

HEAT ILLNESS PREVENTION PLAN (HIPP)

SECTION 1 – PURPOSE

To establish guidelines and responsibilities for minimizing the effects of heat stress and heat related illnesses in both outdoor and indoor work environments.

SECTION 2 – SCOPE

This program applies to all employees, regardless of department, and volunteers who may be exposed to conditions that could cause heat-related illnesses. The program is intended to comply with Arizona Division of Occupational Safety and Health (ADOSH), OSHA's General Duty Clause, Section 5(a)(1), and A.R.S. 23-403(A).

SECTION 3 – POLICY

This policy is effective May 1st – September 30th of each year, or when temperatures or heat indices reach indicated levels, or at the discretion of the Town Manager or Department Head.

The Town Manager shall designate a Program Administrator responsible for oversight of this Heat Illness Prevention Plan, including annual review, recordkeeping requirements, employee training coordination, and ensuring departmental compliance with program requirements. As of the writing of this policy, this responsibility is assigned to the Fire Chief or their designee.

Heat Index	Threshold
80°F	OSHA/Town of Jerome Initial Heat Trigger
90°F	OSHA/Town of Jerome High-Heat Trigger
100°F	ADOSH – Mandatory HIPP enforcement

SECTION 4 – DEFINITIONS

Shade: Is any natural or constructed structure that blocks direct sunlight and allows the body to cool down effectively.

Water: must be potable, cool, and easily accessible so workers can hydrate regularly throughout the work day.

Rest Break: A designated period of time allowing workers to cool down, recover, and prevent heat-related illness.

Acclimatization: The process where the body adapts to heat over several days, improving its ability to work safely in hot conditions.

Heat Illness: A medical condition resulting from the body's inability to cope with heat, including heat cramps, heat exhaustion, heat syncope, and heat stroke.

Heat Stress: Occurs when the body's overall response to heat is compromised and the body cannot cool itself effectively.

Heat Exhaustion: Is a serious condition that occurs from prolonged exposure to heat and dehydration.

Heat Stroke: A life-threatening condition where the body can no longer regulate temperature and is characterized by confusion, seizures, loss of consciousness, or a body temperature above 103°F.

Heat Syncope: Fainting or dizziness when standing for too long or suddenly standing up after sitting or lying down and occurs from dehydration or lack of acclimatization.

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Heat Index: A measure of how hot it feels to the human body when the air temperature and relative humidity are combined.

High Heat: Exists where the heat index exceeds 90°F.

SECTION 5 – PROCEDURE AND RESPONSIBILITIES

Strenuous physical activities in high temperatures affect all organ systems of the body. The effect is relative to how hot it is, duration of exposure, type of activity, as well as a variety of other factors. For example, during long and even short duration strenuous activities at temperatures above 105°F, normal cooling mechanisms can be stressed and overwhelmed. In the interest of reducing the impact of heat related stress, the following directives in this section are to be followed whenever the air temperature or heat index reaches the high heat threshold (90°F) and are mandatory to be followed when the air temperature or heat index reaches the mandatory threshold (100°F).

The Town of Jerome will provide all necessary resources, including potable water, adequate shade, and employee training. Supervisors shall monitor weather conditions daily, manage work-rest schedules, and monitor employees for signs and symptoms of heat stress. Employees are responsible for frequent hydration, using shaded areas for rest, and immediately reporting any heat-related symptoms to their supervisor. Supervisors or Department Heads are authorized to stop work or modify work activities when environmental conditions or employee symptoms indicate an elevated risk of heat illness. Supervisors shall ensure employees have the authority to report symptoms, request water, request shade, report unsafe heat conditions, request preventative cool-down periods, or report symptoms observed in coworkers without fear of retaliation, discipline, or adverse employment action.

1. Heat Hazard Assessment

Supervisors shall evaluate heat conditions before the start of each work shift and periodically throughout the workday. Assessment may utilize the OSHA-NIOSH Heat Safety Tool App, National Weather Service HeatRisk Map, local weather stations, or other reliable heat monitoring sources.

Supervisors shall consider:

- a. Heat Index
- b. Ambient temperature
- c. Relative humidity
- d. Direct sunlight exposure
- e. Workload intensity
- f. Clothing and PPE requirements

Additional controls shall be implemented when conditions exceed established thresholds. Heat hazard assessments shall be documented when the heat index exceeds 90°F.

