AIMS

Report

Monthly Air Quality

October 2025

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Document Approval

Action	Designation	Name	Date
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Reviewed/Approved	Senior Consultant	Lance Coetzee	2025-11-15
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Note

This report has been finalised with the available information at the time of its compilation.

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1. INTRODUCTION

This monthly air quality report provided by the Richards Bay Clean Air Association (RBCAA) offers a comprehensive overview of air quality monitoring data for the specific month under review. It aims to provide a detailed analysis of meteorology, sulphur dioxide (SO_2), total reduced sulphur (TRS), and particulate matter (PM) levels measured by the RBCAAs monitoring network. Each monthly report focuses on a single calendar month, highlighting any notable incidents or exceedances of the applicable ambient air quality standards during that period. By analysing the monthly data, trends and patterns in air quality can be identified, helping to assess potential environmental impacts and mitigate any adverse effects.

In addition to the monthly reports, RBCAA publishes annual air quality reports summarising the key findings and trends observed over a complete calendar year. These annual reports provide a comprehensive overview of the region's overall air quality performance and long-term trends. They provide stakeholders with a thorough understanding of air quality and serve as a valuable tool for informed decision-making, policy development, and environmental management. By consistently monitoring and reporting air quality data, the RBCAA aims to promote transparency, facilitate ongoing environmental assessments, and ensure the well-being of the local community and the surrounding environment.

The RBCAA monitoring network comprises ten (10) stations (Figure 1.1 and Table 1.1).

Figure 1.1: RBCAA monitoring network.

Table 1.1: Station coordinates.

Station	Latitude	Longitude	Elevation (m)
Airport	-28.738138	32.093333	34
Arboretum	-28.752385	32.062738	30
Brackenham	-28.731301	32.039016	51
CBD	-28.744719	32.054805	32
eSikhaleni	-28.865244	31.911679	13
Felixton	-28.829229	31.893536	51
Felixton Met	-28.836487	31.892513	30
Harbour West	-28.787286	32.027065	6
Richardia	-28.762776	32.066072	20
Scorpio	-28.769692	32.034228	31

2. METEOROLOGY

2.1. Data Availability

The percentage of valid data received from the meteorological network for October 2025 is shown in Table 2.1.

Table 2.1: Meteorological data capture.

Station	Availability (%)	Wind (%)	Temperature (%)	Relative Humidity (%)	Pressure (%)	Solar Radiation (%)	Rain (%)
Airport	100	99	100	100	100	100	-
Arboretum	99	98	99	-	-	-	-
Brackenham	100	100	100	-	-	-	-
CBD	99	99	99	99	-	-	-
CBD Rain	99	-	-	-	-	-	99
eSikhaleni	100	100	100	100	-	-	-
Felixton Met	100	100	100	100	-	-	-
Harbour West	100	100	100	-	-	-	-

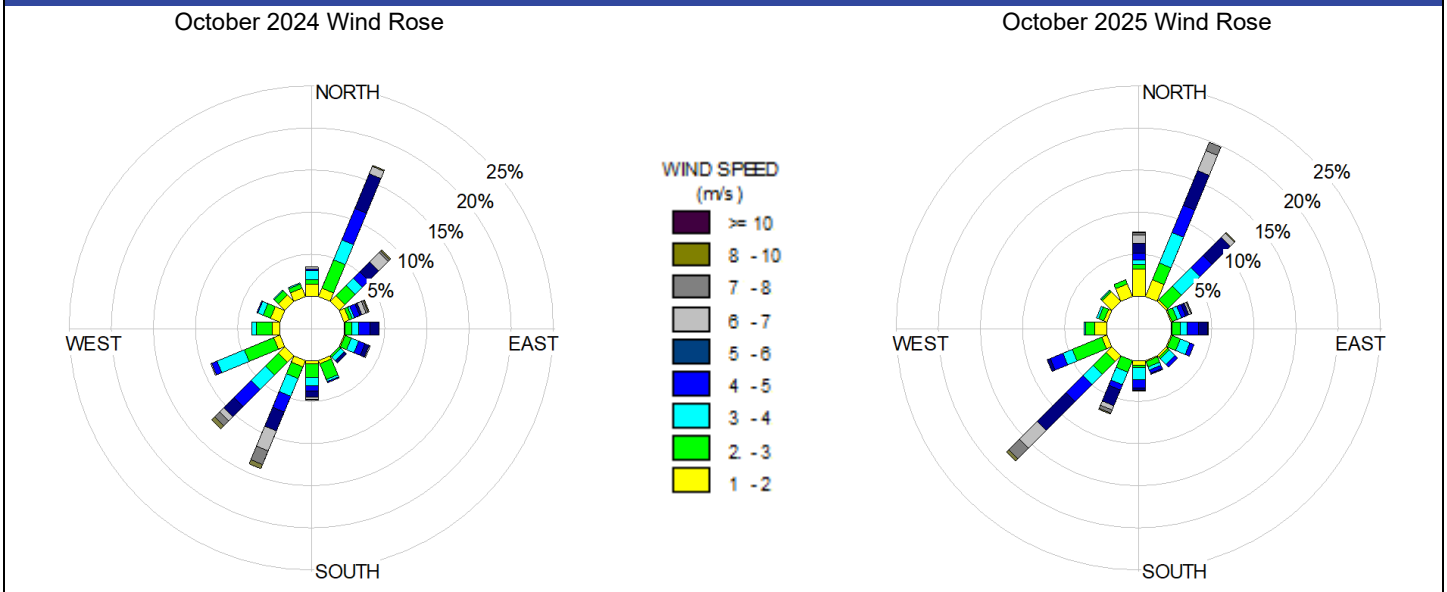
Notes:
1. *Red - Not acceptable for statistical purposes (<80%),*
2. *Orange – Does not meet SANAS data capture requirements (<90%),*
3. *Yellow – RBCAA reporting requirement (<=95%)*

Missing Data (Station and Meteorology):
- *Airport (Station) – Anemometer failure (1 day/s with <80% data capture, 1 October 2025).*
- *CBD (Station) – Power outage (1 day/s with <80% data capture, 13 October 2025).*

2.2. Wind Roses

Monthly wind roses for October 2024 and 2025 for Arboretum are presented in Figure 2.1. They indicate that the wind blew predominantly along the NE and SW axes. NE wind is generally associated with fair weather, while SW wind is usually associated with the passage of coastal lows, cold fronts, and inclement weather.

Arboretum



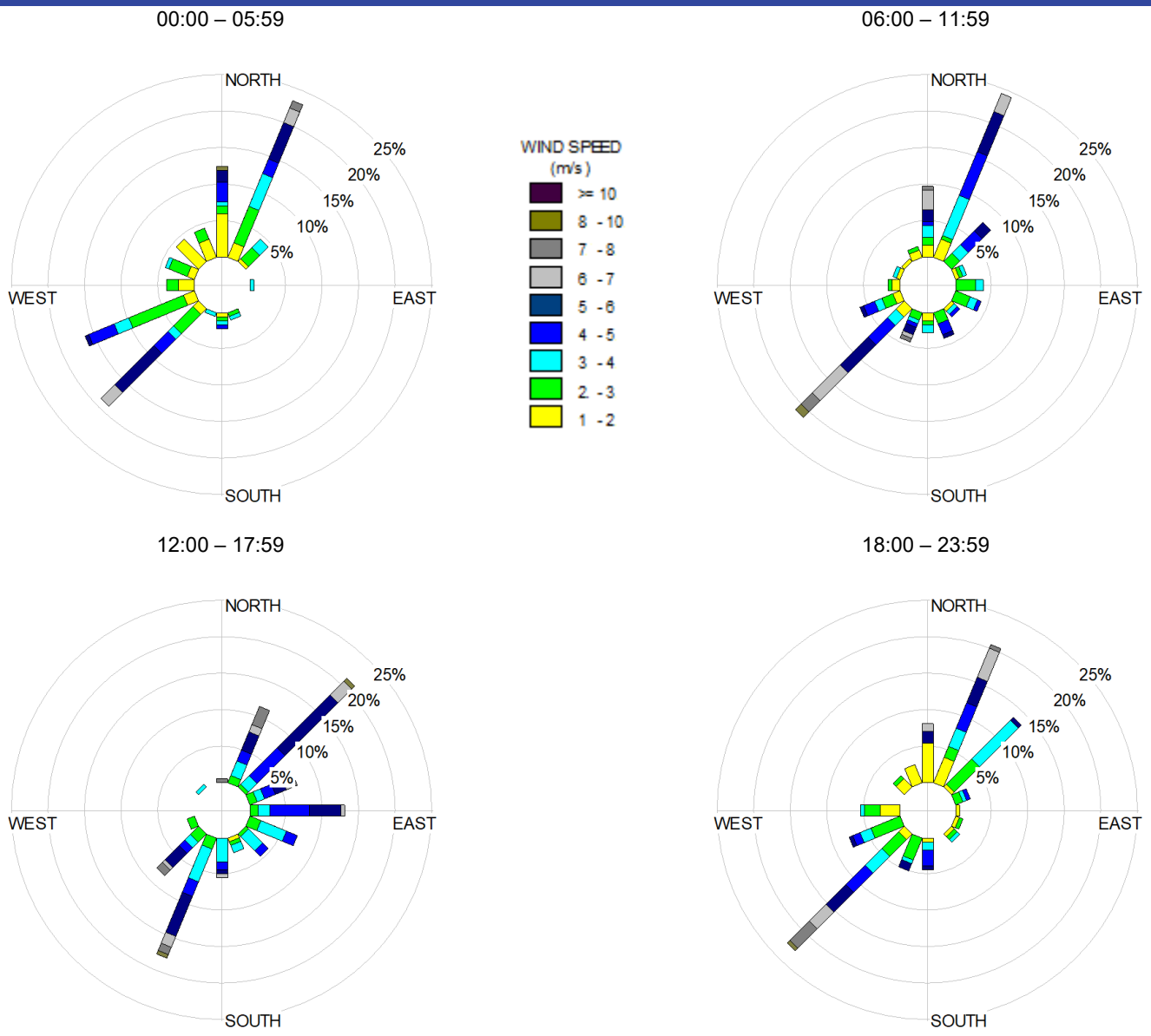
Period	Wind Speed	Dominant Sector 1		Dominant Sector 2		Calms	Valid Data
October 2024	3.8 m/s	NNE-NE	27%	SSW-WSW	37%	0%	93%
October 2025	3.9 m/s	N-NE	40%	SSW-WSW	33%	0%	97%

Figure 2.1: Wind roses - monthly.

Typically, there is an increase in light (1 to 3 m/s) to moderate (3 to 6 m/s) wind from the NNW during periods that include autumn and winter conditions and the seasonal increase in fresh (6 to 8 m/s) to strong (> 8 m/s) N to NE wind during periods that include spring and early summer. Strong southerly to SSW winds occur throughout the year and are typically associated with the arrival of coastal lows and cold fronts. Coastal lows are more frequent during the summer, which is why the slightly higher proportion of these winds is observed.

Diurnal wind roses for October 2025 are shown in Figure 2.2. ESE to SSE wind primarily consists of sea breezes during the day and early evening, particularly during the warmer spring and summer months. In contrast, WNW to NNW wind is mainly in the form of land breezes at night and early morning, particularly during the colder and more stable autumn and winter months.

Arboretum – October 2025



Period	Wind Speed	Dominant Sector 1		Dominant Sector 2		Calms	Valid Data
00:00-05:59	3.3 m/s	N-NNE	37%	SW-WSW	37%	1%	96%
06:00-11:59	4.1 m/s	N-NE	44%	SW-WSW	28%	0%	95%
12:00-17:59	4.6 m/s	NNE-ESE	60%	SSW-SW	26%	0%	99%
18:00-23:59	3.6 m/s	N-NE	43%	SW-WSW	31%	0%	97%

Figure 2.2: Wind roses - diurnal.

2.3. Rainfall

Rainfall measured at various locations is presented in Figure 2.3, Figure 2.4, Figure 2.5 and Figure 2.6 (See APPENDIX F for tables).

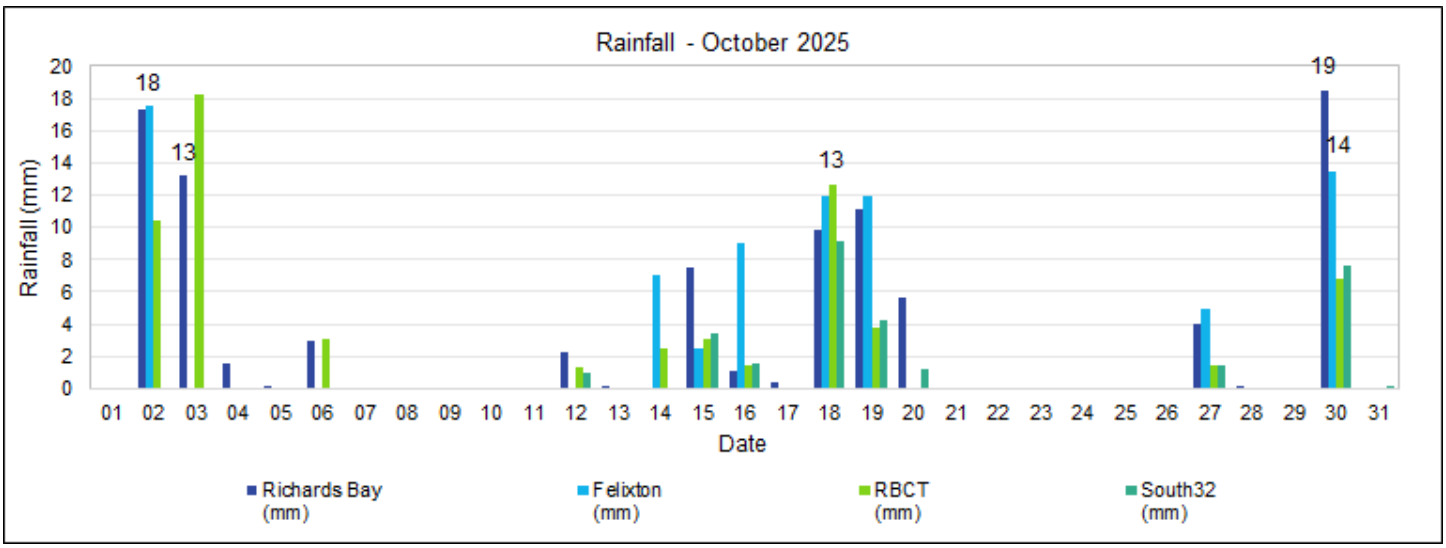


Figure 2.3: Rainfall.

Table 2.2: Rainfall -monthly averages.

Month	Richards Bay (mm)	Felixton (mm)	RBCT (mm)	South32 (mm)	Average (mm)
October 2025	96	79	65	30	67

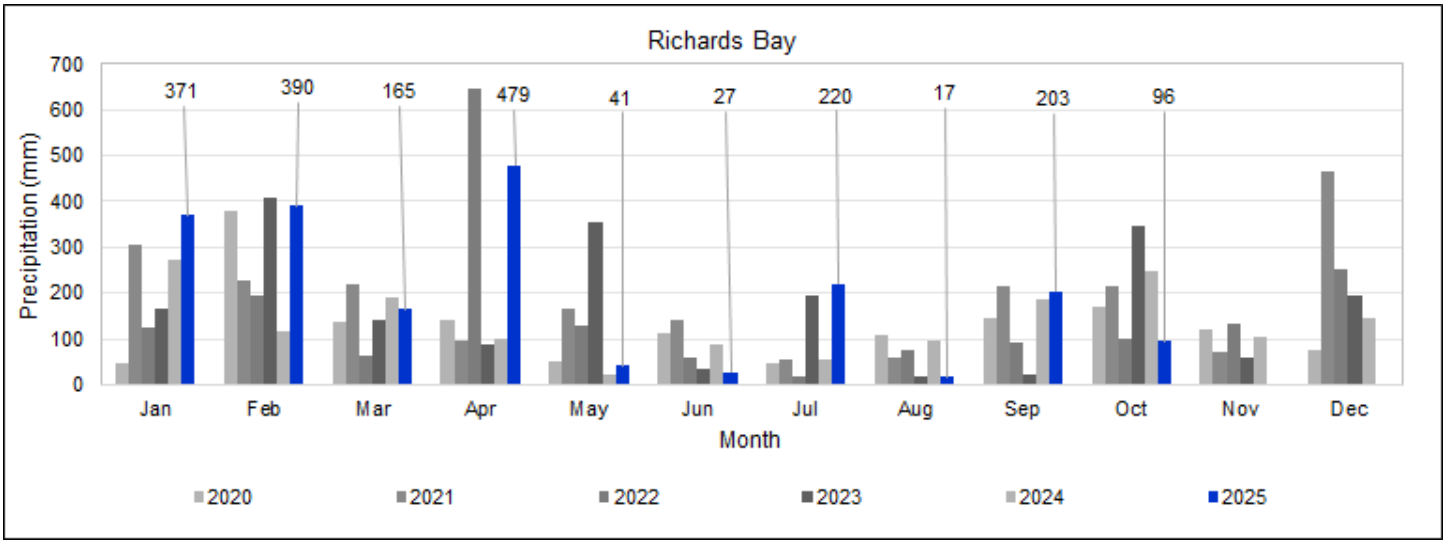


Figure 2.4: Rainfall –Richards Bay.

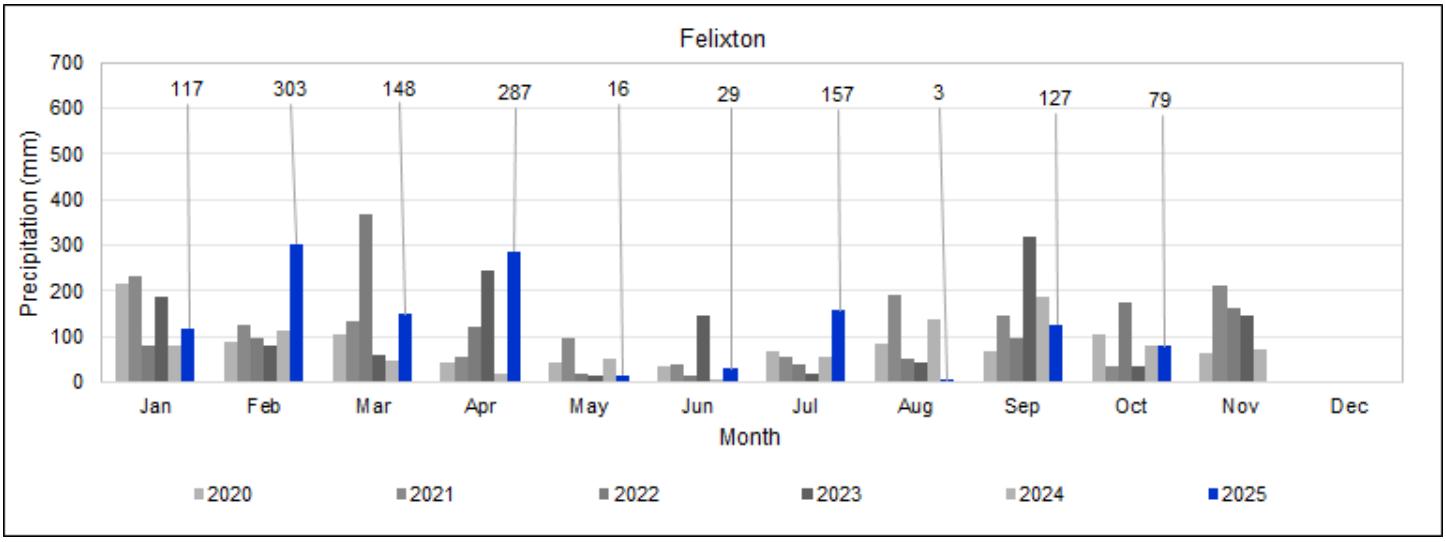


Figure 2.5: Rainfall – Felixton.

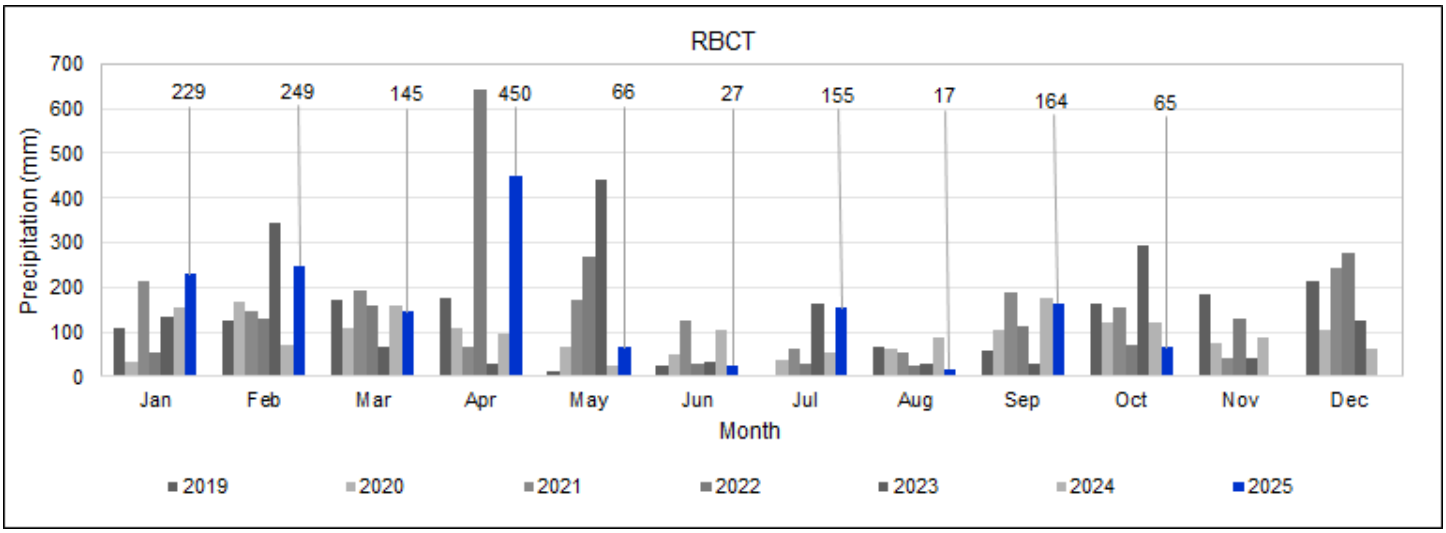


Figure 2.6: Rainfall – RBCT.

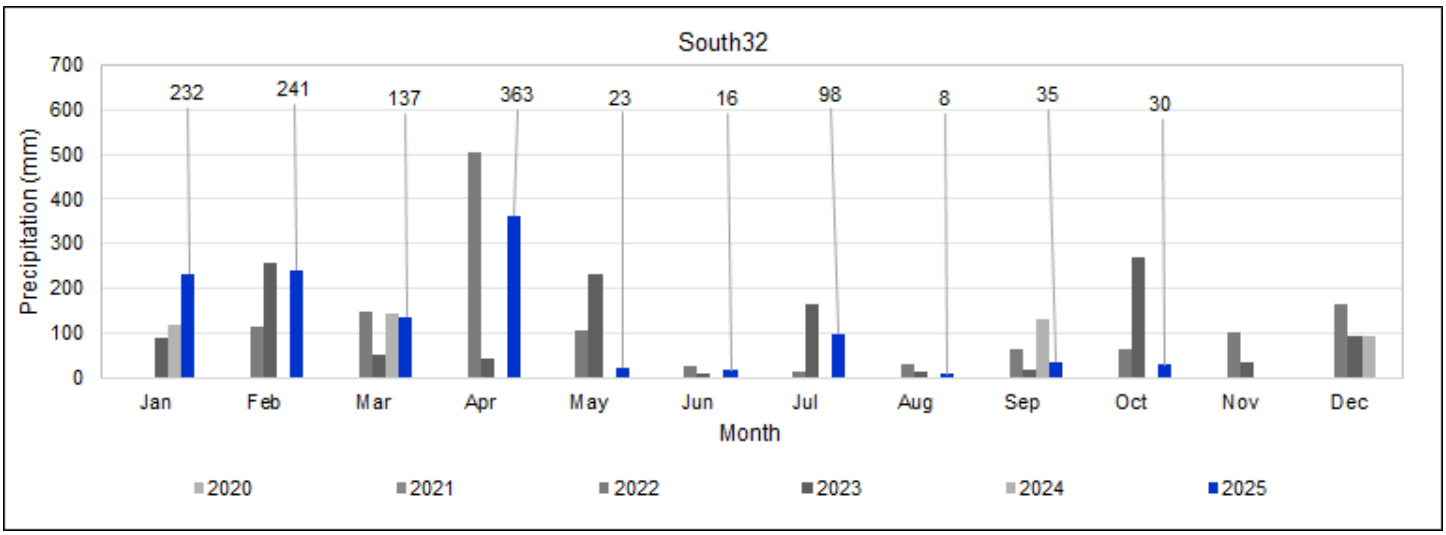


Figure 2.7: Rainfall - South32.
Note: South32 has had issues with its rain gauge in 2024.

3. AIR QUALITY COMPLAINTS

Detailed complaint records are maintained, updated, and distributed weekly to the RBCAA's complaints mailing list. The following sections summarise and analyse the complaints received during October 2025. Please see APPENDIX F for the Complaints Log.

3.1. Field Observations

Nineteen (19) air quality complaints were received during October 2025; eleven (11) were logged in October 2024. The daily complaints and a monthly historical count are reflected below (Figure 3.1 and Figure 3.2).

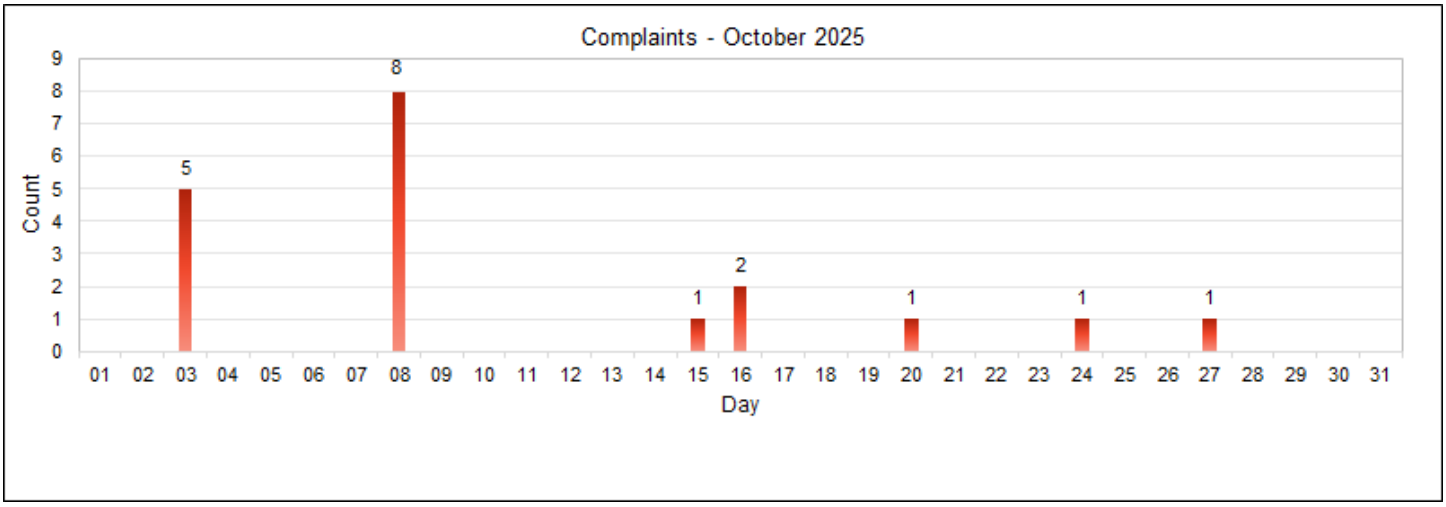


Figure 3.1: Complaints – daily.

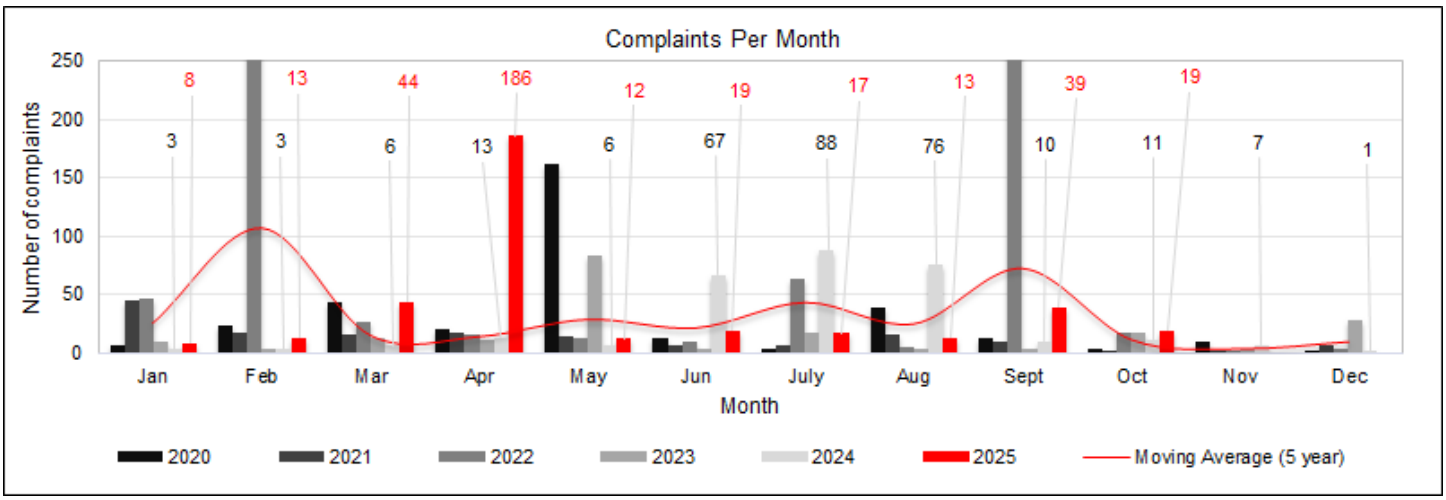


Figure 3.2: Complaints - historical monthly comparison.

3.2. Complaints Distribution

The distribution of complaints in October 2025 by region, source and type is presented in Figure 3.3, Figure 3.4, and Figure 3.5.

