Heat Illness Prevention Plan

Oregon Military Department Date: **6/15/2022**

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1. Purpose

The purpose of this plan is to protect our employees from the hazards of hot working environments, in both indoor and outdoor environments, to comply with Oregon OSHA's Heat Illness Prevention rules. A copy of this plan shall be made available to all of our employees. You may find a copy of the plan Oregon Military Department : Safety : Employee Resources : State of Oregon or may request a copy of this plan by contacting your supervisor. This plan will be reviewed annually and updated if necessary.

These procedures describe the minimum essential heat illness prevention steps applicable to most work settings. In work environments where there is a higher risk for heat illness (such as during a heat wave or other severe working or environmental conditions), we must exercise greater caution and employ greater protective measures as needed to protect our employees.

2. Scope

This plan implements efficient and safe work practices that will prevent both indoor and outdoor heat-related illnesses among employees at all of our workplaces. It will be used for training new employees and for the annual refresher training of employees. All employees potentially exposed to hot working environments are subject to this plan.

Things to consider in order to tailor this plan to our specific worksite(s) are:

- The size of the crew and length of the work shift
- The anticipated/predicted heat index for the day/week
- The use of personal protective equipment that may increase the body's heat burden.
- **Any known medical issues an employee may have.**
- **Medications that may inhibit the ability of the employee to regulate body temperature.**
- **Physical condition of an employee.**

Our work activities that could potentially expose our employees to these hazards include (add as many work activities as needed below):

1. **Any work activity in a building that is not temperature controlled.**
2. **Any outdoor work activity when the heat index rises to 90° or higher.**
3. **Heavy physical work activity.**
4. **Work activity that exposes employee to direct sun. Direct sunlight can increase the temperature by +13°.**
5. **Work that generates heat (such as welding)**

3. Background

Every year, people die in occupational settings from exposure to excessive heat and many more suffer a heat-related illness; most of these are preventable. Heat-related illnesses can happen if workplace activities in a hot environment overwhelm the body's ability to cool itself. This becomes more likely if any of the risk factors below, are present.

4. Risk Factors

The following are **environmental risk factors** for heat illness:

- Air temperature above 90 degrees F (32.2 degrees C).
- Relative humidity above 40 percent
- Radiant heat from the sun and other sources
- Conductive heat sources such as dark-colored work surfaces

- Lack of air movement
- Physical effort needed for the work
- Use of nonbreathable protective clothing and other personal protective equipment

The following are **personal risk factors** for heat illness:

- Lack of acclimation to warmer temperatures
- Poor general health
- Dehydration
- Alcohol consumption
- Caffeine consumption
- Previous heat-related illness
- Use of prescription medications that affect the body's water retention or other physiological responses to heat such as beta blockers, diuretics, antihistamines, tranquilizers, and antipsychotics.

Employees are responsible for knowing and educating themselves about their own personal risk factors that may increase their chance for suffering a heat-related illnesses.

5. NIOSH Heat Stress App

All supervisory and management employees should download The National Institute for Occupational Safety and Health (NIOSH) *Heat Stress App*[1] to keep our employees safe. Employees should be encouraged to download the application as well (available for iPhone and Android devices). Federal OSHA has provided training on how to use the app. It is required that all supervisory and management employees watch the video and all other employees that download the Heat Stress app should watch a short video located on the Oregon OSHA website: https://osha.oregon.gov/media/videos-online/Pages/heat-safety-app-tutorial.aspx.

6. Heat-Related Illnesses

Heat rash

Heat rash is the most common health problem in hot work environments. It is caused by sweating and looks like a red cluster of pimples or small blisters. Heat rash usually appears on parts of the body that overlap or rub other parts of the body, such as in the groin area, under the arms or breasts, and in knee or elbow creases. If an employee has symptoms of heat rash, provide a cooler, less humid work environment, if possible. Advise the employee to keep the area dry and not to use ointments and creams that make the skin warm or moist, which can make the rash worse.

Heat exhaustion

Heat exhaustion can best be prevented by being aware of one's physical limits in hazardous environment on hot, humid days. The most important factor is to drink enough clear fluids

[1] Heat Stress App available at https://www.cdc.gov/niosh/topics/heatstress/heatapp.html

(especially water, not alcohol or caffeine) to replace those lost to perspiration. Signs and symptoms of heat exhaustion typically include:

- Profuse sweating
- Weakness and fatigue
- Nausea and vomiting
- Muscle cramps (associated with dehydration)
- Headache
- Light-headedness or fainting; fainting or loss of consciousness is potentially serious and should be treated as a medical emergency.

