

# CALIFORNIA INDUSTRIAL HYGIENE COUNCIL

*Advancing public policy to improve the health and safety  
of workers and the community.*

September 30, 2019

Via email: [eberg@dir.ca.gov](mailto:eberg@dir.ca.gov)

Via email: [aneidhardt@dir.ca.gov](mailto:aneidhardt@dir.ca.gov)

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RE: Title 8 CCR §5141.1, Protection from Wildfire Smoke – Discussion Draft

Dear Mr. Berg and Ms. Neidhardt:

The California Industrial Hygiene Council (CIHC) appreciates the opportunity to comment on the discussion draft of 8 CCR §5141.1, Protection from Wildfire Smoke. We have a few comments on this discussion draft (dated August 13, 2019), and offer the following suggested changes and questions for further discussion.

First and foremost, CIHC is recommending a completely different approach to protecting workers from the potential hazards associated with exposure to wildfire smoke. Attached to this letter (Attachment A) is a **rewrite** of 8 CCR §5141.1 for consideration by Cal/OSHA and the stakeholders. CIHC is of the opinion that the original intent of the petition and request for regulation has been lost. The context of the issue is an **emergency situation**, which would last typically a few days. The changes are intended to:

- afford for the protection of employees in a quick, responsive, uncomplicated manner;
- provide a regulation that is easy to interpret by affected employers;
- promote prompt implementation in an emergency situation; and
- allow for adoption of a permanent regulation in a timely manner.

CIHC's comments can be summarized as follows. Our view of the regulation is that the **intent is to define emergency procedures for the protection of outdoor workers from wildfire smoke.**

Employers would fall under the scope of the regulation whenever there is a wildfire smoke advisory issued by a local, regional, state, or federal government agency and there is a possibility that their outdoor employees will be exposed to wildfire smoke affecting their work locations. When the employer falls within the scope, procedures must be implemented.

These procedures would include employee training, using 8 CCR §5141.1 Appendix A information, and the provision of N95 respirators for voluntary use by all outdoor employees. The AQI is not a factor in our recommended regulation for reasons presented below. Also, note that an appendix on air monitoring would not be necessary in our recommended approach, therefore, only an Appendix A for training information.

In the event that Cal/OSHA continues down the path of changing the current emergency regulation language into a permanent regulation, CIHC is providing the following comments on issues raised by the Division's August 13, 2019 proposed draft of 8 CCR §5141.1.

*Use of the AQI for the Proposed Exposure Limits*

Cal/OSHA is in effect setting occupational exposure limits for wildfire smoke through incorporation of the AQI at various levels. The use of the any AQI in an occupational health regulation is completely inappropriate, and the current process for establishing an occupational exposure limit in this regulation is not based on the science or the parameters for an occupational setting.

The AQI for PM<sub>2.5</sub> is established by the Environmental Protection Agency for 24-hour exposures of the public and not for the basis of evaluating shorter term employee exposures. Therefore, what is the calculated risk for the duration of a work shift (such as 8 hours or 10 hours) versus a 24-hour exposure (an exposure that may not occur if the workers live outside the "high" AQI area)? What is the basis of a 1-hour exposure or less being appropriate as an exclusion from compliance with the requirements of the regulation? Is there scientific information that establishes a dose/response relationship for an exposure of 1 hour? In other words, what is the basis for determination of the potential for health affects and the duration of exposure?

Is there an easily identifiable distinction for reported AQI's to determine the basis of the AQI? In other words, does the level of hazard indicated by the AQI (i.e., 150 vs. 300) depend on the airborne constituent of concern at the time? How does this reconcile with the proposed language? Also, if respiratory protection is required above an AQI of 300, what is the guidance for employees, and other members of the public, when they are away from work? Does Cal/OSHA really want to blur the lines between regulating the work environment vs. that of the general public?

What information do we have regarding the location of the AQI measurements within the State relevant to specific workplace locations and potential exposures in those locations? In another way of stating, do the measurements adequately protect in accordance with the proposed language? How should employers evaluate their workplace and adequately prepare for control implementation with respect to the location of the actual AQI measurements and the possible changes of the AQI over relatively short periods of time? Without additional context, this would be difficult for most employers to apply this information effectively.

