

SUMMARY REPORT

Legislative Review Project

Prepared for

Underground Coal Mining Safety Research Collaboration

by

DJF Consulting Limited

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Introduction

The Underground Coal Mining Safety Research Collaboration (the Collaboration) is a collaboration between stakeholders, formalized by a Memorandum or Letter of Understanding (MOU/LOU), renewed on an annual basis. Participants include operators, labour representatives, regulators, inspectors and university researchers from across four jurisdictions (Nova Scotia, Alberta, British Columbia and initially Federal). The Collaboration has two main goals, one to provide a forum for exchange of news, views and experiences between stakeholders and the other to conduct specific research projects on topics of mutual interest.

In the spring of 2004, the Collaboration sought support in principle for a joint effort between them and the Association of Chief Inspectors of Mines of Canada¹ (the Chiefs) for a new project. The request was set in the context of the significant decline of the underground coal mining industry in Canada at the end of the twentieth century. This decline provides considerable challenges for those involved in maintaining adequate, current, appropriate and applicable safety and health provisions within the industry, given four specific legislative jurisdictions are involved. This in turn presented a potential opportunity for increased regulatory efficiency as implied in a debate within the Collaboration raising industry concerns about the pros and cons of harmonization of underground coal mine regulation.

Specifically this opportunity would be pursued through further cooperation and collaboration between the various Canadian jurisdictions involved, specifically British Columbia, Alberta, Nova Scotia and Federal. This gave birth to the idea of the project based 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 rapidly became clear, however, that explicit harmonization involving specific consideration of a national Code or a single set of regulations did not have consensus support by the Chiefs and this would *not* be the focus of the project.

In May 2004, the Chiefs gave the Collaboration their overall support in pursuing the above concept, which became the “Legislative Review” project. Over the next 2 years, the

¹ “Towards a Framework for Underground Coal Mining Safety in Canada: A Discussion Document for the Chief Inspectors of Mines” UCMSRC May 9, 2004

Collaboration's project working group pursued the project to a conclusion, presenting progress to subsequent annual meetings of the Chiefs in April 2005 and May 2006. This report has been a living document for the last couple of years and in this, its final form comprises a formal text, summarizes the project work, outlining progress made and findings made and conclusions drawn, supported by appendices where appropriate. It has been prepared by a project co-chair, in this case also the Collaboration's Technical Advisor, and is for the information of both the Collaboration and the Chiefs.

The report format comprises the following sections: Introduction, Approach, Findings, Conclusions and Recommendation. The report is for the consideration of both the Collaboration and the Chiefs Inspectors of Mines.

Approach

Understanding & Intent

The overall intent of the Legislative Review Project was to review existing provincial and federal legislation relating to underground coal mining safety in Canada (four Canadian jurisdictions) in order to identify the many commonalities but also highlight any significant differences related to underground coal mining safety. This initial intent was to produce some guidelines for addressing the differences to form a simple framework on underground coal mining safety in Canada. The intent was definitely not to work towards a single Canadian regulation or code, rather to jointly explore scope for mutual benefit through closer collaboration.

Perceived benefits of the project were seen 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.

Scope

The scope of work for the project centered on the comparison of health and safety legislation affecting underground coal mining and covered the four principal jurisdictions involved: British Columbia, Alberta, Nova Scotia and Federal. The specific legislation reviewed was:

- ❖ **British Columbia**
Health, Safety and Reclamation Code for Mines in British Columbia (2003)
- ❖ **Alberta**
Occupational Health and Safety Code Explanation Guide- Part 36 Mining (2004)

- ❖ **Nova Scotia**
Underground Mining Regulations (2003)
- ❖ **Federal**
Coal Mines (CBDC) Occupational Safety & Health Regulations (1990)–Canada Labour Code.

The comparison was to focus on principal topics of interested to be selected by the project team and other stakeholders as appropriate. The scope comprised essentially four items:

- Comparative review of Canadian legislation focused on selected topics
- Identify commonalities and principal differences
- Consider regional differences, as applicable
- Prepare as a deliverable a Summary Report.

