%

The most common medical issue that goes to an M.R.P. is the question of causality or work relatedness of the condition. Though many types of conditions are assessed by the Medical Review Panels, not surprisingly, back conditions and those associated with chronic back pain are the ones most commonly involved.

During 1992, 222 panels were held. This compares to 203 held during 1991. (See Table 2.)

The average number of days for the completion of M.R.P. has generally decreased, although not consistently over the past eight years. During 1992 it was 400 days (13 months) for completion of M.R.P. appeals, i.e. the time from the date of application to the implementation of the M.R.P. certificate.

The issues identified in the report (158) indicate that further improvements in efficiency of the process are possible. Twenty seven of the 158 recommendations in the report deal with the question of reducing delays. The additional staff acquired in 1992 are essential in maintaining a thrust to reduce the backlog.

(b) **Decision Outcomes of Panels**

Medical Review Panel certificates were consistent on decisions and outcomes of appeals between 1987 and 1992 with 41% of certificates upholding (confirming) the Board's decision; 49% disagreeing and 10% partially disagreeing (upholding). (See Table 2.)

(c) **Costs**

The 1992 costs per M.R.P. panel are summarized in Table 3. The total annual operational budget for the M.R.P. Department was $617,634. The health care component (chairmen and specialists members M.R.P.) was $526,437, giving a total annual expenditure of $1,144,071.

The M.R.P. process is considered a success in B.C., as evidenced by some 52 parties interviewed during the development of the report. There was not one person interviewed who suggested that the Medical Review Panel process should be discontinued. The fact that it is not immune to criticisms is apparent from the number of issues that we have been able to identify (158). However, even when issues were raised there was a high degree of satisfaction with the process and strong support for the fact that a final binding decision was being made on a medical dispute by a group of community physicians.

Table 1

Source Patterns for New Medical Review Panels Applications (For Period January 1, 1992 — December 31, 1992)

Decision Maker	Numbers		Percent (%)	
Appeal Division — Decision	337	352	58.7	61.3
Referral	15		2.6	
Board Officer	114		19.9	
Review Board	105		18.3	
Bill 15 (Decision 3)	0		0	
Former Commissioners	3		0.5	
TOTALS	**574**		**100**	

Table 2

M.R.P.: Six-Year Trends in Panel Certificates

Year	Panel Exam	Certificates Received	Certificates Implemented	Decisions		
				Confirm	Disagree	Partial Disagree
1987	254	211	148	58	73	17
1988	299	314	358	131	182	45
1989	297	290	291	114	143	34
1990	222	231	250	110	117	23
1991	203	203	165	66 (41%)	87 (52%)*	12 (7%)*
1992	222	212	173	77 (44%)	83 (48%)*	13 (8%)*
TOTALS	**1,497**	**1,461**	**1,385**	**556 (41%)**	**684 (49%)**	**144 (10%)***

** Percent (%) on basis of Certificate Implemented.*

Table 3

1992 Costs Per M.R.P. Panel

Operational Budget		Totals	Cost Per Panel Held
M.R.P. Department*		$617,634	$2,782
Operating			
Salaries Payroll	$513,296		
Supplies & Stationery	4,528		
Communications	3,274		
Equipment	61,621		
Publications & Advertising	14,494		
Other	20,299		
Travel Expenses	122		
	(Capital $74,708)		
Health Care*		$526,437	$2,371
TOTAL		**$1,144,071**	
M.R.P. HELD		222	$5,153

** 1992 — Health Care = Costs of chairmen and specialist members M.R.P. fees.*

WORKERS' COMPENSATION
REPORTER

Protocol for the Assessment of Medical/Scientific Information — Industrial Diseases Standing Committee Workers' Compensation Board of British Columbia

Date: **March 2, 1993**

This PROTOCOL FOR THE ASSESSMENT OF MEDICAL/SCIENTIFIC INFORMATION has been adopted by the Industrial Diseases Standing Committee of the Governors of the Workers' Compensation Board of British Columbia on March 2, 1993.

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Executive Summary

This protocol attempts to describe in a reasonably concise manner the sort of medical/scientific information that is useful in deciding questions about occupational causation of disease.

The underlying simplicity of the scientific method is stressed, and the application of this method to experimental and non-experimental situations is explored.

In view of the particular importance of epidemiological methods in the modern assessment of occupational hazards, the protocol examines some of the techniques used in modern epidemiology, and the criteria by which published studies may be judged.

Every attempt has been made to keep the concepts simple. It must be recognized, however, that some questions can be quite complex, especially where the data from some studies seem to contradict other evidence.

A Glossary gives brief explanations of some of the technical terms that may be encountered in the medical/scientific literature.

A number of examples are used to illustrate the concepts being discussed. In order to keep the main text as concise as possible, most of these examples are placed in an Appendix.

1. Introduction

With increasing specialization in the sciences, the development of jargon peculiar to each science, and the rapid development of technical methods, many people have come to feel that they cannot hope to understand why and how a certain conclusion has been reached. They are forced to rely on the advice of experts, but the experts often seem to disagree.

Also — too often, it seems — some experts are revealed to have been incompetent or to have had a vested interest in one side of a dispute. The general credibility of experts therefore declines. The unfortunate non-expert is left confused and frustrated.

Fortunately, the general principles of most scientific disciplines are almost "common-sense" in their simplicity. An understanding of these principles can provide the non-expert with the ability to at least separate the very strong evidence from the very weak.

Such an understanding can also help in the gray area between fairly strong and fairly weak. Although the non-expert may have to refer an issue to the experts, he or she should at least be able to discern the broad issues that are causing any remaining controversy.

For these reasons, the Industrial Diseases Standing Committee (I.D.S.C.) has attempted to describe the issues in simple terms, and to show how apparently complex questions of causation are usually confounded more by missing or conflicting information than by matters of basic principle.

2. The Scientific Method

In the context of occupational disease, the scientific method can most easily be described as "seeing what happens when one thing is changed while everything else is kept the same."

In practice, it is often very difficult to be sure that everything else has indeed been kept the same, especially if there is a long interval between the change (usually exposure to a toxic agent) and the effect, or if free-living human beings are studied, rather than mice in a laboratory.

If the interval between exposure and illness is very brief, the causal relationship between the two can be very obvious. For example, a worker may be overcome rapidly by a toxic gas, and the process may be so obvious that there is no question about cause and effect.

Similarly, symptoms may improve over the weekend or during a vacation, only to return after a few hours back at work. This would strongly suggest that there is a causal link between the symptoms and something in the workplace.

These common-sense cause-and-effect relationships are not really different from the epidemiological techniques to be examined later. In the common-sense examples, the standard epidemiological approach of comparing "observed" to "expected" frequencies is made easier by the fact that the *expected,* or normal, pattern of health is readily recognized, and the *observed* change is immediate and unambiguous.

3. Laboratory Tests

There are obvious ethical limitations on the use of humans as experimental subjects in the study of harmful substances. In the laboratory, however, it is relatively easy to set up an experiment in which a standard biological "preparation" is kept stable except for a change in one item. (The word *preparation* is used here to include a range of techniques, from the use of experimental animals to the study of bacteria or cell cultures. A preparation subjected to a change is called an *exposed* or *experimental* group. A preparation that is kept stable is called an *unexposed* or *control* group.)

Laboratory testing of potentially toxic agents has the great advantage of speed and well-controlled experimental design. It is, therefore, of most value in the regulatory process, to help decide whether a substance should be allowed on the market or whether it is likely to be too hazardous.

The main problem with laboratory evidence is the extent to which we can apply it to human experience. In the occupational compensation context, non-human laboratory evidence is helpful in strengthening the findings of epidemiological studies that are borderline significant in terms of certain "criteria of causality" (to be discussed later). In any case, epidemiological studies may show a substance or work process to be toxic even though laboratory studies are negative, and vice versa.

Section 5 of this protocol examines the criteria of causality in detail. These were originally proposed as a way of assessing whether there was a true cause-and-effect relationship in observational, or *non*-experimental studies in human beings. They are not a set of rigid rules, but simply guidelines. The relative importance of each criterion may vary according to the circumstances.

The criteria are also useful for other types of data, and are therefore summarized here. The more of the following that one sees, the more confident one can be that a cause-and-effect relationship exists:

- **Strength of association.** Dividing the frequency of an effect in the exposed group by that in the control group gives a ratio that is the same as the "relative risk" calculated in human observational studies. The larger the ratio, the greater the likelihood that there is a true causal relationship rather than an accidental result due to "confounding variables."

- **Consistency.** Has the same apparent cause-and-effect relationship been seen in more than one experiment?

- **Dose-response.** Typically, the bigger the dose, the bigger the effect should be. If this dose-response relationship is not seen, one may question whether the effect is truly related to the suspected cause. Sometimes, however, a limiting factor may cause the dose-response curve to flatten out at higher levels. At the other extreme, there may be a threshold dose, below which there is no ill effect.

- **Coherence.** In both laboratory and real-world studies, a result is more convincing if it fits in with previous knowledge of similar chemicals or similar biochemical mechanisms. There is a danger that a truly new discovery may be overlooked because it does not conform to existing knowledge, so this criterion must be used with caution.

- **Temporal relationship.** Simply put, this means that a cause must precede an effect. This is more likely to be ambiguous in human studies than in laboratory experiments.

  The term *temporal relationship* also includes the idea of a latent interval in the development of a disease such as cancer. This applies to both laboratory studies and human epidemiological studies. For example, small animals usually have to be fed carcinogenic substances for weeks or months before excess cancers appear. If an excess cancer appeared within one week, the investigator would suspect that some other factor was at work, and would tend to discount the reliability of the result.

- **Specificity.** This criterion is most useful in human studies, where a specific exposure is typically associated with a specific result. The location or other characteristics of a cancer induced in animals may differ from that in humans. For any given animal and given exposure, however, there tends to be one or possibly two organs that are particularly affected by a specific carcinogen.

- **Statistical significance.** The phrase *statistically significant* is impressive, but all it means is that the observed difference in disease frequency between experimental and control groups is greater than one would expect if it were due to chance alone.

  If each group has a very small number of animals, a very large difference in disease frequencies would be needed for the result to be significant. On the other hand, if each group has a very large number of animals, a very small difference in frequencies may make the result statistically significant, even though there is really no *practical* difference between the groups. Because of this, statistical significance is closely tied to, and should be considered with, strength of association, which is measured by the *ratio* of the frequencies, rather than the frequencies themselves.

4. Types of Epidemiological Study

The discipline of epidemiology began over a hundred years ago as a way of learning more about the nature of epidemics of infectious disease — hence the name. About 1950, there began a rapid expansion of this approach into areas of *non*-infectious disease. As a result, modern epidemiology is largely concerned with the study of such things as cancer, coronary heart disease, and other “degenerative” diseases.

The basic types of study are described below. Some recent innovative occupational techniques are outlined at the end of this section.

Experimental Cohort Studies

Although the experimental study is rarely suitable for occupational situations, it is very useful as a "gold standard" from which to begin discussing the various types of study that are available. The word *cohort* is commonly encountered in epidemiological studies. It implies that we have been able to identify two or more groups of individuals who appear to be similar in all respects except in their level of exposure to the hazard being studied. (See Glossary for further explanation.)

The great benefit of the experimental cohort study is that although it is the simplest type of study, it can be the most convincing if properly carried out. Its main disadvantage is that if potentially dangerous substances are being studied, administering them to humans poses serious ethical problems. The exceptions to this would be in cases where the toxic effect is quickly reversible, leaving no permanent ill effect, and where the volunteers are clearly informed of the risks before being invited to take part in the experiment. In practice, experimental studies are therefore used mainly to test potentially beneficial substances, such as new drugs.

Example:

> To examine the effect of a slightly harmful substance, a large group of reasonably similar volunteers is assembled. Half are randomly allocated to one of two groups, and the other half are assigned to the second group. The first group (the experimental or exposed group) receives an injection or other type of exposure to the substance being studied. The other group (the control) also receives the same type of "treatment," but it consists of a *placebo*, a substance that is indistinguishable from the experimental substance but without any ill effects. The reason for this is that if people taking a drug know that it may produce certain effects, they tend to notice and record these effects more often than otherwise. A placebo is used so that both exposed and control groups have the same risk of recording symptoms based on a subconscious expectation of illness.
>
> After an appropriate length of time, the proportion of each group that has developed symptoms is determined. The proportion in the experimental group is compared to that in the placebo or control group. The ratio of these two proportions is called the *relative risk*.

> For example, if 20% of the experimental group have become ill, compared to only 10% of the placebo group, the relative risk is exactly 2.0. Similarly, if 50% of the experimental group have suffered ill effects, compared to only 10% of the placebo group, the relative risk is 5.0.

The great strength of the experimental cohort design is that because of the initial random allocation, any differences in susceptibility among the individuals making up the groups should be averaged out by the laws of chance. Provided that the numbers are large enough, the proportion of susceptible individuals should be the same in each group, and the relative risk should not be distorted upward or downward.

As noted earlier, the use of a control group is common practice even in animal research. This is because unrecognized factors in the environment, such as temperature or feeding routines, may lead to changes in the "normal" development of the disease in question, even in the absence of the substance being tested.

Non-Experimental Studies

This type of study is by far the most common source of epidemiological information on possible links between exposures in the workplace and subsequent disease. There are various subdivisions within this category, but all the studies follow essentially the same guidelines.

Since it is not possible to fully examine all the problems and the potential advantages and disadvantages of each type of study without writing a textbook, the following descriptions are deliberately brief and simplified.

The main point to remember about all these studies is that they are *not* experimental. They are characterized by passive "observation," as compared to the active intervention of an experiment. This means that the process by which individuals enter either the exposed group or the control group is not controlled by the investigator, who would use random allocation. Rather, the process is based on "self-selection" by the individuals who end up in the two groups. Even without any occupational exposure, the groups may therefore not be equally likely to develop certain diseases or to die from certain causes.

At the same time, there are sometimes situations where the process of self-selection appears to have been almost entirely based on chance, rather than conscious choice. These situations are often called "pseudo-random," or "experiments of nature."

Observational Cohort (Including S.M.R.) Studies

In theory, a study of cancer in a particular occupational group could be designed today in which a group, or cohort, of individuals would be followed over the next 20 or 30 years. Their cancer frequency would be compared with that of a control group of similar but unexposed individuals in the same industry, or that of the general population. This would be called a *longitudinal* or *follow-up cohort study*.

