OCSAN ORANGE COUNTY SANITATION DISTRICT	SOP-641 (Ver. 2) Heat Illness Prevention Program
Standard Operating Procedure (SOP)	Effective: 1/25/2022 Supersedes: 11/02/2020
Approved By: James D. Herberg General Manager 	

I. Purpose

The purpose of this Heat Illness Prevention Program (the Program) is to prevent heat-related illness and fatalities resulting from heat hazards common in indoor and outdoor work environments. Title 8 of the California Code of Regulations (CCR), Section 3395 (8 CCR 3395) requires California employers to establish, implement, and maintain an effective Heat Illness Prevention Program. Additional proposed regulations have been drafted by California Occupational Safety and Health Administration (CAL/OSHA) for Heat Illness Prevention Indoors, and CAL/OSHA is currently (as of June 2019) preparing rulemaking based on this draft.

The Program is intended to assist in complying with 8 CCR 3395 for Heat Illness Prevention. The Program establishes procedures and provides information necessary to educate employees in the recognition and prevention of heat-related illness and to ensure their own safety and the safety of others.

II. Applicability

This Program applies to all OCSD employees and Contractors whose primary job assignment involves outdoor work where temperatures equal or exceeds 80 degrees Fahrenheit (°F) and indoor work areas where the temperature equals or exceeds 82°F (when employees are present).

III. Definitions

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.

Clothing that Restricts Heat Removal: means full-body clothing covering the arms, legs, and torso that is any of the following: (1) waterproof; (2) designed to protect the wearer from a chemical, biological, radiological, or fire hazard; or (3) designed to protect the wearer or the work process from contamination. Exception: “Clothing that restricts heat removal” does not include clothing with flame or arc-flash resistant properties demonstrated by the employer to be all the following: (1) constructed only of knit or woven fibers; (2) worn in lieu of the employee’s street clothing; and (3) worn without a full-body thermal or moisture barrier.

Cool-down Area: indoor or outdoor area that is blocked from direct sunlight and shielded from other high radiant heat sources and is either open to the air or provided with ventilation or cooling. One indicator that blockage is sufficient is when objects do not cast a shadow in

blocked sunlight. A cool-down area does not include a location where environmental risk factors defeat the purpose of allowing the body to cool, employees are exposed to unsafe or unhealthy conditions, employees are deterred or discouraged from accessing or using the cool-down area.

Engineering Controls: means an aspect of the work area or a device that removes or reduces hazardous conditions or creates a barrier between the employee and the hazard. Examples of engineering controls that may be effective at minimizing the risk of heat illness in a particular work area include, but are not limited to, isolation of hot processes, isolation of employees from sources of heat, air conditioning, cooling fans, cooling mist fans, evaporative coolers (also called swamp coolers), natural ventilation where the outdoor temperature or heat index is lower than the indoor temperature or heat index, local exhaust ventilation, shielding from a radiant heat source, and insulation of hot surfaces.

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.

Heat Cramps: Heat cramps affect people who sweat a lot during strenuous work activity. Sweating makes the body loose salts and fluids and minerals. If only the fluids are replaced and not the salts and minerals painful muscles cramps may result.

High Heat Procedures: implementation of mandatory actions when the outdoor temperature reaches 95 degrees Fahrenheit or higher.

Heat Exhaustion: a condition whose symptoms may include heavy sweating and a rapid pulse, a result of your body overheating. It is one of the three heat-related syndromes, with heat cramps being the mildest and heatstroke being the most severe.

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.

Heat Index: a measure of heat stress developed used by the National Weather Service for outdoor environments that considers the dry bulb temperature and the relative humidity. For purposes of this standard, heat index refers to conditions in indoor work areas. Radiant heat is not included in the heat index.

Heat Rash (Prickly Heat): - a skin irritation caused by excessive sweating and clogged pores during hot, humid weather.

Heat Stress: a situation where too much heat is absorbed by a person, a plant or an animal and causes stress, illness or even death. It can also cause heat cramps, heat exhaustion and heat stroke.

Heat Stroke: a type of severe heat illness that results in a body temperature greater than 104°F and confusion. Other symptoms include red, dry, or damp skin, headache, and dizziness. Onset can be sudden or gradual. Complications may include seizures, rhabdomyolysis, or kidney failure. Heat stroke occurs because of high external temperatures or physical exertion. Risk factors include heat waves, high humidity, certain drugs, alcohol, heart disease and skin disorders.

