

Wildfire Smoke Stakeholder Meeting

L&I Division of Occupational Safety and Health (DOSH)
April 27, 2022



Washington State Department of
Labor & Industries

Agenda for Today's Meeting

April 27, 2022: 1:00 PM to 4:00 PM

- Introduction to the Zoom platform
- Stakeholder communication plan
- Rulemaking timeline
- Review of the 2022 draft emergency rule
 - Scope
 - Measuring wildfire smoke
 - Voluntary use of respirators
 - More protective respirators
- Question & answer session

Intro to the Zoom Platform

■ Online

- Controls at the bottom
- Interpreter Channel or Globe Icon (EN or ES)
- Q&A feature/tool: Technical questions regarding presentation
- Raise Hand Option: For live questions at the end of the presentation

■ Phone

- To raise/lower hand use *9
- To mute/unmute use *6

NOTE: Speakers will be speaking slowly because of concurrent interpretation. Please be patient.

Stakeholder Meeting Communication Plan

How you can expect to hear from us

- Would you like to receive emails regarding wildfire smoke rulemaking?
 - Sign up for GovDelivery emails:
https://public.govdelivery.com/accounts/WADLI/subscriber/new?topic_id=WADLI_19
- Would you like to view copies of the stakeholder meeting presentations?
 - Visit our L&I DOSH wildfire rulemaking website: <https://lni.wa.gov/safety-health/safety-rules/rulemaking-stakeholder-information/wildfire-smoke#meetings-and-timeline>

Stakeholder Meeting Communication Plan

How you can expect to hear from us

- Are you unable to attend the stakeholder meetings?
 - You can view the presentations at our website
 - We will post a summary of the Q&A on our website after the stakeholder meeting
- Would you like to provide comments outside of the stakeholder meetings?
 - Please email our rulemaking staff:
 - Technical contact: Chris.pyke@Lni.wa.gov
 - Project contact: Cynthia.Ireland@Lni.wa.gov

L&I Rulemaking re: wildfire smoke

- Ongoing development of a permanent rule for wildfire smoke
 - Continued research
 - Considering appropriate options to protect workers that are evidence-based, feasible, and the least burdensome on employers
 - Request for more information on the risks of wildfire smoke: held January 2022 stakeholder meeting with presentations from experts at the University of Washington and Department of Ecology
- As development of proposed rules is still in progress, given the hazard of wildfire smoke, L&I intends to adopt emergency rules in summer 2022
- The draft emergency rule cover many elements that are under consideration for the proposed rules
 - Additional topics under consideration will be discussed at future stakeholder meetings
- Stakeholder input and experience feedback will help rulemaking team to develop the most effective proposed rule

More information re: rulemaking timeline

What you can expect & when

- L&I expects to adopt a wildfire smoke emergency rule on **June 1, 2022**, which will last through **September 29, 2022**
 - If you have feedback on draft emergency rule, please provide by **May 15th, 2022**. You may provide feedback in the language of your preference.
- Summer 2022: Continued stakeholder meetings regarding the draft permanent rule; feedback on 2022 emergency rule

2022 Wildfire Smoke Emergency Rule

What we will be discussing today vs. later

- Today's discussion topics:
 - Some background on wildfire smoke
 - How to measure wildfire smoke
 - Including some responses to 2021 survey feedback
 - Rule scope
 - Exposure controls and voluntary use of respirators
 - Use of more protective respirators

- Topics we will discuss for the permanent rulemaking (not today):
 - Required use of respirators
 - How to promote fit-testing when respirators are used voluntarily

A Little Background on Wildfire Smoke Hazards

- Extensive hazard information presented at our last stakeholder meeting
- Primary pollutant in wildfire smoke is PM_{2.5} (very small particles), which is incorporated into EPA's Air Quality Index (AQI)
- Short-term and long-term exposures to PM_{2.5} can cause:
 - Hospitalization or death
 - Cardiovascular effects
 - Respiratory effects
 - Nervous system effects
 - Cancer

THE RELATIVE SIZE OF PARTICLES

From the COVID-19 pandemic to the U.S. West Coast wildfires, some of the biggest threats now are also the most microscopic.

A particle needs to be 10 microns (μm) or less before it can be inhaled into your respiratory tract. But just how small are these specks?

