



2017 Smoke Management Review Committee

June 27, 2017
9:30 AM – 3:30 PM

Sisters Fire Hall
301 Elm Street S.
Sisters, OR 97759

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- ❖ *Objectives: 1). Understand the purpose and execution of a prescribed fire; 2). Follow-up with information from meeting 1 regarding air quality to have a better understanding of monitoring, PM2.5 standards and health effects; 3). Begin discussions on details of the Smoke Management Plan identifying strengths and areas for improvement.*
 - ❖ **Welcome & Introductions**
 - Facilitator Dan Thorpe opened the meeting by providing field tour logistics.
 - ❖ **Tour to Deschutes National Forest field site (see Tour Agenda on website)**
 - ❖ **Working lunch**
 - ❖ **[Air Quality monitoring](#) follow-up from first meeting:**
 - David Collier, DEQ, presented a PowerPoint (PPT) on air quality monitoring and answer questions from the committee.
 - Federal air quality standards and their limitations were presented. Essentially, the federal standard is a 24-hour average and doesn't capture brief periods of unhealthy amounts of smoke that can affect a local population. Recent examples of intrusions into Deschutes County were presented.
 - Over the decades, the science of understanding the effects of particulate matter (PM) pollution on public health has evolved and lowered. More research was done and the standard was lowered to PM2.5 (2.5 microns in diameter). The toxic component of different pollutants – wood smoke is no different whether from woodstove or wildfire. The organics in the smoke can increase the risk of cancer. Recognition that air pollution is complex.
 - National Ambient Air Quality Standards (NAAQS) – annual standard set by Environmental Protection Agency (EPA) to protect public health. The PM2.5 standard is a concern in Oregon, especially in Lakeview and Klamath Falls, mainly due to woodstove smoke. The biggest limitation to the federal standard is that people don't breathe "on average." The 24-hour average standard can miss some important health impacts. That's where we need to

be mindful with regard to smoke management, whether from wildfire, prescribed burning or agricultural burning.

○ Discussion

- Just because the average is well below the standard doesn't mean people aren't experiencing smoke.
- Mayor Stromburg asked how David knew the smoke actually went into someone's lungs. David responded that if someone is living near a monitor we're assuming that person breathed in the level measured at that monitor. We don't know exactly what went into someone's lungs. We also don't know if that particular level of particulates even harmed someone. It is unknown whether this specific event harmed anyone. That would be a question for the county health department or the Oregon Health Authority. However, the presumption is that high particulate count events have the potential to harm someone.
- Ray Wilberg, The Sierra Club, stated that it is a cumulative calculation because the body cannot eliminate the microscopic particles.
- David responded that it is both cumulative and acute, depending upon length of exposure.
- Mark Webb, Blue Mountain Collaborative asked whether the federal government is interested in the "spikes" in smoke intrusions when they set the federal standard. David responded that they are interested but so far, they haven't attempted to set a federal standard at a time less than 24 hours. They see merit to it but their science committee hasn't gotten there yet but just because they haven't set the federal standard less than 24 hours, doesn't mean there aren't health impacts at those lower levels.
- Ken Kestner asked whether a study has been done on the effects to firefighters when fighting a wildfire. David responded that we will make a note of that and ask Kirsten at the Oregon Health Authority.
- Monitoring methods – there are two different ways to measure particulates. DEQ uses a monitor with a filter and draw air for 24 hours then take to a lab weight the sample. That doesn't measure anything less than 24 hours. However, nephelometers do measure hour to hour, sometimes minute to minute, using a beam of light to watch the particulate matter scatter known as beta scattering (BSCAT). This does not measure or differentiate all toxins in the air (diesel, industry, etc.), only smoke particulate. Nephelometers can also measure particulate matter greater than PM2.5, depending upon the filter correlation.
- Merlyn Hough, LRAPA, noted that generally, nephelometers work better for measuring PM2.5. Different communities have different ways of measuring PM2.5. There is the ability to differentiate particulate matter.
- David noted that there can be slight variations but it's within a narrow range. A nephelometer will give you a good sense of what PM2.5 is.