Project Team

Various volunteers, who were drawn from the Collaborations' Participants, performed the project work. Periodic conference calls were held from time to time and supplemented by face-to-face meetings where circumstances allowed and on an as required basis.

As this project covered a period of two years from May 2004 to May 2006, team composition and extent of participation varied but included the following individuals:

- **Co-Chairs:** Gary Bonnell and Dave Forrester
- **Members:** Peter Cain, Gary Corbett, Kresho Galovich, Bobbie Gillis, Don Hindy, George Klinowski, Wayne Rogers, Al Hoffman, Richard Booth and Ed Taje, Pleman Woodland, Dave Young.

Work Plan

At the outset of the project, the presentation made to the annual Chiefs' meeting in 2004 included a 'roadmap' or work plan, as follows:

1. Working Group

The work would be done by a Working Group comprised of representatives of both the Collaboration and the Chiefs, 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. 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.

3. 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.

4. 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 the Collaboration and Chief Inspectors, for their consideration in February 2005.

5. 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.

However, two significant variations were subsequently made in this:

- (i) the emphasis on a framework was dropped in favour of simply identifying topics for further consideration within each jurisdiction; and

- (ii) the schedule proved too ambitious and was extended by one year or more due to the constraints of budgetary limitations and the reliance on voluntary participation.

Subsequent progress was reported at scheduled meetings of the Collaboration several times per year and at the Chief's annual meetings in April 2005 and 2006.

Findings

As the project developed it rapidly became clear that a combination of the extensive content of the various Acts, Regulations and Codes involved together with the volunteer basis of the team would mean that an extended time frame was needed. It was agreed at the outset that the Safety Code for British Columbia would be used as the basis of the comparison as it was comprehensive, covering underground mines from the 'cradle to the grave', had a logical framework and had just undergone a periodic review/update. The first jurisdiction to be compared with this was the Alberta Code, mainly because it also was Code based and a similar review/update process was just beginning.

By April 2005 the following summary findings had been made:

Overall Jurisdictional Approach

First, although it is hard to categorize and compare legislation outside of its broader context, the four jurisdictions considered in the review essentially fall into two categories, reflecting international trends in mine safety evolution:

- (i) traditional - prescriptive legislation: the Nova Scotia & Federal Regulations
- (ii) Contemporary - results-based codes: the British Columbia and Alberta Codes

The latter often involve a greater degree of self-compliance, less reliance on formal inspection and subsequent compliance orders or directives. They are generally considered to be more enabling, easier to keep up to date and have been found to enhance safety performance in the mining industry.

- Alta - new OHS Code (2003/4) inc. updated Mines Safety Reg's
- Both are a blend of performance-based & specification-based requirements, promoting responsibility and accountability, where the mines are expected to cover the "how" of compliance and the Department focuses on their safety performance.

Second, Alberta's Code is structured differently to the other three in that formal prominence is given to the principle of Hazard Assessment at all work sites, as featured in Part 2, which sets a foundation for all the subsequent Parts. However, it is understood that Alberta consciously did not extend this approach to that adopted in Australia and the United Kingdom in recent years, namely that of Risk Assessment. By placing their focus on hazard identification and mitigation, and not on risk, Alberta clearly leaves all consideration of the associated risks to work place safety and operational efficiency, etc and risk management to the Employer.

Commonalities & Differences

Overall there are of course many similarities between the detailed requirements, certainly in content, but also in specific requirements. As noted above, however, Alberta alone highlights the prominence of a Hazard Assessment foundational approach.

