

WSR 23-07-123
PROPOSED RULES
DEPARTMENT OF
LABOR AND INDUSTRIES
[Filed March 21, 2023, 1:01 p.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 21-17-135.

Title of Rule and Other Identifying Information: Outdoor ambient heat exposures in all industries under WAC 296-62-095 through 296-62-09560, General occupational health standards—Outdoor heat exposure, and 296-307-097 through 296-307-09760, Safety standards for agriculture—Outdoor heat exposure.

Hearing Location(s): On April 25, 2023, at 10:00 a.m., at SpringHill Suites by Marriott, 4040 Northwest Avenue, Bellingham, WA 98226; on April 26, 2023, at 10:00 a.m., at SpringHill Suites by Marriott, 7048 West Grandridge Boulevard, Kennewick, WA 99336; on April 27, 2023, at 10:00 a.m., at Hampton Inn by Hilton, 2010 South Assembly Road, Spokane, WA 99224; on May 2, 2023, at 10:00 a.m., at Department of Labor and Industries (L&I), 12806 Gateway Drive South, Tukwila, WA 98168; on May 3, 2023, at 10:00 a.m., at Clark College at Columbia Tech Center, 18700 S.E. Mill Plain Boulevard, Vancouver, WA 98683; or on May 4, 2023, at 2:00 p.m., virtual and telephonic hearing. Join electronically <https://lni-wa-gov.zoom.us/j/89566996553?pwd=QzNGMlhTT3V3RGtFTGhMS2tYYlo5UT09>; or join by phone (audio only) 1-253-215-8782, Meeting ID 895 6699 6553, Passcode 678052798. A pre-hearing overview will occur one hour prior to the start of each public hearing. The hearings will begin at the indicated times and will continue until all oral comments are received.

Date of Intended Adoption: June 15, 2023.

Submit Written Comments to: Carmyn Shute, Administrative Regulations Analyst, L&I, Division of Occupational Safety and Health (DOSH), P.O. Box 44620, Olympia, WA 98504-4620, email Carmyn.Shute@lni.wa.gov, fax 360-902-5619, by 5:00 p.m., May 11, 2023.

Assistance for Persons with Disabilities: Contact Carmyn Shute, administrative regulations analyst, phone 360-870-4525, fax 360-902-5619, email Carmyn.Shute@lni.wa.gov, by 5:00 p.m., April 20, 2023.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: On June 28, 2021, L&I received a petition for rule making requesting changes to L&I's rules to include more specific requirements to prevent heat-related illness and injury. The petition for rule making was accepted recognizing the need to reexamine the current rules, especially in light of information suggesting the occurrence of heat illnesses below the current trigger temperatures and the increasing temperatures experienced in our state since the rule was first established in 2008.

WAC 296-62-09510 and 296-307-09710, outdoor heat exposure. Sets scope of the rule to apply to all outdoor work environments year-round rather than May through September. Removed redundant WAC citations.

WAC 296-62-09520 and 296-307-09720, definitions. All definitions were numerated to aid in cross-referencing.

- Broadened definition of "acclimatization" to include period of time required to become acclimatized and when acclimatization can be lost.
- Added definition for "buddy system."

- Removed definition for "double-layer woven clothing" as it is no longer a key in trigger temperature table.
- Clarified definition of "drinking water" to be suitably cool in temperature.
- Clarified definition of "engineering controls" to be devices used to reduce heat exposure.
- Removed definition for "Environmental factors for heat-related illness."
- Removed sentence in "Outdoor environment" definition regarding construction activity that may be contradictory.
- Added definition for "Risk factors for heat-related illness."
- Added definition for "Shade."
- In "Vapor barrier clothing" definition replaced "nonbreathing" with "nonbreathable."

WAC 296-62-09530 and 296-307-09730, employer and employee responsibility. Adds prescriptive requirements for the outdoor heat exposure safety plan. Adds requirement for preventative cool-down rest periods when employees begin to feel overheated. Adds Table 1 with trigger temperatures of 52°F and 80°F depending on clothing worn and personal protective equipment used. Specifies that employees must be allowed and encouraged to take a preventative cool-down rest in the shade or using another means provided by the employer to reduce body temperature when they feel the need to do so to protect themselves from overheating. Finally, adds employee requirement to take preventative cool-down rest periods when they begin to feel overheated.

WAC 296-62-09535 and 296-307-09735, access to shade (new). Adds requirement to provide one or more areas of shade for employees that is large enough to accommodate all employees during a meal or rest period. The provided shade must also be as close to areas where employees are working. The rule also provides alternatives employers may use in lieu of shade.

WAC 296-62-09540 and 296-307-09740, drinking water. Adds clarification that drinking water must be suitably cool in temperature which has been standard under DOSH Directive 10.15.

WAC 296-62-09545 and 296-307-09745, acclimatization (new). Adds requirement for observation for up to 14 days for newly assigned employees to ensure employees become accustomed to working at various temperatures. Adds definition of "heat wave" and adds requirement for close observation during the heat wave. Provides a "Note" that employers may consider additional acclimatization procedures recommended by the National Institute for Occupational Safety and Health.

WAC 296-62-09547 and 296-307-09747, high heat procedures (new). Adds requirement for rest periods when temperatures exceed 90°F or 100°F according to new Table 2. Adds requirement to closely observe employees for signs and symptoms of heat-related illness at and above 90°F.

WAC 296-62-09550 and 296-307-09750, responding to signs and symptoms of heat-related illness. Adds requirement for employers to ensure there is means for effective communication between employees and supervisors.

WAC 296-62-09560 and 296-307-09760, information and training. Adds requirement for training to be effective and performed prior to outdoor work when occupational exposure to heat might occur. Adds defined environmental factors and other work conditions that may contribute to heat-related illness. Adds physical fitness, previous heat-related illness and pregnancy as conditions that may contribute to

heat-related illness. Removed caffeine use and nicotine use as contributors to heat-related illness.

Adds the importance of acclimatization and considerations for cool-down rest periods, gradual increase of work in the heat and importance that employees are unable to build tolerance to working in the heat. Adds the importance of taking preventative cool-down rest periods, and mandatory rest periods when temperatures exceed 90°F. Adds training requirement for procedures for shade or other means to reduce body temperature, and employer's procedures for close observation of employees. Finally, adds the importance of considering the use of engineering or administrative controls to reduce exposure.

Reasons Supporting Proposal: L&I filed emergency rules related to outdoor ambient heat in the summer of 2021 and 2022 to protect outdoor workers from heat-related illnesses due to outdoor heat exposure. The current rules do not affirmatively address preventative measures to avoid overheating other than access to drinking water. The hazards of heat are well documented and research suggests the occurrence of heat-related illnesses below the current trigger temperatures. Research also documents increased temperatures in Washington since the rule was first established. L&I has determined that rule making is necessary for the preservation of worker health and safety.

Statutory Authority for Adoption: RCW 49.17.010, 49.17.040, 49.17.050, and 49.17.060.

Statute Being Implemented: Chapter 49.17 RCW.

Rule is not necessitated by federal law, federal or state court decision.

Agency Comments or Recommendations, if any, as to Statutory Language, Implementation, Enforcement, and Fiscal Matters: No additional comments.

Name of Proponent: L&I, governmental.

Name of Agency Personnel Responsible for Drafting: Teri Neely, Tumwater, Washington, 360-902-6652; Implementation and Enforcement: Craig Blackwood, Tumwater, Washington, 360-902-5828.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is required under RCW 34.05.328. A preliminary cost-benefit analysis may be obtained by contacting Carmyn Shute, Administrative Regulations Analyst, L&I, DOSH, P.O. Box 44620, Olympia, WA 98504-4620, phone 360-870-4525, fax 360-902-5619, email Carmyn.Shute@lni.wa.gov.

This rule proposal, or portions of the proposal, is exempt from requirements of the Regulatory Fairness Act because the proposal:

Is exempt under RCW 19.85.025(3) as the rules are adopting or incorporating by reference without material change federal statutes or regulations, Washington state statutes, rules of other Washington state agencies, shoreline master programs other than those programs governing shorelines of statewide significance, or, as referenced by Washington state law, national consensus codes that generally establish industry standards, if the material adopted or incorporated regulates the same subject matter and conduct as the adopting or incorporating rule; and rules only correct typographical errors, make address or name changes, or clarify language of a rule without changing its effect.

Scope of exemption for rule proposal:

Is partially exempt:

Explanation of partial exemptions:

	Proposed WAC sections and title	This proposed rule section is <u>not exempt</u> - Analysis is required.	This proposed rule section is <u>exempt</u>. Provide RCW to support this exemption.
1.	WAC 296-62-09510 and 296-307-09710 Scope and purpose.	X	
2.	WAC 296-62-09520 and 296-307-09720 Definitions.	<input type="checkbox"/>	RCW 34.05.310 (4)(d) because the proposed rule language clarifies terms used throughout the rule language without changing the effect of the rule.
3.	WAC 296-62-09530 and 296-307-09730 Employer and employee responsibility.	X	
4.	WAC 296-62-09535 and 296-307-09735 Access to shade.	X	
5.	WAC 296-62-09540 and 296-307-09740 Drinking water.	<input type="checkbox"/>	RCW 34.05.310 (4)(d) because the proposed rule language clarifies terms used throughout the rule language without changing the effect of the rule.
6.	WAC 296-62-09545 and 296-307-09745 Acclimatization.	X	
7.	WAC 296-62-09547 and 296-307-09747 High heat procedures.	X	
8.	WAC 296-62-09550 and 296-307-09750 Responding to signs and symptoms.	<input type="checkbox"/>	RCW 34.05.310 (4)(d) because the proposed rule language clarifies the existing requirements.
9.	WAC 296-62-09560 and 296-307-09760 Information and training.	<input type="checkbox"/>	

The proposed rule does impose more-than-minor costs on businesses.

