

WSR 23-13-069
PROPOSED RULES
DEPARTMENT OF
LABOR AND INDUSTRIES
[Filed June 14, 2023, 12:45 p.m.]

Continuance of WSR 23-11-029.

Preproposal statement of inquiry was filed as WSR 20-21-093.

Title of Rule and Other Identifying Information: Wildfire smoke; chapter 296-820 WAC and chapter 296-307 WAC, Part G-1.

Hearing Location(s): On July 31, 2023, at 6:30 p.m., virtual and telephonic hearing. Join electronically <https://lni-wa-gov.zoom.us/j/88952312151?pwd=alhaY29hTkpKYXF1Zk5rZEJueG1wZz09>, Password (if prompted) 731#WildF; join by phone (audio only) 253-215-8782 or 253-205-0468, Meeting ID 889 5231 2151, Passcode 812052858. A prehearing overview will occur one hour prior to the start of each public hearing. The hearings will begin at the indicated times and will continue until all oral comments are received.

Date of Intended Adoption: August 18, 2023.

Submit Written Comments to: Cynthia Ireland, Department of Labor and Industries (L&I), Division of Occupational Safety and Health (DOSH), P.O. Box 44620, Olympia, WA 98504-4620, email Cynthia.Ireland@lni.wa.gov, fax 360-902-5619, by August 4, 2023, by 5:00 p.m.

Assistance for Persons with Disabilities: Contact Cynthia Ireland, phone 360-791-5048, fax 360-902-5619, email Cynthia.Ireland@lni.wa.gov, by 5:00 p.m., July 5, 2023.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: The purpose of this continuance is to provide another public hearing for chapter 296-820 WAC and chapter 296-307 WAC, Part G-1, Wildfire smoke. Six in-person hearings are scheduled for Spokane, Kennewick, Bellingham, Vancouver, Tukwila, and Yakima between July 18 through July 27, 2023, and one virtual public hearing is scheduled for July 28, 2023. This continuance adds an additional virtual hearing scheduled on July 31, 2023, beginning at 6:30 p.m., with a prehearing overview starting at 5:30 p.m.

Purpose of proposal: In September 2020, L&I received a petition for rule making requesting immediate rule making to address the hazards associated with wildfire smoke. Wildfire smoke presents hazards that employers and workers in affected regions must understand. Smoke from wildfires contains chemicals, gases, and fine particles that can harm health. Proper protective equipment, exposure controls, and training are needed for employees working in wildfire regions.

L&I issued emergency rules in the summer of 2021 and 2022, and began the permanent rule-making process. Prior to the issuance of the emergency rule in summer 2021, there were no regulations to address the hazard of wildfire smoke inhalation among outdoor workers in Washington state.

Create new chapter 296-820 WAC, Wildfire smoke, and duplicate these new requirements into chapter 296-307 WAC, Part G-1, Safety standards for agriculture:

WAC 296-820-805 and 296-307-09805 Purpose and scope. This section sets the scope of the rule, including exemptions.

WAC 296-820-810 and 296-307-09810 Definitions.

- Add applicable definitions relating to wildfire smoke. These include: Adverse symptoms requiring medical attention, air quality index (AQI), current particulate matter 2.5 micrometers (PM_{2.5}),

emergency response, high-efficiency particulate air (HEPA) filter, NIOSH, NowCast, wildfire smoke, wildlands.

- Add a note relating to the recent proposed revisions to the AQI from the Environmental Protection Agency (EPA) and a link to the specific Federal Register.

WAC 296-820-815 and 296-307-09815 Identification of harmful exposures. Create this section to address methods that can be used by the employer to determine employee exposures to PM_{2.5}.

WAC 296-820-820 and 296-307-09820 Hazard communication. Create this section requiring employers to establish and implement a system for communicating wildfire smoke hazards in a form readily understandable by all affected employees, including provisions designed to encourage employees to inform the employer of wildfire smoke hazards at the worksite without fear of reprisal.

WAC 296-820-825 and 296-307-09825 Information and training. Create this section requiring employers to provide all workers with effective information and training regarding wildfire smoke before work that exposes the worker to a PM_{2.5} concentration of 20.5 µg/m³ (AQI 69) or more. In addition, this training must be provided annually. Additional information is located in Appendix A.

WAC 296-820-830 and 296-307-09830 Exposure symptom response. Create this section requiring employers to:

- Monitor employees displaying symptoms of wildfire smoke exposure.
- Allow employees to seek medical treatment.
- Have effective provisions made in advance for prompt medical treatment of employees who display adverse symptoms of wildfire smoke exposure.
- Ensure workers experiencing adverse symptoms requiring medical attention be moved to a location that ensures sufficient clean air.

WAC 296-820-835 and 296-307-09835 Exposure controls. Create this section requiring employers to implement exposure controls. This includes:

- Encouraging employers to implement exposure controls where the current PM_{2.5} is 20.5 µg/m³ (AQI 69) or more.
- Requiring employers to implement exposure controls where the current PM_{2.5} is 35.5 µg/m³ (AQI 101) or more.

WAC 296-820-840 and 296-307-09840 Respiratory protection. Create this section requiring employers to provide respiratory protection. This includes:

- Encouraging employers to provide respirators at no cost to employees upon request where the current PM_{2.5} is 20.5 µg/m³ (AQI 69) to 35.4 µg/m³ (AQI 100).
- Requiring employers to provide N95 filtering-facepiece respirators at no cost to all exposed employees where the current PM_{2.5} is 35.5 µg/m³ (AQI 101) to 250.4 µg/m³ (AQI 300).
- Requiring employers to distribute N95 filtering-facepiece directly to each exposed employee where the current PM_{2.5} is 250.5 µg/m³ (AQI 301) to 500.3 µg/m³ (AQI 499).
- Requiring employers to have employees enrolled in a complete respiratory program in accordance with chapter 296-842 WAC, Respira-

tors, where the current $PM_{2.5}$ is $500.4 \mu\text{g}/\text{m}^3$ (AQI 500) to $554.9 \mu\text{g}/\text{m}^3$ (beyond the AQI).

- Requiring employers to have employees enrolled in a complete respiratory program in accordance with chapter 296-842 WAC, Respirators. The employer must provide and require to be worn a respirator equipped with P100 filters where the current $PM_{2.5}$ is $555 \mu\text{g}/\text{m}^3$ (beyond the AQI) or more.
- Requiring respirators to be NIOSH-approved devices.
- Requiring respirators to be cleaned, stored, maintained, and replaced and in good working order.

WAC 296-820-845 and 296-307-09845 Measuring $PM_{2.5}$ levels at the worksite. Create this section allowing employers to use a direct-reading particulate monitor to identify harmful exposures as an alternative to WAC 296-820-815 and 296-307-09815 Identification of harmful exposures.

- If used, the monitor must comply with this section and the monitor cannot underestimate employee exposures to wildfire smoke; or the employer has obtained information on a possible error of the monitor and has manufacturer or published literature to account for the possible error.
- The monitor must be designed and manufactured to measure the concentration of airborne particle sizes.
- The monitor must be calibrated, maintained, and used in accordance with the manufacturer's instructions.
- The person supervising, directing, or evaluating workplace monitoring must have the training or experience necessary to ensure the correct use of the monitor and can interpret the results.

WAC 296-820-850 and 296-307-09850 Appendix A: Protection from wildfire smoke information and training (mandatory). Create this section to include:

- The health effects and adverse symptoms of wildfire smoke.
- The importance of informing the employer when the employee is experiencing adverse symptoms of wildfire smoke exposure.
- The right to obtain medical treatment without fear of reprisal.
- A table summarizing the key requirements of the proposed rule.
- How employees can obtain the current $PM_{2.5}$, and the employer's methods to communicate the current $PM_{2.5}$.
- The employer's response plan for wildfire smoke including methods to protect employees from wildfire smoke, and the exposure symptom response procedures.
- The importance, limitations, and benefits of using a properly fitted respirator when exposed to wildfire smoke.
- The risks and limitations of using an unfitted respirator, and the risks of wearing a respirator without a medical evaluation.
- How to properly put on, use, and maintain the respirators provided by the employer.

WAC 296-820-855 and 296-307-09855 Appendix B: Selecting direct-reading particulate monitors (mandatory). Create this section to provide guidance when selecting a direct-reading particulate monitor and determining compliance with WAC 296-820-855 and 296-307-09855.

WAC 296-820-860 and 296-307-09860 Appendix C: Calculating the air quality index for PM_{2.5} (nonmandatory). Create this section to provide a calculation relating to the AQI for PM_{2.5}.

Reasons Supporting Proposal: Wildfire smoke is composed of harmful chemicals and tiny particles suspended in the air that present a significant health hazard for workers exposed to it. These particles can irritate the lungs and cause serious or even fatal health effects, such as reduced lung function, bronchitis, worsening of asthma, and heart failure. Compared with the general public, workers have additional risk factors in that they may spend more time outdoors in the smoke, and have more physical exertion, which increases the amount of smoke that they breathe into their lungs. Individuals considered sensitive to wildfire smoke exposure, such as those with asthma and those who work outdoors, are part of the workforce.

A major component of wildfire smoke is particulate matter with an aerodynamic diameter less than PM_{2.5}; inhalation of PM_{2.5} can cause cardiovascular health effects and increases the risk of death. PM_{2.5} is elevated during wildfire smoke events, causing a risk to workers. Wildfire smoke can cause mild symptoms like coughing, stinging eyes, runny nose, and scratchy throat. Wildfire smoke can also cause serious and sometimes fatal health effects, including chest pain and heart failure, asthma attacks, trouble breathing and reduced lung function.

EPA's AQI is an informational tool for reporting air quality and is based, in part, on particulate matter (PM_{2.5}) measurements. Under the Clean Air Act, the EPA sets and reviews national air quality standards for several air pollutants, including PM_{2.5}. AQI is a level of one to 500 divided into six color-coded categories that correspond to different levels of health concerns (good, moderate, unhealthy for sensitive groups, unhealthy, very unhealthy, and hazardous). The EPA categorizes the AQI level of 101 as "unhealthy for sensitive groups" and corresponds to PM_{2.5} concentrations of 35.5 µg/m³.

