CALIFORNIA INDUSTRIAL HYGIENE COUNCIL

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

April 26, 2019

Ms. Amalia Neidhardt

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Division of Occupational Safety and Health
California Department of Industrial Relations 1515
Clay Street
Oakland, CA 94612

RE: Emergency Regulation §5141.1, Protection from Wildfire Smoke – Discussion Draft

Dear Ms. Neidhardt:

The California Industrial Hygiene Council (CIHC) appreciates the opportunity to comment on the initial draft of the emergency regulation §5141.1, Protection from Wildfire Smoke. We have a few comments on this discussion draft (dated April 12, 2019), and offer the following suggested changes and questions for further discussion at the upcoming advisory committee meeting on May 8, 2019.

Section 5141.1(a) Scope
Comments regarding this Section are predominantly covered in the comments, below.

Section 5141.1(b) Definitions
Use of the AQI for the Proposed Exposure Limits
The AQI 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 duration of exposure that triggers AQI applicability? It appears from the draft language in Section (f) that this may be a 1-hour exposure above an AQI of 150. However, this is not clear from the proposed language. 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?

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 a type of "action" level at an AQI of 150 (described as "unhealthy") 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. In this proposed language, if employees are not working indoors in a mechanically ventilated area equipped with MERV 13 or HEPA filtration, at an AQI of 150, voluntary use of respirators is encouraged and engineering controls and/or administrative procedures are required. Respirators are *required* by the proposed language at an AQI above 300. 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^3 vs the 0.225 mg/m^3 (225 ug/m^3) as the basis for AQI calculation. How can we say that during a fire an airborne work place exposure of 0.225 mg/m^3 is unhealthy during a wildfire, but the rest of the time 5 mg/m^3 is OK?

Effective Filtration of PM2.5

As noted above, as an option to establish compliance, employers with employees working indoors or in vehicles can operate mechanical ventilation with MERV 13 filters. These filters may not be immediately feasible for some employers due to the amount of pressure drop caused by the filters resulting in "burn-out" of mechanical parts and possible failure of the system. This will require evaluation by a knowledgeable person to determine if this can work for the employer's ventilation system.

Many places of employment have indoor environments without a traditional, filtrated 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 an AQI of 150. 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 theresults 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.

The necessity for a separate appendix (Appendix B?) that outlines requirements pertaining to exposure measurements and interpretation of AQI data, no matter how it is obtained, should be considered a priority.

Section 5141.1(c) Identification of Harmful Exposures
Use of the AQI for the Proposed Exposure Limits – See Comments Above

Section 5141.1(d) Communication
Would these requirements apply to every employer in California? If not, how is an employer excluded?

Section 5141.1(e) Training
As above, the same questions would apply regarding employers covered by this Section.
Other comments are pending until the issuance of a draft Appendix A pertaining to training. The content of the Appendix is important in this regard.

Section 5141.1(f) Control of Harmful Exposures to Employees
Use of Engineering/Administrative Controls – Comments covered above.

Use of Respiratory Protection
Exposure to PM 2.5 above an AQI of 150 – 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.

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
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