Small Business Economic Impact Statement

1. Describe the rule, including: A brief history of the issue; an explanation of why the rule is needed; and a brief description of the amendments that would impose new or additional costs on affected businesses, including small businesses. During the significant and unprecedented 2021 heat wave, L&I received a petition requesting the department adopt emergency rules and amend the permanent rules to address preventative measures when there is extreme high heat. L&I accepted the petition, recognizing the need to reexamine the agency's 2008 outdoor heat exposure rules, especially in light of information suggesting the occurrence of heat-related illnesses below the current temperature action levels and the increasing temperatures experienced in Washington state since the rule was first established. Emergency rules were adopted in 2021 and 2022. These proposed rules address minimum requirements to prevent heat-related illness and reduce traumatic injuries associated with heat exposure. The proposed rules:

- Amend the scope to be applicable year-round when workers are exposed to outdoor heat.
- Amend and add definitions to clarify and improve understanding of the chapter.
- Amend the outdoor temperature action levels that apply to different sections of the rules to 80°F except for workers wearing non-breathable clothing under the current action level of 52°F.
- Amend requirements for the written outdoor heat exposure safety program specifying the minimum required elements of the written

program and clarifying that the written program needs to be in a language understood by employees.

- Create specific requirements for access to shade, what is considered appropriate shade, and where it should be provided.
- Amend drinking water requirements under to align with L&I's long-standing requirement (DOSH Directive 10.15) that drinking water needs to be suitably cool in temperature such that it will not discourage employees to drink water.
- Create requirements for acclimatization requiring close observation for 14 days for new employees and those returning from absences and for close observation of all employees during a heat wave, a sudden temperature increase that does not allow for acclimatization to occur.
- Create high heat procedure requirements establishing mandatory cool-down rest periods and close observation of employees to help identify employees who may begin showing signs and symptoms of heat-related illness.
- Clarify the requirement for responding to signs and symptoms of heat-related illness to explicitly requiring employers to ensure effective means of communication are available to report and respond to heat-related illness.
- Amend the training requirements to require training when there might be an employee exposure to outdoor heat, rather than when an outdoor temperature action level has been reached. The training provisions are also amended to reflect the new and amended sections of the rule.

2. Identify which businesses are required to comply with the rule using the North American Industry Classification System (NAICS). The proposed rule applies to all employers with employees who are exposed to outdoor heat environments. As discussed in Section 1.3.1 of the cost-benefit analysis (CBA), L&I used outdoor exposure data from the Bureau of Labor Statistics (BLS) Occupational Requirements Survey (ORS) to determine the number of workers affected. Using the number of affected workers in each occupation from Section 1.3.1 of the CBA for this rule making, and their employment by each industry, L&I was able to estimate the number of businesses in each industry that are likely affected by this proposed rule.¹ The share and number of affected businesses in each industry are presented in Table 2.1.

¹ Assuming the share of affected workers in a certain industry is similar to that of affected businesses in that industry.

Table 2.1. Share and Number of Businesses That Are Likely Affected In Each Industry

NAICS	Sector	Share of Affected Businesses	Number of Affected Businesses	Affected Businesses as % of Total Affected
11	Agriculture, Forestry, Fishing and Hunting	53.3%	3,482	11.1%
21	Mining, Quarrying, and Oil and Gas Extract	22.2%	29	0.1%
22	Utilities	16.8%	38	0.1%
23	Construction	45.1%	12,744	40.7%
31-33	Manufacturing	6.8%	527	1.7%
42	Wholesale Trade	12.5%	1,544	4.9%
44-45	Retail Trade	5.9%	841	2.7%
48-49	Transportation and Warehousing	21.8%	1,098	3.5%

NAICS	Sector	Share of Affected Businesses	Number of Affected Businesses	Affected Businesses as % of Total Affected
51	Information	3.2%	186	0.6%
52	Finance and Insurance	3.1%	201	0.6%
53	Real Estate and Rental and Leasing	16.5%	1,196	3.8%
54	Professional, Scientific, and Technical Services	2.8%	910	2.9%
55	Management of Companies and Enterprises	2.0%	14	0.0%
56	Administrative, Support, and Waste Management	25.1%	3,352	10.7%
61	Educational Services	5.7%	217	0.7%
62	Health Care and Social Assistance	2.8%	1,747	5.6%
71	Arts, Entertainment, and Recreation	12.8%	392	1.3%
72	Accommodation and Food Services	4.1%	623	2.0%
81	Other Services Except Public Administration	9.2%	1,845	5.9%
99	State and Local Governments	14.5%	290	0.9%
	Overall	11.8%	31,274	100.0%

3. Identify and analyze the probable costs to comply with the adopted rule.

3.1 Cost of employer and employee responsibility: The amended subsections under WAC 296-62-09530 and 296-307-09730 require employers with exposed employees to (a) address their outdoor heat exposure safety program (OHESP) in a language that employees understand; (b) ensure a minimum set of six elements are included in their OHESP; (c) ensure a copy of the OHESP is made available to employees and their authorized representatives; and (d) encourage and allow employees to take paid preventative cool-down rest periods when needed. We assumed that employers would use digital methods to provide electronic copies of the OHESP to employees and their authorized representatives. Employers can easily provide digital copies to any common electronic device such as a mobile phone or tablet. In addition, we assume that employers would not incur any cost encouraging employees to take cool-down rest periods.

The costs estimated for the new requirements are administrative time needed to update the OHESP with the minimum required elements and cost of translating the updated OHESP document. The proposed amendment affects all employers of outdoor workers exposed at or above the temperature thresholds specified in this proposed rule. Table 2.1 shows the number of affected businesses in each industry.

L&I makes available on its website a template of the OHESP document that includes the new minimum required elements, which employers could use to update their own OHESP.² As discussed in Section 2.1.1 of the CBA, the cost factors and calculation for this requirement are listed below in Table 3.1.

² View the "Outdoor Heat APP Addendum" at Accident Prevention Program (APP) (wa.gov).

Table 3.1. Administrative Cost to Update OHESP

Cost Factors	
Average time to update OHESP	15 - 30 minutes
Hourly labor cost (wage and benefits)	\$80.36
Average cost per business	\$20.09 - \$40.18
Number of impacted businesses	31,274

Cost Factors	
Total cost	\$628,321 - \$1,256,642
Annualized cost ³	\$84,189 - \$168,378

³ The five percent discount rate is used to convert the total cost over a nine-year period to the net present value and annualize it for this section and all other sections as well.

The proposed rule also requires that employers provide the OHESP in a language understood by the employee. The distribution of workers who do not adequately understand English across all impacted industries is not known. While the Agriculture, Forestry, Fishing and Hunting, and the Construction sectors do have a significant number of workers who do not adequately understand English and would need the OHESP translated into one or more languages, not all businesses in these sectors will need translation services. For the purposes of this analysis, we assumed all businesses in these two sectors, about 52 percent of total impacted businesses, would need translation to address this requirement for employers across all industries. As discussed in Section 2.1.1 of the CBA, the cost factors and total costs for this requirement are listed below in Table 3.2.

Table 3.2. Translation Costs

Cost Factors	
Industries needing translation services:	Number of businesses
- Agriculture, Forestry, Fishing, and Hunting	3,428
- Construction	12,744
Average cost of translation services per business	\$20.00 - \$75.00
Total translation costs - one time	\$324,508 - \$1,216,906
Annualized cost	\$43,481 - \$163,054

Given the cost of updating the OHESP and translating the documents, L&I estimates this proposed requirement will impose approximately a cost of \$127,670 to \$331,432 on impacted businesses each year (see Table 3.3).

Table 3.3. Total Compliance Costs

Cost Factor	
Updating OHESP	\$628,321 - \$1,256,642
Translation services	\$324,508 - \$1,216,906
Total one-time cost	\$952,829 - \$2,473,548
Annualized cost	\$127,670 - \$331,432

3.2 Access to shade: The proposed rules under WAC 296-62-09535 and 296-307-09735 require employers to (1) provide and maintain one or more areas of ventilated or cooled shade as close as possible to the worksite at all times; (2) ensure that this shade be large enough to accommodate employees on a meal or rest break so they can sit in a normal posture; and (3) use other equally or more effective means to reduce body temperatures in lieu of shade. This could include misting stations, cooling vests, or air conditioned areas, among others.

This is a new requirement which would impose a cost on impacted businesses. To estimate this cost, L&I relied upon the following assumptions:

- A typical employer would choose pop-up canopies for shade. A 10'x10' and 12'x12' canopy which holds eight and 12 individuals respectively, with a chair and table included, would be some of the most likely options employers choose.