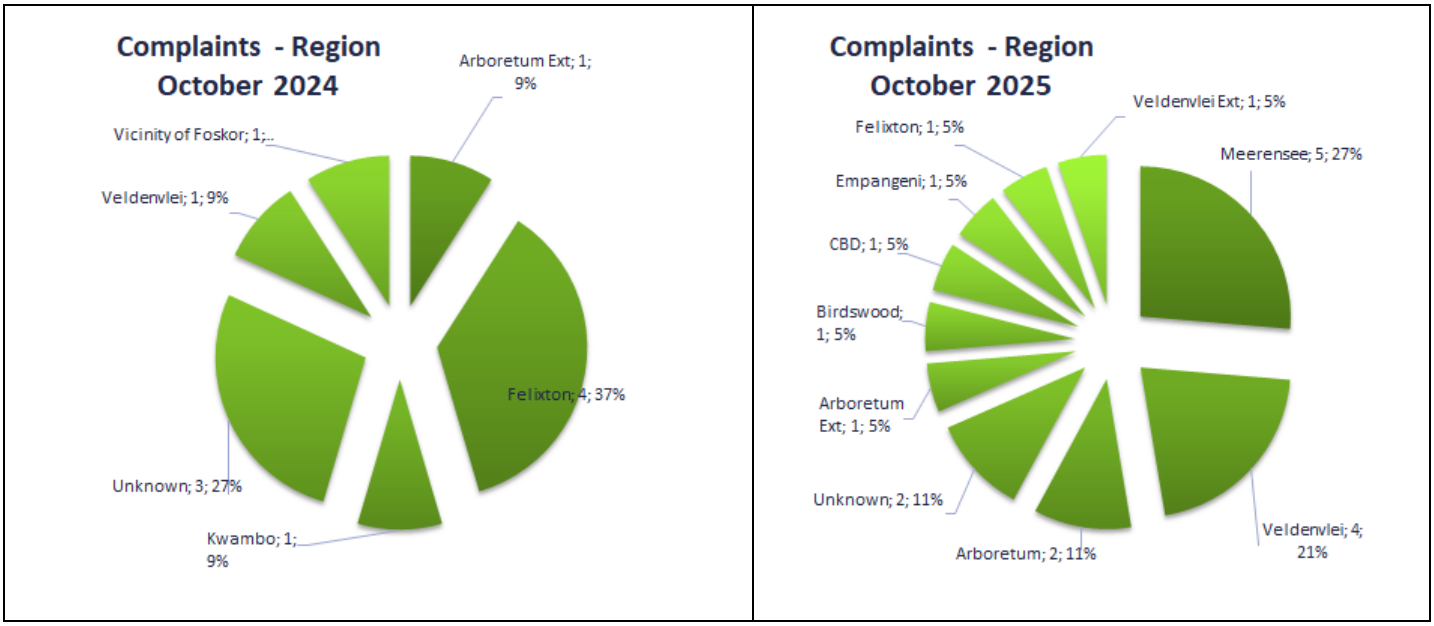


Figure 3.3: Complaints - region.

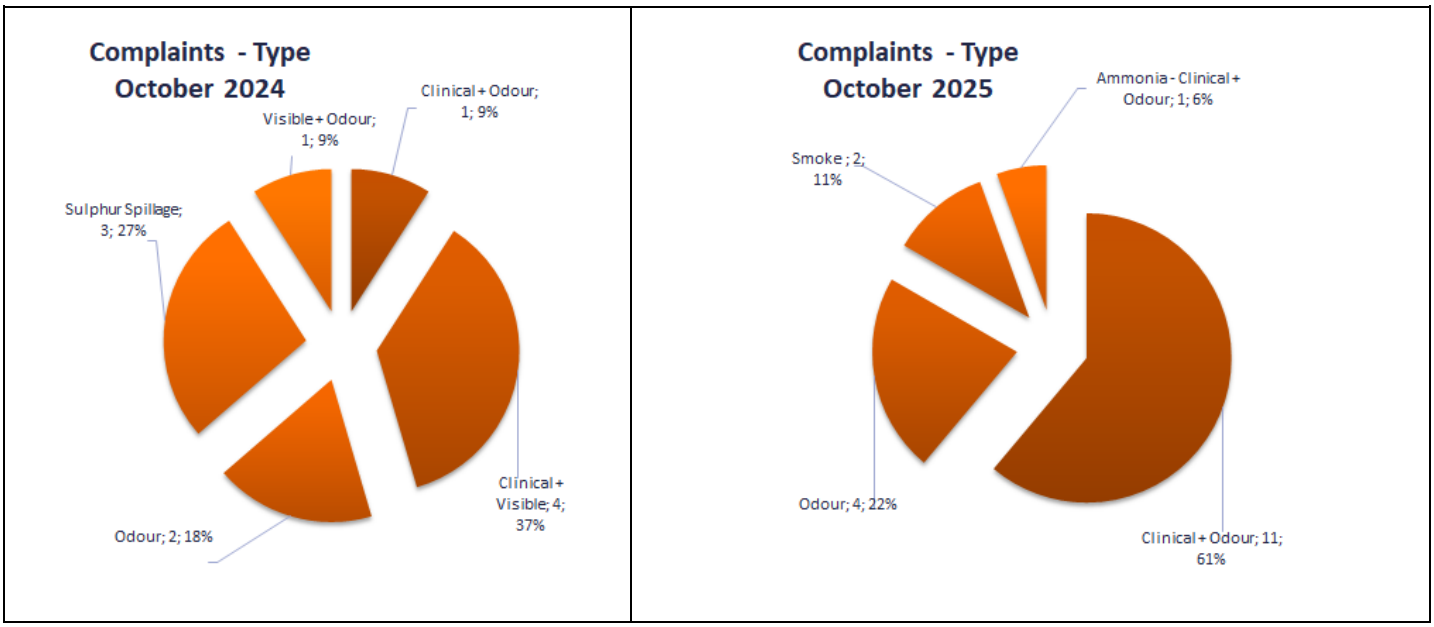


Figure 3.4: Complaints - type.

The complaints received were allocated as follows: Mondi (14, 74%), THS (4, 21%), and Mondi-meteorology (1, 5%).

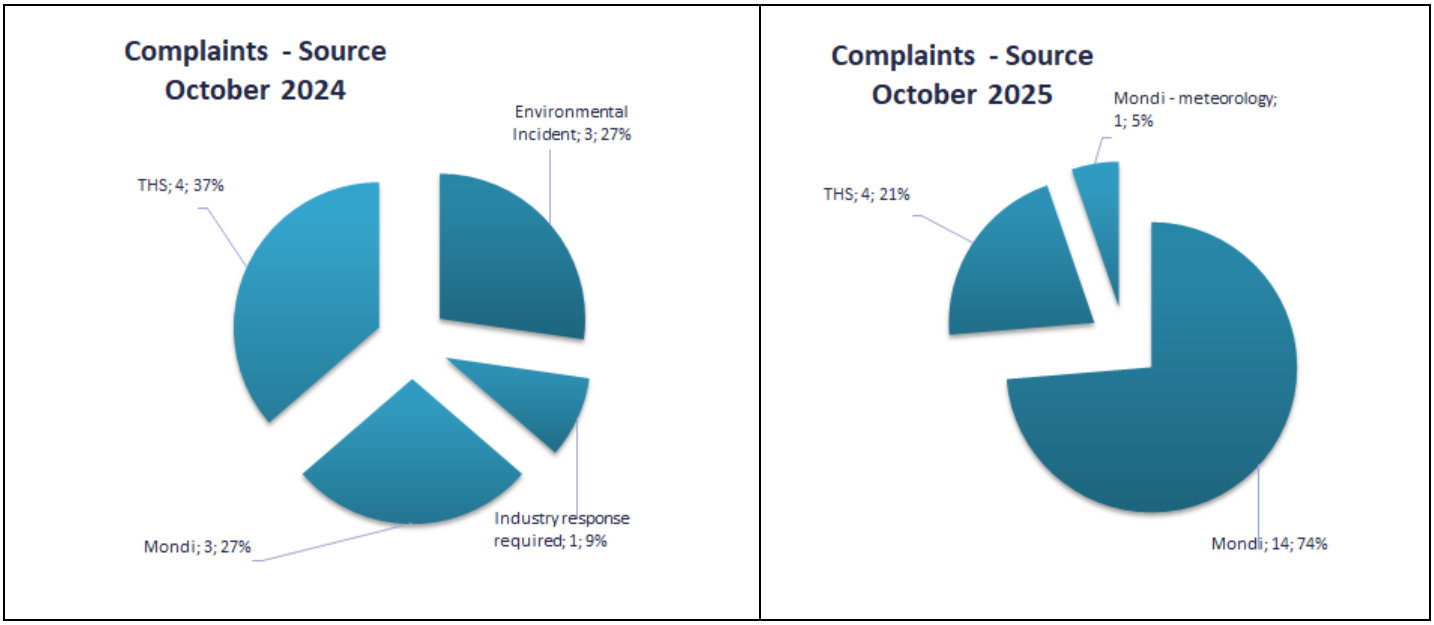


Figure 3.5: Complaints - source.

Table 3.1: Complaint - allocation, region, and type.

Complaint - allocation, region, and type	19
Mondi	**14**
CBD	1
Clinical + Odour	1
Birdswood	1
Odour	1
Veldenvlei Ext	1
Clinical + Odour	1
Arboretum Ext	1
Ammonia - Clinical + Odour	1
Arboretum	2
Clinical + Odour	1
Odour	1
Veldenvlei	3
Clinical + Odour	2
Odour	1
Meerensee	5
Clinical + Odour	5
Mondi - meteorology	**1**
Veldenvlei	1
Odour	1
THS	**4**
Felixton	1
Clinical + Odour	1
Empangeni	1
Smoke	1
Unknown	2
Odour + Smoke + Clinical	1
Smoke	1

4. FINE PARTICULATE MONITORING

Particulate Matter (PM) refers to the solid particles and liquid droplets in the atmosphere. Many anthropogenic and natural sources emit PM directly or release other pollutants into the atmosphere, which then form PM. These solid and liquid particles can vary in size. For example, particles less than 10 micrometres (µm) in diameter are classified as PM_{10}, and particles less than 2.5 micrometres (µm) in diameter are classified as $PM_{2.5}$.

Fine particulates can be inhaled and accumulate in the deep recesses of the respiratory system. Therefore, exposure to sustained high concentrations may result in the following:

- Reduced lung development in children
- Allergy-related inflammatory reactions of the airway
- Asthma, nasal congestion, and sinus problems
- Increase in symptoms associated with the lower respiratory tract.
- In severe cases, a reduction in life expectancy

Particulate matter (PM) monitoring at eSikhaleni and Richardia uses Tapered Element Oscillating Microbalance (TEOM) devices, which are U.S. EPA-approved for continuous PM measurement. These instruments determine particle mass by detecting frequency changes in a vibrating element as particles accumulate on it. In contrast, Brackenham, CBD, Felixton, Scorpio, and Harbour West employ E-Samplers, which combine real-time light scattering with filter-based sampling to measure particulate concentrations. The E-Sampler is certified under the UK's Monitoring Certification Scheme (MCERTS) for indicative ambient particulate monitoring.

4.1. Ambient Air Quality Standards

Ambient air quality standards for particulates are listed below (Table 4.1).

Table 4.1: Particulate ambient air quality limits.

Organisation	Limit	PM_{10} Daily Average (µg/m³)	PM_{10} Annual Average (µg/m³)	$PM_{2.5}$ Daily Average (µg/m³)	$PM_{2.5}$ Annual Average (µg/m³)
RSA [a, d]	Standard	75 [b]	40 [c]	40 [b]	20 [c]
WHO [e]	Guideline	45 [c]	15 [c]	15 [c]	5 [c]

Notes:

a) *Government Gazette 32816 (24 December 2009) in terms of the National Environmental Management: Air Quality Act No. 39 of 2004, effective from 2015* (RSA-NEMAQA, 2009).
b) *Not to be exceeded more than four (4) times in one year.*
c) *Not to be exceeded.*
d) *Government Gazette 35463 (29 June 2009) in terms of the National Environmental Management: Air Quality Act No. 39 of 2004, effective from 2015* (RSA-NEMAQA, 2012).
e) *World Health Organisation* (WHO, 2021).

4.2. Data Availability

The percentage of valid data received from the PM analysers for October 2025 is shown in Table 4.2.

Table 4.2: PM data capture.

Station	Availability (%)	PM_{10} (%)	$PM_{2.5}$ (%)
Brackenham ES2	100	-	100
CBD ES1	99	99	-
eSikhaleni	100	100	-
Felixton ES1	100	100	-
Felixton ES2	99	-	99
Harbour West ES2	100	-	100
Richardia	100	100	-
Scorpio ES1	100	100	-
Scorpio ES2	99	-	99

Missing Data (PM_{10}):

- *CBD - Power outage, data invalidation (1 day/s with <80% data capture, 13 October 2025).*

Missing Data ($PM_{2.5}$):

- *None.*

4.3. Monthly

PM_{10} monthly average concentrations did not exceed the RSA Annual Limit; the WHO Annual Limit was exceeded at CBD, eSikhaleni, Felixton, Richardia and Scorpio – all points monitored (Figure 4.1). Comparisons to previous months are also provided (Figure 4.2).

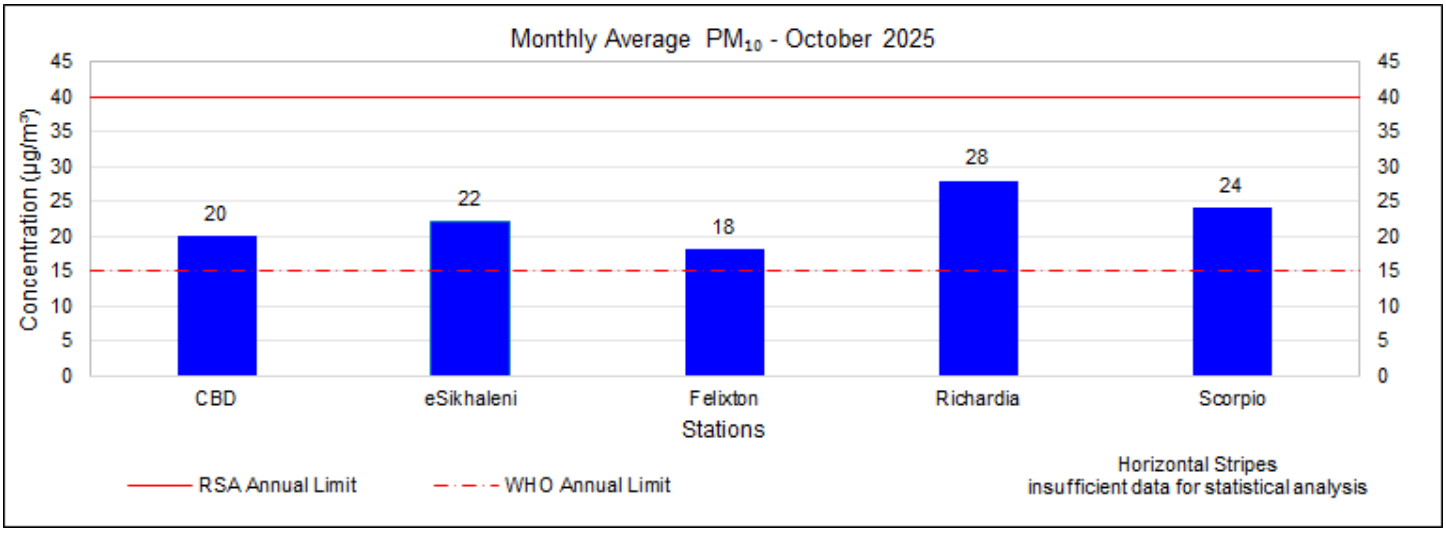


Figure 4.1: PM_{10} monthly concentrations.

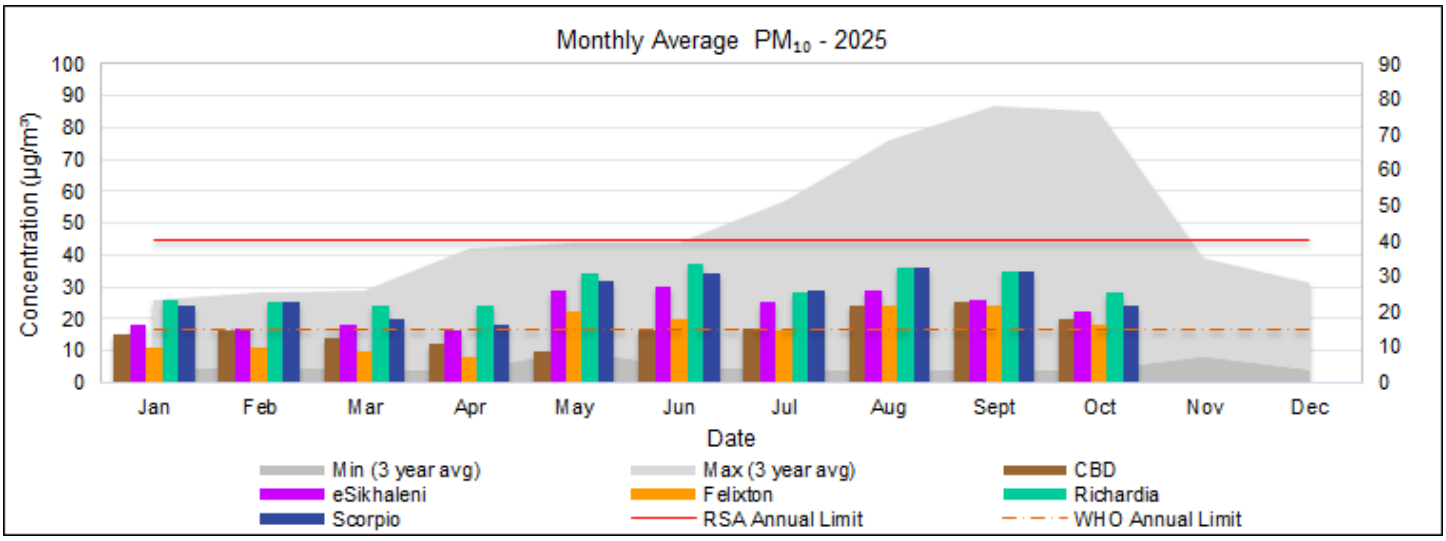


Figure 4.2: PM_{10} monthly comparison.

$PM_{2.5}$ monthly average concentrations exceeded the RSA Annual Limit at Brackenham and Scorpio. The WHO Annual Limit was exceeded at Brackenham, Felixton, Harbour West and Scorpio - all points monitored (Figure 4.3). Comparisons to previous months are also provided (Figure 4.4).

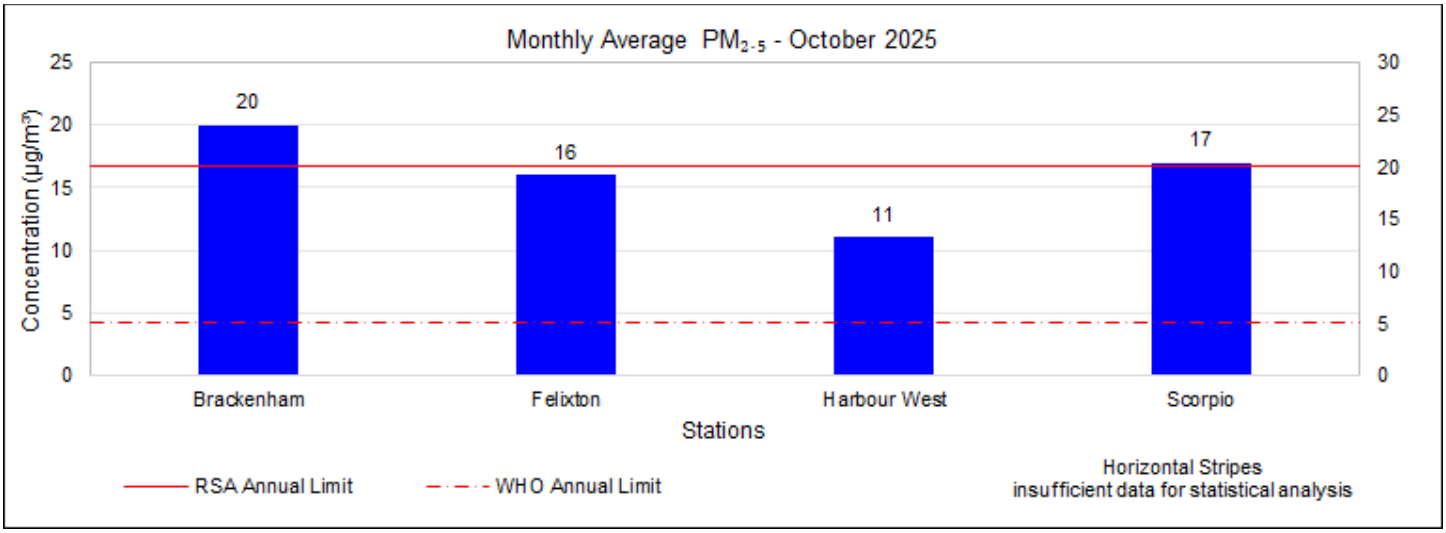


Figure 4.3: $PM_{2.5}$ monthly concentrations.

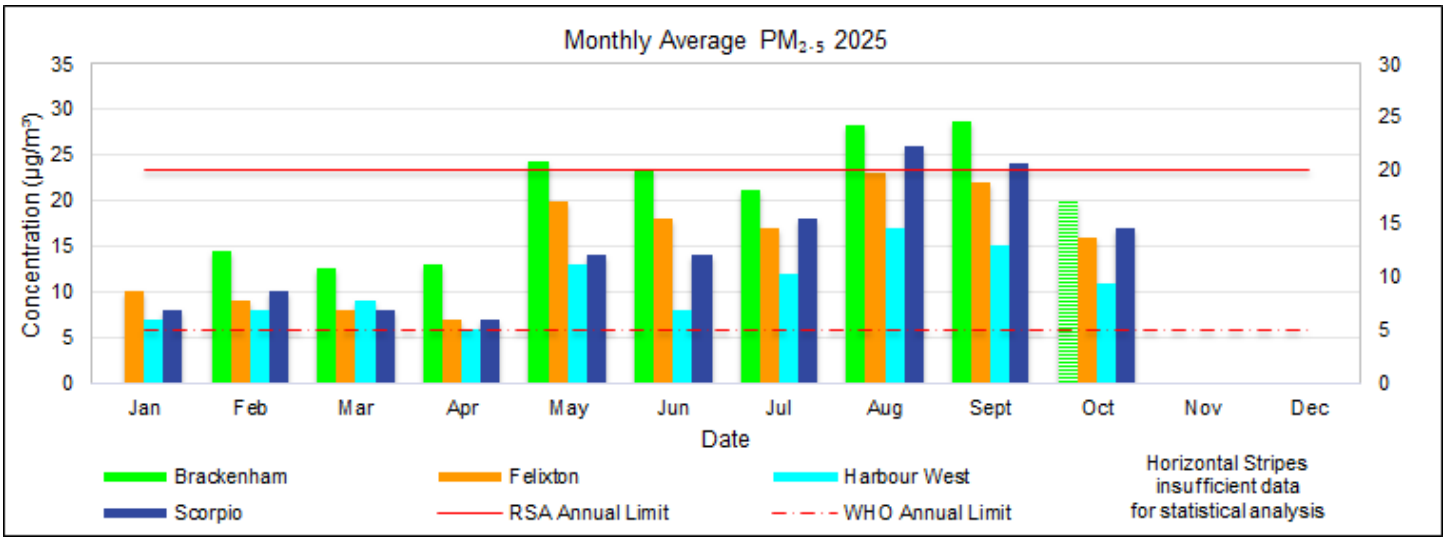


Figure 4.4: $PM_{2.5}$ monthly comparison.

4.4. Diurnal

PM diurnal concentrations are shown below (Figure 4.5 and Figure 4.6). Diurnal concentrations of PM_{10} did not exceed the RSA Daily Limit (75 µg/m³) nor the WHO Daily Limit (45 µg/m³).

Diurnal concentrations of $PM_{2.5}$ did not exceed the RSA Daily Limit (40 µg/m³); the WHO Daily Limit (15 µg/m³) was exceeded at Brackenham, Felixton and Scorpio.

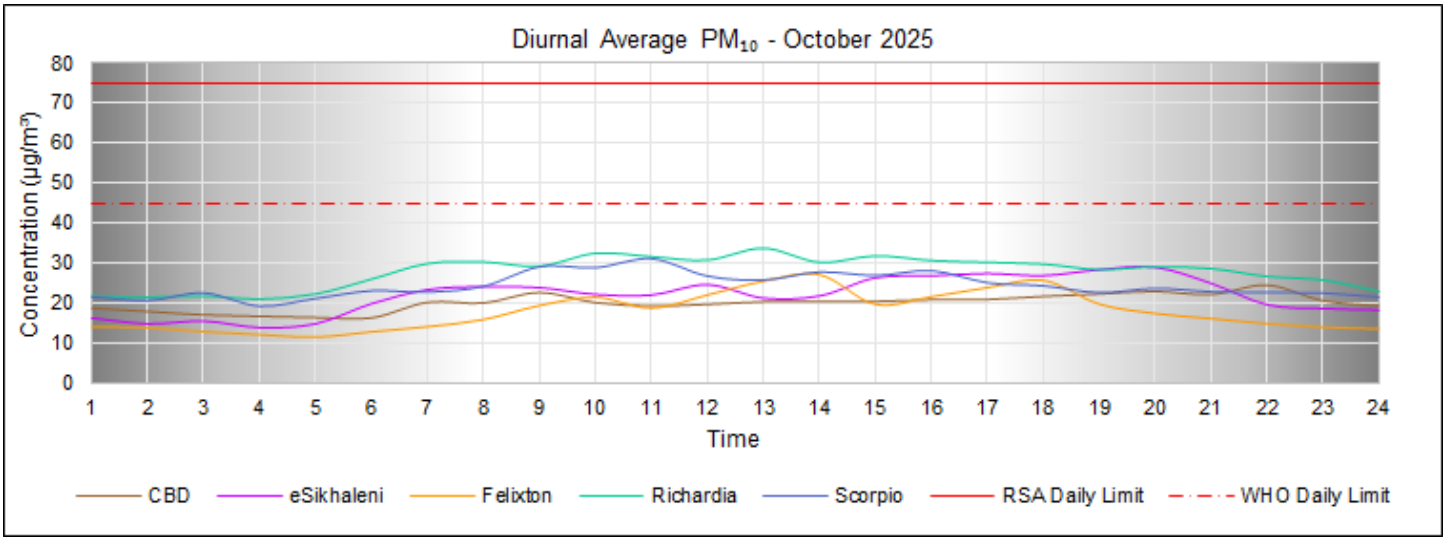


Figure 4.5: PM_{10} diurnal concentrations.

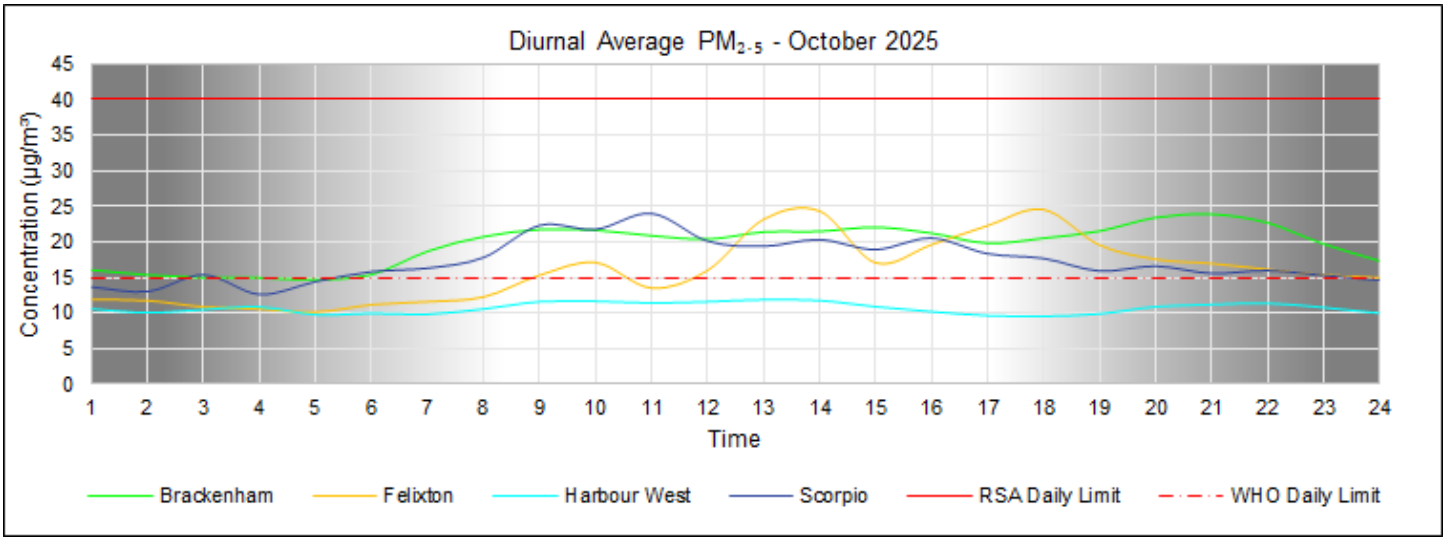


Figure 4.6: $PM_{2.5}$ diurnal concentrations.

4.5. Daily

PM_{10} daily concentrations are shown in Figure 4.7, and exceedances are in Table 4.3. There were:

- No (0) measured exceedances of the RSA Limit (75 µg/m³); and,
- Five (5) measured exceedances of the WHO Limit (45 µg/m³).

Table 4.3: PM_{10} 24-hour exceedances

PM_{10} Daily WHO Limit (45 µg/m³)	5
No response required	5
CBD	1
No comments.	1
Richardia	2
No comments.	2
Scorpio	2
No comments.	2

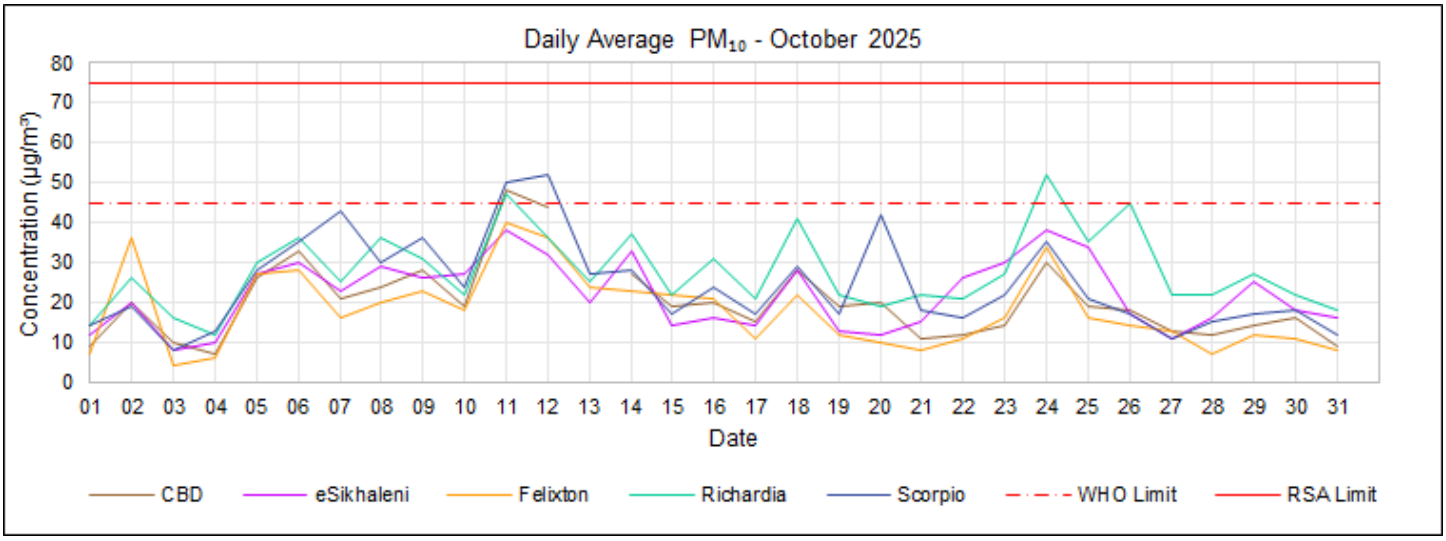


Figure 4.7: PM_{10} 24-hour average concentrations.

