

Heat Injury & Illness Prevention Program

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Last Update: DATE

Policy: COMPANY is committed to protecting employees from the hazards of hot conditions and to preventing heat-related illnesses at the workplace. We will identify, evaluate, and control potential exposure of our employees to extreme temperature, humidity, and other heat-related factors.

Applicability: This Plan covers employees who are exposed to heat stress hazards on the job. Specifically, this program applies when the adjusted wet bulb globe temperature (WBGT) meets or exceeds 77 F (based on the recommended heat stress exposure limits (RELs) found in the 2016 NIOSH “Occupational Exposure to Heat and Hot Environments” Figure 8-2 (assuming workers are acclimated and working at a high metabolic rate (500 kcal/h)). It is important to note that unacclimated employees are not exposed to the full heat associated with their respective job tasks until they become acclimated. This is explained in more detail later in the program and is documented on FORM #. In addition to metabolic rate, personal protective equipment (PPE) adjustments are made to account for the increased heat loading based on specific types of PPE workers are utilizing.

Note: This plan does not apply to the following situations:

- Emergency response events where there is potential for loss of life,
- Frequently performed short-duration inspections/rounds/tours or transitioning from one location to another, where the time spent in heat is negligible.
- This Plan **cannot** be used in extremely high temperatures (see “Definitions” section for details). Work in extremely high temperatures can be accomplished only through a specific safety plan that includes additional controls and is approved by EHS prior to commencement of work.

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Plan Administration

Plan Administrators. The Plan Administrators (Environmental Health & Safety Department – EHS) are responsible for implementing the Heat Stress Prevention Program, and for TRAINING SYSTEM that employees are trained to recognize the signs and symptoms of heat stress and what to do if these occur.

EHS may designate and authorize other personnel to implement specific components of this Plan.

Managers, Supervisors, & Work Team Leads (WTLs). Management is responsible for monitoring weather and/or indoor/ambient conditions at the worksite, monitoring worker physiological parameters through observing employees for signs of heat stress and use of wearable technology (“biotrackers” with alarm setpoints and real-time alerts to remote mobile devices), adjusting work schedules as necessary, ensuring employees are acclimatized to the heat, encouraging employees to frequently consume water, take periodic rest breaks when working in hot conditions, and contacting emergency services if necessary.

Employees. Employees are responsible for monitoring their own personal risk factors for heat-related illness and taking appropriate steps to prevent heat stress, including frequent consumption of water and other acceptable fluids (i.e., electrolyte replacements), utilize personal protective equipment (PPE) and wearable technology (“biotrackers” with alarm setpoints and real-time alerts to remote mobile devices), and follow established work/rest break intervals. In addition, employees may be paired with a “buddy” to monitor for signs and symptoms of heat stress. Employees are required to notify their Supervisor or WTL immediately if they (or any team members) are experiencing any signs or symptoms of heat stress.

Plan Review and Update

This Plan will be periodically reviewed and updated when:

- New activities or equipment that creates heat stress are introduced into the workplace.
- Evaluations of heat stress hazards, injuries, and illnesses demonstrate that the current Plan is outdated or not effective.
- Regulatory or applicable national consensus standards change that require this Plan to be updated.
- On an annual basis, at a minimum.
- This Plan will be stored and sent out for review and training via the *TRAINING SYSTEM* document control system (DCS).

Definitions

Acclimatization or acclimate is the physiological (i.e., physical, mechanical, and biochemical) change that allows the human body to adapt or get used to the effects of a new physical environment or climate. After a period of acclimatization, the same physical activity will produce fewer cardiovascular demands. The worker will sweat more efficiently, causing better evaporative cooling, and thus will more easily be able to maintain normal body temperatures.

Calorie is the amount of heat required to raise 1 gram of water 1°Celcius (C) (based on a standard temperature of 16.5 to 17.5°C).

Conduction is the transfer of heat between materials that contact each other. Heat passes from the warmer material to the cooler material. For example, a worker’s skin can transfer heat to a contacting surface if that surface is cooler, and vice versa.

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Convection is the transfer of heat in a moving fluid. Air flowing past the body can cool the body if the air temperature is cool. On the other hand, air that exceeds 35°C (95° Fahrenheit (F)) can increase the heat load on the body.

