

Explanation of circumstances leading to exceedance event

Background

The Mount Maunganui Airshed (“the Airshed”) was declared polluted upon its establishment in late 2019, due to the number of breaches of the NESAQ for PM₁₀, caused by emissions from various sources in and around the Mount Maunganui industrial area and Port of Tauranga. The Airshed was established to help manage air quality within this area, and a plan change to introduce provisions to manage particulate matter (PM) is in its early stages. However, the exceedances of February 2021 are not representative of the profile of the Airshed as a whole in terms of their cause and location.

As detailed in the timeline of events below, the exceedance events have all been linked to the disturbance of dust by heavy vehicles involved in the recent night time runway maintenance work at the Tauranga Airport (“the Airport”). However, it has been found that the dust was not disturbed as part of the works themselves, but rather from trucks accessing the site and their temporary load out/set down parking area near the airport boundary.

The set down area that the vehicles were driving to and from is a grassed area located close to the site entry and gravel “roadway” within the site (Figures 2a and 2b), so would generally be expected to be a low-dust surface. However, the grass being driven over was very dry at the time due to several months of very low rainfall (over the summer of 2020/2021, Tauranga had just 38% of its normal summer rainfall)¹.

The exceedances were recorded at the nearby De Havilland Way monitoring station, one of a network of 10 air quality monitoring sites within the closely monitored Airshed (Figures 1, 3, 4a and 4b). None of the other nine monitoring stations within the Airshed recorded any exceedances over the nine week term of the work being carried out, emphasising the localised nature of the exceedance events.

Timeline:

The timeline of the PM₁₀ exceedance events is as follows:

3rd February:

- Council receive notification of exceedance recorded for previous 24 hour period.
- Investigation of the exceedance undertaken by Council officers.
- Suspected cause was runway resurfacing works at the Airport.
- Council officers contacted the Airport Manager to ensure dust suppression measures were adequate for the resurfacing work.

4th February:

- A second exceedance recorded for the previous 24 hour period.
- Regulatory compliance visit around 10am to inspect site. No works underway and few vehicles onsite so nothing of concern sighted.

5th February:

- A Council compliance officer visited the site at 3.07am, and noted that vehicle movement at the set down area appeared to be raising dust, but that it was not a concern over the course of the half hour visit.
- A third exceedance recorded for the previous 24 hour period.
- Council ordered the complete cessation of the runway works at the Airport.
- Council staff met with Airport management and contractors. Subsequently, it was determined that the cause of the exceedances was more likely to be due to the movement of trucks involved with the resurfacing entering and exiting the set down area, rather than the resurfacing work itself. Council then required procedures to be introduced to specifically address the dust resulting from the vehicle movements. These were enacted immediately and the works were able to begin again.

Following the newly required dust management approach introduced on 5 February, the Airport resurfacing works continued until the first week of April, with no further exceedances recorded.

¹ https://niwa.co.nz/sites/niwa.co.nz/files/Climate_Summary_Summer_2020-21_Final_0.pdf

Reasons why these circumstances were beyond the reasonable control of the regional council

Page 43 of the NESAQ User Guide states that “*Exceptional circumstances can only happen if without the circumstances the exceedance would not have occurred. It is not an exceptional circumstance if there was already going to be an exceedance (due to ‘normal’ sources) and the events in question only increased the amount of the exceedance.*”

The resurfacing of the runway at the Airport can be considered an infrequent practice and the related vehicle movements to and from the grass set down parking area are, therefore, an abnormal source of emissions which were responsible for the recorded exceedances within the Airshed. This is further reinforced by the fact that as no further exceedance events occurred once the identified cause of PM had been addressed, it can be determined that there would not have been any exceedances already occurring due to ‘normal’ sources that the events of 2-4 February would have compounded.

The user guide sets out five criteria for consideration by Council when making an application to the Minister. These are addressed below:

1. Causation – whether the exceedance was caused by the events being assessed.

The De Havilland 24 hour PM₁₀ record (Figure 5) has a seasonal pattern whereby elevated values do occur in the drier summer periods; this pattern is common for other sites within the airshed. Elevated PM₁₀ levels were recorded on three subsequent days (Table 2), at periods of time linked with activities associated with remedial work being undertaken on the Airport runway (Figure 6). These elevated periods occurred when wind directions were from the eastern arc (Figure 7), as opposed to the northern arc where elevated values have been normally recorded in the past. The De Havilland Way polar plot in Figure 3 shows that PM₁₀ values are typically subdued when winds are from the easterly quarter. Pollution roses (Figure 8) support the directional relationship for the exceedance events where elevated PM₁₀ values occur when the wind is coming from the set down area (Figure 2a and 2b), approximately 80m to the east of the monitoring site.

