



Health & Safety at Work

Prevention Starts Here

Mining Health, Safety and Prevention Review

June 25, 2015

Review Process

- Ontario's Chief Prevention Officer completed a comprehensive review of the health, safety and prevention issues related to underground mining.
- The review began in January 2014.
- A Progress Report was presented to the Minister in September 2014.
- Six working groups have developed written reports and made recommendations which were considered by the Chief Prevention Officer (CPO) with input from the Advisory Group.
- Final Report recommendations were accepted by the Minister on April 15, 2015
- Final recommendations are from the CPO to the Minister.

Report on MOL website

:<http://www.labour.gov.on.ca/english/hs/pubs/miningfinal/index.php>

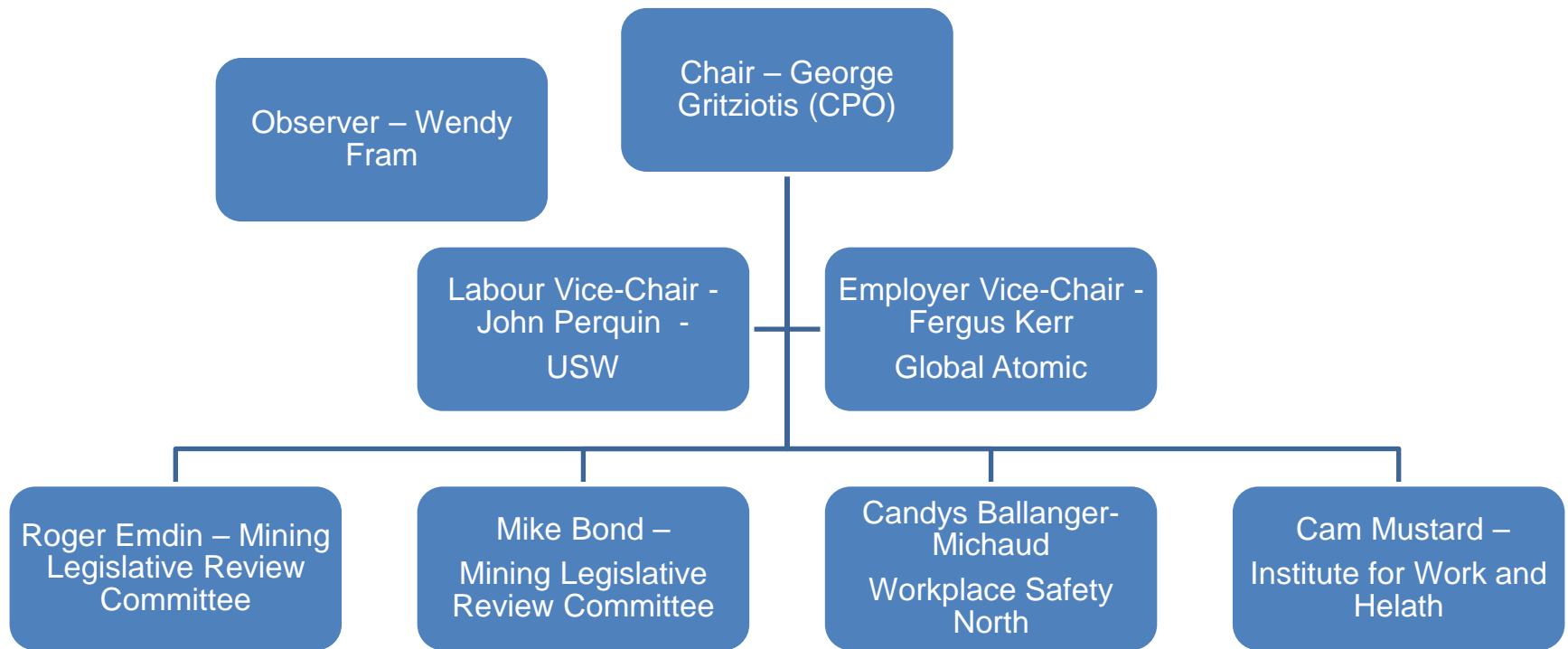
Reason for the Review

- A double fatality in the Vale's Stobie Mine produced a call for an inquiry into mining health and safety.
- A group, Mine Inquiry Needs Everyone's Support (M.I.N.E.S.), was active in a letter writing campaign and meeting with members of the provincial legislature.
- The Minister of Labour decided that a review of mining health and safety was an appropriate vehicle to investigate mining health and safety.
- The Chief Prevention Officer was selected to lead the Review process
 - The CPO was able to bring together the various stakeholder groups into the Review
 - The CPO was able to implement changes before the end of the Review
 - The CPO is able to take the findings and recommendations of the Review and apply them to all workplaces in Ontario.

Advisory Group

- An advisory group was created to provide the review with industry expert advice on the issues to be addressed, the manner in which stakeholders should be consulted and a body to review reports.
- The advisory group is composed of worker and employer representatives and representatives from Workplace Safety North, the Institute for Work and Health and the Mining Legislative Review Committee co-chairs.
- Working groups, made up of worker and employer representatives, were created to provide a detailed examination of issues and/or to provide a greater coverage of a number of issues that could normally be done in a limited timeframe.

