



## **HEAT ILLNESS PREVENTION**

Integrated Water Services, Inc.  
(the Company)



## Purpose

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This program is designed to reduce the risk of work-related heat illnesses. Integrated Water Services (the company) is committed to taking every precaution to protect employees who might be exposed to heat stress, including establishing safe work practices, heat illness prevention controls, and emergency preparedness, which will be detailed in this plan. IWS complies with local, state, and federal regulations.

## Scope

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This procedure applies to all company employees exposed to hot environments during the course of their employment duties.

When work is performed by a subcontractor on a company site, the contractor's written safety program shall take precedence for their employees. However, subcontractors may adopt this procedure for their use.

## Definitions

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**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.

**Heat Stress:** stress on the body due to high temperatures or exertion, which can lead to heat illness if unchecked.

**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.

## Procedures

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All managers and supervisors are responsible for implementing and maintaining the Heat Illness Program in their work areas.

### Provision of Water

Employees shall have access to potable drinking water. Where it is not plumbed or otherwise continuously supplied, it shall be provided in sufficient quantity at the beginning of the work shift.

### Access to Shade

Employees will be provided access to shade as well as sufficient rest periods that will provide adequate cooling of the body during the hot periods of their shift. Elements of shade will include but not be limited to cooling rooms or tents, trailer/s on site, vehicles, etc. 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. Such access to shade shall be permitted at all times.

### **Control Measures**

Each work location involved in working in hot environments where the heat index will rise above 90°F shall implement measures to control the effects of environmental factors that can contribute to heat related illness. The most common environmental factors are air temperature, humidity, radiant heat sources and air circulation.

Physical factors that can contribute to heat related illness shall be taken into consideration before performing a task. The most common physical factors that can contribute to heat related illness are the type of work, level of physical activity and duration, and clothing color, weight and breathability.

Supervisors must ensure personal factors that contribute to heat related illness are taken into consideration before assigning a task where there is the possibility of a heat-related illness occurring. The most common personal factors that can contribute to heat related illness are age, weight/fitness, drug/alcohol use, prior heat-related illness, etc.

Each work site shall develop site specific procedures that include the minimum elements:

- Bring at least 2 quarts per employee at the start of the shift, and employees are encouraged to report to supervisor when water supply gets low.
- Supervisors will provide frequent reminders to employees to drink frequently.
- Every morning there will be short tailgate meetings to remind workers about the importance of frequent consumption of water throughout the shift during hot weather.
- Place water containers as close as possible to the workers.
- Water levels should not fall below the point that will allow for adequate water during the time necessary to effect replenishment.
- Working hours will be modified to work during the cooler hours of the day, when possible.
- When a modified or shorter work-shift is not possible, more water and rest breaks will be provided.
- Supervisors will continuously check all employees and stay alert to the presence of heat related symptoms.
- Supervisors will carry cell phones or other means of communication, to ensure that emergency services can be called and check that these are functional at the worksite prior to each shift.
- On occasion, workers will be reminded about the directions tab on the support center, so the emergency responders have a readily accessible means for accessing the project site. The Emergency Action Plans are available at [www.iws.support](http://www.iws.support) in the "Emergencies" tab.

### **Risk Factors**

#### Personal Risk Factors

Personal risk factors for heat illness include;

