Mining Health, Safety and Prevention Review
Emergency Preparedness Mine Rescue Working Group
Mining Conference April 15, 2015

workplacesafetynorth.ca/minerescue
Emergency Preparedness
Working Group

Lead
• Alex Gryska – Ontario Mine Rescue General Manager
  – Ontario Mine Rescue General Manager

Working Group Members
• Jamie Mortson – Lake Shore Gold Corp. (Currently) Dumas Mining Health and Safety Manager Safety & Training Coordinator
  – Lake Shore Gold Corp. Health and Safety Manager

Experts
• Jamie West – Vale Canada Limited/USW Smelter Worker Safety Representative

Resource Support
• Scott Campbell – Ministry of Labour Manager, Specialized Professional Services and Emergency Management
  – Ministry of Labour Manager, Specialized Professional Services and Emergency Management
Issue Identification Process

- Public consultations and written submissions
- Review of inquest recommendations
- Review of existing legislation
- Consultations with:
  - Mine Rescue Technical Advisory Committee
  - Mine Rescue Officers
- Gap Identification
- Gap Analysis
- Comparison with other jurisdictions
- Submission of final report with recommendations
## Working Group Timelines

### 2014

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 05</td>
<td>Scope/Role Definition, Research Assignments</td>
</tr>
<tr>
<td>May 26</td>
<td>Advisory Group Update Reporting</td>
</tr>
<tr>
<td>June 23</td>
<td>Review Research Findings</td>
</tr>
<tr>
<td>July 14</td>
<td>Review Draft Documents</td>
</tr>
<tr>
<td>August 12</td>
<td>Ontario Mine Rescue – Technical Advisory Committee Consultation</td>
</tr>
<tr>
<td>August 19</td>
<td>Advisory Group Update Reporting</td>
</tr>
<tr>
<td>Q4</td>
<td>Working Group Report/Submission</td>
</tr>
</tbody>
</table>
Emergency Preparedness
Gap Analysis/Review Focus

a) Regulatory Requirements

b) Emergency Responder Requirements

c) Program Requirements
Emergency Preparedness
Gap Analysis/Review Focus

a) Regulatory Requirements:

1 – Exploration Mine Sites/Properties

2 – Managing Risk – Emergency Response Plans

3 – Underground Mining Regulations, Section 17

4 – Surface Mine Regulations, Section 41
b) Emergency Responder (Volunteer)

Requirements:

5 – Competency Assurance

6 – Ability to Respond

7 – Fitness of Volunteers

8 – Acclimation of Responders
Emergency Preparedness
Gap Analysis/Review Focus


c) Program Requirements:

9 – Training Delivery Systems

10 – Mine Rescue Competitions

11 – Ontario Mine Rescue Technical Advisory Committee (TAC)

12 – Technology

13 – Mine Rescue Funding
Gap Analysis Regulatory Requirements

1 – Exploration Mine Sites/Properties

a) Context:
   • Inability to respond to emergencies.
   • Lack of local emergency response support (EMS/Fire Departments).
   • Geographic remoteness – limited knowledge of operations.

b) Findings:
   • No current requirements regarding Emergency Preparedness Exploration.

c) Conclusions:
   • Higher level of risk than a conventional mining operation.
Gap Analysis Regulatory Requirements

2 - Managing Risk - Emergency Response Plans

a) Context:

• No Legislative requirements in Ontario to maintain Emergency Response Plans.

b) Findings:

• Evidence shows variability in emergency response planning.

c) Conclusions:

• Emergency Response Plans should be a requirement wherever an emergency can occur. (Includes underground, surface and plants).

• Emergency Response Plans should be developed, reviewed and updated at least annually by the employer and audited by an outside party.
Gap Analysis Regulatory Requirements

3 - Underground Mining Regulations, Section 17

a) Context:
   • Section 17 refers to mine rescue; but the term is not defined within the Regulation.
   • Section 17 no longer references the “Ontario Mine Rescue Handbook”.
   • The Ontario Mine Rescue Handbook is the only document that outlines mine rescue policy and procedure.

b) Findings:
   • Legislation can currently be interpreted to a shortfall in emergency preparedness.
   • Most jurisdictions within Canada and internationally have more prescriptive Legislation and Codes of Practice.

c) Conclusions:
   • Legislated requirement to specify Mine Rescue Standards and Codes of Practice are required.
Gap Analysis Regulatory Requirements

4 - Surface Mine/Fire Regulations, Section 41

a) Context:
   - Section 41 exclusive to surface/mine plant fire emergencies.
   - No surface/mine plant non-fire emergency legislation.
   - Potential for growth in surface mining in Ontario is high.

b) Findings:
   - Multiple large mining jurisdictions have comprehensive legislation relating to surface mining (Alberta, BC and Australia).
   - Ontario surface mine operators adopt Western Canadian Standards which are higher than Ontario.

c) Conclusions:
   - Ontario requires a Standard or Code of Practice for surface emergency response.
Gap Analysis Emergency Responder Requirements