2. Water provision

The Town shall provide potable, suitably cool, palatable, and readily accessible water at no cost to employees. Water shall be provided in individual containers, portable water stations, or plumbed systems. Ice may be added to maintain water temperature between 50-60°F to encourage consumption. Water Standards:

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- a. Accessibility – Water should be located as close as practicable to where employees are working.
- b. Quantity – For not plumbed or continuously supplied water, the Town must provide enough water at the start of the shift to meet a minimum of one quarter of water per employee per hour for the entire shift or effective procedures in place to replenish water as needed throughout the shift.
- c. Quality – Water must be free from dirt and contamination, shall be maintained cool enough to encourage frequent consumption, and stored in clean and regularly maintained containers.
- d. Encouragement – Supervisors will encourage frequent hydration throughout the day, while avoiding excessive intake, including “drink-in-place” hydration moments as needed. Urine color hydration charts may be provided to help employees self-monitor hydration levels.

3. Access to Shade

The Town will provide shade structures that block direct sunlight, or air-conditioned buildings or vehicles to allow the body to cool down effectively during breaks. The shade area shall be large enough to allow all employees on break to sit in a natural posture, open to the air on at least three sides or be mechanically ventilated, located as close as reasonable to the work area, and kept free to hazards. Shade shall be available at all times when the heat index exceeds 80°F and shall be accessible within a reasonable walking distance (generally less than 2.5 minutes). For indoor work environments where natural shade is unavailable, cooled recovery areas, mechanically ventilated areas, or air-conditioned spaces shall be provided. Indoor cooling measures may also include fans, evaporative coolers, reflective barriers, or reducing radiant heat sources.

4. Rest Breaks and High-Heat Procedures

Employees shall be allowed to take preventative cool-down rest periods in the shade without penalty, if the employee feels the need to prevent overheating. Rest intervals should be adjusted based on temperature, exposure, lack of air movement, humidity, workload, clothing, personal protective equipment (which may add to heat burden), and acclimatization level.

The following heat index thresholds are adopted by the Town as administrative safety controls and may exceed minimum regulatory requirements. Supervisors may implement more restrictive controls based on workload, employee condition, environmental conditions, or operational needs.

- a. Heat Index above 80°F
 - Employees should be encouraged to drink approximately one cup of water every 15 – 20 minutes.
 - Shade or air-conditioned areas for recovery or rest breaks.
 - Acclimatization of new or returning workers by gradually increasing workloads over their first few days in the heat.
 - Monitoring of employees for signs and symptoms of heat illness.

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- b. Heat Index above 90°F
 - Additional rest and recovery breaks shall be provided as necessary to prevent overheating.
 - Electrolyte-replenishing beverages may be made available for employees engaged in prolonged sweating or extended work in high heat conditions.
 - Additional personal protective measures such as cooling towels and hats.
 - Pair employees together to monitor each other for signs of heat illness.
- c. Heat index above 100°F
 - Employees shall be directed and encouraged to hydrate at least every 15 – 20 minutes.
 - Pair employees together to monitor each other for signs of heat illness.
 - Supervisors shall conduct regular employee wellness and symptom check-ins throughout the workday. Additional monitoring measures may be implemented when appropriate and conducted by qualified personnel.
 - Strenuous tasks will be scheduled for cooler parts of the day, when possible.

5. Acclimatization

New hires and returning employees must be acclimated to the high altitude and temperatures through gradually increasing exposure to hot conditions. New employees shall begin at twenty percent (20%) of their normal workload on the first day, gradually increasing exposure each day by twenty percent (20%). For returning workers that have been absent for three (3) days or more, shall start at fifty (50%) workload, reaching one hundred percent (100%) over four (4) days. Supervisors shall closely observe new, returning, and unacclimated employees for any signs of distress during periods of heat exposure, particularly during the first seven (7) to fourteen (14) days of work in hot conditions. Supervisors shall document acclimatization schedules for new or returning employees and adjust workloads accordingly.

6. Training

For employees who are reasonably anticipated to work in an environment that will result in exposure to the risk of heat illness, training is conducted, in a language and vocabulary the employee understands, before the employee begins work in such conditions. Training shall be documented and include employee name, date, trainer, and topics covered. Supervisors shall receive additional training on heat hazard assessment, acclimatization management, and emergency response coordination. Retraining will occur annually or after any serious heat-related incident. Records shall be maintained in accordance with applicable Town retention schedules and OSHA record keeping requirements. The training topics include:

- Risk factors, symptoms of heat illness, and employer/employee rights.
- Procedures for water, rest, shade and acclimatization.
- Written procedures for heat illness prevention, including risk factors and the added burden of heat load from clothing, exertion, and PPE.
- First aid, emergency response, and reporting procedures.