- The average time to set up and disassemble a simple pop-up canopy is 10 minutes.
- Only a proportion of workers would be working outdoors at any single point in time, and of those who are out, some would avoid exposure to outdoor heat as a result of engineering or administrative controls, so they don't require shade.

As discussed in Section 2.1.2 of the CBA, the cost factors and total costs for this requirement are listed below in Table 3.4.

Table 3.4. Cost of Providing 10'x10' and 12'x12' Shade Canopies

Cost Factors	
Total number of affected workers over 9 years	127,658
10'x10' canopies	
Number of canopies needed	15,957
Cost of each canopy	\$43.56 - \$106.82
Total set-up cost	\$1,314,794
Total cost in nine years	\$2,009,832 - \$3,019,343
Annualized cost	\$235,018 - \$368,127
12'x12' canopies	
Number of canopies needed	10,638
Cost of each canopy	\$80.66 - \$217.99
Total set-up cost	\$876,529
Total cost in nine years	\$1,734,602 - \$3,195,528
Annualized cost	\$208,724 - \$401,354

The proposed rule also allows employers to use other effective body temperature reducing options, such as misting vests. Based on the average cost of \$10.89 to \$21.67 per unit and the number of units needed for all impacted workers, L&I estimates the total cost of this option to be \$1,390,077 to \$2,766,240 over the entire period, or \$183,289 to \$364,743 per year (see Table 3.5).

Table 3.5. Cost of Body Temperature Reduction Option

Cost Factor	
Total number of devices needed	127,658
Cost range of typical devices	\$10.89 - \$21.67
Total cost over the entire period	\$1,390,077 - \$2,766,240
Annualized	\$183,289 - \$364,743

Considering a mix of the options available for employers to comply with this proposed section, L&I estimates a total cost of \$1,390,077 to \$3,195,528 over the entire period or \$183,289 to \$401,354 per year to impacted businesses (see Table 3.6).

Table 3.6. Total Cost of Providing Shade

Cost Factor	
10'x10' canopies	\$2,009,832 - \$3,019,343
12'x12' canopies	\$1,735,602 - \$3,195,528
Body temperature reducing options	\$1,390,077 - \$2,766,240
Total cost range	\$1,390,077 - \$3,195,528
Annualized cost	\$183,289 - \$401,354

3.3 Drinking water: Under existing WAC 296-62-09540 and 296-307-09740, employers are required to provide and keep workers hydrated with drinking water of at least one quart per hour for each employee, but this requirement only applies to the period of May through September. While the requirements for drinking water have not changed, the change in temperature action levels and the change in the scope of the rule to all year have implications to the drinking water requirement. First, drinking water now also needs to be provided for the hours and days between October and April when the temperature is at or above certain thresholds for the affected workers. Secondly, the trigger temperature for providing drinking water for workers between May and September is now lowered from 89°F to 80°F, which means water needs to be provided for more hours and days during these months as well.

In order to estimate the cost of these proposed changes, L&I needs to determine the amount of drinking water to be provided for the new period of October to April when the temperature is at or above 52°F for workers who wear nonbreathable clothing and when the temperature is at or above 80°F for all other workers. L&I then needs to determine the amount of drinking water that would need to be provided between 80°F to 89°F for May through September.

As discussed in Section 2.1.3 of the CBA, L&I determines that the cost of this proposed requirement would be approximately \$2.5 million to \$8.0 million each year over a nine-year period (see Table 3.7).

Table 3.7. Cost of Providing Drinking Water

Cost Factors	
Average number of affected workers in October - April per year	89,677
Average number of affected workers in May - September per year	403,220
Average number of gallons of water required in October - April per year	667,612
Average number of gallons of water required in May - September per year	4,721,923
Cost per gallon of water - bottled water ⁴	\$1.29
Cost per gallon of water - using existing water source ⁵	\$0.01
Total cost of drinking water per year:	
Low-cost scenario: 30% of bottled water and 70% other options	\$2,456,145
High-cost scenario: 100% bottled water	\$8,041,270

⁴ Based on the recent market prices from large grocery stores such as Safeway, Fred Myers, Walmart, and Costco (after-tax prices). The prices in future years are inflation adjusted.

⁵ Based on the 2022 average water rate per CCF (748 gallons) of water for commercial use in selected large cities across Washington state.

3.4 Acclimatization: WAC 296-62-09545 and 296-307-09745 are new sections which require employers to closely observe employees for signs and symptoms of heat-related illness for (1) a total of 14 days who are (a) newly assigned to outdoor work at the trigger temperatures, and (b) who are returning to work after a seven-day absence, and exposed to outdoor heat at the trigger temperatures; and (2) during a heat wave, as defined by the rule, through a mix of either (a) regular communication,⁶ (b) a mandatory buddy system, or (c) some other effective means.

⁶ The regular communication option is intended to be used and applied to workers who are working alone via means such as a radio or cellular phone (see WAC 296-62-09547 (2)(a)).

These requirements are new and would impose a cost upon impacted businesses. To determine the probable total cost, L&I analyzed the

cost of each of the requirements using the first two options - regular communication and the mandatory buddy system. L&I did not analyze cost of a third option due to data and time limitations. L&I relies upon the following major assumptions in the analysis of this section:

- On average, around six percent of employees would be working alone in outdoor exposure conditions. This figure would vary in the colder months of October to April where the percent of exposed workers would be reduced.
- On average, around five percent of employees working alone would be in remote locations which require long range radio signal for communication. This figure would vary depending on the time of year.
- On average, two devices would be needed for each employee who needs long range communication.
- Observation time is on average about two minutes, meaning in some cases it may be longer and in others shorter. For instance, when the observer and the employee already work in close proximity there is likely the opportunity for ongoing visual and verbal assessment to be conducted while simultaneously carrying out normal work duties. This time may also vary depending on a number of variables, including whether or not the individual is showing any signs or symptoms of heat-related illness, the individual's location, the size of the worksite, etc.

Fourteen-day observation of newly assigned employees: To estimate the cost of observing newly assigned employees, L&I needs to determine the number of newly assigned workers. Using the employment growth rates for new workers entering the workforce from the employment security department,⁷ the total number of newly assigned workers subject to this rule are estimated at 45,131 for the next eight years, or 5,641 each year.⁸

⁷ ESDWAGOV - Projections.

⁸ L&I used an eight-year period for this assessment because new employees would not count in the base year but in year one of the forecast period.

As discussed in Section 2.1.4 of the CBA, the costs factors and total costs for this requirement are listed below in Table 3.8.

Table 3.8. Cost of Observing Newly Assigned Employees

Cost Factors		
Regular Communication	Total number of workers to be observed in eight years	45,131
	Number of workers needing devices	124
	Total device cost	\$17,435
	Observation costs	\$5,566,237
	Total cost in eight years	\$5,583,673
Buddy system	Number of workers to be observed in eight years	45,131
	Total cost in eight years	\$5,566,237
Overall	Total cost range in eight-year period	\$5,566,237 - \$5,583,673
	Annual cost	\$662,720 - \$664,800

Fourteen-day observation of return-to-work employees: To estimate the cost of workers returning to work after a seven-day absence, L&I needs to determine the number of these workers.⁹ To estimate this number, L&I relies upon the average national absentee rate of 3.2 percent. As discussed in Chapter 2.1.4 of the CBA, the costs factors and total costs for this requirement are listed below in Table 3.9.

⁹ Absences from work of employed full-time wage and salary workers by occupation and industry: BLS (bls.gov). The initial rate used in this calculation was 3.2 percent, but the rate shown on BLS's website may vary due to BLS updates.

Table 3.9. Cost of Observing Return-To-Work Employees

Cost Factors		
Regular Communication	Number of workers to be observed	120,901
	Number of workers needing devices	319
	Total device cost	\$44,569
	Observation cost	\$14,822,571
	Total cost	\$14,867,141
Buddy system	Number of workers to be observed	120,901
	Total cost	\$14,822,571
Overall	Total cost range	\$14,822,571 - \$14,867,141
	Annualized cost	\$1,614,901 - \$1,619,768

Observation during a heat wave: The third requirement under these sections is for the observation of employees during a heat wave.¹⁰ Based on the definition of a heat wave for this rule, there are two temperature triggers at which a heatwave is assessed and during which employees exposed to outdoor heat must be observed for signs and symptoms of heat-related illnesses: 52°F and 80°F.

¹⁰ For purposes of this rule, a "heat wave" is defined as any day in which the predicted high temperature for the day will be at least the temperatures listed in Table 1 of WAC 296-62-09530 and at least 10°F higher than the average high daily temperature in the preceding five days.

Examination of historical data over the 10-year period 2011-2020 shows that heat waves satisfying this definition would have occurred for approximately 14 business days and seven business days each year at 52°F and 80°F, respectively. In assessing this requirement, L&I estimated the cost when utilizing (1) the regular communications (along with any equipment cost), and (2) the mandatory buddy system.

As discussed in Section 2.1.4 of the CBA, the cost factors and total costs for this requirement are listed below in Table 3.10.

