Towards a Framework for Underground Coal Mining Safety in Canada:

A Discussion Document for the Chief Inspectors of Mines

Prepared for

The Underground Coal Mining Safety Research Collaboration (UCMSRC)

(administered by NRCan-CANMET Mining & Mineral Science Laboratories)

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Introduction

The decline of the underground coal mining industry in Canada in the last decade provides considerable challenges for those involved in maintaining adequate, current, appropriate and applicable safety and health provisions within the industry. There is a growing awareness in the industry of a current opportunity to be exploited, to realize potential benefit by further cooperation and collaboration between the various Canadian jurisdictions involved, specifically British Columbia, Alberta, Nova Scotia and Federal. Specifically this opportunity would be focused on a joint review of current regulatory requirements in Canada and the subsequent exploration of development of a set of simple guidelines in appropriate areas, for future reference by the jurisdictions. (It is not proposing a national Code nor a single set of regulations).

This discussion document examines such a concept of developing a Framework for Underground Coal Mining Safety in Canada. It has been prepared by the Underground Coal Mining Safety Research Collaboration (UCMSRC) whose Participants comprise industry stakeholders. The document will be presented on behalf of the UCMSRC to the Chief Inspectors of Mines Committee of Canada (Chief Inspectors) at their forthcoming meeting in Edmonton, Alberta in May 2004.

Purpose

The objective of this paper entitled "Towards a Framework for Underground Coal Mining Safety in Canada" and the presentation to the Chief Inspectors is to inform them of a potential opportunity for added regulatory efficiency arising from recent debate raising industry concerns by UCMSRC. As this discussion goes beyond UCMSRC's traditional specific field of research, UCMSRC is seeking the support in principle for a joint effort between them and the Chief Inspectors.

Specifically, the UCMSRC is seeking from the Chief Inspectors the following:

(1) Their agreement in principle that it would be beneficial to exploit the current opportunity by reviewing existing provincial and federal legislation relating to underground coal mining safety

in Canada. Such a review carried out jointly across the four Canadian jurisdictions would both identify the many commonalities and also highlight significant differences related to underground coal mining safety. Joint consideration of these could then produce some guidelines for addressing the differences. Such guidelines could form a simple framework on underground coal mining safety in Canada. The intent is definitely not to work towards a single Canadian regulation or code, rather to jointly explore scope for mutual benefit through closer collaboration. Such an exercise could have benefits in terms of aiding future revisions of the regulations within the jurisdictions and highlighting areas where a simplified approach could then be possible in turn enhancing Canada's competitive position in the international marketplace.

(2) Their support of and participation in a joint working group between UCMSRC and the Chief Inspectors, to develop and champion the above review and subsequent considerations. This working group would comprise those belonging to both UCMSRC and the Chief Inspectors, together with representatives of industry and workforce, covering the four jurisdictions involved.

(3) Their agreement to continue to provide overall direction and guidance to the joint working group. (The objective would be to have a working document ready for presentation to the Chief Inspectors in May 2005.)

Underground Coal Mining Safety Research Collaboration

The Underground Coal Mining Safety Research Collaboration (UCMSRC) comprises representatives of key stakeholders, including operators, workers, regulators, researchers and consultants, covering related regulatory jurisdictions in Canada, and has been active for six years. They are purely an advisory body, providing a forum for discussion of joint issues and for working together to research and better inform each other on key issues. In actively seeking to address underground coal mining industry concerns, here UCMSRC has recognized a key opportunity to make a strategic move to address concerns

outlined below. Specifically the UCMSRC seeks the Chief Inspectors' consideration and support in this current initiative which goes beyond their normal field of focusing on research alone. This would not only address their concerns specific to underground coal mining safety and health, but also provides an opportunity for Canada to pilot a work which, if successful, may be beneficial in a broader sense to the industry as a whole.

Context

In the last three decades, there have been underground coal mining operations active in at least three Canadian provinces: Nova Scotia, Alberta and British Columbia. All of these still retain regulations covering safety and health in underground coal mining, as does the Federal Government. The Federal Legislation covers the federally owned and recently closed underground coal mines in Cape Breton, N.S but they have not yet been withdrawn. Currently there is only one underground coal mine active in Canada, located near Campbell River, Vancouver Island, British Columbia. There are, however, plans for two new mines at various stages of development , one at Grand Cache, Alberta and the other at Donkin, Nova Scotia. There are mixed opinions among the stakeholders concerning the latter. Whilst Nova Scotia seems to be pressing ahead, others are not so sure how fast it will proceed. There is, however, also considerable potential for several other new underground coal mines, for example, in mainland British Columbia.