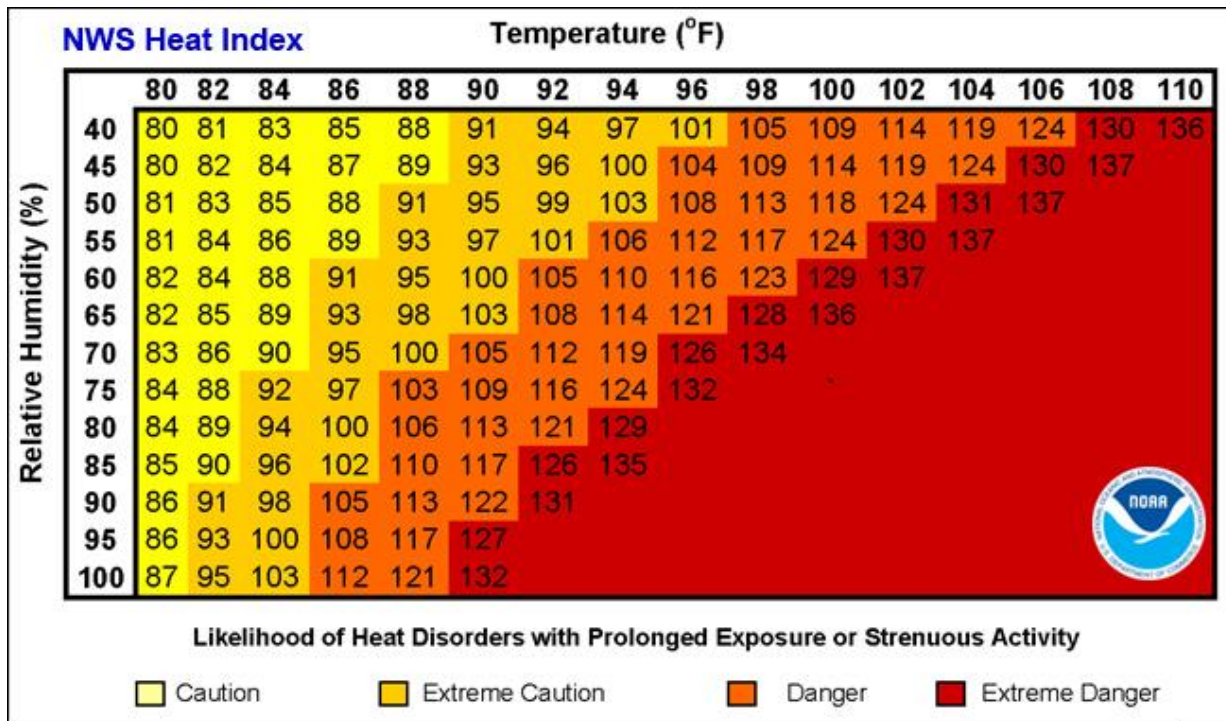


- General Health & Age: Those at greatest risk for heat-related illness include people > 65 years old, overweight, ill or taking certain medications. Additional risk factors include; fever, dehydration, heart disease, mental illness, poor circulation, and sunburn.
- Acclimatization: the temporary adaptation of the body to work in the heat that occurs gradually with exposure to ambient heat. The body needs time to adapt to working in the heat. When temperatures rise suddenly, an employee is at increased risk for heat illness while their body acclimatizes to the heat. Acclimatization is particularly important for employees who are returning to work after a prolonged absence, recent illness, or recently moving from a cool to hot climate. For heavy work under very hot conditions, a period of 4-10 days of progressively increasing work time is recommended. For less severe conditions, 2-3 days of increasing work activity and duration are recommended (for guidance, see Attachment A).
- Alcohol & Caffeine: Alcoholic beverages, coffee, tea or other drinks containing caffeine will dehydrate the body and increase the risk of heat illnesses.

### Environmental Risk Factors

Environmental risk factors for heat illness are defined in regulation as “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.”

The Heat Index (HI) is the temperature the body feels when heat and humidity are combined. The chart below shows the HI that corresponds to the actual air temperature and relative humidity. This chart is based upon shady, light wind conditions. Exposure to direct sunlight can increase the HI by up to 15°F. This table can be used in consideration of the risk factors and the subsequent need for water, rest and shade. Regardless of the actual ambient temperature, provision of water and shade as described above should be implemented whenever the Heat Index exceeds 90°F.



## Heat Illness Detection and Response

### Heat cramps

This affects employees who have perspired so heavily that they have depleted the body's water and salt.

