

Hunter Valley air pollution and the proposed Dartbrook mine extension



Overview

Air pollution levels in the Hunter Valley routinely exceed the current particle pollution standards. Air pollution in the Hunter has a major impact on public health and on the region's economy. **The proposed mine extension will adversely impact an already polluted airshed and should not be approved in its current form.**

The air pollution section of the DoP Assessment Report focuses on fine particle pollution (PM_{2.5}), noting that the national standard for annual average PM_{2.5} concentrations will be exceeded at some local residences (p.14). These very fine particles are caused by combustion processes, not coal mining. The mine expansion will add to fine particle emissions as it will increase the use of diesel vehicles including haul trucks and coal trains. But the mine extension will have more significant consequence for concentrations of larger particles. Mechanical processes such as coal mining create larger particles, in the size range 2.5 to 10 microns in diameter. The Department's focus on fine particle pollution has resulted in an inadequate assessment.

Air pollution standards and licencing

1. The NSW EPA monitors air pollution extensively in the Hunter Valley. The EPA network was expanded in 2011 in response to community concerns and there are now 14 monitoring stations that provide real-time monitoring results in the Valley. This allows a rigorous assessment of current air pollution trends and the likely impact of a proposals for additional coal mining.
2. The NSW Government, along with other state and territory governments and the Commonwealth, has adopted standards for coarse particle pollution (PM₁₀).
3. The standard for annual average is 25 micrograms per cubic metre (µg/m³).
4. During 2019, annual average PM₁₀ concentration at the three closest monitoring stations to the Dartbrook mine were 27.2µg/m³ at Muswellbrook, well above the national standard, 21.6µg/m³ at Wybong and 22.3µg/m³ at Aberdeen (Figure 1). The annual average standard was exceeded at 6 of the 14 monitoring locations.
5. The NSW Government is obliged to take action to ensure that 24 hour average concentrations of PM₁₀ remain below 50µg/m³. This standard should not be exceeded more than 5 times per annum at any one site.
6. During 2019, daily average PM₁₀ levels recorded by the EPA at Upper Hunter monitoring sites exceeded the national standard of 50µg/m³ **on a total of 209 occasions** (Figure 3). Levels above the national standard were recorded at all of the Hunter Valley's 14 monitoring stations.
7. Already during the first three months of 2019, PM₁₀ concentrations have exceeded the standard for 24 hour averages on **86 occasions**. Twelve of the Upper Hunter's 14 air pollution monitoring stations have already registered 5 or more exceedances of this standard (Figure 4).

Controlling coal dust

8. The coal mine extension will increase coarse particle pollution concentrations both locally and regionally. This is acknowledged in the Mod 7 Assessment Report (p.14). Coal dust is generated at every step of the sequence from mining to export. The coal mined at Dartbrook will be transported from the mine to be loaded onto uncovered coal wagons to be transported to one of the three Newcastle coal terminals.
9. In 2011, the NSW EPA commissioned Katestone Environmental Pty Ltd to produce the *NSW Coal Mining Benchmarking Study: International best practice measures to prevent and/or minimise emissions of particulate matter from coal mining*. There is minimal evidence of mines actively implementing the full

range of the measures outlined in this benchmarking study. NSW Planning has not required that as a condition of consent.

10. The NSW EPA have introduced programs to reduce particle pollution from Hunter Valley coal mines, including the Dust Stop program which aims to reduce coal dust emissions by 80%. **These programs are failing.** Both short term (24-hour) and long-term PM₁₀ concentrations continue to exceed the relevant standards and are in fact increasing.
11. Air pollution concerns were expressed in 81% of submissions on the Dartbrook extension (p.14, Mod 7 Assessment Report).

