Portland State
Environmental Health & Safety

Wildfire Smoke Protection Program

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1.0 Purpose

The Oregon Occupational Safety and Health Administration (Oregon OSHA) issued a permanent rule in 2022 to protect employees from workplace exposure to wildfire smoke.

Smoke from wildfires is composed of harmful gases and fine particles that can present a significant health hazard to workers exposed to it. The tiny particles of most concern and addressed in the Oregon OSHA rule are particulate matter with a diameter in micrometers of 2.5 or less, commonly referred to as PM2.5.

Mild symptoms of wildfire smoke exposure include coughing, runny nose, and eye irritation and inflammation, while more serious and sometimes fatal health effects include trouble breathing, asthma attacks, reduced lung function, chest pain, and heart attacks.

The PSU Wildfire Smoke Protection Program outlines the procedures required to meet the Oregon OSHA rule and to maintain a safe and healthy work environment through communication of Air Quality Index (AQI) levels, implementation of exposure controls, and training to increase awareness of wildfire smoke environmental conditions and potential health effects.

2.0 Scope

The Oregon OSHA Wildfire Smoke Protection Standard (OAR 437-002-1081) applies to employees who are or will be exposed to unhealthy or hazardous levels of wildfire smoke, specifically when the ambient air concentration for fine particulate matter (also known as PM2.5) is at or above 35.5 ug/m3 (Air Quality Index value of 101 for PM2.5).

Note: The reference to an AQI level throughout this program refers to an AQI level for PM2.5 only, and does not include an AQI level that may exist due to other pollutants, such as ozone.

<u>This program does not apply to the following:</u>

- Workplaces and operations in enclosed buildings and structures in which air is filtered by a mechanical ventilation system and when exterior openings are kept closed, except when it is necessary to briefly open doors to enter or exit.
- Work or operations in enclosed vehicles in which air is filtered by a properly maintained cabin air filter systems and when exterior openings are kept closed, except when it is necessary to briefly open doors to enter and exit.
- When it is predetermined that departmental and/or PSU campus wide operations will be suspended to prevent employee exposure to wildfire smoke levels for PM2.5 at or above 35.5 µg/m^3(AQI 101).

- Employees working at home.

Partial exemption: Work activities partially exempted from this program are those activities involving only intermittent employee exposure of less than 15 minutes in an hour to wildfire smoke levels for PM2.5 at or above 35.5 µg/m^3(AQI 101), for a total exposure of less than one hour in a single 24-hour period. Employees with intermittent exposure are required to receive information and training on wildfire smoke protection and be provided with NIOSH-approved filtering facepiece respirators for voluntary use.

3.0 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. The purpose of the AQI is to help people understand what local air quality means to their health. To make it easier to understand, the AQI is divided into six categories. Each category corresponds to a different level of health concern. Each category also has a specific color. The six levels of health concern and what they mean are:

Green - "Good" AQI is 0 to 50. Air quality is satisfactory, and air pollution poses little or no risk.

Yellow - "Moderate" AQI is 51 to 100. Air quality is acceptable. However, there may be a risk for some people, particularly those who are unusually sensitive to air pollution.

Orange - "Unhealthy for Sensitive Groups" AQI is 101 to 150. Members of sensitive groups may experience health effects. The general public is less likely to be affected.

Red - "Unhealthy" AQI is 151 to 200. Some members of the general public may experience health effects; members of sensitive groups may experience more serious health effects.

Purple - "Very Unhealthy" AQI is 201 to 300. Health alert: The risk of health effects is increased for everyone.

Maroon - "Hazardous" AQI 301 and higher. Health warning of emergency conditions: Everyone is more likely to be affected.

Filtering Facepiece Respirators - Disposable, negative-pressure, air purifying respirators where an integral part of the facepiece or the entire facepiece is made of air contaminant filtering material.

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

PM2.5 – Solid particles and liquid droplets suspended in air, known as fine particulate matter, with an aerodynamic diameter of 2.5 micrometers or smaller and measured in micrograms per cubic meter (ug/m3).

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

4.0 Responsibilities

An effective occupational health and safety program requires an understanding of roles and responsibilities of affected employees. Implementation of the Program provisions is the responsibility of each employee under the direction of individual PSU departments. Environmental Health and Safety (EHS) is responsible for providing technical guidance.

