

## ENVIRONMENTAL HEALTH AND SAFETY STANDARD OPERATING PROCEDURES

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### SOP No. 24.01.01.W1.14AR Thermal Stress

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Environmental Health and Safety at WTAMU is composed of two distinct but integrated environmental safety departments that report to the Vice President of Research and Compliance. Academic and Research Environmental Health and Safety (AR-EHS) is responsible for research and academic related compliance, which includes laboratory and academic research and the associated compliance committees. Fire and Life Safety (FLS-EHS) is responsible for fire related compliance and conducts fire and life safety inspections of campus buildings and assists with the testing all fire detection and suppression systems.

Supplements [TAMUS Regulation 24.01.01](#)

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### 1. Purpose

The following information is provided to assist WTAMU departments in developing procedures to protect students and employees from thermal stress. This program sets forth recommended minimum requirements that need to be followed to maximize the safety of all faculty, staff, and students that may be subject to excessive heat or exhaustion.

### 2. Scope

Affected departments of WTAMU are expected to establish Thermal Stress Prevention and Management Procedures. The Thermal Stress Prevention and Management Procedures shall include provisions to train employees and students about the:

- Potential causes of thermal stress
- Methods to prevent thermal stress
- Recognition of thermal stress symptoms

- First aid for thermal stress related disorders

### 3. Responsibilities

The WTAMU EHS will:

- assist in identifying safety procedures as necessary
- assist with training as appropriate
- monitor program compliance

The department/supervisor will:

- identify persons susceptible to thermal stress
- provide personal protective equipment and all other necessary equipment for the prevention and treatment of thermal stress
- provide proper training for employees and students.

The employee/student will follow guidelines described in this program to assure safe thermal stress procedures.

### 4. Thermal Stress

People may suffer from thermal (heat) stress during hot, humid conditions so preventive measures must be taken to reduce their risk. To prevent thermal stress, employees should limit strenuous physical activity during the hottest portion of the day, wear a brimmed hat when in the sun, take frequent breaks, and drink plenty of fluids. Thermal stress occurs in two forms:

- Heat Exhaustion
- Heat Stroke

#### 4.1. Heat Exhaustion

Heat exhaustion is usually caused by strenuous physical activity and hot, humid conditions. Because heat exhaustion is the body's response to insufficient water and salt, it should be treated as quickly as possible. Signs and symptoms of heat exhaustion include the following:

- Exhaustion and restlessness
- Headache
- Dizziness
- Nausea
- Cold, clammy, moist skin
- Pale face
- Cramps in abdomen and lower limbs
- Fast, shallow breathing
- Rapid, weak pulse
- Falling body temperature
- Fainting

Take the following steps to administer first aid for heat exhaustion:

- Have the victim lie down in a cool or shaded place.
- If the victim is conscious, have him/her slowly sip cool water.
- If the victim is unconscious or is conscious but does not improve, seek medical aid as soon as possible.
- If the victim is sweating profusely, have him or her sip cool water that contains one teaspoon of table salt per pint of water.

#### 4.2. Heat Stroke

Heat stroke is usually caused by exposure to extreme heat and humidity and/or a feverish illness. Heat stroke occurs when the body can no longer control its temperature by sweating. Heat stroke is extremely dangerous and may be fatal if not treated immediately.

The signs and symptoms of heat stroke include the following:

- Hot, dry skin
- Headache
- Dizziness
- High temperature
- Strong pulse
- Noisy breathing
- Unconsciousness

Immediately take the following steps to administer first aid for heat stroke:

- If possible, move the victim to a cool place.
- Seek medical attention as soon as possible.
- Remove the victim's clothing.
- If the victim is conscious, place him in a half-sitting position and support the head and shoulders.
- If the victim is unconscious, place him on the side with the head facing sideways.
- Fan the victim and sponge the body with cool water.

## 5. Cold Stress

Anyone working in a cold environment may be at risk of cold stress. Protective measures for cold stress include the use of engineering controls such as radiant heaters and wind blocks; implementation of administrative procedures such as limiting the amount of time of exposure; proper use of PPE such as insulated clothing, gloves, and boots; and training regarding the signs and symptoms of cold stress. Stay warm by staying dry, drinking warm non-alcoholic fluids, and reducing skin exposure to low temperatures. Cold stress involves three forms:

- Hypothermia
- Frostbite
- Trench foot

### 5.1 Hypothermia

Hypothermia is a state when the body loses heat faster than it is able to be replaced resulting a drop in body temperature. Hypothermia onset can be rapid and does not require extremely low temperatures to occur. Ambient air temperatures as high as 40 degrees Fahrenheit can be sufficient to cause hypothermia in the right conditions (the person is wet, high winds). People working in cold, wet conditions are especially at risk.

Signs and symptoms of hypothermia include:

- Shivering
- Cold skin
- Numbness
- Loss of dexterity
- Confusion
- Slurred speech
- Unconsciousness

Immediately take the following steps to administer first aid for hypothermia:

- Move the person to a warm area, dry area
- Replace wet clothing with dry clothing
  - or remove clothing and cover with dry blankets or a dry tarp
- Place warm (not hot) items under the arms or near the groin.
- Call 911 if the person suffers from confusion, slurred speech, or unconsciousness.

### 5.2 Frostbite

Frostbite is an injury caused by the freezing of skin and underlying tissue. Signs and symptoms include:

- Reddened skin which develops gray and/or white patches
- Numbness of the affected area
- Blistering

Immediately take the following steps to administer first aid for frostbite:

- Move the person to a warm area, dry area
- Seek medical attention
- Do not pop blisters

- Do not try to warm the area

### 5.3 Trench foot

Trench foot, also known as immersion foot is an injury caused by prolonged exposure to wet and cold conditions. Trench foot is a result of the body's response to cold conditions. The body reduces blood flow to the cold wet feet, resulting in tissue necrosis.

Signs and symptoms of trench foot include:

- Redness of the skin
- Swelling
- Numbness
- Blistering

Immediately take the following steps to administer first aid for trench foot:

- Seek medical attention!!
- Remove boots or shoes and any wet socks
- Dry the feet by gently dabbing not rubbing

## 6. Record Retention

No official state records may be destroyed without permission from the Texas State Library as outlined in [Texas Government Code, Section 441.187](#) and [13 Texas Administrative Code, Title 13, Part 1, Chapter 6, Subchapter A, Rule 6.7](#). The Texas State Library certifies Agency retention schedules as a means of granting permission to destroy official state records.

West Texas A & M University Records Retention Schedule is certified by the Texas State Library and Archives Commission. West Texas A & M University Environmental Health and Safety will follow [Texas A & M University Records Retention Schedule](#) as stated in the Standard Operating Procedure [61.99.01.W0.01 Records Management](#). All official state records (paper, microform, electronic, or any other media) must be retained for the minimum period designated.

## 7. Training

West Texas A & M University Environmental Health and Safety will follow the Texas A & M University System Policy [33.05.02 Required Employee Training](#). Staff and faculty whose required training is delinquent more than 90 days will have their access to the Internet terminated until all trainings are completed. Only Blackboard and Single Sign-on will be accessible. Internet access will be restored once training has been completed. Student workers whose required training is delinquent more than 90 days will need to be terminated by their manager through Student Employment.

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## Related Statutes, Policies, or Requirements

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## Contact Office

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651-2270