



City of Turlock
Municipal Services Department
Heat Illness Prevention Procedures for Outdoor Work
In accordance with Title 8 CCR Section 3395

ADMINISTRATION

Introduction

The City of Turlock Safety Committee created the *City of Turlock Heat Illness Prevention Procedures for Outdoor Work* in order to:

- Protect employees that work outdoors from the dangers of heat illness; and
- Comply with the Cal/OSHA Heat Illness Prevention Standard (Title 8 CCR Section 3395).

These procedures are designed to provide an overview of how the City of Turlock will comply with the requirements set forth by the Cal/OSHA Heat Illness Prevention Standard. Each department and/or division is responsible for developing internal policies and procedures that protect employees from heat illness and comply with this standard. These procedures will become part of the City of Turlock Injury and Illness Prevention Program.

Definitions

1. 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.

2. Heat Illness - a serious medical condition resulting from the body's inability to cope with a particular heat load, and includes heat cramps, heat exhaustion, heat syncope and heat stroke.

a. Heat Stroke – the most serious health problem for workers in hot environments. Heat stroke is caused by the failure of the body's internal mechanism to regulate its core temperature. Sweating stops and the body can no longer rid itself of excess heat. Signs include (1) mental confusion, delirium, loss of consciousness, convulsions or coma; (2) a body temperature of 106 degrees F or higher; and (3) hot dry skin which may be red, mottled, or bluish. Death may occur if victims of heat stroke are not treated immediately.

b. Heat Exhaustion – results from loss of fluid through sweating when a worker has failed to drink enough fluids or take in enough salt or both. The workers with heat exhaustion still sweats but experiences extreme weakness or fatigue, giddiness, nausea, or headache. The skin is clammy and moist, the complexion pale or flushed, and the body temperature normal or slightly higher.

c. Heat Cramps – painful spasms of the specific muscles that are used for performing work. Heat cramps are caused when workers drink large quantities of water but fail to replace their bodies' salt losses.

d. Fainting (heat syncope) – usually associated with workers who are not acclimated to a hot environment and stand still for prolonged periods of time.

3. Environmental risk factors for heat illness - 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.

4. Personal risk factors for heat illness - 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.

5. Preventative recovery period - means a period of time to recover from the heat in order to prevent heat illness.

6. Shade - blockage of direct sunlight. Canopies, umbrellas and other temporary structures or devices may be used to provide shade. One indicator that blockage is sufficient is when objects do not cast a shadow in the area of blocked sunlight. Shade is not adequate when heat in the area of 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.

Compliance

In order to meet the requirements of the Cal/OSHA Heat Illness Prevention Standard, the persons presented below are expected to follow the responsibilities set forth:

Department Directors

- Ensure effective compliance with the Cal/OSHA Heat Illness Prevention Standard by following the written procedures found here and within the department's specific policies and procedures.
- Take corrective action if employees are not found adhering to the City and/or department procedures for Heat Illness Prevention.

Division Managers:

- Develop and implement site-specific policies and procedures that will ensure workers are protected from heat illness.
- Coordinate proper training for all employees who perform outdoor work.

Supervisors:

- Ensure that workers who work outside follow the City of Turlock and site-specific policies and procedures.

Employees:

- Follow the procedures set forth in the City of Turlock and site-specific heat illness prevention policies and procedures.
- Notify your supervisor(s) if you experience any symptoms of heat illness as described in the definitions.
- Establish a "buddy system" at the work site will ensure that each worker is monitored for signs and symptoms of heat illness. The paired "buddies" will notify a supervisor if/when they recognize heat illness symptoms in their paired partner.

PROCEDURES

1. Train the Employees

Before beginning work outdoors, all employees (supervisory and nonsupervisory) must be properly trained on heat illness prevention. At a minimum, utilize the City of Turlock training materials or visit the Cal/OSHA website for the most up-to-date information and training tools at <http://www.dir.ca.gov/DOSH/HeatIllnessInfo.html>. The training must include at least, the following topics:

- a. Environmental and personal risk factors
- b. Drinking water frequently throughout the day
- c. Importance of **acclimatization** (refer to the definition list on page 2)
- d. Types of **heat illness** and the signs and symptoms
- e. Necessity of immediately reporting to a supervisor any signs or symptoms of heat illness
- f. Procedures for responding to symptoms
- g. Procedures for contacting emergency medical services (including alternative models of transportation)
- h. Procedures for emergency communications

A refresher training course must be conducted annually.

