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Policy for occupational health and safety in the mining industry

In responding to its broad terms of reference the Commission has been guided by the evidence and opinions presented to it in the public hearings. Industry and labour have expressed deep concern not only about the facts of industrial disease and injuries from accidents but also about the effectiveness of the institutional arrangements between government, industry, and the workers for dealing with the hazards at work and about governmental policy for occupational health and safety that such arrangements reflect. The Commission has conducted studies and investigations of the problems of silicosis and dust, of lung cancer and ionizing radiation, of accidents and injuries, and of other hazards to health and safety, including hearing loss and noise. These studies and investigations have revealed what the Commission deems to be defects in the institutional arrangements and procedures for dealing with the hazards to health and safety in the mining industry. While the recommendations in the report have intentionally been derived out of the concrete circumstances revealed by the case studies and investigations, an overriding concern throughout has been to establish a more coherent basis for government, industry, and the workforce to deal with the problems of industrial disease and accidents according to their skills and in accordance with well-defined duties and responsibilities. The problems that underlie the issues of health and safety in the mines are first and foremost those of policy and of the performance of the responsibility-system that such policy gives rise to at both the company and the provincial level.

There has been a serious lack of openness on matters of the health and safety of workers in mines. The majority of the information presented in this report has been inaccessible to workers and the public. Workers have a right in natural justice to know about the risks and consequences of the

risks that they undertake at work. Recommendations of the Commission have been designed to ensure that workers and the public, together with industry and the government, share a common framework of understanding of the risks of work and of their consequences in injury and disease. Without such a framework there can be no proper social and political judgment of what constitutes acceptable risks. The Commission believes the lack of such a framework is one manifestation of the absence of an adequate provincial policy on occupational health and safety. The Commission has emphasized that not only the special risks of work but also the voluntary risks of life-style¹ require the open critical attention of society. These classes of risks are not readily separable, and there is as a consequence much misunderstanding of the problems of workmen's compensation, particularly for uranium miners.

Within the internal responsibility-system at the company level, which is the key to the quality of the over-all control of occupational hazards, there has been in many companies an inadequate opportunity for workers to contribute their insight to the assessment of work conditions and to the basis on which management makes decisions on issues of health and safety. The adamantly confrontational character of Canadian labour-management relations has deterred the creation of sensible arrangements for worker participation. Questions of health and safety are not suitable issues for collective bargaining. The Commission has carefully defined a framework for the operation of joint labour-management health and safety committees as bodies contributive to the formulation and review of sound managerial policies and practices. In addition the Commission has recommended the introduction of a system of worker-auditors to provide to management and to the mines inspectorate a new dimension in the auditing of work conditions based on the insight of experienced workers. It is based on, but not identical to, long-established practices in the United Kingdom and Sweden. Within a context whereby workers, other than in the personal act of work, can fulfil a proper responsibility to contribute to the resolution of problems of health and safety, the Commission earnestly hopes that a new measure of labour-management co-operation can emerge. The Commission believes that a part of the wide variation in accident frequencies among different companies is related to the quality of human relations that exist within them, relations in which both management and the collective bargaining unit (where such exists) play crucial roles. A well-founded internal responsibility-system in which labour and management co-operate to control occupational hazards ought to exhibit a high measure of self-regulation for which mines inspection and openly reported environmental and epidemiological reviews can provide the necessary external evaluation.

There has also been, in the Commission's view, an absence of clearly defined roles as a basis for initiative and accountability in institutional arrangements at the provincial level. This characteristic has led, under the stress of burgeoning problems of health and safety at Elliot Lake and elsewhere, to the erosion of trust between unions, industry, and government agencies at the provincial level and therefore at the company level. The seat of this problem of roles and initiatives lies in divided jurisdictions. The law has not facilitated the co-ordination of roles and the implementation of programmes to serve the well-being of workers in the mining industry; it has not kept pace with the rapidly changing social perception of the importance of occupational health and safety.

The split jurisdiction between the Atomic Energy Control Board of Canada and the Ministry of Natural Resources of Ontario, and the related indefiniteness of initiatives at the provincial level, have been explored and recommendations made in the light of the Commission's research on the Uranium Nominal Roll. The health and safety problems of the uranium miners (and not just those at Elliot Lake) provide strong evidence that the historic problem of divided jurisdiction and responsibility between the Ministry of Natural Resources (formerly the Department of Mines) and the Ministry of Health must be resolved. To place this problem in final perspective, it will be useful to review briefly the locus of legal responsibilities for the health and safety of all workers.

