

DEPARTMENT OF INDUSTRIAL RELATIONS
DIVISION OF OCCUPATIONAL SAFETY AND HEALTH
Headquarters Office
1515 Clay Street, 19th Floor
Oakland, CA 94612
Tel: (510) 286-7000 Fax: (510) 286-7037



DRAFT REGULATORY TEXT
CALIFORNIA CODE OF REGULATIONS, TITLE 8, SECTION 3410.2

**RESPIRATORY PROTECTION FOR WILDLAND FIREFIGHTING
AND WILDLAND URBAN INTERFACE OPERATIONS**

FOR CONSIDERATION BY THE CAL/OSHA RESPIRATORY PROTECTION
TECHNICAL ADVISORY COMMITTEE
FOR DISCUSSION PURPOSES ONLY

May 25, 2022

(a) Purpose.

(1) This section requires administrative controls, engineering controls, and respiratory protection to prevent or significantly reduce harmful inhalation exposures among employees throughout all phases of wildland firefighting and wildland urban interface (WUI) operations.

(b) Definitions.

“Assigned protection factor (APF)” means the workplace level of respiratory protection that a respirator or class of respirators is expected to provide to employees when the employer implements a continuing, effective respiratory protection program as specified by this section (see section 5144).

“Class 3” means a powered air purifying respirator (PAPR) classified under Chapter 7 of NFPA 1984, Standard on Respirators for Wildland Fire-Fighting and Wildland Urban Interface Operations (2022 version), which is hereby incorporated by reference.

“Fire suppression” means the full scope of activities involved in wildland firefighting and wildland urban interface (WUI) operations, including but not limited to active firefighting, search and rescue, evacuations, emergency medical services, structure protection, fireline construction, firing, holding, mop-up, fire watch and other activities.

“Firing” means the tasks involved in setting an intentional fire in order to reduce the vegetation available for a wildfire to consume.

“Fireline construction” means clearing vegetation to expose mineral soil in order to create a break in burnable material.

“Fit testing” means the use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual (see section 5144).

“Harmful inhalation exposure” means exposure to smoke, other products of combustion, dusts, particles, fibers, fumes, mists, vapors, and gases of such a frequency, intensity, or duration as to result in, or have the potential to result in, injury, illness, disease, impairment, or loss of function. These hazards consist of, but are not limited to, respirable particles (\leq PM₁₀), carbon monoxide, sulfur dioxide, nitrogen dioxide, formaldehyde, acrolein, hydrogen fluoride, hydrogen cyanide, and other organic vapors, inorganic gases, hydrocarbons, oxygenated hydrocarbons, trace metals, crystalline silica, asbestos, lead, persistent organic compounds such as dioxins and furans, polychlorinated biphenyls (PCBs), pesticides, herbicides, and other hazardous substances released from the burning of vegetation, structures, vehicles, products and other materials during wildland and wildland urban interface (WUI) fires. This definition includes exposure to engine exhaust from diesel and gasoline-powered vehicles and from the operation of portable generators, heaters and other equipment.

“High efficiency particulate air (HEPA) filter” means a filter that is at least 99.97% efficient in removing monodisperse particles of 0.3 micrometers (μ m) in diameter (see section 5144).

“Highly exposed subgroup” means a subset of workers who experience harmful inhalation exposures at greater frequency, intensity, or duration compared to the full group of workers of which the subgroup is a part.

“Holding” means the tasks involved in ensuring that an active fire does not cross a fireline or fuel break.

“Immediately dangerous to life or health (IDLH)” means an atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere (see section 5144).

“Maximum use concentration (MUC)” means the maximum atmospheric concentration of a hazardous substance from which an employee can be expected to be protected when wearing a respirator, and is determined by the assigned protection factor of the respirator or class of respirators and the exposure limit of the hazardous substance. The MUC can be determined mathematically by multiplying the assigned protection factor specified for a respirator by the required OSHA permissible exposure limit (PEL), short-term exposure limit (STEL), or ceiling limit. When no OSHA exposure limit is available for a hazardous substance, an employer must determine an MUC on the basis of relevant available information and informed professional judgment (see section 5144).

“Mop-up” means the tasks involved in digging out or applying water to any remaining burning or smoldering vegetation or other material in order to extinguish it.

“NIOSH certified” means tested and certified by the National Institute for Occupational Safety and Health (NIOSH) National Personal Protective Equipment Laboratory (NPPTL), in accordance with the requirements of 42 CFR 84.

“Oxygen deficient atmosphere” means an atmosphere with an oxygen content below 19.5% by volume (see section 5144).

“Permissible exposure limit” means the maximum permitted 8-hour time-weighted average concentration of an airborne contaminant (see section 5155).

“Powered air-purifying respirator (PAPR)” means an air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering (see section 5144). For purposes of this section, full-facepiece PAPRs have an assigned protection factor (APF) of 1,000 while operating in continuous flow mode, pressure-demand mode, or positive-pressure mode.

“Respiratory inlet” covering means that portion of a respirator that forms the protective barrier between the user's respiratory tract and an air-purifying device or breathing air source, or both.