Health impacts of coal dust

12. There is no threshold below which particle pollution does not contribute to cardiovascular and respiratory ailments.¹ Short-term exposure to elevated concentrations of PM₁₀ trigger health responses that can lead to hospital admissions. Every 10µg/m³ increase in PM₁₀ concentrations, even at levels below the national standard, causes a 1% increase in hospital admissions for respiratory disease (CAHA p.20).
13. Modeling by the Climate and Health Alliance estimates that exposure to particle pollution from coal mining imposes a burden of \$47 million on the town of Singleton each year and \$18.3 million each year on Muswellbrook: “The communities most affected by open cut coal mining and coal-fired power generation in the Upper Hunter region and most at risk from poor air quality are the larger regional towns of Singleton and Muswellbrook, and the smaller towns of Camberwell, Warkworth, Maison Dieu, Jerrys Plains and Wybong.” (CAHA p.21).
14. Community groups have urged the NSW Government to conduct a comprehensive Health Impact Assessment study in the Hunter for many years, but no government-led study has ever been undertaken.
15. According to the NSW EPA, 87.6% of the Hunter Valley’s coarse particle pollution (PM₁₀) is caused by coal mining.² Fine particle pollution (PM_{2.5}) is caused by combustion processes including diesel locomotives and the off-road diesel vehicles used in mines.
16. The Upper Hunter experiences some of Australia’s highest particle pollution levels. Additional sources of particle pollution pose a significant health risk and should not be approved by the NSW Government. Instead, the NSW Government must focus efforts on effectively controlling and minimising air pollution in the Hunter Valley.

Dr James Whelan

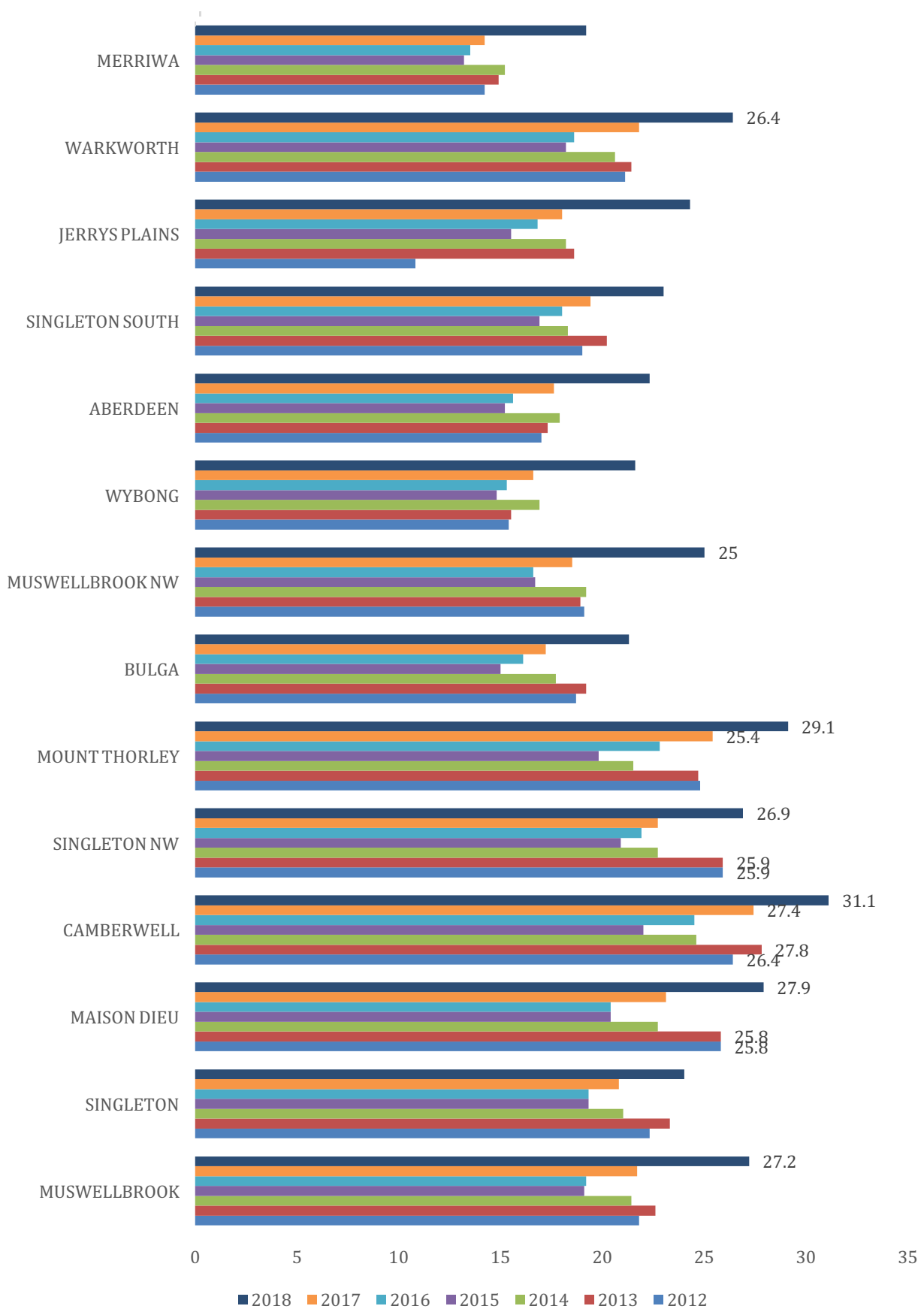
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¹ Climate and Health Alliance, 2015, Coal and Health in the Hunter, <http://caha.org.au/projects/hunter-coal/>

