



for the Improvement of Mine Safety and Health, Inc.

Solicitation and Call for Proposals (AFC820)

PROJECTS IN MINING SAFETY AND HEALTH RESEARCH

Background

The Alpha Foundation for the Improvement of Mine Safety and Health is a private foundation with the mission to improve mine safety and health through funding research and development projects at qualified academic institutions and other not-for-profit organizations. The goal is to address the root causes of disease, injuries, and fatalities in the mining industry and, where possible, to achieve successful implementation of practical solutions derived from the research effort. The Foundation's agenda includes all sectors of mining (coal, metal, and non-metal) as well as both underground and surface mining. Projects supported by the Alpha Foundation must be relevant to the U.S. mining industry and funding is limited to not-for-profit organizations. Information regarding the Foundation's mission can be viewed by visiting the Foundation's website at <http://www.alpha-foundation.org>.

The Alpha Foundation has to date supported a portfolio of research that comprises 75 projects awarded to 33 institutions with total funding of approximately \$30 million. The Foundation is now seeking proposals that address any of the topics and priority areas that have been identified. These are:

1. Health and Safety Interventions
 - a. Dust and Toxic Substance Control: *Prevention of health risks due to generation of dust or other toxic substances.*
 - b. Ground Control: *Prevention of unstable ground conditions that result in collapses, ventilation disruption, and miner entrapment; roof and rib falls; and injuries due to insufficient support coverage.*
 - c. Fire and Explosion Prevention: *Prevention of conditions that cause or contribute to mine explosions and fires and effective intervention measures to extinguish their propagation.*
 - d. Monitoring Systems and Integrated Control Technologies: *Recognition and intervention of the escalation of conditions that lead to health and safety risks before they reach hazardous levels.*

- e. Machine Design and Ergonomics: *Prevention of injuries related to mining machinery or equipment operation, movement, handling, or repair.*
 - f. Personal Protective Equipment: *Prevention of injury and disease by application of PPE or environmentally-controlled spaces.*
2. Mine Escape, Rescue, and Training
- a. Communications and Tracking: *Providing the capability to know where every miner is at all times and to be able to communicate with them during any emergency situation.*
 - b. Training and Decision Making: *Making sure that miners are properly trained to recognize the onset of emergency situations and manage decision making to facilitate effective escape.*
 - c. Sheltering and Escape Strategies: *Developing escape strategies and technologies to aid in escape including systems that provide for sheltering when escape is not immediately attainable.*
 - d. Rescue Strategies and Technologies: *Developing procedures and technologies to assist in managing incident command and rescue operations during and following a mine emergency.*
3. Safety and Health Management and Training
- a. Safety and Health Management: *Provide a health and safety culture that enables transparent risk identification and communication at the most fundamental level and proactive intervention measures before and beyond mandatory regulatory compliance.*
 - b. Training: *Provide miners with the necessary skills to properly assess the onset of hazardous conditions at the personal level and increase awareness relative to behavioral influences that lead to unnecessary risk taking.*
4. Injury and Disease Exposure and Risk Factors
- a. Musculoskeletal Disorders: *Characterization of risk factors and implementation and evaluation of engineering changes or other modifications in job design or work practices to reduce these risks.*
 - b. Cardiovascular disease: *Study exposures to particulates, chemicals, and work-related stress that are unique to mining and contribute to cardiovascular disease and develop prevention measures to mitigate them.*
 - c. Respiratory Disease: *Understand the reasons for elevated occurrence of CWP and other chronic obstructive pulmonary disease, including asthma, and silicosis in miners and develop prevention measures to mitigate them.*
 - d. Hearing Loss: *Implementation and evaluation of the effectiveness of engineering controls that reduce chronic noise exposure and work to prevent hearing loss.*
 - e. Surveillance and Epidemiology Methods: *Develop systems to improve gathering, preserving, and analyzing essential mining information that provides leading indicators of hazards or biomarkers for health and safety effects.*

Note that while proposals are especially encouraged in the above areas, the Foundation is always interested in receiving strong proposals that address other compelling mining safety and health needs that are not explicitly listed. A complete listing of the Alpha Foundation research portfolio by topic and priority can be found at the website.

