AIMS

Report

Monthly Air Quality

Richards Bay July 2025

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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 offer a broader perspective on the region's overall air quality performance and long-term patterns. They provide stakeholders with a comprehensive understanding of the air quality and serve as a valuable tool for 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 July 2025 is shown in Table 2.1.

Table 2.1: Meteorological data capture.

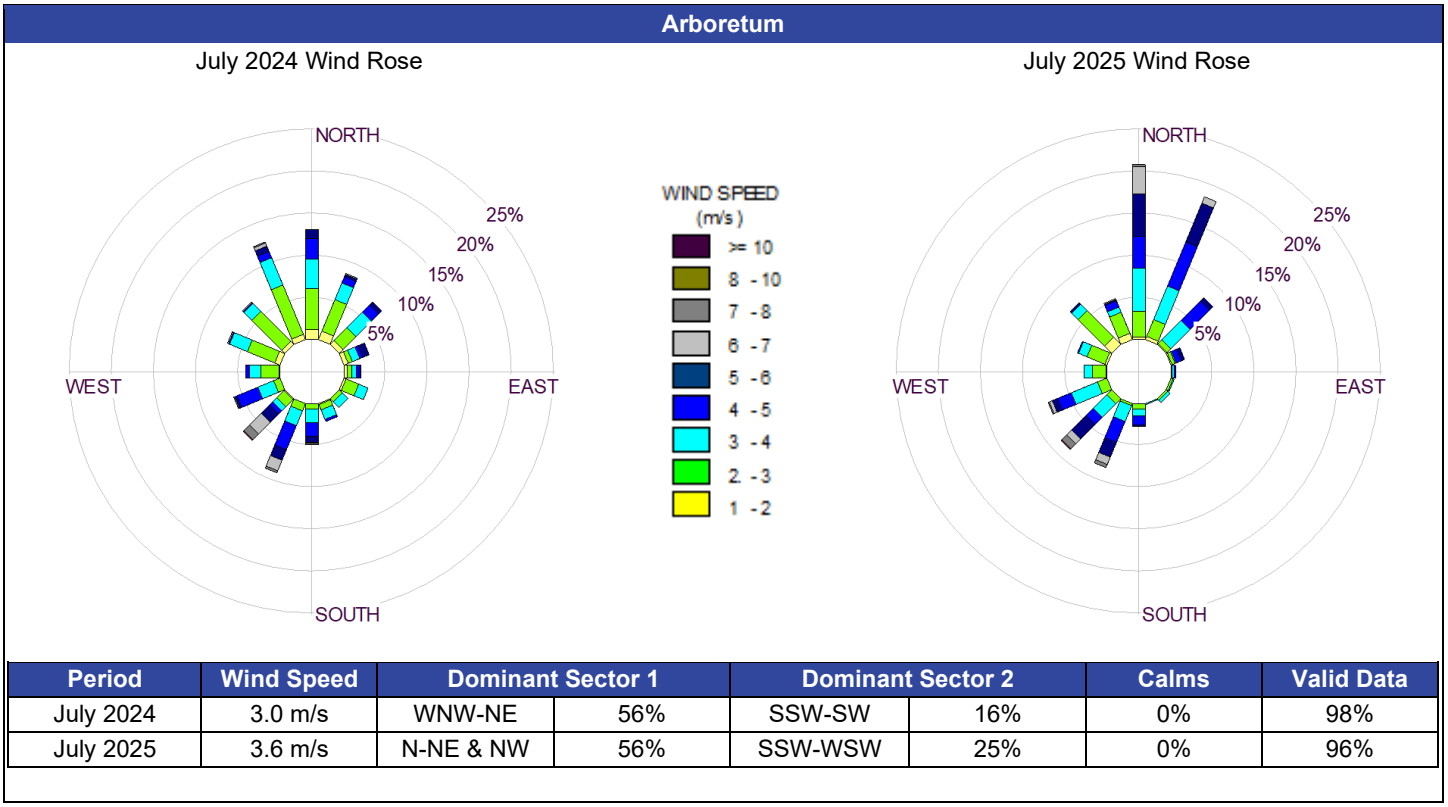
Station	Availability (%)	Wind (%)	Temperature (%)	Relative Humidity (%)	Pressure (%)	Solar Radiation (%)	Rain (%)
Airport	100	100	100	100	100	100	-
Arboretum	98	97	98	-	-	-	-
Brackenham	100	100	100	-	-	-	-
CBD	100	100	100	100	-	-	-
CBD Rain	99	-	-	-	-	-	99
eSikhaleni	100	100	100	100	-	-	-
Felixton Met	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):
- *Arboretum (Station) – Power failures (1 day/s with <80% data capture, 19 July 2025).*

2.2. Wind Roses

Monthly wind roses for July 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.



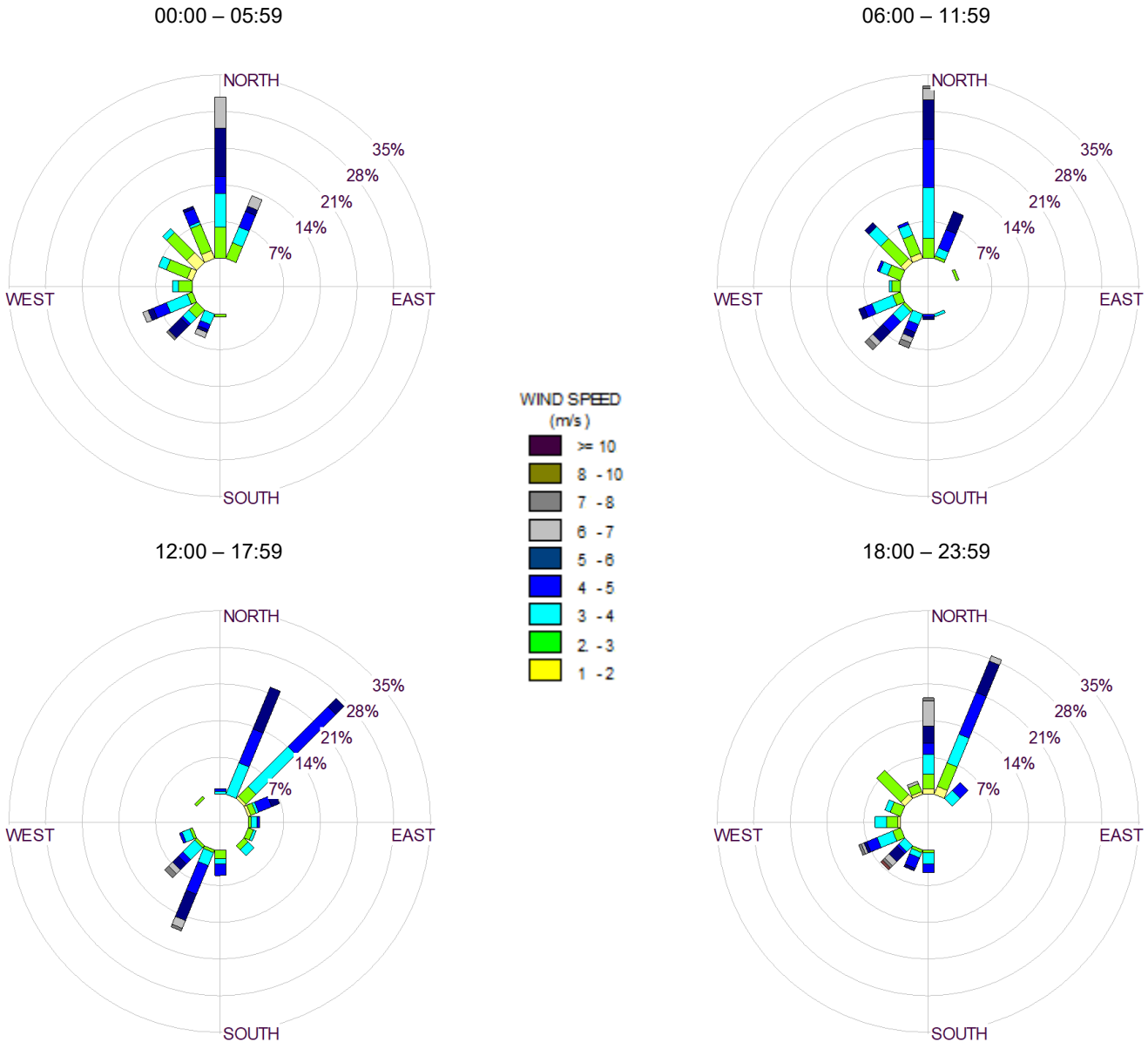
Period	Wind Speed	Dominant Sector 1		Dominant Sector 2		Calms	Valid Data
July 2024	3.0 m/s	WNW-NE	56%	SSW-SW	16%	0%	98%
July 2025	3.6 m/s	N-NE & NW	56%	SSW-WSW	25%	0%	96%

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, hence the slightly higher proportion of these winds.

Diurnal wind roses for July 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 – July 2025



Period	Wind Speed	Dominant Sector 1		Dominant Sector 2		Calms	Valid Data
00:00-05:59	3.4 m/s	WNW-NNE	72%	SW-WSW	19%	0%	98%
06:00-11:59	3.6 m/s	NW-NNE	63%	SSW-WSW	27%	0%	96%
12:00-17:59	3.8 m/s	NNE-ENE	58%	SSW-SW	26%	0%	96%
18:00-23:59	3.5 m/s	N-NNE & NW	58%	SW-WSW	16%	0%	93%

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).

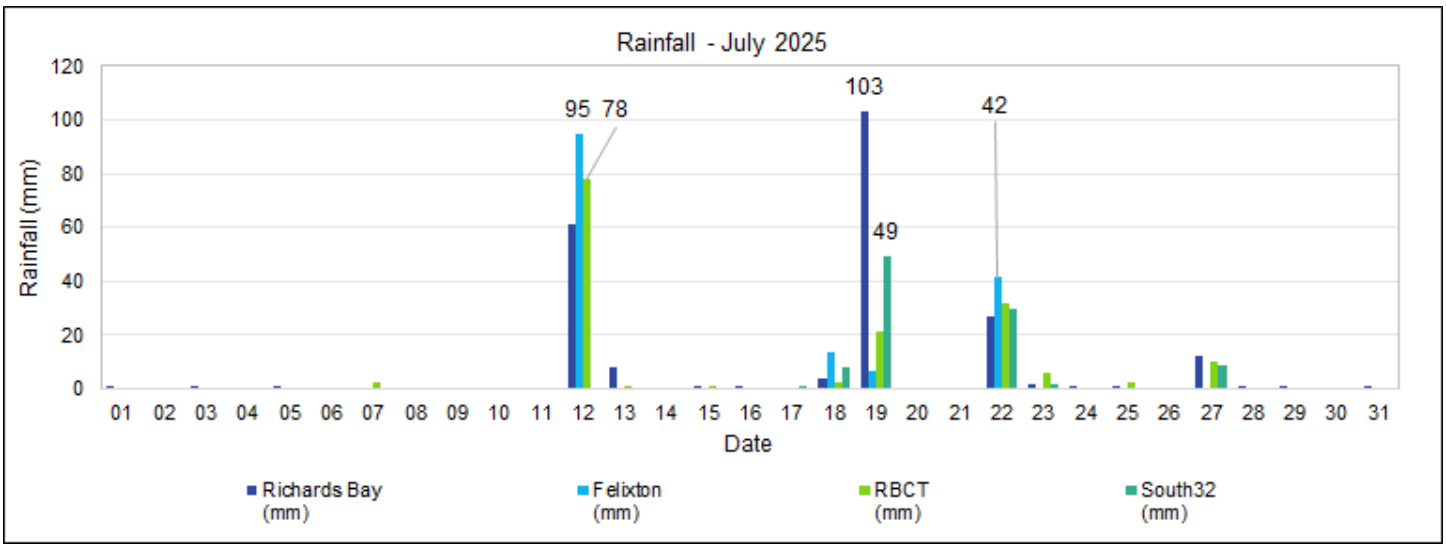


Figure 2.3: Rainfall.

Table 2.2: Rainfall -monthly averages.

Month	Richards Bay (mm)	Felixton (mm)	RBCT (mm)	South32 (mm)	Average (mm)
July 2025	220	157	155	98	157

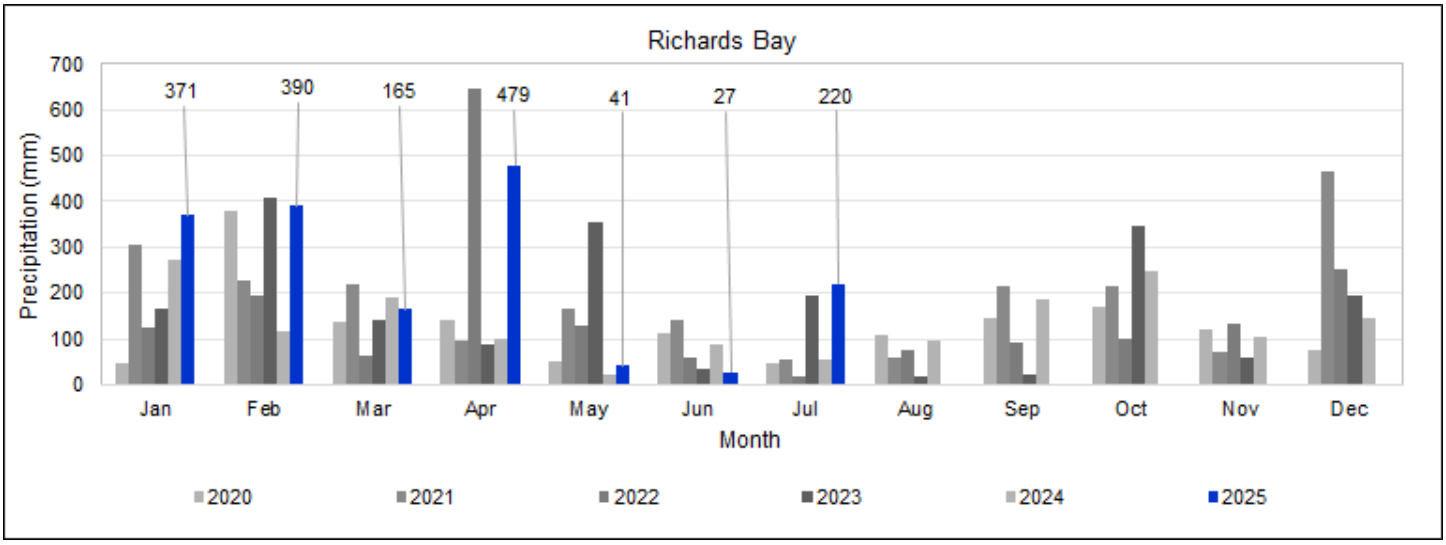


Figure 2.4: Rainfall –Richards Bay.

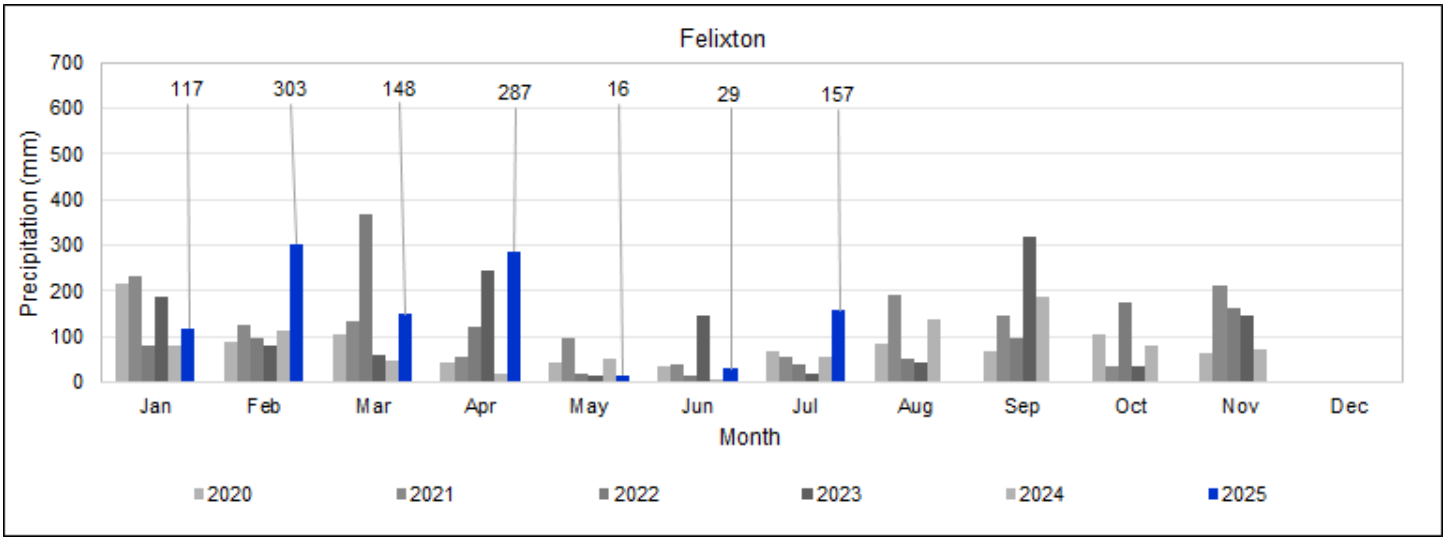


Figure 2.5: Rainfall – Felixton.

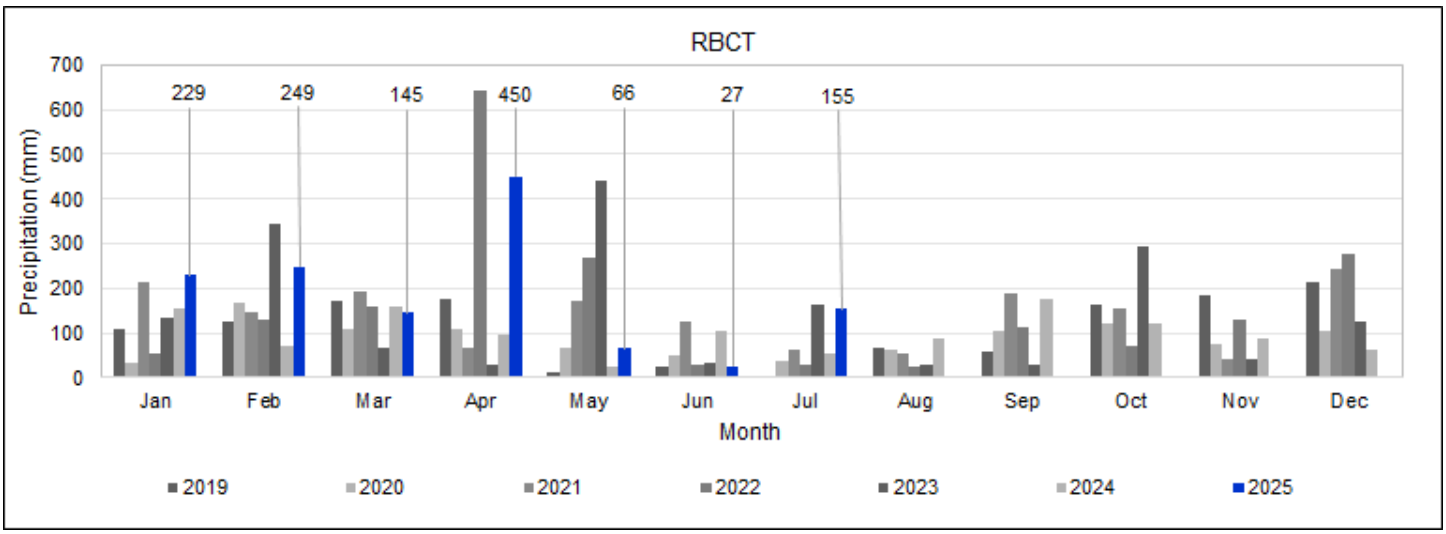


Figure 2.6: Rainfall – RBCT.

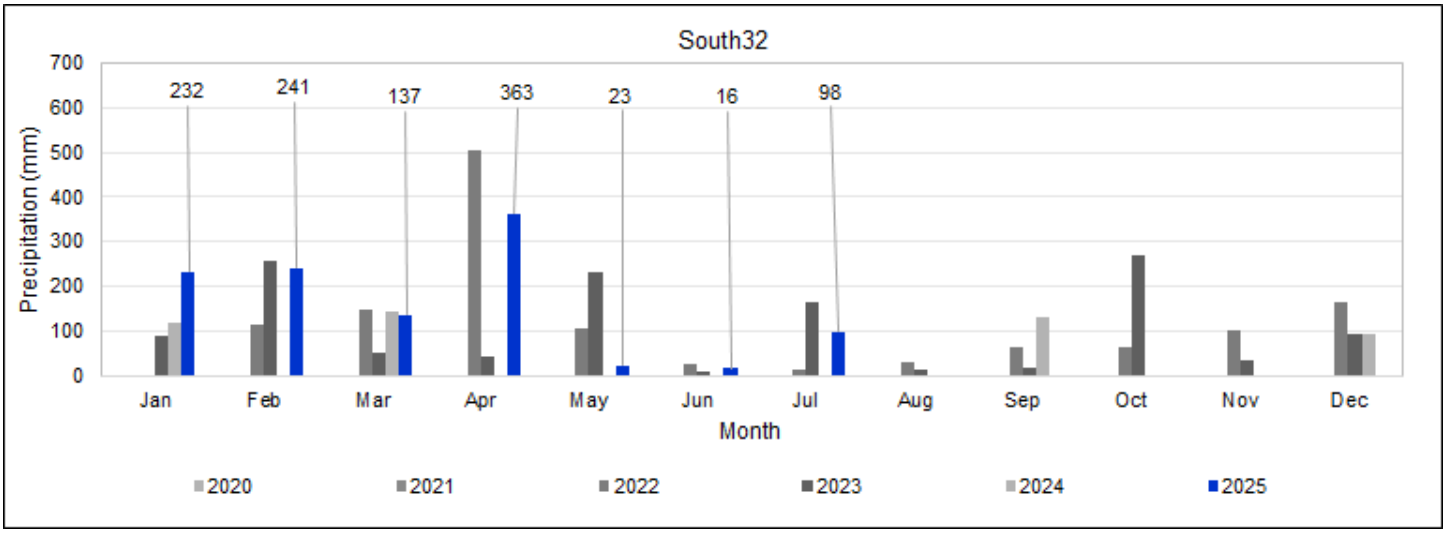


Figure 2.7: Rainfall - South32.
Note: South32 has had issues with its rain gauge in 2024.

