Superior Powered Air-purifying Respirators Tests And New technologies (SPARTAN)

**Objectives**

This project seeks to encourage the development of more comfortable and usable PAPRs through

1) improved test methods for quantifying PAPR performance and usability (e.g., speech intelligibility)
2) better understanding of the relationships between flow rate and performance
3) development and evaluation of next generation PAPR prototypes

**Scope**

This project will be conducted in two overlapping phases. Phase 1 (FY17-19) focuses on test method development and addresses known and potential gaps in how PAPRs are evaluated for protection and usability. Phase 1 is aligned with NPPTL/CVSD efforts to develop short-term and long-term improvements to the PAPR standard. Phase 2 (FY19-21) focuses on new technologies for PAPRs and will use the test methods developed in Phase 1. Phase 2 is based upon some of the lessons learned from Project BREATHE to promote the development of new technologies for half-mask air purifying respirators.

**Milestones**

**FY17:** Develop study protocol and conduct external scientific peer-review. Initiate test methods development on respirator fit capability, speech intelligibility, and headforms tests

**FY18:** Initiate the main study to investigate the effect of work rates, flow rates and type of PAPRs on protection

**FY19:** Initiate Phase 2 of project. Solicit industrial collaborators (e.g., respirator manufacturers) via a federal register notice

**Applicable Standards**

- NIOSH 42 CFR Part 84
- ANSI, ISO

**Key Partners**

- OSHA and standards development organizations
- National Ebola Education Training Center
- Academia and research centers involved in testing PAPRs (UC, WVU, UNT, etc.)

**Stakeholders**

- Respirator Users and Manufacturers
- Standards Organizations

**Outputs**

- Manuscripts submitted to peer reviewed journals
- Presentations to stakeholders or conferences
- Presentations to committee and public meetings

**Outcomes**

- Manuscripts are used for citations in scientific literature
- Project data is used by NIOSH, CDC, OSHA, ISO, and ANSI in guidance documents, standards, or regulations
- New and/or improved methods for testing PAPRs