Proposed OSHNC Heat Stress Prevention Standard

Josh Dobson, Commissioner of Labor

OSHNC Annual Training
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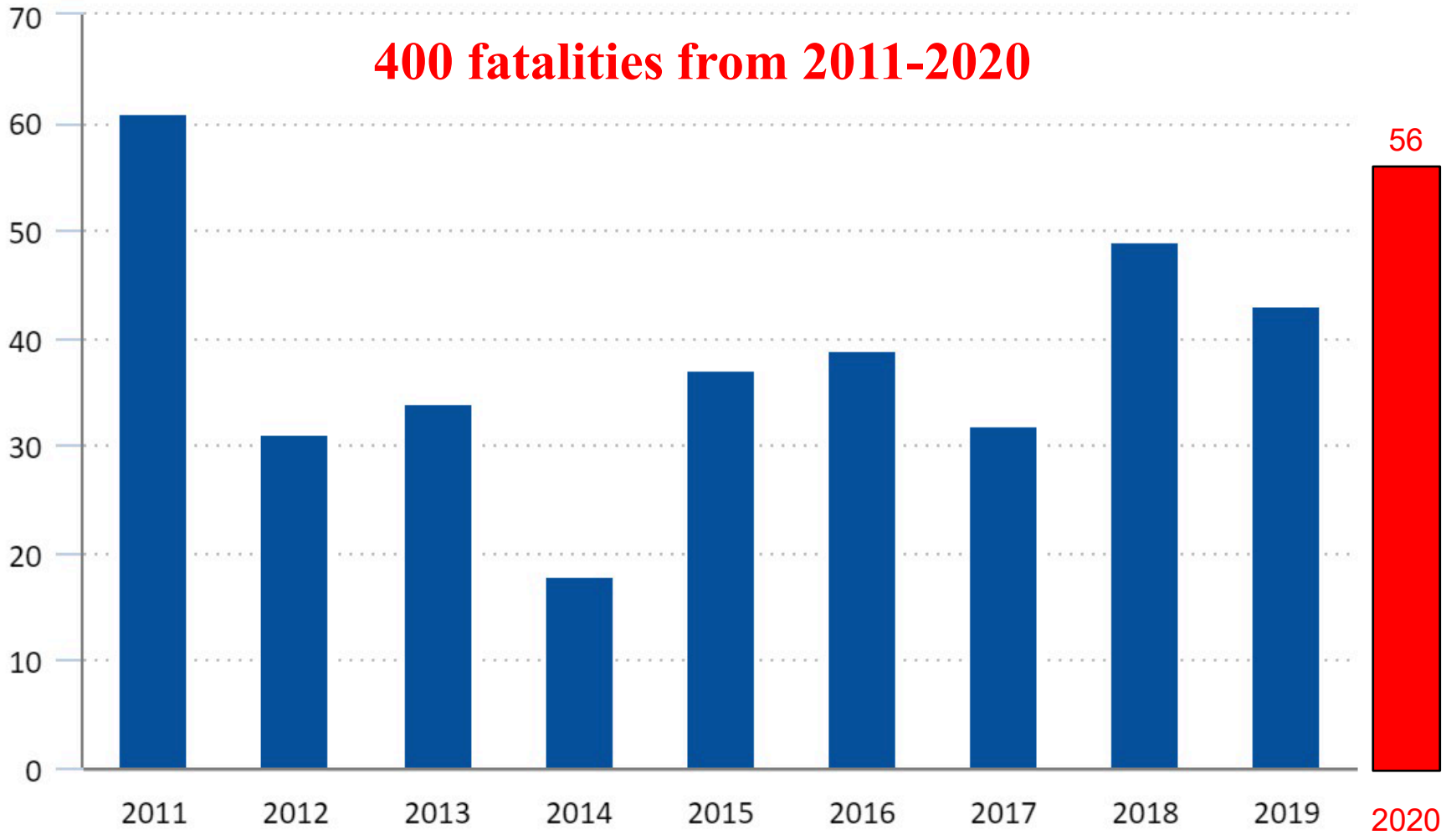
NC Dept. of Labor/Occupational Safety & Health Division

Objectives

- Understand the BLS data associated with heat-related fatalities and non-fatal injuries & illnesses.

