

VOSH PROGRAM DIRECTIVE: 14-442

ISSUED: August 10, 2022

Subject National Emphasis Program on Outdoor and Indoor Heat-Related Hazards

Purpose This Instruction describes policies and procedures for implementing a National Emphasis Program (NEP) to protect employees from heat-related hazards and resulting injuries and illnesses in outdoor and indoor workplaces. This NEP expands on the agency's ongoing heat-related illness prevention initiative and campaign by setting forth a targeted enforcement component and reiterating its compliance assistance and outreach efforts. This approach is intended to encourage early interventions by employers to prevent illnesses and deaths among workers during high heat conditions, such as working outdoors in a local area experiencing a heat wave, as announced by the National Weather Service. Early interventions include, but are not limited to, implementing water, rest, shade, training, and acclimatization procedures for new or returning employees.

This Program Directive is an internal guideline, not a statutory or regulatory rule, and is intended to provide instructions to VOSH personnel regarding internal operation of the Virginia Occupational Safety and Health Program and is solely for the benefit of the program. This document is not subject to the Virginia Register Act or the Administrative Process Act; it does not have general application and is not being enforced as having the force of law.

Scope This Directive applies VOSH-wide. This directive applies to all VOSH personnel.

References OSHA Instruction CPL 03-00-024 (April 8, 2022)

Cancellation None.

Effective Dates September 29, 2022

Expiration Date Not Applicable

Action VOSH Regional Directors shall ensure that policies and procedures established in this Directive are uniformly enforced and field personnel understand and comply with the requirements included in this Directive.

Gary G. Pan
Commissioner

Distribution: Commissioner of Labor and Industry Director of Cooperative Programs
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Summary

This Directive describes policies and procedures for VOSH implementation of a National Emphasis Program (NEP) to identify and eliminate or reduce worker exposures to occupational heat-related illnesses and injuries in general industry, construction, maritime, and agriculture. It targets specific industries expected to have the highest exposures to heat-related hazards and resulting illnesses and deaths.

Significant Changes

This is a new Directive.

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I. Purpose.

This Directive describes policies and procedures for implementing a National Emphasis Program (NEP) to ensure that employees in high-hazard industries are protected from heat-related hazards, both indoors and outdoors, that may lead to serious illnesses, injuries, or death (*see [Appendix F for a list of heat illnesses](#)*). This NEP augments

VOSH's efforts addressing unprogrammed-related activities, *e.g.*, complaints, referrals, and severe incident reports, by adding an enforcement program targeting specific high hazard industries or activities in workplaces where this hazard is prevalent during high heat conditions, such as working outdoors in a local area experiencing a heat wave, as announced by the National Weather Service, or working indoors near radiant heat sources, such as iron and steel mills and foundries. In addition, this NEP focuses on vulnerable workers in outdoor and indoor environments by coordinating efforts with the Virginia Department of Health (VDH). More information on this effort is in [Section XII.A](#), Program Procedures.

II. Scope.

This Directive applies VOSH-wide.

III. References.

- A. [Executive Order \(EO\) 14008](#), January 27, 2021. Executive Order (EO) 14008, Tackling the Climate Crisis at Home and Abroad.
- B. U.S. Department of Labor [Climate Action Plan](#), September 2021, pgs. 6-7.
- C. OSHA Memorandum, [Inspection Guidance for Heat-Related Hazards](#), September 1, 2021.

[Note, this memorandum, which began OSHA's enforcement Heat Initiative, is being incorporated into this OSHA Instruction, and the memorandum will be archived upon the effective date of this NEP.]

- D. Section 40.1-51.1.A, Code of Virginia, General Duty Requirements
- E. VOSH PROGRAM DIRECTIVE: 01-001C, *Program Directive Development, Classification and Numbering System for VOSH*
- F. VOSH PROGRAM DIRECTIVE: 01-019, *State Emphasis Programs: Development, Approval, Adoption, and Evaluation*
- G. VOSH PROGRAM DIRECTIVE: 02-003V, *VOSH Procedures to comply with OSHA Enforcement Exemptions and Limitations under the Federal Appropriations Act, OSHA Instruction CPL 02-00-051 (formerly CPL 2-0.51J); Appendix "A" Revision*

- H. VOSH PROGRAM DIRECTIVE: 09-001, *Field Operations Manual (FOM) VOSH – Rev. 3.4 09-001*
- I. VOSH PROGRAM DIRECTIVE: 02-105A, *Inspection Scheduling for Construction*
- J. VOSH PROGRAM DIRECTIVE: 04-001E, *VOSH Whistleblower Investigation Manual*
- K. VOSH PROGRAM DIRECTIVE: 09-104A, *Recordkeeping Policies and Procedures Manual (RKM)*
- L. OSHA Instruction, TED 01-00-015, OSHA Technical Manual (OTM), Section III, [Chapter 4 – Heat Stress](#), September 15, 2017 (or latest update).
- M. OSHA-NIOSH Heat Safety Tool (smartphone App): [Heat Safety Tool Application](#).
- N. OSHA [Memorandum of Understanding](#), Wage and Hour Division (WHD) – Coordination and Information Sharing, August 4, 2021.
- O. NIOSH, [Criteria for a Recommended Standard: Occupational Exposure to Heat and Hot Environments](#), DHHS (NIOSH) Publication Number 2016-106, February 2016.
- P. American Conference of Governmental Industrial Hygienists (ACGIH®), Action Limit (AL) for un-acclimatized workers and a Threshold Limit Value (TLV®) for acclimatized workers, *see Heat Stress and Strain: TLV® Physical Agents 2022* (or latest edition). *See ACGIH® website, [here](#).*
[Note, TLV® Booklets are available through OSHA’s Technical Data Center.]
- Q. U.S. Department of Commerce’s National Oceanic and Atmospheric Administration (NOAA), National Weather Service (NWS), Types of warnings, alerts, and advisories.

See [Appendix H](#) for Additional Resources.

IV. Cancellations. None.

V. Action Offices.

A. Responsible Office.

Division of Health Compliance.

B. Action Offices.

VOSH Regional and Field Offices and VOSH On-Site Consultation Program.

C. Information Offices.

VOSH Headquarters Office.

Action. VOSH Directors and Managers must ensure that the policies and procedures set forth in this directive are followed. The Assistant Commissioner shall encourage Consultation Program's involvement in this effort.

VI. Reserved.

VII. Expiration.

None.

VIII. Significant Changes.

None.

IX. VOSH On-Site Consultation Programs.

The VOSH On-Site Consultation Program has developed a Heat Illness Prevention Campaign for addressing heat-related illness and injuries resulting from body heat generated by physical work that is performed in conditions of high ambient and/or radiant heat, especially when combined with humidity and inadequate cooling. The VOSH On-Site Consultation Program continues its efforts to educate employers and workers on heat injury and illness prevention in outdoor and indoor work settings, and the importance of three key safety measures: "Water. Rest. Shade." This campaign is ongoing; however, VOSH in conjunction with OSHA, amps up outreach efforts during warmer months. *See* coding instructions for the OIS in [Section XII.F](#).

X. Background.

The U.S. Department of Labor's Bureau of Labor Statistics (BLS) reports that between 2015 and 2019, environmental heat cases resulted in an average of 35 fatalities per year and an average of 2,700 cases with days away from work. However, the total number of heat-related fatalities may be underreported and improperly diagnosed. The cause of death is often listed as a heart attack when the actual cause or aggravating cause may have been exposure to a heat-related hazard. Heat-related illnesses range from heat cramps to heat stroke, which can potentially lead to death. *See* [Appendix F for a list of heat illnesses](#). Between 2015 and 2020, Federal OSHA conducted approximately 200 heat-related hazard inspections each year, which included approximately 15 heat-related fatality inspections annually.

From 1999 to October, 2021, a total of 17 heat-related employee fatalities and 5 employee hospitalizations were reported to VOSH during the period in construction, agriculture and general industry settings.

The Department conducted an informal review of Virginia Workers' Compensation

Commission (VWCC) First Report of Injury (FRI) statistics for the period 2009 to 2020 to obtain some baseline data on heat-related illnesses and injuries in Virginia. The review was not intended to be a comprehensive assessment of all work-related heat cases, in part because the review found at times a lack of consistency in the coding of cases.

For the period 2009-2020, the Department identified 2,443 heat-related illnesses, 701 (28.71%) of which resulted in payments totaling \$3,121,767.87 (average of \$4,453.31).

Year	Heat Prostration Cases	Heat Prostration Cases With Payments	Heat Prostration Payments	Other Cases	Other Cases With Payments	Other Cases Payments	Total Cases	Total Cases With Payments	Total Payments	Average Payment
2020	104	20	\$77,487.19	53	12	\$43,257.24	157	32	\$120,744.43	\$3,773.26
		19.23%			22.64%			20.38%		
2019	144	45	\$247,792.29	78	27	\$159,496.11	222	72	\$407,288.40	\$5,656.78
		31.25%			34.62%			32.43%		
2018	178	44	\$485,630.80	84	21	\$143,991.96	262	65	\$629,622.76	\$9,686.50
		24.72%			25.00%			24.81%		
2017	142	53	\$214,753.80	64	25	\$111,538.44	206	78	\$326,292.24	\$4,183.23
		37.32%			39.06%			37.86%		
2016	207	58	\$258,347.27	72	19	\$92,017.71	279	77	\$350,364.98	\$4,550.19
		28.02%			26.39%			27.60%		
2015	102	35	\$140,619.81	69	19	\$69,233.07	171	54	\$209,852.88	\$3,886.16
		34.31%			27.54%			31.58%		
2014	98	32	\$109,563.04	54	18	\$83,247.20	152	50	\$192,810.24	\$3,856.20
		32.65%			33.33%			32.89%		
2013	109	37	\$95,824.37	56	18	\$70,348.55	165	55	\$166,172.92	\$3,021.33
		33.94%			32.14%			33.33%		
2012	136	44	\$161,526.40	64	13	\$51,028.55	200	57	\$212,554.95	\$3,729.03
		32.35%			20.31%			28.50%		
2011	203	48	\$171,635.40	56	10	\$37,958.31	259	58	\$209,593.71	\$3,613.68
		23.65%			17.86%			22.39%		
2010	202	57	\$179,626.29	48	10	\$32,136.22	250	67	\$211,762.51	\$3,160.63
		28.22%			20.83%			26.80%		
2009	91	27	\$61,740.65	28	9	\$22,967.20	119	36	\$84,707.85	\$2,353.00
		29.67%			32.14%			30.25%		
Totals	1716	500	\$2,204,547.31	726	201	\$917,220.56	2442	701	\$3,121,767.87	\$4,453.31
		29.14%			27.69%	41.61%		28.71%		

The National Weather Service (NWS) uses a heat index to classify environmental heat into four categories: Caution (80°F – 90°F HI), Extreme Caution (91°F – 103°F HI), Danger (103°F – 124°F HI), and Extreme Danger (126°F or higher HI), issued by the U.S. Department of Commerce’s National Oceanic and Atmospheric Administration (NOAA), National Weather Service (NWS). See NWS webpage, [here](#). When the heat

index¹ is 80°F or higher, serious occupational heat-related illnesses and injuries become more frequent, especially in workplaces where unacclimatized workers are performing strenuous work (*e.g.*, intense arm and back/lifting work, carrying, shoveling, manual sawing, pushing and pulling heavy loads, and walking at a fast pace), without easy access to cool water, or cool/shaded areas, when working in direct sunlight or areas where other radiant heat sources are present.

