

WAC 296-62-085 Wildfire Smoke

Draft permanent rule stakeholder meeting

Agenda for Today's Meeting:

- Opening and Introduction
- Review of draft permanent rule for wildfire smoke
- Discussion and comments

Seeking stakeholder feedback: WAC 296-62-08580(3) Required use of N95 respirators without medical evaluations or fit-testing at a $PM_{2.5}$ of either $150.5 \mu\text{g}/\text{m}^3$ or $250.5 \mu\text{g}/\text{m}^3$ (AQI 201 or 301).

Packet Contents:

- Cover Sheet
- Draft permanent rule WAC 296-62-085 Wildfire Smoke
- Tracked changes between the 2022 emergency rule and the draft permanent rule available on the L&I Wildfire Smoke Workplace Safety & Health Rulemaking page:
<https://www.lni.wa.gov/safety-health/safety-rules/rulemaking-stakeholder-information/wildfire-smoke>

Contacts:

Technical questions:

- Chris Pyke: chris.pyke@lni.wa.gov
- Dr. Nicholas Reul: nicholas.reul@lni.wa.gov

Rulemaking process questions:

- Cindy Ireland: cynthia.ireland@lni.wa.gov

Written feedback on the draft rule due October 21st, 2022

Send all written feedback to: cynthia.ireland@lni.wa.gov

WAC 296-62-085 Wildfire smoke.

1

WAC 296-62-08510 Purpose and scope.

2

- (1) This standard applies to workplaces where the employer should reasonably anticipate that employees may be exposed to a $PM_{2.5}$ concentration of $20.5 \mu g/m^3$ (Air Quality Index 69) or more. 3
4
5
- (2) The following workplaces and operations are exempt from this section: 6
7
 - (a) 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. 8
9
10
11
 - (b) 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. 12
13
14
15
 - (c) Work within the scope of chapter 296-305 WAC, Safety standards for firefighters. 16
17
- (3) The following workplaces and operations are exempt from the requirements in 296-62-08580 (4), requiring the use of filtering facepiece respirators: 18
19
20
 - (a) Employees exposed to a $PM_{2.5}$ concentration of less than $250.5 \mu g/m^3$ (Air Quality Index 301) for a total of one hour or less during a 24-hour period. 22
23
 - (b) Employees exposed to a $PM_{2.5}$ concentration of $250.5 \mu g/m^3$ (Air Quality Index 301) or more for a total of 15 minutes or less during a 24-hour period. 24
25
26

Notes: 27

- 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 the exemption in WAC 296-62-08510 (2)(b). 28
29
30
- Employers are not responsible for tracking employee exposures outside of working hours. 31

WAC 296-62-08520 Definitions.

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 “AQI for $PM_{2.5}$ ”.

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 $PM_{2.5}$.

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.

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.

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.

$PM_{2.5}$. 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 ($\mu\text{g}/\text{m}^3$).

Wildfire smoke. Emissions from fires in wildlands or in 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.

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

WAC 296-62-08530 Identification of harmful exposures.

The employer must determine employee exposure to $PM_{2.5}$ for worksites covered by this section before each shift and periodically thereafter, as needed, by any of the following methods:

- (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 website;
 - (e) U.S. EPA AirNow mobile app;
 - (f) U.S. Forest Service AirFire website;
 - (g) Local Clean Air Agency website; or
- (2) Obtain $PM_{2.5}$ forecasts and the current $PM_{2.5}$ directly from the department of ecology, local clean air agency, 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 Appendix A of this part.

Note: Employers must check the current $PM_{2.5}$ in a manner that they are able to comply with the requirements in WAC 296-62-085. The current $PM_{2.5}$ is updated hourly.