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 July 2025. Please see APPENDIX F for the Complaints Log.

3.1. Field Observations

Seventeen (17) air quality complaints were received during July 2025; Eighty-eight (88) were logged in July 2024. The daily complaints and a monthly historical count are reflected below (Figure 3.1 and Figure 3.2).

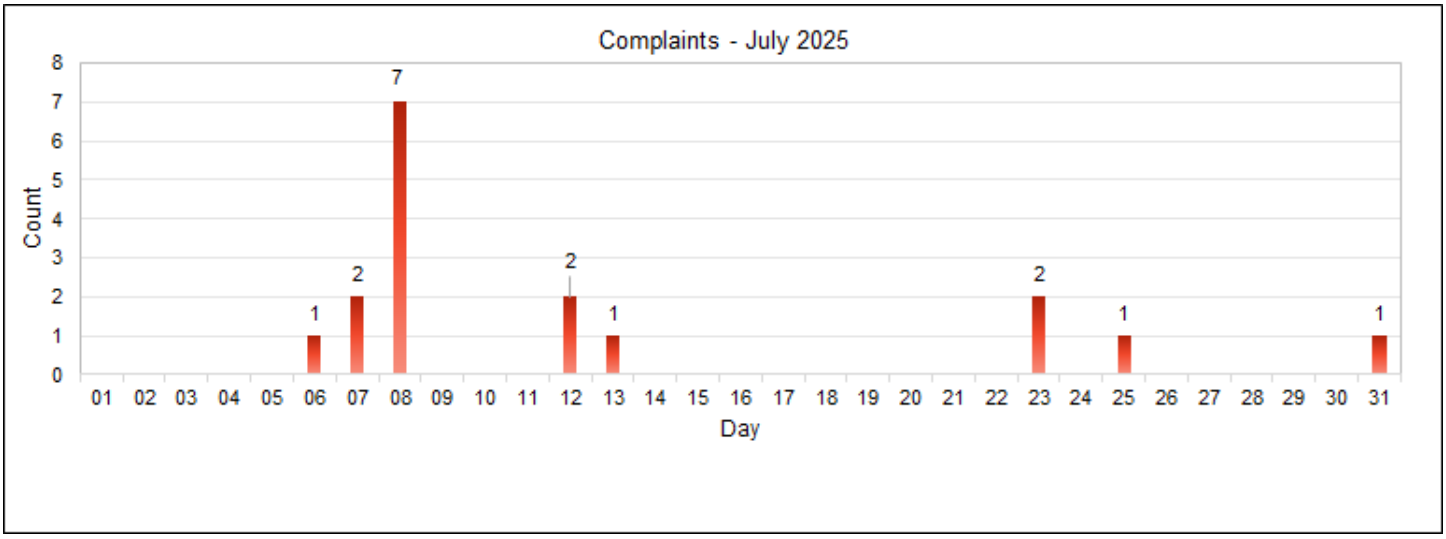


Figure 3.1: Complaints – daily.

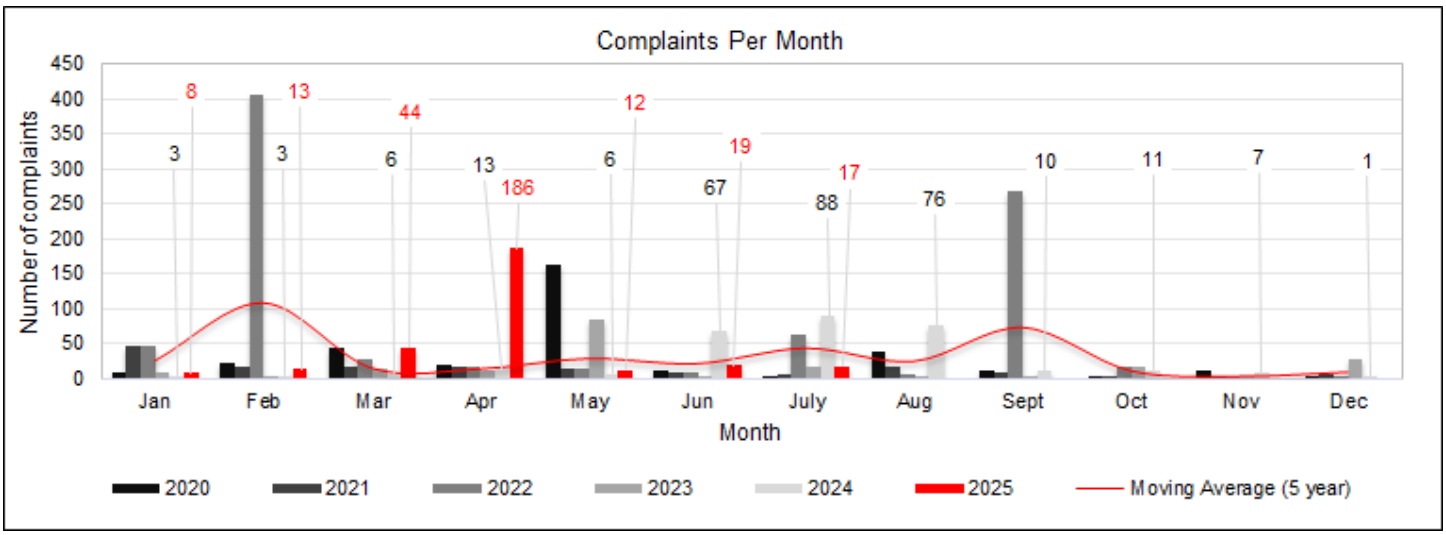


Figure 3.2: Complaints - historical monthly comparison.

3.2. Complaints Distribution

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

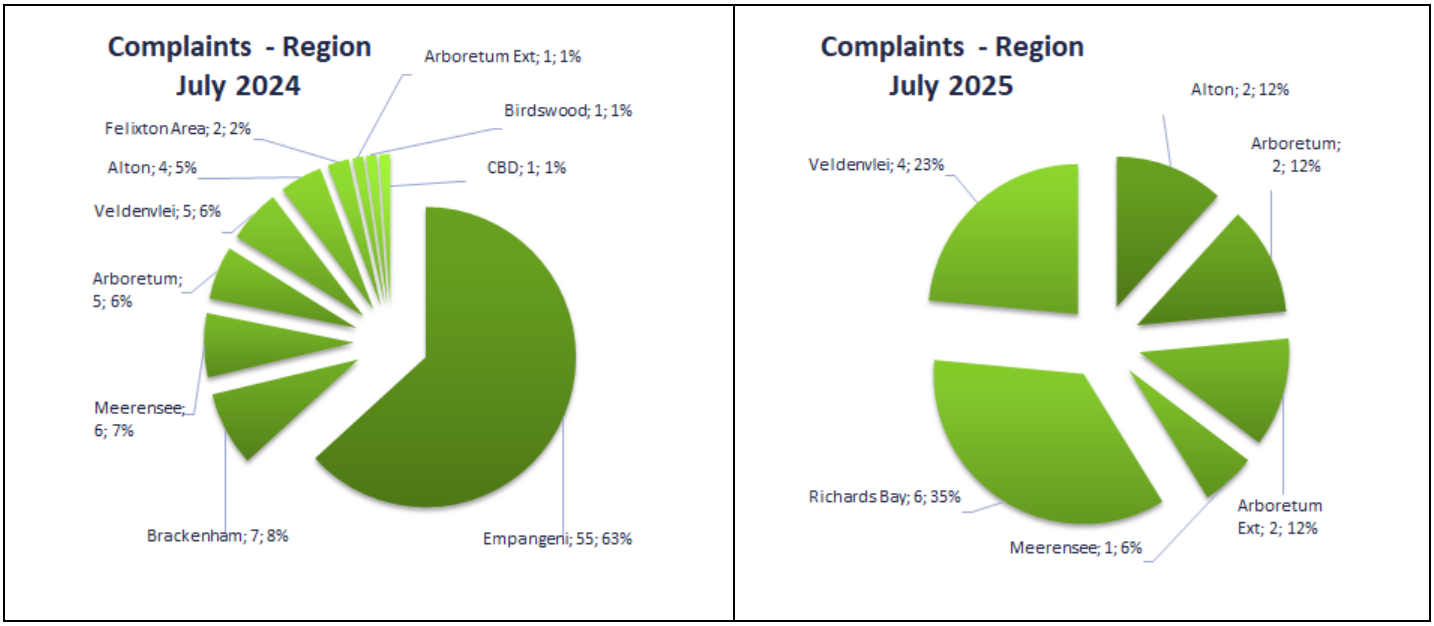


Figure 3.3: Complaints - region.

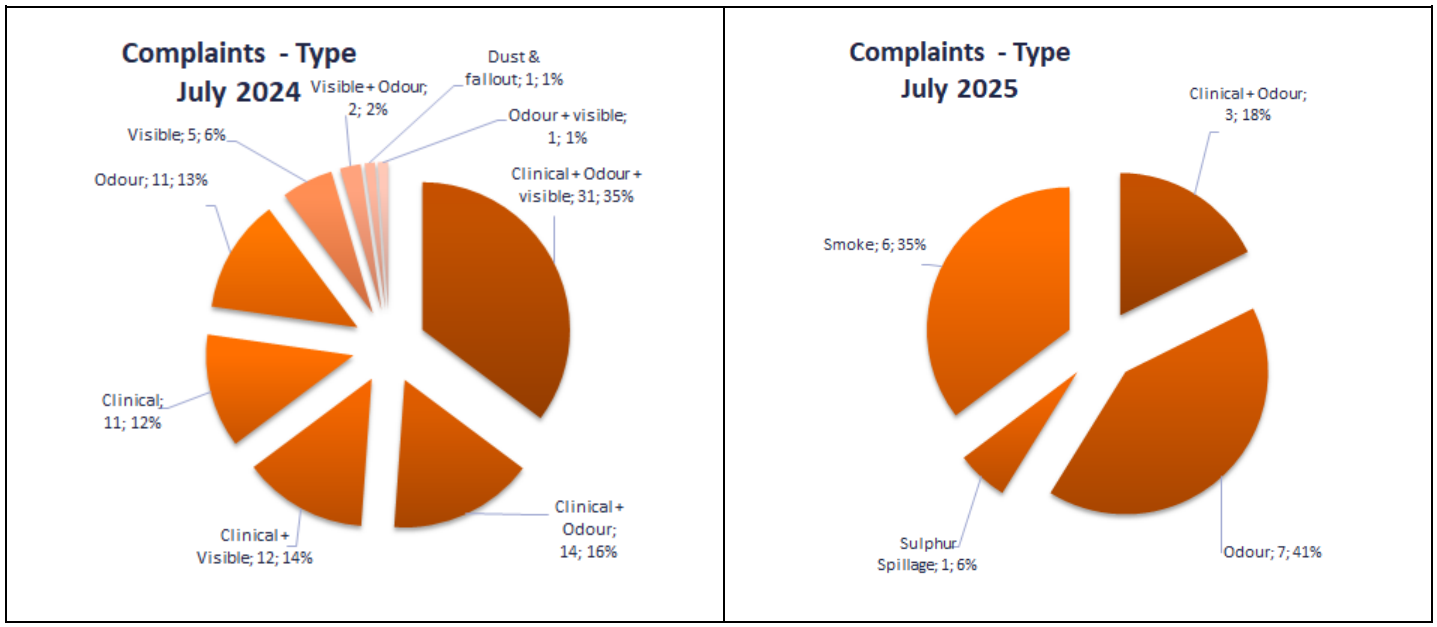


Figure 3.4: Complaints - type.

The complaints received were allocated as follows: Mondi (9, 52.9%), ZFPA Controlled Burns (6, 35.3%), Authorities response required (1, 5.9%), and Unknown Source (1, 5.9%).

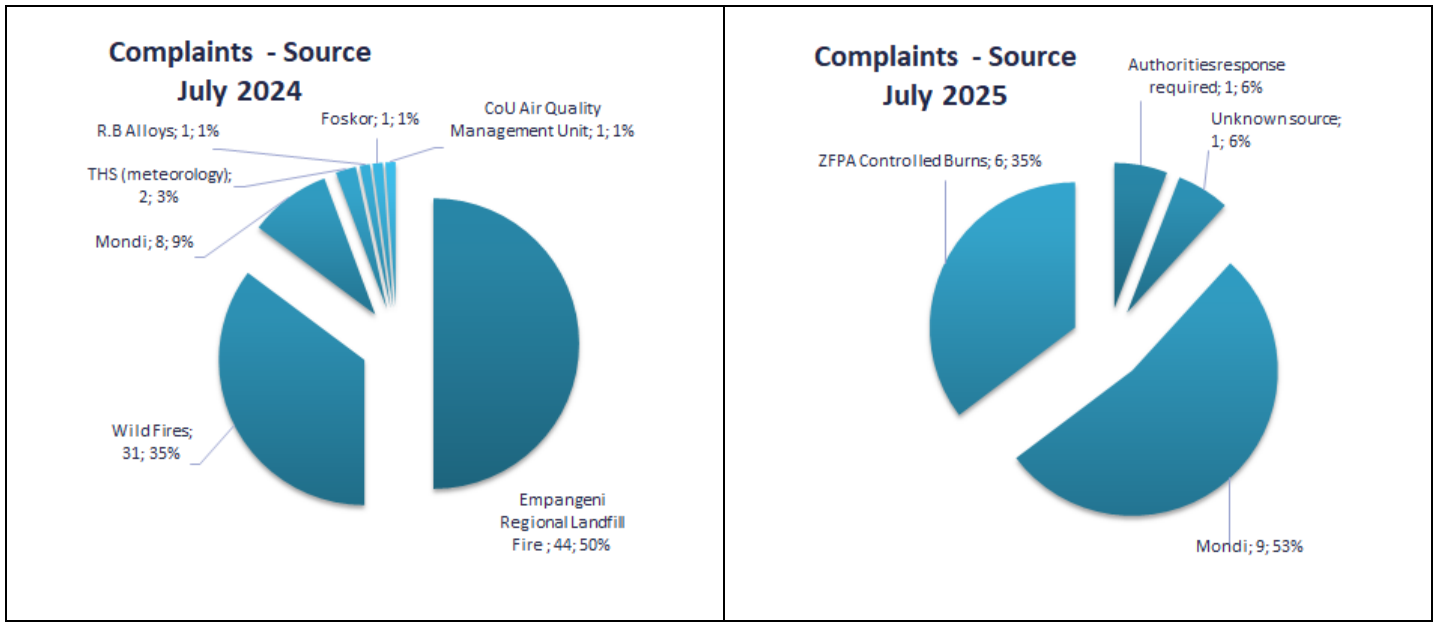


Figure 3.5: Complaints - source.

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

Complaint - allocation, region, and type	17
The authorities' response is required	**1**
Alton	1
Sulphur Spillage	1
Mondi	**9**
Arboretum Ext	1
Odour	1
Alton	1
Odour	1
Meerensee	1
Odour	1
Arboretum	2
Clinical + Odour	1
Odour	1
Veldenvlei	4
Clinical + Odour	1
Odour	3
Unknown source	**1**
Arboretum Ext	1
Clinical + Odour	1
ZFPA Controlled Burns	**6**
Richards Bay	6
Smoke	6

4. FINE PARTICULATE MONITORING

Particulate Matter (PM) refers to the atmosphere's solid particles and liquid droplets. Many anthropogenic and natural sources emit PM directly or release other pollutants into the atmosphere to 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 deep within 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. 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 ($\mu g/m^3$)	PM_{10} Annual Average ($\mu g/m^3$)	$PM_{2.5}$ Daily Average ($\mu g/m^3$)	$PM_{2.5}$ Annual Average ($\mu g/m^3$)
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 July 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	100	100	-
eSikhaleni	100	100	-
Felixton ES1	100	100	-
Felixton ES2	99	-	99
Harbour West ES2	100	-	100
Richardia	98	98	-
Scorpio ES1	100	100	-
Scorpio ES2	100	-	100

Missing Data (PM_{10}):

- *Richardia (Station) – Power failures, data invalidation (1 day/s with <80% data capture, 19 July 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).

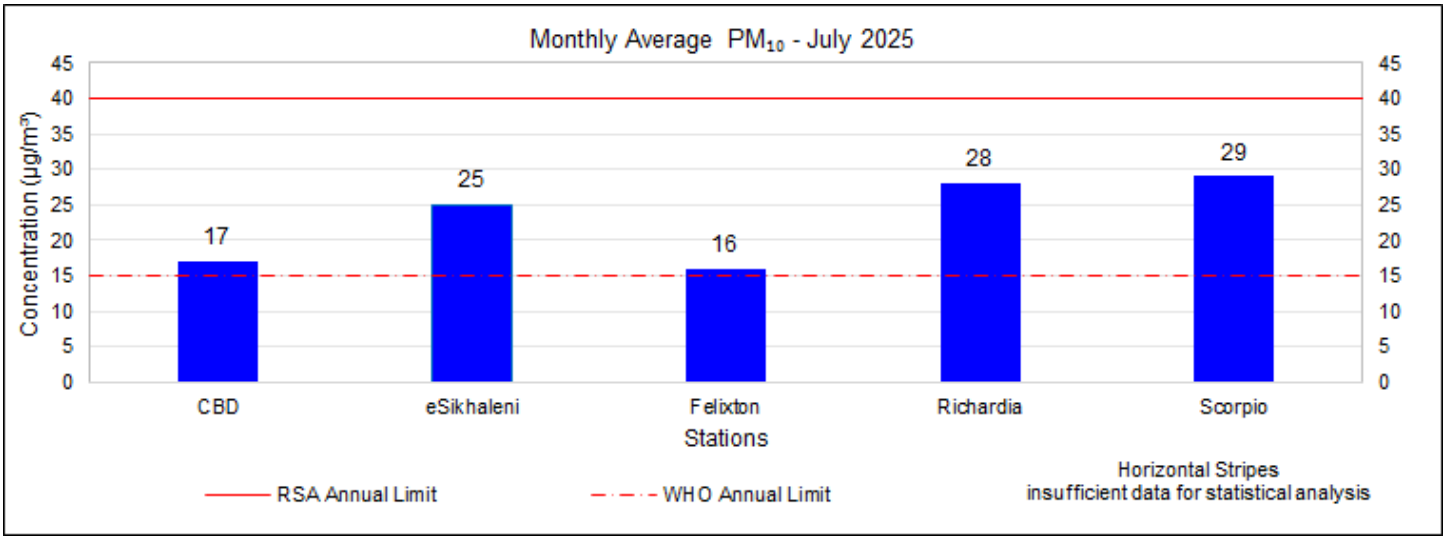


Figure 4.1: PM_{10} monthly concentrations.

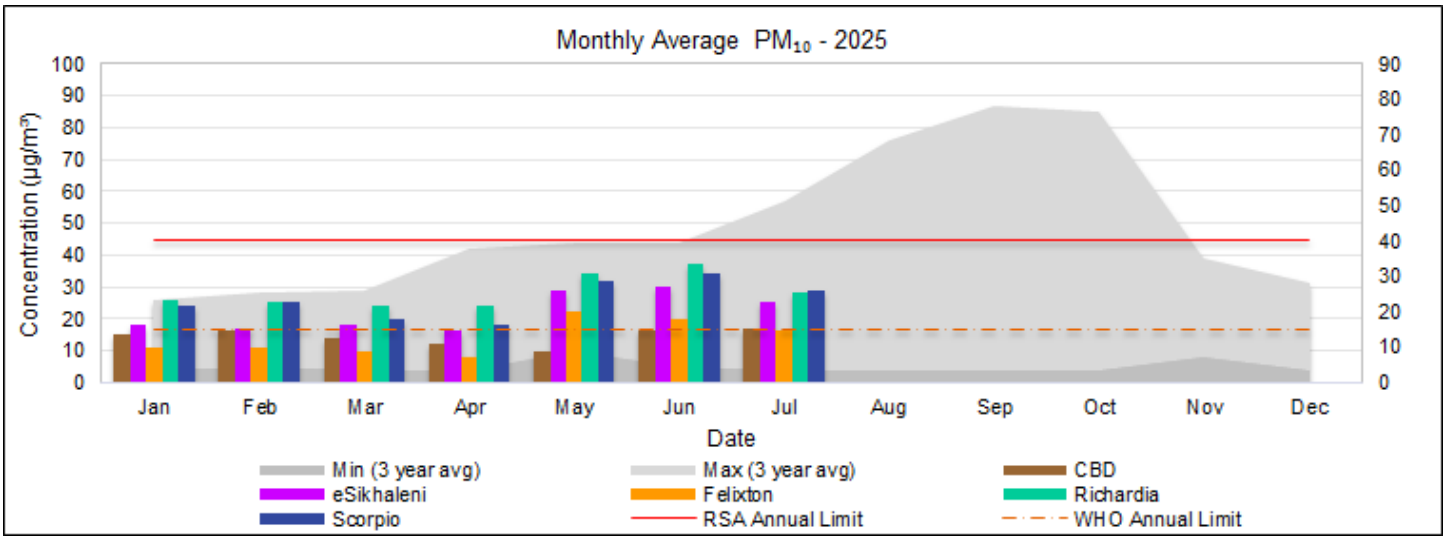


Figure 4.2: PM_{10} monthly comparison.

