



To: Oregon DEQ and ODF
Attn: Rachel Sakata
700 NE Multnomah St., Suite 600
Portland, OR 97232

Date: 8/21/2018

Re: Amendments to Oregon Smoke Management Plan and the Oregon State Implementation Plan for Air Quality OAR 340-200-0040

The organizations listed below are advocates for a healthy environment on behalf of communities throughout Oregon. We submit these comments to the public record expressing our concern with many of the amendments proposed to Smoke Management Rules under OAR 629-048 and Operational Guidance for the Oregon Smoke Management Program, directive 1-4-1-601, which define and amend the State Implementation Plan as part of OAR 340-200-0040.

We object to these aspects of the proposed rule changes:

1. Increasing levels of smoke pollution allowed to enter the airshed of rural and urban communities through increased burning of slash and plastic, which does not hold the same potential to reduce later uncontrolled wildfire emissions as prescribed burning. Failure to distinguish the need for prescribed burning as an ecological and fire prevention tool in the forest landscape versus increasing the amount of smoke allowed from slash burning on clearcuts within corporate timber plantations;
2. Failure to set air quality standards that protect children and other vulnerable Oregonians;
3. Failure to justify the need to increase human exposure to fine particulate matter from slash burning to remove logging waste on private industrial timber holdings;
4. Not setting a limit on the amount of black plastic on timber plantation slash piles that will be burned along with the slash debris;
5. Requiring Community Response Plans without an economic support plan, potentially resulting in hardship and economic inequities onto rural and lower income communities;
6. Failure to align the air quality decisions within the Smoke Management Plan with the DEQ and OHA's goals and rules for Cleaner Air Oregon.
7. Lack of requirements to protect aquatic environments by maintaining water quality and quantity.

Wild fires are undoubtedly a serious problem in Oregon. To be clear, the undersigned organizations support prescribed burning when used appropriately to prevent wild fires in standing forests in ways

that are ecologically sound and culturally significant. Yet, we call into question lifting health protections related to how much smoke can foul the air, particularly in rural communities in order to allow more planned or prescribed burning.

The Environmental Quality Commission and Board of Forestry should consider the pros and cons of this rulemaking more closely. The following questions are not adequately addressed in the rationale for the rulemaking nor the rules themselves.

- Is Oregon definition of “prescribe burning” scientifically defensible and is it aligned with standards used by federal and science-based organizations?
- In which situations is prescribed burning sufficiently beneficial to justify smoke intrusions?
- Do the proposed rules increase dangerous levels of smoke in rural communities above what is known to be safe?

Definitions

Peer-reviewed sources define prescribed burning as ecological-based fuel reduction necessary to maintain the health of existing natural areas and living forests. Researchers conclude that the best way to prevent wildfires and restore ecosystem resilience is understory thinning with prescribed burning (Morgan, L., et al., “[The carbon balance of reducing wildfire risk and restoring process: an analysis of 10-year post-treatment carbon dynamics in a mixed-conifer forest.](#)” US Forest Service Publication, 2015.). Prescribed burns are also defined as protocols to reduce hazardous fuel loads near developed areas and to maintain the health of existing natural areas and living forests. (“[Wildland Fire: What is a Prescribed Fire?](#)” National Park Service Wildland Fire Learning In Depth Series.)

Ecological-based fuel reduction in standing forests can reduce wildfire risk. However, burning slash piles of logging residue is not a tool to reduce wildfire risk. Slash piles and landing piles are situated on clear cuts or timber loading areas. The agencies have not provided evidence that individual slash piles in clear cuts significantly contribute to wildfire. However, the burning of slash piles and landing piles can cause smoke inhalation impacts in nearby residential areas.

We point out that the Smoke Management rule applies primarily to slash pile and landing pile burning (see 629-048-0310, Fees for Prescribed Burning). We urge the EQC and BOF to exclude slash pile and landing pile burning from rules that allow more frequent and more severe smoke intrusions and air pollution exposure in rural communities. Studies of wildfire patterns in managed and unmanaged forests conclude that managed plantation stands are more prone to severe fires. Fire risk is not associated with the presence of slash piles. It is related to the lack of species diversity, the structure of closely spaced trees and the ability of fire to leap from crown to crown, and the absence of green vegetative undergrowth that help retain moisture in the forest ecosystem.