Within the province responsibility for the health and safety of workers is divided between the Mining Act, the Industrial Safety Act,² the Construction Safety Act,³ and certain other pieces of legislation. In each of the foregoing major Acts responsibility for compliance is placed upon the employer, whose operations are subject to inspection by government inspectors. The administration of the Mining Act (Part IX) by the Ministry of Natural Resources and the Mines Engineering Branch has been dealt with in detail in the report. The Ministry of Labour administers the Industrial Safety Act and the Construction Safety Act. There are distinctive jurisdictional boundaries between the work of the inspectors under these three acts.⁴ The qualifications of the inspectorates are centred in engineering and technology. Supportive services in industrial hygiene and occupational health have been provided to these inspectorates by the Occupational Health Protection Branch of the Ministry of Health either on an ad hoc basis following requests or through interministerial agreements or accords.⁵ Outside the general provisions on nuisance in the Public Health Act,⁶ which in practice are superseded by the more specific clauses of the Mining and other Acts, the Occupational Health Protection Branch does not have a defined access under the Mining Act to workplaces in mines and therefore

has no basis for taking independent initiative on problems of health and safety arising there. It has not been part of the role of this branch to conduct research on problems of the safety of workers.⁷ The Mines Engineering Branch has done excellent work in developing technical standards for safety, for example in mine hoisting, and provisions in Ontario for mine rescue have been exemplary. The Mines Accident Prevention Association of Ontario conducts programmes of education for the industry in accident prevention and some aspects of industrial hygiene. But accidents appear to be regarded largely as issues of unsafe acts and unsafe conditions to be dealt with solely by safety regulations, inspections, and such standards of training and job assignment as are the choice of the industry. Research on the relation of accidental injuries to the nature and timing of work assignments, to training, to the design and operation of machines, to protective equipment, and to environmental factors such as noise and illumination has been neglected.

Such studies into the safety aspects of the human ecology of men and machines are equivalent to the toxicological and epidemiological studies that form the basis for understanding the environmental impact of toxic substances on the health of workers. Is it not, for example, important to know whether or not a miner with a hearing defect is at greater risk of accidental injury than others, so that, if he is, a work adjustment policy can be developed to limit the risks to himself and to his co-workers? There are questions of stress in work which are coupled both to safety and to health. The separation of health from safety for workers is another false dichotomy sustained by policy and the institutional arrangements this policy reflects.

The Commission believes that existing policy on occupational health has unduly limited the initiative of the Occupational Health Protection Branch and that the lack of a complementary investigative capability related to safety has not properly served the well-being of workers in mines. A major group of recommendations of the Commission has therefore been designed to delineate the responsibilities of a new administrative entity called the Occupational Health and Safety Authority. Within this Authority, which will shortly be described, there would be an Occupational Health and Safety Branch having capabilities extended from those of the existing Occupational Health Branch.

In the Commission's view the existing Occupational Health Protection Branch in the Ministry of Health has conducted critically important studies with inadequate resources and has been forced to work in a crisis-to-crisis atmosphere which is not conducive to the development of public understanding of the complexities of occupational health and safety. The Com-

mission believes that the priority given this branch reflects the absence of a legal mandate and as well the massive preoccupation of the provincial health-care system with disease and diagnosis, as contrasted with preventive services. A further manifestation of the latter situation is the absence of a significant emphasis on occupational medicine, industrial hygiene, and ergonomics in medical and engineering education. Few mining companies provide their workers with the services of a resident or consulting physician experienced in occupational medicine, and in the industry there are few active specialists in industrial hygiene.

The Commission has made recommendations to deal with many of these questions but emphasizes that two elements are essential to the institutional arrangements of government for the safety and health of workers in mines. The first has been mentioned, namely, a new administrative structure designated the Occupational Health and Safety Authority; the second requirement is more flexible legislation served by a strengthened inspectorate.

The Commission has reviewed many facets of Part IX of the Mining Act, which, with certain sections of Part XI, establishes the legal framework for the health and safety of workers in mines, the most recent revision of which was proclaimed on 1 January 1971. Part IX of the Mining Act is unusual in that all technical details are incorporated in the legislation, and there is no provision for the making of extensive regulations by the Lieutenant Governor In Council. It has been suggested that the incorporation of all technical detail into the Mining Act provides a degree of stability of legislative rules that allows the mining industry to plan its operations with the knowledge that the rules will not be changed suddenly. An alternative view is that to protect the well-being of workers in an industry subject to rapid technological change this procedure is unnecessarily rigid. The Commission endorses the latter view.

