

DEPARTMENT OF INDUSTRIAL RELATIONS
Occupational Safety and Health Standards Board
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TITLE 8. CALIFORNIA CODE OF REGULATIONS

General Industry Safety Orders
New Section 5141.1

(Published on April 3, 2020)

Protection from Wildfire Smoke

NOTICE IS HEREBY GIVEN that the Occupational Safety and Health Standards Board (Board) proposes to adopt, amend, or repeal the foregoing provisions of Title 8 of the California Code of Regulations in the manner described in the Informative Digest, below.

PUBLIC HEARING

The Board will hold a public hearing starting at 10:00 a.m. on **May 21, 2020** in the **Council Chambers** of the **Rancho Cordova City Hall, 2729 Prospect Park Drive, Rancho Cordova, California**. At this public hearing, any person may present statements or arguments orally or in writing relevant to the proposed action described in the Informative Digest.

WRITTEN COMMENT PERIOD

In addition to written or oral comments submitted at the public hearing, written comments may also be submitted to the Board's office. The written comment period commences on **April 3, 2020** and closes at 5:00 p.m. on **May 21, 2020**. Comments received after that deadline will not be considered by the Board unless the Board announces an extension of time in which to submit written comments. Written comments can be submitted as follows:

By mail to Sarah Money, Occupational Safety and Health Standards Board, 2520 Venture Oaks Way, Suite 350, Sacramento, CA 95833; or

By e-mail sent to oshsb@dir.ca.gov.

AUTHORITY AND REFERENCE

California Labor Code section 142.3 establishes the Board as the only agency in the State authorized to adopt, amend, or repeal occupational safety and health standards. In addition, Labor Code section 142.3 requires the adoption of occupational safety and health standards that

are at least as effective as federal occupational safety and health standards. Section 142.3 permits the Board to prescribe suitable protective equipment and control or technological procedures to be used in connection with occupational hazards and to provide for monitoring or measuring employee exposure for the protection of employees.

Additionally, California Labor Code section 144.6 requires the Board, when dealing with standards for toxic materials and harmful physical agents, to “adopt that standard which most adequately assures, to the extent feasible, that no employee will suffer material impairment of health or functional capacity even if such employee has regular exposure to a hazard regulated by such standard for the period of his working life.” Section 144.6 also requires that the Board base standards on research, demonstrations, experiments and other appropriate information, taking into consideration the latest scientific literature, the reasonableness of the standards, and the experience gained under the health and safety laws.

Authority: Labor Code section 142.3.

Reference: Labor Code sections 142.3 and 144.6.

INFORMATIVE DIGEST OF PROPOSED ACTION/

POLICY STATEMENT OVERVIEW

During its March 21, 2019 meeting, the Board considered Petition 573, submitted by Mitch Steiger, California Labor Federation; Douglas Parker, Worksafe; and Anne Katten, California Rural Legal Assistance Foundation (Petitioners) on December 10, 2018, which requested an emergency rulemaking to address the potential harm posed to outdoor workers by wildfire smoke. The Petition sought an emergency standard that would apply to outdoor occupations including agriculture, construction, landscaping, maintenance, commercial delivery, and “other activities not considered to be ‘first response’,” such as work performed by “nurses, caregivers, and school staff evacuating patients, residents, and students.”

The Board voted to grant the petition in part, stating that it found “specific grounds for considering exposure of outdoor workers to wildfire smoke events to constitute the basis for an emergency regulation.” The Board requested that the California Division of Occupational Safety and Health (Division) draft an emergency rulemaking proposal; the subsequent proposed section 5141.1 was approved by the Board on July 18, 2019. The emergency regulation became effective on July 29, 2019.

Summary of Existing Regulation and the Effect of the Proposed Regulation

Existing law, Title 8, section 3203, “Injury and Illness Prevention Program (IIPP),” establishes a general framework for the identification, evaluation, and correction of unsafe or unhealthy work conditions; communication with employees; and employee safety and health training.

Existing law, Title 8, section 5140, “Definitions,” states that a “harmful exposure” is an “exposure to dusts, fumes, mists, vapors, or gases” which is either “(a) In excess of any permissible limit prescribed by section 5155; or (b) Of such a nature by inhalation as to result in, or have a probability to result in, injury, illness, disease, impairment, or loss of function.” No permissible limit for PM2.5 is prescribed by section 5155, and no existing Title 8 regulation specifies when wildfire smoke may result in injury, illness, disease, impairment, or loss of function.