$PM_{2.5}$ monthly average concentrations did exceed the RSA Annual Limit at Brackenham. 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).

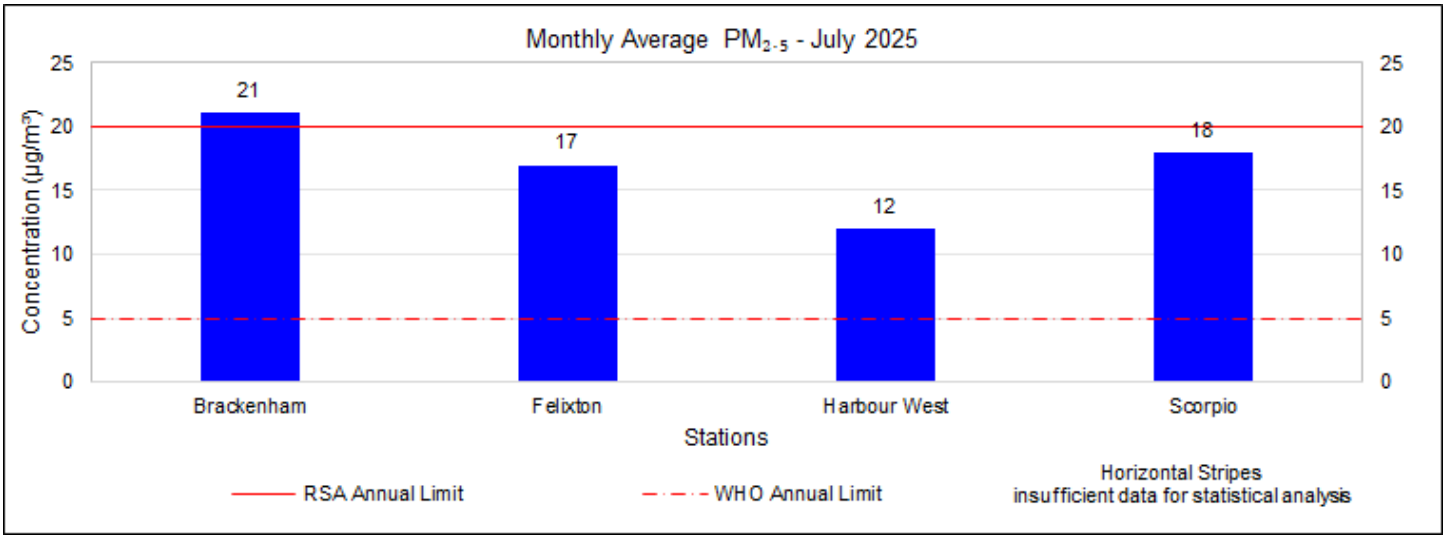


Figure 4.3: $PM_{2.5}$ monthly concentrations.

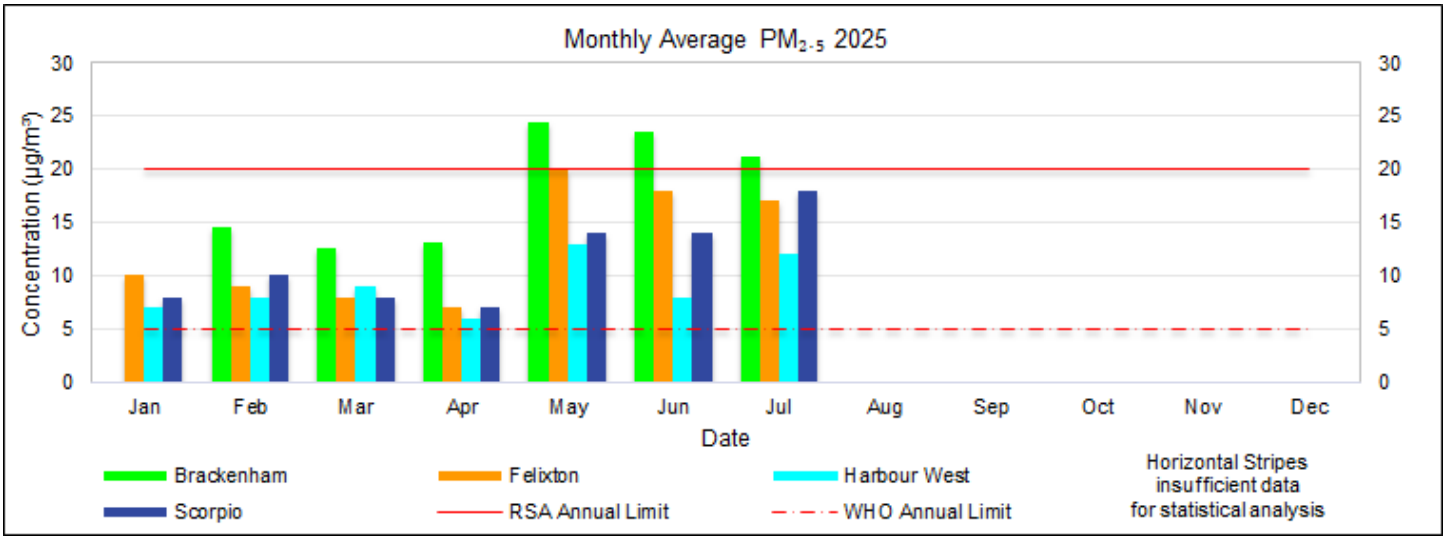


Figure 4.4: $PM_{2.5}$ monthly comparison.

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) or 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.

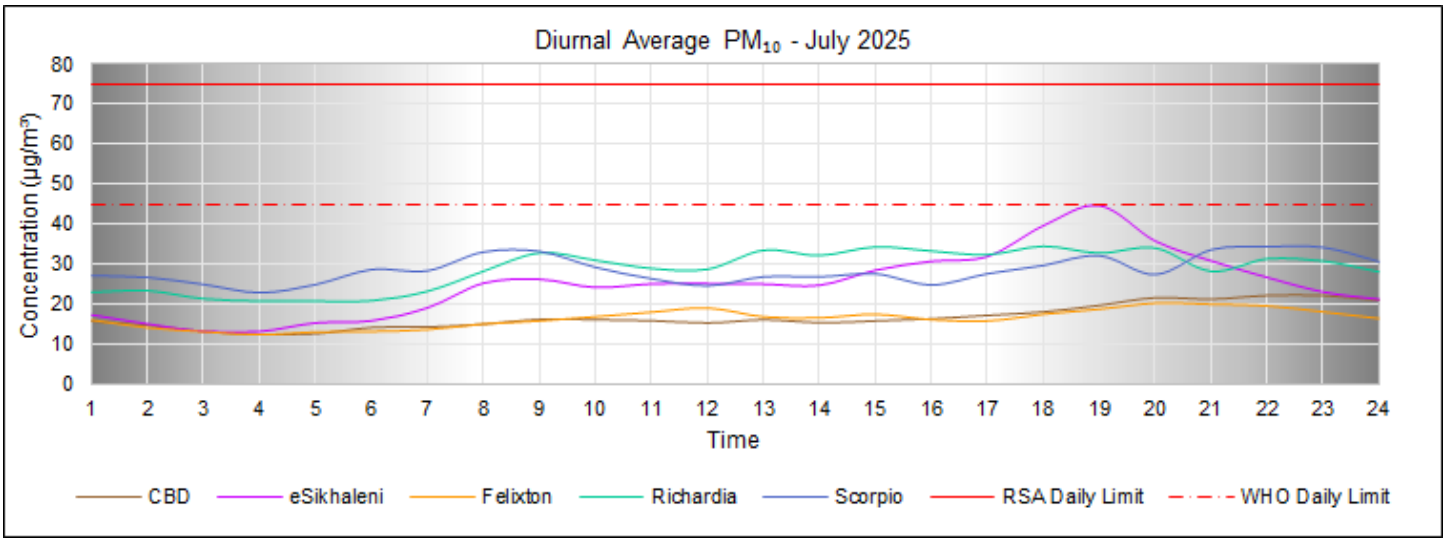


Figure 4.5: PM_{10} diurnal concentrations.

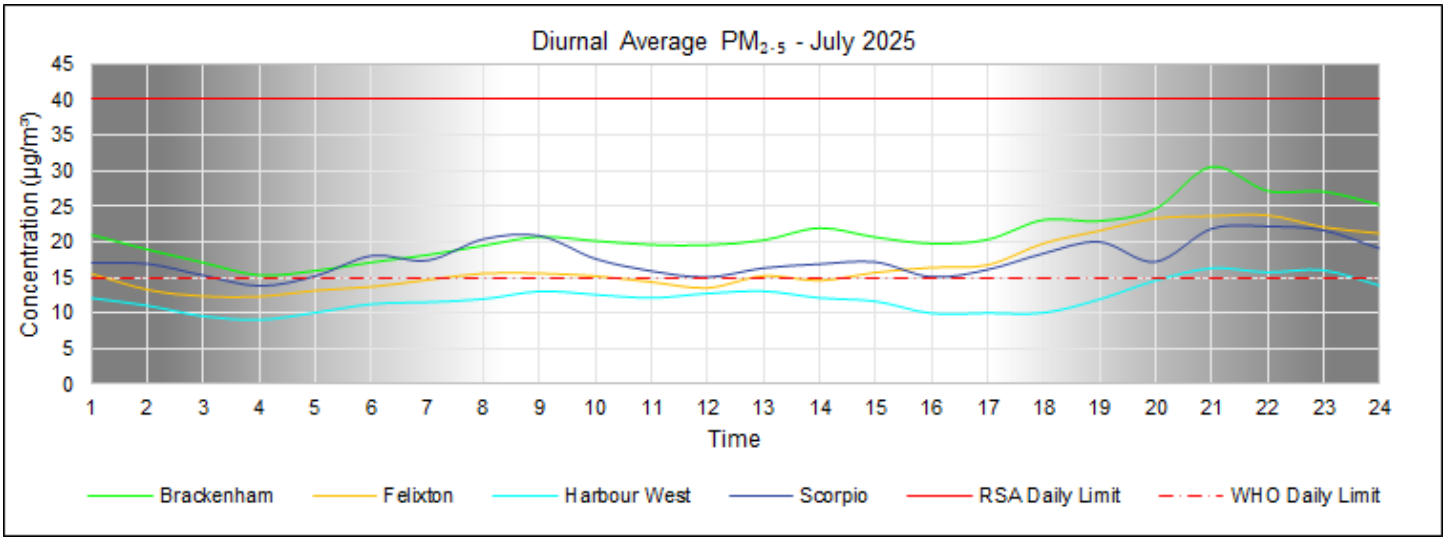


Figure 4.6: $PM_{2.5}$ diurnal concentrations.

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 exceedance of the RSA Limit (75 µg/m³); and,
- Nine (9) 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)	9
No response required	**9**
eSikhaleni	**3**
None	3
Felixton	**1**
None	1
Richardia	**1**
None	1
Scorpio	**4**
None	4

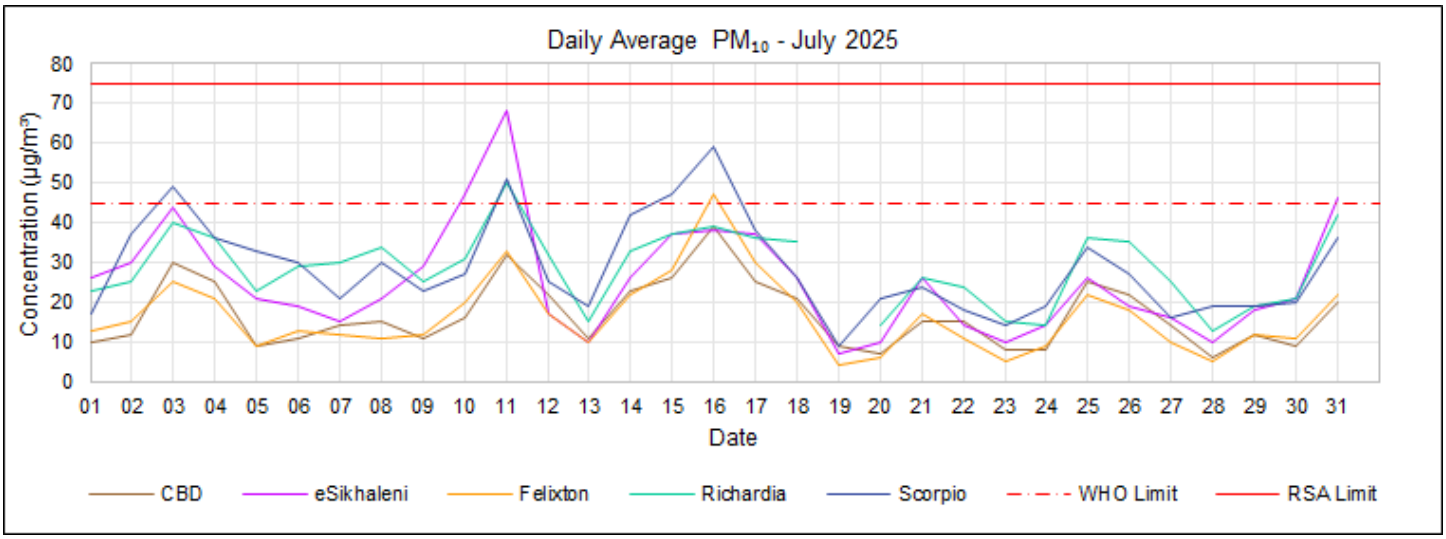


Figure 4.7: PM_{10} 24-hour average concentrations.

Missing Data (PM_{10})

- *Richardia (Station) – Power failures, data invalidation (1 day/s with <80% data capture, 19 July 2025).*

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

- Five (5) measured exceedances of the RSA Limit (40 µg/m³); and,
- Fifty-four (54) 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)	5
Industry response required	**1**
Brackenham	1
Responded: Mondi	1
ZFPA	**1**
Brackenham	1
Controlled burns	1
Cane fires	**3**
Brackenham	1
Cane fires	1
Felixton	1
Cane fires	1
Scorpio	1
Cane fires	1
$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	**54**
No response required	**54**
Brackenham	18
None	18
Felixton	14
None	14
Scorpio	14
None	14
Harbour West	8
None	8

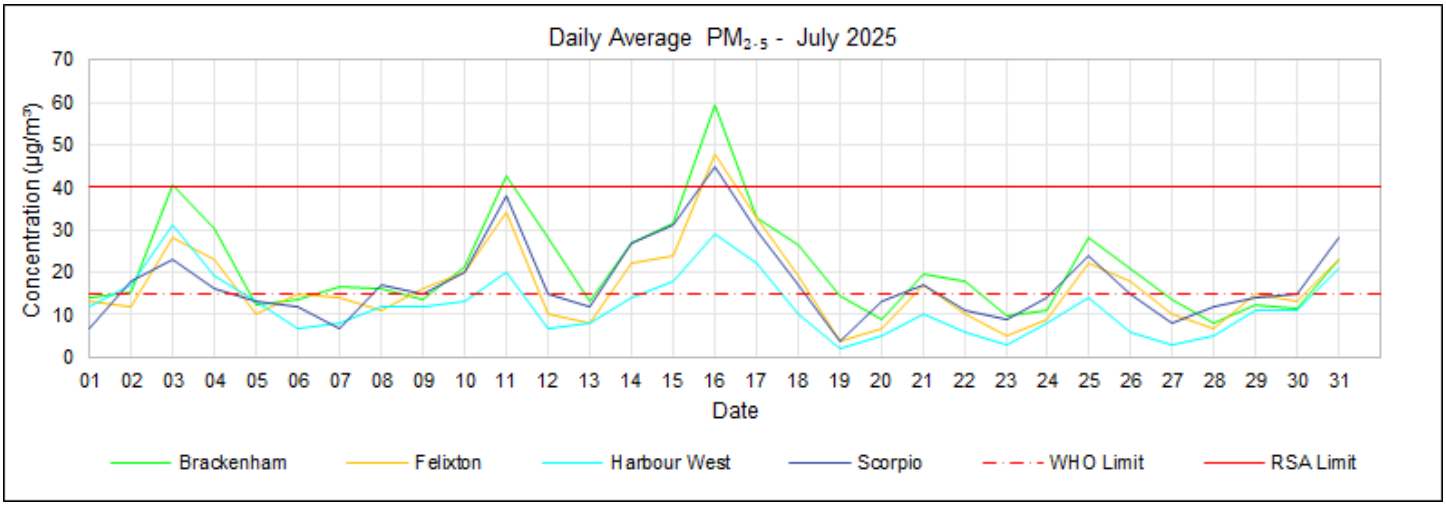


Figure 4.8: $PM_{2.5}$ daily average concentrations.

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.

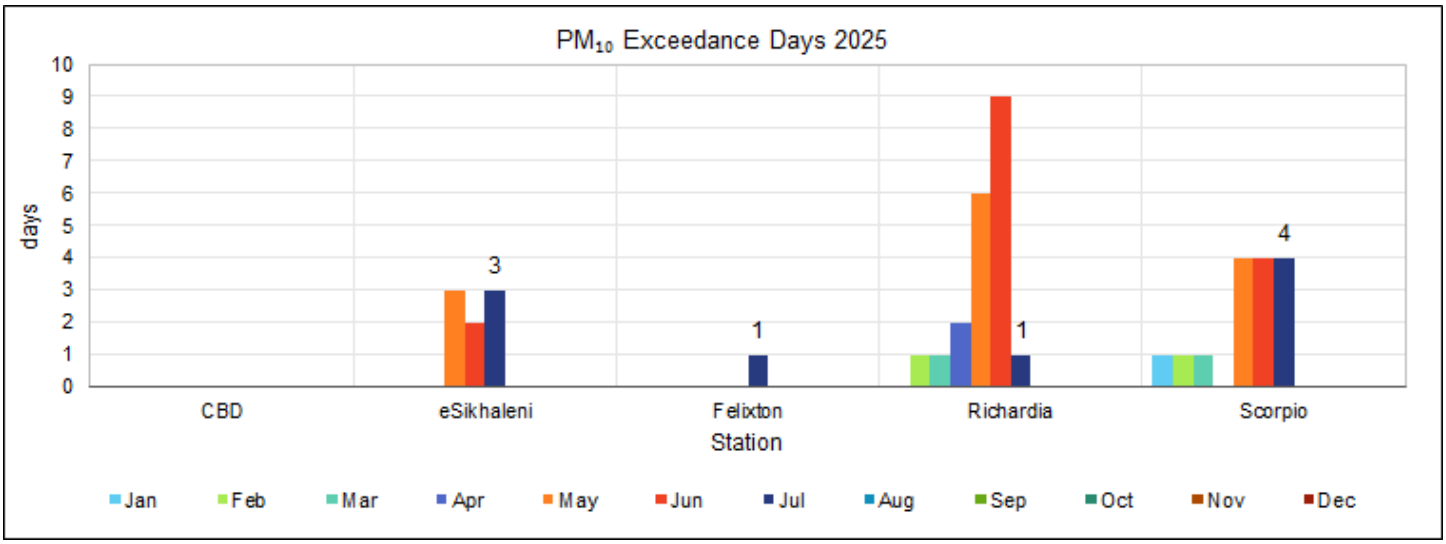


Figure 4.9: PM_{10} exceedance days.

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
Scorpio	-	-	-	-	-	-	-	-	-	-	-	-	0
PM_{10} Daily WHO Limit (45 µg/m³)													
Brackenham	-	-	-	-	-	-	-	-	-	-	-	-	0
CBD	-	-	-	-	-	-	-	-	-	-	-	-	0
eSikhaleni	-	-	-	-	3	2	3	-	-	-	-	-	**8**
Felixton	-	-	-	-	-	-	1	-	-	-	-	-	**1**
Richardia	-	1	1	2	6	9	1	-	-	-	-	-	**20**
Scorpio	1	1	1	-	4	4	4	-	-	-	-	-	**15**

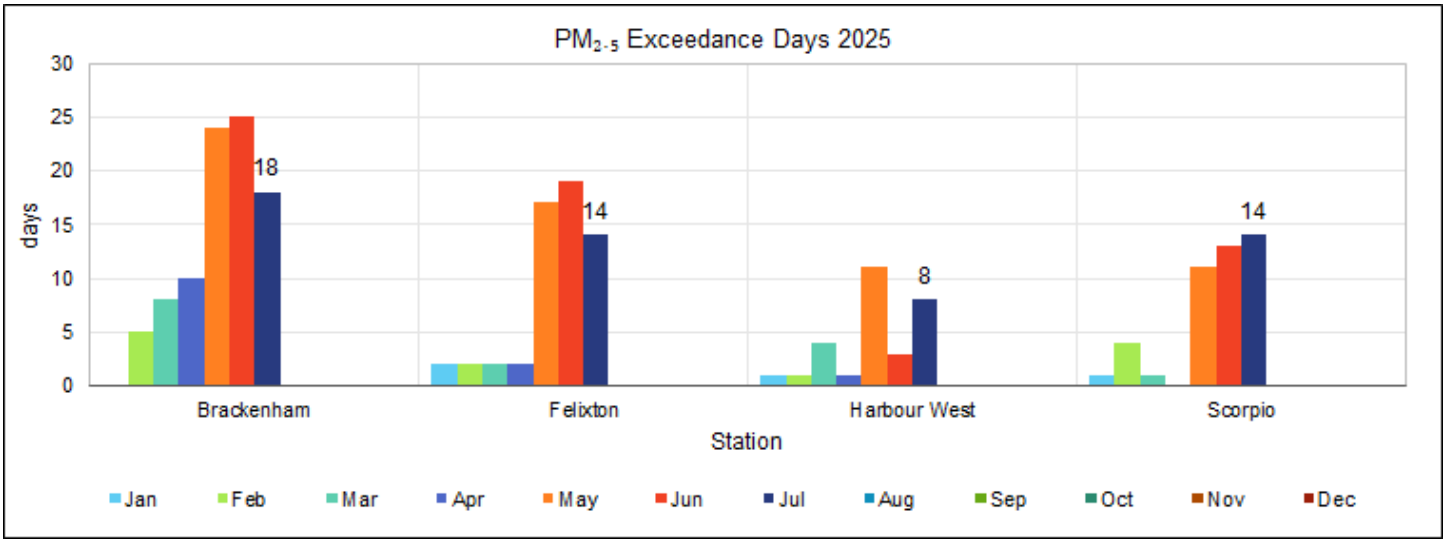


Figure 4.10: $PM_{2.5}$ exceedance days.