Globally, underground coal mining remains a significant component of the international coal industry whose total output is 4,000+ Million tonnes per year (Mtpa), underground mining being responsible for at least 1.4billion tpa (e.g. about 1,000Mtpa from Chinese production, about 300Mtpa from the USA and about 100Mtpa from Australia).

From a health and safety perspective, underground coal mining occupies its own niche category, setting it apart from underground mineral and metal mines. The distinction arises from specific hazards inherent to the 'ore' itself, as coal is a fuel. Coal is combustible, can be prone to spontaneous combustion, contains methane gas which itself is potentially explosive, and when mined and transported produces coal

dust which is also potentially explosive. Coal dust is also a proven source of lung disease such as 'black lung' (pneumoconiosis).

Another relevant factor here, taken from the international scene, is the International Labour Organization Convention Safety & Health in Mines Convention 1995 (ILO C176). This sets broad international standards for mine safety and health, including underground coal mines. It requires ratifying member States, in consultation with employers' and workers' organizations, to formulate, carry out, and periodically review a coherent policy on safety and health in mines, to be provided for in legislation and supplemented, as appropriate, by technical standards, guidelines or other means. It includes three key features of particular note here. Firstly, employers are required to undertake hazard assessment and risk analysis and then develop and implement, where appropriate, systems to manage the risk. Secondly, the competent authorities ensuring compliance with laws and regulations must have properly qualified and trained staff to inspect, assess and advise on related matters. Thirdly, workers have the duty to take reasonable care for their own safety and health and that of other persons so affected. Some twenty countries have ratified ILO C176 to date, including the USA. The "Duty of Care" OHS approach implied by ILO C176 and being adopted, for example, in the UK and Australia, involves not only workers having a duty of care for themselves and those around them, but also the operator must demonstrate that the proposed work is safe, having assessed hazards and risks and reducing risks to as low as reasonably practicable and that the regulator must satisfy themselves that the employer's measures are appropriate and adequate. This approach is increasingly influencing Canadian jurisdictions, some of whom are moving away from purely prescriptive regulations to a risk assessment, duty of care approach but there remain significant variations.

Canada's position was clarified in recent correspondence with the Director, International Labour Affairs, Labour Program of the Government of Canada. Canada is currently not in a position to ratify ILO C176 due to some inconsistencies existing between the provisions of ILO C176 and Canadian laws and practice. However, it is recognized that there is a high degree of conformity in Canada to the provisions of both the Convention and the related Recommendation at the federal, provincial and territorial levels. It is also recognized that the differences in legislation among Canadian jurisdictions are relatively minor, that most of the standards in ILO C176 are covered, and that the areas of potential divergence from ILO C176 are relatively few. Therefore, it seems reasonable to UCMSRC to propose that there could be much

potential benefit to Canada's underground coal mining industry in our examining the possibility of developing some kind of Canadian framework, to address the concerns and issues outlined below, possibly loosely based on the principles underlying ILO C176. Australia is currently near completing a major initiative to develop their own National Mine Safety Framework to provide minimum standards in the major ILO C176 areas.

The Need for Canadian Guidelines to Underground Coal Mining Safety

Historically the underground coal mining industry has suffered many tragedies and disasters, and sadly Canada is no exception, the most recent one here being the Westray Disaster of 1992 in Nova Scotia. The resultant Inquiry Report recommended that efforts be directed towards integrating mine safety legislation across jurisdictions, specifically between the Nova Scotia and the Federal Government. Both of those jurisdictions are working on revisions to their regulations. There are also differences between regulations affecting underground coal mining safety and health across the other Canadian jurisdictions. Also, despite the limited size of the industry in Canada, regulators remain obliged, often under tight fiscal constraint, to provide sufficient technical expertise to administer and update their regulations relating to the underground coal mining sector so as to be able to respond adequately to any resurgence of the industry in their jurisdiction. There is potential benefit here from pooling resources in the sense of cooperating and collaborating together and to build on UMSRC's experience of doing just that.