Missing Data (PM_{10})

- *CBD - Power outage, data invalidation (1 day/s with <80% data capture, 13 October 2025).*

$PM_{2.5}$ daily concentrations are shown in Figure 4.8, and exceedances are in Table 4.4. There were:

- Two (2) measured exceedances of the RSA Limit (40 µg/m³); and,
- Fifty-two (52) measured exceedances of the WHO Limit (15 µg/m³).

Table 4.4: $PM_{2.5}$ 24-hour exceedances (WHO).

$PM_{2.5}$ Daily RSA Limit (40 µg/m³)	2
RBIDZ - Meteorology	**2**
Brackenham	2
RBCAA allocation	2
$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	**52**
No response required	**52**
Brackenham	18
None	18
Felixton	14
None	14
Scorpio	14
None	14
Harbour West	6
None	6

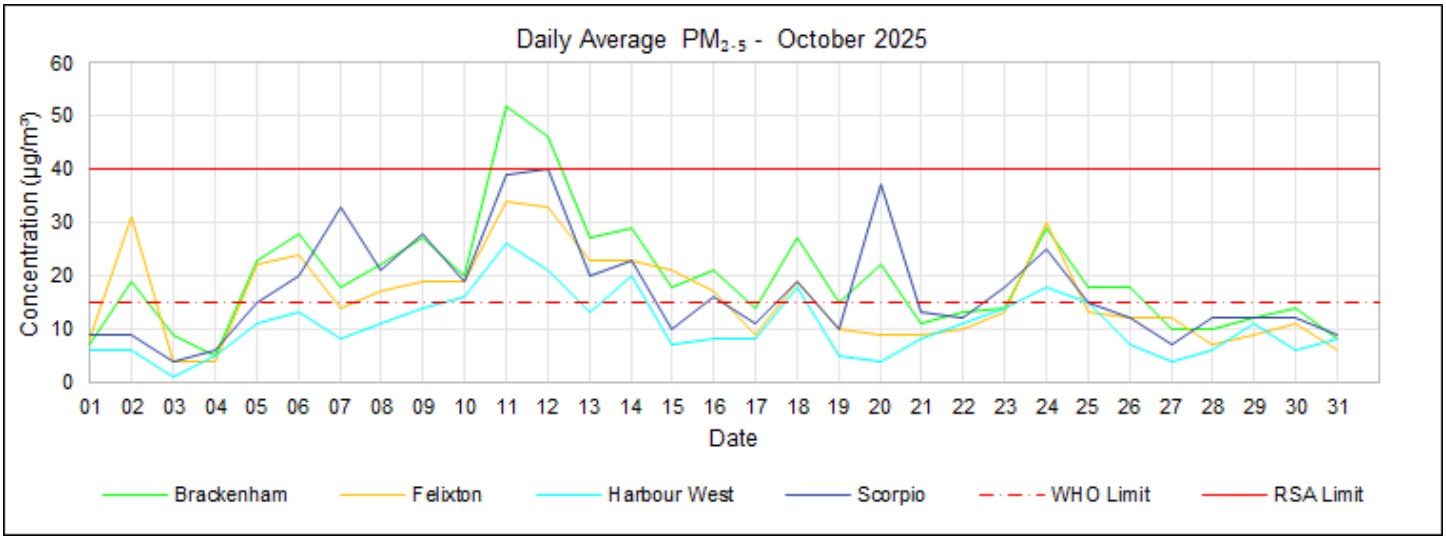


Figure 4.8: $PM_{2.5}$ daily average concentrations.

Missing Data ($PM_{2.5}$

- *None.*

4.6. Exceedances

The number of days on which exceedances occurred, plus comparisons to previous months, is shown in Figure 4.9 and Figure 4.10, and a summary of PM exceedances broken down per station is presented in Table 4.5 and Table 4.6. According to the relevant Air Quality Index (AQI), the areas where no exceedances were measured may be considered good air quality concerning PM.

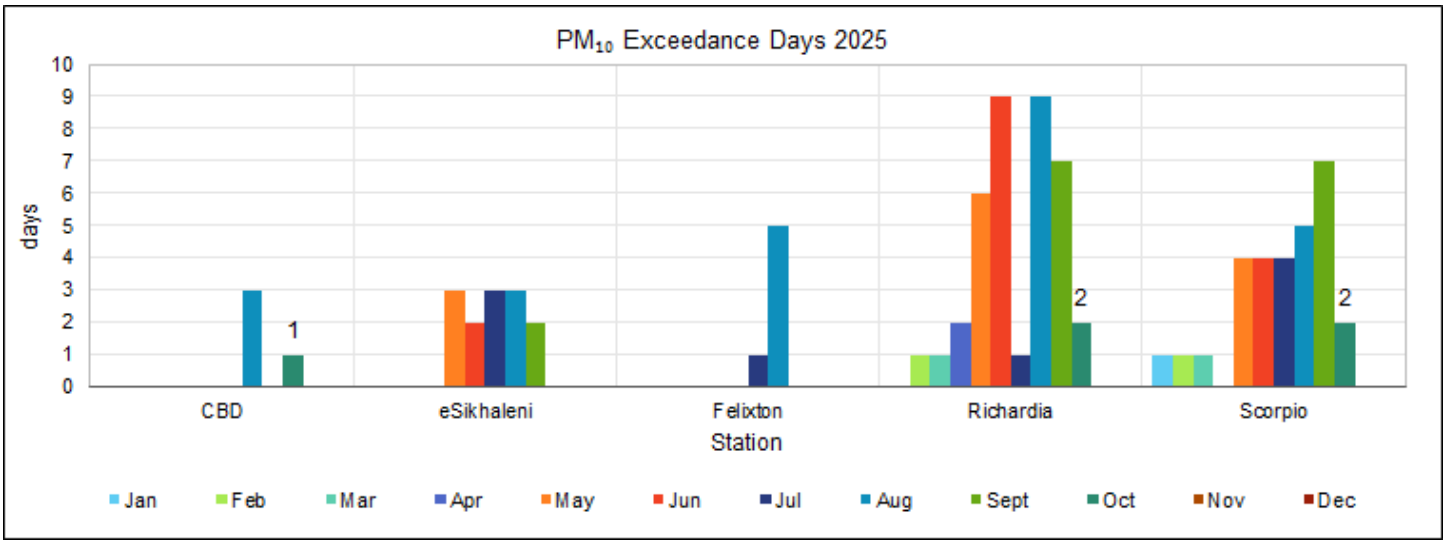


Figure 4.9: PM_{10} exceedance days.

Table 4.5: PM_{10} exceedance summary.

2025	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
PM_{10} Daily RSA Limit (75 µg/m³)													
Brackenham	-	-	-	-	-	-	-	-	-	-	-	-	0
CBD	-	-	-	-	-	-	-	-	-	-	-	-	0
eSikhaleni	-	-	-	-	-	-	-	-	-	-	-	-	0
Felixton	-	-	-	-	-	-	-	-	-	-	-	-	0
Richardia	-	-	-	-	-	1	-	-	1	-	-	-	2
Scorpio	-	-	-	-	-	-	-	1	1	-	-	-	2
PM_{10} Daily WHO Limit (45 µg/m³)													
Brackenham	-	-	-	-	-	-	-	-	-	-	-	-	0
CBD	1	-	-	-	-	-	-	3	-	1	-	-	**5**
eSikhaleni	-	-	-	-	3	2	3	3	2	-	-	-	**13**
Felixton	-	-	-	-	-	-	1	5	-	-	-	-	**6**
Richardia	-	1	1	2	6	9	1	9	7	2	-	-	**38**
Scorpio	1	1	1	-	4	5	4	5	7	2	-	-	**30**

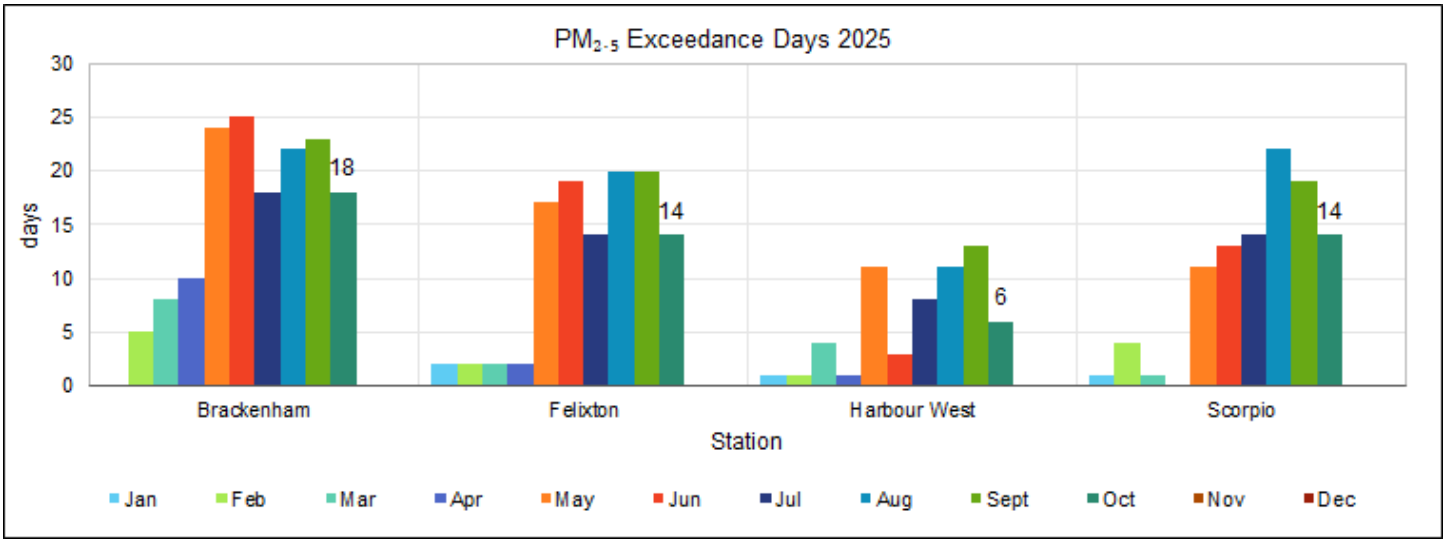


Figure 4.10: $PM_{2.5}$ exceedance days.

Table 4.6: $PM_{2.5}$ exceedance summary.

2025	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
$PM_{2.5}$ Daily RSA Limit (40 µg/m³)													
Brackenham	-	-	-	-	2	-	3	5	6	2	-	-	**18**
Felixton	-	-	-	-	-	-	1	5	-	-	-	-	**6**
Harbour West	-	-	-	-	-	-	-	3	-	-	-	-	3
Scorpio	-	-	-	-	-	-	1	5	2	-	-	-	**8**
$PM_{2.5}$ Daily WHO Limit (15 µg/m³)													
Brackenham	-	6	8	10	25	25	18	22	23	18	-	-	**155**
Felixton	2	3	2	2	18	19	14	20	20	14	-	-	**114**
Harbour West	1	2	4	1	11	3	8	11	13	6	-	-	**60**
Scorpio	1	4	1	-	11	14	14	22	19	14	-	-	**100**

5. SULPHUR DIOXIDE MONITORING

Sulphur dioxide (SO_2) is one of the highly reactive gases known as "oxides of sulphur." Anthropogenic sources include fossil fuel combustion (particularly coal-burning power plants), industrial processes such as wood pulping, paper manufacturing, petroleum and metal refining, and metal smelting (particularly from sulphide-containing ores, e.g., lead, silver, and zinc ores), as well as vehicle tailpipe emissions. Natural sources of SO_2 emissions include geothermal activity (including hot springs and volcanic activity) and the natural decay of vegetation on land, in wetlands, and oceans.

SO_2 is linked with several adverse effects on the respiratory system as it is highly soluble and thus readily absorbed by the mucous membranes of the nose and upper respiratory tract. Exposure to high concentrations may result in the following:

- Reduction in lung function (especially in asthmatics and children)
- Wheezing and coughing
- In severe cases, a decrease in life expectancy

5.1. Ambient Air Quality Standards

South African ambient air quality standards for SO_2 are listed below (Table 5.1).

Table 5.1: SO_2 ambient air quality limits.

Organisation	Limit	10-min Average	Hourly Average	Daily Average	Annual Average
RSA [a]	SO_2 Standard	500 µg/m³ [b]	350 µg/m³ [c]	125 µg/m³ [d]	50 µg/m³ [e]
		191ppb [b]	134 ppb [c]	48 ppb [d]	19 ppb [e]
WHO [f]	SO_2 Guideline	500 µg/m³	-	40 µg/m³	-
		191ppb	-	15 ppb	-

Notes:

a) SA Government Gazette 32816 (published 24 December 2009) in terms of the National Environmental Management: Air Quality Act 39 of 2004 (RSA-NEMAQA, 2009)
b) Not to be exceeded more than five hundred and twenty-six (526) times in one year.
c) Not to be exceeded more than eighty-eight (88) times in one year
d) Not to be exceeded more than four (4) times in one year
e) Not to be exceeded
f) World Health Organisation (WHO, 2021)

5.2. Data Availability

The percentage of valid data received from the SO_2 analysers for October 2025 is shown in Table 5.2.

Table 5.2: SO_2 data capture.

Station	Availability (%)	SO_2 (%)
Arboretum	99	98
Brackenham	100	99
CBD	99	***93***
eSikhaleni	100	100
Felixton	99	99
Harbour West	100	100
Richardia	100	100
Scorpio	100	100

Notes:
- *Red - Not acceptable for statistical purposes (<80%)*
- *Orange – Does not meet SANAS data capture requirements (<90%)*
- *Yellow – RBCAA reporting requirement (<=95%)*

Missing Data (SO_2):
- *Arboretum – Power outage, data invalidation (1 day/s with <80% data capture, 15 October 2025).*
- *CBD - Power outage, data invalidation (4 day/s with <80% data capture, 6-8, 13 October 2025).*

5.3. Monthly

Monthly average SO_2 concentrations did not exceed the RSA Annual Limit (Figure 5.1). Comparisons to previous months are also provided (Figure 5.2).

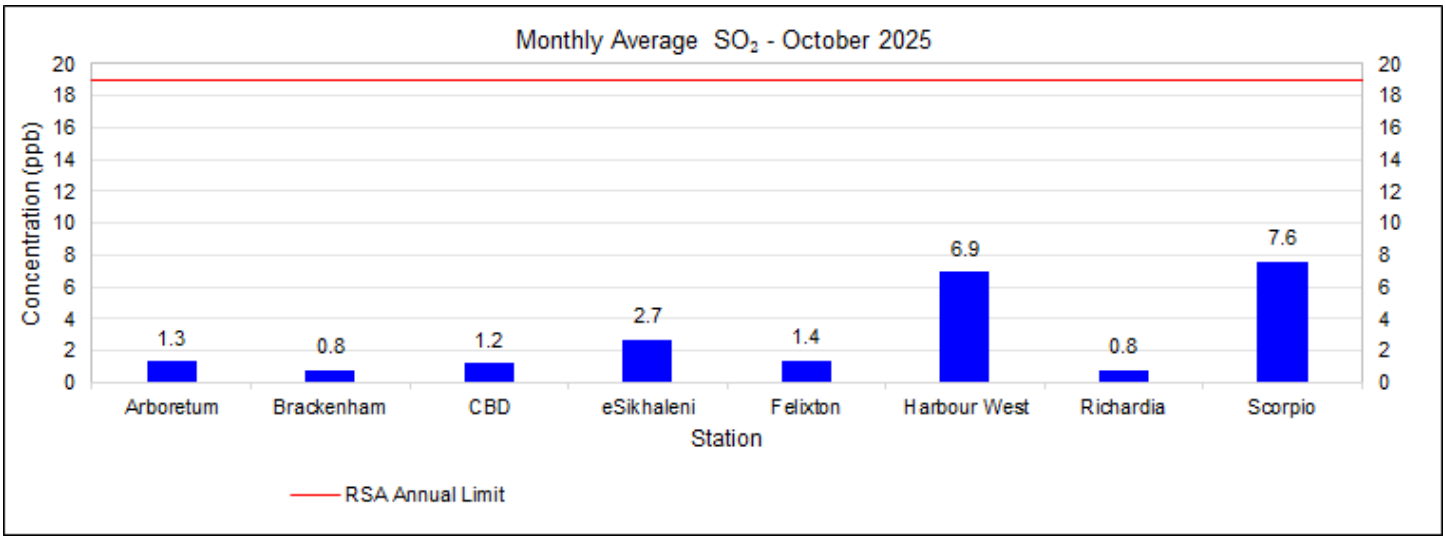


Figure 5.1: SO_2 monthly concentrations.

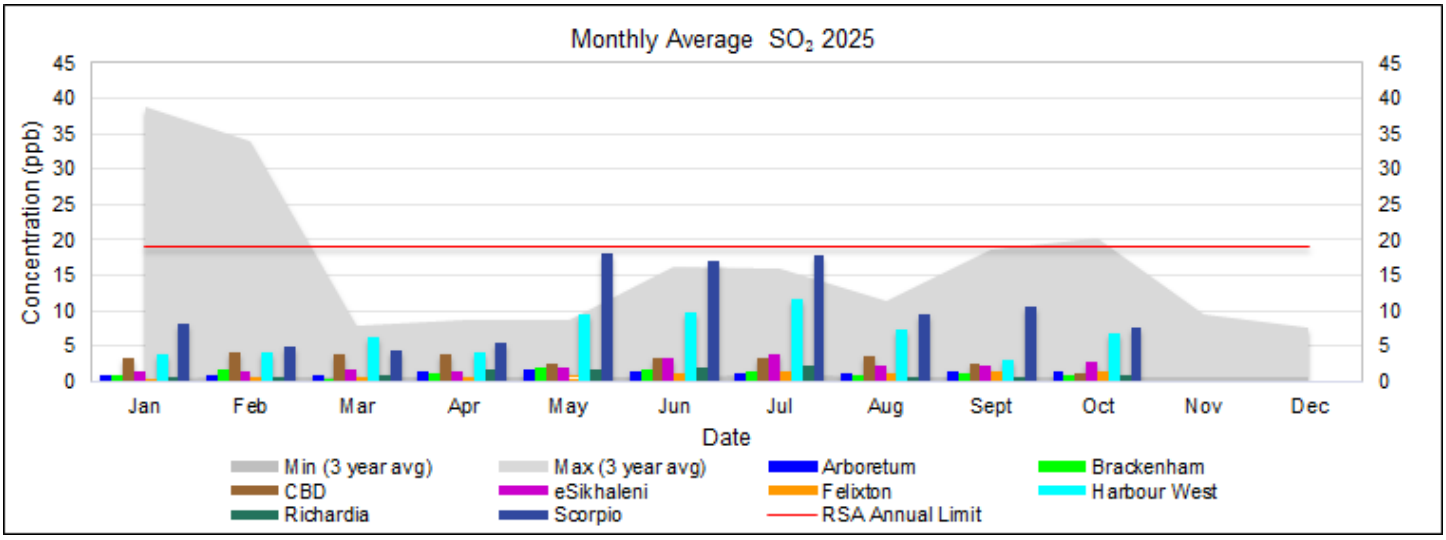


Figure 5.2: SO_2 monthly comparison.

5.4. Diurnal

Diurnal SO_2 concentrations are shown below (Figure 5.3). Diurnal concentrations of SO_2 did not exceed the RSA Daily Limit (48 ppb); the WHO Daily Limit (15 ppb) was exceeded at Scorpio.

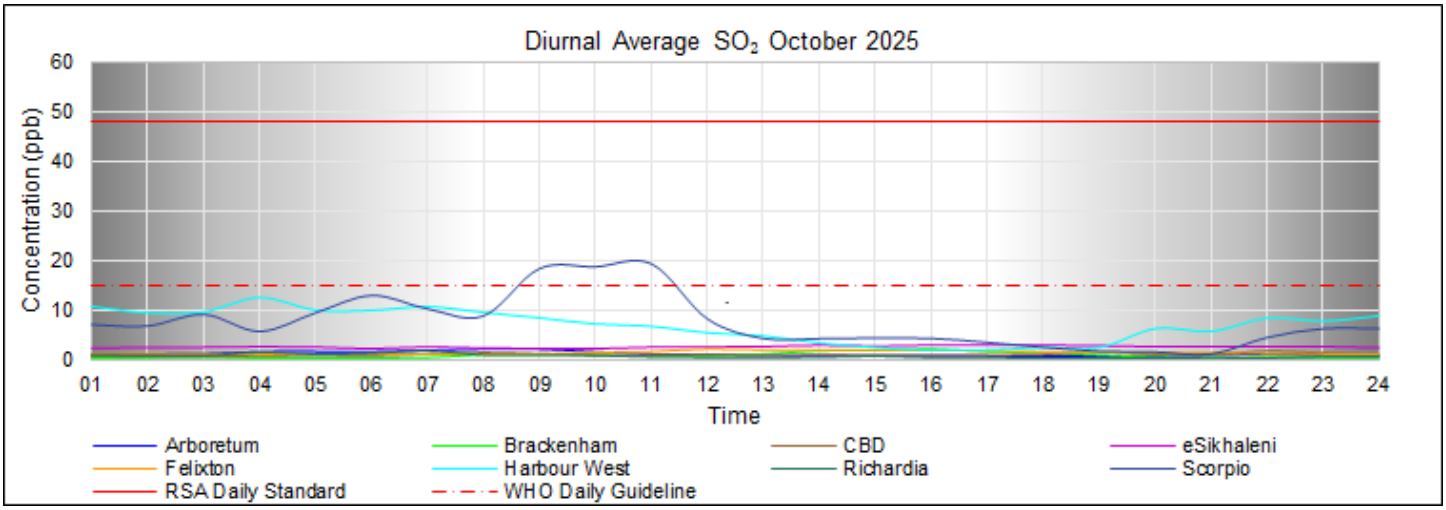


Figure 5.3: SO_2 diurnal concentrations.

5.5. Daily

SO_2 daily average concentrations are shown in Figure 5.4 and exceedances in Table 5.3: There were:

- One (1) measured exceedance of the RSA Limit (48 ppb); and,
- Ten (10) measured exceedances of the WHO Limit (15 ppb).

Table 5.3: SO_2 24-hour average exceedances.

SO_2 Daily RSA Limit (48 ppb)	**1**
Foskor	**1**
Scorpio	1
Loss of gas from the boiler	1
SO_2 Daily WHO Limit (15 ppb)	**10**
No response required	**10**
Harbour West	5
No comments.	5
Scorpio	5
No comments.	5

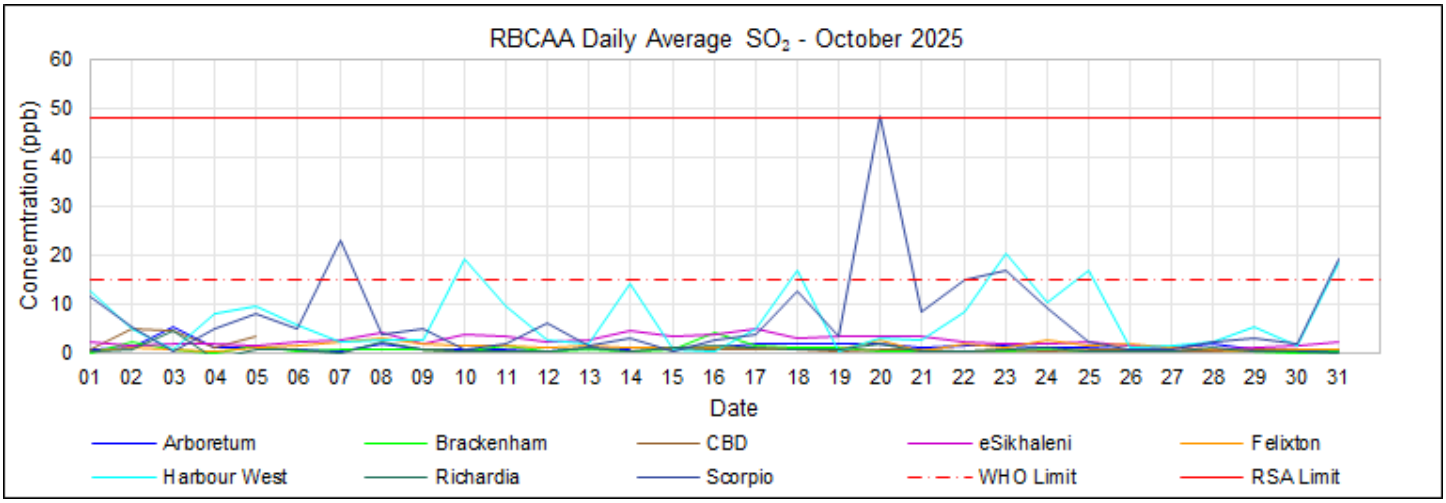


Figure 5.4: SO_2 24-hour average concentrations.

Missing Data (SO_2):

- *Arboretum – Power outage, data invalidation (1 day/s with <80% data capture, 15 October 2025).*
- *CBD - Power outage, data invalidation (4 day/s with <80% data capture, 6-8, 13 October 2025).*

5.6. Hourly

SO_2 hourly average concentrations are shown in Figure 5.5. Four (4) measured exceedances of the RSA Limit (134 ppb) were recorded.

Table 5.4: SO_2 1-hour average exceedances.

SO_2 Hourly RSA Limit (134 ppb)	4
Foskor	**4**
Scorpio	4
Meteorology	1
Loss of gas from the boiler	3

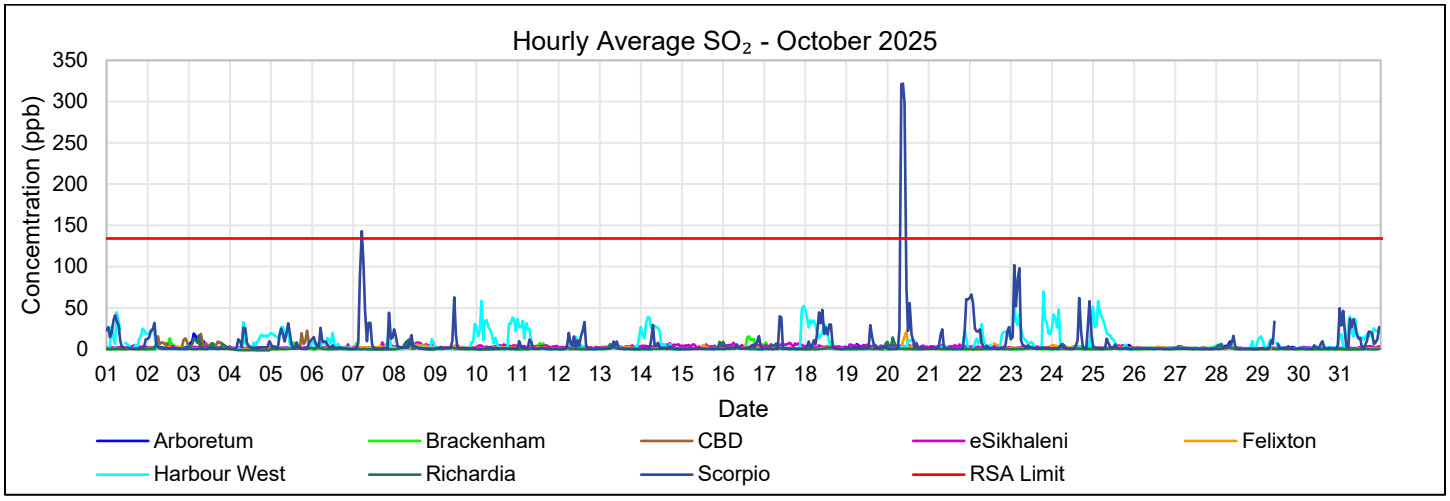


Figure 5.5: SO_2 1-hour average concentrations.

5.7. 10-minute

SO_2 10-minute average concentrations are shown in Figure 5.6. There were sixteen (16) measured exceedances of the RSA and WHO Limit (191 ppb).

Table 5.5: SO_2 10-minute average exceedances.

SO_2 10-minute RSA & WHO Limit (191 ppb)	16
Foskor	**16**
Scorpio	16
Loss of gas from the boiler	16

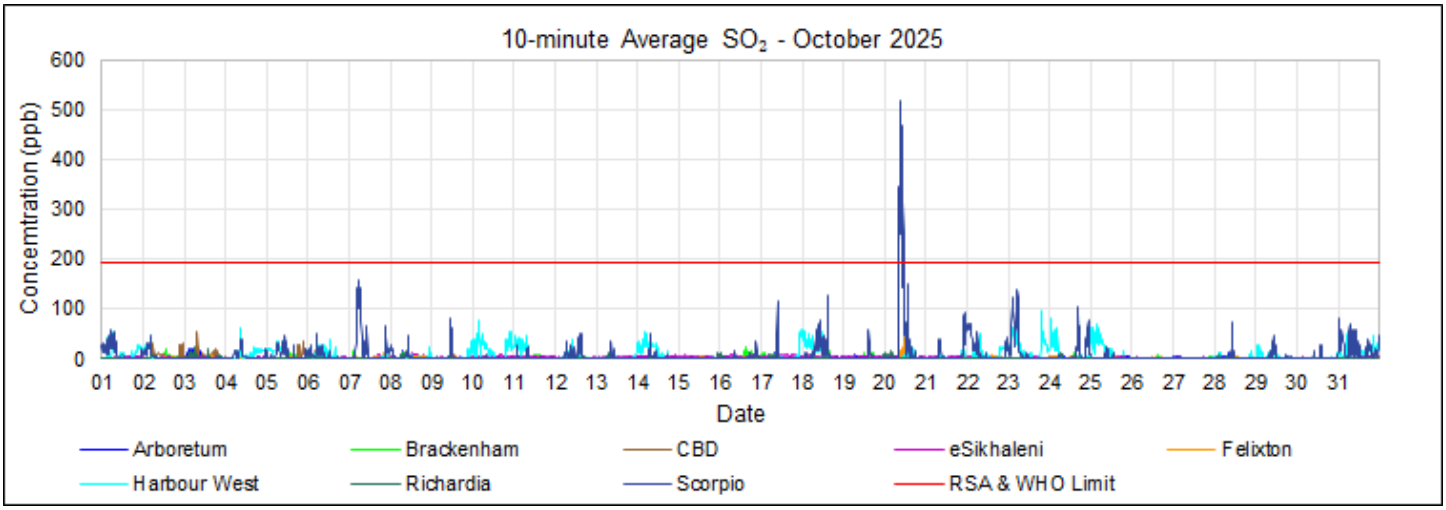


Figure 5.6: SO_2 10-minute average concentrations.

5.8. Exceedances

The number of days on which exceedances occurred, plus comparisons to previous months, is shown in Figure 5.7, and a summary of the SO_2 exceedances broken down per station is presented in Table 5.6. SO_2 exceedances can be associated with emissions resulting from process upsets (e.g., planned maintenance, plant shutdowns, or start-ups), leaks in equipment, pipelines, seals, and valves (fugitive emissions), or an event (e.g., fires or emergency shutdowns). According to the relevant Air Quality Index (AQI), the areas where no exceedances were measured may be considered to have good air quality regarding SO_2.

