PROGRAM DIRECTIVE

SUBJECT: Local Emphasis Program (LEP): Preventing Heat Related Illness

PURPOSE: The purpose of this directive is to create a State Local Emphasis Program (LEP) for preventing heat related illness in the state of Oregon by enforcing Oregon OSHA’s Heat Illness Prevention Rules.

BACKGROUND: Heat-related illnesses generally occur when body heat generated by physical work is aggravated by environmental heat and humidity.

Since July of 2017, Oregon OSHA has focused on heat related illness in all inspections from June 15 – October 1 by providing guidance and education to employers in relation to heat related illness. In 2021, a deadly heat event in the Pacific Northwest set record-breaking temperatures in Oregon. On June 28th, Portland International Airport reached 116 F and other parts of the state were even hotter. This extreme hot weather may happen again, and it has made it necessary to enact protections to ensure the health and safety of workers. On July 8, 2021, Oregon OSHA adopted a temporary standard for Heat Illness Prevention that was in effect until January 3, 2022.

In May of 2022 Oregon OSHA adopted permanent rules addressing heat illness, Heat Illness Prevention OAR 437-002-0156 and OAR 437-004-1120. These rules are effective June 15, 2022. Work activities that fall under Div 3 or Div 7 must follow the provisions of OAR 437-002-0156. Agricultural Labor Housing heat prevention rules are found in OAR 437-004-1120(25). There are exemptions in the Heat Illness Prevention rules, but the most notable for the purposes of this Program Directive is when the source of heat is caused only by hot processes. The rules pertain to environmental heat only. Where process heat is acerbated by environmental heat, causing the heat index (HI) to increase to equal to or greater than 80 F, the rules apply.

Heat-related Illnesses: The human body normally cools itself by sweating and allowing that sweat to evaporate. This simple strategy requires enough fluid in the body to make sweat, air circulating across the skin, and low enough air humidity to allow the sweat to evaporate.
Workplace causes of heat related illnesses involve work activities in a hot environment that can overwhelm the body's ability to cool itself, especially working in a hot environment without adequate access to water for rehydration.

Heat-related illnesses include:

**Heat rash** (sweat rash or prickly heat). Skin symptoms usually resolve by cooling the skin and avoiding exposure to the heat that caused it. However, symptoms that last longer than a few days, or a rash that gets worse may require medical treatment.

**Heat exhaustion** can be prevented by being aware of your physical limits related to a hazardous environment on hot, humid days. The most important factor is likely to be drinking enough clear fluids (no alcohol or caffeine) to replace those lost to perspiration. Signs and symptoms of heat exhaustion typically include:

- Profuse sweating
- Weakness, fatigue
- Nausea, vomiting
- Muscle cramps (associated with dehydration)
- Headache
- Light-headedness, fainting or “heat syncope” (Fainting or loss of consciousness is potentially serious and should be referred for medical advice. Any loss of consciousness must be recorded on the employer’s 300 log).

Intervention for heat exhaustion includes recognizing the symptoms, stopping the activity, and moving the affected employee to a cooler environment where they can rehydrate. Cooling off and rehydration with water (or electrolyte-replacing sports drinks) is the cornerstone of treatment for heat exhaustion. Activity must be stopped and steps taken to cool down. If activities resume without the core temperature returning to normal levels this may cause heat related symptoms to recur.

**Heat stroke.** This is a life-threatening condition that requires an immediate emergency medical response. The person typically stops sweating, becomes confused or lethargic and may even have a seizure. The internal body temperature may exceed 106 F (41 C). Signs and symptoms of heat stroke typically include:

- Absence of sweating
- Dry skin
- Agitation/strange behavior
- Dizziness/disorientation/lethargy
- Seizures
- Signs and symptoms that can mimic those of a heart attack
If there is no intervention and the body's temperature regulation fails, heat exhaustion can rapidly progress to heat stroke or sun stroke. Heatstroke requires immediate medical attention to prevent permanent damage to the brain and other vital organs that can result in death. Ensure that emergency services are summoned immediately if heat stroke is suspected. While waiting for emergency services to arrive cool the victim by moving them to an air-conditioned environment – or at least a cool, shady area – and help them remove any unnecessary clothing.

**ACTION:**  
**INSPECTION GUIDANCE RELATED TO HEAT-RELATED HAZARDS**

A. The procedures outlined in Division 1, 437-001-0057, Scheduling Inspections and the Field Inspection Reference Manual (FIRM) for programmed inspections are not suitable as the primary means to schedule inspections of applicable establishments where employees are exposed to the heat index of 80 degrees Fahrenheit because these operations are often both seasonal and of short duration. Therefore, inspection efforts will be concentrated where work activities (indoor or outdoor) are performed and the heat index (apparent temperature) equals or exceeds 80 F.