When you recognize heat exhaustion symptoms in an employee, you must intervene, stop the activity, and move the employee to a cooler environment. Cooling off and rehydrating with water (or electrolyte replacing sports drinks) is the cornerstone of treatment for heat exhaustion. If the employee resumes work before their core temperature returns to normal levels, symptoms may quickly return.

If there is no intervention and the body's temperature regulation fails, heat exhaustion can rapidly progress to heat stroke, a life-threatening condition!

Heat stroke

Heat stroke requires an immediate emergency medical response. The person may stop sweating, become confused or lethargic, and may even have a seizure! The internal body temperature may exceed 106 degrees F. Signs and symptoms of heat stroke typically include:

- Absence of sweating
- Dry skin
- Agitation or strange behavior
- Dizziness, disorientation, or lethargy
- Seizures or signs that mimic those of a heart attack

Ensure that emergency responders are summoned immediately if heat stroke is suspected. While waiting for emergency responders to arrive, cool the employee; move the employee to an airconditioned environment or a cool, shady area; and help the employee remove any unnecessary clothing. Do not leave the employee unattended. Heat stroke requires immediate medical attention to prevent permanent damage to the brain and other vital organs that can result in death.

Heat cramps

Heat cramps usually affect workers who sweat a lot during strenuous activity. This sweating depletes the body's salt and moisture levels. Low salt levels in muscles causes painful cramps. Heat cramps may also be a symptom of heat exhaustion.

Rhabdomyolysis

Rhabdomyolysis is a medical condition associated with heat stress and prolonged physical exertion, resulting in the rapid breakdown, rupture, and death of muscle. When muscle tissue

dies, electrolytes and large proteins are released into the bloodstream that can cause irregular heart rhythms and seizures and damage the kidneys.

Symptoms of rhabdomyolysis include:

- Muscle cramps/pain
- Abnormally dark (tea or cola colored) urine
- Weakness
- Exercise intolerance
- Asymptomatic

Heat Syncope

Heat syncope is a fainting (syncope) episode or dizziness that usually occurs with prolonged standing or sudden rising from a sitting or lying position. Factors that may contribute to heat syncope include dehydration and lack of acclimatization

Symptoms of heat syncope include:

- Fainting (short duration)
- Dizziness
- Light-headedness during prolonged standing or suddenly rising from a sitting or lying position

For more information about this heat-related illnesses, visit https://www.cdc.gov/niosh/topics/heatstress/heatrelillness.html#syncope

The chart below provides information to our employees about the risk to themselves, at certain temperatures, of suffering a heat-related illness.

Note: heat-related illnesses can occur at a heat index of less than 91 degrees Fahrenheit.

Heat index	Risk level	Protective measures
Less than 91 °F (33 °C)	Lower (caution)	Basic health and safety planning
91 0F to 104 °F (33 °C to 39 °C)	Moderate	Implement precautions and heighten awareness
103 °F to 115 0F (39 °C to 46 °C)	High	Additional precautions to protect workers
Greater than 115 °F (46 °C)	Very high to extreme	Even more aggressive protective measures

Adapted from Criteria for a Recommended Standard Occupational Exposure to Heat and Hot Environments Revised Criteria 2016 DEPARTMENT OF HEALTH AND HUMAN SERVICES Centers for Disease Control and Prevention National Institute for Occupational Safety and Health

7. Preventing Heat-Related Illnesses

These are some best practices at preventing heat-related illnesses:

