

OPERATIONS MANUAL

Table of Contents

STANDARD INSTRUCTION 10 INJURY AND ILLNESS PREVENTION PROGRAM

SECTION 14-A HEAT ILLNESS

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I.	PURPOSE.....	1
II.	SCOPE.....	1
III.	AUTHORITY .....	1
IV.	DEFINITIONS .....	1
V.	POLICY .....	2
A.	Pre-Exertion Guidelines.....	2
B.	Exertion Guidelines.....	2
C.	Symptom Recognition .....	3
D.	Procedures for Employee and Supervisor Training.....	5

<b>TITLE</b> OPERATIONS MANUAL	<b>STANDARD</b> INSTRUCTION 10		<b>DEPARTMENT</b> FIRE
<b>SUBJECT:</b> INJURY AND ILLNESS PREVENTION PROGRAM HEAT ILLNESS	<b>SECTION</b> 14-A	<b>PAGE</b> 1 of 6	<b>EFFECTIVE DATE</b> 24 February 2022

**I. PURPOSE**

This policy is intended to keep personnel rested and hydrated before, during and after physically demanding incidents or training sessions involving elevated temperatures.

**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. Acclimatization: Temporary adaptation of the body to work in the heat that occurs gradually when a person is exposed to it. Acclimatization peaks in most people within four to fourteen days of regular work for at least two hours per day in the heat.
- B. Heat Illness: A serious medical condition resulting from the body's inability to cope with a heat load, and includes heat cramps, heat exhaustion, heat syncope and heat stroke.
- C. Environmental Risk Factors: Working conditions that create the possibility that heat illness could occur, including air temperature, relative humidity, radiant heat from the sun and other sources, conductive heat sources such as the ground, air movement, workload severity and duration, protective clothing and personal protective equipment worn by employees.
- D. Personal Risk Factors: Factors such as an individual's age, degree of acclimatization, health, water consumption, alcohol consumption, caffeine consumption, and use of prescription medications that affect the body's water retention or other physiological responses to heat.
- E. Shade: The blockage of direct sunlight. One indicator that blockage is sufficient is when objects do not cast a shadow in blocked sunlight. Shade is not adequate when heat in the shade defeats the purpose of shade, which is to allow the body to cool. For example, a car sitting in the sun does not provide acceptable shade to a person inside it, unless the car is running with air conditioning. Shade may be provided by any natural or artificial means that does not expose employees to unsafe or unhealthy conditions and that does not deter or discourage access or use.

<b>TITLE</b> OPERATIONS MANUAL	<b>STANDARD</b> INSTRUCTION 10		<b>DEPARTMENT</b> FIRE
<b>SUBJECT:</b> INJURY AND ILLNESS PREVENTION PROGRAM HEAT ILLNESS	<b>SECTION</b> 14-A	<b>PAGE</b> 2 of 6	<b>EFFECTIVE DATE</b> 24 February 2022

- F. Temperature: The dry bulb temperature in degrees Fahrenheit obtainable by using a thermometer to measure the outdoor temperature in an area where there is no shade. While the temperature measurement must be taken in an area with full sunlight, the bulb or sensor of the thermometer should be shielded while taking the measurement, e.g., with the hand or some other object, from direct contact by sunlight.

## V. POLICY

This policy works in conjunction with the Rehabilitation Policy which details 1) the provision of necessary resources required for working in temperatures over 80 degrees Fahrenheit and at least ten degrees Fahrenheit higher than the average daily temperature in the preceding five days, and 2) specific policy and procedure related to the Lifeguard Division.

Heat illness is a serious medical condition resulting from the body's inability to cope with a heat load. It includes heat cramps, heat exhaustion, heat syncope, and heat stroke (Title 8 California Code of Regulations 3395). Heat Illness can be caused by environmental factors (working conditions, relative humidity, etc.) and/or personal risk factors (water consumption, use of prescription medications, age, health, etc.). The reactions to heat stress can range from dizziness, nausea, weakness, heat cramps, heat exhaustion, heat stroke, and lead to death. While there are no officially recognized standards regarding hydration of firefighters and lifeguards at incidents, there are general guidelines that should be followed to prevent or reduce the potential effects of Heat Illness when there is potential for exertion.

### A. Pre-Exertion Guidelines

1. Personnel should participate in continuous fitness programs to increase their body's resistance to the effects of Heat Illness and to be able to accommodate to the added burden of heat load on the body caused by exertion, clothing, and personal protective equipment. This could include eating smaller more frequent meals (which reduces the heat the body produces) rather than large meals less frequently and eating foods with higher water content such as fruits, vegetables and salads.
2. It is recommended that personnel have a personal fresh, pure and cool water supply in addition to what is on their apparatus, in their work location, or supplied by command vehicles.
3. Personnel who will be working away from their assigned apparatus or work location for more than one hour shall carry department provided fresh, pure, suitably cool water and an electrolyte solution.
4. When practical, drinking 16 ounces of fresh, pure and cool water with an electrolyte additive or solution prior to strenuous activity is highly recommended.
5. Hydration experts recommend fluid replacement before, during, and after exertion. Anticipate conditions that will increase the need for hydration including high temperatures, humidity, use of personal protective equipment, and difficulty of work.

