

Protection from Wildfire Smoke Program

Scope: CITYWIDE

Policy Contact

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Regulatory References

California Code of Regulations (CCR), Title 8, 5141.1 Protection from Wildfire Smoke

Reviewed/Effective:

Policy is effective upon completion of signatures by all Charter Officers

1. Purpose

This program provides guidance to City of Sacramento employees on implementing appropriate measures to provide protection from wildfire smoke, poor air quality, and ozone. The guidelines are consistent with California Code of Regulations (CCR), Title 8, 5141.1 Protection from Wildfire Smoke.

2. Scope

- a. This program is in effect when the current Air Quality Index (AQI) for particulate matter (PM) 2.5 is greater than 150, regardless of the AQI for other pollutants and there is a realistic possibility that employees may be exposed to wildfire smoke.
- b. Per CCR, Title 8, 5141.1 - Protection from Wildfire Smoke regulation the following workplaces and operations are exempt from this program:
 - 1. Enclosed building or structure in which the air is filtered by a mechanical ventilation system and windows, doors, bays, and other openings are closed, except when it is necessary to open doors to enter or exit.
 - 2. Enclosed vehicles in which the air is filtered by a cabin air filter and windows, doors, and other openings are closed, except when it is necessary to open doors to enter or exit the vehicle.
 - 3. It can be demonstrated that the concentration of PM2.5 in the air does not exceed a concentration that corresponds to a current AQI of 150.
 - 4. Employees exposed to a current AQI for PM2.5 of 151 or greater for a total of one hour or less during a shift.
 - 5. Firefighters engaged in wildland¹ firefighting.

3. Responsibilities

- a. Department Directors shall be responsible:
 - 1. To modify or reduce field and/or office work schedules.
 - 2. For temporary closure of buildings.
 - 3. For providing support to the Emergency Operations Center (EOC).
 - 4. To reoccupy buildings and resume normal office and/or field service operations.

¹ Per California Code of Regulations (CCR) § 3402, “wildlands” are defined as “sparsely populated geographical areas covered primarily by grass, brush, trees, crops, or combination thereof. As the City of Sacramento is a large, urban area, Sacramento City Firefighters are subject to significant Wildland Urban Interface (WUI) firefighting events. The City’s reference to CCR § 3402 shall not be limiting in definition for purposes of the Fire Department’s WUI actions and considerations.

- b. Department Managers and Supervisors, in consultation with Environmental Health and Safety shall:

Determine what the AQI is where employees are located at the start each shift and periodically thereafter, as needed. The following resources may be used to monitor air quality: U.S. EPA [AirNow](#) website, [U.S. Forest Service Wildland Air Quality Response Program](#) website, [California Air Resources Board](#) website, local air pollution control district website, local air quality management district website or other similar resources that provide AQI data.

1. Make respirators available to all employees for voluntary use.
2. Ensure all affected employees receive required trainings related to wildfire smoke protection.
3. Encourage employees to take necessary rest breaks in a location with an AQI for PM2.5 less than 150.
4. When the AQI reaches levels indicated below implement one or more of the following actions to minimize health risks to field employees:

a. 151 - 300 (Unhealthy/Very unhealthy)

- Once the PM2.5 AQI is in excess of 251, consider ceasing non-critical outdoor work activities, where possible. All worksites must be rendered safe prior to the cessation of work.
- To the extent feasible, visually monitor for signs of physical distress such as difficulty breathing, fatigue, excessive coughing, and skin irritation.
- Should an employee show signs of distress, immediately have the employee stop work and rest in a ventilated vehicle or building. For serious medical emergencies call 911 immediately.
- Limit the number of hours employees are working in the field and reduce intensity of work, if possible.
- Rotate field employees to perform office tasks, if possible.
- Encourage voluntary use of N95 respirator.

b. 301 and 500 (Hazardous)

- All non-emergency and non-critical outdoor work should cease.
- If conducting emergency and critical work:

- To the extent feasible, visually monitor for signs of physical distress such as difficulty breathing, fatigue, excessive coughing, and skin irritation.
 - Should an employee show signs of distress, immediately have the employee stop work and rest in a ventilated vehicle or building. For serious medical emergencies call 911 immediately.
 - Limit the number of hours employees are working in the field and reduce intensity of work, if possible.
 - Rotate employees conducting work to allow for necessary rest breaks.
 - Encourage voluntary use of N95 respirator.
- c. 501 and greater (Hazardous – Respiratory protection required, except in emergencies as defined in 5141.1)
- Mandatory use of N95 or other effective respiratory protection. All affected employees must be in the Respiratory Protection Program.
 - All non-emergency and non-critical outdoor work should cease.
 - If conducting emergency and critical work:
 - To the extent feasible, visually monitor for signs of physical distress such as difficulty breathing, fatigue, excessive coughing, and skin irritation.
 - Should an employee show signs of distress, immediately have the employee stop work and rest in a ventilated vehicle or building. For serious medical emergencies call 911 immediately.
 - Limit the number of hours employees are working in the field and reduce intensity of work, if possible.
 - Rotate employee conducting work to allow for necessary rest breaks.
- c. Affected Employees shall:
1. Attend all required trainings related to wildfire smoke protection.
 2. Wear respiratory protection equipment correctly and follow all instructions.
 3. Report any symptoms of exposure to immediate supervisor.
 4. Take necessary rest breaks.

4. Communications

As required by the Illness and Injury Prevention Program (IIPP) a system of communicating wildfire smoke hazards shall be implemented in a language and manner that is readily understandable by employees. The system shall include methods of:

- a. Informing employees of:
 - 1. The current AQI for PM2.5.
 - 2. Protective measures available to reduce wildfire smoke exposures.
- b. Encouraging employees to report:
 - 1. Worsening air quality.
 - 2. Changes in conditions that may lead to a worsening of air quality, such as changing wind patterns or temperature inversions.
 - 3. Adverse symptoms that may be the result of wildfire smoke exposure such as asthma attacks, difficulty breathing, and chest pain.

5. Training

All affected employees will receive training in a language and manner readily understandable by employees on the following:

- a. The health effects of wildfire smoke.
- b. The right to obtain medical treatment without fear of reprisal.
- c. How employees can obtain the current AQI for PM2.5.
- d. The requirements in Cal/OSHA’s regulations pertaining to wildfire smoke.
- e. The communication system that will be used.
- f. The methods to protect employees from wildfire smoke.
- g. The importance, limitations, and benefits of using a respirator when exposed to wildfire smoke.
- h. How to properly put on, use, and maintain the respirators provided.

The required training elements can be found in Attachment A, which reflects the information contained in Cal/OSHA Title 8 Regulations, Section 5141.1, Appendix B - Protection from Wildfire Smoke Information to Be Provided to Employees (Mandatory).

6. Exposure Control Methods

- a. Engineering Controls:
Employee exposure to PM2.5 greater than AQI 150 shall be prevented through engineering controls, when feasible. Such engineering controls include providing enclosed structures and vehicles with effective air filtration of PM2.5.

Exception: Per Cal/OSHA regulations, the City of Sacramento is not required to implement engineering controls for employees exposed to a current AQI of PM2.5 exceeding 150 for a total of one hour or less during a shift.

- b. **Administrative Controls:**
If engineering controls are not feasible or do not effectively reduce employee exposures to under AQI 151 (PM2.5), administrative controls shall be implemented, if practicable. Such controls include relocating work to a location where the AQI is lower, changing work schedules, reducing work intensity, or providing additional rest breaks.
- c. **Control by Respiratory Protection:**
 - 1. Where the current AQI for PM2.5 exceeds 150 and is less than 501 affected employees shall be provided with a sufficient number of respirators for voluntary use in accordance with Cal/OSHA's Respiratory Protection Program requirements and encouraged to use the respirators. Respirators shall be NIOSH-approved devices that effectively protect employees from inhalation of PM2.5, such as N95 filtering facepiece respirators. Respirators shall be cleaned, or replaced as appropriate, stored, and maintained so that they do not present a health hazard to users. Appendix B to Section 5141.1 (Attachment A) shall be used in lieu of Appendix D to Section 5144 for training regarding voluntary use of respirators.

NOTE. For voluntary use of filtering facepieces, such as N95 respirators, Section 5144 does not require fit testing or medical evaluations.
 - 2. Where the current AQI for PM2.5 exceeds 500, respirator use is required in accordance with Cal/OSHA's Respiratory Protection Program requirements and the City's Respiratory Protection Program (RCP #10). Employees shall be provided with respirators with an assigned protection factor such that the PM2.5 levels inside the respirator correspond to an AQI less than 151.

7. Definitions

Current Air Quality Index (Current AQI)

The method used by the U.S. Environmental Protection Agency (U.S. EPA) to report air quality on a real-time basis. Current AQI represents data collected over time periods of varying length in order to reflect present conditions as accurately as possible.

The current AQI is divided into six categories as shown in the table below, adopted from Table 2 of Title 40 Code of Federal Regulations, Part 58, Appendix G.