Acclimatization is a process by which a person gradually increases their exposure time to hot environmental conditions, causing beneficial physiological changes by properly regulating body temperature that minimizes heat-related illnesses. It is therefore essential for employers to train new or returning workers on heat-related hazards including heat stress, gradually increase their workloads, ensure more frequent breaks as they acclimatize to ambient conditions, and monitor them for signs of heat illness. Heat-related fatalities have occurred with a heat index below 80°F, particularly when aggravating factors are present.

Heat-related fatalities are usually the result of exertional heat stroke, where physical activity in hot environments causes the body temperature to reach 104°F or higher (normal body temperature is around 98.6°F).¹ [Appendix F](#) of this memorandum provides a list of serious heat-related illnesses, along with common signs and symptoms of exposure.

Heat-related illnesses and injuries can happen at almost any ambient temperature, especially in cases where workers perform moderate or higher physical activity, or wear heavy or bulky clothing or equipment, including personal protective equipment. Heat-related illnesses and injuries also generally occur when body heat generated by physical work is performed in conditions of high ambient heat, especially when combined with humidity and inadequate cooling. As mentioned above, combinations of heat and humidity are used to determine the commonly used “feels like” temperature (*i.e.*, heat index, or HI). The OSHA-NIOSH [Heat Safety Tool App](#) is a resource for finding the forecasted and current heat index. The App indicates the hazard levels using the heat index as: Caution less than 80°F HI, Warning 80°F to 94°F HI and danger at 95°F HI or higher.

The National Institute for Occupational Safety and Health (NIOSH) has published recommended occupational exposure limits and controls for heat stress. A NIOSH publication, [Criteria for a Recommended Standard: Occupational Exposure to Heat and Hot Environments](#), outlines recommended environmental limits for physical work at which point engineering controls, preventative work, hygienic practices, and administrative or other control procedures should be implemented in order to reduce the risk of heat-related illnesses. NIOSH has a Recommended Alert Limit (RAL) and Recommended Exposure Limit (REL) based on the Wet-Bulb-Globe Temperature

¹ According to the [National Weather Service](#), the Heat Index, sometimes referred to as the apparent temperature, is given in degrees Fahrenheit and is a measure of how hot it really feels when relative humidity is factored in with the actual air temperature.

(WBGT).²

For a listing of best practices on worker acclimatization visit the American Conference of Governmental Industrial Hygienists (ACGIH®) Action Limit (AL) for unacclimatized workers and a Threshold Limit Value (TLV®) for acclimatized workers, see Heat Stress and Strain: TLV® Physical Agents 2022 Edition, or latest edition, available at www.acgih.org.

The above alerts, advisories, and criteria can help to identify days in which a maximum heat temperature can result in increased risks of heat-related hazards. These criteria vary across the country. Particularly in areas of the United States that are not usually subject to elevated dangerous heat conditions, unacclimatized workers may suffer serious heat-related illnesses even in cases when the heat index is not high enough to trigger NWS heat advisories or warnings.

XI. NEP Goal.

During the period August 1, 2014 to August 30, 2021, VOSH received 229 heat illness related unprogrammed activities (UPA) in well over 100 industries (i.e. complaints, referrals from other government agencies, employer reported hospitalizations, fatalities), including 50 hospitalizations and 4 fatalities.

The four UPA fatalities occurred in NAICS:

238110 Poured Concrete Foundation and Structure Contractors
238160 Roofing Contractors
238220 Plumbing, Heating, and Air-Conditioning Contractors
321999 All Other Miscellaneous Wood Product Manufacturing

NOTE: Please note that six other heat illness related fatalities not included in the above UPA report occurred during the period August 1, 2014 to August 30, 2021 in the following industries:

237310 Highway, Street, and Bridge Construction
236220 Commercial and Institutional Building Construction
111910 Tobacco Farming
561320 Temporary Help Services [in a Manufacturing Plant]
561730 Landscaping Services
236118 Residential Remodelers

The 50 UPA hospitalizations occurred in NAICS:

² For resources discussing heat-related illnesses and common symptoms, see NIOSH [Criteria for a Recommended Standard: Occupational Exposure to Heat and Hot Environments](#), DHHS (NIOSH) Publication Number 2016-106, February 2016.

221122 Electric Power Distribution
221310 Water Supply and Irrigation Systems
236220 Commercial and Institutional Building Construction
237110 Water and Sewer Line and Related Structures Construction
238110 Poured Concrete Foundation and Structure Contractors
238140 Masonry Contractors
238160 Roofing Contractors
311111 Dog and Cat Food Manufacturing
311611 Animal (except Poultry) Slaughtering
311612 Meat Processed from Carcasses
312230 Tobacco Manufacturing
321918 Other Millwork (including Flooring)
322130 Paperboard Mills
323113 Commercial Screen Printing
326199 All Other Plastics Product Manufacturing
327390 Other Concrete Product Manufacturing
332312 Fabricated Structural Metal Manufacturing
332321 Metal Window and Door Manufacturing
335311 Power, Distribution, and Specialty Transformer Manufacturing
337110 Wood Kitchen Cabinet and Countertop Manufacturing
448120 Women's Clothing Stores
485111 Mixed Mode Transit Systems
492110 Couriers and Express Delivery Services
493110 General Warehousing and Storage
541320 Landscape Architectural Services
541330 Engineering Services
561311 Employment Placement Agencies
561730 Landscaping Services
611310 Colleges, Universities, and Professional Schools
623110 Nursing Care Facilities (Skilled Nursing Facilities)
722511 Full-Service Restaurants
812332 Industrial Launderers
921190 Other General Government Support
922160 Fire Protection
922190 Other Justice, Public Order, and Safety Activities

The goal of this NEP is to reduce or eliminate worker exposures to heat-related hazards that result in illnesses, injuries, and deaths, by targeting industries and worksites in Virginia, including worksites with radiant heat sources, where employees are exposed to heat-related hazards and have not been provided adequate protection that includes cool water, rest, cool areas, training, and acclimatization. These mitigation strategies are key in controlling the health hazards associated with heat exposures. VOSH's goal will be accomplished by a combination of enforcement (which includes inspection targeting), outreach to employers, and compliance assistance. Each Region is encouraged to conduct three (3) programmed inspections annually under this SEP in addition to UPA inspections conducted.

To ensure abatement and to monitor the effectiveness of VOSH's enforcement and guidance efforts, certain follow-up inspections from worksites previously inspected for heat-related hazards will be included as part of the program procedures, as outlined in [Section XII.C.2](#).

XII. Program Procedures.

A. General.

To increase the likelihood of preventing heat-related illnesses and deaths and make efficient use of VOSH resources, compliance safety and health officers (CSHOs) who are investigating for other purposes, shall open or refer a heat-related inspection for any hazardous heat conditions observed, recorded in the OSHA 300 logs or 301 Incident Reports, or where an employee brings a heat-related hazard(s) to the attention of the CSHO (such as, employees or temporary workers being exposed to high temperature conditions without adequate training, acclimatization or access to water, rest, and shade). Expansion of inspections shall be conducted in accordance with the VOSH FOM, Chapter 5 Section I.B, *Expanding the Scope of an Inspection*.

Additionally, CSHOs should inquire during inspections regarding the existence of any heat-related hazard prevention programs on heat priority days. A heat priority day occurs when the heat index for the day is expected to be 85°F or more. The RO will assess the potential for heat-related serious illnesses and injuries where such hazards may exist in indoor or outdoor work areas on heat priority days and provide compliance assistance where needed.

Furthermore, *programmed inspections shall occur on any day that the NWS has announced a heat warning or advisory for the local area*. See [Appendix G](#) for a description of these types of alerts, for which affected employers should be aware and take appropriate actions to protect their workers from heat hazards. [Appendix A](#) has a list of both outdoor and indoor industries that are known to have heat-related hazard incidents. During days of locally-issued heat warnings or advisories, establishment lists derived from Appendix A will be used for programmed inspections, see [Section XII, C.3](#).

Another source for heat inspections are referrals from the Virginia Department of Health (VDH) (VDH is responsible for conducting pre-occupancy inspections of migrant labor housing, as well as inspections of restaurants). When the weather is hot or a heat alert is issued for an area where the VDH is investigating, VOSH will coordinate with VDH concerning referrals on heat-related hazards.

OSHA's Appropriations Act has placed exemptions and limitations on enforcement activities for those employers who employ 10 or fewer employees, commonly referred to as small employers. Small farming operations and small employers in low-hazard industries are most affected by the exemptions and limitations of the Appropriations Act.

Before initiating any health enforcement activities for a farming operation or non-farm low hazard employer with 10 or fewer employees, the CSHO should review the current version of VOSH PROGRAM DIRECTIVE: 02-003, *VOSH Procedures to comply with OSHA Enforcement Exemptions and Limitations under the Federal Appropriations Act*, for more details.