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**
Felixton	-	-	-	-	-	-	1	-	-	-	-	-	1
Harbour West	-	-	-	-	-	-	-	-	-	-	-	-	0
Scorpio	-	-	-	-	-	-	1	-	-	-	-	-	1
$PM_{2.5}$ Daily WHO Limit (15 µg/m³)													
Brackenham	-	5	8	10	24	25	18	-	-	-	-	-	**90**
Felixton	2	2	2	2	17	19	14	-	-	-	-	-	**58**
Harbour West	1	1	4	1	11	3	7	-	-	-	-	-	**28**
Scorpio	1	4	1	-	11	14	14	-	-	-	-	-	**45**

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 manufacture, petroleum and metal refining, and metal smelting (particularly from sulphide-containing ores, e.g., lead, silver, and zinc ores) and 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 July 2025 is shown in Table 5.2.

Table 5.2: SO_2 data capture.

Station	Availability (%)	SO_2 (%)
Arboretum	98	98
Brackenham	100	100
CBD	100	100
eSikhaleni	100	100
Felixton	100	99
Harbour West	100	100
Richardia	98	95
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 (Station) – Power failures, data invalidation (1 day/s with <80% data capture, 19 July 2025).*
- *Richardia (Station) – Power failures, instrument failure, data invalidation (3 day/s with <80% data capture, 18-19, 29 July 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).

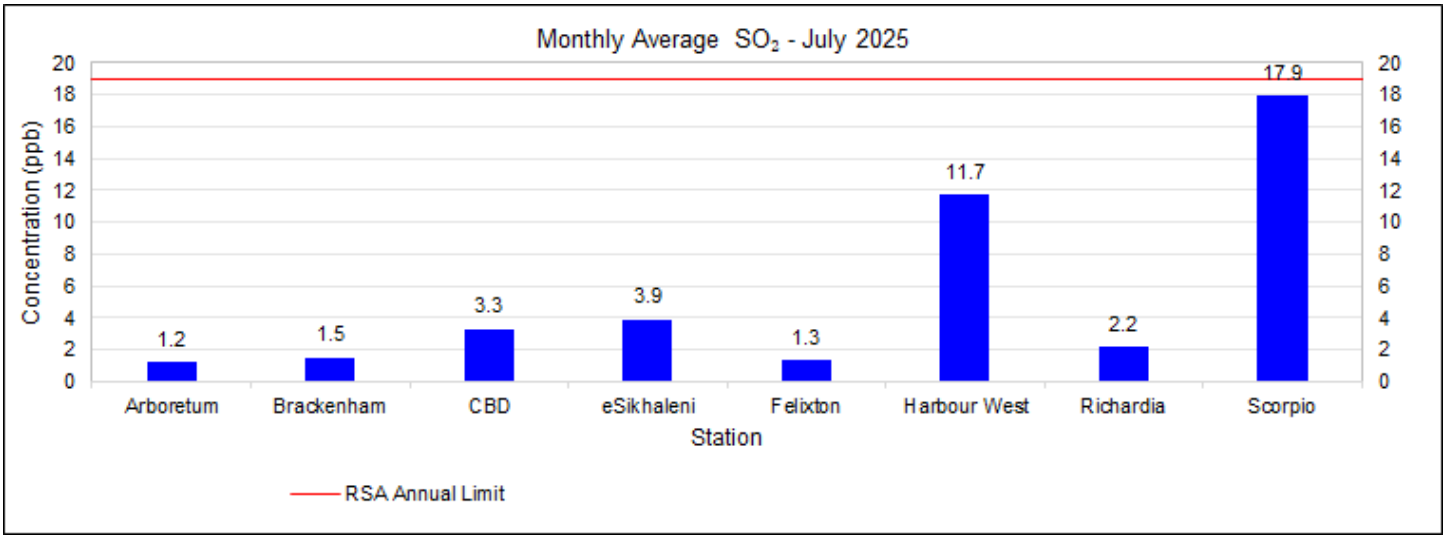


Figure 5.1: SO_2 monthly concentrations.

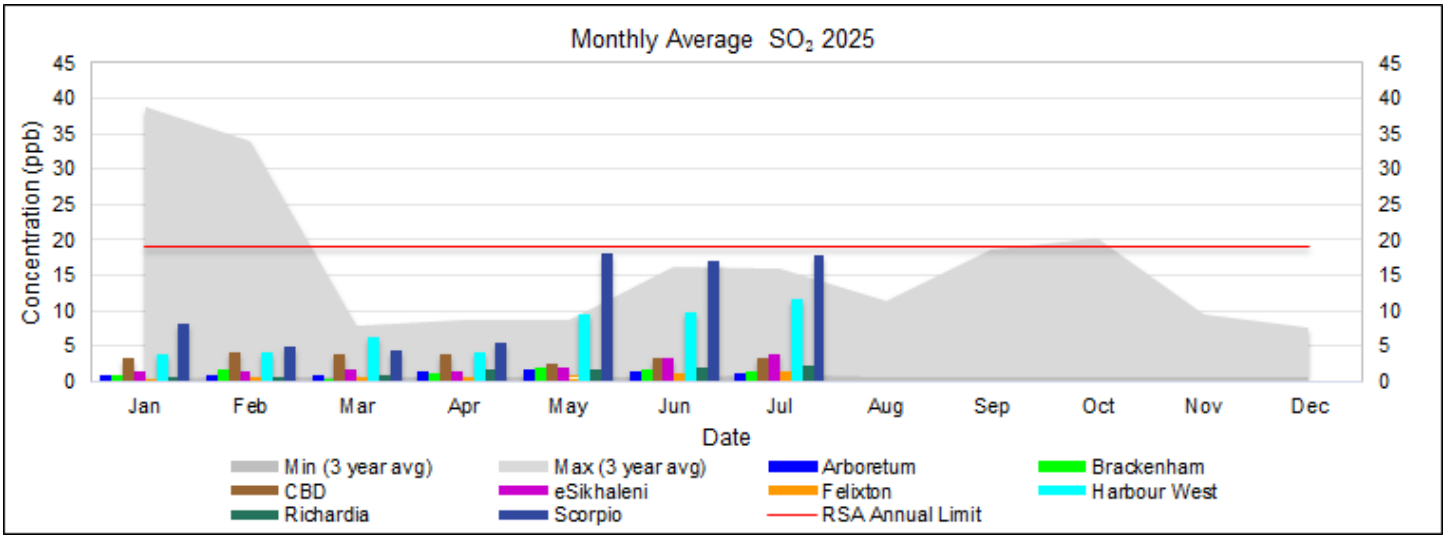


Figure 5.2: SO_2 monthly comparison.

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 Harbour West and Scorpio.

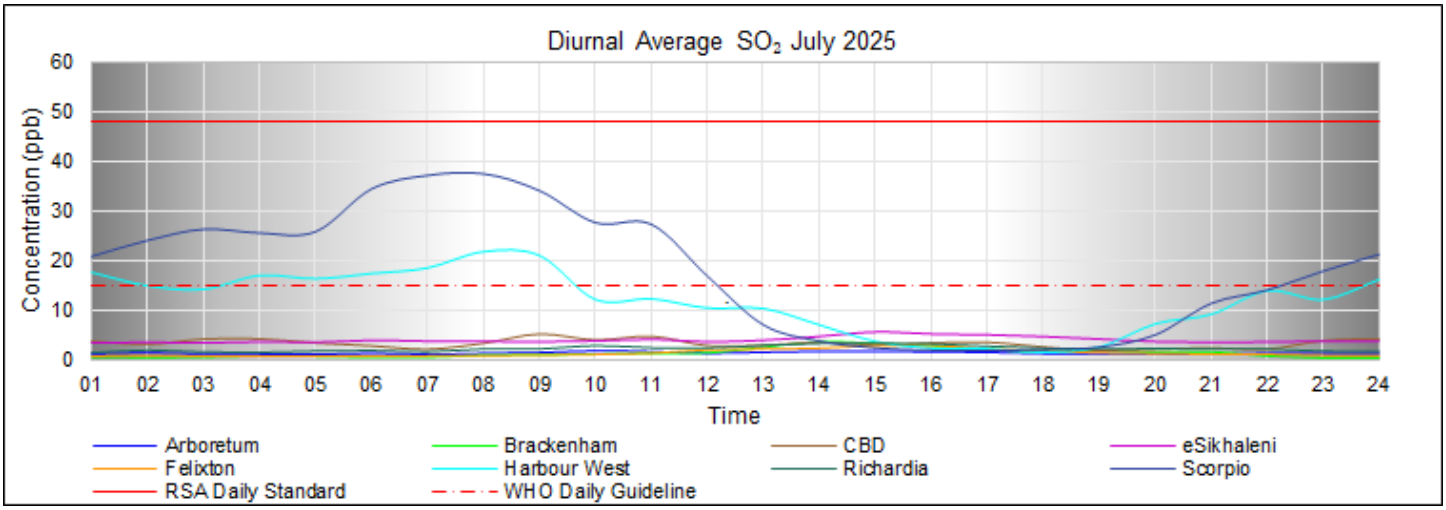


Figure 5.3: SO_2 diurnal concentrations.

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,
- Twenty-six (26) 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
South32 - meteorology	1
Scorpio	1
RBCAA allocation	1
SO_2 Daily WHO Limit (15 ppb)	26
No response required	26
Harbour West	11
None	11
Scorpio	15
None	15

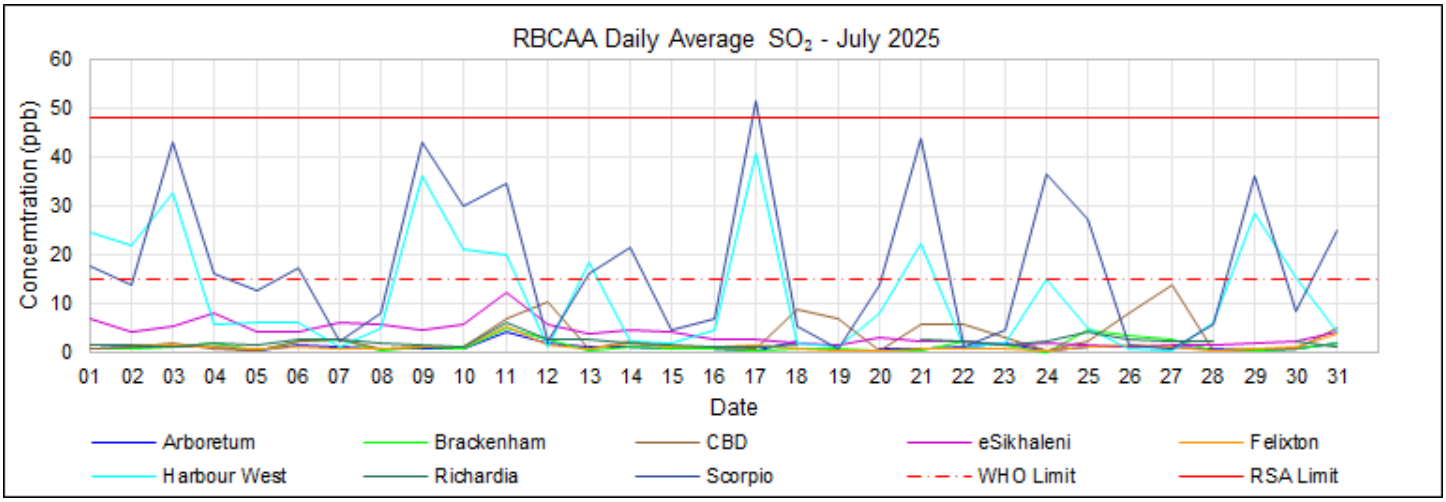


Figure 5.4: SO_2 24-hour average concentrations.

Missing Data (SO_2):

- *Arboretum (Station) – Power failures, data invalidation (1 day/s with <80% data capture, 19 July 2025).*
- *Richardia (Station) – Power failures, instrument failure, data invalidation (3 day/s with <80% data capture, 18-19, 29 July 2025).*

5.6. Hourly

SO_2 hourly average concentrations are shown in Figure 5.5. Six (6) 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)	6
South32 - meteorology	6
Scorpio	6
RBCAA allocation	6

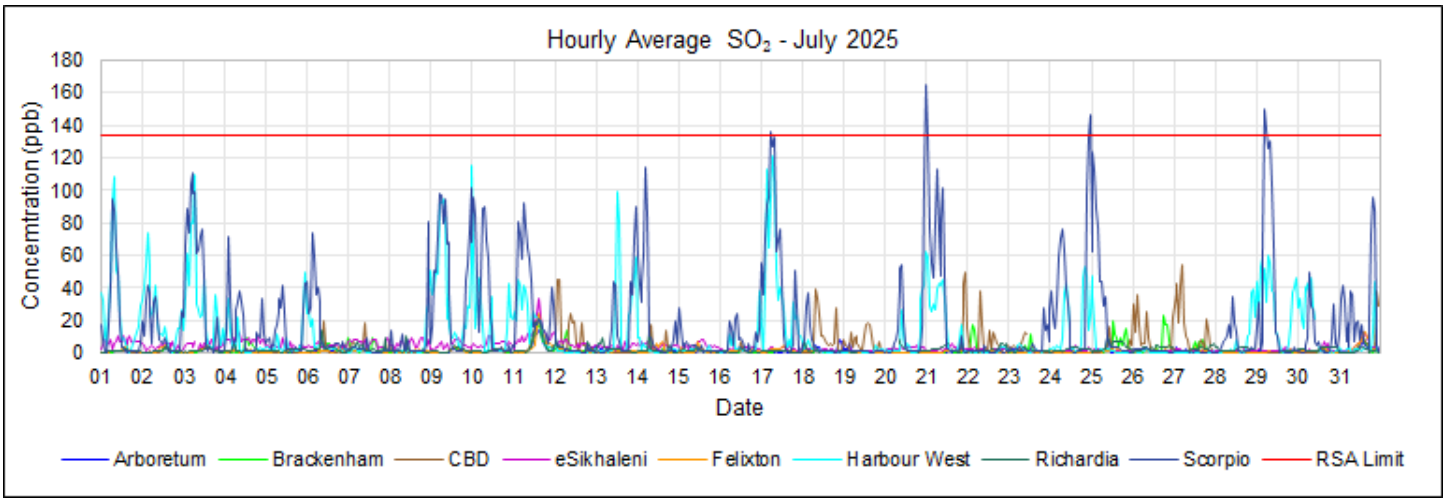


Figure 5.5: SO_2 1-hour average concentrations.

5.7. 10-minute

SO_2 10-minute average concentrations are shown in Figure 5.6. There were three (3) 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)	3
South32 - meteorology	3
Scorpio	3
RBCAA allocation	3

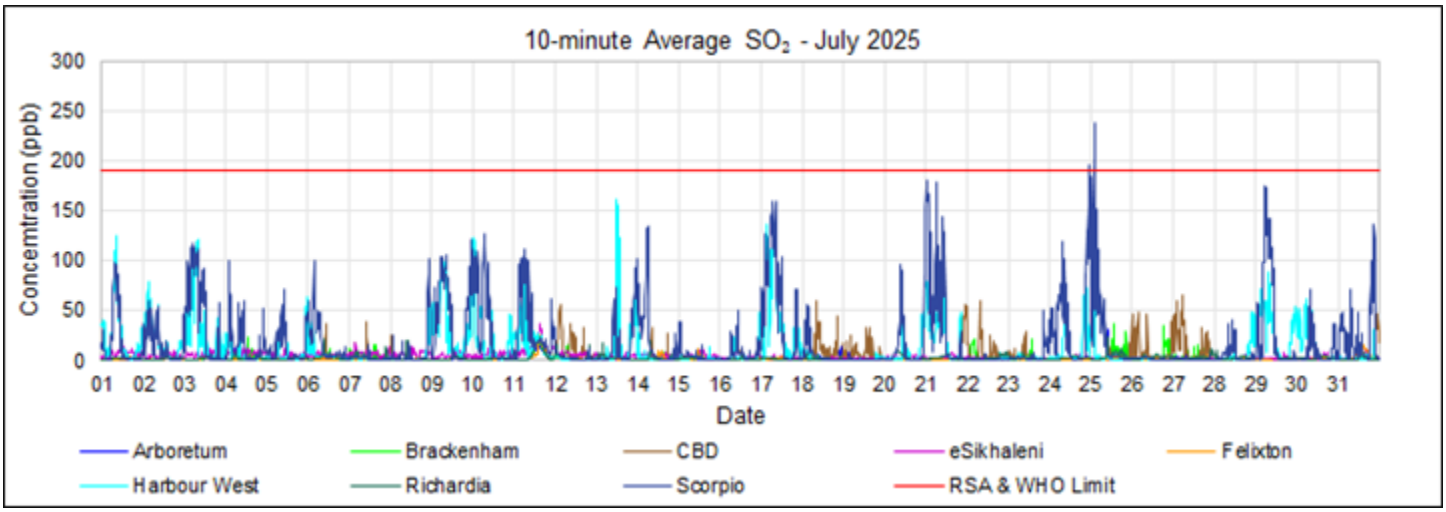


Figure 5.6: SO_2 10-minute average concentrations.

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 5.6SO_2 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 be considered good air quality concerning SO_2.

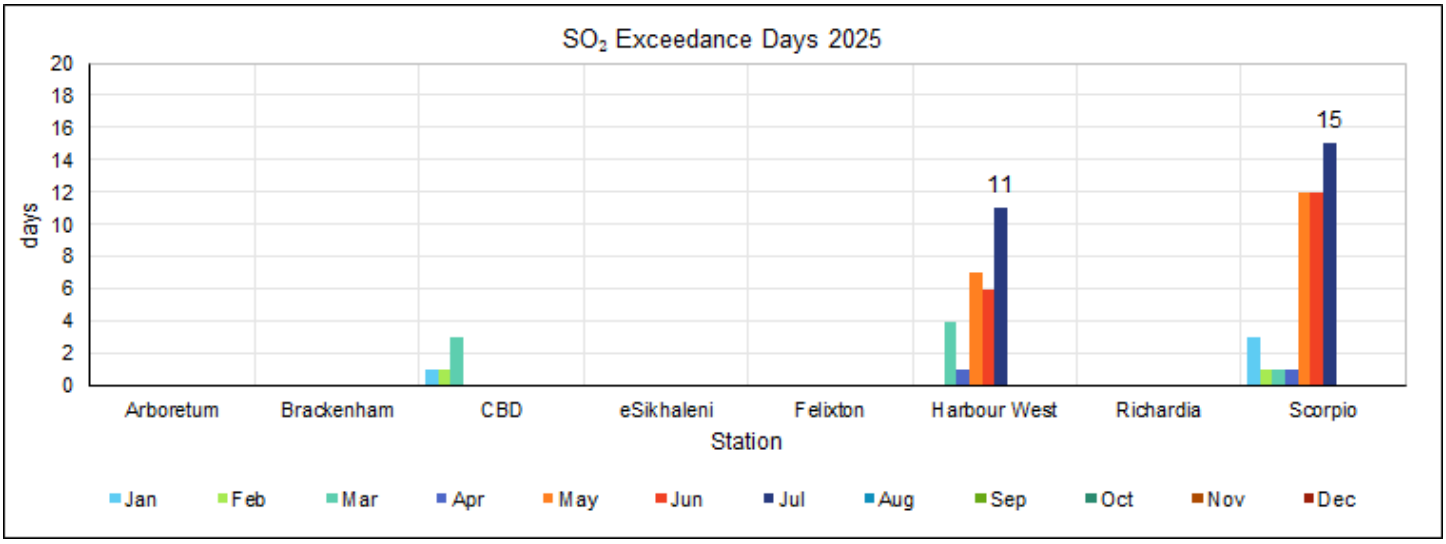


Figure 5.7: SO_2 exceedance days.

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	-	-	-	-	-	**6**
SO_2 Daily WHO Limit (15 ppb)													
CBD	1	1	3	-	-	-	-	-	-	-	-	-	**5**
eSikhaleni	-	-	-	-	-	-	-	-	-	-	-	-	0
Harbour West	-	-	4	1	7	6	11	-	-	-	-	-	**29**
Richardia	-	-	-	-	-	-	-	-	-	-	-	-	0
Scorpio	3	-	1	1	12	11	15	-	-	-	-	-	**43**
SO_2 Hourly RSA Limit (134 ppb)													
CBD	-	-	-	-	-	-	-	-	-	-	-	-	0
eSikhaleni	-	-	-	-	-	-	-	-	-	-	-	-	0
Harbour West	1	-	-	-	-	-	-	-	-	-	-	-	1
Richardia	-	-	-	-	-	-	-	-	-	-	-	-	0
Scorpio	4	-	3	-	1	-	2	-	-	-	-	-	10
SO_2 10-minute RSA & WHO Limit (191 ppb)													
CBD	-	-	-	-	-	-	-	-	-	-	-	-	0
eSikhaleni	-	-	-	-	-	-	-	-	-	-	-	-	0
Harbour West	-	-	-	-	-	-	-	-	-	-	-	-	0
Richardia	-	-	-	-	-	-	-	-	-	-	-	-	0
Scorpio	18	1	-	-	-	3	3	-	-	-	-	-	25

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 July 2025 is shown in Table 6.2.

