



DEPARTMENT OF HEALTH AND HUMAN SERVICES

Centers for Disease Control and Prevention

[Docket No. CDC-2024-0019, NIOSH-352]

National Institute for Occupational Safety and Health; Outdoor Workers Exposed to Wildland Fire Smoke; Request for Information

AGENCY: Centers for Disease Control and Prevention (CDC), Department of Health and Human Services (HHS).

ACTION: Request for information.

SUMMARY: The Centers for Disease Control and Prevention's (CDC) National Institute for Occupational Safety and Health (NIOSH), in the Department of Health and Human Services, announces an opportunity for the public to provide information about approaches to assess and control the hazards of wildland fire smoke to outdoor workers. Wildland fire smoke is a complex mixture of potentially toxic gases and particles that can vary depending on factors in the wildland or wildland urban interface environment, such as weather, fire behavior, and the type of materials or vegetation burning. Because of this, outdoor workers may be exposed to varying types and amounts of compounds in wildland fire smoke throughout their work shift or during different fire events and job tasks. NIOSH is seeking information to develop a hazard review document that summarizes the scientific literature about the health effects from exposures to wildland fire smoke and provides recommendations to protect outdoor workers.

DATES: Comments must be received by [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: Comments may be submitted through either of the following two methods:

- Federal eRulemaking Portal: <http://www.regulations.gov> (follow the instructions for submitting comments), or

- By Mail: NIOSH Docket Office, Robert A. Taft Laboratories, MS C-34, 1090 Tusculum Avenue, Cincinnati, Ohio 45226-1998.

Instructions: All written submissions received in response to this notice must include the agency name (Centers for Disease Control and Prevention, HHS) and docket number (CDC-2024-0019, NIOSH-352) for this action. All relevant comments, including any personal information provided, will be posted without change to <http://www.regulations.gov>.

FOR FURTHER INFORMATION CONTACT: R. Todd Niemeier, 1090 Tusculum Ave., MS C-15, Cincinnati, OH 45226; Telephone (513) 533-8166 (this is not a toll-free number); Email NIOSHregs@cdc.gov.

SUPPLEMENTARY INFORMATION:

The hazard review development process will involve review and assessment of the scientific literature about exposures to wildland fire smoke, potential health effects, outdoor worker populations at risk, and development or updating of recommendations to protect outdoor workers. The purpose of the hazard review document is to provide an overview of the relevant health effects literature and develop evidence-based recommendations to protect outdoor workers, including farm workers, construction workers, oil and gas workers, park rangers, emergency responders, and others, from the adverse health effects of occupational exposure to wildland fire smoke. Scientific information related to wildland fire smoke is requested on the following topics:

- Properties and characteristics of wildland fire smoke mixtures
- Potential for occupational exposures to outdoor workers
- Health effects of exposures
- Outdoor worker populations at risk
- Exposure monitoring
- Risk management and control
- Research needs.

Wildland fire smoke is a complex mixture of gases and particles from burning vegetation and other materials. In some cases, this can include wildland urban interface environments, which are areas or zones where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. Wildland fires can include wildfires and prescribed or controlled burns. As a wildland fire burns, different compounds are released in the smoke, such as particulate matter, carbon monoxide, benzene, formaldehyde, acrolein, polycyclic aromatic hydrocarbons, and other compounds. While exposure to wildland fire smoke has been of interest to researchers and public health professionals for decades, the hazards from wildland fire smoke are not fully understood. This is primarily due to the complexity of wildland fire smoke, as the smoke is made up of many different types and amounts of potentially toxic compounds and can change very quickly depending on factors in the environment, such as weather, fire behavior, and the type of vegetation burning. Because of this, workers may be exposed to varying types and amounts of compounds in wildland fire smoke, even in areas where smoke has migrated, throughout their work shift or during different fire events. Exposure also varies by the type of job task being performed.

There is very limited published information about how exposure to wildland fire smoke impacts outdoor workers. However, taken together with research studies examining exposure to smoke from wildland fires among the public, along with assessments of the health effects of exposures to specific components of wildland fire smoke, there is clear potential for such exposures to result in adverse health outcomes. The risk of experiencing symptoms and adverse health effects due to smoke exposure varies from person to person. The variability of health effects and symptoms can also be impacted by variability in exposure based on distance from the fire, wind speed and direction, and local environmental factors. Workers can have different individual risk factors such as age and health conditions (e.g., pre-existing heart or lung disease) that make them more likely to be affected by wildland fire smoke.

Some health effects known or suspected to be caused by wildland fire smoke include

[NIOSH 2023]:

- Symptoms such as eye irritation, sore throat, wheeze, and cough
- Asthma and chronic obstructive pulmonary disease (COPD) exacerbations
- Bronchitis and pneumonia
- Adverse birth outcomes
- Cardiovascular (heart and blood vessel) outcomes

Long work shifts and physical demands of the work performed (resulting in higher breathing rates) may impact a worker's exposures and health response to wildland fire smoke. Still, the scientific community does not fully understand how long-term, repeated exposures, or other exposures to wildland fire smoke may affect a worker's health. Additionally, very little is known about how exposure to many different compounds at the same time, including compounds released from the burning of man-made materials (such as those found in the wildland-urban interface), may affect a worker's health.

NIOSH plans to review and assess the available scientific evidence to support the development of recommendations to protect outdoor workers from wildland fire smoke.

NIOSH currently recommends that employers be aware that exposure to wildland fire smoke may adversely affect the health of their workforce and be prepared to take action to limit their workers' exposures when a wildfire has emitted smoke in and around their work environment [NIOSH 2023].

It is also currently recommended that employers and workers prepare for and plan to implement procedures to reduce exposures to smoke when necessary [NIOSH 2023]. As NIOSH continues to review and assess the scientific literature, recommendations will be developed and updated as necessary. Additional information and recommendations are

available on the NIOSH Safety and Health Topic Page on **Outdoor Workers**

Exposed to Wildfire Smoke

(<https://www.cdc.gov/niosh/topics/firefighting/wffsmoke.html>). NIOSH will update this Topic Page and

recommendations as necessary to be consistent with the assessment of the information obtained from this RFI and the development of the hazard review.

To reiterate, this RFI is intended to announce the opportunity for the public to provide NIOSH with information about approaches to assess and control the hazards of wildland fire smoke to outdoor workers to inform the development of a hazard review document.

Scientific information related to wildland fire smoke is requested on the following topics:

- Properties and characteristics of wildland fire smoke mixtures
- Potential for occupational exposures to outdoor workers
- Health effects of exposures
- Outdoor worker populations at risk
- Exposure monitoring
- Risk management and control
- Research needs.

Reference

NIOSH [2023]. Outdoor workers exposed to wildfire smoke. Cincinnati, OH: U.S.

Department of Health and Human Services, Centers for Disease Control and Prevention,

National Institute for Occupational Safety and Health,

<https://www.cdc.gov/niosh/topics/firefighting/wffsmoke.html>.

John J. Howard,

*Director, National Institute for Occupational Safety and Health, Centers for Disease Control
and Prevention, Department of Health and Human Services*

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