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To: zzMSHA-Standards - Comments to Fed Reg Group

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Subject: RIN 1219-AB44

NOTE: This submission is based on discussion and input from highly-skilled mine rescue personnel (Mr. Shawn Deforge & Mr. Joseph Wojtus) of the submitter's mine and from the Kirkland Lake (Ontario) District Mine Rescue Officer, Mr. Greg Hobson.

A. Rapid Deploy Systems

1. PED system > this would need researching to make it a two-way communication system (A company from Dowling, Ontario, CANADA called Hardline Solutions is apparently working on an advanced system).

- 2. Low frequency radio waves from surface to underground and vice versa
- 3. System currently only transmits from surface to underground

B. Breathing Apparatus

- 1. Draeger BG-174 still in use in South Africa, but it will be obsolete soon (no more parts being made). Also, Ontario, Canada mine rescue crews use OXY-SR 45 units (bottled breathing oxygen) and SSR-90 units where oxygen is generated by chemical reaction
 - 2. Don't know
 - 3. To our knowledge, these are technologically sound
 - 4. Possibly increase the OXY-SR 45 breathing limit from 45 minutes to 60 minutes

C. SCSR's

- 1. Refuge chambers and emergency air "tents"; ventilation holes drilled from surface to refuge chambers to ensure a continuous supply of uncontaminated breathing air
- 2. Yes, develop a SCSR of greater capacity oxygen (but, not the type that generates through chemical reaction > gets hot), but keep in mind that bigger usually means bulkier / heavier. If go to the SSR-90, these are bulky and difficult to be worn as part of PPE > maybe cache on personnel carriers
 - 3. One / miner @ designated locations
 - 4. As per manufacturer's recommendations
 - 5. Don't know

D. Rescue Chambers

- 1. Yes
- 2. As per Regulations for Mines and Mining Plants 854, Section 26(a)(b)(c)(d)(e) (Ontario, Canada). Chamber should be built into mine and ideally incorporate a hole connecting it to surface for breathing air supply maximum 15 minutes walking distance from furthest workings to chamber
 - 3. 48-72 hours depending on rescue capabilities
 - 4. As per number working in proximity to chamber
 - 5. One @ each left / right, wherever crews are working

E. Communications

- 1. Regular "touch" phones, pager phones, radios, PED system
- 2. Don't know
- 3. Don't know
- 4. Don't know

- 5. Keep all information internal until company officials have scrupulously scrutinized and deemed OK to release (must be careful depending on system used > radios / cell phones may be monitored externally)
- 6. Ensure <u>direct</u> contact with mine rescue team briefing officer (as per standard practice in Ontario, Canada mine rescue protocol)
 - 7. The BG-4 system allows for clear communication while speaking with a breathing mask
- 8. Yes they can be used to transmit evacuation orders to miners in possible areas unaffected by the emergency
 - 9. Don't know manufacturers must be consulted

F. Robotics

- 1. Transporting SCSR's in explosive atmospheres, carrying thermal imaging cameras, "listening" by carrying an audio device
 - 2. As a tool, but not to replace manned rescue teams
 - 3. As noted above
 - 4. Don't know
- 5. Maybe difficult / costly / inconvenient for @ mine to have > maybe make available from a central location that a number of operations could access

G. Thermal Imagers and Infra-Red Imagers

- 1. Infra-red cameras
- 2. Yes
- 3. Approx. \$8,000
- 4. Not recommended > have one centrally located as per F. 5. above

H. Developing New Mine Rescue Equipment

- 1. High cost. May be useful to utilize R&D of other countries; develop a national R&D branch of government funded by all mines
 - 2. Don't know
 - 3. Don't know
 - 4. Don't know
- 5. Provide them with funding; develop partnerships with mining companies and governments

I. Mine Rescue Teams

- 1. Draeger BG-4's, standard equipment as per Ontario, Canada mine rescue protocol
- 2. Apparatuses per station should mirror requirement of Ontario, Canada mine rescue protocol
- 3. Expect that numbers of each should be sufficient; increase number of cap lamps for prolonged emergencies to ensure enough cycle time regarding charging
 - 4. At a central station or @ site and by trained technicians
 - 5. Don't know
 - 6. Yes, if possible
- 7. Be proactive keep abreast of changing technologies consult regularly with manufacturers
- 8. Yes ensure it is properly researched before using; company in Sudbury, Ontario, Canada MIRARCO, is developing a 3D modeling program that can assist individual mines in underground emergencies

J. Government Role

- 1. Standard equipment and training for mine rescue as per Ontario, Canada, protocol; thermal imaging camera, \$ for research
- 2. Set minimum standards in legislation (e.g. Ontario, Canada mine rescue requirements)
 - 3. Review operations in other mining districts
- 4. Emergency preparedness / evacuation plans, gas hazards, breathing apparatuses appropriate to mine, barricade erecting
 - 5. Tools located at appropriate locations to facilitate use of emergency supplies

6. Don't know

7. Set minimum response times to mines – implement processes that meet those response times; set up mutual assistance programs with other mines

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