Cool areas are defined as locations (indoors or outdoors) where the WBGT is less than 80 °F. Cool areas serve as locations for employees working in heat to take rest breaks and recover.

Dry bulb (DB) temperature is the measurement of the heat content of freely exposed air measured by a thermal sensor that is shielded from direct radiant energy sources.

Environmental risk factors for heat illness include working conditions that increase the likelihood of heat illness, such as air temperature, relative humidity, radiant heat from the sun and other sources, conductive heat sources such as the ground, air movement, workload severity and duration, and protective clothing and equipment worn by employees.

Evaporative cooling takes place when sweat evaporates from the skin. High humidity reduces the rate of evaporation and thus reduces the effectiveness of the body's primary cooling mechanism.

Extremely high temperatures are defined as Wet Bulb Globe Temperatures (WBGT) of 110 F or greater. Work in extremely high temperatures is beyond the scope of this Plan.

Globe temperature is the temperature inside a blackened, hollow, thin copper globe.

Heat is a measure of energy that is transferred by a difference in temperature.

Heat wave is any day in which the predicted high temperature for the day will be at least 80 degrees Fahrenheit (°F) and at least 10°F higher than the average daily temperature in the preceding 5 days.

Heat illness or *heat stress* is a serious medical condition resulting from the body's inability to cope with a particular heat load. It includes heat cramps, heat exhaustion, heat syncope, and heat stroke.

Metabolic heat is a byproduct of the body's activity.

Natural wet bulb (NWB) temperature is measured by exposing a wet sensor, such as a wet cotton wick fitted over the bulb of a thermometer, to the effects of evaporation and convection. The term "natural" refers to the movement of air around the sensor.

Personal risk factors for heat illness include factors such as an individual's age, degree of acclimatization, health, water consumption, alcohol consumption, caffeine consumption, and use of prescription medications that may affect the body's physiological response to heat.

Radiation is the transfer of heat energy through space. A worker whose body temperature is greater than the temperature of the surrounding surfaces radiates heat to these surfaces. Hot surfaces and infrared light sources radiate heat that can increase the body's heat load.

Heat-Related Illnesses

Heat syncope is a condition where the brain does not receive enough oxygen because blood pools in the extremities, resulting in a loss of consciousness. This reaction is similar to that of heat exhaustion and does not affect the body's heat balance. However, the onset of heat syncope is rapid and unpredictable. Heat syncope is a fainting 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.

Heat cramps are usually caused by performing hard physical labor in a hot environment. These cramps have been attributed to an electrolyte imbalance caused by sweating. Cramps can be caused by both too

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much and too little salt. Cramps appear to be caused by the lack of water replenishment. Because sweat is a hypotonic solution ($\pm 0.3\%$ sodium chloride), excess salt can build up in the body if the water lost through sweating is not replaced. Thirst cannot be relied on as a guide to the need for water; instead, water must be taken every 15 to 20 minutes in hot environments. Under extreme conditions, such as working for 6 to 8 hours in heavy protective gear, a loss of sodium may occur. Studies have shown that drinking commercially available carbohydrate-electrolyte replacement liquids is effective in minimizing physiological disturbances during recovery.

Heat exhaustion is a condition with symptoms of headache, nausea, vertigo, weakness, thirst, and giddiness. Fainting associated with heat exhaustion can be dangerous because the victim may be operating machinery or controlling an operation that should not be left unattended; moreover, the victim may be injured when he or she faints. Also, the signs and symptoms seen in heat exhaustion are similar to those of heat stroke, a medical emergency.

Heat fatigue is a temporary state of discomfort and mental or psychological strain arising from prolonged heat exposure. It is generally caused by fluid loss. Workers unaccustomed to the heat are particularly susceptible and can suffer, to varying degrees, a decline in task performance, coordination, alertness, and vigilance. There is no treatment for heat fatigue except to remove the heat stress before a more serious heat-related condition develops. The severity of transient heat fatigue will be lessened by a period of gradual adjustment to the hot environment (heat acclimatization).