Heat Wave: any day in which the predicted high outdoor temperature for the day 80 degrees Fahrenheit or greater and at least ten degrees Fahrenheit higher than the average high daily outdoor temperature in the preceding five days.

Indoor: refers to a space that is under a ceiling or overhead covering that restricts airflow; and is enclosed along its entire perimeter by walls, doors, windows, dividers, or other physical barriers that restrict air flow, whether open or closed. All work areas that are not indoor are considered outdoor and covered by 8 CCR 3395. Exception: Indoor does not refer to a shaded area that meets the requirements of 8 CCR 3395 and is used exclusively as a source of shade for employees covered by 8 CCR 3395.

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**.**

Preventative Cool-down Rest: a rest break taken in a cool-down area to prevent overheating.

Radiant Heat: heat transmitted by electromagnetic waves and not transmitted by conduction or convection. Sources of radiant heat include the sun, hot objects, hot liquids, and fire.

Recovery Period: a period to rest and recover from the heat to prevent heat illness.

Relative Humidity: the amount of moisture in the air relative to the amount that would be present if the air were saturated.

Shade: 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 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.

Shielding: a physical barrier between radiant heat sources and employees that reduces the transmission of radiant heat.

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.

IV. Roles and Responsibilities

A. Risk Management

- Prepare and maintain a written program which complies with the requirements of applicable CAL/OSHA standards.
- Assist with providing training materials and training potentially impacted employees and their supervisors on the risks and prevention of heat illness, including how to recognize symptoms and respond when they appear.

B. Supervisors

- Ensure all requirements of this Program are followed.
- Identify all employees who are required to work outdoors where potential heat illness could occur.
- Ensure that chilled potable water and shade are available at the job site when the environmental risk factors for heat illness are present.
- Ensure that emergency response procedures are in place to respond to employees who may be affected by heat-related illness.
- Ensure all affected employees have received proper training on heat illness prevention.

C. Employees

- Comply with the provisions of this Heat Illness Prevention Program, as described in this document, written procedures, and training received.
- Verify they have drinking water available at all times when the environmental risk factors for heat illness are present and report water supply deficiencies to their supervisor.
- Verify they have access to a shaded area to prevent or recover from heat-related symptoms and report to their supervisor any inadequate shade conditions.
- Reporting heat-related illness symptoms to their supervisor.

V. Risk Factors

Each employee and work task have unique characteristics that affect the susceptibility to heat-related illness. The following factors should be considered when evaluating the risk of heat-related illness:

A. Personal Factors

- Age (very young and elderly more affected)
- Personal Health / Fitness / Obesity
- Personal Stress
- Dehydration
- Alcohol Use
- Certain Drugs, Medications, or Supplements
- Lack of Acclimatization to Hot Weather or Hot Weather Work

B. Environmental Risk Factors

- Temperature
- Humidity
- Air Velocity
- Radiant Heat Sources (sunlight, reflection, etc.)

C. Job-Related Risk Factors

- Duration of Activity
- Metabolic Load (how strenuous work is)
- Wearing Heavy Attire or Personal Protective Equipment (PPE)

VI. Prevention

The following steps should be taken to prevent heat-related illness:

A. Acclimate yourself: It takes several days of being exposed to hot weather work to become accustomed to it. Begin with short durations of hot weather work and gradually increase your exposure time to allow your body to become accustomed.

B. Schedule Activities: Schedule vigorous outdoor activity for cooler times of the day, such as early morning, when possible. Work/rest schedules should be adjusted in correlation to increasing temperatures. Cycles of shorter work shifts, and more frequent rest periods are preferable.

C. Monitor the Weather: Check the forecast and review the Heat Index (see Attachments, Table 1). The Heat Index chart will indicate when combinations of heat and humidity can be dangerous for employees. Realize that direct sun can add as much as 15 degrees to the heat index.

D. Protect Yourself: Use sunscreen with a sun protection factor (SPF) of 15 or more. Relocate working areas to the shade if possible.

E. Hydrate: Drink fresh water or other liquids every 15-20 minutes, even if you do not feel thirsty. Drink a minimum of 1 quart of fresh water every hour. Drink plenty of water before starting work activities and drink water throughout the day. When the work environment is hot and employees are likely to be sweating more than usual, employees should understand the importance of frequent hydration of small quantities of water, up to 4 cups per hour. Avoid beverages containing caffeine (such as tea, coffee, or cola).

F. Monitor Coworkers: Use a “buddy system” so that workers and supervisors can monitor each other when out in the field.

VII. Program

The following elements of the OCSD Program for heat illness prevention provide specific information for divisions and supervisors complying with the program:

A. Provision of Water

Whenever environmental risk factors for heat illness exist, supervisors are responsible to ensure that fresh, pure, and suitably cool potable water and located as close as practicable to where employees are working, with exceptions when employers can demonstrate infeasibility.