A farming operation with 10 or fewer employees at all times during the previous 12 months and that has not had an active temporary labor camp during the preceding 12 months is generally exempt from VOSH enforcement, *e.g.*, programmed health or safety inspections, referrals, or complaints. CSHOs should be aware that family members of farm employers are not counted when determining the number of employees. However, with regard to heat-related inspections under this SEP, Regional Directors will normally proceed with the inspection and follow the procedures in VOSH PROGRAM DIRECTIVE: 02-003 for using 100% state funds for the inspection related activities.

A non-farming employer with 10 or fewer employees listed in Appendix A of VOSH PROGRAM DIRECTIVE: 02-003 has some enforcement exemptions and limitations under the Appropriations Act (*e.g.*, programmed safety inspections are not permitted), but programmed health inspections are permitted. However, with regard to heat-related inspections under this SEP, Regional Directors will normally proceed with the inspection and follow the procedures in VOSH PROGRAM DIRECTIVE: 02-003 for using 100% state funds for the inspection related activities.

Please note the Appendix A of VOSH PROGRAM DIRECTIVE: 02-003 is updated yearly.

B. Site Selection.

1. Scheduling/Site Selection. VOSH will request data to develop a targeting list of establishments from OSHA's Office of Statistical Analysis (OIS) for programmed inspections. Programmed inspections must use neutral and objective selection criteria. *See* coding instructions for the OSHA Information System (OIS) in Section XII.F.

Any inspection that meets the conditions for a heat inspection and any heat-related severe injury report or referral from VDH shall initiate an inspection, unless a physical inspection is not feasible. For example, the construction operation was temporary and work has ended, or the report is from an area that is difficult to reach (*e.g.*, mountain area, gorge, swamp). The list of industries in [Appendix A](#), Table 1 (non-construction), of this Heat NEP can be used to create a master list of targeted establishments within the North American Industrial Classification System (NAICS). NAICS is a systematic way to classify businesses by the products or services they provide. A list of

establishments that are in the local jurisdiction of each Regional Office will be generated by the Office of Statistical Analysis (OSA) ListGen application will be requested. The Regional Office will inspect establishments in the Random Number order as provided on the list to ensure neutrality. OSA will provide each Regional Office with an Access database that includes the establishments with the NAICS codes covered under this NEP.

[Appendix A](#), Table 2, lists construction industries that are likely to have heat-related hazards. The Regional Office should use C-Target procedures to find active construction sites to add to their list of heat inspections for programmed inspections during days of locally issued heat warnings or advisories (*see* [Appendix G](#)). (Note that if a construction project from the C-Target list is inspected, the Regional Office must account for all projects from that list by either conducting an inspection or deletion in accordance with [CPL 02-00-155](#)). While travelling to work sites, CSHOs should be vigilant of circumstances where employees in the industries listed in [Appendix A](#), Table 2, are exposed to heat-related hazards.

[Appendix A](#), Table 3, lists non-construction industries with a history of heat-related incidents that are not in ListGen. For industries in Table 3, alternative sources may be utilized (*e.g.*, Reference USA, a business and residential information database). The Regional Office may use local knowledge to add these industries to the inspections list.

2. Additions. ROs may also add establishments to the ListGen Master List based on current activity at a construction site, or other non-construction establishments, based on local evidence that heat exposures have occurred in the five years preceding the effective date of this Instruction for industries not included in ListGen. The local evidence may be based on OIS incident data, employer-reported heat-related illness or fatalities, regardless of NAICS, and workers' compensation data. Other sources of local information may include but are not limited to: (a) commercial directories (*e.g.*, Reference USA); (b) telephone listings; (c) local knowledge of establishments; (d) information from other government agencies with joint jurisdictions, such as VDH, Virginia Department of Agriculture and Consumer Services (VDACS), U.S. Department of Agriculture (USDA), Environmental Protection Agency (EPA), Virginia Department of Environmental Quality (DEQ), Virginia Department of Transportation (VDOT) and (e) media referrals. The RO must retain documentation of every addition made to the Master List and, prior to use, the revised List must be re-randomized either by OSA or by the RO using the RANDBETWEEN function in Microsoft Excel.

ListGen assigns random numbers and provides the establishment lists in random number order. Acceptable methods for generating cycles can be found in the memorandum dated November 12, 2014, [Establishment Targeting Lists for Emphasis Programs](#). Subsequent cycles will be created in the same manner until such time that this NEP is cancelled or until all

establishments on the list have been assigned to a cycle. Cycles may be created all at once or as necessary and need not be of the same size.

Deletions. ROs may delete from their target list establishments known to be out of business, documenting the basis for such determinations. Regional Offices shall generally not delete establishments with 10 or fewer employees from the establishment list.

Regional Officers may delete from their target list any establishment that does not have an exposure to heat-related hazards or that has had a comprehensive or partial health inspection that addressed heat hazards, with an Opening Conference date occurring within the twelve (12) previous months and resulting in one of the following outcomes:

- a) Serious citations issued related to heat hazards which are under contest or for which the abatement period has not yet expired; or
- b) No serious citations were issued for hazards related to exposure to heat-related hazards; or
- c) Serious citation(s) were issued for hazards related to exposure to heat-related hazards, but a follow-up inspection documented appropriate and effective efforts by the employer to abate the serious hazards cited (*e.g.*, work practice or administrative controls in place, engineering controls installed).

Note: The RD may use discretion in scheduling a heat inspection at a previously cited establishment inspected within the previous twelve (12) months, even where related other-than-serious citations, Hazard Alert Letters, or Notification Letters were issued.

The RO shall maintain documentation supporting any deletions made under this paragraph (see below).

3. Maintaining Inspection List/Cycles and Documentation: The RD is responsible for maintaining documentation necessary to demonstrate that the RO has used the NEP inspection list and cycles in accordance with this Instruction, including documenting all deletions, deferrals, or other modifications. The AO shall maintain all such inspection lists, cycles, and documentation for a period of three years following the completion of all inspections conducted under this NEP plan.

C. Inspection Scheduling.

Within a specified cycle, heat-related health inspections shall be scheduled, in accordance with the FOM, with the highest priority given to fatality inspections, and then to other unprogrammed inspections (*i.e.*, complaints and referrals) alleging employee exposure(s) to heat-related hazards. The Regional Office (RO) may schedule follow-up inspections related to heat-related hazards to meet the

goals of this NEP where unprogrammed activities have decreased sufficiently to allow that.

1. Scheduling. The RO must schedule inspections by establishing a cycle. A "cycle" is a subset of establishments from the Master List that allows the Area Office to use its enforcement resources more efficiently, including arranging establishments' order within a cycle. See OSHA Memorandum, [Establishment-Targeting Lists for Emphasis Programs](#), November 12, 2014, page 3.

The RO may schedule inspections one of the following ways:

- a) If the RO intends to inspect the entire Master List, they may schedule the inspections in any order. If the RO uses this method, they must account (through inspections and deletions) for the entire list. The RO cannot inspect off a new list until the entire previous list is completed.
- b) The RO may inspect the facilities in the random number order provided. If the AO uses this method, it does not need to complete the entire Master List.
- c) The RO may create cycles by choosing a set number of establishments from the Master List, sorted in random number order. For example, it can select the first 10 establishments on the Master List, sorted by ascending random number as a first cycle of 10 establishments. The RO can then inspect those establishments in any order but must finish the cycle prior to beginning a second cycle. Once the first cycle is complete, the RO can inspect the next ten establishments on the randomized Master List as its second cycle.

Some establishments selected for inspection under this NEP may also be selected under other NEPs and/or NEPs. Whenever possible, inspections under this NEP should be carried out concurrently with other programmed inspections.

2. Unprogrammed Inspections.

Fatalities/catastrophes, complaints, or referrals for any general industry, maritime, construction, or agriculture operation alleging hazardous exposures to heat (outdoors and/or indoors), regardless of whether they fall within a targeted industry of this NEP, shall be handled in accordance with the hierarchy of initiating inspections as outlined in [FOM Chapter 2, Complaint and Referral Processing](#), and [Chapter 3, Program Planning](#), and in accordance with the specific procedures listed below:

- a) Fatalities/Catastrophes.

Fatality incidents shall be prioritized for inspections.

b) Complaints and Referrals.

Allegations of potential worker exposures to heat (*e.g.*, insufficient controls in place such as access to water, rest, and/or shade), or involving workers suspected or confirmed of a heat-related illness, shall be given priority for on-site inspections.

During all unprogrammed inspections, CSHOs must document the information required in [Section XII.D](#).

3. Follow-up Inspections.

Initial follow-up inspections should be conducted for establishments that were previously inspected as a result of a heat-related fatality and were issued citations, to determine if abatement was implemented for heat-related hazards. Additional follow-up inspections should be conducted for any establishment receiving serious violations for heat-related hazards or in some cases, other than-serious citations.

The RD may also select establishments for follow-up inspections where any of the following applies:

- a) The establishment previously received an other-than-serious recordkeeping violation related for failure to record a heat-related illness or injury, and other circumstances at RD discretion.
- b) A previously inspected employer continues to expose employees to heat-related hazards, or has not fully and properly implemented required engineering controls, administrative controls, work practices, and personal protective equipment noted in the abatement certification, within the time period specified; or
- c) If there are any violations for which abatement verification has not been provided.

Follow-up inspections are to be conducted in accordance with [FOM, Chapter 3](#), Section IV. *Inspection Procedures for Follow-up and Monitoring Inspections*, based on available resources and using either on-site, remote, or a combination of on-site and remote methods.

For situations where follow-up onsite inspections cannot be performed (*e.g.*, where CSHOs are unable to conduct an on-site inspection), the RD, when possible, may require that the employer provide written updates documenting the progress of abatement efforts, per VOSH ARM, 16VAC25-60-307, Abatement Verification. If resources allow, follow-up inspections/investigations may also be initiated to verify abatement of any hazards identified in Hazard Alert Letters for heat-related hazards.

4. Programmed Inspections.

a) High-hazard Industries.