Table 6.2: TRS data capture.

Station	Availability (%)	TRS (%)
CBD	100	99
eSikhaleni	100	100
Felixton	100	100
Richardia	98	97

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):
- *Richardia (Station) – Power failures, data invalidation (1 day/s with <80% data capture, 19 July 2025).*

6.3. Monthly

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

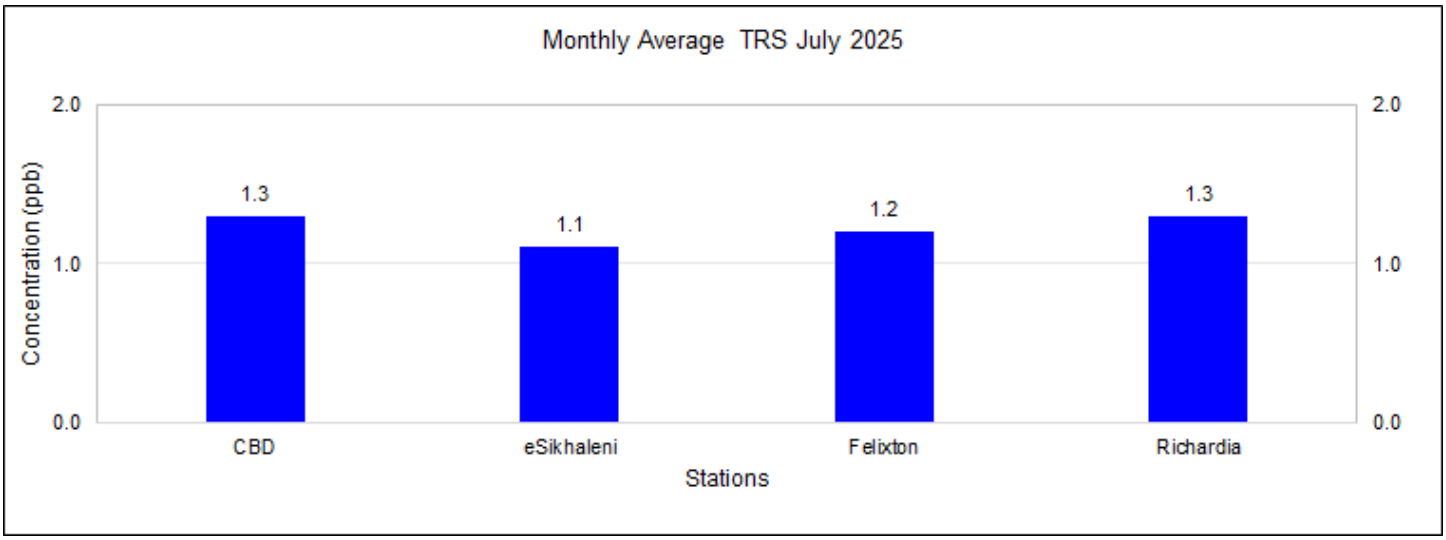


Figure 6.1: TRS monthly concentrations.

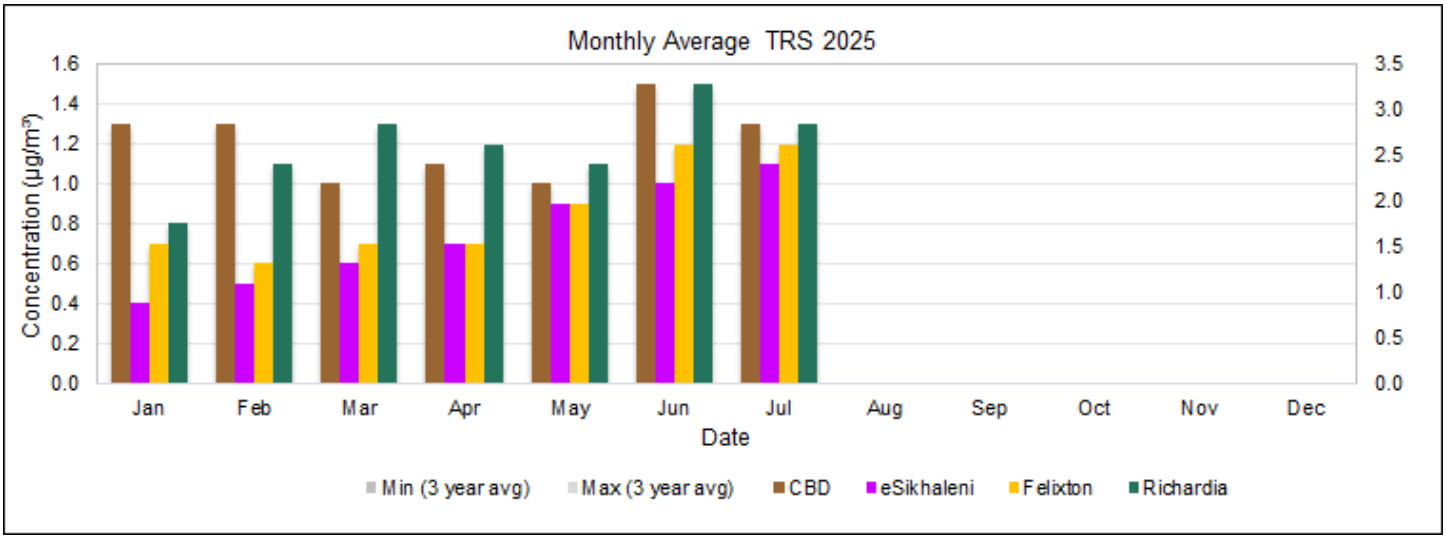


Figure 6.2: TRS monthly comparison.

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).

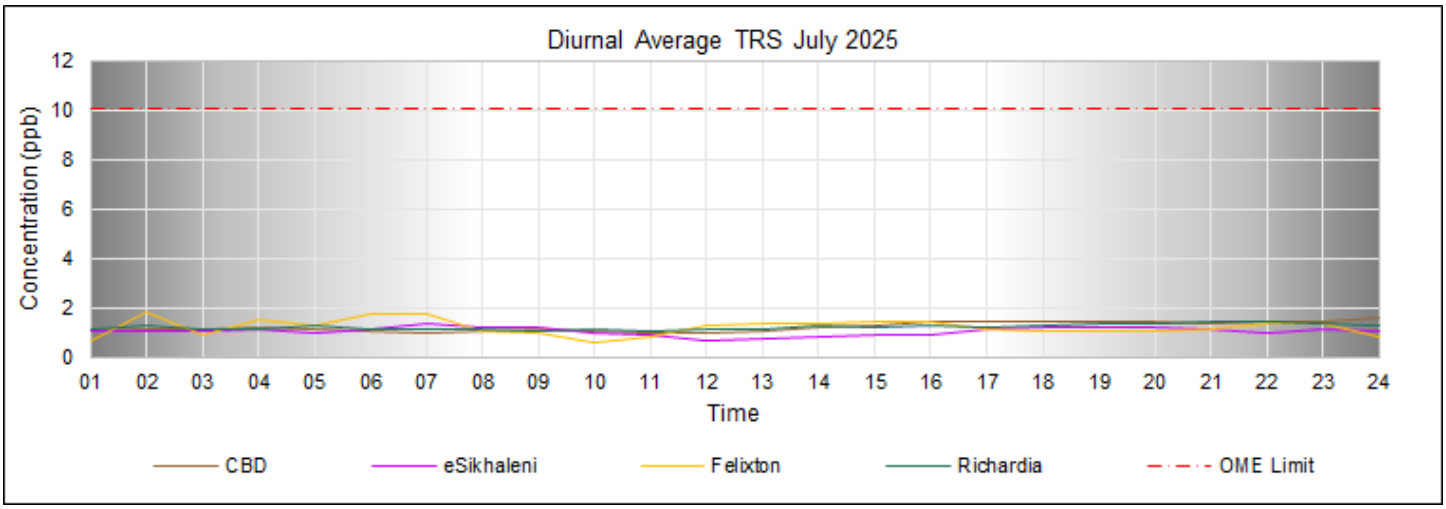


Figure 6.3: TRS diurnal concentrations.

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.

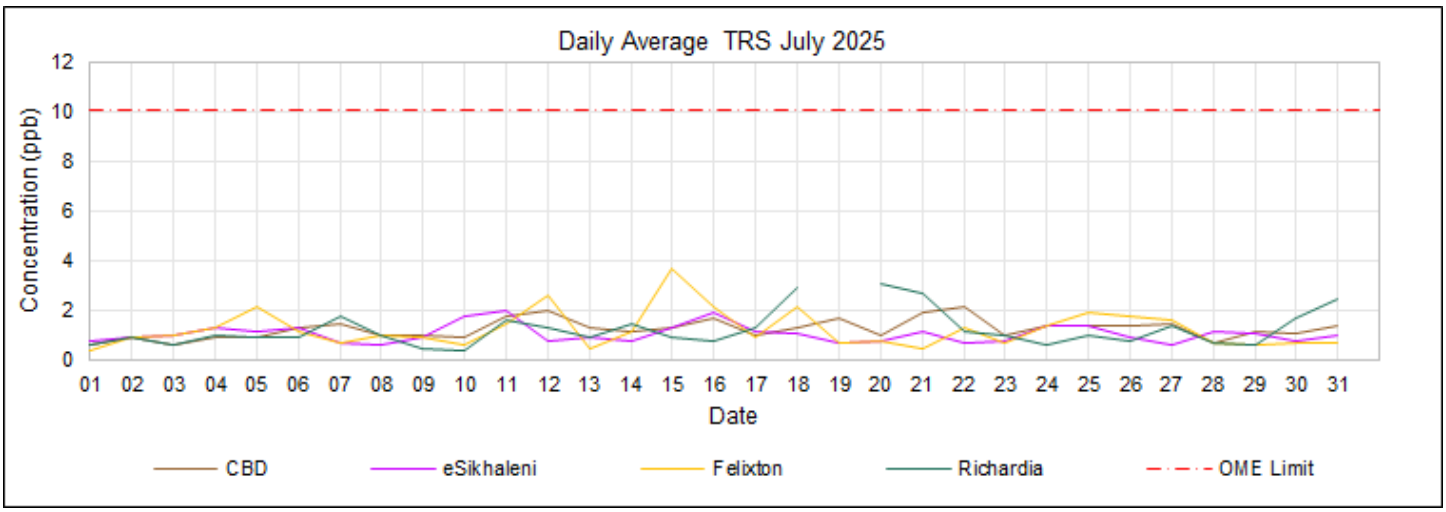


Figure 6.4: TRS daily average concentration.

Missing Data (TRS):

- *Richardia (Station) – Power failures, data invalidation (1 day/s with <80% data capture, 19 July 2025).*

6.6. 30-minute

The TRS 30-minute average concentrations are shown in Figure 6.5, and exceedances in Table 6.3. Sixty-eight (68) 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)	68
Mondi	**23**
CBD	3
Source of TRS unknown	1
Meteorology - Source not identified	2
eSikhaleni	8
H_2S released from the effluent plant	1
Methanol system	6
Meteorology - Source not identified	1
Felixton	9
White liquor (WWL) tank overflow	9
Richardia	3
Secondary Effluent Treatment Plant	2
Methanol system (possible cause)	1

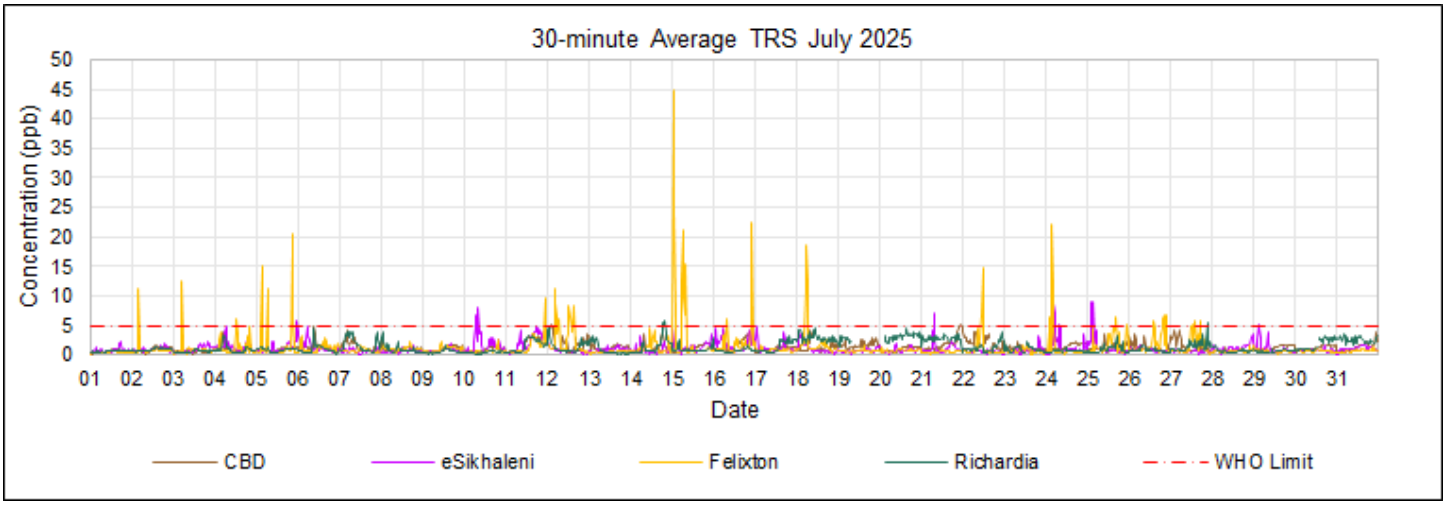


Figure 6.5: TRS 30-minute average concentration.

6.7. 10-minute

The TRS 10-minute average concentrations are shown in Figure 6.6, and exceedances in Table 6.4. Seventy-four (74) 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)	74
Mondi	**23**
eSikhaleni	5
Methanol system	5
Felixton	18
White liquor (WWL) tank overflow	18
THS	**38**
Felixton	38
smuts clarifiers	3
Desludging	14
High sulphite in the clarifier water	5
Desludging process	16
THS + Mondi (Meteorology)	**13**
eSikhaleni	3
Desludging	3
Felixton	10
Desludging	10

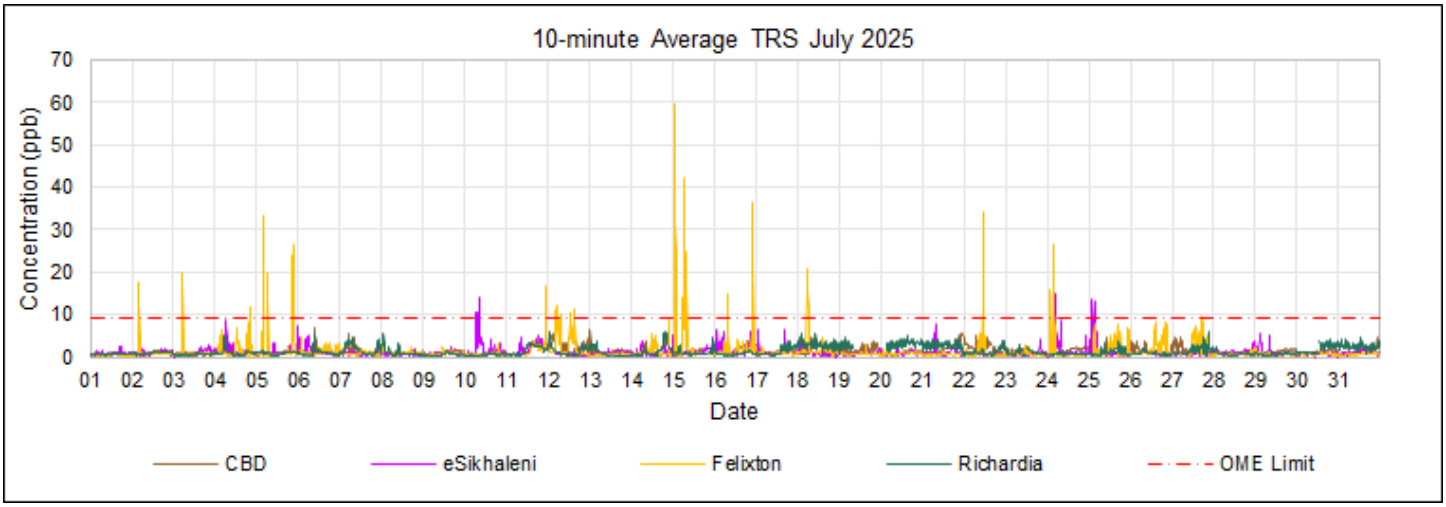


Figure 6.6: TRS 10-minute average concentrations.

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.

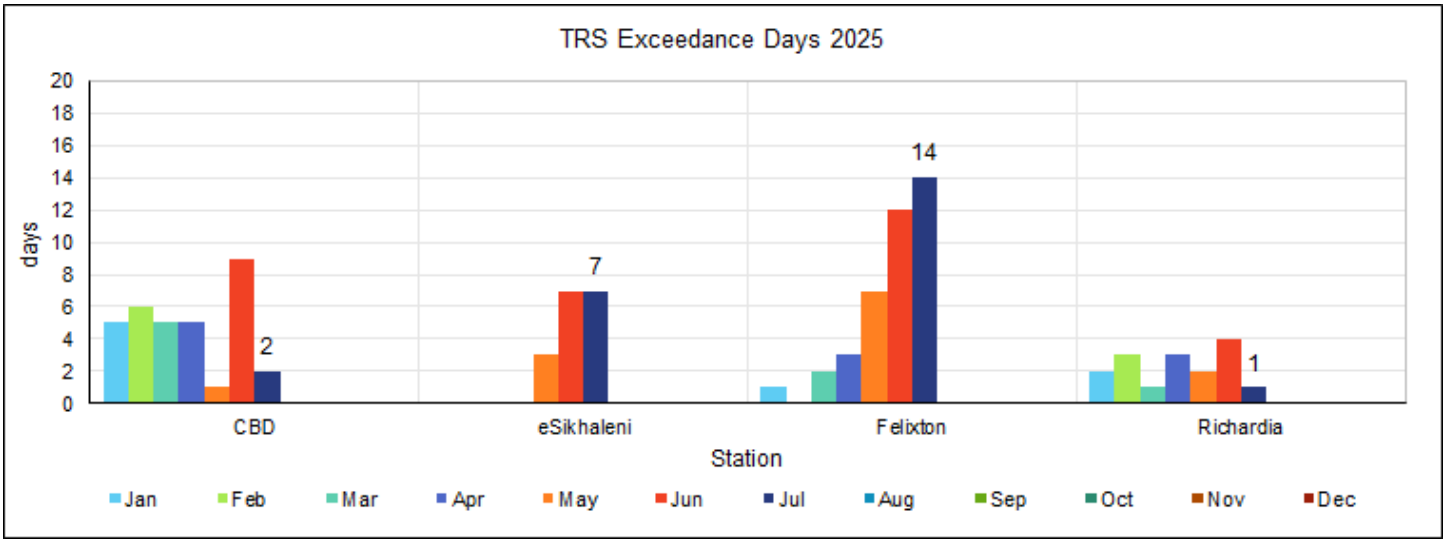


Figure 6.7: TRS exceedance days.

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	-	-	-	-	-	**130**
eSikhaleni	-	-	-	-	4	19	11	-	-	-	-	-	**34**
Felixton	1	-	8	7	11	31	51	-	-	-	-	-	**109**
Richardia	5	7	3	7	3	16	3	-	-	-	-	-	**44**
TRS 10-minute OME Limit (9.3 ppb)													
CBD	53	10	8	7	-	27	-	-	-	-	-	-	**105**
eSikhaleni	-	-	-	-	4	11	8	-	-	-	-	-	**23**
Felixton	2	-	4	10	10	43	66	-	-	-	-	-	**135**
Richardia	3	1	-	9	-	13	-	-	-	-	-	-	**26**

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 worldwide use and have been developed to support actions to achieve air quality that protects public health in different contexts. On the other hand, air quality standards and local targets are set by each country or region to protect the public health of their 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 July 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 eSikhaleni, Felixton, Richardia and Scorpio.
  - $PM_{2.5}$ at Brackenham, Felixton, Harbour West and Scorpio - all points monitored.
  - SO_2 at Harbour West and Scorpio; and
  - TRS at CBD, eSikhaleni, Felixton and Richardia - all points monitored.

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 air quality monitoring solutions. 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 use sensors like the Plantower PMS5003 for particulate matter and the SenseAir S8 for CO_2, which are dependable but may not match 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 guiding indoor air quality management decisions. 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.

Date	Brackenham	CBD	eSikhaleni	Felixton	Harbour West	Richardia
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

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).*
- *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.*
- *Harbour West*
  - *February '25 –power outages (load shedding).*
- *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 Brackenham, eSikhaleni, Felixton and Richardia.
- $PM_{2.5}$ monthly average concentrations exceed the RSA Annual Limit at eSikhaleni; the WHO Annual Limit was exceeded at all points monitored.

