



MNOSHA Instruction **STD 1-4.2A**

March 8, 2021

Subject: Enforcement Guidelines for Outdoor Exposure to Heat Stress

Purpose

To provide guidance in assuring a uniform enforcement policy when evaluating employee outdoor exposure to heat stress.

Scope

This instruction applies Minnesota-OSHA-wide.

References

- 1) Federal OSHA memorandum for Regional Administrators from Thomas Galassi, Director of Enforcement Programs; subject: Extreme Heat Related Outdoor Inspections; dated May 23, 2014.
- 2) [Cal/OSHA Heat Illness Prevention standard](#)
- 3) [Washington Outdoor Heat Exposure Standard Sections 296-62-095 through 296-62-09560](#)
- 4) Federal OSHA's [occupational heat exposure webpage](#)
- 5) [OSHA Heat Smartphone App](#)

Cancellations

This instruction cancels MNOSHA STD 1-4.2, dated October 27, 2015.

Background

Excessive exposure to heat can cause an increase in core body temperature which may result in heat illness and death. MNOSHA has adopted a standard for indoor work but does not have a standard for outdoor work. Consequently, training for heat stress under MNOSHA's Employee Right to Know standard is not applicable.

The State of Washington has an outdoor heat exposure standard which applies from May 1 through September 30. Drinking water must be available in an amount not less than one quart per employee per hour. Training is required.

According to the California OSHA standard, water must be available as close as practicable to the areas where employees are working at least one quart per employee per hour (when not plumbed). Shade must be provided when the temperature exceeds 80 degrees F and employees allowed to take a rest in the shade. When temperatures exceed 95 degrees F, further procedures must be implemented to monitor employees for signs or symptoms of heat illness, including a buddy system. Training and acclimatization is also included in the Cal/OSHA standard.

Action

A. Inspection Guidelines

1. OSHIs shall evaluate the working conditions for possible heat exposure hazards.
2. The questionnaire in Appendix B of this directive may be used as a guide to assess the conditions and precautions taken by the employer.

B. Citation Guidelines

A violation of the general duty clause may exist in these conditions when workers have been working outdoors and their employer is aware of heat-related dangers but has not taken action to provide workers with, at a minimum, water, rest, and shade. To establish the evidence necessary to cite a general duty clause violation, the following information should be documented.

NOTE: These examples represent some types of evidence that could establish each of the factors; they are not the only types that would satisfy OSHA's burden):

- 1. The employer failed to keep the workplace free of a hazard to which its employees were exposed:**
 - a. Workers were exposed to a heat index (HI) at or above the Danger zone (see Heat Index chart in Appendix A of this directive)
 - b. Workers were working outside for most of the day or during the heat of the day when there was a NOAA (National Oceanic and Atmospheric Administration) heat advisory
 - 1) NOAA's National Weather Service continually updates heat-related advisories and warnings online at www.weather.gov. Click on "Excessive Heat Warning" and "Heat Advisory" under the U.S. map. If there are no current warnings or advisories in the United States, nothing will appear.
- 2. The hazard was recognized:**

- a. NOAA issued heat advisory because of a Heat Index (HI) at or above the Danger zone (see Heat Index chart in Appendix A of this directive) and the employer should have been aware of the advisory
 - b. Employees made complaints regarding heat
 - c. Employees showed signs or symptoms of heat exposure
 - d. Employer indicated that it was aware of the heat hazard (e.g., by providing water but not rest and shade)
 - e. The employer's industry has issued guidance about heat hazards
- 3. The hazard was causing or likely to cause death or serious physical harm:**
- a. Heat exhaustion
 - b. Heat Stroke
 - c. Fatality
- 4. There was a feasible and useful method to correct the hazard:**
- a. Providing workers with immediate access to water, rest, and shade, and showing them to use that relief
 - b. Implementing an acclimatization program for new employees and those returning from extended time away (e.g., vacation)
 - c. Implementing a work/rest schedule
 - d. Providing a climate-controlled area to cool down.

If all four factors for a general duty clause violation are not present, a Hazard Alert Letter (see sample in Appendix C of this directive) shall be issued to the employer as soon as possible. The Hazard Alert Letter shall recommend specific steps the employer can take to protect workers from the heat hazard.

James Krueger, Director MNOSHA Compliance
For the OSHA Management Team

Distribution: OSHA Compliance and WSC Director

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Attachments: Appendix A – Heat Index Chart

Appendix B – Heat Related Inspection Questionnaire

Appendix C – Sample Hazard Alert Letter

Appendix A

Heat Index Chart

		Dry Bulb Temperature (°F)															
		80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
Relative Humidity (%)	40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
	45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
	50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
	55	81	84	86	89	93	97	101	106	112	117	124	130	137			
	60	82	84	88	91	95	100	105	110	116	123	129	137				
	65	82	85	89	93	98	103	108	114	121	128	130					
	70	83	86	90	95	100	105	112	119	126	134						
	75	84	88	92	97	103	109	116	124	132							
	80	84	89	94	100	106	113	121	129								
	85	85	90	96	102	110	117	126	135								
	90	86	91	98	105	113	122	131									
	95	86	93	100	108	117	127										
	100	87	95	103	112	121	132										

White = Caution; Pink = Extreme Caution; Gold = Danger; Red = Extreme Danger

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 degrees F. Also, strong winds, particularly with very hot, dry air, can be extremely hazardous.

Please see [the heat webpage](#) on how to use the heat index.