In practice, an answer is usually needed more quickly than this. It is therefore common practice to go back in time and identify a starting point at which to collect information. *Cohorts* of exposed and unexposed workers are then developed on the basis of personnel records, and the levels of exposure in previous years are estimated.

Part of the work in such a study involves tracing these individuals to see whether they are still alive or have died; and if they have died, what the cause of death was. This type of study is often called a ***historical*** *cohort study***,** to emphasize the fact that we are not beginning with fresh cohorts *today.*

Composition of the Control Group

An appropriate control group would consist of individuals of the same age and sex who are either working in the same industry in an unexposed occupation, or in a different industry that does not have any known toxic substances. Alternatively, one may use the general population of the country or of the province or state where the study is being carried out. In this case, the study is commonly referred to as an *S.M.R. (Standardized Mortality Ratio)* study, rather than a cohort study.

The comparison between observed and expected is sometimes based on simple numbers (for example, 22 cases versus 11 expected, for a relative risk of 2) or on *rates* (for example, 66 per 1,000 versus 33 per 1,000, for the same relative risk of 2). Typically, cohort studies compare rates while S.M.R. studies compare numbers.

Usually the control group will be of the same sex as the exposed group. If the exposed group has both males and females, the normal practice is to examine each sex separately, using persons of the same sex from the control group as the comparison. Alternatively, the figures can be standardized for the proportion of males and females in the same way that they are standardized for age (see below).

Standardizing for Age and Time Period

Whatever type of control group is used, in studies of chronic diseases such as cancer it is very important to ensure that the exposed and control groups are balanced in terms of age. This is because the natural frequency of cancer, heart disease, stroke, etc., changes very rapidly with advancing age. Unless the two groups are balanced for age, a severely distorted relative risk might result.

The normal procedure for this balancing of age is called *standardizing*. The number of expected deaths is adjusted to reflect the age composition of the exposed population. For example, if the control group has twice as many persons aged 60 to 64 as the exposed group has, the number of expected deaths needs to be divided by 2 to reflect this difference. This procedure is carried out for each five-year age group, and the figures are summed to give an overall total that can then be compared to the total number of observed deaths in the exposed group.

Another precaution that should be taken is to ensure that the observed and expected deaths are sorted by different time periods, such as 1970 to 1974, 1975 to 1979, etc. The reason for this is that death rates from many diseases have changed over the years. It would not be appropriate to estimate today's expected deaths using death rates from 20 or 30 years ago, since some death rates have changed substantially over this period.

Thus, to assess the value of a non-experimental cohort study, the first questions that should be asked are:

- What is the comparison, or control, group? How was it chosen? Were there any rules for inclusion or exclusion?
- Have the figures from the control group been adjusted to reflect the age and sex distribution of the exposed group and the calendar years during which the observed figures were collected?

S.M.R. Study versus Cohort Study

As previously pointed out, a study that uses a specific control group made up of other workers is usually called a *cohort study*, while the same design using the general population as the control group is usually referred to as an *S.M.R. study*. S.M.R. studies have two advantages:

- The mortality rates for the general population are readily available from published volumes of vital statistics each year; and

- Since they are based on relatively large numbers of people, the figures are more stable than those in a typically much smaller group of unexposed workers.

The main disadvantage of using the general population as the control group is that the mortality figures from this population include deaths that have occurred in chronically sick individuals. Such persons tend to die earlier than would normally be expected. They may also have never been able to find work because of their disability.

This means that the death rates in the general population are usually higher than those in a group of individuals who are employed in a regular job. This is known as the *healthy worker effect*, and it often creates an approximately 10% to 20% difference in the ratio of observed to expected deaths — that is, an S.M.R. of about 80% to 90% (0.8 to 0.9). For example, it may be found that over a period of several years, there have been 85 deaths in a group of workers, while mortality rates based on the general population would have predicted 100 deaths. The S.M.R. is therefore 0.85 or 85% ($^{85}/_{100}$).

In a cohort study, on the other hand, it must be remembered that a group of unexposed workers chosen to act as the control group may themselves have some unrecognized reason for a mortality rate that is higher or lower than it should be. The relative risk in the exposed group could therefore be reduced or exaggerated, not because of any error in the *observed* number of deaths, but simply because of an error in what ought to be the true *expected* number. Example 9 in the Appendix illustrates this source of error.

One way around this potential danger is to have two or even three control groups, each one obtained in a different way — for example, unexposed workers in the same industry, unexposed workers in a different industry, friends or relatives of the exposed individuals, etc. However, this is often a cumbersome way to deal with the problem. A simple alternative is to use the general population as the second control group, since the figures are easy to obtain.

Note that routine population figures are easy to obtain for death rates, but it is often impossible to get reliable figures for non-fatal illnesses. For the latter, it is therefore usually necessary to use a control cohort.

Because the studies just described are not experimental in nature, it is necessary to examine those aspects of the observed/expected comparison that might have distorted the true relative risk. The most widely used framework for carrying out this comparison is the group of *criteria of causality* that will be discussed in Section 5 of this protocol.

Proportional Mortality Ratio (P.M.R.) Studies

The procedure for these studies is relatively simple. It consists of comparing the proportion of all deaths in the exposed group that are due to the disease of interest with the proportion of such deaths — standardized for age and period — in the control group.

Example:

It is suspected that more cases of leukemia are occurring in a particular plant than in the general population. Through plant and union records, it is possible to identify 250 former employees who have died in the last 20 years; 25 of these deaths were from leukemia. Among the general population, adjusted appropriately for calendar period and individual age groups, 250 individuals of the same age distribution over the same period would have experienced 12.3 deaths from leukemia.

Thus the relative risk for leukemia in these workers is approximately 2 ($^{25}/_{12.3}$). *This assumes that the number of deaths due to causes other than leukemia is the same in the two groups.*

P.M.R. studies are very commonly encountered in occupational health literature, for the simple reason that they can be carried out without knowing the size and age distribution of the group in which the deaths have occurred. This is particularly useful in industries where there is a high turnover of employees. In such cases, all that may be available is a register or listing of deaths held by a union or similar organization; past personnel records needed to establish "population at risk" figures may not exist.

It should be stressed that this type of study is essentially the same as the traditional observational cohort study described earlier, with one difference: the number of all other deaths, or a special group of other deaths, is used as a "proxy" for the underlying population figures of exposed workers. The general population is often used as the unexposed control group, and to emphasize its similarity to the S.M.R., many epidemiologists now prefer to use the abbreviation *S.P.M.R.* rather than *P.M.R.*

One of the advantages of the proportional technique is that where the control group is the general population, the size of the healthy worker effect is usually decreased. This is because the relative risk is calculated from proportions, rather than from absolute rates. Example 4 in the Appendix illustrates this. On the other hand, where an employee group is used as the control, other types of distortion can occur, as shown in Example 9 in the Appendix.

Thus, proportional mortality studies are very similar to regular cohort or S.M.R. studies. If steps are taken to avoid their potential biases, they can provide very useful information about a job/disease relationship.

Objective versus Subjective Evidence

In most of the studies that have just been discussed, the diagnosis of the illness or the cause of death is not in dispute. This usually means that there are *objective* tests — such as a pathology report on a lump suspected of being cancer — to demonstrate the presence or absence of the disease.

In situations where there is no objective test available and no hard, physical evidence to firmly establish the diagnosis, we may be completely dependent upon symptoms such as pain, dizziness, fatigue, etc. The relationship of this type of *subjective* illness to occupational exposure is much more difficult to either establish or refute.

Very often the best that can be done is to draw up a set of criteria for accepting the disease entity as a "real" disorder, and then, using the procedures already described, try to analyze the frequency with which this disorder occurs in a particular occupation. (See Example 10 in the Appendix.)

Case-Control Studies

In the non-experimental cohort studies we have seen so far, the assumption is that we begin with a healthy cohort and measure illness or death as the outcome.

In the *case-control study*, the analytic process goes in the other direction. We begin with a group of individuals with a certain disease, and look back in time for risk factors that may have affected this group. A control or comparison group is then assembled, consisting of individuals who are not suffering from the disease of interest but who are similar in other respects to the cases in the group with the disease. The frequency of various risk factors in the two groups is then used to produce an *estimate* of the usual observed/expected *relative risk*.

Unlike in the other non-experimental studies, the relative risk is not calculated by comparing the frequency of disease in the exposed group with the frequency of the same disease in the unexposed group. Rather, a "backward" type of arithmetic computation is required to extract an estimate of the traditional relative risk, which still remains the ratio of interest in these epidemiological studies. The computation is based on the idea that the group of healthy controls is a random sample of the general population. The actual procedure is illustrated in Examples 6 and 12 in the Appendix.

Difficulties with Case-Control Studies

The case-control study has not been used as much as it could be in the occupational setting. In part, this has been due to a fear of potential errors due to two factors:

- The use of a control group that is inappropriate or too small; and
- The "recall bias" that often differs between cases and controls when they are asked about past risk factors.

As will be described later, however, a new technique known as the *"nested" case-control study* is becoming more popular as part of large cohort studies. (See also Example 7 in the Appendix.)

Both P.M.R. studies and case-control studies are sometimes considered inherently less useful than cohort studies. The I.D.S.C. does not believe that this is justified. If these studies are well designed and carefully executed, they can provide useful information concerning relative risk. In practice, however, they are more difficult to do *well* than a regular cohort study, and for this reason have sometimes given misleading results.

The main advantage of the P.M.R. and case-control approach is that such studies are usually less costly and time-consuming than cohort studies. They are also, of course, the only way to analyze historic data if population figures of exposed workers are not available.

Morbidity Studies

The preceding discussion has been concerned with the structure of the typical mortality study. The same framework can be used where the outcome is not death but illness — a *morbidity study*.

The use of age- and period-adjusted rates from the control population is essentially the same as in other non-experimental studies if:

- The disease being considered is one with a long latent period; and
- Once established, it does not go away even if the subject is removed from exposure.

However, there are situations where it may not be necessary to use such an elaborate design. When the disease comes on rapidly and also disappears rapidly, patients can be used as their own control. For example, a worker who develops asthma can be tested before and after returning to work following a vacation. Alternatively, he or she can be exposed to small quantities of the suspected allergen under carefully controlled conditions in an environmental chamber; a change in respiratory function may be demonstrated.

Another important design for non-fatal diseases is the *cross-sectional study*, in which both the exposure and the presence of disease are measured at the same time, for example, the frequency of chronic bronchitis in workers exposed to irritating fumes. Three examples of this type of study appear in the Appendix (Examples 5, 10, and 12).

New Techniques

Many innovative approaches to epidemiological study have been developed in the past few years. Two that show great promise in the field of occupational epidemiology are the "nested" case-control study and the attributable risk technique.

"Nested" Case-Control Study

In this technique, a small case-control approach is used within (hence, "nested") a large observational cohort or proportional mortality study. The advantage of this approach is that it usually requires only small numbers, and detailed information can be obtained at relatively low cost.

For example, the disease of interest may be subject to several non-occupational biases, such as smoking, family history, etc. The persons who have developed the disease may be interviewed, or sent a questionnaire, to establish which of the other risk factors they possess. Similar information is obtained from a group of controls who are an appropriate sample of the large number of other participants in the study. An "adjusted relative risk" can be calculated, one free of the uncertainty caused by lack of information about confounding variables. Example 7 in the Appendix illustrates this.

Attributable Risk Technique

The key to this method is that the relative risk in exposed workers is subdivided according to severity and duration of the exposure. Each relative risk is then converted to an *attributable risk* to provide a measure of the probability that an individual case is work-related.

This approach was developed in the United States to deal with claims for radiation. It has been adapted by researchers in Quebec and B.C. for use in the handling of claims for bladder cancer in aluminum workers (see Example 8 in the Appendix). The approach can be extended to some other job/disease situations, and offers potential for:

- Fine-tuning the exposure/disease assessment to allow for duration and severity of exposure, rather than using a simple cut-off of exposed/not exposed for a certain minimum number of years.

- Resolving the dilemma of how to fairly handle claims in situations that are just above or just below the "balance of possibilities" threshold of 50% (equivalent in epidemiological terms to a relative risk of 2.0). If an appropriate formula can be developed that includes more than simply the relative risk shown by the total exposed group, an estimate of work-attributable risk can be made with more precision. The process of compensation should gain in credibility and perception of fairness if we can vary the cut-off point with degree of exposure, and if we can set the cut-off point so that it is most fair to both the individual *and* society (presumably after all-party negotiations).

5. Criteria of Causality

In 1965, an English statistician, Sir Austin Bradford Hill, put forward a set of criteria to be used as a framework for deciding when a causal relationship can reasonably be assumed on the basis of human studies that are observational, not experimental, in nature.

Typically, Hill's criteria are applied to situations in which the frequency of a disease in an exposed group is compared to the frequency of the same disease in "normal" people. What constitutes an appropriate "normal" group is often a matter for debate: is it the general population, or is it a similar, but unexposed, group of workers? Also, the way in which the comparison has been carried out can vary, depending on the circumstances. These issues were discussed in Section 4, Types of Epidemiological Study.

In this section, the criteria will be examined as they relate to epidemiological studies in humans. They are illustrated by some examples in the Appendix.

It should be stressed once again that these criteria are not rigid rules. Quite often a study does not adequately meet one or more criteria for a good reason. Sometimes, however, it is because the investigators were simply not familiar with proper epidemiological techniques. The main value of the criteria is therefore to remind the reader of the components of an epidemiological study, and thus aid in assessing its reliability and validity.

A. Strength of Association

In simple language, this means that the bigger the relative risk, the greater the likelihood that there is a true cause-and-effect mechanism at work. However, other factors must be considered before assuming that the study with the highest relative risk is necessarily the most valid. One reason for a very high relative risk may be that the study has been based on very small numbers. For example, if the expected number of cases is only 0.01, just one observed death will give a relative risk of 100 ($1/0.01$) — an unusually high figure, but one with a high probability of being due to chance. (See Examples 1 and 2 in the Appendix).

A more common problem is found in human studies at the other extreme, when the relative risk is found to be above 1, but not by very much. For example, a relative risk of 1.4 or 1.5 is by itself not very impressive, because there are so many confounding variables, such as cigarette smoking, nutrition, genetic background, etc. A relative risk below about 2 quite often turns out to result from a different distribution of confounding variables in the exposed group compared to the control group.