4.1 Employees

- Participate in wildfire smoke protection training annually. Inform supervisor if training materials are needed in a different language.
- Follow precautions and departmental work practices for wildfire smoke protection.
- Inform supervisor of any changes in the air quality at their work location that could necessitate an increase or decrease in the level of exposure controls in place to reduce employee exposure to wildfire smoke levels. Refer to Sections 5.3 and 5.4 of this written program for more information on engineering and administrative controls and respiratory protection.
- Inform supervisor of any availability issues of appropriate exposure control measures.
- Inform supervisor if additional filtering facepiece respirators are needed for voluntary use for wildfire smoke protection for PM2.5 at or above 35.5 µg/m^3(AQI 101). These are provided at no cost to employees.

- Wear appropriate respiratory protection and participate in respirator training, if your job duties may likely result in exposure to wildfire smoke levels for PM2.5 at or above 200.9 µg/m^3(AQI 277), even after the implementation of engineering and administrative controls. Conduct a user seal check each time the respirator is put on. Refer to Section 5.4.2 for additional information.

- Wear appropriate respiratory protection and participate in respirator medical evaluations, fit testing, and training, if your job duties may likely result in exposure to wildfire smoke levels for PM2.5 at or above 500.4 µg/m^3(AQI 849), even after the implementation of engineering and administrative controls. Conduct a user seal check each time the respirator is put on. Refer to Section 5.4.3 for additional information.

- Employees are responsible for knowing and educating themselves about their own personal risk factors that may increase their chance for experiencing wildfire smoke related illnesses. If you are an employee who requires an accommodation based on a personal risk factor, work with your supervisor on accommodations or contact the Human Resources Leaves and Accommodations Team.

- Notify supervisor of any health symptoms that may be the result of wildfire smoke exposure and necessitate immediate medical attention such as asthma attacks, difficulty breathing, and chest pain. After the emergency, report the incident to your supervisor and to Human Resources via the Injury Report Form.

4.2 Supervisors/Departments/Principal Investigators

- Ensure all employees, including new employees, student workers, supervisory, and non-supervisory employees receive and complete wildfire smoke training annually. Contact EHS-group@pdx.edu if training materials are needed in a different language.

- Monitor employee exposure to wildfire smoke when employees are, or are likely to be, exposed to wildfire smoke levels for PM2.5 at or above 35.5 µg/m^3(AQI 101). Perform monitoring at the start of each shift, and as needed, to comply with the applicable requirements of this written program. Refer to Section 5.1 for additional information and monitoring methods.

- Develop and implement a two-way communication system to communicate wildfire smoke information between supervisors and employees, including a means to notify exposed employees of any changes in the air quality at their work location that would necessitate an increase or decrease in the level of exposure controls. This communication system must be implemented before employees are exposed to wildfire smoke levels for PM2.5 at or above 35.5 µg/m^3(AQI 101). Refer to Section 5.2 for additional information.

- Implement engineering and administrative controls to reduce employee exposure to

wildfire smoke levels for PM2.5 to less than 35.5 µg/m^3(AQI 101). Refer to Section 5.3 for additional information about engineering and administrative controls.

- Provide employees with NIOSH-approved filtering facepiece respirators for voluntary use for wildfire smoke protection for PM2.5 at or above 35.5 µg/m^3(AQI 101). Replace, as needed, at no cost to employees. Departments may obtain NIOSH-approved N95 filtering facepiece respirators by completing the Google request form from the EHS Wildfire Smoke Protection webpage. Refer to Section 5.4.1 for additional information about voluntary use of filtering facepiece respirators.
- Ensure that employees wear appropriate respiratory protection and participate in respirator training, if their job duties may likely result in exposure to wildfire smoke levels for PM2.5 at or above 200.9 µg/m^3(AQI 277), even after the implementation of engineering and administrative controls. Refer to Section 5.4.2 for additional information. Consult with EHS-group@pdx.edu to ensure work is completed in as safe a manner as possible.
- Ensure that employees wear appropriate respiratory protection and participate in respirator medical evaluations, fit testing, and training, if their job duties may likely result in exposure to wildfire smoke levels for PM2.5 at or above 500.4 µg/m^3(AQI 849), even after the implementation of engineering and administrative controls. Refer to Section 5.4.3 for additional information. Consult with EHS-group@pdx.edu to ensure work is completed in as safe a manner as possible.
- If an employee reports or exhibits health symptoms that may be the result of wildfire smoke exposure and necessitate immediate medical attention, implement medical response procedures as outlined in Section 5.5.
- Work with employees who identify wildfire smoke related personal risk factors on possible accommodations. Contact the Human Resources Leaves and Accommodations Team if you have any questions about the accommodation being requested. Refer employees to the Human Resources Leaves and Accommodations Team if they have questions about accommodation procedures or policies.