Existing law, Title 8, section 5141, “Control of Harmful Exposures to Employees,” lists the hierarchy of controls that employers must follow to address employee exposure to harmful air contaminants. Employers must first rely on engineering controls whenever feasible, but if engineering controls are not feasible or do not achieve full compliance, administrative controls must be implemented “if practicable.” When engineering and administrative controls fail to achieve full compliance, then respiratory protective equipment shall be used.

Existing law, Title 8, section 5144, “Respiratory Protection,” establishes that respirators “applicable and suitable for the purpose intended” must be provided “when such equipment is necessary to protect the health of the employee.” To determine when respiratory equipment is necessary, section 5144 requires employers to “identify and evaluate the respiratory hazard(s) in the workplace” and “include a reasonable estimate of employee exposures to respiratory hazard(s) and an identification of the contaminant's chemical state and physical form.” Section 5144 sets forth the requirements for respiratory protection programs, how appropriate respirators should be selected, and related matters. This regulation does not expressly state the protection necessary for wildfire events, the concentration of PM2.5 necessitating respiratory protection, nor does it expressly identify a type of respirator providing at least minimally effective filtration of PM2.5 from wildfire smoke exposure, or make specifically clear what circumstances and conditions in which voluntary use of such respirators could occur in permissible accord with existing Title 8 respiratory protection requirements.

Existing law, Title 8, section 5155, “Airborne Contaminants,” sets permissible exposure limits for particular substances. No permissible exposure limit is listed for either wildfire smoke or PM2.5.

The specific changes are as follows:

New Section 5141.1. Protection from Wildfire Smoke.

This proposed standard, new section 5141.1, would be in Article 107, Dusts, Fumes, Mists, Vapors and Gases, directly after section 5141, Control of Harmful Exposure to Employees. The regulation would include the following specific requirements.

New Section 5141.1(a). Scope.

This proposed subsection (a)(1) establishes the application of the proposed regulation to all workplaces where the current Air Quality Index (AQI) for PM2.5 is 151 or greater and the employer should reasonably anticipate that employees may be exposed to wildfire smoke.

The subsection is necessary to establish the conditions in which employers will be required to comply with the proposed regulation and to take action to protect employees from the harmful effects of wildfire smoke.

Proposed subsection (a)(2) sets forth exceptions to the application of the regulation. Petition 573 sought protection from wildfire smoke for outdoor workers in particular, and the scope of proposed regulation limits its application to workers with direct, immediate exposure to outdoor air. This is accomplished by exempting enclosed and mechanically ventilated buildings and structures, as long as any windows, doors, bays, or other openings are kept closed, except when it is necessary to open doors for persons to enter or exit. Likewise, enclosed vehicles are exempted when the air is filtered by a cabin air filter and windows, doors, and other openings are kept closed when not using a door to enter or exit.

Workplaces are also exempt if the employer can demonstrate that the concentration of PM2.5 in the air does not exceed a concentration that corresponds to a current AQI of 150. This is necessary to allow employers who choose to monitor the PM2.5 level at their worksites rather than relying on the reported current AQI. Employers seeking this exemption would have to follow Appendix A, described below, to ensure the accuracy of their measurements.

This subsection also exempts employees exposed to a current AQI for PM2.5 of 151 or greater for an hour or less during a shift, and firefighters engaged in wildland firefighting.

Proposed subsection (a)(3) makes it clear that employers within the scope of this regulation should comply with this section for the purpose of addressing the hazard of wildfire smoke resulting in a current AQI for PM2.5 of 151 or higher, rather than referring to the more general requirements in the existing respiratory protections found in sections 5141 and 5155.

New Section 5141.1(b). Definitions.

This proposed subsection provides definitions for the terms “Current Air Quality Index (Current AQI),” “NIOSH,” “PM2.5,” and “Wildfire Smoke.”

The table listing the levels of health concerns for the AQI categories was sourced from [Title 40 Code of Federal Regulations, Part 58, Appendix G](https://www.ecfr.gov/current/title-40-code-of-federal-regulations/part-58/appendix-g). https://gov.ecfr.io/cgi-bin/text-idx?SID=455b88cb0ce9e587f8162e9eb0b2bece&mc=true&node=ap40.6.58.0000_0nbspnbspnbsp.g&rgn=div9

The National Institute for Occupational Safety and Health (NIOSH) is a division of the federal Centers for Disease Control and Prevention (CDC) and is the recognized national expert on workplace safety and health research. NIOSH is the world’s preeminent occupational safety and health research organization who through the scientific method, develops the data that is often used to establish occupational safety and health standards by the Federal Occupational Safety and Health Administration and other public entities charged with this responsibility. NIOSH tests, approves, and certifies respirators used in the workplace pursuant to [Title 42 Code of](#)

[Federal Regulations Part 84](https://gov.ecfr.io/cgi-bin/retrieveECFR?gp=&SID=bc6a566fab760f99f57e382e3f16fac5&mc=true&n=pt42.1.84&r=PART&ty=HTML#se42.1.84_130). https://gov.ecfr.io/cgi-bin/retrieveECFR?gp=&SID=bc6a566fab760f99f57e382e3f16fac5&mc=true&n=pt42.1.84&r=PART&ty=HTML#se42.1.84_130.