The main exception to this rule is tied in with another criterion, dose-response, which will be examined later. If, in a carefully designed study, there is a clear gradient from lower dose to a higher dose rising through figures such as 1.2, 1.4, and 1.6, these otherwise low and unimpressive relative risks become much more convincing.

By chance, a relative risk of 2 also happens to coincide with the shift in probability from "less likely than not" to "more likely than not." For example, if there are 20 cases instead of 10, the additional 10 cases will presumably be due to the exposure, so on average, for each individual, the best estimate of the probability of work causation is 50%.

Another problem follows from this. It might be argued that if there is a relative risk of just over 2, *all* affected individuals should be compensated, but if it just under 2, *none* should be compensated. This problem was addressed briefly in Section 4, under the heading "Attributable Risk." See also Example 8 in the Appendix.

B. Consistency (Reproducibility)

This criterion should remind the reader that the result from a single study may be a fluke, and is therefore usually not enough to justify the conclusion that a causal relationship exists. The term *reproducibility* is often used in place of *consistency.*

When several epidemiological studies all involve the same type of work environment, it is helpful to see (a) whether most give a relative risk in the same direction above or below 1, and (b) whether the size of the relative risk is approximately the same. The reader must also keep an eye on the size of the studies. There is likely to be much more variation in the size of the relative risk if the studies are based on small numbers. At the same time, however, a study based on very large numbers may have some inherent bias that makes it *less* accurate than some of the smaller studies. Thus the criterion of consistency has to be used with flexibility and an awareness of the problems and pitfalls that can arise in all scientific studies, whether in humans or not.

Another consideration under this heading is the existence in the published literature of what is known as a "publication bias." There is stiff competition to get studies published, and they are most likely to be published when the conclusions are new or controversial. Initially it would probably be difficult to get a study published

showing that there was *no* apparent ill effect from a particular exposure. It is only later, when several studies have been published apparently showing that there *is* an effect, that editors may become more interested in publishing a negative result, since this now gives a conflicting view.

C. Dose-Response

As noted earlier, a dose-response relationship can add strength to an otherwise unimpressive result. Needless to say, if the relative risk is already large, the addition of a dose-response relationship makes the conclusion even stronger.

A good example of this appeared in one of the original studies on cigarette smoking and lung cancer conducted by Doll and Hill (the same Hill responsible for the criteria that we are now discussing).

Non-smokers formed the basis for the expected figures, since they had not been exposed to the suspected agent. Overall, regular smokers had a lung cancer rate of 104 per 100,000, compared to 10 per 100,000 in the non-smokers, for a relative risk of 10.4. Within these figures, there was also a very clear gradient according to the number of cigarettes currently smoked. The figures for relative risk form an almost perfectly straight line, rising steeply from the non-smoker baseline of 1 to approximately 20 for a one-pack-a-day habit, and approximately 40 for a two-pack-a-day habit. Examples 3 and 8 in the Appendix describe other studies with similar gradients.

D. Coherence (Biological Plausibility)

This criterion is concerned with how the apparent cause-and-effect relationship fits with other knowledge. Also referred to as *biological plausibility*, it is sometimes difficult to apply or interpret. It may be as simple as observing that an ingested or inhaled substance is most likely to affect the first organ it encounters — the stomach or the lung. Or it may involve extrapolating from animal data.

Unfortunately, with ingenuity, one can almost always find a plausible explanation for whatever is observed. Thus plausibility is often of little help in sorting out convincing from unconvincing data. At the other extreme, one has to remember that if repeated studies show a clear and highly consistent effect, even implausible results should not be ignored, as they may well be an entirely new discovery. Example 5 in the Appendix involves this criterion.

E. Temporal Relationship

At a very elementary level, this is as simple as saying that a cause must precede an effect. However, there are situations when this is not entirely obvious, such as in "cross-sectional" studies, where the possible cause and effect are both measured at the same time.

The issue of time can be very important in diseases that normally show a long latent interval between exposure and development of symptoms. Cancer is a typical example, with a latent interval of often 15 to 20 years between first exposure and diagnosis. If a study appears to show a high rate of cancer only in individuals who have been employed for, say, less than five years, there would be considerable doubt whether a causal relationship truly existed.

F. Specificity

At its simplest, this means "one cause, one effect." However, things are not always that simple. Indeed, one of the reasons that the link between cigarette smoking and lung cancer was initially greeted with skepticism is that smokers appeared to develop excess cancers in other organs, as well as an excess of non-cancer diseases such as chronic bronchitis.

This criterion is particularly useful where the author has supplied information on observed/expected figures for a variety of causes, including such things as heart disease, accidents, pneumonia, etc. It would be unusual, although not impossible, to find that a workplace exposure increased the rate in *all* these different categories. It is more usual to see a main effect in one category or type of disease, and possibly one or two less strong effects, rather than the entire spectrum of human disease.

In passing, it should be pointed out that the characteristic of specificity is at the heart of the use of the Proportional Mortality Ratio (P.M.R.) described in Section 4. This method depends on the assumption that most causes of death will be the same as usual, and that the excess will be seen in only one or two categories.

The other aspect of specificity lies in the exposure itself. Thus the initial concern about an occupational problem may arise in the context of a particular industry or plant. In the beginning, the connection may seem rather weak. However, if there is a true relationship between exposure and effect in one part of the plant but not in others, it becomes clear as the investigation continues that there is a high relative risk in one area and a normal relative risk of about 1 in the rest. The initial impression of a weak relationship was due to the dilution of the effect of the toxic area by the non-toxic areas. Example 3 in the Appendix illustrates this.

G. Statistical Significance

This criterion often causes difficulties for the reader who is used to the idea of mathematical certainty in science. In an epidemiological study, the statistical significance of the findings usually depends on two things: the strength of the association and the number of observations.

Thus a study based on very few people will probably not show statistical significance even though there is truly a relationship between cause and effect. At the other extreme, virtually any study involving very large numbers of people will show even the smallest difference between the two groups to be statistically significant in a strictly mathematical sense. Example 1 in the Appendix deals in part with this issue.

As with all these criteria, the importance attached to statistical significance is not an "all-or-none" phenomenon. Rather, it must be taken into account together with other criteria, especially the strength of association.

Finally, it should be re-emphasized that these criteria are guidelines only, not inflexible rules.

Glossary

This glossary is deliberately short, and is limited in scope. More detailed information on epidemiological terminology and methods can be found in books such as:

- *A Dictionary of Epidemiology* (Edited by J. Last) Oxford University Press, 1983.
- *Research Methods in Occupational Epidemiology* (Checkoway et al.) Oxford University Press, 1989.
- *Occupational Epidemiology* (R.R. Monson) C.R.C. Press, 1987.

For simplicity, it is assumed that the following terms are used in reference to a comparison of illness frequency in a group of "exposed" workers and in a group of people of similar sex, age, etc., who are not exposed.

. . . . . .

Attributable Risk: The number or proportion of cases that can be attributed to the exposure. In the example given below under the heading *Relative Risk*, 25 observed cases occurred in an exposed group *divided by* 10 expected, giving a relative risk of 2.5. The attributable risk for this group is the extra 15, that is, the observed *minus* the expected. This can also be expressed as a proportion. In this case, since 15 out of the 25 observed cases are presumably due to the exposure, the attributable risk is 15 divided by 25, or 60%. In this group of 25 workers, 60% have developed the disease as a result of their work.

Case-Control Study: The analysis begins with cases of the disease of interest and a control group of people who are similar to the cases, except that they do not have the disease. The past experience of cases and controls is then compared by interview, questionnaire, or examination of old records. Sometimes called *retrospective* or *backward* study.

Cohort: The word *cohort* is derived from the Latin for a unit of the Roman legion. In those days a cohort consisted of a group of men whom all originated from the same village or district. In epidemiology it has been adopted as a useful piece of jargon to mean a group of individuals with some common characteristic. The characteristic may be the same as in Roman times — origin from a particular location — or it may mean similar type of work, plus age and sex (for example, male bakers in the age group 45 to 49).

Cohort Study: The analysis begins with healthy people in both the exposed and the unexposed group. Disease frequency is recorded over a subsequent period of time — days, months, or years, depending on the disease. Also called *prospective* or *forward* study.

Confounding Variable: See *Variable*.

Control Group: In an experimental study or randomized controlled trial, the control group is the group of unexposed individuals. In a case-control study, the controls are a sample of people without the disease being studied.

Dependent Variable: See *Variable*.

Disease: May be used in the very broad sense of *dis-ease,* i.e., interfering with usual life. Can therefore be either illness (such as asthma or cancer) or a result of trauma (such as a broken bone).

Experimental: The investigator has complete control over the allocation of individuals to the experimental and control groups. It is therefore possible to use strictly random allocation to ensure appropriate balancing of factors that may influence susceptibility.

Exposed: Used in the broad sense of exposure to danger — either chemical or accident (trauma).

Incidence Rate: The number of new cases of disease occurring over a certain period of time per unit of population, such as 4 per 1,000 per year.

Independent Variable: See *Variable*.

Mutagenic: A widely held theory of cancer causation is based on damage to the D.N.A. in cells. D.N.A. is involved in reproduction of the cells — and of the whole animal. Some tests of possible cancer-producing chemicals are based on whether or not they affect the frequency of abnormal offspring due to "mutations." If they do, they are probably also "carcinogenic," i.e., capable of causing cancer.

Odds Ratio: Estimate or equivalent of relative risk. Used mainly in case-control studies.

Population: Used in epidemiology not only in the sense of "the population of Canada" but also in the sense of a particular group of individuals being studied, such as foundry workers, all the hourly-paid employees of a company, etc.

Prevalence Rate: The number of existing cases of disease at a certain point in time, expressed per unit of population, such as 12 per 100,000. See also *Incidence Rate*.

Prospective: See *Cohort Study*.

Randomization: The "blind" allocation of individuals to the exposed or unexposed group. Used in experimental studies to balance out confounding variables that may be known or unknown. See also *Stratification*.

Relative Risk: Observed number divided by expected number. For example, 25 cases in a population where only 10 would normally be expected gives a relative risk of 2.5 (25 divided by 10).

Sensitivity: The ability of a study to detect a real difference between the groups. If there is low sensitivity, the result may be a "false negative."

Signs: Deviations from normal that can be observed by the examiner. Examples include obesity, pale face, tenderness to pressure at a certain point, pulse rate, a lump, etc.

S.M.R.: Standardized Mortality Ratio, equivalent to relative risk (observed cases divided by expected cases). Usually expressed as a percentage. Used where the general population acts as the unexposed control group.

Stratification: Analyzing results according to various characteristics that might be confounding the analysis. For example, in a study of lung cancer in asbestos workers, the analysis should include stratification by smoking status, to see whether the asbestos effect alone is the same in non-, light, or heavy smokers, or whether there is a multiplicative effect of the two exposures. Also used in experimental studies before randomizing subjects.

Symptoms: Things that the patient complains of and for which there may be no external signs, such as pain, depression, etc.

Syndrome: A group of symptoms and/or signs that seem to occur together more often than would be expected by chance, yet are not defined clearly enough to receive a specific diagnostic title.

Trauma: External cause of tissue damage. Commonly used in the sense of, say, a broken bone due to a fall.

Variable: Usually a disease, an occupational exposure, or some other factor. The exposure is called the *independent* variable, while the disease is the *dependent* variable. Other factors such as diet, smoking, etc., are *confounding* variables, since they often confuse the issue and make it difficult to decide whether there is a true cause-and-effect relationship between the exposure and the disease.

Appendix

The following examples of the scientific evaluation of job/disease relationships are all based on actual studies. In some cases, the numbers have been changed slightly in order to simplify the data.

• • • • • •

1. Most of the criteria of causality are met. Example: cancer in rubber workers.

Three separate studies were carried out in groups of rubber workers exposed to the same types of chemicals. The results for three types of cancer are shown in the following table:

	A			B			C		
	Obs	**Exp**	**S.M.R.** *95% C.I.*	**Obs**	**Exp**	**S.M.R.** *95% C.I.*	**Obs**	**Exp**	**S.M.R.** *95% C.I.*
Stomach	39	20.9	187 *134-255*	98	93.9	104 *85-127*	34	27.6	123 *85-171*
Lung	91	109.3	83 *67-102*	234	253.1	92 *80-106*	116	139.8	83 *69-99*
Leukemia	16	12.5	128 *73-208*	48	38.9	123 *91-163*	25	18.1	138 *89-204*

Observed and Expected deaths from 3 types of cancer, with Standardized Mortality Ratios.

Expected deaths are based on death rates in the general population

95% C.I. = 95% Confidence Interval of the S.M.R.

The three plants where the study was carried out are labelled A, B, and C. The ratios of the observed versus expected deaths are elevated for both stomach cancer and leukemia, especially the latter, where the S.M.R. is elevated at a fairly similar level in all three cases. For stomach cancer, the S.M.R.s vary widely, from 104 to 187. By contrast, lung cancer results are all on the low side, with S.M.R.s of 83, 92, and 83.

Beneath each S.M.R. figure, the 95% confidence interval of the S.M.R. is printed in italics. This is a relatively new way of expressing statistical significance in medical studies. Where the limits of the confidence interval *do not include* the figure 100 (= a relative risk of 1), the result is "statistically significant." The same conclusion used to be stated in the form, "significant at the 5% level."

Confidence intervals have replaced simple cut-off figures for statistical significance because they provide a better idea of how wide the range of uncertainty is. Thus for leukemia in location A, although the S.M.R. is 128, the confidence interval covers a very wide range, from 73 to 208. This reflects the fact that it is based on the relatively small number of 16 observed cases. By contrast, the S.M.R. for lung cancer in location B, based on 234 cases, is 92 with a much tighter confidence interval of 80 to 106.

Both stomach cancer and leukemia show consistency in that all these results are above normal and, in the case of leukemia, of approximately the same magnitude. However, this set of results is not entirely convincing because of the lack of statistical significance in most of the results. Only one of the S.M.R.s — stomach cancer at location A — is statistically significant, because the lower limit of the interval is 134, well above the baseline value of 100.

There is a growing tendency to combine the results of different studies in order to achieve larger numbers and thus narrower confidence intervals around the S.M.R. This is explored in the next example.