[Appendix A](#) lists high hazard industries with NAICS codes having among the highest numbers of BLS heat cases, incidence rates and BLS median days away from work for the years 2015-2020, OSHA severe injury reports, OSHA-recorded inspections, heat-related violations, and Hazard Alert Letters issued since January 2018. (See [Appendix A](#) for more detailed information about the sources OSHA used to identify affected industries.). [Appendix A](#), Table 1, has a list of targeted industries in ListGen to be used for programmed Heat NEP inspections during days of locally-issued heat warnings or advisories (see [Appendix G](#)).

b) General Schedule List.

If an establishment selected for inspection under this NEP is also selected under the current General Schedule List, where possible the NEP and General Schedule plan inspections should be conducted concurrently.

5. Whistleblower Protections.

Workers requesting inspections, complaining of heat-related exposure, or reporting illnesses or retaliation, may be covered under one or more whistleblower protection statutes. Inform the workers of their protections from retaliation and refer them to the VOSH Office of Whistleblower Protection, for more information, including how to file a retaliation complaint. If the worker is alleging some form of retaliation, the RO should submit a referral to the VOSH Office of Whistleblower Protection Program using the appropriate intake form and regional referral process.

6. Coordination with Virginia Department of Health.

Workers complaining of inadequate working or living conditions or wages, may be protected by one or more statutes enforced by VDH. VDH and VOSH offices are encouraged to initiate referrals and exchange appropriate information relating to complaints, inspections, or investigations and related matter to support the enforcement activities of the agencies.

If VOSH discovers information relating to a possible violation of the laws and regulations enforced by VDH, VOSH offices are encouraged to provide timely information to VDH by making a referral.

7. Cooperative Programs.

Employers participating in select cooperative programs may be exempt from programmed inspections. After inspection lists are generated, the RO should contact the VOSH On-Site Consultation Officer(s) in their RO to determine if

any company on the list should be exempted. The CSHO should follow the procedures outlined in [FOM Chapter 2](#), Program Planning, for further guidance if an On-Site Consultation visit is in progress, or if the establishment is a participant in VOSH's Voluntary Protection Programs (VPP) or the Safety and Health Achievement Recognition Program (SHARP) or Pre-SHARP. Even if an employer is exempt from a programmed inspection, the RO should notify the employer in writing that they are required to comply with all applicable VOSH standards and the General Duty Clause. In such cases, the Regional Consultation Program Officer shall follow-up with the Consultation Program Manager.

D. Inspection Procedures and Case File Documentation.

Programmed inspections under a new NEP are typically initiated after a 90-day outreach period. The VOSH On-Site Consultation Program has conducted outreach in Virginia throughout the heat campaign that was first initiated in 2011. Therefore, the 90-day outreach goal for this enforcement initiative has been achieved. Regions may perform more outreach as needed.

VOSH will include additional information in its outreach efforts on the Heat NEP through webinars and conferences at the State and regional levels. The Agency will continue to conduct outreach, per [Section XII.G](#), throughout the NEP's course of implementation while responding to complaints, referrals, hospitalizations, and fatalities related to heat, and shall code such activities in accordance with [Section XII.F](#).

All inspections shall be conducted in accordance with the general provisions of the [FOM](#). Other procedures related to scheduling and conducting inspections include the following:

1. VOSH Regional Offices shall assess the potential for heat-related illnesses, injuries, and deaths where heat-related hazards may exist in indoor work areas or at outdoor work areas on heat priority days when the heat index is expected to be 85°F or higher. CSHOs should use internal guidance material for assistance in performing heat investigations. The procedures to assess heat conditions and workload are described in the OSHA Technical Manual (OTM), Section III, [Chapter 4 - Heat Stress](#). Inspections under this NEP shall only be conducted by CSHOs who have reviewed the appropriate safety and health precautions as outlined in the [FOM Chapter 3](#), *Inspection Procedures*. A review of any potential heat-related hazards should be included in any programmed or unprogrammed inspection, as mentioned above.

Inspections should be completed and citations, or hazard alert letters, if any, should be issued expeditiously to facilitate prompt abatement. After any type of inspection initiated under this NEP, where evidence of a potential General Duty violation is not present, an intervention with the employer should be

conducted to identify and prevent potential heat-related illnesses. Heat hazard interventions are informational in nature and should include discussions with employers regarding taking proactive employee protection measures (e.g., easy access to cool water, cooling areas, and acclimatization) and providing heat posters and other outreach materials to mitigate the hazard.

Note: In cases where it is geographically infeasible to expeditiously initiate an inspection of an unprogrammed activity, the Regional Office will initiate contact with the employer using non-formal procedures to encourage speedy interventions to prevent the potential for heat-related illnesses.

2. During heat-related inspections, CSHOs shall:
 - a) Review OSHA 300 Logs and 301 Incident Reports for any entries indicating heat-related illness(es),
 - b) Review any records of heat-related emergency room visits and/or ambulance transport, even if hospitalizations did not occur, [this may require the use of a Medical Access Order],
 - c) Interview workers for symptoms of headache, dizziness, fainting, dehydration, or other conditions that may indicate heat-related illnesses, including both new employees and any employees who have recently returned to work,
 - d) Determine if the employer has a heat illness and injury program addressing heat exposure, and consider the following:
 - Is there a written program?
 - How did the employer monitor ambient temperature(s) and levels of work exertion at the worksite?
 - Was there unlimited cool water that was easily accessible to the employees?
 - Did the employer require additional breaks for hydration?
 - Were there scheduled rest breaks?
 - Was there access to a shaded area?
 - Did the employer provide time for acclimatization of new and returning workers?
 - Was a “buddy” system in place on hot days?
 - Were administrative controls used (earlier start times, and employee/job rotation) to limit heat exposures?
 - Did the employer provide training on heat illness signs, how to report signs and symptoms, first aid, how to contact emergency personnel, prevention, and the importance of hydration?
 - e) Document conditions relevant to heat-related hazards, including:
 - The heat index and additional weather data from that day, e.g., heat alerts from the NWS, data from the OSHA-NIOSH [Heat Safety Tool](#)

[App](#), saving a screenshot on a mobile phone or tablet. Additional information may be needed or indoor heat investigations

- Observe and document current conditions and those at the time the Incident occurred (for unprogrammed inspections), including:
 - Observed wind speed, ○ Relative humidity,
 - Dry bulb temperature at the workplace and in the shaded rest area, ○ Wet-bulb globe temperature at the workplace, (ensure the equipment has been properly calibrated prior to use),
 - Cloud cover (no clouds, 25%, 50%, 75%, 100%), and
 - The existence of any heat advisories, warnings, or alerts the previous days.
 - f) Identify activities relevant to heat-related hazards. These can include, but are not limited to:
 - Potential sources of heat-related illnesses (*e.g.*, working in direct sunlight, a hot vehicle, or areas with hot air, near a gas engine, furnace, boiler, or steam lines),
 - The use of heavy or bulky clothing or equipment, including personal protective equipment,
 - Estimate workload exertions by observing the types of job tasks performed by employees and whether those activities can be categorized as moderate, heavy, or very heavy work, considering both average workload and peak workload,
 - Duration of exposure during which a worker is continuously or repeatedly performing moderate to strenuous activities.
3. VOSH Regional Offices shall instruct CSHOs to be vigilant, during their travels to job sites, to conduct compliance assistance or self-referral inspections of outdoor work environments in plain view (*e.g.*, construction worksites, highway and bridge work, lawn care, and maintenance workers, etc.) where employees may be performing moderate or more strenuous work during heat priority days or working in direct sunlight (or other radiant heat sources) for extended periods of time. Observing potential heat-related hazards while travelling is particularly important for early intervention and prevention of heat-related incidents on construction sites, *see* [Appendix A](#), Table 2. Where there is no heat hazard present or where the employer has an adequate heat illness prevention program, the CSHOs should provide any additional relevant information.

4. Once an inspection has been scheduled for an identified establishment, and prior to opening the inspection, CSHOs shall conduct a search of the employer's citation and fatality/accident history in OSHA's Establishment Search Page or by using the OIS to determine any prior heat-related issues.
5. The CSHO shall also determine whether the identified establishment is scheduled for any other programmed inspection (e.g., General Schedule, NEP, NEP). Whenever possible, inspections under this NEP should be carried out concurrently with other programmed inspections.
6. At the opening conference, the CSHO will verify the correct NAICS code for the establishment with the employer and determine whether work practices that may result in worker exposures to heat-related hazards are present at the facility or worksite. The CSHO shall review the establishment's injury and illness logs (OSHA 300 and OSHA 300A) for three calendar years prior to the inspection and the current year to date to identify any work-related cases of heat illness.

Note 1: Not all industries covered by the Heat NEP are required to maintain OSHA records, and CSHOs should check to see if the industry of the establishment being inspected is in [Appendix A to subpart B of Part 1904](#). If the establishment is exempt from maintaining OSHA records, either because of size (per 29 CFR § 1904.1) or industry classification (per § 1904.2), it cannot be cited for failing to record an injury or illness.

Note 2: CSHOs shall always verify an employer's assertions regarding workplace conditions or worker exposures to heat by interviewing employee(s) at the site.

7. If the inspection is initiated by an unprogrammed or follow-up activity, or the establishment is targeted under another NEP, SEP or LEP, the CSHO shall proceed to determine any additional alleged items or those covered by another emphasis program. The CSHO will also inform the employer and interviewed employees of their Whistleblower rights and responsibilities, [Va. Code §40.1-51.2:1](#). If the unprogrammed activity that initiated this inspection included an allegation of retaliation, the CSHO shall refer this allegation to the Office of Whistleblower Protection Program.

If the CSHO determines during the walkaround or background research that workers may be performing tasks which include exposure to heat-related hazards, then they shall proceed with the inspection following the procedures in this NEP.

8. A review of any potential heat-related hazards should be included in any programmed or unprogrammed inspection where radiant heat sources exist in indoor work areas or at outdoor work areas on heat priority days. CSHOs should conduct compliance assistance and document it where heat-related hazards do no warrant issuing citations.