4.3 Emergency Management

- Develop, implement and periodically update the PSU Air Quality Hazard Annex of the Emergency Operations Plan.
- In coordination with EHS, monitor forecasted air quality conditions and conduct incident assessment if wildfire smoke levels are forecasted for PM2.5 at or above 35.5 µg/m^3(AQI 101). Refer to Section 5.1 for additional information and monitoring methods.
- Coordinate PSU's institutional level response activities for wildfire smoke levels for PM2.5.

4.4 Incident Management Team (IMT)

- Review information about air quality conditions, exposure risks, campus activities, campus preparedness, and regional impacts, and determine the status of PSU campus and university operations.
- Direct communications to the campus community regarding response, continuity, and recovery activities for wildfire smoke levels that have an impact on university operations.

4.5 Environmental Health and Safety (EHS)

- Develop, evaluate and periodically update the PSU Wildfire Smoke Protection Program.
- Develop Wildfire Smoke Protection training materials and provide annual training for employees through Canvas.
- Provide information and resources for the campus community for wildfire smoke protection, including an annual email to all PSU employees that includes information about wildfire smoke protective measures.
- In coordination with Emergency Management, monitor forecasted air quality conditions and conduct incident assessment if wildfire smoke levels are forecasted for PM2.5 at or above 35.5 µg/m^3(AQI 101). Refer to Section 5.1 for additional information and monitoring methods.
- Communicate wildfire smoke information to affected employees before employees are exposed to wildfire smoke levels for PM2.5 at or above 35.5 µg/m^3(AQI 101). Notify employees of any changes in the air quality that would necessitate an increase or decrease in the level of exposure controls, including wildfire smoke levels for PM2.5 at or above 200.9 µg/m^3(AQI 277) and wildfire smoke levels for PM2.5 at or above 500.4 µg/m^3(AQI 849).
- Work with Materials Management to provide NIOSH-approved N95 filtering facepiece respirators to departments and employees.
- Coordinate medical evaluations and conduct respirator fit testing and training for those employees whose job duties may likely result in exposure to PM2.5 at or above 500.4 µg/m^3(AQI 849).
- Provide consultation to IMT and departments to ensure successful program implementation.
- Provide portable air purifiers equipped with HEPA filters to occupied buildings that do not have mechanically ventilated systems.
- Directly measure workplace ambient air concentration for PM2.5 inside campus

buildings, as needed.

- Maintain the written PSU Wildfire Smoke Protection Program and make it accessible to all employees.

4.6 Materials Management

- Work with EHS to provide NIOSH-approved N95 filtering facepiece respirators to departments and employees.

5.0 Program Requirements

AQI Value	Wildfire Smoke Key Requirements for Exposure Level
101 - 276	1. Assess and monitor air quality at each work location where employees are exposed 2. Provide and document employee training 3. Implement two-way communication system 4. Implement engineering and administrative controls 5. Medical response plan 6. Provide NIOSH-approved filtering facepiece respirators for voluntary use
277 - 848	1. 1 through 5 for AQI 101 – 276 above; and 2. Provide NIOSH-approved filtering facepiece respirators for mandatory use by implementing a Wildfire Smoke Respiratory Protection Program in accordance with Section 5.4.2 of this written program
849 and above	1. 1 through 5 for AQI 101 – 276 above; and 2. Provide NIOSH-approved respirators for mandatory use by implementing a Respiratory Protection Program in accordance with Section 5.4.3 of this written program.

This information has also been provided in a checklist form, see Appendix A.

5.1 Exposure Assessment

Employee exposure to wildfire smoke must be monitored when employees are, or are likely to be, exposed to wildfire smoke levels for PM2.5 at or above 35.5 µg/m^3(AQI 101). This monitoring must be performed at the start of each shift, and as needed, to comply with the applicable requirements of this written program under Section 5.2 System to Communicate Wildfire Smoke Information, Section 5.3 Exposure Controls - Engineering and Administrative, and Section 5.4 Exposure Controls - Respiratory Protection.

