



OSHA REGIONAL NOTICE

U.S. DEPARTMENT OF LABOR

Occupational Safety and Health Administration

DIRECTIVE NUMBER: 02 – 00 - 027

EFFECTIVE DATE: March 23, 2010

SUBJECT: Regional Emphasis Program for Heat Illnesses.

REGIONAL IDENTIFIER: Region VI

ABSTRACT

- Purpose:** This notice establishes a Region VI emphasis program for outdoor heat related health hazards.
- Scope:** This Notice applies to all worksites in Arkansas, Louisiana, Oklahoma, and Texas, and those worksites in New Mexico that are under Federal OSHA jurisdiction.
- References:** OSHA Instruction CPL 04-00-001 (CPL 2-0.102A)
OSHA Instruction CPL 02-00-148 (CPL 2.148)
OSHA Instruction CPL 02-00-025 (CPL 2.25I)
OSHA Instruction CPL 02-00-051 (CPL 2-051J)
OSHA Instruction TED 01-00-015 (TED 1-0.15A)
- Cancellations:** None
- State Impact:** Region VI 21(d) Consultation Project Offices in Arkansas, Louisiana, Oklahoma, New Mexico and Texas will provide outreach, consultation services, and training to affected employers as requested.
- Action Offices:** Region VI Area and District Offices
Region VI Consultation Project Offices
Dallas Regional Office
- Information Office:** New Mexico Occupational Health and Safety Bureau
- Originating Office:** Dallas Regional Office
- Contact:** Assistant Regional Administrator
Enforcement Programs
525 S. Griffin Street, Room 602
Dallas, Texas 75202-5007
(972) 850-4177

By and Under the Authority of

For *William A. W.*
DEAN W. MCDANIEL,
Regional Administrator

- I. **Purpose.** This Notice establishes and implements a regional emphasis program (REP) for the purpose of conducting heat illness inspections on outdoor work activities during days identified by the National Weather Service with a “Heat Advisory”.
- II. **Scope.** This Notice applies to all Area Offices in Region VI and those worksites in New Mexico that are under Federal Jurisdiction.
- III. **References.**
 - A. OSHA Instruction CPL 04-00-001 (CPL 2-0.102A), November 10, 1999, Procedures for Approval of Local Emphasis Programs (“LEPs”) or current update.
 - B. OSHA Instruction CPL 02-00-148 (CPL 2.148), March 26, 2009, Field Operations Manual (FOM) or current update.
 - C. OSHA Instruction CPL 02-00-025 (CPL 2.25I), January 4, 1995, Scheduling System for Programmed Inspections or current update.
 - D. OSHA Instruction CPL 02-00-051 (CPL 02-00.051), May 28, 2005, Enforcement Exemptions and Limitations under the Appropriations Act or current update.
 - E. OSHA Standards in Subparts J and K of 29 CFR 1910 and Subpart C of 29 CFR 1926 as appropriate.
 - F. NIOSH – Occupational Exposure To Hot Environments, Revised Criteria 1986.
 - G. OSHA Instruction TED 01-00-015, (TED 1-0.15A), January 20, 1999, OSHA Technical Manual.
- IV. **Expiration.** This Notice expires on September 30, 2010, but may be renewed as necessary.
- V. **Background.** The Statistical Abstracts of the United States, 105th edition, estimates that 5 to 10 million workers are exposed to heat illness annually. Heat illnesses (heat stroke, heat exhaustion, and heat cramps) are caused by hot environments and are preventable occupational health hazards.

According to the Centers for Disease Control and Prevention, approximately 400 Americans die each year due to summer’s sweltering heat. The National Weather Service asserts that excessive heat was the number one weather-related killer, causing more fatalities per year than floods, lightning, tornadoes, hurricanes, winter storms and extreme cold from 1994 to 2003.