While the Foundation's funded projects have been carried out by a broad group of researchers to date, the Foundation is always interested in engaging new research teams to expand the effort in addressing these important mining safety and health problems, both from within and outside the traditional mining research community. Therefore, the Foundation is especially encouraging those who have not yet had an Alpha Foundation grant to submit a proposal for this solicitation. This encouragement is not meant to discourage, in any way, those who already have had an Alpha Foundation grant to again submit a proposal. As always, proposals will be evaluated and selected based on the quality of the proposal as outlined later in this solicitation.

The Foundation is allocating \$7.5 million for projects that will result from this solicitation. The Foundation is anticipating a median funding per grant of \$500,000 but will accept a well justified proposal up to \$750,000. Projects should have a maximum duration of 36 months.

Eligibility Criteria and Limitations

Research project proposals in response to this solicitation will be accepted only from U.S.-based academic institutions and not-for-profit organizations qualifying as exempt from taxation under the Internal Revenue Code.

It is Foundation policy that grant funds may not be used to support clinical trials of unapproved drugs, to construct or renovate facilities, for lobbying, for political activities, or as a substitute for funds currently being used to support similar activities.

How to Submit a Proposal

Proposals must be prepared in Adobe pdf format and adhere to the format provided below. The proposals must be submitted through the Alpha Foundation Grant Management System, which can be accessed at <https://glenmede.smartsimple.com/welcome/alpha>. The submission deadline for this solicitation is 5 pm Eastern Time on Friday, March 8, 2019. Any proposal, modification, or revision received after the exact time specified is "late" and will not be considered.

Disclaimer Notification: The Foundation is not responsible for the content or correctness of materials supplied in response to its solicitations, and generally and specifically disclaims any responsibility for the same. Proposers are expected to appropriately mark each page of their submission that contains proprietary information.

The Foundation will exercise reasonable care in protecting proprietary information from unauthorized disclosure.

Questions regarding the submission of the Proposals can be addressed to grants@alpha-foundation.org.

Funding Decisions and Notifications

The proposals will be reviewed and selected grantees notified on or about August 1, 2019.

Proposal Submission Format

The following Full Proposal format is required in order to facilitate uniform reviews. All submissions shall include a cover page followed by **not more than 20 pages** of documentation (with no smaller than 11-pt font) that address the designated topics. In addition to the (20-page) Full Proposal, Appendices documenting biographical sketches of any key personnel as well as letters of commitment shall also be included and do not count towards the 20 page limit. Note that **failure to follow the format can result in the Full Proposal being disqualified**.

COVER PAGE

A separate single cover page shall be labeled "Proposal to the Alpha Foundation on Projects in Mining Safety and Health Research, AFC820". It shall include the following information and must be signed by an authorized officer.

Title: *Descriptive title of proposed work.*

Submitting Organization: *Name and address of organization.*

Principal Investigator: *Name and contact information (phone and email)*

Administrative Contact: *Name and contact information (phone and email)*

Focus Area: *Selected from one or more of the topics and priority areas designated in the solicitation, or another area that will be justified in the proposal.*

Estimated Cost: *Proposed total project cost.*

Period of Performance: *Estimated time required to complete the research (months).*

SYNOPSIS (Not to exceed 1 Page)

Problem Statement: *Provide a statement of the problem and why it is important.*

Research Approach: *Provide a succinct summary of how you will address this problem.*

Impact of the Research: *Discuss the impact the work will have toward improving safety or health in mining.*

BACKGROUND AND JUSTIFICATION

Focus Area and Problem Statement: Provide a concise and specific statement (not more than few sentences) of the problem that is being addressed.

Justification and Relevance to the Alpha Foundation Mission: Link the problem area to one of the four research topics referenced in the solicitation and one or more of the general priorities associated with that topic. Any problem that does not fit within this context must be properly justified. Identify the relevant mining sector (what commodity), extraction location (surface or underground), and/or mining population at risk. If the problem area is considered to extend across multiple areas or is universal to all of mining, identify which areas or populations will receive focus during this particular study.

Significance: Follow this with a discussion explaining why the problem exists, the scale of the problem, and why it is important. Provide supporting information, which could include safety and health surveillance and epidemiology data relevant to the problem area. This discussion should conclude with the expected impact that progress or a solution will have relative to this problem area on mining health and safety.

Historical Perspective and Related Research: In a concise summary, put the proposed research into perspective by describing the status of recent or current research in this area, especially any related research funded by the Alpha Foundation, NIOSH, or NIH. Identify complementary research and clearly describe how the proposed research addresses a gap, or how it represents a different approach and why this approach is necessary.