- Become familiar with the proposed OSHNC heat stress prevention standard.
  - Background/other state standards
  - Current heat stress prevention guidelines
  - Requirements of the proposed standards
  - Applying the proposed standard to example situations.

Number of work-related deaths from exposure to environmental heat, 2011–2019



Hover over chart to view data.
Source: U.S. Bureau of Labor Statistics.

Non-Fatal Heat Injury/Illness Cases

U.S. BUREAU OF LABOR STATISTICS

Occupational Injuries/Illnesses and Fatal Injuries Profiles

Create a New Profile Table

Number of nonfatal occupational injuries and illnesses involving days away from work(1) by selected worker and case characteristics and event or exposure, All U.S., private industry, 2015 - 2020

Characteristic	All events or exposures	Exposure to environmental heat (code 531XXX)					
	2020	2015	2016	2017	2018	2019	2020
Total:	1,176,340	2,010	3,300	2,490	3,120	2,410	1,940
Sex:							
Men	577,990	1,680	2,280	2,070	2,630	2,050	1,600
Women	585,540	290	980	390	450	330	310

Non-Fatal Heat Injury/Illness Cases

Exposure to environmental heat (code 531XXX)					
2015	2016	2017	2018	2019	2020
2,010	3,300	2,490	3,120	2,410	1,940

Total cases, All US, Private sector

15,270 heat illnesses from 2015-2020

Non-Fatal Heat Injury/Illness Rates

U.S. BUREAU OF LABOR STATISTICS

Occupational Injuries/Illnesses and Fatal Injuries Profiles

Create a New Profile Table

Incidence rates(1) of nonfatal occupational injuries and illnesses involving days away from work(2) by selected worker and case characteristics and event or exposure, All U.S., private industry, 2015 - 2020

Characteristic	All events or exposures	Exposure to environmental heat (code 531XXX)					
	2020	2015	2016	2017	2018	2019	2020
Total:	120.7	0.2	0.3	0.3	0.3	0.2	0.2
Sex:							
Men	104.1	0.3	0.4	0.4	0.5	0.3	0.3
Women	143.3	0.1	0.2	0.1	0.1	0.1	0.1

Incidence rate per 10,000 full time employees

Non-Fatal Heat Injury/Illness Rates

Exposure to environmental heat (code 531XXX)					
2015	2016	2017	2018	2019	2020
0.2	0.3	0.3	0.3	0.2	0.2

Incidence rate per 10,000 full time employees

NCDOL N.C. Department of Labor
Occupational Safety & Health Division

Non-Fatal Heat Injury/Illness Rates

Agriculture incidence rates range from 2-9x the private industry average

Industry sector(6):	Exposure to environmental heat (code 531XXX)					
	2015	2016	2017	2018	2019	2020
Goods producing industries(7)	0.5	0.6	0.6	0.5	0.5	0.4
Natural resources and mining(7),(8)	0.8	0.6	0.7	1.2	1.1	0.6
Agriculture, forestry, fishing and hunting(7)	1.2	0.5	1.0	0.8	1.8	0.9
Mining(8)	0.3	0.8	-	1.7	-	-
Construction	0.7	1.3	1.0	0.6	0.6	0.6
Manufacturing	0.3	0.3	0.4	0.3	0.3	0.2