At this stage in the project, it seemed that British Columbia compared to Alberta doesn't specify the following:

- Precautions against Inrushes & Inflows
- Booster Fans
- Support Rules (roof and sides)
- Conveyor Manriding

Also, it seemed that Alberta compared to British Columbia doesn't specify the following:

- Open flames
- Some Conveyor & Remote Control details
- Old workings
- Many cases where detailed specifications vary, e.g. flammable gas limit relaxation for lowering Volatile Matter content of the coal

Neither specifically address working under bodies of water, reflecting the regional nature of active coalfields in these two jurisdictions (although historically there were underground coal workings under the ocean (Georgia Strait) at Nanaimo in Vancouver Island, British Columbia.

It is noted that both BC and Alberta cover both underground and surface mines, both coal and non-coal but that whereas BC Code includes the permitting of underground coal mines, the Alberta Code does not.

By April 2006, the comparison had extended to include both Nova Scotia and the Federal jurisdictions. These still both adopt the traditional prescriptive approach and their Act and Regulations do not enable Safety Codes.

The review of the Nova Scotia Regulations illustrated the importance of understanding the overall context and structure of any legislation because at first comparison there seemed to be big gaps in coverage. However, the Underground Mining Regulations are only one of 10 sets of regulations enabled by the Act and items like conveyors are covered in at least one of the others.

The results of the comparison are presented in a resultant summary spreadsheet, see Table 1. This includes over 170 topics, which the Collaboration considered were topical and of particular mutual interest and compares the requirements across the four jurisdictions. This consciously excludes the topics of explosives and hoisting. This table has formed a useful 'Ready-Reference' / 'Simple Cross-Index' for Participants. The "master" spreadsheet comprising the complete four sets of regulations is too cumbersome for inclusion in this report, however is available from CANMET² upon request.

Prior to completion of the project, in January 2006 there were a number of serious mine accidents in North America (e.g. Sago, West Virginia and K2 in Saskatchewan), which generated a lot of interest in regulatory requirements in the various jurisdictions. Largely in response to that, a further variation of Table 1 was produced, that is Table 2, which includes not only the reference information (Section-subsection numbers, etc) but also the relevant text for a number of key questions asked at the time.

Conclusions

The Collaboration identified a topical area of concern among participants concerning varying regulatory requirements concerning occupational health and safety in underground coal mining across the four Canadian jurisdictions involved. This concern led to a project proposal, which was discussed with and supported by the Chief inspectors of Mines. The project subsequently unfolded across two years. The project was considered successful in that it provided the basis for

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full and constructive debate among stakeholders around the issues of differing regulatory approaches, variation in requirements across Canada and potential collaboration. In a more tangible form it also provided a useful summary spreadsheet which enhances a ready cross-reference index for those topics listed (Table 1, this includes feedback from the Chiefs after the May 2006 meeting). This has been used in several jurisdictions concerning related matters and in Alberta it was used extensively by their Code revision committee.

The final presentation of the project to the Chiefs in May 2006 was well received and the findings accepted with little discussion. An extension of the project to include US 30CFR and other relevant international jurisdictions was postponed indefinitely.

Recommendation

A request for the Chief's ongoing support was also made at that meeting and was granted for the follow-on project on "training, qualification and competency", subject to pending consideration of related funding and consultation with BC Ministry staff members. Funding was indicated to be at or near previous levels.

Acknowledgements

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Appendix 1 - Progress Updates, April 2005

The first annual progress update to the chiefs included the following highlights:

Progress

- Assembled base data in electronic form
- Created a working spreadsheet for BC Code
- Added the Alberta Code into the spreadsheet
- Compare Alberta and BC Codes (Approach & Details)
- Added Nova Scotia Regulations
- Made a start on Federal CBDC Regulations
- Personnel availability was limited & data handling was complicated.

April 23 2005 Findings to date

Comments on Jurisdictional Overall Approach

- BC - 'results-based' Code, less inspection/order, more enabling code form
- Alta - new OHS Code (2003/4) inc. updated Mines Safety Reg's
- Both-are a blend of performance-based & specification-based requirements

Details

- Many similarities, Alta alone has formal Hazard Assessment requirements,
- Created a working spreadsheet for BC Code
- It seemed that BC doesn't specify
 - Precautions against Inrushes & Inflows
 - Booster Fans
 - Support Rules (roof and sides)
 - Conveyor Manriding
- Alberta doesn't specify
 - Open flames
 - Some Conveyor & Remote Control details
 - Old workings
 - Many cases where detailed specifications vary, eg Gas/VM
 - Neither specifically address working under bodies of water

Work was still in progress.