In passing, it should be noted that although S.M.R.s have traditionally been expressed as a percentage (100% is equivalent to a relative risk of 1), there is an increasing tendency for them to be reported also as a simple ratio — 1.25, 3.9, etc. This has the advantage of emphasizing the similarity to relative risk. However, since most of these examples are from publications using the old percentage format, we have adhered to that format in most cases.

2. "Meta-analysis" — combining studies to increase accuracy and reliability.

In Example 1, the findings for both stomach cancer and leukemia were very suggestive, but the statistical significance was not impressive for most of them. In the following table, the same set of data is combined in the final column under the heading of "Total," to give the basis for what is now usually called a *meta-analysis*.

	A			B			C			TOTAL		
	Obs	**Exp**	**S.M.R.** ***95% C.I.***	**Obs**	**Exp**	**S.M.R.** ***95% C.I.***	**Obs**	**Exp**	**S.M.R.** ***95% C.I.***	**Obs**	**Exp**	**S.M.R.** ***95% C.I.***
Stomach	39	20.9	187 *134-255*	98	93.9	104 *85-127*	34	27.6	123 *85-171*	171	142.4	120 *103-139*
Lung	91	109.3	83 *67-102*	234	253.1	92 *80-106*	116	139.8	83 *69-99*	441	502.2	88 *80-96*
Leukemia	16	12.5	128 *73-208*	48	38.9	123 *91-163*	25	18.1	138 *89-204*	89	69.5	128 *103-157*

Observed and Expected deaths from 3 types of cancer, with Standardized Mortality Ratios

Expected deaths are based on death rates in the general population.

95% C.I. = 95% Confidence Interval of the S.M.R.

The "TOTAL" panel illustrates the effect of combining studies A, B and C (= "meta-analysis")

For both stomach cancer and leukemia, the combined figures are now statistically significant, with the lower level of the confidence interval being above 100 in each case. Furthermore, the width of the confidence interval is considerably less than that seen in some of the individual studies. The stomach cancer interval is 36 (103 to 139), while the leukemia interval is 54 (103 to 157).

The meta-analysis also clarifies the lung cancer issue, with an S.M.R. of 88 and a very narrow confidence interval of 80 to 96. Thus for lung cancer even the *upper* limit is below 100, indicating that there is very little probability of a true increase in lung cancer. However, the healthy worker effect tends to affect even cancer to some extent, so that these S.M.R.s may be underestimating the true relative frequency of lung cancer. Even so, it is unlikely to be more than a few points above the normal of 100, and for practical purposes this is well within the normal variation seen in human populations. These studies therefore indicate that if any lung cancer is being caused by this particular industrial process, the numbers are very small compared to the normal background of lung cancer in the population.

In addition to the healthy worker effect, it is always important to bear in mind that the control group being used may not be appropriate. Thus in the examples of locations A, B, and C, the total population death rates for the United States were used as the basis for calculating expected figures. One would think that a more appropriate reference point would be the population of the area in which the plants were located. Unfortunately such data are not always easily available. Even if they are, they are not based on such large numbers as the entire U.S. population, and are therefore less reliable as a yardstick against which to compare the rates within a particular industry.

In fact, however, the use of the U.S. population in this case probably increased the accuracy of the S.M.R.s. The reason for this is that all three locations were in the northeast United States, where cancer rates tend to be higher than in the U.S. as a whole, perhaps because this is where most chemical and other potentially toxic industries are located. It can therefore be argued that the general U.S. population is a better comparison group than the local population, because it has a relatively "clean" environment.

This example shows that although intuitively the local population would seem to be the most appropriate one from which to get the expected figures, this may in fact weaken the apparent association between an industry and a disease.

3. Locating the hazardous area.
Example: rubber workers and coke oven workers.

It is not uncommon for studies of certain industries to reveal a consistent pattern of elevated S.M.R.s although none of the S.M.R.s is very high. In Example 2 combining the smaller studies resulted in a meta-analysis figure that was clearly above 2 and was also

statistically significant for two of the three cancers. There are, however, situations where after several studies the overall S.M.R. for an industry is only, say, 1.5. This means that the disease in question is occurring 50% more often in the workers than in the general population. If 15 workers develop the disease, 5 of the 15 cases are due to occupation while the other 10 are the normal background for the population. Which of these cases are the ones "more likely than not" to be due to their occupation?

If the industry in question has a number of different process areas, the next step is to break the analysis into a number of smaller parts, with each part corresponding to a different area of the plant, or a different part of the manufacturing process.

Let us examine the findings for stomach cancer from Example 2. When the plants as a whole were subdivided, it was found that in most areas of production, the S.M.R. for stomach cancer was not greatly elevated above normal. In one particular area, however, where raw materials were mixed and there was a good deal of dust in the air, the S.M.R. was 390. In other words, the overall figure of 120 (R.R. = 1.2) for the industry was being caused almost entirely by one area's much higher rate of 3.9 times the normal incidence of stomach cancer. The low overall figure was due to dilution of this high rate by inclusion of people from uncontaminated zones.

From a compensation point of view, this type of information can obviously be very important. This is because with a relative risk of 3.9, a case of stomach cancer would carry an attributable risk of approximately 75% if the individual had spent his or her working life in the high-risk area.

Ideally, the compensation decision should also take into account the duration of exposure, the level of contamination during the years that the worker was exposed, and the latent interval between the start of work and development of the cancer. In this way a graduated decision process can be used to deal more appropriately with the variation in risk between people who had worked in the toxic area for varying lengths of time. This issue is examined later in this Appendix, in Example 8.

Another example of more precise location of a toxic area can be found in a large study of workers in coke plants associated with steel making. For the total coke plant, the relative risk of lung cancer was found to be 2.1. For the men working around the coke ovens, it was found to be 3.6. However, among men who worked topside on the coke ovens and were therefore more heavily exposed to the fumes that came out of the ovens when they were opened for recharging, the relative risk was 10 if they had worked at this job for five or more years.

As a side issue, it may be noted that this study also demonstrated a dose-response effect. Men who had worked for *more* than five years had a relative risk of 10, but those who had worked *less* than five years had a relative risk of only 2.9.

Example 7 describes yet another example of hazard location, using a "nested" case-control study.

Finally, it should be pointed out that even after focusing down on different areas within a plant, the highest relative risk may be only 1.5. On the face of it, this would mean that the "attributable risk of occupation" is only 33% ($^{0.5}/_{1.5}$). This is well below the "equal possibility" level of 2. However, if the figure of 1.5 were obtained in several different plants, and if the confidence interval was very narrow — say, 1.4 to 1.6 — it would indicate that there was good reason to believe that one third of all these cancers were due to the exposure. The decision on how to deal with this in a fair manner is complex, because the choice would appear to be between compensating all cases — thus being unfair to society at large — and compensating none — which would be unfair to the workers who had truly suffered from their occupational exposure.

It is outside the scope of this protocol to discuss possible solutions to this dilemma, but it should be emphasized that diseases of occupational origin often do not carry a "fingerprint" that can be used to separate them from those that are non-occupational. Further, the dilemma could conceivably be even more severe — for example, a relative risk of 1.05 with a confidence interval which was very narrow — say 1.04 to 1.06 — would indicate an occupationally attributable risk of only 4.8% ($^{0.05}/_{1.05}$), and a corresponding 95.2% probability of *non*-occupational origin.

4. Healthy worker effect, S.M.R. and S.P.M.R. studies.

Almost invariably, when the general population is used as the basis for calculating expected numbers of deaths, the S.M.R. for any disease tends to be below 100, i.e., below normal frequency. This is known as the *healthy worker effect*, a term that reflects the belief that the reason behind this abnormally low figure is that only healthy people are able to join the work force, while the less healthy remain at home and — so it is assumed — die earlier.

However, the situation is not as straightforward as it may seem, since the healthy worker effect is also seen to some extent in things such as cancer, heart attacks, motor vehicle accidents, etc., where "employment of the fittest" would seem unlikely to be a factor. There are various theories to explain this and there is not enough space here to discuss them at length. The purpose of this example is to illustrate that the use of the Proportional Mortality Ratio (P.M.R.) essentially eliminates the healthy worker effect. In fact, it may *overcompensate* in some cases.

A study involving over 13,000 workers in the rubber industry found that during the period of follow-up there were 5,079 deaths from all causes. Forty-eight deaths were from bladder cancer and 255 deaths were from respiratory cancer. Most of these respiratory cancers would have been lung cancer.

Based on death rates in the total U.S. population, and after adjusting for age and sex, the expected number of deaths from all causes would have been 6,090.6; from bladder cancer 39.5; and from respiratory cancer 293.4. When each of the observed number of deaths is divided by the expected number, the corresponding S.M.R.s are: all causes of death, 83; bladder cancer, 122; respiratory cancer, 87.

It has been suggested that one way to minimize the healthy worker effect for individual causes of death is to divide all the individual disease S.M.R.s by the S.M.R. for all causes. The idea here is that by making an overall allowance for the general underestimation of causes of death, we would remove the bias due to the healthy worker effect (this assumes that the effect is the same size for each cause of death — which may not be true).

If the bladder cancer S.M.R. of 122 is divided by 0.83 to allow for the all-cause healthy worker effect, the bladder cancer S.M.R. increases to 147. Similarly, if the respiratory cancer S.M.R. of 87 is divided by 0.83, it becomes 105. If proportional mortality ratios are calculated from these same numbers, the resulting S.P.M.R.s are exactly the same as these "corrected" S.M.R.s.

The calculation of the S.P.M.R. for bladder cancer consists of two stages:

- First, the observed and expected proportions are calculated. For the observed deaths, the proportion is $^{48}/_{5079}$, or 0.00945. For the expected deaths, the figure is $^{39.5}/_{6090.6}$, or 0.00649.

- The second stage is to divide the observed by the expected proportions. This gives a figure of 147 for the S.P.M.R. — identical to the "corrected" S.M.R. of 147. The reason for this is that the same numbers are used in each set of calculations, and it assumes that the all cause Healthy Worker Effect is appropriate for individual diseases such as bladder cancer. In practice (see below) the Effect is usually different for different diseases.

By basing the calculations on *proportions* of deaths, we remove the element of underlying *population* numbers. Thus, we effectively allow the ratios to depend simply on the numbers of deaths, ignoring the issue of the normal *rates* in the population.

This approach to the healthy worker effect is not entirely satisfactory, but then neither is any other because the size of the healthy worker effect tends to vary between different causes of death and depends to a large extent upon which age group is being studied. The reason for the age effect is that some causes of death, such as motor vehicle accidents, are very high at younger ages particularly in men, while diseases such as heart attack and cancer become overwhelming in their importance at later ages.

One of the main weaknesses of the proportional approach is that in its simplest form it is based on the assumption that all other causes of mortality *except* the one of interest are the same as in the reference population. To take an extreme example, if the occupational group had twice the death rate in *all* diseases as that of the general population, a proportional analysis would not reveal this, since each disease would still be present in the same relative proportion. For this reason, investigators often carry out extra proportional analyses using groupings other than total deaths as the denominator.

For example, it may be suspected that the occupational group is unusual in its mortality from such things as heart disease and accidents, which will distort the S.P.M.R. As an alternative, we can use "all cancers" as the basis for the proportional analysis. Thus, for bladder cancer we would divide the 48 observed deaths by the total of 986 deaths from all types of cancer, and get a figure of 0.0487. Doing the same thing with the expected deaths, we would divide 39.5 expected deaths from bladder cancer by 1,064.9 expected deaths from all cancers, and obtain a figure of 0.0371. When we divide the observed proportion by the expected proportion and multiply by 100, we get an S.P.M.R. of 131, compared to 147 using all causes (this difference is due to variation in the size of the Healthy Worker Effect in cancers versus non-cancers, as described above).

Further, it is well known that cigarette smoking can cause both lung cancer and bladder cancer. This may make us uncomfortable about using the all-cancer basis for calculating the S.P.M.R., since the smoking pattern in the employees may be different from that in the general population. We can therefore go one step further in selecting our basic group for comparison by using "all cancer deaths except those from respiratory cancer." The observed 48 deaths for bladder cancer would be divided by 731, giving a figure of 0.0657. Similarly, the expected figure is $^{39.5}/_{771.5}$, or 0.0512. Dividing observed by expected now gives an S.P.M.R. of 128, which is quite close to the figure of 131 that we got using all cancers as the reference group.

Another refinement that we may wish to apply is to take out of our denominator the deaths due to the cause we are interested in. It can be argued that by dividing the 48 bladder cancers by the figure of 731 we are underestimating the ratio because we suspect that the bladder cancers themselves are already more numerous than normal. The next step, therefore, is to use as the denominator "all cancer deaths except those from respiratory cancer and bladder cancer." When we do this, the resulting S.P.M.R. is 130, rather than 128, so that removing the bladder cancers has indeed had the effect of removing the "dilution" of the denominator. However, the change is quite small.

At the end of all these calculations, it seems that a figure of approximately 130 is likely to be fairly close to the "truth," lying midway between the original S.M.R. of 122 and the all-cause S.P.M.R. of 147.

As a matter of interest, the same set of calculations can be carried out for respiratory cancer. When the denominator "all cancer deaths except those from lung and bladder cancer" is used, the S.P.M.R. is 93, again somewhere between the original S.M.R. of 87 and the all-cause S.P.M.R. of 105.

5. Where consistency (reproducibility) is weak because there is only one study. Example: roe "poppers."

There are frequently situations where an unusual type of job is suspected of causing disease. For example, "popping" of herring roe is an occupation that is probably unique to British Columbia. If workers report symptoms in their hands and arms, it may be decided that a study needs to be done to identify the problem and see if it is in fact increased by this occupation.

But if an association is found between the job and the syndrome of repetitive strain injury, how can we overcome the problem posed by the absence of any other studies in other parts of the world with which we can demonstrate the criterion of consistency?

There are at least two ways of dealing with this situation:

- If the study is strong enough in other criteria, it may be adequate as a basis for decision making, even though there are no other such studies.

  For example, there may be a high relative risk (strength of association); it may be statistically highly significant; and there may be a dose-response relationship in that workers using a very stressful technique may show a higher frequency of disease than those using a less stressful technique. Further, there may clearly be specificity, with all or most of the workers complaining of a single specific type of problem, not a broad mix of various aches and pains.

  Finally, coherence (biological plausibility) may be seen in the fact that the same types of signs and symptoms occur in other jobs involving similar movements of the hands and arms. If this were so, it would support the idea that this study of roe poppers is not a fluke, but rather what would be expected on the basis of other studies.