EHS and Emergency Management monitor forecasted air quality conditions and conduct incident assessments if wildfire smoke levels are forecasted for PM2.5 at or above 35.5 µg/m^3(AQI 101). Supervisors, departments, and principal investigators should also monitor forecasted air quality conditions throughout the shift to determine if changes in air quality would necessitate an increase or decrease in the level of exposure controls for their employees.

Monitoring may be completed by using one or more of the following methods:

- Check the current average and forecasted AQI value for PM2.5 from the Oregon Department of Environmental Quality's air quality website, EPA AirNow website, or Interagency Wildland Fire Air Quality Response Program website, or equivalent source.
- Check notifications of air quality advisories due to wildfire smoke issued by the Oregon Department of Environmental Quality or local government health agencies.
- Directly measure workplace ambient air concentration for PM2.5 in accordance with the testing device manufacturer's user instructions.
- If none of the previous methods are available for the work location, use the 5-3-1 Visibility Index provided in Appendix B to estimate the current air concentration for PM2.5, and equivalent AQI value, during daylight hours.

EPA's AirNow mobile app provides a simple interface for quickly checking current and forecasted air quality information for planning daily activities and protecting your health. The app automatically displays the current AQI (Air Quality Index) for your local area or any area you wish to check, and allows you to store multiple areas for quick reference. Air quality notifications can also be received by signing up through EPA AirNow EnviroFlash.

5.2 System to Communicate Wildfire Smoke Information

Based on the forecasted air quality conditions, EHS communicates wildfire smoke information to affected employees before employees are exposed to wildfire smoke levels for PM2.5 at or above 35.5 µg/m^3(AQI 101). Employees are notified of any changes in the air quality that would necessitate an increase or decrease in the level of exposure controls, including wildfire smoke levels for PM2.5 at or above 200.9 µg/m^3(AQI 277) and wildfire smoke levels for PM2.5 at or above 500.4 µg/m^3(AQI 849).

Supervisors, departments, and principal investigators must also develop and implement a two-way communication system* to communicate wildfire smoke information between supervisors and employees before employees are exposed to wildfire smoke levels for PM2.5 at or above 35.5 µg/m^3(AQI 101). At a minimum, this communication system must include:

- A means to notify exposed employees of any changes in the air quality at their work location that would necessitate an increase or decrease in the level of exposure controls required in Section 5.3 and Section 5.4 of this written program.

- A means to enable and encourage employees to inform their supervisor of at least the following:
    - Any changes in the air quality at their work location that could necessitate an increase or decrease in the level of exposure controls required in Sections 5.3 and 5.4 of this written program.
    - Any availability issues of appropriate exposure control measures required in Sections 5.3 and 5.4 of this written program.
    - Any health symptoms that may be the result of wildfire smoke exposure and that could necessitate medical attention.

**Note: This requirement does not apply if employees only have intermittent exposure of less than 15 minutes in an hour to wildfire smoke levels for PM2.5 at or above 35.5 µg/m^3(AQI 101), for a total exposure of less than one hour in a single 24-hour period.*

5.3 Exposure Controls - Engineering and Administrative

Whenever feasible, engineering and administrative controls must be used to reduce employee exposure to wildfire smoke levels for PM2.5 to less than 35.5 µg/m^3(AQI 101).

Engineering controls may include temporarily relocating outdoor workers to available indoor areas or vehicles where the air is adequately filtered, or using portable air purifiers equipped with HEPA filters (or similar high-efficiency air filters) that are sufficient in number and performance for the size of the enclosed area where used. EHS will deploy HEPA units to occupied buildings that do not have mechanical ventilation systems.

Administrative controls may include temporarily relocating outdoor work operations to another outdoor location with better air quality when work permits, changing employee work schedules to a time when better air quality is forecasted, and modifying or canceling non-urgent or non-emergency work.

Emergency or urgent maintenance work that is necessary during periods of poor air quality should be discussed with EHS to ensure it can be completed in as safe a manner as possible. Examples include, but are not limited to: damage to exterior doors, locks and windows that create a security concern; offensive graffiti removal; emergency rooftop repair due to leaks; HVAC equipment malfunction; other conditions that pose a safety or security concern, or potential for extensive damage to campus buildings and grounds.

5.4 Exposure Controls - Respiratory Protection

Throughout this section, NIOSH-approved filtering facepiece respirators applies to those appropriate for wildfire smoke protection including: N95, N99, N100, R95, R99, R100, P95, P99, and P100. NIOSH-approved filtering facepiece respirators do not include any “KN” designations,

such as KN95s. Such “KN” respirators are not appropriate to reduce employee exposure to wildfire smoke. Consult with EHS-group@pdx.edu regarding NIOSH-approved filtering facepiece respirators and any questions regarding the PSU Respiratory Protection Program.

