

Lake County Injury Illness & Prevention Program No. 12
WILDFIRE SMOKE PROTECTION

Quick Compliance – Outdoor workers exposed to unhealthy air quality due to wildfire smoke shall be trained and protected using all available hazard control methods including the voluntary usage of disposable (N95) particulate filtering respirators.

I. POLICY DESCRIPTION

This policy specifies safe work practices when the air quality equals or exceeds the Air Quality Index (AQI) of 151, for particulate matter of 2.5 micrometers (PM2.5) or greater, due to wildfire smoke. This program applies to employees exposed to such conditions for greater than one (1) cumulative hour per work shift.

This program covers the County safe work practices and procedures for preventing injury and illness from wildfire smoke in accordance with the County Injury and Illness Prevention Program (IIPP) and California Code of Regulations, Title 8, General Industry Safety Orders, Division 1, Chapter 4, Section 5141.1, Protection from Wildfire Smoke.

II. REGULATIONS/AUTHORITIES

California Code of Regulations Title 8, section 5141.1 (Effective 7/29/19)

California Code of Regulations Title 8, section 3203

County Injury & Illness Prevention Program

III. POLICY

If employees may be exposed to wildfire smoke, then the employer is required to keep employees apprised of the current AQI applicable to the worksite. If the current AQI for PM2.5 is 151 or greater, the employer is required to:

- A. Identify harmful exposures. Check the current AQI before and periodically during each shift.**
- B. Communicate the wildfire smoke hazards and available protective measures.**
- C. Provide training to employees.**
- D. Control employee exposures.**

IV. EXEMPTIONS FROM POLICY

- A. Enclosed buildings or structures in which the air is filtered by a mechanical ventilation system and the department ensures that windows, doors, bays, and other openings are kept closed to minimize contamination by outdoor or unfiltered air.**
- B. Enclosed vehicles in which the air is filtered by a cabin air filter and the department ensures that windows, doors, and other openings are kept closed to minimize contamination by outdoor or unfiltered air.**

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Note: Worksites covered by this policy are to include any site where it can be reasonably anticipated that employees may be exposed to wildfire smoke.

V. POLICY IMPLEMENTATION

- A. Identify Harmful Exposures:** If employees may be exposed to wildfire smoke, then the employer is required to routinely monitor the current AQI applicable to the worksite. To accomplish this, when wildfire smoke is self-evident, department heads (or their designee) should check the current AQI before and periodically during each shift. There are several resources on the internet for doing so but simplest are at:

<http://www.lcaqmd.net/>

<https://www.purpleair.com/map#9.42/38.9848/-122.713>

- B. Communicate the Wildfire Smoke Hazards To Employees.** Departments, through management or supervisory personnel, must establish and implement a system for communicating wildfire smoke hazards in a form readily understandable by all affected employees which includes effective procedures for the following:

- 1) Informing employees of the current AQI for PM2.5.** To accomplish this, it is recommended that you use a variety of tools including email, text messages, phone, and two-way radio. Relying on word-of-mouth is discouraged.
- 2) Informing employees what protective measures are available.** Employees should be made aware of protective measures that departments are making available. As outlined in **Subparagraph D below**, this could include relocating work to a location where the current AQI for PM2.5 is lower, changing work schedules, reducing work intensity, or providing additional rest periods. For most departments, however, the primary method will be to provide N95 filtering facepiece respirators. In any event, you must notify employees of the protective measures that you have made available. Suggested methods of communication include emails, memo, pre-job/pre-task planning meetings, daily briefings, emails, text messaging, conference calls, and other effective means.
- 3) Two-Way Communications.** Encourage employees to report any worsening outdoor conditions, as well as to report any adverse symptoms resulting from wildfire exposure without fear of reprisal.

- C. Provide training to employees.** **See Appendix A.**

- D. Control Employee Exposures.**

- 1) Engineering Controls:** Departments shall reduce the employee exposure to PM2.5 to less than a current AQI of 151 by engineering controls, whenever feasible. This could include for instance, allowing employees to work in an enclosed building or vehicle where the air is filtered. Even if the work space is in an enclosed building, extra

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precautions should be taken including the closure of HVAC economizers to restrict outside air and the use of properly maintained air scrubbers. If engineering controls are not enough to reduce exposure to PM2.5 to less than a current AQI OF 151, then the department shall reduce employee exposures as much as feasible.