- Gradually increase workloads and allow more frequent breaks during the first week of work so that employees become acclimatized to higher temperatures, especially those who are new to working in the heat or have been away from that work for a week or more.
- Encourage employees to frequently drink small amounts of water before they become thirsty to stay hydrated. During moderate activity, in moderately hot conditions, employees should drink about 8 ounces of liquid every 15 to 20 minutes. Employees can monitor their hydration with a urine chart. Urine should be clear or slightly colored; dark urine is a warning sign! See urine color chart.
- Encourage employees to eat regular meals and snacks as they provide enough salt and electrolytes to replace those lost through sweating as long as enough water is consumed.
- Plan ahead and schedule work in the earlier hours of the day when it is cooler.
- Provide a buddy system where employees encourage each other to drink water, use shade to stay cool, and to watch each other for symptoms of heat-related illness.
- Educate employees that drinking extreme amounts of water can also be harmful (more than 12 quarts in a 24-hour period).
- Schedule frequent rest periods with water breaks in shaded or air-conditioned recovery areas. Note that air conditioning does not result in loss of heat tolerance.
- Ensure employees are aware of the signs of heat-related illnesses and encourage them to report immediately they or their co-workers show symptoms.
- Monitor weather reports daily and reschedule jobs with high heat exposure to cooler times of the day, if possible. Be extra vigilant when air temperatures rise quickly. When possible, schedule routine maintenance and repair projects for the cooler parts of the year.
- Provide shade or cool areas for breaks
- Containers that hold ice or otherwise keep drinking water and other beverages cold.
- Chilled beverages such as electrolyte type sports drinks. Discourage caffeine consumption.
- Cold treats at break time such as popsicles, ice cream, or fruit with high water content (watermelon, grapes, oranges).
- A cooling trailer with conditioned air and cold water to consume.
- Cooling tents with mist, fan, and cold water to consume.
- Heat-reflective work clothing such as light-colored, breathable uniforms.
- Evaporative accessories (cooling neck wraps, head bands)

- Cooling vests designed to safely use ice packs.
- Ventilated PPE (high-visibility garments or powered air purifying respirators, if appropriate)
- Cellphone text orders from supervisor to stop and rest in shade and drink.

For our employees that work in buildings or structures that do not have a mechanical cooling system we will ☐ *measure the relative humidity and temperatures inside these structures* or ☒ *use the NIOSH Heat Index app to determine the heat index outdoors and assume that it is the same indoors*, and inform you/our employees of the heat index and the risk of our employees experiencing a heat-related illnesses based upon the chart in section 6.

8. Water

We will furnish 32 ounces of water per employee, per hour, when the heat index is equal to or greater than 80 degrees Fahrenheit. Below is our plan for furnishing drinking water.

Water is located throughout the work area(s). Locations include:

Indoor spaces – water fountains or tap;

We have made arrangements to replenish water throughout the day, as necessary. These arrangements include:

Allowing rest breaks so that the water supply may be replenished at a provided water source.

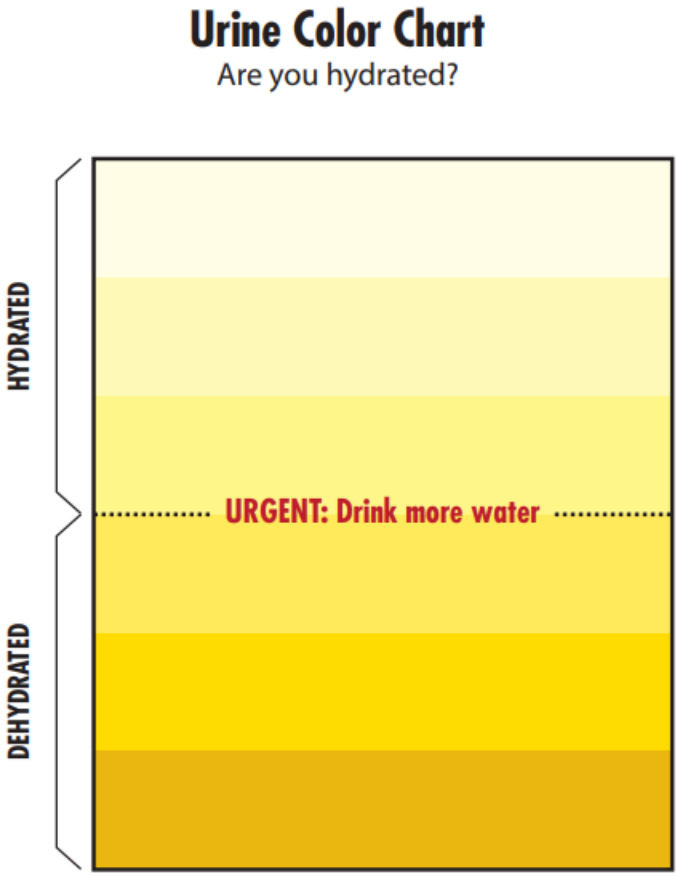
For our mobile crews, we will replenish water by the following methods:

Provide drinking water from a site source that can accompany the worker.

For those working alone, we have made the following arrangements for you to replenish your water supply.

Providing appropriate amounts of drinking water to satisfy the requirements for the time employees are to be isolated. Communication with manager must be maintained so that water supplies can be requested if needed.

Refer to the Urine Color Chart to ensure that you are adequately hydrated.



