

2019 ANNUAL REPORT

REBUILDING THEIR FUTURE FOUNDATION, INC.

The Rebuilding Their Future Foundation, Inc. (RTFF) is pleased to present its 2019 Annual Report. RTFF was established in 2018 and is a recognized 501(c)(3) not-for-profit corporation based in the Commonwealth of Pennsylvania. RTFF was founded on the belief that an educational scholarship could change the future of an individual recovering from the devastating loss or disabling injury of a loved one that occurred while the loved one was attempting to save the lives of others. The mission of RTFF is to provide scholarships to surviving family members of mine rescue team members, fire fighters, or other emergency first responders who perished or became severely disabled and are unable to execute their job duties. We believe that providing opportunities to reach an educational goal could change the future of a family or family members recovering from the devastating loss or disabling injury of a loved one who was working to save the lives of others. Our focus is to award scholarships for all levels of secondary and post-secondary education to individuals with the desire and intention to earn a high school diploma, complete an approved program of vocational education or training, or acquire a degree from an approved four-year college or university.

RTFF derives scholarship funding from the following sources: a portion of overhead fees charged on sponsored research projects that have been competitively bid and won; competitive grants; direct donations from individuals, corporations, and fraternal organizations; fundraising events such as golf outings and raffles; and partnerships with other charitable giving programs.

This report provides a summary of major activities during 2019 that were focused on the realization of the Foundation's mission.

1. Completed Research Project Work

In mid-2018, RTFF received a \$249,320 grant from the Alpha Foundation for the Improvement of Mine Safety and Health. The award was part of a \$3.1 million round of new awards from the Alpha Foundation to address critical topics of priority interest and directed towards fulfilling the Alpha Foundation's mission to improve mine safety and health through funding research and development projects by qualified academic institutions and other not-for-profit organizations. RTF's 12-month grant, AFC719-57, entitled "Investigation of Improved Communication from Portable Refuge Alternatives to Facilitate Mine Escape and Rescue", was designed to develop and demonstrate the feasibility of improved means for reliable emergency communication between occupants of an underground refuge

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alternative (RA) with mine personnel on the surface and/or approaching rescue teams or occupants of other nearby refuge alternatives located underground. This work was initiated in 2018 and was completed in 2019. The final research report was submitted to the Alpha Foundation for review on September 30, 2019 and was accepted by the Alpha Foundation Board of Directors on December 15, 2019.

This research was successful and its objective was achieved in that it demonstrated that, subsequent to a mine emergency, miners taking shelter in a portable underground RA could possibly employ two of the tested communications systems to provide key information to their rescuers well before the rescuers could reach the chamber. The information the miners could provide could be the difference between a timely rescue and an unfortunate recovery. As part of the final report submission, RTFF proposed follow-up work to further refine and develop the technologies evaluated in the initial study. The Alpha Foundation chose not to fund the proposed developments.

2. Potential Future Research

In early 2019, RTFF internally investigated the possibility of building a team to study the state of fitness of underground coal miners and then develop interventions to could help that population stave off future health problems. A review of research, conducted from 2006-2010, found that exercise positively affects health conditions including cancer, heart disease, dementia, stroke, Type 2 diabetes, depression, obesity and high blood pressure. The underground coal mining industry employs about 80,000 workers many of which work underground. Under the study, a RTFF team of researchers would quantify and monitor the fitness levels of a select group miners representing different age groups and experience levels who work directly in the underground environment. In the first phase, the RTFF team would identify the fitness levels of the test population and then monitor them using over-the-counter fitness monitors and using the cloud to share and accumulate data. Periodically, the RTFF team would reassess the participants and compare them to the fitness data collected at the beginning of the study. Then, in phase two, the RTFF team would develop a set of interventions and suggested lifestyle adjustments that could dramatically improve the participant's current and future health status. As this investigation progressed, it was decided by the Board not to pursue this study because it was believed that the Alpha Foundation would not be inclined to fund such work.

In late 2019, RTFF prepared the Concept Paper "Refuge Alternative Emergency Communication Capability Development" for submission in early 2020 in response to the NIOSH Broad Agency Announcement BAA 75D301-20-R-67845. The first

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project objective under this work was to fully address the engineering issues serving as barriers to implementation of two proposed through-the-mine communication systems for use from within a refuge alternative and then assemble and demonstrate suitable prototype units for each system. The second project objective was to advance the concept of a hybrid through-the-earth communication system by conducting feasibility studies of both a higher power Very Low Frequency (VLF) radio surface transmitter and a seismic source generator for post-emergency use underground. If warranted by the feasibility study results, construction and demonstration of a complete proof-of-concept hybrid system was proposed as an optional task.