Following Council compliance staff intervention once the cause of the exceedances was confirmed, no further exceedances were recorded at the monitoring site.

2. Control – the circumstances must be beyond the reasonable control of the regional council - All reasonable efforts by the regional council, or other parties responsible for the events in question, should have been taken to control the effects of those events, or prevent the those events occurring in the first place.

The runway resurfacing activity which indirectly led to the exceedances is a Permitted activity under Plan Change 13 (Air Quality) to the Regional Natural Resources Plan:

AQ R1 General activities – Permitted – Ngā mahinga noa – E whakaaehia ana

Any discharge of contaminants into air which is not subject to any other rule in this regional plan and excluding the discharge of dust to air associated with a plantation forestry activity, is a permitted activity provided the following conditions are complied with:

(a) The discharge must not be noxious or dangerous, offensive or objectionable beyond the boundary of the subject property or into any water body.

(b) The discharge of smoke or water vapour must not adversely affect the safety of any vehicle, aircraft, or ship.

As such, Council had confidence that the resurfacing activity was not at high risk of leading to problematic emissions to air. Indeed, no NESAQ exceedances were recorded due to resurfacing work on the Airport runway. However, Plan Change 13 does not impose requirements on vehicle movements, and it was this activity at the Airport, over loamy, sand soils containing a high percentage of silt-sized particles, and with depleted vegetative cover, that caused the recorded exceedances. At the time of the exceedances in early February, it was the height of an uncommonly dry summer.

Such an extended period of hot, dry weather subsequently led to low soil moisture levels, and depleted vegetation/grass cover which in turn, with vehicle movement at the unpaved set down area, led to sufficient dust emissions to cause PM₁₀ exceedances at the nearby air quality monitoring station.

Once Council had grounds to suspect the Airport runway resurfacing as the source of the exceedances, it worked quickly to contact the contractor responsible to ensure their dust control measures were adequate. Council then carried out regulatory compliance visits to observe the operation site location. After a third exceedance, Council ordered the operation to halt and met with the Airport and its

Reasons why these circumstances were beyond the reasonable control of the regional council (continued)

contractors to identify and address the confirmed cause of the exceedances, and ensure that they were not repeated over the following two months for which the runway resurfacing work continued.

Permitted activities can be carried out as of right, and there is no onus to inform Council of such works. They are therefore not known to Council and unable to be prevented. It is not expected that a Permitted activity would create a nuisance, let alone an exceedance.

3. Foreseeability – an assessment of whether the circumstances were able to be reasonably predicted and/or planned for.

If the circumstances causing an exceedance were planned, and the discharge of the contaminant could reasonably be expected to result from the circumstances, then those circumstances are unlikely to be determined to be exceptional. However unplanned circumstances that could not reasonably be predicted or planned for would be likely to satisfy this criterion.

While the Airport runway resurfacing work was planned and it was reasonable to expect some dust emissions from the earthworks and resurfacing, the activity was permitted under BOPRC's newly operative Plan Change 13 – Air Quality and did not itself lead to any PM₁₀ exceedances. However, the ancillary activity of vehicles driving over adjacent areas causing emissions sufficient to register an exceedance of the NESAAQ standard for PM₁₀ was unexpected. The contractor's dust management plan concentrated on emissions produced by runway resurfacing work, and not on dust emissions caused by nearby low speed vehicle movement. Such an activity would not typically be considered a high risk action in a dust management plan, let alone even be addressed.

Furthermore, potentially dust generating activities such as haymaking and recreational aircraft taxiing over grass have been undertaken during summer in the same general area with no issue, so it is unlikely at the planning stage for the airport works that much consideration would be given to vehicles travelling at low speed in that area.

4. Frequency and likelihood of reoccurrence – *an assessment of how unusual the events were.*

The cause of the recorded exceedances were an unexpected side effect of maintenance work to the Airport runway, compounded by uncommonly dry weather. Such work is a generally infrequent occurrence that is unlikely to be repeated in the medium term. Furthermore, measures were subsequently put in place to address the causes of the exceedances, and they were successfully utilised for the remaining two months of the activity.

5. Purpose of the RMA – *whether a determination that circumstances were exceptional is consistent with the purpose of the RMA.*

In the context of air, this includes managing the use and protection of air in a way which enables people and communities to provide for their social and economic wellbeing, while safeguarding the life supporting capacity of that air and avoiding, remedying or mitigating adverse effects of activities on air quality.