9. CSHOs can use the OSHA-NIOSH [Heat Safety Tool App](#) as a resource. This App provides current and projected heat indices for that day at the current location. The App indicates the hazard levels as: **Caution** (less than 80°F HI), **Warning** (80°F – 94°F HI), **Danger** (95°F HI or higher), and offers recommended actions to protect workers. When conditions for previous days are needed, the NWS provides certified historic weather data to document past conditions on. CSHOs should use nationally available tools assembled on the CSHO Resources intranet webpage to reconstruct data when appropriate on a particular day.
10. WBGT readings will be determined in accordance with procedures on conducting WBGT sampling and performing workplace assessments, OSHA Technical Manual (OTM), [Section III, Chapter 4](#). WBGT sampling is considered a more accurate indicator of the effects of heat on individuals than dry bulb thermometer readings. Dry bulb thermometer readings measure air temperature only. As noted above, CSHOs should also conduct workload assessments through direct observation of work practices/operations and employee interviews. They should particularly note if heavy or bulky clothing or equipment is used.
11. If inspections occur on days different from the incident triggering the complaint, referral, SIR, or fatality, CSHOs should obtain historic WBGT logs/records, if available. If records are not available, the OTM provides a method for calculating WBGT values using historic weather data available on the internet.
12. Report heat-related inspections to the VOSH Health Compliance Director as soon as possible. Regional Offices should contact the VOSH Health Compliance Director early in the inspection (especially in fatality or hospitalization cases) to obtain Medical Access Orders, if needed. For technical assistance, contact the Health Response Team and/or the Cincinnati Technical Center on the use of WBGT instrumentation. Contact DEP's Office of Health Enforcement, for assistance with enforcement policy.
13. During any inspection, where other health or safety hazards have been alleged in a complaint or observed in plain view during the walkaround, CSHOs shall investigate as appropriate. Safety or health referrals may be made, subject to any current exemptions or limitations on such activity.
14. The CSHO will inform workers of their right to file a whistleblower complaint if they experience retaliation for providing assistance to VOSH during an inspection, such as filing a safety and health complaint with VOSH, reporting a work-related injury or illness, or complaining about exposure to heat-related hazards or any other workplace hazards to management. Any complaint of alleged retaliation shall be promptly referred to the Office of Whistleblower Protection Program.

15. Citation Guidance: CSHOs shall consult this Instruction and its references, and any internal guidance on heat enforcement available, and guidelines in evaluating whether there is sufficient evidence to issue a General Duty Clause (GDC), [Va. Code §40.1-51.1.A](#)) citation for heat-related hazards. Any proposed citation for a heat-related health hazard for both indoor and outdoor work activities shall be issued under the GDC when all elements of a violation have been established. CSHOs should document the relationship between the workplace operations and exposure(s) and the potential for heat-related illness(es), specifically focusing on all ambient conditions and activities that present heat-related hazards.

- a) Ensure that the hazard is clearly and specifically set forth in the citation. Avoid solely describing an employer's failure to implement specific heat illness abatement measures as the hazard. The Division of Legal Support shall be consulted for assistance when developing these cases prior to issuing any heat-related general duty citations. A sample Alleged Violation Description (AVD) for a heat-related illness general duty violation is located in [Appendix C](#). A Hazard Alert Letter (HAL) may be sent when all the elements of a GDC violation have not been established. A sample HAL is located in [Appendix D](#), and a corresponding letter template is in the OIS.
- b) Several VOSH standards may also be applicable to address worker protection in hot environments including, but not limited to, use of personal protective equipment, sanitation, medical services and first aid, and recordkeeping.
 - The Recordkeeping regulation at § 1904.7(b)(5) requires that employers record certain work-related injuries and illnesses. If a worker requires medical treatment beyond first aid, the worker's illness or injury must be recorded, such as unconsciousness or use of oxygen. However, if a worker merely requires first aid treatment for the worker's condition, the employer is not required to record the condition. For example, if a worker becomes unconscious, the worker's condition must be recorded. However, if a worker is only instructed to drink fluids for relief of heat stress, the worker's condition is not recordable. Refer to § 1904.7(b)(5) for an explanation of the difference between medical treatment and first aid. Recordkeeping issues must be handled in accordance with VOSH PROGRAM DIRECTIVE: 09-104A.

Note: Not all industries covered by the Heat SEP are required to maintain OSHA records, and CSHOs should check to see if the industry of the establishment being inspected is on [Appendix A to subpart B of Part 1904](#). If the establishment is exempt from maintaining OSHA records, either because of size (per 29 CFR § 1904.1) or industry classification (per § 1904.2), it cannot be cited

for failing to record an injury or illness.

- The Sanitation standards at § 1910.141, 1915.88, 29 § 1917.127, 29 § 1918.95, § 1926.51, and § 1928.110 require employers to provide cool potable water.
- The general construction safety training and education standards for construction at § 1926.21 and § 1926.20, requiring a Safety and Health Program, as well as frequent and regular safety and health inspections may also be applicable.

Note: Issuance of citations or HALs should be expedited so that proposed abatement measures may be implemented earlier to protect employees exposed to heat hazards.

In all cases where the RD determines that a worksite condition exists warranting issuance of a General Duty citation for occupational exposure to the heat-related hazards, the Regional Office shall follow current guidance in this SEP. Heat cases proposing a General Duty citation are novel cases and must be submitted to the VOSH Health Compliance Director and the Division of Legal Support (DLS) following novel case procedures, until otherwise instructed.

16. Establishments with more than one location engaged in the same or similar types of operations, may also have employees who are potentially exposed to heat-related hazards at other work sites. Compliance Officers should consult with the RD to provide a letter to the corporate entities of such establishments, informing them of any heat-related VOSH inspection(s), including sending relevant information on protective measures. Refer to [Appendix E](#) of this Instruction for a sample letter to employers.

E. CSHO Protection.

1. When performing an on-site inspection, CSHOs must observe all appropriate precautions to protect themselves from heat-related illnesses. CSHOs should ensure that they have protected themselves from the dangers of heat exposure prior to performing any enforcement actions in the field in accordance with the job hazard analysis for that worksite, and immediately stop the inspection if they or an employee has symptoms of heat illness. Additional safety precautions will be needed if the CSHO believes other hazards may exist in the workplace. [Appendix B](#) of this Instruction provides a CSHO pre-inspection checklist.
2. CSHOs shall also protect themselves against other hazards during an inspection and must use additional personal protective equipment as necessary to protect themselves from hazards (*e.g.*, gloves, goggles). Additional CSHO precautionary guidance and inspection tools are provided in Appendix B of this Instruction. See [FOM Chapter 4](#), Section II.E, *Safety and Health Issues Relating to CSHOs*.

F. OSHA Information System (OIS) Coding Instructions.

All enforcement activities (*i.e.*, inspections, complaints, and referrals, etc.) and consultation requests/visits conducted under this NEP shall be coded with the new code, “HEATNEP.” The existing heat codes, “N-02-HeatGI, N-02-HeatCON, N02-HeatMI, N-02-HeatAG,” are also required in the Additional Code field. However, new for this NEP is that technical assistance activities related to heat should be captured on the compliance assistance Form 55 using the N-02 heat codes, above, by industry, which is being added to the Form 55 in the OIS. These codes must be applied even if the establishment was not among the targeted NAICS listed in Appendix A, as long as heat-related hazardous conditions were investigated. VOSH and Consultation Program compliance assistance activities related to heat illness prevention should also continue to be coded with the topic “Heat Illness Prevention.” Programmed heat inspections will be conducted when the NWS has announced a heat warning or advisory for the local area and shall be coded as Heat NEP inspections in the OIS. Unprogrammed heat inspections should also be coded as a Heat NEP inspection in the OIS.

Additionally, inspections conducted under this NEP are to be coded under Inspection Category as a “Health” inspection unless the inspection was initiated as an unprogrammed safety inspection where no heat-related hazards were initially alleged but were later found during the course of the inspection. In such a case, the inspection should be coded under Inspection Category as a “Safety” inspection.

CSHOs should identify any heat violations or HALs using the General Duty Keyword in the violation screen. CSHOs should enter “Heat” in the general duty keyword section. *The Heat keyword is in addition to the other required heat coding for violations, such as Related Event Codes as applicable.*

Table 1, below, provides a summary of all heat related OIS codes.

Table 1. List of OIS codes for heat-related inspections and activities

OIS Field	OIS Codes	Activity Type
NEP	HEATNEP	All enforcement and consultation activities conducted under this NEP (e.g., complaints, fatalities, referrals, inspections, visits).
Additional Code	N-02-HEATGI, N-02HEATCON, N-02HEATMI, N-02HEATAG	These existing codes will continue to be used to track industry groups for all enforcement activities, and now also for compliance assistance.

General Duty Keyword	Heat	All heat-related violations and HALs
Compliance Assistance Activity Topic	Heat Illness Prevention	Existing topic for all heat-related compliance assistance activities will continue to be used. In addition, for task type “technical assistance” add additional codes as directed above.

G. Outreach.

1. Offices.

As discussed above, at the beginning of [Section XII.D](#), each Regional Office shall continue conducting outreach programs concerning heat illnesses, including as it pertains to new guidance and this NEP. The VOSH On-Site Consultation Program shall continue to conduct statewide outreach on heat illness prevention upon issuance of this NEP.

2. Suggested Local Outreach.

Outreach activities may include the following:

- a) Sharing information on the Heat NEP and available compliance assistance tools and resources, including no-cost On-Site Consultation services available to small businesses. This information may be distributed in written form (e.g., via letter or email), or conveyed in webinars or presentations at conferences and other events to employers, employee groups, and unions in heat hazard industries such as, but not limited to those in [Appendix A](#).
- b) Enhancing collaborations with other state and federal agencies with similar outreach goals, such as the VDH, USDA, EPA, DEQ and VDACS to conduct outreach on the Heat NEP and heat illness prevention.
- c) Collaborating with agency stakeholders, including VOSH cooperative program participants, to share information on the NEP and best practices or effective means of reducing or eliminating worker exposure to heat-related hazards.
- d) Building new stakeholder relationships with organizations that can help disseminate information to workers and employers in heat hazard industries.
- e) Working with On-Site Consultation Programs, local Small Business Development Centers (SBDCs), and other organizations to reach small businesses in heat hazard industries.

- f) Sharing information on the rights of workers and responsibilities of employers, including whistleblower protections and anti-retaliation principles. The Recommended Practices for Anti-Retaliation Programs can be used as a resource and outreach tool, see [Appendix D](#).

