

62 Elder Road
Birkenhead SA 5015

PO Box 77
Port Adelaide SA 5015



Telephone (08) 8300 0300
International +618 8300 0300
Facsimile (08) 8300 0597
www.adbri.com.au

Adelaide Brighton Cement Ltd

ABN 96 007 870 199

ANNUAL GROUND LEVEL PARTICULATE MONITORING REPORT FOR BIRKENHEAD WORKS

COMPLIANCE DATE: 31/10/24 – Annual Report 2024 (July 2023 - July 2024)

EPA Licence 1126: Ground Level Particulate Monitoring and Reporting plan (U - 1555)

Licensed site: Adelaide Brighton Cement, Birkenhead Works

62 Elder Road, Birkenhead, SA 5015

Date of Submission: 31 October 2024

Version Number: 1



Report Submitted by: Business Partner - Environment

Glossary

Term	Definition
$\mu\text{g}/\text{m}^3$	micrograms per cubic metre
μm	micrometre
$^{\circ}\text{C}$	degrees Celsius
m	metre
m^3	cubic metre
m^3/s	cubic metres per second

Nomenclature

	Definition
PM_{10}	Particulate matter with a diameter less than 10 micrometres
$\text{PM}_{2.5}$	Particulate matter with a diameter less than 2.5 micrometres
TSP	Total Suspended Particulate
24-hour average	Calendar day (midnight to midnight)

Abbreviations

	Definition
ABC	Adelaide Brighton Cement
Air EPP	South Australian Environment Protection (Air Quality) Policy 2016
GLPMRP	ABC's Ground Level Particulate Monitoring and Reporting Plan
EPA	Environment Protection Authority

Sampling Locations

- Map showing sampling locations, major infrastructure, sensitive environmental receptors, and north arrow



Sampling locations are indicated by colour-coded dots on the above map.

NB: Four sampling points are located on the Birkenhead Works site; the other sampling points are in the community (corner of Gunn/ Well streets and Community Park).

The property (not owned by ABC), on which the Gunn Street Monitor was located, was sold for redevelopment and was no longer available for use. As a consequence the monitor was removed on 28 June 2022. After a period of negotiating with the EPA and discussion with City of Port Adelaide Enfield Council, Adbri initiated the application process for installation of a permanent air quality monitor in the preferred location, the NW corner of Naval Reserve in November 2023. The application was ultimately not approved in June 2024 and Adbri will continue to work respectfully with both parties to reinstate a long term solution. In the mean time a trailer mounted air quality monitor has been set up on the corner of Walton Street and Mary Street, Peterhead, until a long-term monitoring station can be established

Monitoring Objective

Annual report to include the following:

Monitoring data for each monitor (on site and off site) including EPA monitor (Le Fevre 1) for comparison as follows

- Yearly time series graph of 24-hour average PM₁₀ concentrations reported against the Air EPP for PM₁₀ of 50 micrograms per cubic metre (24-hour average).
- Yearly time series graph of 24-hour average PM_{2.5} concentrations reported against the Air EPP for PM_{2.5} of 25 micrograms per cubic metre (24-hour average).

Monitoring Plan

This monitoring report has been prepared in compliance with the Ground Level Particulate Monitoring and Reporting Plan, approved 16 October 2023 by the South Australian EPA.

The Plan is available on the ABC Birkenhead Community Website:
<http://www.birkenheadcommunity.com.au/>

Monitoring Data

This report contains monitoring data only. For analysis of the monitoring data, refer to the following;

- 2023/4 Quarterly Ground Level Particulate Monitoring Reports
- 2023/4 Quarterly Dust Management Reports.

There were 2 24-hour exceedances of PM_{2.5} Air (EPP) criteria on ABC ambient particulate monitor in the Community Park. These exceedances occurred on the 10 May and 12 May, and are summarised in the tables 1 and 2 below, and the full reports are included in the appendix

Table 1: 10 May 2024

Monitoring Location	Pollutant	24-hour average (µg/m ³)	EPP Air Criterion (µg/m ³)
Community Park	PM ₁₀	27.7	50
	PM _{2.5}	26.8	25
Gunn Street	PM ₁₀		50
	PM _{2.5}		25

Comment:

The 24-hour average PM_{2.5} concentration measured at Community Park of 26.8 µg/m³ exceeded the EPP Air criterion of 25.0 µg/m³. All ABC monitors (on site and off site), showed similar particulate levels and trends. This indicates the particulate level was from a localised air shed condition, rather than related to any specific site activity. Low wind speeds and overnight temperatures resulted in increased particulate levels overnight / early morning, which dropped during the day as wind speed and temperatures increased. PM_{2.5} particulate is commonly produced from combustion sources (vehicles/ heaters). PM_{2.5} particulate levels/trends are indicative of low night time temperatures, low wind speeds and reduced reduced air shed flushing.

Table 2: 12 May 2024

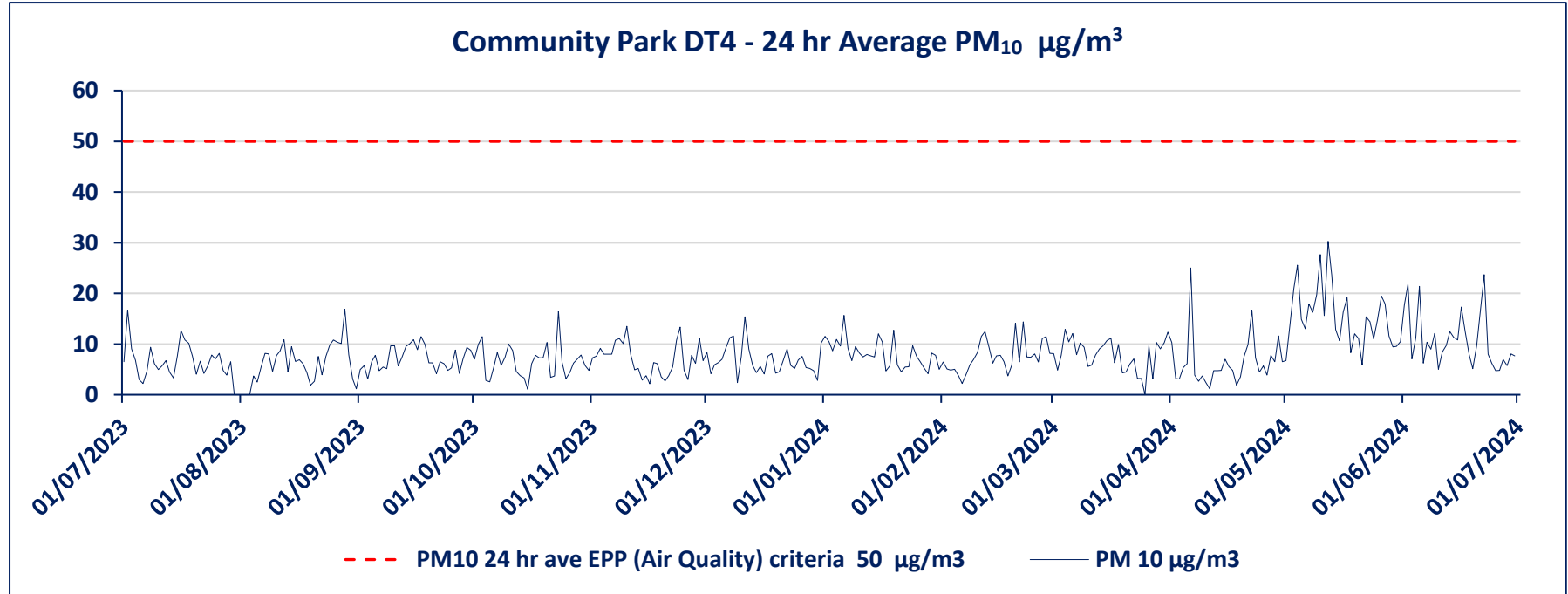
Monitoring Location	Pollutant	24-hour average (µg/m ³)	EPP Air Criterion (µg/m ³)
Community Park	PM ₁₀	30.3	50
	PM _{2.5}	29.7	25
Gunn Street	PM ₁₀		50
	PM _{2.5}		25

Comment:

The 24-hour average PM_{2.5} concentration measured at Community Park of 29.7 µg/m³ exceeded the EPP Air criterion of 25.0 µg/m³. All ABC monitors (on site and off site), showed similar particulate levels and trends. This indicates the particulate level was from a localised air shed condition, rather than related to any specific site activity. Also the wind movement for this 24 hr period was predominantly (75% of the day) blowing towards ABC. Low wind speeds and overnight temperatures resulted in increased particulate levels overnight / early morning, which dropped during the day as wind speed and temperatures increased. PM_{2.5} particulate is commonly produced from combustion sources (vehicles/ heaters). PM_{2.5} particulate levels/trends are indicative of low night time temperatures, low wind speeds and reduced reduced air shed flushing.

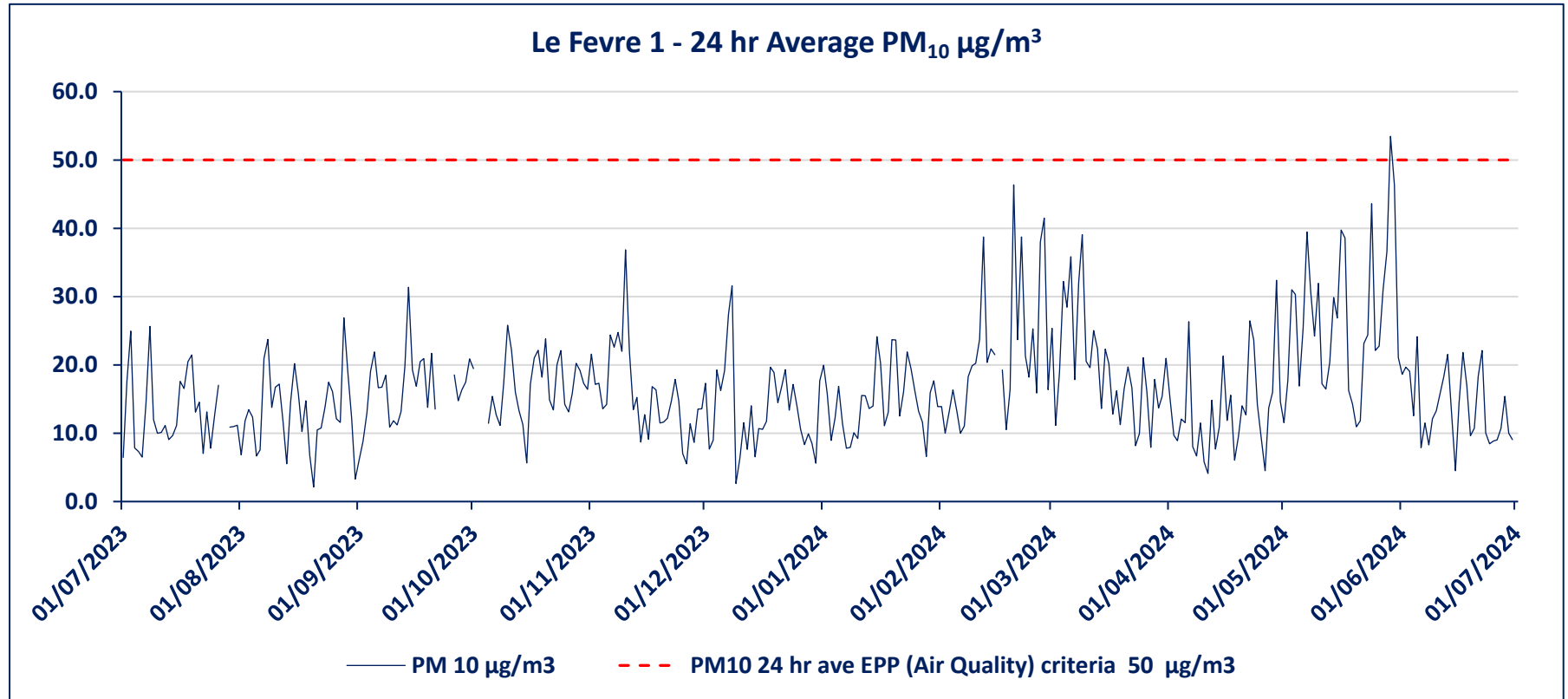
PM₁₀
trends
(24-hour
Averages)