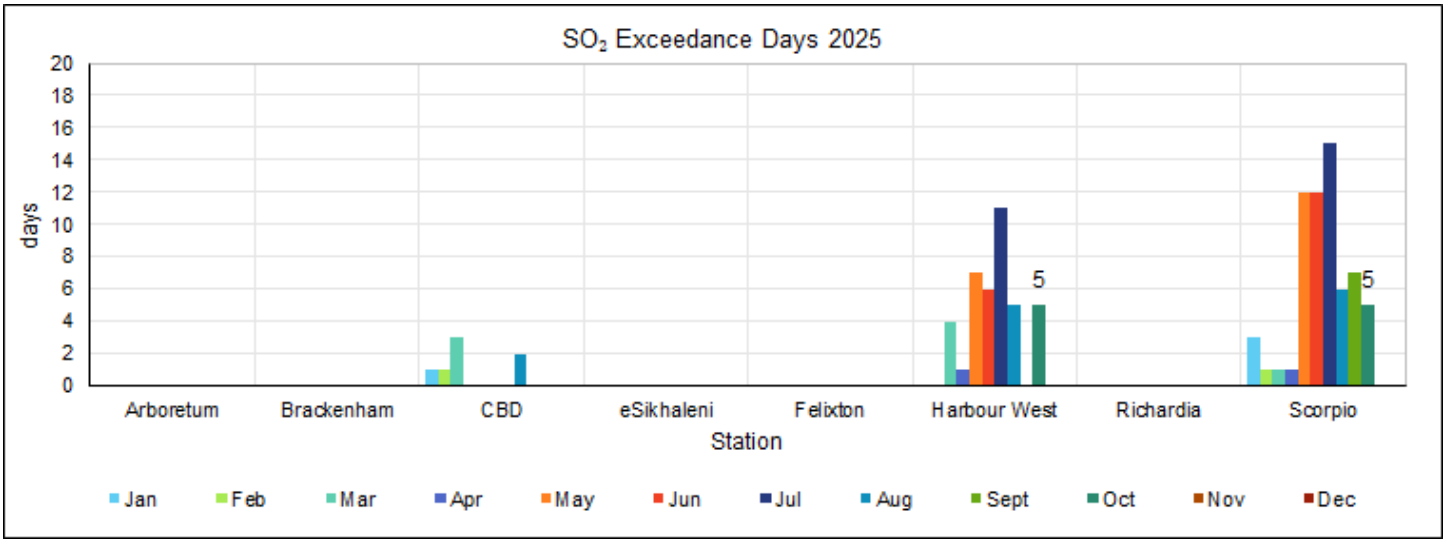


Figure 5.7: SO_2 exceedance days.

Table 5.6: SO_2 exceedance summary.

2025	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
SO_2 Daily RSA Limit (48 ppb)													
CBD	-	-	-	-	-	-	-	-	-	-	-	-	0
eSikhaleni	-	-	-	-	-	-	-	-	-	-	-	-	0
Harbour West	-	-	-	-	-	-	-	-	-	-	-	-	0
Richardia	-	-	-	-	-	-	-	-	-	-	-	-	0
Scorpio	1	-	-	-	2	2	1	-	1	1	-	-	**8**
SO_2 Daily WHO Limit (15 ppb)													
CBD	1	1	3	-	-	-	-	2	-	-	-	-	**7**
eSikhaleni	-	-	-	-	-	-	-	-	-	-	-	-	0
Harbour West	-	-	4	1	7	6	11	5	-	5	-	-	**39**
Richardia	-	-	-	-	-	-	-	-	-	-	-	-	0
Scorpio	3	-	1	1	12	11	15	6	7	5	-	-	**61**
SO_2 Hourly RSA Limit (134 ppb)													
CBD	-	-	-	-	-	-	-	-	-	-	-	-	0
eSikhaleni	-	-	-	-	-	-	-	-	-	-	-	-	0
Harbour West	1	-	-	-	-	-	-	-	-	-	-	-	1
Richardia	-	-	-	-	-	-	-	-	-	-	-	-	0
Scorpio	4	-	3	-	1	-	2	2	-	-	-	-	12
SO_2 10-minute RSA & WHO Limit (191 ppb)													
CBD	-	-	-	-	-	-	-	-	-	-	-	-	0
eSikhaleni	-	-	-	-	-	-	-	-	-	-	-	-	0
Harbour West	-	-	-	-	-	-	-	-	-	-	-	-	0
Richardia	-	-	-	-	-	-	-	-	-	-	-	-	0
Scorpio	18	1	-	-	-	3	3	-	-	16	-	-	41

6. TOTAL REDUCED SULPHUR MONITORING

Total reduced sulphur compounds (TRS), often associated with rotten egg or cooked cabbage odour, refer to a gaseous mixture of compounds consisting mainly of hydrogen sulphide (H_2S), methyl mercaptan (CH_3S-H), dimethyl sulphide (CH_3-S-CH_3) and dimethyl disulphide (CH_3-S-S-CH_3). While there are other ambient TRS compounds, these four are the most common, abundant, and generally referred to in TRS discussions. Once released into the atmosphere, oxidation products of TRS compounds, such as sulphuric acid, contribute to the environment's acidity. The most often reported health concerns related to TRS substances are nausea and headaches, although each component has its own characteristics and effects.

6.1. Ambient Air Quality Standards

There are no South African standards for TRS; however, the World Health Organisation (WHO) and the Ontario Ministry for the Environment (OME) have derived guidelines.

Table 6.1: TRS ambient air quality limits.

Organisation	Limit	10-min Average	30-minute Average	24-hour Average	Annual Average
WHO	Guideline	-	7 µg/m³ [a]	-	-
		-	5 ppb [a]	-	-
OME	Standard (pulp and paper)	13 µg/m³ [b]	10 µg/m³ [b]	14 µg/m³ [c]	-
		9.3 ppb [b]	7.2 ppb [b]	10.1 ppb [c]	-
OME	Standard (other industries)	13 µg/m³ [b]	10 µg/m³ [b]	7 µg/m³ [b]	-
		9.3 ppb [b]	7.2 ppb [b]	5.0 ppb [b]	-

Notes:

a) *World Health Organisation recommendation to avoid substantial complaints about odour annoyance among the exposed population* (WHO, 2000).
b) *Based on odour effects* (OME, 1999).
c) *Based on the odour and health effects* (OME, 1999).
d) *Based on the adverse effects on the respiratory system (nasal lesions)* (OME, 1999).

The RBCAA has decided to implement the following:

- 30-minute WHO H_2S Guideline; and the
- Daily and 10-minute OME standards for the Pulp and Paper sector.

6.2. Data Availability

The percentage of valid data received from the TRS analysers for October 2025 is shown in Table 6.2.

Table 6.2: TRS data capture.

Station	Availability (%)	TRS (%)
CBD	99	98
eSikhaleni	100	100
Felixton	99	98
Richardia	100	100

Notes:
- *Red - Not acceptable for statistical purposes (<80%)*
- *Orange – Does not meet SANAS data capture requirements (<90%)*
- *Yellow – RBCAA reporting requirement (<=95%)*

Missing Data (TRS):
- *CBD – Power outage, data invalidation (1 day/s with <80% data capture, 13 October 2025).*

6.3. Monthly

Monthly average TRS concentrations are shown in Figure 6.1. Comparisons to previous months are also provided (Figure 6.2).

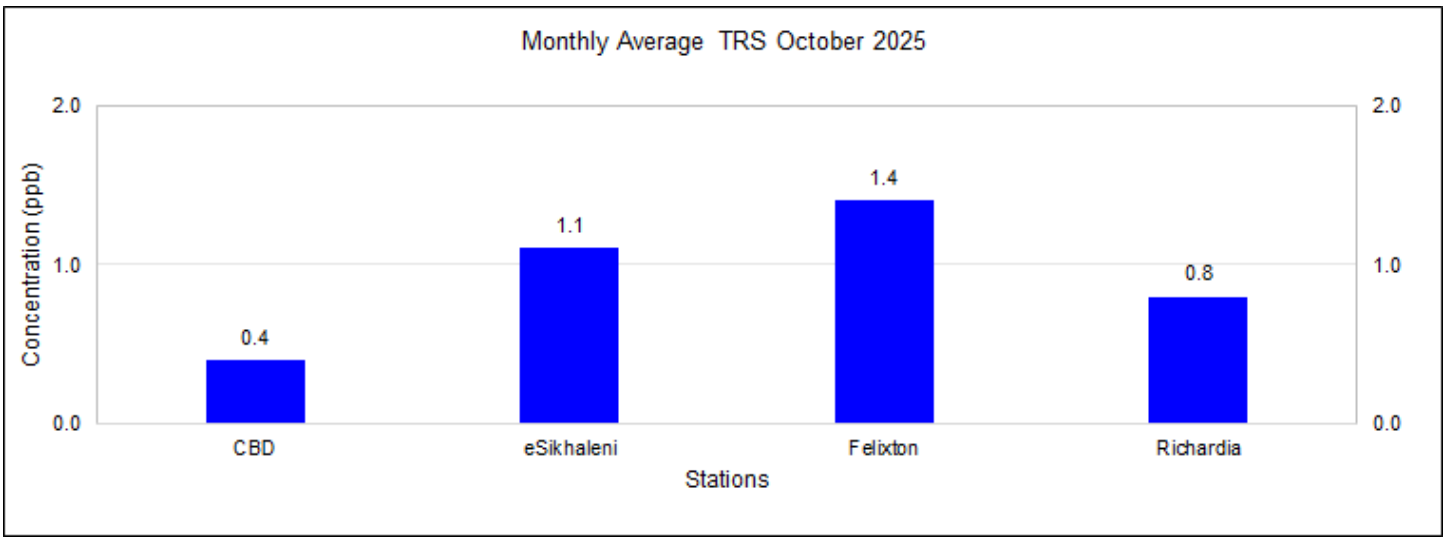


Figure 6.1: TRS monthly concentrations.

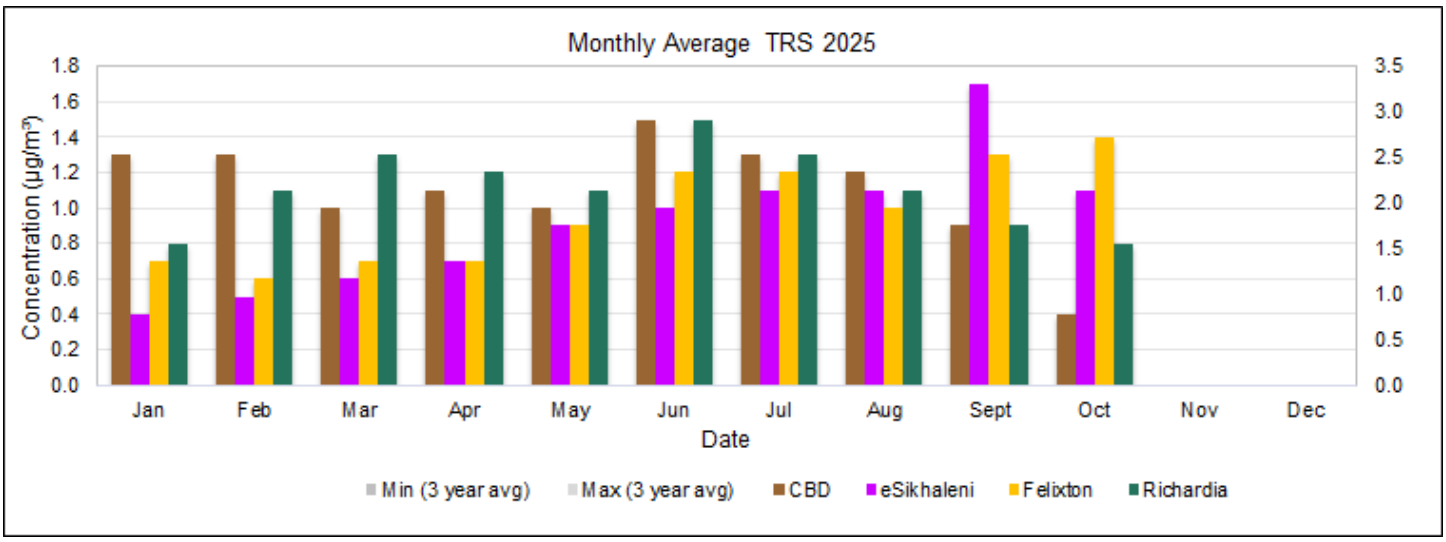


Figure 6.2: TRS monthly comparison.

6.4. Diurnal

The diurnal TRS concentrations are shown below (Figure 6.3). Diurnal concentrations of TRS did not exceed the OME Daily Limit (10.1 ppb).

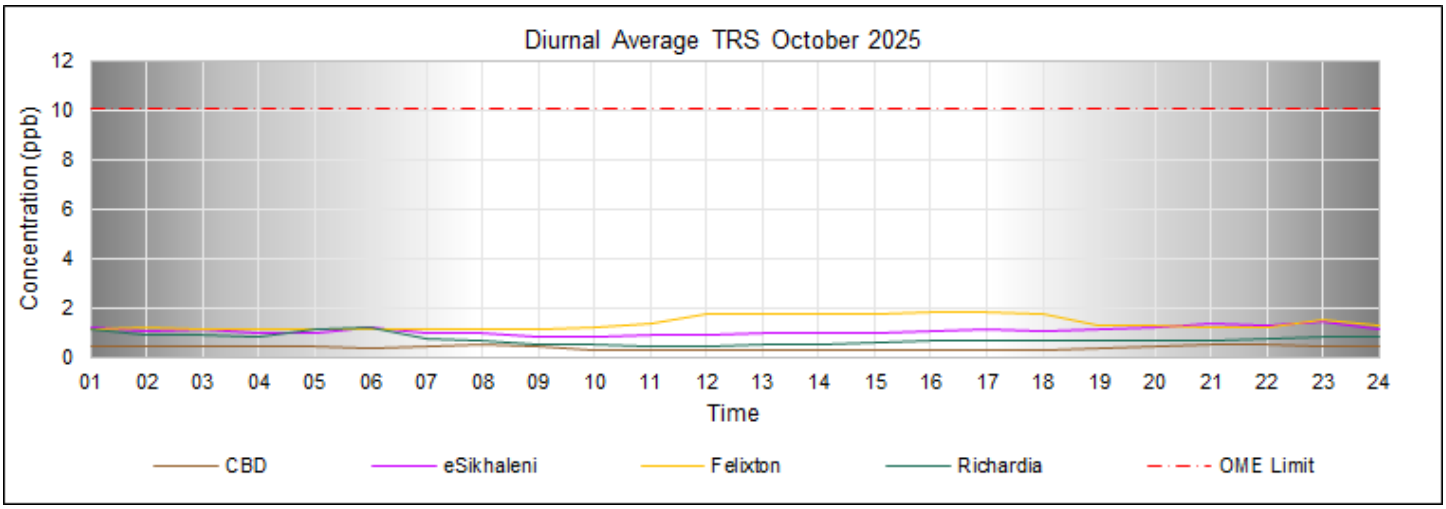


Figure 6.3: TRS diurnal concentrations.

6.5. Daily

The daily average concentrations of TRS are shown in Figure 6.4. No (0) exceedances of the OME Limit (10.1 ppb) were measured.

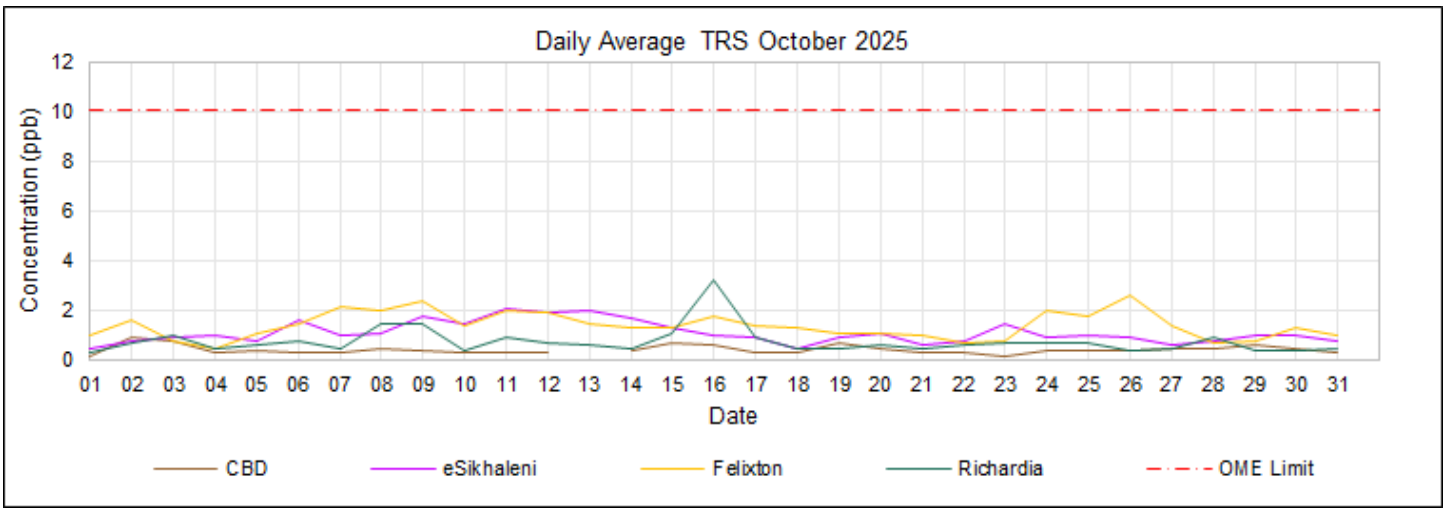


Figure 6.4: TRS daily average concentration.

Missing Data (TRS):

- *CBD – Power outage, data invalidation (1 day/s with <80% data capture, 13 October 2025).*

6.6. 30-minute

The TRS 30-minute average concentrations are shown in Figure 6.5, and exceedances in Table 6.3. Twenty-five (25) exceedances of the WHO Limit (5.0 ppb) were measured.

Table 6.3: TRS 30-minute average exceedances (WHO).

TRS 30-minute WHO H_2S Limit (5.0 ppb)	25
CoU	**1**
Richardia	1
RBCAA allocation - sewage	1
Mondi	**12**
eSikhaleni	3
SETP	3
Felixton	1
SETP	1
Richardia	8
SETP	3
Source of TRS unknown	3
Meteorology	2
Mondi & THS	**1**
Felixton	1
SETP + THS Boilers-coal operated.	1
THS	**11**
eSikhaleni	2
Boilers-coal operated.	2
Felixton	9
Boilers-coal operated.	9

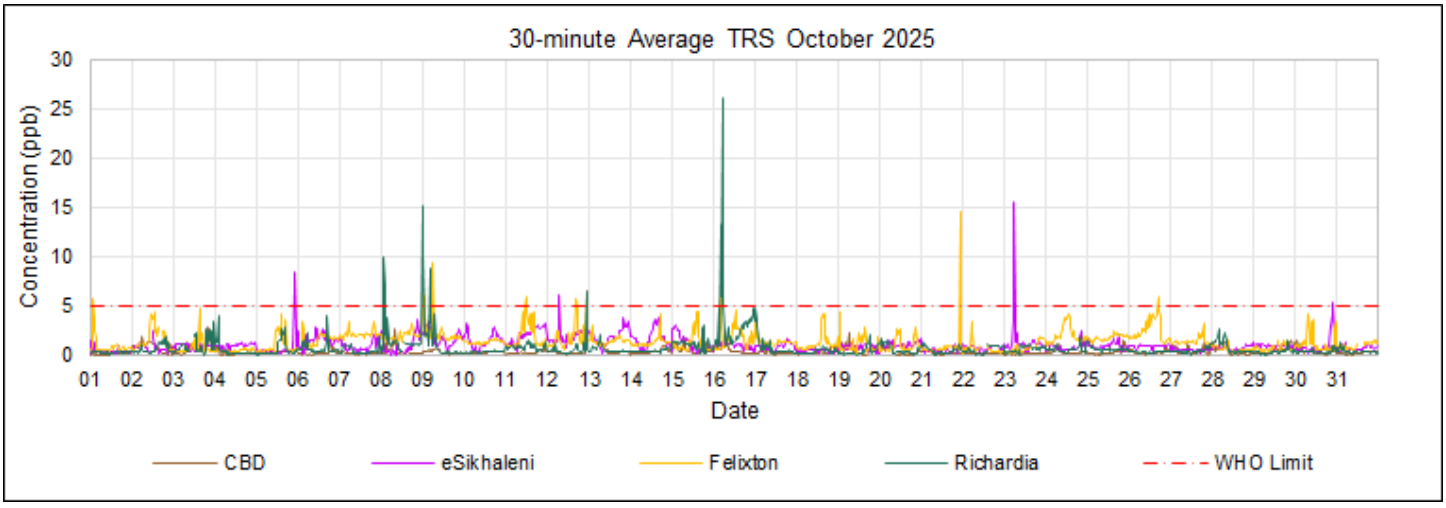


Figure 6.5: TRS 30-minute average concentration.

6.7. 10-minute

The TRS 10-minute average concentrations are shown in Figure 6.6, and exceedances in Table 6.4. Twenty-one (21) exceedances of the OME Limit (9.3 ppb) were measured.

Table 6.4: TRS 10-minute average exceedances (OME).

TRS 10-minute OME Limit (9.3 ppb)	21
Mondi	**17**
eSikhaleni	3
SETP	3
Felixton	2
SETP	2
Richardia	12
SETP	5
Source of TRS unknown	5
Meteorology	2
THS	**4**
eSikhaleni	2
Boilers-coal operated.	2
Felixton	2
Boilers-coal operated.	2

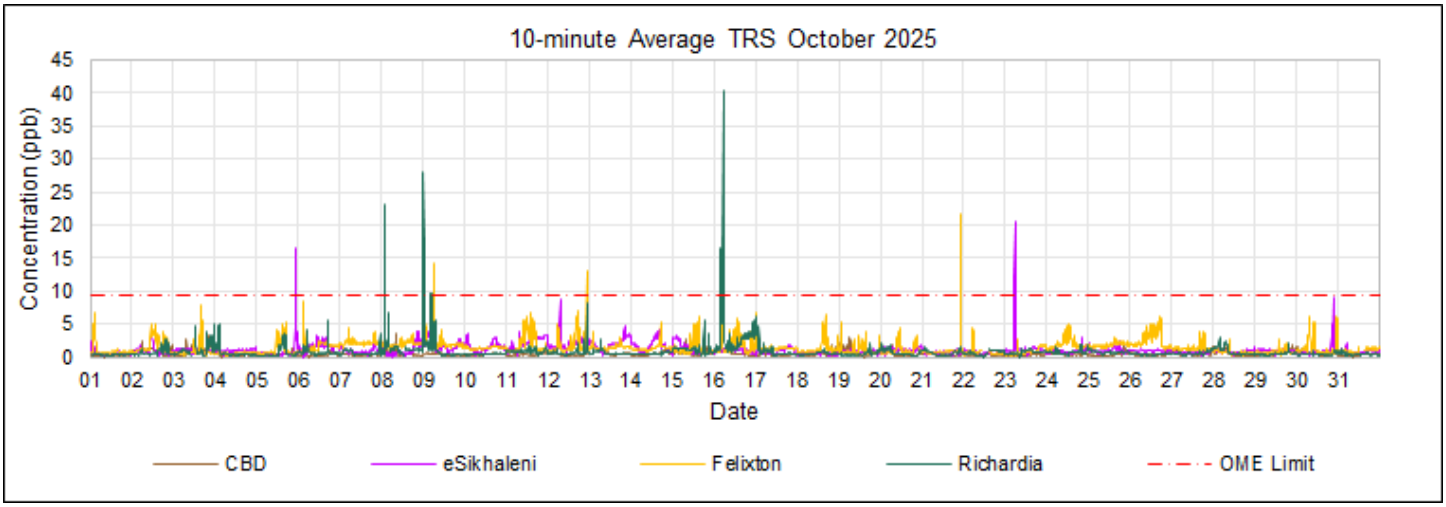


Figure 6.6: TRS 10-minute average concentrations.

6.8. Exceedances

The number of days on which exceedances occurred, plus comparisons to previous months, is shown in Figure 6.7, and a summary of the TRS exceedances, broken down per station, is presented in Table 6.5TRS exceedances can be associated with emissions because of process upsets (e.g., planned maintenance, plant shutdowns, or start-up), leaks in equipment, pipelines, seals, and valves (fugitive emissions), or an event (e.g., fires or emergency shutdowns). According to the relevant Air Quality Index (AQI), the areas where no exceedances were measured may have good air quality.

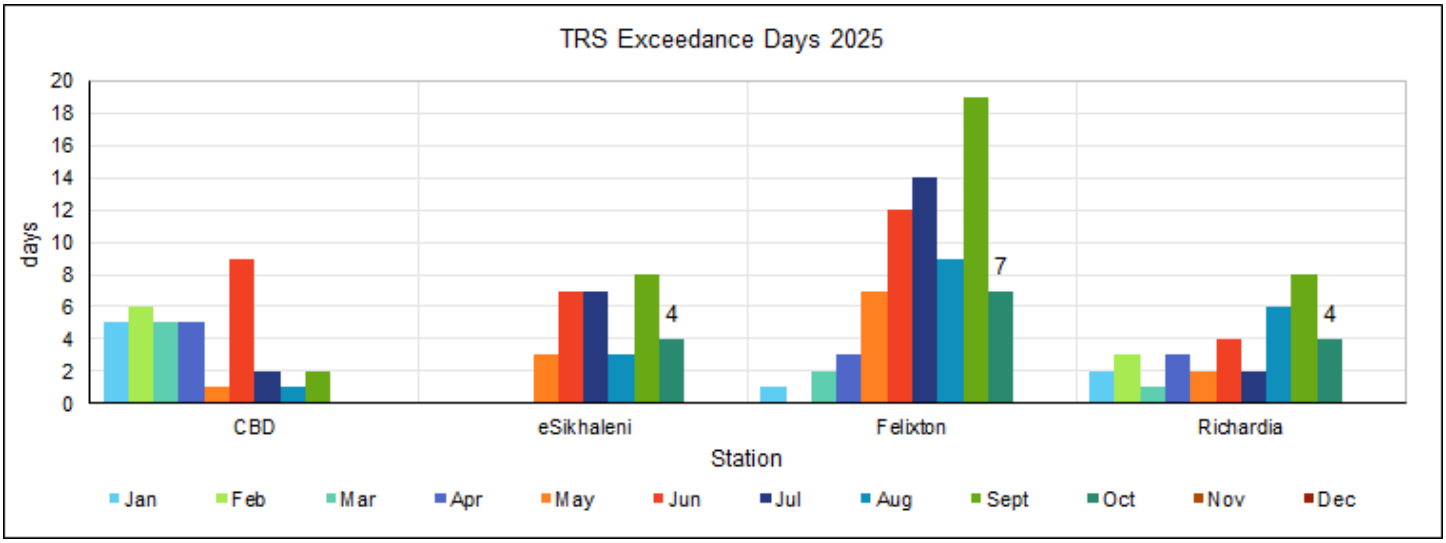


Figure 6.7: TRS exceedance days.

Table 6.5: TRS exceedance summary.

2025	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
TRS 24-hr-OME Limit (10.1 ppb)													
CBD	1	-	-	-	-	-	-	-	-	-	-	-	**1**
eSikhaleni	-	-	-	-	-	-	-	-	-	-	-	-	0
Felixton	-	-	-	-	-	-	-	-	-	-	-	-	0
Richardia	-	-	-	-	-	-	-	-	-	-	-	-	0
TRS 30-minute WHO H_2S Limit (5.0 ppb)													
CBD	34	25	15	10	2	41	3	10	3	-	-	-	**143**
eSikhaleni	-	-	-	-	4	19	11	4	29	5	-	-	**72**
Felixton	1	-	8	7	11	31	51	20	51	11	-	-	**191**
Richardia	5	7	3	7	3	16	3	9	19	9	-	-	**81**
TRS 10-minute OME Limit (9.3 ppb)													
CBD	53	10	8	7	-	27	-	-	2	-	-	-	**107**
eSikhaleni	-	-	-	-	4	11	8	1	10	5	-	-	**39**
Felixton	2	-	4	10	10	43	66	13	46	4	-	-	**198**
Richardia	3	1	-	9	-	13	-	19	24	12	-	-	**81**

7. MONTHLY AIR QUALITY

Where possible, the RBCAA assesses data collected by its network against National Standards, International Guidelines, and Local Targets. The WHO air quality guidelines (AQGs) are intended for global use and have been developed to support actions that achieve air quality protection for public health in various contexts. On the other hand, air quality standards and local targets are set by each country or region to protect the public health of its citizens, and as such, are an essential component of national risk management and environmental policies. National standards and local targets vary according to the approach adopted for balancing health risks, technological feasibility, economic considerations, and other political and social factors. These factors, in turn, depend on, among other things, the level of development and national capability in air quality management. (WHO, 2005)

7.1. Conclusion

Determining air quality concerning pollutants measured and impacts simulated is based on comparison to and exceedances of short-term (10-minute, 30-minute, 1-hour and 24-hour averages) and long-term (monthly and annual averages) targets, guidelines, and standards.

AIMS concludes that during October 2025, based on the following:

- Measured long-term average concentrations (chronic exposure) and WHO health guidelines of concern are:
  - PM_{10} at CBD, eSikhaleni, Felixton, Richardia and Scorpio - all points monitored.
  - $PM_{2.5}$ at Brackenham, Felixton, Harbour West and Scorpio - all points monitored.

- Measured short-term average concentrations (acute exposure) and the WHO health guidelines, ambient air quality was compromised by:
  - PM_{10} at CBD, Richardia and Scorpio.
  - $PM_{2.5}$ at Brackenham, Felixton, Harbour West and Scorpio - all points monitored.
  - SO_2 at Scorpio and Harbour West; and
  - TRS at eSikhaleni, Felixton and Richardia.

8. AIRGRADIENT MONITORING NETWORK

The AirGradient network was established towards the end of 2023 as a co-location study to verify the accuracy of its particulate measurements. It was later expanded in response to an RBCAA objective, adding monitoring capabilities for additional pollutants. Initially, there were only two sites, Harbour West and Richardia, and only particulates (PM_{10}, $PM_{2.5}$ and PM_1) were monitored. The network was expanded to Brackenham, CBD, eSikhaleni and Felixton in July 2024, and all the monitors were upgraded to measure volatile organic compounds (TVOC), nitrogen oxides (NO_x), and carbon dioxide (CO_2).

AirGradient monitors are designed to provide accessible and cost-effective solutions for air quality monitoring. While they offer valuable insights into environmental conditions, there are notable differences when compared to analysers approved by organisations such as the U.S. Environmental Protection Agency (EPA):

- Accuracy and Precision: Approved analysers are subjected to rigorous testing to ensure high accuracy and precision in measuring specific pollutants. AirGradient monitors utilise sensors such as the Plantower PMS5003 for particulate matter and the SenseAir S8 for CO_2, which are dependable but may not meet the stringent accuracy levels of certified equipment. For instance, the SenseAir S8 has an accuracy of ±30 ppm ±3% of the reading, which is suitable for general monitoring but may not meet standards for regulatory compliance.
- Calibration and Certification: Approved devices undergo regular calibration and certification processes to maintain compliance with federal standards. AirGradient monitors, particularly the DIY kits, may not come with such certifications, and their accuracy can be influenced by factors like sensor placement and environmental conditions. However, AirGradient offers fully assembled monitors certified for CE, FCC, RoHS, and REACH, providing a higher level of assurance in their performance.
- Data Application: AirGradient monitors are well-suited for educational purposes, personal use, and preliminary air quality assessments. They are beneficial for raising awareness and informing decisions on indoor air quality management. In contrast, approved analysers are employed for regulatory monitoring, research, and enforcement of air quality standards, where data accuracy and reliability are paramount.
- Cost and Accessibility: AirGradient monitors are more affordable and accessible, making them ideal for widespread use in homes, schools, and communities. Approved analysers are significantly more expensive and are typically used by governmental agencies and research institutions.