MHSPR Advisory Group



Stakeholder Engagement

To ensure the Review was informed by public and stakeholder views as well as empirical data, a consultative and transparent process was used which included:

- 1. An **Advisory Group** comprised of key mining stakeholders from employer and labour organizations and relevant health and safety organizations. The AG met 8 times.
- 2. Twelve **public consultations** with individuals and organizations who are most affected by and knowledgeable about the mining sector, including mining community stakeholders and partners (both labour and employers), academic experts, educators / trainers, community organizations, government workers and other relevant groups and individuals. In total, 150 people participated in the public consultations, and the Review received 35 formal presentations and 64 written submissions.
- 3. Four **site visits** to mines that represented different hard and soft rock mining environments, where the Chief Prevention Officer and members of the Advisory Group could observe first-hand a variety of mining techniques including bulk mining, cut-and-fill mining and room-and-pillar mining.

Review Engagement

- 4. **Research** into best practices in mining safety, prevention and enforcement in Ontario and around the world, which provided information on initiatives that have been successful in improving mining health and safety.
- 5. A **risk assessment** to help the Review fully understand the risks workers face in underground mining.
- 6. Six **working groups**, with representatives from labour and employers, to address key issues identified by the Advisory Group. The working used a variety of sources of information including consulting subject matter experts, reviewing recommendations from previous inquiries and inquests, and feedback from the public consultations. (See Volume 2 of final report for list of people consulted.) Each working group had terms of reference and scope of work.
- 7. A **resource group** of subject matter experts who provided information to the working groups on an as-needed basis

The Review was coordinated by a secretariat in the Ministry of Labour.. Additional support was provided by the Ministry of Northern Development and Mines and Workplace Safety North.

What did the Review look at?

- Based on the analysis of the issues within the mining sector, six topic categories were selected.
- Six working groups were formed to study and report on ways to positively impact:
 - the capacity of the health and safety system to meet the needs of the mining sector, including current regulations and enforcement mechanisms
 - the impact of technological changes on health, safety and prevention in underground mines including the role of risk assessment as part of the management of change process
 - training, skills and labour supply issues;
 - the Internal Responsibility System;
 - mining hazards
 - emergency preparedness and mine rescue

Working Groups

- Each working group operated under a terms of reference that outlined the scope of work they were to undertake.
- The working groups were composed of a labour representative and an employer representative. Each group was also had a facilitator who was responsible for preparing the final working group reports.
- The working groups were mandated to do research into their topics and were given latitude to specify the areas they would study in-depth and the approach they would use to complete their work. Where there were relevant coroner jury recommendations or recommendations from past inquires these were provided to the working groups.
- The working groups and/or the facilitators meet with the Advisory Group to provide updates and to receive advise on the work.
- Most groups began their work in mid 2014. The hazard working group started later as it used the information from the mining sector risk assessment as the basis for its work.

Report Process

- Each of the six topics were studied in isolation from each other.
- In fact, topics are inter-related and changes suggested to address issues in one subject area will impact other issues
- Many of the working groups suggested similar methods to address issues as other working groups in addressing their subject focus.
- The final report attempted to consolidate working group recommendations whenever possible, especially those issue that would require regulatory change.
- Given the report's recommendations were from a government official to the Minister, the wording of the recommendations had to reflect the fact that it is the government that creates regulations.
 - When the report states, “The Ministry will require.....” this should be read as the Ministry of Labour is going to make a regulatory change.

Mining Health Safety and Prevention Review

- The final report contains 18 recommendations.
 - One of these recommendations does include 5 regulatory changes
 - The recommendations address key issues identified by the working groups dealing with the six topic areas.
 - The recommendations in the final report were reviewed by the Advisory Group and are a consensus statements
- While many of the recommendations can be implemented by the Ministry of Labour, several recommendations are directed to other system partners and some can only be implemented in cooperation with the industry and other Ministries.
- In addition to the recommendations, early deliverables have been identified as have issues requiring further study.

GOODMAN SCHOOL OF MINES
2015 LECTURE SERIES

MINING HEALTH, SAFETY AND PREVENTION REVIEW

AN OVERVIEW OF THE HAZARDS OBJECTIVE

Mining Health, Safety and Prevention Review
Hazards Objective Working Group
June 25th, 2015

Presentation Contents

- **Working Group Mandate, Membership and Work Plan**
- **Findings and Conclusions**
- **Recommendations**

Working Group Mandate, Membership and Work Plan

- **The mandate of the Hazards Objective Working Group was to identify:**
 - *the high priority health and safety hazards (i.e. hazards with the highest levels of unmitigated risk) that current exist in underground mines in Ontario;*
 - *opportunities to reduce the levels of risk associated with the high priority hazards.*

Working Group Mandate, Membership and Work Plan

■ Hazards Objective Working Group Membership:

Member	Role	Organization
Eric Lachance	Labour Representative	United Steelworkers, Nickel Rim South Mine
Frank Demers	Employer Representative	Vale Limited, Ontario Operations
Dwayne Plamondon	Resource	Workplace Safety North
Brian Hanulik	Resource	Ministry of Labour
Bob Barclay	Facilitator	Ministry of Labour

Working Group Mandate, Membership and Work Plan

- **The Hazards Objective Working Group work plan consisted of the following key elements:**
 - *A detailed review of the findings from a Mining Sector risk assessment session that was conducted on June 13th, 2014, in order to select the specific high priority health and safety hazards to be examined as part of Hazards Objective.*
 - *For each of the specific health and safety hazard themes to be examined, the preparation of a formal statement of work that defines the direction of the examination for each theme.*
 - *For each of the health and safety hazards themes to be examined, the identification of a group of subject matter experts to provide advice on the state of existing controls for the hazard in question.*
 - *Meetings with the identified subject matter experts for each hazard theme, in order to identify opportunities for improving the existing hazard controls (i.e. elimination or substitution controls, engineering controls, procedural controls and administrative controls).*