The subsection is necessary to clarify the application and meanings of terms used in the proposed regulation.

New Section 5141.1(c). Identification of harmful exposures.

This proposed subsection requires employers to obtain the current AQI for PM_{2.5} for their workplaces at the start of each shift and periodically thereafter, as needed to protect the health of employees. An employer may acquire this information by checking specified government agency websites, obtaining the current AQI for PM_{2.5} directly from listed government agencies, or by measuring the PM_{2.5} levels at the worksite. This subsection encourages compliance by listing reputable resources for employers to easily find AQI forecasts for current AQI for PM_{2.5}, while allowing employers to also identify other effective methods that may be more suitable for their work environment.

The subsection is necessary to ensure that employers regularly check the AQI levels during wildfire events so they will be able to determine when protective measures are needed.

An exception is provided for employers who *assume* the AQI is over 500 and comply with subsection (f), control of harmful exposures to employees, using that assumption. This exception is included because there is no need for an employer to monitor the current AQI for PM_{2.5} if the employer is already complying with the maximum respiratory protection requirements of the regulation.

For the same reason, there is an exception for employers in an emergency subject to subsection (f)(4). If they *assume* an AQI of 151 or greater and comply with (f)(3)(A) using that assumption, there is no need to monitor the AQI because they are already providing the maximum protection required by the regulation in emergency situations.

New Section 5141.1(d). Communication.

The proposed subsection refers to section 3203, Injury and Illness Protection Program (IIPP), which requires employers establish a system for communicating wildfire smoke hazards with employees in a language and manner readily understandable by employees. This subsection clarifies the application of that requirement in the context of wildfire smoke. Under the proposed subsection, employers must communicate the current AQI for PM_{2.5} and related protective measures in a language and manner that employees can understand. The subsection also requires employers to encourage employees to inform their employer about worsening air quality or possible adverse symptoms of wildfire smoke exposure. This subsection identifies minimum items to be communicated to employees for compliance with the communication requirement of 5141.1, and guidelines for when employees should report to employers conditions that may indicate 5141.1 triggering events exist.

The subsection is necessary both to ensure employees receive accurate and timely information and to ensure the employer receives necessary feedback from employees at their work location.

New Section 5141.1(e). Training and instruction.

The proposed subsection refers to section 3203, Injury and Illness Protection Program (IIPP), which requires employers to provide effective training and instruction. The training shall contain, at a minimum, the information contained in Appendix B, described below, and must be presented in a language and manner readily understandable by employees.

The subsection is necessary to ensure that employees understand various topics necessary to protect their health during wildfire events, including the hazards posed by wildfire smoke and the appropriate use of respirators.

New Section 5141.1(f). Control of harmful exposures to employees.

The proposed subsection requires employers to protect employees using the hierarchy of controls set forth in existing section 5141. In order of priority, these are: engineering controls, administrative controls, and control by respiratory protective equipment.

Proposed subsections (f)(1), (f)(2), and (f)(3) clarify the application of the hierarchy of controls to the specific context of wildfire smoke exposure.

Subsections (f)(1) and (f)(2) give examples of engineering and administrative controls that may reduce employees' exposure to PM_{2.5} from wildfire smoke. Engineering controls should be used to the extent feasible and include providing enclosed structures or vehicles where the air is filtered. If engineering controls are not feasible, employers shall implement administrative controls, if practicable. Administrative controls can include relocating work, changing work schedules, reducing work intensity, or providing additional breaks. Proposed subsections 5141.1(f)(1) and (f)(2) are similar to existing subsections 5141(a) and (b).

Subsections (f)(1) and (f)(2) are necessary to clarify for employers that engineering and administrative controls (already required in existing section 5141) are appropriate to reduce employees' exposure to PM_{2.5} from wildfire smoke.

Subsection (f)(3)(A) mandates that employers provide a sufficient number of respirators consistent with Title 8, section 5144 for employees' voluntary use when the current AQI for PM_{2.5} is 151 or greater, but not exceeding 500. Subsection (f)(3)(A) specifically states that N95 filtering facepiece respirators are appropriate for these conditions and provides requirements for the selection, maintenance, and replacement of respirators. It also explains that employers shall provide training about respirator use in accordance with section 5141.1 Appendix B rather than section 5144 Appendix D.