Where unlimited drinking water is not immediately available from a plumbed system, supervisors must provide enough water for every employee to be able to drink one quart of water per hour for the entire shift (at least 2 gallons per employee for an 8-hour shift). Smaller quantities of water may be provided at the beginning of the shift if there are effective procedures for replenishing the water supply during the shift as needed.

The CAL/OSHA standard requires not only that water be provided, but that supervisors encourage employees to drink frequently. Employees must understand that thirst is not an effective indicator of a persons need for water and it is recommended that individuals drink one quart of water, or four 8-ounce cups, per hour when working in hot environments.

OCSD employees one or more of the following steps to ensure employees have access to drinking water:

- Supply water cooler/dispenser and single service cups.
- Supply sealed one time use water containers (i.e., bottled water).

Drinking water and water dispensers shall meet the following requirements:

- All sources of drinking water shall be maintained in a clean and sanitary condition
- Drinking water must always be kept cool. When temperatures exceed 90° F it is recommended that ice be provided to keep bottles of water cool.
- Potable drinking water dispensers used to provide water to more than one person shall be equipped with a spigot or faucet.
- Any container (ice chest) used to store or dispense drinking water shall be clearly marked as to the nature of its contents and shall not be used for any other purpose.
- Dipping or pouring drinking water from containers, such as barrels, pails, or tanks, is prohibited regardless of whether the containers are fitted with covers.
- The use of shared cups, glasses or other vessels for drinking purposes is prohibited.
- Non-potable water shall not be used for drinking.
- Non-potable water outlets shall be posted in a manner understandable to all employees that the water is unsafe for drinking.

Field crews must make provisions for drinking water using either the bottled water or portable water coolers. Bottled water is available through the Warehouse. An electrolyte replacement additive (i.e., Sqwinchers®) is also available through the Warehouse at no cost to employees.

B. Access to Shade (Outdoors) or Cool Down Areas (Indoors)

Access to rest and shade or other cooling measures are important preventive steps to minimize the risk of heat-related illnesses. Supervisors are responsible to ensure that employees have access to a shaded area when the temperature reaches 80 degrees. Shaded areas shall accommodate all employees on recovery periods and meal periods and allow employees to sit in the shade without touching each other.

The nearest shaded area must be as close as practicable. Usually this will mean that shade must be reachable within a 2 1/2-minute walk, but in no case more than 1/4-mile or a five-minute walk away, whichever is shorter.

Canopies, umbrellas, or other temporary structures may be used to provide shade, provided they block direct sunlight. Trees and dense vines can provide shade if the canopy of the trees is sufficiently dense to provide substantially complete blockage of direct sunlight. Areas shaded by artificial or mechanical means, such as by a pop-up canopy as opposed to a tree, must provide means for employees to avoid contact with bare soil.

Employees suffering from heat illness or believing a preventative recovery period is needed can use an area with shade that is either open to the air or provided with ventilation or cooling for a period of no less than ten minutes. Such access to shade shall always be permitted.

Plant personnel can utilize air-conditioned office/break areas for this purpose. Field crews shall establish umbrella areas or utilize the truck cab with air conditioning. Additional measures to protect employees include the use of wide brim straw hats or sun shields on hard hats, where

hard hats are required. Employees may obtain wide brim straw hats or sun shield for their hard hats at no cost from the Warehouse. Sun block is also available from the Warehouse.

C. Procedure for Acclimatization:

Acclimatization refers to the physiological adaptation that occurs when an individual accustomed to working in a cool environment is exposed to a hot environment. Any individual may develop signs of significant strain with abnormally high body temperature, pounding heart, and other signs of heat stress when beginning to work in a hot environment.

Acclimatization peaks in most people within four to fourteen days of regular work for at least two hours per day in the heat. On each succeeding day in the hot area, his or her ability to adjust to the hot environment improves and the signs of discomfort and strain diminish. Workers who were previously fully acclimatized are at risk for heat illness during a heat wave because during a heat wave, the body does not have enough time to adjust to a sudden, abnormally high temperature or other extreme conditions.

An acclimatization period may also be necessary upon return from vacation or other extended periods away from the workplace.

An employee who has been newly assigned to a high heat work area or conditions (e.g., during a heat wave) indoors will be closely observed by a supervisor or designee for the first 14 days of employment.