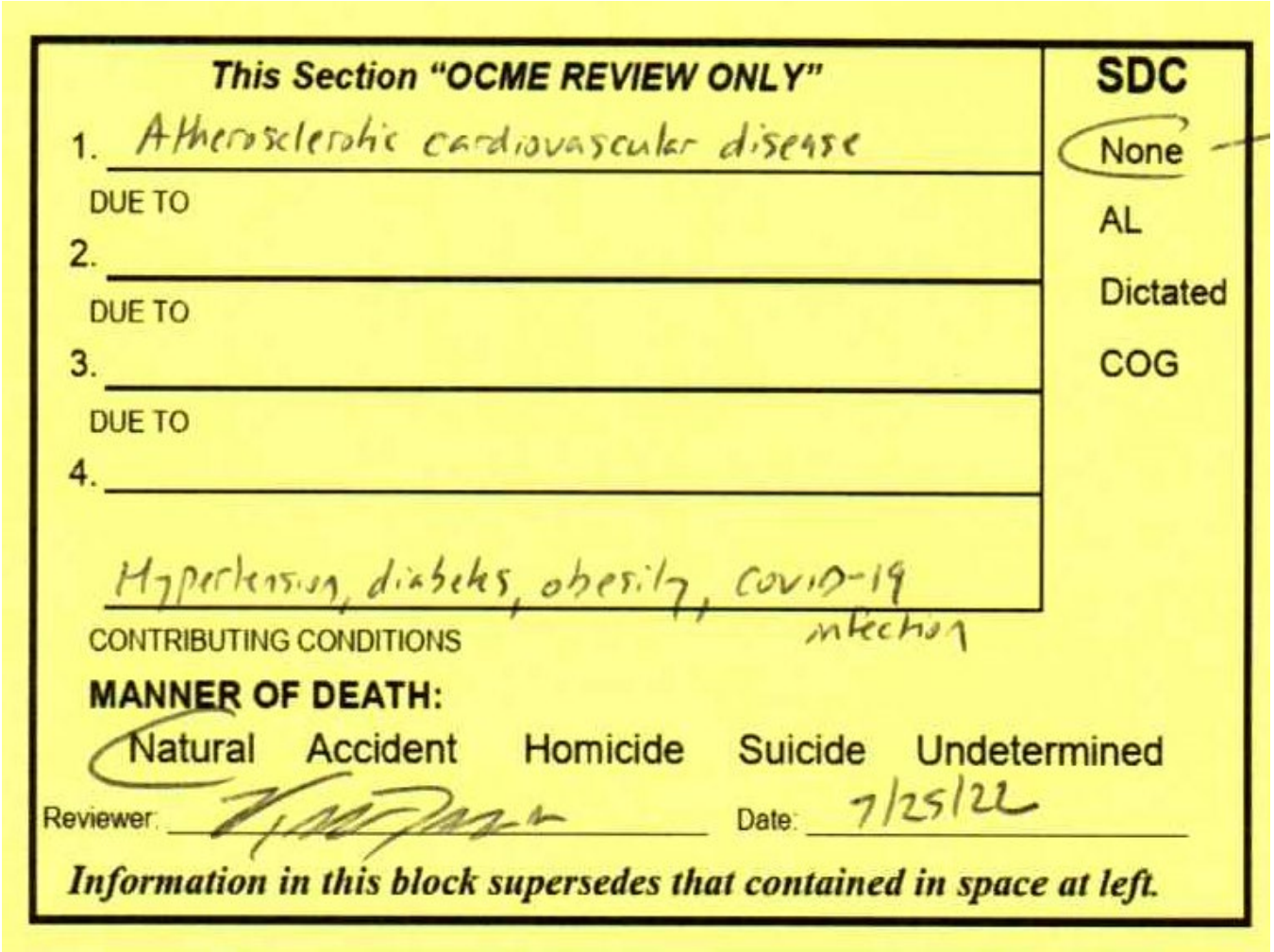
Construction incidence rates range from 2-6x the private industry average

OE Serious/Fatal Log Data

Under-reporting of Heat Stress Events

- While the BLS data shows exposure to environmental heat caused 256 fatalities and over 15,000 lost worktime illnesses between 2015 and 2020, the data is likely an underestimation of the true value for a couple reasons…
  - Most notably because several of the heat stress symptoms (e.g., sweating, headache, fatigue) overlap with other conditions and the folks most susceptible for a heat-related illness have underlying health conditions.

Common ME Report



This Section "OCME REVIEW ONLY"

1. Atherosclerotic cardiovascular disease

DUE TO

2.

DUE TO

3.

DUE TO

4.