California and Oregon are currently the only other states with rules for occupational exposure to wildfire smoke. California's rule requires employers take preventative measures at a PM_{2.5} of 55.5 µg/m³ (AQI 151), and Oregon requires preventative measures at a PM_{2.5} of 35.5 µg/m³ (AQI 101). California's rule requires employers to implement engineering and administrative controls and make respirators available for voluntary use at a PM_{2.5} of 55.5 µg/m³ (AQI 151). Mandatory respirator use is required when the PM_{2.5} is 500.4 µg/m³ (AQI 501) or greater with an assigned protection factor (APF) such that the PM_{2.5} levels inside the respirator are less than 55.5 µg/m³ which would require respirators that are more protective than N95s at 55.5 µg/m³ (beyond the AQI). When respirators are required, compliance with California's respiratory program rules, including fit testing and medical evaluations, are also required. Oregon's rule requires employers to implement engineering and administrative controls and make respirators available for voluntary use at a PM_{2.5} of 35.5 µg/m³ (AQI 101). Oregon's rule also requires N95 use at 200.9 µg/m³ (AQI 251) without fit-testing or medical evaluations, and when the PM_{2.5} is 500.4 µg/m³ (AQI 501) or greater, a full respiratory protection program is required, including fit-testing and medical evaluations.

For the past several summers, L&I's DOSH received inquiries about wildfire smoke hazards, especially for outdoor workers. DOSH has put

out guidance and information on best practices but recognizes there has been a gap under previous rules to adequately protect workers from this hazard and to ensure employers and workers understand what is required. After the unprecedented wildfire smoke events in 2020, L&I reviewed the need for rules and received a petition requesting rule making. L&I determined that rule making was needed to address the hazard and initiated permanent rule making on October 20, 2020, WSR 20-21-093. L&I subsequently filed two separate emergency rule makings, one for summer 2021 filed July 16, 2021, WSR 21-15-067 and the second on June 1, 2022, WSR 22-12-094. Between January 2021 and October 2022, L&I held 10 virtual stakeholder meetings and three in-person stakeholder meetings across the state.

Washington state L&I recognizes that employers and employees need regulations that are clear, actionable, and protective. Consistent with the mandate under the Washington Industrial Safety and Health Act, L&I looked at the best available evidence and determined that there are feasible measures to address the health hazards wildfire smoke presents for workers. The proposed rules:

- Address the current ambiguity regarding allowable exposures to wildfire smoke by specifying threshold-based interventions for PM_{2.5} exposure.
- Provide protections for outdoor workers, who have the highest exposures.

To assist employers with implementation, L&I plans on providing user-friendly tools and templates including training slide decks and templates for the employer's wildfire smoke response plan.

Regulatory Fairness Act and Small Business Economic Impact Statement: Note: This information can be found on the original notice filed as WSR 23-11-029.

Statutory Authority for Adoption: RCW 49.17.010, 49.17.040, 49.17.050, and 49.17.060.

Statute Being Implemented: Chapter 49.17 RCW.

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: Governmental.

Name of Agency Personnel Responsible for Drafting: Kat Gregersen, Tumwater, Washington, 360-902-5530; Implementation and Enforcement: Craig Blackwood, Tumwater, Washington, 360-902-5828.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is required under RCW 34.05.328. A preliminary cost-benefit analysis may be obtained by contacting Cynthia Ireland, Administrative Regulations Analyst, L&I, DOSH, P.O. Box 44620, Olympia, WA 98504-4620, phone 360-791-5048, fax 360-902-5619, email Cynthia.Ireland@Lni.wa.gov.

Scope of exemption for rule proposal from Regulatory Fairness Act requirements:

Is not exempt.

The proposed rule does not impose more-than-minor costs on businesses. Following is a summary of the agency's analysis showing how costs were calculated. This information can be found on the original notice filed as WSR 23-11-029.

June 14, 2023
Joel Sacks
Director

OTS-4362.3

NEW SECTION**WAC 296-307-098 Wildfire smoke.**

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NEW SECTION

WAC 296-307-09805 Purpose and scope. WAC 296-307-09805 through 296-307-09860 applies to all workplaces, including those with agricultural activity according to RCW 49.17.020, with the exception of the following:

(1) Enclosed buildings or structures in which 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 and exit.

(2) Enclosed vehicles in which the air is filtered by a properly maintained cabin air filter and the employer ensures that windows, doors, and other openings are kept closed except when it is necessary to briefly open doors to enter or exit. 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 this exemption.

(3) Work within the scope of chapter 296-305 WAC, Safety standards for firefighters.

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NEW SECTION

WAC 296-307-09810 Definitions. (1) **Adverse symptoms requiring medical attention.** Adverse symptoms to wildfire smoke exposure requiring medical attention include, but are not limited to: Difficulty breathing or shortness of breath, particularly when accompanied by greater use of accessory muscles; chest pain; nausea; or dizziness.

(2) **Air Quality Index (AQI).** A unitless index used by the U.S. Environmental Protection Agency (EPA) to communicate air quality for several pollutants, including PM_{2.5}. References to the AQI used throughout this chapter means the "NowCast AQI for PM_{2.5}."

Note: The EPA has proposed revisions to the AQI.¹ DOSH will revisit chapter 296-820 WAC Wildfire smoke, and chapter 296-307 WAC Part G-1 if the proposed changes are adopted.

(3) **Current PM_{2.5}.** The concentration of PM_{2.5} for the most current hour available, calculated using an hourly average of PM_{2.5} data.

Note: The NowCast as provided by the Washington state department of ecology, local clean air agency, or U.S. EPA is also acceptable to approximate current PM_{2.5}.

(4) **Emergency response.** Rescue, evacuation, utilities, communications, transportation, and medical operations; when such operations are directly aiding firefighting; protecting public health and safety;

or actively protecting, restoring, or maintaining the safe and reliable operation of critical infrastructure at risk.

(5) **High-efficiency particulate air (HEPA) filter.** A filter capable of trapping and retaining at least 99.97 percent of all monodispersed particles of 0.3 micrometers mean aerodynamic diameter or larger.

(6) **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.

(7) **NowCast.** The method used by the U.S. Environmental Protection Agency (EPA), and the Washington state department of ecology to approximate the air quality for the most current hour available by using a calculation that involves multiple hours of past data. The NowCast uses longer averages during periods of stable air quality and shorter averages when air quality is changing rapidly, such as during a wildfire. The NowCast is generally updated every hour.

(8) **PM_{2.5}.** Solid particles and liquid droplets suspended in air, known as particulate matter, with an aerodynamic diameter of 2.5 micrometers or smaller. Measured in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$).

(9) **Wildfire smoke.** PM_{2.5} which includes emissions from planned or unplanned fires in wildlands, wildland urban interface, agricultural operations, or adjacent developed areas. Wildfire smoke contains a complex mixture of gasses and particulates. Fine particulates such as PM_{2.5} are the primary pollutant in wildfire smoke.

(10) **Wildlands.** Sparsely populated geographical areas covered primarily by grass, brush, trees, crops, or combination thereof.

¹ Federal Register Vol. 88, No. 18, Page 5558, January 2023: <https://www.govinfo.gov/content/pkg/FR-2023-01-27/pdf/2023-00269.pdf>.

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NEW SECTION

WAC 296-307-09815 Identification of harmful exposures. The employer must determine employee exposure to PM_{2.5} for worksites covered by WAC 296-307-09805 through 296-307-09860 periodically as needed. The employer may use any of the following methods to determine employee exposures such that they are able to comply with the requirements in WAC 296-307-09805 through 296-307-09860 Wildfire smoke:

(1) Check PM_{2.5} forecasts and the current PM_{2.5} from any of the following:

- (a) Washington department of ecology website;
- (b) Air Quality WA mobile app;
- (c) Washington smoke information website;
- (d) U.S. EPA AirNow Fire and Smoke Map;
- (e) U.S. EPA AirNow website;
- (f) U.S. EPA AirNow mobile app;
- (g) U.S. Forest Service AirFire website; or
- (h) Local clean air agency website.

(2) Obtain PM_{2.5} forecasts and the current PM_{2.5} directly from the Washington state department of ecology, U.S. EPA, U.S. EPA EnviroFlash.info, or local clean air agency by telephone, email, text, or other effective method; or

(3) Measure current PM_{2.5} levels at the work location in accordance with WAC 296-307-09845 Measuring PM_{2.5} levels at the worksite.

If an index such as the AQI is relied upon, use the following table to find the equivalent PM_{2.5}.

PM _{2.5} IN MICROGRAMS PER CUBIC METER (µg/m ³)	AIR QUALITY INDEX FOR PM _{2.5} (AQI)
20.5 µg/m ³	69
35.5 µg/m ³	101
250.5 µg/m ³	301
500.4 µg/m ³	500
555 µg/m ³	Beyond the AQI

- Notes:
- The current PM_{2.5} is updated hourly.
 - Employers are not responsible for tracking employee exposures outside of working hours.

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NEW SECTION

WAC 296-307-09820 Hazard communication. For any worksite covered by WAC 296-307-09805 through 296-307-09860 Wildfire smoke, the employer must establish and implement a system for communicating wildfire smoke hazards in a form readily understandable by all affected employees, including provisions designed to encourage employees to inform the employer of wildfire smoke hazards at the worksite without fear of reprisal.

The system shall include effective procedures for:

(1) Informing employees when the current PM_{2.5} as identified in WAC 296-307-09815 Identification of harmful exposures, exceeds the following thresholds, and the protective measures available to employees to reduce their wildfire smoke exposures:

(a) When at least two consecutive current PM_{2.5} readings are 20.5 µg/m³ (AQI 69) or more;

(b) 35.5 µg/m³ (AQI 101) or more;

(c) 250.5 µg/m³ (AQI 301) or more;

(d) 500.4 µg/m³ (AQI 500) or more; and

(e) 555 µg/m³ (beyond the AQI) or more.

(2) Enabling and encouraging employees to inform the employer of:

(a) Worsening air quality;

(b) Availability issues of appropriate exposure control measures and respiratory protection required by WAC 296-307-09805 through 296-307-09860 Wildfire smoke; and

(c) Any adverse symptoms that may be the result of wildfire smoke exposure such as, but not limited to, asthma attacks, difficulty breathing, and chest pain.

