

Rules to Address Employee Exposure to Wildfire Smoke

Proposed Rules for Adoption January 2022

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OAR 437-002-1080 Protection from Wildfire Smoke

Note: Oregon OSHA recognizes that occupational wildfire smoke exposures can occur in particularly dynamic situations. Employers must address such hazards based on the information available to them or that could have been available to them through the exercise of reasonable diligence.

(1) Scope and application. This standard applies to public and private sector employers whose employees are or will be exposed to wildfire smoke where the ambient air concentration for fine particulate matter (PM_{2.5}) is at or above 35.5 µg/m³ (Air Quality Index value of 101 for PM_{2.5}).

(a) The following workplaces and operations are exempt from these rules:

(A) Enclosed buildings and structures in which the air is filtered by a mechanical ventilation system and the employer ensures that windows, doors, bays, and other exterior openings are kept closed, except when it is necessary to briefly open doors to enter or exit;

(B) Enclosed vehicles in which the air is filtered by a properly maintained cabin air filter system, and when the windows, doors, and other exterior openings are kept closed, except when it is necessary to briefly open doors to enter or exit;

Note: Buses, light rail, and other enclosed vehicles used for transit systems where doors are frequently opened to board and deboard passengers are NOT included under exemption (1)(a)(B).

(C) When the employer predetermines that operations affected by wildfire smoke will be suspended to prevent employee exposure to an ambient air concentration for PM_{2.5} of 35.5 µg/m³ (AQI 101) or higher; and

(D) Employees working from home.

(b) The following workplaces and operations are only subject to subsections (4)(a) through (4)(f) “information and training,” and subsection (7)(b) “control by voluntary use of respirators” under this standard when feasible:

(A) Wildland firefighting and associated support activities such as fire camp services and fire management;

(B) All emergency operations that are directly involved in the protection of life or property, public safety power shutoffs, or restoration of essential services, such as evacuation, rescue, medical, structural firefighting, law enforcement, utilities, and communications; and

(C) Work activities involving intermittent employee exposure of less than 15 minutes in an hour to an ambient air concentration for PM_{2.5} at or above 35.5 µg/m³ (AQI 101) for a total exposure of less than one hour in a single 24-hour period.

(2) Definitions.

(a) Air Quality Index - The Air Quality Index (AQI) was developed by the U.S. Environmental Protection Agency (EPA) as an indicator of overall air quality and is based on the five criteria pollutants regulated under the Clean Air Act: ground-level ozone, particulate matter, carbon monoxide, sulfur dioxide, and nitrogen dioxide.

(b) Feasibility - The ability of an employer to implement any requirement in a rule. Oregon OSHA rules never prohibit work. Whether feasibility is mentioned in a provision of the rule, or not, if the employer can demonstrate that it is functionally impossible to comply or if doing so would prevent completion of the work, the employer need not comply, but must take any available reasonable alternative steps to protect the employees involved.

(c) Greater hazard - The ability of an employer to demonstrate that compliance with the requirements of the rule would expose an employee to a hazard associated with a substantially more serious injury or illness, thereby providing a narrow exception to the rule to the degree that the greater hazard exists. An example of a greater hazard in relation to the use of non-flame resistant filtering facepiece respirators would include potential facial burns to a qualified employee working within the minimum approach distance (MAD) of an energized high voltage electrical system where flame-resistant clothing is required.

(d) NIOSH - The National Institute for Occupational Safety and Health of the United States Centers for Disease Control and Prevention. NIOSH tests and approves respirators for use in the workplace.

(e) PM_{2.5} - Solid particles and liquid droplets suspended in air, known as fine particulate matter, with an aerodynamic diameter of 2.5 micrometers or smaller and measured in micrograms per cubic meter (µg/m³).

(f) Sensitive groups - Individuals with pre-existing health conditions and those who are sensitive to air pollution who are among those likely to experience health problems from exposure to wildfire smoke. Examples of sensitive groups include: people with lung disease such as asthma or chronic obstructive pulmonary disease (COPD), including bronchitis and emphysema, and those who smoke; people with respiratory infections, such as pneumonia, acute bronchitis, bronchiolitis, cold, flu,

or those with or recovering from COVID-19; people with existing heart or circulatory problems, such as irregular heart beat, congestive heart failure, coronary artery disease, angina, and those who have had a heart attack or stroke; children under 18 years old, and adults over age 65; pregnant women; people with diabetes; and people with other medical or health conditions which can be exacerbated by exposure to wildfire smoke as determined by a physician or other licensed healthcare provider.