2) Administrative Controls: Whenever engineering controls are not feasible, or do not reduce employee exposures to PM2.5 to less than a current AQI of 151, the employer shall implement administrative controls, if practicable, such as:

- 2.1 Locating work in enclosed structures or vehicles to a location where the air is filter or the current AQI for PM2.5 is otherwise lower.
- 2.2 Changing Procedures such as relocating employees to a place with acceptable AQI.
- 2.3 Reducing work time in areas with unfiltered air
- 2.4 Increasing rest time and frequency, and providing a rest area with filtered air.
- 2.5 Reducing the physical intensity of the work to help lower the breathing and heart rates.

3) Personal Protective Equipment (N95 particulate respirators)

3.1. Where the current AQI for PM2.5 is equal to or greater than 151, but does not exceed 500, the department shall provide N95 particulate respirators to all affected employees for voluntary use in accordance with Title 8 CCR, §5144 and encourage employees to use respirators. Respirators shall be National Institute for Occupational Safety and Health (NIOSH) approved devices that effectively protect the wearers from inhalation of PM2.5. The N95 particulate respirator is the minimum level of protection required for wildfire smoke. In addition to N class respirators, R and P class units with efficiency ratings of 95, 99, and 100 are also acceptable under NIOSH guidelines.

3.2. Respirators shall be cleaned, stored, maintained, and replaced so that they do not present a health hazard to users. Respirators must be replaced at least every eight hours, or sooner if the respirator becomes damaged, soiled, or breathing becomes difficult. An adequate supply of N95 particulate respirators shall be made readily available at each affected worksite when necessary.

Note: For voluntary use of filtering facepieces, such as N95 particulate respirators, fit testing and medical evaluations will not be required.

3.3. Where the current AQI for PM2.5 exceeds 500, a higher level of respirator use is required in accordance with Title 8 CCR, §5144 and the County Respiratory Protection Program. Refer to the County program or contact the County Safety Officer for assistance in such a circumstance.

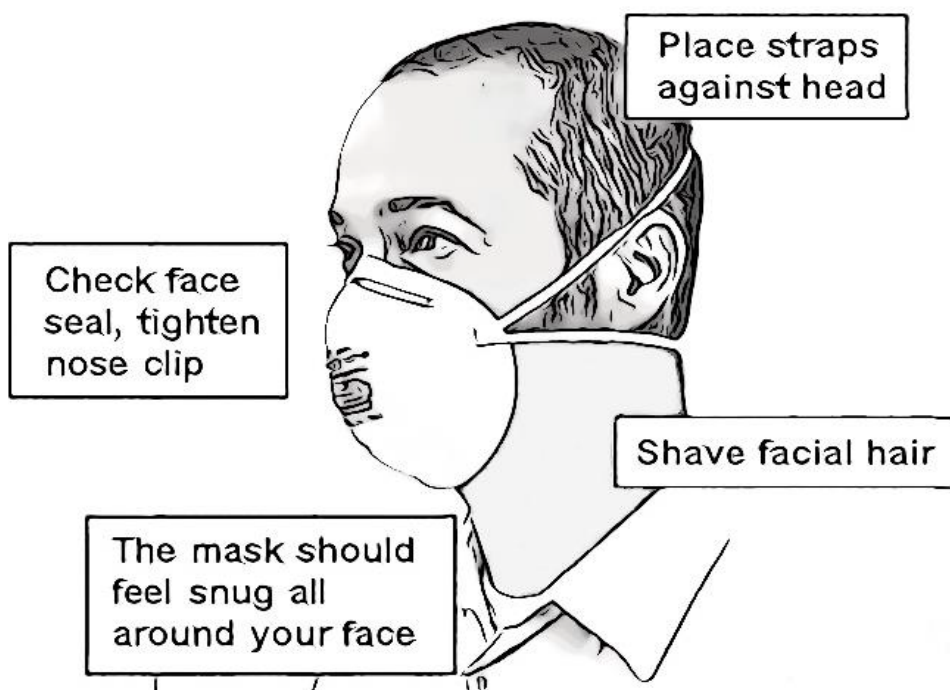
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3.4. To get the most protection from a respirator, there must be a tight seal around the face. A respirator will provide much less protection if facial hair interferes with the seal. The proper way to put on a respirator depends on the type and model of the respirator.

3.5. How to properly don, use, and maintain particulate respirators:

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

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



Note: Shaving is not required for voluntary respirator use, however, it is recommended for a proper facial seal.