(3) A wildfire smoke response plan must be included in the written accident prevention program before work that exposes the worker to a PM_{2.5} concentration of 20.5 µg/m³ (AQI 69) or more. The wildfire smoke response plan must be tailored to the workplace and include at least the following elements:

- (a) The health effects and adverse symptoms of wildfire smoke exposure;
- (b) The importance of informing the employer when the employee is experiencing adverse symptoms of wildfire smoke exposure;
- (c) The right to obtain medical treatment without fear of reprisal;
- (d) The requirements of WAC 296-307-09805 through 296-307-09860 Wildfire smoke;
- (e) How employees can obtain the current PM_{2.5}, and the employers methods to communicate the current PM_{2.5};
- (f) The employer's response plan for wildfire smoke including methods to protect employees from wildfire smoke, and the exposure symptom response procedures;
- (g) The importance, benefits, and limitations of using a properly fitted respirator when exposed to wildfire smoke;
- (h) The risks and limitations of using an unfitted respirator, and the risks of wearing a respirator without a medical evaluation; and
- (i) How to properly put on, use, and maintain the respirators provided by the employer.

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NEW SECTION

WAC 296-307-09825 Information and training. The employer must provide all workers with effective information and training regarding wildfire smoke before work that exposes the worker to a PM_{2.5} concentration of 20.5 µg/m³ (AQI 69) or more, and at least annually thereafter.

- (1) Information and training must be provided in a manner and language readily understood by the workers.
- (2) At a minimum, the training must include the following information found in WAC 296-307-09850 Appendix A:
 - (a) The health effects and adverse symptoms of wildfire smoke exposure;
 - (b) The importance of informing the employer when the employee is experiencing adverse symptoms of wildfire smoke exposure;
 - (c) The right to obtain medical treatment without fear of reprisal;
 - (d) The requirements of WAC 296-307-09805 through 296-307-09860 Wildfire smoke;
 - (e) How employees can obtain the current PM_{2.5}, and the employers methods to communicate the current PM_{2.5};
 - (f) The employer's response plan for wildfire smoke including methods to protect employees from wildfire smoke, and the exposure symptom response procedures;
 - (g) The importance, benefits, and limitations of using a properly fitted respirator when exposed to wildfire smoke;
 - (h) The risks and limitations of using an unfitted respirator, and the risks of wearing a respirator without a medical evaluation; and
 - (i) How to properly put on, use, and maintain the respirators provided by the employer.

(3) Supervisor training. Prior to supervising employees performing work that exposes the worker to PM_{2.5} levels that are 20.5 µg/m³ (AQI 69) or more, supervisors must have training on the information in subsection (2) of this section, and the following topics:

(a) The procedures the supervisor must follow to implement the applicable provisions of WAC 296-307-09805 through 296-307-09860 Wildfire smoke;

(b) The procedures the supervisor must follow if an employee exhibits adverse symptoms of wildfire smoke exposure; and

(c) Procedures for moving or transporting employees to an emergency medical service provider, if necessary.

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NEW SECTION

WAC 296-307-09830 Exposure symptom response. (1) The employer must monitor employees displaying symptoms of wildfire smoke exposure to determine whether medical attention is necessary.

(2) Employers must allow employees who display symptoms of wildfire smoke exposure to seek medical treatment, and may not retaliate against affected employees for seeking such treatment.

(3) Employers must have effective provisions made in advance for prompt medical treatment of employees who display adverse symptoms of wildfire smoke exposure.

(4) Where the current PM_{2.5} is 250.5 µg/m³ (AQI 301) or more, employers must ensure workers experiencing adverse symptoms requiring medical attention be moved to a location that ensures sufficient clean air such as:

(a) Providing a location where the current PM_{2.5} is less than 20.5 µg/m³; or

(b) Providing an enclosed building, structure, or vehicle with HEPA filtration sufficient for the volume of the space.

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NEW SECTION

WAC 296-307-09835 Exposure controls. (1) Where the current PM_{2.5} is 20.5 µg/m³ (AQI 69) or more, the employer is encouraged to implement exposure controls.

(2) Where the current PM_{2.5} is 35.5 µg/m³ (AQI 101) or more, the employer must implement effective exposure controls whenever feasible.

(3) Such controls include, but are not limited to:

(a) Providing enclosed buildings, structures, or vehicles where the air is adequately filtered;

(b) Providing portable HEPA filters in enclosed areas;

(c) Relocating work to a location with a lower ambient air concentration of PM_{2.5};

(d) Changing work schedules to a time with a lower ambient air concentration of PM_{2.5};

- (e) Avoiding, or reducing work that creates additional dust, fumes, or smoke;
 - (f) Reducing work intensity; and
 - (g) Providing additional rest periods.
- (4) WAC 296-307-09835 Exposure controls, is not required during emergency response.

Note: Exposure controls may be implemented to the extent that the work is no longer covered by the scope of this rule as listed in WAC 296-307-09805 (1) or (2), Purpose and scope.

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NEW SECTION

WAC 296-307-09840 Respiratory protection. (1) Where the current $PM_{2.5}$ is $20.5 \mu\text{g}/\text{m}^3$ (AQI 69) to $35.4 \mu\text{g}/\text{m}^3$ (AQI 100), the employer is encouraged to provide respirators at no cost to employees upon request. Employees may provide and wear their own respiratory protection as long as voluntary use of these respirators does not introduce hazards to the work environment.

(2) Where the current $PM_{2.5}$ is $35.5 \mu\text{g}/\text{m}^3$ (AQI 101) to $250.4 \mu\text{g}/\text{m}^3$ (AQI 300), the employer must provide N95 filtering-facepiece respirators at no cost to all exposed employees, and must encourage respirator use. Employers must provide respirators by either of the following methods:

- (a) Directly distribute to each exposed employee; or
- (b) Maintain a sufficient supply for all exposed employees at each work location where exposure occurs. Such respirator supply availability and locations 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 respirators when needed.

(3) Where the current $PM_{2.5}$ is $250.5 \mu\text{g}/\text{m}^3$ (AQI 301) to $500.3 \mu\text{g}/\text{m}^3$ (AQI 499), the employer must distribute N95 filtering-facepiece respirators directly to each exposed employee, and must encourage respirator use.

(4) Where the current $PM_{2.5}$ is $500.4 \mu\text{g}/\text{m}^3$ (AQI 500) to $554.9 \mu\text{g}/\text{m}^3$ (beyond the AQI), employees must be enrolled in a complete respiratory protection program in accordance with WAC 296-307-594 through 296-307-622 Respirators, of this chapter. The employer must provide and require to be worn one of the following respirators:

- (a) N95 filtering-facepiece respirator;
- (b) Half-facepiece air purifying respirator equipped with P100 filters; or
- (c) Other respirators equipped with P100 filters, with an assigned protection factor of 10 or greater as listed in WAC 296-307-60205 Respirators.

Note: Employees exposed to $PM_{2.5}$ for a total of 15 minutes or less during a 24-hour period are exempt from the requirements in WAC 296-307-09840(4).

(5) Where the current $PM_{2.5}$ is $555 \mu\text{g}/\text{m}^3$ (beyond the AQI) or more, employees must be enrolled in a complete respiratory protection program in accordance with WAC 296-307-594 through 296-307-622 Respirators, of this chapter. The employer must provide and require to be worn one of the following respirators equipped with P100 filters:

(a) Loose-fitting powered air purifying respirator;
 (b) Full-facepiece air purifying respirator;
 (c) Full-facepiece powered air purifying respirator; or
 (d) Other respirators with an assigned protection factor of 25 or more as listed in WAC 296-307-60205 Respirators, such that the PM_{2.5} levels inside the respirator are less than 55.5 µg/m³ (AQI 151).

(6) Respirators must be NIOSH-approved devices that effectively protect the wearers from inhalation of wildfire smoke.

(7) The employer must use WAC 296-307-09825 Information and training in lieu of the advisory information in Table 2 of WAC 296-307-59805 Respirators, for training regarding voluntary use of respirators for wildfire smoke.

(8) Respirators must be cleaned, stored, maintained, and replaced so that they are in good working order, and do not present a health hazard to users. Replace or repair any respirator that is not functioning properly, and do not permit their use. Filtering facepiece respirators must not be cleaned, repaired, or shared. Dispose, and replace any filtering facepiece respirator that is dirty, damaged, or difficult to breathe through. Elastomeric respirators must be properly cleaned and disinfected before being worn by another employee.

- Notes:
- Respirator use is not considered voluntary when an employer requires respirators to be used. A complete respiratory protection program in accordance with WAC 296-307-594 through 296-307-622 Respirators, is required if the employer chooses to require respirator use.
 - For voluntary use of filtering facepiece respirators, such as N95 respirators, some of the requirements of WAC 296-307-594 through 296-307-622 Respirators, of this chapter, do not apply, such as fit testing and medical evaluations. Elastomeric respirators equipped with P100 filters may be used in place of N95 filtering facepiece respirators. If elastomeric respirators are used voluntarily, additional requirements apply from WAC 296-307-594 through 296-307-622 Respirators, of this chapter, such as medical evaluations and establishing a respiratory protection program.
 - For voluntary or required use of loose-fitting powered air purifying respirators, some of the requirements of WAC 296-307-594 through 296-307-622 Respirators, of this chapter, do not apply, such as fit testing and requiring workers to be clean shaven.
 - During emergency response, required use of respirators must be implemented to the extent feasible.

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NEW SECTION

WAC 296-307-09845 Measuring PM_{2.5} levels at the worksite. (1) An employer may use a direct-reading particulate monitor to identify harmful exposures as required by WAC 296-307-09815 Identification of harmful exposures, if the employer can demonstrate that it has complied with this section and selected a monitor that:

(a) Does not underestimate employee exposures to wildfire smoke;
 or

(b) May underestimate wildfire smoke exposures, but the employer has obtained information on the possible error of the monitor from the manufacturer or other published literature and has accounted for the error of the monitor when determining exposures to PM_{2.5} to ensure that employee exposure levels not be underestimated.

(2) The monitor must 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 (≤0.3 µg/m³ to 2.5 µg/m³). The employer may use a monitor that measures a particle size range beyond these limits, if the employer treats the results as the PM_{2.5} levels.

(3) The employer must ensure that the monitor it selects be calibrated, maintained, and used, including the use of necessary accesso-

ries, in accordance with the manufacturer's instructions for accurately measuring PM_{2.5} concentrations.

(4) The person supervising, directing, or evaluating workplace monitoring for PM_{2.5} must 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.

