

AIR QUALITY POLICY

This policy has been developed to assist Race Directors and Technical Officials make an appropriate decision when the Field of Play is impacted by low visibility or bushfire smoke.

LOW VISIBILITY

Low visibility is generally caused by fog/mist or darkness.

The swim/paddle leg of an event is not to commence unless:

- i. The first turning mark is clearly visible from the start line, and
- ii. Each subsequent turning mark is clearly visible to competitors, and
- iii. Every position on the course has a clear view of a safe exit location on the shore

The bike leg of an event is not to commence unless there is at least 100m visibility at all positions on the course.

BUSHFIRE SMOKE

Air quality can have a significant health impact. Particle levels are the principal concern in bushfire smoke. The size of the particles in the air we breathe affects their potential to cause health problems. Particle pollution may contain substances like carbon, sulphur and nitrogen compounds, metals and organic chemicals. Particle size is usually measured in microns, which are units of one millionth of a metre. Coarse particles range from 2.5-10 microns in diameter. Fine particles, with diameters less than 2.5microns are often linked to health effects. Particles in this size range are slow to clear from lungs when they are inhaled.

Particles from smoke tend to be extremely small, with a size range near the wavelength of visible light (0.4 to 0.7 microns). At this size range, smoke particles efficiently scatter light and make it difficult to see, and can be inhaled deeply into the lungs. This is why these are a greater concern than larger particles.

Health Effects of Bushfire Smoke

Particulate matter exposure is the principle public health threat from short term smoke exposure. The health effects of smoke range from eye, nose or throat irritation to serious problems such as reduced lung function, bronchitis, exacerbation of asthma and even a risk of death.

Athletes are at risk when they are breathing deeply and rapidly

Risk Assessment of Smoke Conditions

Not all areas have continuous official monitoring of air quality or Race Directors and Technical Officials may not have available access to official monitoring station data, so a way of establishing particulate levels in the air has been developed.

A visibility index gives a quick, alternative way to estimate smoke levels. Using landmarks at known distances, an observer can provide a reasonable estimate of particulate concentration. It would be wise to identify landmarks before they are needed and know the approximate distances to allow for an effective visibility measurement.

TABLE 1 : For estimating particulate matter concentrations from Visibility Assessment

Air Quality Category	Equivalent approx. PM2.5 1-3 hour average in ug/m3	Visibility in Km
Good	0-40	15 Kms and Up
Moderate Unhealthy for sensitive groups	41-175	5 - 14 Kms
Unhealthy	176-300	2.5 - 4 Kms
Very Unhealthy	301-500	1.5 – 2 Kms
HAZARDOUS	➤ 500	< 1.0 Km

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When estimating particulate matter concentrations visually, it is important to face away from the sun. Determine the limit of your visibility range by looking for landmarks at known distances. The visibility range is the point at which even high-contrast objects totally disappear. (example: a dark building viewed against the sky at noon). Once visibility has been determined in kilometres, use Table 2 to identify the appropriate messaging and actions based on the air quality category. The visibility index is not effective at night or when humidity is high.

TABLE 2 : Appropriate Message and Actions based on the air quality category

Air Quality Category	Message	Actions for Events
Good Visibility : 15 kms and up 1-3 Hr Average PM 2.5 0-40ug/m3	Ideal air quality for outdoor activities	Ideal conditions for an event
Moderate / Unhealthy for Sensitive Groups Visibility: 5-14kms 1-3 hrs average PM 2.5 42-175 ug/m3	Be aware of health effects of smoke and related symptoms	Be aware of health effects of smoke and related symptoms
Unhealthy Visibility: 2.5-4kms 1-3 hrs average PM 2.5 176-300 ug/m3	Reduce or re-schedule strenuous activities, especially if you experience symptoms	Consider reduction of length of events and / or cancellation of junior events. Provide warning to competitors with respiratory issues e.g. Asthma
Very Unhealthy Visibility: 1.5-2kms 1-3 hrs average PM 2.5 301-500 ug/m3	Avoid prolonged strenuous activities and stay indoors if possible	Consider reduction in length of events. Cancel or postpone event. Cancel Junior Events
HAZARDOUS Visibility: < 1.0km 1-3 hrs average PM 2.5 >500 ug/m3	Avoid all strenuous activities and stay indoors	Cancel all events and training

Should the air quality be such that an event is impacted to the extent that a decision needs to be made as to whether the event should be re-scheduled, reduced in length or cancelled, it should be done in consultation with the Race Director or the Appointed Contingency Committee and the Technical Delegate for the event. The final decision to modify the race plan will rest with the Race Director.

GENERAL MESSAGE to all Participants, Workers and Attendees at events impacted by Bushfire Smoke:

Seek medical Care if experiencing symptoms such as repeated coughing, shortness of breath or difficulty breathing, wheezing, chest tightness or pain, heart palpitations, unusual fatigue or light headedness.

REFERENCE

This policy is based on the publication *"Wildfire Smoke – A guide for Public Health Officials"* written in collaboration with the following parties: This document was written by Michael Lipsett and Barbara Materna, California Department of Public Health; Susan Lyon Stone, U.S. Environmental Protection Agency; Shannon Therriault, Missoula County Health Department; Robert Blaisdell, California Office of Environmental Health Hazard Assessment; and Jeff Cook, California Air Resources Board, with input from individuals in several other government agencies and academia, in particular Jed Waldman, Lauren Wohl-Sanchez, and Lani Kent of the California Department of Public Health; Peggy Jenkins, Dane Westerdahl, Tom Phillips, Linda Smith, and Jim Behrman of the California Air Resources Board; Shelly DuTeaux and Richard Lam of the California Office of Environmental Health Hazard Assessment; Deborah Gold and Bob Nakamura of the California Division of Occupational Safety and Health (Cal/OSHA); Alisa Smith of the U.S. Environmental Protection Agency; and Dr. Michael Brauer of the University of British Columbia, Canada. Editorial support was provided by Latasha Speech, California Department of Public Health. This document was developed in part as a result of a workshop held at the University of Washington in June 2001, under the auspices of the U.S. Environmental Protection Agency, Region X, and the Department of Environmental Health, School of Public Health and Community Medicine of the University of Washington. Harriet Ammann, formerly with the Washington Department of Health, was a co-author of the first version of this Guide, which was written and disseminated in 2001-02. The document was revised in July 2008. The viewpoints and policies expressed herein do not necessarily represent those of the various agencies and organizations listed. Mention of any specific product name is neither an endorsement nor a recommendation for use. This document available at: http://oehha.ca.gov/air/risk_assess/wildfirev8.pdf