Heat rash is “prickly” heat manifested as red papules (i.e., small, inflammatory, irritated spots on skin) and usually appears in areas where the clothing is restrictive. As sweating increases, these papules give rise to a prickling sensation. Prickly heat occurs on skin that is persistently wetted by unevaporated sweat, and heat rash papules may become infected if they are not treated. In most cases, heat rashes will disappear when the affected individual returns to a cool environment.

Heat stroke occurs when the body’s system of temperature regulation fails, and body temperature rises to critical levels. This condition is caused by a combination of highly variable factors, and its occurrence is difficult to predict. Heat stroke is a medical emergency. The primary signs and symptoms of heat stroke are confusion, irrational behavior, loss of consciousness, convulsions, a lack of sweating (usually), hot and dry skin, and an extremely high body temperature. If body temperature is too high, death may result. The elevated metabolic temperatures caused by a combination of workload and environmental heat load, both of which contribute to heat stroke, are also highly variable and difficult to predict.

Rhabdomyolysis is a medical condition sometimes caused by heat stress and prolonged physical exertion in which muscle fibers break down, die, and release electrolytes and proteins into the bloodstream. Left untreated, it can lead to kidney damage, irregular heart rhythms, and death. Symptoms include muscle cramps, muscle pain, dark urine, weakness, inability or decreased ability to perform physical exercise at the normally expected level or duration, and joint pain or stiffness.

Hazard Assessment

EHS and departmental management will conduct an initial inspection and hazard assessment of all work areas and environments where hot conditions are anticipated or may occur. These areas will be periodically inspected and monitored to ensure compliance with this Plan and to evaluate the effectiveness of heat stress control measures. Monitoring of areas throughout SITE #1 and SITE #2 facilities are documented on the “Heat Stress Area Monitoring Form” (FORM #).

During the assessment the inspector(s) will:

- *For outdoor environments:* Determine when weather conditions and work demands may increase the risk of heat-related illness

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- *For indoor environments:* Determine building and facility operating characteristics that may cause, contribute to, or alleviate hot conditions.
- Determine whether engineering and administrative controls are functioning properly.
- Verify information obtained from employee and supervisor interviews.
- Perform temperature measurements and make other determinations to identify potential sources of heat stress.

Heat Stress Factors

The following workplace factors will be considered in the assessment for heat stress:

- Air temperature and air movement
- Weather conditions
- Availability of shade
- Radiant heat sources
- Conductive heat sources
- Humidity
- Direct physical contact with hot objects
- Workload activity and duration
- Semipermeable or impermeable protective clothing

The following worker heat sensitivity factors will also be considered in evaluating the potential for heat stress:

- Age
- Weight
- Degree of physical fitness
- Degree of acclimatization
- Metabolism
- Use of alcohol or drugs
- Medical conditions and use of prescription medications
- Prior heat injury (predisposes an individual to additional injury)

Job Safety Analysis (JSA) forms will be utilized to conduct and document assessments.

Medical Monitoring of Employees Working in Heat

COMPANY understands the importance of medically evaluating current and prospective employees for individual risk factors which may increase the potential for heat-related illnesses.

Prospective Employees (Post-Offer/Pre-Employment)

COMPANY works with licensed external occupational health/medical professionals to evaluate prospective employees for individual risk factors which may increase the potential for heat-related illness. This evaluation is conducted at the post-offer/pre-employment phase and includes a Heat Stress Questionnaire and virtual/physical medical evaluation with the employee. Occupational health/medical professionals will provide COMPANY with recommendations as to whether a prospective employee is: a) able to work in heat without restrictions, b) able to work in heat with restrictions, or c) should not work in heat.

Current Employees

COMPANY works with licensed external occupational health/medical professionals to evaluate prospective employees for individual risk factors which may increase the potential for heat-related illness. This evaluation is conducted on an annual basis for current employees and includes a Heat Stress Questionnaire and virtual/physical medical evaluation with the employee. Occupational health/medical professionals will provide COMPANY with recommendations as to whether a prospective employee is: a) able to work in heat without restrictions, b) able to work in heat with restrictions, or c) should not work in heat.

Heat Stress Monitoring in the Workplace

Every worker who works in conditions that significantly increase the risk of heat stress will be personally monitored (refer to “Permit to Work in Heat”, FORM #).