Although the urine chart is a good indicator of hydration status for most workers with normal pale yellow to deep amber urine, urine color can also be affected by diet, medications, and illnesses or disorders.

> *NIOSH criteria for a recommended standard: occupational exposure to heat and hot environments*. By Jacklitsch B, Williams WJ, Musolin K, Coca A, Kim J-H, Turner N. Cincinnati, OH: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication 2016-106.
>
> https://www.cdc.gov/niosh/docs/2016-106/pdfs/2016-106.pdf

9. Shade

We will furnish shade when the heat index is equal to or exceeds 80 degrees Fahrenheit and the amount of shade be must enough to accommodate the number of our employees that are on a heat illness prevention rest break; the shade areas will be immediately and readily available at our worksites. Your rest/lunch break does not begin until you are in the shade.

There are buildings on all sites are temperature controlled. All OMD worksites have temperature-controlled buildings close to worksites. A temperature-controlled vehicle is an option if it is more convenient.

In the event natural shade is not available a temperature-controlled vehicle is an option. If a vehicle is not feasible and natural shade is not possible, a canopy/awning will be erected to provide shade.

There are no circumstances when an OMD employee would be working alone where a temperature-controlled vehicle, or temperature controlled building is not available for use on rest breaks.

10. Mandatory Requirements

Under Oregon OSHA's Heat Illness Prevention rules, these are the topics that our employees are required to be trained prior to working in hot environments:

- The environmental and personal risk factors (see above for examples).
- Our procedures for complying with the requirements of this standard, including, but not limited to, our responsibility to provide water, heat index information (including the risks to experiencing a heat-related illness), shade, preventative rest breaks, and access to first aid, as well as how employees can exercise their rights under this standard without fear of retaliation;
- The importance of frequent consumption of small quantities of water, up to 32 ounces 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 concept, importance, and methods of the acclimatization plan pursuant to the employer's procedures;
- The different types of heat illness, the common signs and symptoms of heat illness, and the appropriate first aid and emergency response to the different types of heat illness, including how heat illness may progress quickly from mild signs and symptoms to a serious and life-threatening condition (see above);
- The importance for employees to immediately report to the employer, directly or through the employee's supervisor, signs, and symptoms of heat illness in themselves or in others; and
- The effects of nonoccupational factors (drugs, alcohol, obesity, etc.) on tolerance to occupational heat stress. **(training requirements)**
- **Illness or medical condition such as diabetes.**
- **Age**
- **Prescription drugs**
- **Alcohol**
- **Obesity or not physically fit**

Acknowledgement – I have been trained in the required elements listed in this section.

Name: Click or tap here to enter text.

Signature: _____ Date: Enter the date

11. Acclimatization

According to the Centers for Disease Control (CDC), acclimatization is the beneficial physiological adaptations that occur during repeated exposure to a hot environment. These physiological adaptations include:

- Increased sweating efficiency (earlier onset of sweating, greater sweat production, and reduced electrolyte loss in sweat).
- Stabilization of the circulation.
- The ability to perform work with lower core temperature and heart rate.
- Increased skin blood flow at a given core temperature.

The CDC recommends, but Oregon OSHA recognizes that this approach may not work for all business:

- For new workers, the schedule should be no more than a 20% exposure on day 1 and an increase of no more than 20% on each additional day.
- For workers who have had previous experience with the job, the acclimatization regimen should be no more than a 50% exposure on day 1, 60% on day 2, 80% on day 3, and 100% on day 4.

In addition, the level of acclimatization each worker reaches is relative to the initial level of physical fitness and the total heat stress experienced by the individual.

Maintaining acclimatization

Workers can maintain their acclimatization even if they are away from the job for a few days, such as when they go home for the weekend. However, if they are absent for a week or more then there may be a significant loss in the beneficial adaptations leading to an increased likelihood of heat-related illness and a need to gradually reacclimate to the hot environment.

The CDC offers some additional information on maintaining acclimatization:

- It can often be regained in 2 to 3 days upon returning to a hot job.
- It appears to be better maintained by those who are physically fit.
- Seasonal shifts in temperatures may result in difficulties.
- Working in hot, humid environments provides adaptive benefits which also apply in hot, desert environments, and vice versa.
- Air conditioning will not affect acclimatization.

Oregon OSHA has provided us two options when it comes to developing and implementing acclimatization plans. We may either develop our own or follow the CDC's guidelines (above) and these plans must be in writing. We have chosen to follow CDC guidelines and you may find a copy of our acclimatization plan that is written above.