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- The use of available monitoring tools from the NIOSH/OSHA Heat Stress Tool application and the National Weather Service Heat Risk Map.

7. Emergency Response

In the event of a suspected heat illness, immediate notification of a supervisor must occur. The employee shall be moved to a shaded/ cool area, provided cool water, and additional cooling methods as appropriate. Cooling methods may include ice packs to the neck/armpits/groin, misting fans, removing excess clothing/PPE, or immersion in cool water if available and when feasible. Employees exhibiting signs of heat stroke shall not be left unattended. Employees suspected of or experiencing heat-related illness shall not be permitted to drive themselves for medical evaluation. Supervisors shall arrange transportation by emergency medical services (911), town vehicle, or other responsible transportation as appropriate to the severity of the condition. Employees exhibiting symptoms consistent with heat stroke shall be treated as a medical emergency and emergency medical services shall be contacted immediately. Symptoms of heat stroke may include, but are not limited to, confusion, unconsciousness, or high body temperature. Supervisors shall ensure employees working in remote locations have reliable means of communication and that emergency responders can be directed to the work area promptly.

8. Heat Illness Incident Review

All heat-related incidents shall be reviewed to identify contributing factors and corrective actions. Supervisors shall document all reported heat-related illnesses, symptoms requiring medical evaluation, and near-miss events. Incident reviews shall identify contributing factors including:

- Environmental Conditions
- Hydration practices
- Acclimatization status
- Workload
- Training effectiveness

Corrective actions shall be documented and implemented as necessary.

9. Contractors, Temporary Workers, and Volunteers

Contractors, temporary workers, and volunteers working under the direction of the Town shall be provided appropriate heat illness prevention information. Departments utilizing contractors shall coordinate responsibilities for water, shade, training, emergency response, and heat-related illness reporting. Contractors shall remain responsible for compliance with applicable occupational safety requirements for their employees.

10. Documentation and Recordkeeping

The following records shall be maintained and done so in accordance with Town retention schedules.

- Employee training records
- Acclimatization documentation
- Heat-related illness investigations

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- Corrective action reports
- Daily heat assessments when the heat index exceeds 90°F

11. Return to Work Following Heat Illness

Employees returning to work following a heat-related illness requiring medical treatment may be required to provide medical clearance consistent with Town personnel policies. Supervisors shall evaluate whether additional acclimatization or work restrictions are necessary before returning the employee to full-duty work in hot conditions.

12. Exemptions

The following work areas/places and operations are exempt from the recommendations.

- a. Incidental heat exposures where an employee is not required to perform work activities in heat for more than 15 minutes in any sixty-minute period.
- b. All emergency operations that are directly involved in the protection of life or property, or the restoration of essential services, such as evacuation, rescue, medical, structural firefighting, law enforcement, utilities, and communications when employees are engaged in those operations.
- c. Buildings and structures that have a mechanical ventilation system that keeps the heat index below 80°F.

SECTION 6 – RISK FACTORS

There are several risk factors, both personal and environmental, that could affect how and individuals' body reacts to high-heat situations. These risk factors include:

1. Personal Risk Factors (not an all-inclusive list)

- Lack of acclimation time
- Poor general health
- Dehydration
- Alcohol Consumptions
- Caffeine consumption
- Use of diuretics
- Use of certain medications (prescription and over the counter) or the use of illicit drugs
- High blood pressure or heart disease
- Obesity
- Lack of physical fitness

2. Environmental Risk Factors

- Air temperatures above 90 degrees Fahrenheit
- Humidity levels
- Radiant heat from the sun
- Lack of air flow
- Physical working requirements
- Nonbreathable clothing and PPE

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- Dark colored surfaces such as asphalt
- 3. Indoor Heat Sources
Supervisors shall evaluate indoor work areas where heat accumulation may present a heat illness hazard. Examples include:
 - Vehicle maintenance facilities
 - Public works shops
 - Equipment repair areas
 - Utility buildings
 - Mechanical rooms
 - Buildings with limited ventilation
 - Areas with radiant heat-producing equipment

SECTION 7 – SIGNS AND SYMPTOMS

When working in high-heat environments, it is important to understand the signs and symptoms of the different levels of heat-related illnesses. The symptoms can range from mild to severe. The following are heat-related illnesses and their associated signs and symptoms.

