November 20, 2018

Juliann Sum, Chief
California Division of Occupational Safety and Health
1515 Clay Street, Suite 1901
Oakland, CA 94612

Sent via E-mail: rs@dir.ca.gov

Re: Heat Illness Prevention in Indoor Places of Employment, October 24, 2018 Discussion Draft

Dear Chief Sum,

The undersigned organizations respectfully submit these comments on the Division's October 24, 2018 discussion draft for the standard on Heat Illness Prevention in Indoor Places of Employment.

We appreciate the opportunity to comment on this draft, and all of the work contributed by Division staff and stakeholders to develop a strong and effective standard. We do still, however, have very serious concerns that the indoor heat standard as drafted will not adequately protect indoor workers from heat illness. In the areas detailed below, the proposed standard falls short of scientific guidelines and established best practices for reducing heat illness risk. We urge the Division to follow these guidelines more closely.

Several revisions in the current discussion draft do, however, significantly improve the standard and we strongly support these changes:

- The definition of "indoor" is greatly improved by removing the exceptions for workplaces with openings to the outdoors. These exceptions threatened to create a huge implementation problem for the standard by potentially enabling many workplaces with indoor environmental risk factors to be categorized and regulated as outdoor workplaces. This would have created confusion, impeded compliance and enforcement, and left many indoor workers exposed to heat hazards with inadequate protections.

- Protections are strengthened by the revision in subsection (a)(2) to require the subsection (e) assessment and control measure provisions to apply at 90°F heat index when the heat index is higher than the dry bulb temperature. Using heat index for the control measure

threshold is critical, because heat illness risk cannot be accurately assessed without accounting for relative humidity. The heat illness prevention guidelines from ACGIH, NIOSH, and the U.S. Military all use WBGT, a measure that accounts for humidity. Using the heat index when it is higher than the dry bulb temperature is much more effective and less confusing than only using heat index in workplaces where work processes generate water, as in prior drafts. However, it would be simpler to just use heat index for the application threshold. This would also save employers the hassle of always having to check whether the heat index or dry bulb temperature is higher.

- The definition of "high radiant heat work area" is improved by extending its application to all high radiant heat indoor worksites rather than restricting it to a limited list of industries. As worker organizations stated in comments on previous discussion drafts, radiant heat sources present a hazard across a wide range of industries that are difficult to catalogue definitively, and narrowing the definition unnecessarily risks leaving some workers less protected.

In other areas, the most recent discussion draft does not adequately address heat illness risk factors. We are most concerned that the following issues will prevent the standard from effectively preventing heat illness in indoor workplaces:

1. The 90°F degree threshold for control measures in subsection (e) is too high to adequately protect against heat illness

The control measures in subsection (e) are the most important requirements in the proposed standard for preventing heat illness, and to be effective they should be implemented at the point when workers become at risk of overheating. Scientific guidelines and real-world enforcement data indicate that heat illness risk arises at temperatures and heat indices much lower than the 90°F proposed for the control measures threshold in subsection (e).

The ACGIH TLVs for heat stress suggest implementing hazard assessment and potentially job-specific controls — the measures included in subsection (e) — for employees performing moderate work at 83.4°F WBGT.[1] NIOSH's recommended heat stress exposure limits (RELs) for acclimatized workers are also in the low to mid 80s in °F WBGT for moderate work.[2] U.S. Military guidelines implement a 40/20 minute work/rest schedule for moderate work when the WBGT falls between 82 and 84.9°F.[3] Any such administrative controls are not required until a heat index of 90°F for most workers in the Division's proposal.

---

[1] American Conference of Governmental Industrial Hygienists, *Heat Stress and Strain TLVs*, 2009, p. 3.
[2] U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, *NIOSH criteria for a recommended standard: occupational exposure to heat and hot environments*, 2016, p. 95.
[3] *E.g.*, Army Public Health Center, "Heat-Related Illness Prevention," available at: https://phc.amedd.army.mil/topics/discond/hipss/Pages/Heat-Related-Illness-Prevention.aspx

Records of actual heat illness cases from federal OSHA citations also indicate that risk for serious heat illness and death becomes significant at a heat index in the mid-80s. A 2018 CDC review of occupational outdoor heat incidents occurring from 2011 to 2016 found that in a subset of 21 cases among workers wearing a single layer of normal clothing, four of nine nonfatal illnesses and four of 12 fatalities occurred when the heat index was between 85°F and 90°F.[4] Reviewing additional data, the authors note that "[f]ourteen percent of moderate to severe heat-related illnesses at a U.S. military training installation [] and at least 25% of heat-related illnesses in Washington agriculture and forestry workers [] occurred when the Heat Index was <90°F."[5] The authors conclude that a heat index of 85°F is a screening threshold capable of identifying potentially hazardous workplace heat conditions.[6]

