

The Alpha Foundation for the Improvement of Mine Safety and Health, Inc.
- *Pursuing Innovative Solutions*

The Alpha Foundation for the Improvement of Mine Safety and Health, Inc. (Foundation) is pleased to present its fifth semi-annual report, *Pursuing Innovative Solutions*. This report provides an update on progress in addressing the Foundation's vision in collaboration with a growing engagement from the research community. In addition, we are pleased to report further administrative accomplishments marked by success in development of orderly procedures and practices now that the Foundation has been through a couple of full funding cycles.

Grant Solicitations

First Solicitation Cycle:

The second bi-annual progress reports from those awards are expected to be received by November 1, marking completion of the first full year of research effort. We believe these reports provide a good balance between appropriate monitoring on the part of the Foundation and reasonable expectations on the part of the investigators. Included in each report are the identification of any deviations from the planned efforts with recommendations for corrective actions. The Foundation evaluates and approves any of these actions on a case-by-case basis to ensure that project objectives continue to be achieved and funding is appropriately utilized. This has proved a useful and effective collaboration between the investigators and the Foundation in assuring project success. A synopsis for each funded project is available on the Foundation website (http://www.alpha-foundation.org/uploads/AF_Synopsis_FirstAward_All.pdf).

First "Short-Term" Solicitation Cycle:

The Foundation previously announced the award of five short-term research grants, totaling approximately \$750,000, targeting innovative solutions towards fulfilling its vision of enabling miners to be free of work-related injury and disease. These projects are just now completing their first 6 months of effort and are beginning to show signs of innovative advancements in science and technology towards research progress in areas where solutions to some of mining's most difficult problems have been elusive. The grant recipients and project titles are provided on the website (http://www.alpha-foundation.org/uploads/AF_Synopses_Short_FirstAward.pdf).

Second Solicitation Cycle:

The Foundation published a call for research proposals in its second major grant cycle, in May, 2014, with the expectation that awards would be announced in the third quarter of 2015. The Foundation was encouraged by the 69 concept papers that were received in four areas: 1) Health and Safety Interventions; 2) Mine Escape, Rescue and Training; 3) Safety and Health Management and Training; and, 4) Injury and Disease Exposure and Risk Factors. An Advisory Panel consisting of technical content experts within specific

topical areas reviewed these concept papers and provided funding recommendations to the Alpha Directors. Following this review, full proposal invitations were sent to 26 submitters. Full proposal submissions are due February 27, 2015.

Currently Funded Research Foci:

Thus far, we are pleased that The Foundation awards are addressing a variety of understudied or unsolved areas important to the health and safety of miners in the US. Presently we are funding:

- **Health and Safety Interventions:** Projects that examine coal and rock burst potential, spontaneous combustion, and systems of integrated surface mining safety. Interventions under study include improved measurement of dust exposure and dust control, while innovative solutions are being sought in the rock dust measurement and advanced gas and dust explosion modeling. Advancements are also being explored in areas of measurement of roof bolt loading and ground response, and early warning forecasting of hazardous conditions through atmospheric monitoring.
- **Injury and Disease Exposure and Risk Factors:** For miner health, the foci are on whole body vibration, diseases of the lung and heart, and enhanced use of surveillance data and health records to identify early risk factors of adverse health in miners to facilitate targeting for advanced preventive or administrative measures.
- **Safety and Health Management and Training:** Attention to management of risks includes exploration of innovative risk management programs and assessment of effective hazard identification and control measures and practices.
- **Mine Escape, Rescue and Training:** Funding is targeting ways to maximize a miner's preparedness to assess emergency situations and respond effectively through improved training methods. Other activities are seeking to make improvements in the design, application, and training of recent technological advancements in communication and tracking, and sheltering when escape is unattainable.

Administrative Progress

During this reporting period, the Foundation continued to perform and improve its administrative procedures and operational efforts in an effective, efficient and timely fashion. Developments include:

- An orderly transition from founding Executive Director Dr. David Belden to new Executive Director Dr. Warren Hunt occurred in August. The Directors thanked Dr. Belden for his pivotal role in the formation and early development of the Alpha Foundation and recognized his *“role in developing the financial,*

organizations and management instruments necessary for the establishment and functioning of the Foundation as a mature entity". Dr. Belden continues to provide his wise counsel in his role as Executive Director Emeritus.

- The Board is also pleased to introduce Dr. Warren H. Hunt, Jr. as the Foundation's new Executive Director. Dr. Hunt has served in senior positions with the materials industry and community as a technical expert and consultant, including appointment as Executive Director of The Minerals, Metals & Materials Society (TMS), an 11,000 member international professional society serving the materials science and engineering field. While with Alcoa, he was co-inventor on 9 patents; has published 52 technical articles and edited three books. Dr. Hunt holds a B.E. degree from Vanderbilt University and M.S. and Ph.D. degrees from Carnegie Mellon University, all in materials science and engineering. For more details, see: http://www.alpha-foundation.org/executive_team.html
- The Foundation is fully invested in a diversified portfolio with allocations to fixed income, equities and alternative investments. The investment philosophy maintains a focus on preservation of capital, liquidity and limited volatility while investing in high quality equity and investment grade fixed income.
- Evaluation of grant management software systems that meet the need of the Alpha Foundation have been underway with plans to implement the final choice in 2015. The goal is to make the grant making process streamlined, efficient and user friendly for applicants, staff, reviewers and the Board of Directors.
- The Foundation researched Board Management systems and has decided to utilize BoardMax. This tool will be a resource in continuing to strengthen Board and Staff communication and efficiency, particularly in regards to meeting coordination and management.

The Foundation continues to develop and update its website (www.alpha-foundation.org), which serves as the main medium for communication with the broader stakeholder community. Those interested in the Foundation and its programs are encouraged to visit the site to stay informed of solicitations, announcements and deadlines. Formal presentations made by the Foundation Directors are available on the website (<http://www.alpha-foundation.org/Presentations.html>).

Finally, the Directors are looking forward to the next six months, as the Foundation continues to pursue more awards and expand the collaboration with the research community in support of projects to improve the health and safety of the nation's miners.



Michael Karmis, President

Alpha Foundation for the Improvement of Mine Safety and Health, Inc.

December 1, 2014