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NEW SECTION

WAC 296-307-09850 Appendix A: Protection from wildfire smoke information and training (mandatory). (1) **The health effects and adverse symptoms of wildfire smoke:**

Symptoms:

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 eyes and lungs, causing eye irritation, phlegm, and persistent coughing. Particulate matter can also cause difficulty breathing, reduced lung function, bronchitis, worsening of asthma, heart failure, and early death.

Particulate matter is a health risk whether you are exposed over a short period of time or a long period of time. The United States Environmental Protection Agency has determined that particulate matter does cause, or likely causes cardiovascular disease, respiratory disease, cancer, and harm to the nervous system.

Wildfire smoke can harm your health, even if you cannot smell the smoke or do not feel any symptoms. Even healthy people can be harmed by wildfire smoke. The wildfire smoke rule is designed to limit the harm from wildfire smoke, and it is important to consider taking action to reduce your exposure to smoke whenever the rule's protections are in effect.

Watch for symptoms as an additional sign to reduce exposure to smoke, and reduce work intensity.

It is especially important to move to an area with clean air and seek medical attention according to your health care provider's advice, or if you experience any of these symptoms:

- Difficulty breathing;
- Shortness of breath, particularly when accompanied by greater use of accessory muscles;
- Chest pain;
- Nausea; or
- Dizziness.

You have the right to seek medical treatment for any symptoms you may be experiencing related to wildfire smoke exposure, regardless of their severity, and your employer may not retaliate against you for seeking such treatment. This includes, but is not limited to, the symptoms described above.

Sensitive groups:

The Washington state department of health classifies¹ outdoor workers as a sensitive group with increased risk.

Sensitive groups include people who are at higher risk of experiencing adverse health effects as a result of exposure to wildfire smoke, including those with preexisting health conditions; those with increased duration of exposure; and those whose work results in an increased breathing rate, including outdoor workers¹. Although everyone is impacted by wildfire smoke exposure, sensitive groups are among those most likely to experience health problems from exposure to wildfire smoke. Examples of sensitive groups include:

- Outdoor workers;
- People with lung diseases 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, colds, 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;
- People who are pregnant;
- People with diabetes;
- People with other medical or health conditions that can be exacerbated by exposure to wildfire smoke as determined by a physician;
- Tribal and indigenous people;
- People with low income.

¹ Washington Department of Health. April 2022, accessed April 2023. Washington Air Quality Guide for Particle Pollution: https://doh.wa.gov/sites/default/files/legacy/Documents/4300/waqa%20infographic_English.pdf?uid=64384c71c8715

(2) The importance of informing the employer when the employee is experiencing adverse symptoms of wildfire smoke exposure:

Watch for symptoms of wildfire smoke exposure, even at lower levels of PM_{2.5}, as a sign to reduce exposure.

It is important to notify your employer when you are experiencing symptoms of wildfire smoke exposure, so your employer can respond appropriately.

Your employer will have provisions made in advance for prompt medical treatment for employees who are experiencing adverse symptoms of wildfire smoke exposure.

Do not ignore your symptoms: Wildfire smoke can be hazardous even when you cannot smell it. Your employer cannot retaliate against you for reporting symptoms, or for seeking medical treatment. This is true whenever the wildfire smoke rule's protections are in effect.

Wildfire smoke is a serious work-related hazard for outdoor workers, and you have the right to file a workers' compensation claim to have your symptoms evaluated. You may file a workers' compensation claim whether or not you have personal health insurance. Your employer cannot prevent you from or retaliate against you for filing a workers' compensation claim.

In most cases, L&I will pay for your initial medical evaluation, even if your claim is denied. If your claim is allowed, the workers' compensation system will cover medical bills directly related to your condition and partial wage replacement benefits if you cannot work.

When the PM_{2.5} is 250.5 µg/m³ or more, your employer must ensure workers experiencing adverse symptoms requiring medical attention be moved to a location that ensures sufficient clean air.

(3) The right to obtain medical treatment without fear of reprisal:

Employers must allow employees who show signs of injury or illness due to wildfire smoke exposure to seek medical treatment, and may not retaliate against affected employees for seeking such treatment.

Employers must 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.

Additionally, when the PM_{2.5} is 250.5 µg/m³ or more, employers must ensure workers experiencing adverse symptoms requiring medical attention be moved to a location that ensures sufficient clean air.

For more information on your workplace safety and health rights, discrimination protections, and to file a discrimination complaint; visit www.Lni.wa.gov/WorkplaceDiscrimination.

(4) The requirements of WAC 296-307-09805 through 296-307-09860, Wildfire smoke rule:

The following table summarizes the key requirements of the rule. This is not an exhaustive list, and additional details are found in WAC 296-307-09805 through 296-307-09860.

Rule summary at each PM_{2.5} breakpoint:

PM _{2.5} BREAKPOINTS	AQI EQUIVALENT	REQUIREMENTS AT CURRENT PM _{2.5} LEVEL
0.0-20.4	0-68	<ul style="list-style-type: none"> • Prepare response plan. • Provide training to employees. • Watch the PM_{2.5} conditions and forecasts. • Implement a two-way communication system. • Make provisions for prompt medical treatment, and permit that treatment without retaliation.
20.5-35.4	69-100	All of the above and: <ul style="list-style-type: none"> • Notify employees of PM_{2.5} conditions. • Ensure only trained employees work outdoors. • Consider implementing exposure controls. • Consider providing voluntary use respirators.
35.5-250.4	101-300	All of the above and: <ul style="list-style-type: none"> • Implement exposure controls. • Make N95 respirators available for voluntary use.
250.5-500.3	301-499	All of the above and: <ul style="list-style-type: none"> • Ensure workers experiencing adverse symptoms requiring medical attention be moved to a location that ensures sufficient clean air. • Directly distribute N95 respirators to employees for voluntary use.
500.4-554.9	500-beyond the AQI	All of the above and: <ul style="list-style-type: none"> • Implement a complete required use respiratory protection program, including fit-testing, medical evaluations, requiring employees to be clean-shaven, and requiring the use of particulate respirators.
	Beyond the AQI	All of the above and: <ul style="list-style-type: none"> • Require respirators with an assigned protection factor (APF) of 25 or more.

(5) How employees can obtain the current PM_{2.5}, and the employer's methods to communicate the current PM_{2.5}:

Various government agencies monitor the air at locations throughout Washington and report the current PM_{2.5} for those places. The Air Quality Index (AQI) uses the air quality data from these regulatory monitors.

Although the government monitoring stations may measure several pollutants, this chapter only uses PM_{2.5}. One way to find the current and forecasted PM_{2.5} is to go to enviwa.ecology.wa.gov and find the nearest sensor on the map, or fire.airnow.gov and enter the zip code of the location where you will be working. The current PM_{2.5} is also available from the Air Quality WA mobile app, or the AirNow mobile app.

Employees who do not have access to the internet can contact their employer for the current PM_{2.5}. The U.S. EPA website www.enviroflash.info can transmit daily and forecasted air quality by email for your city or zip code.

If you choose to use an index such as the AQI, use the following table to find the equivalent AQI for PM_{2.5}.

PM _{2.5} IN MICROGRAMS PER CUBIC METER (µg/m ³)	AIR QUALITY INDEX FOR PM _{2.5} (AQI)
20.5 µg/m ³	69
35.5 µg/m ³	101
250.5 µg/m ³	301
500.4 µg/m ³	500
555 µg/m ³	Beyond the AQI

Your employer will establish a two-way communication system to communicate changing wildfire smoke conditions to you, and allowing you to communicate information to your employer such as; worsening air quality, availability issues of exposure control measures and respirators, and any adverse symptoms of wildfire smoke exposure. Your employer cannot retaliate or discriminate against you for raising safety concerns, or reporting symptoms.

The employer's communication system is: _____

(6) The employer's response plan for wildfire smoke including methods to protect employees from wildfire smoke, and the exposure symptom response procedures:

Your employer will provide training on the specific methods they will implement to protect you as part of their wildfire smoke response plan, and their procedures to respond when employees experience symptoms of wildfire smoke exposure.

The employer's methods to protect employees are: _____

The employer's exposure symptom response procedures are: _____

(7) The importance, limitations, and benefits of using a properly fitted 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 PM_{2.5} is less than 35.5 µg/m³.

A respirator needs to be used properly and kept clean. The following precautions must be taken:

(a) Employers must 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. Centers for Disease Control and Prevention, certifies respirators. 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. A NIOSH-approved N95 filtering facepiece respirator, shown in the image below, is the minimum level of protection for wildfire smoke.

(b) 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 must also be followed to ensure the best protection against wildfire smoke. If your respirator is not fit-tested, it cannot be relied upon to protect you from wildfire smoke exposure, and you should take action to reduce your exposure to wildfire smoke in the other ways described in the wildfire smoke rule and in section nine of this appendix; ask your employer to voluntarily arrange for respirator fit-testing; or both.

(c) 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 you against gases or vapors, and it will not supply oxygen. Some filtering-facepiece respirators are equipped with a sorbent layer for absorbing "nuisance" organic vapors. These can be used for voluntary use, but are not NIOSH certified for protection against hazardous concentrations of organic vapor.

(d) Respirator use is not voluntary, and a complete respiratory protection program in accordance with WAC 296-307-594 through 296-307-622 Respirators, of this chapter is required in any of the following situations:

- The employer chooses to require respirator use;
- A respiratory hazard, such as exposure to a substance over the permissible exposure limit (PEL) or hazardous exposure to an airborne biological hazard, is present. To evaluate respiratory hazards in your workplace, see Part Y-6 of this chapter, Respiratory hazards.

(e) You need to keep track of your respirator, so you do not mistakenly use someone else's respirator.

(f) If you have questions about whether it is safe for you to wear a respirator, you should talk to your doctor, particularly if you have a heart or lung condition, or if you have other medical conditions.

(8) The risks and limitations of using an unfitted respirator, and the risks of wearing a respirator without a medical evaluation:

Respirators such as N95s must form a tight seal to the face to work properly. This is especially important for people at increased risk for severe disease. Wearing a respirator can make it harder to breathe. If you have heart or lung problems, talk to your doctor before using a respirator.