Here's a look at the relative sizes of some familiar particles »



SOURCES Clearstream, Daniel Lovreney, EPA, Financial Times, News Medical, Science Direct, SCMR, Susan Sokolowski, Petroclass, U.S. Dept. of Energy
COLLABORATORS **RESEARCH + WRITING** Carmen Ang, Imran Ghosh | **DESIGN + ART DIRECTION** Harrison Schell



[f](#) [v](#) /visualcapitalist [t](#) [i](#) @visualcap [v](#) visualcapitalist.com

Measuring Air Quality

How we measure wildfire smoke

- $PM_{2.5}$ is the primary pollutant in wildfire smoke.
- $PM_{2.5}$ measures mass of small particles per volume of air ($\mu\text{g}/\text{m}^3$)
- The EPA produces an index that translates concentration into AQI value
- AQI is nonlinear. The difference between AQI 101 and 151 is $20\mu\text{g}/\text{m}^3$, the difference between 151 and 201 is $100\mu\text{g}/\text{m}^3$
- Note: This year's wildfire smoke rule will not incorporate the WAQA (Washington Air Quality Advisory)

AQI	AQI Message
0	Good
51	Moderate
101	Unhealthy for Sensitive Groups
151	Unhealthy
201	Very Unhealthy
301	Hazardous
501	Beyond the AQI

AQI Hazard Categories

Changes are being considered

- EPA publishes the AQI
- AQI is not an especially protective scale for human health; most other organizations set hazard messaging lower
 - World Health Organization 24- hour (short-term) $\text{PM}_{2.5}$ standard : $15 \mu\text{g}/\text{m}^3$
- EPA is currently re-evaluating its $\text{PM}_{2.5}$ standards
- The majority of a scientific committee convened by the EPA, the Clean Air Scientific Advisory Committee (CASAC) made a scientific recommendation to lower the 24-hour (short-term) $\text{PM}_{2.5}$ standard ($35 \mu\text{g}/\text{m}^3$), upon which the AQI is based

AQI	AQI Message
0	Good
51	Moderate
101	Unhealthy for Sensitive Groups
151	Unhealthy
201	Very Unhealthy
301	Hazardous
501	Beyond the AQI

2022 Wildfire Smoke Draft Emergency Rule: How can employers determine the AQI?

- Check AQI forecasts and the NowCast AQI from any of the following:
 - Washington Department of Ecology website; Air Quality WA mobile app; Washington Smoke Information website; U.S. EPA AirNow website; EPA AirNow mobile app; U.S. Forest Service AirFire website; Local Clean Air Agency website
- Obtain AQI forecasts and the NowCast AQI directly from the Department of Ecology, Local Clean Air Agency, U.S. EPA, EPA EnviroFlash.info, or local clean air agency by telephone, email, text, or other effective method
- Measure PM_{2.5} levels at the work location
- **Note:** You can convert between PM_{2.5} and AQI using the EPA website

Direct Reading Instruments

How to pick an instrument

- Appendix A of the draft rule provides guidance on selecting a monitor
- Multiple monitors that meet specifications in the \$200 range:
<http://www.aqmd.gov/aq-spec/evaluations/summary-pm>
- Additional user-friendly guidance to be shared in advance of the 2022 wildfire smoke emergency rule

Responses to Feedback re: Wildfire Smoke Measurement

From 2021 emergency rule stakeholders

- Sensor availability/location is an issue (not enough in rural areas, too many in the cities)
 - If there are multiple monitors, pick the geographic closest monitor
 - Direct reading instruments can be used at any time
 - Can assume employees are over-exposed and provide N95s for voluntary use
- Lack of cell coverage; people use flip phones
 - Direct reading instrument options
 - Can obtain PM2.5 forecasts from Department of Ecology
 - Can assume employees are over-exposed and provide N95s for voluntary use

Responses to Feedback re: Wildfire Smoke Measurement

From 2021 emergency rule stakeholders

- There is no clear time period for re-checking the AQI data
 - Employer to determine how often this is needed, based on the current AQI level
 - At high AQI levels, there will be community advisories
 - Updated hourly; safe harbor to check hourly
- Advanced data providers should be allowed in addition to the EPA/Ecology data
 - Not currently allowed as they use proprietary algorithms that cannot be independently validated

What are the changes in the 2022 draft emergency rule?

Topic	2021 Emergency Rule	2022 Draft Rule
AQI threshold for scope inclusion	69 AQI	69 AQI
Time threshold for scope exemption	1 hour or less in a shift	69 to 300 AQI: 1 hour or less in 24 hours 301 AQI or more: 15 minutes or less in 24 hours
Threshold where employers must provide respirators for voluntary use	151 AQI	101 AQI
Exposure controls threshold	151 AQI	101 AQI
More protective respirators threshold	None	Beyond AQI (555µg/m ³)

2022 Wildfire Smoke Draft Emergency Rule: Scope & Exemptions

- Applies to workplaces where employees may be exposed to a NowCast Air Quality Index (AQI) of 69 or higher
- Exemptions:
 - Enclosed buildings where doors/windows are kept closed
 - Enclosed vehicles where air is filtered and doors/windows are kept closed
 - Buses, light rail, etc. used for public transit where doors are frequently opened/closed **not included** in this exemption
 - Work within the scope of Chapter 296-305, Safety Standards for Firefighters

Note: Additional exemptions coming up next...