D. Preventative Cool-Down Rest Periods

The purpose of the cool-down rest period is prevention of heat illness. The supervisor is required to provide access to shade for employees who believe they need a preventive cool-down rest period from the effects of heat and for any who exhibit indications of heat illness. Employees taking a “preventative cool-down rest” must be monitored for symptoms of heat illness, encouraged to remain in the shade and not ordered back to work until symptoms are gone. Access to shade must always be allowed, and employees must be allowed to remain in the shade for at least five minutes.

The purpose of the preventive cool-down rest period is to reduce heat stress on the employee. The preventive cool-down rest period is not a substitute for medical treatment. Employees who exhibit signs of heat illness shall not be permitted to leave work, except where seeking medical attention. Employees shall not drive themselves to the hospital.

E. High Heat Procedures

High heat procedures are additional preventative measures that OCSD will take when the temperature equals or exceeds 95 degrees Fahrenheit. These procedures will include the following to the extent practicable:

- At least one employee or member of work crew must have electronic communication device.
- Employees must be regularly observed or checked for signs or symptoms of heat-related illness. Use a “buddy system” so that workers and supervisors can monitor each other when out in the field.
- Designate one or more employees per work area to call for emergency medical assistance.

- Supervisor must remind employees to drink sufficient water.
- Conduct tailgate meeting at beginning of shift to review high-heat procedures, including importance of drinking water and taking cool-down rests as needed.
- Employees shall take a minimum ten-minute net preventative cool-down rest period every two hours. The rest period required may be provided concurrently with any other meal or rest period if the timing coincides with a required meal or rest period.

F. Heat Index Monitoring

Current and forecasted temperature outdoors or temperature indoors, as well as outdoor heat index, shall be ascertained by the following methods:

- Website(s) and phone web app(s) approved by Risk Management to include the National Weather Service (www.weather.gov) for current outdoor and forecasted temperature and heat index.
- Indoor hand-held or wall-mounted thermometer approved by Risk Management.
- Wet Bulb Globe Thermometer (WBGT) operated by Risk Management.
- Weather outlook provided by Risk Management meteorologist.

G. Engineering and Administrative Controls, and Personal Protective Equipment (PPE)

The most effective way to prevent heat-related illness and fatality is to reduce heat stress in the workplace (e.g., increase air movement, reduce temperature, reduce humidity, and protect workers from solar radiation or other radiant heat sources). The following are some engineering controls that may reduce heat stress:

- Use air conditioning
- Increase general ventilation
- Provide cooling fans
- Run local exhaust ventilation where heat is produced
- Use reflective shields to block radiant heat
- Insulate hot surfaces and pipes
- Stop leaking steam
- Provide shade for outdoor work sites

When engineering controls are not feasible or practical, administrative controls are another way to prevent a worker's core body temperature from rising. Some administrative controls that may reduce heat illness include:

- Acclimatize workers starting the first day working in the heat
- Re-acclimatize workers after extended absences
- Schedule work earlier or later in the day
- Use work/rest schedules
- Limit strenuous work (e.g., carrying heavy loads)
- Use relief workers when needed

When engineering and administrative controls are not enough, PPE is a way to provide supplemental protection. PPE that can reduce heat stress include:

- Cooling vests

- Hard hat visors and neck shades
- Light colored clothing
- Sunscreen

H. Protective Measures

The National Weather Service heat index chart, color coded by risk level, is provided in Attachment A. Engineering and administrative controls will be implemented based on the determined heat index value:

- Heat Index Less Than 91°F (Risk Level: Low)
    - Provide adequate amounts of drinking water.
    - Ensure that adequate medical services are available.
    - Check weather forecast regularly to determine if more extreme hot weather is predicted.
    - Encourage workers to wear sunscreen and use other protections from direct sunlight.
    - Train workers to recognize symptoms of heat-related illness.
- Heat Index 91°F to 103°F (Risk Level: Moderate)
    - All measures listed under Low Risk Level.
    - Alert workers of heat index predicted and identify each precaution in place to reduce risk of heat-related illness.
    - Remind workers to drink small amounts of water often.
    - Respond to heat-related illness and medical emergencies without delay.
    - Review heat-related illness signs and symptoms and site-specific precautions during daily meetings.
    - Schedule frequent rest breaks in cool, shaded areas.
    - Acclimatize new and returning workers.
    - Setup a buddy system, to ensure workers look out for signs and symptoms. Instruct workers to watch workers for signs and symptoms.
- Heat Index 103°F to 115°F (Risk Level: High)
    - All measures listed under Moderate Risk Level.
    - Have a knowledgeable person onsite who is well-informed about heat-related illness and authorized to modify work activities.
    - Establish and enforce work/rest schedules.
    - Adjust work activities to reduce worker risk.
- Heat Index Greater Than 115°F (Risk Level: Extreme)
    - All measures listed under High Risk Level.
    - Reschedule all non-essential outdoor work for days with reduced heat index.
    - Move essential outdoor work activities to coolest part of work shift.