The resurfacing work was required as essential maintenance to ensure the ongoing use of the runway and the continued safe operation of the Airport, the eighth busiest passenger airport in the country and the third busiest for general aviation. The uninterrupted operation of the Airport, when considered as an economic lifeline, will enable ongoing movement of domestic and business visitors, with vital flow-on effects for the wider Bay of Plenty economy. The work was done overnight, once daily flight operations had ceased, to allow each day's flight schedule to remain uninterrupted.

Furthermore, an overnight work programme would likely to result in less public exposure to any discharges of emissions, thus reducing the adverse health and amenity effects of any emissions on the Mount Maunganui community and safeguarding the life-supporting capacity of the air. To this end, it is noted that Council received no complaints about the particulate matter emitted on 2, 3 and 4 February when the three PM₁₀ exceedances were recorded at De Havilland Way.

For the reasons outlined above we are requesting that these exceedances be considered an exceptional event because they were not foreseeable, not likely to reoccur, beyond the reasonable control of the council and not contrary to the intent of the RMA framework.

Attachments



Figure 1: Mount Maunganui Airshed air quality monitoring network.



Figure 2a: Location of De Havilland air quality monitoring site location in relation to set down/load out area area



Figure 2b: Location of De Havilland air quality monitoring site location in relation to wider airport site