A fit-test is conducted to verify that a respirator is both comfortable and provides the wearer with the expected protection. Voluntary use of respirators, such as those provided by your employer be-

tween PM_{2.5} 35.5 and 500.3 µg/m³ for wildfire smoke, does not require a fit-test if your employer does not require you wear the respirator. Without a fit-test, a respirator cannot be expected to provide reliable protection. Unfitted respirators may not properly seal, allowing wildfire smoke to enter the respirator. You can take steps to improve the respirator seal, and reduce your exposure to wildfire smoke by following the steps in section nine of this appendix.

A medical evaluation is conducted as part of evaluating respirator selection and use to ensure that the wearer is healthy enough to perform work while wearing a respirator. Voluntary use of respirators does not require a medical evaluation. If you have questions about whether it is safe for you to wear a respirator, you should talk to your doctor. This is particularly important if you have a heart or lung condition (including asthma), or if you have other medical conditions of concern.

Follow your health care provider's advice if you have medical conditions that can be worsened by wildfire smoke exposure. And if you have symptoms such as difficulty breathing, shortness of breath, chest pain, nausea, or dizziness, go to an area with clean air, take off the respirator, and get medical help.

(9) How to properly put on, use, and maintain the respirators provided by the employer:

A tight-fitting respirator such as an N95 will not be able to seal to your face if facial hair interferes with the seal. Ensuring that you are clean-shaven will allow a better seal and more reliable protection. 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. Always inspect your respirator before use, and follow the manufacturer's instructions. Replace respirators that are damaged, dirty, or wet.

For those who use a filtering facepiece respirator such as an N95 that is made of filter material:

(a) With clean, dry hands, place the mask over the nose and under the chin, with one strap placed below the ears and one strap above. Be sure that the nosepiece bar or foam is on top.

(b) Pinch the nosepiece of the respirator over the top of the nose, so it fits securely.

(c) Perform a seal check:

(i) Cover the respirator with both hands and exhale. If air leaks where the respirator seals against the face, adjust the respirator and nosepiece and try again. The respirator should bulge from the face and not leak around the seal.

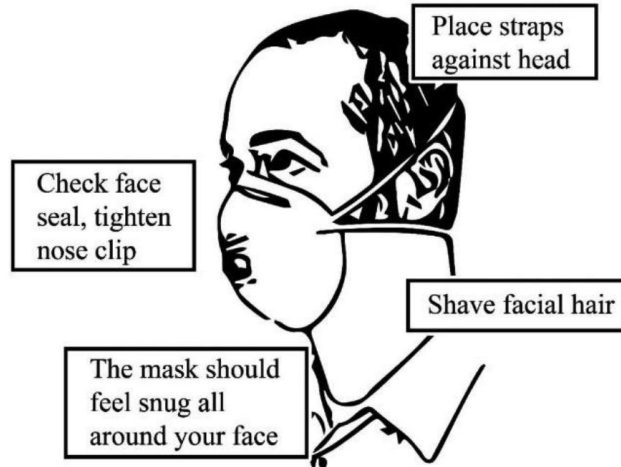
(ii) Cover the respirator with both hands and inhale. If air leaks where the respirator seals against the face, adjust the respirator and nosepiece and try again. The respirator should collapse slightly and not leak around the seal.

For a respirator that relies on a tight seal to the face, check how well it seals 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 need to be replaced if they get damaged, deformed, dirty, or difficult to breathe through. Filtering facepiece respirators are disposable respirators that cannot be cleaned or dis-

infected. A best practice is to replace filtering facepiece respirators at the beginning of each shift.

If you have symptoms such as difficulty breathing, shortness of breath, chest pain, nausea, or dizziness, go to an area with clean air, take off the respirator, and get medical help.



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NEW SECTION

WAC 296-307-09855 Appendix B: Selecting direct-reading particulate monitors (mandatory). The information in this section provides guidance when selecting a direct-reading particulate monitor and determining compliance with the specifications required by WAC 296-307-09845 Measuring PM_{2.5} levels at the worksite:

(1) The South Coast Air Quality Management District's air quality sensor performance evaluation center (AQ-SPEC) www.aqmd.gov/aq-spec publishes field and lab evaluations of many direct-read PM_{2.5} monitors.

(2) The monitor's field R-squared (R²) value must be greater than 0.7 when measuring one-hour average PM_{2.5}.

(3) If the monitor's field R² is 0.7 or less, the employer may use the monitor alongside other data sources listed in WAC 296-307-09815 Identification of harmful exposures, and so long as the employer uses whichever value is higher.

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NEW SECTION

WAC 296-307-09860 Appendix C: Calculating the Air Quality Index for PM_{2.5} (nonmandatory). The Air Quality Index (AQI) for PM_{2.5} is calculated as follows:

$$I_{PM_{2.5}} = \frac{I_{Hi} - I_{Lo}}{BP_{Hi} - BP_{Lo}} (C_p - BP_{Lo}) + I_{Lo}$$

Where:

$I_{PM_{2.5}}$ is the Air Quality Index value for $PM_{2.5}$

C_p is the concentration of $PM_{2.5}$ in $\mu\text{g}/\text{m}^3$ truncated to 1 decimal place

BP_{Hi} is the concentration breakpoint that is greater than or equal to C_p

BP_{Lo} is the concentration breakpoint that is less than or equal to C_p

I_{Hi} is the AQI value corresponding to BP_{Hi}

I_{Lo} is the AQI value corresponding to BP_{Lo}

PM _{2.5} BREAKPOINTS ¹	AQI EQUIVALENT ¹	AQI CATEGORY ¹	WA DOH HEALTH MESSAGING ²
0.0-12.0	0-50	Good	It is a great day to be active outside and a good time to make a plan if worse air quality is in the forecast.
12.1-35.4	51-100	Moderate	Some people are especially sensitive to lower levels of particle pollution and should reduce exposure. For example, limit time outside and avoid strenuous outdoor activity. All sensitive groups should watch for symptoms.
35.5-55.4	101-150	Unhealthy for sensitive groups	Sensitive groups should take steps to reduce exposure. Limit time outside, avoid strenuous outdoor activity, and follow tips for cleaner indoor air. Everyone should watch for symptoms as a sign to reduce exposure.
55.5-150.4	151-200	Unhealthy	Everyone should reduce exposure. Limit time outside, avoid strenuous outdoor activity, and follow tips for cleaner indoor air.
150.5-250.4	201-300	Very unhealthy	Everyone should reduce exposure. Stay inside and filter indoor air to keep it cleaner. Go elsewhere for cleaner air, if needed.
250.5-350.4	301-400	Hazardous	Everyone should reduce exposure. Stay inside and filter indoor air to keep it cleaner. Go elsewhere for cleaner air, if needed.
350.5-500.4	401-500	Hazardous	Everyone should reduce exposure. Stay inside and filter indoor air to keep it cleaner. Go elsewhere for cleaner air, if needed.
> 500.4	Beyond the AQI	Hazardous (beyond the AQI)	

¹ U.S. EPA. September 2018. Technical Assistance Document for the Reporting of Daily Air Quality – The Air Quality Index (AQI). EPA 454/B-18-007. Research Triangle Park, North Carolina.

² Washington Department of Health. April 2022, accessed April 2023. Washington Air Quality Guide for Particle Pollution: <https://doh.wa.gov/sites/default/files/legacy/Documents/4300/waqa%20infographic%5fEnglish.pdf?uid=64384c71c8715>

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OTS-4363.3

**Chapter 296-820 WAC
WILDFIRE SMOKE**

NEW SECTION

WAC 296-820-805 Purpose and scope. WAC 296-820-805 through 296-820-860 applies to all workplaces, including those with agricultural activity according to RCW 49.17.020, with the exception of the following:

(1) Enclosed buildings or structures in which 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 and exit.

(2) Enclosed vehicles in which the air is filtered by a properly maintained cabin air filter and the employer ensures that windows, doors, and other openings are kept closed except when it is necessary to briefly open doors to enter or exit. 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 this exemption.

(3) Work within the scope of chapter 296-305 WAC, Safety standards for firefighters.

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NEW SECTION

WAC 296-820-810 Definitions. (1) **Adverse symptoms requiring medical attention.** Adverse symptoms to wildfire smoke exposure requiring medical attention include, but are not limited to: Difficulty breathing or shortness of breath, particularly when accompanied by greater use of accessory muscles; chest pain; nausea; or dizziness.

(2) **Air Quality Index (AQI).** A unitless index used by the U.S. Environmental Protection Agency (EPA) to communicate air quality for several pollutants, including PM_{2.5}. References to the AQI used throughout this chapter means the "NowCast AQI for PM_{2.5}."

Note: The EPA has proposed revisions to the AQI.¹ DOSH will revisit chapter 296-820 WAC Wildfire smoke, and chapter 296-307 WAC Part G-1 if the proposed changes are adopted.

(3) **Current PM_{2.5}.** The concentration of PM_{2.5} for the most current hour available, calculated using an hourly average of PM_{2.5} data.

Note: The NowCast as provided by the Washington state department of ecology, local clean air agency, or U.S. EPA is also acceptable to approximate current PM_{2.5}.

(4) **Emergency response.** Rescue, evacuation, utilities, communications, transportation, and medical operations; when such operations are directly aiding firefighting; protecting public health and safety; or actively protecting, restoring, or maintaining the safe and reliable operation of critical infrastructure at risk.

(5) **High-efficiency particulate air (HEPA) filter.** A filter capable of trapping and retaining at least 99.97 percent of all monodispersed particles of 0.3 micrometers mean aerodynamic diameter or larger.

(6) **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.

(7) **NowCast.** The method used by the U.S. Environmental Protection Agency (EPA), and the Washington state department of ecology to approximate the air quality for the most current hour available by using

a calculation that involves multiple hours of past data. The NowCast uses longer averages during periods of stable air quality and shorter averages when air quality is changing rapidly, such as during a wildfire. The NowCast is generally updated every hour.

(8) **PM_{2.5}**. Solid particles and liquid droplets suspended in air, known as particulate matter, with an aerodynamic diameter of 2.5 micrometers or smaller. Measured in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$).

(9) **Wildfire smoke**. PM_{2.5} which includes emissions from planned or unplanned fires in wildlands, wildland urban interface, agricultural operations, or adjacent developed areas. Wildfire smoke contains a complex mixture of gases and particulates. Fine particulates such as PM_{2.5} are the primary pollutant in wildfire smoke.