The proposed language establishes "action" levels at an AQI of 100 and 150 (described as "unhealthy for sensitive groups" and "unhealthy", respectively) and a type of "permissible exposure limit" at an AQI above 300 ("hazardous"). Normally, at a Cal/OSHA action level, there are increased monitoring and other measures that kick in. The current proposed language does not follow a typical occupational health regulation in making clear that there are action levels and a permissible exposure limit. CIHC does not agree with this approach at all, but again, if the Division is intent on going down the proposed path, then clarity on what these "limits" are and the ensuing employer obligations is required.

Quick, responsive implementation of engineering or administrative controls to provide adequate protection under the proposed language is not possible for most employers. How should they proactively and effectively ensure protection based on the proposed language?

An additional issue to add for discussion is that the current PEL for respirable particulate (<10 micron effective diameter) is 5 mg/m<sup>3</sup> vs the 0.225 mg/m<sup>3</sup> (225 ug/m<sup>3</sup>) as the basis for AQI calculation. How can we say that during a wildfire an airborne work place exposure of 0.225 mg/m<sup>3</sup> is unhealthy, but the rest of the time 5 mg/m<sup>3</sup> is OK?

#### *Effective Filtration of PM2.5*

MERV filtration for buildings and vehicles should not be part of this regulation. Period. Mandating filtration levels for a potential emergency is not reasonable.

Many routine places of employment have indoor environments without a traditional, filtered ventilation system. As one example, cellars and other areas of wineries often use a supply of fresh, outdoor air carried by fans or another technique to maintain air quality. This appears to leave them with the options of air monitoring or using available AQI information to show compliance. See the comments above and below for additional comments regarding these options. Another example is large warehouse and distribution facilities, which typically do not find it economical to have HVAC systems for these structures due to large openings to the outside environment.

#### *Employer Option to Measure the AQI*

An employer option to show compliance is to measure the AQI in the workplace to show that exposures do not exceed a specified AQI level. Currently, this is not a quick evaluation method and requires this to be performed by a knowledgeable, experienced person (generally an industrial hygienist). The use of a direct-reading instrument may offer an alternative method that does not require laboratory analysis or the same level of expertise. However, the user must be proficient in the use of the instrument and the instrument requires calibration to afford adequate reliance on the measurements obtained. Also, interpretation of the results can be difficult for a variety of technical reasons not elaborated here. A further complication is that this instrumentation is not plentiful at this time.

Note: commercially available devices such as the “PurpleAir” sensor may be an option. These sensors use laser particle counters to provide real time measurement of PM1.0, PM2.5 and PM10. The sensors require WiFi connection to a “PurpleAir Map”. The data is used to contribute to the “Internet of Things”. However, it appears there would be a number of details that are currently undetermined for use of these sensors to accurately determine exposures. For example: what guidance is available for the use of these sensors? How many would be needed for a large workspace and where should they be placed? Has the accuracy of these sensors for predicting employee exposures been determined?

Another consideration in measurement of exposure is that there is no guidance in how to interpret the results when there are contributing dusts from other operations in the workplace. All of these factors can lead to erroneous results and misinterpretation. The resulting actions could be either under or over protective.

As noted above, the alternative use of engineering/administrative controls cannot be implemented quickly to be protective in accordance with the proposed language.

#### *Mandated Training*

CIHC agrees that mandated training is an important aspect of this regulation. However, the information in the associated appendix needs to be edited for consistency with the 8 CCR §5141.1 requirements and the requirements of 8 CCR §5144. Further, the timeframe for implementation of the training requirement is not clear. Simply providing a copy of the appendix information to employees is not effective training no matter what language it is in.

*Use of Respiratory Protection*

Exposure to PM 2.5 above an AQI of 100 – voluntary use of respirators.

Firstly, the voluntary use of respiratory protection for potentially **toxic** dusts may not comply with Section 5144. The voluntary use of respirators for particulates is interpreted as pertaining to *non-toxic* dusts. This needs to be reconciled. There are reasons for this distinction, pertaining to technical issues, as well as potential health affects, that are outlined in the preamble for the respiratory protection regulation. These should be carefully considered prior to implementing any use of respirators based on this proposed language.

Exposure to PM 2.5 above an AQI of 300 – required use of respirators.

The feasibility of implementing an adequately effective respiratory protection program in a quick, responsive manner to afford protection under this proposed language must be considered. Given the requirements of the proposed language, it may be necessary for employers to be pre-prepared for the potential for exposure above the AQI of 300.

