

Policies



Metro

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Subject	Air quality protection
Section	Emergency Management, Capital Asset Management
Approved by	Marissa Madrigal, Chief Operating Officer
Approved on	Dec. 8, 2022
Replaces	Wildfire Smoke Protection, approved Aug. 5, 2022

POLICY PURPOSE

This policy is intended to protect employee health and safety during wildfire and other poor air quality events. This policy complies with the Oregon OSHA Rule on Protection from Wildfire Smoke.

APPLICABLE TO

All Metro departments and facilities where employees are or will be exposed to wildfire smoke or other sources of poor air quality where Air Quality Index is 101 or higher (Unhealthy for Sensitive Groups) and/or ambient air concentration for PM_{2.5} is at or above 35.5 ug/m³.

Not applicable:

- Enclosed buildings and structures in which the air is filtered by a mechanical ventilation system and personnel ensure that windows, doors, bays, and other exterior openings are kept closed, except when it is necessary to open doors to enter or exit, and
- Enclosed vehicles in which the air is filtered by a cabin air filter and the driver ensures that windows, doors, and other openings are kept closed, except when it is necessary to open doors to enter and exit,
- When it is predetermined that operations will be suspended to prevent employee exposure to wildfire smoke or other sources of poor air quality at an ambient air concentration for PM_{2.5} of 35 ug/m³ and/or AQI 101 or higher, and
- Employees working from home.

DEFINITIONS

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

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

Sensitive Groups: People with pre-existing health conditions and those who are sensitive to air pollution who are among those likely to experience health problems from exposure to wildfire smoke or other sources of poor air quality. Examples of sensitive groups include: people with lung disease such as asthma or chronic obstructive pulmonary disease (COPD), including bronchitis and emphysema, and those who smoke; people with respiratory infections, such as pneumonia, acute bronchitis, bronchiolitis, cold, flu or those with or recovering from severe respiratory illness; people with existing heart or circulatory problems, such as irregular heartbeat, 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; and people with other medical or health conditions which can be exacerbated by exposure to wildfire smoke or other sources of poor air quality as determined by a physician or other licensed healthcare provider.

Wildfire Smoke: Emissions from unplanned fires in wildlands, which may include adjacent developed and cultivated areas to which the fire spreads or from where it originates.

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

PROCEDURES

Metro facility and venue supervisors and managers shall ensure the implementation of the following procedures at their worksites:

1. Engineering and administrative controls

Implement engineering and administrative controls, if possible, to reduce employee exposure to poor air quality (reducing AQI to less than 101 and PM2.5 exposure to less than 35 ug/m³). This may include:

- a. Relocating workers to available indoor areas or vehicles where the air is adequately filtered.
- b. Using portable air purifiers equipped with HEPA filters sufficient in number and performance for the size of the enclosed area.
- c. Temporarily relocating outdoor work operations to another outdoor location with better air quality when work permits.
- d. Changing employee work schedules to when better air quality is forecasted.
- e. Voluntarily using filtering facepiece respirators whenever employee exposure to PM2.5 is at or above 35 ug/m³.

2. Supply of NIOSH approved respirators

Supervisors must maintain a sufficient number and sizes of NIOSH-approved N95 respirators at each work location where employees work outside for some or all their work hours and may be exposed to wildfire smoke or other sources of poor air quality for which they are approved.

3. Monitoring Air Quality Index (AQI)

All Supervisors with employees that work outside for some or all of their shift will:

- a. Monitor the AQI prior to the start of each shift and adjust operations accordingly.
- b. Monitor the AQI each day for the following workday to allow for adjustments to schedules and assure the ability to implement the requirements of this policy.
- c. Designate an employee during each work shift to monitor AQI for any changes that may require work adjustments according to this policy.

AQI can be monitored utilizing one of the methods listed in Appendix A.

4. Employee notification system

Metro's Emergency Management division will monitor regional smoke levels and send email notifications to managers and supervisors when the likelihood of employee exposure to wildfire smoke or other sources of poor air quality exists.