Findings and Conclusions

- ***Regarding the analysis of the findings from the June 13th, 2014 Ontario Mining Sector, the key findings and conclusions were as follows:***
 - ***The risk assessment process was organized by the Ministry of Labour in early 2014 and engaged both labour and employers in evaluating and ranking the predominant health and safety hazards in underground mining in Ontario.***
 - ***Relying primarily on the risk assessment outcomes, the following five priority health and safety hazard themes were identified:***
 - ***Ground control hazards.***
 - ***Occupational disease hazards.***
 - ***Hazards associated with water management.***
 - ***Hazards associated with mobile equipment.***
 - ***Worker fatigue.***

Findings and Conclusions

- **Regarding the *ground control hazard theme*, the Review focused on *seismicity and rockbursting* and identified opportunities to improve:**
 - *the ability to identify any predisposition for seismicity and rockbursting at the mine design stage, including better reliance on risk assessment methods and better quality geotechnical data;*
 - *the way microseismic monitoring results are managed, analyzed and interpreted;*
 - *operational controls, including de-stress blasting practices and the use of re-entry protocols following rockbursts;*
 - *research into ways to minimize the occurrence of seismicity and rockbursting in underground mines.*

Findings and Conclusions

- **Regarding the *occupational disease hazard theme*, the Review focused on *airborne hazards* such as diesel particulate matter and silica in underground mines and identified opportunities to:**
 - *raise awareness among workers and employers - of the importance of controlling risks to health from airborne hazards in underground mines;*
 - *increase understanding of the health effects of exposure to diesel emissions in underground mines and improve controls;*
 - *review and update occupational exposure limits for airborne hazards in underground mines;*
 - *identify and publicize available options for monitoring ventilation in underground mines in order to reduce concentrations of airborne hazards.*

Findings and Conclusions

- **Regarding the *water management hazard theme*, the Review focused on undesired and *problematic water in ore and waste passes and chutes* in underground mines and identified opportunities to improve methods currently used to:**
 - *prevent and minimize the amount of water - both naturally occurring and introduced as part of the mining process - entering underground mines;*
 - *remove water that has entered underground mines;*
 - *safely manage water once it has inadvertently entered ore and waste passes and chutes.*

Findings and Conclusions

- **Regarding the *mobile equipment hazard theme*, the Review focused on the risks of *collision* and identified opportunities to:**
 - *coordinate research into developing line-of-sight , proximity detection devices and collision avoidance systems;*
 - *enhance understanding of the cognitive impact of line-of-sight , proximity detection devices and collision avoidance systems on mobile equipment operators.*

Findings and Conclusions

- **Regarding the worker *fatigue hazard theme*, the Review focused on the effect of *irregular shift schedules* and identified opportunities to:**
 - *improve understanding of the extent to which worker fatigue has played a part in serious injuries and fatalities in underground mining in Ontario*
 - *learn from progress other sectors have made in addressing worker fatigue issues.*

Recommendations

- 1. The Ministry of Labour, supported by all relevant health and safety system partners and subject matter experts, to undertake a Mining Sector Risk Assessment with employers and labour every three years.**
- 2. The Ministry of Labour to require employers in the mining sector to conduct risk assessments, which would include measures and procedures to control the risks identified in the assessment as likely to expose a worker to injury and illness. The joint health and safety committee, health and safety representative, union or workers be consulted on the risk assessment. Employer risk reassessments are to be done as often as necessary to ensure programs that result from the assessment continue to protect workers.**

Recommendations

3. **The Ministry of Labour to work with its Research Advisory Council to focus its grants and research on topics that address the priority hazards identified in the Mining Sector Risk Assessment, and disseminate and act upon the findings where appropriate. In particular, the Review identified several research opportunities:**
 - *Defining the scientific basis for de-stressing practices, and developing guidance materials that define best practices for de-stressing.*
 - *Exploring options for collaborating with technology developers to mitigate risks associated with seismicity and rockbursting (i.e. similar to the Australian Centre for Geomechanics model).*
 - *Defining and quantifying the harmful health and safety effects of worker fatigue in the Ontario Mining Sector, and researching other sectors (i.e. transportation, health care and the military) to see how the Mining Sector compares, and how the problem has been managed.*
4. **The Mining Legislative Review Committee to align the majority of its work with the major hazards identified in the sector level risk assessment exercise.**

Recommendations

5. **The Ministry of Labour to require that mining employers to address the priority hazards identified in the risk ranking exercise:**
 - *Enhance ground control protection by identifying key elements in the control of these hazards, and requiring employers to maintain a record of significant seismic events in addition to incidents of ground instability.*
 - *Require employers to prepare a formal plan to manage hazards that cause occupational illness, including requirements for worker and supervisor training and communication.*
 - *Require all underground mines employers to have in place a formal water management program.*
 - *Specify that precautions be taken by employers to guard against the accumulation of water in bins, ore and waste passes and chutes.*
 - *Require all underground mines to have in place a formal traffic management plan.*
6. **The Ministry of Labour to review existing occupational exposure limits for a number of key airborne and chemical hazardous substances in underground mines with a view for giving further consideration to the limits for those substances and, if appropriate and advisable, amend Regulation 833. Priority to be given to a review of the occupational exposure limits for silica, nitrogen dioxide and diesel particulate matter. Other hazards to be considered include sulfur dioxide, and radon.**

The Impact of New Technology and Change Management

Goodman School of Mines
Sudbury, ON

June 25th, 2015

Vic Pakalnis, P. Eng., MBA. M. Eng.
President and Chief Executive Officer
MIRARCO Mining Innovation