This subsection is necessary because it provides clarity for those employers who may be uncertain about what type of respiratory protection is appropriate for wildfire smoke.

Under section 5144(c)(2), if respirators are provided but not required, employers may give filtering facepiece respirators such as N95s to their workers without completing medical evaluations or fit testing as required under section 5144(c)(1) when respiratory use is mandatory. A Note to the proposed subsection (f)(3)(A) ensures that employers understand this.

Under the proposed subsection (f)(3)(B), respirator use would be required when the AQI for PM2.5 exceeds 500. The U.S. EPA AirNow program has occasionally published AQI levels above 500 within California, but that occurs so rarely that the EPA's AQI categories, depicted in the chart in proposed subsection (b), only go up to 500.

This subsection is necessary to address conditions that are so infrequent, and pose such a serious potential health risk, that more protective measures are necessary. Subsection (f)(3)(B) also states that respirators provided for mandatory use should have an assigned protection factor in accordance with section 5144. The existing section 5144 provides a method for employers to determine which respirators will reduce the current AQI for PM2.5 within the respirator to 151 or less.

Proposed subsection (f)(4) states that only voluntary respiratory protection per subsection (f)(3)(A) is required during emergencies, including rescue and evacuation, for all AQI levels of 151 or above. Emergencies include utilities, communications, and medical operations, when they are directly aiding firefighting or emergency operations.

This subsection is necessary to allow employers and workers responding to an emergency to act quickly, without evaluating the possible application of engineering or administrative controls, and without performing medical evaluations and fit testing for mandatory respirator use. Under this subsection, respirators for voluntary use can be provided quickly and easily to emergency personnel and other employees directly assisting emergency response.

New Appendix A to New Section 5141.1: Measuring PM2.5 Levels at the Worksite (Mandatory if an Employer Monitors with a Direct Reading Instrument)

This appendix sets forth the requirements for measuring the PM2.5 levels using a direct-reading particulate monitor for employers who elect this option to determine PM2.5 levels. The appendix also states how such measurements can be used to determine the equivalent current AQI for the purposes of proposed section 5141.1, using a table adapted from Title 40 Code of Federal Regulations, Part 58, Appendix G, Table 2. The appendix also states that a person with the necessary training or experience shall conduct and evaluate the monitoring and the interpretation of the results, so that exposures are not underestimated.

This appendix is necessary to ensure that employers who elect to perform their own PM2.5 monitoring do so using accurate equipment and methods.

New Appendix B to New Section 5141.1: Information to Be Provided to Employees (Mandatory)

The appendix provides information about the health effects of wildfire smoke, medical treatment, how to obtain the current AQI for PM_{2.5}, the requirements of the proposed regulation, the employer's two-way communication system, employer's methods to protect employees from wildfire smoke, the benefits and limitations of respirators when exposed to wildfire smoke, and how to properly use and maintain employer provided respirators.

This appendix is necessary in order to assist employers with training regarding wildfire smoke hazards and to ensure that employees have information critical for protecting their health. Employers addressing the potential hazard of wildfire smoke for the first time may be uncertain about what training should be provided. This appendix provides a convenient method for ensuring that critical information is conveyed to employees, including the health effects of wildfire smoke, available protections, and the appropriate use of respirators. For ease of use, the appendix includes blank lines to allow employers to easily customize the information.

Federal Regulations and Statutes

Code of Federal Regulations, Title 29, section 1910.134 is similar to the existing respiratory protection regulation in California Code of Regulations, Title 8, section 5144.

Code of Federal Regulations, Title 29, subsection 1910.1000(e) is similar to the existing regulation to control harmful exposures to employees in California Code of Regulations, Title 8, section 5141.

No federal law or regulation exists or has been promulgated that specifically addresses occupational exposure to either wildfire smoke or PM_{2.5}.

Policy Statement and Anticipated Benefits

Wildfires in California became dramatically worse in 2018, causing deaths and economic damage that dwarfed previous years. The catastrophic Camp Fire was the deadliest and most destructive wildfire in state history, killing 86 people and destroying 18,804 structures. On January 8, 2019, Governor Gavin Newsom issued Executive Order N-05-19, declaring that 2018 was the most destructive fire season in California history, with over 7,600 wildfires burning across 1,846,445 acres. Consistent with the Governor's Order, research conducted by the U.S. Environmental Protection Agency (U.S. EPA) found that fires are increasing in frequency, size, and intensity, creating the potential for greater smoke production and chronic smoke exposures in the United States, particularly in the West.