Managers and supervisors of employees who work outside for part or all of their shift, are responsible for notifying their employees when the following AQI levels are reached for their work location:

- AQI 101: Unhealthy for Sensitive Groups (PM2.5 is at or above 35.5 ug/m3)
- AQI 151: Unhealthy (PM2.5 is at or above 50 ug/m3)
- AQI 251: Very Unhealthy (PM2.5 is at or above 200.9 ug/m3)
- AQI 501 (PM2.5 is at or above 500.4 ug/m3)
- AQI (ambient air concentration for PM2.5) drops below levels requiring protective measures.

5. Employee concerns

Employees are encouraged to report any concerns regarding wildfire smoke or other sources of poor air quality to their immediate supervisor. This is especially true if any of the following occurs:

- Air quality improves and worsens; and
- When experiencing severe health symptoms that may be the result of poor air quality exposure such as asthma attacks, difficulty breathing, and chest pain.

6. Required Actions

During a wildfire or air quality event, Supervisors with employees who work outside for some, or all their shift must monitor the AQI and take actions as described below to protect personnel. Below are the required actions for various AQI levels.

AQI 101 – 150

The following measures shall be implemented at each worksite:

- a. Employees with medical conditions that make them sensitive to air quality will be permitted to work at an alternate work facility, remote work, or if not possible to use accrued sick leave. If eligible, employees may also use FMLA/OFLA.

- b. Assess and monitor the quality of air at each location where employees are exposed.
- c. Provide and document employee training as described in Section 7 of this policy.
- d. Implement two-way communication system for employees to receive and communicate updates regarding air quality changes or impacts.
- e. Implement engineering and administrative controls as described in Section 1 of this policy.
- f. Ensure NIOSH-approved respirators are readily available for voluntary use to all exposed personnel at their request.

AQI 151 – 250

All the allowances from the above thresholds, plus:

- a. All employees will be permitted to work at an alternate work facility, remote work, or if not possible, to use paid sick leave. If eligible, employees may also take FMLA/OFLA.
- b. Outdoor work facilities will reduce outdoor work activities, provide regular indoor breaks, and, if possible, shift times of operations or reduce operational hours.

AQI 251 – 500

All the allowances from the above thresholds plus employees will be provided NIOSH-approved filtering facepiece respirators for mandatory use by implementing a Wildfire Smoke Respiratory Protection program in accordance with Appendix A.

AQI 501 and above

All the allowances from the above thresholds plus:

- a. Employees working outdoors will be provided with NIOSH-approved respirators for mandatory use with federal law..
- b. Work periods will be reduced to no more than half of the employee's regular scheduled hours.
 - Work periods may be expanded to normal work hours if essential employees are certified to wear full-face respirators rated for such conditions.
 - Employees working outdoors in these conditions will be provided regular access and additional rest breaks to enclosed facilities with mechanical ventilation and air filtration systems.

7. Wildfire smoke prevention training

Employees who may be exposed to a workplace ambient air concentration of PM_{2.5} at or above 35.5 ug/m³ must receive annual training in wildfire smoke exposure and protections. The training provided must include the following topics:

- a. Symptoms of wildfire smoke exposure, including:
 - Eyes: burning sensations, redness, and tearing of the eyes caused by irritation and inflammation of the eyes that can temporarily impair one's vision.
 - Respiratory system: runny nose, sore throat, cough, difficulty breathing, sinus irritation, wheezing, shortness of breath; and
 - Fatigue, headache, irregular heartbeat, chest pain.
- b. The potential health effects of wildfire smoke, including increased risk of health effects to sensitive groups;
- c. The definition of sensitive groups as defined above (See Definitions);
- d. The employee's right to report health issues related to wildfire smoke exposure and obtain medical treatment for workplace exposure to wildfire smoke without fear of retaliation;
- e. How employees can obtain the current and forecasted ambient air concentration for PM2.5 and equivalent AQI level for their work location;
- f. The importance, limitations, and benefits of using a filtering facepiece respirator when provided by the employer, and how to properly put them on.
- g. The procedures the supervisor must follow if an employee exhibits severe symptoms of wildfire smoke exposure, including appropriate emergency response procedures;
- h. Employer's methods to protect employees from wildfire smoke;
- i. Employer's communication system for wildfire smoke hazards;
- j. Oregon OSHA Wildfire Smoke online training available at <https://osha.oregon.gov/edu/courses>, See *Wildfire Smoke Training Requirements*