(g) Wildfire smoke – Emissions from unplanned fires in wildlands, which may include adjacent developed and cultivated areas to which the fire spreads or from where it originates.

(h) Wildlands – Uncultivated and sparsely populated geographical areas covered primarily by grass, brush, trees, slash, or a combination thereof.

(3) Exposure assessment. Determine and monitor employee exposure to wildfire smoke where the ambient air concentration for PM2.5 is at or above 35.5 µg/m³ (AQI 101). Such assessments must be conducted at the start of each shift and as needed to identify and implement appropriate exposure controls under section (7), by using one or more of the following methods:

(a) Check the current and forecasted AQI value for PM2.5 from the Oregon Department of Environmental Quality, U.S. EPA AirNow or Interagency Wildland Fire Air Quality Response Program [websites](#), or equivalent source;

(b) Check notifications of air quality advisories due to wildfire smoke issued by the Oregon Department of Environmental Quality or local government health agencies;

(c) Directly measure workplace ambient air concentration for PM2.5 in accordance with the testing device manufacturer’s user instructions; or

(d) If the employer determines and can demonstrate that none of the methods under subsections (3)(a) through (3)(c) are practical for their work location, the employer can then use the 5-3-1 Visibility Index (see Appendix B, Table 1) to estimate the current air concentration for PM2.5 and equivalent AQI value.

(4) Information and training. Develop and implement wildfire smoke training for employees who may be exposed to an ambient air concentration for PM2.5 at or above 35.5 µg/m³ (AQI 101). The training must be provided annually before employees are exposed in a language and vocabulary readily understood, and in a manner that facilitates employee feedback. The training must include at least the following information:

(a) Symptoms of wildfire smoke exposure, including:

(A) Eyes: burning sensations, redness, and tearing of the eyes caused by irritation and inflammation of the eyes that can temporarily impair one’s vision;

(B) Respiratory system: runny nose, sore throat, cough, difficulty breathing, sinus irritation, wheezing, shortness of breath; and

(C) Fatigue, headache, irregular heartbeat, chest pain;

(b) The potential acute and chronic health effects from wildfire smoke exposure, including increased risk of health effects to “sensitive groups” as defined in subsection (2)(f), and how health effects from long-term exposures may include increased risk of cardiovascular disease and increased severity of asthma;

(c) The employee’s right to report health issues related to wildfire smoke exposure and obtain medical treatment for workplace exposure to wildfire smoke without fear of retaliation;

(d) How employees can obtain the current and forecasted ambient air concentration for PM2.5 and equivalent AQI value;

(e) The importance, limitations, and benefits of using N95 filtering facepiece respirators provided by the employer for both voluntary and mandatory use, and how to use and maintain them to reduce exposure to wildfire smoke;

(f) The employer’s methods to protect employees from wildfire smoke covered under section (7), including how filtering facepiece respirators are required to be made readily available to employee for voluntary use when workplace ambient air concentration for PM2.5 is at or above 35.5 µg/m³ (AQI 101), and how employees can obtain such respirators before exposure and replace them when needed;

(g) Review of any job tasks performed by employees that the use of a filtering facepiece respirator would expose the wearer to a greater hazard than wildfire smoke and must not be used when performing such tasks;

(h) How to effectively operate and interpret any air quality monitoring device, provided by the employer to comply with these rules, for each employee designated by the employer to operate such devices;

(i) The procedures the supervisor must follow when an employee reports or exhibits health symptoms which could necessitate medical attention such as, but not limited to, asthma attacks, difficulty breathing, and chest pain; and

(j) The employer’s two-way communication system for wildfire smoke hazards covered under section (6).

Note: Oregon OSHA provides a Wildfire Smoke Online Course in English and Spanish and materials employers can use to assist with training elements under subsections (4)(a) through (4)(e).

(5) Training documentation. Verify employee training required under section (4) by preparing a written or electronic record that includes the name or identification of the employee trained, the date(s) of the training, and the name of the person who conducted the training. The most recent annual training record for each affected employee must be maintained.

(6) Employer two-way communication. Before employees are exposed to ambient air concentration for PM2.5 at or above 35.5 µg/m³ (AQI 101), develop and implement, whenever feasible, a system to communicate wildfire smoke hazards that includes the following:

(a) Notifying employees when current work location ambient air concentration for PM2.5:

(A) Is at or above 35.5 µg/m³ (AQI 101);

(B) Is at or above 200.9 µg/m³ (AQI 251);

(C) Is at or above 500.4 µg/m³ (AQI 501); and

(D) Drops below levels requiring exposure control.