Vic Pakalnis – President and CEO of MIRARCO Mining innovation



 **Mining Engineer, B.Eng., M.Eng., MBA**

 **Professional Engineer since 1976**





 **30 Years in Public Service**

**(including Chief Mining Engineer, Director of Mining Health
and Safety Board)**

 **Kinross Professor in Mining and Sustainability at
Queen's University**

 **President/CEO MIRARCO Mining Innovation.
Safety, Productivity, Sustainability in the Mining
Industry**

Past Inquiries and Reviews

-  **Ham Commission, 1976**
-  **Burkett Commission, 1981**
-  **Stevenson Report, 1986**
-  **Ontario Health, Safety and Prevention Review, 2015**

Management of Change

- With changes in technology and organizational structure come risks and unintended consequences.
- A MOC Best Practices document based on Ontario and international experience on MOC policies has been prepared.
- Regulations, Codes and Guidelines are in many cases unclear or dated. In some cases they inhibit safer innovation of new technologies

Change Management Strategies

 The introduction of new technologies plays a major role in improving performance and processes, however, each new technology requires proper change management strategies

 Proper change management can:

 Help identify and eliminate hazards

 Improve equipment performance

 Improve bottom line production

 Improper change management can:






 Introduce new hazards into the workplace

Technological Advances

- ▣ **In order to make the mining environment safer, many new technologies are being developed, including:**
 - ▣ **Tier 4 engines that reduce emissions**
 - ▣ **Diesel Oxidizing Catalyst (DOC) technology on diesel equipment**
 - ▣ **Ventilation on demand systems to improve air quality**
 - ▣ **Fire suppression systems reducing risks associated with underground fires**
 - ▣ **Mobile equipment position and location monitoring**
 - ▣ **Proximity detection devices and cameras on equipment**

Key Elements of Effective Change Management

 The findings of the review indicate the key elements of an effective change management process include the following:

-  Leadership Support
-  Worker Involvement
-  Organizational Support
-  Training for Participants
-  Clear Procedure

Challenges in Change Management

- ▣ Mining is a global business – change management in Ontario may fall outside policies set by the company globally
- ▣ The size and resources of a company may affect its ability to implement, manage and maintain an effective management of change process
- ▣ Change management is ineffective without buy-in from labour and JHSC
- ▣ The impression of lengthy implementation may limit engagement and buy-in

Challenges in Change Management

- ❏ **The impression of lengthy implementation may limit engagement and buy-in**
- ❏ **The tendency to apply regulations in a prescriptive manner may be a barrier to a mature understanding and effective application of change management processes**
- ❏ **Limited change management within the government's mine inspection services and inspectors are unable to provide adequate guidance to companies implementing change management processes**

Ontario Health, Safety and Prevention Review

 **Review Launched Jan 2014**

 **Provided recommendations in the following areas:**

- 1. Capacity of the Health and Safety System Working Group**
- 2. Technology and Management of Change Working Group**
- 3. Internal Responsibility Working Group**
- 4. Training, skills, and Labour Supply Issues Working Groups**
- 5. Hazards Working Group**
- 6. Emergency Preparedness/Mine Rescue Working Group**

Panel Recommendation

- Amend the Mining Regulation to require mine operators to establish a written management of change process
- This would provide means to evaluate and understand the implications of change and apply adequate mitigations
- Worker and JHSC would be involved in the process



Thank you



Health & Safety at Work

Prevention Starts Here

Mining Health, Safety and Prevention Review Emergency Preparedness/Mine Rescue

June 24, 2015

Ontario Mine Rescue

Formed in 1929 in response to the death of 39 miners in a fire at Hollinger Mine

In 1965 a fire at McIntyre Mine resulted in the recognition that deeper mines required the use of breathing apparatus

In 1984 a rock burst at Falconbridge mine lead to the Stevenson Inquiry that recommended Mine Rescue expand to include both fire and non-fire underground emergencies

Training was expanded to include rescue and recovery activities

In 2011, mine rescue teams worked with HUSAR responding to the effect of a tornado at the Goderich Salt mine that killed a worker.

Emergency Preparedness Working Group

Facilitator –

Alex Gryska – General Manager – Ontario Mine Rescue - WSN

Working Group members –

Jamie Mortson – Health and Safety Manager – Lake Shore Gold

Dave Stewart – UNIFOR – JHSC Coordinator – Sudbury Integrated Nickel Operations.

Experts –

Jamie West – Smelter Worker Representative – Vale

John LeClair – Director, Health and Safety – Goldcorp Canada

Resource Support –

Scott Campbell – Manager Emergency Management - MOL

Issue Identification

- Reviewed existing sources of information including the results of the Mining Review consultations and past coroner jury recommendations
- Consulted with members of the mine rescue community
- Identified issues and potential gaps between the regulations and the issues
- Compared the Ontario situation with other jurisdictions

Focus of the Working Group

Based on the analysis done by the working group 3 areas were selected for further study:

1. Regulatory Requirements
2. Emergency Responder Requirements
3. Program Requirements

Each of the areas had several topics of interest

1. Regulatory Requirements

- 1. Exploration Mine Sites/Properties - There are no current requirements for exploration sites to have an emergency preparedness plan. A lack of local emergency response creates a high risk level.
- 2. Emergency Response Plans – There is no current requirement for an emergency response plan for all the possible emergency situations that potentially can occur in a mining workplace
- 3. Lack of a reference to the Ontario Mine Rescue Handbook - This potentially could lead to a variation in the way that mines address emergency preparedness. Other jurisdictions have more prescriptive regulations.
- 4. Lack of requirements for surface mines - The current regulation requires surface mines and plants to have a fire plan but there is not a requirement to have a plan for other emergencies.