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
150.5 $\mu\text{g}/\text{m}^3$	201
250.5 $\mu\text{g}/\text{m}^3$	301
500.4 $\mu\text{g}/\text{m}^3$	500
555 $\mu\text{g}/\text{m}^3$	Beyond the AQI

Note: The employer does not have to determine employee exposure as required by this subsection if the employer assumes the current $PM_{2.5}$ is $555 \mu\text{g}/\text{m}^3$ (Beyond the AQI) or more, and uses that assumption to comply with the requirements in WAC 296-62-08570 (2) exposure controls, and 296-62-08580 (5) respiratory protection.

WAC 296-62-08540 Hazard communication.

For any worksite covered by this section, 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:
 - (a) When at least two consecutive current $PM_{2.5}$ readings as identified in WAC 296-62-08530 are $20.5 \mu\text{g}/\text{m}^3$ (AQI 69) or more; and
 - (b) When the current $PM_{2.5}$ as identified in WAC 296-62-08530 is $35.5 \mu\text{g}/\text{m}^3$ (AQI 101) or more; and
 - (c) When the current $PM_{2.5}$ as identified in WAC 296-62-08530 is $150.5 \mu\text{g}/\text{m}^3$ (AQI 201) or more; and
 - (d) When the current $PM_{2.5}$ as identified in WAC 296-62-08530 is $250.5 \mu\text{g}/\text{m}^3$ (AQI 301) or more; and
 - (e) When the current $PM_{2.5}$ as identified in WAC 296-62-08530 is $500.4 \mu\text{g}/\text{m}^3$ (AQI 500) or more; and
 - (f) When the current $PM_{2.5}$ as identified in WAC 296-62-08530 is $555.5 \mu\text{g}/\text{m}^3$ (beyond the AQI) or more; and
 - (g) Protective measures available to employees to reduce their wildfire smoke exposures.
- (2) Enabling and encouraging employees to inform the employer of:
 - (a) Worsening air quality; and
 - (b) Availability issues of appropriate exposure control measures and respiratory protection required by this standard; 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 $20.5 \mu\text{g}/\text{m}^3$ (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 of wildfire smoke; and
 - (b) The right to obtain medical treatment without fear of reprisal; and
 - (c) How employees can obtain the current $PM_{2.5}$; and
 - (d) The requirements of WAC 296-62-085 Wildfire smoke; and
 - (e) The employer's response plan for wildfire smoke including methods to protect employees from wildfire smoke; and
 - (f) The importance, benefits, and limitations of using a properly fitted respirator when exposed to wildfire smoke; and
 - (g) The risks and limitations of using an unfitted respirator, and the risks of wearing a respirator without a medical evaluation; and
 - (h) How to properly put on, use, and maintain the respirators provided by the employer.

WAC 296-62-08550 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 $20.5 \mu\text{g}/\text{m}^3$ (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 information in Appendix B:
 - (a) The health effects of wildfire smoke; and

- (b) The right to obtain medical treatment without fear of reprisal; 153
and 154
 - (c) How employees can obtain the current $PM_{2.5}$; and 155
 - (d) The requirements of WAC 296-62-085 Wildfire smoke; and 156
 - (e) The employer's response plan for wildfire smoke including meth- 157
ods to protect employees from wildfire smoke; and 158
 - (f) The importance, benefits, and limitations of using a properly 159
fitted respirator when exposed to wildfire smoke; and 160
 - (g) The risks and limitations of using an unfitted respirator, and 161
the risks of wearing a respirator without a medical evaluation; 162
and 163
 - (h) How to properly put on, use, and maintain the respirators pro- 164
vided by the employer. 165
- (3) Supervisor training. 166
- Prior to supervising employees performing work that exposes the 167
worker to $PM_{2.5}$ levels that are $20.5 \mu\text{g}/\text{m}^3$ (AQI 69) or more, supervi- 168
sors must have training on the information in Appendix B, and the 169
following topics: 170
- (a) The procedures the supervisor must follow to implement the 171
applicable provisions of WAC 296-62-085 Wildfire smoke; and 172
 - (b) The procedures the supervisor must follow if an employee ex- 173
hibits adverse symptoms of wildfire smoke exposure, including 174
appropriate emergency response procedures; and 175
 - (c) Procedures for moving or transporting employees to an emer- 176
gency medical service provider, if necessary. 177

WAC 296-62-08560 Exposure symptom response. 178

- (1) The employer must monitor employees displaying adverse symp- 179
toms of wildfire smoke exposure to determine whether medical at- 180
tention is necessary. 181
- (2) Employers must allow employees who show signs of injury or ill- 182
ness due to wildfire smoke exposure to seek medical treatment, and 183
may not retaliate against affected employees for seeking such treat- 184
ment. 185

- (3) 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.