All CSHO’s conducting safety and health inspection activity will be instructed to be aware of operations in all industries where workers are exposed to this heat index and to open inspection when such situations are observed.

B. During all inspection activities, but especially from June 15 through Oct. 1 of each year (OR-OSHA’s Heat Emphasis Program), CSHOs are expected to review employers' plans to address heat exposure and prevent heat-related illnesses at outdoor worksites and at indoor facilities where potential heat-related hazards exist.

When the heat index is 79 F or less, the heat illness prevention methods the employer has taken will be evaluated, and areas where compliance with the rule has not been met will result in a hazard letter. When the heat index is 80 F or higher, violations of the rule will be cited with probability and severity depending on the specific situation. Sample hazard letters regarding heat are found in this Program Directive.

Along with the Oregon OSHA Technical Manual, CSHOs should use the documents in the appendices as guides during heat-hazard investigations: a heat index chart, sample hazard letters for heat-related illnesses, Heat Field Inspection Guide (FIG), and links to online resources on heat-related illnesses. It is recommended that CSHOs use the FIG for heat emphasis inspections, and include it in their file. For inspections conducted between
June 15 and September 30, and the inspection is conducted of a business
in a climate controlled building (e.g. office building with air conditioning)
or is otherwise exempt, as a minimum the CSHO will include a statement
in their narrative that:

- The inspection included an evaluation of heat hazards,
- The temperature/heat index noted during the inspection,
- And the climate control measures in place or why the
  business/process is exempt.

CSHOs are expected to document other factors, such as the use of
personal protective equipment and when they contribute to the hazard. In
addition, other standards that may apply to the responsibility of employers
to mitigate the hazards including training for the use of personal protective
equipment, water and sanitation requirements, medical services and first
aid requirements, and recordkeeping requirements.

Heat-related illness violations will be issued for both indoor and outdoor
work activities. All elements of a violation must be documented and a link
established between the workplace exposure and the potential for heat-
related illness. However, the rules presume the existence of a hazard when
exposures exceed the trigger levels in the rules (> 80 F and >90 F).

**Fatality and hospitalization reports**
When a field office receives a fatality or hospitalization report, the
manager will include an evaluation of whether heat exposure may have
been a factor (even if not directly referenced in the report) in determining
whether an accident investigation should be initiated. In doing so, the
manager is expected to consider the temperature and humidity, work load
and working conditions, and the apparent availability of mitigating factors
such as water and shade.

**Complaints, referrals, and accidents related to heat illness**
When a decision is made to conduct an inspection due to a complaint,
referral or accident related to heat illness, use the wet bulb globe
temperature (WBGT) instrument or other methods as listed in the case file
documentation section, to measure and record temperature and humidity
measurements during the walk-around inspection. For those cases where
no inspection is deemed necessary, details regarding the current heat
related conditions and the employers preventative heat illness measure
should be documented. Note: Where the situation is questionable as to
whether to do an inspection or not, managers should incline toward
inspecting if the heat index is 80 F or higher.
CITATION GUIDELINES:

Note: All employers not subject to Division 4 (including those subject to Division 3 and Division 7) are subject to the provisions of the Division 2 heat rule.

When employers have failed to provide adequate shade, CSHO should evaluate the specific conditions and cite based on the provisions of the applicable rule:
- 437-002-0156(3) for general industry, construction, and forest activities.
- 437-004-1131(3) for agriculture activities.

Violations for the lack of available shade will normally be cited serious and carry an appropriate penalty; if the heat index exceeds 90 F the violation will be normally be rated as a death violation.

Compliance officers should determine that the quantity and quality of the shade is adequate and complies with the rule as per (3)(a)–(e).

When employers have failed to provide adequate amounts of access to cold or cool drinking water in work areas, CSHO should evaluate the specific conditions and cite based on the provisions of the applicable rule:
- 437-002-0156(4) for general industry, construction, and forest activities.
- 437-004-1131(4) for agriculture activities.

Violations for lack of adequate cool or cold drinking water will normally be cited serious and carry an appropriate penalty; if the heat index exceeds 90 F the violation will be normally be rated as a death violation.

Compliance officers should determine that adequate supplies (32 oz/hr per employee) of cool/cold water are available, and that employees have an opportunity to drink it.

Program Directive A-174: Local Emphasis Program (LEP): Field Sanitation has additional requirements that should be considered.

When an employer has failed to follow the provisions set forth in High Heat Practices when the heat index exceeds 90 F, CSHO should evaluate the specific conditions and cite based on the provisions of the applicable rule:
- 437-002-0156(5) for general industry, construction, and forest activities.
- 437-004-1131(5) for agriculture activities.

Violations related to high heat practices will normally be cited serious.
Compliance officers should evaluate the employer’s communication methods, emergency procedures, and determine that the work/rest plan is in writing and uses one of the required options.