The misuse of respirators is potentially a high-risk outcome of this proposed language. There has been a long standing determination that the misuse of respirators can be more hazardous than no use. In addition, the requirement for use of respirators based on this proposed language may trigger an employer to have a respiratory protection program in compliance with Section 5144 when they have no need for a respiratory protection program otherwise. This could be just one of many unintended consequences of this proposed language.

The CIHC, founded in 1990, represents the occupational and environmental health profession in California and is affiliated with the national American Industrial Hygiene Association (AIHA), an 8,000-member organization. The CIHC is formally comprised of occupational and environmental health and safety professionals who are members of the five California AIHA local sections represented by the CIHC Board of Directors. The CIHC's mission is to provide sound scientific and technological input to the regulatory and legislative process, and establish a legislative presence in the state Capitol through professional representation.

CIHC appreciates the ability to be involved in the development of this regulation standard. We look forward to participating in the advisory committee and providing a technical resource for the process. Please contact me on behalf of CIHC at (916) 712-4547 or kwa-sacramento@att.net.

Very truly yours,  
California Industrial Hygiene Council



Pamela Murcell, MS, CIH  
President, CIHC

Attachment A

ATTACHMENT A: CALIFORNIA INDUSTRIAL HYGIENE COUNCIL  
RECOMMENDED LANGUAGE  
September 30, 2019

**§5141.1. Emergency Procedures for Protecting Outdoor Workers from Wildfire Smoke.**

**(a) Scope and application.**

This section applies to outdoor workplaces where a wildfire smoke advisory has been issued by a local, regional, state, or federal government agency; and there is a realistic possibility that outdoor employees may be exposed to wildfire smoke.

Note 1: Information on areas where smoke from wildland fires may be of concern and wildfire smoke forecasts are provided by the Wildland Fire Air Quality Response Program (WFAQRP) of the U.S. Forest Service.

(1) The following workplaces and operations are exempt from this section:

- (A) Enclosed buildings or structures where the air is filtered by a mechanical ventilation system and employee exposure to outdoor or unfiltered air is effectively limited.
- (B) Enclosed vehicles where the air is filtered by a cabin air filter and employee exposure to outdoor or unfiltered air is effectively limited.
- (C) Firefighters engaged in wildland firefighting.
- (D) Emergency response personnel performing lifesaving emergency rescue and evacuation.

**(b) Definitions.**

**NIOSH.** The National Institute for Occupational Safety and Health of the U.S. Centers for Disease Control and Prevention. NIOSH tests and approves respirators for use in the workplace.

**Wildfire Smoke.** Emissions from planned or unplanned fires in “wildlands” (as defined in section 3402), wildland-urban interfaces, or adjacent developed areas.

**(c) Emergency Procedures.** Whenever an employee may reasonably be expected to be exposed to wildfire smoke based on the criteria identified in subsection (a), the employer shall provide training as specified in subsection (d) and exposure control as specified in subsection (e).

**(d) Training.**

- (1) The employer shall provide outdoor employees with training, in a form readily understandable by all affected employees, when the emergency situation is first identified.
- (2) The training shall cover, at a minimum, the information provided in Appendix A<sup>1</sup> of this section.
- (3) The training shall be documented and the documentation shall include attendee names, attendee signatures, trainer name and signature, training date and time allotted, description of training content, and type of training.
- (4) The employer shall develop the training in advance of the need in order to expedite training implementation when the emergency situation is first identified.

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<sup>1</sup> Appendix A is a placeholder. The content of required training will be spelled out in the appendix after discussions with stakeholders.

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**(e) Control of exposures to employees.**

- (1) Employee exposures to wildfire smoke shall be controlled in accordance with section 5141.
- (2) Control by Respiratory Protective Equipment. If respiratory protection is used for control of exposure, such equipment shall be used in accordance with section 5144.
  - (A) The employer shall provide respirators to all employees for voluntary use in accordance with section 5144 and encourage employees to use respirators. Respirators shall be NIOSH-approved devices that effectively protect the wearers from inhalation of wildfire smoke (such as N95 filtering facepiece respirators). Respirators shall be cleaned, stored, and maintained so that they do not present a health hazard to users.

NOTE 1 for subsection (e)(2)(A). For voluntary use of filtering facepieces, such as N95 respirators, section 5144 does not require fit testing or medical evaluations. For voluntary use of respirators that are not filtering facepieces, such as those with an elastomeric facepiece, section 5144 does not require fit testing, but does require medical evaluations.