WAC 296-62-08570 Exposure controls.

- (1) Where the current $PM_{2.5}$ is $20.5 \mu\text{g}/\text{m}^3$ (AQI 69) or more, the employer is encouraged to implement exposure controls.
- (2) Where the current $PM_{2.5}$ is $35.5 \mu\text{g}/\text{m}^3$ (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;
 - (g) Providing additional rest periods.

EXCEPTION: During emergency response, exposure controls in WAC 296-62-08570 are not required.

WAC 296-62-08580 Respiratory protection.

- (1) Where the current $PM_{2.5}$ is $20.5 \mu\text{g}/\text{m}^3$ (AQI 69) or more, 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) or more, the employer must provide N95 filtering-facepiece respirators at no cost to all exposed employees, and must encourage respirator use.
- (a) Employers must provide respirators by either of the following methods:
- (i) Distribute directly to each exposed employee; or
- (ii) Maintain a sufficient supply for all exposed employees at each work location where exposure occurs. Such respirator supply availability and 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.
- (b) The employer must use WAC 296-62-08590, Appendix B in lieu of the advisory information in Table 2 of WAC 296-842-11005 for training regarding voluntary use of respirators for wildfire smoke.
- (3) Where the current $PM_{2.5}$ is [*Thresholds under consideration include $150.5 \mu\text{g}/\text{m}^3$ (AQI 201) or $250.5 \mu\text{g}/\text{m}^3$ (AQI 301). Stakeholder input requested.*] or more, the employer must provide and require to be worn an N95 filtering-facepiece respirator.
- (4) Where the current $PM_{2.5}$ is $500.4 \mu\text{g}/\text{m}^3$ (AQI 500) 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:
- (a) N95 filtering-facepiece respirator; or
- (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 chapter 296-842-13005 WAC.
- (5) Where the current $PM_{2.5}$ is $555 \mu\text{g}/\text{m}^3$ 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; or 250
- (b) Full-facepiece air purifying respirator; or 251
- (c) Full-facepiece powered air purifying respirator; or 252
- (d) Other respirators with an assigned protection factor of 25 or 253
more as listed in chapter 296-842-13005 WAC, such that the PM_{2.5} 254
levels inside the respirator are less than 55.5 µg/m³ (AQI 151). 255
- (6) Respirators must be NIOSH-approved devices that effectively protect 256
the wearers from inhalation of PM_{2.5}. 257
- (7) Respirators must be cleaned, stored, maintained, and replaced so 258
that they are in good working order, and do not present a health haz- 259
ard to users. Replace or repair any respirator that is not functioning 260
properly, and do not permit their use. Filtering facepiece respirators 261
must not be cleaned, repaired, or shared. Dispose, and replace any 262
filtering facepiece respirator that is dirty, damaged, or difficult to 263
breathe through. Elastomeric respirators must be properly cleaned 264
and disinfected before being worn by another employee. 265

Notes: 266

- For voluntary use of filtering facepiece respirators, such as N95 respirators, some of the 267
requirements of chapter 296-842 WAC, Safety Standards for Respirators, do not apply, such 268
as fit testing and medical evaluations. Elastomeric respirators equipped with P100 filters 269
may be used in place of N95 filtering facepiece respirators. If elastomeric respirators are 270
used voluntarily, additional requirements from chapter 296-842 WAC, Respirators, apply 271
such as medical evaluations and establishing a respiratory protection program. 272
- For voluntary or required use of loose-fitting powered air purifying respirators, some of 273
the requirements of chapter 296-842 WAC, Safety Standards for Respirators, do not apply, 274
such as fit testing and requiring workers to be clean shaven. 275
- During emergency response, required use of respirators must be implemented to the ex- 276
tent feasible. 277