RESPONSIBILITIES

Employees

- All employees are responsible for protecting themselves from wildfire smoke and poor air quality exposure by following these guidelines for prevention and immediately reporting any signs or symptoms to their supervisor.
- Employees are required to participate in training as outlined in this policy.
- Employees should report concerns immediately to their supervisor.

Supervisors

- Ensure the implementation of this policy in the workplace.
- Ensure the AQI is monitored during wildfire or air quality events.
- Ensure there are adequate supplies of filtering facepiece respirators available.

Department directors

- Ensure resources are available to implement this policy.

Safety and Risk Management Division

- Develop and maintain this policy
- Develop training and ensure personnel are trained in accordance with this policy
- Audits Metro worksite adherence to this policy

REFERENCES

OAR 437-002-1081 Protection from Wildfire Smoke 29 CFR 1910.134 – Respiratory Protection

APPENDICES

Appendix A
Monitoring Air Quality

Appendix B
5-3-1 Index: Estimating visibility

Appendix C
Respiratory Protection Program: Wildfire Smoke Filtering Facepiece

APPENDIX A

Monitoring air quality

- a. Metro supervisors should monitor; at the start of each shift, and as needed, employee exposure to wildfire smoke when employees are, or are likely to be exposed to an ambient air concentration is at or above AQI 101 (Unhealthy for Sensitive Groups) at the U.S. EPA AirNow website; www.airnow.gov
- b. If AirNow is down or you need an alternate source, use:
 - Oregon Department of Environmental Quality’s air quality website; www.oregon.gov/deq/aq/pages/aqi.aspx, redirect to <https://oraqi.deq.state.or.us/home/map>
 - The Interagency Wildland Fire Air Quality Response Program using URL https://tools.airfire.org/monitoring/v4/#!/?category=PM2.5_nowcast¢erlat=42¢erlon=-95&zoom=4
 - Cell phone – go to your app store and download; OregonAir

If the previous methods are not practical, use the 5-3-1 Visibility Chart during daylight hours to estimate the current air quality and corresponding AQI risk category (Appendix B).

Air Quality Index Levels of Health Concern	Numerical Value	Meaning
Good	0 - 50	Air quality is considered satisfactory, and air pollution poses little or no risk.
Moderate	51 - 100	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution.
Unhealthy for Sensitive Groups	101 - 150	Members of sensitive groups may experience health effects. The general public is not likely to be affected.
Unhealthy	151 - 200	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects.
Very Unhealthy	201 - 300	Health alert: everyone may experience more serious health effects.
Hazardous	> 300	Health warning of emergency conditions. The entire population is more likely to be affected.

APPENDIX B

5-3-1 Index: Estimating visibility

Determine the limit of your visual range by looking for distant targets or familiar landmarks such as mountains, mesas, hills, or buildings at known distances (miles). The visual range is that point at which these targets are no longer visible. As a general rule of thumb: if you can clearly see the outlines of individual trees on the horizon it is generally less than five miles away.

Ideally, the viewing of any distance targets should be made with the sun behind you. Looking into the sun or at an angle increases the ability of sunlight to reflect off of the smoke, and thus making the visibility estimate less reliable.

