

# **Heat Illness Prevention Program**

Development Services Department

City of Turlock



January 2011

### Scope:

California Code of Regulations Title 8, Section 3395 requires employers to comply with the Heat Illness Prevention Standard. These procedures are not intended to supersede or replace the application of any other Title 8 regulation, including, but not limited to, sections 1512, 1524, 3203, 3363, 3400, 3439, 3457, 6251, 6512, 6969, 6975, 8420 and 8602.

### Definitions:

“Acclimatization” means temporary adaption of the body to work in heat that occurs gradually when a person is exposed to it. Acclimatization peaks in the most people within four to fourteen days of regular work for at least two hours per day in the heat.

“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 movements, workload severity and duration, protective clothing and personal protective equipment worn by employees.

“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.

“IBC” means insulated beverage container to hold bottled water at a cool temperature.

“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 the 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 the air conditioning.

### Provisions of Water:

Employees shall have access to potable drinking water meeting the requirements of Sections 1524, 3363, and 3457, as applicable. DSD employees who work indoors shall be provided with water through a drinking fountain located between the Engineering and Building divisions. Employees who work outside shall be provided with an IBC, sealed bottled water, and ice or ice packs to keep the water cool. Each employee shall adhere to the following:

- The employee will bring one IBC and either 2 bottles of water or an amount of water that equals or exceeds one quart of water per hour that the employee will be working outside, whichever is greater.
- As an effective replenishment measure, the employee shall check the amount of water in the IBC every hour, and more frequently when the temperature exceeds 85° F.

- When the amount of water drops below one sealed bottle, the employee shall return to the office to replenish the amount of water needed and/or ice to maintain a cool temperature.
- The employee shall carry the drinking water in the City vehicle to keep the water as close to the employee as reasonable.
- The employee shall be responsible for cleaning the IBC and ensuring that they are kept in a sanitary condition.

#### Access to Shade:

The DSD is required by Title 8 Section 3395 to provide shade or alternative procedures for providing access to shade. DSD employees who are assigned work outside have access to a City vehicle with a working air conditioner. The employees shall utilize the cab of the vehicle with the air conditioner on as an alternative method to shade. The air conditioner is available to employees at all times and temperatures throughout the working day. Employees shall be allowed and are encouraged to take a cool-down rest in the shade for a period of no less than five minutes at a time when they feel the need to do so to protect themselves from overheating.

#### Monitoring the Weather:

Managers and/or supervisors shall monitor the weather at least one week in advance by accessing <http://www.weather.com/> to view the extended weather forecast in order to know if a heat wave is expected. This type of advance planning should take place all summer long. Prior to each workday, Managers and/or supervisors shall review the forecasted temperature and humidity for the worksite and compare it to the National Weather Service Heat Index to evaluate the risk level for heat illness.

#### High Heat Procedures:

The DSD shall implement high-heat procedures when the temperature equals or exceeds 85° F. These procedures shall include the following:

- By means of City provided cell phone, employees shall contact their manager and/or supervisor when necessary.
- The manager and/or supervisor will observe employees for alertness and signs and symptoms of heat illness.
- The manager and/or supervisor will remind employees throughout the work shift to drink plenty of water.
- The manager and/or supervisor will closely supervise a new employee, or assign a “buddy” or more experienced co worker for the first 14 days of the employee’s employment within the DSD.

#### Procedures for Acclimatization:

Acclimatization is the temporary and gradual physiological change in the body that occurs when the environmentally induced heat load to which the body is accustomed is significantly and suddenly exceeded by sudden environmental changes. In more common terms, the body needs time to adapt when temperatures rise suddenly, and an employee risks heat illness by not taking it easy when a heat wave strikes or when starting a new job that exposes the employee to heat to which the employee’s body hasn’t yet adjusted. The following procedures shall be adhered to:

- DSD Managers and/or supervisors will monitor the weather and in particular be in the look out for sudden heat waves, or increases in temperatures to which employees haven’t been exposed to for several weeks or longer.
- For new employees, the managers and/or supervisors will try to find ways to lessen the intensity of the employees work during a two-week break-in period. Steps taken to lessen the intensity of the workload for new employees shall be documented.