2. Check the Heat Index

Chart 1

Temperature (F) versus Relative Humidity (%)						
°F	90%	80%	70%	60%	50%	40%
80	85	84	82	81	80	79
85	101	96	92	90	86	84
90	121	113	105	99	94	90
95		133	122	113	105	98
100			142	129	118	109
105				148	133	121
110						135

HI	Possible Heat Disorder:
80°F - 90°F	Fatigue possible with prolonged exposure and physical activity.
90°F - 105°F	Sunstroke, heat cramps and heat exhaustion possible.
105°F - 130°F	Sunstroke, heat cramps, and heat exhaustion likely, and heat stroke possible.
130°F or greater	Heat stroke highly likely with continued exposure.

Before beginning work, the supervisor should check the predicted heat index for the day.

This information can be found by visiting the National Weather Service Forecast Office website at: <http://www.wrh.noaa.gov/forecast/MapClick.php?site=lox&smap=1&textField1=34.04639&textField2=-118.44722>. Go to the section labeled “Current Conditions” to view the current day’s heat index. Supervisors may also calculate heat index by finding out the humidity and temperature and using Chart 1 (pictured above). Supervisors may also purchase and use a Heat Index Meter and use it to periodically check the heat index throughout the work day. Visit the Grainger catalogue at www.grainger.com and type in item # “4FB70” for an example of a digital meter that can be used.

3. Provide the Appropriate Equipment

Before beginning a job outside, the supervisor is also responsible for ensuring that employees are provided with:

- Enough *fresh water* so that each employee can drink at least 1 quart per hour and encourage them to do so. (4 quarts = 1 gallon)
- Sufficient **shade** (as outlined in the definition). Employees shall have access to shade when they feel they need a preventative recovery period of no less than 5 minutes.

4. Recognize Symptoms

Onsite supervisors should be alert for employees presenting with the following symptoms:

- Extreme fatigue
- Muscle cramps
- Clammy and moist skin
- Hot dry skin which may be red, mottled, or bluish
- Mental confusion
- Loss of consciousness

5. Respond to Symptoms

If and when an employee presents with any symptoms of heat illness, a co-worker should respond in the following manner:

- Get the person out of the sun and into a shady or air-conditioned location.
- Notify a supervisor if he/she is not on the job site.
- Lay the person down and elevate the legs and feet slightly.
- Loosen or remove the person's clothing.
- Have the person drink cool water, not iced, or a sports drink containing electrolytes (no soda drinks).
- Cool the person by spraying or sponging him or her with cool water and fanning.
- Monitor the person carefully. If fainting, confusion or seizures occur, **dial 911** and tell the operator that a City of Turlock employee is exhibiting symptoms of heat illness.

APPENDIX 1

OPTIONAL PROCEDURES

Shift Change

When temperatures are excessive, managers and/or supervisors should time shifts to coincide with cooler parts of the day. Consider starting and/or ending shifts early and alternate tasks when possible. For example, the summer schedule implemented by the Public Facilities Maintenance personnel.

APPENDIX 2

TRAINING MATERIAL

Handouts

The following handouts/training presentation should be provided to any employee that is covered by the outdoor heat stress standard. Please feel free to copy any of this information for your department.

(Materials provided on following pages)

Heat Illness Prevention Guidance for Workers

Awareness of heat illness symptoms can save your life or the life of a co-worker;

- If you are coming back to work from an illness or an extended break or you are just starting a job working in the heat, it is important to be aware that you are more vulnerable to heat stress until your body has time to adjust. Let your employer know you are not used to the heat. It takes about 5 – 7 days for your body to adjust.
- Drinking plenty of water frequently is vital to workers exposed to the heat. An individual may produce as much as 2 to 3 gallons of sweat per day. In order to replenish that fluid the worker should drink 3 to 4 cups of water every hour starting at the beginning of your shift.
- Taking your breaks in a cool shaded area and allowing time for recovery from the heat during the day are effective ways to avoid heat illness.
- Avoid or limit the use of alcohol and caffeine during periods of extreme heat. Both dehydrate the body.
- If you or a co-worker start to feel symptoms such as nausea, dizziness, weakness or unusual fatigue, let your supervisor know and move to a cool shaded area for rest. If symptoms persist or worsen, seek immediate medical attention.
- Whenever possible, wear clothing that provides protection from the sun but allows airflow to the body. Protect your head and shade your eyes if working outdoors.
- When working in the heat be sure to pay extra attention to your co-workers and be sure you know how to call for medical attention.