Wildfires in Southern Oregon tend to “burn at relatively high severity in young naturally regenerated stands and even more severely in young conifer plantations of comparable age and fire history. This suggests that young forests, whether naturally or artificially regenerated, may be vulnerable to positive feedback cycles of high severity fire. The authors found that plantation forest burned with higher

severities than comparable unmanaged stands. (Thompson, J.R., Spies, T.A. and Ganio, L.M., "[Reburn severity in managed and unmanaged vegetation in a large wildfire](#)," *Proceedings of the National Academy of Sciences*, June 2007.) In a 2004 study of Oregon forest fires, authors found that fuel buildup in plantation forests "in the absence of fire did not cause increased fire severity as hypothesized..." Together with warming climate, plantation forests may increase the size and severity of future fires. (Odion, Dennis C., et al., "Patterns of Fire Severity and Forest Conditions in the Western Klamath Mountains, California," *Conservation Biology*, July 2004.)

Burning slash piles, landing piles and right-of-way piles are not types of prescribed burning that reduce wildfire risk. Burning slash piles, landing piles and right-of-way piles are a means to get rid of woody waste left onsite after logging operations. This is different than using prescribed burns to reduce the buildup of fuels on the forest floor, increase seedling vitality and reduce pest pressures, thus renewing forest resiliency. It is clear from the language in 629-048-0310, Fees for Prescribed Burning, that amended rules primarily benefit industrial timber land owners and do not promote ecosystem health.

We ask for peer-reviewed research and a science-based justification for mandating higher risks of smoke inhalation for the purpose of burning timber waste. The agencies have not provided evidence that slash piles and landing piles have been the cause of wildfires.

Slash burning on tree plantations should not be a reason to modify the Oregon's State Implementation Plan, the standards to ensure compliance with the federal Clean Air Act rules. The proposed rule changes to allow increased smoke intrusions should omit slash burns related to industrial clear cutting. We understand the need to reduce slash, but rural communities should not be required to take on the burden of poor air quality and increased health risks so that slash piles can be burned under weakened air quality rules. We suggest that the Departments of Forestry and Environmental Quality support forest management plans to re-use forest woody debris to rebuild healthy soils, create wildlife habitats or repurpose for commercial soil amendments.

Protecting Air Quality and Human Health

The proposed Smoke Management Rules will modify the State Implementation Plan from one that requires the prevention of smoke intrusions into communities permanent rules allowing more frequent and dangerous levels of smoke intrusions. Revisions to the definition of smoke intrusion (OAR 629-048-0005) will include a one-hour threshold of human exposure to fine particulate matter at or above 70 ug/m³, and a 24 hour average at or above 26 ug/m³, measured midnight to midnight on the first day of smoke entrance into a community.

According to the US EPA, smoke is a complex mixture of carbon dioxide, water vapor, carbon monoxide, particulate matter, hydrocarbons and other organic chemicals, nitrogen oxides, and trace minerals. The individual compounds present in smoke number in the thousands. Small, fine particulate matter (PM 2.5) is the principal pollutant of concern from wildfire smoke for the relatively short-term exposures (hours to days to weeks) that presents risks of negative public health impacts.

Smoke from both controlled fires and wild fires contain fine particles that can be inhaled into the deepest recesses of the lung and exchanged directly across cell membranes to enter the bloodstream. Thus, small particles can be respiratory irritants as well as posing dangers to the cardiovascular system in the form of strokes and heart attacks. It is well known that fine particles in the PM 2.5 spectrum or

smaller represent a greater health concern than larger particles. Another pollutant of concern during smoke events is carbon monoxide. Carbon monoxide levels are highest during the smoldering stages of a fire. Smoke contains other strong respiratory irritants, including acrolein and formaldehyde. All of these air toxics contribute to poor air quality in general, which in turn impacts public health and livability.

Fine Particulate Pollution: The Smoke Management rule would place Oregonians in harm's way by legalizing unhealthy levels of smoke to intrude into residential areas. The proposed rules would allow 70 $\mu\text{/m}^3$ of fine particle pollution during any one hour period. According to the US EPA Guidance on air quality impacts from wild fire, this creates air quality conditions in the "Very Unhealthy Range." The "Very Unhealthy Range" poses a high risk of:

Significant aggravation of heart or lung disease, premature mortality in persons with cardiopulmonary disease and the elderly; significant increase in respiratory effects in general population.