#### Symptoms:

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

#### First aid:

The following first aid measures should be provided:

- Sit and rest in a cool place.
- Drink sports drinks, juice, or water combined with food.
- After recovery, do not begin strenuous work again for several hours.
- Seek medical help if you have heart problems, are on a low-sodium diet, or if you don't feel better after one hour.

### Heat exhaustion

This is the body's response to not being able to cool itself efficiently due to dehydration. Without prompt treatment, this condition can lead to heat stroke.

**Symptoms:**

- Rapid, weak pulse
- Headache
- Heavy sweating
- Extreme weakness
- Dizziness or fainting
- Irritability
- Nausea or vomiting
- Cold, pale, clammy skin

**First aid:**

The following first aid measures should be provided:

- Sit and rest in a cool place.
- Drink small amounts of cool water.
- Take a cool shower or bath or apply ice packs.
- Monitor the victim carefully. If they do not improve within 30 minutes, get medical help.
- Confusion, vomiting, or fainting may indicate a more serious condition. Seek medical attention immediately in this case.

**Heat stroke**

This condition occurs when the body is unable to control its temperature as a result of prolonged exposure or physical exertion in high temperatures. Untreated, it can quickly cause death or disability.

**Symptoms:**

- High body temperature
- Strong, rapid pulse
- Confusion
- Loss of coordination
- Hot, red, dry or moist skin
- Nausea and vomiting
- Seizure or unconsciousness

**First aid:**

The following first aid measures should be provided:

- Contact emergency medical services immediately.
- Move the victim to a cool, shaded area.
- Remove any excess clothing.
- Cool the victim's body as quickly as possible, using ice or cold water.



- If the victim is able to drink, give him or her cool fluids.

### **Emergency Response Procedures**

- If an employee shows signs of heat illness, they will be monitored and shall not be left alone or sent home without being offered first aid or emergency medical services.
- If an employee reports symptoms of heat illness or if a supervisor or coworker sees evidence of the symptoms, the supervisor will take immediate action appropriate to the symptoms.
- If symptoms indicate severe heat illness, the employer will provide prompt medical attention according to the Emergency Action Plan.

### **Work Duration for New Workers**

New workers need time to acclimatize unless they have previously worked in hot environments. To prevent heat-related illnesses, they should work shorter workdays in the heat during their first 1-2 weeks. OSHA and NIOSH recommend the "Rule of 20 percent" for building heat tolerance:

- *20 percent First Day:* New workers should work only 20 percent of the normal duration on their first day.
- *20 percent Each Additional Day:* Increase work duration by 20 percent on subsequent days until the worker is performing a normal schedule.

For example, if the normal workday lasts 8 hours, then new workers should work no more than 1 hour and 40 minutes (20 percent of 8 hours) on their first day in the heat. They can spend the rest of the workday without heat stress. They should be given at least one rest break during the period when they are working.

By following the Rule of 20 Percent, new workers will be working a full schedule by the end of their first week. The Rule of 20 Percent should protect most workers who are physically fit and have no medical problems. Other workers may require more time to adapt to heat – up to 14 days in some cases. When in doubt, give workers more days to acclimatize. As the duration of work increases, workers will need more rest breaks to recover from the heat load.

To become acclimatized to heat, workers should perform job tasks that are similar in intensity to their expected work. For example, if a new worker has been hired to lay bricks outdoors in hot weather, then he should lay bricks during his first week. Doing light work may not acclimatize a worker to the demands of their job.

Remember, to help workers build heat tolerance, reduce the duration of the work but not the intensity of the work.

### **Training**

Training in the following topics shall be provided to all employees:

- The environmental and personal risk factors for heat illness.
- 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.



- 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 employer, directly or through the employee's supervisor, symptoms or signs of heat illness in themselves, or in co-workers.
- Integrated Water Services procedures for responding to symptoms of possible heat illness, including how emergency medical services will be accessed should they become necessary.
- Integrated Water Services 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.

Supervisors must receive training in the prevention of heat related illnesses prior to supervising employees working in the heat.