Training Presentation



Today's Training
Health Effects
Symptoms of Heat Illness
Types of Heat Illness
How to Respond
Prevention

Why is it Important to Prevent Heat Illness?

- Heat illness can be a matter of life and death. Many workers have died during recent summer heat waves.
- Those who survive heat illness can still develop serious conditions, including heart, liver, kidney, and muscle damage, nervous system problems, and blood disorders.
- Having a serious injury or death occur at work is upsetting to everyone at a worksite.
- Workers suffering from heat stress are at greater risk for accidents, since they are less alert and can be confused.
- Workers' compensation costs could increase.
- It's the law — California's standard, "Heat Illness Prevention" (GISO 3395), requires that employers develop procedures to prevent heat illness.

Health Effects of Heat

Higher Risk for Heat Illness:

- You aren't used to working in heat or doing heavy work.
- You are new to working outdoors.
- You are not physically fit or are overweight.
- You drink alcohol or take drugs (illegal drugs or prescription medicine).
- You wear heavy, dark, or tight clothing, or use personal protective equipment.
- You had some early heat-related symptoms the day before.

Symptoms of Heat Illness

- sweating
- feeling tired or weak or dizzy
- headache
- heat rash — small red bumps on the skin

Heat Stress

- Skin: – normal body temperature
 - pale face and neck
 - clammy skin
 - heavy sweating
- Rapid pulse
- Muscle aches or cramps, weakness
- Headache, dizziness, or fainting
- Fatigue
- Nausea and vomiting

Heat Stroke

- Skin: – high body temperature (around 105° F)
 - red, hot, dry skin
 - very little sweating
- Dizziness and confusion, unusual behavior
- Fainting
- Convulsions
- Nausea and vomiting

- At this point, you may no longer be sweating, and your skin may be dry, red, and hot.
- Sweating is the main way our bodies cool off — so not sweating is a very serious emergency.
- Your body temperature may be very high (over 105° F), and you are probably disoriented, confused, or even unconscious. This is a medical emergency. About half the people with heat stroke die.

How to Respond to Symptoms of Heat Illness

Let's say there is a worker in our crew who has signs of heat stress: she is very sweaty, tired, and has a headache. What do you think you should do?

1. Notify the supervisor. She needs medical help.
2. Move the person to a cooler place to rest in the shade. Don't leave her alone.
3. Little by little, give her water.
4. Loosen her clothing.
5. Help cool the person. Fan her, put ice packs on her groin and underarms, or soak her clothing with cool water.

Be alert to unusual behavior: if your co-workers seem confused, or are sitting by themselves or walking around aimlessly, ask them if they're okay. If they seem to be acting strangely, they may have heat stroke. Contact the supervisor.

Heat Illness Prevention

- Drink plenty of water.
- Take breaks in the shade.
- "Easy does it" on your first days of work in the heat.
- If you're not feeling well, report this to your supervisor immediately.
- Watch out for your co-workers.
- Wear loose, lightweight cotton clothes, a long-sleeved shirt, long pants, and a wide-brimmed hat.

APPENDIX 4

HEAT ILLNESS PREVENTION STANDARD

3395. Heat Illness Prevention

(a) Scope and Application. This section applies to the control of risk of occurrence of heat illness. This is not intended to exclude the application of other sections of Title 8, including, but not necessarily limited to, sections 1230(a), 1512, 1524, 3203, 3363, 3400, 3439, 3457, 6251, 6512, 6969, 6975, 8420 and 8602(e). This section applies to all outdoor places of employment.

Note No. 1: The measures required here may be integrated into the employer's Injury and Illness Program required by section 3203.

