



Heat Illness Prevention

PURPOSE: To ensure the physical and mental condition of personnel operating at emergency operations or training exercises do not deteriorate to a point that it affects their safety or the safety and integrity of the operation.

GUIDELINE: Rehabilitation should be implemented at all emergency operations and training exercises where strenuous physical activity and/or exposure to heat exist. A rehabilitation (rehab) unit will be requested for the following call types:

- Vegetation Fire / Working Structure Fire / High-Rise
- Technical Rescue / Confined Space / Multi-Casualty Disaster Response
- Level A HAZMAT Response

Incident Commanders have the discretion of requesting a rehabilitation unit on other call types, which is recommended for incidents requiring 30 minutes or longer of continuous physical exertion or during extreme weather conditions (i.e. veg fire beyond initial attack).

RESPONSIBILITY: Incident Commander (IC) - The IC shall consider the circumstances of each emergency operation or training exercise and make adequate provisions early in the activity for the rest and rehabilitation of all personnel operating at the scene. Provisions include:

- Providing food and fluid replacement Providing access to shade for rest and cooling
- Assigning an on-scene Paramedic (PM) or requesting an additional PM unit through the Emergency Command Center (ECC), to medically evaluate individuals for the signs and symptoms of heat illness
- Contacting and directing emergency medical services to the worksite when necessary

Supervisors / Line Officers – All supervisors/line officers shall maintain an awareness of the condition of each member operating within their span of control and ensure that adequate steps are taken to provide for each member's health and safety. The command structure shall be utilized to request relief and the reassignment of fatigued crews.



Heat Illness Prevention

Operations Department Personnel – Personnel are responsible for staying nourished and hydrated throughout their shift. During emergency operations or training exercises, all personnel shall advise their supervisor when they believe their level of fatigue or exposure to heat is approaching a level that could affect themselves, their crew, or the operation in which they are involved. Personnel shall also remain aware of the health and safety of other personnel of their crew.

Safety Officer – The IC will designate a Safety Officer who will be responsible for Operations personnel, and have the authority to refer them to the rehabilitation area.

Service Center Personnel – When dispatched to an emergency operation, Service Center personnel will obtain and set up rehabilitation materials by following the Rehabilitation Area Setup guideline (Attachment 1). The IC or Service Center personnel will announce by radio the establishment of a rehabilitation area and indicate its location.

PROCEDURES: I. Responsibility for the Establishment of a Rehabilitation Area

The IC will establish a rehabilitation area when conditions indicate rest and rehabilitation is needed for personnel operating at an emergency operation or training exercise.

Establishment of Rehabilitation Area

Supervisors/line officers should consider rehabilitation during the initial planning stages of an emergency operation or training exercise. The climatic or environmental conditions of the scene should not be the sole justification for establishing the rehab area. Any activity/incident that is large in size, long in duration, and/or labor-intensive will rapidly deplete the energy and strength of personnel, and therefore merits consideration for rehabilitation.

One climatic or environmental condition that indicates the need to establish a rehabilitation area is a heat index above 85 F. However, the IC may deem the necessity of establishing a rehabilitation area at any time regardless of the heat index factors. ECC will be responsible for monitoring data from Remote



Heat Illness Prevention

Automated Weather Stations (RAWS) sites during incidents warranting such information.

Location of Rehabilitation Unit

The IC will normally designate the location for the rehabilitation area. If a specific location has not been designated, Service Center personnel shall select an appropriate area based on the site characteristics and designations as follows:

- It should provide suitable protection from the prevailing environmental conditions. During hot weather, it should be in a cool shaded area.
- It should enable personnel to be free of exhaust fumes from apparatus, vehicles, or equipment.
- It should be large enough to accommodate multiple crews, based on the size of the incident. It should be easily accessible by EMS units.
- It should allow prompt entry back into the emergency operation, or training exercise, upon recuperation.
- Due to the complexity and size of major wildland firefighting incidents, and difficulty in maintaining and supporting rehab functions, should the size and duration of the incident require a Base Camp and the establishment of a Medical Unit, the Rehab Unit will be placed at that location. Therefore, anyone on the fireline exhibiting signs/ symptoms of heat illness could be rapidly transmitted to the location for assessment/ treatment

II. REHABILITATION UNIT SUPPLIES

Assigned personnel shall secure all necessary resources required to adequately supply the rehabilitation area. The supplies should include:

- EZ Ups
- Collapsible benches
- Ice chests filled with ice Bottled water
- Towels
- Electrolyte/glucose replacement powder Granola bars/almonds/meal replacement powder Enter/exit signs



Heat Illness Prevention

- Fire tape (to mark the entrance and exit of rehab area) Garbage bags
- Self Contained Breathing Apparatus (SCBA) bottles

III. PREVENTATIVE HYDRATION

A critical factor in the prevention of heat illness is the management of water and electrolytes. Water must be replaced during exercise periods and at emergency incidents. During heat stress, the member should consume at least one quart of water per hour. The following guidelines should be used for hydration during extended emergency operations or training exercises:

- Drink water for the first 30 minutes of the incident.
- Drink water and an electrolyte replacement drink after approximately 30 minutes.
- Drink water and an electrolyte and glucose replacement drink after approximately 60 minutes.