- Establish clear drinking schedule to ensure workers are drinking enough water throughout the day.
- Stop work if control methods are inadequate or unavailable when risk is very high.

VIII. Prevention, Communication, and Emergency Procedures

Procedures help reduce the risk of heat-related illnesses and ensure that emergency assistance is provided without delay.

A. Scheduling - When possible, outdoor work should be scheduled during the cooler times of the day.

B. Monitoring of Weather Conditions - Supervisors and employees need to stay alert to the weather conditions and make sure to monitor the weather at the specific locations where work activities are occurring. Current weather information is to be monitored by Supervision, to allow for appropriate adjustments in work activities.

1. Communication

- Employees working outside must have a means of communication to their supervisor or co-workers. This can include cell phones or radios.
- Co-workers can use a “buddy system” approach to watch for signs or symptoms of heat illness.
- Supervisors must monitor employees during heat stress conditions and will account for the whereabouts of crew members at appropriate intervals throughout the work shift and at the end of the work shift.

2. Emergency Procedures

- Plant 1 Emergencies: Dial 2222 from OCSD landline or 714-593-7133 (P1 Emergency Line) to activate the medical response team (MRT) and for contacting emergency medical services (i.e., local fire department).
- Plant 2 Emergencies: Dial 2222 from OCSD landline or 714-593-7677 (P2 Emergency Line) to activate the medical response team (MRT) and for contacting emergency medical services (i.e., local fire department).
- Pump Station and Other Off-Site Emergencies: Dial 911 for contacting emergency medical services (i.e., local fire department).
- An employee exhibiting signs or symptoms of heat illness will be monitored and will not be left alone or sent home without being offered onsite first aid and/or being provided with emergency medical services according to OCSD procedures.
- Any incident where heat illness has been experienced must be reported to the Supervisor and Risk Management.

IX. Heat Illness Types and Symptoms

A. Heat Stroke

Heat stroke is the most serious heat-related illness and is treated as a medical emergency. Heat stroke occurs when the body becomes unable to adequately dissipate heat, losing the ability to regulate core body temperature. The core body temperature rises rapidly, the sweating mechanism may fail, and the body is unable to cool down. A heat stroke victim may first suffer heat cramps and/or heat exhaustion before progressing into the heat stroke stage, but this is not always the case. Heat stroke is sometimes mistaken for a heart attack. It is therefore very important to be able to recognize the signs and symptoms of heat stroke and to check for them anytime someone collapses while working in a hot environment.

Symptoms include a high body temperature (106 degrees or higher), hot dry skin which may be red, mottled, or bluish, mental confusion, delirium, loss of consciousness, convulsions, coma, and absence of sweating.

Victims of heat stroke can die unless treated promptly. It is vital to quickly lower a heat stroke victim's body temperature. Move victim to a shaded or cool area, pour water on them, fan them, or apply cold packs. Call for Emergency Medical Services immediately to get the person medical aid as soon as possible and contact your supervisor.

B. Heat Exhaustion

Heat exhaustion is often a precursor to heat stroke. It is accompanied by elevated core body temperatures around 100.4 F – 102.2 F. This condition results from loss of fluid through sweating when a worker fails to drink enough fluids, replace mineral loss, or both. The worker still sweats but experiences extreme weakness and fatigue, intense thirst, dizziness, giddiness, nausea, decreased urine output and/or headache. The skin is clammy and moist, the complexion is pale/flushed, and the body temperature is normal or slightly higher.

Move the affected individual to a cool location such as a shaded area or air-conditioned building. Have them lie down with their feet slightly elevated. Loosen their clothing, apply cool wet cloths, or fan them. Remove as much clothing as possible. Have them drink water or electrolyte drinks. Try to cool them down and have them checked by medical personnel. Victims of heat exhaustion should avoid strenuous activity for at least a day and continue to drink water to replace lost body fluids. Call for Emergency Medical Services immediately if the person becomes non-responsive, refuses water, vomits, or loses consciousness. Contact your supervisor immediately.

