



Air Quality Guidelines

REGARDING THE MANAGEMENT OF TRACKWORK AND STABLE ENVIRONMENTS

January 2020



All participants can be affected by air pollution, especially when exposure occurs over a prolonged period. It is important to note that some horses may be more susceptible than others and such exposure can aggravate pre-existing conditions.

The extreme conditions experienced throughout the Australian Capital Territory and New South Wales in recent months have led to extended exposure to the smoke and particulate matter produced by the surrounding bushfires. These particulates have the potential to build up in the respiratory system, predisposing to inflammation of the lower airways, whilst simultaneously causing irritation to the upper respiratory tract and eyes etc.

As there is little published information available to horse trainers and track managers alike, with regards to the short- and long-term effects of such events, Racing NSW offers the following information to assist as general guidelines in determining the risks of exposure to horses and participants undertaking trackwork, should air quality deteriorate.

The Air Quality Index (AQI) should be monitored on an hourly basis (where possible and necessary), utilising a combination of data provided by the NSW Department of Planning Industry & Environment (DPIE) and ACT Health:

- <https://www.dpie.nsw.gov.au/air-quality/current-air-quality>
- <https://www.health.act.gov.au/about-our-health-system/population-health/environmental-monitoring/monitoring-and-regulating-air>

It is important to note that AQI must be interpreted with careful consideration, as the rolling 24-hour averages provided may not be representative of the current situation at the track or the conditions to follow. For this reason, the 1-hour average (visibility) typically gives the most reliable measure of current conditions.

What are the potential dangers?

In a general sense, the potential effects of bushfire smoke and poor air quality are quite similar between horses and humans, including:

- Irritation of the eyes;
- Irritation and inflammation of the upper and lower respiratory tracts;
- The aggravation of underlying or pre-existing conditions, such as Inflammatory Airway Disease (IAD);

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- Reduced lung function.

Exposure to dangerous concentrations of particulates can lead to coughing, increased nasal and respiratory discharges and increased physical respiratory effort. This may lead to an increased risk of Exercise Induced Pulmonary Haemorrhage (EIPH), particularly in at risk horses.

Extended exposure to particulates may reduce the ability of the lungs/pulmonary tissue to remove foreign materials to which horses are normally exposed (pollens and bacteria etc).

Protecting Horses from Poor Air Quality

- Where there is visible smoke, it is advisable to limit strenuous exercise;
 - Limit high-intensity exercise that will significantly increase the airflow into and out of the lungs;
 - As the intensity of exercise increases, minute ventilation and the number of particulates inhaled similarly increase;
 - Such particulate matter is also inhaled more deeply and has the potential to diffuse into the bloodstream more readily during high-intensity exercise;
- Similarly, limit fast-work when Air Quality is in the **Very Poor** range;
 - At such times, exercise should be limited to low-intensity efforts (e.g. walking);
 - It is advisable **not** to undertake fast-work in the **Hazardous** range;
- Provide ample fresh water close to feed;
 - Most water is consumed within two hours of eating;
 - Water maintains moist airways, which in turn facilitate the clearance of particulates;
 - Dry airways lead to reduced clearance;
 - During periods of poor air quality and hot weather, do not restrict water intake;
- Limit dust exposure by soaking hay of feeding that which contains minimal dust;
- If coughing is evident, or respiratory effort is increased, seek veterinary advice to differentiate between reactions to smoke or potential underlying infection etc;
- If your horse is considered at risk or sensitive to such conditions, seek veterinary advice regarding ongoing management;
- Exposure to extreme levels of bushfire smoke may take 4-6 weeks for complete recovery. It may be necessary to consider spelling (in suitable conditions) if there has been such exposure;
 - High intensity exercise in such circumstances may cause aggravation to any underlying condition and potentially delay recovery;

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- Air Quality Index (AQI) is commonly used to assess the suitability of conditions for human sporting events and it is reasonable to use this as a basis for trackwork;
 - At AQI levels measuring over 100, consideration should be given to removing at-risk or sensitive horses;
 - All horses should be monitored closely at AQIs greater than 150, assessing for respiration and recovery;
 - When AQIs reach 200 or above, consideration should be given to discontinuing all high-intensity exercise;
 - AQI allows for real-time monitoring and alerts in response to changing air quality levels but must be interpreted carefully considering prevailing weather conditions.

Racing NSW is currently in the process of assessing the feasibility of a rollout of real-time air-monitoring equipment at major training and racing facilities, with a view to providing applicable AQI data, accessible by mobile application and web interfaces.

The welfare of both horses and participants is paramount and Racing NSW will continue to work in this area, for the betterment of the entire industry.

Air Quality Index (AQI) and Activity Guide

The Air Quality Index allows for an indication of how clean or polluted the air is in various regions and locations in the ACT and NSW.

Further, it is important to recognise that when there is a notable or rapid deterioration to visibility on the ground, this can often be the best indication that conditions have become unsuitable for high-intensity exercise. There can be some delay in the availability of updated data and AQI and in such circumstances, trainers should consider the immediate cessation of high-intensity exercise until proper assessment and guidance can be provided.