2. Emergency Responder Requirements

- 1. Competency Assurance - The present number of training hours does not allow for a complete coverage of all the training issues
- 2. Ability to Respond – As mines get deeper and more laterally expansive travel time has increased which leads to new hazards for mine rescue staff
- 3. Fitness of Volunteers - While requirements for physical examinations are in place there is a need to ensure that medical staff understand the physical requirements of mine rescue personnel
- 4. Acclimation of Responders - heat and humidity are significant factors and there must be strategies in place to deal with individuals would are no acclimated. Training in high heat environments should also be required

3. Program Requirements

- 1. Training Delivery Systems - Alternate training methods should be evaluate.
- 2. Mine Rescue Competitions – More competitions would allow for continuous improvement of team member skills
- 3. Mine Rescue Technical Advisory Committee – Success of the Ontario Mine Rescue program depends on the support of the mining industry
- 4. Technology – There is a potential to minimize risk related of emergency response through the use of new technologies

Recommendations in the Final Report

- 3.1. The Ministry of Labour to require mining companies to conduct risk assessments to establish Emergency Response Plans for exploration sites, new mines, surface mines and mining plants.

- 3.2 Workplace Safety North to revise the Mine Rescue Handbook to include guidelines for fitness of crew members, critical incident stress management and acclimatization of emergency responders.

- 3.3 The Ministry of Labour to work with stakeholders to develop proposed recommendations regarding the responsibilities of mine rescue crew members and mine owners/employers, with respect to mine rescue operations.



A row of yellow hard hats is shown on a shelf, receding into the distance. The hats are arranged in a neat line, and their reflective surfaces catch the light, creating highlights and shadows. The background is dark, making the bright yellow of the hats stand out.

Mining Health, Safety and Prevention Review

Training, Skills and Labour Supply Issues

Presenter: Robert Merwin

Working Group Members: John LeClair and James Niemi

June 25, 2015

Future Labour Supply

In the near future,
Ontario's mining
sector will face
potential skill and
labour shortages.

Labour Supply Challenges

Currently 26,000 employees including 12,000 underground.

New mine development & expansions, pending retirements and new skill requirements will impact labour force

The Mining Industry Human Resources Council (MiHR) has produced a set of 3 estimates of total hiring requirements for the province of Ontario, from the year 2016 to 2021.

Cumulative Hiring Requirements		
	2016	2021
Contractionary	5,410	14,080
Baseline	6,700	15,810
Expansionary	7,640	16,910

^[1] This data was extracted from the Mining Industry Human Resources Council, "Canadian Mining Industry Employment and Hiring Forecasts 2011," 19.

Manager/Supervisor Training

lack of experience
and training of
supervisors is an
important risk to
health and safety in
Ontario's mines.

“Inexperienced and improperly trained supervisors pose a threat to themselves and the workers who report to them.”

MHSPR Final Report
April 2015

Ensuring high quality worker training

keeping training
program content
up to date

ensuring the
consistency of
training delivery in
all sites.

Health and safety is not a static issue, it is constantly changing as workplaces and technologies evolve.

MHSPR Final Report
April 2015

Senior Management Training

**Health & safety
needs to be
established within
mining culture.**

“It is important that all people within the company be familiar with health and safety rules, processes and obligations while operating in Ontario.

Dr. James Ham

Role of Mining Tripartite Committee

MTC plays an important role in developing and updating training programs.

Mining as a Trade

Working group examined “best practices” in other jurisdictions and other Canadian approaches to certification.

Pros and cons for both perspectives.

“Some support for making mining a registered trade and developing the appropriate apprentice programs to ensure knowledge is transferred from the more experienced miner to the apprentice. However, more support for the current Common Core modular training model serves the sector well.”

MHSPR Final Report
April 2015

Recommendations:

1. Enhance supervisor and management training by:

requiring the Mining Tripartite Committee (MTC), which supports the development of Common Core training, to present to the Ministries of Labour and Training, Colleges and Universities options and recommendations to enhance supervisor and management health and safety training

tasking the Mining Tripartite Committee with the responsibility for reviewing the pre-requisites for Supervisor Common Core, determining the best format for this training classroom learning hands-on experience.

Recommendations:

2. The Ministry of Labour shall engage in discussions with the Ministry of Training, Colleges and Universities on the quality and consistency of delivery of Common Core training in the underground mining sector that will result in an evaluation of the current state of training and in circumstances where refresher training may be appropriate.

Working Group Support

Our working group would like to acknowledge the support and expert advice of the other working groups, various organizations and the following resource persons:

Sylvia Barnard

Gerry Champagne

Glenn Staskus

Michelle Foster-Chandler

Brigitte Pelletier-Cisneros

Thank you!

GOODMAN SCHOOL OF MINES
2015 LECTURE SERIES

MINING HEALTH, SAFETY AND PREVENTION REVIEW

AN OVERVIEW OF THE CAPACITY OBJECTIVE

Mining Health, Safety and Prevention Review
Capacity Objective Working Group
June 25th, 2015

Presentation Contents

- **Working Group Mandate, Membership and Work Plan**
- **Findings and Conclusions**
- **Recommendations**

Working Group Mandate, Membership and Work Plan

- **The mandate of the Capacity Objective Working Group was to:**
 - *understand the potential growth of the Sector, predict the types of mining, processing and technology that will characterize the future state of the Sector;*
 - *estimate the extent to which the Ontario Occupational Health and Safety System is capable of addressing the current and future health and safety hazards and issues associated with the Sector;*
 - *devise strategies for correcting any identified deficiencies in the Ontario Occupational Health and Safety System that would prevent it from effectively contending with the current and future health and safety hazards and issues associated with the Sector.*