- The managers and/or supervisors will be extra-vigilant with new employees and stay alert to the presence of heat related symptoms.
- During a heat wave, the managers and/or supervisors will observe all employees closely and be on the look out for possible symptoms of heat illness.
- The DSD's training for employees and supervisors will include the importance of acclimatization, how it is developed and how these company procedures address it.

Procedures for Emergency Response:

- Employees shall carry City provided cell phones to ensure that emergency medical services can be called and employees shall check that provided cell phones are functional.
- When an employee is showing symptoms of possible heat illness, managers, supervisors and employees shall take immediate steps to keep the stricken employee cool and comfortable once emergency service responders have been called.
- During a heat wave or hot temperatures, employees will be reminded and encouraged to immediately report to their supervisor any signs or symptoms they are experiencing.
- DSD's training for employees and supervisors shall include every detail of these written emergency procedures.

Training

All DSD employees, supervisors, managers and directors shall receive training on the DSD's heat illness prevention program. The following items shall be covered in training for new employees and on an annual basis:

- The environmental and personal risk factors for heat illness, as well as the added burden of heat load on the body caused by exertion, clothing, and personal protective equipment.
- DSD's procedures for complying with the requirements of this standard.
- The importance of frequent consumption of small quantities of water, up to one quart per hour, when the environment is hot and employees are likely to be sweating more than usual in the performance of their duties.
- The importance of acclimatization.
- The different types of heat illness and the common signs and symptoms of heat illness.
- The importance to employees of immediately reporting to the manager and/or supervisor symptoms or signs of heat illness in themselves, or in co-workers.
- DSD's procedures for responding to symptoms of possible heat illness, including how emergency medical services will be provided should they become necessary.
- DSD'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.
- DSD's procedures for ensuring that, in the event of emergency, clear and precise directions to the work site can and will be provided as needed to emergency responders. These procedures shall include designating a person to be available to ensure that emergency procedures are invoked when appropriate.

In addition to the training listed above, supervisors, managers and directors of the DSD shall be trained on the following prior to supervising employees:

- The training required for employees regarding the heat illness prevention program.
- The procedures for implementing the entirety of the heat illness prevention program.

- The procedures the supervisor and/or manager is to follow when an employee exhibits symptoms consistent with possible heat illness, including emergency response.
- How to monitor weather reports and how to respond to hot weather advisories.

Failure to Comply with HIPP

All DSD employees who fail to comply with the HIPP shall be reprimanded in accordance with written disciplinary procedures for each respective employee bargaining unit up to and including termination.

## **Appendix A - Recognizing Health Related Illness**

Definitions, Signs, Symptoms, and Emergency Care  
Emergency Services Contact and Location Procedures

## Emergency Services Contact Procedures

When an employee has been impacted with a heat related illness, or any emergent medical condition, DSD has the following process in place:

1. When an employee appears to be suffering from a heat related illness, contact 668-1200 or 9-1-1 immediately. Use the City provided cell phone, public telephone, or a private cell phone. Advise dispatch that an employee is suffering from a heat related emergency. Follow instructions provided by dispatch.
2. If the affected employee is able to walk, get them out of the sun, begin active cooling, and advise dispatch of the patient's location. Be as precise as possible. If the dispatcher request that the employee be moved to a location that is easier for emergency services to access, advise dispatcher if you think that can be done without further injury.
3. If the employee cannot be re-located, provide dispatch with the precise location. If other employees are available, direct them to the nearest street to assist in directing emergency services to the patient.

## Types of Heat Related Illness

- Heat Cramps - are painful muscle spasms that usually occur in the legs (hamstrings) and abdomen. Heat cramps are treatable, and are the least sever form of heat related illness.
- Heat Exhaustion (heat syncope) - is an early indicator that the body's cooling system is becoming overwhelmed. Signals of heat exhaustion include:
  - Cool, moist, pale, ashen or flushed skin.
  - Headache, nausea, dizziness.
  - Weakness, exhaustion.
  - Heavy sweating.
- Heat Stroke - is a profound medical emergency. Heat stroke occurs when the body's systems are overwhelmed by heat and stop functioning. Heat stroke is a life threatening condition and requires professional emergency medical intervention. Signals of heat stroke include:
  - Red, hot, dry skin.
  - Changes in the level of consciousness.
  - Vomiting.