“Rest and recovery” means the period of time during which employees rest, sleep, eat meals, and otherwise recover from fire suppression activities.

“Wildland firefighting” means activities of fire suppression and property conservation in woodlands, forests, grasslands, brush, prairies, or any combination of vegetation, which are involved in a fire situation, but are not within buildings or structures.

“Wildland urban interface (WUI)” means the zone of transition between unoccupied land and human development. It is the line, area or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.

“Wildland urban interface (WUI) operations” means the activities of fire suppression and property conservation in the wildland urban interface.

“Wildland firefighting and wildland urban interface (WUI) operations respirator” means a respirator that has been certified by NIOSH under 42 CFR 84, and certified as compliant with NFPA 1984 (2022).

(c) Administrative controls.

(1) The employer shall prevent or significantly reduce harmful inhalation exposures throughout all phases of wildland firefighting and wildland urban interface (WUI) operations by integrating prevention strategies into operational planning and decision-making.

(2) This shall include conducting risk analyses prior to and during fire suppression activities, and whenever conditions (such as fire patterns, topography, vegetation, or weather) substantially change. The risk analyses shall include, but not be limited to, the following elements:

(A) Identify potentially highly exposed subgroups and prioritize strategies to prevent harmful inhalation exposures for these groups;

(B) Determine if a potentially hazardous operation is necessary, or if it can be delayed, or timed to coincide with favorable weather or fire conditions, or otherwise avoided;

(C) Determine if hazardous conditions can be mitigated prior to commencing a potentially hazardous operation;

(D) Determine if harmful inhalation exposures can be reduced by rotating personnel in and out of potentially highly exposed subgroups; and,

(E) Determine other strategies to prevent harmful inhalation exposures as appropriate.

(3) The employer shall implement effective corrective actions based on the risk analyses required under (c)(2)(A) through (E) in order to prevent harmful inhalation exposures to the greatest extent feasible.

(4) Where harmful inhalation exposures cannot be prevented through administrative controls, the employer shall implement respiratory protection measures, as required herein.

(d) Engineering Controls.

(1) To the greatest extent feasible, base camp and command center facilities shall be located and set-up so as to prevent harmful inhalation exposures from smoke, road dust, vehicle exhaust, emissions from portable generators, heaters and other equipment, and other sources.

(2) Base camp and command center facilities intended for eating, sleeping, or gathering shall be enclosed, and shall be supplied with high-efficiency particulate air (HEPA) filtration systems sufficient to maintain an indoor PM_{2.5} concentration of 12 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) or less as a 24-hour average.

(3) The interior temperature of base camp and command center facilities shall be maintained at a 24-hour average temperature of no more than 80 degrees Fahrenheit.

(4) The employer shall obtain and document measurements of indoor air quality and temperature approximately every 6 hours in base camp and command center facilities intended for eating, sleeping, or gathering, and shall make these measurements available to employees and their representatives on request.

(5) Each facility intended for sleeping shall contain approximately 80 square feet of floor space for each occupant. An approximately 8-foot ceiling shall be provided. Beds, cots, or bunks, and suitable storage facilities such as wall lockers for clothing and personal articles shall be provided in every facility used for sleeping purposes. Beds shall be spaced approximately 48 inches both laterally and end-to-end, and shall be elevated at least 8 inches from the floor, measured from the bottom edge of the bed frame. If double-deck bunks are used, they shall be spaced approximately 72 inches both laterally and end-to-end. The minimum clear space between the lower and upper bunk shall be approximately 42 inches. Triple-deck bunks are prohibited.

(6) Smoking of any kind shall not be permitted inside or within 25 yards of base camp and command center facilities. A sign stating "Smoking is prohibited except in designated areas" shall be posted at the main entrance to base camp and command center facilities and at the entrance to the primary gathering area.

(e) Respiratory Protection.

(1) The employer shall develop, implement, and maintain an effective written respiratory protection program in accordance with section 5144. In addition, the employer shall include the following in their written respiratory protection program:

(A) Written procedures for determining the conditions under which NIOSH-approved, full-face, Class 3, powered air purifying respirators (PAPRs) certified under NFPA 1984, Standard on

Respirators for Wildland Fire-Fighting and Wildland Urban Interface Operations (2022 version) shall be deployed during wildland firefighting and WUI operations, when such PAPRs are available pursuant to subsection (e)(2);

(B) Training of employees in the proper use of PAPRs during wildland firefighting and WUI operations, including prohibited uses and limitations in their effectiveness under certain conditions, when such PAPRs are available pursuant to (e)(2);

(C) Medical evaluations of employees who may be required to use PAPRs during wildland firefighting or WUI operations, in accordance with section 5144;

(D) Fit testing procedures for employees who may be required to use PAPRs during wildland firefighting or WUI operations, in accordance with section 5144;

(E) Procedures and schedules for cleaning, disinfecting, storing, inspecting, repairing, and otherwise maintaining PAPRs, in accordance with section 5144;

(F) Training of employees in the occupational diseases associated with harmful inhalation exposures during wildland firefighting and WUI operations, including but not limited to reduced lung capacity, chronic respiratory diseases, lung and other cancers, and cardiovascular diseases;

(G) Training of employees on the requirements of this section; and,

(I) Written procedures for gathering standardized information from employees on the effectiveness of PAPRs during wildland firefighting and WUI operations.

