

Wildfire Smoke Protection Procedure for San Joaquin County Office of Education

Purpose

San Joaquin County Office of Education will follow the procedures in this program to protect our outdoor workers from wildfire smoke and comply with the Cal/OSHA Protection from Wildfire Smoke regulation [8CCR5141.1](#).

Scope

This procedure will apply when it **can be expected that our employees may be exposed to wildfire smoke and the current Air Quality Index (AQI) for PM2.5 is 151 or greater**. This procedure does not apply to the following workplaces or operations:

- Enclosed buildings where windows, doors, and other openings are kept closed and the air is filtered by mechanical ventilation.
- Enclosed vehicles where windows, doors, and other openings are kept closed and the air is filtered by a cabin air filter.
- Where worksite measurements of PM2.5 show that the current AQI does not equal or exceed 151.
- Employees exposed to a current AQI of 151 or greater for less than one hour during their shift.
- Firefighters engaged in wildland firefighting.

Responsibilities

Overall Program Management

This program will be managed by the Division Director of Operations or their designee. Management of this program will include the following:

- Maintain and update this written program.
- Provide training to employees who are covered by this program.
- Maintain an adequate supply of N95 respirators.
- Ensure this program is being followed and enforced.

Supervisor Responsibilities

- Attend all trainings.
- Ensure employees are trained.
- Determine the Air Quality Index (AQI) when your employees may be exposed to wildfire smoke.
- Check AQI for PM2.5 level before each shift and periodically during the day when the AQI exceeds 151.
- Inform employees periodically of the current AQI for PM2.5 and protective measures available.
- Implement control measures for outdoor workers exposed to wildfire smoke.
- Ensure availability of N95 respirators and enforce required respirator use when the AQI for PM2.5 is greater than 500.

- Take action when an employee reports symptoms of poor air quality, such as providing clean air breaks or removing employees from poor AQI environments.

Employee Responsibilities

Employees working outdoors exposed to wildfire smoke have the following responsibilities:

- Understand and follow the requirements of this program.
- Attend all trainings.
- Talk to your doctor if you have health issues that affect your ability to wear a respirator. If health issues exist, tell your supervisor about them.
- Wear a respirator when AQI PM2.5 is greater than 500.
- Request a N95 for voluntary use when AQI PM2.5 is 151 or greater
- Inform their supervisor if air quality is getting worse.
- Inform their supervisor if suffering from symptoms of poor air quality such as asthma attacks, chest pain, nausea, or trouble breathing.

Determining Exposure

Air quality is described using the US EPA’s Air Quality Index (AQI) – the higher the number, the more polluted and hazardous the air. The current AQI is divided into the six categories shown in Table 1 below. Small particulates, known as PM2.5, pose the greatest health hazard because they can be inhaled deep into the lungs. Therefore, PM2.5 is the pollutant to monitor when working outdoors during wildfire activity.

<i>Air Quality Index (AQI) - Categories for PM2.5</i>	
<i>Index Value</i>	<i>Description of Air Quality</i>
0 to 50	Good
51 to 100	Moderate
101 to 150	Unhealthy for Sensitive Groups
151 to 200	Unhealthy
201 to 300	Very Unhealthy
301 to 500	Hazardous

Table 1 – AQI Categories, Title 40 of Federal Regulations, Part 58, Appendix G

Supervisor(s) will determine the potential employee exposure to PM2.5 before each shift and periodically thereafter to protect employee health by **any** of the following methods (choose at least one):

- Check AQI forecasts and current AQI for PM2.5 by consulting the following online resources: [US EPA AirNow](#) website, [US Forest Service Wildland Air Quality Response Program](#) website, [California Air Resources Board](#) website, local air pollution control district website, or local air quality management district website.
- Obtain AQI forecasts and current AQI for PM2.5 directly from the EPA, California Air Resources Board, local air pollution control district, or local air quality management district by phone, email, text, or other effective method.
- Measure PM2.5 at the worksite and convert to AQI according to [Appendix A](#) of 8CCR5141.1.