While thousands of chemical compounds are present in wildfire smoke, the principal harmful pollutant of concern for persons not in close proximity to the flames is particulate matter with an aerodynamic diameter of 2.5 micrometers or smaller, known as PM_{2.5}. The adverse health effects of PM_{2.5} include, but are not limited to, increased local lung and systemic inflammation, acute and chronic cardiovascular effects, and acute and chronic respiratory effects. Epidemiological studies also show that short-term exposures to PM_{2.5} can cause stroke, heart failure, and arrhythmias, as well as myocardial ischemia and infarction.

Occupational safety and health standards within Title 8 of the California Code of Regulations protect workers from harmful respiratory hazards in general, but there is currently no regulation that specifically addresses either PM2.5 or wildfire smoke. The primary measurement of air quality is the Air Quality Index (AQI) established by the U.S. EPA, but AQI standards are not mentioned anywhere in Title 8. Current regulations are not sufficiently specific as to what employers are required to do during wildfire events. This results in confusion on behalf of both employers and employees, leaving many employees unprotected.

The Board is proposing this regulation, Title 8, new section 5141.1, to preserve worker safety and health, and to clarify employers' existing obligations, making compliance easier and more straightforward. As wildfire seasons worsen, the proposed regulation will avoid a potential increase in debilitating and sometimes life-threatening illnesses faced by workers exposed to wildfire smoke. This will reduce the financial costs caused by medical care and lost workdays, costs that may be borne by employees, their families, employers, insurers, and public benefits programs.

Evaluation of Inconsistency/Incompatibility with Existing State Regulation

The Board evaluated the proposed regulations pursuant to Government Code section 11346.5(a)(3)(D) and has determined that the regulations are not inconsistent or incompatible with existing state regulations. This proposal is part of a system of occupational safety and health regulations. The consistency and compatibility of that system's component regulations is provided by such things as: (1) the requirement of the federal government and the Labor Code to the effect that the State regulations be at least as effective as their federal counterparts, and (2) the requirement that all state occupational safety and health rulemaking be channeled through a single entity (the Standards Board).

To the extent that there may be any unforeseen conflict between the proposed section 5141.1 and existing sections 5141 Control of Harmful Exposures to Employees and 5155 Airborne Contaminants, that has been resolved by proposed section 5141.1(a)(3). This subsection expressly states that an employer following section 5141.1 will be considered compliant with sections 5141 and 5155 for the limited purpose of exposures to a current AQI for PM2.5 of 151 or greater from wildfire smoke.

DISCLOSURES REGARDING THE PROPOSED ACTION

Mandate on Local Agencies or School Districts:

The Board has determined that proposed section 5141.1 does not impose a mandate on local agencies or school districts requiring reimbursement by the State pursuant to Part 7 of Division 4 of the Government Code (commencing with section 17500).

Cost or Savings to State Agencies:

State agencies, like other employers, should already be providing respirators to employees exposed to unhealthy levels of PM_{2.5} from wildfire smoke, under existing law. Likewise, under existing law, public employers should be using engineering and administrative controls when appropriate, for instance by moving tasks indoors or delaying non-critical tasks until the smoke clears, and should provide effective training and communication as required in the proposed regulation.

However, the proposed regulation includes some newly *prescriptive* elements that simplify and clarify existing performance standards, so the cost of these portions of the proposed regulation have been estimated below.

These calculations assume that *all* covered state entities unable to limit employee exposure to unhealthy PM_{2.5} from wildfire smoke through feasible administrative or engineering controls—i.e. those public employers which cannot readily postpone work during a wildfire or move work indoors to enclosed buildings—will incur *new* costs when complying with the requirements for respiratory protective equipment and training. In fact, the Division believes that the majority of state entities with workers who may be exposed to wildfire smoke during the 2020 fire season are already compliant with the proposed section 5141.1. In addition, state entities should already provide respirators for employees when the air quality is unhealthy under existing Title 8, sections 5141, 5144, and Labor Code sections 6400, 6401, 6402, 6403, and 6404. The numbers below have not been reduced to account for this, however, because of the difficulty in ascertaining the percentage of state entities that already provide N95s in response to wildfire smoke.

California Department of Forestry and Fire Protection (CalFire) employees have not been included in the estimates below. Nearly all CalFire employees exposed to wildfire smoke are engaged in wildland firefighting. That activity is expressly excluded from proposed section 5141.1.