Revised Action Plan 2005

Complete the Legislative Review

- review of Canadian regulations and references by Aug 05

Analysis of Review

- identify commonalities & differences and explore resolutions by Sept 05

Draft a Comparative Review for Canada by Nov 05

Prepare and Distribute a Working Draft

- working draft to stakeholders, feedback by Feb 06

Present an Update to the Chiefs finalize the draft for May 06

April 2006

The first annual progress update to the chiefs included the following highlights:

Review Documents

- Health, Safety & Reclamation Code of BC 2003
- Occupational Health & Safety Code of Alberta 2003
- Underground Mining Regulations of Nova Scotia 2003
- Coal Mines (CBDC) Occupational Health & Safety Regulations 1990

Progress

- 2004-5: Converted BC, Alta & NS Codes into Excel format; Created a working spreadsheet for BC Code
- 2005-6: Added the Federal Regs (Devco) 1990
- Compared all 4 Codes/Regulations & received input from Collaboration Participants
- Focussed on key topics - summary sheet > highlight topics apparently ‘missing’ from each jurisdiction
- Much interest internationally after ‘Sago’: over 500 hits on ‘ugcoal.ca’ “public” website since then
- Will now move on to a derivative but complementary project on “competency training and qualification”

Comparison of Codes/Regulations

Variations in Overall Approach

- BC & Alta are ‘results-based’ Code *not Regulations* (less legal review)
- NS & Federal (CBDC) are Regulations (time consuming to update)
- BC - 2003 Code: Chief Inspector; cover ‘from cradle to grave’; are results based > desired outcomes not prescriptive > employer is responsible; offer more flexibility
- Alta - 2003 Code: Director; excludes permits (AEUB); based on hazard assessment of work sites > desired outcomes not prescriptive
- NS - 2003 Reg’s: Largely prescriptive: Director; excludes permits (NSDEL/NSDNR); no Mines Examiners Board > Job Training Programs;
- Federal - 1990, CBDC Reg’s: Largely prescriptive: Coal Mining Safety Commission (CMSC) responsible for approvals, exemptions. Updated 2002

The resultant summary spreadsheet forms a useful Ready-Reference Cross-Index for jurisdictions, Tables 1, a large supporting detail spreadsheet is available on file at CANMET.

Detail Comparison

- No intent to make ‘right’ or ‘wrong’ comparisons
- Style differences e.g. usefulness of a single list of other standards
- Some key items covered elsewhere e.g. WHMIS, and in NS – conveyors
- Many similarities, but some key differences:
 - Philosophy of Approach
 - e.g. desired outcomes vs prescriptive > all need some prescription but the question is raised: what and how much detail?
 - e.g. topics: air quality/quantity/velocity; offset of fan; RCD’s; light alloys
 - e.g. procedures: hot work/welding; degassing
 - Reflection of local experience/conditions
 - e.g. depth and methane; undersea working; interaction; use of diesels; volatile matter adjustment

- some key prescriptive limits vary e.g. incombustible dust content at 50% - 80%
- Some commonalities
 - e.g. electricity off @ 1.25% methane/firedamp *but* some differences: workers out 2.0% and 2.5% methane
- Recommendations
 - Some areas have been listed for further consideration by each jurisdiction in the Appendix.

Action Plan 2006

Complete the Project:

Draft Report “Comparative Review for Canada”

Prepare and Distribute to stakeholders,

Final Report Fall 2006

Seek Stakeholder Feedback following Sago (WV) & K2 (Sask) incidents

Future Work in Parallel on a Project on Competency, Training & Qualifications