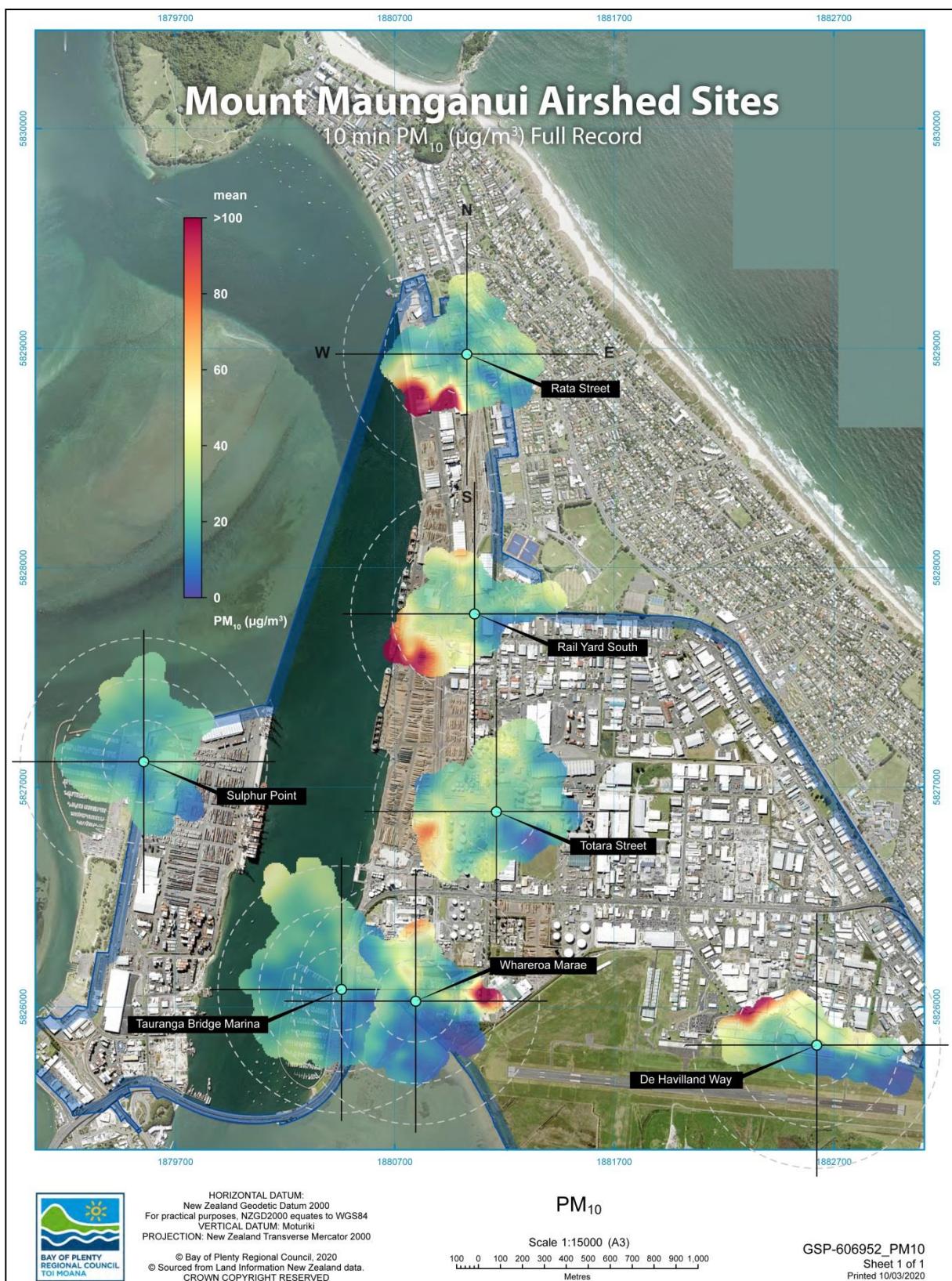


Figure 3: PM_{10} patterns within the Mount Maunganui Airshed

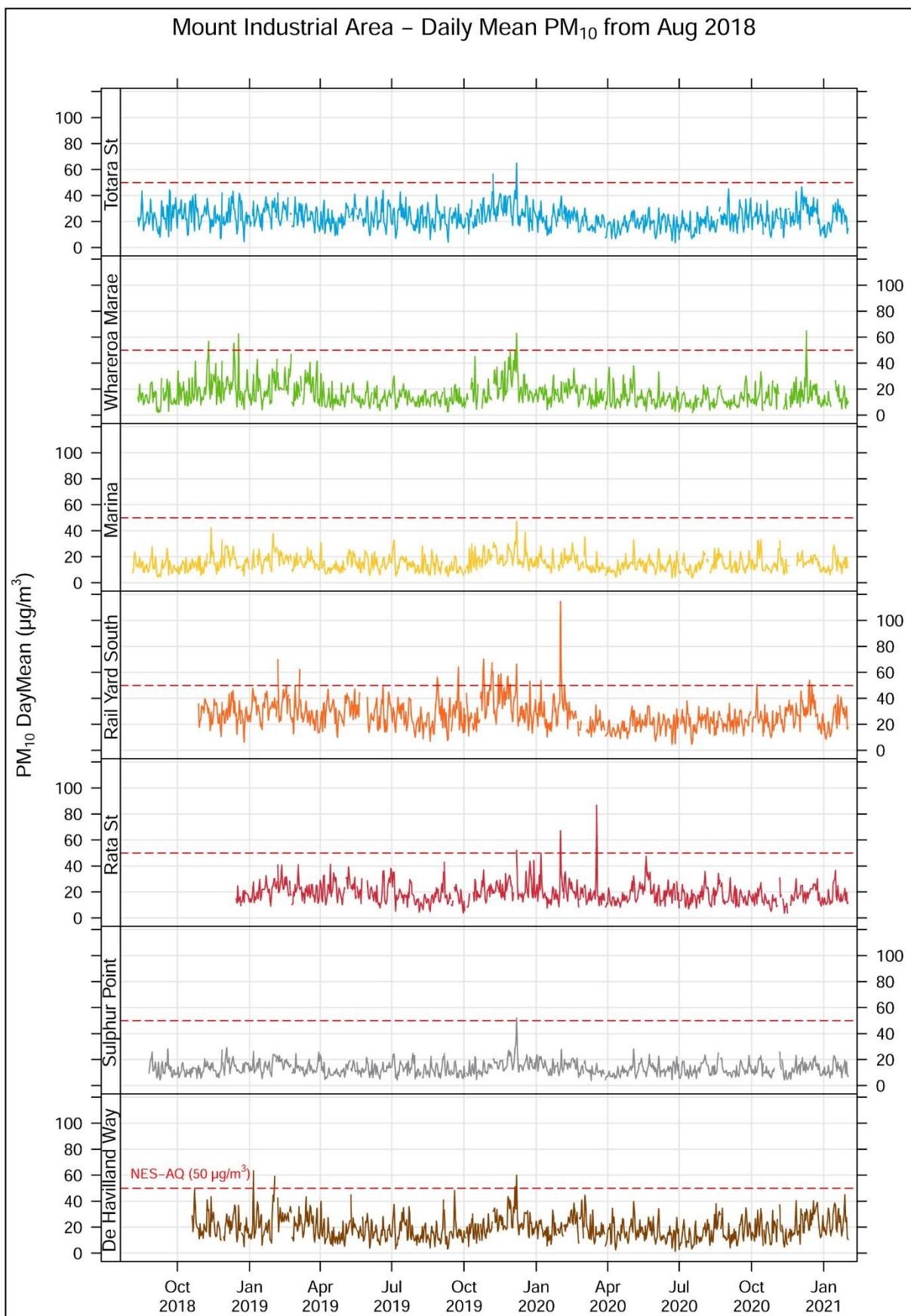


Figure 4a: PM₁₀ timeseries for