

# 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



**A Sample  
PAPR**

## 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

## 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

## 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