The National Institute of Occupational Safety and Health (NIOSH) criteria document

“Occupational Exposure to Hot Environments” recommends environmental limits for physical work at which engineering controls, preventative work and hygienic practices, and administrative or other control procedures should be implemented in order to reduce the risk of heat illnesses. This criteria document recommends heat stress alert limits be implemented at 87 degrees Fahrenheit for heat-unacclimatized workers and 90 degrees Fahrenheit for heat-acclimatized workers.

NIOSH recommends that a Heat-Alert Program be developed and implemented by employers whenever the National Weather Service or other competent weather service forecasts that a heat wave is likely to occur. The goal of a Heat-Alert Program is to prevent heat illness emergencies. This program includes training employees on first aid, sanitation (hydration) and avoiding the hazards of working in hot environments.

The National Oceanic and Atmospheric Administration’s (NOAA) National Weather Service (NWS) is the U.S. Federal Agency responsible for weather, water and climate forecasts and warnings. One activity of the NWS is to issue alerts for excessive heat on a county-by-county basis. These heat advisories are broadcast on NOAA Weather Radio and on local radio and television stations. These alerts are issued when the National Weather Service determines that the daily maximum temperature for a geographical area will exceed 95 degrees Fahrenheit or when the daily maximum temperature will exceed 90 degrees Fahrenheit and is 9 degrees Fahrenheit or more above the maximum temperature reached on preceding days.

VI. Objectives.

- A. The purpose of this REP is to prevent hot environmental temperatures from adversely affecting employees working outdoors. This REP is targeted to keep employees from developing heat cramps, heat exhaustion, and heat stroke. Evidence from the Centers for Disease Control, American Red Cross and the National Occupational Safety and Health Administration (NIOSH) show that hot environmental temperatures cause hundreds of employees working outdoors to experience heat related illnesses and deaths annually.

The National Weather Service issues “heat advisories” on days when the daily maximum temperature for a geographical area will exceed 95 degrees Fahrenheit or when the daily maximum temperature will exceed 90 degrees Fahrenheit and is 9 degrees Fahrenheit or more above the maximum temperature reached on preceding days. These temperature levels have been shown to create potential heat illness conditions for employees working outdoors. Therefore, to prevent these illnesses, OSHA will utilize the heat advisories from the National Weather Service to identify dangerous outdoor temperature levels and make sure that employers have taken appropriate precautions to address the associated hazards.

These heat illness precautions include: (1) training employees on the hazards of hot environmental temperatures, (2) making appropriate first aid available, (3) having drinking water available, and (4) having made provisions for prompt medical attention in case a heat related illness occurs.

This notice is provided to address the unsafe working conditions created by hot environmental temperatures and inappropriate safety precautions.

VII. Action.

- A. The area director will insure that all compliance staff are familiar with the contents of this notice and that the inspection guidelines and procedures are followed.

VIII. Inspection Process.

- A. Procedures: On days identified by the National Weather Service as a heat advisory day, Area Directors will instruct CSHOs to be alert during their travels throughout the Area Office's jurisdiction for job sites where employees are working outdoors for extended periods of time. Upon finding such a work place the CSHO will communicate with the Area Director or Supervisor to determine (1) whether the identified job site or contractor has been inspected within the last 30 days and (2) whether the employer has been inspected three (3) or more times under this REP within the last 90 days. If the jobsite or contractor has been inspected within the above time frames; the Area Director or Supervisor will direct the CSHO not to conduct an inspection.

Otherwise, the CSHO will conduct a limited scope inspection of the outdoor activity and ensure: (1) employees have been trained on the hazards of a hot environment, (2) drinking water and first aid supplies are available and (3) there are provisions for receiving prompt medical attention. If other "plain view" hazards are observed on the job site, the CSHO will include them in the limited scope inspection.

Note: The CSHO will document in the case file that on the day of the inspection the National Weather Service issued a heat advisory for the county where the job site is located.