- The other option is to carry out a second study in a subsequent season. The same study design, tests, etc., can be used, but possibly a different group of employees.

  This option is potentially expensive, and would delay decisions being made on compensation issues. On the other hand, the study might be worth doing again anyway, because the results of the first study may indicate a need for

improvement in the definition of a “case,” the type of test used, etc. Further, a second study may help not only to demonstrate reproducibility but also to define more precisely the criteria for deciding whether any individual claim should be accepted or rejected.

6. A case-control study of nasal cancer in wood-workers.

In a case-control study, the investigation begins with a group of individuals who are suffering from the disease of interest. Earlier studies in different parts of the world had shown that people who are exposed to large amounts of dust from hardwood, such as in furniture making, are at an increased risk of cancer within the nose and the nasal sinuses. A few years ago, a study done in Washington state sought to answer the question whether persons exposed to softwood dust also had an increase in this type of cancer.

Twenty-seven cases were identified from the records of the local cancer registry. For each case, two controls of the same age and sex were obtained from the general population by a telephone technique called random digit dialing.

A detailed occupational history was obtained for each person. Smoking, alcohol consumption, and other life-style factors were also recorded. Seven of the cancer cases had a history of working in wood dust; in each case, it was softwood dust in logging operations or construction. None had worked in furniture making. The estimated relative risk was 2.4 (2.350 to be exact). Note that in a case-control study the determination of relative risk is not made by simply comparing the frequency of an exposure history in the cases and controls. Rather, it involves calculating “cross-products,” as illustrated in table *(a).*

(a)

		Nasal	Cancer?	
		Yes	**No**	**Total**
Ever worked in wood industry?	**Yes**	7	14	21
	No	20	94	114
Total		27	108	135

Odds Ratio by “cross-products”

(7 x 94)/(20 x 14) = 2.350

(b)

		Nasal	Cancer?		
		Yes	No	Total	per 100,000
Ever worked in wood industry?	**Yes**	7	14,000	14,007	50.0
	No	20	94,000	94,020	21.3
Total		27	108,000	108,027	

Relative Risk

50.0/21.3 = 2.347

The cross-products of the "2 x 2 table" gives (7 x 94)/(20 x 14), for an estimate of 2.347.

This is an estimate rather than an exact measurement, as in the case of a cohort study, because the "No" column represents only a *sample* of the normal population. Furthermore, the cross-products method is based on the assumption that the number of cases is so small compared to the total population that it can be ignored.

To illustrate these points, we can multiply the numbers under the "No" heading by 1,000, as shown in Table *(b)*, and then work out the relative risk in the usual cohort way by comparing the *rate* of cancer in the exposed and unexposed population. When this is done, a relative risk (S.M.R.) of 2.35 is again obtained. The same result is obtained if we multiply the figures by 10,000 or 100,000 instead of 1,000. (See also Example 12.)

7. A nested case-control study of mesothelioma in asbestos workers.

Possible differences in the frequency of a powerful confounding variable can cause uncertainty about whether findings of an elevated cancer risk are distorted. Probably the most frequent use of the nested case-control study is to remove this uncertainty.

In Example 3 topside coke-oven workers were found to have a much higher risk of lung cancer than other workers. It might be argued that perhaps this was actually due to a higher proportion of heavy smokers in this group. By finding out the smoking habits of the topside workers and comparing them with a matched sample of a similar number of workers from the rest of the cohort study, this question can be answered at much less cost than by trying to get detailed smoking information from all the thousands of workers who make up the cohort.

Another use of this type of study is in detecting a small problem that might otherwise be missed. In a large British study, a group of asbestos workers were followed up in a cohort study. Follow-up took place over approximately 40 years, during which there were over 1,600 deaths. The initial analysis revealed no particularly elevated risk for respiratory cancer (S.M.R. of 1.08). However, it was noted that according to plant records, there had been a brief period during which the plant used a form of asbestos called crocidolite. This has a strong tendency to cause a rare tumor of the lung lining called mesothelioma. When the mortality records were examined, it was found that there had been 10 cases of mesothelioma. These 10 cases were each matched with 4 controls from the same work force, according to sex, year of starting work in the factory, year of birth, etc.

Of the 10 cases of mesothelioma, 8 had had definite exposure to crocidolite. In the 40 controls the corresponding figure was 3, leading to an estimated relative risk of 49 — a very high figure.

8. Attributable risk. Example: Bladder cancer in aluminum smelter workers.

For many years, the "balance of possibilities" guideline in compensation decisions has meant in effect that the relative risk of a disease being due to a certain occupation must be at least 2 for the worker to get the benefit of the doubt. This has often been a *qualitative* rather than quantitative judgment. However, with the increasing availability of actual numerical estimates of relative risk from epidemiological studies of occupational disease, this approach is being refined.

If enough information is available on the total "dose" of a toxic agent — in terms of either duration of exposure or intensity — a system can be developed that combines these factors. Decisions on compensation can be individualized better than if they have to rely simply on whether an overall relative risk for a certain occupation is greater than or less than 2.

For example, in a study of bladder cancer in workers in aluminum smelter potrooms, it was found that the frequency of bladder cancer was related quite closely to the product of "average dose *times* years of exposure," with dose being the concentration of Benzo-a-Pyrene in the urine of the workers. It was then possible to estimate a dose-response equation with which the cut-off point for compensation could be based on an individual's risk, rather than on the overall risk for the whole group of workers.

This approach promises to make compensation decisions more sensitive to individual variation in exposure, and thus increase the fairness of the process.

9. The risk of picking the wrong control group.

To estimate the relative risk for a group of workers in an occupation suspected of being toxic, we can use as our control group either the general population or a group of workers who appear to be similar but are not exposed to the toxic agent. The latter is intuitively more attractive, since it should not only get rid of the healthy worker effect but might also remove some other confounding variables.

In practice, however, there may be problems. The main one is the instability of the *expected* numbers due to relatively small size of the control group compared to the much larger general population. The number of expected cases may therefore fluctuate widely from year to year.

A second problem, which fortunately does not occur often, but which is more serious than the random error due to small numbers, is *systematic* error or bias. An example of this occurred in a study of workers in an industry who were exposed to a known carcinogen. A group of unexposed workers was used as the control group. Surprisingly, compared to the control group, the *exposed* workers were found to have very *low* cancer rates. However, comparisons with the general population were also being carried out in the same study, and it quickly became apparent that the *unexposed* group was experiencing an abnormally *high* rate of certain types of cancer, possibly because of airborne dust that had not previously been suspected of being carcinogenic.

The *expected* cancer rates in the exposed workers were therefore much *higher* than they should have been, resulting in an abnormally low ratio of observed to expected.

In this case, the inappropriateness of the first control group was soon realized, and no erroneous conclusions were drawn about the first group of "exposed" workers. However, this example shows that in any ratio of disease frequencies, both groups — exposed and control — must be appropriately selected, and, if possible, more than one control group should be used.

10. Cross-sectional study. Example: vibration white finger disease in fallers.

Most of the examples in this protocol are based on death rates from fatal cancer of various organs. This is partly a reflection of the fact that more serious diseases are studied more often, and also of the fact that for many years fatal diseases have been much *easier* to study than non-fatal problems. This is because of more reliable records — death registration is a compulsory matter, and a death is less likely than a chronic, non-fatal disease to be counted more than once.

The characteristic feature of cross-sectional studies is that the physical abnormality (or complaint) is measured in a group of living persons, and the degree of exposure can be assessed at the same time. The main theoretical difficulty with these studies is that there is no way of knowing whether the "cause" actually preceded the disease (the criterion of temporal relationship). However, this is usually not a major problem once the control group has been studied.

Vibration white finger disease in fallers provides an example of a disorder that could not be analyzed by mortality statistics, and which needed a specially designed study to define and then identify "cases." The cases could then be compared to a group of normal individuals to see what factors influence the occurrence and severity of the white finger disorder.

In a B.C. study, it was found that duration of employment as a faller was an important factor, and that the problem could not be blamed on differences in smoking (a powerful vasoconstrictor) and other personal habits or characteristics. One important and useful feature of this study was its demonstration that the symptoms of tingling, numbness, pallor, etc., in the fingers could also be elicited by an *objective* test involving the deliberate cooling of the hand, followed by a measurement of the rate at which the fingers warmed up.

This ability to demonstrate an objective, measurable change makes diagnostic decisions much easier than if all the manifestations of the disease are subjective — such "unprovable" things as pain, discomfort, etc.

11. Case-reports and clusters. Example: a chance cluster of cancers.

In the medical literature a *case report* is a very brief article that simply reports the occurrence of one or more unusual cases. Case reports often lead to properly designed epidemiological studies that reveal a cause-and-effect relationship in a workplace. On the other hand, the observations sometimes turn out to be nothing more than a coincidence, and an epidemiological study reveals that no excess risk applies.

An example of a very useful case report was one regarding three cases of a rare liver tumor called angiosarcoma. The fact that the tumor was normally so rare, combined with the fact that all three of the victims came from the same chemical plant, drew attention to the issue. A subsequent epidemiological study showed that the men involved had been exposed to vinyl chloride monomer in high concentrations for several years. Epidemiological studies confirmed that the relative risk for liver cancer was very high in men who were exposed to vinyl chloride. There was also an excess of cancers of the brain and lung, but these were not very large. In any event, regulations

governing exposure to vinyl chloride were changed. Exposure to this previously unsuspected toxic substance was reduced to the point where excess cancers in workers have now disappeared.

Clusters are similar to case reports in that they are typically a small number of cases of a certain disease that have occurred within a small geographical area over a relatively short period of time. As with case reports, the identification of clusters has, on occasion, led to the uncovering of a clear-cut occupational relationship to disease increase.

Indeed, case reports are usually a form of cluster that has been observed by a physician and that then forms the basis for a contribution to a medical journal. In recent years, the term *cluster* seems to have been used most often by the media, usually involving situations such as the occurrence of three or four cases of a disease within a few weeks of each other where none had been seen for perhaps 10 years before. If this occurs in a workplace where a new process has recently been introduced, there is the natural suspicion that the sudden appearance of illness in several workers may be related to the new environmental problems posed by the new work process.

An example of a cluster that attracted a great deal of media attention but which was later found not to be occupationally related occurred in a police building in British Columbia. Several cases of cancer were noted in people who were working in the building, or who had worked in it until shortly before their cancer appeared. Although the occupations in the building were mainly secretarial in nature, there was concern about possible indoor air pollution, and also about the presence of an unusual amount of equipment that could be generating electromagnetic fields.

The investigation of this situation followed two parallel routes. First, air and dust samples were taken from various rooms and analyzed for known carcinogens. They were also added to preparations of cells to see if the substances had any mutagenic or carcinogenic effects on the cells. The second approach was to obtain a complete list of individuals who had ever worked in the building. The individuals were traced to see whether they were alive or dead, and if dead, to find out what they had died from. Those who were still living were asked to complete a questionnaire with particular emphasis on whether or not they had ever been diagnosed with any form of cancer.

The results of the environmental sampling were entirely negative. No mutagenic or carcinogenic substances were found in the environment, and the amount of electromagnetic radiation was small.

Initially seven cases of cancer were reported, six of which were among full-time regular staff. Contract and part-time staff were difficult to trace, so the study concentrated on the regular staff members, among whom 174 individuals had spent time in the building. The six previously reported cancers were confirmed and two other cases of cancer were found in the detailed follow-up.

The first point that was noted about the cancers was that all eight were of different organs. Although specificity is not a very strong criterion of causality, this clearly did not fit with it. The next most obvious criterion that was not met was the amount of time spent in the building before the diagnosis of cancer. One case had worked in the building for 9 years, but the other seven cases had spent less than 5 years in the building before their cancer was diagnosed. The fact that the great majority of cancers take at least 10 to 15 years to develop after exposure begins was therefore a second argument against there being a causal relationship between the building environment and the cases of cancer.

When a traditional epidemiological analysis was undertaken, in which the number of cancers observed was compared with the number expected given the age and sex distribution of the 174 individuals, the relative risk was approximately 2.5. However, if a minimum 10-year latency was assumed, the number of observed cases dropped to 2 and the expected cases to 1.75, for an S.M.R. of 1.12. In other words, provided that the usual minimum 10-year latency period was applied, there was very little difference between the number of cancers observed and the number expected.

Combined with the failure to find any sort of known carcinogenic substance in the environment, the conclusion was that this was a coincidental occurrence of several cases of cancer in an unusually small geographical area and short period of time.

This example emphasizes the difficulty in dealing with chance clusters of diseases such as cancer. As a useful analogy, consider the probability that the first four cards to be dealt from a pack of cards will all be aces. In an emotionally charged poker game, this might well be the precipitating cause of violence. However, the fact is that such a combination is bound to occur by chance sooner or later. The exact probability is quite easy to work out: 52 x 51 x 50 x 49, or once in every 6.5 million deals of a standard pack of cards.

When one considers that approximately 20% of all deaths are due to cancer, it is obvious that in a country the size of Canada, there is a strong likelihood that in any group of 50 or 100 people an apparent cluster of cancer diagnoses will occur once every few years. However, since this type of cluster is occasionally an early warning signal of a hazardous workplace, each cluster must be investigated, unless there is already in place a routine mortality surveillance program that can provide evidence of whether or not there is a genuine increase in occupational disease.

12. Small numbers can sometimes give impressive results. Example: infertility.

Studies of occupational disease can often be frustrating, because the ability to draw a firm conclusion is weakened by the small numbers in the analysis even though the size of the groups being studied is very large. For example, there may be only 10 observed cases of a potential disease in the exposed group compared to 7 expected, even though tens of thousands of workers are being studied.

Where the effect is very dramatic, however, the difference (relative risk) may be so large that a cause-and-effect relationship is obvious, even with very small numbers.

For example, a few years ago some workers in a particular area of a chemical plant mentioned to the company doctor that they seemed to be unable to have children. Their complaints were investigated, and it was found that out of the 22 men in this department, 11 had abnormally low sperm counts.

As a first step, the information on the 22 workers was divided according to whether or not they had abnormal fertility (abnormally low sperm count), and then subdivided according to duration of employment in this part of the plant. The results are shown below in Table *(a)*, a “2 x 2 table.” This is therefore essentially a simple case-control study, since the *initial* step was to identify the individuals on the basis of whether or not they had a disease, rather than by their exposure status.

