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Thermal Stress

A. Purpose

The following guidelines apply to the PA Department of General Services (DGS) and its employees. Authority and responsibility for its execution are pursuant to the DGS Secretary's "Safety Program Policy Statement", [PA Management Directive 530.31 Workplace Safety and Health Program](#), and "[Element C](#)" of the DGS Accident and Illness Prevention Program (AIPP).

B. Weather Related Injuries

1. Heat-Related Illnesses

Working outdoors can present a variety of hazards, especially in extreme temperatures. If proper precautions are not taken, heat related illness can occur, such as heat stroke, heat exhaustion, heat syncope, heat cramps, heat rash or sunburn.

- Heat stroke: The most serious heat-related illness, occurring when the body cannot control its temperature. Symptoms include confusion, loss of consciousness, and seizures. It can be fatal without emergency treatment.
- Heat exhaustion: Caused by excessive loss of water and salt, typically through sweating. Symptoms include headache, nausea, dizziness, and heavy sweating.
- Heat syncope: A fainting episode or dizziness that usually occurs with prolonged standing or sudden rising from a sitting or lying position.
- Heat cramps: Muscle pains or spasms that happen during heavy exercise.
- Heat rash: Skin irritation from excessive sweating during hot, humid weather.
- Sunburn: Skin damage from the sun's ultraviolet rays which can cause redness and pain; severe cases can result in blistering.

2. Cold-Related Illnesses

To ensure safety and health during cold weather, it is essential to understand and prepare for the risks of cold-related illnesses. If proper precautions are not taken, cold-related illnesses can occur, such as frostbite, hypothermia, trench foot, or chilblains.

- Frostbite: Injury to the body caused by freezing, leading to a loss of feeling and color in impacted areas; often the nose, ears, cheeks, chin, fingers, or toes.
- Hypothermia: Occurs when the body loses heat faster than it can produce it, leading to abnormally low body temperature. Symptoms include shivering, fatigue, and confusion.
- Trench foot: A condition caused by prolonged exposure to wet and cold conditions. It does not require freezing temperatures and can occur at temperatures up to 60°F (15°C) if the feet are constantly wet.

- **Chilblains:** The painful inflammation of small blood vessels in the skin that occur in response to repeated exposure to cold but not freezing air.

C. Responsibilities/Procedures

To prevent heat-related illnesses, supervisors should:

- Plan work around peak temperatures.
- Make the determination of the length of time employees can work in such temperatures.
- Make sure there is plenty of cool drinking water available in convenient, visible locations close to the work area.
- Consider pairing employees so they can monitor each other for signs of heat-related illness.
- Make sure shaded or air-conditioned areas are available for cooling down during breaks.

To prevent heat-related illnesses, employees should:

- Drink water throughout the day.
- Dress in light clothing.
- Utilize sunscreen.
- Rest in the shade or a cool area during breaks.
- Gradually increase workloads and take more frequent breaks as you acclimatize to the heat.
- Be aware of your own physical condition and that of your coworkers.

To prevent cold weather-related illnesses, supervisors should:

- Plan work around peak temperatures when possible.
- Make the determination of the length of time employees can work in such temperatures.

To prevent cold weather-related illnesses, employees should:

- Dress in layers.
- Stay dry, as wet clothing chills the body rapidly.

Appropriate first aid measures shall be taken should a heat related or cold weather-related illness occur:

Heat stroke

- Call 911 for emergency medical care.
- Move the person to a shaded, cool area and remove outer clothing.
- Cool the person quickly using cold water or ice bath if possible.
- Place a cold wet cloth or ice on the head, neck, armpits, and groin.

Heat exhaustion

- Take the person to a clinic or emergency room for medical evaluation and treatment.
- Remove the person from the hot area and provide cool drinks.

- Cool the person with cold compresses or have them wash their head, face, and neck with cold water.

Heat syncope

- Have the person sit or lie down in a cool place.
- Slowly drink water, clear juice, or a sports drink.

Heat cramps

- Drink fluids every 15 to 20 minutes and eat a snack.
- Avoid salt tablets, but drinks containing electrolytes are acceptable.

Heat rash

- Keep the rash area dry.
- Do not use ointments or creams, as they may impair cooling.

Frostbite

- Protect the frostbitten area from further exposure.
- Do not rub the affected area.
- Gently rewarm frostbitten areas by soaking in warm water.

Hypothermia

- Alert the supervisor and request medical assistance.
- Move the person into a warm room or shelter.
- Remove wet clothing and warm the center of their body first.
- Provide/drink warm beverages.

Trench foot

- Remove wet shoes and socks.
- Dry feet and avoid walking on them.
- Keep affected feet elevated and warm.

Chilblains

- Avoid scratching the affected areas.
- Gently warm the skin and keep it dry.
- Consult a healthcare provider if the skin does not improve.

D. Communication/Review

Impacted employees should be periodically reminded of weather-related guidelines as applicable. This thermal stress protocol will be reviewed annually by the DGS Safety Coordinator, with the review documented and maintained on file for the current fiscal year and previous two.