the Mount Maunganui Airshed

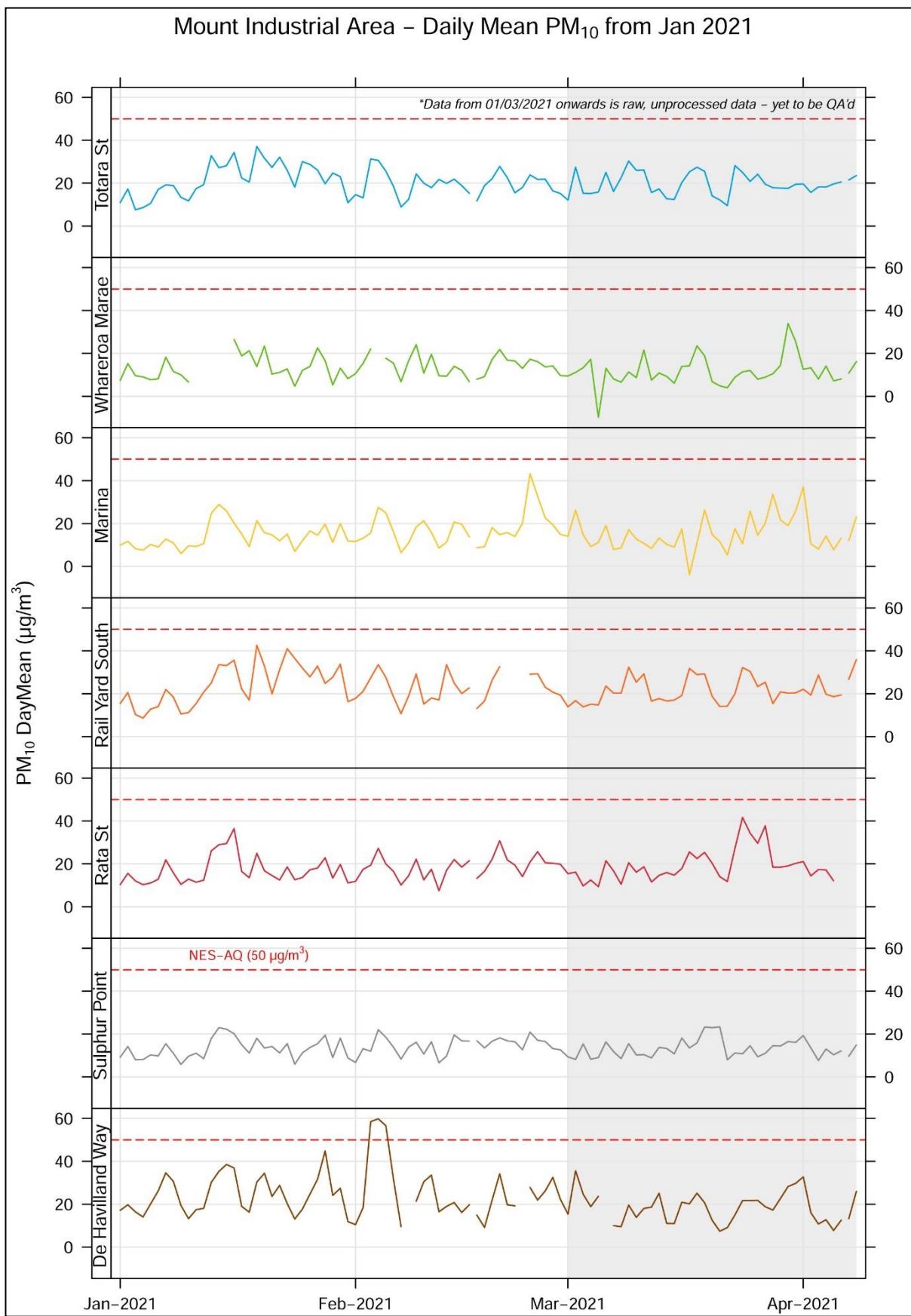


Figure 4b: PM10 timeseries for the Mount Maunganui Airshed - 5 January 2021 to 30 March 2021 (24 hour data)