**WAC 296-62-08585 Appendix A: Protection from wildfire smoke measuring PM_{2.5} 278
levels at the worksite (mandatory if an employer monitors with 279
a direct reading instrument). 280**

- (1) An employer may use a direct-reading particulate monitor to iden- 281
tify harmful exposures as required by WAC 296-62-08530, if the em- 282
ployer can demonstrate that it has complied with this appendix and 283
selected a monitor that: 284

- (a) Does not underestimate employee exposures to wildfire smoke; 285
or 286
- (b) May underestimate wildfire smoke exposures, but the employer 287
has obtained information on the possible error of the monitor 288
from the manufacturer or other published literature and has 289
accounted for the error of the monitor when determining ex- 290
posures to $PM_{2.5}$ to ensure that employee exposure levels are 291
not underestimated. 292
- (2) The monitor's field R-squared (R^2) value must be greater than 0.7 293
when measuring $PM_{2.5}$ as defined by the South Coast Air Quality 294
Management District's air quality sensor performance evaluation 295
center (AQ-SPEC) www.aqmd.gov/aq-spec. 296
- (3) The monitor must be designed and manufactured to measure the 297
concentration of airborne particle sizes ranging from an aerody- 298
namic diameter of 0.3 micrometers or less, up to and including 2.5 299
micrometers ($\leq 0.3 \mu m$ to $2.5 \mu m$). The employer may use a moni- 300
tor that measures a particle size range beyond these limits, if the 301
employer treats the results as the $PM_{2.5}$ levels. 302
- (4) The employer must ensure that the monitor it uses is calibrated, 303
maintained, and used, including the use of necessary accessories, 304
in accordance with the manufacturer's instructions for accurately 305
measuring $PM_{2.5}$ concentrations. 306
- (5) The person supervising, directing, or evaluating workplace moni- 307
toring for $PM_{2.5}$ must have the training or experience necessary to 308
apply this section and to ensure the correct use of the monitor and 309
the interpretation of the results, so that exposures are not underes- 310
timated. 311

**WAC 296-62-08590 Appendix B: Protection from wildfire smoke information to be 312
provided to employees (mandatory). 313**

- (1) The health effects of wildfire smoke. 314
Although there are many hazardous chemicals in wildfire smoke, 315
the main harmful pollutant for people who are not very close to the 316
fire is "particulate matter," the tiny particles suspended in the air. 317
318

Particulate matter can irritate the lungs and cause persistent coughing, phlegm, wheezing, or difficulty breathing. Particulate matter can also cause more serious problems, such as reduced lung function, bronchitis, worsening of asthma, heart failure, and early death.

Sensitive groups.

People who are at higher risk of experiencing adverse health effects as a result of exposure to wildfire smoke include those with preexisting health conditions; those with increased duration of exposure; and those whose work results in an increased breathing rate, including outdoor workers. 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:

- 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;
- Outdoor workers.

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

- People with health conditions:
 - Lung diseases, such as asthma and COPD;
 - Heart diseases;