When an employer has failed to adopt and implement provisions set forth in the Emergency Medical Plan, CSHO’s should evaluate the specific conditions and cite based on the provisions of the applicable rule:

- 437-002-0156(6) for general industry, construction, and forest activities.
- 437-004-11231(6) for agriculture activities.

Violations related to the Emergency Action Plan will normally be cited serious and rated based on the specifics of the deficiencies.

When an employer has failed to implement acclimatization practices, CSHO should evaluate the specific conditions and cite based on the provisions of the applicable rule:

- 437-002-0156(7) for general industry, construction, and forest activities.
- 437-004-1131(7) for agriculture activities.

Violations related to acclimatization when the heat index is 90 F or greater will normally be cited serious, and rated as death if there are reports of symptoms relating to heat illness.

Compliance officers should determine which option the employer chose, and whether factors such as health and general fitness were considered.

When an employer has failed to implement a Heat Illness Prevention Plan (HIPP), CSHO’s should evaluate the specific conditions and cite based on the provisions of the applicable rule:

- 437-002-0156(8) for general industry, construction, and forest activities.
- 437-004-1131(8) for agriculture activities.

Compliance officers should evaluate if the employer’s HIPP has incorporated the 8 required elements. Probably and severity will depend on the specific circumstances of the investigation, but would generally be at least serious.

When employers have failed to provide training for all employees, including supervisors, on each training element of the rule, CSHO should evaluate the specific conditions and cite based on the provisions of the applicable rule:

- 437-002-0156(9) for general industry, construction, and forest activities.
• 437-004-1131(9) for agriculture activities.

Violations for lack of training will normally be cited serious and carry an appropriate penalty; if the heat index exceeds 90 F the violation will be normally be rated as a death violation.

Compliance officers should determine that the training meets the requirements in (9)(a)-(g). Training should be conducted annually and before work starts, and must be documented as per (10).

The rules do not address workplaces where the only/main source of the heat is the work process itself. In situations where it is not clear whether this exemption applies, or in situations where an employer has failed to provide control measures appropriate to the hot process, including break areas where employees can cool down and otherwise counteract the adverse effects of heat and humidity, CSHO should evaluate the specific conditions and, in consultation with the field enforcement manager, cite OAR 437-002-0144(2) for general industry with a process creating hazardous heat or humidity based on the circumstances of the particular case.

**Case file documentation**

In order for the agency to track its inspection activity on heat-related illnesses, it is essential to gather data related to this hazard. All inspections involving heat-related illnesses, or an evaluation of the employer’s heat illness prevention efforts, must be coded as "S-24-HEAT STRESS." It is also important to code incoming complaints regarding heat-related illnesses as “S-24-HEAT STRESS” in the “evaluation” tab under Optional Information.

If the inspection is conducted between June 15 and September 30 as part of OR-OSHA’s heat emphasis program, code in OTIS under the Local Emphasis tab as “Heat Illness Prevention.”

Please use Appendix B- Field Inspection Guide (FIG) - Heat stress to capture critical information regarding heat illness prevention and compliance with the rules.

**Inspection and review tips:**

- Review OSHA 300 logs for any entries indicating symptoms of heat-related illness.
- Interview workers for reports of symptoms such as headache, dizziness, fainting, or dehydration related illnesses to the employer failing to provide water or rest periods.
- Review how the employer is providing an adequate amount of water and how readily employees are able to access the water.
- Review how the employer is assessing the need for rest and shade.
• Review injury and illness reports and obtain any records of emergency room visits or ambulance transport even if hospitalizations did not occur.
• Review the employers heat illness prevention plan, including the preventative rest schedule and acclimation plan.
• Review safety committee minutes for incidents related to heat stress.
• Document the hazard information as specified Chapter 2 of the Field Inspection Reference Manual.
• Conduct a walk around inspection and use the NIOSH/OSHA heat stress app (take a screen print) and identify all potential sources of heat and any other factors that could aggravate heat-related illnesses. Note: The heat app is best when used for outdoor operations. Heat evaluation of indoor operations should use the WGBT, temperature/humidity meter, or Q-Trak.
• Verify the information obtained from employer and employee interviews during the walk-around inspection.
• Consult the Oregon OSHA Technical Manual Section III, Chapter 4 - Heat Stress for additional inspection procedures and documentation guidance.
• Document the heat index and any National Weather Service heat advisory or alert for the day of the inspection or the days employees are exposed to hazards associated with heat stress.
• Document whether drinking water and cooling areas or cooling protocols are readily available.
• Document whether appropriate first aid measures are available, including plans for obtaining prompt emergency medical help.
• If violations are not documented, CSHOs are encouraged to use the hazard letter found in the appendix to inform the employer about how to protect workers from this hazard.