In summary, while AirGradient monitors provide valuable air quality data for non-regulatory applications, they do not replace the precision and certification of approved analysers required for compliance and enforcement purposes.

The RBCAA AirGradient monitoring network comprises six (6) stations (Figure 8.1).

Figure 8.1: RBCAA monitoring network.

8.1. Data Availability

The percentage of valid data received from the AirGradient network for 2025 is shown in Table 8.1.

Table 8.1: AirGradient network data availability.

	Brk	CBD	eSk	Flx	HW	MS	Mtz	Rch
Jan 2025	99	98	97	97	98	-	-	97
Feb 2025	***89***	***90***	***89***	***86***	***86***	-	-	***90***
Mar 2025	99	100	97	95	100	-	-	100
Apr 2025	***86***	96	***93***	***93***	96	-	-	96
May 2025	***55***	99	99	***93***	99	-	-	99
Jun 2025	96	97	96	***89***	97	-	-	***95***
Jul 2025	100	99	99	98	100	-	-	98
Aug 2025	100	100	99	96	100	***56***	-	100
Sept 2025	97	***86***	96	***92***	96	96	***69***	97
Oct 2025	100	99	97	97	100	100	98	100
Nov 2025	-	-	-	-	-	-	-	-
Dec 2025	-	-	-	-	-	-	-	-

Notes:
1. Red - Not acceptable for statistical purposes (<80%),
2. Orange – Does not meet SANAS data capture requirements (<90%),
3. Yellow – RBCAA reporting requirement (<=95%)

Missing Data:
- *Brackenham*
  - *February '25 –power outages (load shedding).*
  - *April '25 – power outages.*
  - *May '25 –issue with firmware upgrade /Wi-Fi connectivity.*
- *CBD*
  - *February '25 –power outages (load shedding).*
  - *September'25 - power outage plus issue with inverter auto start.*
- *eSikhaleni*
  - *February '25 –power outages (load shedding).*
  - *April '25 – power outages.*
- *Felixton*
  - *February '25 –power outages (load shedding).*
  - *April '25 – power outages.*
  - *June'25 – power outages.*
  - *September'25 – power outages.*
- *Harbour West*
  - *February '25 –power outages (load shedding).*
- *Meerensee*
  - *August'25 – unit commissioned on the 14th of August.*
- *Mtunzini*
  - *September'25 – unit commissioned on the 5th of September, power outages.*
- *Richardia*
  - *February '25 –power outages (load shedding).*
  - *June'25 – power outages.*

8.2. Particulate Monitoring

8.2.1. Monthly

PM_{10}, $PM_{2.5}$ and PM_1 monthly average concentrations are shown in Figure 8.2, Figure 8.3, and Figure 8.4. Comparisons to previous months are also provided (Figure 8.5, Figure 8.6, and Figure 8.7). There are similar seasonal trends, with elevated concentrations during winter.

- PM_{10} monthly average concentrations did not exceed the RSA Annual Limit; the WHO Annual Limit was exceeded at eSikhaleni.
- $PM_{2.5}$ monthly average concentrations did not exceed the RSA Annual Limit; the WHO Annual Limit was exceeded at Brackenham, eSikhaleni, Felixton, Meerensee, Mtunzini and Richardia.

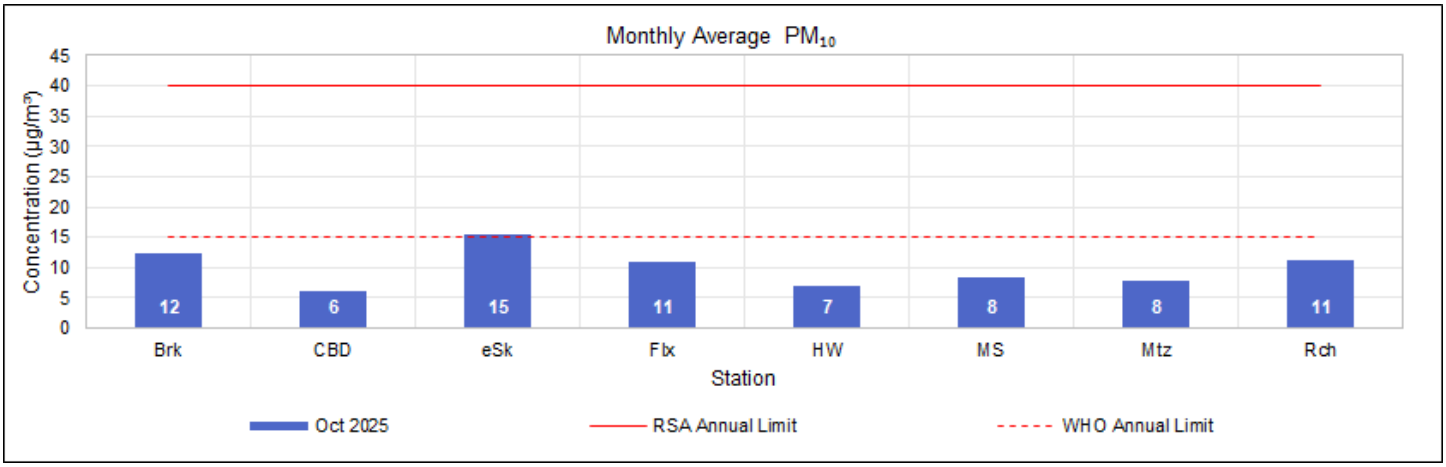


Figure 8.2: PM_{10} monthly concentration.

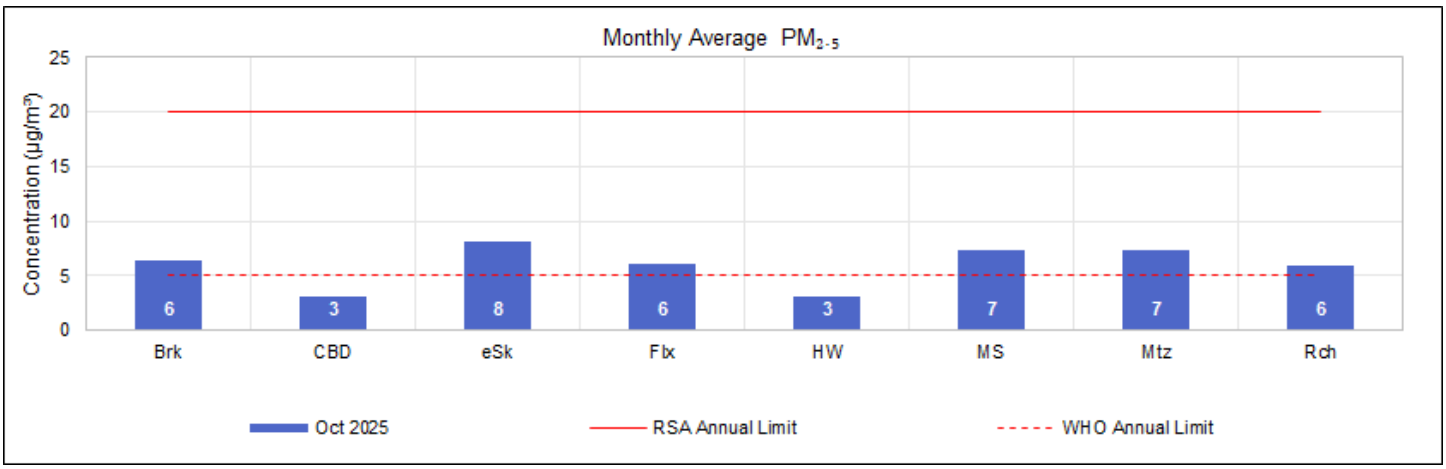


Figure 8.3: $PM_{2.5}$ monthly concentration.

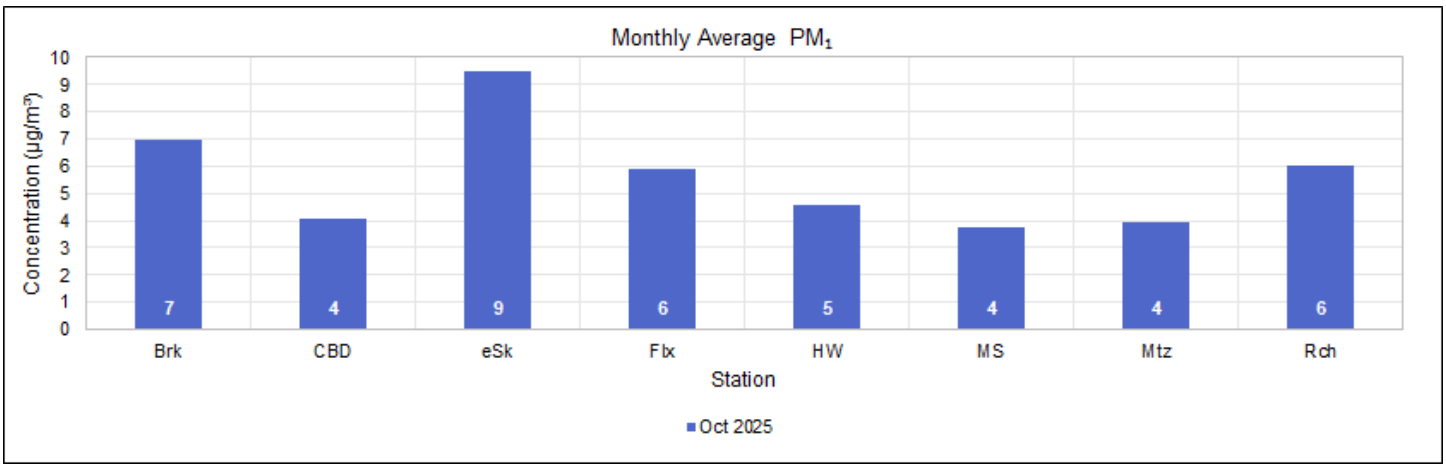


Figure 8.4: PM_{10} monthly concentration.

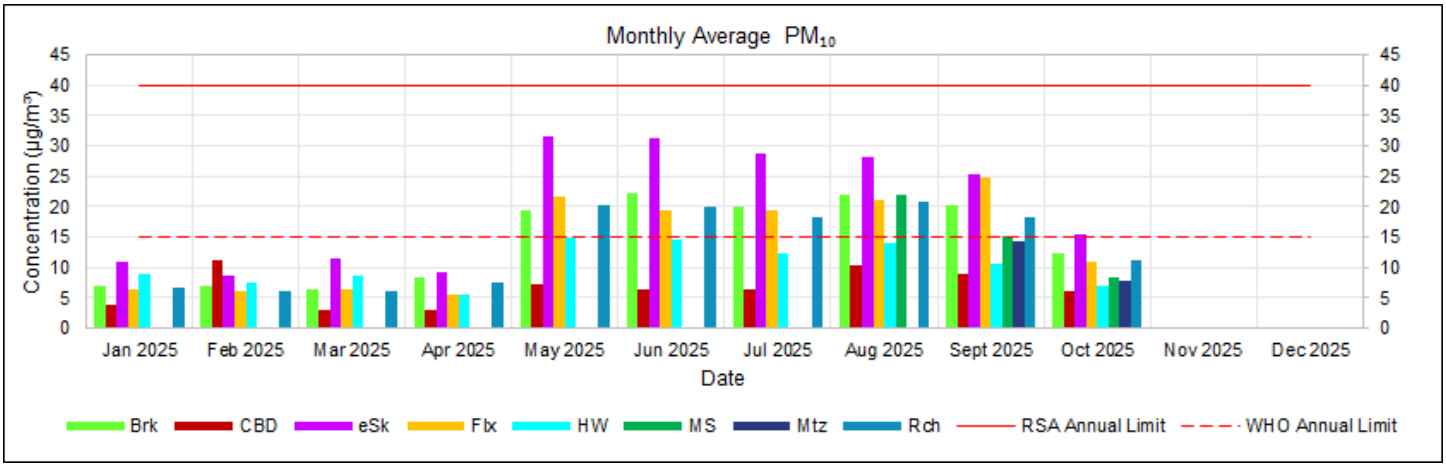


Figure 8.5: PM_{10} monthly comparison.

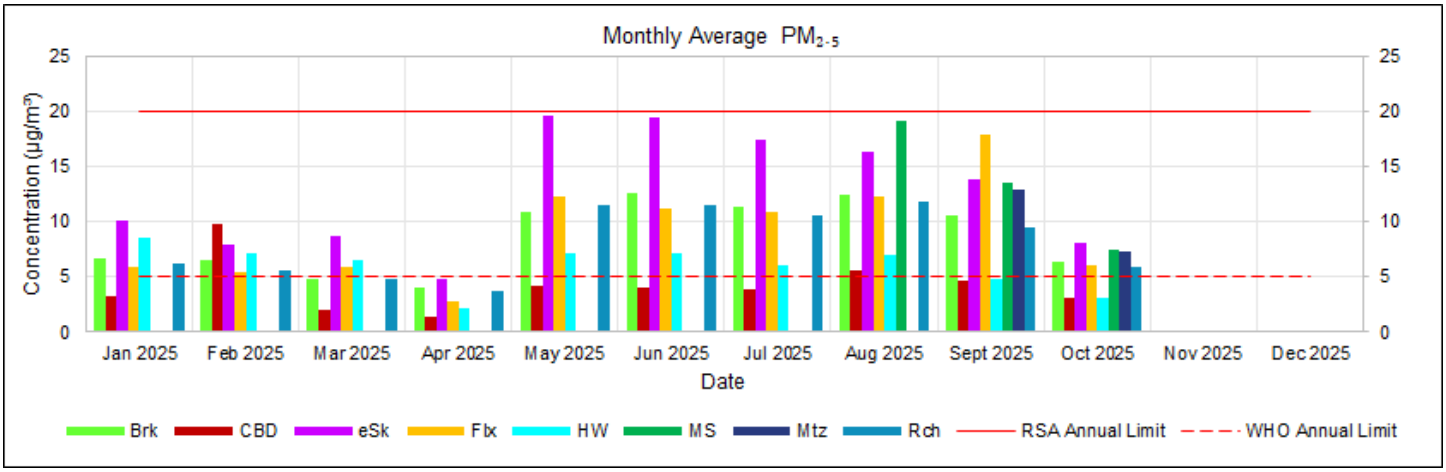


Figure 8.6: $PM_{2.5}$ monthly comparison.

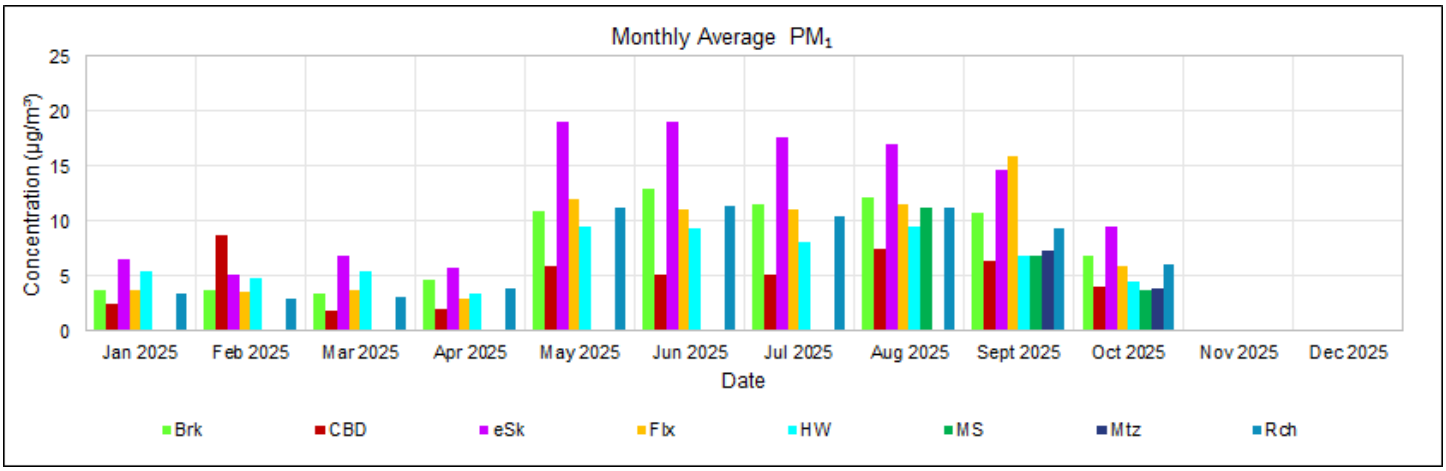


Figure 8.7: PM_1 monthly comparison.

8.2.2. Diurnal

PM diurnal concentrations are shown below (Figure 8.8, Figure 8.9, and Figure 8.10).

- PM_{10} diurnal concentrations did not exceed the RSA daily limit or the WHO daily limit.
- $PM_{2.5}$ diurnal concentrations did not exceed the RSA limit or the WHO daily limit.

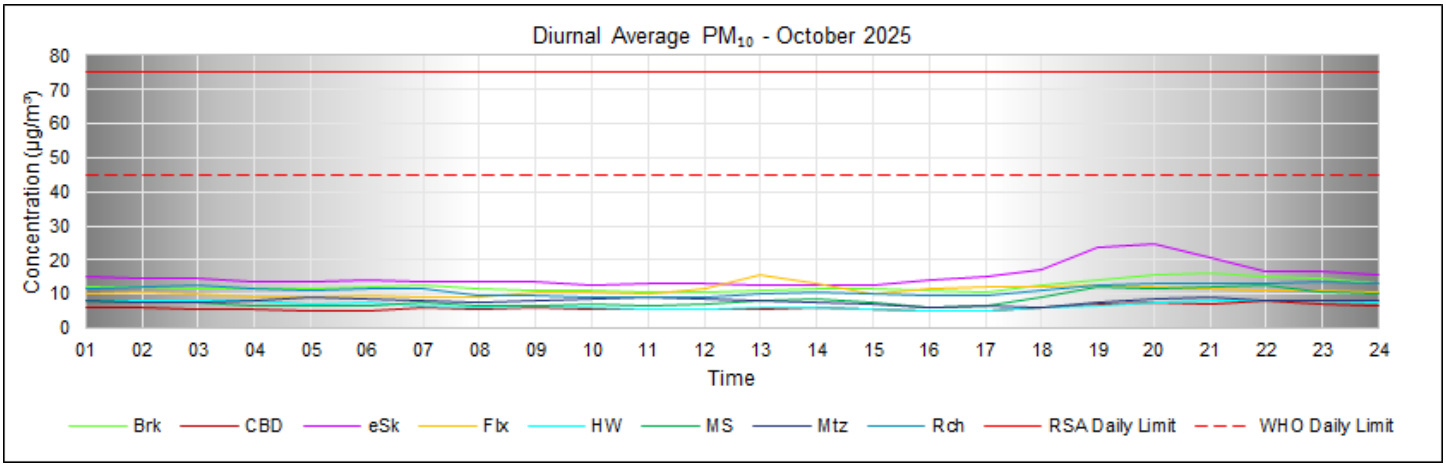


Figure 8.8: PM_{10} diurnal concentrations.

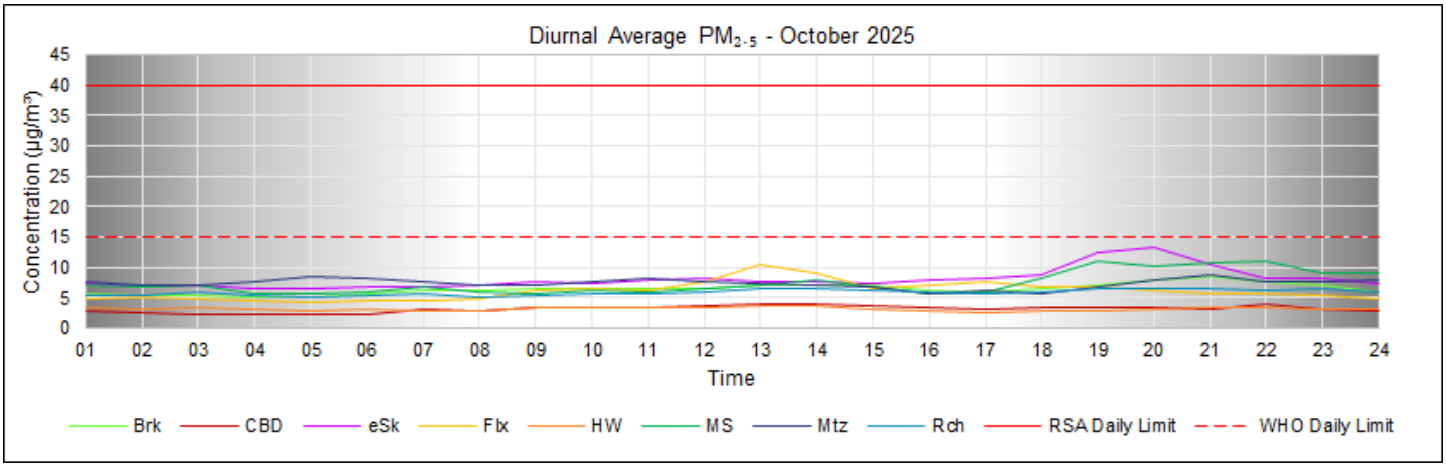


Figure 8.9: $PM_{2.5}$ diurnal concentrations.

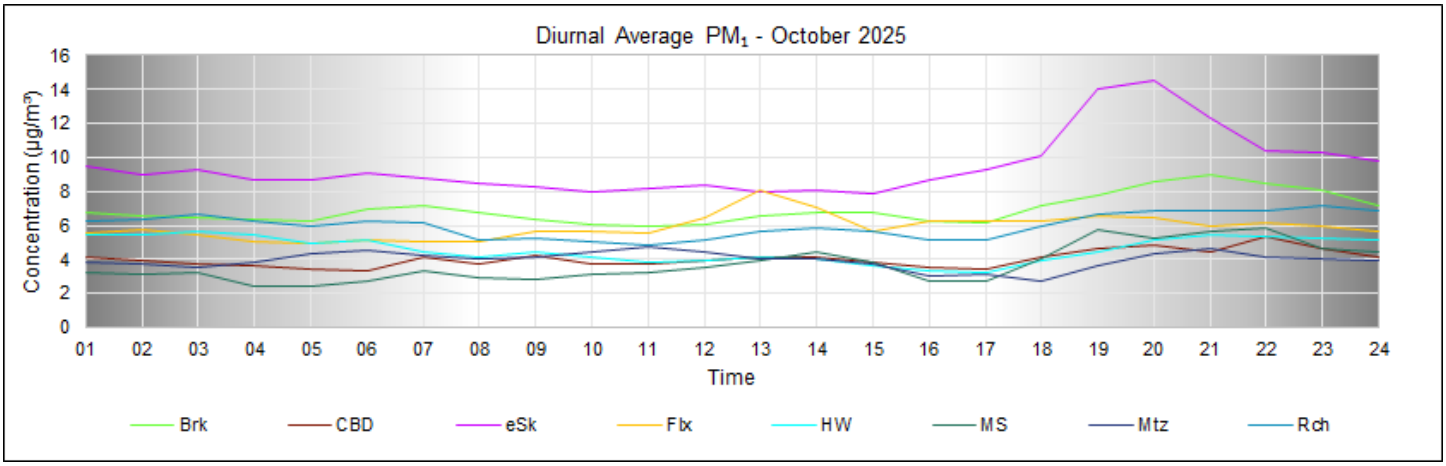


Figure 8.10: PM_1 diurnal concentrations.

8.2.3. Daily

PM daily concentrations are shown below (Figure 8.11, Figure 8.12, and Figure 8.13).

- The PM_{10} RSA daily limit and the WHO limit were not exceeded.
- The $PM_{2.5}$ RSA limit was not exceeded; the WHO limit was exceeded at Brackenham, eSikhaleni, Felixton, and Meerensee.

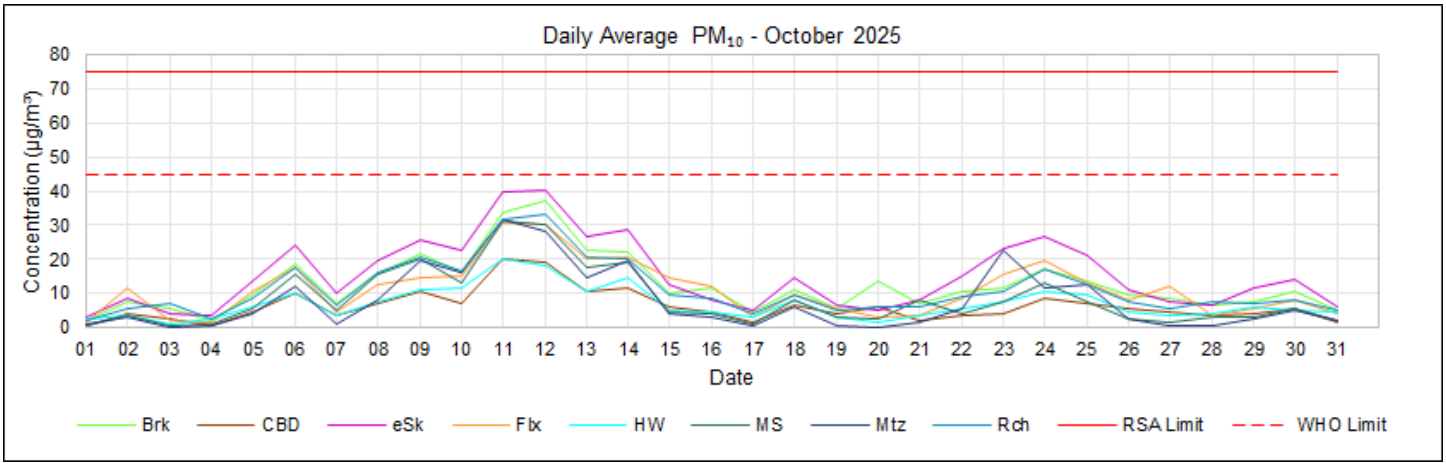


Figure 8.11: PM_{10} daily concentrations.

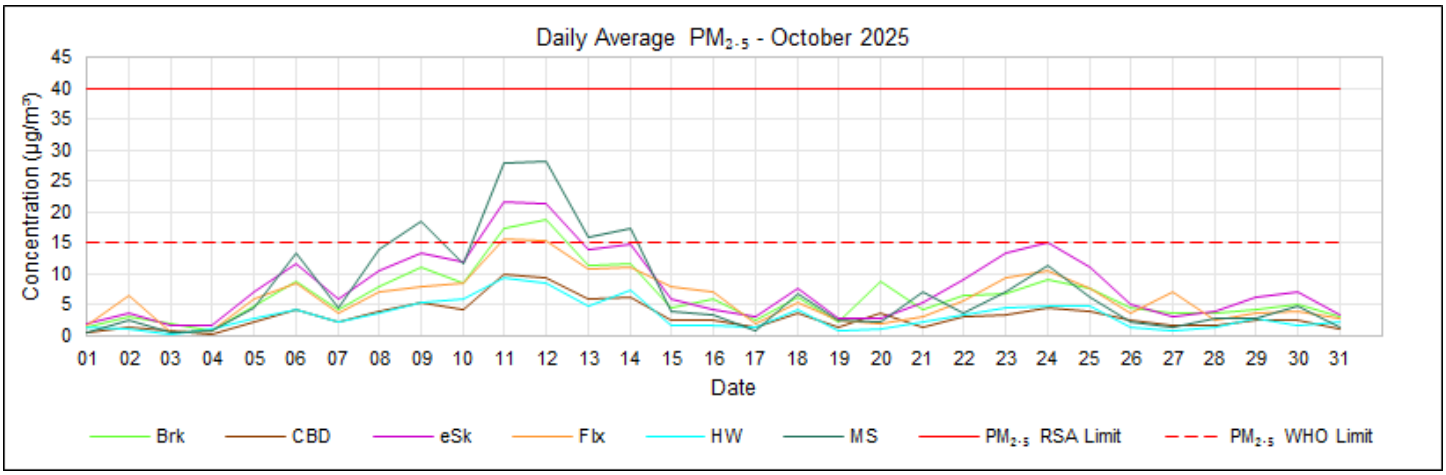


Figure 8.12: $PM_{2.5}$ daily concentrations.

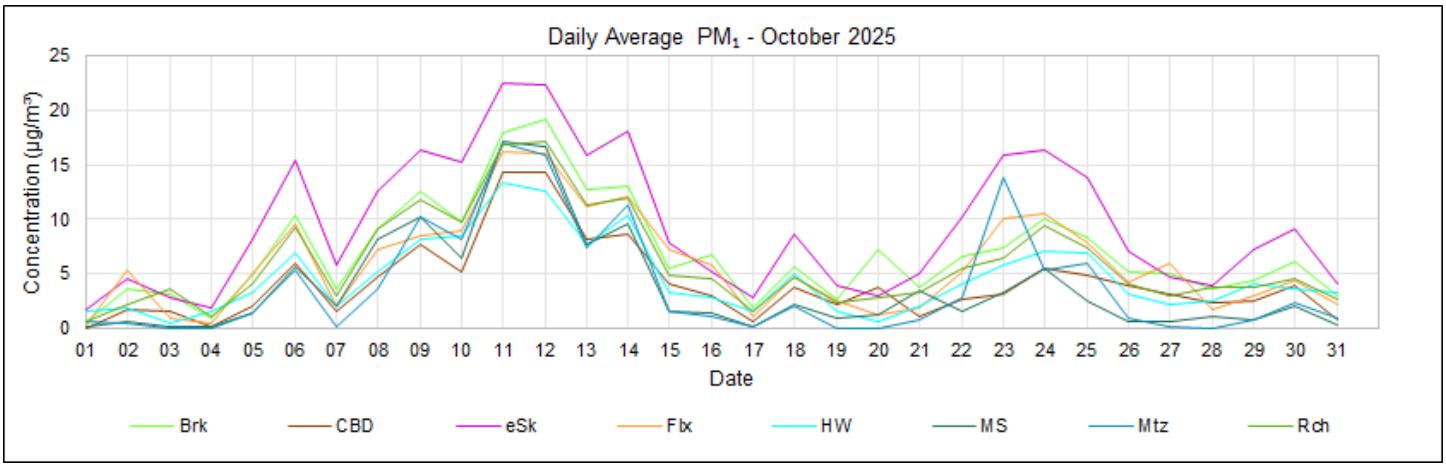


Figure 8.13: PM_1 daily concentrations.

8.3. Total Volatile Organic Compounds Monitoring

Total Volatile Organic Compounds (VOCs) refer to organic chemicals that easily evaporate at ambient temperatures. They are commonly present in outdoor air due to sources like industrial emissions, vehicle exhaust, and the use of chemical products. These compounds can significantly contribute to air pollution, harming both human health and the environment. Exposure to high concentrations of TVOCs can cause short-term symptoms such as irritation of the eyes, nose, and throat, as well as headaches and dizziness. Prolonged exposure may lead to more severe health issues, including damage to the liver, kidneys, and central nervous system. The AirGradient TVOC sensors cannot distinguish between harmful and harmless substances and don't measure absolute levels but changes in the concentration (index); this can help identify (and avoid) emission events such as rush hours.