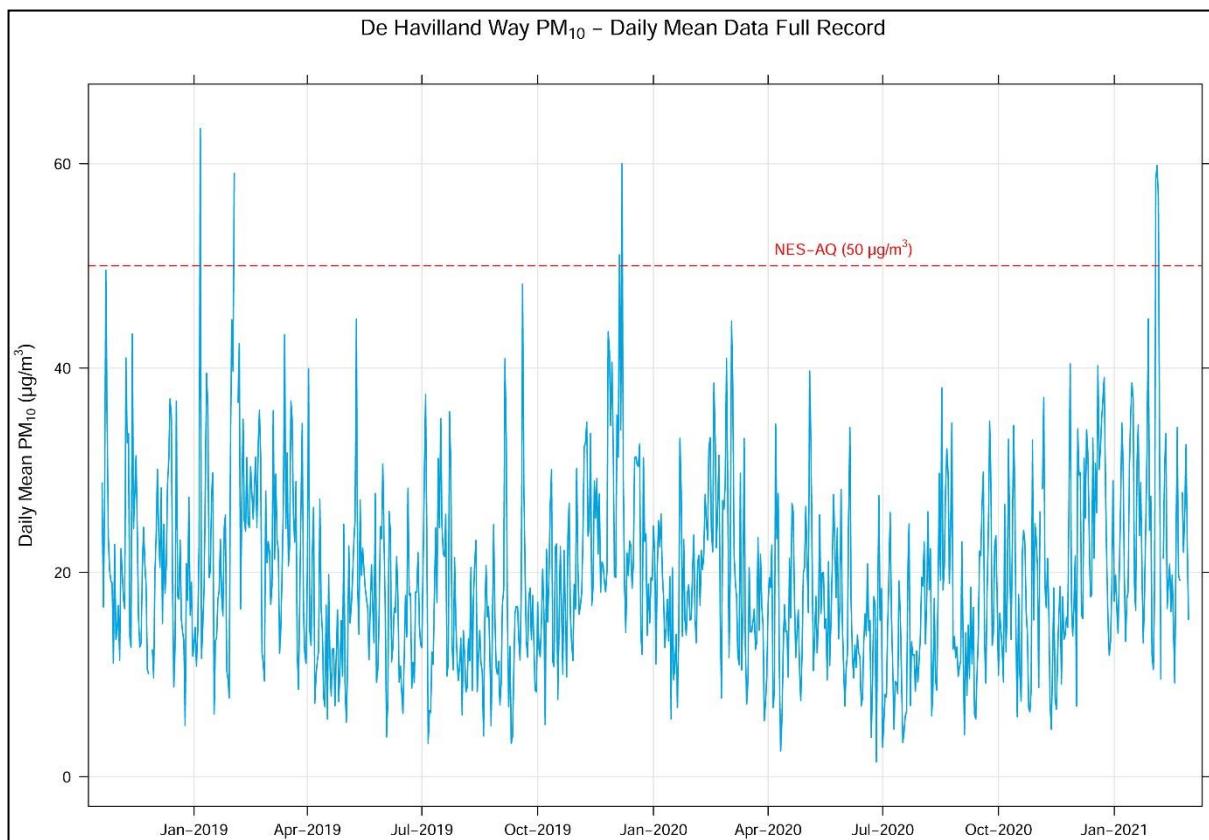


Figure 5: Full record PM₁₀ from De Havilland air quality monitoring site (24 hour data)