Table 3.10. Cost of Observation During Heat Waves

Cost Factors		
Regular Communication	Number of workers to be observed each year	122,430
	Number of workers needing devices	3,030
	Total device cost in nine years	\$423,170
	Total observation cost in nine years	\$116,135,084
	Total cost in nine years	\$116,558,254
Buddy system	Number of workers to be observed each year	122,430
	Total cost in nine years	\$116,135,084
Overall	Total cost range in nine years	\$116,135,084 - \$116,558,254
	Annual cost	\$12,664,029 - \$12,710,284

Summing the cost of the individual requirements from these proposed sections related to acclimatization, L&I estimates that the total cost is \$14,941,650 to \$14,994,852 per year on the impacted businesses.

3.5 High heat procedures: WAC 296-62-09547 and 296-307-09747 require employers to implement high-heat procedures when the temperature is at or above 90°F unless they can utilize engineering or administrative controls, such as changing work schedules or the use of air-conditioning, to lower the employees' exposure to below 90°F. In particular, these proposed sections have two main parts. First, employers

must ensure employees take, at minimum, the mandatory cool-down rest periods of (1) 10 minutes every two hours when the temperature is 90°F - 100°F, and (2) 15 minutes every hour when the temperature is at least 100°F. Secondly, employers must closely observe employees for signs and symptoms of heat-related illness by implementing one or more of either (1) regular communication with employees working alone, (2) a mandatory buddy system, or (3) other effective means of observation. Consistent with the explanation in section 3.4 above, L&I only assesses the first two observation options for cost impact.

Mandatory cool-down rest period at 90°F: Analysis of weather data for the period of 2011-2020 shows that temperatures between 90°F to 100°F lasted on average 1.2 hours per day for an average of seven business days per year.¹¹ L&I used the starting weighted average hour wage (plus benefits) of \$47.05 for the base year and adjusted for wage inflation over future years. As discussed in Section 2.1.5 of the CBA, the cost factors and total costs for this requirement are listed below in Table 3.11.

¹¹ While the 1.2 daily rate is below the two-hour threshold, there were days when the daily hours did exceed the two-hour threshold.

Table 3.11. Cost of Mandatory Cool-Down Rest Periods at 90°F - 100°F

Cost Factor	
Average number of workers impacted over nine years	122,430
Average number of affected hours per day	1.2
Average number of affected days per year	7
Average number of 10-minute breaks per year	516,647
Total cost over nine years	\$44,405,457
Annualized cost	\$4,842,233

Mandatory cool-down rest periods for 100°F temperatures: This rest period requires exposed employees to take a 15 minute break each hour when the temperature is at least 100°F or greater. Using the same historical weather data, the average number of hours per day when the temperature was at least 100°F was about 0.4 for an average of at least one business day. As discussed in Section 2.1.5 of the CBA, the cost factors and total costs for this requirement are listed below in Table 3.12.

Table 3.12. Cost of Mandatory Cool-Down Rest Periods at 100°F

Cost Factor	
Average number of workers impacted over nine years	91,822
Average number of affected hours per day	0.4
Average number of affected days per year	1
Average number of 15-minute rest periods per year	774,970
Total cost over nine years	\$99,912,278
Annualized cost	\$10,895,002

Close observations at or above 90°F: As mentioned in the section introduction, employers with employees exposed to outdoor heat temperature of at least 90°F must closely observe these employees for heat-related illness using one or more of three options. To determine the likely cost of this requirement, L&I analyzed the first two options - regular communication and mandatory buddy system. Similar to the analysis above which required these options, L&I did not analyze the third

option for cost given the wide variety of choices an employer could make.

As discussed in Section 2.1.5 of the CBA, the cost factors and total costs for this requirement are listed below in Table 3.13.

Table 3.13. Close Observation Cost at or Above 90°F

Cost Factors		
Regular Communication	Number of workers to be observed each year	122,430
	Number of workers needing devices	3,030
	Total device cost in nine years	\$423,170
	Total observation cost in nine years	\$26,775,119
Buddy system	Total cost in nine years	\$27,178,289
	Number of workers to be observed each year	122,430
Overall	Total cost in nine years	\$26,775,119
	Total cost range in nine years	\$26,775,119 - \$27,178,289
	Annual cost	\$2,917,530 - \$2,963,785

3.6 Information and training: WAC 296-62-09560 and 296-307-09760 require employees and supervisors to be trained prior to outdoor work where occupational exposure to heat may occur, and annually thereafter. Employees must be trained on acclimatization and the importance of taking preventative cool-down rest periods, among other topics. Supervisors must now be trained on the importance of considering the use of engineering or administrative controls in order to reduce employees' exposure to heat.

The updates to the employee and supervisor training section would have a cost implication to impacted businesses. First, employers would need to update their training material to include the new information to which employees and supervisors must be trained. While annual training is not a new requirement, the proposed amendments would add additional time to training and so add an administrative cost. As discussed in Section 2.1.6 of the CBA, the cost factors and total costs for this requirement are listed below in Tables 3.14, 3.15, and 3.16.

Table 3.14. Cost of Updating Training Content

Cost factor	
Average time to update training material	1 - 2 hours
Hourly labor cost (wage and benefits)	\$80.17
Average cost of updating training material per business	\$80.17 - \$160.34
Number of impacted businesses	31,274
Estimated one-time cost to update training material	\$2,507,196 - \$5,014,392
Annualized cost	\$335,941 - \$671,881

Table 3.15. Cost of Employee Training

Cost factor	
Average number of impacted employees per year	420,371
Average time for new training	10 - 15 minutes
Hourly labor cost for an employee	\$47.05
Hourly labor cost for a trainer	\$80.17
Total cost of employee training over nine-year period	\$36,153,020 - \$54,229,530
Annualized cost	\$3,939,791 - \$5,909,687

Table 3.16. Cost of Supervisor Training

Cost factor	
Average number of impacted supervisors per year	4,468
Average time for new training	10 - 15 minutes
Hourly labor cost for a supervisor	\$56.73
Hourly labor cost for a trainer	\$80.17
Total cost of supervisor training in nine years	\$463,487 - \$695,230
Annualized cost	\$50,497 - \$75,746

The total cost of the proposed information and training amendments would be approximately \$4,326,229 - \$6,657,314 each year.

3.7 Summary of Total Compliance Cost of Proposed Rule: Overall the proposed rule amendments are estimated to impose \$40.7 million - \$49.1 million of cost on all impacted businesses each year (see Table 3.17).

Table 3.17. Summary of Total Cost

Requirement	Cost Range
Employer and employee responsibility	\$127,670 - \$331,432
Access to shade	\$183,289 - \$401,354
Drinking water	\$2,456,145 - \$8,041,270
Acclimatization	14,941,650 - \$14,994,852
High heat procedures	\$18,654,756 - \$18,701,011
Employee training and information	\$4,326,229 - \$6,657,314
Total	\$40,689,738 - \$49,127,233

4. Determine whether or not the proposed rule will impose more-than-minor costs on businesses in an industry: As analyzed above, L&I estimates the total cost of compliance with the proposed rule to be \$40.7 million to \$49.1 million each year for all the affected businesses. Based on this cost range and the share of affected businesses in each industry estimated in Section 2 above (see Table 2.1), the average per-business cost of the proposed rule is in a range of \$615 to \$16,525 depending on the specific industry to which a business belongs. Comparing this per-business cost to the minor cost threshold of one percent of annual payroll for each industry¹² shows this unit cost is far below the minor cost threshold for all industry except educational services (see Table 4.1). Overall, the average per-business cost is about 11 to 13 percent of the minor cost threshold.

¹² Based on the QCEW data for 2021 (most recent available) and adjusted to 2022 figures using 6.45 percent inflation rate (December 2021 to December 2022).

Table 4.1. Average Cost Per Business vs. Minor Cost Threshold By Industry

Industry	Per-Business Cost	Minor Cost Threshold
Agriculture, Forestry, Fishing and Hunting (11)	\$1,587- \$1,915	\$5,914
Mining, Quarrying, and Oil and Gas Extract (21)	\$1,335 - \$1,611	\$12,915
Utilities (22)	\$2,193 - \$2,644	\$28,354
Construction (23)	\$803 - \$972	\$5,852
Manufacturing (31-33)	\$3,019 - \$3,638	\$29,247
Wholesale Trade (42)	\$1,037 - \$1,253	\$10,604
Retail Trade (44-45)	\$2,830 - \$3,410	\$22,588
Transportation and Warehousing (48-49)	\$2,317 - \$2,793	\$15,969
Information (51)	\$2,682 - \$3,232	\$77,467

Industry	Per-Business Cost	Minor Cost Threshold
Finance and Insurance (52)	\$1,527 - \$1,843	\$19,916
Real Estate and Rental and Leasing (53)	\$821 - \$993	\$5,647
Professional, Scientific, and Technical Services (54)	\$710 - \$860	\$9,457
Management of Companies and Enterprises (55)	\$6,502 - \$7,828	\$93,730
Administrative and Support and Waste Management (56)	\$1,261 - \$1,523	\$8,421
Educational Services (61)	\$8,024 - \$9,658	\$5,617
Health Care and Social Assistance (62)	\$774 - \$937	\$4,513
Arts, Entertainment, and Recreation (71)	\$1,841 - \$2,221	\$5,647
Accommodation and Food Services (72)	\$1,620 - \$1,955	\$4,733
Other services except public administration (81)	\$615 - \$745	\$2,542
State and Local Governments (99)	\$13,732 - \$16,525	\$203,393
Overall	\$1,301 - \$1,571	\$11,968

