

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

PROGRAM DIRECTIVE

Program Directive A-299
Issued July 11, 2017
Revised February 27, 2018

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

PURPOSE: The purpose of this directive is to inform enforcement staff about Oregon OSHA’s heat stress prevention campaign. The goal of the campaign is to prevent heat-related illnesses and deaths in Oregon by raising awareness among workers and employers about the health risks associated with working in hot environments.

The primary focus of the campaign will be on compliance assistance and outreach among employers with indoor hot processes and employers of outdoor workers in the construction, agriculture, and forestry industries. However, the rules outlined in this memorandum confirm the duty of all employers to prevent heat-related illnesses and deaths in both indoor and outdoor workplaces.

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

Indoor worksites where heat-related illnesses may occur include hot-process industries such as foundries, brick-firing and ceramic plants, glass production facilities, rubber products factories, electrical utilities (particularly boiler rooms), bakeries, commercial kitchens, laundries, food canneries, chemical plants, mining sites, and smelters.

Outdoor operations typically affected by hot weather include most crop-production agriculture, landscape construction and maintenance, wild land firefighting, forest activities, most construction, and demolition.

One example is hazardous waste site activities, especially when the use of personal protective equipment (PPE) is required. The use of non-porous (non-breathable) full-body suits for instance, can cause heat-related illnesses among the workers using during relatively mild work activities without any additional sources of heat.

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.

Elements of an effective heat illness prevention program

Employer's program should include the following:

- Training 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.
- Providing adequate amounts of cool, potable water in work areas.
- Providing employees frequent opportunities and encouragement to stay hydrated by drinking water.
- Providing a cool, climate-controlled area where heat-affected employees may take their breaks and for recovery when signs and symptoms of heat-related illnesses are recognized.
- Providing adequate space in shaded areas for affected employees at hot worksites where they may take their breaks and cool off.
- Implementing a work/rest regimen if necessary to keep employees safe.
- Implementing a heat acclimatization program for new employees or employees returning to work from absences of three or more days.
- Acclimatization and training about health conditions aggravated by heat:

Workers should 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. One example, for a healthy worker, is to begin work with 50 percent of the normal workload and times spent in the hot environment, and then gradually increase the time and workload over a 5-day period.

- Implementing specific procedures to be followed for heat-related emergency situations and training on the first aid to be administered immediately to employees who show symptoms of heat-exhaustion or heat stroke.

- Using the free OSHA heat stress mobile app to better identify when workers need to be removed from a work area.

ACTION: INSPECTION GUIDANCE RELATED TO HEAT-RELATED ILLNESS

During all inspection activities, especially from June 15 through Oct. 1 of each year, compliance 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. This directive outlines inspection guidance taken from the Oregon OSHA Technical Manual, Section III, Chapter 4.

Along with the Oregon OSHA Technical Manual, CSHOs should use the documents in the appendices as guides during heat-hazard investigations: samples of specific and general citations for heat-related illness, a heat index chart, a sample hazard letter for heat-related illnesses, and links to online resources on heat-related illnesses. Oregon OSHA has several standards related to recognition and mitigation of the hazards of working in hot environments and for the employer to provide general elements to have an effective heat illness prevention program.

Condition resulting in heat-related illness can be cited under the health-hazard control measures at OAR 437-001-760(1)(c) or by one of the extraordinary hazards rules: OAR 437-004-0099(5) for agricultural employers or OAR 437-001-0760(6) for all other employers. When considering a health hazard control measure or extraordinary hazards citation, please consult with the statewide health enforcement manager before issuing.

Document other factors, such as the use of personal protective equipment, when they contribute to the hazard. In addition, other standards 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; however, all elements of a violation must be documented and a link established between the workplace exposure and the potential for heat-related illness. A Hazard Letter may be sent if these citable elements can not be documented.

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 in determining if an accident investigation should be initiated. Evaluate the temperature and humidity, work load and working

conditions, implementation of the employer's heat-stress prevention program, and the 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, provide information about heat stress and preventing heat illness.

CITATION GUIDELINES:

Citation scenarios when no employee has symptoms of heat-related illness

Where the following types of employers have failed to provide adequate amounts of and access to cool, potable water in work areas, CSHO should evaluate the specific conditions and cite on a case by case basis.