(a)

		ABNORMAL FERTILITY?		
		Yes	**No**	**Total**
Exposure over 3 months?	**Yes**	10	1	11
	No	1	10	11
Total		11	11	22

Odds Ratio by “cross-products”

(10 x 10)/(1 x 1) = 100

Using the standard “cross-products” method of estimating the relative risk in a case-control study (described in Example 6), the relative risk of infertility in men employed for more than three months was found to be approximately 100 — a very high strength of association.

This example not only illustrates a very large relative risk in spite of small numbers but, again, as in Example 6, provides another good illustration of why the relative risk cannot be calculated by the same method as in the usual cohort study.

In a cohort study, the rate of disease per 100, per 1,000, etc., is calculated horizontally in the table by dividing the number of cases of disease in the exposed group by the total number of people in the exposed group. The same process is followed for the unexposed group, and the two rates are compared, giving a ratio that we call the relative risk.

The crucial point here is that the rate for the unexposed group is assumed to be the rate in the normal population. If, however, we are looking at just a *sample* of such people (in this case, those with less than three months' exposure in a particular department), the estimate of the normal rate may be quite inaccurate. In this sense, the figures for the unexposed group in a case-control study are like those in a public-opinion poll — they are based on a small sample of the general population.

Furthermore, the "cross-products" method of estimating the relative risk can be quite accurate *provided that* the prevalence of the disease is low in the general population. If it is high (say, more than 1 or 2%), serious inaccuracies can result.

This point is illustrated in the following two examples.

(b)

		ABNORMAL FERTILITY?			Rate per 100,000
		Yes	**No**	**Total**	
Exposure over 3 months?	**Yes**	10	1,000	1,010	990.1
	No	1	10,000	10,001	10.0
Total		11	11,000	11,011	

Relative Risk

990.1/10.0 = 99.01

(c)

		ABNORMAL FERTILITY?			Rate per 100,000
		Yes	**No**	**Total**	
Exposure over 3 months?	**Yes**	10	1	11	90.9
	No	1	10	11	9.1
Total		11	11	22	

Wrong!!

"Relative Risk" arithmetic is not appropriate

90.9/8.1 = 10

- In Table *(b)* is the calculation based on the ratio being *truly* 1 in 11 in the general population. The "No abnormal fertility" numbers are multiplied by 1,000, so that the analysis is now based on the "population" — say, the total 11,011 men in the town, most of whom have never worked at the plant, let alone the department. The *normal prevalence* of abnormal fertility is thus 11 in 11,011, or 0.10%. With such a low prevalence, the cross-products figure of 100 that we saw earlier should have been quite accurate. Indeed, the ratio of the two rates (over three months versus under three months) works out to just over 99.

- In contrast, the example in Table *(c)* shows the result of using the left-to-right method of calculating rates that we would use in cohort studies. In this small group of workers, the calculation leads to an apparent relative risk of only 10. Admittedly, this is high, but it is much lower than the true relative risk of about 100.

This example illustrates two points:

- First, if the toxic agent is very powerful, even small numbers will give a very impressive relative risk.

- Second, in a case-control study, the estimation of relative risk cannot be done by the usual method for cohort studies — namely, left-to-right calculation of totals, then rates, followed by the division of rates to give a ratio.

Format of Reports for Regulation Review

Date: January 14, 1993

A. Introduction

As per resolution of the R.A.C. meeting of December 15/16, 1992, Rex Eaton, Jim Halliday and John Weir met on January 5, 1993, to develop a format for reports from the Specialty Subcommittees, Working Groups and the Regulation Advisory Committee.

Consensus decisions made at the meeting addressed the format of reports, the meaning of the term consensus and the means of assembling binders representing the historical record of committees. (The group also reviewed a document from the Secretariat summarizing the format of draft regulations.)

B. Format of Reports

It was agreed that the format of the report include: Signatures of all members of the committee or group, Table of Contents, Introduction, Body of the Report, and Appendices.

1. **Signatures**

   Reports should be signed off by all members of the committee as accurately reflecting the position the committee reached. Where a member does not wish to sign they would be expected to submit an explanation of their disagreement with the report.

2. **Introduction**

   The Introduction should address

   - Outline of the mandate of the committee, including the general rationale for the subject matter the committee was expected to address
   - How the outcome of the committee's work fits with core and process regulations
   - Make-up of committee

- Resources used by the committee to reach conclusions (e.g. legislation from other jurisdictions, particular scientific and technical documents, consultants, etc.)

- Broad outline of areas of consensus achieved

- Broad outline of issues left outstanding

- Broad outline of issues referred to other committees to solve and the identity of those committees.

3. **Body of Report**

The body of the report should be organized under topics with an explanation of what the committee was trying to achieve, what they achieved, where consensus was reached and what was intended by that consensus.

Where the committee had specific concerns these should be addressed fully as to what was intended and what was not intended.

The rationale for all regulatory recommendations should be explained. The statement of rationale would typically follow the regulatory proposal except where it would be beneficial to provide that information first.

Areas where consensus was not reached should be described and the positions of the parties spelled out. (Note: Any detailed minority reports or letters of concern would be attached to the report as Appendices.)

To facilitate an understanding of the recommendations within each topic area it was agreed that information should be assembled under the headings of

(1) Consensus Recommendation

(2) Majority Recommendation (where one or more individuals dissent)

(3) Minority Position (of the one or more individuals who dissented).

It was agreed that a minority position, even if held by only one person, should appear in the report. The dissenter(s) should be prepared to provide a detailed explanation of his or her dissent, with the assistance of the Secretariat if requested.

Where the parties at the table, as parties, were unable to come to agreement this would be noted and the position of each of the parties would be recorded under the heading: Separate Recommendations.

All items for further work should be highlighted for easy reference.

It was agreed that the objective of each committee is to assemble recommendations for regulatory proposals rather than scripted regulations. In recognition that in some cases, wording may be of particular importance to the committee in terms of scripting regulations these should be highlighted using quotation marks.

C. The Meaning of the Term Consensus

The term "consensus" means the agreement of all persons in the committee.

Where a consensus is not achieved and a majority of members supports a recommendation, that should be reported as a "majority recommendation." The minority perspective will be reported as a "minority position."

It was recognized that in some cases a consensus position may be conditional on an agreement elsewhere in the process. This would be reported as a "conditional consensus."

The term "operating consensus" would not appear in a final report. It is recognized to be a useful process term and would be used in process documents leading to a final report with the meaning that an interim consensus has been established subject to revisit dependent on the outcome of further discussions.

D. Historical Record of Committee Activity

It was agreed that historical records should be assembled for each committee covering

(1) Table of Contents,

(2) Introductory foreword from the chairman and coordinator explaining in general terms the review process and where the committee's activities fit into the process (a flow chart could be included),

(3) The text of the final report of the committee,

(4) The minutes of all the meetings of the committee,

(5) Brief biographies of the members of the committee,

(6) Any truly important working documents that may have aided in achieving consensus,

(7) A bibliography of any materials that may be important to highlight,

(8) A copy of the draft regulations that went to public hearing, pertaining to that committee's work,

(9) The terms of reference of the committee,

(10) A copy of the final gazetted regulations, and

(11) Comments on the committee's report by other designated committees.

E. Drafts for Public Hearings

Rex provided a copy of the Secretariat guidance document on format of draft regulations to go to public hearings upon which there was consensus. A copy is attached as Appendix 1.

APPENDIX 1: FORMAT OF DRAFT REGULATIONS TO GO TO PUBLIC HEARINGS

1. General

Formatting shall incorporate the recommendations of the Working Group on Regulation Format. Regulations will be organized in Parts. Parts will be broken into Sections.

2. Numbering

All numbering to be sequential within Parts. Individual regulations to be numbered in the following general pattern:

Regulation 1.1(1)(a) where

1 is the Part
1.1 is the regulation with clause (1) and subclause (a)

3. Use of Explanatory Notes

- Each Part will be provided with a cover page which provides general explanation of the process and changes from existing regulations. Topics to cover are:
  - Notes on development/review by subcommittee/R.A.C./G.C.R.R.
  - Change in numbering system from old regulations
  - Major area(s) of substantive change
- Throughout the draft regulations explanatory notes will be added where necessary to provide an understanding of intent/rationale, and the location of new regulations in the current regulations book.
- It will be useful to add a list of cross references from old to new regulations at the end.

4. Page Layout

All Sections are to be provided with headings.

All Regulations are to be provided with call-out terms to the left of text of regulation.

5. Upper/Lower Case, Font Size, Italics, Boldface

Font Name:	C.G. Times
Title of Part:	Upper case, boldface, font size 15
Section Headings:	Upper/lower case, boldface, font size 15
Regulation Call-out:	Upper/lower case, boldface, font size 10
Italics:	Use italics only for Terms being defined, and Reference to statute, other regulations, codes.

6. Punctuation

All regulations which read as a sentence with a series of numbered or lettered clauses shall be punctuated with commas after each clause (except for the next to last clause which shall end in the format ", and"). No colon shall be used at the end of the introductory phrase.

7. Location of Tables/Diagrams

Wherever possible, these shall be located in the text.

Silviculture Subcommittee — Terms of Reference

Date: December 16, 1992

These terms of reference state the mission, structure, protocol and responsibilities of the Silviculture Subcommittee of the Governors' Committee for Regulation Review established by the governors of the Workers' Compensation Board of British Columbia.

Mission Statement

The mission of the Silviculture Subcommittee is to assist the governors with the development of regulations for accommodation, sanitary and safety conditions in and around silviculture camps.

The Subcommittee shall work within the context of, and be guided by the document entitled, *Review and Development of Occupational Safety and Health Regulations* adopted by the governors on January 7, 1992.

The Subcommittee shall observe the principles of the regulation review process in carrying out its mission; for example:

- It shall be respectful of the interests of workers, employers, the community and the W.C.B.
- Its proceedings shall be open and participative
- It shall respect consensus and involve the parties with the most direct interest in outcomes.

Structure

1. The Governors' Committee for Regulation Review shall appoint three persons representative of workers, three persons representative of employers, and two persons seconded through the Secretariat who will provide advice, guidance and administrative support. The Governors' Committee shall consult with worker and employer groups in the selection of worker

and employer representatives. In addition, the Governors' Committee shall ask for a representative from each of the Ministry of Health and of Forests to participate as advisors.

2. The Subcommittee shall be chaired by one of the persons appointed through the Secretariat. In that person's absence the second Secretariat appointee shall serve as chair.

3. The Subcommittee shall report to the Governors' Committee for Regulation Review which, in consultation with the Regulation Advisory Committee, shall review any reports and recommendations issued by the Subcommittee.

4. The Subcommittee may request the presence at meetings of professional and expert persons considered necessary by the Subcommittee.

5. The Secretariat for Regulation Review shall provide administrative and advisory services to the Subcommittee. The chair of the Subcommittee shall consult with the coordinator of Regulation Review on matters which involve the expenditure of monies in Subcommittee activity; for example, arrangement of meetings at hotels, Subcommittee travel and persons whose presence is requested at meetings where that presence involves expenditure of monies.

Protocol

1. Where practicable, the agenda and any supporting materials shall be delivered to each member of the Subcommittee by the Secretariat for Regulation Review, not later than seven days prior to the date of the meeting.

2. The preferred method of decision making shall be through consensus.

3. Summaries shall be kept of each meeting of the Subcommittee and, after being signed and initialled by the chair of the Subcommittee for the meeting, shall be forwarded to the Secretariat for Regulation Review for retention.

4. The chairman of the governors and his designate are the official spokespersons for the Subcommittee.

5. Members shall support any consensus or decision reached by the Subcommittee in which they have joined. Minority reports shall be included in any report of the Subcommittee at the request of any person(s) holding a minority opinion.

6. Persons seconded to the Secretariat for the purpose of participation on the subcommittee shall work within the terms of the document "Guidelines for Persons Seconded to the Secretariat."

7. The Subcommittee shall work within a time frame of January 31, 1993, to April 30, 1993, for proposals for regulations.

Responsibilities

1. The Subcommittee shall develop proposals for submission to the Governors' Committee for Regulation Review.

2. The Subcommittee shall be guided by the perspective that effective regulations are those which:

    - Are achieved through participation and consensus
    - Clearly address workplace hazards
    - Define responsibilities and accountability
    - Clearly state the criteria for compliance
    - Are in plain language, technically competent and easily understood
    - Provide a mechanism for ongoing review and update in areas subject to changing knowledge and technology
    - Affect workplace activity and conditions only to the extent necessary to address hazards
    - Address the diverse character of workplaces, and
    - Are compatible with, and do not overlap related regulations.

3. The Subcommittee shall, in its deliberations, be cognizant of the documents:

    - Proposed Silviculture Camp Regulation (developed 1991 — W.C.B.)
    - Schedule D — Camp Standards — Silviculture Contract (Ministry of Forests form FS776 HSI90/9)
    - Industrial Health and Safety Regulations
    - Occupational Environment Regulations
    - Public Forum on Health and Safety Regulation Review
    - Policy and Procedure Manual of the O.S.H. Division
    - Coroners' recommendations relative to the Subcommittee's work

4. The Subcommittee shall ensure the following issues are addressed and reported on:

    - Notification of Project for silviculture work
    - Accommodation, sanitary conditions and facilities for silviculture camps

- Miscellaneous safety conditions in and around camps related; for example, to worker-check, work around snags (Any Subcommittee recommendations on work around snags shall be referred to the G.C.R.R./R.A.C. for possible referral to a Subcommittee contemplated on Forestry Operations).

NOTE: a) The Subcommittee will be guided by the perspective that the regulatory proposals on silviculture camps should be fashioned in a manner to be generalizable to all short-term camps, whether they be in silviculture or other sectors.

b) The issue of regulations related to protection from wildlife will be addressed by the Regulation Advisory Committee. The measures for the protection of workers from pesticides will be addressed by the Occupational Hygiene Subcommittee; those related to muskuloskeletal injuries, by the Ergonomics Subcommittee.

5. Notwithstanding clause 4, the Subcommittee may offer recommendations of a general nature on regulatory matters related to the health and safety of workers in the silviculture sector.

6. The final report of the Subcommittee shall provide proposals for regulations in as specific a manner as practicable, covering matters identified in clauses 4 and 5. The drafting of actual regulations will be undertaken by the Secretariat at the direction of the Governors' Committee on Regulation Review. It is the intent of the process to reconvene the Subcommittee to provide the opportunity for review of draft regulations and for comment to the Governors' Committee on Regulation Review.