Targeted Audiences for Outreach.

- Local employers in high-hazard industries. *See also* targeted industries in [Appendix A](#).
- Unions, worker centers, COSH groups (Councils for Occupational Safety and Health), and other organizations committed to advancing protections for underserved worker populations.
- Local companies and employer associations (*e.g.*, trade associations, contractor groups, farm bureaus, local chambers of commerce) in industries such as, but not limited those in [Appendix A](#).
- Insurance companies.
- Local professional associations (*e.g.*, local safety councils, local agriculture extensions).
- Temporary employment agencies providing employees to targeted employers.
- Local newspapers, TV stations, and trade magazines (these can help inform the public and hard-to-reach employers).
- Local government (*e.g.*, health departments, departments of correction, emergency services, construction permitting agencies, and departments of transportation).
- Local suppliers of materials or services, equipment transportation companies, such as landscapers, and delivery services.

Online Materials.

VOSHA online resources may be of assistance in this outreach effort. A variety of these information sources can be accessed through OSHA’s public webpage, including OSHA’s webpage for the [Heat Illness Prevention Campaign](#), Safety and Health Topics webpage on [Heat Exposure](#), and the DOLI [Heat Stress Illness And Prevention](#) web page. Internal resources for heat are also available on the OSHA intranet.

H. Coordination.

1. Headquarters’ Office.

This NEP will be coordinated by the Division of Health Compliance (DHC). All questions and comments regarding this NEP should be directed to DHC. For inspection support, Regional and Field Offices may

also coordinate, as needed, with OSHA's Directorate of Technical Support and Emergency Management's (DTSEM), Office of Occupational Medicine and Nursing (OOMN), the OSA, the Cincinnati Technical Center, the Salt Lake Technical Center's Health Response Team, and other offices. For questions about outreach support and resources, contact the Division of Cooperative Programs.

2. Regional Office.

The Regional Director will work with the Health Compliance Director in implementing this NEP.

I. Program Review.

To assess the effectiveness of this NEP, the Health Compliance Director will review the NEP within 12 months of issuance to determine whether the policy contained herein will be continued, and take steps to assure its replacement with a cleared Instruction, if needed, as soon as possible. The program review reports shall, at a minimum, address the NEP goal (*see* [Section XI](#)), in accordance with established Agency procedures. Data on effectiveness may include:

1. The number of employers covered by the inspections.
2. The number of workers removed from hazards.
3. Abatement measures implemented.
4. Number of violations related to specific targeted hazards.
5. Any indices that relate directly to measures that may be included in the VOSH Strategic Plan.
6. Total number of prosecutable, heat-related violations of VOSH standards (including final citations resulting from the settlement or litigation of contested cases).

Appendix A: Target Industries for the Heat NEP

Programmed inspections under this NEP may be scheduled on any day that the NWS has announced a heat warning or advisory for the local area (see [Appendix G](#) for a description of these types of alerts). This appendix includes three tables of industries (NAICS codes at the 4-digit level) with the following: 1) High numbers or high incidence rates of heat related illnesses from the Bureau of Labor Statistics (BLS) data; 2) Elevated number of days away from work (BLS) or high numbers of severe cases of heat-related illnesses, as indicated by death or hospitalization, from OSHA severe injury reports made by employers; or 3) the highest number of OSHA heat-related general duty clause 5(a)(1) violations and HALs over a 5 year period (1/1/2017 thru 12/31/2021), or the highest number of OSHA heat inspections since 2017. Table 1 lists non-construction industries in ListGen, Table 2 lists construction industries, and Table 3 lists non-construction industries not found in ListGen.

Note: It should not be assumed that employee exposure to heat occurs in all establishments within the industries listed in the tables below. The RO may delete from their target list any establishment that does not have an exposure to heat-related hazards or an establishment that has had a comprehensive or partial health inspection that addressed heat hazards with an Opening Conference date occurring within the twelve (12) previous months, see [Section XII B2 Site Selection Deletions](#).

Table 1. Non-construction industries that are in ListGen and are likely to have heat-related hazards.

2017 4-Digit

NAICS Code	2017 NAICS Industry Sector Title
1121	Cattle Ranching and Farming
1151	Support Activities for Crop Production
2131	Support Activities for Mining
3118	Bakeries and Tortilla Manufacturing
3211	Sawmills and Wood Preservation
3241	Petroleum and Coal Products Manufacturing
3251	Basic Chemical Manufacturing
3272	Glass and Glass Product Manufacturing
3311	Iron and Steel Mills and Ferroalloy Manufacturing
3314	Nonferrous Metal (except Aluminum) Production and Processing
3315	Foundries
3323	Architectural and Structural Metals Manufacturing
3329	Other Fabricated Metal Product Manufacturing
3361	Motor Vehicle Manufacturing
3362	Motor Vehicle Body and Trailer Manufacturing
3363	Motor Vehicle Parts Manufacturing
3364	Aerospace Product and Parts Manufacturing
3365	Railroad Rolling Stock Manufacturing

3366	Ship and Boat Building
3369	Other Transportation Equipment Manufacturing
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing
4239	Miscellaneous Durable Goods Merchant Wholesalers
4241	Paper and Paper Product Merchant Wholesalers
4242	Drugs and Druggists' Sundries Merchant Wholesalers
4243	Apparel, Piece Goods, and Notions Merchant Wholesalers
4244	Grocery and Related Product Merchant Wholesalers
4245	Farm Product Raw Material Merchant Wholesalers
4246	Chemical and Allied Products Merchant Wholesalers
4247	Petroleum and Petroleum Products Merchant Wholesalers
4248	Beer, Wine, and Distilled Alcoholic Beverage Merchant Wholesalers
4249	Miscellaneous Nondurable Goods Merchant Wholesalers
4413	Automotive Parts, Accessories, and Tire Stores
4442	Lawn and Garden Equipment and Supplies Stores
4881	Support Activities for Air Transportation
4882	Support Activities for Rail Transportation
4883	Support Activities for Water Transportation
4884	Support Activities for Road Transportation
4889	Other Support Activities for Transportation
4921	Couriers and Express Delivery Services
4922	Local Messengers and Local Delivery
4931	Warehousing and Storage
5311	Lessors of Real Estate
	Services to Buildings and Dwellings (includes landscaping services, tree removal and tree trimming services)
5617	
5621	Waste Collection
5622	Waste Treatment and Disposal
5629	Remediation and Other Waste Management Services
6231	Nursing Care Facilities (Skilled Nursing Facilities)
7211	Traveler Accommodation
8111	Automotive Repair and Maintenance
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
8114	Personal and Household Goods Repair and Maintenance

The RO should use C-Target to find active construction sites to add to their programmed inspection list on any day that the NWS has issued a heat warning or advisory for the local area. (Note that if a project from the C-Target list is inspected, the RO must account for all projects from that list by either inspection or deletion in accordance with VOSH PROGRAM DIRECTIVE: 02-105A, *Inspection Scheduling for Construction*). Where VOSH is conducting an inspection for other purposes, a heat-related inspection shall be opened for all hazardous conditions observed in plain view (such as employees or temporary workers in high exposure

areas without adequate training, acclimatization or access to water, rest, and shade).

Table 2. Construction industries that are likely to have heat-related hazards.³

2017 4-Digit NAICS Code	2017 NAICS Industry Sector Title
2361	Residential Building Construction
2362	Nonresidential Building Construction
2371	Utility System Construction
2372	Land Subdivision
2373	Highway, Street, and Bridge Construction
2379	Other Heavy and Civil Engineering Construction
2381	Foundation, Structure, and Building Exterior Contractors
2382	Building Equipment Contractors
2383	Building Finishing Contractors
2389	Other Specialty Trade Contractors

For certain industries not included in ListGen alternative sources may be utilized (*e.g.* ReferenceUSA). The RO should use local knowledge to add these industries in Table 3 to the inspections list.

Table 3. Industries not included in ListGen or Construction that are likely to have heat-related hazards.

2017 4-Digit NAICS Code	2017 NAICS Industry Sector Title
1112	Vegetable and Melon Farming
1113	Fruit and Tree Nut Farming
2213	Water, Sewage and Other Systems (may be State or local jurisdiction)
4411	Automobile Dealers
4412	Other Motor Vehicle Dealers
4821	Rail Transportation (may be Federal jurisdiction)
4885	Freight Transportation Arrangement
4911	Postal Service
5611	Office Administrative Services
5612	Facilities Support Services
5613	* Employment Services
5614	Business Support Services

³ Construction inspections ([C-Target](#)) should be scheduled from a list of **construction worksites** rather than construction employers, due to the mobility of the construction industry, the transitory nature of construction worksites, and work that frequently involves more than one construction employer on the site.

5616	Investigation and Security Services
5619	Other Support Services
6117	Educational Support Services
<hr/>	
7225	Restaurants and Other Eating Places
8112	Electronic and Precision Equipment Repair and Maintenance
9281	National Security and International Affairs (includes Customs and Border Patrol, and Transportation Security Administration)

** **Note:** Establishments within the Temporary Help Services (NAICS 5613) industry should not be automatically included in the targeting list for programmed inspections. Although this industry has been among the top industries with OSHA enforcement activities related to heat, this has primarily occurred where services occurred at a high-hazard host. Therefore, to effectively address heat-illness hazards for Temporary Help Services, where OSHA is conducting an inspection for other purposes, a heat-related inspection shall be opened for all hazardous conditions observed in plain view (such as, for example, temporary employees working in high exposure areas without adequate training, acclimatization or access to cool water, rest, and shade).*

Sources for injury and illness data:

- A. Bureau of Labor Statistics (BLS) Fatality cases 2015-2019 due to exposure to heat
- B. BLS days away from work cases, incidence rates, and median days away from work 2015-2019 due to exposure to heat
- C. OSHA severe injury reports fatalities and hospitalizations 2018-2020. Hospitalization reports include all employer-reported referrals with Event Title “Exposure to Environmental Heat.” Fatality reports include all fatality investigations with victim type “Fatality-OSHA Covered” and any of the following public page keywords: Heat Stroke, Heat Exhaustion, Heat-Related Illness, High Temperature, Overheated, Heat.
- D. OSHA inspections 2018-Aug 2021, inspections with additional codes, HEATGI, HEATCON, HEATMI, HEATAG, or HOTDAYS
- E. OSHA Hazard Alert Letters and 5a1 violation, 2018-Aug 2021, violations with type “Heat” General Duty Clause keyword.