Communication of Hazard

Supervisor(s) will communicate wildfire smoke hazards in such a way to be understood by all employees. Information provided to employees will include the current AQI for PM2.5 and protective measures available to reduce wildfire smoke exposure.

Employees will be encouraged to inform their supervisor of worsening air quality and any adverse symptoms they may be experiencing due to wildfire smoke exposure such as asthma attacks, chest pain, nausea, or difficulty breathing.

Exposure Control

San Joaquin County Office of Education will use the following controls to reduce employee exposure to PM2.5:

- Engineering controls will be used **first** to reduce employee exposure.
 - Enclosed buildings, structures, or vehicles where the air is mechanically filtered—air that is forced by a fan through a filtering material that traps particles and removes them from the air—will be provided when feasible.
 - The goal is to reduce exposure to an AQI of less than 151 or as much as possible.
- Administrative controls will be implemented if engineering controls are unable to reduce PM2.5 exposure to less than a current AQI of 151, such as:
 - Relocating work activities to a location where the current AQI for PM2.5 is lower, such as buildings or vehicles with filtered air.
 - Changing work schedules.
 - Lowering work intensity to reduce breathing and heart rate.
 - Providing rest areas with filtered air.
 - Allowing extended or additional rest periods.

Note: Engineering and administrative controls do not apply to emergency situations when operations (such as medical, communications, utilities) are directly aiding firefighting or emergency response. In these situations, N95s will be provided for voluntary use when AQI for PM2.5 is equal or greater than 151 per section 5141.1(f)(4).

- Respiratory protection will be provided as follows:
 - **Voluntary use for AQI of 151-500.** NIOSH approved N95 respirators (filtering face pieces) will be provided by San Joaquin County Office of Education and affected employees will be encouraged to use them whenever the current AQI for PM2.5 is equal or greater than 151. N95 filtering face piece respirators will be stored, maintained, and replaced so they do not create a health hazard to the wearer.
 - **Required use for AQI greater than 500.** Respirator use is required when the current AQI for PM2.5 is greater than 500. Required respirator use must follow the requirements of [8CCR5144](#), which includes training, medical evaluation, and fit testing of respirator users. The protection provided by the respirator during these conditions must reduce the AQI PM2.5 to below 151 inside the respirator.

Note - When the AQI is above 500, respirators with a higher [assigned protection factor \(APF\)](#) than an N95 respirator, such as a full-face respirator or a powered-air-purifying respirator (PAPR), may be necessary.

Training

Training will be provided by San Joaquin County Office of Education to all employees and supervisors with potential exposure to wildfire smoke. This training will include the following topics found in [Appendix B](#) of the regulation, which can be printed out or sent via internet link for employees:

- The [health effects](#) of wildfire smoke.
- The right to obtain medical treatment without fear of reprisal.
- How to obtain the current AQI for PM2.5.
- The requirements of [8CCR5141.1](#).
- How San Joaquin County Office of Education will communicate harmful AQI and protective measures available.
- How employees should inform their supervisor of worsening air quality or if they are experiencing any symptoms due to the air quality.
- The methods that will be used to protect employees from wildfire smoke.
- The N95 filtering face piece respirator is the minimum level of protection for wildfire smoke.
- Employees with a heart or lung problem should consult with a physician prior to wearing an N95 respirator
- The importance, limitations, and benefits of [using a respirator when exposed to wildfire smoke](#).
- How to [properly put on, use, and maintain the respirators](#) provided by San Joaquin County Office of Education.
- Dispose and replace the respirator when it becomes damaged, deformed or increases breathing resistance.

Additional information on the use of N95 respirators for protection from wildfire smoke can be found on the Cal/OSHA page [N95 Mask Commonly Asked Questions](#).

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

(a) An employer may use a direct-reading particulate monitor to determine PM2.5 levels for section 5141.1, if the employer can demonstrate that it has complied with this appendix and selected a monitor that:

- (1) Does not underestimate employee exposures to wildfire smoke; or
- (2) May underestimate wildfire smoke exposures, but the employer has obtained information on the possible error of the monitor from the manufacturer and has accounted for the error of the monitor when determining exposures to PM2.5 to ensure that employee exposure levels are not underestimated.