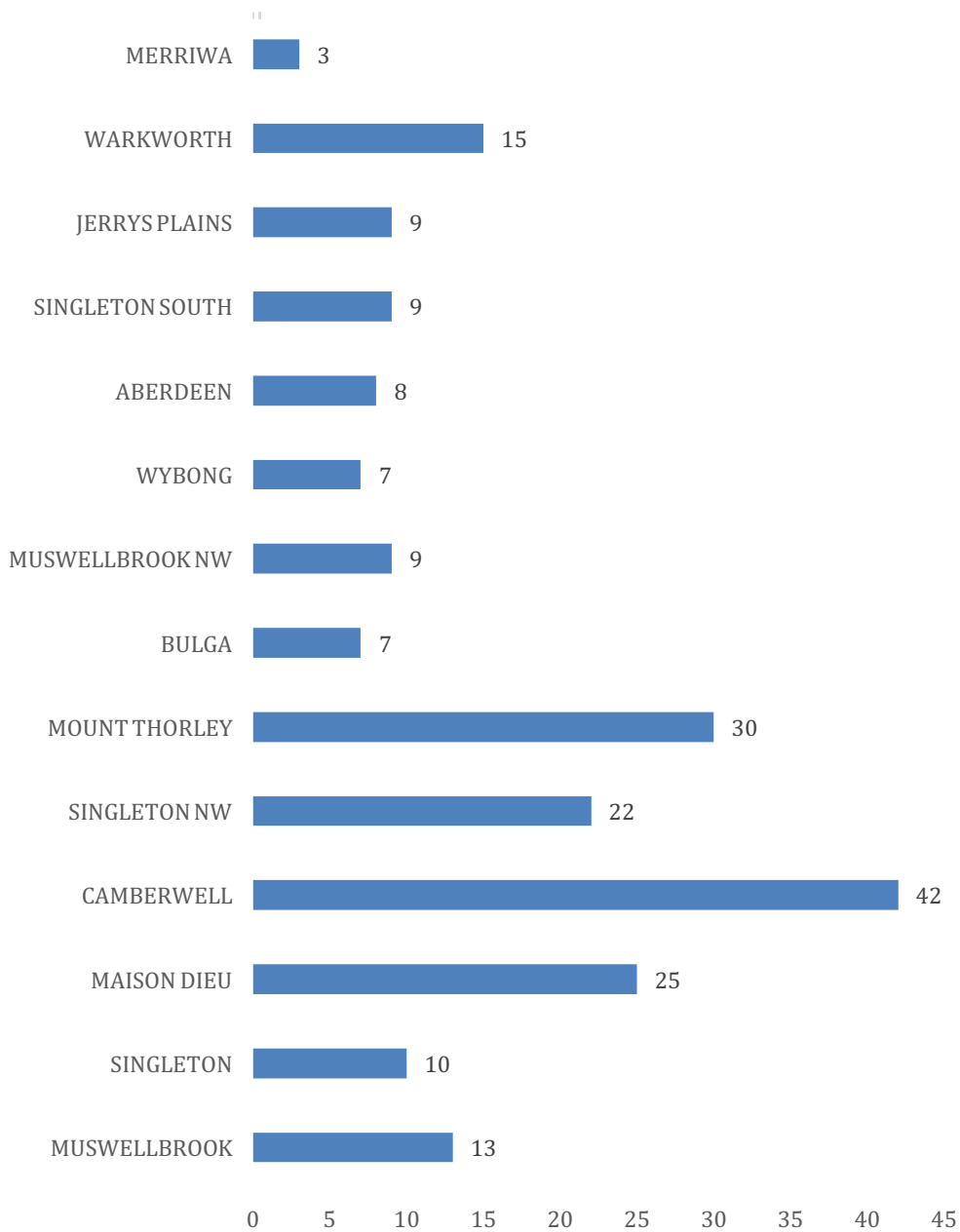
² Senate Inquiry into the Health Effects of Air Quality, May 2013 p.55