Hypertension, diabetes, obesity, covid-19 infection

CONTRIBUTING CONDITIONS

SDC

None

AL

Dictated

COG

MANNER OF DEATH:

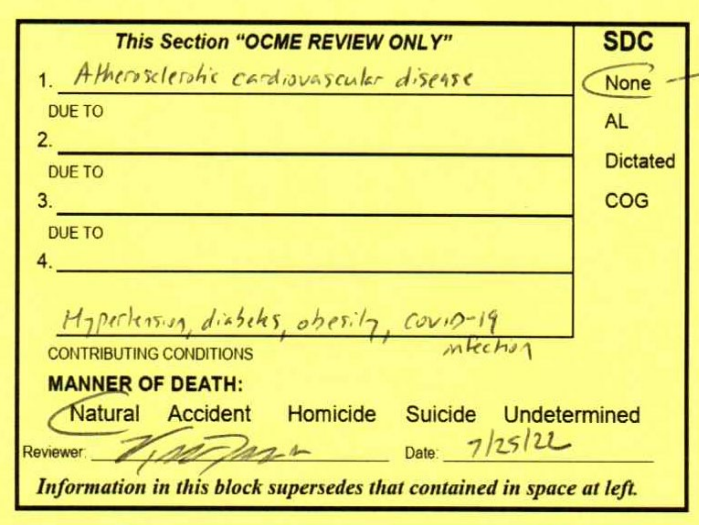
Natural Accident Homicide Suicide Undetermined

Reviewer: [signature] Date: 7/25/22

Information in this block supersedes that contained in space at left.

Common ME Report

- However, what if this individual died on the first day of work as a landscaper in 95-degree heat?
  - Did the heat cause or contribute to his death?
  - Did EMS or the hospital consider heat as a possible cause?
  - Was a core body temperature taken?



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Work-relatedness – 1904.5(a)

- *Basic requirement.* You must consider an injury or illness to be work-related if an event or exposure in the work environment **either caused or contributed to the resulting condition or significantly aggravated a pre-existing injury or illness.** Work-relatedness is presumed for injuries and illnesses resulting from events or exposures occurring in the work environment, unless an exception in §1904.5(b)(2) specifically applies

OSHNC Heat Stress Complaints

- From 6/1/2022 thru 8/31/2022, OSHNC received the following:
  - General industry (manufacturing) – 233 complaints
  - Construction – 14 complaints
  - Agriculture – 2 complaints

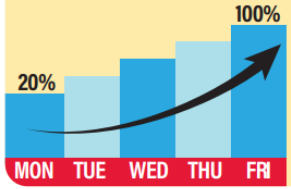
OSHNC Heat Inspections

- OSHNC investigates or inspects several heat-related fatalities or hospitalizations each year.
- In the majority of cases, the victim was in the first day or two of work.
- A general duty clause citation may be issued if the employer failed to implement minimum heat stress program elements “recognized” by the employer or the industry.

Federal OSHA Poster

Ways to Protect Yourself and Others

Ease into Work. Nearly 3 out of 4 fatalities from heat illness happen during the first week of work.



- ✓ **New** and **returning** workers need to build tolerance to heat (acclimatize) and take frequent breaks.
- ✓ **Follow the 20% Rule**. On the first day, work no more than 20% of the shift's duration at full intensity in the heat. Increase the duration of time at full intensity by no more than 20% a day until workers are used to working in the heat.

Drink Cool Water

Drink cool water even if you are not thirsty — at least 1 cup every 20 minutes.

Take Rest Breaks

Take enough time to recover from heat given the temperature, humidity, and conditions.

Find Shade or a Cool Area

Take breaks in a designated shady or cool location.

Dress for the Heat

Wear a hat and light-colored, loose-fitting, and breathable clothing if possible.

Watch Out for Each Other

Monitor yourself and others for signs of heat illness.

If Wearing a Face Covering

Change your face covering if it gets wet or soiled. Verbally check on others frequently.

NIOSH Poster

PREVENT HEAT-RELATED ILLNESS

Wearing PPE increases your risk for heat-related illnesses.

TAKE TIME TO ACCLIMATIZE.

Work shorter shifts until your body has adjusted to the heat.

STAY WELL HYDRATED.

Drink often, before you get thirsty.

WATCH FOR SIGNS OF HEAT-RELATED ILLNESSES.

Designate a buddy and ask how they feel periodically.

TAKE TIME TO REST AND COOL DOWN.

Sit somewhere cool, rest, and rehydrate frequently.

