OREGON OCCUPATIONAL SAFETY AND HEALTH DIVISION
DEPARTMENT OF CONSUMER AND BUSINESS SERVICES

PROGRAM DIRECTIVE

Program Directive A-299
Issued July 11, 2017
Revised May 25, 2023

SUBJECT: Local Emphasis Program (LEP): Preventing Heat-Related Illness and guidance on Heat Illness Prevention rules 437-002-0156 and 437-004-1131.

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 during hot weather by providing guidance and education to employers. 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, making 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 Prevention: OAR 437-002-0156 and OAR 437-004-1120. These rules became effective June 15, 2022. Work activities that fall under Division 3 or Division 7 must follow the provisions of OAR 437-002-0156. Agricultural Labor Housing heat illness 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 Heat Illness Prevention rules pertain to environmental heat only. Where process heat is exacerbated by environmental heat, causing the heat index (HI) to increase to equal to or greater than 80 °F, the Heat Illness Prevention rules apply.

Note: Although Oregon OSHA's LEP runs June 15 through September 30 of each year, the Heat Illness Prevention rules apply any time of year when the heat index equals or exceeds 80 °F.

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, requires air circulating across the skin, and there must be 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 to avoiding heat exhaustion is 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 to 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, heat-related symptoms are likely to recur, creating a risk of heat stroke.

Heat stroke. This is a life-threatening condition that requires an immediate emergency medical response. A victim of heat stroke typically stops sweating, becomes confused or lethargic, and may even have a seizure. The internal body temperature may exceed 106 ^{o}F (41 ^{o}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

Furthermore, heat exhaustion can rapidly progress to heat stroke or sun stroke if there is no intervention and the body's temperature regulation fails. Heat stroke requires immediate medical attention to prevent permanent damage to the brain and other vital organs that can result in death. Emergency services must be 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 ^{o}F, 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 ^{o}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. **Oregon OSHA's Heat Emphasis Program** - From June 15 through September 30 of each year, CSHOs are expected to review employers' plans to address heat exposure and prevent heat-related illnesses at outdoor worksites and indoor facilities where potential heat-related hazards exist.

Where **safety compliance officers** are evaluating heat illness prevention methods as part of the Heat Emphasis Program, **and** where heat was not a complaint item, **and** where there were no allegations of heat illness symptoms noted during interviews or walk around, **and** the heat index temperature is between 80 ^{o}F and 90 ^{o}F, at a minimum, SCOs must evaluate:

- Access to water is available in sufficient quantity and temperature.
- Shade is available in sufficient area and quality to accommodate workers during their rest periods.
- A written Heat Illness Prevention plan is developed and implemented.
- If the heat index is 90 ^{o}F or greater, all elements of the Heat Illness Prevention rule.

Health Compliance Officers (HCOs) are expected to evaluate all sections of the Heat Illness Prevention rule on all LEP inspections.

When the heat index is 79 ^{o}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. However, in these circumstances, COs should use their professional judgement when determining whether to seek out historical heat index data and cite violations, as opposed to issuing a hazard letter – for example if heat illness is a complaint item, workers complain of heat illness-related symptoms, or if the inspection is related to an accident, failure to comply with the rule would normally be cited. A sample hazard letter regarding heat is found in this Program Directive.

C. 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) (See Appendix B of this document), 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, when the inspection is conducted of a business in a climate-controlled building (office building with operational air conditioning) or is otherwise exempt, at 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,
- 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 PPE and when it contributes 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 PPE, 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 (HI > 80 ^{o}F and >90 ^{o}F).

This program directive provides typical severity ratings for violations of the Heat Illness Prevention rules. However, the compliance officer's professional judgment regarding the specific circumstances identified should be included in the severity determination.

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 employer's heat illness prevention measures 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 ^{o}F or higher.

D. Exemptions in the rule include but are not limited to:

Where the heat index in the workplace is solely due to process heat, the Heat Illness Prevention rule does not apply. 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, the 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. However, if workers are exposed to process heat that is exacerbated by ambient heat, the Heat Illness Prevention rules would apply. For example:

At a glass manufacturing facility, the indoor heat index is 85 degrees Fahrenheit, and the outdoor heat index is 95 degrees Fahrenheit. It's unknown whether the outdoor heat index is an influence on the indoor heat index. Which rule applies?