Figure 1: Hunter Valley annual average PM₁₀ concentrations (µg/m³)



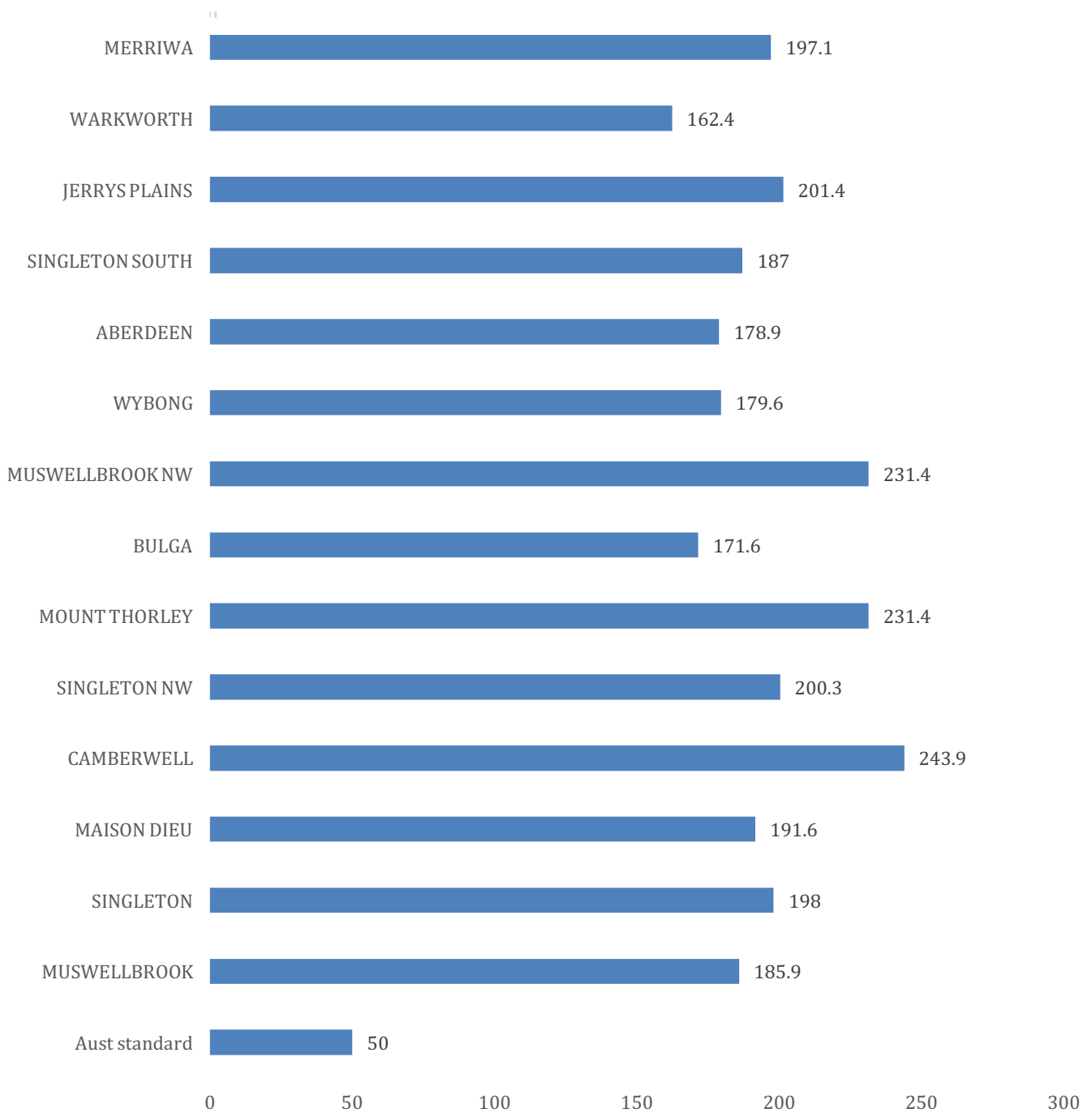
Annual average PM₁₀ concentrations exceeded the national standard at 6 of 14 locations during 2018.