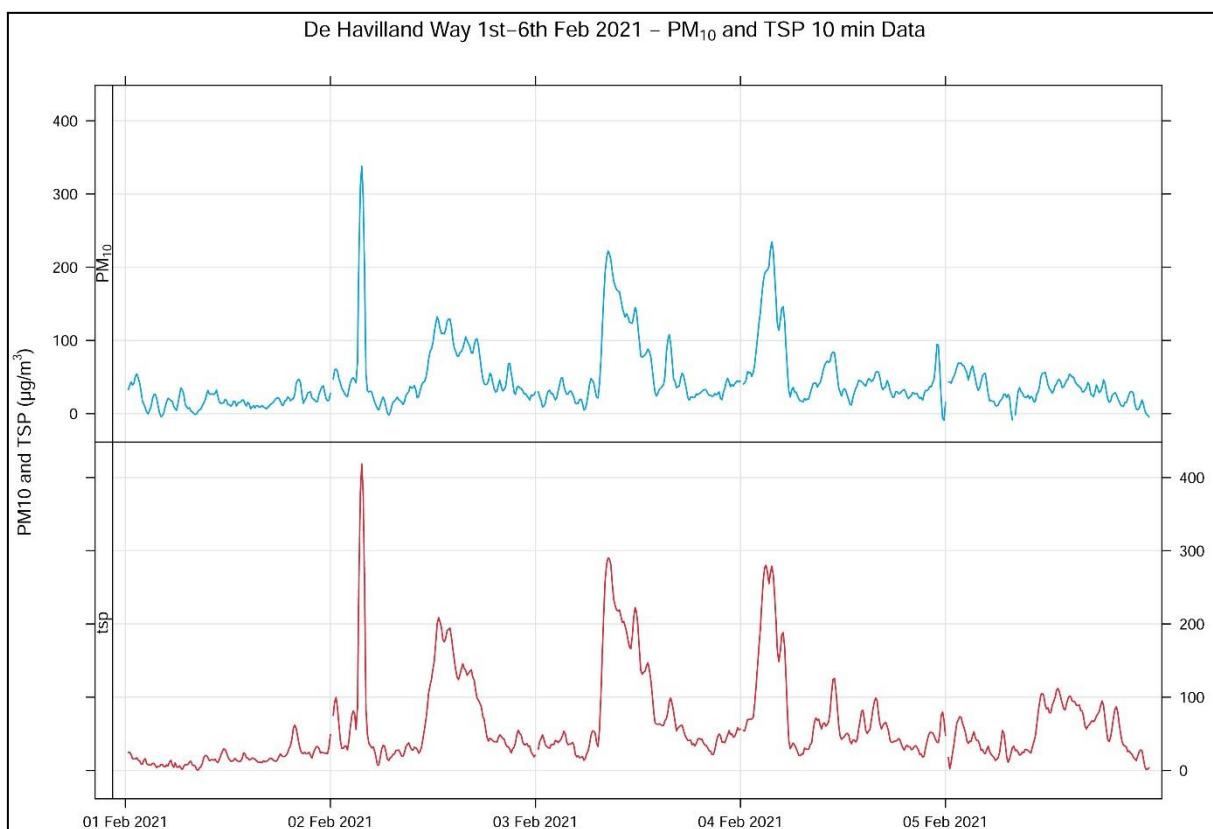


Figure 6: Period of interest PM₁₀ and TSP from deHavilland air quality monitoring site (10 minute data) (10