8.3.1. Monthly

TVOC monthly average concentrations are shown in Figure 8.14. Comparisons to previous months are also provided (Figure 8.15).

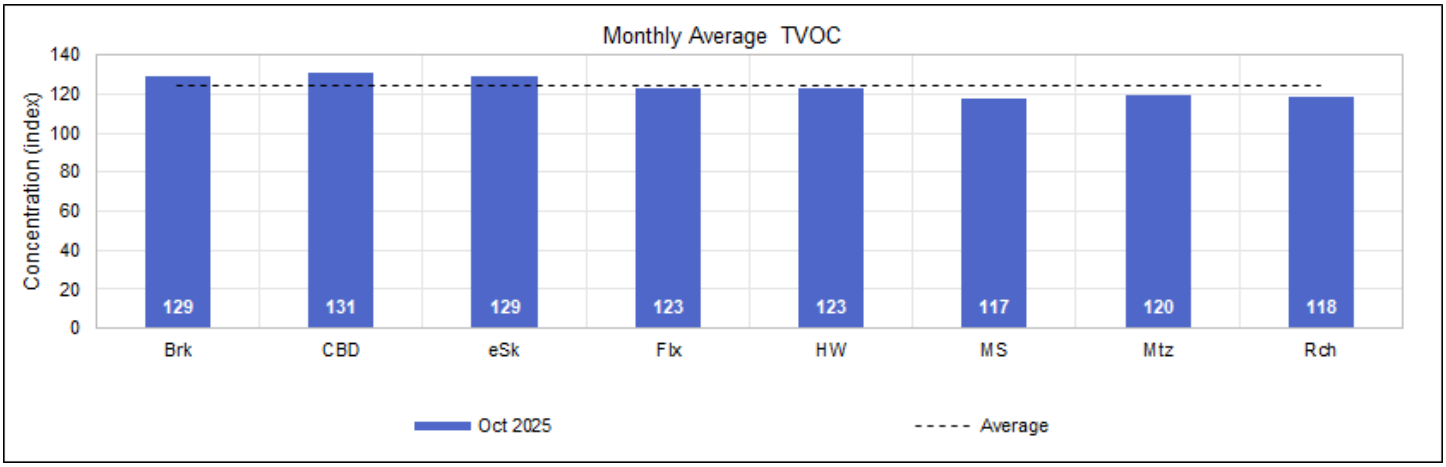


Figure 8.14: TVOC monthly concentration.

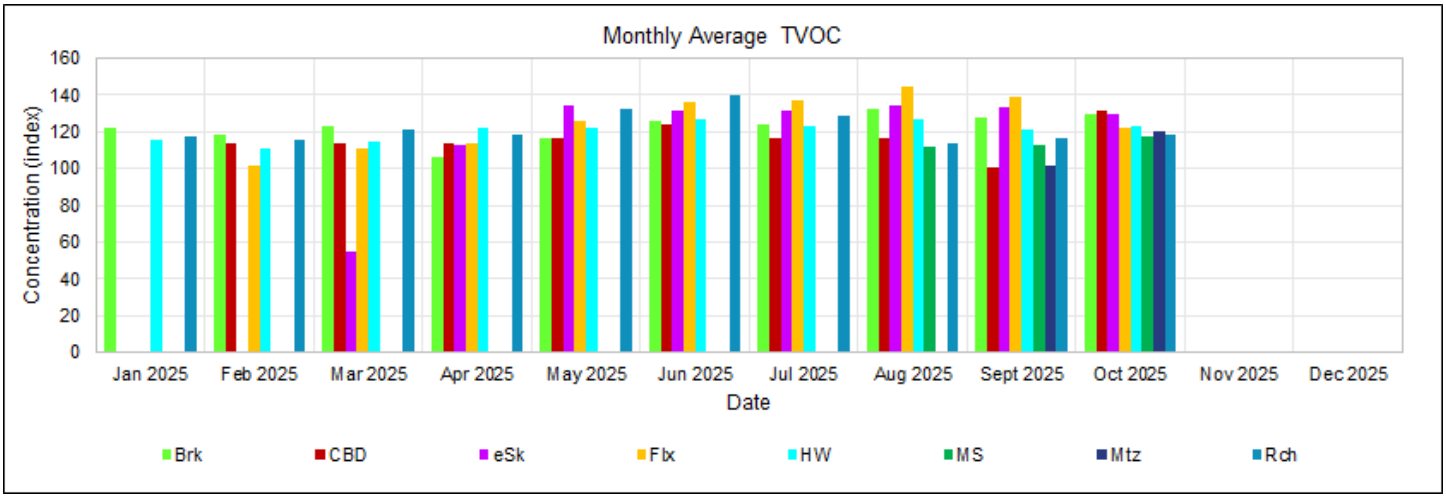


Figure 8.15: TVOC monthly comparison.

8.3.2. Diurnal

TVOC diurnal concentrations are shown below (Figure 8.8, Figure 8.9, and Figure 8.10).

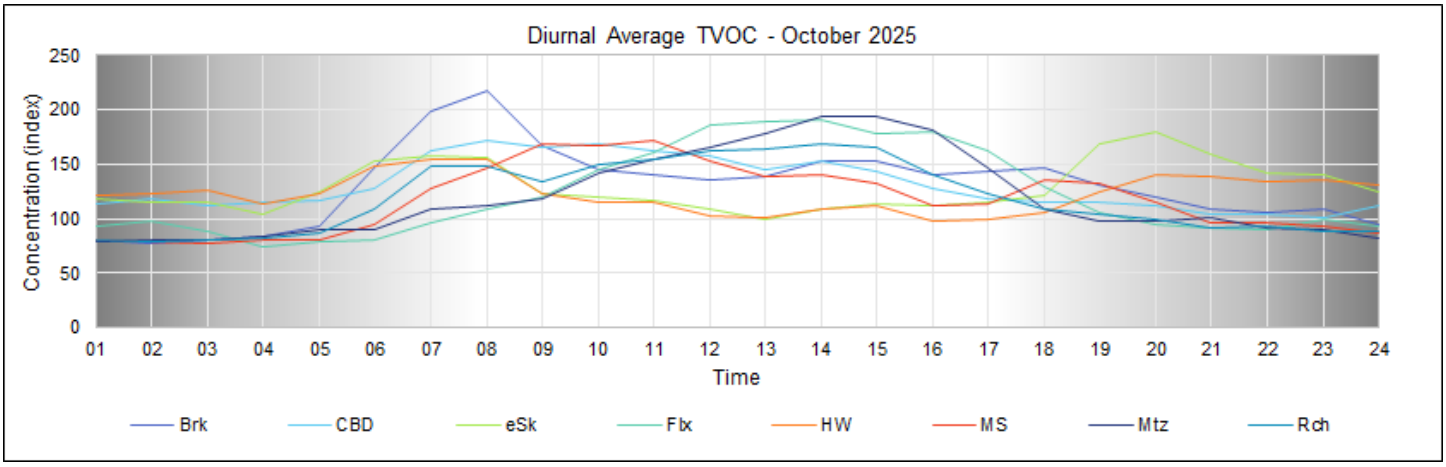


Figure 8.16: TVOC diurnal concentrations.

8.3.3. Daily

TVOC daily concentrations are shown below (Figure 8.17).

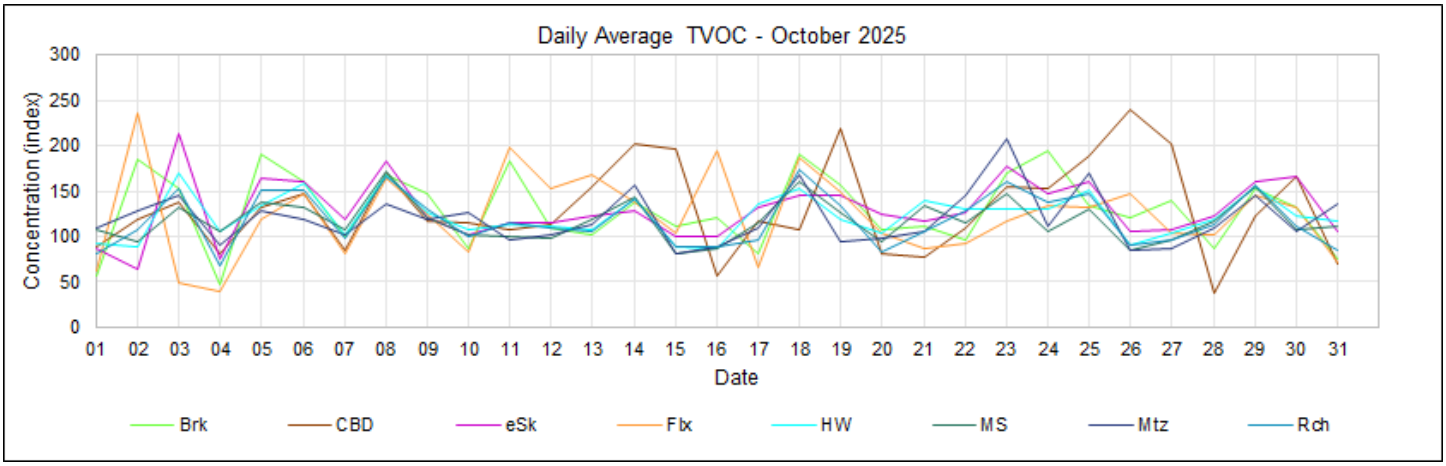


Figure 8.17: TVOC daily concentrations.

8.3.4. Hourly

TVOC hourly concentrations are shown below (Figure 8.18).

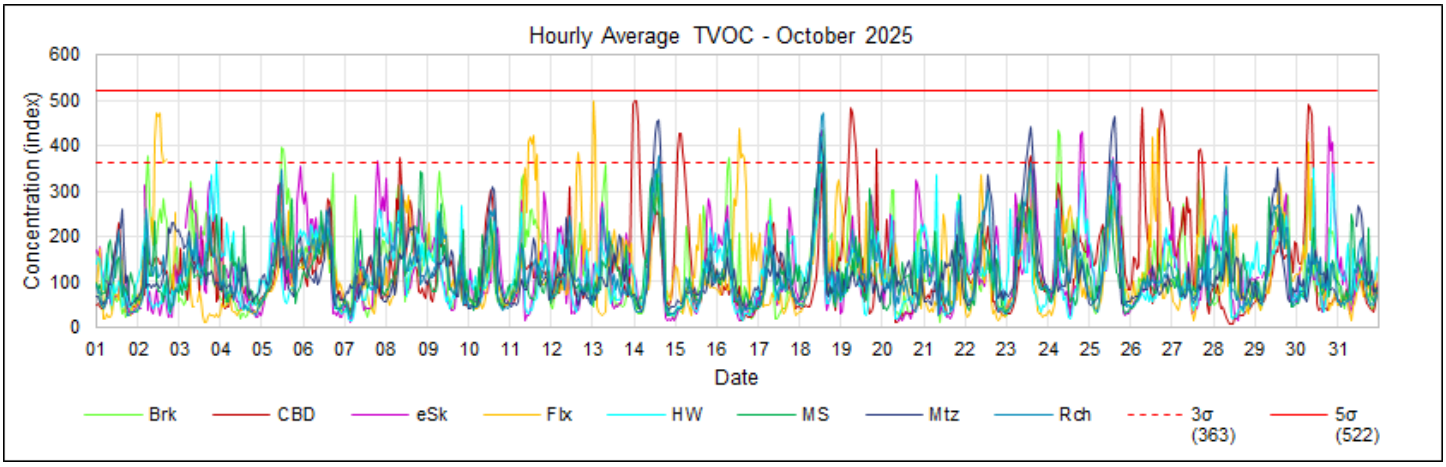


Figure 8.18: TVOC hourly concentrations.

Table 8.2: TVOC exceedances of the 3σ and 5σ limits.

Limit	Brk	CBD	eSk	Flx	HW	MS	Mtz	Rch	Total
3σ	10	30	8	25	2	1	17	7	76
5σ	0	0	0	0	0	0	0	0	0

8.4. Nitrogen Oxides Monitoring

Nitrogen oxides (NO_x) refer to a group of highly reactive gases that are primarily composed of nitrogen dioxide (NO_2) and nitric oxide (NO). These gases are produced through the combustion of fossil fuels in vehicles, power plants, and industrial facilities. NO_x emissions significantly contribute to air pollution, playing a key role in forming ground-level ozone and particulate matter, both of which are harmful to human health and the environment. Exposure to elevated levels of NO_x can lead to respiratory problems, particularly in vulnerable populations such as children, the elderly, and those with pre-existing conditions like asthma. Additionally, NO_x contributes to the formation of acid rain, which can damage ecosystems and infrastructure. Regulatory standards for NO_x vary globally, but efforts to reduce these emissions are critical for improving air quality and mitigating environmental impacts. The AirGradient NO_x sensors don't measure absolute levels but changes in the concentration (index); this can help identify (and avoid) emission events such as rush hours.

8.4.1. Monthly

NO_x monthly average concentrations are shown in Figure 8.19; comparisons to previous months are also provided (Figure 8.20).

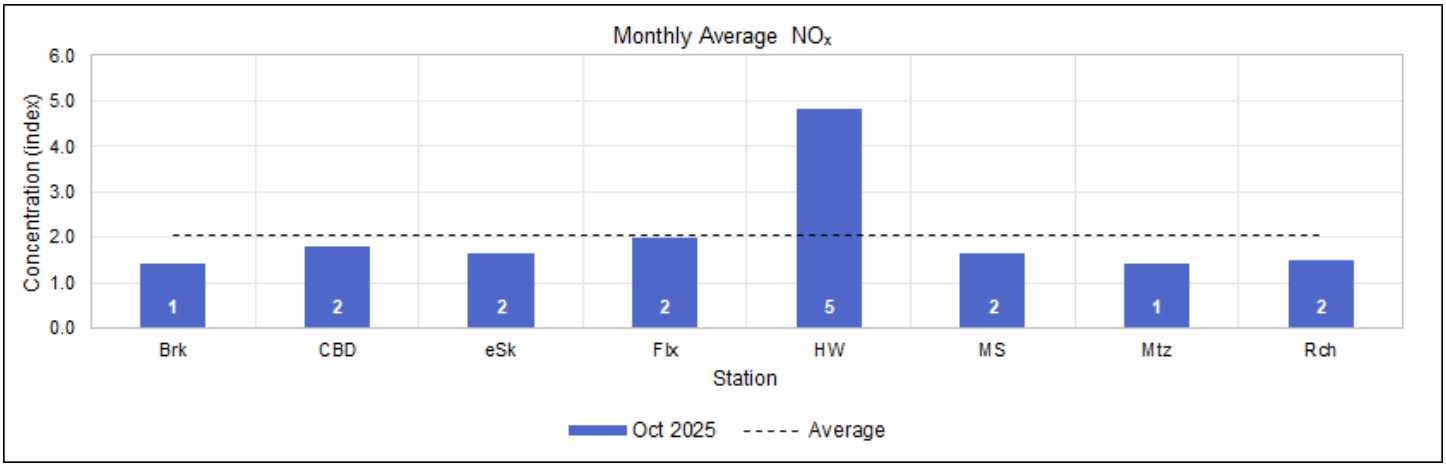


Figure 8.19: NO_x monthly concentration.

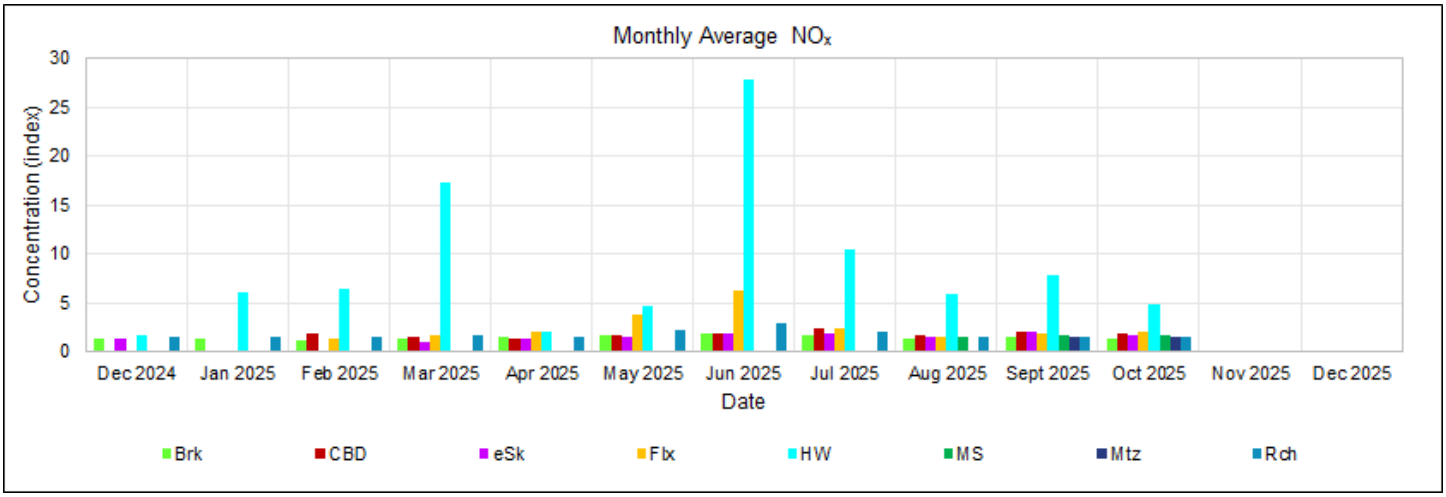


Figure 8.20: NO_x monthly comparison.

8.4.2. Diurnal

NO_x diurnal concentrations are shown below (Figure 8.21).

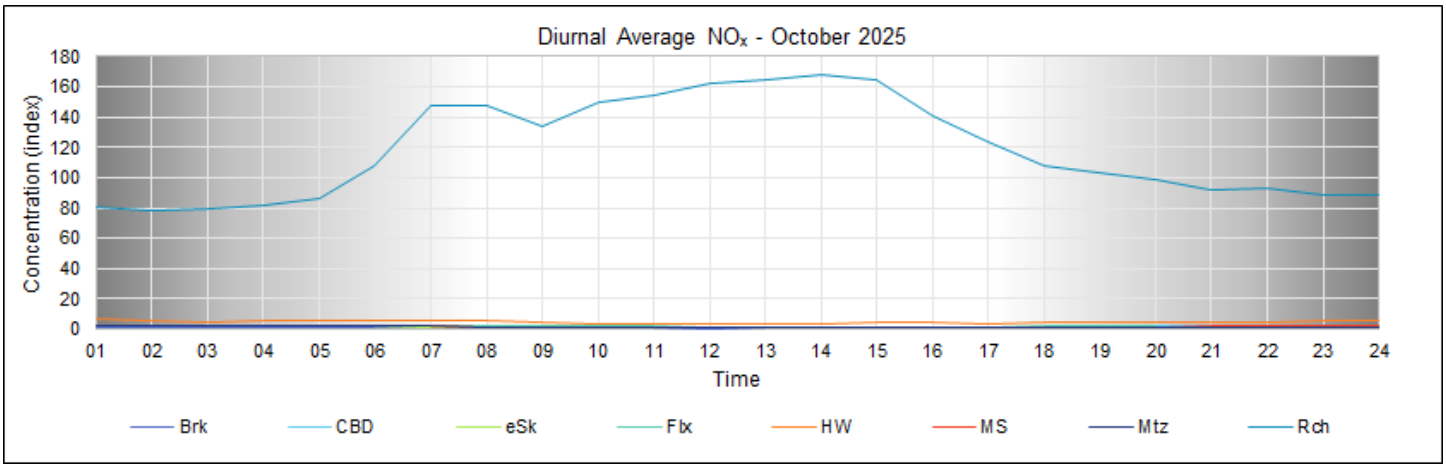


Figure 8.21: NO_x diurnal concentrations.

8.4.3. Daily

NO_x daily concentrations are shown below (Figure 8.22).

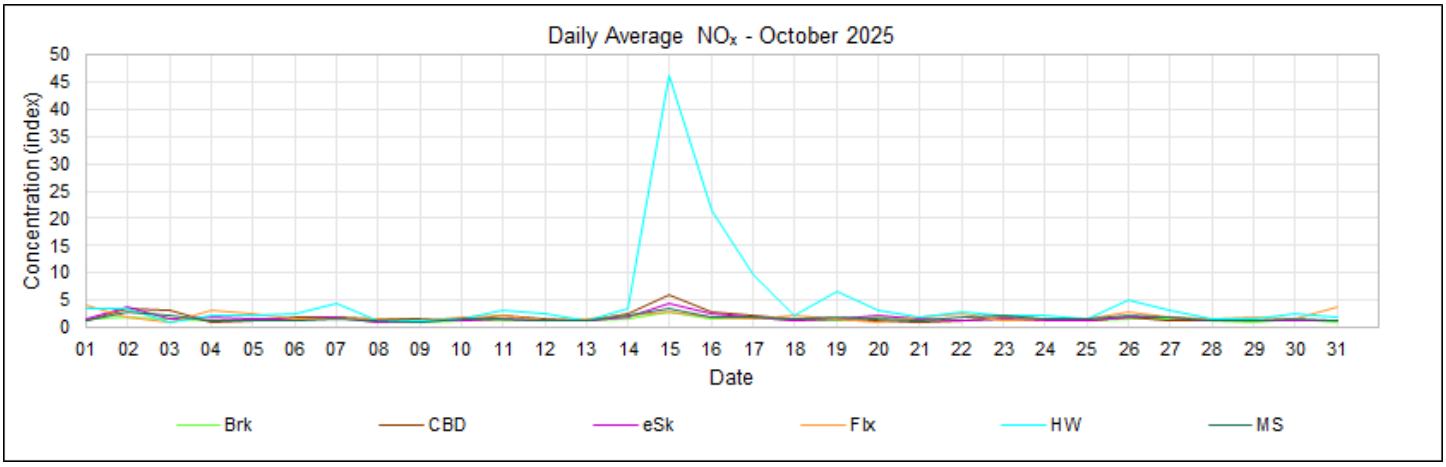


Figure 8.22: NO_x daily concentrations.

8.4.4. Hourly

NO_x hourly concentrations are shown below (Figure 8.23).

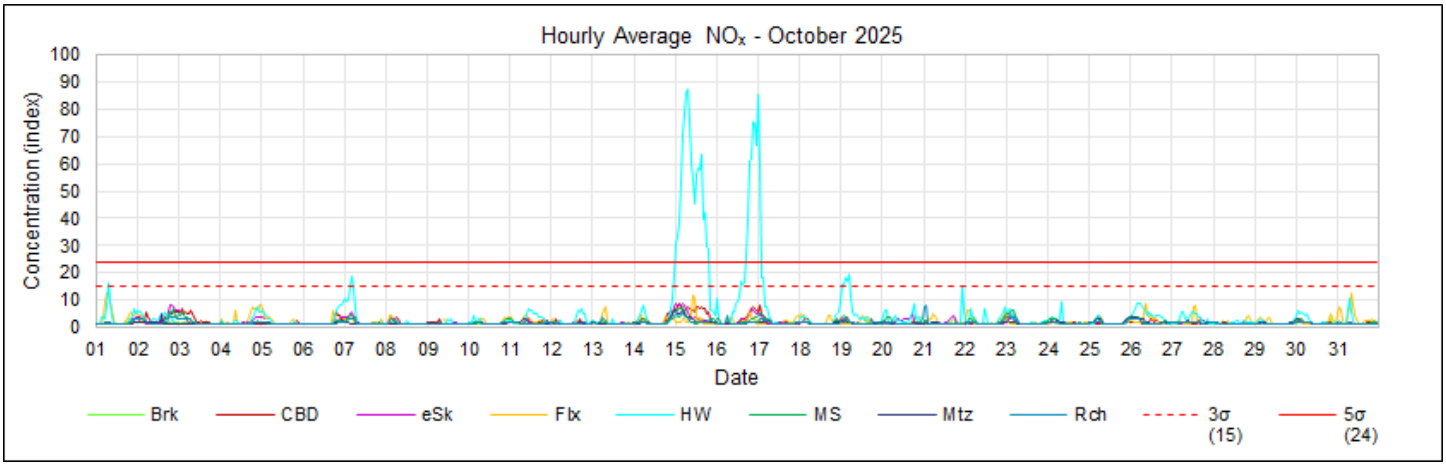


Figure 8.23: NO_x hourly concentrations.

Table 8.3 NO_x exceedances of the 3σ and 5σ limits.

Limit	Brk	CBD	eSk	Flx	HW	MS	Mtz	Rch	Total
3σ	0	0	0	0	44	0	0	0	44
5σ	0	0	0	0	29	0	0	0	29

8.5. Carbon Dioxide Monitoring

In 2000, the global background concentration of carbon dioxide (CO_2) was approximately 370 ppm, marking a significant increase from the pre-industrial level of around 280 ppm. This reflected the continued growth in CO_2 emissions from fossil fuel combustion, deforestation, and other human activities during the 20th century. The rate of increase in atmospheric CO_2 had accelerated during the latter half of the century, with an average rise of about 1.5 to 2 ppm per year by the early 2000s.

8.5.1. Monthly

CO_2 monthly average concentrations are shown in Figure 8.24; comparisons to previous months are also provided (Figure 8.25).

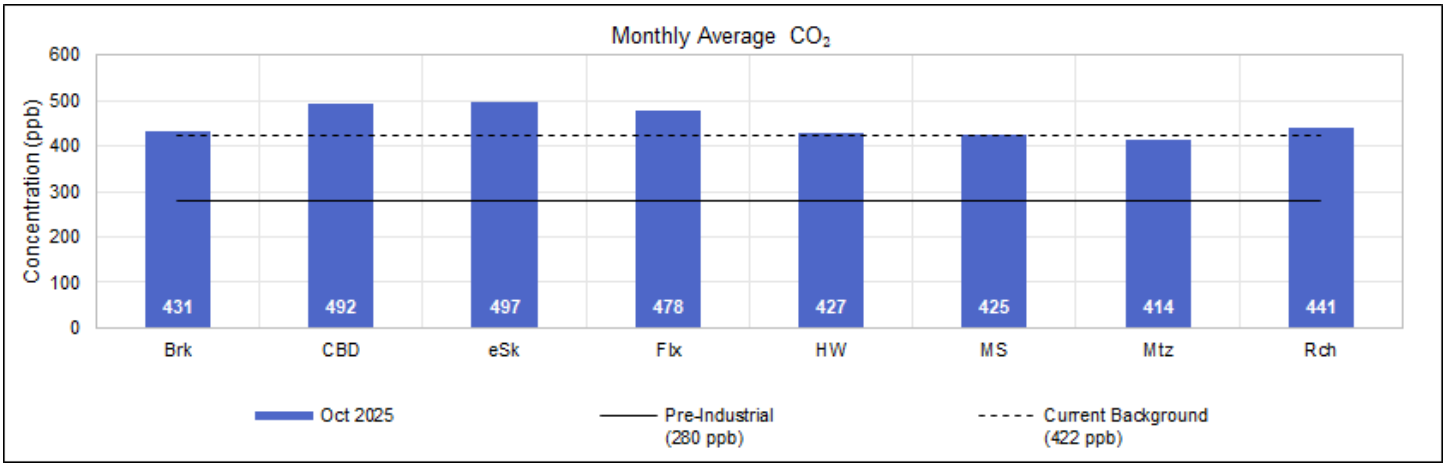


Figure 8.24: CO_2 monthly concentration.

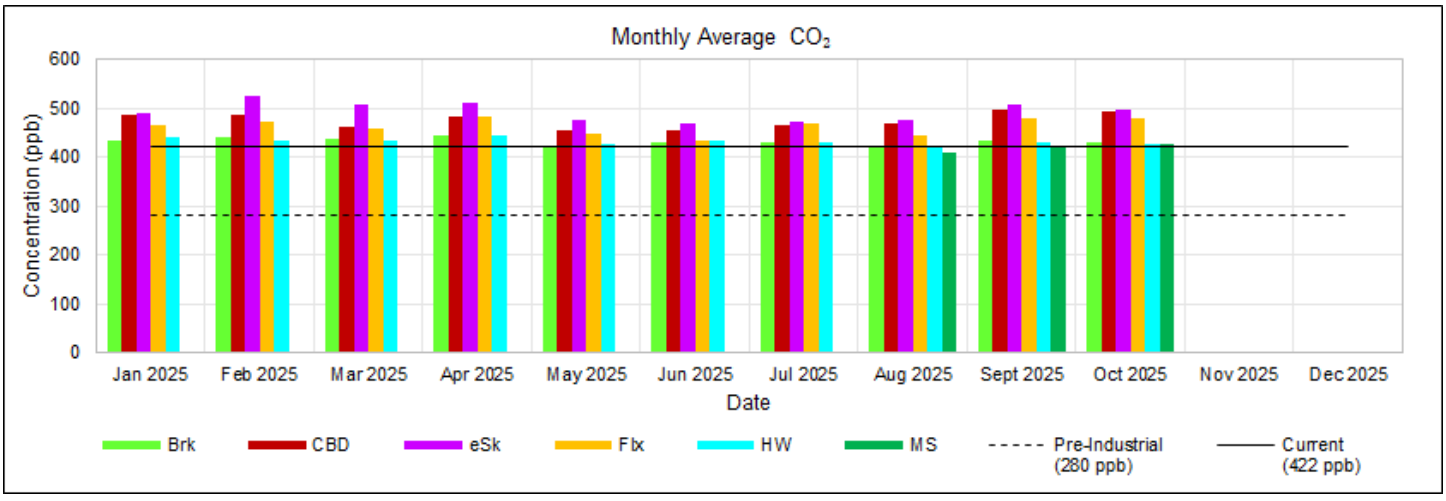


Figure 8.25: CO_2 monthly comparison.

8.5.2. Diurnal

CO_2 diurnal concentrations are shown below (Figure 8.26).

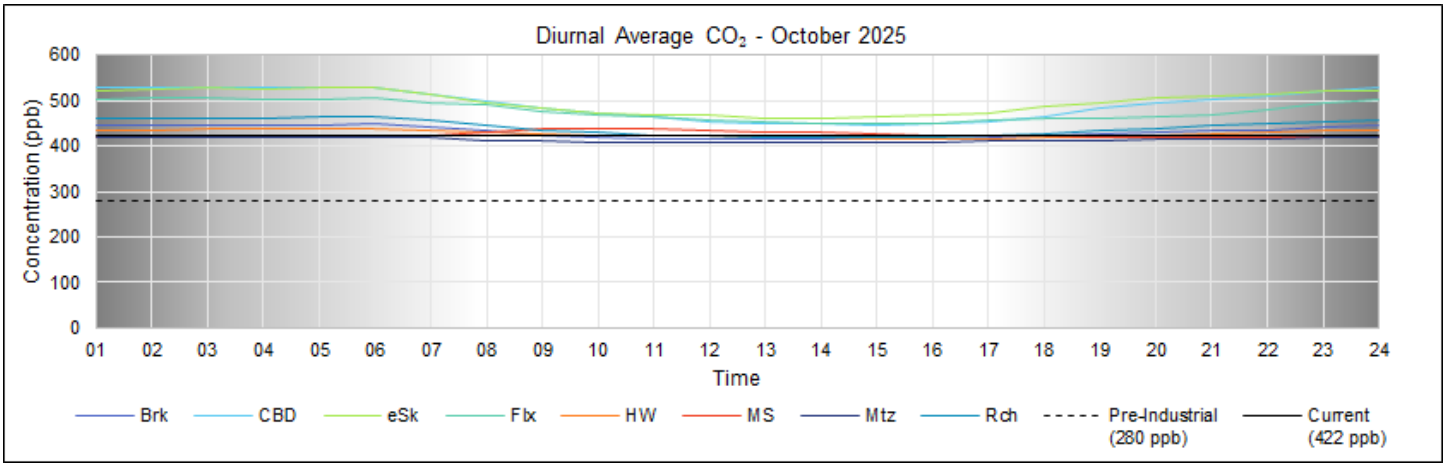


Figure 8.26: CO_2 diurnal concentrations.

