Methow Valley School District
Air Quality Monitoring and Protective Procedures

The Methow Valley School District is committed to protecting the health and well-being of all students and staff. Just as we monitor road conditions to ensure safe travel, we also closely monitor air quality to provide a safe and healthy learning environment.

Below is a rundown of Methow Valley School District (MVSD) procedures for optimizing student and staff well being through air quality monitoring and associated practices, followed by a more detailed explanation of some of the considerations informing the adoption of these procedures.

MVSD procedures:

Air quality monitoring. Outdoor and indoor air quality monitoring is conducted on an ongoing basis through the consultation of reliable monitors located in Winthrop and Twisp and maintained by the WA Department of Ecology. When values from these monitors are significantly different, or if conditions are rapidly changing (as is common during wildfire smoke episodes) the Purple Air sensor on campus and/or a handheld Kaiterra sensor may be used as additional reference points. The network of Purple Air monitors offer an accessible and time-sensitive tool for evaluating air quality, but are less reliable than Department of Ecology monitors and require a conversion in order to be interpreted according to the scale outlined below. Follow these directions in order to apply that conversion if referencing Purple Air network data.

The principals, Athletic Director, superintendent and others may be involved in looking at air quality information and making determinations concerning acceptable activity levels and communicating these expectations to staff, students and families. The school will work to accommodate any parent who has health concerns and specific directives about their child's need to remain indoors if they are concerned about air quality.

Outdoor air quality.

- **Unhealthy–Stay indoors**: When the AQI is greater than 150, students will not engage in outdoor activities.
- **Unhealthy for Sensitive Groups–Limit outdoor activity**: When air quality is in the "Unhealthy for Sensitive Groups (orange)" range, outdoor time and activity levels will be limited.

Athletic Practices and Competition: Athletic practices and events will follow the WA DOH guidelines. The athletic director will monitor air quality and make determinations about adjustments to scheduled practices or competitions. Due to sometimes rapidly changing weather conditions and associated air quality measures, this may involve "day of" adjustments to schedules, but every effort will be made to reach a determination no later than the end of lunch each day.

Indoor air quality. Our school is committed to maximizing the quality of indoor air for our students. During episodes of poor air quality, purifiers with HEPA filtration are operated in every classroom and activity space throughout the school. Monitoring of indoor air quality is conducted throughout the day to ensure student safety. We additionally follow the recommendations of the Washington State DOH "Improving Ventilation and Indoor Air Quality during Wildfire Smoke Events." This includes:

- Giving staff guidance on the optimal use of air purifiers

- Closing windows and doors and minimizing traffic flow in and out of the building
- Closing fresh air intake on HVAC system
- Using the highest MERV rated filter possible on the HVAC system and running the system at full capacity to filter air
- Following maintenance steps for HVAC systems and classroom air purifiers to ensure filters are routinely replaced

Additional Information

These guidelines were developed in response to severe air pollution episodes that resulted from nearby wildfires. It is important to note that the understanding of health risk from wildfire smoke is rapidly evolving, and increasing in concern and relevance with each fire season. We generally understand that much of the west will predictably experience a "smoke season" each summer and fall where air quality may be in the unhealthy to hazardous range for weeks at a time, likely right around the time of school going back into session. The long term cumulative effects of this exposure is unknown, but there is substantial reason for concern, reinforcing the need for a proactive approach to protecting student health.*

The pollutant of concern in smoke is particulate matter 2.5 microns in size or smaller (PM2.5) and can be measured by several types of instruments of varying sophistication and accuracy and expressed as a concentration of micrograms per cubic meter of air (ug/m3). That concentration is then typically expressed as a 24h average value, and translated to a numerical air quality index with color coded categories to reflect health implications. The EPA uses the Air Quality Index, or AQI; this is the generally accepted metric at this time.

Another issue to be aware of is that AQI was developed to express the likely health effects of 24 hours of exposure to PM2.5 at certain levels, but was not really designed to communicate health risk of wildfire smoke, especially as wildfire smoke levels can change drastically over a 24 hour period. When looking at air quality data, one can find it expressed in real-time readings (e.g purple air); or 1h, 3h, 8h, 12h , 24h, or weekly averages. Shorter duration averages are helpful in that they reflect the air quality conditions the students may be immediately experiencing. This is quite helpful if one is trying to answer whether kids should go out for morning recess 20 minutes from now, but the possible health consequences of a short 20-30 minute exposure to a level of pollution classified as "orange" are likely less than a 24h exposure (what the color and health category was based on and is really meant to communicate).

Accordingly, when the school determines if air quality (indoor or out) is acceptable for students, an index number can be taken into consideration along with appreciation of the duration of time to be spent in those conditions, the activity level (breathing heavily can increase air and pollution intake 10-fold), how many days the air quality has been bad, whether indoor air quality at the school is appreciably better than outdoor, and, in heavy smoke episodes, whether indoor air quality is "healthy," "moderate" or worse.

**This document is drafted with support from Clean Air Methow, with consideration from the Washington Department of Health publications "Summary Guidance: Wildfire Smoke, School Closure, Children's Outdoor Activities Cancellation;" "Air Pollution and School Activities Public Health Recommendations for Schools on Fine Particle Air Pollution" and "Improving ventilation and Indoor Air Quality during Wildfire Smoke Events." Further input was solicited from experts at the Washington Department of Ecology and Health to develop a policy that supported our school's goals for a safe and successful learning environment for our children.*

APPENDIX 1. Determining the Washington Air Quality Advisory (WAQA) for PM2.5 on the MVE and LBHS campuses.

The school may use readings from the Washington State Department of Ecology's air quality monitoring nephelometers located at the Winthrop library and Town Hall in Twisp to determine air quality conditions (PM2.5 levels). A purple air monitor located on campus may also assist in determining the air quality on campus. The advantage of the purple air device is that it is located on campus and can express actual conditions in real-time. However, the disadvantage is that it is an inexpensive and less accurate device than the WA Ecology monitors.

Accessing air quality data:
Using air quality numbers from the EPA's Airnow app and the Methow Air app give a wealth of information to inform decision making. Below is a suggested method for using these apps.

EPA Airnow app. The Airnow app displays AQ data from the Winthrop and Twisp Ecology monitors as well as the purple air sensors. When opening for the first time, enter the school's zip code, then consult the home tab for the current air quality expressed as EPA's NowCast. Simply, the NowCast expresses the AQI using the last 12h of air quality readings to predict the next 12h and takes a 24h average. In rapidly changing conditions, it may be a poor indicator of real-time air quality.

Click on the "smoke" tab to find the local Ecology monitors in Winthrop and Twisp (circles) and the purple air monitor on campus (square). Clicking on any of these monitors allows you to view the current NowCast and the current trend in air quality (stable, decreasing, increasing). Scroll through the gray dots on the right side bar to view the hourly AQ recent history for the last three days. The recent history may be especially useful in noting trends of wildfire smoke activity, and predicting trends for the next several hours.

Washington State Department of Health Air Quality Guidelines

For current guidelines (including a helpful chart) please refer to:
https://doh.wa.gov/sites/default/files/legacy/Documents/Pubs/334-332.pdf