- Ray Wilberg asked if you can qualitatively measure it for size or is it quantitative.
- Merlyn noted that the nephelometer instrument is used to estimate PM2.5, so the PM2.5 filter value is periodically correlated with the nephelometer value. The nephelometer values (based on light scattering) correlate especially well with the very small particulate measured by the PM2.5 filters. The correlation formula is updated each year, sometimes by season but you have to have enough data to do that - with an emphasis on the highest days of most interest and concern - and adjust the formula as necessary. One of the benefits of nephelometers is that it's giving you readings every 15 seconds. It's used for real-time reporting which is also helpful for daily forecasting.
- A question was asked if there is one hour data that compares with filter data for one hour. Concern with accuracy of the peaks shown in the PowerPoint graph.
- Rick Graw noted that USFS research lab has done some studies on variations of accuracy. Would be good to have accurate data. Rick will share with the group.
- Is the nephelometer more accurate? Merlyn said he is not sure. The nephelometer correlates well with PM2.5. However, it didn't correlate well with wildfire smoke but more so with woodstove smoke. Wildfire smoke is a different mix.
- A question was asked as to whether EPA cares about PM levels at a shorter duration than 24 hours? Yes, they set up an air quality index (AQI) and have values for the 24 hour average standard that they have categorized with regard to human health. They also have values for the one-hour average, however, it's not a standard but more informative of health risk. They're looking for something that doesn't vary a lot.
- Mark Webb asked what the relationship between AQI and NAAQS for EPA? What is the connection between DEQ and EPA? If you violate the AQI but not the 24 hour standard, what does that mean for a state agency?
- David responded that there are two separate things going on - monitoring for compliance with federal standard (DEQ does this). If DEQ measures a certain number of PM2.5 days over 35 microns/cubic meter over a three year period, that will trigger non-attainment. The AQI is related to the PM standard that is unhealthy for sensitive groups. It is more for general information to the public about what the quality of their air is. It is more of a communication tool because it is more "real time."
- The way we define intrusions in the Smoke Management Plan (SMP) could be characterized as a good air quality rating even under the PM2.5 average? David said you can have a light intrusion and still be within the standard. The intrusion metrics developed years ago are for tracking. We're trying to understand distinctions between light intrusions, moderate and heavy intrusions.

- Chief Grafe commented that the objective here for having DEQ back to present, was to fill in the gaps from the first presentation. The Smoke Management Review Committee (SMRC) website is up and running now and you can find DEQ's first presentation there. There is a map that shows the non-attainment communities and former non-attainment communities.
- David noted that the main point is that the standard 24-hour average has its place and it does allow for protection of public health, but there's more to the story. Intrusions that happen on an hourly or multiple-hourly basis matter because that's what people breathe.
- A question was asked by Ray Wilberg what those intrusions were from. David noted they were from prescribed fires.
- We hope for no smoke intrusions or light intrusions within the SMP but the challenge is that people have to breathe, and when we think about our charge, we have to be mindful of what people breathe minute to minute.
- Kirsten Aird from OHA submitted PPT slides showing that more vulnerable populations have ailments such as adult asthma, COPD, heart attack prevalence, stroke, and heart disease. There are segments of the population (4-17%) that have medical conditions that make them additionally susceptible to all things, including smoke in both rural and urban Oregon. This is one more stressor on the system of trying to get more burning done with population growth. The challenge is how to increase burning without increasing risk to human health.
- It was noted that smoldering of the unit during the nighttime is causing smoke problems. There is not generally a problem when they ignite the unit.
- What do we do about smoke when it occurs? If smoke comes into town, how do they prepare?
- Mark Webb asked whether Kirsten is able to correlate the "spike" in smoke with the number of people who had to seek medical care? That would be pretty important. Also, do the agencies have the resources? Suppose we increase the average toward the 24-hour standard, would that mean the spike was any worse? Can that increase the length of time of the spike? If not, we want to avoid the spikes but that's not an argument in altering the definition of intrusion. David noted that we will follow up with Kirsten as to his questions.
- A discussion occurred as to whether it is better to have the "spikes" in smoke versus prolonged lower levels of smoke intrusions.
- A question was asked as to whether the monitors are in the correct locations. Is there some consideration of where they are and if they're located in the right place? David noted that he and Rick will ask about that. They are in a place where people are going to breathe the smoke.

- Ramona noted everyone thinks they're in the wrong place in a community. It will never be the right place, no matter where we put it.
- Pete – where is the burning taking place that is creating these spikes? Was that spike worth it from the perspective of reducing wildfire risk on a vulnerable portion of the landscape?
- David noted whether there is a more customized burn plan that can be done in particular areas is worth a discussion. We want your ideas on how to tackle this problem.