8.5.3. Daily

CO_2 daily concentrations are shown below (Figure 8.27).

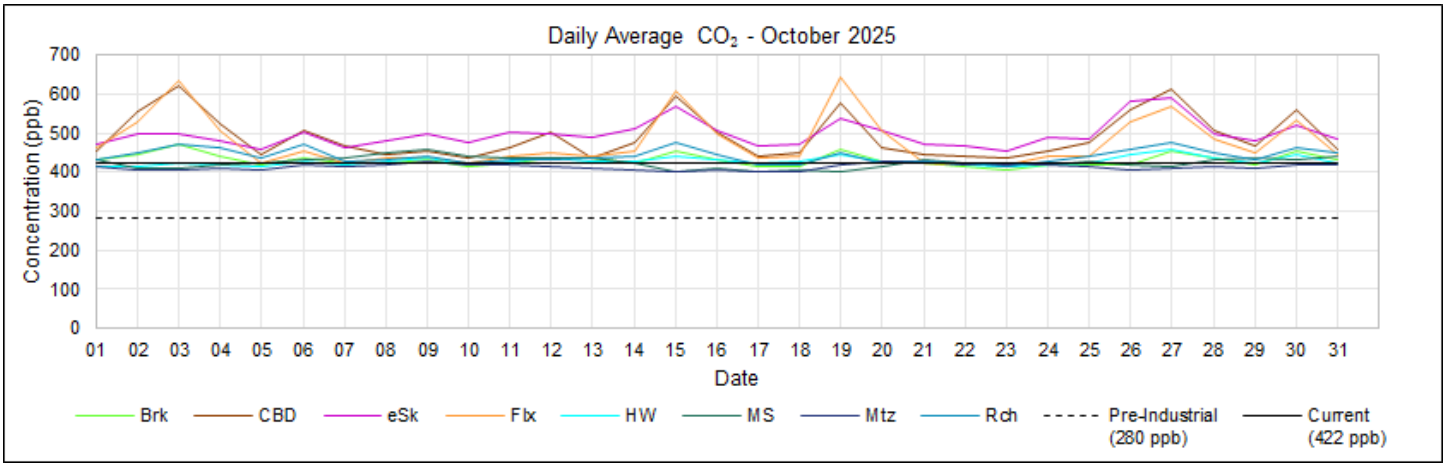


Figure 8.27: CO_2 daily concentrations.

8.5.4. Hourly

CO_2 hourly concentrations are shown below (Figure 8.28).

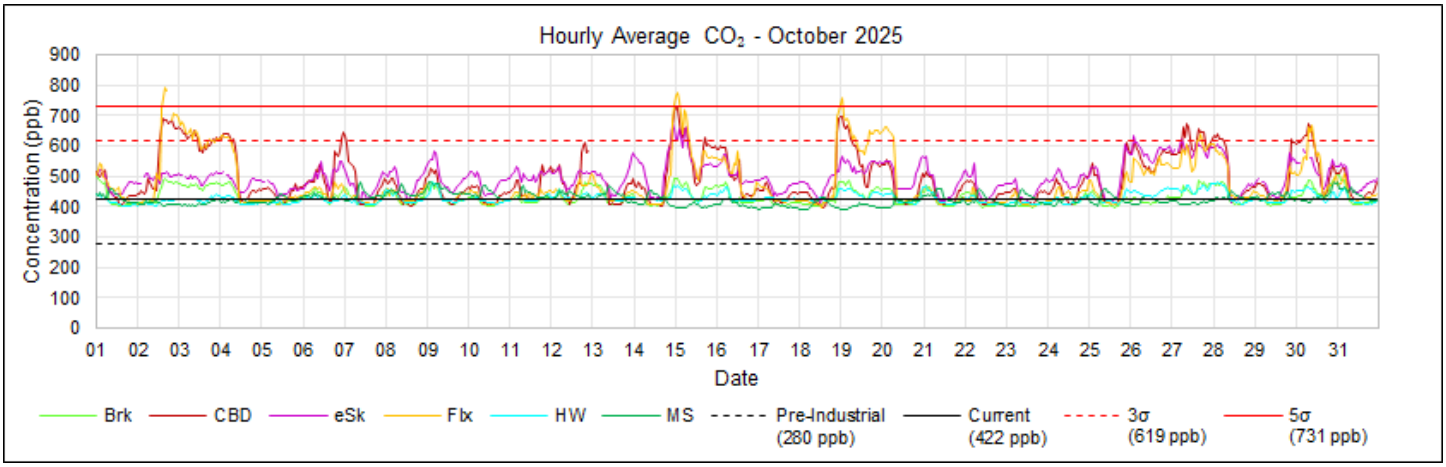


Figure 8.28: CO_2 hourly concentrations.

Table 8.4: CO_2 exceedances of the 3σ and 5σ limits.

Limit	Brk	CBD	eSk	Flx	HW	MS	Mtz	Rch	Total
3σ	0	80	10	71	0	0	0	0	161
5σ	0	0	0	9	0	0	0	0	9

9. ACKNOWLEDGEMENT

Air Impact Measurement Specialists compiled this report for the Richards Bay Clean Air Association; contributors include Alicia Garnica and François Nel.

Signer ID: ABS1DHBUH7...

Lance Coetzee
Director

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APPENDIX A
ABBREVIATIONS AND TERMS

List of Abbreviations and Terms	
Chemical Formulae	
CH_3-S-CH_3	Dimethyl Sulphide
CH_3S-H	Methyl Mercaptan
CH_3-S-S-CH_3	Dimethyl Disulphide
CH_4	Methane
CO	Carbon Monoxide
CO_2	Carbon Dioxide
FPM	Fine Particulate Matter
H_2S	Hydrogen Sulphide
H_2SO_3	Sulphurous Acid
H_2SO_4	Sulphuric Acid
NO	Nitric Oxide
NO_2	Nitrogen Dioxide
NO_x	Oxides of Nitrogen
O_3	Ozone
PM_{10}	Particulates with an aerodynamic diameter of less than 10 µm
$PM_{2.5}$	Particulates with an aerodynamic diameter of less than 2.5 µm
SO_2	Sulphur Dioxide
SO_3	Sulphur Trioxide
TRS	Total Reduced Sulphur
TSP	Total Suspended Particulates
TVOCs	Total Volatile Organic Compounds

List of Abbreviations and Terms	
Countries	
EU	European Union
RSA	Republic of South Africa
UK	United Kingdom
US	United States

List of Abbreviations and Terms	
Direction	
N	North
NNE	North-North-East
NE	North-East
ENE	East-North-East
E	East
ESE	East-South-East
SE	South-East
SSE	South-South-East
S	South
SSW	South-South-West
SW	South-West
WSW	West-South-West
W	West
WNW	West-North-West
NW	North-West
NNW	North-North-West

List of Abbreviations and Terms	
Measurement	
°	Degrees
°C	Degrees Celsius
µg	Microgram
µg/m³	Micrograms per cubic meter
BMC	Best Measurement Capabilities
g/s	Grams per second
K	Kelvin
km	Kilometre
km/h	Kilometres per hour
m	Metres
m/s	Metres per second
mg	Milligrams
mg/m²/day	Milligrams per meter squared per day
mg/m³	Milligrams per cubic meter
ppb	Parts per billion
ppm	Parts per million
t/day	Tons per day
t/hr	Tons per hour
tpa	Tons per annum

List of Abbreviations and Terms	
Organisations	
AIMS	Air Impact Measurement Specialists
CASCO	Conformity Assessment Committee
DEFF	Department of Environment, Forestry and Fisheries
EA-NPI	Environment Australia - National Pollutant Inventory
EC	European Commission
EU-EA	European Union - Environmental Agency
IEC	International Electrotechnical Commission
IFC	International Finance Corporation
ISO	International Standard Organisation
RBCAA	Richards Bay Clean Air Association
SANAS	South African National Accreditation System
SANS	South African National Standard
UK-EA	United Kingdom - Environmental Agency
US-EPA	United States - Environmental Protection Agency
WHO	World Health Organisation

List of Abbreviations and Terms	
Terms	
Analyser	A mechanical-electrical-optical device used to measure the concentration of trace gas pollutants or particulate concentrations.
Calibration	Calibration is a procedure that compares sensor responses to known standards or reference values. Deviations between the expected and known concentrations are corrected and reported.
Database	The data structures and attendant software that organise, store, and allow users access to data.
Environment	The organisation's surroundings include air, water, land, natural resources, flora, fauna, humans, and their interactions and relations.
Meteorological Station	A monitoring station capable of monitoring wind speed, direction, and temperature.
Model	The model implements dispersion modelling mathematics software that calculates ambient pollution concentrations based on emission figures and meteorological data.
Network	The network comprises hardware (sensors, data loggers, telemetry, and computers) and software (data handling, storage programs, models, and databases).
Precision Check	The precision check is a procedure in which a sensor is challenged with a gas of known concentration within the operating range of the measurement.
Source	A point, line, or area from which pollution would be released
Station	A station is a data capture point used for measuring pollutants, meteorological conditions, or consolidating data.
System	The system represents all network components, including the procedures for marshalling and reporting data.

APPENDIX B
QUALITY ASSURANCE

The SO_2 concentrations reported are determined by the United States Environmental Protection Agency (US EPA) equivalent method, EQSA-0193-092. SO_2 and TRS measurements allow a maximum precision error of 10% of the reported value. A tolerance around the zero-point of plus or minus 5 ppb is permitted. Every effort is made to minimise the error. The minimum threshold for statistical analyses is at least 80% valid data to maintain reliability and minimise bias; the South African National Accreditation Standard requires 90%. (SANAS, 2012)

Table 1: Quality Assurance

Test	Range	Action
Zero	Zero 0 to 2 ppb	Leave it as is.
	Zero value -2 to 0 ppb	Set to zero.
	Zero value -5 to -2 ppb and 2 to 5 ppb	Adjust the data set to reset all data to zero.
	Zero value outside the above limits, invalidate and recalibrate.	Data can be adjusted if a specific reason for the deviation can be identified.
Span	Span value plus or minus a 3% deviation.	Leave it as is.
	Span value -10 to -3% and 3 to 10% deviation.	Scale the data set by the opposite, corresponding percentage.
	Span value outside the above limits, invalidate and recalibrate.	Data can be adjusted if a specific reason for the deviation can be identified.

APPENDIX C
EMISSION INVENTORY

Table 1: Emission Inventory – 2025.

Industry	Description	SO_2 Emission 2025 (t)	SO_2 Emission 2025 (t)	SO_2 Contribution (%)
Foskor	Acid Plant	2390	2401	13%
	Boiler	11		
Tongaat Hulett	Boiler	185	185	1%
Mondi	Flume 1	1417	3080	17%
	Flume 2	836		
	Power Boiler	795		
	Incinerator	8		
	Bleach Plant	24		
Mpact	Babcock	281	805	5%
	JT Boiler	524		
	Oil Burner	0		
RBM	Char Plant	468	542	3%
	Miscellaneous	34		
	MSP (Drier)	38		
	Smokers	1		
South32	FTC	1885	10561	59%
	GTC 1	1955		
	GTC 2	1680		
	GTC 3	1579		
	GTC 4	1579		
	GTC 5	1630		
	Potrooms	254		
Tronox	Tank 1	251	251	1%
Total		17825	17825	100%

Note: Tongaat Hullet shut down during the year's 1st quarter and last month.

APPENDIX D
OPERATIONAL REPORT

Table 1: Maximum concentrations for PM_{10} and $PM_{2.5}$.

RBCAA: Monthly Report						
PM_{10} daily averages						
Station	*Concentration (µg/m³)*	*% of the RSA Standard (75 µg/m³)*	*% of WHO Guideline (45 µg/m³)*	*Time*	*Wind Direction (°)*	*Wind Speed (m/s)*
CBD ES1	48.0	64%	**107%**	2025/10/11 00:00	3.1	231
eSikhaleni	38.0	51%	84%	2025/10/11 00:00	3.2	241
Felixton ES1	40.0	53%	89%	2025/10/11 00:00	3.1	226
Richardia	52.0	69%	**116%**	2025/10/24 00:00	3.7	256
Scorpio ES1	52.0	69%	**116%**	2025/10/12 00:00	2.0	219
$PM_{2.5}$ daily averages						
Station	*Concentration (µg/m³)*	*% of the RSA Standard (40 µg/m³)*	*% of WHO Guideline (15 µg/m³)*	*Time*	*Wind Direction (°)*	*Wind Speed (m/s)*
Brackenham ES2	52.0	**130%**	**347%**	2025/10/11 00:00	3.4	261
Felixton ES2	34.0	85%	**227%**	2025/10/11 00:00	3.1	226
Harbour West ES2	26.0	65%	**173%**	2025/10/11 00:00	3.3	221
Scorpio ES2	40.0	100%	**267%**	2025/10/12 00:00	2.0	219

LEGEND
Yellow: = 50% of the guideline/standard
Red: >= 100% of the guideline/standard (i.e. exceedance)
Turquoise: = 10% of the guideline/standard

NOTES
Dates used for time intervals are the time beginning.
Wind speeds of < 1 m/s are considered calm; wind directions measured under these conditions cannot be used for incident investigations.
This report is an interim report regarding AIMS' quality system classification. The final data will be published in the system's monthly report.

STATUS
Meteorology
Airport, Arboretum, Brackenham, CBD, eSikhaleni, and Harbour West have meteorology.
Scorpio uses meteorology from Harbour West, and Felixton uses meteorology from eSikhaleni.

MISSING DATA
"Data < 80%" - data capture less than 80% (not suitable for statistical analysis)
"No Data" – no data available.

Table 2: Maximum concentrations for SO_2.

RBCAA: Monthly Report						
SO_2 10-minute averages						
Station	*Concentration (ppb)*	*% of RSA Standard & WHO Guideline (500 µg/m³ / 191 ppb)*		*Time*	*Wind Direction (°)*	*Wind Speed (m/s)*
Arboretum	21.2	11%		2025/10/03 03:20	4.1	252
Brackenham	23.6	12%		2025/10/16 15:10	7.6	216
CBD	56.3	29%		2025/10/03 07:40	3.1	242
eSikhaleni	13.1	7%		2025/10/08 13:00	2.4	94
Felixton	43.9	23%		2025/10/20 11:30	2.6	166
Harbour West	98.4	52%		2025/10/23 19:30	3.9	30
Richardia	25.7	13%		2025/10/03 06:20	5.2	242
Scorpio	518.2	**271%**		2025/10/20 09:10	3.5	162
SO_2 hourly averages						
Station	*Concentration (ppb)*	*% of the RSA Standard (350 µg/m³ / 134 ppb)*	*No WHO Guideline*	*Time*	*Wind Direction (°)*	*Wind Speed (m/s)*
Arboretum	18.9	14%	-	2025/10/03 03:00	4.3	252
Brackenham	15.6	12%	-	2025/10/16 15:00	8.2	217
CBD	22.4	17%	-	2025/10/05 21:00	2.2	228
eSikhaleni	8.3	6%	-	2025/10/08 13:00	2.7	84
Felixton	21.5	16%	-	2025/10/20 11:00	2.9	172
Harbour West	69.9	52%	-	2025/10/23 19:00	4.0	31
Richardia	16.6	12%	-	2025/10/03 06:00	4.9	244
Scorpio	321.8	**240%**	-	2025/10/20 09:00	3.5	154
SO_2 daily averages						
Station	*Concentration (ppb)*	*% of the RSA Standard (125 µg/m³ / 48 ppb)*	*% of WHO Guideline (40 µg/m³ / 15 ppb)*	*Time*	*Wind Direction (°)*	*Wind Speed (m/s)*
Arboretum	5.5	11%	37%	2025/10/03 00:00	3.2	245
Brackenham	4.2	9%	28%	2025/10/16 00:00	3.8	238
CBD	5.1	11%	34%	2025/10/02 00:00	5.1	233
eSikhaleni	5.0	10%	33%	2025/10/17 00:00	3.1	33
Felixton	3.0	6%	20%	2025/10/08 00:00	2.3	121
Harbour West	20.4	43%	**136%**	2025/10/23 00:00	5.1	27
Richardia	4.7	10%	31%	2025/10/03 00:00	3.2	245
Scorpio	48.6	**101%**	**324%**	2025/10/20 00:00	2.4	169

Table 3: Maximum concentrations for TRS.

RBCAA: Monthly Report						
TRS 10-minute averages						
Station	*Concentration (ppb)*	*No RSA Standard*	*% of OME TRS Guideline (13.0 µg/m³ / 9.3 ppb)*	*Time*	*Wind Direction (°)*	*Wind Speed (m/s)*
CBD	3.6	-	39%	2025/10/08 08:10	2.2	299
eSikhaleni	20.6	-	**222%**	2025/10/23 05:40	2.0	25
Felixton	21.7	-	**233%**	2025/10/21 22:30	0.4	171
Richardia	40.3	-	**433%**	2025/10/16 05:10	1.3	193
TRS 30-minute averages						
Station	*Concentration (ppb)*	*No RSA Standard*	*% of WHO H_2S Guideline (7.0 µg/m³ / 5.0 ppb)*	*Time*	*Wind Direction (°)*	*Wind Speed (m/s)*
CBD	2.9	-	58%	2025/10/03 20:00	2.3	263
eSikhaleni	15.5	-	**310%**	2025/10/23 05:30	2.2	23
Felixton	14.7	-	**294%**	2025/10/21 22:30	0.6	179
Richardia	26.2	-	**524%**	2025/10/16 05:00	1.1	201
TRS daily averages						
Station	*Concentration (ppb)*	*No RSA Standard*	*% of OME TRS Guideline (14.0 µg/m³ / 10.1 ppb)*	*Time*	*Wind Direction (°)*	*Wind Speed (m/s)*
CBD	0.9	-	9%	2025/10/02 00:00	5.1	233
eSikhaleni	2.1	-	21%	2025/10/11 00:00	3.2	241
Felixton	2.6	-	26%	2025/10/26 00:00	4.6	233
Richardia	3.2	-	32%	2025/10/16 00:00	3.7	207

APPENDIX E
RAINFALL

Table 1: Daily Rainfall

Date	Richards Bay (mm)	Felixton (mm)	RBCT (mm)	South32 (mm)
2025/10/01	0	0	0	0
2025/10/02	17	18	10	0
2025/10/03	13	0	18	0
2025/10/04	2	0	0	0
2025/10/05	0	0	0	0
2025/10/06	3	0	3	0
2025/10/07	0	0	0	0
2025/10/08	0	0	0	0
2025/10/09	0	0	0	0
2025/10/10	0	0	0	0
2025/10/11	0	0	0	0
2025/10/12	2	0	1	1
2025/10/13	0	0	0	0
2025/10/14	0	7	3	0
2025/10/15	8	3	3	3
2025/10/16	1	9	2	2
2025/10/17	0	0	0	0
2025/10/18	10	12	13	9
2025/10/19	11	12	4	4
2025/10/20	6	0	0	1
2025/10/21	0	0	0	0
2025/10/22	0	0	0	0
2025/10/23	0	0	0	0
2025/10/24	0	0	0	0
2025/10/25	0	0	0	0
2025/10/26	0	0	0	0
2025/10/27	4	5	2	1
2025/10/28	0	0	0	0
2025/10/29	0	0	0	0
2025/10/30	19	14	7	8
2025/10/31	0	0	0	0
Total	96	79	65	30

Table 2: Monthly Rainfall, Richards Bay

Month	Richards Bay							
	2018	2019	2020	2021	2022	2023	2024	2025
Jan	94	182	47	305	127	167	271	371
Feb	232	195	377	229	193	410	118	390
Mar	139	78	139	217	62	141	192	165
Apr	261	214	141	96	647	87	101	479
May	311	9	53	165	130	356	22	41
Jun	70	78	114	140	60	33	89	27
Jul	20	16	48	57	20	196	57	220
Aug	100	160	107	59	77	20	97	17
Sep	85	43	144	216	93	23	186	203
Oct	213	260	171	214	101	345	250	96
Nov	119	296	122	72	131	61	103	
Dec	156	320	77	464	253	195	145	
Minimum	20	9	47	57	20	20	22	17
Average	150	154	128	186	158	169	136	201
Maximum	311	320	377	464	647	410	271	479
Total	1798	1850	1540	2234	1893	2034	1630	2009

Table 3: Monthly Felixton

Month	Felixton							
	2018	2019	2020	2021	2022	2023	2024	225
Jan	43	138	71	207	68	57	146	117
Feb	129	138	214	231	78	188	82	303
Mar	89	70	89	126	95	80	113	148
Apr	138	143	106	135	368	58	49	287
May	342	9	42	57	120	245	17	16
Jun	60	53	44	98	20	14	53	29
Jul	22	17	37	39	15	146	2.5	157
Aug	83	39	67	55	37	18	54	3
Sep	53	79	84	191	51	43	137	127
Oct	201	144	67	145	98	318	187	79
Nov	84	121	106	35	174	34	78	
Dec	111	311	64	212	163	146	74	
Minimum	22	9	37	35	15	14	3	3
Average	113	105	82	127	107	112	83	127
Maximum	342	311	214	231	368	318	187	303
Total	1354	1261	987	1530	1288	1347	992	1266

Table 4: RBCT

Month	RBCT							
	2018	2019	2020	2021	2022	2023	2024	2025
Jan	42	110	33	215	54	136	154	229
Feb	137	124	166	146	131	344	72	249
Mar	78	172	109	194	161	69	161	145
Apr	161	174	111	69	642	30	98	450
May	175	14	69	171	268	442	23	66
Jun	59	24	52	124	30	34	104	27
Jul	21	5	39	64	30	162	56	155
Aug	35	68	64	56	25	30	86	17
Sep	41	59	104	187	115	30	177	164
Oct	80	164	121	156	71	293	121	65
Nov	70	186	77	43	129	42	89	
Dec	104	216	104	245	279	127	65	
Minimum	21	5	33	43	25	30	23	17
Average	84	110	87	139	161	145	100	157
Maximum	175	216	166	245	642	442	177	450
Total	1005	1317	1049	1669	1934	1740	1205	1567

Table 5: South32

Month	South32 (mm)							
	2018	2019	2020	2021	2022	2023	2024	2025
Jan	-	-	-	-	-	91	120	232
Feb	-	-	-	-	115	256	-	241
Mar	-	-	-	-	149	51	144	137
Apr	-	-	-	-	505	43	-	363
May	-	-	-	-	106	230	-	23
Jun	-	-	-	-	25	11	-	16
Jul	-	-	-	-	12	165	-	98
Aug	-	-	-	-	30	13	-	8
Sep	-	-	-	-	64	18	129	35
Oct	-	-	-	-	64	271	-	30
Nov	-	-	-	-	101	36	-	
Dec	-	-	-	-	163	95	92	
Minimum	-	-	-	-	12	11	92	8
Average	-	-	-	-	121	107	121	118
Maximum	-	-	-	-	505	271	144	363
Total	-	-	-	-	1336	1280	485	1183

Please note that the South32 missing rain data for 2024 was due to a faulty rain gauge.

APPENDIX F
COMPLAINTS LOG

Table 1: Complaints

No	Date	Region	Type	Source	Description	Response
1	2025/10/03 08:31	Meerensee	Clinical + Odour	Mondi	Yes, I did smell it since about 22:00 last night, it was an extremely strong smell, almost like an acid kind of smell, I had such a headache even in my neck was feeling stiff. I have to get up and close all my windows and slinding door, and out the fan on blow out the smell from my roon. It is now 3:30 AM and I just woke up now still with a headache, so I am drinking more panado's now. The smell is still in the air but just very little now. This is the second time this week that I smelled that smell.	326
2	2025/10/03 08:31	Meerensee	Clinical + Odour	Mondi	Yes, it is terrible. I am in oxigen 24/7 and it really is not doing me any good.	326
3	2025/10/03 08:31	Meerensee	Clinical + Odour	Mondi	Had the windows closed, fan blowing right on me, vics under my nose, and I have taken two doses of migraine meds.	326
4	2025/10/03 08:31	Meerensee	Clinical + Odour	Mondi	Meer and see. The smell was very bad and strong smelling last night till early hours of the morning in kolsterkring.	326
5	2025/10/03 23:12	Meerensee	Clinical + Odour	Mondi	“Terrible smell in Meerensee, smells like burnt cabbage. Causing burning eyes.”	327
6	2025/10/08 06:00	Veldenvlei Ext	Clinical + Odour	Mondi	“What is going on with the terrible smells the past week. Smells like acid, cat pee. Causing bleeding nose, sore throat, burning eyes and coughing. It is very bad this morning.”	327
7	2025/10/08 07:58	Veldenvlei	Clinical + Odour	Mondi	“bad odour causing nausea, sinus symptoms and headache.”	327
8	2025/10/08 07:59	Arboretum	Clinical + Odour	Mondi	“Terrible smell affecting my granddaughter’s asthma.”	327
9	2025/10/08 08:00	Birdswood	Odour	Mondi	Terrible odour	327
10	2025/10/08 08:15	Arboretum	Odour	Mondi	Nasty smell	327
11	2025/10/08 08:20	Veldenvlei	Odour	Mondi	Offensive smell	327
12	2025/10/08 08:21	Veldenvlei	Clinical + Odour	Mondi	Pungent Mondi odour causing headache.	327
13	2025/10/08 08:58	CBD	Clinical + Odour	Mondi	Bad smell causing nose irritation.	327
14	2025/10/15 21:06	Arboretum Ext	Ammonia - Clinical + Odour	Mondi	“Terrible ammonia smell causing tight chest.”	328
15	2025/10/16 13:15	Empangeni	Smoke	THS	"White smoke blanketing over Roots"	329, 1
16	2025/10/16 13:22	Unknown	Smoke	THS	Note: Description of complaint to be updated.	329, 1

No	Date	Region	Type	Source	Description	Response
17	2025/10/20 07:04	Veldenvlei	Odour	Mondi - Meteorology	"There is a nauseating guava odour"	332, 1
18	2025/10/24 09:15	Unknown	Odour + Smoke + Clinical	THS	" The air quality is not good again this morning. Gets to the chest when breathing. Sweetish smell, white haze, smoke in the air"	330, 1
19	2025/10/27 16:36	Felixton	Odour + Clinical	THS	" The air quality is not good again. Hazy air, hits the cough button when breathing in deeply, strong odour. It's lingering this time".	331, 1

Table 2: Responses

No.	Industry Feedback
1	Unresolved / No Response
326	Mondi - Candice Webb responded (2025/10/16 12:53): Source of Odour: Non-condensable gas system – gases tripped out primary burning zone and vented to atmosphere. Mondi Monitoring Stations The following exceedances were recorded at Mondi monitoring stations before or during the time of the complaint. • 6.4 ppb at 21:20 UVS Station • 6.8 ppb at 21:50 Hytec Station • 7.3 ppb at 22:40 UVS Station
327	Mondi - Candice Webb responded (2025/10/16 13:00): Source of Odour: Unconfirmed source within Mondi
328	Mondi - Candice Webb responded (2025/10/16 14:45): Source of Odour: Secondary Effluent Treatment Plant. Mondi Environmental Specialist received notification of odour complaint from the RBCAA at 21:18 and commenced with an investigation. In discussion with the Shift Coordinator, an investigation had already commenced on site due to elevated Alton station TRS readings. All point source emissions found to be well within specification. The hardwood and softwood gasses were stable in the Recovery Boiler for incineration. Area operators undertook plant specific odour checks and investigated any possible leaks, no deviations identified were found in the non-condensable gas system. However, operators reported there was a strong odour from the Mondi Secondary Effluent Treatment Plant (SETP) which aligned with ambient TRS at the mobile station and Alton station. The SETP was taken offline as a result. Ambient TRS began to improve shortly afterwards.
329	Tongaat Hulett - Nicolas Govender responded (2025/10/16 13:41 via Whatsapp): Having an issue on Boiler 1 with one of the SA fans. This affected combustion in the furnace, guys are working on, it will be resolved in about 15min. Tongaat Hulett - Nicolas Govender responded (2025/10/30 15:35): Findings on Complaint: Motor failure on Boiler 1 SA fan, this reduced the airflow into the boiler, causing poor combustion. Boiler stabilized under 30 mins. Corrective Action: - Stabilized Boiler 1 by lowering the load. - Replace defective motor.
330	Tongaat Hulett - Nicolas Govender responded (2025/10/24 11:57 via WhatsApp): "Possible sugar dust. I have requested the Ops to flush the scrubbers which will reduce that." Tongaat Hulett - Nicolas Govender responded (2025/10/30 13:32): Findings on Complaint - Boilers were found to be stable, the stacks were white and normal with no after trail of smoke. - There was a heavy SW wind blowing, this takes it directly to the village. - We also flushed the scrubbers at the sugar driers, which may have been emitting fine sugar dust. - There was a haze observed all around the area, not only in Felixton. Pics sent to the RBCAA. Root Cause: None from the Boilers. Saturated scrubber water that possibly contributed to fine sugar dust. Corrective action: Flushed the scrubbers with condensate to improve efficiency.
331	Tongaat Hulett - Nicolas Govender responded (2025/10/27 18:13 via WhatsApp): "This was due to the incomplete combustion because the bagasse quality (a bit wet). Team made adjustments on scrubbing water to accommodate the situation.

No.	Industry Feedback
	Tongaat Hulett - Nicolas Govender responded (2025/10/27 18:14 via WhatsApp): Adjustments made, should clear up in few minutes. Today was also a steam stop so we started up boilers from low. Tongaat Hulett - Nicolas Govender responded (2025/10/30 13:32): Findings on Complaint: There was incomplete combustion in the furnace due to bagasse quality. Bagasse was wet. Root cause: Wet bagasse caused poor combustion in the furnace. Corrective action: Adjust was made to improve combustion in the furnace. Adjustments was made to improve quality of bagasse coming from the mills.
332	Mondi - Candice Webb responded (2025/10/20 15:53): Source of Odour: No source confirmed 3. Metrological Conditions RBCAA Brackenham monitoring station: Average wind direction at Beckenham station prior to the complaint = 272°. Brackenham monitoring station is chosen to display meteorological data as it is the RBCAA monitoring station which is situated closest to Mondi. 4. Calculation of Impacts Mondi Monitoring Stations No ambient TRS exceedances according to WHO limit of 5 ppb. RBCAA Monitoring Stations. No ambient TRS exceedances according to WHO limit of 5 ppb. CBD station recorded a minor TRS peak of 2.1 ppb at 06:57. Average wind speed = 1.1 m/sDescription of Incident Mondi Environmental Specialist received notification of odour complaint from the RBCAA at 07:04 and commenced with an investigation. All point source emissions found to be well within specification. The hardwood and softwood gasses were stable in the Recovery Boiler for incineration. Area operators undertook plant specific odour checks and investigated any possible leaks, no deviations identified were found in the non-condensable gas system. More detailed investigations into the NCG system will be conducted during the annual shut.