The ACGIH TLVs and other evidence-based recommendations from the CDC strongly indicate that heat illness risk assessments and control measures should be implemented at a heat index of 85°F or lower, not the 90°F proposed by the Division. California Labor Code Section 6720 requires the Division to take the ACGIH TLVs into consideration in developing this standard. Moreover, well-established principles of OSH rulemaking, codified in Labor Code Section 144.6, require standards to assure to the extent feasible that no employee will "suffer material impairment of health" even if regularly exposed to the regulated hazard. A standard that does not require control measures for most workplaces in the range of 80°F to 89°F, where heat illness risk is demonstrable, will expose many workers to material health impairments. The risk will be particularly high for unacclimatized workers and any workers performing heavy or very heavy work.

2. Control measures in subsection (e) lack measurable criteria, and should at a minimum require mandatory rest breaks in hazardous conditions

Engineering controls and administrative controls are in most cases the most effective measures to prevent heat illness in the workplace. Subsection (e) should ensure that these control measures are implemented properly by providing clearer guidance and setting some objective requirements that have measurable endpoints. It is difficult to tell from the proposal as drafted what would constitute a satisfactory minimum implementation of the various control measures offered as examples.

One critical minimum benchmark that should be included in subsection (e) is implementing an appropriate work/rest schedule. The Division proposed this in its discussion draft from May 25, 2017, in the form of requiring employers to ensure mandatory rest breaks every hour during high

[4] Tustin, Aaron W., et. al., "Evaluation of Occupational Exposure Limits for Heat Stress in Outdoor Workers - United States, 2011-2016, *Centers for Disease Control and Prevention Morbidity and Mortality Weekly Report*, Vol. 67, No. 26, July 6, 2018, p. 735.
[5] *Ibid*., p. 736.
[6] *Ibid.*

heat indices. Work/rest schedules are a critical administrative control for preventing heat illness, and are a central part of heat exposure guidelines from ACGIH, NIOSH, and the U.S. Military. As these guidelines indicate, work/rest schedule requirements should be based on both the heat index and work activity levels.[7]

Providing minimum measurable requirements for control measures is essential for preventing the most severe environmental and work conditions most likely to cause serious heat illness or death. While the standard should do more to protect workers in heat indices below 90°F, to be effective it must also require control measures that increase protections in very high heat indices or when workers perform heavy work in hot conditions. Such conditions are not speculative extremes. A recent investigative report by KQED that measured actual working conditions in warehouses, indoor car washes, and garment factories in Southern California in August, 2018, found that workers spent the majority of their shifts in a heat index above 90°F, with the heat index exceeding 110°F during several workers' shifts.[8] The control measure requirements in subsection (e) do not provide employers with enough guidance on how to keep workers safe in such severe conditions. Mandatory work/rest schedules and other measurable controls would increase clarity for employers and workers and aid the Division in enforcing the standard.

3. 82°F is too high for the application threshold, and it should be based on heat index

The revision in this draft to set the standard's application threshold in subsection (a) at 82°F increases exposure risk for many workers and will cause unnecessary confusion.

The Division's prior discussion draft from May 16, 2018 used an application threshold of 80°F for workers at higher risk – those wearing clothing that restricts heat removal, working in high radiant heat work areas, or employed in a designated list of industries where heavy work is common. The 80°F application threshold was already too high to adequately protect some of these workers, and the risk will only increase with the 82°F threshold, especially if it is based on dry-bulb temperature. The ACGIH recommends implementing general controls at 75.2°F WBGT for employees performing heavy work (and that's assuming only a 50-75% allocation of work in a work/rest cycle), and at 71.6°F WBGT for employees performing moderate work while wearing double layer woven clothing.[9] By instead choosing to have general controls apply only at 82°F or above, the Division is deviating significantly from the best available scientific recommendations.

The 82°F threshold may also confuse employers and employees, because the threshold for the outdoor heat standard in Section 3395 for shade requirements is 80°F. It would provide greater

[7] ACGIH, NIOSH, Army Public Health Center, *supra* notes 1-3.
[8] Peterson, Molly, "Rising Heat is Making Workers Sick, Even Indoors," *KQED*, Nov. 14, 2018, available at: https://www.kqed.org/science/1934110/rising-heat-is-making-workers-sick.
[9] ACGIH, *supra* note 1, p. 2-3.

clarity to keep the application threshold for general controls the same for the indoor and outdoor heat standards, even if they differ in some of their more specific requirements.