(b) The monitor shall be designed and manufactured to measure the concentration of airborne particle sizes ranging from an aerodynamic diameter of 0.3 micrometers or less up to and including 2.5 micrometers ($\leq 0.3\mu\text{m}$ to $2.5\mu\text{m}$).

(c) The employer shall ensure that the monitor and all necessary monitor accessories are calibrated, maintained, and used, in accordance with the manufacturer's instructions for accurately measuring particles with an aerodynamic diameter of 0.3 micrometers or less up to and including 2.5 micrometers ($\leq 0.3\mu\text{m}$ to $2.5\mu\text{m}$) The employer may use an air monitor that measures particles less than 0.3 micrometers to greater than 2.5 micrometers ($\leq 0.3\mu\text{m}$ to $\geq 2.5\mu\text{m}$) if the employer treats the result as the PM2.5 level.

(d) The employer shall use the following table to convert the PM2.5 concentration to the AQI for PM2.5.

PM2.5 in Micrograms per Cubic Meter ($\mu\text{g}/\text{m}^3$)	Air Quality Index (AQI) Categories for PM2.5
0 to 12.0	0 to 50
12.1 to 35.4	51 to 100
35.5 to 55.4	101 to 150
55.5 to 150.4	151 to 200
150.5 to 250.4	201 to 300
250.5 to 500.4	301 to 500

(e) The person supervising, directing, or evaluating workplace monitoring for PM2.5 shall have the training or experience necessary to apply this section and to ensure the correct use of the monitor and the interpretation of the results, so that exposures are not underestimated.

Note: Authority cited: Section 142.3, Labor Code. Reference: Sections 142.3 and 144.6, Labor Code.

Appendix B to Section 5141.1. Protection from Wildfire Smoke Information to Be Provided to Employees (Mandatory)

(a) The health effects of wildfire smoke.

Although there are many hazardous chemicals in wildfire smoke, the main harmful pollutant for people who are not very close to the fire is “particulate matter,” the tiny particles suspended in the air. Particulate matter can irritate the lungs and cause persistent coughing, phlegm, wheezing, or difficulty breathing. Particulate matter can also cause more serious problems, such as reduced lung function, bronchitis, worsening of asthma, heart failure, and early death.

People over 65 and people who already have heart and lung problems are the most likely to suffer from serious health effects.

The smallest -and usually the most harmful -particulate matter is called PM2.5 because it has a diameter of 2.5 micrometers or smaller.

(b) The right to obtain medical treatment without fear of reprisal.

Employers shall allow employees who show signs of injury or illness due to wildfire smoke exposure to seek medical treatment and may not punish affected employees for seeking such treatment. Employers shall also have effective provisions made in advance for prompt medical treatment of employees in the event of serious injury or illness caused by wildfire smoke exposure.

(c) How employees can obtain the current Air Quality Index (AQI) for PM2.5.

Various government agencies monitor the air at locations throughout California and report the current AQI for those places. The AQI is a measurement of how polluted the air is. An AQI over 100 is unhealthy for sensitive people and an AQI over 150 is unhealthy for everyone.

Although there are AQIs for several pollutants, Title 8, section 5141.1 only uses the AQI for PM2.5.

The easiest way to find the current and forecasted AQI for PM2.5 is to go to [AirNow.gov](https://www.airnow.gov) and enter the zip code, town, or city where you will be working. The current AQI is also available at [fire.AirNow.gov](https://www.fire.airnow.gov), an interactive map which also provides information about some fires and smoke plumes. You can also visit the website of your local air district. Employees who do not have access to the internet can contact their employer for the current AQI. The EPA website [enviroflash.info](https://www.enviroflash.info) can transmit daily and forecasted AQIs by text or email for particular cities or zip codes.

(d) The requirements of Title 8, section 5141.1.

If employees may be exposed to wildfire smoke, then the employer is required to find out the current AQI applicable to the worksite. If the current AQI for PM2.5 is 151 or more, the employer is required to:

- (1) Check the current AQI at the start of each shift and periodically thereafter.
- (2) Provide training to employees.
- (3) Lower employee exposures.
- (4) Provide respirators and encourage their use.