ABC Community Monitors

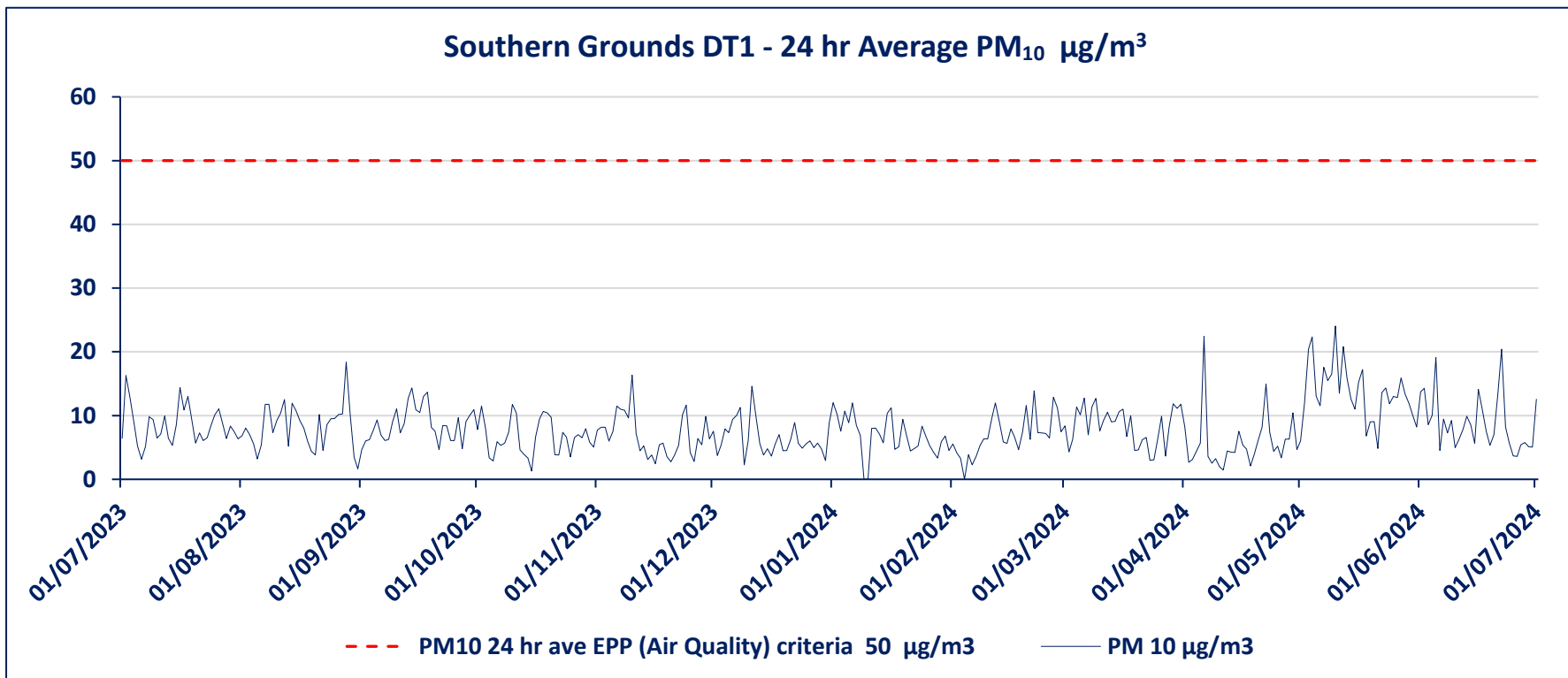


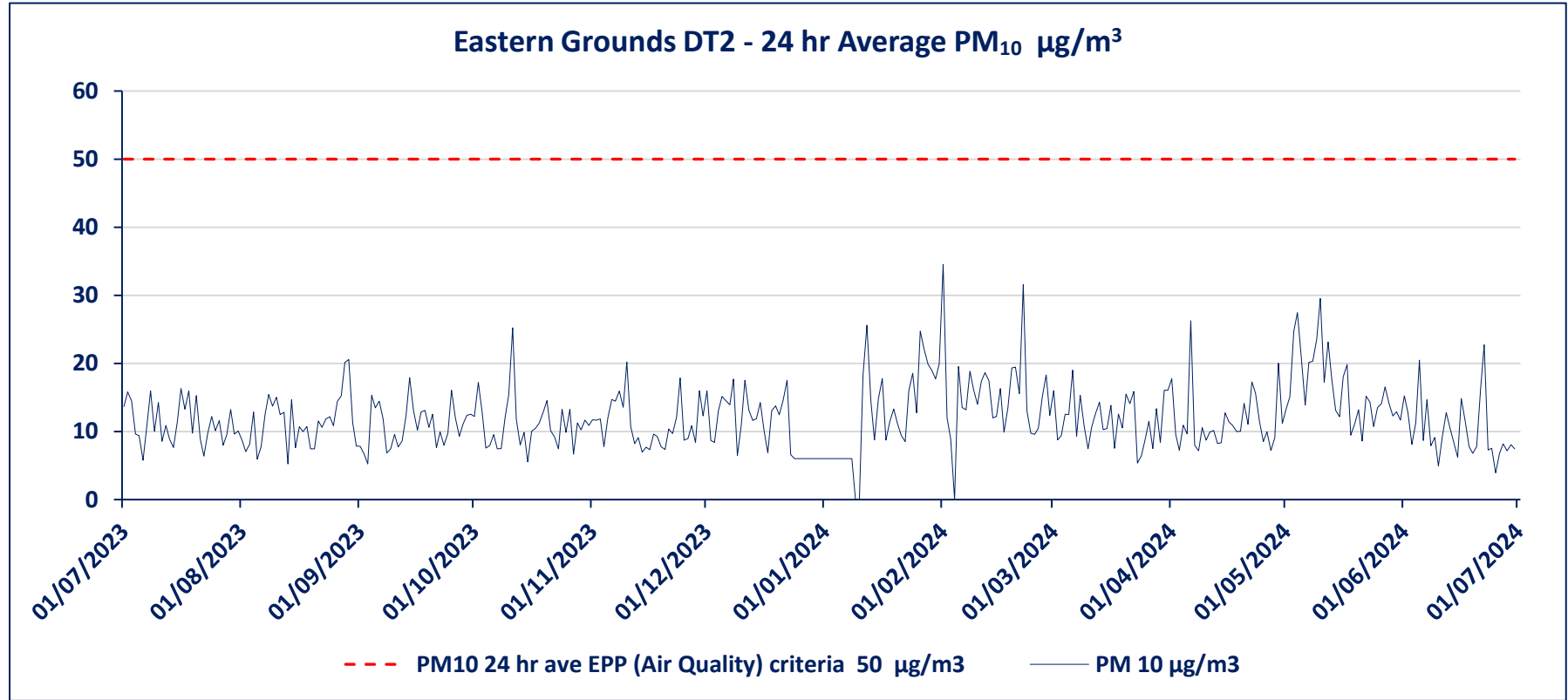
The property (not owned by ABC), on which the Gunn Street Monitor was located, was sold for redevelopment and was no longer available for use from the 30/6/2022. As a consequence the monitor was removed on 28 June 2022. A new monitoring location is currently being determined. After a period of negotiating with the EPA and discussion with City of Port Adelaide Enfield Council, Adbri initiated the application process for installation of a permanent air quality monitor in the preferred location, the NW corner of Naval Reserve in November 2023. The application was ultimately not approved in June 2024 and Adbri will continue to work respectfully with both parties to reinstate a long term solution. In the mean time a trailer mounted air quality monitor has been set up on the corner of Walton Street and Mary Street, Peterhead, until a long-term monitoring station can be established

