

Breathing Air Supplies

Objectives

- To develop, demonstrate, and assist manufacturers to make commercially available CCER devices for mining that are person wearable, simple to use, allow for seamless changeover between devices and allow verbal communication.
- To develop prototype cryogenics systems for life support in irrespirable atmospheres.

Stakeholders

MSHA, PMRD, UMWA, NMA, Breathing apparatus manufacturers

Project Scope

Develop two closed-circuit mining escape respirator (CCMER) prototype devices and one open-circuit prototype apparatus: 1) wearable soft-shell, backpack style device (CCMER-B), 2) hard-shell cacheable device (CCMER-C), and 3) an open-circuit self-contained breathing apparatus (SCBA-M). Devices 2) and 3) will be dockable to the initially donned CCMER-B for continued escape.

Develop Liquid Cooling garment cryogenic breathing apparatus prototype for use in fire fighting and other first responder applications where reducing heat stress is needed

Milestones FY17

- Prototypes (alpha) of non-deployable dockable backpack style Closed-Circuit Mine Escape Respirator.
- Prototype (alpha) of LCG Cryogenic Breathing Apparatus

Key Partners

- Navy (NSWC and NEDU)
- NASA
- Specialized contractors

Timeline

- Two years - CCMER prototypes
- One Year – LCGCryoBA prototype

Applicable Standards

42CFR84- Subparts H and O; 30CFR75

Outputs

- Prototypes close to production quality
- Usability studies in laboratories and real mines to get feedback on designs
- Final reports and Technical data packages

Expected Outcomes

- Hardware and information to assist commercial manufacture
- Publications on BAS Technology
- Input to formulating regulatory standards