Personal heat stress monitoring techniques include physiological tests such as:

- Heart rate
- Internal body temperature
- Extent of body water loss
- Use of wearable technology with predictive alarming

Real-Time Physiological Monitoring of Personal Heat Stress

Personal monitoring of physiological stress will be conducted to alert employees and their Supervisors/WTLs to potential heat stress illness. The expectation is that employees working in conditions greater than or equal to 77 F, as determined by WBGT, will don wearable technology (“biotrackers”). This method of monitoring allows for early/predictive/proactive alarming to alert employees and management that an employee is approaching the point of heat stress. Employees working in heat are required to wear “biotrackers” which are worn on the upper arm underneath clothing (directly contacting skin). In the event a biotracker goes into alarm, Supervisors and EHS are notified via mobile device through SMS messaging. The employee must be immediately removed from heat and allowed adequate time to rest and recover before continuing work (note: this is in addition to the required work/rest breaks as outlined on the “Permit to Work in Hear” - FORM #).

COMPANY utilizes Slate Safety wearable devices to monitor the following physiological parameters in real time:

- Heart rate (beats per minute – bpm)
- Core body temperature (°F)

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- Exertion (%) – combines each user’s heart rate, core body temperature with individual characteristics such as height, weight, age, resting heart rate, and resting core body temperature.
 - Below 70%: low or moderate exertion.
 - Between 70% and 90%: high exertion, the user may need attention if this exertion rate is sustained for a long period of time.
 - Above 90%: very high exertion, the user is in danger of overexertion.
- %HRLV (Heart Rate Limit Value) – compares an individual’s current heart rate with their maximum sustainable heart rate. It is calculated using the following formula.

$$HRLV = \frac{\text{Current Heart Rate}}{180 - \text{Age}}$$

For each parameter listed above, alarm threshold setpoints are established based on manufacturers' recommendations and industry best practices. Alarm threshold setpoints are subject to change based on leading industry standards, site-specific historical data, and industry subject matter experts. COMPANY is monitoring the following alarm threshold setpoints:

<i>Alarm Alert</i>	<i>Threshold</i>
Exertion Rate	Exertion greater than 80 % for 3 minutes
Core Body Temperature	Core Temp greater than 102 °F for 3 minutes
HRLV – Heart Rate Limit Value	HRLV greater than 110 % for 5 minutes
Heart Rate (BPM)	Heart Rate greater than 220 - age BPM for 1 minute

Monitoring Hot Conditions (Locations)

Portable heat stress meters are used to measure heat conditions. These instruments will calculate both the indoor and outdoor Wet Bulb Globe Temperature (WBGT) index according to established American Conference of Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) equations. The WBGT for continuous all-day or several-hour exposures will be averaged over a 60-minute period. Intermittent exposures are averaged over a 120-minute period. With this information and information on the type of work being performed, heat stress meters can determine how long a person can safely work or remain in any particular hot environment as outlined in the “Permit to Work in Heat” (FORM #).

Heat Stress Prevention Program

This Heat Stress Prevention Program describes controls and work practices to protect employees from heat stress while working in hot conditions.

Program Implementation Criteria

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Department management (with assistance as needed from EHS as needed) will implement the Heat Stress Prevention Program.

Heat Stress Engineering Controls

The following engineering controls will be implemented before and in combination with work practices.

General Ventilation

General ventilation will be used where feasible and practical to dilute hot air with cooler air. Portable or local exhaust systems can be utilized for small areas where general ventilation is not feasible or practical. If the dry bulb temperature is higher than 35°C (95°F) and the air is dry, evaporative cooling may be improved by air movement. When the dry bulb temperature exceeds 35°C (95°F) and the relative humidity is 100%, air movement will make the worker hotter and forced ventilation will not be used to alleviate heat stress.

Fans

Fans will be provided where general ventilation is insufficient or impractical and when evaporative cooling will be improved by air movement.

Air Cooling or Conditioning

Air cooling or conditioning systems will be provided where feasible and practical.