APPENDIX G
PM_{10} EXCEEDANCE LOG

Table 1: PM_{10} exceedances.

No	Target / Guideline / Standard	Station	Date	Value (ppb)	Wind Direction (°)	Wind Speed (m/s)	Source	Comment	Response
1	PM_{10} Daily WHO Limit (45 µg/m³)	CBD	2025/10/11 0:00	48.0	232	3.1	No response required	None	2
2	PM_{10} Daily WHO Limit (45 µg/m³)	Richardia	2025/10/11 0:00	47.0	234	3.4	No response required	None	2
3	PM_{10} Daily WHO Limit (45 µg/m³)	Richardia	2025/10/24 0:00	52.0	260	3.8	No response required	None	2
4	PM_{10} Daily WHO Limit (45 µg/m³)	Scorpio	2025/10/11 0:00	50.0	221	3.4	No response required	None	2
5	PM_{10} Daily WHO Limit (45 µg/m³)	Scorpio	2025/10/12 0:00	52.0	219	2	No response required	None	2

Table 2: PM_{10} responses.

Response	Industry Feedback
2	No response required

APPENDIX H
$PM_{2.5}$ EXCEEDANCE LOG

Table 1:$PM_{2.5}$ Exceedances

No	Target / Guideline / Standard	Station	Date	Value (ppb)	Wind Direction (°)	Wind Speed (m/s)	Source	Comment	Response
1	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/10/02 00:00	19.3	249	5.8	No response required	None	2
2	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/10/05 00:00	22.8	1	4.4	No response required	None	2
3	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/10/06 00:00	28.4	20	3	No response required	None	2
4	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/10/07 00:00	18.4	138	2.9	No response required	None	2
5	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/10/08 00:00	22.2	38	1.8	No response required	None	2
6	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/10/09 00:00	27.5	60	1.8	No response required	None	2
7	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/10/10 00:00	20.0	44	4	No response required	None	2
8	**$PM_{2.5}$ Daily RSA Limit (40 µg/m³)**	**Brackenham**	**2025/10/11 00:00**	**51.6**	**261**	**3.4**	**RBIDZ - Meteorology**	**RBCAA allocation**	70, **71**
9	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/10/11 00:00	51.6	261	3.4	No response required	None	2
10	**$PM_{2.5}$ Daily RSA Limit (40 µg/m³)**	**Brackenham**	**2025/10/12 00:00**	**46.0**	**245**	**2.3**	**RBIDZ -Meteorology**	**RBCAA allocation**	69, **71**
11	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/10/12 00:00	46.0	245	2.3	No response required	None	2
12	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/10/13 00:00	26.9	60	2.6	No response required	None	2
13	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/10/14 00:00	29.0	35	5.1	No response required	None	2
14	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/10/15 00:00	18.0	250	4.2	No response required	None	2
15	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/10/16 00:00	21.0	237	3.8	No response required	None	2
16	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/10/18 00:00	27.0	355	5.1	No response required	None	2
17	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/10/20 00:00	23.0	213	2.2	No response required	None	2
18	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/10/24 00:00	29.0	296	3.7	No response required	None	2
19	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/10/25 00:00	18.0	39	4.2	No response required	None	2
20	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/10/26 00:00	18.0	244	4.6	No response required	None	2
21	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Felixton	2025/10/02 00:00	32.0	237	5.3	No response required	None	2
22	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Felixton	2025/10/05 00:00	22.0	313	4.4	No response required	None	2
23	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Felixton	2025/10/06 00:00	24.0	7	3.5	No response required	None	2
24	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Felixton	2025/10/08 00:00	17.0	133	2.3	No response required	None	2
25	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Felixton	2025/10/09 00:00	19.0	130	2	No response required	None	2
26	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Felixton	2025/10/10 00:00	19.0	47	4.6	No response required	None	2
27	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Felixton	2025/10/11 00:00	34.0	226	3.1	No response required	None	2
28	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Felixton	2025/10/12 00:00	33.0	222	2.3	No response required	None	2
29	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Felixton	2025/10/13 00:00	23.0	69	3	No response required	None	2
30	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Felixton	2025/10/14 00:00	23.0	44	5.5	No response required	None	2
31	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Felixton	2025/10/15 00:00	21.0	242	4.4	No response required	None	2
32	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Felixton	2025/10/16 00:00	17.0	223	3.2	No response required	None	2
33	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Felixton	2025/10/18 00:00	19.0	4	5.1	No response required	None	2
34	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Felixton	2025/10/24 00:00	30.0	187	3.5	No response required	None	2

No	Target / Guideline / Standard	Station	Date	Value (ppb)	Wind Direction (°)	Wind Speed (m/s)	Source	Comment	Response
35	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Harbour West	2025/10/10 00:00	16.0	31	4.5	No response required	None	2
36	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Harbour West	2025/10/11 00:00	26.0	221	3.4	No response required	None	2
37	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Harbour West	2025/10/12 00:00	21.0	219	2	No response required	None	2
38	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Harbour West	2025/10/14 00:00	20.0	27	5.6	No response required	None	2
39	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Harbour West	2025/10/18 00:00	18.0	355	5.6	No response required	None	2
40	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Harbour West	2025/10/24 00:00	18.0	209	3.7	No response required	None	2
41	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Scorpio	2025/10/06 00:00	20.0	17	3.6	No response required	None	2
42	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Scorpio	2025/10/07 00:00	33.0	118	2.9	No response required	None	2
43	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Scorpio	2025/10/08 00:00	21.0	55	2.2	No response required	None	2
44	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Scorpio	2025/10/09 00:00	28.0	92	2	No response required	None	2
45	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Scorpio	2025/10/10 00:00	19.0	31	4.5	No response required	None	2
46	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Scorpio	2025/10/11 00:00	39.0	221	3.4	No response required	None	2
47	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Scorpio	2025/10/12 00:00	40.0	219	2	No response required	None	2
48	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Scorpio	2025/10/13 00:00	21.0	88	3.1	No response required	None	2
49	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Scorpio	2025/10/14 00:00	23.0	27	5.6	No response required	None	2
50	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Scorpio	2025/10/16 00:00	16.0	207	3.4	No response required	None	2
51	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Scorpio	2025/10/18 00:00	19.0	355	5.6	No response required	None	2
52	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Scorpio	2025/10/20 00:00	37.0	171	2.4	No response required	None	2
53	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Scorpio	2025/10/23 00:00	18.0	27	5.1	No response required	None	2
54	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Scorpio	2025/10/24 00:00	25.0	209	3.7	No response required	None	2

Table 2: PM $_{2.5}$ Responses

Response	Industry Feedback
1	Unresolved / No Response
69	Mondi - Kira Cobbold responded, (2025/10/13 13:24): Mondi has investigated the following PM2.5 exceedance and based on wind direction, stable mill operations, and stack emissions within compliance limits, Mondi was unlikely the source.
70	Mondi - Kira Cobbold responded, (2025/10/13 13:57): Mondi has investigated the following PM2.5 exceedance at Brackenham and based on stable operating conditions and all stack emissions within their compliance limits, Mondi is unlikely the source.
71	RBCAA Allocation -Sandy Camminga (2025/11/16 18:16) WD: SE

APPENDIX I
SO_2 EXCEEDANCE LOG

Table 1: SO_2 Exceedances.

No	Target / Guideline / Standard	Station	Date	Value (ppb)	Wind Direction (°)	Wind Speed (m/s)	Source	Comment	Response
1	SO_2 Daily WHO Limit (15 ppb)	Harbour West	2025/10/10 00:00	19.4	31	4.5	No response required	None	2
2	SO_2 Daily WHO Limit (15 ppb)	Harbour West	2025/10/18 00:00	16.8	355	5.6	No response required	None	2
3	SO_2 Daily WHO Limit (15 ppb)	Harbour West	2025/10/23 00:00	20.4	27	5.1	No response required	None	2
4	SO_2 Daily WHO Limit (15 ppb)	Harbour West	2025/10/25 00:00	17.0	26	5	No response required	None	2
5	SO_2 Daily WHO Limit (15 ppb)	Harbour West	2025/10/31 00:00	18.3	19	5.8	No response required	None	2
6	SO_2 Daily WHO Limit (15 ppb)	Scorpio	2025/10/07 00:00	23.1	118	2.9	No response required	None	2
7	**SO_2 Hourly RSA Limit (134 ppb)**	**Scorpio**	**2025/10/07 05:00**	**143.1**	**154**	**2.5**	**Foskor**	**Meteorology**	174, **175**
8	**SO_2 Daily RSA Limit (48 ppb)**	**Scorpio**	**2025/10/20 00:00**	**48.6**	**171**	**2.4**	**Foskor**	**Loss of gas from the boiler**	176, **177**
9	SO_2 Daily WHO Limit (15 ppb)	Scorpio	2025/10/20 00:00	48.6	171	2.4	No response required	None	2
10	**SO_2 10-minute RSA & WHO Limit (191 ppb)**	**Scorpio**	**2025/10/20 08:00**	**306.5**	**136**	**3.5**	**Foskor**	**Loss of gas from the boiler**	176, **177**
11	**SO_2 Hourly RSA Limit (134 ppb)**	**Scorpio**	**2025/10/20 08:00**	**321.0**	**143**	**3.8**	**Foskor**	**Loss of gas from the boiler**	176, **177**
12	**SO_2 10-minute RSA & WHO Limit (191 ppb)**	**Scorpio**	**2025/10/20 08:10**	**303.6**	**145**	**3.9**	**Foskor**	**Loss of gas from the boiler**	176, **177**
13	**SO_2 10-minute RSA & WHO Limit (191 ppb)**	**Scorpio**	**2025/10/20 08:20**	**258.5**	**148**	**4.1**	**Foskor**	**Loss of gas from the boiler**	176, **177**
14	**SO_2 10-minute RSA & WHO Limit (191 ppb)**	**Scorpio**	**2025/10/20 08:30**	**348.1**	**141**	**3.4**	**Foskor**	**Loss of gas from the boiler**	176, **177**
15	**SO_2 10-minute RSA & WHO Limit (191 ppb)**	**Scorpio**	**2025/10/20 08:40**	**311.5**	**139**	**4.1**	**Foskor**	**Loss of gas from the boiler**	176, **177**
16	**SO_2 10-minute RSA & WHO Limit (191 ppb)**	**Scorpio**	**2025/10/20 08:50**	**397.9**	**152**	**3.5**	**Foskor**	**Loss of gas from the boiler**	176, **177**

No	Target / Guideline / Standard	Station	Date	Value (ppb)	Wind Direction (°)	Wind Speed (m/s)	Source	Comment	Response
17	**SO_2 10-minute RSA & WHO Limit (191 ppb)**	**Scorpio**	**2025/10/20 09:00**	**429.6**	**163**	**3.9**	**Foskor**	**Loss of gas from the boiler**	176, **177**
18	**SO_2 Hourly RSA Limit (134 ppb)**	**Scorpio**	**2025/10/20 09:00**	**321.8**	**154**	**3.5**	**Foskor**	**Loss of gas from the boiler**	176, **177**
19	**SO_2 10-minute RSA & WHO Limit (191 ppb)**	**Scorpio**	**2025/10/20 09:10**	**518.2**	**162**	**3.5**	**Foskor**	**Loss of gas from the boiler**	176, **177**
20	**SO_2 10-minute RSA & WHO Limit (191 ppb)**	**Scorpio**	**2025/10/20 09:20**	**251.7**	**157**	**3.8**	**Foskor**	**Loss of gas from the boiler**	176, **177**
21	**SO_2 10-minute RSA & WHO Limit (191 ppb)**	**Scorpio**	**2025/10/20 09:30**	**363.1**	**150**	**3.4**	**Foskor**	**Loss of gas from the boiler**	176, **177**
22	**SO_2 10-minute RSA & WHO Limit (191 ppb)**	**Scorpio**	**2025/10/20 09:40**	**223.3**	**142**	**3.3**	**Foskor**	**Loss of gas from the boiler**	176, **177**
23	**SO_2 10-minute RSA & WHO Limit (191 ppb)**	**Scorpio**	**2025/10/20 10:00**	**290.1**	**143**	**3.7**	**Foskor**	**Loss of gas from the boiler**	176, **177**
24	**SO_2 Hourly RSA Limit (134 ppb)**	**Scorpio**	**2025/10/20 10:00**	**298.8**	**149**	**3.8**	**Foskor**	**Loss of gas from the boiler**	176, **177**
25	**SO_2 10-minute RSA & WHO Limit (191 ppb)**	**Scorpio**	**2025/10/20 10:10**	**469.8**	**131**	**4**	**Foskor**	**Loss of gas from the boiler**	176, **177**
26	**SO_2 10-minute RSA & WHO Limit (191 ppb)**	**Scorpio**	**2025/10/20 10:30**	**323.0**	**159**	**4.1**	**Foskor**	**Loss of gas from the boiler**	176, **177**
27	**SO_2 10-minute RSA & WHO Limit (191 ppb)**	**Scorpio**	**2025/10/20 10:40**	**311.5**	**153**	**3.7**	**Foskor**	**Loss of gas from the boiler**	176, **177**
28	**SO_2 10-minute RSA & WHO Limit (191 ppb)**	**Scorpio**	**2025/10/20 10:50**	**248.7**	**151**	**3.4**	**Foskor**	**Loss of gas from the boiler**	176, **177**
29	SO_2 Daily WHO Limit (15 ppb)	Scorpio	2025/10/22 00:00	15.2	23	3.9	No response required	None	2
30	SO_2 Daily WHO Limit (15 ppb)	Scorpio	2025/10/23 00:00	16.9	27	5.1	No response required	None	2
31	SO_2 Daily WHO Limit (15 ppb)	Scorpio	2025/10/31 00:00	19.2	19	5.8	No response required	None	2

Table 2: SO_2 Responses.

Response	Industry Feedback
2	No response required / Allocated by wind direction
174	Mondi - Kira Cobbold responded, (2025/10/08 09:27): Mondi has investigated the SO2 exceedance on 07/10 and based on wind direction, is unlikely to be the source.
175	Foskor - Kirona Harrypersad responded (2025/10/13 07:58): The Sulphuric Acid Plant engineers were informed and an investigation was conducted therafter. Meteorological records further indicate that the wind direction at the time in question, as displayed below in Figure 1 & Figure 2, was predominantly blowing from the south at an average speed ranging from 2 – 6 m/s (Arboretum) and 2 – 4 m/s (Harbour West).Upon investigation, it was identified that no abnormal operating conditions were experienced at Foskor during the reporting period, the prevailing wind direction at the time suggests Foskor may have influenced the recorded exceedance at the monitoring point. Incident Root cause: There was no root cause identified as there were no abnormalities in the plant.
176	Mondi - Kira Cobbold responded, (2025/10/21 11:02): Mondi has investigated the SO2 exceedances (10-min, hourly & daily) on 20/10/25 and based on stable operations and a south westerly to southerly wind direction, Mondi is unlikely the source.
177	Foskor - Silungile Msane responded (2025/10/22 16:28, 16:30 and 16:30): The Sulphuric Acid Plant engineers were informed and an investigation was conducted therafter. Meteorological records further indicate that the wind direction at the time in question, as displayed below in Figure 1& Figure 2, was predominantly blowing from the south at an average speed ranging from 4-6 m/s (Arboretum) and 2-6 m/s (Harbour West).Additional Information The prevailing wind direction at the time suggests that Foskor may have influenced the recorded exceedance at the monitoring point. Incident Root cause: Upon investigation it was found that there was a loss of gas containment due to a failure on the weld of the C Plant boiler hot box. Once the source was identified the hot box was repaired. Corrective/Preventative Actions: • The boiler hot box was rewelded. « The boiler hot box to be replaced during the next shutdown.
174	Mondi - Kira Cobbold responded, (2025/10/08 09:27): Mondi has investigated the SO2 exceedance on 07/10 and based on wind direction, is unlikely to be the source.

APPENDIX J
TRS EXCEEDANCE LOG

Table 1: TRS Exceedances.

No	Target / Guideline / Standard	Station	Date	Value (ppb)	Wind Direction (°)	Wind Speed (m/s)	Source	Comment	Response
1	TRS 30-minute WHO H_2S Limit (5.0 ppb)	eSikhaleni	2025/10/05 22:00	7.0	350	1.3	THS	Boilers-coal operated.	814, 821, **826**
2	TRS 10-minute OME Limit (9.3 ppb)	eSikhaleni	2025/10/05 22:20	15.5	321	1.1	THS	Boilers-coal operated.	814, 821, **826**
3	TRS 10-minute OME Limit (9.3 ppb)	eSikhaleni	2025/10/05 22:30	16.5	7	1.2	THS	Boilers-coal operated.	814, 821, **826**
4	TRS 30-minute WHO H_2S Limit (5.0 ppb)	eSikhaleni	2025/10/05 22:30	8.5	358	1.1	THS	Boilers-coal operated.	814, 821, **826**
5	TRS 30-minute WHO H_2S Limit (5.0 ppb)	eSikhaleni	2025/10/12 07:00	6.1	32	1.2	Mondi	SETP	**816**, 818, 1
6	TRS 10-minute OME Limit (9.3 ppb)	eSikhaleni	2025/10/23 05:30	12.4	16	2.4	Mondi	SETP	**829**, 830
7	TRS 30-minute WHO H_2S Limit (5.0 ppb)	eSikhaleni	2025/10/23 05:30	15.5	23	2.2	Mondi	SETP	**829**, 830
8	TRS 10-minute OME Limit (9.3 ppb)	eSikhaleni	2025/10/23 05:40	20.6	25	2.0	Mondi	SETP	**829**, 830
9	TRS 10-minute OME Limit (9.3 ppb)	eSikhaleni	2025/10/23 05:50	13.6	30	2.2	Mondi	SETP	**829**, 830
10	TRS 30-minute WHO H_2S Limit (5.0 ppb)	eSikhaleni	2025/10/30 21:30	5.4	46	0.8	Mondi	SETP	**834**, 835, 1
11	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/10/01 02:00	5.7	138	0.5	Mondi & THS	SETP + THS Boilers-coal operated.	808, **825**, **826**
12	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/10/09 00:30	5.7	138	0.9	THS	Boilers-coal operated.	817, 820, **826**
13	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/10/09 01:00	6.2	81	1.2	THS	Boilers-coal operated.	817, 820, **826**
14	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/10/09 06:00	9.4	214	0.7	THS	Boilers-coal operated.	817, 820, **826**
15	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/10/09 06:10	14.2	220	0.8	THS	Boilers-coal operated.	817, 820, **826**
16	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/10/11 12:00	5.9	225	5.7	THS	Boilers-coal operated.	815, 819, **826**
17	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/10/12 16:00	5.2	223	3.0	THS	Boilers-coal operated.	816, 818, **826**
18	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/10/12 17:00	5.8	224	3.0	THS	Boilers-coal operated.	816, 818, **826**
19	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/10/12 22:30	13.2	200	1.9	THS	Boilers-coal operated.	816, 818, **826**
20	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/10/12 22:30	6.5	218	2.5	THS	Boilers-coal operated.	816, 818, **826**
21	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/10/16 04:00	6.7	209	0.4	THS	Boilers-coal operated.	823, 824, **826**
22	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/10/21 22:30	21.7	171	0.4	Mondi	SETP	827, **828**
23	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/10/21 22:30	14.7	179	0.6	Mondi	SETP	827, **828**
24	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/10/21 22:40	21.3	181	0.5	Mondi	SETP	827, **828**
25	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/10/26 17:00	5.9	223	4.3	THS	Boilers-coal operated.	832, 833, **837**
26	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Richardia	2025/10/08 01:30	10.1	312	0.9	Mondi	Meteorology	822, 1
27	TRS 10-minute OME Limit (9.3 ppb)	Richardia	2025/10/08 01:50	23.0	213	0.9	Mondi	Meteorology	822, 1
28	TRS 10-minute OME Limit (9.3 ppb)	Richardia	2025/10/08 02:00	13.9	244	1.4	Mondi	Meteorology	822, 1

No	Target / Guideline / Standard	Station	Date	Value (ppb)	Wind Direction (°)	Wind Speed (m/s)	Source	Comment	Response
29	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Richardia	2025/10/08 02:00	7.0	259	1.9	Mondi	Meteorology	822, 1
30	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Richardia	2025/10/09 00:00	15.2	326	0.8	Mondi	Source of TRS unknown	820, 1
31	TRS 10-minute OME Limit (9.3 ppb)	Richardia	2025/10/09 00:10	16.8	191	1.2	Mondi	Source of TRS unknown	820, 1
32	TRS 10-minute OME Limit (9.3 ppb)	Richardia	2025/10/09 00:20	28.0	204	0.9	Mondi	Source of TRS unknown	820, 1
33	TRS 10-minute OME Limit (9.3 ppb)	Richardia	2025/10/09 00:30	16.9	326	0.8	Mondi	Source of TRS unknown	820, 1
34	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Richardia	2025/10/09 00:30	9.8	326	0.6	Mondi	Source of TRS unknown	820, 1
35	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Richardia	2025/10/09 04:30	8.9	22	0.5	Mondi	Source of TRS unknown	820, 1
36	TRS 10-minute OME Limit (9.3 ppb)	Richardia	2025/10/09 04:40	9.7	22	0.5	Mondi	Source of TRS unknown	820, 1
37	TRS 10-minute OME Limit (9.3 ppb)	Richardia	2025/10/09 04:50	9.5	22	0.5	Mondi	Source of TRS unknown	820, 1
38	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Richardia	2025/10/12 22:30	6.6	186	2.1	CoU	RBCAA allocation - sewage	816, 818, **842**
39	TRS 10-minute OME Limit (9.3 ppb)	Richardia	2025/10/16 04:00	16.5	43	0.8	Mondi	SETP	824, 1
40	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Richardia	2025/10/16 04:00	13.3	43	0.3	Mondi	SETP	824, 1
41	TRS 10-minute OME Limit (9.3 ppb)	Richardia	2025/10/16 04:10	14.8	43	0.1	Mondi	SETP	824, 1
42	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Richardia	2025/10/16 04:30	5.9	43	0.4	Mondi	SETP	824, 1
43	TRS 10-minute OME Limit (9.3 ppb)	Richardia	2025/10/16 05:00	15.2	276	0.7	Mondi	SETP	824, 1
44	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Richardia	2025/10/16 05:00	26.2	201	1.1	Mondi	SETP	824, 1
45	TRS 10-minute OME Limit (9.3 ppb)	Richardia	2025/10/16 05:10	40.3	193	1.3	Mondi	SETP	824, 1
46	TRS 10-minute OME Limit (9.3 ppb)	Richardia	2025/10/16 05:20	23.1	215	1.3	Mondi	SETP	824, 1

Table 2: TRS Responses

No	Industry Feedback
1	Unresolved / No Response
808	Mpact -Traven Chetty responded, (2025/10/03 12:38): We have conducted an investigation into this exceedance at Felixton on 1st October 2025. All plant process reports reviewed had indicated that operations were stable and there were no abnormalities reported. It is unlikely that Mpact is the source of this exceedance at Felixton station.
814	Mpact -Traven Chetty responded, (2025/10/08 07:11): Mpact has investigated the exceedance at eSikhaleni on 5thOctober 2025. All process plant reports reviewed had indicated that operations were stable with no abnormal activities reported. It is unlikely that Mpact operations is the source of this exceedance.
815	Mondi - Kira Cobbold responded, (2025/10/13 13:49): Mondi has investigated the TRS exceedance at Felixton and based on high wind speeds and a south westerly wind direction, Mondi is unlikely the source.
816	Mondi - Kira Cobbold responded, (2025/10/14 11:24): Mondi has investigated the TRS exceedances at Felixton on 12/10 and based on wind direction at the time, Mondi is unlikely to be the source. For the exceedance at eSikhaleni, Mondi can be considered a potential contributor based on wind direction and slightly elevated TRS levels at Alton and UVS station (however remained <3.5ppb). At the time, gases were stable for incineration during normal operating conditions, with stack emissions within their compliance limits. Elevated drain conductivities were however observed, as well as increased TRS levels recorded by the portable station situated near the effluent plant, indicating the SETP as a potential source. This combined with low wind speeds may have contributed to the exceedance. For the exceedance at Richardia, Mondi is unlikely to be the source based on stable operations, Mondi monitoring stations on low levels, and a wind direction not entirely favouring Mondi as source. Additionally, the H2S levels at effluent plant remained on low levels. It is possible that the known sewage problems in close proximity to the Richardia station may be a potential contributor to this particular TRS exceedance.
817	Mpact -Traven Chetty responded, (2025/10/14 14:19): Mpact has conducted an investigation into the exceedance at Felixton station on the 9th of October 2025. All process plant reports have indicated that operations were stable and no abnormal conditions were experienced. Based on this, it is unlikely that Mpact is the cause of this exceedance.
818	Mpact -Traven Chetty responded, (2025/10/14 14:21): Mpact has investigated these exceedances on the 12th of October 2025. Based on our process plant reports, all operations were stable with no abnormal conditions. It is also noted that the wind direction doesn't not favour emissions from Mpact. Therefore it is unlikely that Mpact is the cause of these exceedances.
819	Mpact -Traven Chetty responded, (2025/10/14 14:52): Mpact has investigated this exceedance on the 11th of October 2025 at Felixton. All process plant reports indicted stable operations with no abnormal conditions. The wind direction is also not in favour of emissions from Mpact. Based on this, it is unlikely that Mpact is the source of this exceedance.
820	Mondi - Kira Cobbold responded, (2025/10/16 15:24): Mondi has investigated the following TRS exceedances and based on wind direction is unlikely the source of exceedances at Felixton. For the exceedances at Richardia, Mondi can be considered a potential contributor based on very low speeds and elevated TRS levels recorded at Mondi Alton and portable stations. Seeing as though these stations are positioned near the effluent plant, and NCGs were stable for incineration with stack emissions within their compliance limits, it is possible that H2S was released from the SETP. Although no exact root cause could be identified for these exceedances, particularly for the magnitude of the earlier exceedances, it is possible that Mondi was a contributor.
821	Mondi - Kira Cobbold responded, (2025/10/16 16:05): Mondi has investigated the exceedances at eSikhaleni on 05/10 and based on stable operations with all Mondi monitoring stations on low levels, including H2S levels at the effluent plant, and a wind direction that does not clearly indicate Mondi as the source, Mondi is unlikely to be the source.
822	Mondi - Kira Cobbold responded, (2025/10/17 14:51): Mondi has investigated the exceedances at Richardia and based on wind direction and odour complaints received later that morning, can be considered a potential source. The time of the exceedances do not align with the timing of the eight complaints received from 06:00-09:00, however spikes at the Mondi Alton station indicate that Mondi may been a potential contributor to the exceedances. Regretfully, no root cause could be determined despite a detailed investigation taking place. Mondi will conclude a full inspection of the system during the annual shutdown which commences on 25 October 2025.

No	Industry Feedback
823	Mpact -Traven Chetty responded, (2025/10/20 11:19): Mpact has investigated this exceedance on the 16th of October 2025. All process plant reports indicated that operations were stable with no abnormal conditions experienced. Based on this, it is unlikely that Mpact is the source of this exceedance at the Felixton station.
824	Mondi - Kira Cobbold responded, (2025/10/21 09:02): Mondi has investigated and the exceedance at Felixton is unlikely Mondi based on wind direction. For the exceedances at Richardia, Mondi can be considered a potential source based on low wind speeds and elevated TRS at Mondi Alton and portable stations. These stations closely align with the release of TRS from the SETP, which considering the normal operating conditions, gases being stable for incineration, and stack emissions with specification, can be considered the mostly likely contributing source. The SETP was switched off from 02:00-07:00 on account of TRS peak at Alton station.
825	Mondi - Kira Cobbold responded, (2025/10/21 09:29): Mondi has investigated the TRS exceedance at Felixton on 01/10/25 and based on wind direction Mondi can be considered a potential source. The mill was under stable operating conditions, with gases stable for incineration, and stack emissions within specification. Therefore, TRS release from the SETP can be considered the most likely contributing source, which, when combined with the low speeds may have resulted in the exceedance observed.
826	Tongaat Hulett - Nicolas Govender responded (2025/10/21 16:13): The plant experienced multiple issues with the bagasse scratcher malfunction which resulted in burning of coal to sustain boilers. These abnormal operations were also exacerbated by plant shut down due to rain. The plant took a steam stop to conduct repairs on the scratcher.
827	Mpact -Traven Chetty responded, (2025/10/23 09:12): Please take note, Mpact operations was on a routine maintenance shut down on the 21st of October. There were no operations active at the paper machine and boiler house during this period. The effluent treatment plant was still in partial operation however, no abnormal activities took place during this time. It is therefore unlikely that Mpact is the source of this exceedance.
828	Mondi - Kira Cobbold responded, (2025/10/23 13:42): Mondi has investigated the TRS exceedances at Felixton on 21/10 and based on wind direction and low wind speeds, Mondi was potentially a contributing source. During this period gases were stable for incineration, monitoring stations remained on low levels, and stack emissions were within specification. It is however possible that some TRS was released from the SETP cooling towers, which, with the low wind speeds may have contributed to the observed exceedances.
829	Mondi - Kira Cobbold responded, (2025/10/24 10:46): Mondi has investigated the TRS exceedances at eSikhaleni on 23/10 and based on wind direction, Mondi may have been a contributing source. During this period gases were stable for incineration, monitoring stations remained on low levels, and stack emissions were within specification. Although no exact root cause could be identified, it is possible that TRS was released from the SETP if lower quality effluent was passing through the system. The SETP was switched off as per daily procedure between 05:00-07:00.
830	Mpact -Traven Chetty responded, (2025/10/28 10:34): Mpact has investigated this exceedance on the 23rd of October 2025. Mpact operations was on an emergency shut down during this time period. There were no operations active at the paper machine and boiler house during this period. The effluent treatment plant was still in partial operation however, no abnormal activities took place during this time that could have caused this exceedance. The wind direction is also not in support of emissions from Mpact. It is therefore unlikely that Mpact is the source of this exceedance.
832	Mondi - Kira Cobbold responded, (2025/02/29 11:08): Mondi has investigated the H2S exceedance at Felixton on 26/10 and based on the south westerly wind direction Mondi is unlikely the source.
833	Mpact -Traven Chetty responded, (2025/10/28 10:34): Mpact has conducted an investigation into this exceedance on the 26th of October. All plant process reports indicate that operations were stable with no abnormal conditions experienced. Furthermore, the wind direction indicated is not in favour or emissions from Mpact. Based on this, it is unlikely that Mpact is the source of these exceedances.
834	Mondi - Kira Cobbold responded, (2025/10/31 15:48): Mondi has investigated the exceedance at eSikhaleni and based on wind direction, low wind speeds and a TRS peak at the Mondi portable station, Mondi can be considered a potential source. The mill is currently undergoing its annual shutdown with the only plant running being the SETP. This indicates that the mostly likely source would be from TRS release at the SETP.
835	Mpact -Traven Chetty responded, (2025/11/03 11:52): Mpact has investigated the exceedance on the 30th of October 2025 at Esikhaleni Station. Based on our process plant reports, all operations were stable with no abnormal conditions reported. Therefore it is unlikely that Mpact is the cause of this exceedance.
837	Tongaat Hulett - Nicolas Govender responded (2025/11/07 09:34): Boilers experienced downtime on the bagasse scratcher on this day resulting in bagasse conveyors choking and coal was used to sustain fires in the boilers.
842	RBCAA Allocation -Sandy Camminga (2025/11/16 18:06): WD: S


AIMS