- B. Exemptions and Limitations: Before initiating enforcement activities, the CSHO will determine if an inspection is prohibited through OSHA Instruction CPL 02-00-051, "Enforcement Exemptions and Limitations under the Appropriations Act".
- C. Interface with other inspection activity: Follow-ups, referrals, complaints, fatalities and catastrophes will still be inspected under procedures outlined in the FOM.
- D. Basis of Inspection: Whenever an inspection is begun under this REP, the CSHO will include in the case file narrative a description of the circumstances which resulted in discovery of the work activity that was the basis of the inspection.

- E. Size of Employer: Establishments with ten or fewer employees will be included in this program because of the insidious nature of high environmental temperatures. Safety violations discovered under this program will be addressed in accordance with CPL 02-00-051 (CPL 2-0.51J) "Enforcement Exemptions and Limitations under the Appropriations Act."
- F. VPP and Partnership Sites: If an employer and/or contractor are a Voluntary Protection Program (VPP) employer or have passed an annual OSHA verification inspection, the terms of the VPP and/or partnership agreement will be followed. A list of current partnership sites within the area office jurisdiction will be maintained and made available for CSHO review.
- G. Scope of REP Inspections: Inspections under this emphasis program will focus on all outdoor job activities that occur on days identified by the National Weather Service with a "Heat Advisory". Other apparent health and safety hazards observed by the CSHO will be evaluated; if necessary, a referral will be made. The CSHO will evaluate all on-site employers through inspection, observation, photographs, video footage, measurements, and interviews of management and employees.
- H. Citations: Citations for violations will be issued in accordance with the FOM, Chapters V, VI, and VII.
- I. Inspection Resources: All OSHA personnel participating in this REP must be familiar with the policies and procedures described in this notice.
- J. CSHO Personal Protective Equipment (PPE): CSHOs shall use personal protective equipment suitable for general industry or construction inspections.

VIII. Recording in IMIS.

- A. Enforcement inspections, including Partnership verification, completed under this initiative will be coded on the OSHA-1 form as follows:
 - 1. Field 24 "Programmed Planned". Any inspections conducted as a result of a complaint, referral, or fatality/catastrophe will be coded as the appropriate unprogrammed activity.
 - 2. Field 25(c) will be coded as **HOTDAYS** for all programmed and unprogrammed inspections. (Note: There is no space between the words hot and days.)
 - 3. Field 25(f) shall be coded with any applicable safety related codes if the associated safety hazards are addressed during the current inspection.
- B. Consultation visits completed under this initiative will be coded on the Request (CONS-20, item 26) and Visit (CONS-30, item 29) as **HOTDAYS**.

- C. Enforcement Interventions (OSHA-55, field 16) under this initiative, including partnerships, alliances, Voluntary Protection Programs, and other interventions, will be coded **HOTDAYS**.
- D. Consultation Interventions (CONS-66, field 16) under this initiative will be coded as **HOTDAYS**.
- E. Area Offices, Consultation Projects, and the Regional Office shall periodically check their IMIS databases to verify accuracy of the data for this initiative.

IX. Outreach

All REPS must contain an outreach component that must be executed prior to the initiation of the enforcement program. The method of outreach is at the Area Director's discretion and can consist of one or more of the following components.

1. Broadcast mail-outs or program information.
2. Stakeholder meetings.
3. Targeted training sessions.
4. Presentations to the affected group(s).

The outreach component selected should be conducted prior to the start of the inspection portion of the REP. The timing of this should be sufficient to insure that employers have been provided fair notice of the program and opportunities to achieve voluntary compliance. These outreach efforts should be coordinated with or include the OSHCON program for that area.

X. Partnerships and Alliances

In the event outreach efforts result in interest for developing an alliance or partnership, the Area Director will insure that these efforts conform to current National and Regional Policy.

XI. Evaluation.

An evaluation of this program will be submitted by the Area Directors to the Regional Office no later than October 15, 2010. Elements to be considered in the evaluation are contained in OSHA Instruction CPL 04-00-001.