(e) The employer's two-way communication system.

Employers shall alert employees when the air quality is harmful and what protective measures are available to employees.

Employers shall encourage employees to inform their employers if they notice the air quality is getting worse, or if they are suffering from any symptoms due to the air quality, without fear of reprisal. The employer's communication system is email, phone, text and verbal.

(f) The employer's methods to protect employees from wildfire smoke.

Employers shall take action to protect employees from PM2.5 when the current AQI for PM2.5 is 151 or greater. Examples of protective methods include:

- (1) Locating work in enclosed structures or vehicles where the air is filtered.
- (2) Changing procedures such as moving workers to a place with a lower current AQI for PM2.5.
- (3) Reducing work time in areas with unfiltered air.
- (4) Increasing rest time and frequency and providing a rest area with filtered air.
- (5) Reducing the physical intensity of the work to help lower the breathing and heart rates.

The employer's control system for physical shelter at the Sonora worksite is: 14993 Camage Ave. Sonora, CA 95370.

(g) The importance, limitations, and benefits of using a respirator when exposed to wildfire smoke.

Respirators can be an effective way to protect employee health by reducing exposure to wildfire smoke, when they are properly selected and worn. Respirator use can be beneficial even when the AQI for PM2.5 is less than 151, to provide additional protection.

When the current AQI for PM2.5 is 151 or greater, employers shall provide their workers with proper respirators for voluntary use. If the current AQI is greater than 500, respirator use is required, except in emergencies.

A respirator should be used properly and kept clean.

The following precautions shall be taken:

- (1) Employers shall select respirators certified for protection against the specific air contaminants at the workplace. Respirators must be certified by NIOSH, the National Institute for Occupational Safety and Health of the U.S. Center for Disease Control and Prevention. A label or statement of certification should appear on the respirator or respirator packaging. It will list what the respirator is designed for (particulates, for example).

Surgical masks or items worn over the nose and mouth such as scarves, T-shirts, and bandannas will not provide protection against wildfire smoke. An N95 filtering facepiece respirator, shown in the image below, is the minimum level of protection for wildfire smoke.

- (2) Read and understand the manufacturer's instructions on the respirator's use, care, and replacement, along with any warnings regarding the respirator's limitations. If the respirator is reusable, read and understand the instructions for cleaning and maintenance. The manufacturer's instructions must be followed except for medical evaluations, fit testing, and shaving of facial hair, which are recommended but not required for voluntary use of filtering facepiece respirators.

(3) Do not wear respirators in areas where the air contains contaminants for which the respirator is not designed. A respirator designed to filter particles will not protect employees against gases or vapors, and it will not supply oxygen.

(4) Employees should keep track of their respirator so that they do not mistakenly use someone else's respirator.

(5) Employees who have a heart or lung problem should ask their health care provider before using a respirator.

(h) How to properly put on and use the respirators provided by the employer.