Working Group Mandate, Membership and Work Plan

■ Capacity Objective Working Group Membership:

Member	Role	Organization
Alf Mills	Labour Representative	United Steelworkers, Lac Des Iles Mine
Fred St. Jean	Employer Representative	Vale Limited, Ontario Operations
Dwayne Plamondon	Resource	Workplace Safety North
Brian Lewis	Resource	Ministry of Labour
Bob Barclay	Facilitator	Ministry of Labour

Working Group Mandate, Membership and Work Plan

- **The Capacity Objective Working Group work plan consisted of the following key elements:**
 - *An analysis of the expected growth in the Ontario Mining Sector over the next five years.*
 - *A review of the capacity and technical capability of the Ministry of Labour Mining Health and Safety Program, and health and safety associations serving the Ontario Mining Sector.*
 - *A review of the training program for Ministry of Labour Mining Health and Safety Program Inspectors.*
 - *An investigation to define opportunities for improving Coroner's inquests into fatal accidents occurring in the Ontario Mining Sector.*
 - *An investigation to define opportunities for better supporting joint health and safety committees in the Ontario Mining Sector.*
 - *A review of the process for dealing with reprisals.*

Findings and Conclusions

- **Regarding *expected growth* in the Ontario Mining Sector over the next five years, the key findings and conclusions were as follows:**
 - *Global drivers of change will include the demand for commodities and related pricing, investment in mining innovation and continued growth in the supply and services sector.*
 - *Local drivers of change will include access to capital for exploration and development, production and transportation costs, energy costs, the identification of new ore reserves and the ability to improve discovery rates and future labour supply needs with new skills.*
 - *Based on these factors, the Ontario Mining Sector expects to see continued but not significant growth and related job opportunities. It is predicted that, over the next five years, slightly more new mines will start up than the number of existing mines that will close.*
 - *Based on the size of the sector alone, the relevant Occupational Health and Safety System partners will need to at least maintain their current capacity levels.*

Findings and Conclusions

- **Regarding the *capacity and technical capability* of the Ministry of Labour Mining Health and Safety Program, and health and safety associations serving the Ontario Mining Sector, the key findings and conclusions were as follows:**
 - *The health and safety pressures in the Ontario Mining Sector will come less from growth and more from the fact that the industry is becoming more technically complex. Deeper mines and more mines in remote areas will require more intense health and safety support.*
 - *In recent years, the Mining Health and Safety Program of the Ministry of Labour launched a campaign to recruit inspectors and have bolstered its inspection capacity. However, over the past two decades, the Ministry's technical capability has declined.*

Findings and Conclusions

- **Regarding the *capacity and technical capability* of the Ministry of Labour Mining Health and Safety Program, and health and safety associations serving the Ontario Mining Sector, the key findings and conclusions were as follows:**
 - ***A review of Regulation 854 of the Ontario Occupational Health and Safety Act concluded that over fifty of its two hundred and ninety-three sections require engineering support for the inspectorate to ensure effective enforcement, and that most of those fifty sections pertain to high or extreme risk hazards.***
 - ***In order of priority, the Capacity Working Group identified the following engineering disciplines required to support and enforce the Regulation:***
 - ***mining engineering;***
 - ***mechanical engineering;***
 - ***ground control (i.e. geotechnical) engineering;***
 - ***electrical engineering;***
 - ***structural engineering;***
 - ***civil engineering.***

Findings and Conclusions

- **Regarding the *training* for Ministry of Labour Mining Health and Safety Program Inspectors, the key findings and conclusions were as follows:**
 - *The Review examined in detail the training program for Ministry of Labour Mining Health and Safety Program Inspectors and found that the training consists of a comprehensive formal nine-month program for new inspectors, as well as refresher training for incumbent inspectors.*
 - *The nine-month program for a new inspector includes both corporate, ministry and program-specific components and is delivered in both classroom and field settings. The program-specific component consists of a blend of in-class and e-learning training on Regulation 854, combined with on-the-job field assignments with designated mentors.*
 - *While the training program for mining inspectors is robust, the Review identified opportunities for improvement. Given the use of new technologies in the mining sector and the emphasis on risk assessment tools to estimate the level of risk associated with health and safety hazards, it would be prudent to incorporate a “new technology” component into the training program. With this training, inspectors would be able to evaluate management of change and risk assessment processes being applied in the sector for the purpose of ensuring compliance with the proposed amendments to the regulation.*

Findings and Conclusions

- **Regarding opportunities for improving *Coroner's inquests* into fatal accidents occurring in the Ontario Mining Sector, the key findings and conclusions were as follows:**
 - *Deaths that occur as a result of an accident in the course of employment at construction sites, mining plants and mines are subject to mandatory inquests. Between 1996 and 2009, thirty-six inquests were held related to deaths in the Ontario Mining Sector.*
 - *Although the findings and recommendations from these inquests have helped stakeholders address health and safety weaknesses, they have never been analyzed in a thorough, systematic and holistic way. The Review believes this kind of systematic review will provide information that could:*
 - ❑ *Help coroners prepare for and carry out inquests into mining fatalities, by giving them a broader perspective on the health and safety hazards that have historically resulted in fatalities in the Ontario Mining Sector, since most active coroners in Ontario are unfamiliar with the mining sector and its health and safety hazards so they would benefit from this analysis.*
 - ❑ *Form a basis for recommending changes to mining health and safety statutes.*
 - ❑ *Be used to inform risk assessments (i.e. by both quantifying and qualifying the consequence and likelihood of health and safety hazards that have resulted in fatalities).*
 - ❑ *Assist in the design of health and safety programs.*
 - ❑ *Help establish priorities for auditing health and safety programs.*
 - ❑ *Be useful for education and research purposes.*