A: Because the outdoor heat index and the indoor heat index are both above 80 degrees Fahrenheit, the employer would be required to follow the heat illness prevention rules.

Q: Inside a bakery, the heat index is above 80 degrees Fahrenheit, however, the ambient temperature outdoors is 50 degrees Fahrenheit. Which rule applies?

A: The temperature provisions rule (OAR 437- 002-0144(2)) applies. It is unlikely that the ambient temperature is contributing to the indoor heat index.

Note – a violation can be supported by showing that the heat at the process is higher on a hot day than on a cool day, or that the heat index exceeds 80 ^{o}F when the hot process is inactive. Interviews are also extremely useful to show that the temperature at the hot process are higher on hot days.

When employees perform either "rest or "light" workloads as defined in Table 1.1 in the rule, the employer is exempt from sections (3)-(10) when the heat index is <90 ^{o}F. It is critical that SHCOs evaluate employee workload when the heat index is between 80 ^{o}F and 89 ^{o}F.

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.

Note: This Program Directive provides general guidance on the rule elements and considerations. It is important that CSHOs review the rule prior to inspection activity. It is highly recommended to have a copy of both the rule and the FIG with you on site.

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 ^{o}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^{o} F the violation will be normally be rated as a death violation.

Compliance officers should determine that adequate supplies (32 oz/hour 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 ^{o}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. Table 1.1 in the rule defines workload levels for various tasks (or see Appendix E of this program directive). However, often work will not consistently remain at one level, and CSHOs will need to use their professional judgement, and consult with their manager, in assessing workload and dose.

When an employer has failed to adopt and implement provisions set forth in the Emergency Medical Plan, CSHOs 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
- 437-004-1131(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.

Note: The employer's Emergency Medical Plan must address employee exposure to excessive heat, in accordance with OAR 437-002-0161(4). When employers are performing activities in Construction (Division 3), Agriculture (Division 4) or Forest (Division 7), they must also comply with the other Emergency Medical Plan requirements not related to heat illness in 29 CFR 1926.50, OAR 437-004-1305, or OAR 437-007-0220, respectively.

Note: Unlike in Division 4 and 7 where specific elements of the emergency plan must be in writing, the Heat Illness Prevention emergency medical plan is not required to be in writing.

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

When the HI is >80 ^{o}F, CSHOs should consider all appropriate factors to determine severity. However, violations related to acclimatization when the heat index is 90 ^{o}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. The rule requires an acclimatization plan be developed and implemented, and either can be cited depending on the circumstances. See table 4.1 in the rule for typical acclimatization framework and considerations.

Where acclimatization procedures are implemented, but there is no written plan, CSHOs should follow PD A-216 and if appropriate, consider it de minimis.

When an employer has failed to implement a Heat Illness Prevention Plan (HIPP), CSHO 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 seven (7) required elements. Probability 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 at HI 80 ^{o}F will normally be cited serious and carry an appropriate penalty; if the heat index exceeds 90 ^{o}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).

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 Oregon OSHA's heat emphasis program, or is evaluated due to indication of a heat hazard, code in the inspection tab, under the Local Emphasis as "Heat Illness Prevention."

If inspections include temperature/humidity measurements via thermometer or similar, enter S-9-Screen in Optional Information on the inspection tab.

If inspections include WGBT sessions, enter S-10-Full Shift in Optional Information on the inspection tab.

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 employer's 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 in 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 referring to the chart in Appendix A, 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. Further, workload/task examples are found in Table 1.1 of the rule.

When a heat illness-related complaint, referral, accident, or unique circumstance is received, conduct environmental sampling including wet-bulb globe temperature (WBGT) readings, which combine air temperature and humidity. WBGT 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 WBGT sampling. In the absence of the WBGT, other direct reading instruments can be used to determine the Heat Index.