Shields

Shields may be used to reduce radiant heat (i.e., heat coming from hot surfaces) for surfaces that exceed 35°C (95°F) within the worker's line of sight. Cooler surfaces surrounding the worker assist in cooling because the worker's body radiates heat toward them. The reflective surface of the shield will be kept clean to maintain its effectiveness.

Insulation

Heating pipes will be insulated to the extent possible or otherwise shielded to reduce radiant heat.

Cool Areas

Cool areas, such as the SITE #1 and SITE #2 Dryer Tower Control Rooms, Ante Rooms, and Break Rooms will be used as a recovery area near hot jobs (see "Definitions" for additional details).

Heat Stress Prevention Work Practices

Work practices will be implemented to reduce the risk of elevating an employee's core body temperature. Heat stress prevention practices that may be implemented individually or in combination include:

- Completing and following the "Permit to Work in Heat" (FORM #).
- Employee work and rest intervals.
- Continual personal monitoring of physiological signs of heat stress and/or physiological monitoring with use of wearable technology ("biotrackers").
- Provide cool liquids for rehydration and electrolyte replacement.

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- Establish and implement acclimatization schedules.
- Use warm-weather cooling garments (such as ice vests) where possible.
- Reduce the physical demands of work, e.g., excessive lifting or digging with heavy objects.
- Provide recovery areas such as air-conditioned enclosures and rooms.
- For work outdoors, use shifts such as early morning, cool part of the day, or night work.
- Use intermittent rest periods with water breaks.
- Use relief workers.
- Use worker pacing.
- Assign extra workers and limit worker occupancy, or the number of workers present, especially in confined or enclosed spaces.

Permit to Work in Heat - Work and Rest Intervals

Departmental Supervisors or designee (with the assistance of EHS as needed) will determine the work/rest intervals and communicate them to employees via verbal communication prior to the start of working in heat. Work/rest intervals will be documented on the "Permit to Work in Heat" (FORM #), are adjusted throughout the work shift as needed, posted in the workplace while in use, and communicated to each employee prior to commencement of work. Guidelines for work/rest schedules are provided in the "Permit to Work in Heat" (FORM #).

For outdoor work, a shaded area will be provided for employees to take rest breaks. The shaded area will be large enough to accommodate all employees who are taking a rest break at any given point in time. Shaded structures will be located as close as practicable to the work area and will be accessible to all workers. Employees will be allowed and encouraged to take preventative cool-down rest breaks to prevent heat stress as needed.

Work and rest intervals will be determined by the following process as outlined on the "Permit to Work in Heat" (FORM #):

- Step 1a - Determine the wet bulb globe temperature (WBGT). Note: The WBGT method of determining heat stress risk is documented on page 1 of the "Permit to Work in Heat."
- Step 1b – If WBGT is not available, utilize the NOAA's National Weather Service – Heat Index chart.
- Step 2 – Determine clothing adjustment factors.
- Step 3 – Determine metabolic work rate.
- Step 4 – Determine the appropriate work/rest intervals, rehydration recommendations, and any additional controls that need to be implemented. This information must be communicated to all employees working in heat prior to the commencement of work.
- Step 5 – Identify additional controls to reduce the potential for employee heat stress.
- Step 6 - Continue to monitor during the shift for adjustments in planning (recheck a minimum of 3 hours or if conditions change)

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Periodic checks – Employees shall continuously monitor for signs and symptoms of heat stress and are encouraged to monitor each other (buddy system). Supervisors will periodically check in on employees performing work in heat and make adjustments to workplace controls as necessary. Wearable technology allows Supervisors and EHS to continuously and remotely monitor employees with alarming via mobile devices when established thresholds are exceeded.

Fluid Replacement

Since dehydration is a primary cause of heat illness, it is critical that employees rehydrate with cool water and/or electrolyte replacement drinks. Once an employee is thirsty, they are already dehydrated. Therefore, employees should not rely on thirst as an indicator of hydration.

Cool (50°-60°F) water or other cool caffeine- and alcohol-free liquid will be made available to workers free of charge to encourage them to drink small amounts frequently. Ample supplies of liquids will be placed close to the work area. Enough water will be provided to allow all workers to consume at least one quart per hour throughout the entire work shift. Employees are encouraged to follow up with their primary care physician (PCP) for specific guidance regarding their recommended personal hydration needs.