Some of the specific challenges for regulators in this situation are now outlined. These can complicate transfer of personnel and equipment around the country. The first arises where mines propose the incorporation of new technologies, usually proven elsewhere, but which are not specifically addressed in their legislation. In the worst case, a Canadian operation can lose access to new technology simply due to outdated or inflexible regulatory requirements. For example, if US equipment has exposed surfaces made of light alloys (e.g. gearboxes) some Canadian regulations require equipment to be modified, sometimes at great expense. The alternative option of using compatible older equipment and spares can be complicated as some of these are becoming increasingly difficult and expensive to source. Secondly, there is also variation in regulatory requirements relating to threshold values of certain safety requirements (such as combustible content of roadway dust samples). Thirdly, some also voice concern that there has

been a significant loss of technical expertise and experienced, qualified workers in the industry. This can present further challenges to jurisdictions when faced with examining new recruits and satisfying themselves that they meet their jurisdictional standards, which themselves vary across the Canadian jurisdictions, for example, qualification and certification of personnel for statutory positions. All of this combines to weaken Canada's competitive position.

Current opportunity

As presented above, UCMSRC has identified several areas of concern related to underground coal mining safety. UCMSRC has also demonstrated that joint collaborative exercises can be undertaken by stakeholders across the four Canadian jurisdictions involved, to mutual benefit. The small size of the current underground coal mining industry in Canada, its potential for expansion and the limited number of current stakeholders, presents a good opportunity to consider how to further develop mutual benefit from cooperation and collaboration looking for areas of potential simplification and commonality.

UCMSRC therefore proposes that a joint review be made of existing underground coal mining legislation in Canada, with a view to identifying commonalities and principle differences. Approaches to reconciling key differences would be explored. Simple guidelines would then be derived in key areas, which could become a loose framework for underground coal mining safety in Canada. Such guidelines could then be referenced by the individual jurisdictions as appropriate. It is proposed that such a simple framework would facilitate the industry as a whole, benefiting all the stakeholders and providing a more sustainable, safe, economic and competitive base for the industry as it grows. To be clear, UCMSRC is not seeking to develop a national Code nor a single set of regulations, for that would be neither feasible, desirable nor legally possible. Rather UCMSRC seeks to encourage collaboration to develop a set of guidelines forming a simple framework which would respect the integrity and mandate of the different Canadian jurisdictions and could be referenced where appropriate by each jurisdiction.

As these proposals go beyond UCMSRC's usual field of research activities, it is seeking the formal cooperation and support in principle of the Chief Inspectors. A joint working group is proposed along the lines of existing UCMSRC projects involving those who are members of both the Chief Inspectors group and UCMSRC and other stakeholders representing, operators, workers, consultants and researchers.

Roadmap

Such an opportunity could be realized by adopting a 'road map' for implementation. UCMSRC actively seeks input form the Chief Inspectors as to an acceptable timeframe and schedule. Such a 'roadmap' is summarized in the example provided below:

1. **Working Group**

   The work would be undertaken by a Working Group comprised of representatives of both UCMSRC and the Chief Inspectors of Mines Committee (Chief Inspectors), hopefully to be formally established at the Chief Inspectors meeting in May 2004. It is UCMSRC's intent that this would include representatives of each of industry (employers/consultants), workers and regulators in each jurisdiction, namely, British Columbia, Alberta and Nova Scotia, and possibly Federal.

2. **A Legislative Review**

   A legislative review would be carried out on underground coal mining safety and health, covering all Canadian jurisdictions, including the various standards and guidelines already referenced, both Canadian and international. This would be done between May and the end of August 2004.

3. **Analysis of Review**

   The review would be examined to identify both commonalities and principal differences existing within all four Canadian regulatory jurisdictions (Nova Scotia, Alberta, British Columbia and Federal). The significance of the differences would be prioritized and proposed resolutions explored and recommendations made. Reference would be made to relevant experience in other jurisdictions, where appropriate. This would be done in September 2004.

4. **Derive an outline Framework for Canada**

   This knowledge would then be built upon to prepare a set of draft guidelines which would form a loose framework for underground coal mining safety in Canada. These

would be outlined for subsequent consideration by the Chief Inspectors. Such a framework would respect the integrity and mandate of the different Canadian jurisdictions and would not be directed towards a national Code nor a single set of national regulations, for this would be neither feasible, desirable nor legally possible. This would be done between October and November 2004.

5. **Prepare and distribute a Working Draft Discussion Paper**

   A discussion paper or working draft would be prepared in December 2004 and January 2005, for distribution to stakeholders, both UCMSRC and Chief Inspectors, for their consideration in February 2005.

6. **Prepare Discussion Document for Chief Inspectors**

   During March and early April 2005, feedback from stakeholders on the working draft would be incorporated into a final draft for consideration in April 2005 by Chief Inspectors of Mines at their the Annual Meeting prior to a brief formal presentation to them at their annual meeting in May 2005.