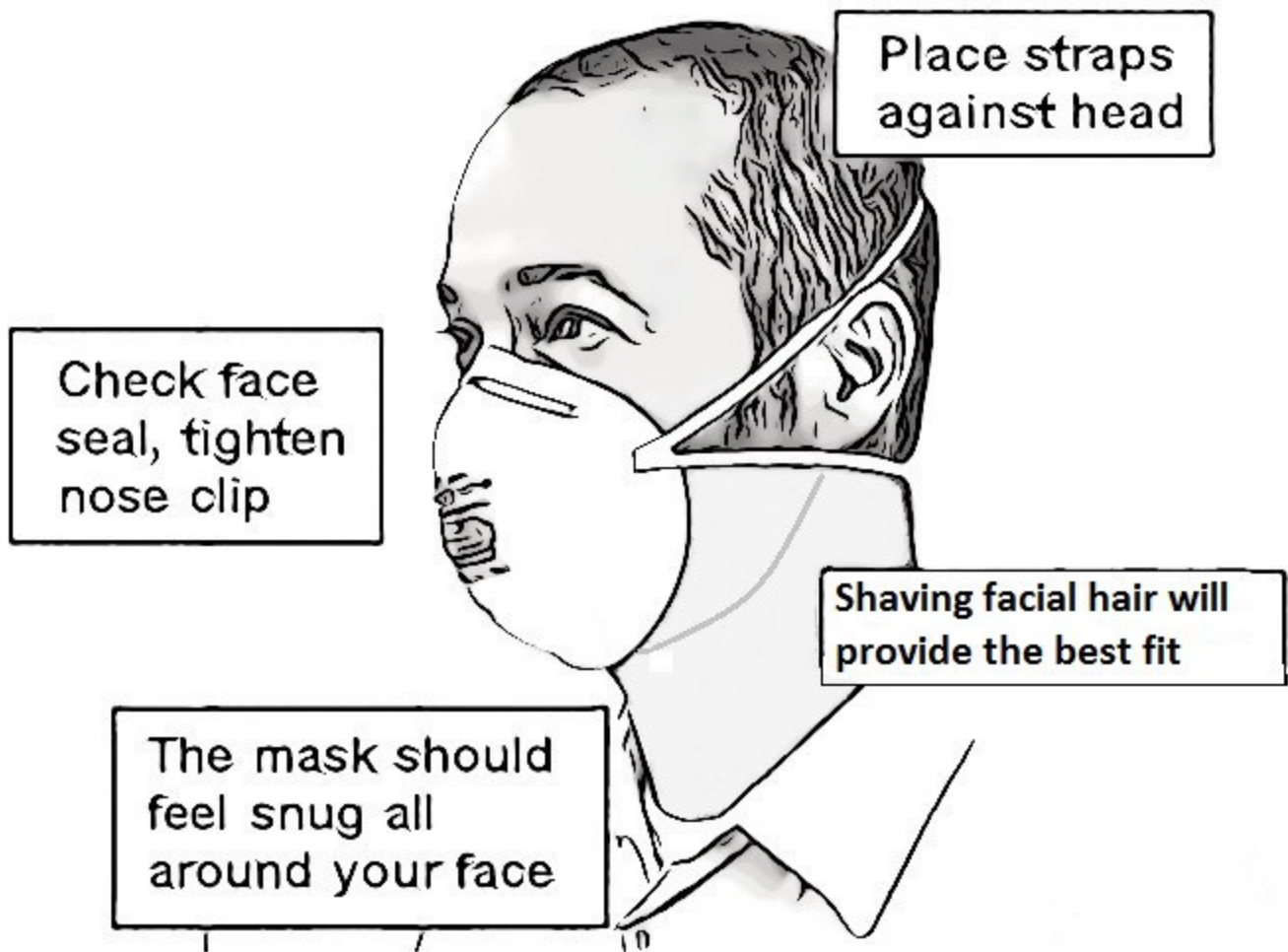
To get the most protection from a respirator, there must be a tight seal around the face. A respirator will provide much less protection if facial hair interferes with the seal. Loose-fitting powered air purifying respirators may be worn by people with facial hair since they do not have seals that are affected by facial hair.

The proper way to put on a respirator depends on the type and model of the respirator.

For those who use an N95 or other filtering facepiece respirator mask that is made of filter material:

(1) Place the mask over the nose and under the chin, with one strap placed below the ears and one strap above.

(2) Pinch the metal part (if there is one) of the respirator over the top of the nose so it fits securely.



For a respirator that relies on a tight seal to the face, check how well it seals to the face by following the manufacturer's instructions for user seal checks. Adjust the respirator if air leaks between the seal and the face. The more air leaks under the seal, the less protection the user receives.

Respirator filters should be replaced if they get damaged, deformed, dirty, or difficult to breathe through. Filtering facepiece respirators are disposable respirators that cannot be cleaned or disinfected. A best practice is to replace filtering facepiece respirators at the beginning of each shift.

If you have symptoms such as difficulty breathing, dizziness, or nausea, get medical help immediately.

Note: Authority cited: Section 142.3, Labor Code. Reference: Sections 142.3 and 144.6, Labor Code.