5. If the proposed rule is likely to impose a disproportionate impact on small businesses, identify the steps taken to reduce the cost of the rule on small businesses: Only educational services exceeded the minor cost threshold. However, for educational services specifically and all industries impacted by the rule, reliable data are lacking to differentiate the average cost for small businesses from their larger counterparts. As such, L&I assumes there is a disproportionate impact on small businesses. L&I reviewed the list of methods for reducing the impact on small businesses under RCW 19.85.030 and is taking the following steps to reduce the costs of the rule on small businesses:

- Reducing fine schedules for noncompliance for small businesses. RCW 49.17.180 addresses the civil penalties for the Washington Industrial Safety and Health Act (WISHA) citations and requires L&I give consideration in the penalty assessment to factors including the size of the employer's business. WAC 296-900-14015 under Table 11 sets forth the specific process for penalty adjustments including employer size, with reductions of 20 percent up to 70 percent.
- Developing and implementing a robust outreach and education program to ensure that small businesses are informed about what they need to know to comply with the law.
- Working with employer associations and other organizations to identify opportunities for targeted outreach efforts to assist employers.
- Reducing, modifying, or eliminating substantive regulatory requirements. The proposed rules allow for mandatory cool-down rest periods to be taken concurrently with other regulatory required meal and rest breaks, and if the cool-down rest period is taken during a meal period, the mandatory cool-down rest period does not need to be paid.
- Considering other mitigation techniques, including those suggested by small businesses or small business advocates.

L&I has considered the other methods of reducing costs under RCW 19.85.030 and found them inapplicable:

- Delaying compliance timetables. Given the hazard to workers and L&I's mandate under WISHA, chapter 49.17 RCW, delaying compliance

is not legal or feasible in meeting the objectives and requirements of WISHA.

- This rule does not directly impose any recordkeeping or reporting requirements. Indirectly, it may affect the number of employees for whom certain recordkeeping requirements are imposed under the statute or other rules. L&I cannot reduce the requirements set by statute in the Minimum Wage Act through this rule.
- This rule does not require inspections and presents no opportunity to reduce the frequency of inspections.

6. Describe how small businesses were involved in the development of the proposed rule: As discussed in Section 1.2.4 of the CBA, L&I communicated on the rule-development process via DOSH electronic email distribution lists, L&I rules electronic email distributions lists, and on social media in English and Spanish. Small business employers and organizations representing small businesses were involved throughout these processes and L&I considered their feedback throughout the process. Rule development efforts included:

- In February 2022, DOSH conducted an outdoor heat exposure survey, asking 10 scoping questions. The survey was sent to several DOSH electronic email distribution lists and also posted on social media in English and Spanish.
- Four stakeholder meetings were held virtually and stakeholders were able to participate online or by phone. In addition, some meetings were televised on TVW.
- L&I developed and shared draft proposed rules and circulated them for stakeholder feedback.

7. Identify the estimated number of jobs that will be created or lost as the result of compliance with the proposed rule: L&I does not anticipate that the compliance with proposed rules will lead to a significant number of job creations or cuts. Employers will be able to meet the proposed requirements using existing staff without new hires. Similarly, it is unlikely that employers would need to dismiss employees as a result of the proposed rule amendments.

A copy of the statement may be obtained by contacting Carmyn Shute, Administrative Regulations Analyst, L&I, DOSH, P.O. Box 44620, Olympia, WA 98504-4620, phone 360-870-4525, fax 360-902-5619, email Carmyn.Shute@Lni.wa.gov.

March 21, 2023
Joel Sacks
Director

OTS-4162.4

AMENDATORY SECTION (Amending WSR 19-01-094, filed 12/18/18, effective 1/18/19)

WAC 296-62-09510 Scope and purpose. (~~((+1))~~) WAC 296-62-095 through 296-62-09560:

(1) Applies to all employers with employees performing work in an outdoor environment.

(2) ~~((The requirements of WAC 296-62-095 through 296-62-09560 apply))~~ Applies to outdoor work environments ~~((from May 1 through September 30, annually, only))~~ when employees are exposed to outdoor heat ~~((at or above an applicable temperature listed in Table 1))~~.

~~((Table 1~~

~~To determine which temperature applies to each worksite, select the temperature associated with the general type of clothing or personal protective equipment (PPE) each employee is required to wear.~~

~~Outdoor Temperature Action Levels~~

All other clothing	89°
Double-layer woven clothes including coveralls, jackets and sweatshirts	77°
Nonbreathing clothes including vapor barrier clothing or PPE such as chemical resistant suits	52°

Note: ~~There is no requirement to maintain temperature records. The temperatures in Table 1 were developed based on Washington state data and are not applicable to other states.)~~

(3) ~~((WAC 296-62-095 through 296-62-09560))~~ Does not apply to incidental exposure ~~((which exists when))~~. Incidental exposure means an employee is not required to perform a work activity outdoors for more than ~~((fifteen))~~ 15 minutes in any ~~((sixty-minute))~~ 60-minute period. This exception may be applied every hour during the work shift.

(4) ~~((WAC 296-62-095 through 296-62-09560))~~ Supplements all industry-specific standards with related requirements. Where the requirements under these sections provide more specific or greater protection than the industry-specific standards, the employer must comply with the requirements under these sections. Additional related requirements are found in chapter 296-305 WAC, Safety standards for firefighters and chapter 296-307 WAC, Safety standards for agriculture.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and 49.17.060. WSR 19-01-094, § 296-62-09510, filed 12/18/18, effective 1/18/19; WSR 08-12-109, § 296-62-09510, filed 6/4/08, effective 7/5/08.]

AMENDATORY SECTION (Amending WSR 19-01-094, filed 12/18/18, effective 1/18/19)

WAC 296-62-09520 Definitions. (1) Acclimatization. The body's temporary adaptation to work in heat that occurs as a person is exposed to it over ~~((time-~~

~~Double-layer woven clothing.~~ Clothing worn in two layers allowing air to reach the skin. For example, coveralls worn on top of regular work clothes.) a period of seven to 14 days depending on the amount of recent work in the heat and the individual factors. Acclimatization can be lost after seven consecutive days away from working in the heat.

(2) Buddy system. A system where individuals are paired or teamed up into work groups so each employee can be observed by at least one other member of the group to monitor and report signs and symptoms of heat-related illness.

(3) Drinking water. Potable water that is suitable to drink((-)) and suitably cool in temperature. Other acceptable beverages include

drinking water packaged as a consumer product, and electrolyte-replenishing beverages (i.e., sports drinks) that do not contain high amounts of sugar, caffeine ((are acceptable)), or both such as energy drinks.

(4) **Engineering controls.** The use of devices to reduce exposure and aid cooling ((i.e., air conditioning)).

Environmental factors for heat-related illness. Working conditions that increase susceptibility for heat-related illness such as air temperature, relative humidity, radiant heat from the sun and other sources, conductive heat sources such as the ground, air movement, workload (i.e., heavy, medium, or low) and duration, and personal protective equipment worn by employees. Measurement of environmental factors is not required by WAC 296-62-095)). Examples of engineering controls include fans, misting stations, air-conditioning, etc.

(5) **Heat-related illness.** A medical condition resulting from the body's inability to cope with a particular heat load, and includes, but is not limited to, heat cramps, heat rash, heat exhaustion, fainting, and heat stroke.

(6) **Outdoor environment.** An environment where work activities are conducted outside. Work environments such as inside vehicle cabs, sheds, and tents or other structures may be considered an outdoor environment if the environmental factors affecting temperature are not managed by engineering controls. ((Construction activity is considered to be work in an indoor environment when performed inside a structure after the outside walls and roof are erected.))

(7) **Risk factors for heat-related illness.** Conditions that increase susceptibility for heat-related illness including:

(a) Environmental factors such as air temperature, relative humidity, air movement, radiant heat from the sun and other sources, conductive heat sources such as the ground;

(b) Workload (light, moderate, or heavy) and work duration;

(c) Personal protective equipment and clothing worn by employees;
and

(d) Personal factors such as age, medications, physical fitness, and pregnancy.

(8) **Shade.** A blockage of direct sunlight. 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. One indicator that blockage is sufficient is when objects do not cast a shadow in the area of blocked sunlight. Shade is not adequate when heat in the area of shade defeats the purpose of shade, which is to allow the body to cool. For example, a car sitting in the sun does not provide acceptable shade to a person sitting in it, unless the car is running with air-conditioning.

(9) **Vapor barrier clothing.** Clothing that significantly inhibits or completely prevents sweat produced by the body from evaporating into the outside air. Such clothing includes encapsulating suits, various forms of chemical resistant suits used for PPE, and other forms of ((nonbreathing)) nonbreathable clothing.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and 49.17.060. WSR 19-01-094, § 296-62-09520, filed 12/18/18, effective 1/18/19; WSR 08-12-109, § 296-62-09520, filed 6/4/08, effective 7/5/08.]