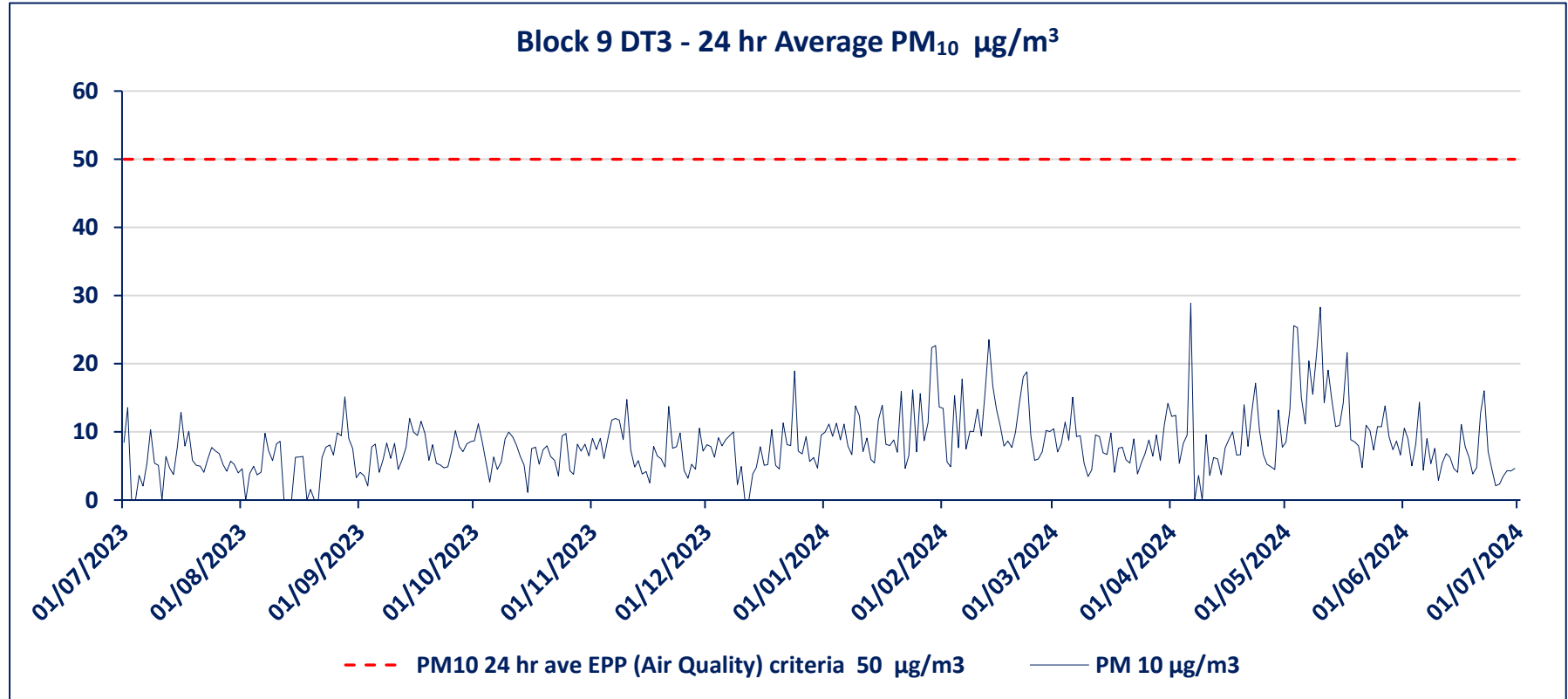
EPA LeFevre 1 Monitor

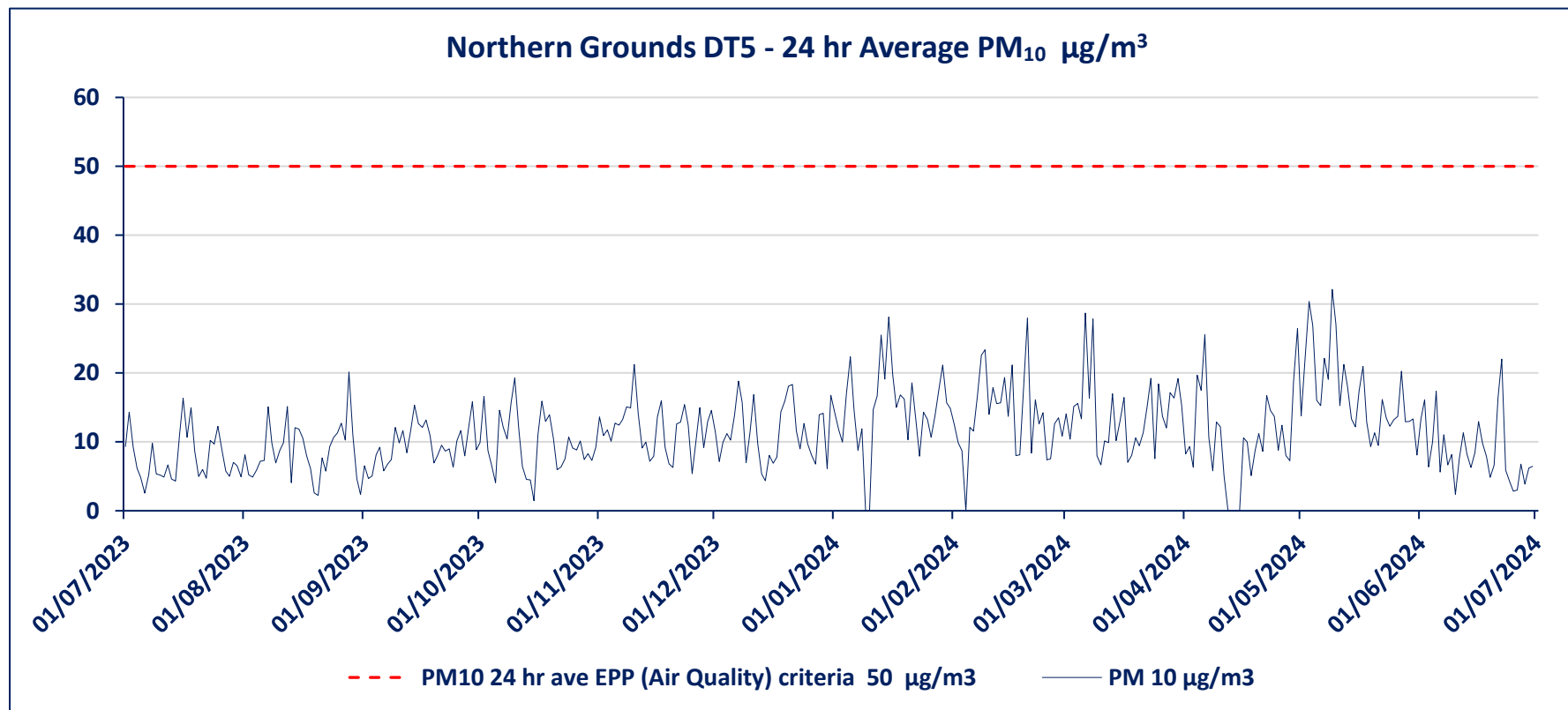


ABC Onsite Monitors



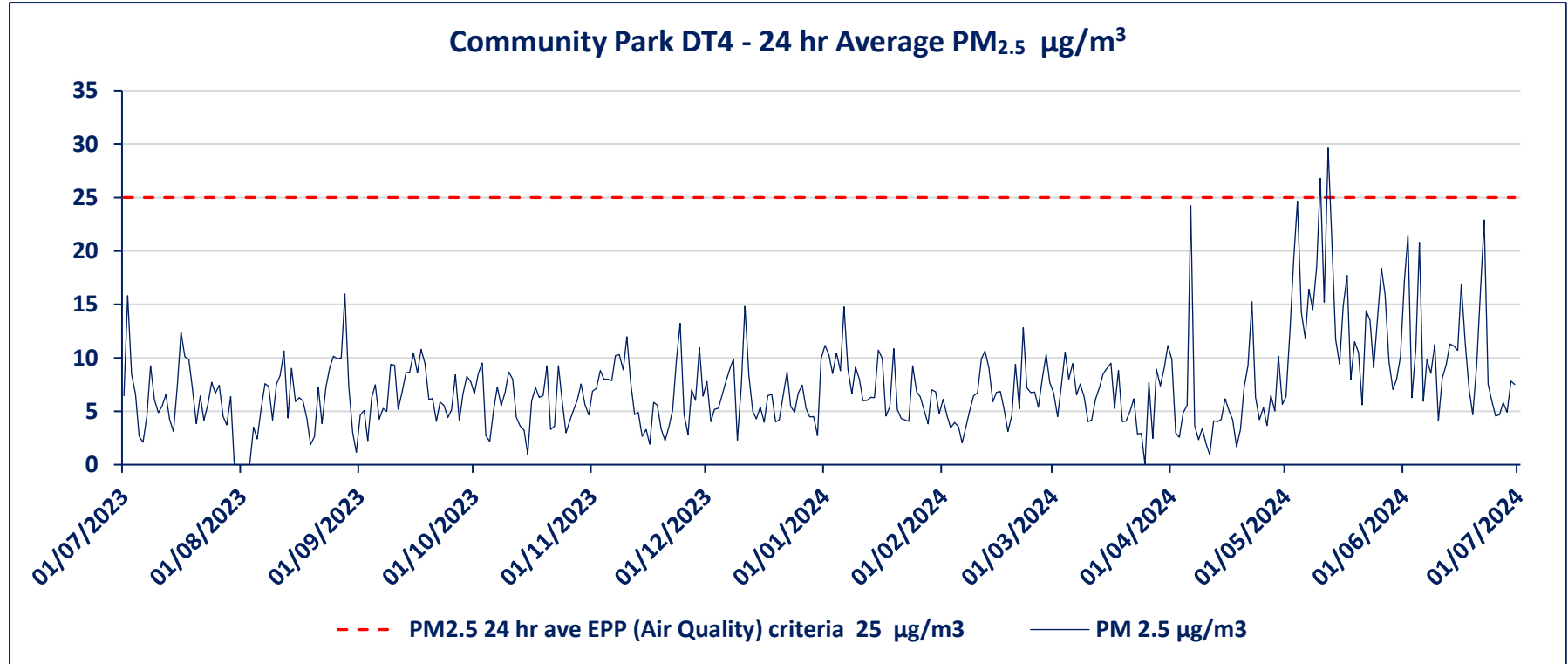






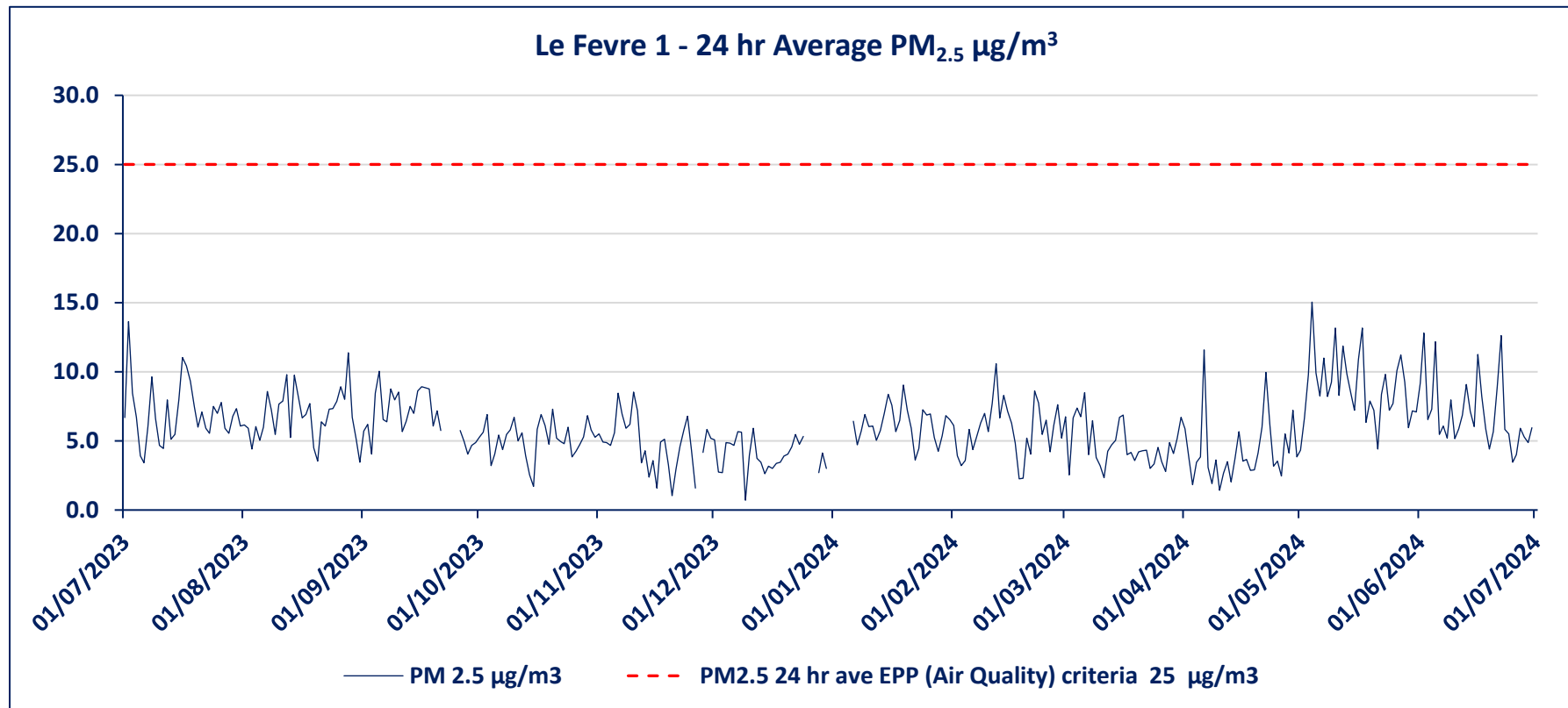
**PM_{2.5}
trends
(24-hour
Averages)**

ABC Community Monitors

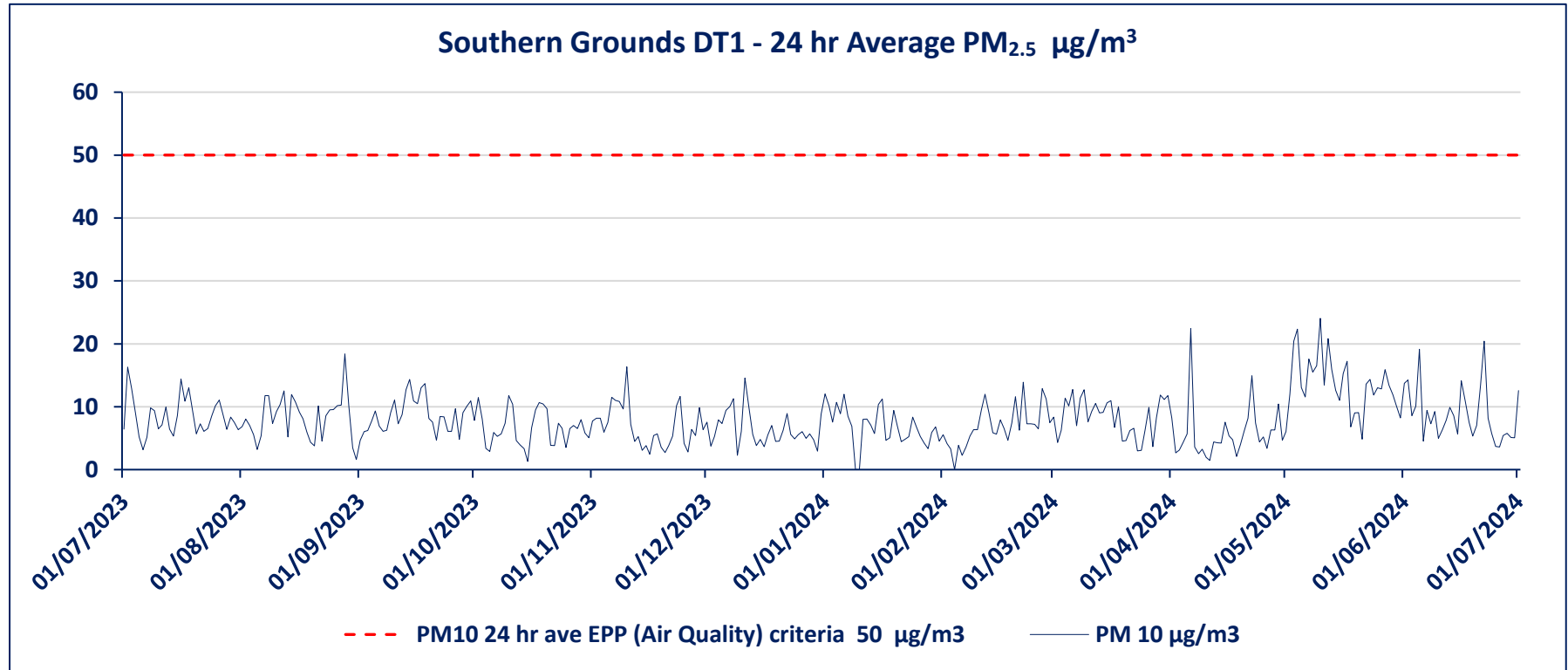


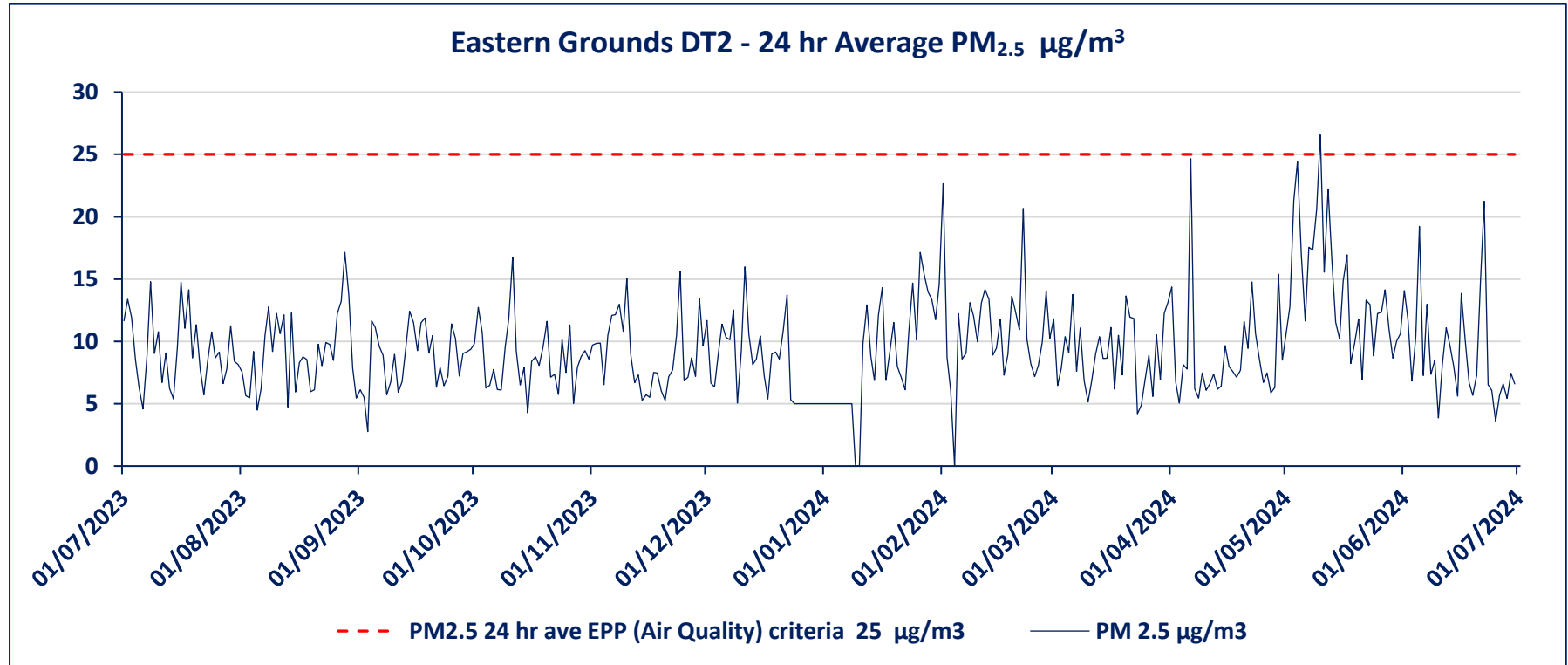
The property (not owned by ABC), on which the Gunn Street Monitor was located, was sold for redevelopment and was no longer available for use from the 30/6/2022. As a consequence the monitor was removed on 28 June 2022. A new monitoring location is currently being determined. After a period of negotiating with the EPA and discussion with City of Port Adelaide Enfield Council, Adbri initiated the application process for installation of a permanent air quality monitor in the preferred location, the NW corner of Naval Reserve in November 2023. The application was ultimately not approved in June 2024 and Adbri will continue to work respectfully with both parties to reinstate a long term solution. In the mean time a trailer mounted air quality monitor has been set up on the corner of Walton Street and Mary Street, Peterhead, until a long-term monitoring station can be established