(10) **Wildlands**. Sparsely populated geographical areas covered primarily by grass, brush, trees, crops, or combination thereof.

¹ Federal Register Vol. 88, No. 18, Page 5558, January 2023: <https://www.govinfo.gov/content/pkg/FR-2023-01-27/pdf/2023-00269.pdf>.

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NEW SECTION

WAC 296-820-815 Identification of harmful exposures. The employer must determine employee exposure to PM_{2.5} for worksites covered by WAC 296-820-805 through 296-820-860 periodically as needed. The employer may use any of the following methods to determine employee exposures such that they are able to comply with the requirements in WAC 296-820-805 through 296-820-860 Wildfire smoke:

(1) Check PM_{2.5} forecasts and the current PM_{2.5} from any of the following:

- (a) Washington department of ecology website;
- (b) Air Quality WA mobile app;
- (c) Washington smoke information website;
- (d) U.S. EPA AirNow Fire and Smoke Map;
- (e) U.S. EPA AirNow website;
- (f) U.S. EPA AirNow mobile app;
- (g) U.S. Forest Service AirFire website; or
- (h) Local clean air agency website.

(2) Obtain PM_{2.5} forecasts and the current PM_{2.5} directly from the Washington state department of ecology, U.S. EPA, U.S. EPA EnviroFlash.info, or local clean air agency by telephone, email, text, or other effective method; or

(3) Measure current PM_{2.5} levels at the work location in accordance with WAC 296-820-845 Measuring PM_{2.5} levels at the worksite.

If an index such as the AQI is relied upon, use the following table to find the equivalent PM_{2.5}.

PM _{2.5} IN MICROGRAMS PER CUBIC METER ($\mu\text{g}/\text{m}^3$)	AIR QUALITY INDEX FOR PM _{2.5} (AQI)
20.5 $\mu\text{g}/\text{m}^3$	69
35.5 $\mu\text{g}/\text{m}^3$	101
250.5 $\mu\text{g}/\text{m}^3$	301
500.4 $\mu\text{g}/\text{m}^3$	500

PM _{2.5} IN MICROGRAMS PER CUBIC METER (µg/m ³)	AIR QUALITY INDEX FOR PM _{2.5} (AQI)
555 µg/m ³	Beyond the AQI

- Notes:
- The current PM_{2.5} is updated hourly.
 - Employers are not responsible for tracking employee exposures outside of working hours.

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NEW SECTION

WAC 296-820-820 Hazard communication. For any worksite covered by WAC 296-820-805 through 296-820-860 Wildfire smoke, the employer must establish and implement a system for communicating wildfire smoke hazards in a form readily understandable by all affected employees, including provisions designed to encourage employees to inform the employer of wildfire smoke hazards at the worksite without fear of reprisal.

The system shall include effective procedures for:

(1) Informing employees when the current PM_{2.5} as identified in WAC 296-820-815 Identification of harmful exposures, exceeds the following thresholds, and the protective measures available to employees to reduce their wildfire smoke exposures:

(a) When at least two consecutive current PM_{2.5} readings are 20.5 µg/m³ (AQI 69) or more;

(b) 35.5 µg/m³ (AQI 101) or more;

(c) 250.5 µg/m³ (AQI 301) or more;

(d) 500.4 µg/m³ (AQI 500) or more; and

(e) 555 µg/m³ (beyond the AQI) or more.

(2) Enabling and encouraging employees to inform the employer of:

(a) Worsening air quality;

(b) Availability issues of appropriate exposure control measures and respiratory protection required by WAC 296-820-805 through 296-820-860 Wildfire smoke; and

(c) Any adverse symptoms that may be the result of wildfire smoke exposure such as, but not limited to, asthma attacks, difficulty breathing, and chest pain.

(3) A wildfire smoke response plan must be included in the written accident prevention program before work that exposes the worker to a PM_{2.5} concentration of 20.5 µg/m³ (AQI 69) or more. The wildfire smoke response plan must be tailored to the workplace and include at least the following elements:

(a) The health effects and adverse symptoms of wildfire smoke exposure;

(b) The importance of informing the employer when the employee is experiencing adverse symptoms of wildfire smoke exposure;

(c) The right to obtain medical treatment without fear of reprisal;

(d) The requirements of WAC 296-820-805 through 296-820-860 Wildfire smoke;

(e) How employees can obtain the current PM_{2.5}, and the employers methods to communicate the current PM_{2.5};

(f) The employer's response plan for wildfire smoke including methods to protect employees from wildfire smoke, and the exposure symptom response procedures;

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

(h) The risks and limitations of using an unfitted respirator, and the risks of wearing a respirator without a medical evaluation; and

(i) How to properly put on, use, and maintain the respirators provided by the employer.

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NEW SECTION

WAC 296-820-825 Information and training. The employer must provide all workers with effective information and training regarding wildfire smoke before work that exposes the worker to a PM_{2.5} concentration of 20.5 µg/m³ (AQI 69) or more, and at least annually thereafter.

(1) Information and training must be provided in a manner and language readily understood by the workers.

(2) At a minimum, the training must include the following information found in WAC 296-820-850 Appendix A:

(a) The health effects and adverse symptoms of wildfire smoke exposure;

(b) The importance of informing the employer when the employee is experiencing adverse symptoms of wildfire smoke exposure;

(c) The right to obtain medical treatment without fear of reprisal;

(d) The requirements of WAC 296-820-805 through 296-820-860 Wildfire smoke;

(e) How employees can obtain the current PM_{2.5}, and the employers methods to communicate the current PM_{2.5};

(f) The employer's response plan for wildfire smoke including methods to protect employees from wildfire smoke, and the exposure symptom response procedures;

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

(h) The risks and limitations of using an unfitted respirator, and the risks of wearing a respirator without a medical evaluation; and

(i) How to properly put on, use, and maintain the respirators provided by the employer.

(3) Supervisor training. Prior to supervising employees performing work that exposes the worker to PM_{2.5} levels that are 20.5 µg/m³ (AQI 69) or more, supervisors must have training on the information in subsection (2) of this section, and the following topics:

(a) The procedures the supervisor must follow to implement the applicable provisions of WAC 296-820-805 through 296-820-860 Wildfire smoke;

(b) The procedures the supervisor must follow if an employee exhibits adverse symptoms of wildfire smoke exposure; and

(c) Procedures for moving or transporting employees to an emergency medical service provider, if necessary.

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NEW SECTION

WAC 296-820-830 Exposure symptom response. (1) The employer must monitor employees displaying symptoms of wildfire smoke exposure to determine whether medical attention is necessary.

(2) Employers must allow employees who display symptoms of wildfire smoke exposure to seek medical treatment, and may not retaliate against affected employees for seeking such treatment.

(3) Employers must have effective provisions made in advance for prompt medical treatment of employees who display adverse symptoms of wildfire smoke exposure.

(4) Where the current PM_{2.5} is 250.5 µg/m³ (AQI 301) or more, employers must ensure workers experiencing adverse symptoms requiring medical attention be moved to a location that ensures sufficient clean air such as:

(a) Providing a location where the current PM_{2.5} is less than 20.5 µg/m³; or

(b) Providing an enclosed building, structure, or vehicle with HEPA filtration sufficient for the volume of the space.

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NEW SECTION

WAC 296-820-835 Exposure controls. (1) Where the current PM_{2.5} is 20.5 µg/m³ (AQI 69) or more, the employer is encouraged to implement exposure controls.

(2) Where the current PM_{2.5} is 35.5 µg/m³ (AQI 101) or more, the employer must implement effective exposure controls whenever feasible.

(3) Such controls include, but are not limited to:

(a) Providing enclosed buildings, structures, or vehicles where the air is adequately filtered;

(b) Providing portable HEPA filters in enclosed areas;

(c) Relocating work to a location with a lower ambient air concentration of PM_{2.5};

(d) Changing work schedules to a time with a lower ambient air concentration of PM_{2.5};

(e) Avoiding, or reducing work that creates additional dust, fumes, or smoke;

(f) Reducing work intensity; and

(g) Providing additional rest periods.

(4) WAC 296-820-835 Exposure controls, is not required during emergency response.

Note: Exposure controls may be implemented to the extent that the work is no longer covered by the scope of this rule as listed in WAC 296-820-805 (1) or (2), Purpose and scope.

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NEW SECTION

WAC 296-820-840 Respiratory protection. (1) Where the current $PM_{2.5}$ is $20.5 \mu\text{g}/\text{m}^3$ (AQI 69) to $35.4 \mu\text{g}/\text{m}^3$ (AQI 100), the employer is encouraged to provide respirators at no cost to employees upon request. Employees may provide and wear their own respiratory protection as long as voluntary use of these respirators does not introduce hazards to the work environment.

(2) Where the current $PM_{2.5}$ is $35.5 \mu\text{g}/\text{m}^3$ (AQI 101) to $250.4 \mu\text{g}/\text{m}^3$ (AQI 300), the employer must provide N95 filtering-facepiece respirators at no cost to all exposed employees, and must encourage respirator use. Employers must provide respirators by either of the following methods:

(a) Directly distribute to each exposed employee; or

(b) Maintain a sufficient supply for all exposed employees at each work location where exposure occurs. Such respirator supply availability and locations 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 respirators when needed.

(3) Where the current $PM_{2.5}$ is $250.5 \mu\text{g}/\text{m}^3$ (AQI 301) to $500.3 \mu\text{g}/\text{m}^3$ (AQI 499), the employer must distribute N95 filtering-facepiece respirators directly to each exposed employee, and must encourage respirator use.

(4) Where the current $PM_{2.5}$ is $500.4 \mu\text{g}/\text{m}^3$ (AQI 500) to $554.9 \mu\text{g}/\text{m}^3$ (beyond the AQI), employees must be enrolled in a complete respiratory protection program in accordance with chapter 296-842 WAC Respirators. The employer must provide and require to be worn one of the following respirators:

(a) N95 filtering-facepiece respirator;

(b) Half-facepiece air purifying respirator equipped with P100 filters; or

(c) Other respirators equipped with P100 filters, with an assigned protection factor of 10 or greater as listed in WAC 296-842-13005 Respirators.

Note: Employees exposed to $PM_{2.5}$ for a total of 15 minutes or less during a 24-hour period are exempt from the requirements in WAC 296-820-840(4).