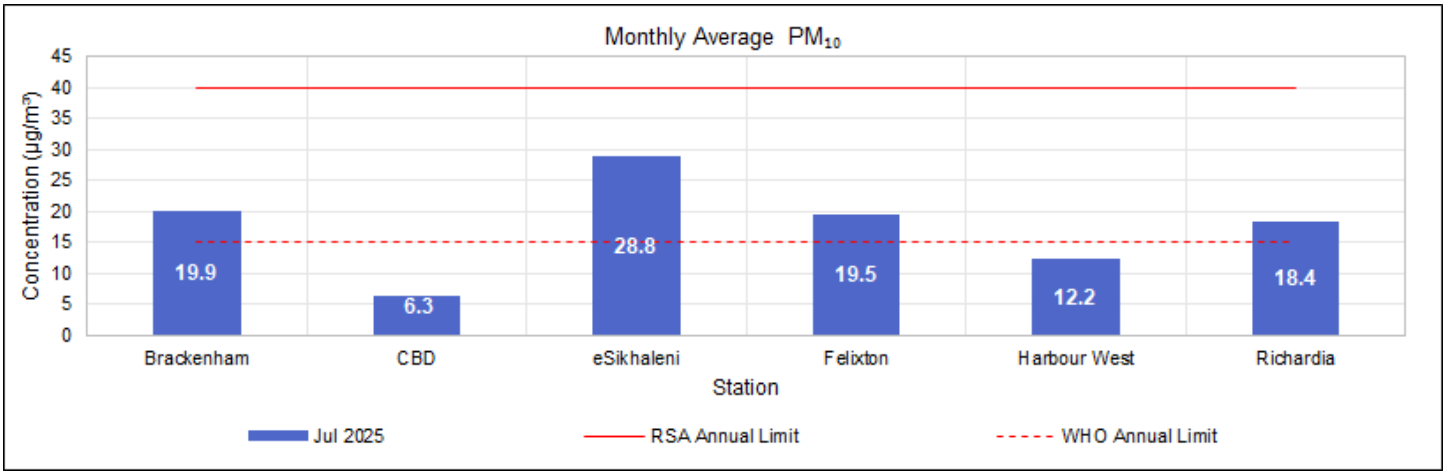


Figure 8.2: PM_{10} monthly concentration.

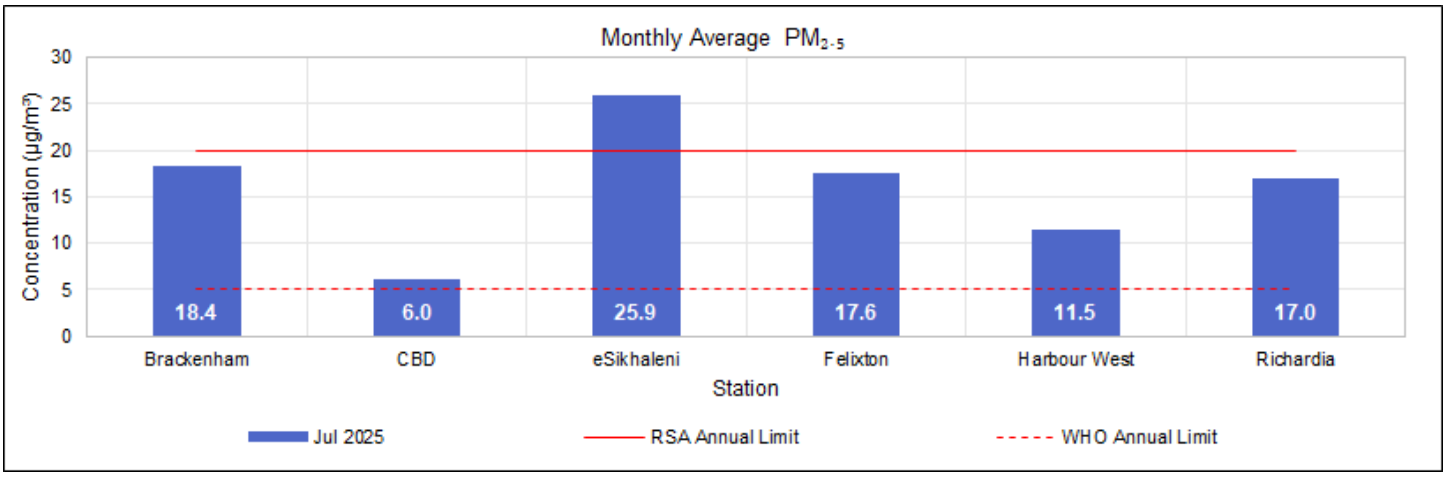


Figure 8.3: $PM_{2.5}$ monthly concentration.

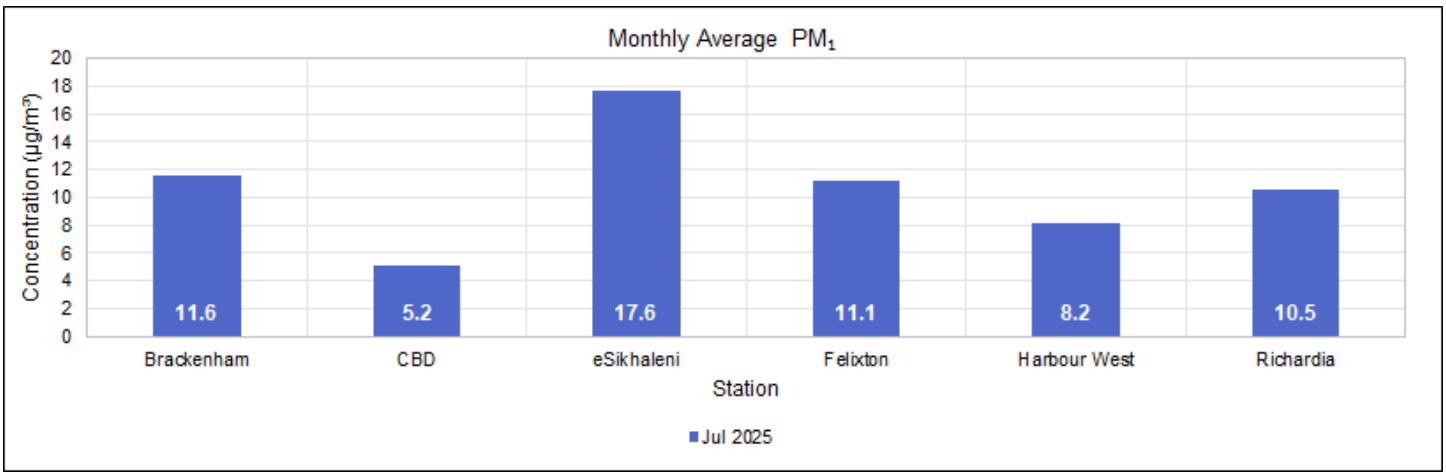


Figure 8.4: PM_{10} monthly concentration.

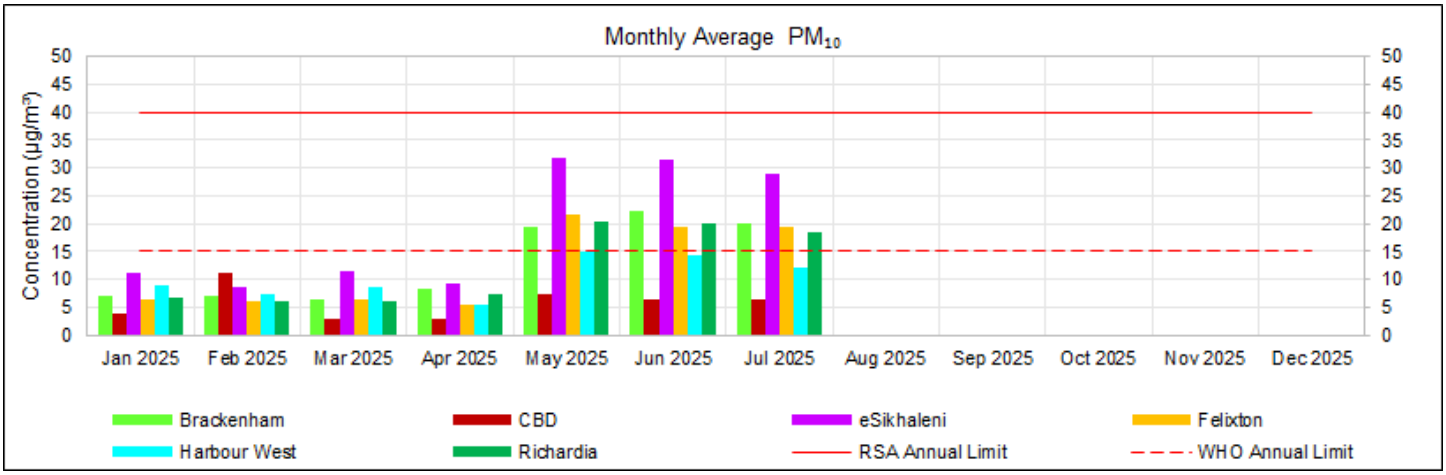


Figure 8.5: PM_{10} monthly comparison.

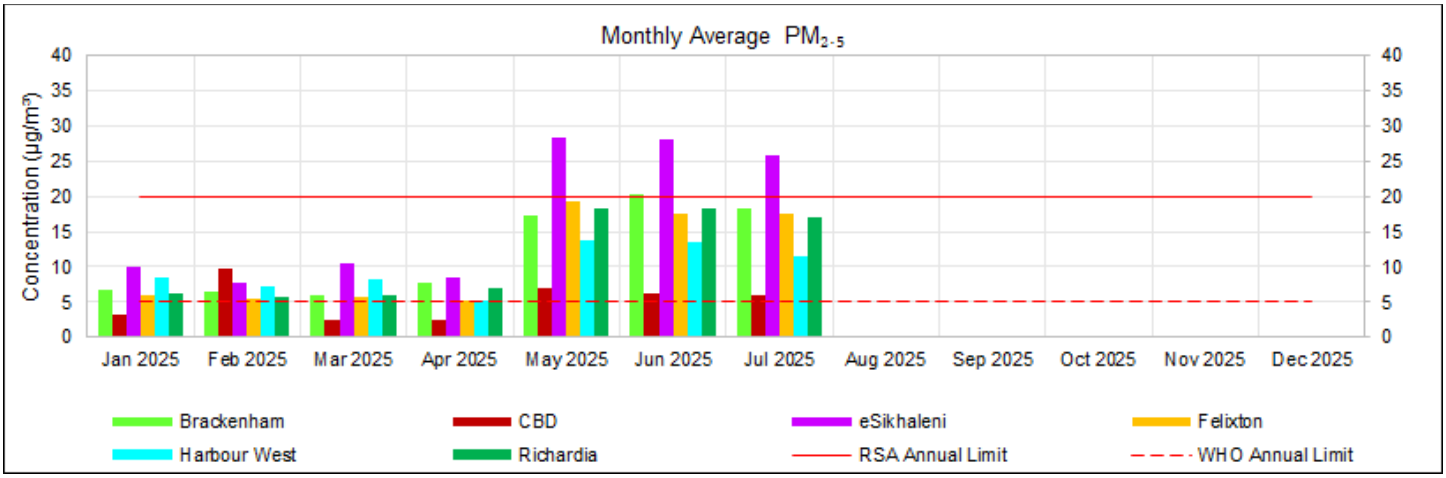


Figure 8.6: $PM_{2.5}$ monthly comparison.

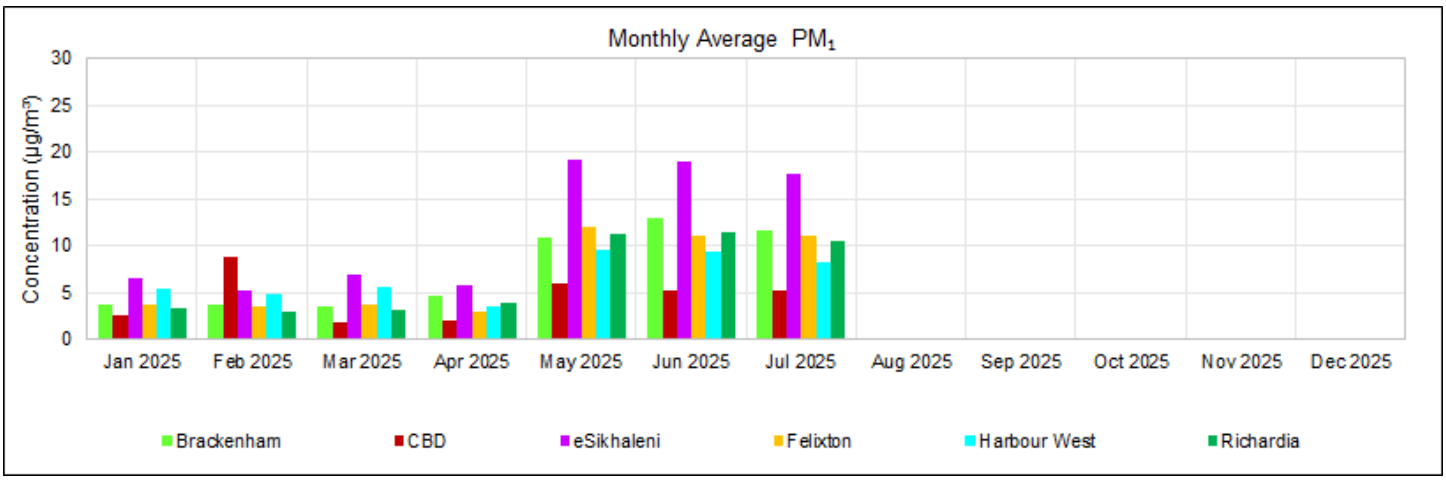


Figure 8.7: PM_1 monthly comparison.

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; the WHO daily limit was exceeded at eSikhaleni.
- $PM_{2.5}$ diurnal concentrations exceeded the RSA limit at eSikhaleni, and the WHO daily limit was exceeded at Brackenham, eSikhaleni, Felixton and Richardia.

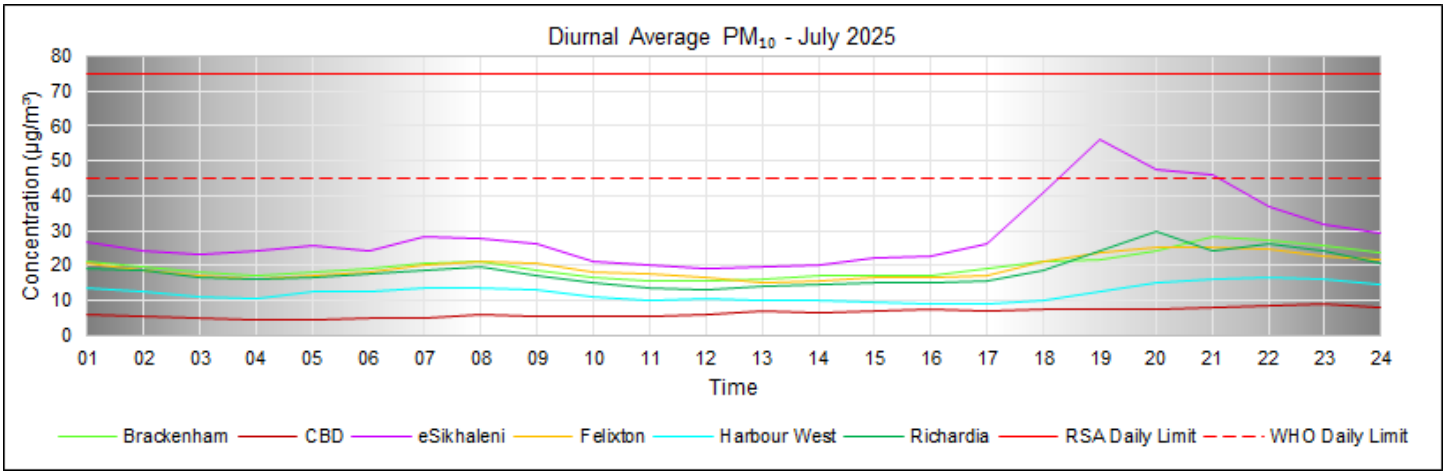


Figure 8.8: PM_{10} diurnal concentrations.

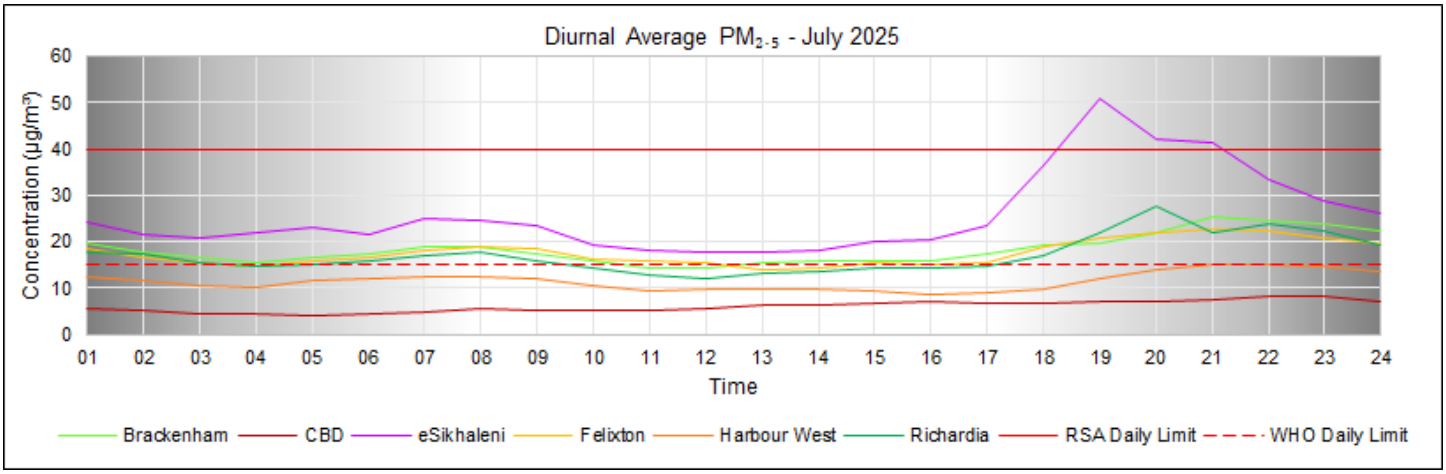


Figure 8.9: $PM_{2.5}$ diurnal concentrations.

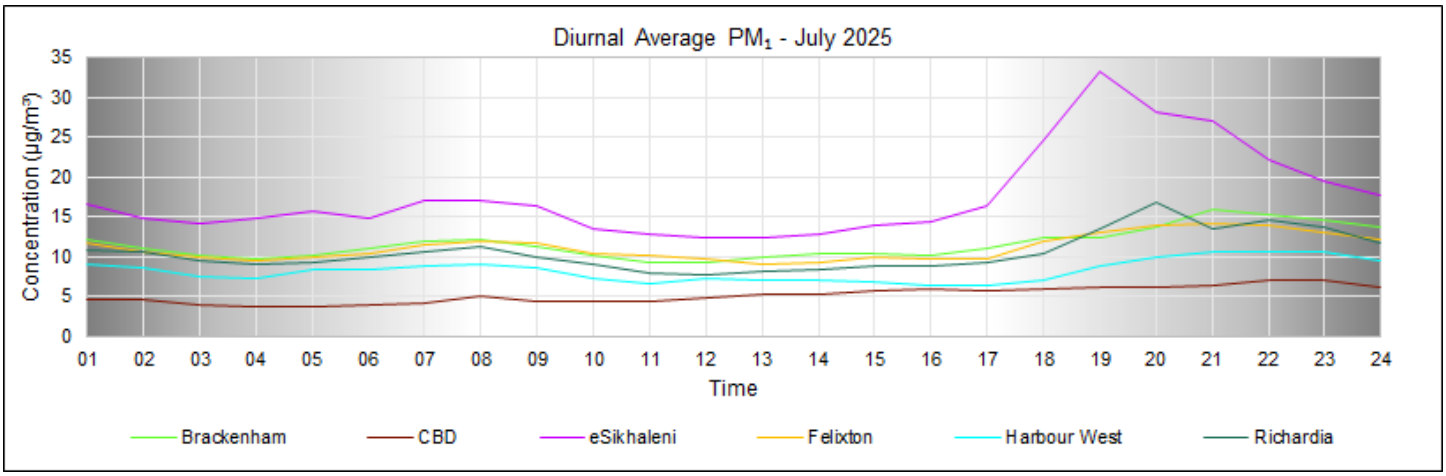


Figure 8.10: PM_1 diurnal concentrations.

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 was not exceeded, and the WHO limit was exceeded at Brackenham, eSikhaleni Felixton and Richardia.
- The $PM_{2.5}$ RSA limit was exceeded at Brackenham, eSikhaleni and Richardia, and the WHO limit was exceeded at all monitoring stations.