(b) Enabling and encouraging employees to inform their employer of any of the following:

(A) When air quality improves or worsens to verify current AQI value;

(B) Availability issues of appropriate exposure control measures required under section (7); and

(C) Health symptoms which may be the result of wildfire smoke exposure that could necessitate medical attention such as, but not limited to, asthma attacks, difficulty breathing, and chest pain.

(7) Exposure controls.

(a) Engineering and administrative controls. Implement engineering or administrative controls to reduce employee PM2.5 exposure to less than 35.5 µg/m³ (AQI 101) unless the employer can demonstrate that such controls are not feasible.

(A) Engineering controls include, but are not limited to, temporarily relocating outdoor workers to available indoor areas or vehicles where the air is adequately filtered, and using a portable air purifier with a HEPA filter (or other high-efficiency filter) effective for the size of the enclosed area where used.

(B) Administrative controls include, but are not limited to, temporarily relocating outdoor work operations to another outdoor location with better air quality when work permits, and changing employee work schedules when better air quality is forecasted.

(b) Control by voluntary use of respirators. Whenever employee exposure to PM2.5 is at or above 35.5 µg/m³ (AQI 101), even after the implementation of engineering and administrative controls, ensure NIOSH-approved filtering facepiece respirators that effectively reduce the wearer's inhalation of PM2.5, are provided to exposed employees for voluntary use. Ensure such respirators for voluntary use are:

- (A) Provided and replaced as needed at no cost to employees by either of the following methods:
- (i) Distribute directly to each exposed employee; or
 - (ii) Maintain a sufficient supply for all exposed employees at each work location where exposure occurs. Such respirator supply availability and location must be made known, and be readily accessible, to all exposed employees in a manner that does not restrict or hinder employee access to obtain and replace them when needed.
- (B) Store, maintain, and replace so that they do not present a health hazard to the user.

(c) Control by required use of NIOSH-approved respirators in accordance with a Wildfire Smoke Respiratory Protection Program. Whenever employee exposure to PM_{2.5} is at or above 200.9 µg/m³ (AQI 251), even after the implementation of engineering and administrative controls, ensure employees wear NIOSH-approved filtering facepiece respirators that effectively reduce the wearer's inhalation of PM_{2.5} when such use would not expose the wearer to a greater hazard. For such respirators used exclusively for wildfire smoke, the employer may implement and follow the Wildfire Smoke Respiratory Protection Program described in Appendix A of this standard in lieu of conducting medical evaluations and fit testing required under 29 CFR 1910.134: Respiratory Protection.

(d) Control by required use of NIOSH-approved respirators in accordance with 29 CFR 1910.134: Respiratory Protection. Whenever employee exposure to PM_{2.5} is at or above 500.4 µg/m³ (AQI 501), even after the implementation of engineering and administrative controls, ensure employees wear NIOSH-approved respirators that effectively protect wearers from PM_{2.5} when such use would not expose the wearer to a greater hazard. For respirators used exclusively to protect employees from wildfire smoke concentrations of PM_{2.5} at or above 500.4 µg/m³ (AQI 501), develop and implement a complete Respiratory Protection Program in accordance with 29 CFR 1910.134: Respiratory Protection.

Note: The requirements under subsections (7)(c) and (7)(d) do not apply to residents of employer-provided housing while they are inside the housing.

Note: Elastomeric respirators, when used exclusively for wildfire smoke protection at any PM_{2.5} concentration, must comply with all applicable requirements under 29 CFR 1910.134 - Oregon OSHA's Respiratory Protection standard.

OAR 437-002-1080
Protection from Wildfire Smoke
Appendix A
Mandatory Workplace Guidance for
THE USE OF FILTERING FACEPIECE RESPIRATORS TO ADDRESS WILDFIRE SMOKE

This appendix applies only to employers covered by this standard that require NIOSH-approved filtering facepiece respirators, including N95, P95, R95, N99, P99, N100 and P100, to be used by their employees exclusively for wildfire smoke exposures when the work location ambient air concentrations of PM_{2.5} is at or above 200.9 µg/m³ (AQI 251) and below 500.4 µg/m³ (AQI 501).