AMENDATORY SECTION (Amending WSR 08-12-109, filed 6/4/08, effective 7/5/08)

WAC 296-62-09530 Employer and employee responsibility. (1) Employers of employees exposed to temperatures at or above (~~temperatures~~) those listed in ((WAC 296-62-09510(2)) Table 1 of this section must:

(a) Address their outdoor heat exposure safety program in their written accident prevention program (APP) (~~(; and (b))~~), in a language that employees understand;

(b) Ensure the outdoor heat exposure safety program contains, at a minimum, the following elements:

(i) Procedures for providing sufficiently cool drinking water;

(ii) Procedures for providing shade or other sufficient means to reduce body temperature, including the location of such means and how employees can access them;

(iii) Emergency response procedures for employees demonstrating signs or symptoms of heat-related illness;

(iv) Acclimatization methods and procedures;

(v) High heat procedures; and

(vi) The specific method used by the employer to closely observe for signs and symptoms of heat-related illness as required under WAC 296-62-09545 and 296-62-0947(2);

(c) Ensure a copy of the outdoor heat exposure safety program is made available to employees and their authorized representatives;

(d) Encourage employees to frequently consume water or other acceptable beverages to ensure hydration(~~(-)~~); and

(e) Encourage and allow employees to take a preventative cool-down rest period when they feel the need to do so to protect themselves from overheating using sufficient means to reduce body temperature such as shade or other equally or more effective means. The preventative cool-down rest period must be paid unless taken during a meal period. If an employee is showing signs and symptoms of heat-related illness during the cool-down rest period, the employer must comply with requirements under WAC 296-62-09550.

Table 1. To determine which temperature applies to each worksite, select the temperature associated with the general type of clothing or personal protective equipment (PPE) each employee is required to wear.

<u>Nonbreathable clothes including vapor barrier clothing or PPE such as chemical resistant suits</u>	<u>52°F</u>
<u>All other clothing</u>	<u>80°F</u>

Note: There is no requirement to maintain temperature records. The temperatures in Table 1 were developed based on Washington state data and are not applicable to other states.

(2) Employees are responsible for monitoring their own personal factors for heat-related illness including consumption of water or other acceptable beverages to ensure hydration, and taking preventative cool-down rest periods when they feel the need to do so to prevent from overheating.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060. WSR 08-12-109, § 296-62-09530, filed 6/4/08, effective 7/5/08.]

NEW SECTION

WAC 296-62-09535 Access to shade. Employers of employees exposed to temperatures at or above those listed in Table 1 of WAC 296-62-09530 must:

(1) Provide and maintain one or more areas with shade at all times while employees are present that are either open to the air or provided with ventilation or cooling, and not adjoining a radiant heat source such as machinery or a concrete structure. The shade must be located as close as practicable to the areas where employees are working.

(2) Ensure the amount of shade present is large enough to accommodate the number of employees on a meal or rest period, so they can sit in a normal posture fully in the shade.

(3) In lieu of shade, employers may use other means to reduce body temperature if they can demonstrate such means are equally or more effective than shade. Some alternatives to shade may include the provision of misting stations, cooling vests, or air-conditioned areas.

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AMENDATORY SECTION (Amending WSR 08-12-109, filed 6/4/08, effective 7/5/08)

WAC 296-62-09540 Drinking water. (1) Keeping workers hydrated in a hot outdoor environment requires that more water be provided than at other times of the year. Federal OSHA and research indicate that employers should be prepared to supply at least one quart of drinking water per employee per hour. When employee exposure is at or above an applicable temperature listed in WAC ((~~296-62-09510(2)~~) 296-62-09530 Table 1:

(a) Employers must ensure that a sufficient quantity of suitably cool drinking water is readily accessible to employees at all times; and

(b) Employers must ensure that all employees have the opportunity to drink at least one quart of drinking water per hour.

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

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060. WSR 08-12-109, § 296-62-09540, filed 6/4/08, effective 7/5/08.]

NEW SECTION

WAC 296-62-09545 Acclimatization. Employers must closely observe employees for signs and symptoms of heat-related illness by implementing one or more of the close observation options under WAC 296-62-09547(2).

(1) For 14 days when employees:

- (a) Are newly assigned to working at or above the applicable temperatures listed in Table 1 of WAC 296-62-09530;
- (b) Return to work at the applicable temperatures listed in Table 1 of WAC 296-62-09530 after an absence seven days or more;
- (2) During a heat wave. For purposes of this section only, "heat wave" means any day in which the predicted high temperature for the day will be at least the temperatures listed in Table 1 of WAC 296-62-09530 and at least 10 degrees Fahrenheit higher than the average high daily temperature in the preceding five days.

Note: Employers may also consider additional acclimatization procedures recommended by NIOSH:
 - NIOSH Heat Stress: Acclimatization. <https://www.cdc.gov/niosh/mining/userfiles/works/pdfs/2017-124.pdf>
 - NIOSH Criteria for a Recommended Standard for Occupational Exposure to Heat and Hot Environments: <https://www.cdc.gov/niosh/docs/2016-106/pdfs/2016-106.pdf?id=10.26616/NIOSH PUB2016106>

[]

NEW SECTION

WAC 296-62-09547 High heat procedures. The employer must implement the following high heat procedures when the temperature is at or above 90 degrees Fahrenheit, unless engineering or administrative controls (such as air-conditioning or scheduling work at cooler times of the day) are used to lower employees' exposure below 90 degrees Fahrenheit.

(1) Ensure that employees take at minimum the mandatory cool-down rest periods in Table 2. The cool-down rest period must be provided in the shade or using other equally or more effective means to reduce body temperature. The mandatory cool-down rest period may be provided concurrently with any meal or rest period required under WAC 296-126-092 and must be paid unless taken during a meal period.

Table 2

Air Temperature	Mandatory cool-down rest periods
At or above 90°F	10 minutes/2 hours
At or above 100°F	15 minutes/1 hour

Note: Employers may also consider implementing more additional protective rest periods per NIOSH or ACGIH methods:
 - NIOSH Criteria for a Recommended Standard for Occupational Exposure to Heat and Hot Environments: <https://www.cdc.gov/niosh/docs/2016-106/pdfs/2016-106.pdf?id=10.26616/NIOSH PUB2016106>
 - American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) for Heat Stress and Strain: <https://www.acgih.org/heat-stress-and-strain-2/>
 The department will review work-rest periods within three years after the outdoor heat exposure rule goes into effect. We will review applicable data including, but not limited to, heat-related illness claims, inspections, other national and state regulations, peer-reviewed publications, and nationally recognized standards.

- (2) Closely observe employees for signs and symptoms of heat-related illness by implementing one or more of the following:
 - (a) Regular communication with employees working alone, such as by radio or cellular phone;
 - (b) A mandatory buddy system; or
 - (c) Other effective means of observation.

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AMENDATORY SECTION (Amending WSR 08-12-109, filed 6/4/08, effective 7/5/08)

WAC 296-62-09550 Responding to signs and symptoms of heat-related illness. (1) Employers must ensure that effective communication by voice, observation, or electronic means is maintained so that employees at the work site and their supervisor can contact each other to report signs and symptoms of heat-related illness and get medical attention when necessary. An electronic device, such as a cellular phone or text messaging device, may be used for this purpose only if reception in the area is reliable.

(2) Employees showing signs or demonstrating symptoms of heat-related illness must be relieved from duty and provided with a sufficient means to reduce body temperature.

~~((2))~~ (3) Employees showing signs or demonstrating symptoms of heat-related illness must be monitored to determine whether medical attention is necessary.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060. WSR 08-12-109, § 296-62-09550, filed 6/4/08, effective 7/5/08.]

AMENDATORY SECTION (Amending WSR 08-12-109, filed 6/4/08, effective 7/5/08)

WAC 296-62-09560 Information and training. (1) ~~All ((training must be provided to)) employees and supervisors ((7))~~ must be trained as required by this section prior to outdoor work where occupational exposure to heat might occur and at least annually after the initial training. Training must be provided in a language and manner the employee or supervisor understands ((7, prior to outdoor work which exceeds a temperature listed in WAC 296-62-09510(2) Table 1, and at least annually thereafter)).