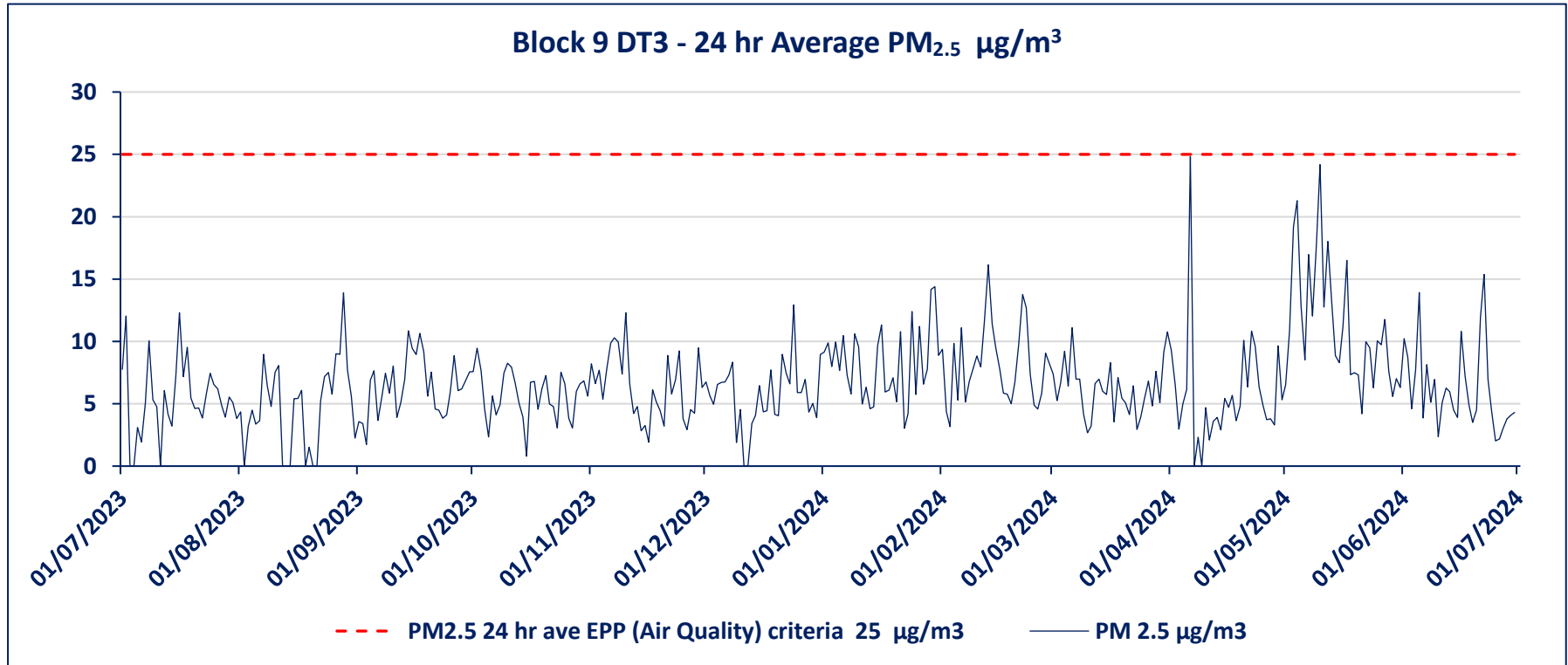
EPA LeFevre 1 Monitor

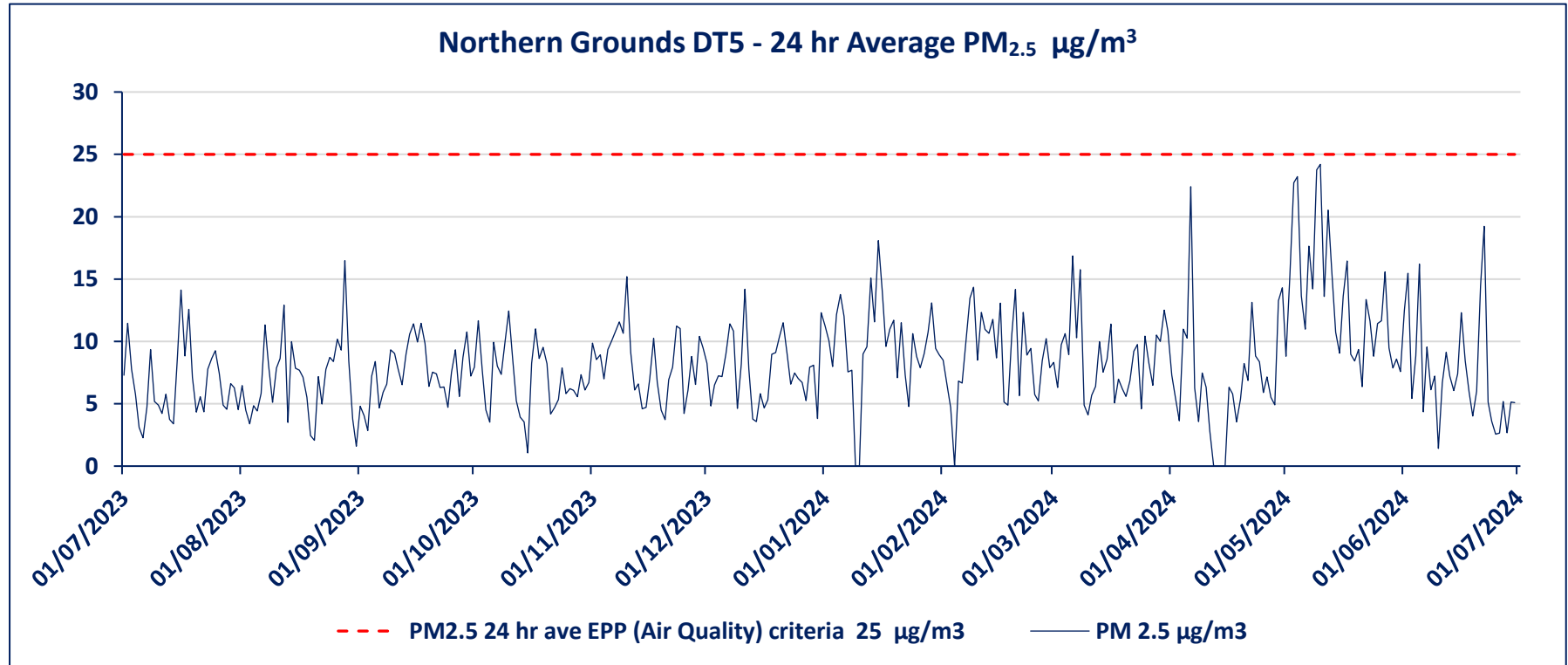


ABC Onsite Monitors









Appendix

10 May PM_{2.5} Exceedance Report
12 May PM_{2.5} Exceedance Report

Ground Level Particulate Notification Report - 10 May, 2024

Adelaide Brighton Cement, Birkenhead Works
62 Elder Road, Birkenhead, SA 501
EPA Licence No: 1126

Summary

The 24-hour average particulate matter monitoring data collected at the Community Park and Gunn Street monitoring sites during 10 May, 2024 is shown in [Table 1](#) below. The data indicates that:

- The 24-hour average PM_{2.5} concentration measured at Community Park of 26.8 µg/m³ exceeded the EPP Air criterion of 25 µg/m³

Table 1: Monitoring Summary

Monitoring Location	Pollutant	24-hour average (µg/m ³)	EPP Air Criterion (µg/m ³)
Community Park	PM ₁₀	27.7	50
	PM _{2.5}	26.8	25
Gunn Street	PM ₁₀		50
	PM _{2.5}		25

The 24-hour average PM_{2.5} concentration measured at Community Park of 26.8 µg/m³ exceeded the EPP Air criterion of 25.0 µg/m³. All ABC monitors (on site and off site), showed similar particulate levels and trends. This indicates the particulate level was from a localised air shed condition, rather than related to any specific site activity. Low wind speeds and overnight temperatures resulted in increased particulate levels overnight / early morning, which dropped during the day as wind speed and temperatures increased. PM_{2.5} particulate is commonly produced from combustion sources (vehicles/ heaters). PM_{2.5} particulate levels/trends are indicative of low night time temperatures, low wind speeds and reduced reduced air shed flushing.

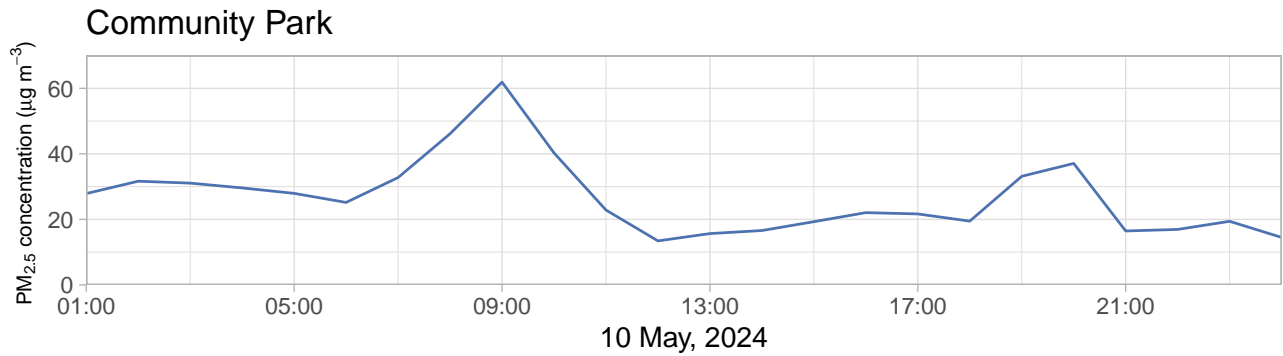
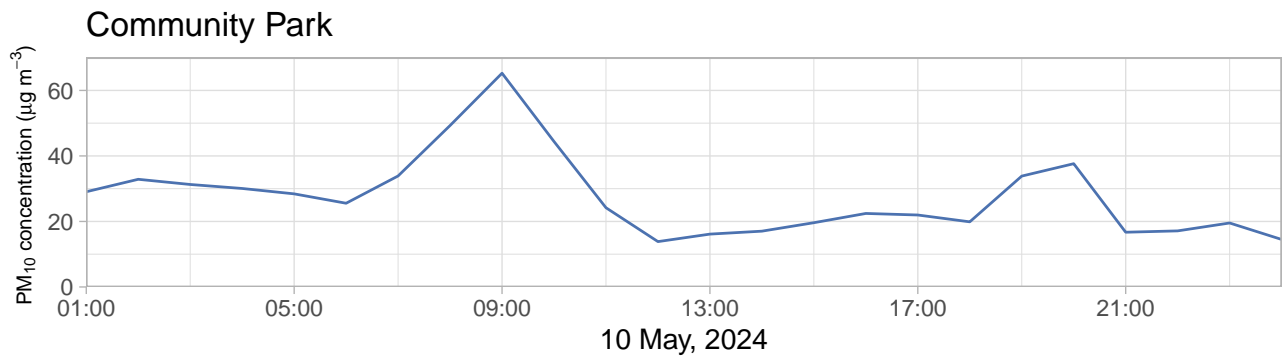
Community Monitoring

Monitoring data collected at the community monitoring sites is presented in this section.

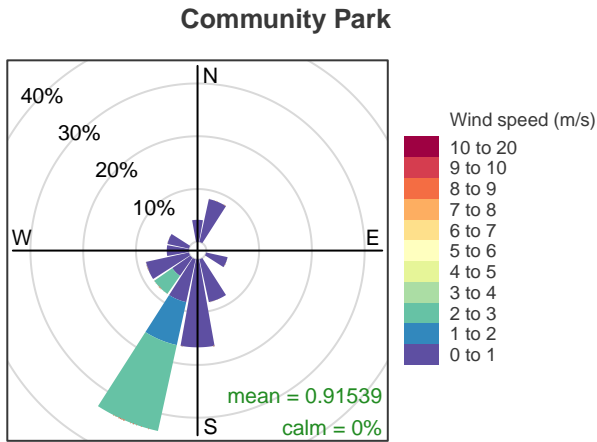
The table below shows the proportion of PM₁₀ and PM_{2.5} measured at each monitor, according to the average wind direction at the time of monitoring.