(2) Within two (2) years of the effective date of this section, or within two (2) years after they are made available on the market, the employer shall ensure that each employee deployed to incidents that may involve wildland firefighting or WUI operations is provided with a fully functional, full-face, NIOSH-certified, Class 3, powered air purifying respirator (PAPR) that meets the requirements of NFPA 1984, Standard on Respirators for Wildland Fire-Fighting and Wildland Urban Interface Operations (2022 version).

(3) The following requirements apply to PAPRs used for purposes of wildland firefighting and WUI operations:

(A) PAPRs shall have an assigned protection factor (APF) of 1,000, in accordance with section 5144, and shall be operated in continuous flow mode, pressure-demand mode, or positive-pressure mode. PAPRs capable of operating only in demand mode are prohibited.

(B) PAPRs shall be stored and transported in individual containers or carrying devices sufficient to protect against physical damage, soiling and contamination.

(C) The employer shall ensure that PAPRs are properly worn and operated in accordance with this section when employees have the potential for harmful inhalation exposure while engaged in any phase of wildland firefighting or WUI operations.

EXCEPTION: The employer may allow employees to commence or continue work without the use of PAPRs if the supervisor in charge determines that requiring them would impede an action

necessary to mitigate an emergency, or would otherwise create a hazard or special hardship during an operation. In such cases, to the extent feasible, before proceeding with the operation without the use of PAPRs, the supervisor shall determine if the operation is necessary, if the operation can be delayed, or if the hazard can be effectively mitigated. The employer shall document such instances (where PAPR use was not required) in an incident report and shall make the report available to affected employees and their representatives, on request.

(D) The employer may assign PAPRs to alternative purposes, such as urban search and rescue (USAR) operations, except that PAPRs used for these purposes shall at all times be properly maintained, repaired, cleaned, disinfected, stored and otherwise made fully functional and available for wildland firefighting and WUI operations, as required herein.

(E) PAPRs shall not be used in oxygen-deficient atmospheres or under conditions that are immediately dangerous to life or health (IDLH). PAPRs shall not be used for interior structural firefighting.

(g) Exposure tracking.

(1) The employer shall develop, implement, and maintain a permanent record of each employee deployed to incidents involving wildland firefighting or wildland urban interface (WUI) operations that involve at least 24 on-site hours, including hours for sleeping. The record shall include the following:

(A) Employee name, age and departmental identifiers;

(B) Departmental years of service at the time of deployment;

(C) Total hours on-site from the time of arrival to the time of departure;

(D) The primary tasks the employee was involved with while on-site, and their approximate durations;

(E) The primary tasks for which the employee used respiratory protection, as required herein;

(F) The employee's assessment of harmful inhalation exposures that occurred while on-site, if any; and,

(G) The employee's assessment of health signs or symptoms, if any, that occurred following deployment.

(2) The employer shall make all exposure tracking information available to affected employees and their representatives on request.

(g) Employee participation.

(1) Within 180 calendar days of the effective date of this section, and in consultation with employees or their representatives, the employer shall develop and implement a written plan to

provide for the effective participation of employees and their representatives in developing and implementing the elements required by this section.

(2) The written plan shall include provisions that provide for the following:

(A) Access by employees and employee representatives to all documents or information developed or collected by the employer pursuant to this section.

NOTE: Nothing in this subsection shall preclude the employer from requiring an employee or employee representative to whom information is made available under this section to enter into a confidentiality agreement prohibiting him or her from disclosing such information, as set forth in section 5194(i).

(B) The establishment of an ongoing joint Labor-Management Committee to effectively develop, implement, and maintain the elements required by this section.

(C) The authority of employee representatives to participate throughout all phases in the development of policies and procedures required for the implementation of this section.

(D) Effective stop work procedures that ensure:

1. The authority of employees to refuse to perform a task where doing so could reasonably result in death or serious physical harm;

2. The authority of employees to recommend to the supervisor in charge that an operation be stopped, based on a safety or health hazard; and,

3. The authority of the supervisor in charge of an operation to stop the operation, based on a safety or health hazard.

(E) Procedures to ensure the right of employees to anonymously report safety and health hazards to the employer. The employer shall respond in writing within thirty (30) calendar days to written hazard reports submitted by employees or their representatives. The employer shall prioritize and promptly respond to and correct reports of hazards that present the potential for death or serious physical harm.

(3) The employer shall retain a current record of the following actions, which the employer shall make available to employees and employee representatives on request:

(A) Instances in which an employee requested that an operation be stopped;

(B) Actions taken by supervisors in response to an employee's request to stop an operation; and,

(C) Employee reports of hazards, and the employer's response.

(h) Division access.

(1) The employer shall provide all documents and information developed or collected pursuant to this section to the Division upon request.

(2) The employer shall facilitate physical access by the Division to command centers and base camps, as well as to safe locations suitable for observing firefighters engaged in wildland firefighting and WUI operations, to ensure compliance with this section.

* * * * *