Sampling Procedures
When appropriate, conduct workload assessments. Information on performing workplace assessments can be obtained from the Oregon OSHA Technical Manual, Section III, Chapter 4.

When a heat illness related complaint, referral, accident, or unique circumstance is received, conduct environmental sampling including wet-bulb globe temperature (WGBT) readings, which combine air temperature and humidity. WGBT sampling is considered a better indicator of the effects of heat on individuals than a dry bulb thermometer reading. Refer to the Oregon OSHA Technical Manual, Section III, Chapter 4, for information on conducting WGBT sampling. In the absence of the WGBT, other direct reading instruments can be used.
Where the WBGT instrument is used, correlate results with the (ACGIH) TLV guidelines, and the Oregon OSHA rule. The NIOSH/OSHA heat stress app or relative humidity should also be used to reference the specific requirements of the rules, correlated with the NOAA heat index chart. (See Appendix A.)

All sampling results must be entered in OTIS in the “Sample” tab, usually on the direct read form. Information from the NIOSH heat app may be entered on the screening form.

Compliance Assistance and Outreach

Public information: Announcements informing employers and employees of the rules and the potential hazards with either press releases or social media postings could be set to initiate once the projected weather conditions are met for the trigger temperatures of the rules.

Consultation: During all appropriate Consultation activity, especially from June 15 through Oct. 1 of each year, consultation safety and health officers (CSHOs) should include a review of the employers' plans to address heat exposure and prevent heat-related illnesses, at outdoor worksites and at indoor facilities where potential heat-related hazards may exist.

Public education: Make available short informational videos that employers can use to help educate their employees about the hazards of heat, steps to prevent heat-related illnesses, how to recognize the symptoms of dehydration, and how to respond to suspected heat-related illnesses in others. The Oregon OSHA website will be periodically monitored to keep the most current information and guides available, including the OSHA/NIOSH heat stress app: https://www.cdc.gov/niosh/topics/heatstress/heatapp.html

EFFECTIVE DATE: This directive is effective immediately and will remain in effect until canceled or superseded.

HEAT INDEX CHART FROM NOAA
To find the heat index, look at the Heat Index Chart. As an example, if the air temperature is 96°F (found on the top of the table) and the relative humidity is 65% (found on the left of the table), the heat index – how hot it feels – is 121°F. The National Weather Service will initiate alert procedures when the Heat Index is expected to exceed 105° - 110°F (depending on local climate) for at least 2 consecutive days.

IMPORTANT: Since heat index values were devised for shady, light wind conditions, exposure to full sunshine can increase heat index values by up to 15°F. Also, strong winds, particularly with very hot, dry air, can be extremely hazardous.
### Appendix B

**Field Inspection Guide (FIG) – Heat Illness Prevention**

<table>
<thead>
<tr>
<th>Field Inspection Guide (FIG) – Heat Illness Prevention</th>
<th>Date/time ___________________________</th>
</tr>
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</table>

**Name of Company** ________________________________________________

(OSHA Heat app/direct measurement) circle

Indoor Temp/humidity ___________ Outdoor Temp/humidity ___________

**Type of work**

(Describe)_____________________________________________________________________

**Work effort (easy)-----------(moderate)-----------(hard)**

See table 1.1 in the rule

**PPE Worn?** (adds to heat burden) ____________________________

**Any new workers onsite?** Yes □  No □

Acclimatization Provision? Yes □  No □ (Required for high heat: HI >80)

Describe ________________________________________________________

**Access to Shade (80F and >)**

Employer do their own temperature measurement? _____ Result________

Shaded/cool area(s) available? (describe)____________________________

Air temperature of cool area?______________________________

Are breaks/lunch taken here?______________________________

Adequate space for all?____________________________________

Alternative Cooling Methods if Shade Not Safe or Feasible (Describe)________________________

Confirmed through interviews? (Describe comments) ____________________________

**Drinking Water (80F and >)**

Water available? Yes □  No □

Cool or Cold (temperature)_______

provided by employer (at no cost)? Yes □  No □

*If work is “rest/light” they are exempt from quantities, but must have water available*

Other liquids?________  What?______________________________________________

_caffeinated/alcohol? (circle if applicable)_

How much available per employee?______________________________

Methods to Replenish Water/Liquids?______________________________

Confirmed through interviews? (Describe comments) ____________________________

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32 oz/person/hr is a ½ gallon per hour and 1 gallon per 2 hour time period for each employee

1 gallon = 128 oz

5 gallons = 640 oz
Supervisors/Employees trained on required elements? (HI = 80F and >)