(“Wildfire Smoke: A Guide for Public Health Officials,” published by the U.S. Environmental Protection Agency, U.S. Forest Service, U.S. Centers for Disease Control and Prevention and the California Air Resources Board;, Revised May 2016, pp42-45)

The proposed 24-hour standard proposed in this Smoke Management rule permits the public to be exposed to 26 $\mu\text{/m}^3$ of fine particulate pollution. This is an average measurement taken over a 24-hour period starting at midnight the day of the first signs of smoke intrusion and ending at midnight the following day. Public health impacts associated with 24-hours of exposure to 26 $\mu\text{/m}^3$ (a measurement at the upper levels of what is considered "Moderate Range" of air quality) can cause "*possible aggravation of heart or lung disease.*"

Comparing the proposed amendments to the Oregon Smoke Management Plan with the US Clean Air Act, it is apparent that exposure to 70 $\mu\text{/m}^3$ is very risky and unhealthy. The Clean Air Act requires the Environmental Protection Agency to establish air quality standards which are protective of public health and welfare. Currently, the Clean Air Act sets the standards for fine particulate matter (PM 2.5):

1. An annual particle pollution standard of 12 micrograms per cubic meter (12 $\mu\text{/m}^3$);
2. A 24-hour standard of 35 $\mu\text{/m}^3$.

We object to the proposal in the Smoke Management Plan to set the one hour exposure limit to 70 $\mu\text{/m}^3$, which is two times higher than the allowable 24-hour levels of toxic air particles. This is certainly not safe for children or other vulnerable populations. We further object to setting the 24-hour limit as an *average* of 26 $\mu\text{/m}^3$ of fine particulate pollution, because by averaging the levels of pollution, there may well be periods of very high levels of PM 2.5 when the intrusion is at its peak. These peaks may be averaged out and unaccounted for, yet these levels may translate to very high risks to public health.

Other western countries regulate particulate matter more stringently than what is proposed in the new Oregon's Smoke Management Rules. For example, Canada has established seven health categories of 24 hour exposure to PM 2.5 levels. The Oregon proposed rules would allow 24-hour exposure to PM 2.5 at a level considered unhealthy for all members of the community:

Canadian Air Quality Health categories based on PM_{2.5} levels

Health category	24hr PM _{2.5} µg/m ³
Low	0–8.9
Moderate	9.0–25.9
Unhealthy – sensitive	26.0–39.9 [Oregon Proposed Smoke Rules - 26 ug/m ³ -24hrs]
Unhealthy – all	40.0–106.9 [Oregon Proposed Smoke Rules - 70 µg/m ³ -1hr]
Very unhealthy – all	107.0–177.9
Hazardous (high) – all	Greater than 177
Hazardous (extreme) – all	Greater than 250

The proposed Smoke Management Rules fail to align with Cleaner Air Oregon. Proposed changes to the Smoke Management Plan are in opposition to DEQ's and OHA's efforts to reduce exposure to harmful air pollutants through the Cleaner Air Oregon process. ODF and DEQ must not circumvent the purpose and goals of Cleaner Air Oregon by allowing higher levels of air toxics caused by intentional burning, particularly in rural communities that are located near forest land.

Existing Smoke Management statutes (OAR 629-048-0230 1(e)), set a goal of “avoiding” a situation where smoke pollution enters into a Smoke Sensitive Receptor Area (SSRA). The proposed rules omit the original word “avoid” and substitute the word “minimize.” This is not a subtle word change. The word “avoid” has a very clear meaning akin to *avert* or *circumvent*. However the word “minimize” more closely aligns with words like *lessen* or *reduce*. Substituting the word “minimize” assumes that exposure to dangerous amounts of air pollution is now acceptable. We strongly object to statutory language that legalizes harmful and dangerous exposures to particle pollution and poor air quality. Specifically, we object to the text modification of OAR 629-048-0230 1(e) and urge the DEQ and ODF to keep Oregon’s original intention to make *avoidance* the goal of Smoke Management. The DEQ and EQC should not approve any amendments that increase the public’s exposure to higher levels of PM 2.5 and air toxics in wood smoke.

Inadequate Science and Rationale to Justify the Rule Change.

The rules are not clear whether there are upper limits to the number of acres or the number of tons of fuel that may be burned as part of a single permit. The rules are also not clear about how many permits can be approved within an airshed and during what time interval.