Please note that the NSW Department of Health and ACT Health may recommend the closure of facilities during periods of extremely hazardous air quality, in the welfare and health interests of attending staff.

Air Quality Index (AQI)	Colour Indicator	What does it mean?
Very Good (0-33)	Blue	Normal training & activities
Good (34-66)	Green	Normal training & activities
Fair (67-99)	Yellow	Normal training & activities Monitor all horses, particularly those considered unusually sensitive Others are not likely to be affected when the AQI is in this range
Poor (100-149)	Orange	Monitor all horses Consider delaying high-intensity exercise for those considered unusually sensitive
Very Poor (150-200)	Red	Monitor all horses Avoid high-intensity in at-risk horses and consider delaying such work in all others
Hazardous (200+)	Purple	Monitor all horses High-intensity exercise should be avoided & consideration to delay all other non-essential work

Protecting Stable and Track Staff from Poor Air Quality

Racing NSW provides the following general information to assist with the monitoring of Air Quality for the welfare and health of stable and track staff, to limit the potential for dangerous exposure.

Further information can be sought from the NSW Department of Health and ACT Government Health at the following websites:

- NSW Department of Health AQI and activity guide - <https://www.health.nsw.gov.au/environment/air/Pages/aqi.aspx>
- ACT Government Health – Health advice for smoky air (PM_{2.5}) <https://www.health.act.gov.au/about-our-health-system/population-health/environmental-monitoring/monitoring-and-regulating-air-0>
- Please note that the following table (published by ACT Government Health as a guide) considers **PM 2.5** in the air and is discussed in greater detail at the links provided above:

Smoky air (PM_{2.5}) health advisory categories

Air quality categories	PM _{2.5} (24 hour) µg/m ³	Potential health effects without following advice or actions	Cautionary health advice/actions**
Good	0-8.9	N/A – Below the relevant air quality standard	None
Meets air quality standard	9-25.9	N/A – Meets the relevant air quality standard	No tailored advice necessary

Air quality categories	PM _{2.5} (24 hour) µg/m ³	Potential health effects without following advice or actions	Cautionary health advice/actions**
Unhealthy for sensitive groups	26-39.9	Symptoms may occur in sensitive groups	<p>Sensitive groups# should <u>reduce</u> prolonged or heavy physical activity. Where possible, these people in the community should also limit the time spent outdoors</p> <p>Anyone with a heart or lung condition should take their medication as prescribed by their doctor. People with asthma should follow their asthma action plan. Anyone with concerns about their health should seek medical advice from their doctor. Anyone experiencing wheezing, chest tightness or difficulty breathing should seek urgent medical attention</p>
Unhealthy for all	40-106.9	<p>Increased likelihood of effects for sensitive groups</p> <p>Symptoms may occur in the general population</p>	<p>Everyone should <u>reduce</u> prolonged or heavy physical activity</p> <p>Sensitive groups# should <u>avoid</u> prolonged or heavy physical activity altogether</p> <p>Anyone with a heart or lung condition should take their medication as prescribed by their doctor. People with asthma should follow their asthma action plan. Anyone with concerns about their health should seek medical advice from their doctor. Anyone experiencing wheezing, chest tightness or difficulty breathing should seek urgent medical attention</p>
Very unhealthy for all	107-177.9	Significant likelihood of effects for sensitive groups	<p>Everyone should <u>avoid</u> prolonged or heavy physical activity</p> <p>Sensitive groups# should <u>avoid</u> all physical activity outdoors</p> <p>Anyone with a heart or lung condition should take their medication as prescribed by their doctor. People with asthma should follow their asthma action plan. Anyone with concerns</p>

Air quality categories	PM _{2.5} (24 hour) µg/m ³	Potential health effects without following advice or actions	Cautionary health advice/actions**
		Symptoms among general population common	about their health should seek medical advice from their doctor. Anyone experiencing wheezing, chest tightness or difficulty breathing should seek medical attention
Hazardous high	>177.9	<p>Serious likelihood of effects for sensitive groups</p> <p>Symptoms among general population very common</p>	<p>Everyone should <u>avoid</u> all physical activity outdoors</p> <p>Sensitive groups# should <u>temporarily relocate</u> to a friend or relative living outside the affected area. If this is not possible, <u>remain indoors and keep activity levels as low as possible</u></p> <p>Anyone with a heart or lung condition should take their medication as prescribed by their doctor. People with asthma should follow their asthma action plan. Anyone with concerns about their health should seek medical advice from their doctor. Anyone experiencing wheezing, chest tightness or difficulty breathing should seek medical attention</p> <p>Anyone experiencing symptoms which may be due to smoke exposure should consider taking a break away from the smoky conditions</p>
Hazardous extreme	> 250	Serious likelihood of effects for sensitive groups	Cautionary health advice and actions are the same as for Hazardous high above

Air quality categories	PM _{2.5} (24 hour) µg/m ³	Potential health effects without following advice or actions	Cautionary health advice/actions**
		Symptoms among general population very common	

*People over 65, children 14 years and younger, pregnant women and those with existing heart or lung conditions.

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