Oregon School Activities Association
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To: Superintendents, Principals, and Athletic Directors

From: Peter Weber, Executive Director

Subject: Specific Recommendations regarding Air Quality

We have received requests for clarification regarding how to interpret various air quality values and identify a single data source that would provide common data to all member schools.

OSAA staff has participated in discussions with the Oregon Health Authority and the Department of Environmental Quality regarding which measure (AQI or $PM_{2.5}$) would be best to use when evaluating situations involving outdoor activities.

After reviewing all available information, we recommend the 24-hour average $PM_{2.5}$ as the most appropriate measure to use in making decisions about outdoor activities.

There is consensus that the 1-hour $PM_{2.5}$ is not the appropriate value to use when making these decisions because it does not reflect broader trends in air quality. Monitoring trends in the 1-hour $PM_{2.5}$ levels can be helpful but should not be used as the final decision maker.

Member schools in regions of the state that do not have an air quality monitor within a reasonable distance or those within distance of a station that prefer to consider a second factor before making a final decision, should use the 5-3-1 Visibility Index.

Finally, there is also consensus that the best source for real-time air quality data for the State of Oregon is the Oregon Smoke Information website, http://oregonsmoke.blogspot.com/. The website includes air monitoring data from both state and federal agencies.

The site is run collaboratively by federal, state, tribal and local agencies, and it provides several different $PM_{2.5}$ values, including the previous day 24-hour $PM_{2.5}$ value at monitoring stations, as well as specific updates by region on current wildfire status, and predictions on future wildfire behavior.

The chart below correlates the AQI and $PM_{2.5}$ values. The 5-3-1 Visibility Index is also integrated per appropriate level.

If you have additional questions, please contact the OSAA office.

24-hr Average $PM_{2.5}$	Air Quality Index	5-3-1 Visibility Index	Required Actions for Outdoor Activities
36-55 µg/m³	101 -150	3-5 Miles	Student athletes with pre-existing pulmonary or cardiac conditions, which may be worsened by poor air quality, should be closely monitored, and those student-athletes with asthma should have rescue medication immediately available when needed. These student athletes should also be given additional rest breaks, as needed. Air quality patterns may be forecasted to improve during certain parts of the day, consider moving practices to times that may have lighter smoke. Consider moving practice indoors if indoor venues available in your community. You may also want to consider moving the practice or game to an area away from the smoke, when possible.
56-150 µg/m³	151 -200	1-3 Miles	Because they typically involve strenuous activity for prolonged periods of time, all outdoor competitions shall be canceled or moved to an area with a lower 24-hr. $PM_{2.5}$ level. Consider moving practices indoors if indoor venues available in your community. Outdoor practices, not more than 2 hours in length, may be conducted but they should include frequent rest breaks and a decrease in normal intensity. All athletes should be closely monitored for potential complications. Student athletes with pre-existing pulmonary or cardiac conditions should be removed from all activity.
>151 µg/m³	>200	1 Mile	All outdoor activities (practice and competition) shall be canceled.

Using the Visibility 5-3-1 Index

Since wildfires often occur in remote areas, air monitoring equipment may not be available. Smoke levels can rise and fall rapidly, depending on weather conditions, including wind direction. Making visual observations using the 5-3-1 visibility index is a simple way to estimate smoke levels and what precautions to take. While this method can be useful, you should always use caution and avoid going outside if visibility is limited, especially if you are sensitive to smoke.

The procedure for using this visibility index is as follows:

1. 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. The visual range is that point at which these targets are no longer visible. As a general rule of thumb: if you can clearly see the outlines of individual trees on the horizon it is generally less than five miles away.
2. Ideally, the viewing of any distant targets 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, thus making the visibility estimate less reliable.
3. If you are using 24-hr. $PM_{2.5}$ in addition to the Visibility 5-3-1 Index, use the more conservative of the two metrics.