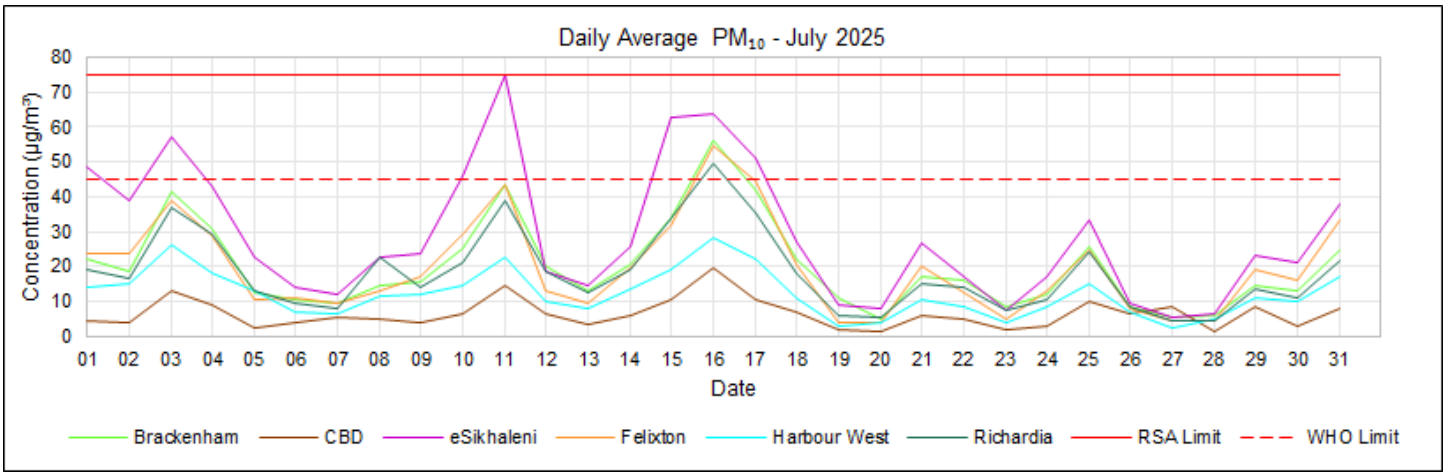


Figure 8.11: PM_{10} daily concentrations.

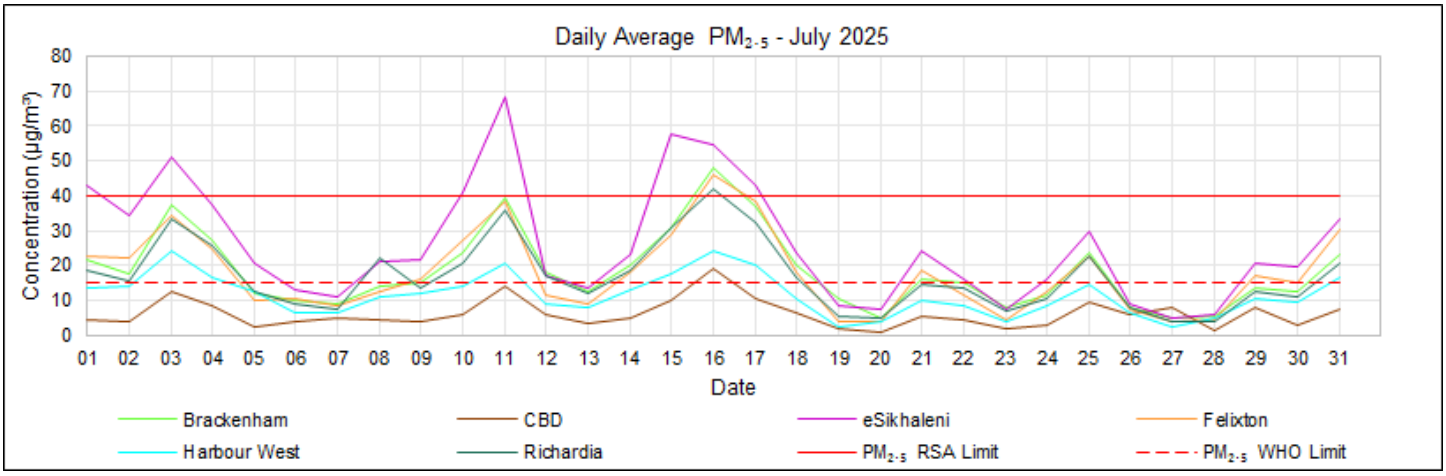


Figure 8.12: $PM_{2.5}$ daily concentrations.

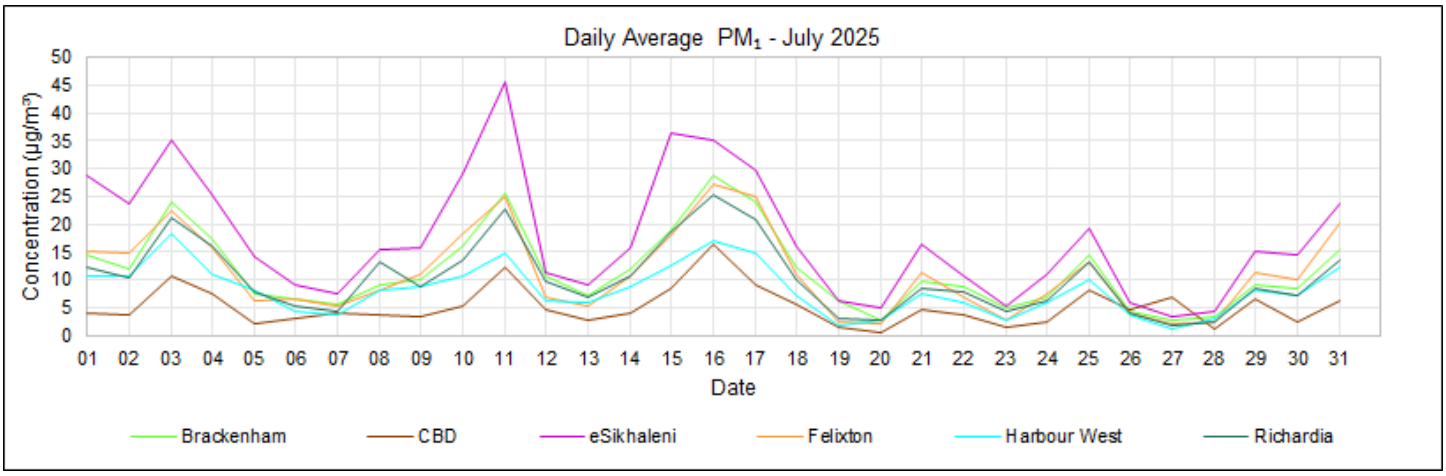


Figure 8.13: PM_1 daily concentrations.

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 and negatively impact 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).

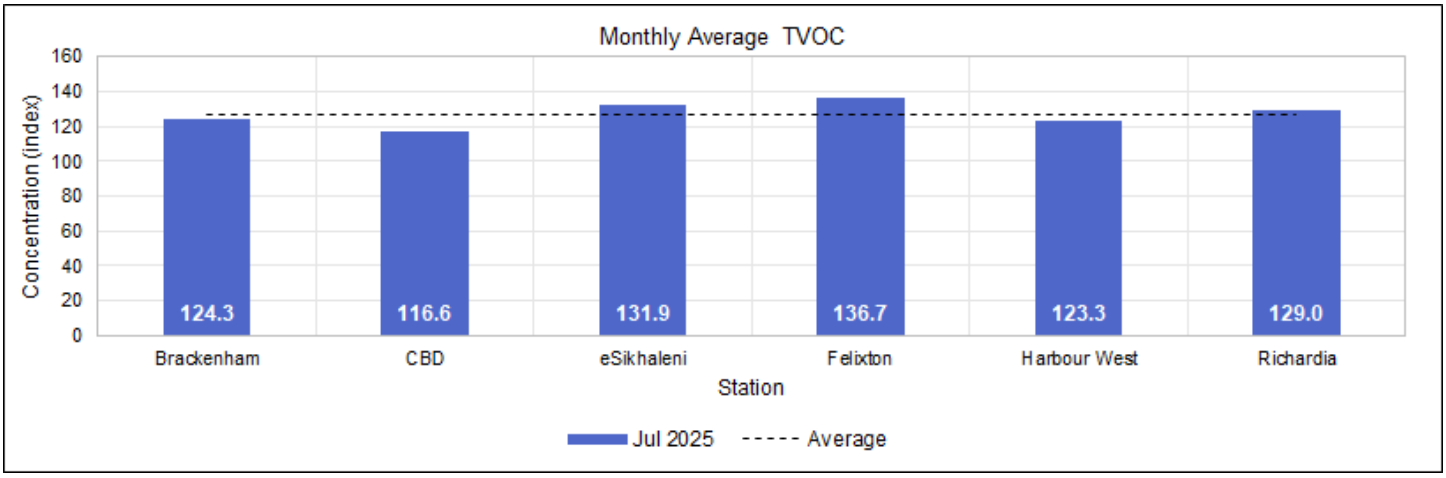


Figure 8.14: TVOC monthly concentration.

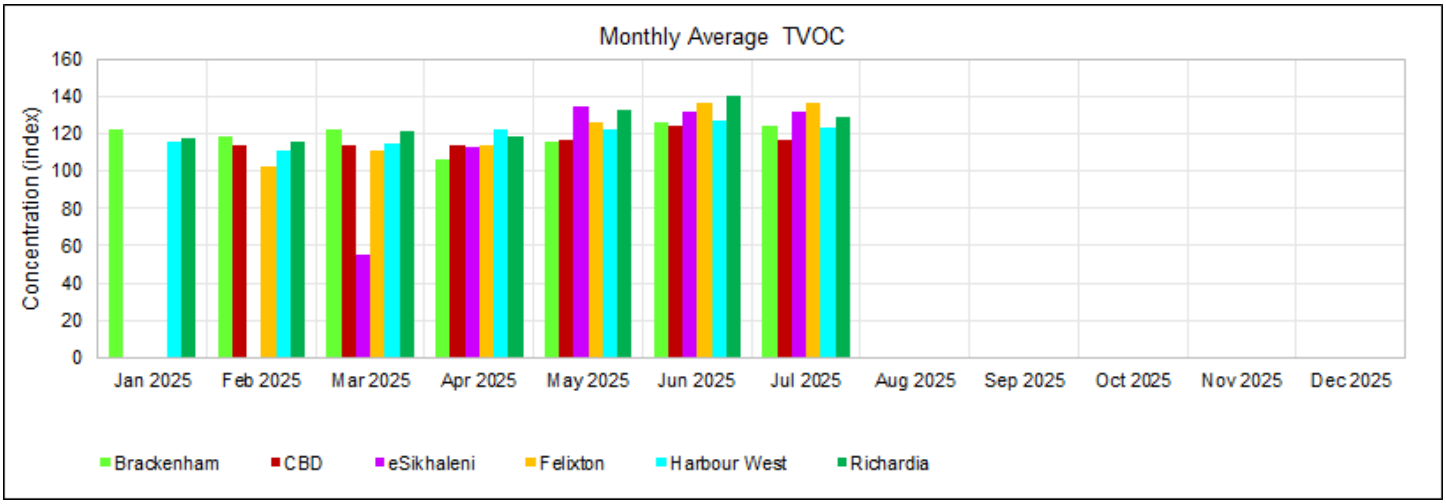


Figure 8.15: TVOC monthly comparison.

8.3.2. Diurnal

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

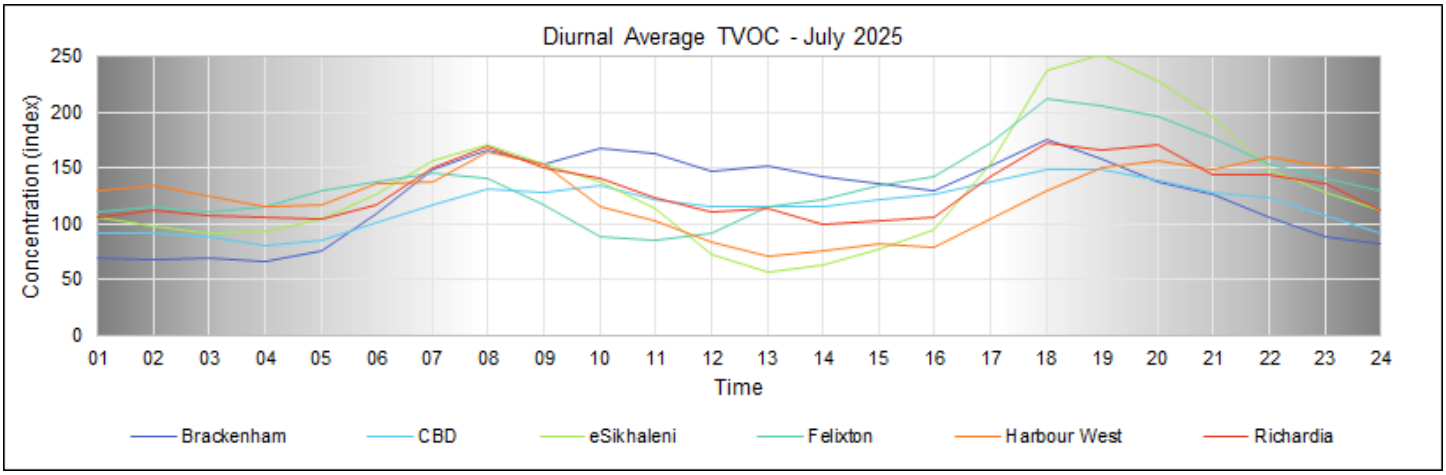


Figure 8.16: TVOC diurnal concentrations.

8.3.3. Daily

TVOC daily concentrations are shown below (Figure 8.17).

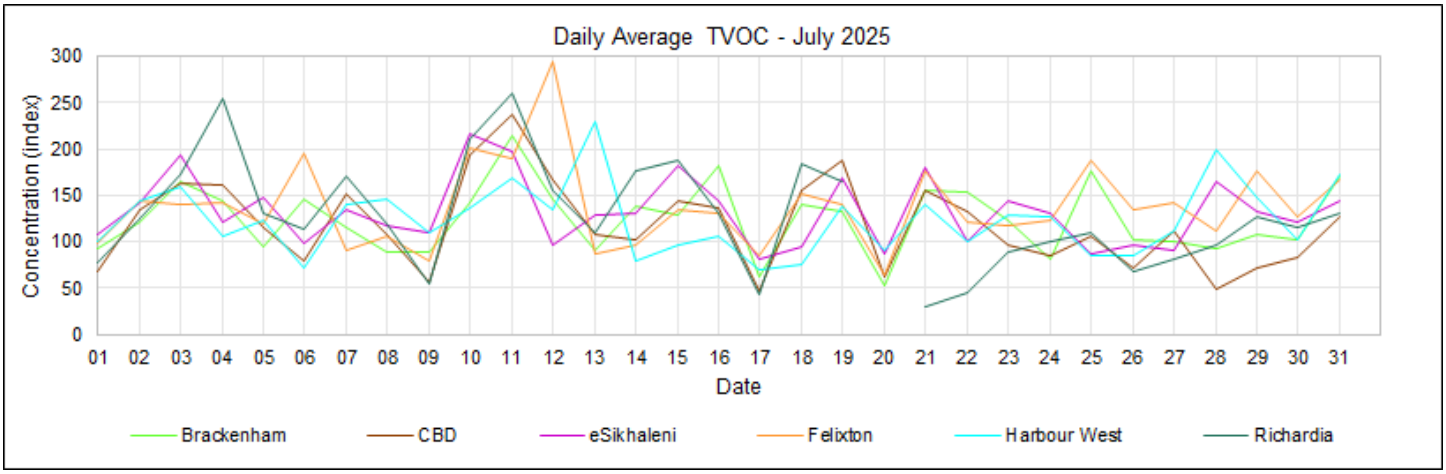


Figure 8.17: TVOC daily concentrations.

8.3.4. Hourly

TVOC hourly concentrations are shown below (Figure 8.18).

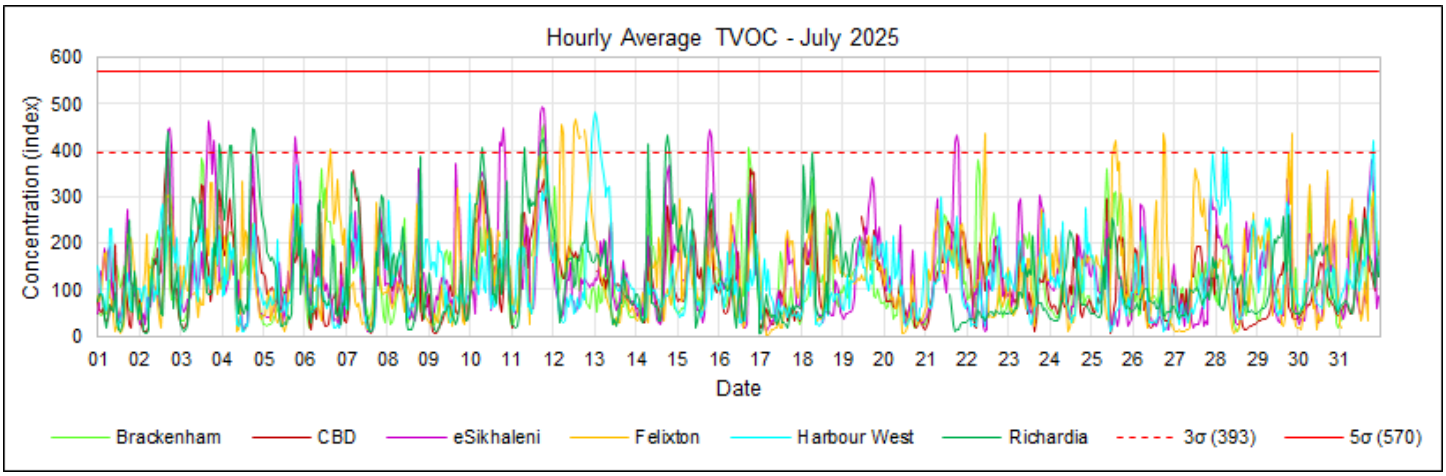


Figure 8.18: TVOC hourly concentrations.

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

Limit	Brackenham	CBD	eSikhaleni	Felixton	Harbour West	Richardia
3σ	3	0	20	17	9	18
5σ	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 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).

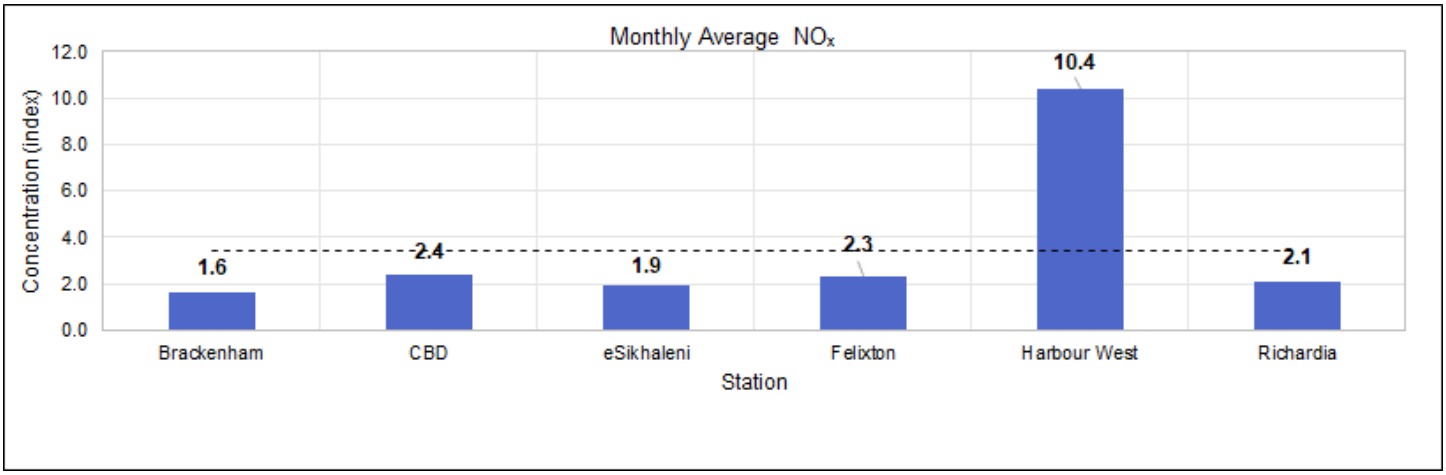


Figure 8.19: NO_x monthly concentration.

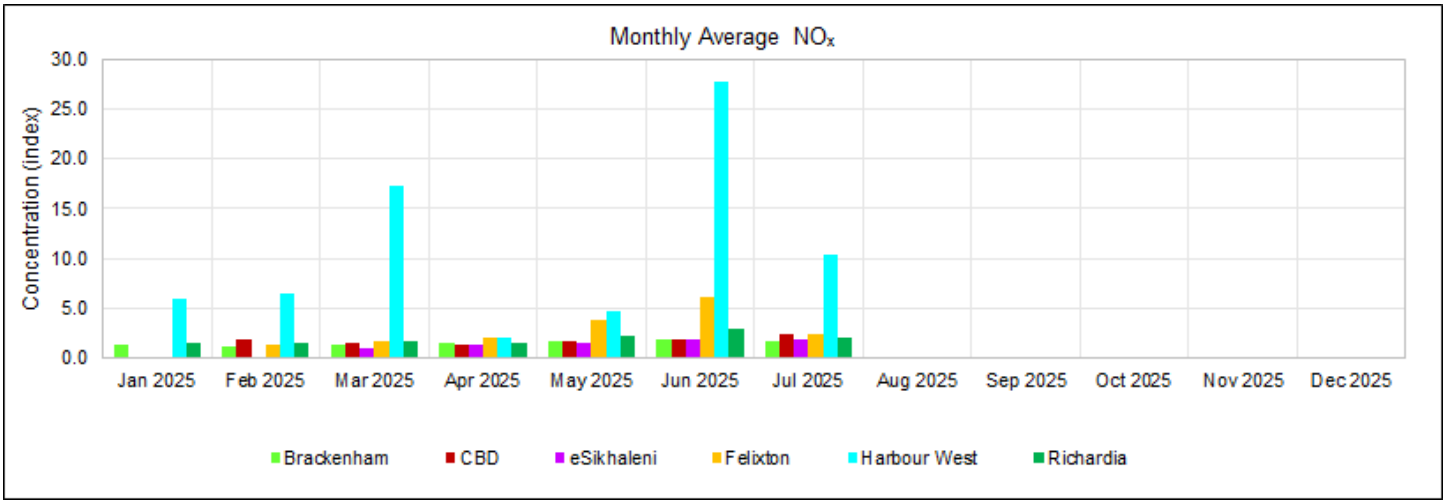


Figure 8.20: NO_x monthly comparison.