## First Aid Care for Victims of Heat Related Illness

### **For employees suffering from heat cramps of heat exhaustion:**

- Move the employee out of the sun, to a cool shaded place.
- Loosen tight or restrictive clothing, and remove any personal protective equipment over garments.
- Remove perspiration soaked clothing.
- Apply cool, wet towels to the skin.
- Fan the employee gently.
- If the person is conscious, provide small sips of cool water (not a sports drink).

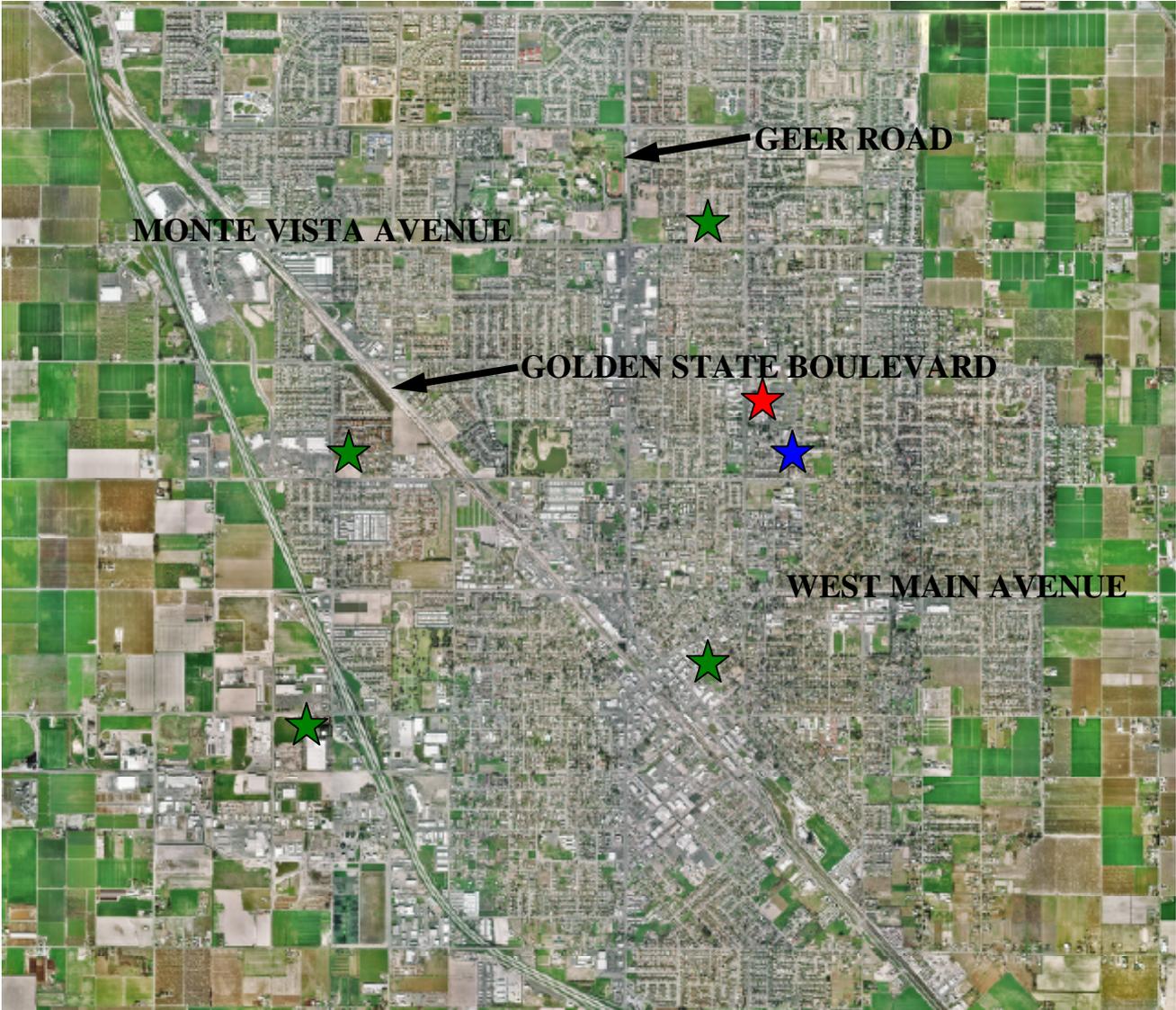
### **For employees suffering from heat stroke:**