Monitoring Location	Direction	PM ₁₀ proportion (%)	PM _{2.5} proportion (%)
Community Park	From direction of ABC (WD < 180)	40	39
Community Park	From other direction (WD > 180)	60	61

The figures below show the time series of 1-hour average measurements throughout 10 May, 2024



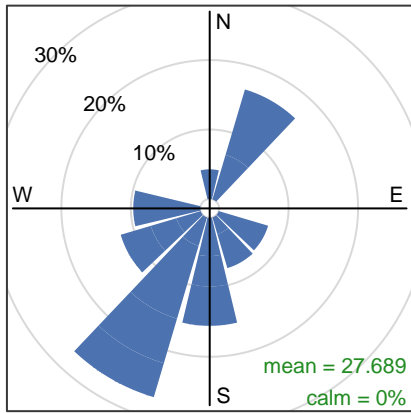
The figures below show wind roses summarising the period 10 May, 2024.



Frequency of counts by wind direction (%)

The figures below show dust roses summarising the period 10 May, 2024

Community Park – PM₁₀



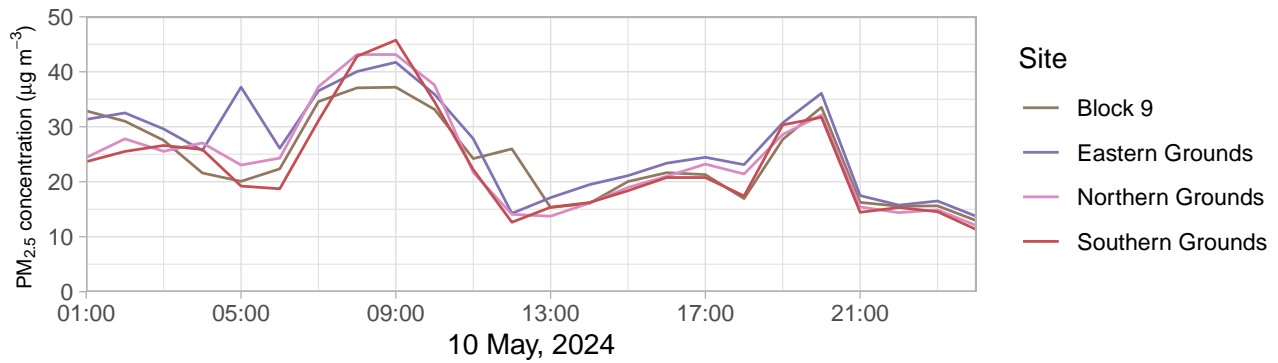
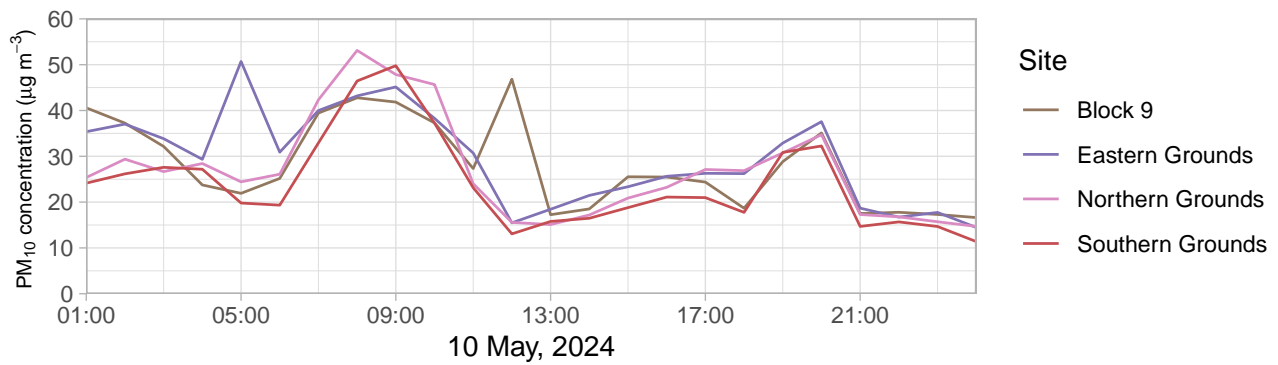
Proportion contribution to the mean (%)

Onsite Monitoring

Monitoring data collected at ABC's onsite monitors is presented in this section. The table below shows the 24-hour average concentrations measured at the onsite monitors.

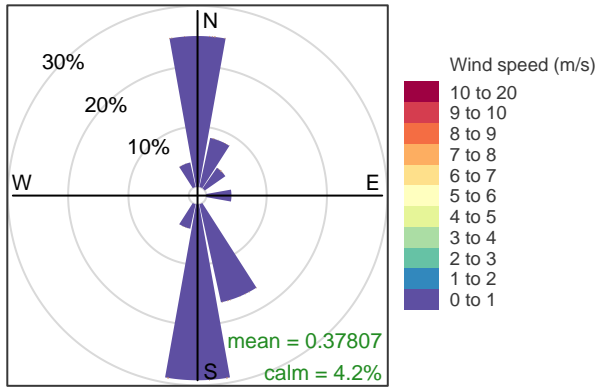
Monitoring Location	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)
Southern Grounds	24	23
Eastern Grounds	30	27
Block 9	28	24
Northern Grounds	27	24

The figure below shows the time series of 1-hour average measurements throughout 10 May, 2024 for each onsite monitor.



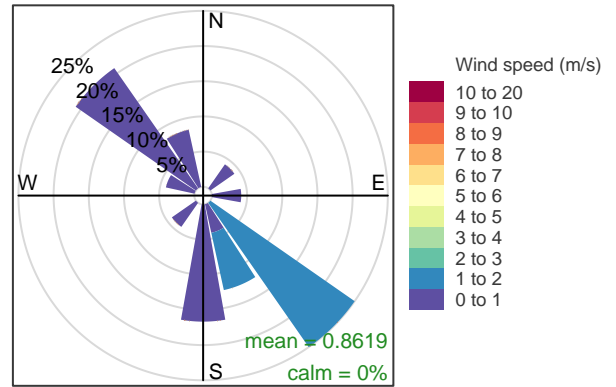
The figures below show wind and dust roses summarising the period 10 May, 2024 for each onsite monitor.

Southern Grounds



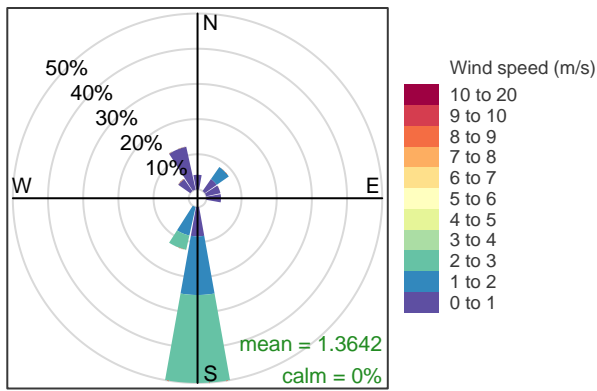
Frequency of counts by wind direction (%)

Eastern Grounds



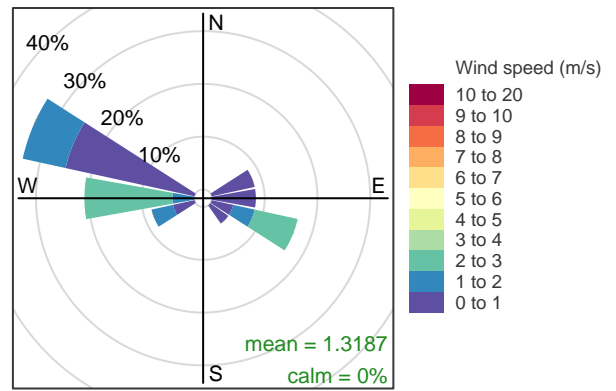
Frequency of counts by wind direction (%)

Block 9



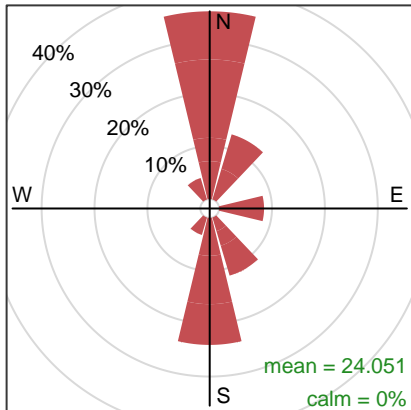
Frequency of counts by wind direction (%)

Northern Grounds

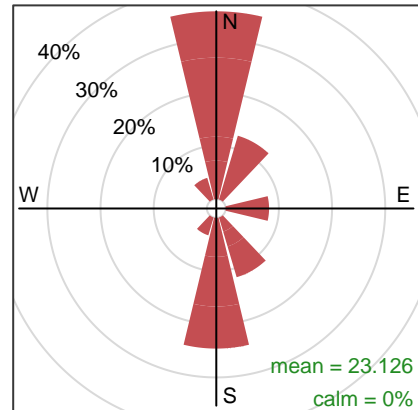


Frequency of counts by wind direction (%)

Southern Grounds – PM₁₀



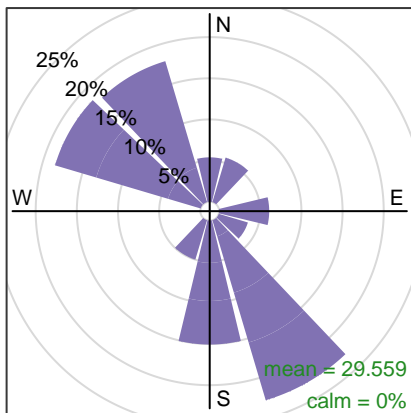
Southern Grounds – PM_{2.5}



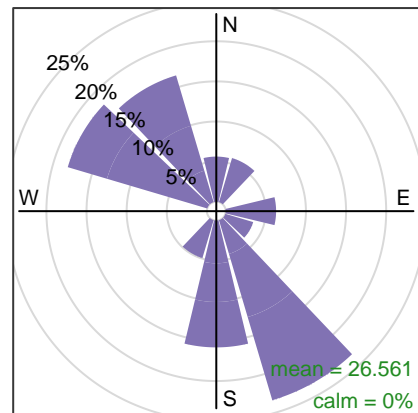
Proportion contribution to the mean (%)

Proportion contribution to the mean (%)