Air Quality Index (AQI) Categories for PM 2.5	Levels of Health Concern
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

N95 Respirator

A respiratory protection device designed to seal against the user's face by covering the nose and mouth. When correctly worn, it is designed to protect a person from breathing in at least 95% of very small (0.3 micron) particles. This respirator is not designed to be worn by a person with facial hair as it will prevent a proper seal against the face. The inability to seal will allow particulates to enter from around the border of the respirator.

NIOSH

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

PM2.5

Solid particles and liquid droplets suspended in air, known as particulate matter, with an aerodynamic diameter of 2.5 micrometers or smaller.

Wildfire Smoke

Emissions from fire in "wildlands" or in adjacent developed areas.

Wildlands

Sparsely populated geographical areas covered primarily by grass, brush, trees, crops, or combination thereof.

8. Attachment A

Cal/OSHA Title 8 Regulations, Section 5141.1, Appendix B - Protection from Wildfire Smoke Information to Be Provided to Employees (Mandatory)

CONTENTS

- (a) The health effects of wildfire smoke.
- (b) The right to obtain medical treatment without fear of reprisal.
- (c) How employees can obtain the current AQI for PM2.5.
- (d) The requirements in Cal/OSHA’s regulation about wildfire smoke.
- (e) The employer’s communication system.
- (f) The employer’s methods to protect employees from wildfire smoke.
- (g) The importance, limitations, and benefits of using a respirator when exposed to wildfire smoke.
- (h) How to properly put on, use, and maintain the respirators provided by the employer.

- (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.

The City of Sacramento has effective provisions made in advance for prompt medical treatment of employees in the event of serious injury or illness caused by

wildfire smoke exposure. All injuries and illness must be immediately reported to a direct supervisor to seek prompt medical attention.

(c) How employees can obtain the current Air Quality Index (AQI) for PM 2.5.

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 and enter the zip code, town, or city where you will be working. The current AQI is also available from the 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](http://EPA_website) 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 the 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 getting worse, or if they are suffering from any symptoms due to the air quality, without fear of reprisal.

The City of Sacramento utilizes several means of communication consisting of any of the following: pre-shift safety huddles, tailgate meetings, safety meetings/trainings, safety committees, direct supervisor reporting, reporting to

EH&S Specialist, posters, hand-outs, and emails. Two-way communication in the field can be through phone, two-way radios, or in person.

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

The City of Sacramento 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.

- (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 comfort and protection.

When the current AQI for PM2.5 is over 150, the City of Sacramento will provide affected employees with proper respirators for voluntary use. If the AQI is over 500, respirator use is required, except in an emergency as defined in 5141.1.

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 contaminants at the workplace. Respirators must be certified by NIOSH, the National Institute for Occupational Safety and Health of the U.S.

Centers for Disease Control and Prevention (CDC). 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.

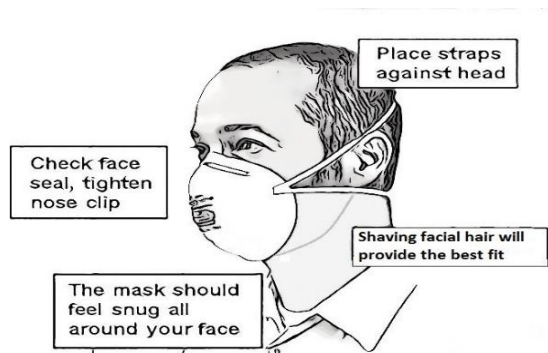
- (2) Read and understand the manufacturer's instructions on the respirator's use, care, and replacement, along with any warnings regarding the respirator's limitations. If the respirator is reusable, read and understand the instructions for cleaning and maintenance. The manufacturer's instructions must 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 the shift.

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



9. Charter Officer Review and Acknowledgement Protection from Wildfire Smoke Program

City Manager

A handwritten signature in black ink, appearing to read "H. Chan".

Howard Chan (Jul 27, 2021 17:25 PDT)

Jul 27, 2021

City Attorney

A handwritten signature in black ink, appearing to read "Susana Alcalá Wood".

Susana Alcalá Wood (Jul 29, 2021 11:17 PDT)

Jul 29, 2021

City Clerk

A handwritten signature in blue ink, appearing to read "Mindy Crook".

Jul 27, 2021

City Auditor

A handwritten signature in black ink, appearing to read "Jorge Oseguera".

Jorge Oseguera (Jul 28, 2021 09:38 PDT)

Jul 28, 2021

City Treasurer

A handwritten signature in black ink, appearing to read "John P. Colville Jr.". The signature is written over a horizontal line.

John P. Colville Jr (Jul 27, 2021 16:39 PDT)

Jul 27, 2021