❖ Committee Input Exercise

- Dan Thorpe asked the committee to have a discussion on successes and challenges of the Smoke Management Program. This is limited to committee members only.
- Strengths & Successes of Smoke Management Program
- Challenges – what's not working and what areas are problems?
- Chief Grafe noted the need to focus on the Smoke Management Program – how do we most effectively implement the policy goals set forth by the legislature. ODF/DEQ will do some work on your thoughts today. He also noted the need to make note of the administrative portion of the needs/questions. Then have a discussion on how to implement those changes, whether administrative or legislative.
- Amy Patrick noted that it will take time to implement the changes.
- Nick Yonker explained that developing a smoke management forecast is to review the broad spectrum of no burning to unlimited burning and everything in between. One must take into consideration weather conditions, location, determining how much tonnage to allow, spacing between units, and proximity to Smoke Sensitive Receptor Areas (SSRAs) with respect to wind direction. We have looked at results when intrusions occur – too much burning, inaccurate forecasting, etc. The intrusion report is a learning tool to investigate the cause of an intrusion.
- Commissioner Kestner would like to see the data around intrusion causes broken out – critical points to focus on.
- Chief Grafe noted intrusions are dissected – weather, how we burn, topography, etc.
- The science of determining how much fuel is on the ground and being burned is a “crude” estimate.
- David Collier asked how critical the estimate of tonnage is to the decision and how confident you are in the accuracy of estimates.
- Nick Yonker noted it is an area for improvement. It's a multi-faceted problem. The biggest problem is burning that funnels through corridors. Also have problems with restoration burning which is usually near communities. Bend is the most difficult area. Our goal is to maximize burning and minimize intrusions but have to take into consideration the risk. Are we willing to change the standard we're under right now – keep smoke out of SSRAs completely or are we willing to accept a little more smoke that

isn't going to cause health problems, while improving forest health and mitigating wildfire.

David Cramsey noted the polyethylene (PE) study – how do we take the knowledge we have and that which we don't have with regard to fuels and prescribed burning.

❖ **Public Comment**

- See document titled: [SMRC Public Comment](#)
- Request made to Nick Yonker to send out PE study results.
- Amy Patrick encouraged committee to do another field tour to see what prescribed burning looks like across the state.

❖ **Next meetings**

- Oregon Department of Forestry, Salem HQ – July 27 @ 9:30 AM
- Meeting in August will be in SW Oregon – Aug. 31 location TBD
- October 4, 2017 - Salem

❖ **DEQ/ODF Close-out**

- Minutes from May 24 meeting and today's meeting will be posted on the Smoke Management Review Committee website for your review, as well as presentation and reference materials.
- David thanked committee for their time. He appreciates the thoughtful conversation and looks forward to hearing more.
- Chief Grafe challenged the group to review materials on the website. Each meeting will have materials. The charter is also posted to the website. Chief Grafe noted the charge of the committee. Stay focused on that as the policy of the state. This topic is critically important to Oregonians and your engagement is appreciated. ODF/DEQ will refine these thoughts/ideas and design the next couple meetings to get to the end. Doug thanked the Sisters Fire Hall and the community for their hospitality.

❖ **Meeting adjourned at 3:30 PM**

❖ **Attendees**

- David Collier, DEQ Project Sponsor
- Doug Grafe, ODF Project Sponsor
- Dan Thorpe, ODF Facilitator
- Nick Yonker, ODF Project Manager
- Rachel Sakata, DEQ Air Planning
- Jim Gersbach, ODF Public Affairs
- Chrystal Bader, ODF Executive Support
- Gregory McClarren, Public Rep, SMAC Chair
- Dave Cramsey, Industrial Landowner Rep

- Scott Hanson, Non-industrial Landowner Rep
- Willie Begay, BLM
- Rick Graw, USFS
- Ken Kestner, Lake County Commissioner
- Ramona Quinn, Klamath County Public Health (alternate for Courtney Vanbragt)
- Merlyn Hough, LRAPA Director
- Carrie Nyssen, American Lung Assoc.
- John Stromberg, Ashland Mayor
- Ray Wilberg, Sierra Club (alternate for Bob Palzer)
- Mike White, CFPA
- Amy Patrick, OFIC
- Rex Storm, AOL
- Pete Caligiuri, The Nature Conservancy
- Mark Webb, Blue Mountain Forest Collab
- Jim James, OSWA