### B. Exertion Guidelines

<b>TITLE</b> OPERATIONS MANUAL	<b>STANDARD</b> INSTRUCTION 10		<b>DEPARTMENT</b> F I R E
<b>SUBJECT:</b> INJURY AND ILLNESS PREVENTION PROGRAM HEAT ILLNESS	<b>SECTION</b> 14-A	<b>PAGE</b> 3 of 6	<b>EFFECTIVE DATE</b> 24 February 2022

1. Company officers, division/group supervisors and incident commanders shall monitor personnel frequently for alertness and signs or symptoms of heat illness.
  - a. This is especially the case when personnel have returned to duty after being out of the role for a period exceeding 30 days, or in the first 14 days of a new fire fighter reporting for duty.
  - b. If released back or returned to full duty, the employee must be able to perform all functions and respond to all incidents
2. Immediately remove personnel exhibiting symptoms of heat illness and have them medically evaluated and cleared to return to work.
3. Rotate personnel to prevent the conditions of heat illness.
4. Personnel will ensure they have an adequate supply of department provided fresh, pure and cool water and an electrolyte solution.
  - a. When possible, personnel should drink 8-10 ounces of fluid every 15-20 minutes during active working conditions.
5. Personnel shall immediately report to an on-site supervisor any symptoms of heat illness in themselves or their co-workers.
6. Firefighters and Lifeguards have the right to exercise their rights under the Cal/OSHA T8CCR 3395(b) standards to be provided water, shade, cool-down rests, and access to first aid without retaliation.

C. Symptom Recognition

1. All department members should be aware of the signs and symptoms of heat illness.
2. Heat illness can be one or more of the following medical conditions including: heat rash, heat cramps, fainting, heat exhaustion, and heatstroke. The following symptoms are commonly associated with the different heat illness medical conditions.
  - a. Heat Rash (Prickly Heat): A skin irritation caused by excessive sweating and clogged pores during hot, humid weather.
    - 1) General Symptoms
      - a) Can cover large parts of the body
      - b) Looks like a red cluster of pimples or small blisters
      - c) Often occurs on the neck, chest, groin, under the breasts, or in elbow creases
      - d) Uncomfortable so it can disrupt sleep and performance
      - e) Complicated by infections
    - 2) Actions
      - a) Avoid overheating
      - b) Shower in cool water with non-drying soap and air dry vs. towel drying
      - c) Use Calamine lotion or cool compresses
      - d) Avoid using creams or ointments that contain petroleum or mineral oil

<b>TITLE</b> OPERATIONS MANUAL	<b>STANDARD</b> <b>INSTRUCTION 10</b>		<b>DEPARTMENT</b> F I R E
<b>SUBJECT:</b> INJURY AND ILLNESS PREVENTION PROGRAM HEAT ILLNESS	<b>SECTION</b> 14-A	<b>PAGE</b> 4 of 6	<b>EFFECTIVE DATE</b> 24 February 2022

- e) Seek medical attention if needed
- b. Heat Cramps: Affects people who sweat a lot during strenuous work activity. Sweating makes the body lose salts and fluids and minerals. If only the fluids are replaced and not the salts and minerals painful muscles cramps may result.
  - 1) General Symptoms
    - a) Painful muscle spasms in the stomach, arms, legs, back and other body parts may occur after work or at night
  - 2) Actions
    - a) Rest briefly and cool down
    - b) Drink clear juice or an electrolyte balanced drink
    - c) Practice gentle, range of motion stretching and gentle massage of the affected muscle group
    - d) Returning to strenuous activity immediately after cramps subside is discouraged since doing so without sufficient rest and recovery can lead to heat exhaustion or heat stroke
    - e) If cramps do not go away within one hour, seek medical attention
- c. Fainting (Heat Syncope): Employees who stand for long periods or get up suddenly from a sitting or lying position when working in the heat may experience sudden dizziness and fainting. In both cases, the fainting is caused by a lack of adequate blood supply to the brain. Dehydration and lack of acclimatization to work in warm or hot environments can increase the susceptibility to fainting. Victims normally recover consciousness rapidly after they faint.
  - 1) General Symptoms
    - a) Sudden dizziness
    - b) Light-headedness
    - c) Unconsciousness
  - 2) Actions
    - a) Lie person down in a cool place
    - b) Keep feet slightly elevated
    - c) Drink fluids with electrolytes
- d. Heat Exhaustion: The body's response to an excessive loss of water and salt contained in sweat.
  - 1) General Symptoms
    - a) Heavy sweating
    - b) Painful muscle cramps
    - c) Nausea