Appendix A – Regulations

The following is a list of existing *construction* and *general industry* standards that may be applicable to hot environmental conditions in the workplace.

1926.21(b)(2) - Training employees in the recognition and avoidance of unsafe conditions.

1926.23 – Providing first aid services and provisions for medical care.

1926.51 – Providing an adequate supply of potable water in all places of employment.

1910.151(b) – In the absence of an infirmary, clinic, or hospital in near proximity to the workplace which is used for treatment of all injured employees, a person or persons shall be adequately trained to render first aid. Adequate first aid supplies shall be readily available.

1910.141(b)(1) – Potable water shall be provided in all places of employment.

Appendix B - Weather Alerts

You can get weather alert information from local television and radio stations or the National Weather Service (NWS) at www.weather.gov. When daily temperatures are 90 degrees or higher, managers should log on to www.weather.gov every morning and determine if a weather alert has been issued by the NWS. If a heat advisory has been issued, the AD or AAD should make their staff aware of the alert and remind them of this directive.

At www.weather.gov you simply click on the “warnings and forecasts” tab, and then click on the location of the United States map in which you are interested and the weather alerts are identified.

Appendix C - First Aid for Heat Stress

The NIOSH website: <http://198.246.98.21/niosh/topics/heatstress/> provided the reference information below.

Heat rash is a skin irritation caused by excessive sweating during hot, humid weather.

Symptoms of heat rash include:

- Heat rash looks like a red cluster of pimples or small blisters.
- It is more likely to occur on the neck and upper chest, in the groin, under the breasts, and in elbow creases.

Workers experiencing heat rash should:

- Try to work in a cooler, less humid environment when possible.
- Keep the affected area dry.
- Dusting powder may be used to increase comfort.

Heat cramps usually affect workers who sweat a lot during strenuous activity. This sweating depletes the body's salt and moisture levels. Low salt levels in muscles causes painful cramps. Heat cramps may also be a symptom of heat exhaustion.

Symptoms of heat cramps include:

Muscle pain or spasms usually in the abdomen, arms, or legs.

Workers with heat cramps should:

- Stop all activity, and sit in a cool place.
- Drink clear juice or a sports beverage.
- Do not return to strenuous work for a few hours after the cramps subside because further exertion may lead to heat exhaustion or heat stroke.
- Seek medical attention if any of the following apply:
 - The worker has heart problems.
 - The worker is on a low-sodium diet.
 - The cramps do not subside within one hour.

Heat Syncope is a fainting (syncope) episode or dizziness that usually occurs with prolonged standing or sudden rising from a sitting or lying position. Factors that may contribute to heat syncope include dehydration and lack of acclimatization.

Symptoms of heat syncope include:

- Light-headedness
- Dizziness
- Fainting

Workers with heat syncope should:

- Sit or lie down in a cool place when they begin to feel symptoms.
Slowly drink water, clear juice, or a sports beverage

Heat Exhaustion is the body's response to an excessive loss of the water and salt, usually through excessive sweating. Workers most prone to heat exhaustion are those that are elderly, have high blood pressure, and those working in a hot environment.

Symptoms of heat exhaustion include:

- Heavy sweating
- Extreme weakness or fatigue
- Dizziness, confusion
- Nausea
- Clammy, moist skin
- Pale or flushed complexion
- Muscle cramps
- Slightly elevated body temperature
- Fast and shallow breathing

Treat a worker suffering from heat exhaustion with the following:

- Have them rest in a cool, shaded or air-conditioned area.
- Have them drink plenty of water or other cool, nonalcoholic beverages.

- Have them take a cool shower, bath, or sponge bath.

Heat Stroke is the most serious heat-related disorder. It occurs when the body becomes unable to control its temperature: the body's temperature rises rapidly, the sweating mechanism fails, and the body is unable to cool down. When heat stroke occurs, the body temperature can rise to 106 degrees Fahrenheit or higher within 10 to 15 minutes. Heat stroke can cause death or permanent disability if emergency treatment is not given.