C. Heat Cramps

Heat cramps are muscle spasms which usually affect the arms, legs, or stomach. These occur when workers drink enough water but do not replace their body's salt loss. They are usually caused by heavy sweating, especially when water is not replaced quickly enough.

Drink electrolyte solutions such as Gatorade or plenty of water during the day and try eating more fruits such as bananas to help keep the body hydrated. Increase intake of <u>non-diuretic</u> fluids and rest. Common diuretic fluids that should be avoided include caffeine-containing products and alcoholic beverages, etc. A damp towel applied to the head or neck may speed cooling. Call Emergency Medical Services and your supervisor immediately if the person becomes ill.

D. Heat Syncope (Fainting)

Heat syncope, or fainting, can occur if a worker is not acclimatized to heat and if the worker stands still rather than moving around.

Victims usually recover after a brief period of lying down. Moving around, rather than standing still in the heat, will reduce the possibility of fainting. Call for Emergency Medical Services and your supervisor immediately if the person becomes ill.

E. Heat Rash

Heat rash is a skin irritation caused by excessive sweating. Excessive moisture and sweat obstructs sweat ducts and form itchy and painful red pimple/blister clusters and skin lesions. It is exacerbated in hot and humid weather and common on the neck, chest, groin, armpits, elbow creases and behind the knees.

Workers experiencing heat rash should, when possible, move to a cooler, less humid work environment. The rash area shall be kept dry. Do not use ointments or creams.

X. Training

A. All Employees

Training is critical to help employees understand the risk of heat related illnesses and how to prevent or respond to an emergency. The OCSD Heat Illness Prevention online training offered through Cornerstone is required to be completed by all staff on an annual basis. The required training includes but is not limited to:

- Personal and environmental 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.
- OC San's responsibility to provide potable water, shade, and cool-down rests.
- The importance of frequency consumption of small quantities of water, up to four cups per hour, when hot and employees are likely to be sweating more than usually in performance of their duties.
- The concept, importance, and methods of acclimatization.
- Type of heat illness, signs, and symptoms, and first aid.
- Importance of immediately reporting sign of heat illness.
- Procedures to respond to signs and symptoms of heat illness.
- Procedures for summoning, or transporting to, off-site emergency medical service, if necessary.
- Procedures or method to provide emergency responders clear and precise directions to OC San work area.
- Employees' right to exercise their rights under Cal/OSHA's Heat Illness standard without retaliation

The training will be documented within Cornerstone along with details on the subject matter covered and date of training recorded. Supervisors must periodically review this information with crews when ambient temperatures are elevated and during heat wave conditions.

Supervisors shall conduct supplemental heat illness training with employees prior to the start of the heat season and periodically thereafter. The training may be conducted as part of a tailgate meeting, where the session is documented. The supplemental heat illness training presentation was developed by Risk Management (Attachment B), and includes how heat is handled by the

body, signs and symptoms of heat illness, reporting, emergency measures, and some prevention tips.

B. Supervisor Training

Personnel in a supervisory role will have training that includes the training for all employees, and knowledge of the following:

- The procedures the supervisor is to follow when an employee exhibits signs or reports symptoms consistent with possible heat illness, including emergency response procedures.
- Where the work area is affected by outdoor temperatures, how to monitor weather reports and how to respond to hot weather advisories.

C. Refresher Training

Employees shall be retrained annually in heat illness prevention. Retraining will also be required under any of the following conditions:

- Changes in the workplace render previous training obsolete.
- Inadequacies in an employee's knowledge of heat illness prevention indicate that the employee has not retained the required training.

XI. Recordkeeping

All records created or generated during this procedure shall be legible and stored in a way that they are readily retrievable in facilities or electronic document/content management systems that provide a suitable environment to prevent damage, deterioration, or loss. Records may be in the form of any type of media, such as hard copy or electronic media. The OCSD Records Retention Schedule is the official procedure governing the retention, retirement, and destruction of District records. Document owners should use these schedules to determine the item and series that best fit their records. Document owners are responsible for ensuring that documents are properly marked, indexed, and filed for their projects or area of responsibility.