Among other large state agencies, the California Department of Transportation (CalTrans) and the California Highway Patrol (CHP) are the entities with the most workers subject to the proposed regulation. Although a large number of the individuals working on outdoor CalTrans projects are actually employed by private entities, the Division estimated that about half of CalTrans' own workforce could possibly be covered during a wildfire smoke event. The Division also estimated that about 70% of the CHP workforce (the percentage of CHP employees who are sworn officers) could possibly be covered by the proposal, even though employees in enclosed vehicles are exempt. For other state entities, the Division estimates that about 15% of employees could also be covered, taking into account that state employees in office buildings, most other buildings, and vehicles are exempt from the proposed regulation.

The cost per N95 filtering facepiece respirator was estimated by the Public Agency Safety Management Association (PASMA) to be approximately \$0.75 per respirator. Based on 2018 data from the California Air Resources Board, in the worst-case scenario, one third of the California population would be exposed to unhealthy levels of PM_{2.5} from wildfire smoke for ten days over the course of year. The proposed regulation also includes a training requirement specific to the hazard of PM_{2.5} from wildfire smoke. The training required in Appendix B of the

proposed regulation, plus the time required for distributing and donning N95 masks, is estimated to take about 20 minutes to complete. Cost has been estimated based on average hourly earnings as reported by EDD.¹

Number of possible public employees per year, worst-case scenario

Entity ²	Total employees	% of employees possibly covered by regulation	# of employees possibly covered by regulation	Possible per year (Total * 1/3)
CalTrans	22,209	50%	11,104	3,702
CHP	11,491	70%	8,044	2,681
University of California	306,007	15%	45,901	15,300
California State University	123,717	15%	18,558	6,186
All other state departments, excluding CalFire	209,752	15%	31,463	10,488
Total	673,176		115,070	38,357

Annual state government costs, worst-case scenario

Safety and Health Requirement in 5141.1	Total exposed employees	Cost per employee ³	Days of wildfire exposure	Cost/year
N-95 Respirator	38,357	\$0.75	10	\$287,677
Training & Use of Respirators	38,357	\$9.69		\$371,679
Total Cost				\$659,356

The proposed regulation may result in marginal savings to state agencies in their capacity as employers, since improved regulatory clarity could save those entities staff time that would otherwise be spent trying to understand and apply the current regulations to the specific situation of wildfire smoke exposure, and because the proposed regulation allows public employers to provide N95 filtering facepiece respirators to workers without a medical evaluation or fit testing. However, public employers with workers who are regularly exposed to smoke or other respiratory hazards, including public agencies involved in emergency response, already have fully developed respiratory protection plans with required respirator use, medical evaluations,

¹ [Statewide average wage in California for Q1 2019](https://www.labormarketinfo.edd.ca.gov/data/oes-employment-and-wages.html#OES), the most recent data available as of this writing, at <https://www.labormarketinfo.edd.ca.gov/data/oes-employment-and-wages.html#OES>

² Number of employees taken from the State Controller’s Office, December 2019.

[CalTrans](https://publicpay.ca.gov/Reports/State/StateEntity.aspx?entityid=3854&year=2018): <https://publicpay.ca.gov/Reports/State/StateEntity.aspx?entityid=3854&year=2018>

[CHP](https://publicpay.ca.gov/Reports/State/StateEntity.aspx?entityid=3743&year=2018): <https://publicpay.ca.gov/Reports/State/StateEntity.aspx?entityid=3743&year=2018>

[All State Departments](https://publicpay.ca.gov/Reports/State/State.aspx): <https://publicpay.ca.gov/Reports/State/State.aspx>

[University of California](https://publicpay.ca.gov/Reports/HigherEducations/UniversityOfCalifornia.aspx): <https://publicpay.ca.gov/Reports/HigherEducations/UniversityOfCalifornia.aspx>

[California State University](https://publicpay.ca.gov/Reports/HigherEducations/StateUniversity.aspx): <https://publicpay.ca.gov/Reports/HigherEducations/StateUniversity.aspx>

³ [Training costs based on the statewide average wage in California for Q1 2019](https://www.labormarketinfo.edd.ca.gov/data/oes-employment-and-wages.html#OES).

<https://www.labormarketinfo.edd.ca.gov/data/oes-employment-and-wages.html#OES>. As stated above, the per-mask cost of the N95 respirator was estimated by PASMA.

and fit testing. Among the remaining public agencies, it is unknown how many will recognize this potential savings. Wildfires are unpredictable; the number, location, extent, and length of fires in 2020 and later years is unknown. Smoke adds another layer of uncertainty, since the people and entities affected by a given wildfire may be far from the event. The extent and intensity of wildfire smoke is dependent on multiple variable weather conditions that cannot be predicted in advance.