5 - Competency Assurance

a) Context:
   • Ontario Mine Rescue responsibilities were expanded to include both fire and non-fire emergencies in 1985 (Stevenson Inquiry).
   • Additional equipment has been integrated into the program (bolt cutters, rock breakers, jaws of life etc.)
   • The number of training hours have not increased.

b) Findings:
   • Unable to cover the entire curriculum within existing training requirements.
   • Other Canadian and international jurisdictions have more training sessions per year.

c) Conclusions:
   • Unable to ensure competency with the current number of training sessions per year.
Gap Analysis Emergency Responder Requirements

6 - Ability to Respond

(Rescue Challenges Associated with Expansive Mines)

a) Context:
• Ontario Mines are getting deeper and laterally more expansive.

b) Findings:
• New Hazards (heat stress) and more travel time required to respond.

c) Conclusions:
• Utilize procedures, standards or equipment that other jurisdictions have adopted.
• Underground mine rescue substations should be considered an addition to mine emergency plans.
Gap Analysis Emergency Responder Requirements

7 - Fitness of Volunteers

a) Context:
   • Deep mining is creating increased workload risks for mine rescue volunteers.
   • Requirements for physical examinations currently in place.

b) Findings:
   • Many jurisdictions have more stringent mine rescue fitness standards, including regular fitness evaluations.
   • Not all medical examinations are conducted consistently in Ontario.

c) Conclusions:
   • Ensure fitness standards and clinical tests are being adhered to.
Gap Analysis Emergency Responder Requirements

8 - Acclimation of Responders

a) Context:
   • Heat and humidity are significant factors to responders in all jurisdictions.

b) Findings:
   • Individuals who not acclimated are at greater risk during emergency response.
   • Several jurisdictions have experienced Fatal/Critical injuries related to lack of acclimation.

c) Conclusions:
   • Establish strategies that will reduce work intensity and rescue mission durations where necessary.
   • Training in high heat environments must be conducted to build acclimation.
9 - Training Delivery Systems

a) Context:
   • Many emergency response organizations have separated training into knowledge and skills components.
   • Ontario Mine Rescue officers are used as the primary training delivery system.

b) Findings:
   • Alternate training systems, (i.e., e-Learning, distance education, video) can improve delivery of Mine Rescue curriculum and assure competency.

c) Conclusions:
   • Alternate training delivery models need to be explored.
   • Need to consider partnerships with similar organizations using alternate delivery methodologies should be developed.
Gap Analysis Program Requirements

10 - Mine Rescue Competitions

a) Context:
   • Held annually in mining districts across Ontario.
   • Used as a tool for honing the skills of mine rescue teams.

b) Findings:
   • Competitions are an instrument for improving the skills of mine rescue members and allows new members to improve competency through competition.
   • Numerous jurisdictions have mandatory participation in competitions and recognize the continuous improvement of the mine rescue system.

c) Conclusions:
   • Mine rescue competitions are a fundamental assessment tool towards the ensuring the integrity of the Ontario Mine Rescue system.
Gap Analysis Program Requirements

11 - Mine Rescue Technical Advisory Committee (TAC)

a) Context:
   • Comprised of mining industry leaders, operators and specialists.
   • Quarterly meetings review Ontario Mine Rescue (OMR) Policies, Procedures and recommend Research.

b) Findings:
   • TAC shapes and improves the quality and services of the Mine Rescue Program.
   • Other jurisdictions emulate the Ontario Mine Rescue TAC.

c) Conclusions:
   • The success of the Ontario Mine Rescue program is in part due to the support of the Ontario Mine Rescue TAC.
   • Continued research and program development requires extensive OMR TAC support.
Gap Analysis Program Requirements

12 - Technology

a) Context:
   • Evolving technology continues to affect how mine rescue safely responds to emergencies

b) Findings:
   • Need for new and advanced instrumentation, breathing apparatus, portable refuge stations, underground mine rescue stations, team transport vehicles, robotics and use of tablets.

c) Conclusions:
   • Investment in new technology necessary to minimize risk related to emergency response.
   • Continue to support the research projects through the Mine Rescue Technical Advisory Committee that will translate into improved and safer emergency response.
   • Continue to participate with the international Mine Rescue community to identify new technology and procedures.
Gap Analysis Program Requirements

13 – Mine Rescue Funding

a) Content:
   • Mine rescue program funding was raised as a concern during focus group meetings and written submissions.

b) Findings:
   • WSN follows MOL budgeting protocols.
   • There is no back up to mine rescue therefore robust emergency response capability is necessary.

c) Conclusions:
   • Although outside of the scope of the review mandate, we agree that OMR be fully funded to allow to maintain effective emergency response capability.
Working Group Deliverables

• The working group submitted its final report which included recommendations to the review panel on December 16, 2014.
Mine Rescue Related Review Panel Recommendations

• 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 Ontario 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.