For workers exposed to heat stress hazards who are traveling to remote job sites or otherwise away from a fixed location, any necessary purchases of bottled water or other suitable liquids for the prevention of heat illness will be reimbursed.

Acclimatization

Employees who are newly hired, have not worked under comparable hot conditions, or have been away from work areas covered under this Plan for the same period of time will follow the acclimatization procedures outlined on the “Employee Heat Stress Acclimatization Form” (FORM #). To prevent heat collapse, the worker will gradually become acclimatized to the hot conditions.

Daily exposure time. The acclimatization program will expose employees to work in hot conditions for progressively longer periods. For workers who have had previous experience in jobs where heat levels are high enough to produce heat stress, the exposure time per day progression will be:

- 50% exposure on day one
- 60% on day two
- 80% on day three
- 100% on day four

For new workers who will be similarly exposed, the exposure time per day progression will be:

- 20% on day one
- 20% increase in exposure each additional day

Personal Protective Equipment (PPE)

PPE, such as cooling/ice vests, may be used to minimize heat stress after engineering controls and work practices have been implemented and workers are still exposed to heat stress hazards. Such PPE will be

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provided as needed and where feasible and practical. Cooling vests are provided at the following locations:

SITE #1 – 1. Vests – LOCATION 2. Ice Inserts – LOCATION

SITE #2 – 1. LOCATION – LOCATION

Reflective Clothing

Reflective clothing varies from aprons and jackets to suits that completely enclose the worker from neck to feet and can stop the skin from absorbing radiant heat. Because most reflective clothing does not allow air exchange through the garment, the reduction of radiant heat must more than offset the corresponding loss in evaporative cooling. For this reason, reflective clothing should be worn as loosely as possible. In situations where radiant heat is high, auxiliary cooling systems can be used under the reflective clothing.

Water-Cooled Garments

Commercially available ice vests may accommodate multiple ice packets which are usually filled with water. The cooling duration offered by ice packets will vary based on environmental conditions and must be frequently checked and replaced as necessary during the work period. Water-cooled garments range from a hood, which cools only the head, to vests and "long johns," which offer partial or complete body cooling.

Wetted Clothing

Wetted clothing is effective when reflective or other impermeable protective clothing is worn. The clothing may be wetted terry cloth coveralls or wetted two-piece, whole-body cotton suits. This approach is effective under conditions of high temperature and low humidity where evaporation from the wetted garment is not restricted.

Supplied-Air Hood

When respiratory protection is also necessary, a supplied-air hood ("bubble hood") forces exhaust air around the neck and down inside an impermeable suit. The air then escapes through openings in the suit.

High Heat Procedures

When the temperature equals or exceeds 95°F, additional controls and procedures will be implemented which include:

- Effective communication by voice, direct observation, a mandatory buddy system, or other means will be maintained so that employees can contact a supervisor at any time. If the supervisor is unable to be in physical proximity to workers for observation or communication purposes, an electronic device such as a cell phone may be used if reception is reliable.
- Frequent communication will be maintained with employees working alone or in smaller groups via phone, two-way radio, or other means to assess for possible signs of heat stress. Employees will be contacted regularly and as frequently as possible throughout the day.
- Effective communication and direct observation for alertness and/or signs and symptoms of heat illness will be conducted frequently. When the Supervisor is not available, a designated alternate responsible person must be assigned to look for signs and symptoms of heat illness
- Employees will be reminded constantly throughout the work shift to drink plenty of water and take preventative cool-down rest breaks as needed.

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- One or more employees will be designated on each worksite to call for emergency medical services if necessary.
- Pre-shift meetings will review the high heat procedures, encourage employees to drink water, and remind them of the availability of shaded areas for cool-down rest breaks.
- As outlined on the “Permit to Work in Heat” (FORM #), employees cannot work when “extremely high temperatures” are observed. In these cases, additional controls must be utilized to reduce the ambient heat to acceptable levels. Contact EHS for additional guidance.

Emergency Response

The Administrator or designee will implement the following emergency response procedures for the type of heat stress indicated.

