

-----Original Message-----

From: Roger Vankirk [mailto:kx8y@yahoo.com]

Sent: Sunday, March 26, 2006 10:30 PM

To: zzMSHA-Standards - Comments to Fed Reg Group

Subject: RIN 1219-AB44

DEPARTMENT OF LABOR
Mine Safety and Health Administration

30 CFR Part 49

RIN 1219-AB44

Underground Mine Rescue Equipment and Technology

AGENCY: Mine Safety and Health Administration (MSHA), Labor.

ACTION: Request for information.

FROM: ROGER VANKIRK
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I HAVE BEEN AN UNDERGROUND MINER SINCE 1971

I HAVE PUT SUGGESTIONS IN THE TEXT OF THE QUESTIONS

C. Self-Contained Self-Rescuers (SCSR)

SCSRs are devices that provide miners with an MSHA required one hour of useable oxygen to be used for a mine emergency escape. Currently, SCSRs rely on two different technologies. One type uses a chemical reaction to generate oxygen. The other type uses compressed oxygen.

- 1. Is there more effective technology to protect miners than the SCSR currently available? If so, please describe.
- 2. Should an SCSR be developed that provides more than one hour duration of oxygen? **YES** What duration is feasible considering that miners must carry the SCSR? **8 HOURS** Would it be desirable to require smaller and lighter SCSR with less oxygen capacity to be worn on miner's belts while at the same time requiring longer duration SCSR to be stored in caches? **YES**

- 3. MSHA standards require each mine operator to make available an approved SCSR device or devices to each miner. Should mines be required to maintain underground caches of SCSRs for miners to use during an emergency, or should each miner have access to more than one SCSR?
- 4. SCSRs are currently required to be inspected at designated intervals pursuant to 30 CFR 75.1714-3. Should SCSRs be inspected more frequently than the current requirements? **NO**
- 5. SCSR service life is determined by MSHA, NIOSH and the device's manufacturer. The service life can range from ten to fifteen years depending on the type of SCSR. Should the service life of SCSRs be reduced to five years or a different time limit? **NO**

D. Rescue Chambers

A rescue chamber is an emergency shelter to which persons may go in case of a mine emergency for protection against hazards. A rescue chamber could provide, among other things, an adequate supply of air, first aid, and an independent communication system.

- 1. Should rescue chambers be required for coal mines? **YES**
- 2. What characteristics should they have? Should they be mobile? **ONLY IF THEY WILL MAINTAIN THEIR INTEGRITY**
Should the rescue chamber be semi-permanent, or built into the mine? **WHICHEVER WAY WOULD BE THE STRONGEST**
- 3. How long should they support a breathable environment? **72 HOURS**
- 4. How many people should they support? **20**
- 5. How many rescue chambers should be required--how far apart should they be located? **ENOUGH FOR HOWEVER MANY PEOPLE ARE UNDERGROUND AND NOT LOCATED MORE THAN 1000' APART.**
- **ALSO, THESE CHAMBERS COULD BE LOCATED AT ABANDONED BOLEHOLES WHICH COULD BE FITTED WITH FANS ON THE SURFACE THAT COULD PUSH FRESH AIR INTO THE CHAMBER.**

E. Communications

- 1. What types of communication systems can be utilized in an emergency to enhance mine rescue?
- **Wireless, two way communications**
- 2. Current systems include permissible hand-held radios, hand-held radios using small diameter wires, pager systems, sound powered telephones, leaky feeder systems that "leak" radio signals out of and into special cables, and inductive coupled radios that use existing mine wires as a carrier for radio signals. Are there other systems?

- 3. Should a particular system be required over another? If so, which system and why?
- permissible hand-held radios because in case a miner gets separated from one-another each person will still have communications. And any antenna(s) needed to support the system MUST be located on the surface because they stand a high likelihood of being rendered useless in an explosion or fire
- 4. What new communication devices or technology may be well suited for day-to-day operations and also assist miners in the event of an emergency?
- 5. How should information be securely, reliably, and quickly transmitted during emergencies from remote locations to the mine rescue Command Center, or from MSHA headquarters to District offices? What technology should be used to quickly and securely transmit information from the mine site to or from MSHA headquarters, to District offices, mining companies, and the media?
- 6. How can the number of relay points be minimized in a rescue situation so that communications do not get garbled or misunderstood? Have a reliable 2 way communications system that will work throughout the mine regardless of the size of the mine
- 7. How can communications be improved when a rescuer is wearing a breathing apparatus and talking through a speaking diaphragm in the mask? a keypad (that emits standard bell tone such as on a regular telephone keypad).on the back of the radio or microphone. And a number will correspond to a response. i.e #1 would be YES #2 would be NO etc
- 8. PEDs are one-way communication devices that transmit text messages through the earth to receivers which are carried by miners. PEDs are currently being used in nineteen mines throughout the U.S. Should PEDs be used even though they can only transmit signals to miners and are not bi-directional?
- NO peds should not be used because they are one way and there is no way for the surface to know if the miners are receiving the communications
- 9. Can PEDs be developed into 2-way systems? If so, how long would it take and at what cost?

F. Robotics

A robot is a remote controlled device that can obtain and transmit information relative to the underground environment during mine emergencies. MSHA has pioneered the use of robots in mine emergency operations.

- 1. Besides providing video, gas readings and temperature readings, what other uses can be made of robotics in mine emergencies?
- 2. What could be the role of a robot in mine rescue operations?
- 3. What information could the robot supply to the Command Center?
- 4. What tasks could robots be built and programmed to perform?

- 5. Should individual mines use robots for emergency situations? **YES**

G. Thermal Imagers and Infra-Red Imagers

Thermal imagers are devices which provide video pictures of the heat emitted by objects underground. Infra-red imagers provide similar information through the use of the infra-red light spectrum.

- 1. What "thermal imagers" and "infra-red imagers" outside of those currently available in the U.S. are in use in other countries, and how can these be deployed in a mine rescue?
- 2. Permissible equipment is equipment which is approved by MSHA to be safely used in gassy atmospheres. Should thermal and infra-red imagers be permissible equipment? **YES**
- 3. What are the costs associated with these devices?
- 4. Should all underground mining operations be required to have one of these devices available on-site? **YES**
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J. Government Role

- 1. What equipment and technology should be promoted to improve mine rescue?
- 2. How should a mine's status (small, remote or operating under special circumstances) be taken into account in developing new or different equipment requirements?
- 2. How could our standards and implementation regarding mine equipment and technology be improved?
- 3. What training, instruction and procedures should be provided to miners to better enable them to survive an underground emergency? **WE MUST HAVE RELIABLE TWO-WAY COMMUNICATIONS TO KNOW WHICH WAY IS THE BEST ROUTE OF ESCAPE. AND WE MUST HAVE A MINIMUM OF 72 HOURS OF OXYGEN TO SURVIVE.**
- 4. What types of emergency supplies (timbering materials, ventilation materials, sealing materials, etc.) should be maintained at each mine site? **KENNEDY PANELS AND FOAM PACKS SHOULD BE STORED INSIDE THE MINE AT NO MORE THAN 1000' INTERVALS. IF THE 12 MINERS WOULD HAVE HAD KENNEDY PANELS AND FOAM PACKS INSTEAD OF BRATTICE CLOTH THEY MAY STILL BE ALIVE**
- 5. What non-regulatory initiatives should we explore?
- 6. What further steps should we take to improve the capability, availability and effective use of mine rescue equipment and technology?

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