Symptoms of heat stroke include:

- Hot, dry skin (no sweating)
- Hallucinations
- Chills
- Throbbing headache
- High body temperature
- Confusion/dizziness
- Slurred speech

Take the following steps to treat a worker with heat stroke:

- Call 911 and notify their supervisor.
- Move the sick worker to a cool shaded area.
- Cool the worker using methods such as:
 - Soaking their clothes with water.
 - Spraying, sponging, or showering them with water.
 - Fanning their body.

Appendix D - Heat Stress White Paper

Background: In the past 10 years, 33 heat stress related fatalities were reported and investigated by OSHA Region 6. Non-fatal worker heat related illness rates have also been high: during the past nine years nationwide there were 3,037 illnesses, including 260 heat strokes, 78 heat syncope (fainting) cases, and 617 heat fatigue cases (reference: Bureau of Labor Statistics).

Prevention of heat related illnesses is relatively inexpensive. NIOSH studies show that heat stress can be prevented with simple measures such as drinking adequate fluids, having access to shade, taking adequate break time to cool and maintain body temperature, employee training to recognize and treat symptoms, and surveillance of potential heat illness developing in workers.

Implementation: In the Region VI Heat Illness Emphasis Program, when a CSHO conducts an inspection on a "heat advisory" day, they should perform a brief job site heat stress evaluation. They can check for cool drinking water, shade, ask the employees and supervisors about heat stress training and first aid, and ask them about getting emergency medical care. If training, potable water and/or first aid deficiencies are determined, 1910.141, 1910.151 or 1926.21, 1926.50 and 1926.51 should be cited as appropriate. The OSHA 1B should detail the heat stress conditions and include interview statements and national weather data (www.weather.gov/climate) for the area.

CSHOs can also discuss with their supervisor if the case should be referred to an IH for

potential 5(a)(1) violation development, or if the unsafe heat related conditions can be addressed through existing regulations.

If conditions warrant a heat stress evaluation for a potential 5(a)(1) citation, full shift sampling should be conducted with the wet bulb globe thermometer (WBGT) documenting worker tasks, measuring durations of tasks and breaks by the minute, assessing calories burned, and providing "light, medium or heavy" rankings to the work. Depending on the investigation results, a 5(a)(1) citation on heat stress could be issued. In making this determination, documentation would need to establish that heat overexposure would occur even if the "heavy" work was re-classified as "light". (See Appendix D-2* and OSHA Instruction TED 01-00-015, Section III, Chapter 4 (Heat Stress), January 20, 1999, OSHA Technical Manual.)

In heat stress fatality cases, there is a priority on *documenting workplace conditions* through employee interview statements and other sources [i.e., on-site monitoring, medical reports, etc.]. Again, in these cases there may be violations of existing standards, as well as Section 5(a)(1) of the OSH Act.

Prior to issuing a 5(a)(1) violation, the area office shall consult with Enforcement Programs.

Suggested Text for 5(a)(1) Citation: The employer did not furnish to each of his employees a place of employment which was free from recognized hazards that were causing or likely to cause death or serious physical harm to employees in that employees were exposed to excessive heat:

On or about _____ (date) and at times prior thereto, _____ (employees' job title, i.e., laborers) performing the task of _____ (work activity, i.e., pouring concrete) at the _____ (site name) were subjected to the recognized hazard of excessive heat. Exposure to excessive levels of heat may result in serious heat induced illnesses which include: transient heat fatigue, heat rash, fainting, heat cramps, heat exhaustion and heat stroke. Heat stroke is the most serious of these illnesses and can result in death.