Implementation

This is how we are going to acclimate our employees to high heat conditions to reduce their risk from experiencing a heat-related illness:

By following the CDC guidelines that are listed on page 10.

12. Heat Illness Prevention Rest Breaks

Adopted Oregon Administrative Rules which became effective on June 15, 2022, require heat relief for workers, including three specific rest break schedule options. This applies whenever an employee performs work activities, whether in indoor or outdoor environments, where the heat index (apparent temperature) equals or exceeds 90 degrees Fahrenheit.

The purpose of heat illness prevention rest breaks is to allow the body to cool down and recover from working when the heat index equals or is greater than 90 Fahrenheit. Oregon OSHA has provided employers with three options[2] for developing heat illness prevention rest break schedule. Of the three options, we have chosen Option C and you may find a copy of our rest break plan with the manager and below.

Heat index temperature (°F)	Rest break durations
90 or greater	10 minutes every two hours
95 or greater	20 minutes every hour
100 or greater	30 minutes every hour
105 or greater	40 minutes every hour

Implementation

This is how we are going to implement our employees' heat illness prevention rest breaks:

Manager will track the heat index throughout the day. When the heat index reaches 90 degrees or greater, the manager will inform employees of the rest break schedule in effect under Option C.

13. Emergency Medical Plan

We have updated and/or developed an emergency medical plan that address employees' exposure to excessive heat. Below is what we are required to have in our plan.

(a) An emergency medical plan to ensure the rapid provision of medical services to employees with major illnesses and injuries shall be developed. In such cases, the employer shall determine that the service will be available in an emergency.

[2] Rest Break Schedule Options for Heat Illness Prevention
https://osha.oregon.gov/OSHAPubs/factsheets/fs90.pdf

(b) If a physician or an ambulance with Emergency Medical Technicians is readily accessible to the place of employment, then the minimum emergency medical plan must contain the emergency telephone number of the ambulance service. The emergency telephone number shall be posted conspicuously at the place of employment.

(c) Employers in areas with a designated 911 telephone number may utilize the 911 service in lieu of posting the specific ambulance telephone number.

(d) If the place of employment is not in proximity to emergency medical services, then the employer shall have, in addition to the information required in 437-002-0161(4)(a), a definite plan of action to be followed in the event of serious injury to an employee. The plan of action shall consist of the arrangements for:

(A) Communication. Two-way radio, telephone, or provision for emergency communication to contact the emergency medical services.

(B) Transportation. Availability of transportation to a point where an ambulance can be met or to the nearest suitable medical facility. Vehicles provided for this purpose shall be available at all times, shall have right-of-way over all vehicles or equipment under the control of the employer, and shall be equipped so that due consideration can be given to the proper care and comfort of the injured employee.

(C) Qualified medical personnel at destination.

(D) All employees shall be knowledgeable concerning the qualified first aid person(s), the first aid requirements, and emergency medical plan.

A copy of our Emergency Medical Plan is available in Appendix A below .

14. Responsibilities:

All employees are responsible for protecting themselves from heat illnesses by following these guidelines for prevention and immediately reporting any signs or symptoms to his or her supervisor.

Managers are responsible for conducting initial training with new employees and for the annual refresher training.

The OMD Safety Manager is responsible for administering the provisions of this plan.

Revised: 6/15/2022

Appendix A

Emergency Medical Plan

In all instances of heat related illness, 9-1-1 shall be used to summon emergency services. If there are trained paramedics on-site, the phone number will be listed below.

Phone Number: _____

In the event of a heat related emergency that requires transportation to a medical facility, notice will be given to the gate guard (if applicable) along with direction to the ill or injured employee. If possible, transportation of the employee shall be provided to the front gate where an ambulance can be met.

All employees will be trained annually in the proper first aid to administer in the event of a heat related illness through the mandatory Heat Illness Prevention Training available in Workday.

Communication with a manager shall be maintained by use of cell phone or radio so that additional resources/personnel may respond to the injured employee to assist with first aid. A first aid kit will be available and easy to access. Follow the first aid instructions below.

- Take the worker to an indoor or cooler (shaded) area.
- Cool the worker immediately by using these methods:
    - Remove outer layers of clothes and PPE.
    - Immerse the worker in cold water if possible.
    - Ice packs or cold towels on the head, neck, trunk, armpits, and groin.
    - Use fans if available to circulate air around the worker.