<b>TITLE</b> OPERATIONS MANUAL	<b>STANDARD</b> INSTRUCTION 10		<b>DEPARTMENT</b> F I R E
<b>SUBJECT:</b> INJURY AND ILLNESS PREVENTION PROGRAM HEAT ILLNESS	<b>SECTION</b> 14-A	<b>PAGE</b> 5 of 6	<b>EFFECTIVE DATE</b> 24 February 2022

- d) Extreme weakness and/or fatigue
- e) Dizziness and/or headache
- f) Body temperature normal or slightly high
- g) Fainting
- h) Pulse fast and weak
- i) Breathing fast and shallow
- j) Clammy, pale, cool, and/or moist skin

2) Actions

- a) Move person to a cool, shaded area and lay them down
- b) Elevate legs and feet slightly
- c) Loosen or remove clothing
- d) Have person drink cool (not iced) water with electrolytes if available
- e) Cool the person with cooling towels

e. Heatstroke: Is usually fatal unless emergency medical treatment is provided promptly.

1) General Symptoms

- a) No sweating
- b) Mental confusion, delirium, convulsions, dizziness
- c) Muscles may twitch uncontrollably
- d) Pulse can be rapid and weak
- e) Throbbing headache, shallow breathing and/or seizures
- f) Unconsciousness and coma
- g) Body temperature may range from 102-104 degrees F or higher within 10-15 minutes

2) Actions

- a) Move person to a cool, shaded area and lay them down (if nauseated, lay on their side)
- b) Elevate legs and feet slightly
- c) Loosen or remove clothing
- d) Have person drink cool (not iced) water with electrolytes if available
- e) Cool the person with cooling towels
- f) Place ice packs under their armpits, neck, knees, or on the groin
- g) If the muscles begin to twitch uncontrollably, prevent self-injury
- h) Do not place any objects in the mouth
- i) Immediately contact emergency medical personnel

D. Procedures for Employee and Supervisor Training.

1. All employees, including supervisors, will be trained using the department approved online training platform on the following policies:

<b>TITLE</b> OPERATIONS MANUAL	<b>STANDARD</b> <b>INSTRUCTION</b> 10		<b>DEPARTMENT</b> F I R E
<b>SUBJECT:</b> INJURY AND ILLNESS PREVENTION PROGRAM HEAT ILLNESS	<b>SECTION</b> 14-A	<b>PAGE</b> 6 of 6	<b>EFFECTIVE DATE</b> 24 February 2022

- a. Operations Manual Heat Illness Policy
  - b. Operations Manual Cold Exposure Policy
  - c. Operations Manual Rehabilitation Policy
2. Employees shall verify their completion of the instruction by acknowledging they have read the documents and successfully completing a review assessment of the knowledge retained.
  3. Collectively, these three policies comprise the Fire Rescue Department Heat/Cold Prevention Plan.
  4. In addition to the initial training during firefighter and lifeguard academy training, employees will be retrained on the Heat/Cold Illness Prevention Plan annually using the Department's approved online training platform.

E. Operations

1. When the temperature is expected to exceed 80 degrees Fahrenheit, a Safety Message or Tailboard message briefing will be held to review the weather report, reinforce heat illness prevention, provide reminders to drink water frequently, inform personnel of shade and cooling options, and remind personnel to be on the lookout for signs and symptoms of heat illness.
  - a. Supervisors must document those present and the message reviewed.
2. When temperatures reach 95 degrees or above, the Department shall ensure that affected employees take a minimum ten-minute net preventative cool-down rest period every two hours.
  - a. The preventative cool-down rest period required by this paragraph may be provided concurrently with any other meal or rest period required by Industrial Welfare Commission Order No. 14 (8 CCR 1114.0) if the timing of the preventative cool-down rest period coincides with a required meal or rest period, thus resulting in no additional preventative cool-down rest period required in an eight-hour workday.
  - b. If the workday will extend beyond eight hours, then an additional preventative cool-down rest period will be required at the conclusion of the eighth hour of work; and if the workday extends beyond ten hours, then another preventative cool-down rest period will be required at the conclusion of the tenth hour and so on.
  - c. For purposes of this section, preventative cool-down rest period has the same meaning as "recovery period" in Labor Code section 226.7(a).
3. Acclimatization
  - a. All employees shall be closely observed by a supervisor or designee during a heat wave. For purposes of this section only, "heat wave" means any day in which the predicted high temperature for the day will be at least 80 degrees Fahrenheit and at least ten degrees Fahrenheit higher than the average high daily temperature in the preceding five days.
  - b. An employee who has been newly assigned to a high heat area shall be closely observed by a supervisor or designee for the first 14 days of the employee's employment.