- Respiratory diseases; 354
 - Diabetes. 355
 - People 18 and younger, or older than 65; 356
 - Pregnant people; 357
 - People of color; 358
 - Tribal and indigenous people; 359
 - People with low income. 360
- (2) The right to obtain medical treatment without fear of reprisal. 361
Employers must allow employees who show signs of injury or ill- 362
ness due to wildfire smoke exposure to seek medical treatment, and 363
may not punish affected employees for seeking such treatment. Em- 364
ployers must also have effective provisions made in advance for 365
prompt medical treatment of employees in the event of serious in- 366
jury or illness caused by wildfire smoke exposure. 367
- (3) How employees can obtain the current PM_{2.5} in the air. 368
Various government agencies monitor the air at locations through- 369
out Washington and report the current PM_{2.5} for those places. The 370
Air Quality Index (AQI) uses the air quality data from these regula- 371
tory monitors. 372
373
Although the government monitoring stations may measure several 374
pollutants, this chapter only uses PM_{2.5}. One way to find the current 375
and forecasted PM_{2.5} is to go to enviwa.ecology.wa.gov and find the 376
nearest sensor on the map, or www.AirNow.gov and enter the zip 377
code of the location where you will be working. The current PM_{2.5} 378
is also available from the U.S. Forest Service at tools.airfire.org. Em- 379
ployees who do not have access to the internet can contact their em- 380
ployer for the current PM_{2.5}. The U.S. EPA website www.enviroflash.info 381
can transmit daily and forecasted air quality by text or email 382
for particular cities or zip codes. 383
384
If you choose to use an index such as the AQI, use the following ta- 385
ble to find the equivalent AQI for PM_{2.5}. 386
387

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
150.5 µg/m ³	201
250.5 µg/m ³	301
500.4 µg/m ³	500
555 µg/m ³	Beyond the AQI

388

- (4) The requirements of WAC 296-62-085, wildfire smoke rule. 389
- If employees may be exposed to wildfire smoke, then the employer 390
is required to do all of the following: 391
- (a) Check the current PM_{2.5} before and periodically during each 392
shift. 393
 - (b) Provide training to employees. 394
 - (c) Implement a two-way communication system. 395
 - (d) Create and maintain a written wildfire smoke response plan. 396
 - (e) Provide engineering and administrative controls when the cur- 397
rent PM_{2.5} is 35.5 µg/m³ (AQI 101) or more if feasible. 398
 - (f) Provide respirators and encourage their use when the current 399
PM_{2.5} is 35.5 µg/m³ (AQI 101) or more. 400
 - (g) Provide and require respirators to be worn when the current 401
PM_{2.5} is [150.5 µg/m³ (AQI 201) or 250.5 µg/m³ (AQI 301)] or more. 402
 - (h) Provide respirators, and enroll workers in a complete required 403
use respiratory protection program when the current PM_{2.5} is 404
500.4 µg/m³ (AQI 500) or more. 405
 - (i) Provide more protective respirators such as powered air puri- 406
fying respirators, and enroll workers in a complete required 407
use respiratory protection program when the current PM_{2.5} is 408
555 µg/m³ (Beyond the AQI) or more. 409

Employers must alert employees when at least two consecutive cur- 410
rent PM_{2.5} readings are 20.5 µg/m³ (AQI 69) or more, when the cur- 411
rent PM_{2.5} is 35.5 µg/m³ (AQI 101) or more, when the current PM_{2.5} 412
is [150.5 µg/m³ (AQI 201) or 250.5 µg/m³ (AQI 301)] or more, when 413
the current PM_{2.5} is 500.4 µg/m³ (AQI 500) or more, and when the 414

current $PM_{2.5}$ is $555 \mu\text{g}/\text{m}^3$ (Beyond the AQI) or more, and what protective measures are available to employees at each threshold.

Employers must encourage employees to inform their employers if they notice the air quality is getting worse, or if they are suffering from any symptoms due to the air quality, without fear of reprisal.

The employer's communication system is: _____

The employer's methods to protect employees from wildfire smoke. Employers must take action to protect employees from wildfire smoke when the current $PM_{2.5}$ is $35.5 \mu\text{g}/\text{m}^3$ (AQI 101) or more.

Examples of protective methods include:

- (a) Locating work in enclosed structures or vehicles where the air is filtered.
- (b) Changing procedures such as moving workers to a place with a lower $PM_{2.5}$.
- (c) Reducing work time in areas with unfiltered air.
- (d) Increasing rest time and frequency, and providing a rest area with filtered air.
- (e) Reducing the physical intensity of the work to help lower the breathing and heart rates.

