The following report outlines recommendations suggested by those who participated in the Symposium panel discussions held on campus at Wheeling Jesuit University on April 20-21, 2006.
**INTRODUCTIONS**

**Recommendations**
- Standard ID card for mine rescue team members to allow entry to any mine in the United States. Could be a big time saver over going through multiple checkpoints, such as the five at Sago. Also, have designated parking for mine rescue vehicles and trailers at mine sites. (Ron Bowersox, UMWA)

**Panel One – Mine Safety & Health (No CET Coverage of this Panel)**

**Panel Two – Mine Emergency Technologies (Part 1)**

**Moderator:** Mark Skiles, MSHA  
**Panelists:** John Kovac, NIOSH  
Jeff Kravitz, MSHA  
Ted Hapney, UMWA  
Jimmy Gianato, WV DHS

**Recommendations**
- Training on a smaller, less expensive SCSR unit so miners will know what to expect in the event of a real emergency – i.e. the difference in breathing resistance; heat generated by the SCSRs; how breathing rates impact the SCSRs. (Audience Member)

- Lighter SCSRs. (Ted Hapney, UMWA)

- Integrate emergency services with mine safety. (Jimmy Gianato, WV DHS)
Panel Three – Mine Emergency Technologies (Part 2)

Moderator: Jeff Kohler, NIOSH
Panelists: Jurgen Brune, NIOSH
          David Chirdon, MSHA
          Ted Hapney, UMWA

Recommendations
- Every mine should be engaging in risk analysis. (Jeff Kohler)
- Enhance the training for mine management and employees to prevent and/or respond to disasters. (Jeff Kohler)
- Mine communication design criteria that should be considered (Jurgen Brune)
  - Two-way communication
  - Group addressability
  - Location and tracking of miners
  - Maximization of coverage area
  - Audible
  - Transmission of vital signs
  - Include sensors that could detect and transmit air quality
  - Secure communication to alleviate misinterpretation of information
  - Video transmission


Moderator: Ken Armstrong, Draeger Safety
Panelists: Mike Foletti, Mine Site Technologies
          Malcolm Smith, Saskatchewan, Canada
          Christo deKlerk, General Mgr, Mine Rescue Services, Republic of South Africa
          Lionel Rudd, Ontario, Canada

Recommendations
- Compliance with mine safety legislation by operators and miners requires that the legislation be clear and not subjective. (Mike Foletti, Mine Site Technologies)
- The U.S. policy of requiring only several hours of safety training should be increased to several weeks of training, as in Australia. (Mike Foletti)
• Mine rescue teams need guidance systems as much as miners do, because they are in danger as well. (Malcolm Smith)

• Much helpful information can be gained from talking with old, experienced miners. (Lionel Rudd)

**Panel Five – Mine Disaster Response**

**Moderator:** Joe Pavlovich, MSHA (ret.)

**Panelists:**
- Charles Pogue, MSHA
- Don King, PinnOak Resources
- Mike Rutledge, WV Office of Mine Safety and Health

**Recommendations:**

*From Joe Pavlovich:*
- Mid-sized mines (of about 100 people) should all have rescue teams, but many do not.

- We need to train not only the rescue teams but those who direct the rescue operation as well.

- Be open to new innovations and technologies to solve problems.

*From Don King:*
- In mine rescue operations, we need to get the job done faster. Here are ways to do that:
  - All team members should have cell phones, packed bag, packed vehicle at the station.
  - At the mine, get to the site immediately, evaluate and resolve problems in getting there immediately.

- Ensure hands-on fire-fighting training for teams.

- Continue training on alternating expiration techniques.

- At the site, shift more authority to teams to save time.

- Determine ways that the command center can support the team, in addition to directing it.

- Have a work group available to help with manual labor outside the fresh-air base.

- Have the best detectors available for oxygen, methane (full range), carbon monoxide.
- Desperately need a technology to help with visibility in smoke.
- Wireless communication is the only way to go, but improve it beyond line-of-sight.
- Incorporate robotics, but only if it can increase speed and is not redundant.
- Organize services that can help on the surface with scheduling of teams.

From Mike Rueledge:
- Get new equipment into use quickly, like portable seismograph, gas chromatograph.
- Need the latest and most reliable communication, probably satellite communication.
- For visibility in smoke, need to use thermal imaging cameras. They are in use by fire fighters but why are they not in the mines? Do we have to wait for MSHA permissibility?
- Need to raise priority of mine rescue and have people devoted full time to it. Currently someone with that responsibility also has 4 or 5 other job responsibilities.
- To get around the cost of setting up a mine rescue team ($250,000 is typical), small operations can group together and share expenses and a team.

Panel Six — Overlaying Resource Extraction/Coal, Oil & Gas: Implications for Mine Safety

Moderator: Chris Hamilton, WV Coal Assn.
Panelists: Kelvin Wu, MSHA
         Robert Orndorff, Dominion
         Sasha Mackler, National Commission on Energy Policy
         Tom Moore, CDX Gas, LLC

Recommendations:
- Advanced coal technologies, including IGCC, or gasifying coal. This can be used for electricity generation, liquid fuels, chemicals, all of which can reduce environmental emissions. Another technology mentioned was carbon sequestration. (Sasha Mackler, Nat’l Commission on Energy Policy)
- Cross-drilling technology. (Robert Orndorff, Dominion Resources)