Filtering facepiece respirators are disposable, negative-pressure, air purifying respirators where an integral part of the facepiece or the entire facepiece is made of air contaminant filtering material. This appendix does not apply to other types of respirators, including but not limited to elastomeric tight-fitting respirators, nor does it apply to situations where workers use filtering facepiece respirators for protection against air contaminants other than PM_{2.5} from wildfire smoke.

Note: KN95 masks approved under the U.S Food and Drug Administration's (FDA's) Emergency Use Authorization can be used to substitute for NIOSH-approved filtering facepiece respirators for exposures under 500.4 µg/m³ (AQI 500) when such respirators are unavailable.

Employers whose workers are required to wear filtering facepiece respirators to protect against wildfire smoke exposures when workplace ambient air concentrations of PM_{2.5} is at or above 200.9 µg/m³ (AQI 251) must either develop and implement a respiratory protection program in accordance with the Respiratory Protection Standard (29 CFR 1910.134), or a Wildfire Smoke Respiratory Protection Program in accordance with the following requirements when workplace ambient air concentration of PM_{2.5} is under 500.4 µg/m³ (AQI 501):

- (A) Employee training. Employers must ensure that employees wearing filtering facepiece respirators are trained in the proper use of the respirators, including putting them on and removing them, any limitations on their use, how to care for the respirator, and the ability to demonstrate a seal check as described in section (B) of this appendix.
- (B) Filtering facepiece respirator user seal check. Each employee who uses a filtering facepiece respirator must perform a user seal check to ensure a sufficient face fit to maximize effectiveness each time the respirator is put on. Either the positive or negative pressure checks listed in this appendix, or the respirator manufacturer's recommended user seal check method must be used.
 1. Instructions for positive pressure user seal check. Once you have properly donned the respirator, place your hands over the facepiece, covering as much surface area as possible. Exhale gently into the facepiece. The face fit is considered sufficient if a slight positive pressure is being built up inside the facepiece without feeling air passing between your face and the facepiece. If the particulate respirator has an exhalation valve, then performing a positive pressure check may not be possible. In such cases, a negative pressure check must be performed.

2. Instructions for negative pressure user seal check. Negative pressure seal checks are typically conducted on particulate respirators that have exhalation valves. Once you have properly donned the respirator, cover the filter surface with your hands as much as possible and then inhale gently. The face fit is considered sufficient if the facepiece slightly collapses towards your face without feeling air passing between your face and the facepiece.
3. Correcting problems discovered during the seal check. In the case of either type of seal check (positive or negative), if air leaks around the nose, use both hands to readjust the nosepiece by placing your fingertips at the top of the metal nose clip. Slide your fingertips down both sides of the metal strip to more efficiently mold the nose area to the shape of your nose. Readjust the straps along the sides of your head until a proper seal is achieved.

(C) Filtering facepiece respirator storage and replacement. Store, maintain, and replace so that they do not present a health hazard to the user.

OAR 437-002-1080
Protection from Wildfire Smoke
Appendix B
Information for Wildfire Smoke Protection

Table 1: Air Quality Index (AQI) Categories of Risk and Index Values, and Equivalent 24-hour Concentrations for PM2.5, and 5-3-1 Visibility Index Values

<u>Category of Risk</u>	<u>AQI Index Values</u>	<u>PM2.5 Concentration in $\mu\text{g}/\text{m}^3$</u>	<u>Visibility Index Values (How far you can see)</u>
<u>Good</u>	<u>0 - 50</u>	<u>0.0 - 12.0</u>	<u>over 15 miles</u>
<u>Moderate</u>	<u>51 - 100</u>	<u>12.1 - 35.4</u>	<u>5 - 15 miles</u>
<u>Unhealthy for Sensitive Groups</u>	<u>101 - 150</u>	<u>35.5 - 55.4</u>	<u>3 - 5 miles</u>
<u>Unhealthy</u>	<u>151 - 200</u>	<u>55.5 - 150.4</u>	<u>1 - 3 miles</u>
<u>Very Unhealthy</u>	<u>201 - 300</u>	<u>150.5 - 250.4</u>	<u>1 mile</u>
<u>Hazardous</u>	<u>301 and higher</u>	<u>250.5 and higher</u>	<u>less than 1 mile</u>

Note: When estimating the current AQI value by using the 5-3-1 Visibility Index, determine the limit of your visual range by looking for distant targets or familiar landmarks such as mountains, mesas, hills, or buildings at known distances (miles). The visual range is that point at which these targets are no longer visible. Ideally, the viewing of any distance target should be made with the sun behind you. Looking into the sun or at an angle increases the ability of sunlight to reflect off of the smoke, and thus making the visibility estimate less reliable.