Note No. 2: This standard is enforceable by the Division of Occupational Safety and Health pursuant to Labor Code sections 6308 and 6317 and any other statutes conferring enforcement powers upon the Division. It is a violation of Labor Code sections 6310, 6311, and 6312 to discharge or discriminate in any other manner against employees for exercising their rights under this or any other provision offering occupational safety and health protection to employees.

(b) Definitions.

"*Acclimatization*" means 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.

"*Heat Illness*" means a serious medical condition resulting from the body's inability to cope with a particular heat load, and includes heat cramps, heat exhaustion, heat syncope and heat stroke.

"*Environmental risk factors for heat illness*" means 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.

"*Personal risk factors for heat illness*" means 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.

"*Preventative recovery period*" means a period of time to recover from the heat in order to prevent heat illness.

"*Shade*" means blockage of direct sunlight. Canopies, umbrellas and other temporary structures or devices may be used to provide shade. One indicator that blockage is sufficient is when objects do not cast a shadow in the area of blocked sunlight. Shade is not adequate when heat in the area of 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.

(c) Provision of water. Employees shall have access to potable drinking water meeting the requirements of Sections 1524, 3363, and 3457, as applicable. Where it is not plumbed or otherwise continuously supplied, it shall be provided in sufficient quantity at the beginning of the work shift to provide one quart per employee per hour for drinking for the entire shift. Employers may begin the shift with smaller quantities of water if they have effective procedures for replenishment during the shift as needed to allow employees to drink one quart or more per hour. The frequent drinking of water, as described in (e), shall be encouraged.

(d) Access to shade. Employees suffering from heat illness or believing a preventative recovery period is needed, shall be provided access to an area with shade that is either open to the air or provided with ventilation or cooling for a period of no less than five minutes. Such access to shade shall be permitted at all times. Except for employers in the agricultural industry, cooling measures other than shade (e.g., use of misting machines) may be provided in lieu of shade if the employer can demonstrate that these measures are at least as effective as shade in allowing employees to cool.

(e) Training.

(1) Employee training. Training in the following topics shall be provided to all supervisory and non-supervisory employees.

(A) The environmental and personal risk factors for heat illness;

(B) The employer's procedures for complying with the requirements of this standard;

(C) The importance of frequent consumption of small quantities of water, up to 4 cups per hour, when the work environment is hot and employees are likely to be sweating more than usual in the performance of their duties;

(D) The importance of acclimatization;

(E) The different types of heat illness and the common signs and symptoms of heat illness;

(F) The importance to employees of immediately reporting to the employer, directly or through the employee's supervisor, symptoms or signs of heat illness in themselves, or in co-workers;

(G) The employer's procedures for responding to symptoms of possible heat illness, including how emergency medical services will be provided should they become necessary;

(H) The employer's procedures for contacting emergency medical services, and if necessary, for transporting employees to a point where they can be reached by an emergency medical service provider;

(I) The employer's procedures for ensuring that, in the event of an emergency, clear and precise directions to the work site can and will be provided as needed to emergency responders.

(2) Supervisor training. Prior to assignment to supervision of employees working in the heat, training on the following topics shall be provided:

(A) The information required to be provided by section (e)(1) above.

(B) The procedures the supervisor is to follow to implement the applicable provisions in this section.

(C) The procedures the supervisor is to follow when an employee exhibits symptoms consistent with possible heat illness, including emergency response procedures.

(3) The employer's procedures required by subsections (e)(1)(B), (G), (H), and (I) shall be in writing and shall be made available to employees and to representatives of the Division upon request.

Note: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 8-22-2005 as an emergency; operative 8-22-2005 (Register 2005, No. 34). A Certificate of Compliance must be transmitted to OAL by 12-20-2005 or emergency language will be repealed by operation of law on the following day.

2. New section refiled 12-20-2005 as an emergency; operative 12-20-2005 (Register 2005, No. 51). A Certificate of Compliance must be transmitted to OAL by 4-19-2006 or emergency language will be repealed by operation of law on the following day.

3. New section refiled 4-19-2006 as an emergency; operative 4-19-2006 (Register 2006, No. 16). A Certificate of Compliance must be transmitted to OAL by 8-17-2006 or emergency language will be repealed by operation of law on the following day.

4. Certificate of Compliance as to 4-19-2006 order, including amendment of section heading and section, transmitted to OAL 6-16-2006 and filed 7-27-2006 (Register 2006, No. 30).