# Monitoring Workers at Risk for Heat-Related Illnesses

NIOSH/OSHA/USCG/EPA Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, Chapter 8 (1985) offers guidance for performing physiological monitoring of workers at hot worksites. It describes the following options for worker monitoring to help manage the risk of heat-related illness:

**Heart rate**

Count your pulse during a 30-second period as early as possible in the rest period.

- If your heart rate exceeds 110 beats per minute at the beginning of the rest period, shorten the next work cycle by one-third and keep the rest period the same.
- If your heart rate still exceeds 110 beats per minute at the next rest period, shorten the following work cycle by one-third.

**Oral temperature**

Use a clinical thermometer (3 minutes under the tongue) or similar device to measure the oral temperature at the end of the work period (before drinking).

- If oral temperature exceeds 99.6°F (37.6°C), shorten the next work cycle by one-third without changing the rest period.
- If oral temperature still exceeds 99.6°F (37.6°C) at the beginning of the next rest period, shorten the following work cycle by one-third.
- Do not wear a semi-permeable or impermeable garment when oral temperature exceeds 100.6°F (38.1°C).

**Personal Monitors**

The most common types of personal monitors include skin temperature sensors and heart rate monitors. Wearing an electronic personal monitor can measure one or more physiological parameters and help you to judge your own condition.

Check with your employer before wearing these types of monitors, as they may create additional risks in other ways you may not have considered, such as the proper fit of PPE, or electronic interference.

**Body water loss, if possible**

- Measure your weight on a scale (ideally accurate to ±0.25 lbs.) at the beginning and end of each workday to see if enough fluids are being taken to prevent dehydration.
- Weights should be taken while wearing similar clothing (changes of clothing or damp clothing can cause an inaccurate reading).

- The body water loss should not exceed 1.5 percent total body weight loss in a workday.

With a heat index above $90^0$F, physiological monitoring should be conducted every 45 minutes of work when wearing normal cotton work clothing, with long sleeves and pants. When wearing impermeable protective clothing, conduct monitoring every 15 minutes of work.

**SAFETY REMINDER**

**Your medical history, current medications, and/or body weight can all have unexpected impacts on how you react to the higher temperatures.**
**Feeling the heat differently is not a sign of weakness but can be a potentially life threatening situation. Listen to your body!**