Appendix B

HEAT-RELATED INSPECTION QUESTIONNAIRE

General

- Are there any recorded heat-related incidents on the OSHA 300 log?
 - If yes, please list.
- Is the work being done in the direct sun or a facility that is not air conditioned (e.g., warehouse)?
- What are the potential sources of heat?
- Is the heat stress potential regularly evaluated/monitored?
 - If yes, please describe how (e.g., buddy system)
- How long have employees worked at this task or work assignment?
- Are employees required to wear protective clothing or equipment?
 - If yes, please describe.
 - Are there additional requirements for employees working in PPE (e.g., impervious clothing)?
- What actions were implemented to prevent heat-related illnesses?
- Is there a heat stress prevention program in place?
 - Has the employer taken steps to reschedule strenuous tasks for cooler parts of the day or days with reduced temperatures?
 - Has the employer bought equipment with air-conditioned cabs?
- Is there an acclimatization program?
 - Are the employees acclimatized to the work environment?

Water

- Is drinking water available?
 - If yes, describe drinking water source and proximity to workers.
- Are workers required to drink water or any other beverages when working under hot conditions?
 - If yes, is there a specific amount to ensure employees are drinking enough water?
 - Is it enforced?
- Are water coolers refilled throughout the day?

Rest

- Is there a Work/Rest Cycle in Place?
 - If yes, describe the work/rest cycle (e.g., how many breaks do you take, when/where do you take breaks, how long is a typical break, etc.)
 - Is there a knowledgeable person on site who is authorized to modify work tasks and work/rest schedules as necessary?

Shade

- Is shade or a climate-controlled area available for breaks, rest periods and if workers need to recover?
 - If yes, please describe.

Health Effects / Emergencies

- Have employees experienced any health effects (e.g., dizziness, nausea, not sweating) related to working in excessive heat?
 - If yes, describe.
- What is done if employees suffer heat-related health effects?
- Does everyone know who to notify if there is an emergency?
- Does everyone know who will provide first aid?

Training

- Have employees received training on the effects of heat and heat-related illnesses?
 - If yes, what information was provided?
 - Are OSHA or other materials on heat-related illness posted in the workplace?
- Do workers know the:
 - Common signs and symptoms of heat illness?
 - Proper precautions to prevent heat illness? (are the precautions updates as necessary)
 - Importance of acclimatization?
 - Importance of drinking water frequently (even when they are not thirsty)?
 - Steps to take if someone is having symptoms?

Appendix C

Sample Hazard Alert Letter

NOTE: *Italicized comments are for MNOSHA compliance use only and should not be included in the letter.*

Dear Employer:

An inspection of your workplace and evaluation of your OSHA recordkeeping logs at *(location)* on *(date)* disclosed the following workplace condition(s) which have been associated with the development of symptoms in workers and are consistent with worker heat-related illnesses.

[Include a general description of working conditions for each task/job, type of PPE worn, if any, length of time on each task and other specific heat related information].

The results of our investigation *(fill in specific information)*. In the interest of workplace safety and health, I recommend that you voluntarily take the necessary steps to materially reduce or eliminate your workers' exposure to the conditions listed above.

General Controls

General controls for the prevention of heat-related illnesses include training, personal protective equipment (PPE), administrative controls and hygiene practices, health screening and heat alert programs.

1. **Training:** workers must be informed of the following *(when appropriate for the specific situation)*:
 - a. Hazards of heat stress.
 - b. Responsibility to avoid heat stress.
 - c. Recognition of danger signs and symptoms.
 - d. First-aid procedures.
 - e. Employer's program to address heat-related illnesses.
 - f. The effects of certain medication, drugs and alcohol in hot work environments.
2. **Personal Protective Clothing and Equipment** *(OSHA should recommend the appropriate PPE)*.
 - a. Loosely worn reflective clothing to deflect radiant heat, such as vests, aprons or jackets.
 - b. Cooling vests, wetted clothing and water cooled/dampened garments are effective under high temperature and low humidity conditions.
 - c. In environments where respirator usage is necessary consult with industrial hygienists to determine the appropriate clothing to prevent heat stress, but still protect the workers.
3. **Administrative Controls:** *(OSHA should consult the Tech Manual for additional information)*

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- a. Schedule hot jobs for cooler parts of the workday, and schedule routine maintenance and repair work for the cooler seasons of the year.
- b. Permit employees to take intermittent rest breaks with water breaks, use relief workers and reduce physical demands of the job.
- c. Have air-conditioned or shaded areas available for these break/rest periods.

4. **Health Screening and Acclimatization:**

- a. Workers should be allowed to get used to hot working environments by using a staggered approach over several days. The same should be done for workers returning from an absence of two weeks or more. For example, begin work with 50% of the normal workload and time spent in the hot environment, and then gradually increase the time over a 5-day period.
- b. Workers should be made aware of the following:
 - 1) Medications such as the following can increase risk of heat stress:
 - i. Diuretics - water pills
 - ii. Antihypertensives - blood pressure medication
 - iii. Anticholinergics - for treatment of chronic obstructive pulmonary disease (COPD)
 - iv. Antihistamines - allergy medications
 - v. A doctor or pharmacist should be contacted for more information.
 - 2) Dangers of using drugs and alcohol in hot work environments.

You may voluntarily provide this office with progress reports on your efforts to address these conditions. OSHA may return to your worksite to further examine the conditions noted above.

Sincerely,

[name], Supervisor

Occupational Safety and Health Division