- 1910.141(b)(1) for general industry and forest activities other than reforestation
- 1926.51 or 437-003-0015 for construction
- 437-004-1105(1) for all agriculture activities not covered by field sanitation
- 437-004-1110(5) field sanitation, for agriculture hand labor activities in fields
- 437-007-0245 (3) for reforestation activities

Where the following types of employers have failed to provide training on or information about heat stress, including how to recognize the symptoms of dehydration, and how to effectively respond to suspected heat-related illnesses in others (including first aid), CSHO should evaluate the specific conditions and cite on a case by case basis.

- 437-001-0760 (1)(d) for general industry, construction and forest activities.
- OR 437-004-0099(2)(f) for agriculture activities (Training/information about hazards).
- 437-002-0161 for general industry (First Aid).
- 1926.50 for construction (First Aid).
- Division 4/W 437-004-6000 Worker Protection Standard (WPS) for agriculture activities under the WPS. (See Appendix E Applicable Standards. New rule numbers apply after 1/1/2018).

- 437-004 -1305 (First Aid) for agriculture activities other than those covered by WPS.
- 437- 007-0220 for forest activities (First Aid).

Citation scenarios with a symptomatic employee

Where an employer has failed to provide control measures, 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 cite on a case by case basis.

- 437-002-0144(2) for general industry with a process creating hazardous heat or humidity.
- 437-001-0760(1)(c) health-hazard control measures for inside activities other than heat- or humidity-creating processes, depending on specific factors (all industries, except agriculture).
- 437-001-0760(6) extraordinary hazards for inside and outside activities (all industries, except agriculture).
- 437-004-0099(2)(e) health hazard control measures for agriculture activities.
- 437-004-0099(5) extraordinary hazards for agriculture activities.

Where the use of personal protective equipment creates a potential for adverse health effects due to heat, and the employer has failed to provide control measures, CSHO should evaluate the specific conditions and cite on a case by case basis.

- 437-001-0760(6) Extraordinary hazards for all industries except agriculture.
- 437-004-0099(5) Extraordinary hazards for agriculture activities not covered by WPS.
- Division 4/W, 437-004-6000 WPS rules for pesticide handlers when agriculture activities under the WPS (See Appendix E Applicable Standards. New rule numbers apply after 1/1/2018).

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 must be coded as "S-24-HEAT STRESS."

Please use Appendix C - Field Inspection Guide (FIG) - Heat stress that was created to evaluate the adequacy of proof and documentation.

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 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 safety committee minutes for incidents related to heat stress.
- Document the hazard information as specified in sections 2-9 and 2-15 of the Field Inspection Reference Manual - Compliance Officer's Guide (FIRM-COG) - Heat and temperature.
- Conduct a walk around inspection and use the NIOSH/OSHA heat stress app (take a screenprint) and identify all potential sources of heat and any other factors that could aggravate heat-related illnesses.
- 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 can not be 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 (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.

Where the WBGT instrument is used, correlate results with the (ACGIH) TLV guidelines. If the NIOSH/OSHA heat stress app or relative humidity is used, correlate with the NOAA heat index chart. (See Appendix B.)

Compliance Assistance and Outreach

Public information: Announcements informing employers and employees of the potential hazards with either press releases or social media postings could be set to initiate once the projected weather conditions are met (high temperatures and humidity as an example), establish trigger levels when projected conditions are forecast for the first three times of the year. Extreme weather alerts will be established to provide public information. The following federal OSHA link may be used as a reference for setting the heat trigger levels:

<https://www.osha.gov/SLTC/heatstress/>

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.

History: Issued 7-11-2017 Revised 7-13-2017, 11-27-2017, and 2-27-2018

Appendix A

SAMPLE (AVD) Alleged violation description - FOR HEAT STRESS ILLNESS USING *OAR 437-001-0760(6) Extraordinary hazards**

When conditions arose that caused unusual or extraordinary hazards to workers, the employer did not ensure that additional means and precautions were taken to protect workers or to control the hazardous exposure. (Alternative language: When, due to extraordinary hazards, the workplace operation could not be made reasonably safe, the employer did not take additional precautions or discontinue regular work while such abnormal conditions existed, or until adequate safety of workers was ensured.)