RESEARCH PLAN

Project Goals and Specific Aims: Provide a clear description of what is expected to be achieved with this project at its completion and what specific aims will be used to facilitate achievement of these goals.

Research Approach: The primary requirement is to explain in simple terms your research strategy for accomplishing the project goals.

The research approach should make clear whether the approach is considered exploratory in nature or intends to provide an answer to a specific (research) question(s). Does this project intend to directly prevent the problem, establish causal factors but does not necessarily provide a means toward prevention, or just examine correlations that suggest a pathway toward more controlled studies of the problem? Within this context, a description of the research methodology, study design, and/or experimental plan relating to the collection and analysis of data and any underlying assumptions that are related to this process should be described.

Any partnerships, such as cooperating mine sites or other research organizations, that are critical to the approach should be clearly identified along with letters of commitment documented in the Appendix.

If the proposed research will involve any human subjects, the proposal must describe the steps that will be taken to ensure human subject protection.

Research Execution Plan and Timeline: *This section is to provide a detailed blueprint for how the research will be conducted. This blueprint must be in the form of a set of objectives and associated research tasks necessary to achieve each objective.*

- *Objectives are precise statements (sentence in length) usually headed by infinitive verbs such as: To identify, To establish, To describe, To determine, To estimate, To develop, To compare, To analyze, To collect, etc. These objective statements should be fairly self-explanatory, but may be accompanied by a short paragraph if necessary to fully convey their meaning.*
- *Research tasks are a group of logically connected activities or undertakings that must be done to achieve a specific objective. A full description of the effort associated with each research task must be provided so that a clear understanding is presented of what is being done and how it is being done.*

A monthly timeline depicting a planned schedule by objective and research task must be provided in the form of a Gantt chart or similar graphical display.

Milestones, Decision Points, and Reporting: *The project proposal should identify: 1) milestones, which represent completion of a significant segment of work that vindicates the research approach and the project progress toward a successful outcome; and 2) decision points, which are segments of work that must achieve a successful outcome to warrant proceeding with the research. The Foundation will require submission of interim reports on a semi-annual basis to assess grant progress as well as a final report at the conclusion of the project.*

PROJECT RESOURCES AND COSTS

Staffing: *A detailed personnel plan that indicates the number of hours, hourly rate, and responsibility of each proposed project team member must be provided. The staffing should be broken down into appropriate categories related to levels of responsibility such as the following:*

- *Key personnel*
- *Students*
- *(Non-Profit) Personnel outside the lead organization*
- *Contractors and consultants*

Note: While contractors and consultants are permitted to be part of the team, they are only to provide specialized expertise that is critical to the proposed effort and is not available within the submitting organization(s). Under no circumstances should contractors or consultants be the dominant fraction of the project team or serve to conduct the majority of the project effort.

Laboratories and Facilities: Provide a listing and description of any laboratories or facilities that are required to conduct the proposed research, and document if they are readily available, require modification, or need to be fabricated or procured as part of this effort.

Budget: This section details a project budget and justifies that the requested budget is sufficient and necessary to accomplish the efforts described in the research proposal. A total budget should be provided along with a sub-budget for each objective listed in the Research Execution Plan. Grant funds may be used for project staff salaries, consultant fees, data collection and analysis, meetings, supplies, project-related travel, and other direct project expenses, including a limited amount of equipment essential to the project.

The budget should include a breakdown of direct costs, indirect costs, and subcontract costs:

- **Direct costs:** Direct costs include salaries, wages, tuition, fringe benefits, materials or supplies, equipment, services, travel.
- **Indirect Costs:** The Foundation's maximum allowable rate for indirect costs is 20%, based on a Modified Total Cost Model (see 2CFR Ch. II (1-1-14 Edition, section 220.68).
- **Subcontract Costs:** Provide a separate listing for subcontract costs along with an explanation of why they are needed and the scope of their efforts.

REFERENCES

Literature References: Provide listing of relevant references for supporting the research justification or approach.

APPENDICES

Biographical Sketches: Provide relevant biographical information that supports ability to perform this work (Limited to single page for each person).

Letters of Commitment: Provide letters of commitment from partners, mining companies, stakeholders and any other third-party relationship needed to perform the scope of work.