Heat Stroke

If a worker shows signs of possible heat stroke, professional medical treatment will be obtained immediately. The supervisor or co-workers will take the following steps to treat a worker with heat stroke:

1. Contact Security (SITE #1: EMERGENCY # SITE #2: EMERGENCY #). Security will overhead the Emergency Response Team (SITE #1 only) and call 911 (SITE #1 and SITE #2).
2. Move the sick worker to a cool, shaded area.
3. Cool the worker using methods such as soaking his or her clothes with water, spraying, sponging, or showering him or her with water, and fanning his or her body. Ice packs may also be utilized to cool the employee.

The worker should be placed in a shady area and the outer clothing should be removed. The worker's skin should be wetted and air movement around the worker should be increased to improve evaporative cooling until professional methods of cooling are initiated and the seriousness of the condition can be assessed. Fluids should be replaced as soon as possible. The medical outcome of an episode of heat stroke depends on the victim's physical fitness and the timing and effectiveness of first-aid treatment. Regardless of the worker's protests, no employee suspected of being ill from heat stroke should be sent home or left unattended unless a physician has specifically approved such an order.

Heat Exhaustion

Heat exhaustion responds readily to prompt treatment. A worker suffering from heat exhaustion must:

- Notify a Supervisor or WTL immediately.
- Rest in a cool, shaded, or air-conditioned area.
- Drink plenty of water or other cool, nonalcoholic/caffeine-free beverages.
- Take a cool shower.

Heat Syncope (Fainting)

Workers who exhibit signs of heat syncope will:

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- Notify a Supervisor or WTL immediately.
- Sit or lie down in a cool place when they begin to feel symptoms.
- Slowly drink water, clear juice, or a sports beverage.
- The Supervisor/WTL must immediately notify EHS of the incident.

Heat Cramps

Workers with heat cramps should:

- Notify a Supervisor or WTL immediately.
- Stop all activity and sit in a cool place.
- Drink water or electrolyte replacement beverage (caffeine-free).
- 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 the worker has heart problems, the worker is on a low-sodium diet, or the cramps do not subside within one hour.

Heat Rash

Workers experiencing heat rash will be treated according to the following procedures:

- Notify a Supervisor or WTL immediately.
- Directed to work in a cooler, less humid environment when possible.
- Keep the affected area dry.
- Use dusting powder to help increase comfort.

Training

All employees who are exposed or potentially exposed to heat stress will receive training regarding heat stress-related injuries and illnesses and prevention measures at the time of assignment to work activities that involve hot conditions.

Training on the following topics will be provided to all employees with the potential for exposure to heat stress hazards:

- Procedures for preventing heat stress as described in this Plan.
- Knowledge of the hazards of heat stress, including environmental factors that might contribute to the risk of heat-related illness (temperature, humidity, radiant heat, air movement, conductive heat sources, workload activity and duration, and personal protective equipment).
- Recognition of predisposing factors, danger signs, and symptoms (e.g., age, degree acclimatization, medical conditions, consuming alcohol, caffeine use, nicotine use, and use of medications that affect the body's response to heat).
- The importance of frequent drinking of small quantities of water.

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- The importance of and procedures for taking frequent rest breaks in shaded areas during hot conditions.
- The different types of heat illness and the signs and symptoms of each.
- Awareness of first-aid procedures for heat stroke and other heat stress-related illnesses.
- The procedure for reporting signs and symptoms of heat-related illness in themselves and co-workers.
- Employee responsibilities in avoiding heat stress.
- The concept, importance, and methods of acclimatization.
- Dangers of using drugs, including therapeutic ones, and alcohol in hot work environments.
- Use of protective clothing and equipment, including the importance of removing heat-retaining PPE, such as nonbreathable chemical-resistant clothing, during breaks.
- First aid and other emergency response procedures
- The use of biotrackers to monitor employees in real-time to ensure established physiological limits are not exceeded.

Refresher Training

Personnel covered by this Plan will receive refresher heat stress training at least once per year, and whenever there is a change in work assignment or hot conditions, or when a new heat source is introduced to a work area.

Recordkeeping

All heat stress-related incidents will be documented as occupational illnesses via the (MANAGEMENT SYSTEM EHS) and following OSHA recordkeeping requirements.