On [date], employees of [company name] were exposed to the hazard of excessive ambient heat from [specify the environmental or process sources generating the heat and any heat measurements taken] during the performance of their duties, which included [describe duties]. Such exposures may lead to the development of serious heat-related illnesses such as [describe heat-related illnesses workers were at risk of developing; if there was an actual heat-related illness, describe it]. [Discuss any actions the employer took or failed to take that contributed to the risk of heat-related illness].

*NOTE: *OAR 437-001-0760* does not apply to agricultural employers. Use *OAR 437-004-0099(5)* instead.



Appendix B

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.

| | | Relative Humidity (%) | | | | | | | | | | | | | | | | | | | |
|------------------|-----|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 | 90 | 95 | 100 |
| Temperature (°F) | 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 | | | | | | | | | | | | | | |

Heat Index

| | |
|-----------------|--|
| Extreme Danger | Heat stroke likely. |
| Danger | Sunstroke, muscle cramps, and/or heat exhaustion likely. Heatstroke possible with prolonged exposure and/or physical activity. |
| Extreme Caution | Sunstroke, muscle cramps, and/or heat exhaustion possible with prolonged exposure and/or physical activity. |
| Caution | Fatigue possible with prolonged exposure and/or physical activity. |

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 C



Field Inspection Guide (FIG) – Heat Stress

Date/time_____

Name of Company_____

Temp/humidity_____

Inspection #_____

(OSHA Heat app/other) circle

one

COID_____

Heat app risk

level_____

Type of work

(Describe)_____

Level of effort (easy)------(moderate)------(hard) Hours/work shift?_____

Acclimated/duration of job?_____

PPE Worn? (adds to heat burden)

Liquids

Water available?_____ cool? (temperature)_____ provided by employer?_____

Other liquids?_____ What?_____ caffeinated/alcohol? (circle if applicable)

How much available per employee?_____

Confirmed through interviews? (describe comments)

Shade

Shaded/cool area(s) available?

(describe)_____

Air temperature of cool area?_____

Are breaks/lunch taken here?_____

Adequate space for all? _____

Rest

Breaks allowed/enforced?_____

How often/how long? _____

Confirmed through interviews? (describe comments)

Other controls

Misting station? _____ ice/cooling vest? _____ moist cloths _____

AC? _____ ventilation? _____ other? _____

Heat Stress FIG

Insp # _____

Diagrams/Additional notes: _____

Heat Stress (HS) monitoring equipment used? (note findings below) _____

[OSHA Technical manual on Heat Stress](#)

Summarize findings: (citation/hazard letter/provide card or alert) – describe below _____

Appendix D

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.]

In the interest of workplace safety and health, I recommend 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, and voluntarily control the hazard of exposure to heat with the following actions:

General Controls.

General controls include training about the serious potential effects of excessive heat on health, how personal protective equipment (PPE) and work clothing can affect heat effects, scheduling and acclimatization practices, and heat alert programs.

1. **Training:** inform workers of the following [*Modify this list as appropriate for the specific situation*]:
 - a. Recognizing signs and symptoms of heat-related illness.
 - b. Health awareness: Understanding situations that can increase the risk of heat-related illnesses.
 - i. Dangers of drug and alcohol use in hot work environments.
 - ii. Conditions that may increase the risk of heat-related illness include: pregnancy, fever, gastrointestinal illness, heart disease, and obesity.
 - iii. Medications that may increase the risk of heat-related illness include: Diuretics – water pills; Anti-hypertensives – blood pressure medication; Anticholinergics - for treatment of chronic obstructive pulmonary disease (COPD); and Antihistamines – cold and allergy medications.
 - iv. Workers should consult a doctor or pharmacist if they have questions about whether they are at increased risk for heat-related illness because of health conditions they have or medications they take.

(Note: the employer is NOT entitled to know whether workers have these conditions, but only whether workers have any health conditions that limit their ability to perform their job duties. In some instances, workers with chronic conditions may need extra time to become acclimatized or may need other accommodations, such as more frequent breaks or restricted work.)

- c. First-aid procedures including emergency situations.
- d. The employer's program to prevent heat-related illnesses.

2. Protective Clothing and PPE (*CSHOs could recommend the appropriate work clothing or PPE from the following list, as appropriate.*)

- 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.

3. Administrative Controls: (*CSHOs should consult the Oregon OSHA Technical Manual, Section III, Chapter 4 for additional information*)

- a. 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.
- b. Provide adequate drinking water on the worksite and permit employees to take frequent rest and water breaks.
- c. Use relief workers and reduce physical demands of the job.
- d. Have air-conditioned or shaded areas available for water breaks and rest periods.