Table 2: Wildfire Smoke Standard Requirements by AQI Value

<u>AQI Value</u>	<u>General Requirements</u>
<u>101 - 250</u>	<ol style="list-style-type: none"> 1. <u>Assess and monitor air quality at each work location where employees are exposed;</u> 2. <u>Provide and document employees training;</u> 3. <u>Implement two-way communication system;</u> 4. <u>Implement feasible engineering and administrative controls; and</u> 5. <u>Provide N95 or equivalent NIOSH-approved filtering facepiece respirators for voluntary use.</u>
<u>251 - 500</u>	<ol style="list-style-type: none"> 1. <u>1 through 4 for AQI 101 - 250 above; and</u> 2. <u>Provide N95 or equivalent NIOSH-approved filtering facepiece respirators for mandatory use by implementing a Wildfire Smoke Respiratory Protection Program in accordance with Appendix A.</u>
<u>501 and above</u>	<ol style="list-style-type: none"> 1. <u>1 through 4 for AQI 101 - 250 above; and</u> 2. <u>Provide NIOSH-approved respirators for mandatory use by implementing a Respiratory Protection Program in accordance with 29 CFR 1910.134.</u>

See rules for complete requirements.

OAR 437-004-9790 Protection from Wildfire Smoke

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Note: Buses, light rail, and other enclosed vehicles used for transit systems where doors are frequently opened to board and deboard passengers are NOT included under exemption (1)(a)(B).

(C) When the employer predetermines that operations affected by wildfire smoke will be suspended to prevent employee exposure to an ambient air concentration for PM_{2.5} of 35.5 µg/m³ (AQI 101) or higher; and

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(b) The following workplaces and operations are only subject to subsections (4)(a) through (4)(f) “information and training,” and subsection (7)(b) “control by voluntary use of respirators” under this standard when feasible:

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(B) All emergency operations that are directly involved in the protection of life or property, public safety power shutoffs, or restoration of essential services, such as evacuation, rescue, medical, structural firefighting, law enforcement, utilities, and communications; and

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(b) Feasibility - The ability of an employer to implement any requirement in a rule. Oregon OSHA rules never prohibit work. Whether feasibility is mentioned in a provision of the rule, or not, if the employer can demonstrate that it is functionally impossible to comply or if doing so would prevent completion of the work, the employer need not comply, but must take any available reasonable alternative steps to protect the employees involved.

(c) Greater hazard - The ability of an employer to demonstrate that compliance with the requirements of the rule would expose an employee to a hazard associated with a substantially more serious injury or illness, thereby providing a narrow exception to the rule to the degree that the greater hazard exists. An example of a greater hazard in relation to the use of non-flame resistant filtering facepiece respirators would include potential facial burns to a qualified employee working within the minimum approach distance (MAD) of an energized high voltage electrical system where flame-resistant clothing is required.

(d) NIOSH - The National Institute for Occupational Safety and Health of the United States Centers for Disease Control and Prevention. NIOSH tests and approves respirators for use in the workplace.

(e) PM_{2.5} - Solid particles and liquid droplets suspended in air, known as fine particulate matter, with an aerodynamic diameter of 2.5 micrometers or smaller and measured in micrograms per cubic meter (µg/m³).

(f) Sensitive groups - Individuals with pre-existing health conditions and those who are sensitive to air pollution who are among those likely to experience health problems from exposure to wildfire smoke. Examples of sensitive groups include: people with lung disease such as asthma or chronic obstructive pulmonary disease (COPD), including bronchitis and emphysema, and those who smoke; people with respiratory infections, such as pneumonia, acute bronchitis, bronchiolitis, cold, flu, or those with or recovering from COVID-19; people with existing heart or circulatory problems, such as irregular heart beat, congestive heart failure, coronary artery disease, angina, and those who have had a heart attack or stroke; children under 18 years old, and adults over age 65; pregnant women; people with diabetes; and people with other medical or health conditions which can be exacerbated by exposure to wildfire smoke as determined by a physician or other licensed healthcare provider.

(g) Wildfire smoke – Emissions from unplanned fires in wildlands, which may include adjacent developed and cultivated areas to which the fire spreads or from where it originates.