IV. NOURISHMENT RECOMMENDATIONS

The department should provide meal replacements at the scene of an extended incident when units are engaged for 2 hours or more. Almonds, meal replacement bars, or meal replacement drinks are highly recommended because it is digested much faster than sandwiches and fast food products. In addition, foods such as apples, oranges, and bananas provide supplemental forms of energy replacement. Fatty and/or salty foods should be avoided.

V. MANDATORY REST

The “two air bottle rule,” or 45 minutes of work time, is recommended as an acceptable level prior to mandatory rehabilitation. Personnel shall rehydrate and cool while SCBA cylinders are being changed. Firefighters having worked for two full 30-minute rated bottles, or 45 minutes, shall be placed in the rehabilitation area for rehydration and cooling. The rest period duration shall be dependent upon the following medical criteria:



Heat Illness Prevention

Ability to return to firefighting operations:

Pulse # 110

Once a firefighter meets the above heart rate benchmark, the expectation is that they will re-engage in firefighting/rescue operations in a timely manner.

Prior to demobilization and return to normal operations status, the following medical criteria must be met:

- Pulse # 110
- Blood Pressure # 160/100
- SpO2 greater than 95%
- SpCO less than 10%

Firefighters exceeding the above medical criteria shall remain in the rehabilitation area until they meet the stated benchmarks. Should that occur, an ALS evaluation will be performed to determine if further treatment is required. If an ALS evaluation is necessary, the IC/designee shall notify the home agency and make a request for additional resources through the appropriate dispatch center. The above medical criterion is assuming that the firefighter is not experiencing signs/symptoms of heat illness. Should any signs/symptoms of heat illness be present, the IC will treat that individual as an incident within an incident and request the appropriate resources through ECC.

VI. Cooling Measures

The following cooling measures should be followed:

- Remove coat, helmet, and flash hood.
- Remove chemical protective clothing (if HazMat event) Cease all activity and sit in a shaded area under EZ Up.
- Take one wet towel at a time from the ice chest and place it on areas of the body with abundant blood supply (such as the back of the neck) and areas with efficient heat transfer (such as the head).
- Place the used towel in a separate bucket or plastic bag, not in the ice chest when done.



Heat Illness Prevention

VII. Accountability

Personnel assigned to the rehabilitation area shall enter and exit the rehabilitation area as a crew.

However, should one member of the crew not meet the benchmark, the remainder of the crew shall reengage. The crew designation, number of personnel, and the time of entry to and from the rehabilitation area shall be documented on the Rehabilitation Log (department check-in/ check-out sheet.). The Rehabilitation Logs shall be forwarded to EMS following the incident.

Fresh crews, or crews released from the rehabilitation area, shall be available in the staging area to ensure that fatigued personnel are not required to return to duty before they are rested, evaluated, and released.

References:

- OSHA

Attachments:

- Attachment #1 – Heat Illness Prevention Rehabilitation Log

Review/Revision History:

- Heat Illness Prevention Created January 2020

The Undersigned Fire Chiefs approve of the content in this document. Dated: November 1, 2021



Heat Illness Prevention

AN ORGANIZATION DEDICATED TO THE DELIVERY OF EXCEPTIONAL FIRE AND LIFE SAFETY SERVICES THROUGH COLLABORATION AND TEAMWORK

Signature Page

The undersigned Fire Chiefs approve the contents of this document

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HEAT ILLNESS PREVENTION REHABILITATION LOG

Date:

Incident Name:

Incident Type:

Jurisdiction:

Unit	Personnel	Entry	Initial Vitals				Exit	Release Vitals				Disposition						
			ID	Last Name	Time	Pulse		BP	SpO ₂	SpCO	Time	Pulse	BP	SpO ₂	SpCO	Incident	Rehab	Transport

Prior to returning to firefighting operations:

- Rehab and rehydration
- Heart rate ≤ 110 BPM

Prior to demobilization and return to normal operational status:

- Rehab and rehydration
- Heart rate ≤ 110 BPM
- Blood pressure ≤ 160/110
- SpO₂ ≥ 95%
- SpCO ≤ 10%



HEAT ILLNESS PREVENTION REHABILITATION LOG (Additional Pages)

Date: _____ **Incident Name:** _____ **Incident Type:** _____ **Jurisdiction:** _____

Unit	Personnel ID Last Name	Entry		Initial Vitals			Exit		Release Vitals			Disposition				
		Time	Pulse	BP	SpO ₂	SpCO	Time	Pulse	BP	SpO ₂	SpCO	Incident	Rehab	Transport	Demob.	