- Environmental and Personal Risk Factors for heat illness
- Procedures for complying with the requirements of the Heat Rule (e.g. water provision, provision of daily heat index information, shade, cool-down rests, how to report symptoms of heat-related illness, access to first aid, employee right to exercise rights without fear of retaliation.
- Concept, importance and methods of acclimatization.
- Importance of immediate reporting of symptoms or signs of heat illness.
- Effects of non-occupational factors (medications, alcohol, obesity) on tolerance to HS.
- Different types of heat illnesses; common signs and symptoms.
- Documented in writing? Confirmed through interviews? (Describe)

High Heat Practices (HI = 90F and >) Includes:

- Effective communication? Voice_______ Observation_______ Electronic_______
- Employees observed for signs/symptoms of heat illness and monitored to determine if medical attention is necessary?
- Regular communications with employees working alone. How? Describe
- Mandatory buddy system, or Implement other equally effective means of observation or communication. Describe
- Designate and equip one or more employees on each worksite to call for emergency medical services, and must allow other employees to call for emergency medical services when designated individuals not available.
- Each employee takes a 10-minute preventative cool-down rest period in the shade at least every two-hours, regardless of shift length? (This rest period can be concurrent with other rest periods or mealtimes if timing coincides.) Confirmed through interviews? (Describe)

Emergency Medical Plan (heat elements required when HI = 90F and >)
Developed and implemented? Yes ___ No ___ Includes:

- Responding to signs and symptoms of possible heat illness - first aid measures and how emergency medical services.
- If a supervisor observes signs or an employee reports symptoms of heat illness, the employee must be relieved from duty and provided with a sufficient means to reduce body temperature. Examples: cooling blankets, cooling vests, and fans.
- If the signs or symptoms are indicators of severe heat illness (decreased level of consciousness, staggering, vomiting, disorientation, irrational behavior or convulsions), immediately implement the emergency response procedures.
- An employee exhibiting signs or symptoms of heat illness must be monitored and must not be left alone or sent home without being offered onsite first aid and/or being provided with emergency medical services in accordance with the employer's procedures.
• Contacting emergency medical services and, if necessary and instructed to do so by the medical professionals, transporting employees to a place where they can be reached by an emergency medical provider.
• Ensuring that, in the event of an emergency, clear and precise directions to the work site is provided for first responders to quickly navigate to the location of the affected worker.

Confirmed through interviews? (Describe comments) __________________________________________
____________________________________________________________________________________
____________________________________________________________________________________

Heat Illness Prevention Plan: (HI = 80F and >) Yes___ No___ In writing____ Has required elements?
• How employees will be trained on the hazards of heat exposure and the necessary steps to prevent heat-related illnesses
• How to recognize the symptoms of dehydration and how to respond to suspected heat-related illnesses
• How sufficient amounts of cool, potable water in work areas will be provided
• How employees will be provided frequent opportunities and encouragement to stay hydrated by drinking water
• How employees will be provided sufficient space to rest in a shaded area or cool climate-controlled area, and where heat-affected employees may cool off and recover when signs and symptoms of heat-related illnesses are recognized
• How the employer will implement the heat illness prevention rest break schedule when necessary to keep employees safe (HI = 90 F and >)
• How the employer will implement heat acclimatization procedures for new employees or employees returning to work from extended absences of seven or more days

Heat illness prevention rest break schedule: (HI = 90F and >) Yes____ No____ In writing____ Option A___ B___ C___
(A) Employer-designed heat illness prevention rest break schedule________________________________________
(B) NIOSH work/rest schedule ________________________________________________________________
(C) Simplified heat illness prevention rest break schedule: Minimum simplified rest break schedule

<table>
<thead>
<tr>
<th>Heat index (o F)</th>
<th>Rest break durations and intervals</th>
</tr>
</thead>
<tbody>
<tr>
<td>90 or greater</td>
<td>10 minutes every two hours</td>
</tr>
<tr>
<td>95 or greater</td>
<td>20 minutes every hour</td>
</tr>
<tr>
<td>100 or greater</td>
<td>30 minutes every hour</td>
</tr>
<tr>
<td>105 or greater</td>
<td>40 minutes every hour</td>
</tr>
</tbody>
</table>

Other controls
Misting stations?_________ ice/cooling vests?_________ moist cloths_________
AC?_________________ ventilation?_____________ other?__________________________

Diagrams/Additional notes: ________________________________________________________________
Summarize findings: (citation/hazard letter/provide card or alert) – describe below
Appendix C

SAMPLE HAZARD LETTER – Option 1

This letter must be adapted to the specific circumstances noted in each inspection. The letter below is an example of the type of letter that may be appropriate in some circumstances. Recognize and encourage the employer’s efforts to implement solutions to this hazard, if appropriate. Tailor the recommended controls outlined below to the specific needs of the employer. Italicized and bracketed text is for Oregon OSHA compliance use only and should not be included in the letter.