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(a) Check the current and forecasted AQI value for PM_{2.5} from the Oregon Department of Environmental Quality, U.S. EPA AirNow or Interagency Wildland Fire Air Quality Response Program [websites](#), or equivalent source;

(b) Check notifications of air quality advisories due to wildfire smoke issued by the Oregon Department of Environmental Quality or local government health agencies;

(c) Directly measure workplace ambient air concentration for PM_{2.5} in accordance with the testing device manufacturer’s user instructions; or

(d) If the employer determines and can demonstrate that none of the methods under subsections (3)(a) through (3)(c) are practical for their work location, the employer can then use the 5-3-1 Visibility Index (see Appendix B, Table 1) to estimate the current air concentration for PM_{2.5} and equivalent AQI value.

(4) Information and training. Develop and implement wildfire smoke training for employees who may be exposed to an ambient air concentration for PM_{2.5} at or above 35.5 µg/m³ (AQI 101). The training must be provided annually before employees are exposed in a language and vocabulary readily understood, and in a manner that facilitates employee feedback. The training must include at least the following information:

(a) Symptoms of wildfire smoke exposure, including:

(A) Eyes: burning sensations, redness, and tearing of the eyes caused by irritation and inflammation of the eyes that can temporarily impair one’s vision;

(B) Respiratory system: runny nose, sore throat, cough, difficulty breathing, sinus irritation, wheezing, shortness of breath; and

(C) Fatigue, headache, irregular heartbeat, chest pain;

(b) The potential acute and chronic health effects from wildfire smoke exposure, including increased risk of health effects to “sensitive groups” as defined in subsection (2)(f), and how health effects from long-term exposures may include increased risk of cardiovascular disease and increased severity of asthma;

(c) The employee's right to report health issues related to wildfire smoke exposure and obtain medical treatment for workplace exposure to wildfire smoke without fear of retaliation;

(d) How employees can obtain the current and forecasted ambient air concentration for PM2.5 and equivalent AQI value;

(e) The importance, limitations, and benefits of using N95 filtering facepiece respirators provided by the employer for both voluntary and mandatory use, and how to use and maintain them to reduce exposure to wildfire smoke;

(f) The employer's methods to protect employees from wildfire smoke covered under section (7), including how filtering facepiece respirators are required to be made readily available to employee for voluntary use when workplace ambient air concentration for PM2.5 is at or above 35.5 $\mu\text{g}/\text{m}^3$ (AQI 101), and how employees can obtain such respirators before exposure and replace them when needed;

(g) Review of any job tasks performed by employees that the use of a filtering facepiece respirator would expose the wearer to a greater hazard than wildfire smoke and must not be used when performing such tasks;

(h) How to effectively operate and interpret any air quality monitoring device, provided by the employer to comply with these rules, for each employee designated by the employer to operate such devices;

(i) The procedures the supervisor must follow when an employee reports or exhibits health symptoms which could necessitate medical attention such as, but not limited to, asthma attacks, difficulty breathing, and chest pain; and

(j) The employer's two-way communication system for wildfire smoke hazards covered under section (6).

Note: Oregon OSHA provides a Wildfire Smoke Online Course in English and Spanish and materials employers can use to assist with training elements under subsections (4)(a) through (4)(e).

(5) Training documentation. Verify employee training required under section (4) by preparing a written or electronic record that includes the name or identification of the employee trained, the date(s) of the training, and the name of the person who conducted the training. The most recent annual training record for each affected employee must be maintained.

(6) Employer two-way communication. Before employees are exposed to ambient air concentration for PM2.5 at or above 35.5 $\mu\text{g}/\text{m}^3$ (AQI 101), develop and implement, whenever feasible, a system to communicate wildfire smoke hazards that includes the following:

(a) Notifying employees when current work location ambient air concentration for PM2.5:

- (A) Is at or above 35.5 $\mu\text{g}/\text{m}^3$ (AQI 101);**
- (B) Is at or above 200.9 $\mu\text{g}/\text{m}^3$ (AQI 251);**
- (C) Is at or above 500.4 $\mu\text{g}/\text{m}^3$ (AQI 501); and**
- (D) Drops below levels requiring exposure control.**

(b) Enabling and encouraging employees to inform their employer of any of the following:

- (A) When air quality improves or worsens to verify current AQI value;**
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(7) Exposure controls.

(a) Engineering and administrative controls. Implement engineering or administrative controls to reduce employee PM2.5 exposure to less than 35.5 $\mu\text{g}/\text{m}^3$ (AQI 101) unless the employer can demonstrate that such controls are not feasible.