For more information visit the NIOSH Heat Stress topic page: http://www.cdc.gov/niosh/topics/heatstress/

DHHS (NIOSH) Publication No. 2016-151

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

NIOSH

NCDOL
N.C. Department of Labor
Occupational Safety & Health Division

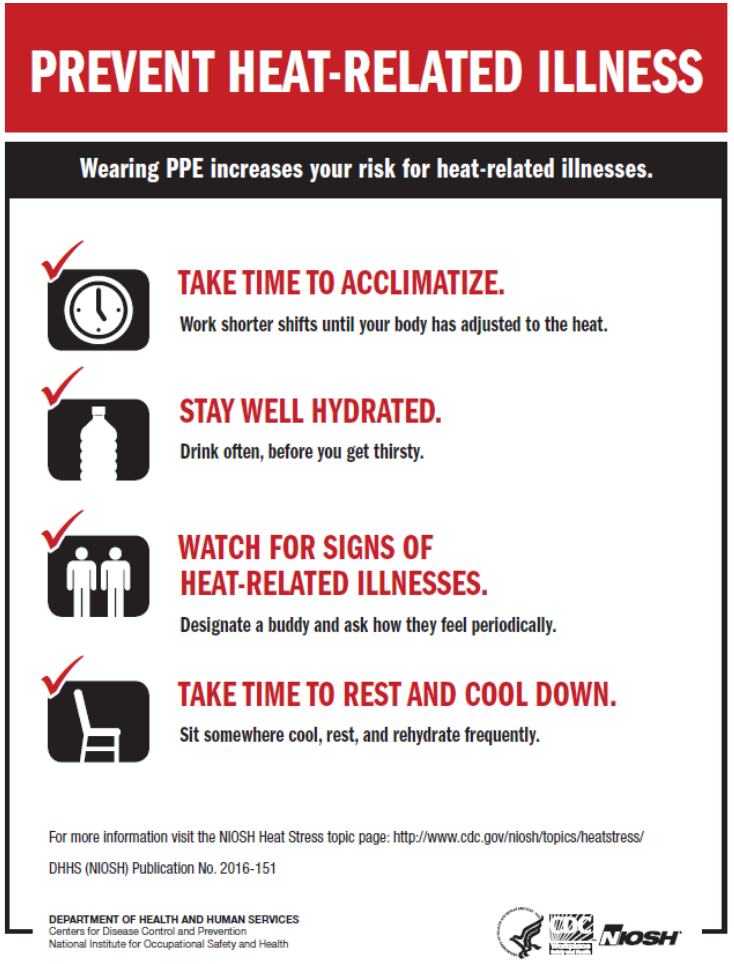
Heat GDC Citations – Two Issues

1. When is the heat level high enough to pose a hazardous condition?

   - 80 degrees F?
   - 90 degrees F?
   - 100 degrees F?

   - Is that ambient temperature or heat index?

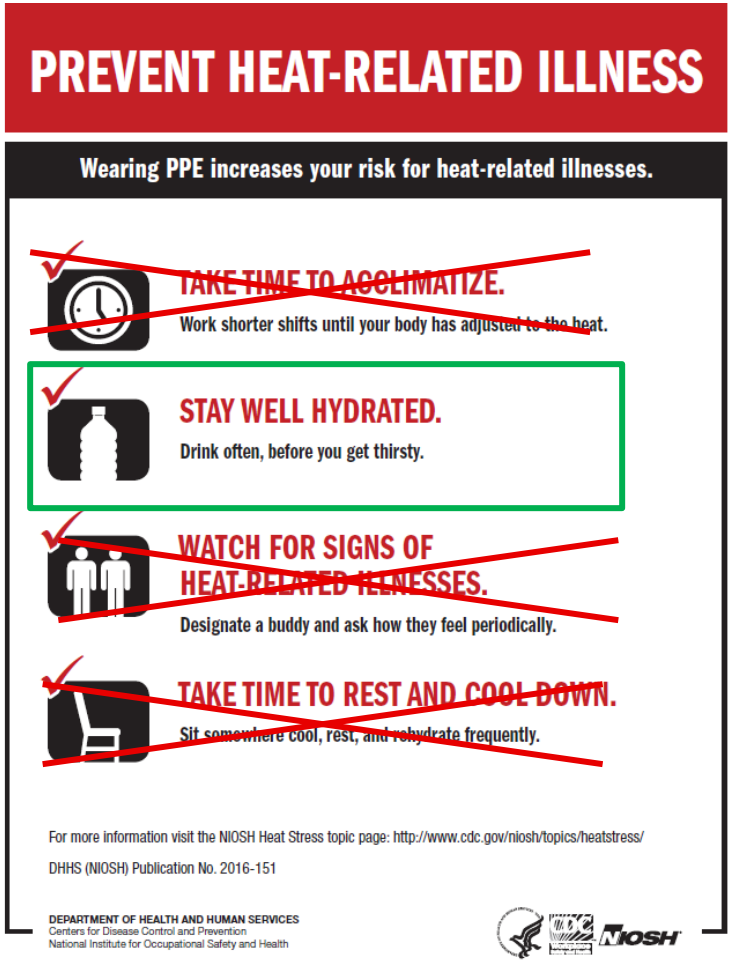
   - How about using the WBGT?