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 September 30 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

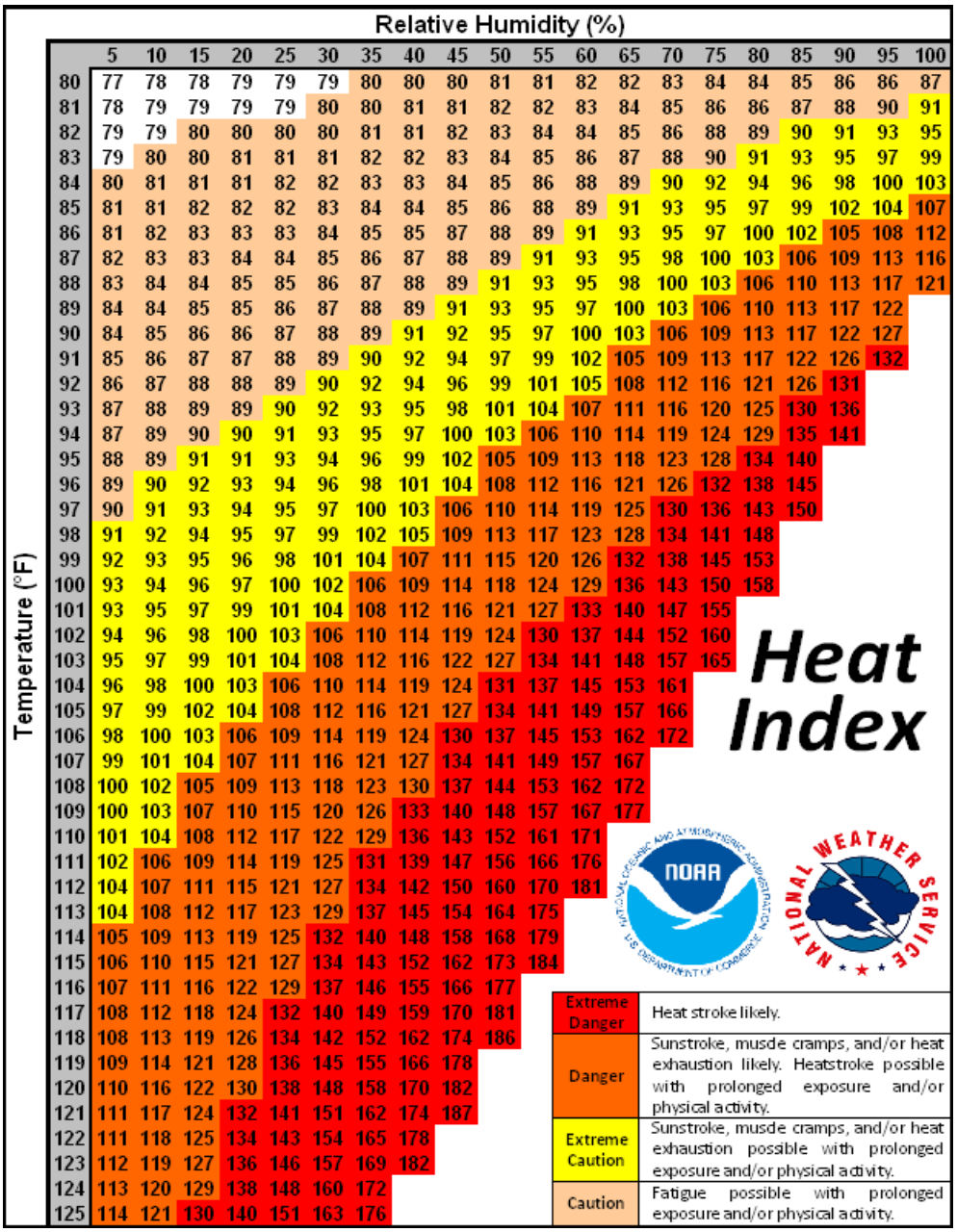
EFFECTIVE DATE: This directive is effective immediately and will remain in effect until canceled or superseded.

History: Issued 7-11-2017 Revised 7-13-2017, 11-27-2017, 2-27-2018, 6-6-2019, 7-15-2021, 6-1-2022, and 6-8-2023

Appendix A

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 left of the table) and the relative humidity is 65% (found on the top 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.