Appendix B: CSHO Pre-Inspection Checklist

Below follows some protective measures for CSHOs to consider prior to any heat-related inspection:

- a. Ensure the availability and use of all necessary and appropriate personal protective equipment (PPE).
- b. Ensure all PPE, calibrated inspection equipment, and supplies are retrievable and ready for use.
- c. Review any relevant cleaning procedures for equipment and the vehicle, government (GOV) or personal (POV).
- d. For all heat inspections, the manager/supervisor/CSHO, in consultation with designated regional office staff, will develop and document a risk assessment that includes an exposure control plan, Job-Hazard Analysis, and PPE hazard assessment prior to entry and update it as necessary for each inspection, to include individual inspection risks that may not otherwise be captured in a general or overall worksite assessment. Individual inspection risks may be based on factors such as industry type, on-site hazard location, and acclimatization.
- e. Ensure GOV or POV is road-ready to include gas/fuel, first aid kit, hand sanitizer, disinfecting wipes, or other cleaning and/or disinfecting agents (as required), and bags to dispose of contaminated PPE and used disinfecting wipes.
- f. Ensure there is enough cool water available to drink, while performing an inspection on a heat priority day and in accordance with the JHA in d. above; (NIOSH recommends a cup of water every 15 minutes). Ensure the air conditioning in the GOV or POV is adequate to provide a cool place to rest during inspections on heat priority days. ADs are to provide additional items as needed (such as cooler, umbrella).
- g. Develop a document request letter in advance of the opening conference (*e.g.*, programs, OSHA Form 300/300A, and summaries) to be provided to the employer during the opening conference, if needed.

Appendix C: Sample Heat-related AVD

The General Duty alleged violation description (Alleged Violation Description (AVD) language for heat-related hazard violations of § 40.1-51.1.A. must specify the heat-related hazard with particularity, such as listing all sources of heat (e.g., environmental temperature measurements and information on any heat-generating equipment), all specific workplace conditions, activities or practices that expose employees to a likelihood of heat-related illnesses including related work exertions (e.g., performing moderate to very heavy roofing work, dumping heavy refuse bins while running behind a sanitation truck, wearing impermeable protective clothing, and unacclimatized), as applicable. The alleged heat-related hazard descriptions should *not* include the employer's failure to implement any specific abatement measures, such as acclimatizing workers to the heat; failure to provide cool drinking water, a cool shaded area, or air conditioning; or training workers on heat stress.

Example AVD:

On or about and at times prior to [*the date of the incident*], employees were exposed to the hazard of high ambient heat from [*list sources of and conditions of ambient heat, such as direct sun, boiler, steam, furnace, combustion engine*] during the performance of their job duties, including [*describe specific task(s) and duration of exposure*]. [*List the high temperatures or heat indexes for the days at issue, relative humidity, WBGT measurements and calculations, and any aggravating factors such as heavy or bulky clothing, direct sunlight, and level of workload activities. Include any NOAA heat advisory or alert that supports a high ambient hazardous heat conditions and WBGT if known*]. Such exposures are likely to lead to the development of serious heat-related illnesses such as, but not limited to, heat cramps, heat stress, heat exhaustion, and heat stroke. [*Describe heat-related incidents/illnesses or signs and symptoms that occurred*].

The inspection case file should document any NWS local heat alerts, the reading on the OSHANIOSH Heat Safety Tool App (use the camera screenshot function to save the image of the reading), WBGT temperature if available, wind speed and /direction, radiant heat, cloud cover, length of time the work was performed, and other sources of heat in the workplace. Additionally, document if any of the exposed employees were temporary workers, new hires, or employees returning from prolonged leave periods who were not acclimatized to the heat environment. See [Section XII.D](#) for more details.

When listing availability of feasible abatement methods, document all potential measures that would have materially reduced or eliminated the hazard of heat-related illness, such as providing cool water, frequent rest breaks, cooling or cool shaded areas, gradually acclimatizing workers to heat, and access to first aid/prompt medical attention.

Any water or other fluids provided by the employer should be cool and provided in a location that is familiar to the employees, readily accessible to the work, easy to access, and in sufficient quantity for the duration of the work.

Appendix D: Sample Heat-related Hazard Alert Letter

SAMPLE HAZARD ALERT LETTER

Note: This letter must be adapted to the specific circumstances noted in each inspection. The letter below is an example of the type of letter that may be appropriate in some circumstances. If the employer has implemented, or is in the process of implementing, efforts to address hazardous heat conditions, those efforts should be recognized as appropriate. CSHOs should tailor the recommended controls outlined below to the specific needs of the employer. Italicized and bracketed text are for OSHA compliance use only and should not be included in the letter. Please also check all links to ensure they are the most current.

RE: VOSH Inspection No. []

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 heat-related illnesses in workers:

[Describe the work performed for each task or job, including the type of PPE worn, the source of heat, WBGT and duration of the heat exposure, reading on the OSHA-NIOSH Heat Safety Tool App during the inspection, any heat notifications from the National Weather Service, and any other information relevant to workers' exposure to the risk of heat-related illness].

In the interest of workplace safety and health, I recommend that you voluntarily take the necessary steps to materially reduce or eliminate your workers' exposure to the conditions listed above, including, but not limited to, the following:

General Controls:

General controls include training, personal protective equipment (PPE), engineering, work practice, and administrative controls, health screening, and heat alert programs, (*see also* NIOSH Criteria Document, *Criteria for a Recommended Standard: Occupational Exposure to Heat and Hot Environments*, February 2016, page 7), available at: www.cdc.gov/niosh/docs/2016-106.

1. **Training:** inform workers of the following (*Modify this list as appropriate for the specific situation*):
 - a. Hazards of heat-related illnesses.
 - b. How to avoid heat-related illnesses by recognizing and avoiding situations that can lead to heat-related illnesses.
 - c. Recognition of signs and symptoms of heat-related illnesses.
 - d. First aid procedures.
 - e. Employer's program to address heat-related illnesses.

2. **Personal Protective Clothing and Equipment:** *(CSHOs should recommend the appropriate PPE).*
 - a. Hats for work outdoors in the sun.
 - b. For indoor work, loosely worn reflective clothing designed to deflect radiant heat, such as vests, aprons, or jackets.
 - c. Cooling vests and water-cooled/dampened garments may be effective under high temperature and low humidity conditions. However, be aware that cooling vests can become an insulator when they reach the body's temperature.
 - d. In environments where respirator usage is necessary, consult with an industrial hygienist to determine the appropriate clothing to prevent heat stress while still protecting the workers.
 - e. Consider the use of dermal patches for monitoring core temperature to better identify when workers need to be removed from the work area.
 - f. Consider the use of heart rate monitoring to better identify when workers need to be removed from the work area. Both sustained (180 bpm minus age) and recovery (120 bpm after a peak work effort) heart rates are recommended guidelines for limiting heat strain.

3. **Engineering Practice Controls:** *(CSHOs should consult the OSHA Technical Manual, [Section III Chapter 4](#), for additional information).*
 - a. Use air conditioning
 - b. Increase general ventilation
 - c. Provide cooling fans
 - d. Run local exhaust ventilation where heat is produced (e.g., laundry vents)
 - e. Use reflective shields to block radiant heat
 - f. Insulate hot surfaces (e.g., furnace walls)
 - g. Stop leaking steam
 - h. Provide shade for outdoor work sites.

4. **Administrative and Work Practice Controls:** *(CSHOs should consult the OSHA Technical Manual, Section III Chapter 4, for additional information).*
 - a. Schedule hot jobs for cooler parts of the workday; schedule routine maintenance and repair work during cooler seasons of the year when possible.
 - b. Provide adequate, cool drinking water on the worksite that is easily accessible and permit employees to take frequent rest and water breaks.
 - c. Use relief workers and reduce physical demands of the job.
 - d. Use work/rest schedules.

5. **Health Screening and Acclimatization:**
 - a. Allow new workers to get used to hot working environments by using a staggered approach over 7-14 days. For example, new workers should begin work with 20% of the normal workload and time spent in the hot environment, and then gradually increase the time over a 7-14-day period. The same should be done for workers returning from an

absence of three or more days, starting with 50% of the normal workload and time spent in the hot environment, then staging acclimatization over three consecutive days.

Advise workers that certain medications can increase risk of heat stress. These include:

1. Amphetamines – sometimes prescribed for narcolepsy or attention deficit hyperactivity disorder (ADHD),
 2. Diuretics - water pills,
 3. Antihypertensive - blood pressure medication,
 4. Anticholinergics - for treatment of chronic obstructive pulmonary disease (COPD), and
 5. Antihistamines - allergy medications
- b. In addition, alert workers to the dangers of using illegal drugs and alcohol in hot work environments. Illegal amphetamines, such as methamphetamine, are particularly hazardous when heat stress is present.
- c. Some conditions, such as pregnancy, fever, gastrointestinal illness, heart disease, and obesity, may increase the risk of heat-related illness. Advise workers to check with their doctors if they have any questions. (Please note: the employer is NOT entitled to know whether workers have these conditions, but only whether workers have any health conditions that limit their ability to perform their job duties. In some instances, workers with chronic conditions may need extra time to become acclimatized or may need other accommodations, such as more frequent breaks or restricted work.)
- d. Encourage workers to consult a doctor or pharmacist if they have questions about whether they are at increased risk for heat-related illness because of health conditions they have and/or medications they take.

You may voluntarily provide this Regional Office with progress reports on your efforts to address these heat-related conditions in your workplace. VOSH may return to your worksite to further examine the conditions noted above.

Sincerely,

[RD name]
Regional Director

Additional Resources:

1. OSHA-NIOSH InfoSheet: Protecting Workers from Heat Illness, www.osha.gov/sites/default/files/publications/osha-niosh-heat-illness-infosheet.pdf.
2. CDC Workplace Safety and Health Topics: Heat Stress, www.cdc.gov/niosh/topics/heatstress.
3. NIOSH Criteria Document: Criteria for a Recommended Standard: Occupational Exposure to Heat and Hot Environments, February 2016, www.cdc.gov/niosh/docs/2016-106/.