Heat GDC Citations – Two Issues

2. How many missing control measures is enough to constitute a violation of the GDC?

   - What if employees are working outdoors in a heat index of 95 degrees F?



Heat GDC Citations

- Since 1/1/2014, there have been 16 GDC citations related to heat stress (in cases properly coded with the N-02 Heat optional code):
  - Eight (8) in agriculture
  - Six (6) in general industry
  - Two (2) in construction

  - Four (4) involved a fatality (two Ag, one GI, one Const.)
  - Eight (8) involved a hospitalization (three Ag, four GI, one Const.

GDC Example AVD - Agriculture

a) Various tobacco and sweet potato fields - where 40 employees performed hand labor in the fields while they were exposed to temperatures up to 93.2 °F and heat indices up to 108 °F, the employer had not developed a heat stress prevention program to recognize and prevent heat-related illnesses and hazards associated with working in a hot environment. On 07/18/20, an employee died after experiencing heat-related symptoms while pulling weeds in a sweet potato field. On or about July 18, 2020, employees were exposed to conditions of high ambient heat from the sun while performing hand labor such as topping tobacco and pulling weeds.

GDC Example AVDs - Construction

(a) site, on or about July 1, 2014, an employee died while performing roofing activities on a construction site. Employees were exposed to a heat index of 97 degrees Fahrenheit and a daytime high temperature of 91 degrees Fahrenheit. The deceased employee had a post-mortem rectal temperature of 111 degrees Fahrenheit. The employer had not developed an effective heat stress prevention program to recognize and avoid heat related illnesses and hazards associated with working in a hot environment.

GDC Example AVDs – General Industry

- NCGS 95-129(1): The employer did not furnish to each of his employees conditions of employment and a place of employment free from recognized hazards that were causing or were likely to cause death or serious injury or serious physical harm to his employees in that employees were exposed to exertional heat-related hazards associated with extreme physical training:
  - At the Buncombe County Emergency Services Training Center, on May 15, 2015, an employee was hospitalized resulting from symptoms of hyperthermia (heat stroke) while performing physical fitness training.
  - At the Charlotte-Mecklenburg Police Academy, on or about July 5, 2016, elements of the employer's heat stress awareness and prevention program were not fully implemented.

    Note: One feasible and acceptable abatement method, among others, to correct the hazard is to fully implement the measures contained in the CDC/NIOSH document entitled "Working in Hot Environments" or fully implementing a new SOP for Heat Stress.
  - City of Fayetteville – Police Training Academy- where employees/recruits were not adequately trained on the prevention and signs of heat stress. On or about July 12, 2021, two employees were taken to the hospital after collapsing during physical training exercises in 83-degree Fahrenheit (79% relative humidity) temperatures.

GDC Example AVDs – General Industry

- High heat exposure in the kiln area of a manufacturing plant:

a) Roller Hearth – the employer did not develop a heat stress prevention program for employees who were exposed to temperatures up to 110.5 F, to help them recognize and avoid heat-related illnesses and hazards associated with working in a hot environment.

OSHNC Heat Stress Prevention Standard

- Looked at proposed or promulgated heat stress prevention standards from other states.
  - One was quite general and simply required the ER to develop a written heat stress program.
  - Another was very complicated and had multiple tables with detailed work/rest schedules.
  - A third was a good compromise between the other two, but only applied to outdoor environments and had no acclimatization requirements.