Note: In the event that face coverings are required inside PSU buildings for COVID-19, it should be noted that filtering facepiece respirators with exhalation valves do not meet the requirement for a COVID-19 face covering and should not be used indoors, unless a second face covering is placed over the exhalation valve.

5.4.1 Voluntary Use of Filtering Facepiece Respirators At or Above AQI 101

Whenever employee exposure to PM2.5 is at or above 35.5 µg/m^3(AQI 101), even after the implementation of engineering and administrative controls, NIOSH-approved filtering facepiece respirators must be provided to employees for voluntary use for protection against wildfire smoke, when such use would not expose the wearer to a hazard associated with a substantially more serious injury or illness than the potential acute health effects of wildfire smoke exposure (such as electrical work that requires fire resistant clothing).

Such respirators must be:

- Provided and replaced as needed at no cost to employees by either:
    - Distributing filtering facepiece respirators directly to each exposed employee; or
    - Maintaining a sufficient supply of filtering facepiece respirators that is readily accessible and known to any exposed employee at each work location and includes an adequate size selection for exposed employees. This respirator supply must be in a location that does not restrict or hinder employee access to respirators or discourage the replacement of a respirator when needed.
- Stored and maintained so that they do not present a health hazard to the user.

Departments may obtain NIOSH-approved N95 filtering facepiece respirators by completing the Google request form from the EHS Wildfire Smoke Protection webpage.

Voluntary use of filtering facepiece respirators for wildfire smoke is not subject to the full requirements of the PSU Respiratory Protection Program. This exemption does not apply to other types of respirators, including but not limited to elastomeric tight-fitting half mask respirators.

Consult with EHS-group@pdx.edu regarding NIOSH-approved filtering facepiece respirators and any questions regarding the PSU Respiratory Protection Program.

5.4.2 Required Respirator Use - At or Above AQI 277 and Below AQI 849

Departments with employees who may be exposed to wildfire smoke levels for PM2.5 at or above 200.9 µg/m^3(AQI 277) and below 500.4 µg/m^3 (AQI 849), include the following:

- Facilities and Property Management
- Materials Management
- University Housing and Residence Life; Summer Conference staff
- Campus Events and Student Union
- Student Activities and Leadership Programs
- Athletics
- University Place Hotel
- Transportation and Parking
- Capital Projects and Construction
- Environmental Health and Safety
- Campus Public Safety
- Campus Recreation / Outdoor Program
- Admissions
- Office of Information Technology
- Some on-campus research operations
- Some off-campus research operations

Consult with EHS-group@pdx.edu to ensure work activities can be completed in as safe a manner as possible.

Whenever employee exposure to PM2.5 is at or above 200.9 µg/m^3(AQI 277), even after the implementation of engineering and administrative controls, employees must wear appropriate NIOSH-approved filtering facepiece respirators, when such use would not expose the wearer to a hazard associated with a substantially more serious injury or illness than the potential acute health effects of wildfire smoke exposure (such as electrical work that requires fire resistant clothing).

For filtering facepiece respirators provided and used strictly for protection against wildfire smoke, inclusion in the full PSU Respiratory Protection Program is not required at this time. This exemption does not apply to other types of respirators, including but not limited to elastomeric tight-fitting half mask respirators, nor does it apply to situations where employees use filtering facepiece respirators for protection against air contaminants other than PM2.5 from wildfire smoke. Consult with EHS-group@pdx.edu regarding these other types of situations.

The following Wildfire Smoke Specific Respiratory Protection Program applies to employees who are required to wear filtering facepiece respirators to protect against wildfire smoke when the work location ambient air concentration of PM2.5 is at or above 200.9 µg/m^3(AQI 277) and below 500.4 µg/m^3(AQI 849):

- **Employee training**. Employees wearing filtering facepiece respirators must be trained in the proper use of the respirators, including putting them on and removing them, any

limitations on their use, how to care for the respirator, and the ability to demonstrate a seal check as described below.

- **Filtering facepiece respirator user seal check**. Each employee who uses a filtering facepiece respirator must perform a user seal check to ensure a sufficient face fit to maximize effectiveness each time the respirator is put on. Either the positive or negative pressure checks listed in this section or the respirator manufacturer's recommended user seal check method must be followed.