(A) Engineering controls include, but are not limited to, temporarily relocating outdoor workers to available indoor areas or vehicles where the air is adequately filtered, and using a portable air purifier with a HEPA filter (or other high-efficiency filter) effective for the size of the enclosed area where used.

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- (C) Provided and replaced as needed at no cost to employees by either of the following methods:**
 - (i) Distribute directly to each exposed employee; or**
 - (ii) Maintain a sufficient supply for all exposed employees at each work location where exposure occurs. Such respirator supply availability and location must be made known, and be readily accessible, to all exposed**

employees in a manner that does not restrict or hinder employee access to obtain and replace them when needed.

(D) Store, maintain, and replace so that they do not present a health hazard to the user.

(c) Control by required use of NIOSH-approved respirators in accordance with a Wildfire Smoke Respiratory Protection Program. Whenever employee exposure to PM_{2.5} is at or above 200.9 µg/m³ (AQI 251), even after the implementation of engineering and administrative controls, ensure employees wear NIOSH-approved filtering facepiece respirators that effectively reduce the wearer's inhalation of PM_{2.5} when such use would not expose the wearer to a greater hazard. For such respirators used exclusively for wildfire smoke, the employer may implement and follow the Wildfire Smoke Respiratory Protection Program described in Appendix A of this standard in lieu of conducting medical evaluations and fit testing required under 29 CFR 1910.134: Respiratory Protection.

(d) Control by required use of NIOSH-approved respirators in accordance with 29 CFR 1910.134: Respiratory Protection. Whenever employee exposure to PM_{2.5} is at or above 500.4 µg/m³ (AQI 501), even after the implementation of engineering and administrative controls, ensure employees wear NIOSH-approved respirators that effectively protect wearers from PM_{2.5} when such use would not expose the wearer to a greater hazard. For respirators used exclusively to protect employees from wildfire smoke concentrations of PM_{2.5} at or above 500.4 µg/m³ (AQI 501), develop and implement a complete Respiratory Protection Program in accordance with 29 CFR 1910.134: Respiratory Protection.

Note: The requirements under subsections (7)(c) and (7)(d) do not apply to residents of employer-provided housing while they are inside the housing.

Note: Elastomeric respirators, when used exclusively for wildfire smoke protection at any PM_{2.5} concentration, must comply with all applicable requirements under 29 CFR 1910.134 - Oregon OSHA's Respiratory Protection standard.

OAR 437-004-9790
Protection from Wildfire Smoke
Appendix A
Mandatory Workplace Guidance for
THE USE OF FILTERING FACEPIECE RESPIRATORS TO ADDRESS WILDFIRE SMOKE

This appendix applies only to employers covered by this standard that require NIOSH-approved filtering facepiece respirators, including N95, P95, R95, N99, P99, N100 and P100, to be used by their employees exclusively for wildfire smoke exposures when the work location ambient air concentrations of PM_{2.5} is at or above 200.9 µg/m³ (AQI 251) and below 500.4 µg/m³ (AQI 501).

Filtering facepiece respirators are disposable, negative-pressure, air purifying respirators where an integral part of the facepiece or the entire facepiece is made of air contaminant filtering material. This appendix does not apply to other types of respirators, including but not limited to elastomeric tight-fitting respirators, nor does it apply to situations where workers use filtering facepiece respirators for protection against air contaminants other than PM_{2.5} from wildfire smoke.

Note: KN95 masks approved under the U.S Food and Drug Administration's (FDA's) Emergency Use Authorization can be used to substitute for NIOSH-approved filtering facepiece respirators for exposures under 500.4 µg/m³ (AQI 500) when such respirators are unavailable.

Employers whose workers are required to wear filtering facepiece respirators to protect against wildfire smoke exposures when workplace ambient air concentrations of PM_{2.5} is at or above 200.9 µg/m³ (AQI 251) must either develop and implement a respiratory protection program in accordance with the Respiratory Protection Standard (29 CFR 1910.134), or a Wildfire Smoke Respiratory Protection Program in accordance with the following requirements when workplace ambient air concentration of PM_{2.5} is under 500.4 µg/m³ (AQI 501):

- (A) Employee training. Employers must ensure that employees wearing filtering facepiece respirators are trained in the proper use of the respirators, including putting them on and removing them, any limitations on their use, how to care for the respirator, and the ability to demonstrate a seal check as described in section (B) of this appendix.
 - (B) Filtering facepiece respirator user seal check. Each employee who uses a filtering facepiece respirator must perform a user seal check to ensure a sufficient face fit to maximize effectiveness each time the respirator is put on. Either the positive or negative pressure checks listed in this appendix, or the respirator manufacturer's recommended user seal check method must be used.
4. Instructions for positive pressure user seal check. Once you have properly donned the respirator, place your hands over the facepiece, covering as much surface area as possible. Exhale gently into the facepiece. The face fit is considered sufficient if a slight positive pressure is being built up inside the facepiece without feeling air passing between your face and the facepiece. If the particulate respirator has an exhalation valve, then performing a positive pressure check may not be possible. In such cases, a negative pressure check must be performed.