3. RTFF PA State Registration Actions

As part of the 2018 Income Tax filings for RTFF, Kotzen CPA & Associates, PC in Johnstown, PA, applied for registration with the Pennsylvania Department of State, Bureau of Corporations and Charitable Organizations on behalf of RTFF. The registration was denied because RTFF unknowingly failed to register within 30 days of receipt of a gross charitable contribution in excess of \$30,000. RTFF was also assessed a \$300 late filing penalty and a recurring \$25 additional monthly penalty for each month until the penalty was paid. RTFF was also required to submit a Pennsylvania Public Disclosure form (BCO-23) despite submitting all required tax documents called for in the registration submission. The assessed penalty and two additional months of penalties were paid. However, the overall action by the Bureau was appealed because the monies received were not in the form of a donation or a charitable contribution. Rather it was for work that was done under the terms of the RTFF AFC719-57 Proposal and Grant Agreement with the Alpha Foundation.

Under the terms of the Grant Agreement, the work included completing specific tasks and required document submissions. It was also argued that RTFF had not received any donations or gross charitable contributions, under this grant or from any other entity that met or exceeded the Pennsylvania statutory requirements for registration or the assessment of a late filing fee. This argument was not accepted by the Bureau, and it was ultimately decided by the Board of Directors to be in the best interest of RTFF not to pursue an appeal. The Foundation currently awaits acceptance of all submitted documents and final approval of its registration. This is an important registration for RTFF as we cannot solicit or collect funds in Pennsylvania until RTFF is properly registered with the Bureau.

4. RTFF Federal Government Registration

In late 2019, RTFF completed submission of registration information with the U.S. Government's System for Award Management (SAM). RTFF also received a Commercial and Government Entity (CAGE) Code (8G7A5). This code is part of

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the SAM Registration process, and RTFF can now submit bids and propose work to the federal government.

5. RTFF Website Development

The basic map and layout for the RTFF website was completed. The website will serve as a major avenue of information transfer about RTFF activities and as the portal for RTFF scholarship application submissions. Work was initiated on the development of the scholarship guidelines and requirements. A draft scholarship application form was also developed. It is hoped that the website will be operational in early to mid-2020. Once the website is operational, links to other like-minded organizations will be included as a means of fostering potential partnerships.

RTFF Board of Directors

The Board of Directors and scientific and engineering staff of the Foundation include the following:

Michael A. Trevits, PG, President and Co-Founder: President of Xtraction Science and Technology, Inc., Bethel Park, PA.

Robert P. Kudlawiec, PE, Treasurer and Co-Founder: Senior Project Manager, Tetra Tech Inc., Pittsburgh, PA

Brandon D. Coneby, Esq., Secretary and Co-Founder: Partner with Dinsmore and Shohl LLP in the Energy and Natural Resources Group, Pittsburgh, PA.

John E. Urosek, PE, Co-Founding Board Member: Owner of John Urosek Mine Consulting, LLC.

Steven Cotten, Co-Founding Board Member Owner of Subsurface Problem Solutions, Lockport, NY

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This report provides a summary of major activities during 2020 that were focused on the realization of the Foundation's mission.

1. Proposals for Research Work

In late 2019, RTFF prepared the Concept Paper "Refuge Alternative Emergency Communication Capability Development" that was submitted on January 14, 2020 in response to the NIOSH Broad Agency Announcement BAA 75D301-20-R-67845. The Concept Paper is the initial step in seeking funding from NIOSH. If NIOSH approves the Concept Paper then a formal proposal will be requested by NIOSH. The first project objective under the proposed work was to fully address the engineering issues serving as barriers to implementation of two proposed through-the-mine communication systems for use from within a refuge alternative and then assemble and demonstrate suitable prototype units for each system. The second project objective was to advance the concept of a hybrid through-the-earth communication system by conducting feasibility studies of both a higher power Very Low Frequency (VLF) radio surface transmitter and a seismic source generator for post-emergency

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use underground. If warranted by the feasibility study results, construction and demonstration of a complete proof-of-concept hybrid system was proposed as an optional task. Unfortunately, a request for a full proposal based upon the concept paper was not received from NIOSH.