(5) Where the current $PM_{2.5}$ is $555 \mu\text{g}/\text{m}^3$ (beyond the AQI) or more, employees must be enrolled in a complete respiratory protection program in accordance with chapter 296-842 WAC. The employer must provide and require to be worn one of the following respirators equipped with P100 filters:

(a) Loose-fitting powered air purifying respirator;

(b) Full-facepiece air purifying respirator;

(c) Full-facepiece powered air purifying respirator; or

(d) Other respirators with an assigned protection factor of 25 or more as listed in WAC 296-842-13005 Respirators, such that the $PM_{2.5}$ levels inside the respirator are less than $55.5 \mu\text{g}/\text{m}^3$ (AQI 151).

(6) Respirators must be NIOSH-approved devices that effectively protect the wearers from inhalation of wildfire smoke.

(7) The employer must use WAC 296-820-825 Information and training, in lieu of the advisory information in Table 2 of WAC 296-842-11005 Respirators, for training regarding voluntary use of respirators for wildfire smoke.

(8) Respirators must be cleaned, stored, maintained, and replaced so that they are in good working order, and do not present a health hazard to users. Replace or repair any respirator that is not functioning properly, and do not permit their use. Filtering facepiece respirators must not be cleaned, repaired, or shared. Dispose, and replace any filtering facepiece respirator that is dirty, damaged, or difficult to breathe through. Elastomeric respirators must be properly cleaned and disinfected before being worn by another employee.

- Notes:
- Respirator use is not considered voluntary when an employer requires respirators to be used. A complete respiratory protection program in accordance with chapter 296-842 WAC Respirators, is required if the employer chooses to require respirator use.
 - For voluntary use of filtering facepiece respirators, such as N95 respirators, some of the requirements of chapter 296-842 WAC Respirators, do not apply, such as fit testing and medical evaluations. Elastomeric respirators equipped with P100 filters may be used in place of N95 filtering facepiece respirators. If elastomeric respirators are used voluntarily, additional requirements apply from chapter 296-842 WAC Respirators, such as medical evaluations and establishing a respiratory protection program.
 - For voluntary or required use of loose-fitting powered air purifying respirators, some of the requirements of chapter 296-842 WAC Respirators, do not apply, such as fit testing and requiring workers to be clean shaven.
 - During emergency response, required use of respirators must be implemented to the extent feasible.

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NEW SECTION

WAC 296-820-845 Measuring PM_{2.5} levels at the worksite. (1) An employer may use a direct-reading particulate monitor to identify harmful exposures as required by WAC 296-820-815 Identification of harmful exposures, if the employer can demonstrate that it has complied with this section and selected a monitor that:

(a) Does not underestimate employee exposures to wildfire smoke;
or

(b) May underestimate wildfire smoke exposures, but the employer has obtained information on the possible error of the monitor from the manufacturer or other published literature and has accounted for the error of the monitor when determining exposures to PM_{2.5} to ensure that employee exposure levels not be underestimated.

(2) The monitor must 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 ($\leq 0.3 \mu\text{g}/\text{m}^3$ to $2.5 \mu\text{g}/\text{m}^3$). The employer may use a monitor that measures a particle size range beyond these limits, if the employer treats the results as the PM_{2.5} levels.

(3) The employer must ensure that the monitor it selects be calibrated, maintained, and used, including the use of necessary accessories, in accordance with the manufacturer's instructions for accurately measuring PM_{2.5} concentrations.

(4) The person supervising, directing, or evaluating workplace monitoring for PM_{2.5} must 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.

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NEW SECTION**WAC 296-820-850 Appendix A: Protection from wildfire smoke information and training (mandatory). (1) The health effects and adverse symptoms of wildfire smoke:**

Symptoms:

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 eyes and lungs, causing eye irritation, phlegm, and persistent coughing. Particulate matter can also cause difficulty breathing, reduced lung function, bronchitis, worsening of asthma, heart failure, and early death.

Particulate matter is a health risk whether you are exposed over a short period of time or a long period of time. The United States Environmental Protection Agency has determined that particulate matter does cause, or likely causes cardiovascular disease, respiratory disease, cancer, and harm to the nervous system.

Wildfire smoke can harm your health, even if you cannot smell the smoke or do not feel any symptoms. Even healthy people can be harmed by wildfire smoke. The wildfire smoke rule is designed to limit the harm from wildfire smoke, and it is important to consider taking action to reduce your exposure to smoke whenever the rule's protections are in effect.

Watch for symptoms as an additional sign to reduce exposure to smoke, and reduce work intensity.

It is especially important to move to an area with clean air and seek medical attention according to your health care provider's advice, or if you experience any of these symptoms:

- Difficulty breathing;
- Shortness of breath, particularly when accompanied by greater use of accessory muscles;
- Chest pain;
- Nausea; or
- Dizziness.

You have the right to seek medical treatment for any symptoms you may be experiencing related to wildfire smoke exposure, regardless of their severity, and your employer may not retaliate against you for seeking such treatment. This includes, but is not limited to, the symptoms described above.

Sensitive groups:

The Washington state department of health classifies¹ outdoor workers as a sensitive group with increased risk.

Sensitive groups include people who are at higher risk of experiencing adverse health effects as a result of exposure to wildfire smoke, including those with preexisting health conditions; those with increased duration of exposure; and those whose work results in an increased breathing rate, including outdoor workers¹. Although everyone is impacted by wildfire smoke exposure, sensitive groups are among those most likely to experience health problems from exposure to wildfire smoke. Examples of sensitive groups include:

- Outdoor workers;
- People with lung diseases 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, colds, 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;
- People who are pregnant;
- People with diabetes;
- People with other medical or health conditions that can be exacerbated by exposure to wildfire smoke as determined by a physician;
- Tribal and indigenous people;
- People with low income.

¹ Washington Department of Health. April 2022, accessed April 2023. Washington Air Quality Guide for Particle Pollution: https://doh.wa.gov/sites/default/files/legacy/Documents/4300/waqa%20infographic_English.pdf?uid=64384c71c8715

(2) The importance of informing the employer when the employee is experiencing adverse symptoms of wildfire smoke exposure:

Watch for symptoms of wildfire smoke exposure, even at lower levels of PM_{2.5}, as a sign to reduce exposure.

It is important to notify your employer when you are experiencing symptoms of wildfire smoke exposure, so your employer can respond appropriately.

Your employer will have provisions made in advance for prompt medical treatment for employees who are experiencing adverse symptoms of wildfire smoke exposure.

Do not ignore your symptoms: Wildfire smoke can be hazardous even when you cannot smell it. Your employer cannot retaliate against you for reporting symptoms, or for seeking medical treatment. This is true whenever the wildfire smoke rule's protections are in effect.

Wildfire smoke is a serious work-related hazard for outdoor workers, and you have the right to file a workers' compensation claim to have your symptoms evaluated. You may file a workers' compensation claim whether or not you have personal health insurance. Your employer cannot prevent you from or retaliate against you for filing a workers' compensation claim.

In most cases, L&I will pay for your initial medical evaluation, even if your claim is denied. If your claim is allowed, the workers' compensation system will cover medical bills directly related to your condition and partial wage replacement benefits if you cannot work.

When the PM_{2.5} is 250.5 µg/m³ or more, your employer must ensure workers experiencing adverse symptoms requiring medical attention be moved to a location that ensures sufficient clean air.

(3) The right to obtain medical treatment without fear of reprisal:

Employers must allow employees who show signs of injury or illness due to wildfire smoke exposure to seek medical treatment, and may not retaliate against affected employees for seeking such treatment.

Employers must 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.

Additionally, when the PM_{2.5} is 250.5 µg/m³ or more, employers must ensure workers experiencing adverse symptoms requiring medical attention be moved to a location that ensures sufficient clean air.

For more information on your workplace safety and health rights, discrimination protections, and to file a discrimination complaint; visit www.Lni.wa.gov/WorkplaceDiscrimination.

(4) The requirements of WAC 296-820-805 through 296-820-860 Wild-fire smoke rule:

The following table summarizes the key requirements of the rule. This is not an exhaustive list, and additional details are found in WAC 296-820-805 through 296-820-860.

Rule summary at each PM_{2.5} breakpoint:

PM _{2.5} BREAKPOINTS	AQI EQUIVALENT	REQUIREMENTS AT CURRENT PM _{2.5} LEVEL
0.0-20.4	0-68	<ul style="list-style-type: none"> • Prepare response plan. • Provide training to employees. • Watch the PM_{2.5} conditions and forecasts. • Implement a two-way communication system. • Make provisions for prompt medical treatment, and permit that treatment without retaliation.
20.5-35.4	69-100	All of the above and: <ul style="list-style-type: none"> • Notify employees of PM_{2.5} conditions. • Ensure only trained employees work outdoors. • Consider implementing exposure controls. • Consider providing voluntary use respirators.
35.5-250.4	101-300	All of the above and: <ul style="list-style-type: none"> • Implement exposure controls. • Make N95 respirators available for voluntary use.
250.5-500.3	301-499	All of the above and: <ul style="list-style-type: none"> • Ensure workers experiencing adverse symptoms requiring medical attention be moved to a location that ensures sufficient clean air. • Directly distribute N95 respirators to employees for voluntary use.
500.4-554.9	500-beyond the AQI	All of the above and: <ul style="list-style-type: none"> • Implement a complete required use respiratory protection program, including fit-testing, medical evaluations, requiring employees to be clean-shaven, and requiring the use of particulate respirators.
	Beyond the AQI	All of the above and: <ul style="list-style-type: none"> • Require respirators with an assigned protection factor (APF) of 25 or more.

(5) How employees can obtain the current PM_{2.5}, and the employer's methods to communicate the current PM_{2.5}:

Various government agencies monitor the air at locations throughout Washington and report the current PM_{2.5} for those places. The Air Quality Index (AQI) uses the air quality data from these regulatory monitors.

Although the government monitoring stations may measure several pollutants, this chapter only uses PM_{2.5}. One way to find the current and forecasted PM_{2.5} is to go to enviwa.ecology.wa.gov and find the nearest sensor on the map, or fire.airnow.gov and enter the zip code of the location where you will be working. The current PM_{2.5} is also available from the Air Quality WA mobile app, or the AirNow mobile app.

Employees who do not have access to the internet can contact their employer for the current PM_{2.5}. The U.S. EPA website www.enviroflash.info can transmit daily and forecasted air quality by email for your city or zip code.

