



for the Improvement of Mine Safety and Health, Inc.

The Alpha Foundation is pleased to present its 2022 Annual Report.

The report provides a summary of activities directed toward the realization of the Foundation's mission to improve mine health and safety through funding research and development projects by qualified academic institutions and other not-for-profit organizations.

### **Grantmaking Summary**

Grant activity is maintained on the Alpha Foundation website (<https://www.alpha-foundation.org>). Five grants completed their research efforts this year and the following new grants were awarded in 2022.

- AFCTG22-152 - Improvement of Rib Support Design Utilizing Recent Advancements of the Coal Pillar Rib Rating (CPRR) System (Missouri University of Science & Technology)
- AFCTG22-154 - Integrated Roof Strata Reaction Curves (RSRCs) for Roof Bolt Design with Standing Support Ground Reaction Curve (GRC) Design for Longwall Gateroad Support Optimization (West Virginia University)
- AFCTG22R2-157 - Symptoms of Depression, Anxiety and Post-Traumatic Stress among Coal Miners compared to others Occupational Groups in a Population Survey in the Appalachia Region (University of California, San Francisco)
- AFCTG22R2-158 - Mental Illness in U.S. Coal Miners: A collaborative approach to understand risk factors and prevalence, while ensuring those suffering get the care they need (University of Illinois at Chicago School of Public Health)
- AFCTG22R2-159 - Design Guidelines for Assessment of Pillar Stability in Underground Room & Pillar Mines from Autonomous Robotic Inspections (West Virginia University)
- AFCTG22R2-160 - Development of A Stability Mapping Platform for Stone Mines That Will Combine Numerical Modeling and Empirical Criteria (University of Kentucky)
- AFCTG22R2-161 - A Strong and Ductile High-Performance Pumpable Roof Support (University of Arizona)

Since its beginning in 2011, the Alpha Foundation has supported a portfolio of research that comprises 114 projects awarded to 35 institutions including 33 active grants in 2022. Overall, the grants address the four major focus areas of the Foundation, with award percentages as indicated:

- Safety and Health Interventions - 56%
- Mine Escape, Rescue & Training - 7%

- Safety & Health Management & Training - 9%
- Injury & Disease Exposure & Risk Factors - 28%

### **Future Considerations and Planning**

The market conditions have resulted in decreased revenue from the Alpha Foundation's investments during 2022. This coupled with the 2022 grant awards has resulted in the Foundation nearing the end of our grant funding. At this time, no additional grant awards are planned. All active grants are currently scheduled to be completed by the end of 2025.

### **Alpha Foundation Board of Directors**

Dr. Michael Karmis, Director and President

Dr. Keith Heasley, Director and Secretary

Dr. David Wegman, Director and Treasurer

### **Alpha Foundation Staff**

Dr. Thomas Barczak, Executive and Technical Director

Dr. Michael Silverstein, Technical Associate