1. Heat Syncope

Is a temporary loss of consciousness (fainting) or dizziness caused by reduced blood flow to the brain. It most commonly occurs during prolonged standing, sudden rising from a seated position, or physical exertion in hot environments.

a. Signs and Symptoms:

- Dizziness or lightheadedness
- Fainting or near-fainting
- Pale, cool, or clammy skin
- Weak pulse
- Temporary loss of consciousness
- Fatigue or weakness
- Nausea in some cases

b. Treatment

- Move the individual to a cool or shaded area immediately.
- Have the person sit or lie down and elevate their legs if possible.
- Encourage slow rehydration with water or electrolyte-containing beverages if the person is conscious and able to drink.
- Loosen restrictive clothing.
- Monitor for worsening symptoms.

c. When to seek Medical Care

- Loss of consciousness.
- Symptoms do not improve quickly after cooling and hydration.
- The individual has chest pain, difficulty breathing, or other concerning symptoms.

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2. Heat Cramps

Are painful muscle spasms that typically occur during or after strenuous physical activity in hot environments. They are often associated with dehydration and electrolyte loss caused by excessive sweating.

a. Signs and Symptoms

- Painful muscle cramps or spasms
- Muscle tightness or twitching
- Heavy sweating
- Fatigue
- Thirst
- Muscle pain commonly affects the legs, arms, abdomen, or shoulders

b. Treatment

- Stop all strenuous activity.
- Move to a cool environment.
- Rest and allow muscles to recover.
- Rehydrate with water and electrolyte replacement beverages.
- Perform gentle stretching and massage of affected muscles.
- Avoid returning to strenuous activity for several hours after symptoms resolve.

c. When to seek Medical Care

- Cramps last longer than one hour despite treatment.
- Symptoms recur frequently.
- The individual has heart disease or is on a low-sodium diet.
- Additional symptoms of heat illness develop.

3. Heat Rash

Heat rash (miliaria or "prickly heat") is a skin irritation that develops when sweat ducts become blocked, trapping sweat beneath the skin. It commonly occurs in hot and humid environments.

a. Signs and Symptoms

- Small red bumps or blisters on the skin
- Itching or prickling sensation
- Mild skin irritation
- Redness in affected areas
- Commonly occurs on the neck, chest, groin, elbows, or skin folds

b. Treatment

- Move to a cooler, less humid environment.
- Keep the affected skin dry.
- Wear loose-fitting, lightweight clothing.
- Avoid excessive sweating until symptoms improve.
- Apply cool compresses if necessary.

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- Over-the-counter anti-itch or soothing lotions may be used when appropriate.

c. When to seek Medical Care

- The rash becomes infected.
- Symptoms worsen or do not improve.
- Significant swelling, pain, or drainage develops.

4. Heat Exhaustion

Is a heat-related illness that occurs when the body loses excessive amounts of water and salts through sweating, usually due to prolonged exposure to high temperatures or strenuous physical activity. It is less severe than heat stroke but can progress to heat stroke if not treated promptly. Early recognition and treatment are essential to prevent complications.

a. Signs and Symptoms

- Heavy sweating
- Cool, pale, and clammy skin
- Excessive thirst
- Weakness or fatigue
- Dizziness or fainting
- Headache
- Muscle cramps
- Nausea or vomiting
- Rapid, weak pulse
- Fast, shallow breathing
- Irritability or difficulty concentrating

b. Treatment

- Move the person to a cool, shaded, or air-conditioned area.
- Have the person lie down and elevate their legs slightly if they feel faint.
- Loosen or remove unnecessary clothing.
- Cool the body using cool, wet cloths, a cool shower, or by fanning the person.
- Encourage the person to sip cool water or an oral rehydration solution if they are fully alert and not vomiting.
- Allow the person to rest until symptoms improve.

c. When to seek Medical Care

- Symptoms last longer than one hour despite treatment.
- The person cannot keep fluids down because of vomiting.
- Symptoms become worse or do not improve.
- The person develops confusion, loses consciousness, has seizures, or their body temperature rises to 104°F or higher, as this may indicate progression to heat stroke.

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5. Heat Stroke (Most Severe)

Heat stroke is a life-threatening medical emergency that occurs when the body's temperature regulation system fails, causing the core body temperature to rise to 104°F or higher. It usually results from prolonged exposure to high environmental temperatures, strenuous physical activity in hot weather, or a combination of both. Without prompt treatment, heat stroke can damage the brain, heart, kidneys, muscles, and other vital organs, and may be fatal.

a. Signs and Symptoms

Common signs and symptoms of heat stroke include:

- High body temperature (104°F or above)
- Hot, flushed skin (dry or sweaty depending on the cause)
- Severe headache
- Dizziness or light-headedness
- Rapid, strong pulse
- Nausea and vomiting
- Confusion, agitation, or irritability
- Slurred speech
- Loss of coordination
- Seizures
- Loss of consciousness or coma

b. Treatment

Heat stroke requires **immediate** emergency medical care. While waiting for medical assistance, rapid cooling should begin.

