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OPERATIONS MANUAL

STANDARD INSTRUCTION 14 PERSONAL PROTECTIVE EQUIPMENT

SECTION 07 SCBA AIR MANAGEMENT

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I. PURPOSE

The intent of this policy is to improve firefighter safety when operating in hazardous or potentially hazardous atmospheres by establishing a Self-Contained Breathing Apparatus (SCBA) air management policy in accordance with NFPA 1404 “*Standard for Fire Service Respiratory Protection Training*” (2006).

II. SCOPE

This policy shall apply to all San Diego Fire-Rescue Department (SDFD) personnel.

III. AUTHORITY

The fire chief authorizes the information within this policy.

IV. DEFINITIONS

- A. **Air Management**: An ongoing assessment of air consumption by individual firefighters and/or teams that are breathing air from a Self-Contained Breathing Apparatus (SCBA).
- B. **Rule of Air Management (ROAM)**: A rule describing how a firefighter should manage the amount of air in their SCBA so that the firefighter leaves the hazardous environment before their SCBA’s low-air warning alarm activates.
- C. **Immediate Danger to Life and Health (IDLH)**: An environment that is likely to cause death or immediate or delayed permanent health effects or prevent escape from such an environment.
- D. **READY Checks**: A mnemonic device used to remember the key elements of checking the crew’s personal protective equipment and readiness prior to entering a hazardous atmosphere.

V. POLICY

National Fire Protection Association (NFPA) 1404 states that the Fire-Rescue Department shall establish and enforce written standard operating procedures for training in the use of respiratory protection equipment, and that training shall include the following:

A. **Individual Air Management**

This program will develop the ability of an individual to manage his or her air consumption as part of a team during a work period. Air consumption rates depend on several factors which include, but are not limited to: fitness level, experience, workload being performed, and how efficiently the body metabolizes oxygen.

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Ultimately, air management is each firefighter's responsibility and shall be monitored closely as part of situational awareness. Firefighters must make sure they have a fully filled SCBA cylinder before they enter the any IDLH environment. Firefighters operating in an IDLH atmosphere must be vigilant about monitoring their pressure gauges at frequent intervals and informing their supervisor of their status. Firefighters must exit the IDLH atmosphere before their low air alarm activates. This preserves a firefighter's reserve air should something go awry.

The low air alarm is not a signal for the firefighter to begin to leave. It is telling the firefighter that they are running out of air.

1. The Individual Air Management Program training should include, but is not limited to the following information:
 - a. Low air alarm is a notification that the individual is consuming their reserve air.
 - b. The low air alarm activates when the SCBA cylinder has 25% (~1100 psi) of its capacity remaining.
 - c. The best practice and policy of SDFD is that firefighters shall make every effort to exit the IDLH environment prior to activation of the SCBA low air alarm or vibralert.
2. The rules of the Individual Air Management Program
 - a. Always follow the ROAM.
 - b. Individuals must always know how much air they have in their SCBA, and manage that air so they leave the IDLH environment before their low air alarm activates.
 - c. Exit from an IDLH environment shall occur before consumption of reserve air supply begins.
 - d. A low air alarm activation inside a fire shall be treated with urgency. Activation of the low air alarm is an immediate action item for the individual and the team members to retreat to a safe/non IDLH environment.
3. Supervisors and personnel operating on the fire ground share responsibility for considering the time needed for safe exit when the mission objective is reached or anyone's SCBA air reserve is at 50%, whichever occurs first. *This shall be based on the person with the least amount of remaining air.*

B. General Air Management Guidelines and Principles

1. All personnel are required to know and comply with Operations Manual, Standard Instruction 14 Personal Protective Equipment, Section 01 Respiratory Protection, and the SDFD Respiratory Protection Program Guide.
2. Air management is an integral part of emergency operations while working in an IDLH environment.
3. Air management is a practice, a philosophy, and a mind-set to make all members aware as a team of their air supply.

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4. Being aware of the team's air supply will help to insure firefighter safety and assist in the risk management decision process.
5. A skilled air management practice increases a team's efficiency and helps define a margin of safety in many different IDLH environments and situations.
6. The following factors should be considered when using an SCBA in an IDLH:
 - a. Different IDLH environments require different considerations and tactics for air management.
 - b. Large commercial buildings, single family dwellings, extensive workloads, and long access times all require different approaches for air usage.
 - c. Careful thought and consideration must be given to personal experience, physical conditioning, and experience of team.
 - d. Any building or structure's layout.
 - e. Access to a safe/non-IDLH environment.
 - f. The amount of air consumed getting to the mission objective or seat of the fire.
 - g. Changing conditions.
 - h. Obstacles.
 - i. Fatigue.
 - j. *Any factors that could affect a safe retreat for individuals or the team must be constantly re-evaluated.*

C. Standard Operating Procedures

1. Rule of Air Management (ROAM)
 - a. All firefighters shall conduct a READY Check before entering any IDLH environment:
 - 1) **Radio:** turned on, battery charged, correct channel
 - 2) **Equipment:** all PPE intact, proper tools for the assignment
 - 3) **Air:** full cylinder, SCBA functioning properly
 - 4) **Duties:** everyone knows their assignment
 - 5) **Yes:** if all answers above are yes, team can enter the environment
 - b. Individuals must have 4000 psi or greater before entry into IDLH environment.
 - c. All firefighters shall continually monitor air consumption and pressure as an individual and/or team. Some examples of how this may be accomplished:
 - 1) Regular time intervals (approximately every five minutes)
 - 2) 10 min incident timer notification from Emergency Command and Data Center (ECDC)
 - 3) Change of work area (floor level change, area searched)
 - 4) Passing of major landmarks within the structure
 - 5) Completion of assignment and prior to accepting another assignment
 - 6) As the situation dictates or called for by the supervisor

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D. Training

1. The SDFD's Training and Education Division will reinforce this policy in collaboration with the Fire Ground Survival Guidelines (FGS) during all training.
2. During training, the more stresses that are simulated, the more beneficial the training and the more accurately a student's performance can be evaluated.
3. SDFD, specifically company officers, shall provide regular training and evaluation of an individual's ability to:
 - a. Act properly during a simulated emergency requiring the use of respiratory protection equipment.
 - b. Perform safely during emergency operations and in situations that require the use of the SCBA.
4. The SDFD annual SCBA refresher training and certification shall be completed annually during Fire Ground Survival (FGS) training at the company level and documented in the electronic log book.
 - a. Documentation shall include completed training and records of:
 - 1) SCBA air management procedures
 - 2) Firefighter emergencies in an IDLH environment
 - 3) Firefighter survival techniques
 - 4) Fire ground emergency communications
 - 5) SCBA uses, limitations, donning, doffing, and face piece seal checks
 - 6) Pre and post use checks including maintenance