4. Acclimatization and training about health conditions aggravated by heat:

Workers should 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. One example for a healthy worker is to begin work with 50 percent of the normal workload and time spent in the hot environment, then gradually increase the time and workload over a 5-day period.

Sincerely,

Oregon OSHA Administrator

Appendix E

APPLICABLE STANDARDS Reprinted here for your convenience

Division 1 General Administrative Rules:

437-001-0760 Rules for all workplaces. (NOTE: This rule does not apply to agricultural employers. See equivalent rules in *Division 4/A 437-004-0099*.)

(1) Employers' Responsibilities to properly instruct and supervise workers in the safe operation of any machinery, tools, equipment, process, or practice that they are authorized to use or apply:

(1)(c) Every employer is responsible for providing the health hazard control measures necessary to protect the employees' health from harmful or hazardous conditions and for maintaining such control measures in good working order and in use.

(d) Every employer must inform the employees regarding the known health hazards to which they are exposed, the measures which have been taken for the prevention and control of such hazards, and the proper methods for utilizing such control measures.

(6) **Extraordinary Hazards.** When conditions arise that cause unusual or extraordinary hazards to workers, additional means and precautions shall be taken to protect workers or to control hazardous exposure. If the operation cannot be made reasonably safe, regular work must be discontinued while such abnormal conditions exist, or until adequate safety of workers is ensured.

437-001-0765 Safety Committees and Safety Meetings. (See equivalent rules at *Division 4/AC 437-004-0251 and 437-004-0240* for agricultural employers.)

These rules require most employers to establish and administer a safety committee, or to hold monthly safety meetings, to communicate safety and health issues. If the committee option is chosen, committee members must be trained on identifying hazards in the workplace – which could include heat hazards. In addition, committee members must receive training in the investigation of lost time injuries in order to prevent reoccurrence.

437-001-0700 Recordkeeping. Applies to all non-exempt employers. Rules require most employers to record work-related injuries and illnesses that meet the recording criteria. If a worker requires medical treatment beyond first aid, the worker's illness or injury is "recordable." If a worker requires intravenous fluids, for example, this is medical treatment and the worker's illness must be recorded. (A worker requiring first aid – as listed in the rule in *Table 6 – First aid treatment* – for relatively mild symptoms is typically not considered "recordable" and would not require recording on the employer's 300 log.)

Division 2 General Industries:

1910.141 Sanitation, at (b)(1) requires that potable drinking water is available to all general industry employees.

437-002-0144(2) requires employers to take measures to control processes that create harmful or hazardous temperatures or humidity conditions, or to control their effect on the general industry employee.

437-002-0161 Medical and First Aid requires that first aid supplies are available and are based on the hazards to which general industry employees are exposed, and a qualified first aid person is available, in the absence of medical facilities within close proximity.

Division 3 Construction:

1926.21 requires that each construction employee is trained in the recognition and avoidance of unsafe conditions.

1926.50 requires that first aid supplies are available and are based on the hazards to which construction employees are exposed, and a qualified first aid person is available, in the absence of medical facilities within close proximity.

1926.51 requires that potable drinking water is available to all construction employees.

Division 4 Agriculture:

437-004-0099 Rules for agricultural workplaces (NOTE: This rule applies to agricultural employers instead of 437-001-0760.)

(2) Supervision and competency ...

(e) Employers must provide all health hazard control measures necessary to protect the employees' health from harmful or hazardous conditions and must maintain those control measures in good working order and assure their use.

(f) Employers must inform their employees about the known health hazards to which they are exposed, the measures taken for the prevention and control of those hazards, and the proper methods for using the control measures.

(5) Extraordinary hazards. When conditions arise that cause unusual or extraordinary hazards to workers, take additional means and precautions to protect workers or to control the hazardous exposure. If you cannot make the operation reasonably safe, stop work while the abnormal conditions exist or until the work is safe.

437-004-0240 Seasonal Orientation. (NOTE: This rule and 437-004-0251 apply to agricultural employers instead of 437-001-0765.)