Eastern Grounds – PM₁₀



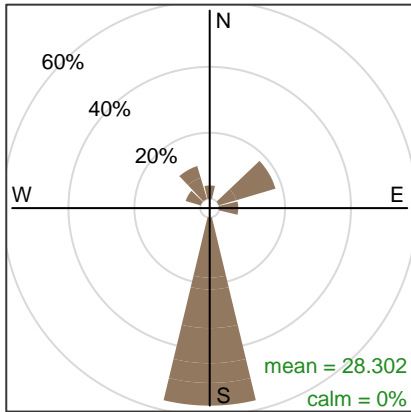
Eastern Grounds – PM_{2.5}



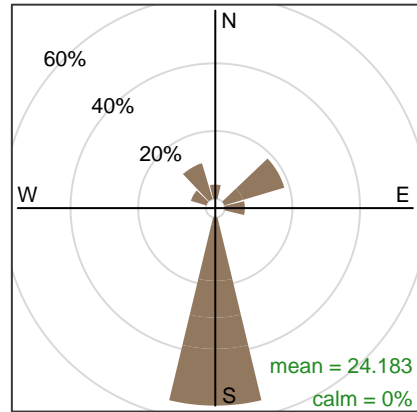
Proportion contribution to the mean (%)

Proportion contribution to the mean (%)

Block 9 – PM₁₀



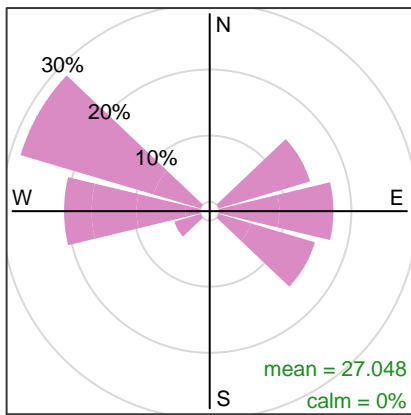
Block 9 – PM_{2.5}



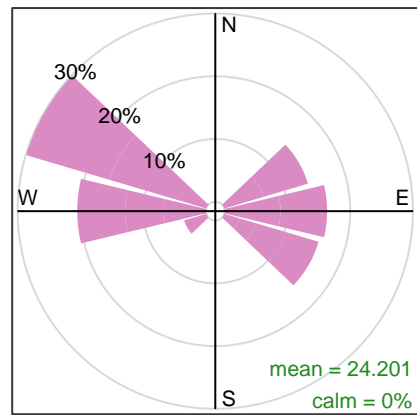
Proportion contribution to the mean (%)

Proportion contribution to the mean (%)

Northern Grounds – PM₁₀



Northern Grounds – PM_{2.5}



Proportion contribution to the mean (%)

Proportion contribution to the mean (%)

Recent air quality data measured by ABC or EPA is indicative only and may be affected by instruments not working correctly, power failures and the like. Data is published directly from the monitors and will be validated at a later date.

Ground Level Particulate Notification Report - 12 May, 2024

Adelaide Brighton Cement, Birkenhead Works
62 Elder Road, Birkenhead, SA 501
EPA Licence No: 1126

Summary

The 24-hour average particulate matter monitoring data collected at the Community Park and Gunn Street monitoring sites during 12 May, 2024 is shown in [Table 1](#) below. The data indicates that:

- The 24-hour average PM_{2.5} concentration measured at Community Park of 29.7 µg/m³ exceeded the EPP Air criterion of 25 µg/m³

Table 1: Monitoring Summary

Monitoring Location	Pollutant	24-hour average (µg/m ³)	EPP Air Criterion (µg/m ³)
Community Park	PM ₁₀	30.3	50
	PM _{2.5}	29.7	25
Gunn Street	PM ₁₀		50
	PM _{2.5}		25

The 24-hour average PM_{2.5} concentration measured at Community Park of 29.7 µg/m³ exceeded the EPP Air criterion of 25.0 µg/m³. All ABC monitors (on site and off site), showed similar particulate levels and trends. This indicates the particulate level was from a localised air shed condition, rather than related to any specific site activity. Also the wind movement for this 24 hr period was predominantly (75% of the day) blowing towards ABC. Low wind speeds and overnight temperatures resulted in increased particulate levels overnight / early morning, which dropped during the day as wind speed and temperatures increased. PM_{2.5} particulate is commonly produced from combustion sources (vehicles/ heaters). PM_{2.5} particulate levels/trends are indicative of low night time temperatures, low wind speeds and reduced reduced air shed flushing.

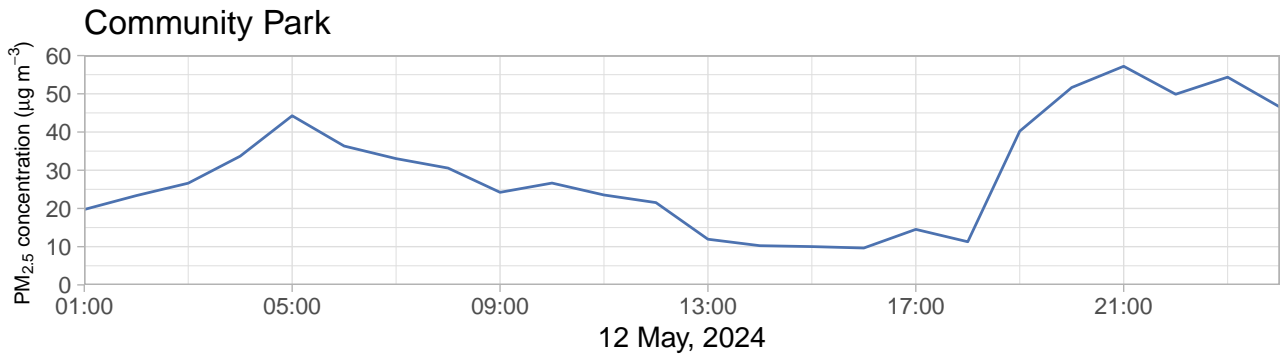
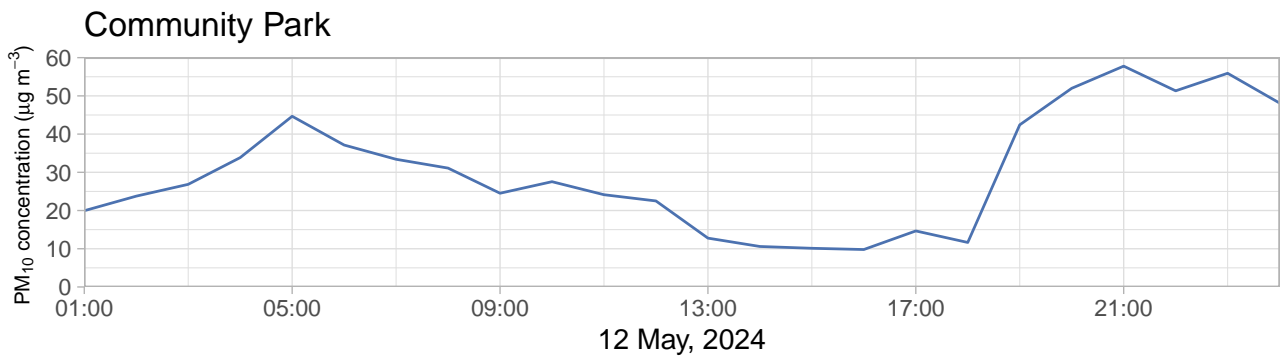
Community Monitoring

Monitoring data collected at the community monitoring sites is presented in this section.

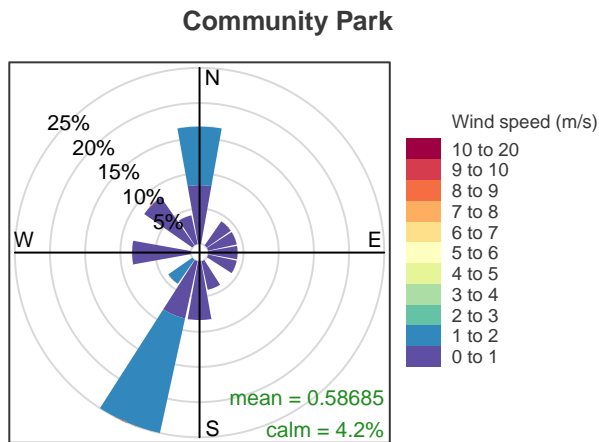
The table below shows the proportion of PM₁₀ and PM_{2.5} measured at each monitor, according to the average wind direction at the time of monitoring.

Monitoring Location	Direction	PM ₁₀ proportion (%)	PM _{2.5} proportion (%)
Community Park	From direction of ABC (WD < 180)	25	25
Community Park	From other direction (WD > 180)	75	75

The figures below show the time series of 1-hour average measurements throughout 12 May, 2024



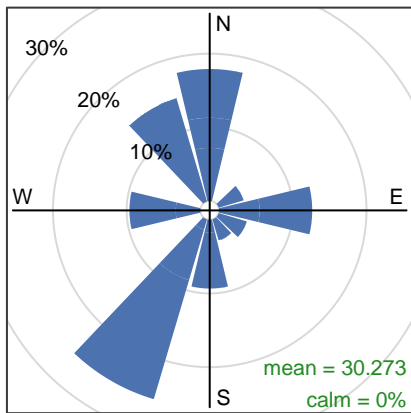
The figures below show wind roses summarising the period 12 May, 2024.



