

Mandatory information

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Firefighters Guidance Note #X-XX: SCBA Air Management and Work Cycles

Improve the safety of firefighters working in atmospheres where their lives depend on an adequate air supply.

Issued: XXX

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Background

Air management is an individual's awareness of their personal air consumption while wearing respiratory protection equipment in a controlled area.

Work cycles can rotate personnel through various tasks to ensure an adequate air supply when in an IDLH atmosphere.

Concerns/hazards

Interior crews working in an IDLH atmosphere into their low air alarm activation reduce their time allotment for emergency escape, putting themselves and others at increased risk.

Actions for employers

Employers should:

- train incident commanders and all firefighters on factors affecting air supply duration
- ensure firefighters are aware of their individual air consumption rates in various working conditions
- develop and implement procedures for work cycles

Air consumption rate

The air consumption rate will be different for each individual. Some factors include:

- physical fitness and condition
- size and weight
- work being performed
- environment where the work is being performed
- other stressors (e.g., people trapped, difficult access, outside temperatures)
- type of protective clothing used
- training

Air supply duration

In addition to individual air consumption rates, consider the following when determining air supply duration:

- operational duration of air filters and cartridges
- particulate buildup on air filters and cartridges
- travel distance and time to the IDLH atmosphere
- amount of air when entering the IDLH atmosphere

- travel distance and time in the IDLH atmosphere
- coordination of team activities in the IDLH atmosphere
- travel distance and time to a safe zone after working in the IDLH atmosphere
- time to complete field decontamination

Air supply duration should be considered at a strategic, tactical and task level.

Work cycles

Consider the following information when developing procedures for work cycles.

One example of a work cycle rotation is as follows:

Within a sector, assign three crews per task. One crew is deployed, the second is standing by and ready for assignment, and the third is available at sector rehab. Teams rotate through these three positions within their sector, until two cylinders are depleted. Teams are then assigned to the incident rehab sector.

During operations where tasks cannot be interrupted, such as fire attack, there are a number of advantages for implementing a work cycle while in a controlled area to meet the needs of performing tasks in IDLH and maintaining firefighter safety.

Some advantages include:

- Having personnel ready for immediate deployment to replace crews
- Having personnel provide immediate resources for a MAYDAY or RIT
- Reduces time travelling from Sector to Sector (air/light, rehab)

Challenges of a work cycle system include:

- Getting adequate personnel in place to support the work cycle
- Setting up Air Supply
- Accountability

Applicable regulations, acts and standards

Read: [Occupational Health and Safety Act](#)

- clause 25(2)(a) for providing information and instruction to a worker
 - clause 25(2)(d) for making workers aware of hazards
 - clause 25(2)(h) for taking every precaution reasonable to protect workers
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Related

[NFPA 1404 Standard for Fire Service Respiratory Protection Training](#)

[Williams-Bell, F.M., et al., Air management and physiological responses during simulated firefighting tasks in a high-rise structure, Applied Ergonomics \(2009\)](#)

[Read all firefighters guidance notes <link to landing page>](#)

This resource does not replace the *Occupational Health and Safety Act* (OHSA) and its regulations, and should not be used as or considered legal advice. Health and safety inspectors apply the law based on the facts in the workplace.