Temp (°F)	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
80	77	78	78	79	79	79	80	80	80	81	81	82	82	83	84	84	85	86	86	87
81	78	79	79	79	79	80	80	81	81	82	82	83	84	85	86	86	87	88	90	91
82	79	79	80	80	80	80	81	81	82	83	84	84	85	86	88	89	90	91	93	95
83	79	80	80	81	81	81	82	82	83	84	85	86	87	88	90	91	93	95	97	99
84	80	81	81	81	82	82	83	83	84	85	86	88	89	90	92	94	96	98	100	103
85	81	81	82	82	82	83	84	84	85	86	88	89	91	93	95	97	99	102	104	107
86	81	82	83	83	83	84	85	85	87	88	89	91	93	95	97	100	102	105	108	112
87	82	83	83	84	84	85	86	87	88	89	91	93	95	98	100	103	106	109	113	116
88	83	84	84	85	85	86	87	88	89	91	93	95	98	100	103	106	110	113	117	121
89	84	84	85	85	86	87	88	89	91	93	95	97	100	103	106	110	113	117	122	
90	84	85	86	86	87	88	89	91	92	95	97	100	103	106	109	113	117	122	127	
91	85	86	87	87	88	89	90	92	94	97	99	102	105	109	113	117	122	126	132	
92	86	87	88	88	89	90	92	94	96	99	101	105	108	112	116	121	126	131		
93	87	88	89	89	90	92	93	95	98	101	104	107	111	116	120	125	130	136		
94	87	89	90	90	91	93	95	97	100	103	106	110	114	119	124	129	135	141		
95	88	89	91	91	93	94	96	99	102	105	109	113	118	123	128	134	140			
96	89	90	92	93	94	96	98	101	104	108	112	116	121	126	132	138	145			
97	90	91	93	94	95	97	100	103	106	110	114	119	125	130	136	143	150			
98	91	92	94	95	97	99	102	105	109	113	117	123	128	134	141	148				
99	92	93	95	96	98	101	104	107	111	115	120	126	132	138	145	153				
100	93	94	96	97	100	102	106	109	114	118	124	129	136	143	150	158				
101	93	95	97	99	101	104	108	112	116	121	127	133	140	147	155					
102	94	96	98	100	103	106	110	114	119	124	130	137	144	152	160					
103	95	97	99	101	104	108	112	116	122	127	134	141	148	157	165					
104	96	98	100	103	106	110	114	119	124	131	137	145	153	161						
105	97	99	102	104	108	112	116	121	127	134	141	149	157	166						
106	98	100	103	106	109	114	119	124	130	137	145	153	162	172						
107	99	101	104	107	111	116	121	127	134	141	149	157	167							
108	100	102	105	109	113	118	123	130	137	144	153	162	172							
109	100	103	107	110	115	120	126	133	140	148	157	167	177							
110	101	104	108	112	117	122	129	136	143	152	161	171								
111	102	106	109	114	119	125	131	139	147	156	166	176								
112	104	107	111	115	121	127	134	142	150	160	170	181								
113	104	108	112	117	123	129	137	145	154	164	175									
114	105	109	113	119	125	132	140	148	158	168	179									
115	106	110	115	121	127	134	143	152	162	173	184									
116	107	111	116	122	129	137	146	155	166	177										
117	108	112	118	124	132	140	149	159	170	181										
118	108	113	119	126	134	142	152	162	174	186										
119	109	114	121	128	136	145	155	166	178											
120	110	116	122	130	138	148	158	170	182											
121	111	117	124	132	141	151	162	174	187											
122	111	118	125	134	143	154	165	178												
123	112	119	127	136	146	157	169	182												
124	113	120	129	138	148	160	172													
125	114	121	130	140	151	163	176													

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 Date/time_____

Name of Company_____ Outdoor Temp/humidity_____
(OSHA Heat app/direct measurement) circle Indoor Temp/humidity _____
Other_____ Activity:Div2/Div3/Div4/Div7 circle

Type of work
(Describe)_____
_____
_____

Work effort (rest)----------(light)----------(moderate)----------(hard)
Hours/workshift?_____
See table 1.1 in the rule
PPE Worn? (adds to heat burden) _____
_____