XII. Exceptions/Conditions/Provisions

XIII. References

A. Title 8 California Code of Regulations, General Industry Safety Orders, Section 3395 – Heat Illness Prevention

B. Heat Illness Prevention Information

C. Title 8 California Code of Regulations, General Industry Safety Orders, Draft Heat Illness Prevention in Indoor Places of Employment

XIV. Revision History

Version	Date	By	Reason
1.0	11/02/2020	John Frattali	New
2.0	10/04/2021	Brian Huynh	Annual Program Review – Refer to Program Change Log

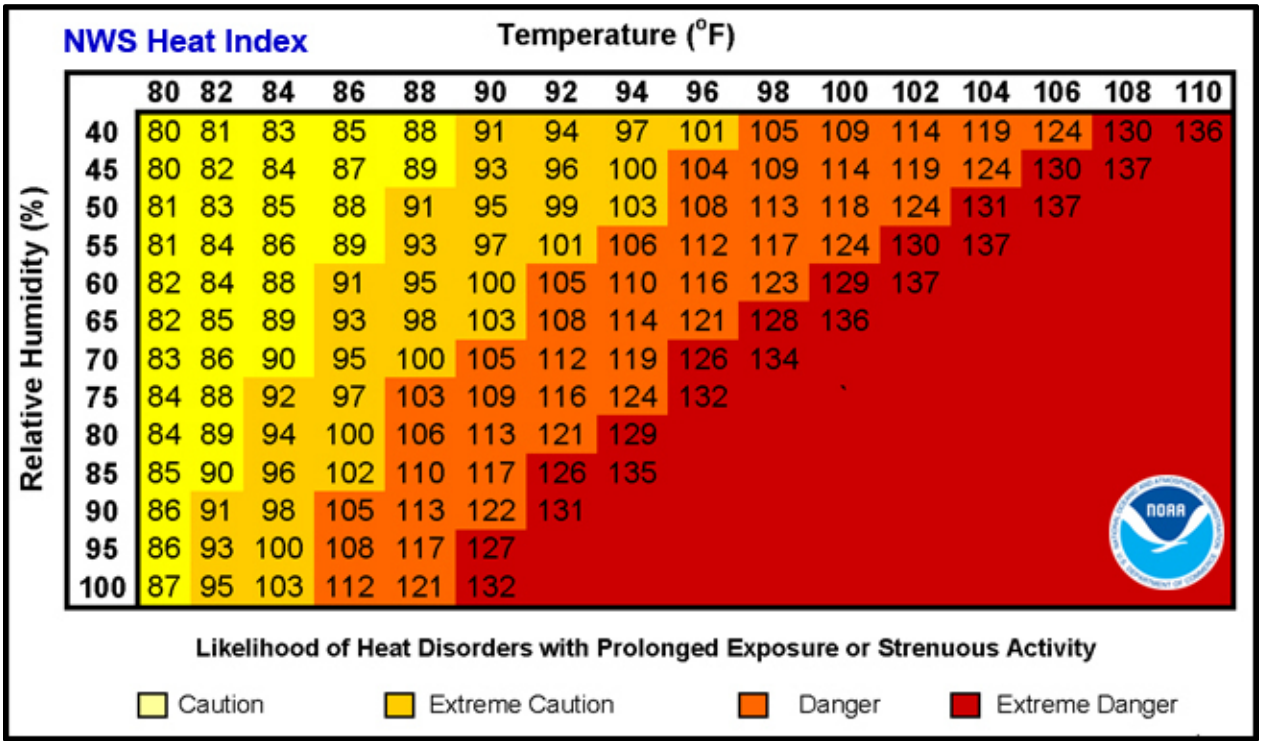
XV. Attachments

A. National Weather Service Heat Index Values
B Supplemental Heat Illness Prevention Training

Attachment A

National Weather Service Heat Index Values

National Weather Service Heat Index Values



Classification	Heat Index	Effect on the body
Caution	80°F - 90°F	Fatigue possible with prolonged exposure and/or physical activity
Extreme Caution	90°F - 103°F	Heat stroke, heat cramps, or heat exhaustion possible with prolonged exposure and/or physical activity
Danger	103°F - 124°F	Heat cramps or heat exhaustion likely, and heat stroke possible with prolonged exposure and/or physical activity
Extreme Danger	125°F or higher	Heat stroke highly likely

Attachment B

Supplemental Heat Illness Prevention Training

Keep Your Cool in Hot Weather

Heat Illness Prevention

CELEBRATING 65 YEARS
ORANGE COUNTY SANITATION DISTRICT

Heat Illness

Heat illness is a general term to include:

- Heat cramps
- Heat rash
- Heat syncope (fainting)
- Heat exhaustion
- Heatstroke

Workers have died or suffered serious health problems from these conditions. Heat illness can be prevented.

Risk Factors Contributing to Heat Illness

Worker

Hydration, clothing, medical conditions, acclimatization

Environment

Air temperature, humidity, sun, conductive heat, air movement

Work

Amount of work done and how much effort to complete

Signs and Symptoms

Watch for the symptoms in yourself and your coworkers. If you feel any symptoms, tell your coworkers and supervisor immediately because you may need medical help.