The employer's control system at this worksite is: _____

(5) 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 $20.5 \mu\text{g}/\text{m}^3$, to provide additional protection.

When the current $PM_{2.5}$ is $20.5 \mu\text{g}/\text{m}^3$ (AQI 69) or more, your employer is encouraged to make proper respirators available to workers who may choose to use them voluntarily.

When the current $PM_{2.5}$ is $35.5 \mu\text{g}/\text{m}^3$ (AQI 101) or more, your employer must make proper respirators available to workers who may choose to use them voluntarily.

When the current $PM_{2.5}$ is [$150.5 \mu\text{g}/\text{m}^3$ (AQI 201) or $250.5 \mu\text{g}/\text{m}^3$ (AQI 301)] or more, your employer must require the use of filtering face-piece respirators.

When the current $PM_{2.5}$ is $500.4 \mu\text{g}/\text{m}^3$ (AQI 500) or more, your employer must enroll workers in a complete respiratory protection program, and require respirator use.

When the current $PM_{2.5}$ is $555 \mu\text{g}/\text{m}^3$ or more (beyond the AQI), respirators that are more protective than N95s are required. Your employer must provide and require you to wear one of the following respirators equipped with high efficiency particulate air filters:

- (a) Loose-fitting powered air purifying respirator; or
- (b) Full-facepiece air purifying respirator; or
- (c) Full-facepiece powered air purifying respirator; or
- (d) Other respirators that are at least as effective.

These respirators are more protective than N95s. You will need to have a fit test, medical evaluation, and must be clean shaven to use these respirators, except for loose-fitting powered air purifying respirators (PAPR), which can be worn without a fit test, and can be used with facial hair.

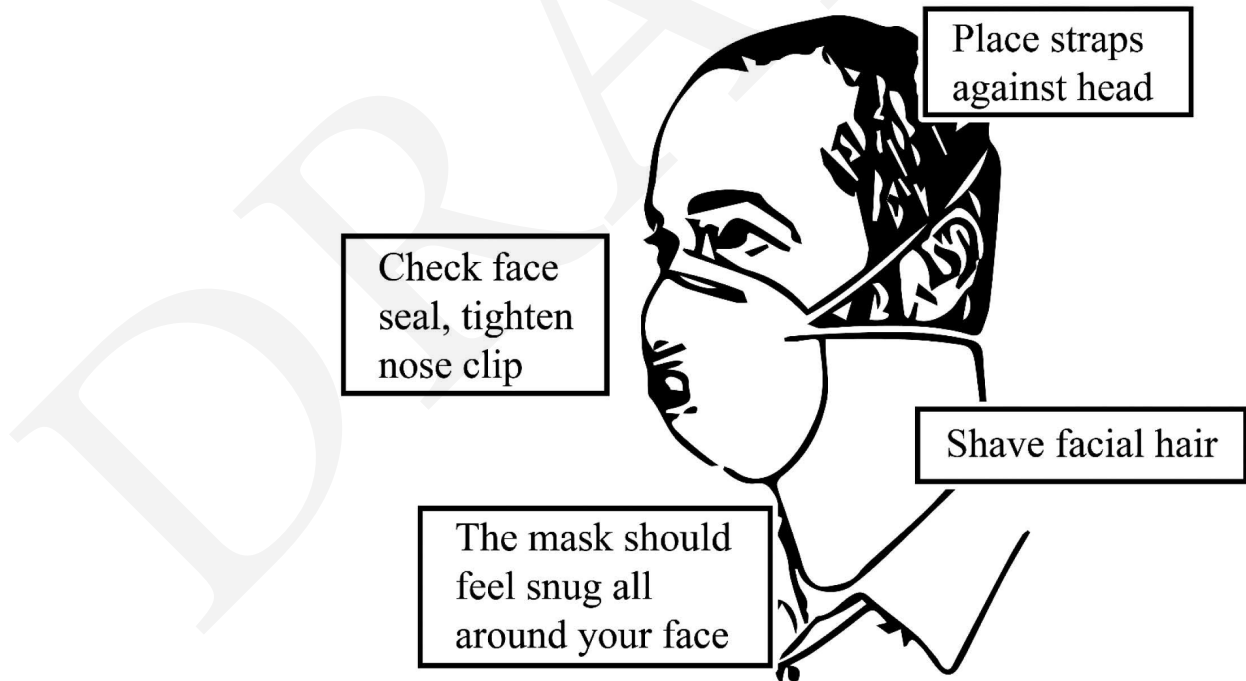
A respirator needs to be used properly and kept clean.