4. American Conference of Governmental Industrial Hygienists (ACGIH®) Action Limit (AL) for un-acclimatized workers and a Threshold Limit Value (TLV®) for acclimatized workers, *see* Heat Stress and Strain: TLV® Physical Agents 2022 or latest edition. *See* ACGIH® website at www.acgih.org/.
5. NOAA/NWS Heat Safety webpage, www.weather.gov/safety/heat.

Appendix E: Sample Employer Letter to Corporate Offices for Heat-related Hazards

Bracketed comments are for VOSH compliance use only and should be removed when appropriately completed with the case-specific information. Please also check all links to ensure they are the most current.

RE: VOSH Inspection No. []

Dear Employer:

On **[Date]**, the Virginia Occupational Safety and Health (VOSH) Program conducted an inspection and evaluation of your worksite at **[Location]** for hazards related to potential exposure to heat-related hazards.

During the inspection, VOSH determined that hazards were found in violation of the VOSH standards, resulting in [a violation of § 40.1-51.1.A. or a Hazard Alert Letter] to **[Company]**. A copy of the [citations and/or letter] is attached.

Based on the guidelines listed below, it is recommended that employers take the necessary precautions to materially reduce employees' exposure to heat-related hazards.

Because you have other establishments that could present similar hazards, the VOSH Program is recommending that you conduct a hazard assessment for potential hazards in your other establishment(s). To ensure that heat-related hazards are promptly identified and addressed at your other locations, please facilitate immediate corrective action where needed. VOSH recommends that you also institute additional heat-illness measures and review the safety and health practices of your worksites to ensure consistency with VOSH recommendations and compliance with applicable VOSH standards, including:

- The Recordkeeping regulation at § 1904.7(b)(5) requires that employers record certain work-related injuries and illnesses. If a worker requires medical treatment beyond first aid, the worker's illness or injury must be recorded. However, if a worker merely requires first aid treatment for the worker's condition, the employer is not required to record the condition. For example, if a worker becomes unconscious, the worker's condition must be recorded. However, if a worker is only instructed to drink fluids for relief of heat stress, the worker's condition is not recordable. Refer to § 1904.7(b)(5) for an explanation of the difference between medical treatment and first aid. Recordkeeping issues must be handled in accordance with the VOSH *Recordkeeping Policies and Procedures Manual (RKM)* available at:

https://www.townhall.virginia.gov/L/GetFile.cfm?File=C:\TownHall\docroot\GuidanceDocs\181\GDoc_DOLI_5523_v3.pdf

- The Sanitation standards at § 1910.141, § 1915.88, § 1917.127, § 1918.95, 29 CFR §1926.51, and § 1928.110 require employers to provide potable water.
- The general construction safety training and education standard for construction at § 1926.21 and § 1926.20 requiring a Safety and Health Program, as well as frequent and regular safety and health inspections.
- Section 40.1-51.1.A, Code of Virginia, General Duty Requirements

OSHA's website, www.osha.gov, offers a wide range of safety and health-related guidance in response to the needs of both employers and employees.

1. OSHA's Heat Illness Prevention Campaign, www.osha.gov/heat
2. OSHA Safety and Health Topics: Heat, www.osha.gov/heat-exposure

We strongly urge you to share this letter with all worksites within your corporation, as well as with representatives of any recognized employee union or safety committee that may exist at your facilities.

Please note that [Va. Code §40.1-51.2:1](#) states that no persons shall discharge or in any way discriminate against an employee because the employee has filed a safety or health complaint or has testified or has otherwise acted to exercise his/her rights under the safety and health provisions under this Title for themselves or others. Adverse action taken against an employee who has filed a complaint or has engaged in an occupational safety and health activity protected by the Labor Laws of Virginia can result in a VOSH onsite inspection. .

If you have questions regarding this issue, you may contact me at the address in the letterhead. I appreciate your personal support and interest in the safety and health of your employees.

Sincerely,

[RD name]
Regional Director

Additional Resources:

1. OSHA-NIOSH InfoSheet: Protecting Workers from Heat Illness, www.osha.gov/sites/default/files/publications/osha-niosh-heat-illness-infosheet.pdf.
2. CDC Workplace Safety and Health Topics: Heat Stress, www.cdc.gov/niosh/topics/heatstress.
3. NIOSH Criteria Document: Criteria for a Recommended Standard: Occupational Exposure to Heat and Hot Environments, February 2016, www.cdc.gov/niosh/docs/2016106/.

4. American Conference of Governmental Industrial Hygienists (ACGIH®) Action Limit (AL) for un-acclimatized workers and a Threshold Limit Value (TLV®) for acclimatized workers, *see* Heat Stress and Strain: TLV® Physical Agents 2022, or latest edition. *See* ACGIH® website at www.acgih.org/.
5. NOAA/NWS Heat Safety webpage, www.weather.gov/safety/heat.

Appendix F: Description of Serious Heat-related Illnesses and Common Symptoms

The table below describes serious heat-related illnesses and common signs and symptoms. Please note that this list is not exhaustive.

Heat-Related Illnesses*	Symptoms and Signs
Heat stroke	<ul style="list-style-type: none"> • Confusion • Slurred speech • Unconsciousness • Seizures • Heavy sweating or hot, dry skin • Very high body temperature • Rapid heart rate
Heat exhaustion	<ul style="list-style-type: none"> • Fatigue • Irritability • Thirst • Nausea or vomiting • Dizziness or lightheadedness • Heavy sweating • Elevated body temperature or fast heart rate
Heat cramps	<ul style="list-style-type: none"> • Muscle spasms or pain • Usually in legs, arms, or trunk
Heat syncope	<ul style="list-style-type: none"> • Fainting • Dizziness
Heat rash	<ul style="list-style-type: none"> • Clusters of red bumps on skin • Often appears on neck, upper chest, and skin folds
Rhabdomyolysis (muscle breakdown)	<ul style="list-style-type: none"> • Muscle pain • Dark urine or reduced urine output • Weakness
Acute kidney injury (AKI)	<ul style="list-style-type: none"> • Kidneys become damaged due to inadequate blood flow or a second mechanism is rhabdomyolysis of kidney muscle tissue. • Diagnosed by elevated blood creatinine levels. Urine output is also reduced. • May lead to kidney failure.

* Heat-related injury means an injury linked to heat exposure that is not considered one of the typical symptoms of heat-related illness (with the exception of kidney injury), such as a fall or cut.

Appendix G: Warnings, Alerts, and Advisories Issued by the National Weather Service

The following types of [warnings, alerts, and advisories](#) may be issued by the U.S. National Oceanic and Atmospheric Administration (NOAA), National Weather Service (NWS) (*see* NWS webpage, [here](#)):

- **Heat Advisory—Take Action!** A Heat Advisory is issued within 12 hours of the onset of extremely dangerous heat conditions. The general rule of thumb for this Advisory is that the maximum heat index temperature is expected to be 100°F or higher for at least 2 days, and nighttime air temperatures will not drop below 75°F.
- **Heat Wave—Take Action!** A heat wave is forecast by NWS or a local news station. A heat wave is when the daily maximum temperature exceeds 95°F or when the daily maximum temperature exceeds 90°F and is 9°F or more above the maximum reached on the preceding days.
- **Excessive Heat Warning—Take Action!** An Excessive Heat Warning is issued within 12 hours of the onset of extremely dangerous heat conditions. The general rule of thumb for this Warning is that the maximum heat index temperature is expected to be 105°F or higher for at least 2 days and nighttime air temperatures will not drop below 75°F.
- **Excessive Heat Watches—Be Prepared!** Heat watches are issued when conditions are favorable for an excessive heat event in the next 24 to 72 hours. A Watch is used when the risk of a heat wave has increased but its occurrence and timing is still uncertain.
- **Excessive Heat Outlooks—Be Prepared!** Outlooks are issued when the potential exists for an excessive heat event in the next 3-7 days. An Outlook provides information to those who need considerable lead-time to prepare for the event.

Appendix H: Additional Resources

1. White House [Fact Sheet](#) - interagency effort and commitment to workplace safety, climate resilience, and environmental justice, September 20, 2021.
2. Federal Register, [86 FR 59309](#), 29 CFR § 1910, 1915, 1917, 1918, 1926, and 1928, *Heat Injury and Illness Prevention in Outdoor and Indoor Work Settings; Advance notice of proposed rulemaking (ANPRM)*, October 27, 2021.

State Plans with Heat Standards

3. California, Heat Illness Prevention webpage, [here](#).
4. Minnesota, MNOSHA Compliance: Heat Stress webpage, [here](#).
5. Washington, State Department of Labor & Industries: Be Heat Smart webpage, [here](#).

Outreach

6. OSHA Memorandum, [Procedures for Local and Regional Emphasis Programs](#), December 3, 2014.
7. OSHA Publication 3905, [Whistleblower: Recommended Practices for Anti-Retaliation Program](#), 2017.
8. OSHA Webpage, [Heat Illness Prevention Campaign](#).
9. OSHA Webpage, Safety and Health Topic Page: [Heat](#) (all webpages also available in Spanish).
10. OSHA Poster, Prevent Heat Illness at Work ([English](#)), ([Spanish](#)).
11. OSHA Webpage, COVID-19 Guidance: [The Use of Cloth Face Coverings while Working Outdoors in Hot and Humid Conditions](#), September 2020.
12. OSHA Publications: Heat Illness Prevention [Fact Sheets, Wallet Cards, etc.](#) (several also available in Spanish).
13. OSHA-NIOSH Info Sheet, OSHA 3438 – 2011, [Protecting Workers from Heat Illness](#).
14. CDC, [COVID-19 and Cooling Centers](#).
15. CDC, [What Workers Need to Know about Heat Stress Prevention during the COVID-19 Pandemic](#).
16. U.S. Environmental Protection Agency, Climate Change and Social Vulnerability in the United States: A Focus on Six Impacts, [EPA 430-R-21-003](#), September 2021.