Frequency of counts by wind direction (%)

The figures below show dust roses summarising the period 12 May, 2024

Community Park – PM₁₀



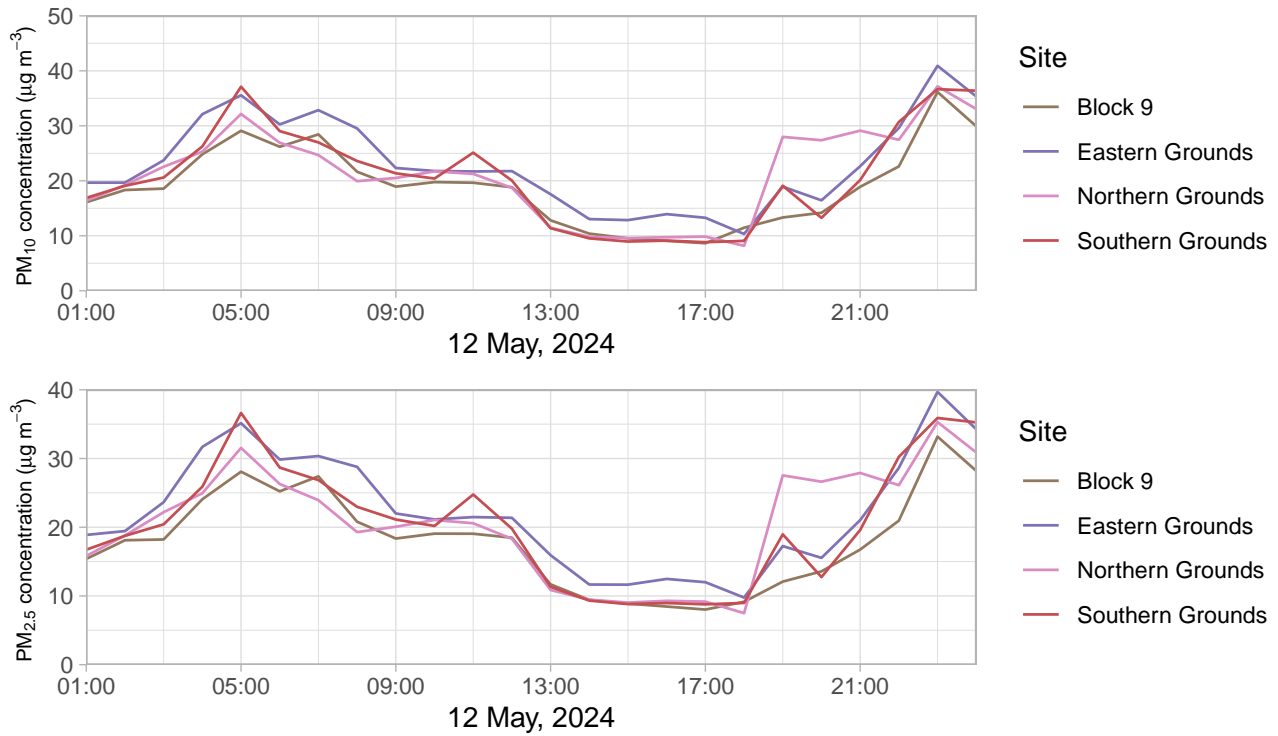
Proportion contribution to the mean (%)

Onsite Monitoring

Monitoring data collected at ABC's onsite monitors is presented in this section. The table below shows the 24-hour average concentrations measured at the onsite monitors.

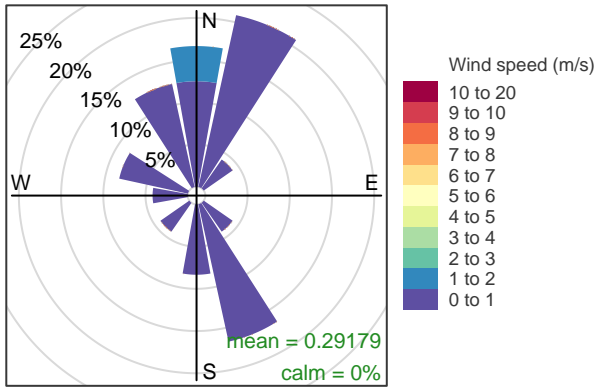
Monitoring Location	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)
Southern Grounds	21	20
Eastern Grounds	23	22
Block 9	19	18
Northern Grounds	21	21

The figure below shows the time series of 1-hour average measurements throughout 12 May, 2024 for each onsite monitor.



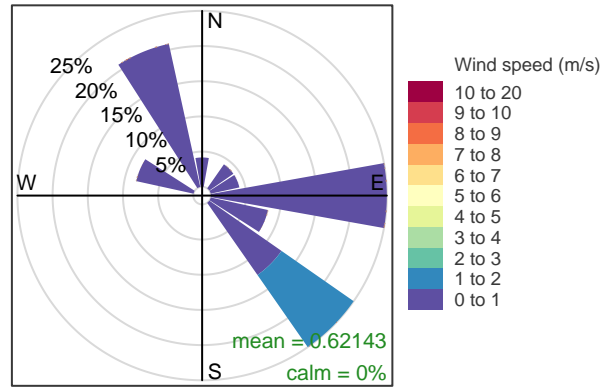
The figures below show wind and dust roses summarising the period 12 May, 2024 for each onsite monitor.

Southern Grounds



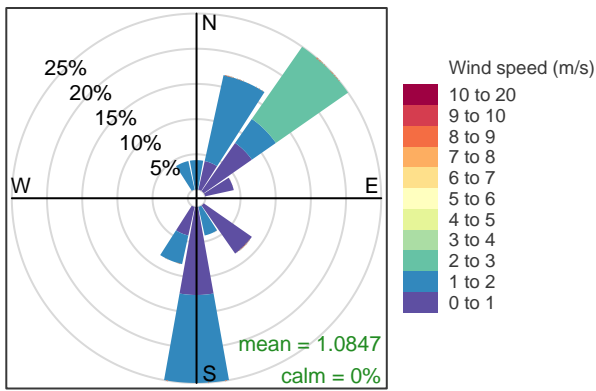
Frequency of counts by wind direction (%)

Eastern Grounds



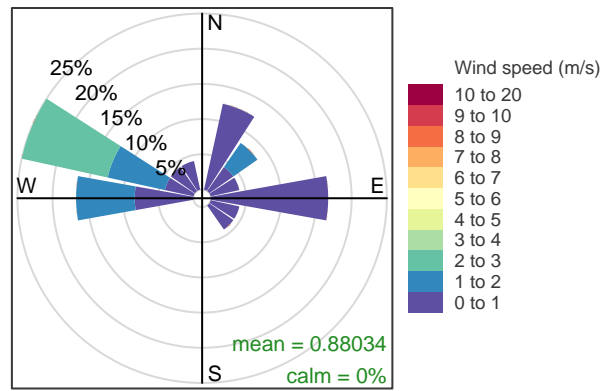
Frequency of counts by wind direction (%)

Block 9



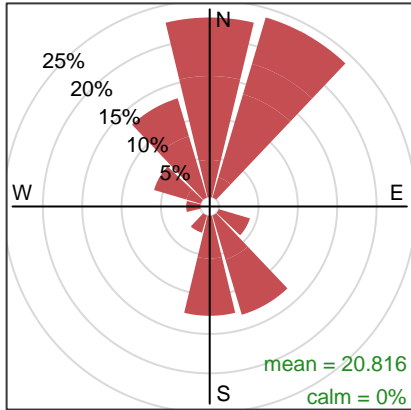
Frequency of counts by wind direction (%)

Northern Grounds

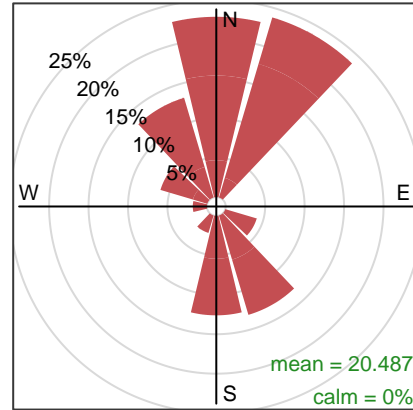


Frequency of counts by wind direction (%)

Southern Grounds – PM₁₀



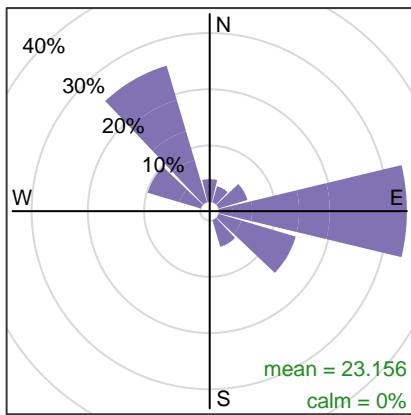
Southern Grounds – PM_{2.5}



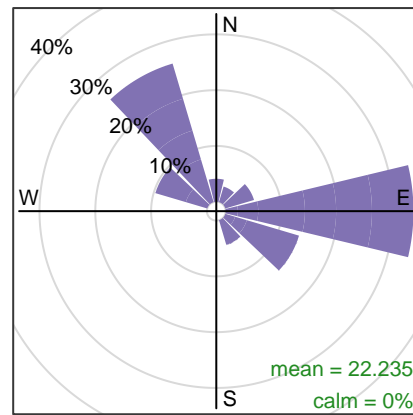
Proportion contribution to the mean (%)

Proportion contribution to the mean (%)

Eastern Grounds – PM₁₀



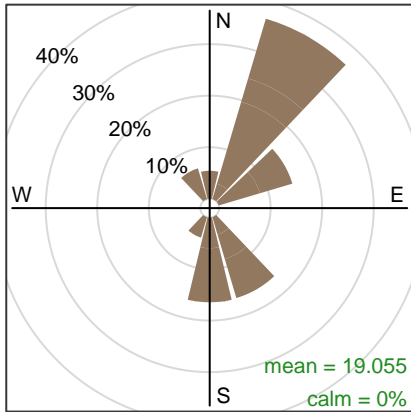
Eastern Grounds – PM_{2.5}



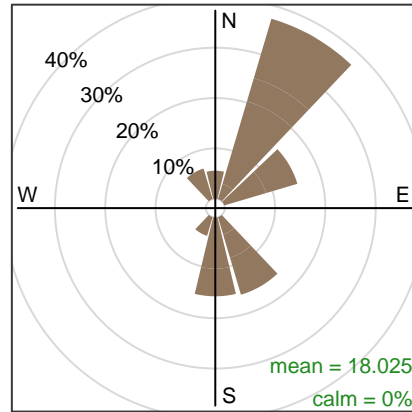
Proportion contribution to the mean (%)

Proportion contribution to the mean (%)

Block 9 – PM₁₀



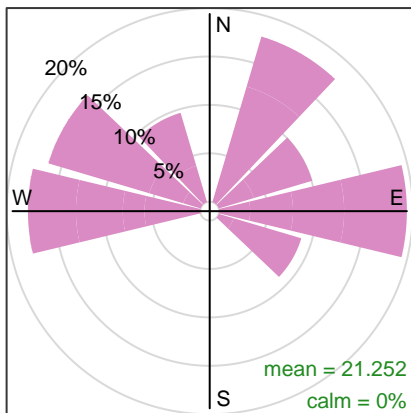
Block 9 – PM_{2.5}



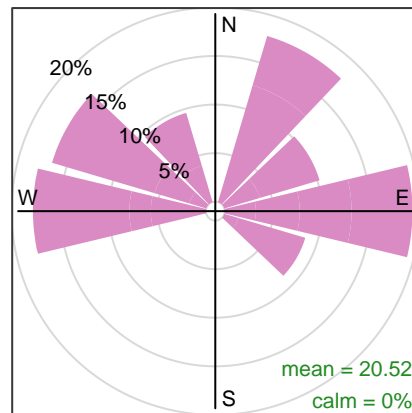
Proportion contribution to the mean (%)

Proportion contribution to the mean (%)

Northern Grounds – PM₁₀



Northern Grounds – PM_{2.5}



Proportion contribution to the mean (%)

Proportion contribution to the mean (%)

Recent air quality data measured by ABC or EPA is indicative only and may be affected by instruments not working correctly, power failures and the like. Data is published directly from the monitors and will be validated at a later date.