If you choose to use an index such as the AQI, use the following table to find the equivalent AQI for PM_{2.5}.

PM _{2.5} IN MICROGRAMS PER CUBIC METER (µg/m ³)	AIR QUALITY INDEX FOR PM _{2.5} (AQI)
20.5 µg/m ³	69
35.5 µg/m ³	101
250.5 µg/m ³	301
500.4 µg/m ³	500
555 µg/m ³	Beyond the AQI

Your employer will establish a two-way communication system to communicate changing wildfire smoke conditions to you, and allowing you to communicate information to your employer such as; worsening air quality, availability issues of exposure control measures and respirators, and any adverse symptoms of wildfire smoke exposure. Your employer cannot retaliate or discriminate against you for raising safety concerns, or reporting symptoms.

The employer's communication system is: _____

(6) The employer's response plan for wildfire smoke including methods to protect employees from wildfire smoke, and the exposure symptom response procedures:

Your employer will provide training on the specific methods they will implement to protect you as part of their wildfire smoke response plan, and their procedures to respond when employees experience symptoms of wildfire smoke exposure.

The employer's methods to protect employees are: _____

The employer's exposure symptom response procedures are: _____

(7) The importance, limitations, and benefits of using a properly fitted 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 PM_{2.5} is less than 35.5 µg/m³.

A respirator needs to be used properly and kept clean. The following precautions must be taken:

(a) Employers must 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. Centers for Disease Control and Prevention, certifies respirators. 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. A NIOSH-approved N95 filtering facepiece respirator, shown in the image below, is the minimum level of protection for wildfire smoke.

(b) 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 must also be followed to ensure the best protection against wildfire smoke. If your respirator is not fit-tested, it cannot be relied upon to protect you from wildfire smoke exposure, and you should take action to reduce your exposure to wildfire smoke in the other ways described in the wildfire smoke rule and in section nine of this appendix; ask your employer to voluntarily arrange for respirator fit-testing; or both.

(c) 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 you against gases or vapors, and it will not supply oxygen. Some filtering-facepiece respirators are equipped with a sorbent layer for absorbing "nuisance" organic vapors. These can be used for voluntary use, but are not NIOSH certified for protection against hazardous concentrations of organic vapor.

(d) Respirator use is not voluntary, and a complete respiratory protection program in accordance with chapter 296-842 WAC Respirators, is required in any of the following situations:

- The employer chooses to require respirator use;
- A respiratory hazard, such as exposure to a substance over the permissible exposure limit (PEL) or hazardous exposure to an airborne biological hazard, is present. To evaluate respiratory hazards in your workplace, see chapter 296-841 WAC, Airborne contaminants.

(e) You need to keep track of your respirator, so you do not mistakenly use someone else's respirator.

(f) If you have questions about whether it is safe for you to wear a respirator, you should talk to your doctor, particularly if you have a heart or lung condition, or if you have other medical conditions.

(8) The risks and limitations of using an unfitted respirator, and the risks of wearing a respirator without a medical evaluation:

Respirators such as N95s must form a tight seal to the face to work properly. This is especially important for people at increased risk for severe disease. Wearing a respirator can make it harder to breathe. If you have heart or lung problems, talk to your doctor before using a respirator.

A fit-test is conducted to verify that a respirator is both comfortable and provides the wearer with the expected protection. Voluntary use of respirators, such as those provided by your employer between $PM_{2.5}$ 35.5 and 500.3 $\mu\text{g}/\text{m}^3$ for wildfire smoke, does not require a fit-test if your employer does not require you wear the respirator. Without a fit-test, a respirator cannot be expected to provide reliable protection. Unfitted respirators may not properly seal, allowing wildfire smoke to enter the respirator. You can take steps to improve the respirator seal, and reduce your exposure to wildfire smoke, by following the steps in section nine of this appendix.

A medical evaluation is conducted as part of evaluating respirator selection and use to ensure that the wearer is healthy enough to perform work while wearing a respirator. Voluntary use of respirators does not require a medical evaluation. If you have questions about whether it is safe for you to wear a respirator, you should talk to your doctor. This is particularly important if you have a heart or

lung condition (including asthma), or if you have other medical conditions of concern.

Follow your health care provider's advice if you have medical conditions that can be worsened by wildfire smoke exposure. And if you have symptoms such as difficulty breathing, shortness of breath, chest pain, nausea, or dizziness, go to an area with clean air, take off the respirator, and get medical help.

(9) How to properly put on, use, and maintain the respirators provided by the employer:

A tight-fitting respirator such as an N95 will not be able to seal to your face if facial hair interferes with the seal. Ensuring that you are clean-shaven will allow a better seal and more reliable protection. 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. Always inspect your respirator before use, and follow the manufacturer's instructions. Replace respirators that are damaged, dirty, or wet.

For those who use a filtering facepiece respirator such as an N95 that is made of filter material:

(a) With clean, dry hands, place the mask over the nose and under the chin, with one strap placed below the ears and one strap above. Be sure that the nosepiece bar or foam is on top.

(b) Pinch the nosepiece of the respirator over the top of the nose, so it fits securely.

(c) Perform a seal check:

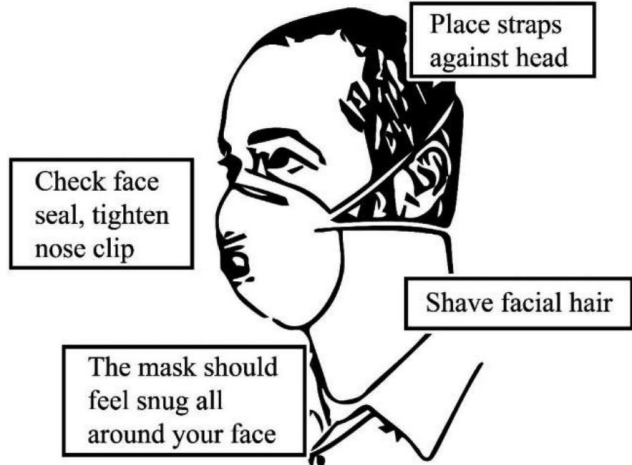
(i) Cover the respirator with both hands and exhale. If air leaks where the respirator seals against the face, adjust the respirator and nosepiece and try again. The respirator should bulge from the face and not leak around the seal.

(ii) Cover the respirator with both hands and inhale. If air leaks where the respirator seals against the face, adjust the respirator and nosepiece and try again. The respirator should collapse slightly and not leak around the seal.

For a respirator that relies on a tight seal to the face, check how well it seals 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 need to 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, shortness of breath, chest pain, nausea, or dizziness, go to an area with clean air, take off the respirator, and get medical help.



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NEW SECTION

WAC 296-820-855 Appendix B: Selecting direct-reading particulate monitors (mandatory). The information in this section provides guidance when selecting a direct-reading particulate monitor and determining compliance with the specifications required by WAC 296-820-845 Measuring PM_{2.5} levels at the worksite:

(1) The South Coast Air Quality Management District's air quality sensor performance evaluation center (AQ-SPEC) www.aqmd.gov/aq-spec publishes field and lab evaluations of many direct-read PM_{2.5} monitors.

(2) The monitor's field R-squared (R²) value must be greater than 0.7 when measuring one-hour average PM_{2.5}.

(3) If the monitor's field R² is 0.7 or less, the employer may use the monitor alongside other data sources listed in WAC 296-820-815 Identification of harmful exposures, and so long as the employer uses whichever value is higher.

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NEW SECTION

WAC 296-820-860 Appendix C: Calculating the Air Quality Index for PM_{2.5} (nonmandatory). The Air Quality Index (AQI) for PM_{2.5} is calculated as follows:

$$I_{PM_{2.5}} = \frac{I_{Hi} - I_{Lo}}{BP_{Hi} - BP_{Lo}} (C_p - BP_{Lo}) + I_{Lo}$$

Where:

*I*_{PM_{2.5}} is the Air Quality Index value for PM_{2.5}

- C_p is the concentration of PM_{2.5} in µg/m³ truncated to 1 decimal place
- BP_{Hi} is the concentration breakpoint that is greater than or equal to C_p
- BP_{Lo} is the concentration breakpoint that is less than or equal to C_p
- I_{Hi} is the AQI value corresponding to BP_{Hi}
- I_{Lo} is the AQI value corresponding to BP_{Lo}

PM _{2.5} BREAKPOINTS ¹	AQI EQUIVALENT ¹	AQI CATEGORY ¹	WA DOH HEALTH MESSAGING ²
0.0-12.0	0-50	Good	It is a great day to be active outside and a good time to make a plan if worse air quality is in the forecast.
12.1-35.4	51-100	Moderate	Some people are especially sensitive to lower levels of particle pollution and should reduce exposure. For example, limit time outside and avoid strenuous outdoor activity. All sensitive groups should watch for symptoms.
35.5-55.4	101-150	Unhealthy for sensitive groups	Sensitive groups should take steps to reduce exposure. Limit time outside, avoid strenuous outdoor activity, and follow tips for cleaner indoor air. Everyone should watch for symptoms as a sign to reduce exposure.
55.5-150.4	151-200	Unhealthy	Everyone should reduce exposure. Limit time outside, avoid strenuous outdoor activity, and follow tips for cleaner indoor air.
150.5-250.4	201-300	Very unhealthy	Everyone should reduce exposure. Stay inside and filter indoor air to keep it cleaner. Go elsewhere for cleaner air, if needed.
250.5-350.4	301-400	Hazardous	Everyone should reduce exposure. Stay inside and filter indoor air to keep it cleaner. Go elsewhere for cleaner air, if needed.
350.5-500.4	401-500	Hazardous	Everyone should reduce exposure. Stay inside and filter indoor air to keep it cleaner. Go elsewhere for cleaner air, if needed.
> 500.4	Beyond the AQI	Hazardous (beyond the AQI)	

¹ U.S. EPA. September 2018. Technical Assistance Document for the Reporting of Daily Air Quality – The Air Quality Index (AQI). EPA 454/B-18-007. Research Triangle Park, North Carolina.

² Washington Department of Health. April 2022, accessed April 2023. Washington Air Quality Guide for Particle Pollution: <https://doh.wa.gov/sites/default/files/legacy/Documents/4300/waqa%20infographic%5fEnglish.pdf?uid=64384c71c8715>

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