- Call emergency medical services immediately.
- Move the person to a cool, shaded, or air-conditioned area.
- Remove excess clothing to allow heat to escape.
- Cool the body rapidly by:
 - Applying cool, wet towels or cloths to the skin.
 - Spraying the body with cool water while fanning.
 - Placing ice packs on the neck, armpits, and groin.
 - Immersing the person in cool or cold water if possible.
- Monitor breathing and level of consciousness until help arrives.
- Do **not** give fluids by mouth if the person is unconscious, confused, or unable to swallow safely, as this may cause choking.

c. Medical Care (Hospital Setting)

In a healthcare facility, treatment may include:

- Continued rapid cooling until body temperature falls to a safe level.
- Intravenous (IV) fluids to maintain hydration and circulation.
- Monitoring of vital signs and organ function.
- Treatment of complications such as seizures, kidney injury, or electrolyte imbalances.
- Oxygen therapy or assisted breathing if required.

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6. Rhabdomyolysis “rhabdo” aka Muscle Breakdown

Rhabdomyolysis ("rhabdo") is a serious medical condition that occurs when damaged skeletal muscle breaks down rapidly and releases its contents, including myoglobin, electrolytes, and enzymes such as creatine kinase (CK) - into the bloodstream. These substances can cause significant complications, particularly acute kidney injury if not promptly recognized and treated.

a. Common Causes

- Severe or prolonged physical exertion
- Heat-related illness or dehydration
- Crush injuries or trauma
- Certain medications (particularly statins in some individuals)
- Drug or alcohol use
- Seizures or prolonged immobilization
- Infections and metabolic disorders

b. Signs and Symptoms

Symptoms can vary from mild to severe. The classic triad of rhabdomyolysis includes:

- Muscle pain or tenderness
- Muscle weakness
- Dark, tea-colored, or cola-colored urine

c. Other signs and symptoms

- Swelling of affected muscles
- Fatigue or generalized weakness
- Decreased urine output
- Nausea or vomiting
- Fever (in some cases, not all)
- Rapid heart rate
- Confusion or altered mental status
- Difficulty moving affected muscles
- Signs of dehydration

Some individuals may experience few or no symptoms, this means lab testing is highly important when rhabdomyolysis is suspected.

d. Diagnosis

Healthcare providers typically diagnose rhabdomyolysis using:

- Blood tests showing elevated creatine kinase (CK) levels
- Kidney function tests (blood urea nitrogen and creatinine)
- Electrolyte testing (particularly potassium, calcium, and phosphate levels)
- Urinalysis to detect myoglobin or blood without red blood cells

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e. Treatment

There is no single universal treatment protocol; however, established medical management generally includes:

- **Immediate Intravenous (IV) Fluid Therapy**
 - Aggressive hydration with isotonic IV fluids is considered the cornerstone of treatment.
 - Early fluid administration helps maintain kidney perfusion and promotes the elimination of muscle breakdown products.
- **Monitoring and Correction of Electrolyte Abnormalities**
 - Elevated potassium levels (hyperkalemia) can be life-threatening and require prompt treatment.
 - Calcium, phosphate, and other electrolyte abnormalities are closely monitored and treated as necessary.
- **Kidney Function Monitoring**
 - Healthcare providers monitor urine output and laboratory values to assess kidney function.
 - Patients may require hospitalization depending on the severity of the condition.
- **Treatment of the Underlying Cause**
 - Management may include stopping an offending medication, treating heat illness, addressing trauma, or treating an underlying infection or medical condition.
- **Dialysis (When Necessary)**
 - Severe cases complicated by acute kidney injury or dangerous electrolyte disturbances may require temporary dialysis.

f. When to seek Medical Care

Immediate medical evaluation is recommended if an individual experiences:

- Severe muscle pain or weakness
- Dark or markedly decreased urine output
- Symptoms following extreme physical exertion or heat exposure
- Signs of dehydration or heat illness
- Confusion, chest pain, or difficulty breathing

SECTION 8 – REVIEW

This program shall be reviewed annually before May 1 and after any serious heat-related incident. Revisions shall be made as needed to address operational changes, regulatory updates, lessons learned or identified deficiencies. Nothing in this program is intended to conflict with applicable federal or state laws or regulations.