The Division expects that it would receive fewer queries about wildfire smoke if proposed section 5141.1 is enacted. The proposed regulation would also make it easier and faster for Division staff to respond to questions. However, this is unlikely to lead to any fiscal savings. Those staff who have been diverted from their usual duties in response to wildfire smoke-related issues would simply be returned to their usual enforcement activities, due to their full schedules before the wildfire crisis occurred.

The Division would need to train its enforcement staff about the new regulation, which would probably require a webinar lasting approximately 60 minutes for approximately 200 associate safety engineers (the equivalent of .1 associate safety engineer for one year) and other staff. However, the Division believes this can be absorbed into the existing budget.

Cost to Any Local Government or School District Which Must be Reimbursed in Accordance with Government Code Sections 17500 through 17630: None.

Other Nondiscretionary Cost or Savings Imposed on Local Agencies:

The above analysis for state agencies' costs and savings applies to local agencies as well. The Division estimated costs for the prescription portions of the proposed regulation by assuming that these will be entirely new costs for local agency employers within the scope of the regulation, even though the Division believes that the majority of local agencies are already in compliance with the proposed section 5141.1.

The Division calculated respirator and training costs in the same manner as the estimates for state agencies, above. Affected local agency employees would include certain inspectors/code enforcement personnel and people working in parks/outdoor recreation, traffic control, public safety, some types of vehicle and building maintenance, and other fields. The Division estimated that approximately 15% of local agency employees may fall within the scope of the proposed regulation.

Applying that assumption to a total of 1,416,219 local entity employees,⁴ the maximum possible number of local government employees who could possibly be covered by this regulation is 212,433. Using the worst-case scenario discussed above, in which a third of the California population is exposed to an AQI over 150 from wildfire smoke over the course of a year, about **70,811** local government employees could be covered by this regulation in a given year.

⁴ Source: [State Controller's Office](https://publicpay.ca.gov/) <https://publicpay.ca.gov/>. Please note that the estimated percentage of employees possibly covered by the regulation has been changed since the 399 for the emergency regulation was submitted. This was done because the data collected by the Controller's Office, although more accurate than the previous source, included more individuals working within educational buildings with filtered air.

The total cost per year to local agencies is calculated at \$1,217,241 per year as shown below.

Annual local government costs, worst-case scenario

Safety and Health Requirement in 5141.1	Total exposed employees	Cost per employee ⁵	Days of wildfire smoke exposure	Cost/year
N-95 Respirator	70,811	\$0.75	10	\$531,082
Training & Use of Respirators	70,811	\$9.69		\$686,159
Total Cost				\$1,217,241

Cost or Savings in Federal Funding to the State: None.

Cost Impact on a Representative Private Person or Business:

The proposal does not impose any costs on private persons who are not employers.

The number of businesses affected by wildfire smoke will vary greatly from year to year. Many workplaces are exempt from the proposal, including buildings and vehicles with air filtration, along with workers who are exposed to outdoor air for less than an hour per shift (for instance, while traveling between buildings or walking to or from a vehicle).

Based on EDD data on the average number of employees per business in California (17,624,394 employees / 1,584,626 businesses) and the average number of employees per small business (13,886,430 employees / 1,581,846 businesses), the per-employee costs described above [\$7.50 (respirators for 10 days) + \$9.69 (training) = \$17.19] result in an **annual cost of \$191.19 for a typical business and \$150.74 for a small business.**⁶

Statewide Adverse Economic Impact Directly Affecting Businesses and Individuals, Including the Ability of California Businesses to Compete:

The Board has made an initial determination that this proposal will not result in a significant, statewide adverse economic impact directly affecting businesses/individuals, including the ability of California businesses to compete with businesses in other states. The annual cost to a typical business is very low, and there is no cost to private individuals. In addition, many California businesses affected by this regulation are already prepared to provide N95 respirators and related training to employees in the event of wildfire smoke exposure, in compliance with existing Title 8 sections.

Significant Affect on Housing Costs: None.

⁵ [Training costs based on the statewide average wage in California for Q1 2019.](https://www.labormarketinfo.edd.ca.gov/data/oes-employment-and-wages.html#OES)

<https://www.labormarketinfo.edd.ca.gov/data/oes-employment-and-wages.html#OES>. As stated above, the per-mask cost of the N95 respirator was estimated by PASMA.

⁶ [EDD for 2018 Q3 and Q4](https://www.labormarketinfo.edd.ca.gov/LMID/Size_of_Business_Data_for_CA.html), the most recent data available as of this writing, Table 2A and 2B:

https://www.labormarketinfo.edd.ca.gov/LMID/Size_of_Business_Data_for_CA.html

SMALL BUSINESS DETERMINATION

The Board has determined that the proposed regulation may affect small businesses; however, no significant impact is anticipated. Small businesses are expected to incur a cost of \$150.74 per year.