The proposal, “Firefighter Tracking System Technology Proof-of-Concept Demonstrations” was submitted on May 29, 2020, to FEMA under their Fire Prevention & Safety Grants Research & Development Program. The goal of the FEMA program is to reduce firefighter fatal and nonfatal injuries and improve firefighter safety, health and wellness. The intent of our preliminary study was to assess the ability, effectiveness, and practicality of two different radio technologies (VLF and UHF technologies) developed for other applications to constantly record and track the location of individual firefighters responding to a call as they both surround and enter a structure. Unfortunately, RTFF was notified by FEMA on October 28, 2020 that the proposal was not accepted.

The proposal “Intrinsically Safe Propulsion Development for Mine Drone Applications” was submitted to the Alpha Foundation for the Improvement of Mine Safety and Health on July 30, 2020. The Alpha Foundation is a private entity whose mission is to improve mine safety and health through funding research and development projects at qualified academic institutions and other not-for-profit organizations. This proposal was for a three-phase project to follow-up previous drone work funded by the Alpha Foundation. The ultimate, long-term objective of the proposed work was to develop and demonstrate a complete Mine Rescue Aerial Reconnaissance System (MRARS) capable of safely flying in underground coal mines during a mine emergency to assist mine rescue team operations. The Unmanned Aerial Vehicle (UAV) system component, which was the primary subject of our proposal, was to design a UAV system to specifically to meet MSHA requirements for operation in post-event hazardous mine environments. Due to the uncertainties associated with UAV system design and development, only the details for the first, 18-month basic concept and design phase of the project was submitted under this proposal. Unfortunately, RTFF was notified on September 15, 2020 that the proposal was not accepted for funding.

The RTFF scientific and engineering staff are currently considering additional research ideas future proposal submissions.

2. RTFF PA State Registration Actions

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RTFF applied for Pennsylvania registration in 1999 as part of their income tax filing with the State. The application was denied because RTFF unknowingly failed to register within 30 days of receipt of a gross charitable contribution in excess of \$30,000. RTFF was also assessed a late filing penalty and recurring additional monthly penalties for each month until the fee was paid. The State's decision was appealed because the monies received by RTFF were not in the form of a donation or a charitable contribution, rather it was for work that was done under the terms of the RTFF Grant Agreement AFC719-57 with the Alpha Foundation. While the appeal was under review, RTFF could not solicit and collect charitable donations in Pennsylvania. Since the RTFF Board determined that this continuing restriction awaiting appeal review affected their plans for growing the Foundation, the Board ultimately decided to withdraw the appeal and pay the fees and associated penalties. After submitting the proper documentation to the State, RTFF received notification that their registration was accepted on September 23, 2020. The certification was subsequently renewed on December 1, 2020 and currently expires on November 15, 2021.

3. RTFF Federal Government Registration

RTFF renewed their registration information with the U.S. Government's System for Award Management (SAM) on December 11, 2020. RTFF also renewed their Commercial and Government Entity (CAGE) Code (8G7A5). This code is part of the SAM Registration process, and RTFF can continue to submit bids and propose work to the federal government.

4. RTFF Website Development

The development of the RTFF website was completed after the RTFF Board approved all of the website's content and the website went live on June 17, 2020. The website will serve as a major avenue of information transfer about RTFF activities and as the portal for RTFF scholarship information dissemination and application submissions. The next task is to formally link the RTFF website to other like-minded organizations to expand the awareness of RTFF and our scholarship opportunities.

5. RTFF Scholarship

The RTFF scholarship program, the application process (including development and layout of the scholarship application form) and Frequently Asked Questions were completed and approved by the RTFF Board. The scholarship application period opened on July 1, 2020 and closed on November 30, 2020. No applications were received. It is believed that one reason for the lack of application submittals was the impact of the lockdown implemented as a result of the Covid-19 Pandemic. A review

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of how we might increase the visibility and availability of our scholarship program is currently underway. The scholarship application period reopened in January 2021.

6. Fundraising Opportunity – Golf Outing

Planning is underway in earnest for the inaugural RTFF Charity Golf Outing as an ad hoc golf outing committee to organize the event has been formed. Restrictions associated with the Covid-19 Pandemic have to date precluded formalized planning. It is anticipated that the first golf outing will be held in 2021. Solicitation of sponsors and donors for the event will begin as soon as outing plans are finalized.

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