However, we do not advocate returning to the application threshold from the prior discussion draft, with the lower 80°F threshold only for specific industries and 85°F for the default threshold. This approach leaves too many workers unprotected, since the list of industries with the lower threshold is likely to inadvertently leave out workplaces where conditions are just as hazardous. A case in point, car washes were not in the list for the lower threshold, yet a recent KQED report found that workers in indoor car washes spent a higher percentage of their shift (64%) in a heat index above 90°F compared to workers tracked in warehouses, garment factories, and a cannery during the same period.[10] This highlights the difficulty of determining hazardous industries to include in any list to limit the standard's application.

80°F as the default application threshold for all industries would better follow scientific guidelines for when to apply general controls and would simplify the standard. The threshold should also be based on the heat index to account for the critical heat illness factor of humidity.

4. Deleting the requirement in subsection (e) to assess the environmental risk factors for heat illness significantly weakens the standard

We are very concerned that the assessment provisions in subsection (e) no longer require the employer to assess the environmental risk factors for heat illness. The requirement in the latest draft to instead only record the temperature or heat index is not an adequate substitute. Limiting the assessment to these measurements leaves out assessing radiant heat sources, conductive heat sources, workload, and clothing factors. An employer cannot create or implement an effective Heat Illness Prevention Plan, or determine appropriate control measures under subsection (e), without assessing these additional critical risk factors for heat illness.

It also undermines the standard's effectiveness and clarity to omit requirements to assess environmental risk factors when the standard still requires employers to base control measures on these factors, such as by adjusting for radiant heat and clothing that restricts heat removal in subsection (a)(2) — as employers should do to effectively reduce heat illness risk. Employers should be required to assess and record radiant heat sources and other environmental risk factors, so the employer, Division, and employees can know what control measures are necessary to prevent heat illness in a particular workplace.

[10] *Ibid.*

5. Cool-down areas should be maintained at a heat index no higher than 80°F and located indoors when feasible

The definition for a cool-down area should require that the area be maintained at a heat index of no higher than 80°F, as the Division proposed in its discussion draft from May 25, 2017. The exclusions to the definition in the current draft for locations where environmental risk factors, unsafe conditions, or discouragement from using the space defeat its purpose are important but are vague as measurable standards and will be difficult for the division to enforce. A specific heat index ceiling would provide an additional and more straightforward measure of compliance. A maximum heat index is an even more important baseline control if outdoor spaces are permissible as cool-down areas, as proposed in this draft, since environmental conditions are often more variable and unpredictable outdoors. Because the temperature in indoor spaces is generally easier to control, it would be more protective to require cool-down areas to be located indoors unless the employer demonstrates that an indoor location is not feasible.

6. The definition of "clothing that restricts heat removal" is too narrow

The definition of "clothing that restricts heat removal" is overly restrictive and as written will likely exclude clothing that poses significant heat illness risks. Any heavyweight clothing can greatly restrict heat removal, even if it is not waterproof, designed to protect from environmental hazards, or designed to protect the wearer or work processes from contamination. The definition should be broad enough to include regular heavy coveralls, multiple layers of clothing even if not full-body, and heavy or fluid resistant and impermeable aprons and gowns, for example. Critically, the definition should also include respirators, even if worn without other clothing that restricts heat removal, since respirators and other face coverings that create breathing resistance can significantly increase the wearer's risk of overheating.

7. Training requirements should ensure that common-sense best practices are followed

As workers and advocates have stated in multiple previous comments, it is critical that any trainings under this standard be in a language workers understand and also in-person and interactive. These training principles are not new and have been incorporated into other recent standards such as in section 3342(f), Violence Prevention in Health Care. For training to be effective, there should also be requirements for refresher courses at least annually.

8. More specific recordkeeping requirements are needed to ensure effective implementation

Increasing information and transparency in the workplace helps to improves worker health and safety. For this reason, we urge the Division to bring back the subsection on recordkeeping that was included in earlier discussion drafts but omitted from the February 16, 2018 draft onward. The general recordkeeping requirements in Title 8 do not alone provide sufficiently specific guidance to ensure that employers keep records of important information such as the employer's

heat illness risk assessments and the control measures the employer implements. Without these records, the Division will lack key information necessary to enforcing this standard.

***

Thank you for considering our comments. We appreciate the Division's work on this standard and the opportunity to comment on the latest discussion draft.

Sincerely,

Mitch Steiger
Legislative Advocate
California Labor Federation

Anne Katten
Director, Pesticide & Worker Safety Project
California Rural Legal Assistance Foundation

Alice Berliner
Coordinator
Southern California Coalition for Occupational Safety & Health

Sheheryar Kaoosji
Co-Director
Warehouse Worker Resource Center

Doug Parker
Executive Director
Worksafe