Early Symptoms

- Fatigue
- Heavy sweating
- Headache
- Cramps
- Dizziness
- High pulse rate
- Nausea / vomiting
- *Urine color

Signs and Symptoms

Urine Chart

well hydrated

Your urine is an ideal, pale straw colour. Keep up the good work.

You're okay but you could do with a small glass of water now.

You may be a little dehydrated. Drink a couple of glasses of water now.

You need to drink about up to half litre of water right now.

Not good! You are dehydrated and may have a headache. Drink a litre of water.

poorly hydrated

Note: if your urine is even darker than this and or red/dark brown then dehydration may not be the problem. Seek medical advice.

Signs and Symptoms

Life-threatening Symptoms

- High body temperature
- Red, hot, dry skin
- Confusion
- Convulsions
- Fainting

GET MEDICAL HELP

Heat Rash

Symptoms

- Clusters of red bumps on skin
- Often appears on neck, upper chest, folds of skin

First Aid Measures

- Try to work in a cooler, less humid environment when possible.
- Keep the affected area dry.

Heat Cramps

Symptoms

- Muscle spasms
- Pain, usually in the abdomen, arms, or legs

First Aid Measures

- Have worker rest in shady, cool area.
- Worker should drink water or other cool beverage.
- Wait a few hours before allowing worker to return to strenuous work.
- Seek medical attention if cramps don’t subside.

Heat Exhaustion

Symptoms

- Cool, moist skin with goose bumps when in heat
- Heavy sweating
- Nausea or vomiting
- Dizziness, faintness, headaches
- Weak, rapid pulse

First Aid Measures

- Have worker sit or lie down in a cool, shady area.
- Give plenty of water and cool with cold compresses/ice packs.
- Take to clinic or emergency room for medical evaluation if symptoms do not improve within 60 minutes.

Heatstroke

Symptoms

- Red, hot and dry skin
- Dizziness and light-headedness, fainting
- Rapid, shallow breathing
- Slurred speech, seizures
- Temperature above 104°F

First Aid Measures:

- Immediately contact for Emergency Medical Services (911) using OCSD notification procedure (x2222).
- Place worker in a cool, shady area and loosen clothing.
- Pack employee with ice and cooling blankets, fan air.
- Give plenty of water and wet worker.

Emergency Response

- Notify coworkers and supervisor upon signs and symptoms.
- Monitor employee and activate Medical Response Team.
  - Dial 2222 from OCSD Landline, or
  - Contact Control Center via radio, or
  - Call 714.593.7133 (P1) or 714.593.7677 (P2)
- Heatstroke is a medical emergency, contact Emergency Medical Services (911) immediately following OCSD procedure. Do not leave employee alone.
- Heat exhaustion and heat cramps, determine if clinic or emergency room is required. Do not leave employee alone or allow to leave work for day without being monitored.

Prevention Tips

Drink at least 1 quart (32 ounces) of water per hour. This is equivalent to two standard Sparkletts® water bottles.

- Water is the bodies single best defense against heat.
- The body can lose up to 1 quart of water per hour just by sweating.
- Self-dispensing water coolers available in all occupied buildings and control rooms.
- Water bottles available from Warehouse. Water must be suitably cool.
- Drink if you aren't thirsty. Being thirsty is early signs of heat illness.

Prevention Tips

- Take a preventative cool-down rest in the shade for at least 5 minutes.
  - Shade is buildings, canopies, or other partial or temporary structures that are ventilated or open to air movement.
  - Shade is required when temperatures exceed 80F.
  - Do not wait until you feel sick to cool down.
  - Rests should occur at least every 2 hours or more frequently if needed. Rests may include regularly scheduled breaks.

Prevention Tips

- Employees experiencing symptoms of heat illness must be monitored, and employee may not return back to work until signs or symptoms have abated.
- Emergency medical personnel must be contacted if heat illness is suspected. No employee with signs or symptoms should be left unattended or sent home without being offered onsite first aid or emergency services.

Prevention Tips

- Allow body to acclimate during heat waves and onset of summer. The body needs time to adapt to the hotter environment.

- Weather tracking and routine checking for heat waves through local weather forecasts provided by the OCSD-contracted Meteorologist.

- Choose water over soft drinks and coffee. Eat cool, light, nutritious meals. Limit salt intake.

Heat Illness

Be alert to the signs and symptoms of heat illness. Even the early stages should be taken seriously.