Any new workers onsite? Yes □ No □ **Acclimatization Provision**? Yes □ No □ **(HI >80)** Describe
_____
_____
Which option: A (employer-designated plan)_____ or B (NIOSH)_____
Does it meet the requirements? (describe) _____
_____
_____

Access to Shade (HI >/= 80 ºF) 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) _____
_____

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

Drinking Water (HI >/= 80 ºF)
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) _____
_____
_____

Supervisors/Employees trained on required elements? (HI >/= 80 ºF)

- __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 >/= 90 ºF) 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 >/= 80 ºF)
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 >/= 80 ºF)** 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 ºF 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 >/= 90 ºF) 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

Simplified heat illness prevention rest break schedule	
Heat index (o F)	Rest break durations and intervals
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

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
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.*]

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 are 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 that 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.

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 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.

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 (PPE).
(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, 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 equals or 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 10-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 80° 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 are 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 equals or exceeds 80^{o} 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.

Appendix D

HEAT-RELATED INFORMATION LINKS

1. Oregon OSHA's Topics: Heat stress
   http://osha.oregon.gov/Pages/topics/heat-stress.aspx

2. OSHA Technical Manual, Section III: Health Hazards, Chapter 4, Heat Stress:
   http://osha.oregon.gov/OSHARules/technical-manual/Section3-Chapter4.pdf

3. OSHA-NIOSH Heat Safety Tool App:
   https://www.cdc.gov/niosh/topics/heatstress/heatapp.html

4. NIOSH Heat Stress – Acclimatization
   https://www.cdc.gov/niosh/topics/heatstress/acclima.html

5. 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.

Appendix E

Workload can be classified as rest, light, moderate, heavy, or very heavy.
• Light: Sitting or standing with minimal arm and leg work.
• Moderate: Continuous modest intensity, such as light pushing/pulling or normal walking.
• Heavy: Intense upper body work such as carrying loads or sawing.
• Very heavy: Intense activity at an almost maximum pace

Level of Workload / Physical Activity *	***Examples***	***Metabolic Rate in Watts,*** *"typical" recognizing that different ways of doing the same task may lead to dramatically different wattage*
Rest	• *Sitting* • *Thinking*	*115*
Light	• *Sitting with minimal hand and arm work* • *Sewing* • *Writing or drawing* • *Driving a car* • *Occasional or slow walking* • *Stooping, crouching, or kneeling* • *Standing watch*	*180*
Moderate	• *Pushing and pulling light carts* • *Hammering nails* • *Picking fruit or vegetables* • *Continuous normal walking* • *Driving or operating mobile equipment* • *Raking* • *Mopping or vacuuming floors* • *Scraping, painting, or plastering* • *Laundry/dry cleaning* • *Tapping and drilling* • *Machining* • *Molding* • *Packaging* • *Laboratory work* • *Cooking* • *General carpentry* • *Using hand tools* • *Light pushing/pulling or normal walking.*	*300*

Level of Workload / Physical Activity *	Examples	Metabolic Rate in Watts, "typical" recognizing that different ways of doing the same task may lead to dramatically different wattage
Heavy	• Intense arm and trunk work • Carrying loads • Shoveling • Sawing or heavy carpentry • Roofing • Pushing and pulling heavy carts or wheelbarrows • Fast walking (> 4 mph) • Landscaping • Casting • Manual raising and lowering loads • Stacking lumber • Truck and automobile repair • Waxing and buffing by hand • Welding • Heavy item assembly • Grinding and cutting • Drilling rock or concrete • Mixing cement • Felling trees	415
Very heavy	• Any activity done at near maximum pace • Climbing stairs, ladder, or ramp • Using an axe • Intense shoveling or digging • Sledgehammer use • Stacking concrete • Brick or stone masonry	520

* Workers who are overweight or obese might produce more metabolic heat than other workers who perform the same tasks. The above table assumes a 70-kg (154-pound) worker.

Table 1.1 is copied from federal OSHA's guidance on Heat Hazard recognition, which can be accessed at: https://www.osha.gov/heat-exposure/hazards under the Metabolic Heat and Workload (Physical Activity Level) tab