To reach beyond the rigidity of Part IX of the Mining Act the chief engineer of the Mines Engineering Branch has issued, under the general powers conveyed by s. 610(d), various codes establishing guidelines for the measurement of dust, for the operations and emissions of diesel engines, and for the exposure of workers to ionizing radiation and to noise. The Commission has examined the conditions surrounding the issuance of these codes. There have been no codes establishing guidelines for exposure to dust or to toxic chemicals. Since there is no provision in Part IX to incorporate these codes as part of the legislation, the codes are merely interpretive guidelines of the chief engineer and do not have the force of law. The Commission does not believe that this method of issuing codes

provides a satisfactory means for achieving the flexibility and clarity that it considers to be desirable for legislation governing the health and safety of workers in mines.

To provide a legal and administrative structure within which to implement the policy on health and safety for workers in mines reflected in its detailed recommendations, the Commission recommends:

That a Health and Safety in Mines and Plants Act, separate from the Mining Act, be prepared to replace part IX and the relevant sections of part XI of the Mining Act and be administered within an Occupational Health and Safety Authority established in the Ministry of Labour;

That the Health and Safety in Mines and Plants Act consist of a core of general provisions supplemented by regulations the issuance of which is authorized by the Act;

That the general provisions of the Health and Safety in Mines and Plants Act identify the duties and responsibilities of the Mines Engineering and Inspection Branch and the Occupational Health and Safety Branch;

That an Occupational Health and Safety Authority, encompassing the Mines Engineering and Inspection Branch, the corresponding branches under the Industrial Safety Act and the Construction Safety Act, and the Occupational Health and Safety Branch, be established in the Ministry of Labour under an assistant deputy minister.

The structure of the proposed Health and Safety in Mines and Plants Act will be considered first. Many of the general provisions and regulations of a new Act clearly could be adapted from Part IX of the existing Mining Act, which is well-elaborated in many respects. These would include the duties of employers, the safety of equipment, the control of hazards, and so on. But there is need for important additions. The general provisions in the core Act should include, in addition to authority for regulations and the definition of the duties and responsibilities of the Mines Engineering and Inspection Branch and Occupational Health and Safety Branch, the following subjects:

- recognition of codes and schemes of practice as administrative instruments;
- definition of joint worker-management health and safety committees;
- definition of worker-auditors;

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- definition of qualifications for supervisors and workers;
- duties of employees;
- definition of medical surveillance and services and the keeping of occupational health and safety records;
- procedures for enforcement of the Act and its regulations through improvement notices and prohibition notices⁸;
- the basis for defining general terms such as ‘approved,’ ‘satisfactory,’ ‘adequate’;
- a schedule of subject matter for health and safety regulations to include the setting of engineering and exposure standards and guidelines, and the conduct of research (see *Health and Safety at Work etc. Act* [n.8], Schedule 3).

The central function of the Health and Safety in Mines and Plants Act is to establish a legal basis for a policy for occupational health and safety which has four basic indispensable elements. The first is the setting of a framework of definitions and regulations within which the internal responsibility-system at the company level is required to function in order to limit to acceptable levels the risks to workers in mines and plants. The second is to audit the state of compliance with this framework through inspection. The third is to monitor the introduction of technological change into the industry to the extent such change impinges on the health and safety of workers. The fourth is to evaluate, through epidemiological review, related statistical studies and other research on the machines, materials, and risks of work, the extent and nature of the problems of injury and disease which are the human basis for the legislation. The recommendations throughout the report document the many points where initiative in epidemiological and related research is needed.

The foregoing elements lend themselves readily to the identification of the duties and responsibilities of the Mines Engineering and Inspection Branch and of the Occupational Health and Safety Branch within the proposed Health and Safety in Mines and Plants Act and the associated Authority. The duties of each have two facets, namely, standard setting and auditing, monitoring, and evaluating. The Mines Engineering and Inspection Branch should have the primary responsibility for auditing, monitoring, and evaluating the operations of mines and plants. This it would do by inspecting operations to determine the state of compliance with the existing framework of regulations and by monitoring the introduction of technological change so that regulations can be altered as required to adapt to such changes. In a complementary manner the Occupational Health and Safety Branch takes initiative to review and assess the risks

being encountered by the persons engaged in the operations of mines and plants and in so doing develops a basis of evaluation for the framework of standards which complements that of the Mines Engineering and Inspection Branch. Further, its work is highly relevant to the responsibilities of the Workmen's Compensation Board for establishing and reviewing the basis for compensation of industrial disease and accidents. The Commission believes that its studies demonstrate that to combine the duties and responsibilities described in an Occupational Health and Safety Authority is natural and desirable. To enable this combining of roles in the interests of the health and safety of workers in mines the Commission recommends that the jurisdiction over the proposed new Health and Safety in Mines and Plants Act be moved from the Ministry of Natural Resources to the Ministry of Labour. The duties of the Mines Engineering and Inspection Branch and of the Occupational Health and Safety Branch require that their central staffs be located together, where they can interact personally and exercise their distinctive initiatives in concert.