Agricultural seasonal workers are employed in a job tied to a certain time of year by an event or pattern and for not more than 10 months in a calendar year. (Seasonal workers are not required to be included in the Safety Committee/ Safety meeting activities.) As part of their orientation, they must receive information about how to contact supervisors or managers in case of accident, illness, or problems related to safety or health; and about how to summon emergency assistance for injured or sick workers.

437-004-0251 Safety Committees/ Safety Meetings. (NOTE: This rule and 437-004-0240 apply to agricultural employers instead of 437-001-0765.)

Based on the number of non-seasonal employees, agricultural employers must establish and administer a safety committee, or hold monthly safety meetings to communicate safety and health issues. If the committee option is chosen, committee members must be trained on identifying hazards in the workplace – which could include heat hazards. The Safety Committee must also:

- Evaluate all accident/ incident investigation reports and makes recommendations for ways to prevent recurrence.
- Set guidelines for the training of safety committee members.
- Evaluate the accident and illness prevention programs at the workplace.

If the safety meeting option is chosen, monthly meetings must include:

- Information for all employees about safety and health issues relevant to the workplace.
- Reports from quarterly workplace safety inspections and from investigations of any work-related, time-lost injuries, including suggested corrective measures.
- Opportunities for employees to ask questions, bring up safety and health concerns, and make suggestions.
- Information that is presented in a manner that can be understood by all employees

437-004-1105 Sanitation (1) applies to all agricultural workplaces except those covered by the Field Sanitation rules. Workplaces covered by the Worker Protection Standard (see below) have additional requirements.

Employers must provide potable water.

- Every work area must have safe water for drinking and washing.
- Portable drinking water dispensers must be kept sanitary. (Must be capable of being closed and have a tap.
 - No open containers such as barrels, pails, or tanks for drinking water.
 - No common drinking cups or other common utensils.

437-004-1110 Field Sanitation (5) applies to any agricultural establishment where employees do hand-labor operations in the field.

Employers must provide potable drinking water.

- Immediately available to all employees.
- Suitably cool and in sufficient amounts – taking into account the air temperature, humidity, and the nature of the work – to meet the needs of all the employees.
- Dispensed in single-use drinking cups or by angle jet fountains. No common drinking cups or dippers.

437-004-1305 Medical Services and First Aid requires that first aid supplies are available and are based on the hazards to which agricultural employees are exposed, and a qualified first aid person is available, in the absence of medical facilities within close proximity.

Division 4/W 437-004-6000 Pesticide Worker Protection Standard (WPS)

Through Dec. 31, 2017: Use *170.240 Personal Protective Equipment. (g) Heat-related illness.* After Jan. 1, 2018, use *170.507* instead. In addition, training requirements for pesticide handlers includes additional subject matter on the recognition and treatment of heat illness.)

These WPS rules apply “...when the use of personal protective equipment is specified by the labeling of any pesticide for the handling activity, the handler employer shall assure that no handler is allowed or directed to perform the handling activity unless appropriate measures are taken, if necessary, to prevent heat-related illness.”

Division 7 Forest Activities

437-007-1303 applies to all personnel engaged in wildland fire prevention, wildland fire suppression or prescribed fire activities when there is potential for exposure to wildland fire hazards such as, but not limited to: heat stress and heat stroke.

437-007-0245(3) Field Sanitation for Reforestation Activities - The employer must provide potable water and the means to carry it at no cost to employees.

Appendix F

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. Oregon OSHA's Compliance Officer's Guide (FIRM):
<http://osha.oregon.gov/OSHArules/enforcement/firm.pdf>
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:
<https://www.osha.gov/SLTC/heatstress/index.html>
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/.](http://www.cdc.gov/niosh/topics/heatstress/)
8. NIOSH Publication 2011-174: Protecting Workers from Heat Illness:
[https://www.cdc.gov/niosh/docs/2011-174/.](https://www.cdc.gov/niosh/docs/2011-174/)
9. NIOSH Criteria for a Recommended Standard: Occupational Exposure to Heat and Hot Environments: <https://www.cdc.gov/niosh/docs/2016-106/pdfs/2016-106.pdf>
10. 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.
11. California OSHA Heat Illness Prevention:
<http://www.dir.ca.gov/dosh/HeatIllnessInfo.html>
12. Washington State Department of Labor and Industries Outdoor Heat Exposure Information: <http://www.lni.wa.gov/safety/topics/atoz/heatstress/default.asp>