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 should also be followed to ensure the best protection against wildfire smoke.
- (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.
- (d) You should keep track of your respirator so you do not mistakenly use someone else's respirator.
- (e) Particularly if you have a heart or lung problem, or if you have other medical problems and have questions about whether it is safe for you to wear a respirator, you should talk to your doctor.
- (6) How to properly put on, use, and maintain the respirators provided by the employer.
- To get the most protection from a respirator, there must be a tight seal around the face. A respirator will provide much less protection if facial hair interferes with the seal. Loose-fitting powered air purifying respirators may be worn by people with facial hair since they do not have seals that are affected by facial hair.
- The proper way to put on a respirator depends on the type and model of the respirator.
- For those who use an N95 or other filtering facepiece respirator that is made of filter material:
- (a) Place the mask over the nose and under the chin, with one strap placed below the ears and one strap above.

- (b) Pinch the metal part (if there is one) of the respirator over the top of the nose so it fits securely. 520
521
- (c) Perform a seal check: 522
 - (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. When a proper fit is achieved, the respirator should bulge from the face and not leak around the seal. 523
524
525
526
527
 - (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. When a proper fit is achieved, the respirator should collapse slightly and not leak around the seal. 528
529
530
531
532



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 533
534
535

seal checks. Adjust the respirator if air leaks between the seal and 536
the face. The more air leaks under the seal, the less protection the 537
user receives. 538

Respirator filters need to be replaced if they get damaged, deformed, 539
dirty, or difficult to breathe through. Filtering facepiece respirators 540
are disposable respirators that cannot be cleaned or disinfected. A 541
best practice is to replace filtering facepiece respirators at the begin- 542
ning of each shift. 543

If you have symptoms such as difficulty breathing, dizziness, or 544
nausea, go to an area with clean air, take off the respirator, and get 545
medical help. 546

¹https://doh.wa.gov/sites/default/files/legacy/Documents/4300/waqa%20infographic_English.pdf

WAC 296-62-085xC Appendix C: Information to be provided to employees who are required to use N95 filtering facepiece respirators without medical evaluation or fit-testing (mandatory).

Placeholder: Additional information and training will be inserted here which is to be provided to workers required to wear N95 filtering facepiece respirators under 296-62-08580 (3) respiratory protection; without medical evaluation, fit-testing, or shaving as typically required under chapter 296-842 WAC Respirators.

This appendix will include information to be provided to employees on the limitations and risks of using a respirator without a medical evaluation, without a fit-test, as well as information the employee could use to get the best protection possible.

WAC 296-62-085xD Appendix D: Calculating the air quality index for PM_{2.5} (nonmandatory).

559

560

The air quality index (AQI) for PM_{2.5} is calculated as follows:

561

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

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	AQI CATEGORY	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.

PM _{2.5} BREAKPOINTS ¹	AQI EQUIVALENT	AQI CATEGORY	WA DOH HEALTH MESSAGING ²
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.

PM _{2.5} BREAKPOINTS ¹	AQI EQUIVALENT	AQI CATEGORY	WA DOH HEALTH MESSAGING ²
> 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 https://doh.wa.gov/sites/default/files/legacy/Documents/4300/waqa%20infographic_English.pdf