Dear Employer:

An inspection of your workplace [and an evaluation of your OSHA 300 injury and illness recordkeeping logs] at [location] on [date] disclosed the following workplace conditions that have been associated with the hazard of heat-related illnesses in workers:

[Describe the information disclosed or conditions observed for each task or job, including the type of PPE worn, the approximate length of time spent on each task, the nature of the heat exposure, and any other information relevant to workers' exposure to the risk of heat-related illness.]

A citation will not be issued on the [condition] because [reason for no citation]. The rules on Heat Illness Prevention are in effect and future non-compliance of these rules could result in a citation.

In the interest of workplace safety and health, it is recommended that you take the necessary steps to reduce or eliminate your workers' exposure to the conditions listed above that could lead to heat-related illness by taking the following actions:

1. **Access to shade.** Employers whose work activities are covered by this rule must establish and maintain one or more shade areas when the heat index temperature in the work area equals or exceeds 80 degrees Fahrenheit.
   (a) 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. A shade area must meet the following:
      (A) The shade area must either be open to the air or provide mechanical ventilation for cooling.
      (B) The amount of shade present must be at least enough to accommodate the number of employees on recovery or rest periods, so that they can sit in a normal posture fully in the shade.
      (C) The shade must be located as close as practical to the areas where employees are working.
      (D) Shade present during meal periods must be large enough to accommodate the number of employees on the meal period that remain onsite.
   (b) When the employer can demonstrate that providing access to shade is not safe or feasible in a particular situation (for example, during high winds or when an employee is walking through range land), employers must identify and implement alternative cooling measures that provide equivalent protection.
2. **Drinking water.** Employers whose work activities are covered by this rule must ensure that an adequate supply of additional drinking water is readily accessible to employees at all times and at no cost when the heat index in the work area equals or exceeds 80 F.

   (a) Employers must supply each employee enough water to enable them to consume 32 ounces per hour.

   (b) Employers are not required to supply the entire quantity of drinking water needed to be supplied for all employees on a full shift at the beginning of the shift. Employers may begin the shift with smaller quantities of drinking water if effective procedures are established to replenish the water consumed during the shift.

   (c) Employers must ensure that employees have ample opportunity to drink water supplied under this section.

3. **Supervisor and employee training.** The employer must ensure that all employees, including new employees, supervisory, and nonsupervisory employees are trained in the following topics, in a language readily understood, before employees begin work that can reasonably be anticipated to expose employees to a heat index equal to or in excess of 80 F:

   (a) 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.

   (b) The procedures for complying with the requirements of this standard, including, but not limited to, the employer's responsibility to provide water, provide daily heat index information, shade, cool-down rests, how to report symptoms of heat-related illness, and access to first aid as well as the employees' right to exercise their rights under this standard without fear of retaliation.

   (c) The concept, importance, and methods of acclimatization.

   (d) The importance of employees immediately reporting symptoms or signs of heat illness in themselves, or in co-workers.

   (e) The effects of nonoccupational factors (medications, alcohol, obesity, etc.) on tolerance to occupational heat stress.

   (f) The different types of heat-related illness, the common signs and symptoms of heat-related illness.

4. **High Heat Practices.** Employers must implement the following additional high heat practices when the ambient heat index exceeds 90 F.

   (a) Employers must ensure that effective communication by voice, observation, or electronic means is maintained so that employees at the work site can contact a supervisor when necessary. An electronic device, such as a cell phone or text messaging device, may be used for this purpose only if reception in the area is reliable.

   (b) Employers must ensure that employees are observed for alertness and signs and symptoms of heat illness and monitored to determine whether medical attention is necessary by implementing one or more of the following:

      (A) Regular communication with employees working alone, such as by radio, cellular phone, or other alternative means, or

      (B) Create a mandatory buddy system, or
(C) Implement other equally effective means of observation or communication.
(c) Employers must designate and equip one or more employees on each worksite as authorized to call for emergency medical services, and must allow other employees to call for emergency services when designated employees are not immediately available (such a practice supplements existing requirements to ensure that emergency medical care is immediately available in all workplaces).
(d) Employers must ensure that each employee takes a minimum ten-minute preventative cool-down rest period in the shade at least every two hours, regardless of the overall length of the shift.

5. **Emergency Medical Plan.** Employers must develop and implement an effective emergency medical plan in compliance with OAR 437-002-0161 when the ambient temperature exceeds the heat index of 90 F. In addition to the requirements of the emergency medical plan, the procedures must include and address the following:

(a) Responding to signs and symptoms of possible heat illness, including but not limited to first aid measures and how emergency medical services will be provided if a supervisor observes, or any employee reports, any signs or symptoms of heat illness in any employee, the supervisor must take immediate action appropriate to the severity of the illness.

   (A) If a supervisor observes signs or an employee reports symptoms of heat illness, the employee must be relieved from duty and provided with a sufficient means to reduce body temperature. Examples include, but are not limited to: cooling blankets, cooling vests, and fans.
   