OSHNC Heat Stress Prevention Standard

- Scope and Application. Who's covered?
  - Two standards – one for general industry & construction, the other for agriculture.
  - Applies to both indoor and outdoor work environments where one or more employees are or may be exposed to ambient temperatures of 80 degrees Fahrenheit or higher for more than two hours of their work shift.

OSHNC Heat Stress Prevention Standard

- Scope and Application. Who's NOT covered?
  - Emergency operations when employees are engaged in active operations directly involving the protection of life or property – or restoring essential services.
  - Establishments with mechanical ventilation that maintains the temperature below 80 °F during all months of the year.
    - » For periods of time when the mechanical ventilation is unable to maintain that temperature, some elements of the standard kick-in.
  - Migrant housing is exempt from the Agriculture standard.

OSHNC Heat Stress Prevention Standard

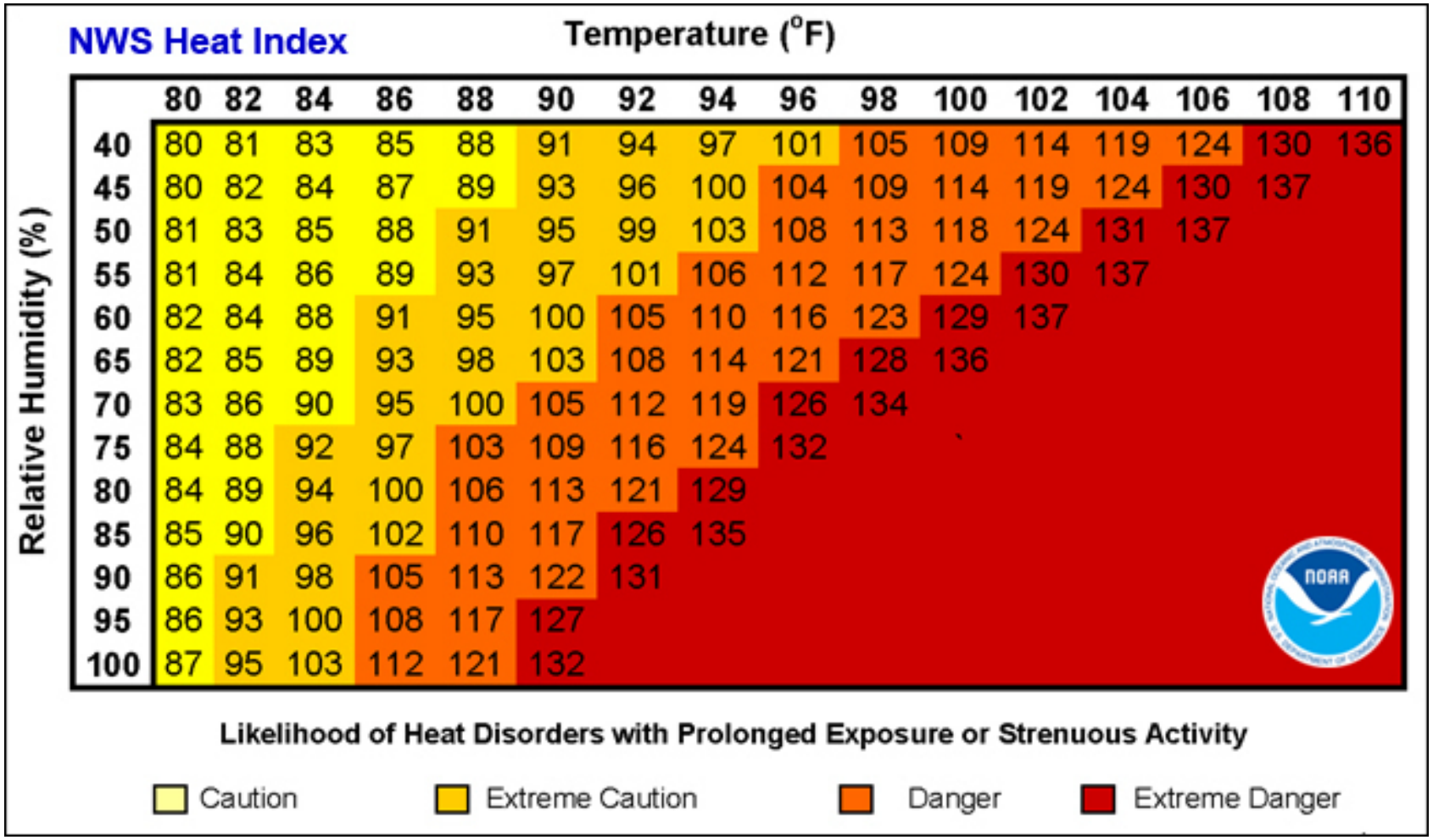
- The proposed OSHNC standard has three tiers, each with specific requirements. The tiers build upon each other.