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. Respirators must be replaced if they get damaged, deformed, dirty, or difficult to breathe through. Particulate respirators are disposable respirators that cannot be cleaned or disinfected. At a minimum, replace particulate respirators at the beginning of each shift. If you have symptoms such as difficulty breathing, dizziness, or nausea, go to an area with cleaner air, take off the respirator, and get medical help if necessary.

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VI. RESPONSIBILITIES

A. Management shall:

- 1) Ensure the elements of this program are followed by all affected employees, personal service contractors, interns, and volunteers.
- 2) Ensure employees are provided the resources and training necessary to safely implement this program.
- 3) Ensure all potentially exposed departmental job classifications and tasks affected by this program are identified.
- 4) Ensure periodic audits and inspections of the workplace are conducted to maintain compliance with this and all other departmental safety programs.

B. Supervisors shall:

- 1) Ensure training is provided for all affected employees under their supervision.
- 2) Maintain accurate training records.
- 3) Ensure effective two-way communication exists between employees and supervision.
- 4) Monitor employee exposure to unhealthy AQI of 151 or greater during the work shift.
- 5) Ensure adequate supplies of approved particulate respirators are readily available at the worksite.
- 6) Periodically monitor the AQI when the index is equal to or exceeds 151 and ensure this information is effectively communicated in a form readily understandable to all employees.
- 7) Ensure employees have access to prompt medical care without fear of reprisal.

C. Employees shall:

- 1) Follow the procedures and safe work practices of this program.
- 2) Inform their supervisor if they notice air quality is getting worse or they are suffering symptoms due to poor air quality.
- 3) Attend safety training on the application of this program and to inform their supervisors if they did not understand any of the provisions herein.

VIII. REFERENCES/RESOURCE MATERIALS

Appendix A - Employee Training Standards
Appendix B – Wildfire Smoke Respirator Use Handout
Appendix C – Definitions

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APPENDIX A
EMPLOYEE TRAINING STANDARDS

(To be provided to all employees)

Departments shall ensure that all potentially affected employees are trained on the following:

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.

Departments 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. Departments 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; i.e. access to contacting “911” would constitute an effective provision.

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

The County method for finding the current and forecasted AQI for PM2.5 is from the Lake County Air Quality Management District Website at: <http://www.lcagmd.net/> or by calling 707-263-7000.

Alternatively, the current AQI is also available from:

<https://www.purpleair.com/map#9.42/38.9848/-122.713>

Employees who do not have access to the internet can contact their supervisor for the current AQI. The EPA website www.enviroflash.info can transmit daily and forecasted AQIs by text or email for particular cities or zip codes.

APPENDIX A (Cont.)
Employee Training Stds

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D. The requirements in Title 8, section 5141.1 about wildfire smoke.

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 before and periodically during each shift.
- (2) Provide training to employees consistent with the information in this Appendix.
- (3) Control employee exposures. (See subparagraph (f) below)
- (4) Provide respirators and encourage their voluntary use.

E. The employer's two-way communication system.

(1) **County Obligation:** The County shall alert employees when the air quality is harmful (i.e. when the AQI exceeds 151 or greater) and what protective measures are available to employees. There will be various tools for communicating, depending on your department's preference. This could include (but not be limited to), email, text messages, phone, and two-way radio. When you receive such notification you should comply with any protective measures your department may have established pursuant to paragraph (f) below, but you are encouraged to wear a N95 respirator if at all possible.

(2) **Employee Obligations:** Employees are strongly encouraged to inform their supervisors or other appropriate management personnel if they notice the air quality is getting worse, or if they are suffering from any symptoms due to the air quality. Such notice is welcome and the employee should do so without fear of reprisal.

F. The employer's methods to protect employees from wildfire smoke.

The County shall take appropriate action(s) to protect employees from PM2.5 when the current AQI for PM2.5 is 151 or greater. Examples of protective methods that may be implemented (when feasible) include:

- (1) Locating work in enclosed structures or vehicles where the air is filter or the current AQI for PM2.5 is otherwise lower.
- (2) Changing Procedures such as relocating employees to a place with acceptable AQI.
- (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.

While the above methods may not always be available, the County will endeavor to always make respirators available in accordance with the following paragraph G.

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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, departments shall provide their workers with NIOSH approved particle respirators for voluntary use. If the current AQI is greater than 500, a higher level of respirator use is required. A respirator should be used properly and kept clean.