2022 Wildfire Smoke Draft Emergency Rule:

Additional Scope Exemption: Time

- Employees exposed to AQI 69 – 301 for one hour or less per shift
- Employees exposed to AQI 301 or higher for fifteen minutes or less per shift
 - Note: 15 minutes at AQI 301 is equivalent to a similar dose to 1 hour at 151 AQI and 2 hours at 101 AQI

AQI	AQI Message
0	Good
51	Moderate
101	Unhealthy for Sensitive Groups
151	Unhealthy
201	Very Unhealthy
301	Hazardous
501	Beyond the AQI

Source Control vs. Respirators

Protections for COVID-19 and wildfire smoke are different

- If someone has an infectious disease, they may wear **Source Control (a mask)** to protect people near them from the infectious disease
- **Source Control** is an important way to protect one another from COVID-19
- **Source Control** does not ensure that the wearer is adequately protected from infectious diseases
- **Source control** will not protect the wearer from wildfire smoke, or other contaminants in the air
- **Respirators** protect the wearer from contaminants in the air, including wildfire smoke and COVID-19
- **Respirators** are certified by the National Institutes of Occupational Safety and Health (NIOSH)
- **Respirators** may also function as source control

2022 Wildfire Smoke Emergency Rule

Exposure Controls & Voluntary Use of Respirators

- AQI 101 employers must:
 - Implement feasible exposure controls
 - Provide respirators for voluntary use
- Same threshold as Oregon OSHA
- Employees must be trained on use of respirators and wildfire smoke hazards
- At AQI 69, employees may voluntarily provide and use their own respiratory protection as long as the respirator does not introduce a hazard

AQI	AQI Message
0	Good
51	Moderate
101	Unhealthy for Sensitive Groups
151	Unhealthy
201	Very Unhealthy
301	Hazardous
501	Beyond the AQI

What are the Wildfire Smoke Exposures Inside a Fit-Tested Respirator?

PM _{2.5} (µg/m ³)	AQI Message	N95 filtering facepiece	Loose-fitting PAPR	Full-face respirator	Full-face PAPR
35.5	101 Unhealthy for Sensitive Groups	4	1	1	0
45		5	2	1	0
55.5	151 Unhealthy	6	2	1	0
75		8	3	2	0
100		10	4	2	0
125		13	5	3	0
150.5	201 Very Unhealthy	15	6	3	0
175		18	7	4	0
200		20	8	4	0
250.5	301 Hazardous	25	10	5	0
300		30	12	6	0
400		40	16	8	0
500.4		50	20	10	1
550	Beyond the AQI	55	22	11	1
750		75	30	15	1
1000		100	40	20	1
1250		125	50	25	1
1500		150	60	30	2
2000		200	80	40	2
2500		250	100	50	3
3000		300	120	60	3
50000		5000	2000	1000	50
		10%	4%	2%	0.1%

Note: the PM_{2.5} concentrations listed in this table are derived from the Assigned Protection Factors (APF) in Chapter 296-842 WAC, Respirators

More Protective Respirators

Beyond the AQI

Where the NowCast $\text{PM}_{2.5}$ 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 high-efficiency particulate air filters:

- Loose-fitting powered air purifying respirator; or
- Full-facepiece air purifying respirator; or
- Full-facepiece powered air purifying respirator; or
- Other respirators that are at least as effective.

- California permanent rule has the same provision

In Summary

Topic	2021 Emergency Rule	2022 Draft Rule
AQI threshold for scope inclusion	69 AQI	69 AQI
Time threshold for scope exemption	1 hour or less in a shift	69 to 300 AQI: 1 hour or less in 24 hours 301 AQI or more: 15 minutes or less in 24 hours
Threshold where employers must provide respirators for voluntary use	151 AQI	101 AQI
Exposure controls threshold	151 AQI	101 AQI
More protective respirators threshold	None	Beyond AQI (555 μ g/m ³)

L&I DOSH Wildfire Smoke Rulemaking:

10 minute break

Please see Zoom chat for
return time

A chance to stretch
your legs and take
a deep breath

Q&A: How to Participate

If you would like to ask a question:

- When you speak, please state your name and the company/organization you represent (if applicable).
- Please raise your hand. The meeting facilitator will call on everyone who wishes to speak. If you raise your hand, **please be mindful, as we have limited time for comments.**
- Submit questions and/or comments regarding the rule in the Q&A feature.
- Every public forum will have a defined topic area or areas, please stay on topic.
- You may also submit questions or comments after the meeting to our designated staff.

Q&A Expectations

- We are discussing the emergency rule today
- There may be questions about future topics for permanent rulemaking; we will address those at a later date
- Everyone is encouraged to participate. Please participate with intention.
- This is a public work session, not a forum for debate; appreciate the diversity of perspectives.
- Maintain a respectful space. Listen to and respect other points of view.
- One person speaks at a time. Please do not interrupt other participants who are speaking.
- Since this is a public work session, anything shared has the potential to become part of a public record.

Thank you!

Please send questions or comments to:

Technical: Chris Pyke or Dr. Nicholas Reul

Chris.pyke@Lni.wa.gov

Nicholas.reul@Lni.wa.gov

Process: Cindy Ireland

Cynthia.Ireland@Lni.wa.gov