Fails to Protect Children's Health. The proposed rule changes are particularly harmful to children living in rural areas or SSRA's. There is nothing in this plan to protect young children and school children from exposure to dangerous levels of fine particulate and general poor air quality from smoke intrusions. The lack of attention to childhood health is at cross purposes with Cleaner Air Oregon. It is very troubling that the proposed rules seem to ignore the evidence of respiratory vulnerability of children, the elderly or infirmed, and pregnant women.

Children, even those without any pre-existing or chronic conditions, are considered a sensitive population because their lungs are still developing, making them susceptible to air pollution.

Beyond Toxics objects to the absence of regulatory language to protect the health of children and health-vulnerable adults. We point out that the proposed Smoke Management Rules ignore public health information provided by Oregon state agencies. For example, the DEQ air pollution website states that exposure to fine particulate air pollution increases the risk of death from heart and lung disease as well as lung cancer. The DEQ also states that childhood asthma, triggered and exacerbated by fine particulate air pollution, is the most common chronic illness in children and the cause of most school absences. The Smoke Management rules must be more health protective and support the avoidance of smoke inhalation and its associated health impacts to children.

Community Response Plan and Exemption Request.

A new section of statute, **629-048-0180**, proposes to create community response plans. The rationale provided is that community public health departments in vulnerable SSRA areas should take responsibility to alert residents when the potential for an increase in the amount of prescribed burns and resulting smoke impacts to communities exist. We suggest that this is an unfunded mandate for local communities. Who will pay for the development and implementation of the community response plans? Will County Public Health Departments be reimbursed for the costs in staffing and infrastructure? Will poorer rural communities go without a community response plan and suffer from smoke impacts because they are can't afford general funding, whereas wealthier communities will benefit from better planning and protections? Communities should not have to go into emergency mode in response to prescribed burning. The Agencies must come up with a plan to ensure equitable and full funding before saddling a public health department with this kind of unfunded obligation.

We point out the vague and questionable rule change in Section 2 (c) allowing a County Board of Commissioners to request an exemption to the one-hour smoke intrusion threshold. Is the exemption meant to improve public health or "to provide maximum opportunities" for prescribed burning? We object to any statutory language that creates exemptions that have negative impacts to public health.

Rural communities cannot rely on "sheltering at home" as an emergency response plan. In their guidance document cited previously, the US EPA states that even sheltering at home is not a fully successful means of avoiding smoky air. It depends on how well a house limits smoke from coming in from outdoors. "Staying indoors works best in a tightly closed, air-conditioned home in which the air conditioner re-circulates indoor air ... newer homes are "tighter" and keep ambient air pollution out more effectively than older homes." For communities with older homes and without air conditioning, the US EPA states that indoor concentrations of fine particles can approach 70 to 100 percent of the outdoor levels." In very leaky homes and buildings, outdoor particles can easily infiltrate indoors, so that staying inside may offer little protection. It follows that, in poorer rural communities with older homes, sheltering indoors is not helpful, which may constitute inequities and greater health impacts.

In summary, we urge the DEQ and the EQC to not approve the proposed changes to the Smoke Management Plan and the State Implementation Plan. As stewards of environmental protection and public health, we urge the EQC and BOF to postpone rulemaking until further study and consideration of the impacts of reducing smoke intrusion protections while increasing planned fires that may not reduce wildfire risk.

At a minimum, we recommend the following actions:

1. Remove slash burning and landing burning in commercial plantation forest operations from the definitions of prescribed burning to reduce wildfire in this rulemaking.
2. Remove the ability of local governments to ask for an exemption to the hourly air quality standard.
3. Lower the exposure level of PM 2.5 during a smoke intrusion event for hourly and 24-hour exposures.
4. Ensure that Community Response Plan requirements are fair and equitable for less affluent rural communities with older housing stock, and provide funding for options other than sheltering in older residential buildings.

We are concerned that these rules increase air pollution, increase health risk in poor and rural communities but do not actually reduce wildfire risk. We support ecologically sound and culturally significant methods of reducing wildfire risk in standing forests. The proposed rules, as written, do not achieve this goal.

Sincerely,

Lisa Arkin, Executive Director
Beyond Toxics
1192 Lawrence Street,
Eugene OR 97401

Steve Pedery, Conservation Director
Oregon Wild
5825 N. Greeley Ave.
Portland, OR 97217