Figure 2: Number of exceedances of PM₁₀ standard during 2018



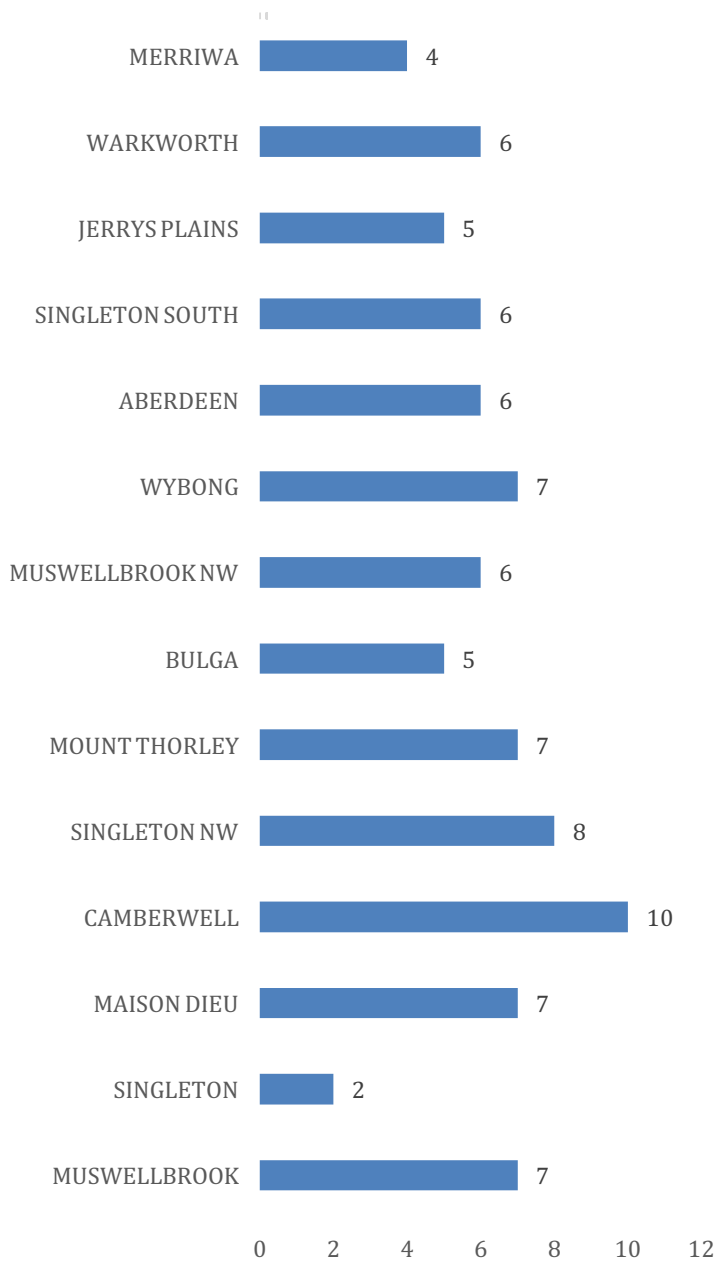
Coarse particle pollution concentrations exceeded the national standard 209 times during 2018.

Figure 3: Highest 24 hour average PM₁₀ concentration during 2018 (µg/m³)



Coarse particle pollution concentrations reached almost 5 times the national standard at multiple air pollution monitoring sites in the Hunter Valley during 2018. All sites recorded exceedances.

Figure 4: Number of exceedances of PM₁₀ standard Jan-March 2019 YTD



Coarse particle pollution concentrations have already exceeded the national standard 86 times during the first three months of 2019.