

Methods for Continuous, Real-Time Evaluation of Respirator Protection Factor – FY15 (939011R)

Objective

- 1) Real-time leakage (fit) information while working in a respirator would provide several opportunities to better understand and improve respiratory protection. Several methods are potentially capable of providing real-time leakage information. Their suitability (i.e. their ability to predict fit) will be evaluated through a direct comparison with accepted methods carried out in three progressive stages: Obtain leak-related information using real-time techniques in conjunction with fit-test methods in the laboratory. Prototypes using the most promising method(s) will then be compared in simulated protection factor experiments. Refined prototypes will then be compared in work place protection factor studies.

Project Scope (all years)

- 1) Develop comparative experiment to obtain leak-related information using real-time techniques in conjunction with conventional fit-test methods.
- 2) Evaluate the ability of each technique to predict fit, the influence of experimental factors, and identify leak location from real-time measurements.
- 3) Develop prototype(s) for estimating real-time fit in simulated work place protection factor study.
- 4) Develop prototype for estimating real-time fit in work place protection factor study.

Milestones FY15

- Q1 Complete design of comparative experiment
- Q2 Complete construction and evaluation of experiment
- Q3 Prepare and submit HSRB package
- Q4 Perform comparative experiment

Applicable Standards related activities

- 29 CFR 1910.134
- ISO TC94 SC 15

Stakeholders

- NIOSH, OSHA, MSHA, ANSI, AIHA, ISO
- Respirator Research Community
- Respirator Users

Outputs

- Manuscripts published or patent **(1)**
- Presentations to stakeholders and conferences **(3)**
- Standards committee meetings & public meetings **(0)**

Outcomes

- Other researchers utilize the project outputs to initiate new research related to fit in real time
- Project data is used by NIOSH, CDC, OSHA, ISO, and ANSI in guidance documents, standards, or regulations

Updated: 20 Feb 2015