   (B) If the signs or symptoms are indicators of severe heat illness (such as, but not limited to, decreased level of consciousness, staggering, vomiting, disorientation, irrational behavior or convulsions), immediately implement the emergency response procedures.
   
   (C) An employee exhibiting signs or symptoms of heat illness must be monitored and must not be left alone or sent home without being offered onsite first aid and/or being provided with emergency medical services in accordance with the employer's procedures.

(b) Contacting emergency medical services and, if necessary and instructed to do so by the medical professionals, transporting employees to a place where they can be reached by an emergency medical provider.

(c) Ensuring that, in the event of an emergency, clear and precise directions to the work site is provided for first responders to quickly navigate to the location of the affected worker.

6. **Acclimatization.** Employers must develop and implement effective acclimatization practices when the ambient heat index exceeds 80 F.

Workers must be allowed to get used to hot working environments by gradually increasing time in the work environment over several days. The same should be done for workers returning from an absence from work of three or more days.

Provided below is one example of an acclimatization plan suggested by National Institute of Occupational Safety and Health (NIOSH):
(a) Gradually increase exposure time in hot environmental conditions over a period of 7 to 14 days.
(b) For new workers, the schedule must be no more than 20% of the usual duration of work in the hot environment on day 1 and a no more than 20% increase on each additional day.
(c) For workers who have had previous experience with the job, the acclimatization regimen must be no more than 50% of the usual duration of work in the hot environment on day 1, 60% on day 2, 80% on day 3, and 100% on day 4.

7. **Additional Considerations to Protect Workers from Heat Related Illness:**
   a. A wide-brimmed hat for work outdoors in the sun.
   b. Loosely worn reflective clothing that deflects the radiant heat, such as vests, aprons or jackets, as appropriate for indoor work around radiant heat sources.
   c. Cooling vests and water-cooled/dampened garments for high temperature and low humidity conditions. (However, be aware that “cooling vests” can become insulators that hold in heat when they equalize with the body's temperature.)
   d. In environments where respirator usage is necessary, consult with an industrial hygienist to determine the appropriate clothing to prevent heat stress while still protecting the workers.
   e. Consider the use of dermal patches for monitoring core temperature to better identify when workers need to be removed from the work area.
   f. Schedule hot jobs for cooler parts of the work day. Routine maintenance and repair work should be scheduled for the cooler seasons of the year, when possible.
   g. Use relief workers and reduce physical demands of the job.
SAMPLE HAZARD LETTER, Option 2 (include rule and heat illness information when sending this HL):

Attachments/Links: Heat stress fact sheet
Heat Illness Prevention OAR 437-002-0156
Sample heat prevention plan

An inspection conducted at your workplace located at (location) on (date) suggested that your employees may be at risk of heat related illness. Oregon OSHA has rules on Heat Illness Prevention found in OAR 437-002-0156 for general industry, construction, and forest activities, and in OAR 437-004-1131 for Agriculture.

At the time of the inspection we found [Include a general description of working conditions and other specific heat related information] that could be hazardous to the employees.

A citation will not be issued on the [condition] because [reason for no citation]. Future non-compliance of these rules could result in a citation.

Every year, dozens of workers die and thousands more become ill while working in extreme heat or humid conditions. Older age, certain illnesses, and medications increase the risk. There is a range of heat illnesses and they can affect anyone, regardless of age or physical condition.

Heat Illness Prevention standards found in OAR 437-004-1131 and OAR 437-002-0156 address the following: access to shade; drinking water; high heat practices which also include the development of work/rest schedules for certain temperature thresholds; emergency medical and actions plans; acclimatization plan; heat illness prevention plan; supervisor and employee training; and training documentation.

In general, this standard applies whenever an employee performs work activities, whether in indoor or outdoor environments, where the heat index (apparent temperature) equals or exceeds 80 degrees Fahrenheit. When the heat index equals or exceeds 90 degrees Fahrenheit additional high heat precautions also apply. Please refer to the specific standards for detailed requirements associated with the summary below.

Requirements when heat equals or exceeds 80 degrees Fahrenheit.

Shade: Establish and maintain one or more shade areas that are immediately and readily available to exposed employees that are outdoors when the heat index in the work area equals or exceeds 80 degrees Fahrenheit.

Drinking water: Ensure that a sufficient supply of drinking water is immediately and readily available to exposed employees at all times, at no cost, when the heat index in the work area equals or exceeds 80 degrees Fahrenheit.
Requirements when heat equals or exceeds 90 degrees Fahrenheit.

Shade: Establish and maintain one or more shade areas that are immediately and readily available to exposed employees that are outdoors when the heat index in the work area equals or exceeds 80 degrees Fahrenheit.

