

## Heat Illness Prevention Plan - Appendix F: Acclimatization Plan

Managers of affected employees must develop and implement an acclimatization plan and procedures in writing. Managers must choose between two specified OR OSHA acclimatization plan options, both of which are shown below:

- 1. Department-designed Acclimatization Plan Option (recommended)** – Department managers who develop their own acclimatization plan must integrate and implement the following factors into their program:
  - Acclimated and unacclimated workers;
  - The effects of clothing and personal protective equipment on adding to the heat burden of workers;
  - The personal and environmental risk factors that put workers at a higher risk of heat-related illness;
  - Re-acclimatizing workers as necessary, either due to changes in the weather or a worker spending more than seven days away from the job; and
  - The use and maintenance of auxiliary cooling systems such as water-cooled garments, air-cooled garments, cooling vests and wetted overgarments.
- 2. NIOSH Acclimatization Plan Option** – Managers opting for this plan should ensure that the following topics are addressed in their written acclimatization plan:

| <u>Topics</u>                          | <u>Additional Information</u>   |
|--|---|
| -Disadvantages of being unacclimatized | -Readily show signs of heat stress when to hot environments.<br>-Difficulty replacing all of the water lost in sweat.<br>-Failure to replace the water lost will slow or prevent acclimatization.   |
| -Benefits of acclimatization           | -Increased sweating efficiency (earlier onset of sweating, greater sweat production, and reduced electrolyte loss in sweat).<br>-Stabilization of the circulation.<br>-Work is performed with lower core temperature and heart rate.<br>-Increased skin blood flow at a given core temperature. |
| -Acclimatization plan                  | -Gradually increase exposure time in hot environmental conditions over a period of 7 to 14 days.  |

- For new workers, the schedule should be no more than 20% of the usual duration of work in the hot environment on day 1 and a no more than 20% increase on each additional day.
- For workers who have had previous experience with the job, the acclimatization regimen should be no more than 50% of the usual duration of work in the hot environment on day 1, 60% on day 2, 80% on day 3, and 100% on day 4.
- The time required for non-physically fit individuals to develop acclimatization is about 50% greater than for the physically fit.
- Level of acclimatization
  - Relative to the initial level of physical fitness and the total heat stress experienced by the individual.
- Maintaining acclimatization
  - Can be maintained for a few days on non-heat exposure.
  - Absence from work in the heat for a week or more results in a significant loss in the beneficial adaptations leading to an increased likelihood of acute dehydration, illness, or fatigue.
  - Can be regained in 2 to 3 days upon return to a hot job.
  - Appears to be better maintained by those who are physically fit.
  - Seasonal shifts in temperatures may result in difficulties.
  - Working in hot, humid environments provides adaptive benefits that also apply in hot, desert environments, and vice versa.
  - Air conditioning will not affect acclimatization.

**Note:** Regardless of which acclimatization option a manager chooses, managers should know that acclimatization to heat takes longer for unfit individuals compared to fit individuals. Managers should consider the effect of exposure to direct sunlight when developing their acclimatization plan.