The following precautions shall be taken:

- (1) Departments shall select respirators certified for protection against the specific air contaminants at the workplace. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Center for Disease Control and Prevention certifies respirators. A label or statement of certification must 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 particulate respirator, shown in Appendix B, is the minimum level of protection for wildfire smoke.

- (2) Read and follow the manufacturer's instructions on the respirator's use, maintenance, cleaning and care, along with any warnings regarding the respirator's limitations. The manufacturer's instructions for medical evaluations, fit testing, and shaving should also be followed, although doing so is not required by Title 8, section 5141.1 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.
- (5) Employees who have a heart or lung problem should ask their doctor before using a respirator.

APPENDIX A (Cont.)
Employee Training Stds

APPENDIX B

Wildfire Smoke Respirator Use Handout

(To be provided to all employees)

(See following page.)

DRAFT

WILDFIRE SMOKE RESPIRATOR USE

(To be provided to all employees)

Wildfire smoke consists of very small particles, liquid droplets, and gases such as carbon monoxide, carbon dioxide, and other volatile organic compounds such as formaldehyde and acrolein. The actual content of smoke depends on the substance that is burning.

Wildfire smoke can irritate your eyes, nose, throat and lungs. It can make you cough and wheeze, and can make it hard to breathe. If you have asthma or another lung disease, or heart disease, inhaling wildfire smoke can be especially harmful.

Will a mask (respirator) protect me from wild fire smoke?

Properly wearing a special mask called a “**particulate respirator**” or “**filtering facepiece respirator**” can be beneficial in protecting lungs from wildfire smoke.

How to Choose the Correct Mask to Protect Your Lungs

Use a mask called a “**particulate respirator**” that has the word “**NIOSH**” and either “**N95**” or “**P100**” printed on it.

- Choose a mask that has **two straps** that go around your head. **DO NOT** choose a mask with only one strap or with straps that just hook over the ears.
- Choose a size that will fit over your nose and under your chin. It should seal tightly to your face. These masks do not come in sizes that fit young children.
- Do not use bandanas (wet or dry), paper or surgical masks, or tissues held over the mouth and nose. These will not protect your lungs from wildfire smoke.
- If you have a heart or lung problem, ask your doctor before using a mask.

How to Use a Mask

A one-strap paper mask will **NOT** protect your lungs from wildfire smoke.

A surgical mask will **NOT** protect your lungs from Wildfire smoke.

- Place the mask over your nose and under your chin, with one strap placed below the ears and one strap above.
- Pinch the metal part of the mask tightly over the top of your nose.
- The mask fits best on clean shaven skin.
- Throw out your mask when it gets harder to breathe through, or if the inside gets dirty. Use a new mask each day if you can.
- It is harder to breathe through a mask, so take breaks often if you work outside.
- If you feel dizzy or nauseated, go to a less smoky area, take off your mask, notify your supervisor and seek medical help.



N95 respirators can help protect your lungs from wildfire smoke. Straps must go above and below the ears.



A one-strap paper mask will **NOT** protect your lungs from wildfire smoke.



A surgical mask will **NOT** protect your lungs from Wildfire smoke

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APPENDIX C
DEFINITIONS

Air Quality Index

The method used by the U.S. Environmental Protection Agency (U.S. EPA) to report air quality on a real-time basis. Current AQI is also referred to as the “NowCast”, and 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, adapted from Table 2 of Title 40 Code of Federal Regulations, Part 58 Appendix G.

Air Quality Index (AQI) for Particulate Matter (PM) 2.5 Microns in Diameter or less	Levels of Health Concern
<u>0 to 50</u>	<u>Good</u>
<u>51 to 100</u>	<u>Moderate</u>
<u>101 to 150</u>	<u>Unhealthy for Sensitive Groups</u>
<u>151 to 200</u>	<u>Unhealthy</u>
<u>201 to 300</u>	<u>Very Unhealthy</u>
<u>301 to 500</u>	<u>Hazardous</u>
<u>Note: 1 Micron = 1/25,000th inch</u>	

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.

NIOSH Link: <https://www.cdc.gov/niosh/topics/respirators/default.html>

PM 2.5

Solid particles and liquid droplets suspended in air, known as Particulate Matter (PM), with an aerodynamic diameter of 2.5 micrometers or smaller.

Wildfire Smoke

Emissions from fires in wildlands; i.e. sparsely populated areas covered primarily by grass, brush, trees, crops, or a combination thereof.