Drinking water: Ensure that a sufficient supply of drinking water is immediately and readily available to exposed employees at all times, at no cost, when the heat index in the work area equals or exceeds 80 degrees Fahrenheit.

Communication with supervisor: Ensure adequate communication to a supervisor which is readily understood by all employees, by voice, electronic, or other equally-effective means, so that employees at the worksite can contact a supervisor at any time, when necessary. An electronic device, such as a cell phone, may be used for this purpose only if reception in the area is constant and reliable.

You must also implement one or more of the following to promptly identify any employee suspected of experiencing heat-related illness:
(A) Regular communication with employees working alone, such as by radio, cellular phone, or other alternative means;
(B) Create a mandatory buddy system; or
(C) Implement other equally-effective means of observation or communication

Emergency Medical Services: Designate and equip one or more employees at each worksite as authorized to call for emergency medical services, and allow other employees to call for emergency services when designated employees are not immediately available; such a practice supplements existing requirement to ensure that emergency medical care is immediately available in all workplaces, as required by OAR 437-002-0161(4), 29 CFR 1910.50, or OAR 437-007-0220.

Measure temperature and humidity: When employees work in buildings and structures that do not have a mechanical ventilation system, employers must do one of the following:
(A) Directly measure the temperature and humidity in these places at the same time and location when occupied by employees to determine the current indoor heat index;
(B) Use the National Institute for Occupational Safety and Health’s (NIOSH) Heat Safety Tool app to determine the heat index outside of the building or structure and assume that it is the same inside.
(C) If the structure is designed or otherwise known to be affected by outdoor humidity, for example, hoop houses and greenhouses in nursery operations, the employer must measure and use the actual humidity inside the structure.

Develop and implement a written heat illness prevention rest/break schedule. This protects employees exposed to a heat index equal to or greater than 90 degrees Fahrenheit. Employers must choose and implement only one of the three options found in the standard.
**Emergency medical plan.** Your Emergency Medical Plan must address employee exposure to excessive heat, in accordance with OAR 437-002-0161(4). When employers are performing Construction activities, they must also comply with 29 CFR 1926.50. For those employers that fall under Division 7 Forest activities, they must comply with OAR 437-007-0220. These plans must address the types medical situations that employees could encounter, including those conditions relating to excessive heat exposure.

**Acclimatization plan.** Develop and implement an acclimatization plan and procedures in writing.

**Written Heat illness prevention plan.** Develop, implement, and maintain an effective heat illness prevention plan in writing. The plan must be made available at the worksite to employees and to Oregon OSHA upon request. The plan must contain specific information found in the standards.

**Supervisor and employee training.** Provide understandable heat illness prevention training to all employees, including new employees, supervisory and non-supervisory employees, and do so in a manner that facilitates employee feedback. Such training must be provided annually before employees begin work that should reasonably be anticipated to expose them to the risk of heat illness, and include specific topics found in the standard.

**Training documentation.** Verify compliance with section (9) by preparing and maintaining written or electronic training records that can be provided to Oregon OSHA upon request.

**RECOMMENDATIONS:**
OR-OSHA recommends that (employer name) carefully evaluate potential hazards from the heat and institute the suggestions described in this letter. Further advice can be obtained from occupational physicians, through private consulting firms, your workers compensation carrier, or OR-OSHA consultative services.

Enclosures
Appendix D

HEAT-RELATED INFORMATION LINKS

1. Oregon OSHA’s Topics: Heat stress
2. OSHA Technical Manual, Section III: Health Hazards, Chapter 4, Heat Stress:
3. Oregon OSHA’s Compliance Officer’s Guide (FIRM):
4. OSHA’s Campaign to Prevent Heat Illness:
   https://www.osha.gov/SLTC/heatillness/index.html
5. OSHA’s Safety and Health Topics: Heat Stress:
6. OSHA-NIOSH Heat Safety Tool App:
   https://www.cdc.gov/niosh/topics/heatstress/heatapp.html
7. NIOSH Workplace Safety and Health Topics:
   http://www.cdc.gov/niosh/topics/heatstress/
8. NIOSH Heat Stress – Acclimatization
   https://www.cdc.gov/niosh/topics/heatstress/acclima.html
9. NIOSH Publication 2011-174: Protecting Workers from Heat Illness:
11. The National Oceanic and Atmospheric Administration (NOAA), National Weather Service: http://www.nws.noaa.gov/om/heat/, Current weather conditions, including the previous three day weather conditions at www.noaa.gov, information from prior dates can also be requested.
12. California OSHA Heat Illness Prevention:
    http://www.dir.ca.gov/dosh/HeatIllnessInfo.html
13. Washington State Department of Labor and Industries Outdoor Heat Exposure Information:
    http://www.lni.wa.gov/safety/topics/atoz/heatstress/default.asp