5. Instructions for negative pressure user seal check. Negative pressure seal checks are typically conducted on particulate respirators that have exhalation valves. Once you have properly donned the respirator, cover the filter surface with your hands as much as possible and then inhale gently. The face fit is considered sufficient if the facepiece slightly collapses towards your face without feeling air passing between your face and the facepiece.
6. Correcting problems discovered during the seal check. In the case of either type of seal check (positive or negative), if air leaks around the nose, use both hands to readjust the nosepiece by placing your fingertips at the top of the metal nose clip. Slide your fingertips down both sides of the metal strip to more efficiently mold the nose area to the shape of your nose. Readjust the straps along the sides of your head until a proper seal is achieved.

(C) Filtering facepiece respirator storage and replacement. Store, maintain, and replace so that they do not present a health hazard to the user.

OAR 437-004-9790
Protection from Wildfire Smoke
Appendix B
Information for Wildfire Smoke Protection

Table 1: Air Quality Index (AQI) Categories of Risk and Index Values, and Equivalent 24-hour Concentrations for PM2.5, and 5-3-1 Visibility Index Values

<u>Category of Risk</u>	<u>AQI Index Values</u>	<u>PM2.5 Concentration in $\mu\text{g}/\text{m}^3$</u>	<u>Visibility Index Values (How far you can see)</u>
<u>Good</u>	<u>0 - 50</u>	<u>0.0 - 12.0</u>	<u>over 15 miles</u>
<u>Moderate</u>	<u>51 - 100</u>	<u>12.1 - 35.4</u>	<u>5 - 15 miles</u>
<u>Unhealthy for Sensitive Groups</u>	<u>101 - 150</u>	<u>35.5 - 55.4</u>	<u>3 - 5 miles</u>
<u>Unhealthy</u>	<u>151 - 200</u>	<u>55.5 - 150.4</u>	<u>1 - 3 miles</u>
<u>Very Unhealthy</u>	<u>201 - 300</u>	<u>150.5 - 250.4</u>	<u>1 mile</u>
<u>Hazardous</u>	<u>301 and higher</u>	<u>250.5 and higher</u>	<u>less than 1 mile</u>

Note: When estimating the current AQI value by using the 5-3-1 Visibility Index, determine the limit of your visual range by looking for distant targets or familiar landmarks such as mountains, mesas, hills, or buildings at known distances (miles). The visual range is that point at which these targets are no longer visible. Ideally, the viewing of any distance target should be made with the sun behind you. Looking into the sun or at an angle increases the ability of sunlight to reflect off of the smoke, and thus making the visibility estimate less reliable.

Table 2: Wildfire Smoke Standard Requirements by AQI Value

<u>AQI Value</u>	<u>General Requirements</u>
<u>101 - 250</u>	<ul style="list-style-type: none"> 6. <u>Assess and monitor air quality at each work location where employees are exposed;</u> 7. <u>Provide and document employees training;</u> 8. <u>Implement two-way communication system;</u> 9. <u>Implement feasible engineering and administrative controls; and</u> 10. <u>Provide N95 or equivalent NIOSH-approved filtering facepiece respirators for voluntary use.</u>
<u>251 - 500</u>	<ul style="list-style-type: none"> 3. <u>1 through 4 for AQI 101 - 250 above; and</u> 4. <u>Provide N95 or equivalent NIOSH-approved filtering facepiece respirators for mandatory use by implementing a Wildfire Smoke Respiratory Protection Program in accordance with Appendix A.</u>
<u>501 and above</u>	<ul style="list-style-type: none"> 3. <u>1 through 4 for AQI 101 - 250 above; and</u> 4. <u>Provide NIOSH-approved respirators for mandatory use by implementing a Respiratory Protection Program in accordance with 29 CFR 1910.134.</u>

See rules for complete requirements.