The proposed Occupational Health and Safety Branch can be established by transfer and extension of the resources and capabilities of the Occupational Health Protection Branch in the Ministry of Health. In proposing the transfer to the Ministry of Labour of an existing health-centred unit and of a mining-centred unit, the Commission is conscious of an important problem of professional identity for the persons involved. Our society is becoming more sensitive to the problems of occupational health and safety, but it has yet to give the public recognition merited by those who devote their professional lives to this field. Government policy and medical and engineering education attest to this fact. Thus engineers associated with mine inspection, whether it be in the United Kingdom or in Ontario, appear to derive professional identity largely from the ethos of the industry, as distinct from their work in controlling the risks to life and limb of workers. The same may be true for medical professionals. The Commission deeply believes that occupational health and safety as an endeavour must be given high public recognition.

Throughout its studies the Commission has emphasized the distinctiveness of the problems of health and safety in mines and reduction plants and believes that a high calibre of engineering and related expertise is necessary in the Mines Engineering and Inspection Branch. The Commission believes that a greater measure of openness and accountability with respect to the risks of work will contribute to the needed public recognition of the worth of careers in the field.

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The Occupational Health and Safety Authority that has been proposed would, under an assistant deputy minister as its executive head, be the administrative expression of the conjoint legal requirements expressed in the Health and Safety in Mines and Plants Act, the Industrial Safety Act, and the Construction Safety Act. Its operational elements would be the Mines Engineering and Inspection Branch, the related branches under the other acts, the Occupational Health and Safety Branch, and such additional executive staff as would be necessary for general administration, for the development and formulation of regulations, and for the commissioning of research. The directors of the branches should be members of an executive committee. Since the Workmen's Compensation Board is now under the Ministry of Labour the many important relations with that Board would be facilitated. The Commission observes that the scale of operations of the Occupational Health and Safety Authority, measured in terms of personnel, would be in the order of four hundred persons, that is, it would have critical mass yet not be unwieldy. The Commission believes that the administration of the branches of the Authority should be based on line authority from each director to the field. While the combining of the branches under the Occupational Health and Safety Authority should permit some concertation of work, it should not be an instrument for ill-considered homogenization. If the distinctiveness of the problems of health and safety in the different fields of work are respected, the replacement of the several Acts by a single health and safety at work Act would be a logical step in the evolution of legislative policy.⁹

To provide the Minister of Labour with advice on matters of occupational health and safety the Commission proposes that the Labour Safety Council, which has a Subcommittee on Mines, be replaced by a Council on Occupational Health and Safety, which would reflect the unitary responsibilities of the Occupational Health and Safety Authority and be composed of representatives from industry, labour, education, and the lay public and government. The Council should assist the assistant deputy minister, the executive head of the Authority, to constitute task groups suited to providing advice on new regulations and standards and to advising on the important role of the Authority in education for health and safety (see chap. 4, n.22).

It has been suggested that the MAPAO be transformed in structure by the addition of representatives of labour. Such a proposal reflects in the Commission's view a misconstruction of the potentialities of such an organization. The MAPAO, as one of the accident prevention associations

under the Workmen's Compensation Act, reflects the interests and capacities of the mining industry to engage in self-education in matters related to health and safety. This is a clear, limited, and, in the Commission's view, useful role within the whole responsibility-system. The labour unions in the mining industry have an opportunity for a comparable role in self-education. The Minister's Council related to the Occupational Health and Safety Authority should provide a focus for input from industry, labour, education, and the public.

The risks to health and safety in mining, illustrated by the sad experience in the uranium mines and the perennial list of accidents and injuries, are higher than in most sectors of industry. In underground mining especially the risks are intrinsic to the nature of the endeavour. With respect to fatalities in underground mining the recent record of the industry has been favourable compared to that in several comparable jurisdictions, but the experience of different companies here and in other aspects of injury and disease is quite varied. The Commission considers that the training of workers deserves special attention throughout the industry and that the internal responsibility-system for the performance of work in each company deserves review in the light of the over-all findings of the Commission.