    1. **Instructions for positive pressure user seal check.** Once you have properly donned the respirator, place your hands over the facepiece, covering as much surface area as possible. Exhale gently into the facepiece. The face fit is considered sufficient if a slight positive pressure is being built up inside the facepiece without feeling air passing between your face and the facepiece. If the particulate respirator has an exhalation valve, then performing a positive pressure check may not be possible. In such cases, a negative pressure check must be performed.

    2. **Instructions for negative pressure user seal check.** Negative pressure seal checks are typically conducted on particulate respirators that have exhalation valves. Once you have properly donned the respirator, cover the filter surface with your hands as much as possible and then inhale gently. The face fit is considered sufficient if the facepiece slightly collapses towards your face without feeling air passing between your face and the facepiece.

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

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

Consult with EHS-group@pdx.edu regarding NIOSH-approved filtering facepiece respirators and any questions regarding the PSU Respiratory Protection Program.

5.4.3 Required Use of Respirators - AQI 849 and Above

Departments with employees who may be exposed to wildfire smoke levels for PM2.5 at or above 500.4 µg/m^3(AQI 849), include the following:

- Facilities and Property Management
- University Housing and Residence Life; Summer Conference staff
- University Place Hotel

- Environmental Health and Safety
- Campus Public Safety

Consult with EHS-group@pdx.edu to ensure work activities can be completed in as safe a manner as possible.

Whenever employee exposure to PM2.5 is at or above 500.4 µg/m^3(AQI 849), even after the implementation of engineering and administrative controls, employees must wear appropriate NIOSH-approved respirators that protect wearers from PM2.5 when such use would not expose the wearer to a hazard associated with a substantially more serious injury or illness than the potential acute health effects of wildfire smoke exposure (such as electrical work that requires fire resistant clothing).

Inclusion in the full PSU Respiratory Protection Program is required, which includes a medical evaluation every 3 years, annual respirator fit testing, and annual training. Contact EHS-group@pdx.edu for more information.

5.5 Wildfire Smoke Medical Response Plan

Mild symptoms of wildfire smoke exposure include coughing, runny nose, scratchy throat, irritated sinuses, headaches, fatigue, and eye irritation and inflammation that can temporarily impair one's vision.

More serious and sometimes fatal health effects include trouble breathing normally, wheezing and shortness of breath, asthma attacks, reduced lung function, fast or irregular heartbeat, chest pain, and heart attacks. Older adults, pregnant women, children, and people with preexisting respiratory and heart conditions may be more likely to get sick if they breathe in wildfire smoke.

If an employee reports or exhibits health symptoms that necessitate immediate medical attention such as, but not limited to, asthma attacks, difficulty breathing, and chest pain, the following emergency response procedures must be immediately implemented:

- Contact emergency medical services by dialing 9-1-1 or the Campus Public Safety Office at (503) 725-5911, or activate one of the blue light emergency phones on campus.
- If it is safe to do so, move the employee to an area with better air quality and wait until responders arrive.
- Tell the dispatcher the current condition of the person, and provide clear and precise directions to the location.
- Administer appropriate first aid and wait with the person until emergency responders arrive.

- If not in close proximity to emergency medical services, a two-way radio or equivalent communication method must be provided, knowledge of a location where emergency medical services can be met, and awareness by all employees of those on the field work team that are trained in first aid. If necessary and instructed to do so by medical professionals, transport employees to a place where they can be reached by an emergency medical provider. If reception is not reliable, contact EHS-group@pdx.edu or submit this Google form to check out satellite communication devices for field work in remote areas.

- After the emergency, report the incident to your supervisor and to Human Resources via the Injury Report Form if an employee exhibited health symptoms that necessitated immediate medical attention such as, but not limited to, asthma attacks, difficulty breathing, and chest pain.

6.0 Information and Training

6.1 Training Requirement and Applicability

All PSU employees, including new employees, student workers, supervisory and non-supervisory employees are required to take the Wildfire Smoke Protection training annually via Canvas.

Training is required before employees may be exposed to wildfire smoke levels for PM2.5 at or above 35.5 µg/m^3(Air Quality Index value of 101 for PM2.5).

The training must be provided in a language and vocabulary readily understood, and be provided in a manner that facilitates employee feedback.