Findings and Conclusions

- **Regarding opportunities for better supporting *joint health and safety committees* in the Ontario Mining Sector, the key findings and conclusions were as follows:**
 - ***Because joint health and safety committees are critical to supporting a positive health and safety culture, the Review conducted a comprehensive literature search to identify the optimum model for joint health and safety committees.***
 - ***In the Review's opinion, the model proposed by K. Burkett in Volume I of Towards Safe Production (i.e. the report of The Joint Federal-Provincial Inquiry Commission into Safety in Mines and Mining Plants in Ontario) exemplify best practices. According to this model, the optimum role of a joint health and safety committee should consist of the following responsibilities:***
 - ❑ ***Provide advice and insight from a health and safety perspective in the planning of work rules and practices.***
 - ❑ ***Provide advice and insight from a health and safety perspective in the planning of new or altered facilities, production processes and work methods.***
 - ❑ ***Provide advice and insight from a health and safety perspective in the purchase of production equipment.***
 - ❑ ***Provide guidance on the setting of safety goals and objectives for the organization as a whole and for the appropriate sub-units.***
 - ❑ ***Assess the effectiveness of existing safety programs, including the use of supervisory contacts, workplace meetings, communications and safety incentives, and make appropriate recommendations.***
 - ❑ ***Assess the effectiveness of the health and safety content of worker training and make appropriate recommendations.***
 - ❑ ***Analyse all injury and accident statistics for both the organization as a whole and its sub-units to identify trends and make appropriate recommendations.***
 - ❑ ***Monitor the response of first-line supervision to health and safety issues at their level and make appropriate recommendations.***

Findings and Conclusions

- **Regarding opportunities for improving the *reprisals process* in the Ontario Mining Sector, the key findings and conclusions were as follows:**
 - *In December 2010, the Tony Dean Expert Advisory Panel on Occupational Health and Safety released its final report after a comprehensive review of Ontario's workplace health and safety system.*
 - *The Expert Panel identified concerns about the way in which Section 50 of the Ontario Occupational Health and Safety Act (i.e. prohibiting reprisals) is being administered. Specifically, the Panel found that the way in which Section 50 was enforced:*
 - ❑ *discouraged many workers from exercising their rights under the Occupational Health and Safety Act;*
 - ❑ *did not adequately protect workers from reprisals.*
 - *The Expert Panel also heard that:*
 - ❑ *when workers appealed to the Ontario Labour Relations Board because they had experienced reprisals, the procedures were complex and took a long time*
 - ❑ *the Ministry of Labour rarely prosecuted employers for violating Section 50.*
 - *As a result of the recommendations of the Expert Panel report, legislative amendments to the Act under Bill 160 specify new roles for the Ontario Labour Relations Board, the Office of the Worker Advisor, the Office of the Employer Advisor and the Ministry of Labour in addressing reprisals.*
 - *However, the Review heard that, within the mining sector, the “new” roles defined by Bill 160 are not clearly understood. More effective communication about how the process to investigate reported reprisals has changed will benefit all sectors.*

Recommendations

1. **The Ministry of Labour and the relevant Health and Safety Associations to increase their capacity to ensure the health and safety system has the resources to address mining hazards effectively, particularly with respect to the priority hazards identified in the risk-ranking exercise. In particular:**
 - *Increase Ministry capacity in geotechnical, mining, mechanical, electrical, structural, and civil engineering.*
 - *Increase system partners' technical capacity/ resources related to industrial hygiene and mechanical issues.*
2. **The Ministry of Labour to review its policies and procedures that apply to Mining Health and Safety program Inspectors related to unannounced field visits, reprisals, repeat orders, the training of inspectors and the provision of information to workplace parties and how those policies and procedures are implemented. Take appropriate actions based on the findings of that review. In particular, address the following operational policies and procedures:**
 - *Clarify the use of unannounced proactive field visits.*
 - *Clarify the appropriate use of orders versus other methods to achieve compliance for priority hazards, especially with regard to repeated non-compliance with the same issue in a specific workplace.*
 - *Clarify inspector action to be taken in situations of suspected reprisal.*
 - *Align proactive activities, whenever possible, to the priority hazards identified in the sector level risk assessment.*
 - *Clarify the training provided to inspectors to address priority hazards, and the inspector's role in the inquest process.*

Recommendations

3. **The Ministry of Labour and its partners to review the Health and Safety System's ability to meet the needs of the Mining Sector especially related to providing services to remote communities, training small numbers of trainees, and aligning their training activities to the priority hazards. Take appropriate actions based upon the findings of that review.**
4. **The Ministry of Labour to work with the Ministry of the Attorney General to enhance the information supplied to the Chief Coroner's Office and build better linkages between both ministries. This collaboration includes:**
 - *Conducting and regularly updating an aggregate analysis of all past inquests into Mining Sector fatalities.*
 - *Holding information sessions with the Chief Coroner to identify opportunities for coroners to use the analysis to improve future inquests into fatalities in the mining sector.*

Internal Responsibility System (IRS)