~~((1))~~ (2) Employee training. Effective training on the following topics must be provided to all employees who may be exposed to outdoor heat ((at or above the temperatures listed in WAC 296-62-09510(2) Table 1)):

(a) The environmental factors and other work conditions (i.e., workload, work duration, personal protective equipment, clothing) that contribute to the risk of heat-related illness;

(b) General awareness of personal factors that may increase susceptibility to heat-related illness including, but not limited to, an individual's age, physical fitness, degree of acclimatization, medical conditions, drinking water consumption, alcohol use, ((caffeine use, nicotine use)) previous heat-related illness, pregnancy, and use of medications that affect the body's responses to heat. This information is for the employee's personal use;

(c) The importance of removing heat-retaining personal protective equipment such as nonbreathable chemical resistant clothing during all breaks;

(d) The importance of frequent consumption of small quantities of drinking water or other acceptable beverages;

(e) ~~The ((importance of))~~ acclimatization ((7

~~(f))~~ requirements under WAC 296-62-09545, the concept of acclimatization, and the importance of the following considerations:

(i) Frequent cool-down rest periods;

(ii) Gradual increase of work duration in the heat; and
(iii) Employees are unable to build a tolerance to working in the heat during a heat wave;

(f) The importance of taking preventative cool-down rest periods when employees feel the need to do so in order to protect themselves from overheating;

(g) The mandatory cool-down rest periods under WAC 296-62-09547 when the outdoor temperature reaches or exceeds 90 degrees Fahrenheit;

(h) The employer's procedures for providing shade or other sufficient means to reduce body temperature, including the location of such means and how employees can access them;

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

~~(g))~~ (j) The importance of immediately reporting signs or symptoms of heat-related illness in either themselves or in co-workers to the person in charge and the procedures the employee must follow including appropriate emergency response procedures ((-

~~2))~~; and

(k) The employer's procedures for close observation of employees for signs and symptoms of heat-related illness.

(3) Supervisor training. Prior to supervising employees working in outdoor environments with heat exposure at or above the temperature levels listed in WAC ((296-62-09510(2)) 296-62-09530(2) Table 1, supervisors must have training on the following topics:

(a) The information required to be provided to employees listed in subsection (1) of this section;

(b) The procedures the supervisor must follow to implement the applicable provisions of WAC 296-62-095 through 296-62-09560;

(c) The importance of considering the use of engineering or administrative controls such as air-conditioning and scheduling work during the cooler hours of the day in order to reduce employees' exposure to heat;

(d) The procedures the supervisor must follow if an employee exhibits signs or symptoms consistent with possible heat-related illness, including appropriate emergency response procedures; and

~~((d))~~ (e) Procedures for moving or transporting an employee(s) to a place where the employee(s) can be reached by an emergency medical service provider, if necessary.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060. WSR 08-12-109, § 296-62-09560, filed 6/4/08, effective 7/5/08.]

OTS-4164.3

AMENDATORY SECTION (Amending WSR 20-21-091, filed 10/20/20, effective 11/20/20)

WAC 296-307-09710 Scope and purpose. ~~((1) WAC 296-307-097))~~
WAC 296-307-09710 through 296-307-09760:

(1) Applies to all employers with employees performing work in an outdoor environment.

(2) ((The requirements of WAC 296-307-097 through 296-307-09760 apply)) Applies to outdoor work environments ((from May 1 through Sep-

tember 30, annually, only)) when employees are exposed to outdoor heat ((at or above an applicable temperature listed in Table 1)).

~~(Table 1~~

To determine which temperature applies to each worksite, select the temperature associated with the general type of clothing or personal protective equipment (PPE) each employee is required to wear.

Outdoor Temperature Action Levels

All other clothing	89°
Double-layer woven clothes including coveralls, jackets and sweatshirts	77°
Nonbreathing clothes including vapor barrier clothing or PPE such as chemical resistant suits	52°

Note: There is no requirement to maintain temperature records. The temperatures in Table 1 were developed based on Washington state data and are not applicable to other states.)

(3) ((WAC 296-307-097 through 296-307-09760)) Does not apply to incidental exposure ((which exists when)). Incidental exposure means an employee is not required to perform a work activity outdoors for more than ((fifteen)) 15 minutes in any ((sixty-minute)) 60-minute period. This exception may be applied every hour during the work shift.

(4) ((WAC 296-307-097 through 296-307-09760)) Supplements all industry-specific standards with related requirements. Where the requirements under these sections provide more specific or greater protection than the industry-specific standards, the employer must comply with the requirements under these sections. Additional related requirements are found in chapter 296-305 WAC, Safety standards for firefighters and chapter 296-307 WAC, Safety standards for agriculture.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and 49.17.060. WSR 20-21-091, § 296-307-09710, filed 10/20/20, effective 11/20/20; WSR 09-07-098, § 296-307-09710, filed 3/18/09, effective 5/1/09.]

AMENDATORY SECTION (Amending WSR 20-21-091, filed 10/20/20, effective 11/20/20)

WAC 296-307-09720 Definitions. (1) Acclimatization. The body's temporary adaptation to work in heat that occurs as a person is exposed to it over ((time-

~~Double-layer woven clothing.~~ Clothing worn in two layers allowing air to reach the skin. For example, coveralls worn on top of regular work clothes.) a period of seven to 14 days depending on the amount of recent work in the heat and individual factors. Acclimatization can be lost after seven consecutive days away from working in the heat.

(2) Buddy system. A system where individuals are paired or teamed up into work groups so each employee can be observed by at least one other member of the group to monitor and report signs and symptoms of heat-related illness.

(3) Drinking water. Potable water that is suitable to drink((-) and suitably cool in temperature. Other acceptable beverages include drinking water packaged as a consumer product, and electrolyte-replenishing beverages (i.e., sports drinks) that do not contain high

amounts of sugar, caffeine ((are acceptable)), or both such as energy drinks.

(4) **Engineering controls.** The use of devices to reduce exposure and aid cooling ((i.e., air conditioning)).

~~Environmental factors for heat-related illness.~~ Working conditions that increase susceptibility for heat-related illness such as air temperature, relative humidity, radiant heat from the sun and other sources, conductive heat sources such as the ground, air movement, workload (i.e., heavy, medium, or low) and duration, and personal protective equipment worn by employees. Measurement of environmental factors is not required by WAC 296-307-097)). Examples of engineering controls include fans, misting stations, air-conditioning, etc.

(5) **Heat-related illness.** A medical condition resulting from the body's inability to cope with a particular heat load, and includes, but is not limited to, heat cramps, heat rash, heat exhaustion, fainting, and heat stroke.

(6) **Outdoor environment.** An environment where work activities are conducted outside. Work environments such as inside vehicle cabs, sheds, and tents or other structures may be considered an outdoor environment if the environmental factors affecting temperature are not managed by engineering controls. ((Construction activity is considered to be work in an indoor environment when performed inside a structure after the outside walls and roof are erected.))

(7) **Risk factors for heat-related illness.** Conditions that increase susceptibility for heat-related illness including:

(a) Environmental factors such as air temperature, relative humidity, air movement, radiant heat from the sun and other sources, conductive heat sources such as the ground;

(b) Workload (light, moderate, or heavy) and work duration;

(c) Personal protective equipment and clothing worn by employees;

and

(d) Personal factors such as age, medications, physical fitness, and pregnancy.

(8) **Shade.** A blockage of direct sunlight. 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. One indicator that blockage is sufficient is when objects do not cast a shadow in the area of blocked sunlight. Shade is not adequate when heat in the area of shade defeats the purpose of shade, which is to allow the body to cool. For example, a car sitting in the sun does not provide acceptable shade to a person sitting in it, unless the car is running with air-conditioning.

(9) **Vapor barrier clothing.** Clothing that significantly inhibits or completely prevents sweat produced by the body from evaporating into the outside air. Such clothing includes encapsulating suits, various forms of chemical resistant suits used for PPE, and other forms of ((nonbreathing)) nonbreathable clothing.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and 49.17.060. WSR 20-21-091, § 296-307-09720, filed 10/20/20, effective 11/20/20; WSR 09-07-098, § 296-307-09720, filed 3/18/09, effective 5/1/09.]

AMENDATORY SECTION (Amending WSR 09-07-098, filed 3/18/09, effective 5/1/09)

WAC 296-307-09730 Employer and employee responsibility. (1) Employers of employees exposed to temperatures at or above (~~temperatures~~) those listed in ((WAC 296-307-09710(2)) Table 1 of this section must:

(a) Address their outdoor heat exposure safety program in their written accident prevention program (APP) (~~and~~ (b)), in a language that employees understand;

(b) Ensure the outdoor heat exposure safety program contains, at a minimum, the following elements:

(i) Procedures for providing sufficiently cool drinking water;
(ii) Procedures for providing shade or other sufficient means to reduce body temperature, including the location of such means and how employees can access them;

(iii) Emergency response procedures for employees demonstrating signs or symptoms of heat-related illness;

(iv) Acclimatization methods and procedures;

(v) High heat procedures; and

(vi) The specific method used by the employer to closely observe employees for signs and symptoms of heat-related illness as required under WAC 296-307-09745 and 296-307-09747(2);

(c) Ensure a copy of the outdoor heat exposure safety program is made available to employees and their authorized representatives;

(d) Encourage employees to frequently consume water or other acceptable beverages to ensure hydration(~~and~~); and

(e) Encourage and allow employees to take a preventative cool-down rest period when they feel the need to do so to protect themselves from overheating using sufficient means to reduce body temperature such as shade or other equally or more effective means. The preventative cool-down rest period must be paid unless taken during a meal period. If an employee is showing signs or symptoms of heat-related illness during the cool-down rest period, the employer must comply with the requirements under WAC 296-307-09750.

Table 1. To determine which temperature applies to each worksite, select the temperature associated with the general type of clothing or personal protective equipment (PPE) each employee is required to wear.

<u>Nonbreathable clothes including vapor barrier clothing or PPE such as chemical resistant suits</u>	<u>52°F</u>
<u>All other clothing</u>	<u>80°F</u>

Note: There is no requirement to maintain temperature records. The temperatures in Table 1 were developed based on Washington state data and are not applicable to other states.