The acceptable levels of risks at work and in life-style are being redefined by society. It is essential that this process be marked by a higher measure of openness than has hitherto characterized government and industrial policy. Openness, contributive participation by workers, and thorough accountability can re-establish the self-regulatory character of the internal responsibility-system at the company level as the key to the control of risks at work in a technologically complex future. The regulatory and auditing functions of the Occupational Health and Safety Authority should be designed to keep the internal system at the company level alert and responsive and to deal bluntly with the true offender.

The Commission believes that the objective of a sound balance between self-regulation and legal compulsion based on the constructive cooperation of all parties cannot be achieved within current government policy and traditional industrial practices. It has formulated its recommendations to promote the change it considers necessary for the future well being of the workers in the mines and plants.

¹ Marc Lalonde, *A New Perspective on the Health of Canadians*, Ministry of National Health and Welfare, Canada, Ottawa, April 1974

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- 2 *The Industrial Safety Act, 1971*, Statutes of Ontario, 1971, Chap. 43, as amended by 1972, Chap. 122, and Ontario Regulation 259/72.
- 3 *The Construction Safety Act, 1973*, Statutes of Ontario, 1973, Chap. 47, and Ontario Regulation 419/73.
- 4 While the inspectors under the Construction Safety Act in the Ministry of Labour inspect major construction sites throughout the province, they are precluded (see CSA, s. 3(b),6) from inspecting construction on property owned by mines, which includes all the normal surface structures of mines and plants. In steel plants the inspectors under the Mining Act are responsible for inspecting operations extending from the ore unloading docks up to the pouring of pig iron from blast furnaces. The inspectors under the Industrial Safety Act inspect the remainder (see *Memorandum Regarding Jurisdiction of the Department of Labour and Department of Mines*, 13 Nov. 1964). The mining inspectorate has, to the Commission's knowledge, had no professional staff of its own specializing in construction and metallurgical processes.
- 5 Relations between the Industrial Safety Branch of the Ministry of Labour and the Occupational Health Protection Branch of the Ministry of Health has in the past been guided by a *Memorandum of Agreement* (1 March 1971). A similar Memorandum of Agreement between the then Environmental Health Services Branch of the Ontario Department of Health and the Mines Inspection Branch of the Ontario Department of Mines was drafted in 1969 but never endorsed. A broader interministerial accord between the Ministries of Labour, Natural Resources, Environment and Health on the subject of roles in occupational and environmental health was prepared and endorsed in 1975. This internal accord defines the intended roles of the ministries as regards standards, inspection, environmental monitoring, medical surveillance, records, and research in relation to occupational and environmental health as distinct from safety. This accord does not as such provide a legal mandate for an Occupational Health and Safety Protection Authority. It attempts to deal with the problems of jurisdictions in the operations of ministries by administrative means.
- 6 *The Public Health Act*, Revised Statutes of Ontario, 1970, Chapter 377 as amended 1971, Chapter 95 (February, 1972), Sections 4 (d), 5 (2), (3), 85, 86 (g), (l).
- 7 There is a Labour Safety Council consisting of persons representing labour, the accident prevention associations under the Workmen's Compensation Act, and government. The Council advises the minister of labour on changes it deems desirable in the provisions of safety legislation under the jurisdiction of the Ministry. It has commissioned reviews of literature on accidents and published reports and papers (see chap. 4, n. 1). However, it is basically a consultative and advisory body. The new Advisory Committee on Occupational and Environmental Health, which advises the minister of health, is complementary to the Labour Safety Council. Representatives of labour sit on both councils. The Occupational Health Protection Branch in the Ministry of Health as a branch with operational resources has no 'safety' counterpart in the Ministry of Labour.
- 8 *Health and Safety at Work etc. Act 1974*, Chap. 37, London: HMSO, 1975, s. 21, 22
- 9 See *ibid.* and *Safety and Health at Work*, Report of the Committee 1970-72, Chairman Lord Robens, London: HMSO, 1972. The law in England is based on the Robens report, which examined the problems of fragmentation of jurisdictions in occupational health and safety in the United Kingdom. The chairman, Lord Robens, brought to the study extensive experience in mining, and the resulting Act reflects this fact.
Worker's Protection Act and Worker's Protection Ordinance, Ministry of Labour, Stockholm, Sept. 1974
An Act for the Promotion and Protection of the Health and Safety of Persons Engaged in Occupations, The Occupational Health Act, 1972, Saskatchewan