6.2 Training Content

Training must include at least the following:

- 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.
    - Fatigue, headache, irregular heartbeat, chest pain.
- The potential acute and chronic health effects from wildfire smoke exposure, including increased health risks to "sensitive groups" and how chronic exposures can increase the

risk of cardiovascular disease and can exacerbate an individual's asthma.

- 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.
- How employees can obtain the current average and forecasted ambient air concentration for PM2.5 and equivalent AQI value for their work location.
- The importance, limitations, and benefits of using a filtering facepiece respirator, that is provided by the employer at no cost to the employee to reduce exposure to wildfire smoke, and how to use and maintain their filtering facepiece respirator.
- The employer's methods to protect employees from wildfire smoke as required by Sections 5.3 and 5.4 of this written program, including how filtering facepiece respirators are required to be made readily accessible to employees for voluntary use when workplace wildfire smoke levels for PM2.5 are at or above 35.5 µg/m^3(AQI 101), and how employees can obtain such respirators before exposure and replace them when needed.
- Review of any job tasks performed by employees that the use of a filtering facepiece respirator would expose the wearer to a hazard associated with a substantially more serious injury or illness than the potential acute health effects of wildfire smoke exposure, and must not be used when performing such tasks (such as electrical work that requires fire resistant clothing).
- The procedures supervisors must follow when an employee reports or exhibits health symptoms that necessitate immediate medical attention such as, but not limited to, asthma attacks, difficulty breathing, and chest pain.
- How to operate and interpret exposure results based on any PM2.5 monitoring device used by the employer in compliance with this standard.
- An explanation of the employer's two-way communication system for wildfire smoke exposure control information as required by Section 5.2 of this written program.

6.3 Wildfire Smoke Protection Resources

The PSU Wildfire Smoke Protection Program and additional resources are available on the EHS Protection from Wildfire Smoke webpage.

7.0 Recordkeeping

EHS:

- Maintain the PSU Wildfire Smoke Protection Program.

- Maintain electronic training records for Wildfire Smoke Protection, including the name or identification of each employee trained, the date(s) of the training, and the name of the person who conducted the training. The most recent annual training record for each affected employee must be maintained for one year.
- Maintain respirator medical evaluation, fit testing and training records, when required under Section 5.4 of this program.

Emergency Management:

- Maintain the PSU Air Quality Annex of the Emergency Operations Plan.

8.0 Program Management

The PSU Wildfire Smoke Protection Program is maintained by the EHS department, reviewed periodically, and updated as needed.

The PSU Wildfire Smoke Protection Program is available, upon request, to employees or their designated representatives, by contacting the EHS-group@pdx.edu or visiting the EHS Protection from Wildfire Smoke webpage.

For additional information or assistance, contact EHS at EHS-group@pdx.edu or call (503) 725-3738.

9.0 Regulatory Standards

Oregon OSHA Oregon Administrative Rules (OAR), Chapter 437, Division 2, General Occupational Safety and Health, OAR 437-002-1081, Protection from Wildfire Smoke

Oregon OSHA, Oregon Administrative Rules (OAR), Chapter 437, Division 2, Subdivision K, Medical and First Aid, OAR 437-002-0161

Oregon OSHA, Oregon Administrative Rules (OAR), Chapter 437, Division 3, Subdivision D, Medical Services and First Aid, 1926.50

APPENDICES

Appendix A: Wildfire Smoke Key Requirements for Exposure Level

Appendix B: Air Quality Index (AQI) Values, Equivalent Concentrations for PM2.5, and 5-3-1 Visibility Index Values

When estimating the current AQI value by using the 5-3-1 Visibility Index, determine the limit of your visual range by looking for distant targets or familiar landmarks such as mountains, mesas, hills, or buildings at known distances (miles). The visual range is that point at which these

targets are no longer visible. Ideally, the viewing of any distance target should be made with the sun behind you. Looking into the sun or at an angle increases the ability of sunlight to reflect off of the smoke, and thus making the visibility estimate less reliable.

AQI Values	**PM2.5 Concentration in µg/m^3**	**Visibility Index Values (How far you can see)**
0 – 50	0.0 – 9.0	over 15 miles
51 – 100	9.1 – 35.4	5 – 15 miles
101 – 150	35.5 – 55.4	3 – 5 miles
151 – 200	55.5 – 125.4	1 – 3 miles
201 – 300	125.5 – 225.4	1 mile
301 and higher	225.5 and higher	less than 1 mile