Mining Health, Safety and Prevention Review

IRS Working Group – Recommendations

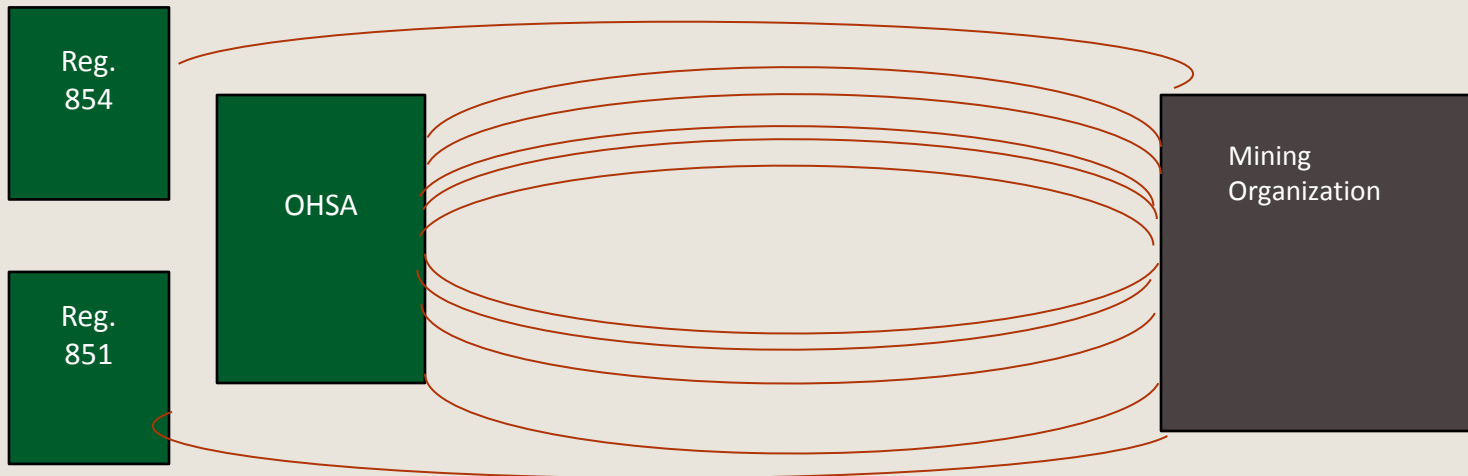
Megan Waqué, WSN

IRS Working Group

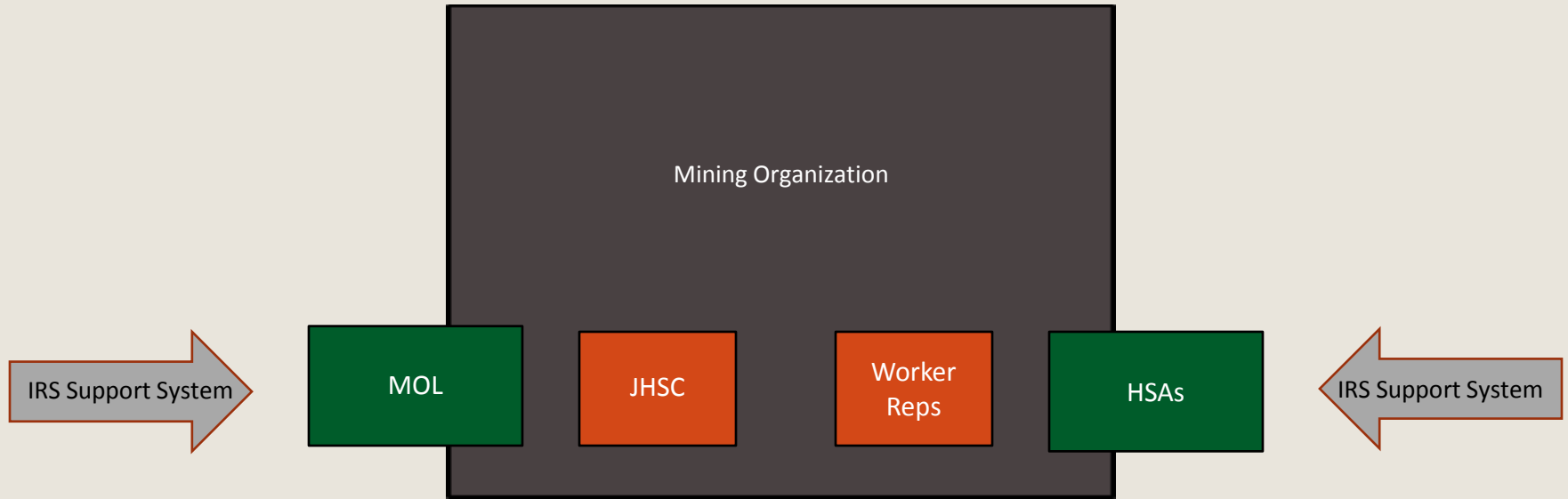
- Shannon Campbell, Glencore
 - Nancy Hutchison, Ontario Federation of Labour
 - Dwayne Plamondon, WSN (Facilitator)
 - Megan Waqué, WSN (Facilitator)
 - Dr. Cameron Mustard, Institute for Work and Health (Resource)
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What is the IRS?

- IRS is the sum of employer duties, worker rights and duties, committee/health and safety representative rights/roles and enforcement responsibilities prescribed therein



An IRS requires support



What we heard

Key topics:

- Leadership
 - Effective enforcement
 - Reprisals
 - Knowledge transfer and organizational memory
 - A common understanding of the Internal Responsibility System
 - Need for a best practices guideline
-

Best Practices Guideline

- Management practice
 - Worker representation and participation
 - Clear standards
 - Effective enforcement
-

Recommendations

Recommendations

6.1 The Ontario Mining Association to work with labour representatives to develop an Internal Responsibility System best practice guideline as an industry benchmark, to be endorsed by the Ontario Mining Association implementation by its members.

6.2 The health and safety system to share data both on emerging injury and illness trends, and information on incidents causing serious injury across the industry to trigger preventative actions by workplace parties.

Questions?

Thank you.