RESULTS OF THE ECONOMIC IMPACT ASSESSMENT/ANALYSIS

The proposed regulation will not have any effect on the creation or elimination of jobs within California, the creation of new businesses or the elimination of existing businesses in the state, or the expansion of existing California businesses.

The Division has estimated that, in a worst-case scenario, the costs to private business would be \$13,748,098 per year. However, the annual cost of the proposal for a typical business is very low: \$191.19 per year. This should not result in any changes to hiring practices within existing companies or to the number of new businesses in the state.

The total, statewide savings that would result from the proposed regulation cannot be quantified. The Board is not aware of a study that quantifies the effects of deaths/illnesses from *occupational wildfire smoke*-related PM2.5 as opposed to exposures to PM2.5 from other sources, such as dust and pollution, or non-occupational exposures. Despite that, there is ample evidence that reducing exposure to PM2.5 in general and wildfire smoke in particular will result in improved health for California employees and reduce the financial costs caused by medical care and lost workdays, costs which may be borne by employees, their families, employers, insurers, and public benefits programs.

In addition, there may be some unquantifiable savings to employers because compliance with the proposed regulation is simpler and less expensive than following existing section 5144(d)(1)(C), and because employers will be able to provide N95s to workers without performing medical evaluations or fit testing.

BENEFITS OF THE PROPOSED ACTION

The Board is proposing this regulation, Title 8, new section 5141.1, to preserve worker safety and health and to clarify employers' existing obligations, making compliance easier and more straightforward. As wildfire seasons worsen, the proposed regulation will avoid a potential increase in debilitating and sometimes life-threatening illnesses faced by workers exposed to wildfire smoke. This will reduce the financial costs caused by medical care and lost workdays, costs that may be borne by employees, their families, employers, insurers, and public benefits

programs. This regulation is expected to be neutral to and will provide neither a benefit nor a detriment to the state's environment.

CONSIDERATION OF ALTERNATIVES

In accordance with Government Code section 11346.5(a)(13), the Board must determine that no reasonable alternative it considered to the regulation or that has otherwise been identified and brought to its attention would either be more effective in carrying out the purpose for which the action is proposed or would be as effective and less burdensome to affected private persons than the proposed action or would be more cost-effective to affected private persons and equally effective in implementing the statutory policy or other provision of law than the proposal described in this Notice.

The Board invites interested persons to present statements or arguments with respect to alternatives to the proposed regulation at the scheduled public hearing or during the written comment period.

CONTACT PERSONS

Inquiries regarding this proposed regulatory action may be directed to Christina Shupe (Executive Officer) or the back-up contact person, Michael Manieri (Principal Safety Engineer) at the Occupational Safety and Health Standards Board, 2520 Venture Oaks Way, Suite 350, Sacramento, CA 95833; (916) 274-5721.

AVAILABILITY OF STATEMENT OF REASONS, TEXT OF THE PROPOSED REGULATIONS AND RULEMAKING FILE

The Board will have the entire rulemaking file available for inspection and copying throughout the rulemaking process at its office at the above address. As of the date this Notice of Proposed Action is published in the Notice Register, the rulemaking file consists of this Notice, the proposed text of the regulations, the Initial Statement of Reasons, supporting documents, or other information upon which the rulemaking is based. Copies may be obtained by contacting Ms. Shupe or Mr. Manieri at the address or telephone number listed above.

AVAILABILITY OF CHANGED OR MODIFIED TEXT

After holding the hearing and considering all timely and relevant comments received, the Board may adopt the proposed regulations substantially as described in this Notice. If the Board makes

modifications that are sufficiently related to the originally proposed text, it will make the modified text (with the changes clearly indicated) available to the public at least 15 days before the Board adopts the regulations as revised. Please request copies of any modified regulations by contacting Ms. Shupe or Mr. Manieri at the address or telephone number listed above. The Board will accept written comments on the modified regulations for at least 15 days after the date on which they are made available.

AVAILABILITY OF THE FINAL STATEMENT OF REASONS

Upon its completion, copies of the Final Statement of Reasons may be obtained by contacting Ms. Shupe or Mr. Manieri at the address or telephone number listed above or via the internet.

AVAILABILITY OF DOCUMENTS ON THE INTERNET

The Board will have rulemaking documents available for inspection throughout the rulemaking process on its web site. Copies of the text of the regulations in an underline/strikeout format, the Notice of Proposed Action and the Initial Statement of Reasons can be accessed through the [Standards Board's website](http://www.dir.ca.gov/oshsb) at <http://www.dir.ca.gov/oshsb>.