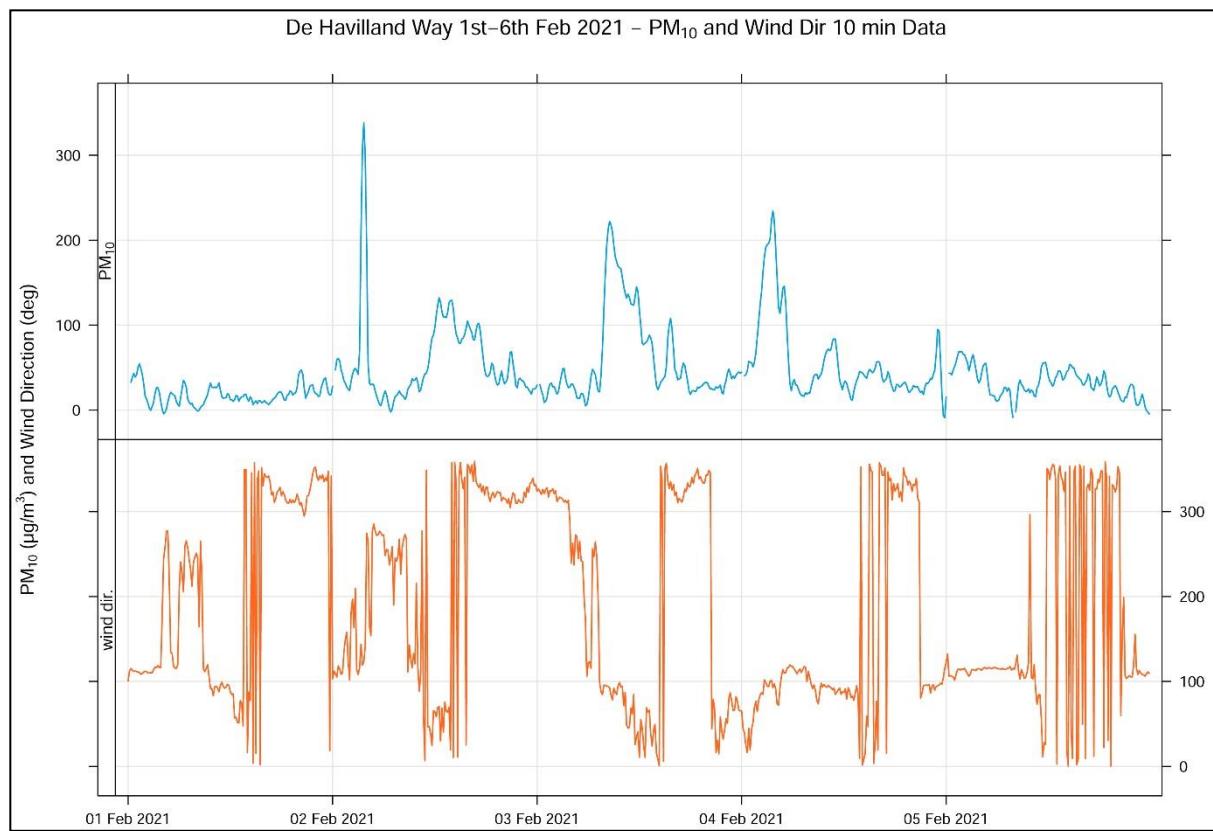


Figure 7: Period of interest PM_{10} and wind direction from deHavilland air quality monitoring site (10 minute data)

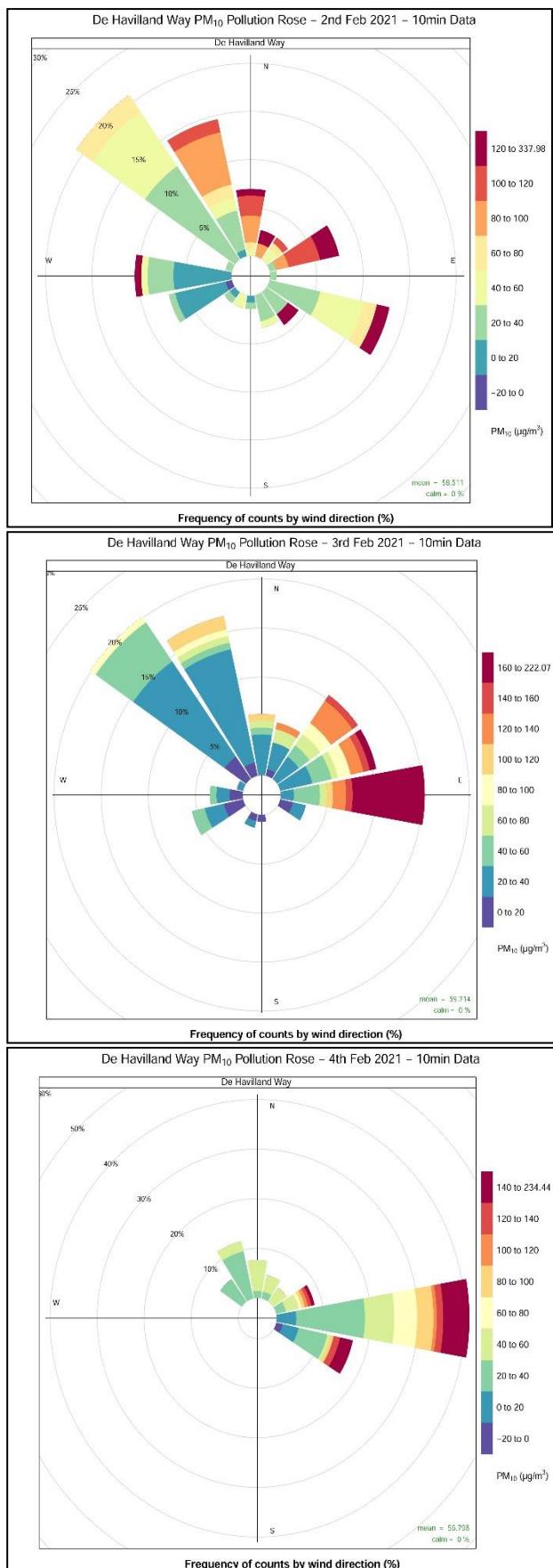


Figure 8: Period of interest daily pollution roses from de Havilland air quality monitoring site

Table 1: Historical PM₁₀ exceedances recorded at de Havilland air quality monitoring site

Site	Date	24 hr PM ₁₀ (µg/m ³)	Short description of findings
De Havilland Way	5/01/2019	63	RMD Bulk Storage tapioca unloading. Abatement issued.
De Havilland Way	1/02/2019	59	No single source. Industrial and natural impacts.
De Havilland Way	4/12/2019	51	No clear source identified, suspected bush-fire smoke a key contributor
De Havilland Way	6/12/2019	60*	Exceptional circumstance

Table 2: Current PM₁₀ exceedances recorded at de Havilland air quality monitoring site

Site	Date	24 hr PM ₁₀ (µg/m ³)
De Havilland Way	2/2/2021	59
De Havilland Way	3/2/2021	60
De Havilland Way	4/2/2021	57