(2) Employees are responsible for monitoring their own personal factors for heat-related illness including consumption of water or other acceptable beverages to ensure hydration, and taking preventative cool-down rest periods when they feel the need to do so to prevent from overheating.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and 49.17.060. WSR 09-07-098, § 296-307-09730, filed 3/18/09, effective 5/1/09.]

NEW SECTION

WAC 296-307-09735 Access to shade. Employers of employees exposed at or above temperatures listed in Table 1 of WAC 296-307-09730 must:

(1) Provide and maintain one or more areas with shade at all times while employees are present that are either open to the air or provided with ventilation or cooling, and not adjoining a radiant heat source such as machinery or a concrete structure. The shade must be located as close as practicable to the areas where employees are working.

(2) Ensure the amount of shade present is large enough to accommodate the number of employees on a meal or rest period, so they can sit in a normal posture fully in the shade.

(3) In lieu of shade, employers may use other means to reduce body temperature if they can demonstrate such means are equally or more effective than shade. Some alternatives to shade may include the provision of misting stations, cooling vests, or air-conditioned areas.

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AMENDATORY SECTION (Amending WSR 09-07-098, filed 3/18/09, effective 5/1/09)

WAC 296-307-09740 Drinking water. (1) Keeping workers hydrated in a hot outdoor environment requires that more water be provided than at other times of the year. Federal OSHA and research indicate that employers should be prepared to supply at least one quart of drinking water per employee per hour. When employee exposure is at or above an applicable temperature listed in WAC ((~~296-307-09710(2)~~)) 296-307-09730 Table 1:

(a) Employers must ensure that a sufficient quantity of suitably cool drinking water is readily accessible to employees at all times; and

(b) Employers must ensure that all employees have the opportunity to drink at least one quart of drinking water per hour.

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

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and 49.17.060. WSR 09-07-098, § 296-307-09740, filed 3/18/09, effective 5/1/09.]

NEW SECTION

WAC 296-307-09745 Acclimatization. Employers must closely observe employees for signs and symptoms of heat-related illness by implementing one or more of the close observation options under WAC 296-307-09747(2).

(1) For 14 days when employees:

(a) Are newly assigned to working at or above the applicable temperatures listed in Table 1 of WAC 296-307-09730;

(b) Return to work at the applicable temperatures listed in Table 1 of WAC 296-307-09730 after an absence of seven days or more;

(2) During a heat wave. For purposes of this section only, "heat wave" means any day in which the predicted high temperature for the day will be at least the temperatures listed in Table 1 of WAC 296-307-09730 and at least 10 degrees Fahrenheit higher than the average high daily temperature in the preceding five days.

Note: Employers may also consider additional acclimatization procedures recommended by NIOSH:
- NIOSH Heat Stress: Acclimatization. <https://www.cdc.gov/niosh/mining/userfiles/works/pdfs/2017-124.pdf>
- NIOSH Criteria for a Recommended Standard for Occupational Exposure to Heat and Hot Environments: <https://www.cdc.gov/niosh/docs/2016-106/pdfs/2016-106.pdf?id=10.26616/NIOSH PUB2016106>

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NEW SECTION

WAC 296-307-09747 High heat procedures. The employer must implement the following high heat procedures when the temperature is at or above 90 degrees Fahrenheit, unless engineering or administrative controls (such as air-conditioning or scheduling work at cooler times of the day) are used to lower employees' exposure below 90 degrees Fahrenheit.

(1) Ensure that employees take at a minimum the mandatory cool-down rest periods in Table 2. The cool-down rest period must be provided in the shade or using other equally or more effective means to reduce body temperature. The mandatory cool-down rest period may be provided concurrently with any meal or rest period required under WAC 296-131-020 and must be paid unless taken during a meal period.

Table 2

Air Temperature	Mandatory cool-down rest periods
At or above 90°F	10 minutes/2 hours
At or above 100°F	15 minutes/1 hour

Note: Employers may also consider implementing more additional protective rest periods per NIOSH or ACGIH methods:
- NIOSH Criteria for a Recommended Standard for Occupational Exposure to Heat and Hot Environments: <https://www.cdc.gov/niosh/docs/2016-106/pdfs/2016-106.pdf?id=10.26616/NIOSH PUB2016106>
- American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) for Heat Stress and Strain: <https://www.acgih.org/heat-stress-and-strain-2/>
The department will review work-rest periods within three years after the outdoor heat exposure rule goes into effect. We will review applicable data including, but not limited to, heat-related illness claims, inspections, other national and state regulations, peer-reviewed publications, and nationally recognized standards.

(2) Closely observe employees for signs and symptoms of heat-related illness by implementing one or more of the following:

(a) Regular communication with employees working alone, such as by radio or cellular phone;

(b) A mandatory buddy system; or

(c) Other effective means of observation.

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AMENDATORY SECTION (Amending WSR 09-07-098, filed 3/18/09, effective 5/1/09)

WAC 296-307-09750 Responding to signs and symptoms of heat-related illness. (1) Employers must ensure that effective communication by voice, observation, or electronic means is maintained so that employees at the work site and their supervisor can contact each other to report signs and symptoms of heat-related illness and get medical attention when necessary. An electronic device, such as a cellular phone or text messaging device, may be used for this purpose only if reception in the area is reliable.

(2) Employees showing signs or demonstrating symptoms of heat-related illness must be relieved from duty and provided with a sufficient means to reduce body temperature.

~~((2))~~ (3) Employees showing signs or demonstrating symptoms of heat-related illness must be monitored to determine whether medical attention is necessary.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and 49.17.060. WSR 09-07-098, § 296-307-09750, filed 3/18/09, effective 5/1/09.]

AMENDATORY SECTION (Amending WSR 09-07-098, filed 3/18/09, effective 5/1/09)

WAC 296-307-09760 Information and training. (1) All ~~((training must be provided to))~~ employees and supervisors ~~((7))~~ must be trained as required by this section prior to outdoor work where occupational exposure to heat might occur and at least annually after the initial training. Training must be provided in a language and manner the employee or supervisor understands ((7, prior to outdoor work which exceeds a temperature listed in WAC 296-307-09710(2) Table 1, and at least annually thereafter)).

~~((1))~~ (2) Employee training. Effective training on the following topics must be provided to all employees who may be exposed to outdoor heat ((at or above the temperatures listed in WAC 296-307-09710(2) Table 1)):

(a) The environmental factors and other work conditions (i.e., workload, work duration, personal protective equipment, clothing) that contribute to the risk of heat-related illness;

(b) General awareness of personal factors that may increase susceptibility to heat-related illness including, but not limited to, an individual's age, physical fitness, degree of acclimatization, medical conditions, drinking water consumption, alcohol use, ((caffeine use, nicotine use)) previous heat-related illness, pregnancy, and use of medications that affect the body's responses to heat. This information is for the employee's personal use;

(c) The importance of removing heat-retaining personal protective equipment such as nonbreathable chemical resistant clothing during all breaks;

(d) The importance of frequent consumption of small quantities of drinking water or other acceptable beverages;

(e) The importance of acclimatization~~((7))~~

~~((f))~~ requirements under WAC 296-307-09745, the concept of acclimatization, and the importance of the following considerations:

(i) Frequent cool-down rest periods;
(ii) Gradual increase of work duration in the heat; and
(iii) Employees are unable to build a tolerance to working in the heat during a heat wave;

(f) The importance of taking preventative cool-down rest periods when employees feel the need to do so in order to protect themselves from overheating;

(g) The mandatory cool-down rest periods under WAC 296-307-09747 when the outdoor temperature reaches or exceeds 90 degrees Fahrenheit;

(h) The employer's procedures for providing shade or other sufficient means to reduce body temperature, including the location of such means and how employees can access them;

(i) The different types of heat-related illness, the common signs and symptoms of heat-related illness; (~~and~~

~~(g))~~ (j) The importance of immediately reporting signs or symptoms of heat-related illness in either themselves or in co-workers to the person in charge and the procedures the employee must follow including appropriate emergency response procedures (~~(-~~

~~(2))~~); and

(k) The employer's procedures for close observation of employees for signs and symptoms of heat-related illness.

(3) Supervisor training. Prior to supervising employees working in outdoor environments with heat exposure at or above the temperature levels listed in WAC (~~(296-307-09710(2))~~) 296-307-09730(2) Table 1, supervisors must have training on the following topics:

(a) The information required to be provided to employees listed in subsection (1) of this section;

(b) The procedures the supervisor must follow to implement the applicable provisions of WAC 296-307-097 through 296-307-09760;

(c) The importance of considering the use of engineering or administrative controls such as air-conditioning and scheduling work during the cooler hours of the day in order to reduce employees' exposure to heat;

(d) The procedures the supervisor must follow if an employee exhibits signs or symptoms consistent with possible heat-related illness, including appropriate emergency response procedures; and

~~((d))~~ (e) Procedures for moving or transporting an employee(s) to a place where the employee(s) can be reached by an emergency medical service provider, if necessary.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and 49.17.060. WSR 09-07-098, § 296-307-09760, filed 3/18/09, effective 5/1/09.]