- **This is a profound medical emergency, and cannot be successfully treated in the field. Immediate and decisive action is required.**
- Call 9-1-1 and advise the operator of the situation. Ensure that accurate directions are provided to the operator so that medical assistance is not delayed.
- Move the employee to a place out of the sun or provide shade for them.
- Loosen tight clothing and begin active cooling methods (active fanning, pouring cool water over the body core, placing ice packs in the armpits, behind the neck, and in the groin).
- Continue to cool the person by using ice or cold packs on the employee's wrist, ankles, groin, neck, and armpits.
- Remain with the employee until medical assistance arrives, and provide assistance to responders as required.

## **Appendix B - City Map**

Location of Hospital and Emergency Services

City of Turlock  
2010



Key:

-  Hospital
-  Fire Station
-  Work Wellness

## **Appendix C**

### Hydration Techniques

For most employees who are well acclimated to exterior conditions in the work environment, proper hydration is a simple matter of drinking sufficient potable water prior to exposure to heat, and at least one quart per hour of cool potable water during the work involving exposure to high heat. **Drink before you get thirsty.** If you are working in high heat conditions, and become thirsty, you cannot replace the fluid loss you have sustained orally.

To restate what Cal/OSHA recommends, an employee must consume up to one quart of cool potable water per hour during work in high heat conditions. For a reference, a 500 ml bottle of commercially available water is equal to approximately one half of one quart. Thus, consuming two 500 ml bottles of water per hour would be equal to one quart.

Preventing heat related illness in employees is preferable to responding to a victim of heat illness. It is very important to “pre-hydrate” prior to beginning work in a high heat environment. If possible, employees should consume at least one bottle of water before beginning work in a high heat environment.

The Cal/OSHA standard requires employers to provide potable, “cool” water for employees. For reference, drinking water fountains are typically between 75° F and 76° F.

The use of **salt pills**, or **electrolyte replacement “sports” drinks** is not recommended for normal hydration and fluid replacement. Water is the preferred fluid, taken in the amounts discussed. Do not over hydrate, or try to consume more than the recommended amount and rate. Water intoxication can occur, where so much water is ingested that electrolyte balance is disturbed, which can lead to heart arrhythmias and other circulation problems.

In summary, anticipate high heat conditions, ensure that heat illness risk factors are eliminated or controlled, pre-hydrate before beginning work in high heat and humidity, and consume at least one quart of water per hour during work in high heat.

Know the signs and symptoms of heat related illness. Keep an eye on co-workers, and respond quickly when you see signs of heat related illness in others.

## **Appendix D**

Cal/OHSA Flyer on Heat Related Illness



# Health effects of heat

Two types of heat illness:

## Heat Exhaustion



Dizziness



Headache



Sweaty skin



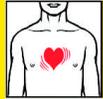
Weakness



Cramps



Nausea, vomiting



Fast heart beat



## Heat Stroke



Red, hot, dry skin



High temperature



Confusion



Convulsions



Fainting



**Watch out for early symptoms.** You may need medical help.

People react differently — you may have just a few of these symptoms, or most of them.

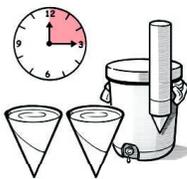
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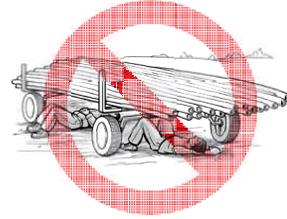
# Stay safe and healthy!

**WATER. REST. SHADE.** *The work can't get done without them.*

**Drink water even if you aren't thirsty — every 15 minutes.**



**Rest in the shade.**



**Watch out for each other.**



**Wear hats and light-colored clothing.**



**"Easy does it"** on your first days of work in the heat. You need to get used to it.

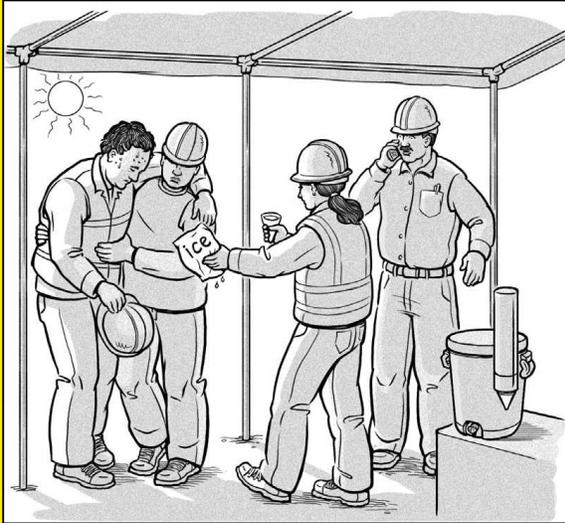
Rest in the shade — at least 5 minutes as needed to cool down.