7. In carrying out its mission and its responsibilities, the Subcommittee shall, at all times, be subject to the *Workers Compensation Act* and the bylaws and resolutions of the governors of the Workers' Compensation Board.

WORKERS' COMPENSATION
REPORTER

Underwater Diving Subcommittee — Terms of Reference

Date: **February 23, 1993**

These terms of reference state the mission, structure, protocol and responsibilities of the Underwater Diving Subcommittee of the Governors' Committee for Regulation Review established by the governors of the Workers' Compensation Board of British Columbia.

Mission Statement

The mission of the Underwater Diving Subcommittee is to assist the governors with the development of regulations on underwater diving.

The Subcommittee shall work within the context of, and be guided by the document entitled, *Review and Development of Occupational Safety and Health Regulations* adopted by the governors on January 7, 1992.

The Subcommittee shall observe the principles of the regulation review process in carrying out its mission; for example:

- It shall be respectful of the interests of workers, employers, the community and the W.C.B.
- Its proceedings shall be open and participative
- It shall respect consensus and involve the parties with the most direct interest in outcomes.

Structure

1. The Governors' Committee for Regulation Review shall appoint three persons representative of workers, three persons representative of employers, and two persons seconded through the Secretariat who will provide advice, guidance and administrative support. The Governors' Committee shall consult with worker and employer groups in the selection of worker and employer representatives.

2. The Subcommittee shall be chaired by one of the persons appointed through the Secretariat. In that person's absence the second Secretariat appointee shall serve as chair.

3. The Subcommittee shall report to the Governors' Committee for Regulation Review which, in consultation with the Regulation Advisory Committee, shall review any reports and recommendations issued by the Subcommittee.

4. The Subcommittee may request the presence at meetings of professional and expert persons considered necessary by the Subcommittee.

5. The Secretariat for Regulation Review shall provide administrative and advisory services to the Subcommittee. The chair of the Subcommittee shall consult with the coordinator of Regulation Review on matters which involve the expenditure of monies in Subcommittee activity; for example, arrangement of meetings at hotels, Subcommittee travel and persons whose presence is requested at meetings where that presence involves expenditure of monies.

Protocol

1. Where practicable, the agenda and any supporting materials shall be delivered to each member of the Subcommittee by the Secretariat for Regulation Review, not later than seven days prior to the date of the meeting.

2. The preferred method of decision making shall be through consensus.

3. Summaries shall be kept of each meeting of the Subcommittee and, after being signed and initialled by the chair of the Subcommittee for the meeting, shall be forwarded to the Secretariat for Regulation Review for retention.

4. The chairman of the governors and his designate are the official spokespersons for the Subcommittee.

5. Members shall support any consensus or decision reached by the Subcommittee in which they have joined. Minority reports shall be included in any report of the Subcommittee at the request of any person(s) holding a minority opinion.

6. Persons seconded to the Secretariat for the purpose of participation on the subcommittee shall work within the terms of the document "Guidelines for Persons Seconded to the Secretariat."

7. The Subcommittee shall work within a time frame of May 1, 1993, to July 31, 1993.

Responsibilities

1. The Subcommittee shall develop proposals for submission to the Governors' Committee for Regulation Review on underwater diving regulations.

2. The Subcommittee shall be guided by the perspective that effective regulations are those which:

   - Are achieved through participation and consensus
   - Clearly address workplace hazards
   - Define responsibilities and accountability
   - Clearly state the criteria for compliance
   - Are in plain language, technically competent and easily understood
   - Provide a mechanism for ongoing review and update in areas subject to changing knowledge and technology
   - Affect workplace activity and conditions only to the extent necessary to address hazards
   - Address the diverse character of workplaces, and
   - Are compatible with, and do not overlap related regulations.

3. The Subcommittee shall, in its deliberations, be cognizant of the documents:

   - Industrial Health and Safety Regulations
   - Public Forum on Health and Safety Regulation Review
   - O.S.H. Administrative Inventory
   - Policy and Procedure Manual of the O.S.H. Division
   - Relevant reports from other Subcommittees (e.g. Fishing Safety Subcommittee and Equipment Safety Subcommittee)
   - Coroners' recommendations relative to the Subcommittee's work
   - Safety and design standards and codes currently in use.

4. The Subcommittee shall ensure the following matter is addressed and reported on:

   - Regulations on underwater diving (Section 11 of I.H. and S. Regulations) applicable to commercial diving, research diving, diving at fish farms and seafood harvesting.

5. Notwithstanding clause 4, the Subcommittee may offer recommendations of a general nature on regulatory matters related to underwater diving.

6. The final report of the Subcommittee shall provide proposals for regulations in as specific a manner as practicable, covering matters identified in clauses 4 and 5, and in a format established by the Regulation Advisory Committee. The drafting of actual regulations will be undertaken by the Secretariat at the direction of the Governors' Committee on Regulation Review. It is the intent of the process to reconvene the Subcommittee to provide the opportunity for review of draft regulations and for comment to the Governors' Committee on Regulation Review.

7. In carrying out its mission and performing its responsibilities, the Subcommittee shall, at all times, be subject to the *Workers Compensation Act* and the bylaws and resolutions of the governors of the Workers' Compensation Board.

Land Transportation and Traffic Control Subcommittee — Terms of Reference

Date: **February 23, 1993**

These terms of reference state the mission, structure, protocol and responsibilities of the Land Transportation and Traffic Control Subcommittee of the Governors' Committee for Regulation Review established by the governors of the Workers' Compensation Board of British Columbia.

Mission Statement

The mission of the Land Transportation and Traffic Control Subcommittee is to assist the governors with the development of regulations for the safety of workers being transported on land, those involved with traffic control and workers working on or in proximity to travelled roads.

The Subcommittee shall work within the context of, and be guided by the document entitled, *Review and Development of Occupational Safety and Health Regulations* adopted by the governors on January 7, 1992.

The Subcommittee shall observe the principles of the regulation review process in carrying out its mission; for example:

- It shall be respectful of the interests of workers, employers, the community and the W.C.B.
- Its proceedings shall be open and participative
- It shall respect consensus and involve the parties with the most direct interest in outcomes.

Structure

1. The Governors' Committee for Regulation Review shall appoint three persons representative of workers, three persons representative of employers, and two persons seconded through the Secretariat who will provide

advice, guidance and administrative support. The Governors' Committee shall consult with worker and employer groups in the selection of worker and employer representatives. In addition, the Governors' Committee shall ask for a representative from each of the Ministry of Transportation and Highways, the Motor Vehicles Branch of the Ministry of the Attorney General and the Employment Standards Branch of the Ministry of Labour and Consumer Services, to participate as advisors.

2. The Subcommittee shall be chaired by one of the persons appointed through the Secretariat. In that person's absence the second Secretariat appointee shall serve as chair.

3. The Subcommittee shall report to the Governors' Committee for Regulation Review which, in consultation with the Regulation Advisory Committee, shall review any reports and recommendations issued by the Subcommittee.

4. The Subcommittee may request the presence at meetings of professional and expert persons considered necessary by the Subcommittee.

5. The Secretariat for Regulation Review shall provide administrative and advisory services to the Subcommittee. The chair of the Subcommittee shall consult with the coordinator of Regulation Review on matters which involve the expenditure of monies in Subcommittee activity; for example, arrangement of meetings at hotels, Subcommittee travel and persons whose presence is requested at meetings where that presence involves expenditure of monies.

Protocol

1. Where practicable, the agenda and any supporting materials shall be delivered to each member of the Subcommittee by the Secretariat for Regulation Review, not later than seven days prior to the date of the meeting.

2. The preferred method of decision making shall be through consensus.

3. Summaries shall be kept of each meeting of the Subcommittee and, after being signed and initialled by the chair of the Subcommittee for the meeting, shall be forwarded to the Secretariat for Regulation Review for retention.

4. The chairman of the governors and his designate are the official spokespersons for the Subcommittee.

5. Members shall support any consensus or decision reached by the Subcommittee in which they have joined. Minority reports shall be included in any report of the Subcommittee at the request of any person(s) holding a minority opinion.

6. Persons seconded to the Secretariat for the purpose of participation on the subcommittee shall work within the terms of the document "Guidelines for Persons Seconded to the Secretariat."

7. The Subcommittee shall work within a time frame of June 1, 1993, to August 31, 1993.

Responsibilities

1. The Subcommittee shall develop proposals for submission to the Governors' Committee for Regulation Review on land transportation and traffic control regulations.

2. The Subcommittee shall be guided by the perspective that effective regulations are those which:

   - Are achieved through participation and consensus,
   - Clearly address workplace hazards,
   - Define responsibilities and accountability,
   - Clearly state the criteria for compliance,
   - Are in plain language, technically competent and easily understood,
   - Provide a mechanism for ongoing review and update in areas subject to changing knowledge and technology,
   - Affect workplace activity and conditions only to the extent necessary to address hazards,
   - Address the diverse character of workplaces, and
   - Are compatible with, and do not overlap related regulations.

3. The Subcommittee shall, in its deliberations, be cognizant of the documents:

   - Industrial Health and Safety Regulations,
   - Public Forum on Health and Safety Regulation Review,
   - O.S.H. Administrative Inventory,
   - Policy and Procedure Manual of the O.S.H. Division,
   - Relevant Reports from other Subcommittees; for example, First Aid and Agriculture,
   - Coroners' recommendations relative to the Subcommittee's work,
   - Safety and design standards and codes currently in use.

4. The Subcommittee shall ensure the following matters are addressed and reported on:

   - Transportation of Workers regulations, Regulations 28.02–28.12 in the current I.H. and S. Regulations,
   - Traffic Control regulations in Section 52 of the current I.H. and S. Regulations.

     Note: The Subcommittee will be expected to review the regulatory proposals from the Agriculture Subcommittee for the transportation of workers, and proposals from the Equipment Safety Subcommittee concerning the use of small ridership vehicles such as A.T.V.'s.

   - Application of Section 6 of the I.H. and S. Regulations on motor vehicle accident reporting.

5. Notwithstanding clause 4, the Subcommittee may offer recommendations of a general nature on regulatory matters related to land transportation and traffic control of workers.

6. The final report of the Subcommittee shall provide proposals for regulations in as specific a manner as practicable, covering matters identified in clauses 4 and 5, and in a format established by the Regulation Advisory Committee. The drafting of actual regulations will be undertaken by the Secretariat at the direction of the Governors' Committee on Regulation Review. It is the intent of the process to reconvene the Subcommittee to provide the opportunity for review of draft regulations and for comment to the Governors' Committee on Regulation Review.

7. In carrying out its mission and performing its responsibilities, the Subcommittee shall, at all times, be subject to the *Workers Compensation Act* and the bylaws and resolutions of the governors of the Workers' Compensation Board.

Electrical Safety Subcommittee — Terms of Reference

Date: **February 23, 1993**

These terms of reference state the mission, structure, protocol and responsibilities of the Electrical Safety Subcommittee of the Governors' Committee for Regulation Review established by the governors of the Workers' Compensation Board of British Columbia.

Mission Statement

The mission of the Electrical Safety Subcommittee is to assist the governors with the development of regulations for work on or near electrical systems.

The Subcommittee shall work within the context of, and be guided by the document entitled, *Review and Development of Occupational Safety and Health Regulations* adopted by the governors on January 7, 1992.

The Subcommittee shall observe the principles of the regulation review process in carrying out its mission; for example:

- It shall be respectful of the interests of workers, employers, the community and the W.C.B.
- Its proceedings shall be open and participative
- It shall respect consensus and involve the parties with the most direct interest in outcomes.

The Subcommittee shall maintain liaison with the Electrical Safety Advisory Committee of B.C.

Structure

1. The Governors' Committee for Regulation Review shall appoint three persons representative of workers, three persons representative of employers, and two persons seconded through the Secretariat who will provide advice, guidance and administrative support. The Governors' Committee

shall consult with worker and employer groups in the selection of worker and employer representatives. In addition, the Governors' Committee shall ask for a representative from the Electrical Safety Branch of the Safety Engineering Services Division of the Ministry of Municipal Affairs, Recreation and Culture to participate as an adviser.

2. The Subcommittee shall be chaired by one of the persons appointed through the Secretariat. In that person's absence the second Secretariat appointee shall serve as chair.

3. The Subcommittee shall report to the Governors' Committee for Regulation Review which, in consultation with the Regulation Advisory Committee, shall review any reports and recommendations issued by the Subcommittee.

4. The Subcommittee may request the presence at meetings of professional and expert persons considered necessary by the Subcommittee.

5. The Secretariat for Regulation Review shall provide administrative and advisory services to the Subcommittee. The chair of the Subcommittee shall consult with the coordinator of Regulation Review on matters which involve the expenditure of monies in Subcommittee activity; for example, arrangement of meetings at hotels, Subcommittee travel and persons whose presence is requested at meetings where that presence involves expenditure of monies.

Protocol

1. Where practicable, the agenda and any supporting materials shall be delivered to each member of the Subcommittee by the Secretariat for Regulation Review, not later than seven days prior to the date of the meeting.

2. The preferred method of decision making shall be through consensus.

3. Summaries shall be kept of each meeting of the Subcommittee and, after being signed and initialled by the chair of the Subcommittee for the meeting, shall be forwarded to the Secretariat for Regulation Review for retention.

4. The chairman of the governors and his designate are the official spokespersons for the Subcommittee.

5. Members shall support any consensus or decision reached by the Subcommittee in which they have joined. Minority reports shall be included in any report of the Subcommittee at the request of any person(s) holding a minority opinion.

6. Persons seconded to the Secretariat for the purpose of participation on the subcommittee shall work within the terms of the document "Guidelines for Persons Seconded to the Secretariat."

7. The Subcommittee shall work within a time frame of March 1, 1993, to June 30, 1993.

Responsibilities

1. The Subcommittee shall develop proposals for submission to the Governors' Committee for Regulation Review on electrical safety regulations.

2. The Subcommittee shall be guided by the perspective that effective regulations are those which:

   - Are achieved through participation and consensus
   - Clearly address workplace hazards
   - Define responsibilities and accountability
   - Clearly state the criteria for compliance
   - Are in plain language, technically competent and easily understood
   - Provide a mechanism for ongoing review and update in areas subject to changing knowledge or technology
   - Affect workplace activity and conditions only to the extent necessary to address hazards,
   - Address the diverse character of workplaces, and
   - Are compatible with, and do not overlap related regulations.