1. Exposure to an *ambient temperature* of 80 °F or higher for more than two hours of the work shift.

2. Exposure to a *heat index* of 90 °F or higher for more than 15 minutes in a 60-minute period (High Heat).

3. Exposure to a *heat index* of 100 °F or higher for more than 15 minutes in a 60-minute period (Extreme Heat).

NOAA Heat Index Chart



Exposure ≥80 ºF (2+ hours of shift)

- Written heat stress prevention program, including identification of a competent person.
- Develop and implement emergency response procedures, including removing any employee from exposure to heat if they demonstrate signs or symptoms of heat-related illness.
- Heat stress prevention training (initial and annual) conducted by a qualified person.
- Providing employees with a readily accessible sufficient quantity of suitably cool drinking water.

High Heat Exposure

- These are *additional* requirements for when employees are exposed to a heat index of ≥90 °F for more than 15 minutes in any 60-minute period.
  - Access to shade (or the equivalent)
  - Mandatory (paid) cool down periods of at least 10 minutes each hour.
  - Maintain communication with employees (e.g., radio, cell phone, buddy system, etc.)
  - Acclimatization schedule and procedures for new employees (maximum of 20% of work shift on day 1, increasing by no more than 20% each day)

Extreme Heat Exposure

- These are *additional* requirements for when employees are exposed to a heat index of ≥100 °F for more than 15 minutes in any 60-minute period.
  - Mandatory (paid) cool down periods of at least 20 minutes each hour.
  - The competent person shall conduct a pre-work shift meeting to remind employees of the signs/symptoms of heat-related illness, the importance of frequent consumption of drinking and taking cool down periods, etc.

Example Situations

- Firefighters working for several hours at the scene of a residential structure fire…in July.
  - Not covered. Emergency operations are exempted from the standard. However, firefighters would be covered during training activities.

Example Situation

- The air conditioning at a small manufacturing plant goes out in June…and it takes three weeks to receive the parts to fix it. The temperature inside the plant soars to the upper 80's.
  - This employer is partially exempt since mechanical ventilation normally keeps temps below 80 degrees. No written heat stress prevention program or training are required. However, they must provide suitably cool water and develop emergency response procedures.
  - They must also comply with the High Heat and Extreme Heat requirements if those temperatures are exceeded.

Example OSHNC Situation

- An OSHNC inspector is assigned to conduct a complaint inspection at a construction site on a day where the forecasted heat index is 105 ^{o}F.

- 1st tier requirements (>80 ^{o}F)
  - Written heat stress prevention program
  - Emergency response procedures
  - Heat stress prevention training
  - Provide a sufficient quantity of readily accessible drinking water (e.g. coolers, water bottles, etc.).

Example OSHNC Situation

- High Heat Requirements
  - Access to shade
    - » air-conditioned car
  - Mandatory cool down periods of 10 min/hour.
  - Communication with employees
    - » District supervisor stays in touch via cell phone
    - » Assign 2nd CSHO to use the buddy system
  - Acclimatization schedule and procedures
    - » Limit heat exposure to 90 minutes on first day of inspection, no more than 3 hours on second day of inspection

Example OSHNC Situation

- Extreme Heat Requirements
  - Mandatory cool down periods of 20 min/hour.
  - Competent person conducts a pre-work shift meeting.
    - » District supervisor meets with the CSHOs prior to them leaving the office for the inspection, to ensure they have sufficient water (or access to it) and cover the required topics.

Questions?

Josh Dobson, Commissioner of Labor