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# Be prepared for an emergency

Heat kills -- get help right away!



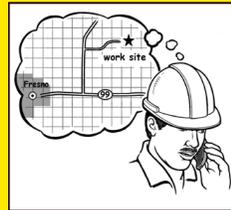
## If someone in your crew has symptoms:

- 1) Tell the person who has a radio/phone and can call the supervisor – you need medical help.
- 2) Start providing first aid while you wait for the ambulance to arrive.
- 3) Move the person to cool off in the shade.
- 4) Little by little, give him water (as long as he is not vomiting).
- 5) Loosen his clothing.
- 6) Help cool him: fan him, put ice packs in groin and underarms, or soak his clothing with cool water.

## When you call for help, you need to:

- Be prepared to describe the symptoms.
- Give specific and clear directions to your work site.

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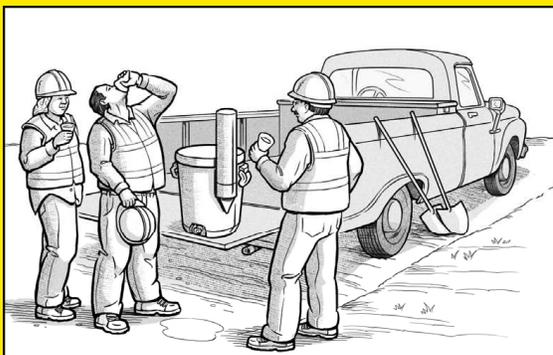


Workers do not pay for ambulances or medical care.

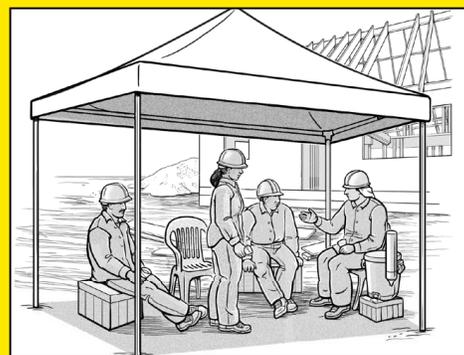


# Heat illness can be prevented!

At our work site, we have:

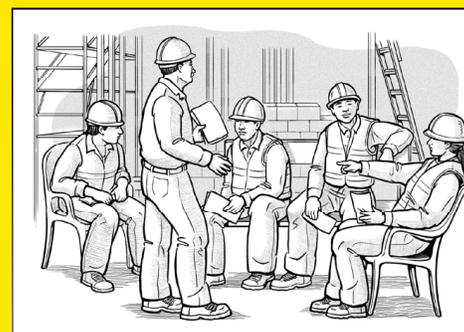


Water



Shade to rest and cool down

We are extra careful when there is a heat wave or temperature goes up. Then we may change our work hours, and we all need more water and rest.



Training and emergency plan

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## **Appendix E**

National Weather Service Heat Index

# NOAA's National Weather Service

## Heat Index

Temperature (°F)

	80	82	84	86	88	90	92	94	96	98	100	102	104	106	118	110
40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
55	81	84	86	89	93	97	101	106	112	117	124	130	137			
60	82	84	88	91	95	100	105	110	116	123	129	137				
65	82	85	89	93	98	103	108	114	121	126	130					
70	83	86	90	95	100	105	112	119	126	134						
75	84	88	92	97	103	109	116	124	132							
80	84	89	94	100	106	113	121	129								
85	85	90	96	102	110	117	126	135								
90	86	91	98	105	113	122	131									
95	86	93	100	108	117	127										
100	87	95	103	112	121	132										

Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

 Caution

 Extreme Caution

 Danger

 Extreme Danger