3. The Subcommittee shall, in its deliberations, be cognizant of the documents:

   - Industrial Health and Safety Regulations,
   - Public Forum on Health and Safety Regulation Review,
   - O.S.H. Administrative Inventory,
   - Policy and Procedure Manual of the O.S.H. Division,
   - Relevant reports from other Subcommittees,
   - Coroners' recommendations relative to the Subcommittee's work,
   - Safety and design standards and codes currently in use, including those established by B.C. Hydro,
   - Canadian Electrical Code with B.C. amendments, bulletins and directives.

4. The Subcommittee shall ensure the following matters are addressed and reported on:

   - Current regulations in Section 22, Electrical Systems,
   - Current regulations in Section 24, Proximity to Overhead Powerlines, and tree trimming near energized conductors,
   - Regulations on electrical safety where they appear in other Sections,
   - The question of the certification of tree trimmers (as per Public Forum input).

   Note:
   - The Subcommittee's attention is drawn to the work of the Equipment Safety Subcommittee on lock-out. The two Subcommittees will be expected to liaise on the relationship of general lock-out procedures to those for electrical systems.
   - The Occupational Hygiene Subcommittee will deal with the question of any health hazards associated with extra-low frequency radiation (E.L.F.).
   - The R.A.C. has a mandate to review and advise on the question of the certification of workers.

5. Notwithstanding clause 4, the Subcommittee may offer recommendations of a general nature on regulatory matters related to electrical safety.

6. The final report of the Subcommittee shall provide proposals for regulations in as specific a manner as practicable, covering matters identified in clauses 4 and 5, and in a format established by the Regulation Advisory Committee. The drafting of actual regulations will be undertaken by the Secretariat at the direction of the Governors' Committee on Regulation Review. It is the intent of the process to reconvene the Subcommittee to provide the opportunity for review of draft regulations and for comment to the Governors' Committee on Regulation Review.

7. In carrying out its mission and performing its responsibilities, the Subcommittee shall, at all times, be subject to the *Workers Compensation Act* and the bylaws and resolutions of the governors of the Workers' Compensation Board.

Blasting and Underground Workings Subcommittee — Terms of Reference

Date: **February 23, 1993**

These terms of reference state the mission, structure, protocol and responsibilities of the Blasting and Underground Workings Subcommittee of the Governors' Committee for Regulation Review established by the governors of the Workers' Compensation Board of British Columbia.

Mission Statement

The mission of the Blasting and Underground Workings Subcommittee is to assist the governors with the development of regulations for the protection of workers involved with blasting procedures and in underground workings.

The Subcommittee shall work within the context of, and be guided by the document entitled, *Review and Development of Occupational Safety and Health Regulations* adopted by the governors on January 7, 1992.

The Subcommittee shall observe the principles of the regulation review process in carrying out its mission; for example:

- It shall be respectful of the interests of workers, employers, the community and the W.C.B.
- Its proceedings shall be open and participative
- It shall respect consensus and involve the parties with the most direct interest in outcomes.

Structure

1. The Governors' Committee for Regulation Review shall appoint three persons representative of workers, three persons representative of employers, and two persons seconded through the Secretariat who will provide

advice, guidance and administrative support. The Governors' Committee shall consult with worker and employer groups in the selection of worker and employer representatives. In addition, the Governors' Committee shall ask for a representative from the Resource Management Branch, Ministry of Energy, Mines and Petroleum Resources.

2. The Subcommittee shall be chaired by one of the persons appointed through the Secretariat. In that person's absence the second Secretariat appointee shall serve as chair.

3. The Subcommittee shall report to the Governors' Committee for Regulation Review which, in consultation with the Regulation Advisory Committee, shall review any reports and recommendations issued by the Subcommittee.

4. The Subcommittee may request the presence at meetings of professional and expert persons considered necessary by the Subcommittee.

5. The Secretariat for Regulation Review shall provide administrative and advisory services to the Subcommittee. The chair of the Subcommittee shall consult with the coordinator of Regulation Review on matters which involve the expenditure of monies in Subcommittee activity; for example, arrangement of meetings at hotels, Subcommittee travel and persons whose presence is requested at meetings where that presence involves expenditure of monies.

Protocol

1. Where practicable, the agenda and any supporting materials shall be delivered to each member of the Subcommittee by the Secretariat for Regulation Review, not later than seven days prior to the date of the meeting.

2. The preferred method of decision making shall be through consensus.

3. Summaries shall be kept of each meeting of the Subcommittee and, after being signed and initialled by the chair of the Subcommittee for the meeting, shall be forwarded to the Secretariat for Regulation Review for retention.

4. The chairman of the governors and his designate are the official spokespersons for the Subcommittee.

5. Members shall support any consensus or decision reached by the Subcommittee in which they have joined. Minority reports shall be included in any report of the Subcommittee at the request of any person(s) holding a minority opinion.

6. Persons seconded to the Secretariat for the purpose of participation on the subcommittee shall work within the terms of the document "Guidelines for Persons Seconded to the Secretariat."

7. The Subcommittee shall work within a time frame of June 1, 1993, to September 30, 1993.

Responsibilities

1. The Subcommittee shall develop proposals for submission to the Governors' Committee for Regulation Review on blasting and underground workings regulations.

2. The Subcommittee shall be guided by the perspective that effective regulations are those which:

   - Are achieved through participation and consensus
   - Clearly address workplace hazards
   - Define responsibilities and accountability
   - Clearly state the criteria for compliance
   - Are in plain language, technically competent and easily understood
   - Provide a mechanism for ongoing review and update in areas subject to changing knowledge and technology
   - Affect workplace activity and conditions only to the extent necessary to address hazards
   - Address the diverse character of workplaces, and
   - Are compatible with, and do not overlap related regulations.

3. The Subcommittee shall, in its deliberations, be cognizant of the documents:

   - Industrial Health and Safety Regulations
   - Public Forum on Health and Safety Regulation Review
   - O.S.H. Administrative Inventory
   - Policy and Procedure Manual of the O.S.H. Division
   - Relevant reports from other Subcommittees (e.g. Occupational Hygiene)
   - Coroners' recommendations relative to the Subcommittee's work
   - Safety and design standards and codes currently in use

- Health, Safety and Reclamation Code for Mines in B.C.
- W.C.B. Requirements for Underground Workings, June, 1982.

4. The Subcommittee shall ensure the following matters are addressed and reported on:

   - Explosives regulations in Section 46 of the current I.H and S. Regulations,
   - Underground Workings regulations in Section 40 of the current I.H. and S. Regulations,
   - Issues identified in Public Forums, including blasting procedures for avalanche control, safety fuses, differences between W.C.B. Regulations and those of Ministry of Mines,
   - Update of all references to other legislation.

   Note: This Subcommittee shall liaise with the Occupational Hygiene Subcommittee on the topic of ventilation of underground workings.

5. Notwithstanding clause 4, the Subcommittee may offer recommendations of a general nature on regulatory matters related to blasting and underground workings.

6. The final report of the Subcommittee shall provide proposals for regulations in as specific a manner as practicable, covering matters identified in clauses 4 and 5, and in a format established by the Regulation Advisory Committee. The drafting of actual regulations will be undertaken by the Secretariat at the direction of the Governors' Committee on Regulation Review. It is the intent of the process to reconvene the Subcommittee to provide the opportunity for review of draft regulations and for comment to the Governors' Committee on Regulation Review.

7. In carrying out its mission and performing its responsibilities, the Subcommittee shall, at all times, be subject to the *Workers Compensation Act* and the bylaws and resolutions of the governors of the Workers' Compensation Board.

WORKERS' COMPENSATION
REPORTER

Construction Safety Subcommittee — Terms of Reference

Date: February 23, 1993

These terms of reference state the mission, structure, protocol and responsibilities of the Construction Safety Subcommittee of the Governors' Committee for Regulation Review established by the governors of the Workers' Compensation Board of British Columbia.

Mission Statement

The mission of the Construction Safety Subcommittee is to assist the governors with the development of regulations for the safety of workers in and around activities of construction, excavation and demolition.

The Subcommittee shall work within the context of, and be guided by the document entitled, *Review and Development of Occupational Safety and Health Regulations* adopted by the governors on January 7, 1992.

The Subcommittee shall observe the principles of the regulation review process in carrying out its mission; for example:

- It shall be respectful of the interests of workers, employers, the community and the W.C.B.
- Its proceedings shall be open and participative
- It shall respect consensus and involve the parties with the most direct interest in outcomes.

Structure

1. The Governors' Committee for Regulation Review shall appoint three persons representative of workers, three persons representative of employers, and two persons seconded through the Secretariat who will provide advice, guidance and administrative support. The Governors' Committee

shall consult with worker and employer groups in the selection of worker and employer representatives.

2. The Subcommittee shall be chaired by one of the persons appointed through the Secretariat. In that person's absence the second Secretariat appointee shall serve as chair.

3. The Subcommittee shall report to the Governors' Committee for Regulation Review which, in consultation with the Regulation Advisory Committee, shall review any reports and recommendations issued by the Subcommittee.

4. The Subcommittee may request the presence at meetings of professional and expert persons considered necessary by the Subcommittee.

5. The Secretariat for Regulation Review shall provide administrative and advisory services to the Subcommittee. The chair of the Subcommittee shall consult with the coordinator of Regulation Review on matters which involve the expenditure of monies in Subcommittee activity; for example, arrangement of meetings at hotels, Subcommittee travel and persons whose presence is requested at meetings where that presence involves expenditure of monies.

Protocol

1. Where practicable, the agenda and any supporting materials shall be delivered to each member of the Subcommittee by the Secretariat for Regulation Review, not later than seven days prior to the date of the meeting.

2. The preferred method of decision making shall be through consensus.

3. Summaries shall be kept of each meeting of the Subcommittee and, after being signed and initialled by the chair of the Subcommittee for the meeting, shall be forwarded to the Secretariat for Regulation Review for retention.

4. The chairman of the governors and his designate are the official spokespersons for the Subcommittee.

5. Members shall support any consensus or decision reached by the Subcommittee in which they have joined. Minority reports shall be included in any report of the Subcommittee at the request of any person(s) holding a minority opinion.

6. Persons seconded to the Secretariat for the purpose of participation on the subcommittee shall work within the terms of the document "Guidelines for Persons Seconded to the Secretariat."

7. The Subcommittee shall work within a time frame of June 1, 1993, to September 30, 1993.

Responsibilities

1. The Subcommittee shall develop proposals for submission to the Governors' Committee for Regulation Review on construction safety regulations.

2. The Subcommittee shall be guided by the perspective that effective regulations are those which:

   - Are achieved through participation and consensus,
   - Clearly address workplace hazards,
   - Define responsibilities and accountability,
   - Clearly state the criteria for compliance,
   - Are in plain language, technically competent and easily understood,
   - Provide a mechanism for ongoing review and update in areas subject to changing knowledge and technology,
   - Affect workplace activity and conditions only to the extent necessary to address hazards,
   - Address the diverse character of workplaces, and
   - Are compatible with, and do not overlap related regulations.

3. The Subcommittee shall, in its deliberations, be cognizant of the documents:

   - Industrial Health and Safety Regulations,
   - Public Forum on Health and Safety Regulation Review,
   - O.S.H. Administrative Inventory
   - Policy and Procedure Manual of the O.S.H. Division,
   - Relevant reports from other Subcommittees (e.g. Equipment Safety and Ergonomics),
   - Coroners' recommendations relative to the Subcommittee's work,
   - Safety and design standards and codes currently in use, including applicable Standard Practices Manuals of W.C.B.

4. The Subcommittee shall ensure the following matters are addressed and reported on:

   - Construction Procedures regulations in Section 34 of the current I.H. and S. Regulations,
   - Excavations regulations in Section 38 of the current I.H. and S. Regulations,
   - Demolition regulations in Section 39 of the current I.H. and S. Regulations,
   - Work in Compressed Air regulations in Section 44 of the current I.H. and S. Regulations.

5. Notwithstanding clause 4, the Subcommittee may offer recommendations of a general nature on regulatory matters related to construction safety.

6. The final report of the Subcommittee shall provide proposals for regulations in as specific a manner as practicable, covering matters identified in clauses 4 and 5, and in a format established by the Regulation Advisory Committee. The drafting of actual regulations will be undertaken by the Secretariat at the direction of the Governors' Committee on Regulation Review. It is the intent of the process to reconvene the Subcommittee to provide the opportunity for review of draft regulations and for comment to the Governors' Committee on Regulation Review.

7. In carrying out its mission and performing its responsibilities, the Subcommittee shall, at all times, be subject to the *Workers Compensation Act* and the bylaws and resolutions of the governors of the Workers' Compensation Board.

Finding of the Medical Review Panel

Date: April 7, 1993
Panel: Stanley L. Sunshine, Panel Chairman
T. Bezeredi, Panel Member
H.L. Parfitt, Panel Member
Subject: A Claim for Suicide

Certificate of the Medical Review Panel

This certificate is the decision of the Panel or a Panel majority. We, the undersigned, on April 2, 1993, having duly considered all pertinent medical aspects on the worker's compensation claim, do hereby certify to the Board:

1. The cause of death was:

   (i) massive cerebral trauma due to

   (ii) multiple skull fractures due to

   (iii) an approximate 60-foot free fall.

2. The etiology of the cause of death was suicide.

3. The worker's employment had causative significance in the suicide.

   The worker had an obsessive personality structure. This rendered him vulnerable to a maladaptive response to stress. The Panel is aware of multiple stress factors including those evident in the lengthy telephone conversation with his wife immediately preceding his death. Nevertheless, it is the opinion of the Panel that the major stress factor in his life arose from work.

   The combination of the vulnerable personality and the atypical work environment of gross understaffing with undiminished demands for performance led to a crisis in which the worker apparently concluded that he had no alternative other than suicide.

The Panel feels that the two contributing factors to the suicide were the personality and stress. It is the belief of the Panel that these contributing factors are equally responsible. With respect to stress, the preponderate influence is related to his work.

4. The cause of death was not wholly independent of his employment. Please see above.

Editors' note: This finding has been edited for publication. This finding by the Medical Review Panel overturns Decision No. 91-0818 rendered by the appeal commissioners and published in Workers' Compensation Reporter*, Vol. 7(4): p. 223.*