Among other methods, one feasible and acceptable abatement method to correct this hazard is to establish a Heat Stress Management Program which incorporates guidelines from the ACGIH's Threshold Limit Values and Biological Exposure Indices and/or the National Institute for Occupational Safety and Health (NIOSH) document, "Working in Hot Environments." Such a program may include, but is not limited to: 1. acclimating employees beginning work in hot environment or those returning from absent periods of three or more days, 2. developing a work/rest regiment, 3. providing cool water and encouraging employees to drink 5 to 7 ounces of fluid every 15 to 20 minutes---rather than relying on thirst, 4. providing for a cool rest area, 5. providing training for employees regarding the health effects associated with heat stress, symptoms of heat induced illnesses and the methods of preventing such illnesses and 6. establish a screening program to identify health conditions aggravated by exposure to heat stress.

Appendix D-1: Issues for Heat Stress Inspections

1. Temperature(s) at time of inspection. (The inspection may last for several hours, so at least note the high and low temperatures for that day.)
2. Relative humidity: _____
3. Wind speed (mph): _____
4. Cloud cover conditions: _____
5. Ages of workers _____
6. Is shade available? _____ Guideline: For working on heat advisory days, shade must be available throughout the shift to help prevent the development of heat related illness. The shaded area must be either open to the air or provided with ventilation. Other cooling measures (e.g., use of misting machines, etc.) may be provided in lieu of shade if these measures are at least as effective in cooling employees.
7. Is cool drinking water provided? _____
8. How much liquid do employees drink? For employees working outdoors and performing manual labor, drinking at least one quart per hour is recommended. On the 1B or sampling forms, note the amounts and frequency of liquids consumed by employees.
9. Have workers been trained on heat stress symptoms?
10. Do any workers on site have current first aid training?
11. Are there any heat related illnesses noted on the OSHA 300 logs during the last 3 years?
12. Is there a first aid kit? _____
13. If so, does the first aid kit have a thermometer? _____
14. How far away is a medical clinic or hospital? _____
15. Are there emergency plans in place for contacting help in case of a first aid emergency? _____
16. Are emergency plans in writing or are they verbally communicated? _____
17. Are 911 services available in the area where employees are working? _____

Appendix D-2: Additional Data to be Gathered by Industrial Hygienists on Cases Requiring Extensive Documentation

1. If possible, conduct full shift sampling with a WBGT on a heat advisory day. See: OSHA Instruction TED 01-00-015, Section III, Chapter 4, January 20, 1999, OSHA Technical Manual.
2. Carefully document the tasks of workers including their specific physical movements, minutes employees perform these tasks, and frequency/length of their rest breaks.
3. Using a standard consumer scale, measure the weight of each worker sampled, before and after the shift.
4. If possible, ask workers about any medical conditions that may pre-dispose them to heat related illnesses. (Let them know that they are not required to answer these questions.)
5. Ask workers if there have been any heat related illnesses at the job site. (Compare the answers with the OSHA 300 logs.)
6. On the sampling forms, document the types of clothing and PPE worn by the exposed employees.
7. Assign insulation value of clothing (Clo) factors to adjust the WBGT readings. (See OSHA Instruction TED 01-00-015, Section III, Chapter 4)
8. In addition to the sun, document any sources of heat to which employees are exposed.

*Use OSHA Instruction TED 01-00-015, Section III, Chapter 4, January 20, 1999, OSHA Technical Manual for evaluating heat exposures.

Contact the Dallas Regional Office for assistance on determining the workload or metabolic rates.

Appendix D-3: Biological Monitoring Techniques

(Reference: NIOSH 1986 Criteria for a Recommended Standard:
Occupational Exposure to Hot Environments)

Body Weight: Weight loss should not exceed 1.5% of total body weight in a work day. If it does, fluid and food intake should increase. (Alcohol and caffeinated beverages should always be avoided when working under heat stress conditions. A typical bathroom digital scale can be used for this measurement. Body water loss can be measured by weighing the worker at the beginning and end of each work day and by using this equation:

(pre-activity weight – post-activity weight) ÷ pre-activity weight × 100 = % body weight lost.