Alpha Foundation for the Improvement of Mine Safety and Health

Research Meeting Oct 10-11, 2012

Remarks of the West Virginia Office of Miners Health Safety and Training

Introduction: Keith Heasley, WVU, Alpha Foundation Board Member

Director CA Phillips extends his apologies for his absence. Due to a health issue he cannot attend. However, in his place he has sent Randall Harris.

Besides serving as Tech Support for the Office of Miners Health Safety and Training, Randall brings to today's topic over two decades of experience conducting and administering research efforts within the US National Laboratory System. A veteran of Oak Ridge, Los Alamos and Rocky Flats laboratories, he retired from federal service as Sr. Engineer for the US DOE's National Energy Technology Laboratory where he not only worked on the thousands of grants and cooperative agreements it manages but served as co-chair of the Intergovernmental Working Group on Technology Transfer which sets policy for maximizing the impact of all federal research.

Presenter: Randall Harris, WV OMHST, Tech Support (randy.j.harris@wv.gov)

If research does not result in a product being sold or a procedure being implemented it does not improve safety … it is only an intellectual exercise.

Since the research efforts under discussion today have their birth in the Upper Big Branch Disaster may I suggest we look to the example offered by the history of coal dust explosion research?

- *In 1803 the British "Newcastle Mine Disaster" report suggested excessive coal dust contributed to the explosion. By 1828, after many studies and several subsequent coal mine explosions, English mine safety rules were modified to recognize the danger of excessive coal dust and methane.*

In 1835, 1837 and 1843 more mines blew up in England.

- *In 1886 the famous chemist and physicist Professor Michael Faraday coauthored the first comprehensive book on coal mine explosions which defined coal dust's role and introduced such scientific tools as coke residue analysis to investigators.*
- *Between 1886 and 1894 dozens of research and investigation papers were published culminating in the comprehensive "Explosions in Coal Mines" which concluded that, "The danger of explosion in a mine in which gas exists, even in small qualities, is greatly increased by the presence of coal dust."*

Yet mine explosions continued.

- *The 1884 Pocahontas Mine explosion in W. Va. began a deadly string of mine explosions in Appalachia. 1886 Newburg, W. Va.; 1900 Johnstown, Pa.; 1903 Cheswick, Pa.; 1904 and 1906 Pocahontas again. Then 1907 - Penco, W. Va.; Stuart, W. Va.; Thomas, W.Va.; Naomi Pa., Monongah, W. Va.; Yolande, Al; and Darr, Pa. A total of 1,148 known victims in one year tied*

to a problem that had been researched and published on repeatedly over the course of the previous century.

- *In 1910 the forerunner to NIOSH and MSHA, the USGS Technical Branch, published the first US comprehensive study of mine explosions which introduced the use of rock dust as a control method.*

Two hundred years since the first coal mine explosion research identifying coal dust as an issue and one hundred years since research introduced rock dust as a preventive measure; events have again led us to another round of research into many of the same issues. What can we do different this time.

Our main suggestion to this group is focus on research that gets products and procedures into the hands of miners and avoid research that does not. The best research is defined by a practical need.

Since the process of piloting a research insight into successful products or processes, commercialization, is not a typical research organization strength, it is suggested that prior to the finalization of each research proposal a needs assessment be undertaken among that topic's stakeholders. The objective of the effort being to better focus research and provide a roadmap to successful implementation by identifying critical technical or process gaps that best leverage the fruits of the Foundation's investments into useable improvements. This approach will allow researchers to identify areas that are of common interest to the topic's community and which it believes allows them to advance innovation and acceptance. The research proposals should be reviewed by the Foundation not only on their technical merit but on the likelihood that results will advance the availability of products or procedures that will rapidly and substantially enhance the safety and health of miners.

The West Virginia Office of Miners Health Safety and Training is not a research organization. We are focused in the mine, on safety compliance and safety training. As such we approach the topics chosen by the Foundation from a very practical, needs based point-of-view. We offer the following suggestions on focusing research on knowledge gaps within your four chosen topical areas:

Regarding DISASTER PREVENTION AND RESPONSE focus on knowledge advancing

1) *Products/procedures to ensure minor events do not escalate into disasters and*
2) *Products/procedures to protect those involved in an event and those responding*

Regarding ACUTE AND CHRONIC DISEASE focus on knowledge advancing

1) *Products/procedures to mitigate muscular/skeletal injury and disease and*
2) *Products/procedures to mitigate pulmonary injury and disease*

Regarding HUMAN SYSTEMS focus on knowledge advancing

1) *Products/procedures that improve human/machine interactions and*
2) *Products/procedures that raise individual miner's situational awareness*

Regarding DESIGN AND TECHNOLOGY FOR PREVENTION focus on knowledge advancing

1) *Products/procedures that improve operational planning and real-time understanding of mine conditions to mitigate hazards and minimize risk along with*
2) *Products/procedures that physically separate the miner from hazards*

In summary it is our recommendation that the Foundation's research be focused on the knowledge that is needed by and readily transferable to those developing and producing the products miners use or those providing miners training and leadership.

Thank you