Once distance has been determined, follow this simple guide:

- If visibility is well over five miles, the air quality is generally good.
- Even if visibility is five miles away but generally hazy, air quality is moderate and beginning to deteriorate, and is generally healthy, except possibly for smoke sensitive persons. The general public should avoid prolonged exposure if conditions are smoky to the point where visibility is closer to the 5-mile range.
- If under five miles, the air quality is unhealthy for young children, adults over age 65, pregnant women, and people with heart and/or lung disease, asthma or other respiratory illness. These people should minimize outdoor activity.
- If under three miles, the air quality is unhealthy for everyone. Young children, adults over age 65, pregnant women, and people with heart and/or lung disease, asthma or other respiratory illness. These people should minimize outdoor activity.
- If under one mile, the air quality is unhealthy for everyone. Everyone should avoid all outdoor activities.

Using the 5-3-1 Visibility index

Distance you can see*	You are:		Or you have:
	<ul style="list-style-type: none">• An adult• A teenager• An older child	<ul style="list-style-type: none">• Age 65 and over• Pregnant• A young child	<ul style="list-style-type: none">• Asthma• Respiratory illness• Lung or heart disease
5 miles	check visibility	minimize outdoor activity	minimize outdoor activity
3 miles	minimize outdoor activity	stay inside	stay inside
1 mile	stay inside	stay inside	stay inside

* Less reliable under high humidity conditions

No matter how far you can see, if you feel like you are having health effects from smoke exposure, take extra care to stay inside or get to an area with better air quality. You should also see your doctor or other health professional as needed.

APPENDIX C

Respiratory Protection Program: Wildfire Smoke Filtering Facepiece

This appendix applies only to the required use of NIOSH-approved filtering facepiece respirators, including N95, P95, and R95, to be used by personnel for protection exclusively for wildfire smoke exposures when workplace ambient air concentrations of PM_{2.5} is at or above 500.4 ug/m³ (AQI 500).

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

Personnel who are required to wear filtering facepiece respirators to protect against wildfire smoke exposures when workplace ambient air concentrations of PM_{2.5} is at or above AQI 501 must follow Metro's agency wide safety policy on; Respiratory Protection located on the MetroNet: [MetroNet> Services> Safety and Risk management> Respirators and Voluntary use of respirators](#)

Employee training

Employees wearing filtering facepiece respirators are trained in the proper use of the respirators. Training shall include the following topics:

- Putting on and removing filtering facepiece respirators
- Limitations on use
- How to care for the respirator
- The ability to demonstrate a seal check

Seal check

Each employee who uses a filtering facepiece respirator must perform a user seal check to ensure that the respirator is properly sealed to the face is achieved each time the respirator is put on. Either the positive or negative pressure checks listed in this appendix or the respirator manufacturer's recommended user seal check method must be used.

Positive pressure user seal check

Once you have properly donned the respirator, conduct the user seal check as follows:

- place your hands over the facepiece, covering as much surface area as possible
- exhale gently into the facepiece
- The face fit is considered satisfactory if a slight positive pressure is being built up inside the facepiece without any evidence of outward leakage of air at the seal.

Examples of evidence that it is leaking are as follows:

- the feeling of air movement on your face along the seal of the facepiece
- fogging of your glasses, or a lack of pressure being built up inside the facepiece.

Note: If the particulate respirator has an exhalation valve, then performing a positive pressure check may not be possible. In such cases, a negative pressure check must be performed.

Negative pressure user seal check

- Negative pressure seal checks are typically conducted on particulate respirators that have exhalation valves. To conduct a negative pressure user seal check as follows;
- Cover the filter surface with your hands as much as possible and then inhale
- The facepiece should collapse on your face and you should not feel air passing between your face and the facepiece.

Correcting problems discovered during the seal check

In the case of either type of seal check (positive or negative), if air leaks around the nose, use both hands to readjust the nosepiece by placing your fingertips at the top of the metal nose clip. Slide your fingertips down both sides of the metal strip to more efficiently mold the nose area to the shape of your nose. Readjust the straps along the sides of your head until a proper seal is achieved.