8.4.2. Diurnal

NO_x diurnal concentrations are shown below (Figure 8.21).

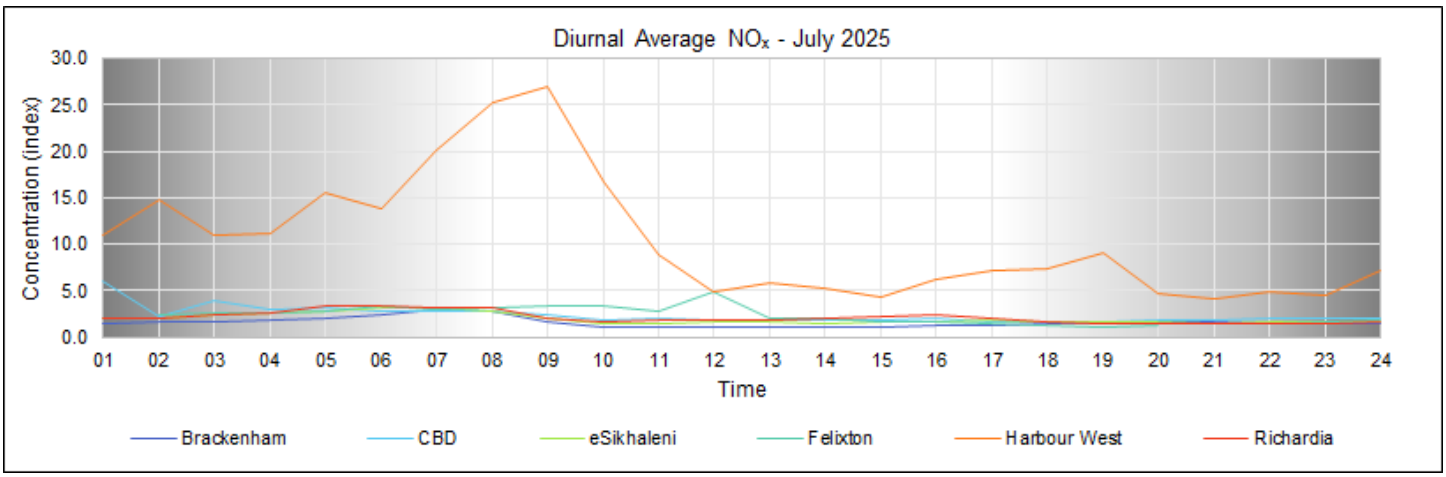


Figure 8.21: NO_x diurnal concentrations.

8.4.3. Daily

NO_x daily concentrations are shown below (Figure 8.22).

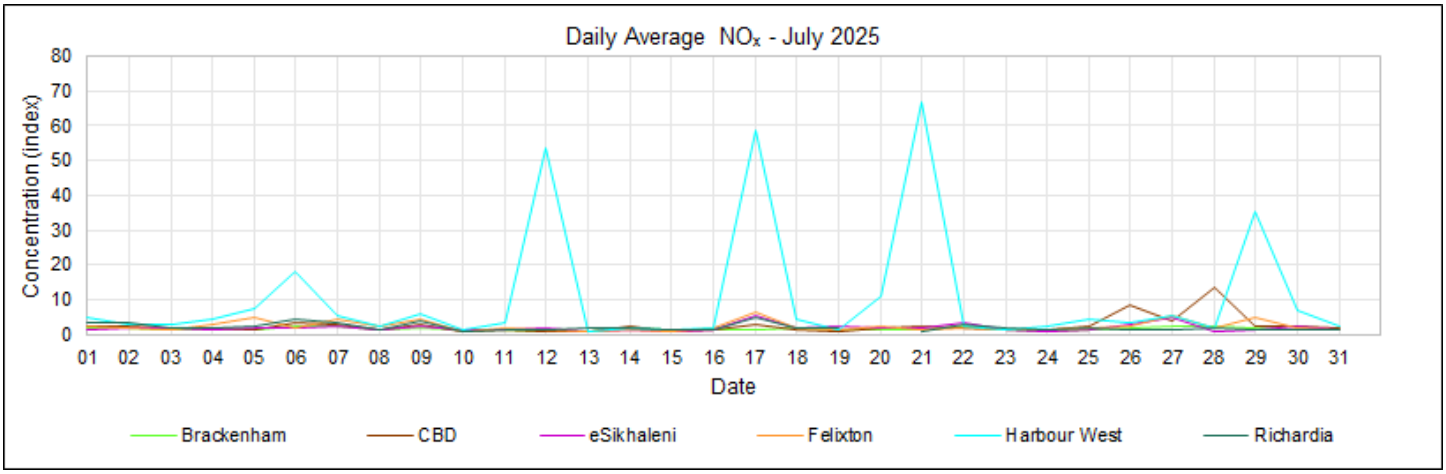


Figure 8.22: NO_x daily concentrations.

8.4.4. Hourly

NO_x hourly concentrations are shown below (Figure 8.23).

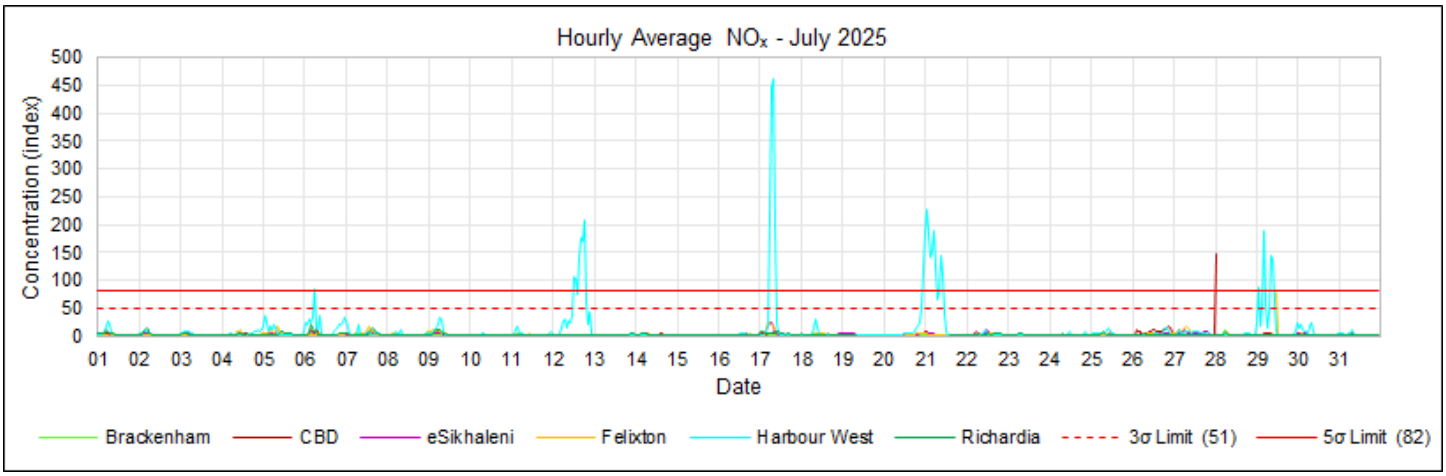


Figure 8.23: NO_x hourly concentrations.

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

Limit	Brackenham	CBD	eSikhaleni	Felixton	Harbour West	Richardia
3σ	0	1	0	1	33	0
5σ	0	1	0	0	25	0

8.5. Carbon Dioxide Monitoring

In the year 2000, the global background concentration of carbon dioxide (CO_2) was approximately 370 ppm; this marked a significant increase from the pre-industrial level of around 280 ppm and 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).

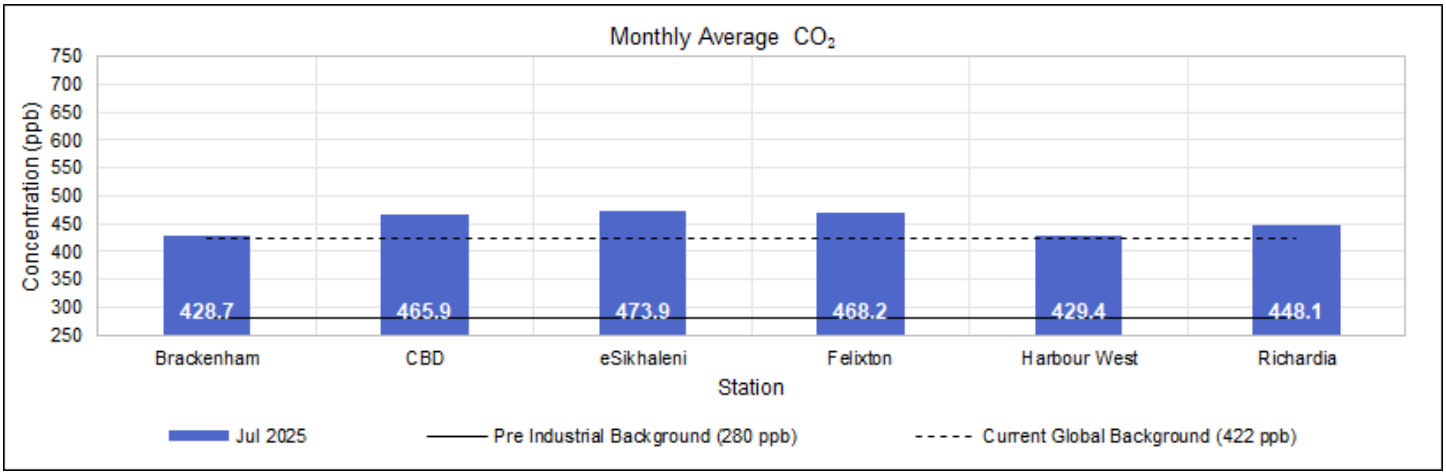


Figure 8.24: CO_2 monthly concentration.

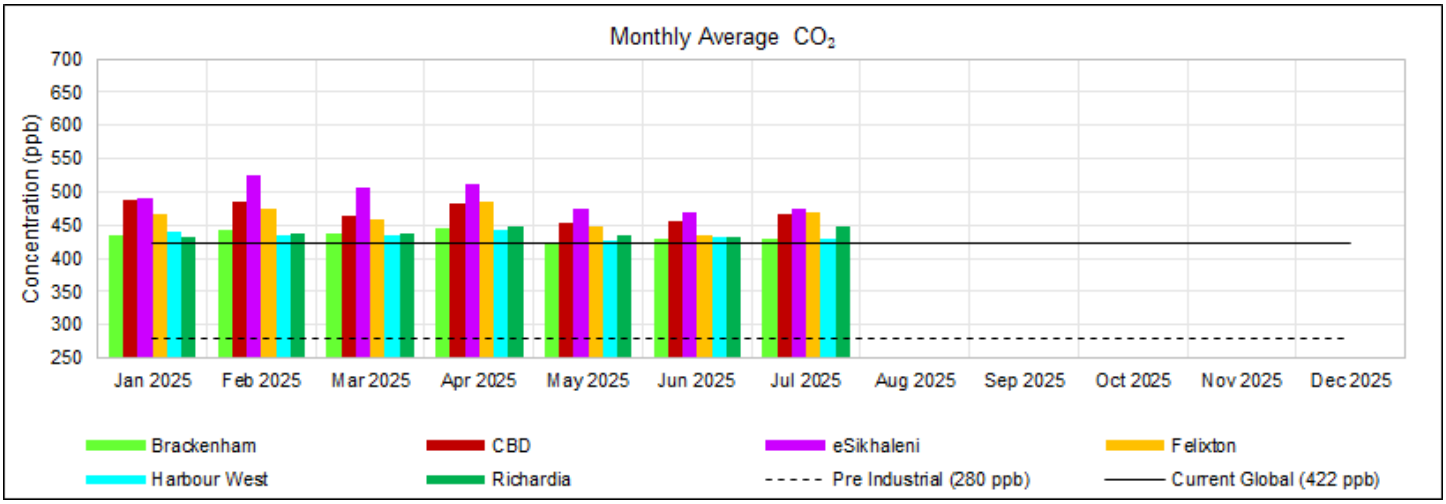


Figure 8.25: CO_2 monthly comparison.

8.5.2. Diurnal

CO_2 diurnal concentrations are shown below (Figure 8.26).

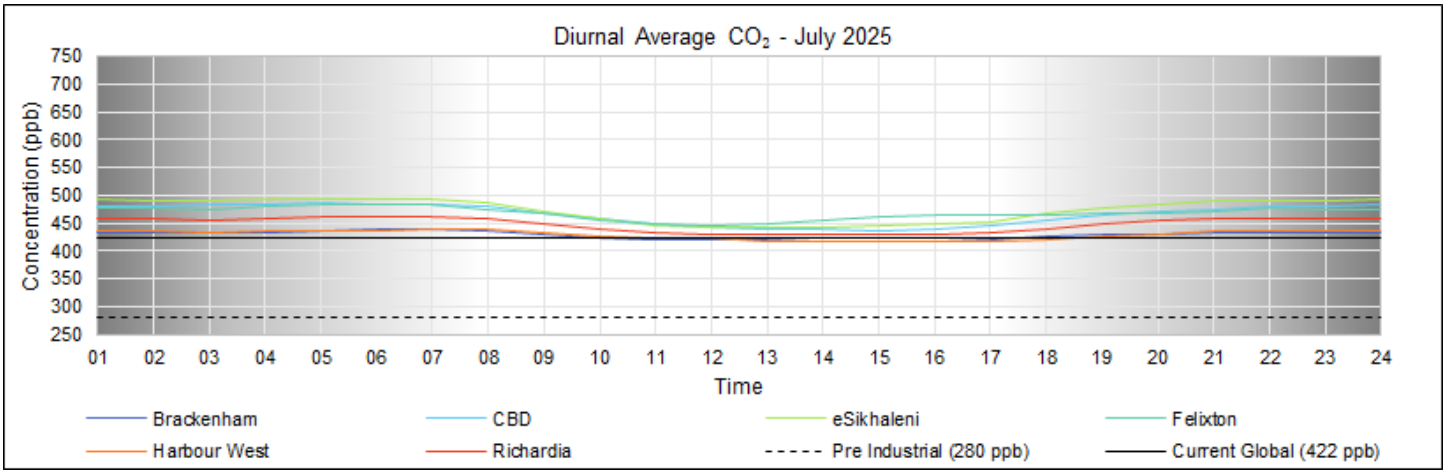


Figure 8.26: CO_2 diurnal concentrations.

8.5.3. Daily

CO_2 daily concentrations are shown below (Figure 8.27).

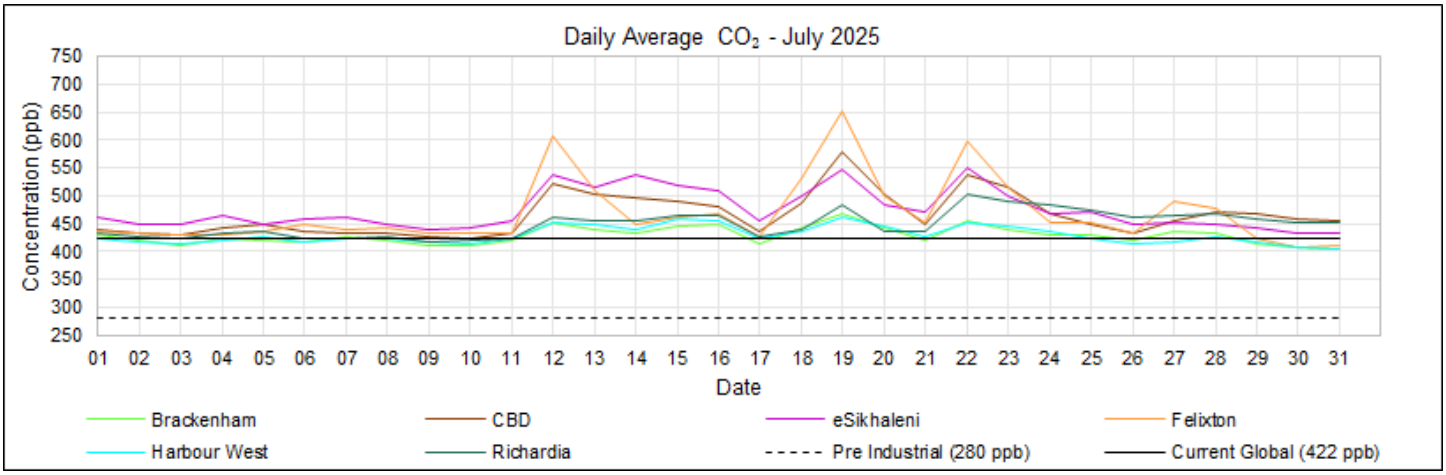


Figure 8.27: CO_2 daily concentrations.

8.5.4. Hourly

CO_2 hourly concentrations are shown below (Figure 8.28).

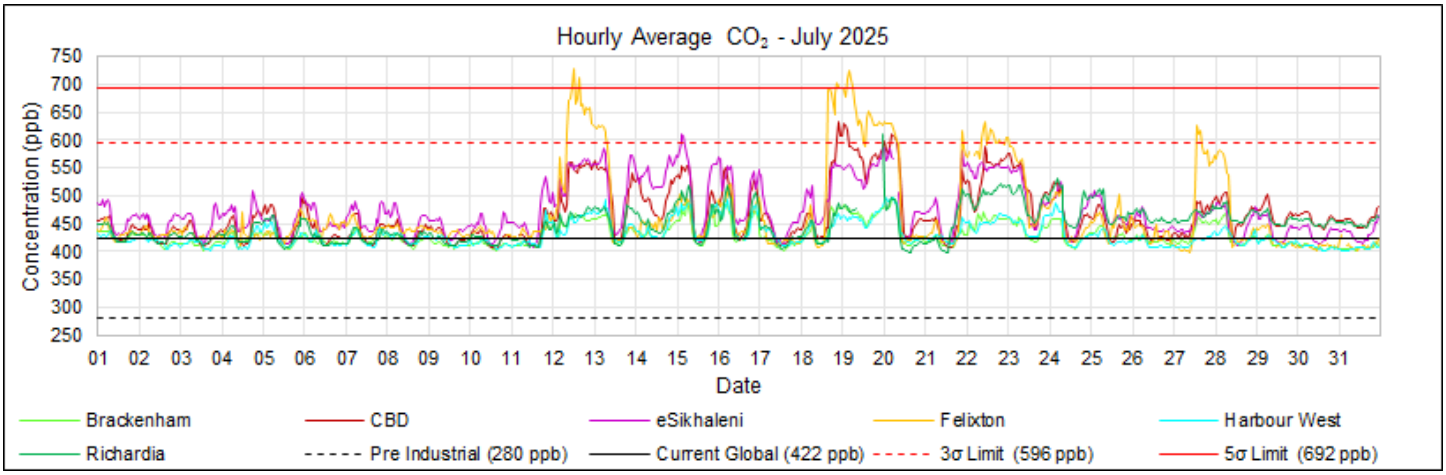


Figure 8.28: CO_2 hourly concentrations.

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

Limit	Brackenham	CBD	eSikhaleni	Felixton	Harbour West	Richardia
3σ	0	12	3	79	0	1
5σ	0	0	0	10	0	0

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. 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 where a sensor is challenged with a gas of a 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 pollutant measurement, meteorological measurement, or data consolidation.
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 reduce the error to a minimum. The minimum threshold for statistical analyses is at least 80% valid data to maintain reliability and minimise bias; the South African National Accreditation Standard (SANAS, 2012) requires 90%

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 re-zero all data.
	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	39.0	52%	87%	2025/07/16 00:00	1.3	29
eSikhaleni	68.0	91%	**151%**	2025/07/11 00:00	2.2	16
Felixton ES1	47.0	63%	**104%**	2025/07/16 00:00	1.4	199
Richardia	50.0	67%	**111%**	2025/07/11 00:00	2.9	10
Scorpio ES1	59.0	79%	**131%**	2025/07/16 00:00	1.4	4
$PM_{2.5}$ 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	59.4	**149%**	**396%**	2025/07/16 00:00	1.3	30
Felixton ES2	48.0	**120%**	**320%**	2025/07/16 00:00	1.4	199
Harbour West ES2	31.0	78%	**207%**	2025/07/03 00:00	4.3	16
Scorpio ES2	45.0	**113%**	**300%**	2025/07/16 00:00	1.4	4

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 to be calms; 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	31.8	17%		2025/07/25 09:50	2.2	252
Brackenham	37.4	20%		2025/07/25 13:30	5.6	219
CBD	66.3	35%		2025/07/27 05:10	4.8	237
eSikhaleni	37.8	20%		2025/07/11 15:20	2.2	80
Felixton	25.9	14%		2025/07/11 15:20	2.9	57
Harbour West	160.9	84%		2025/07/13 12:00	3.9	26
Richardia	24.2	13%		2025/07/25 09:50	2.2	252
Scorpio	238.1	**125%**		2025/07/25 02:00	0.6	231
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	14.2	11%	-	2025/07/11 15:00	2.8	62
Brackenham	23.0	17%	-	2025/07/26 18:00	4.4	218
CBD	53.9	40%	-	2025/07/27 05:00	4.5	239
eSikhaleni	33.4	25%	-	2025/07/11 15:00	2.4	74
Felixton	24.7	18%	-	2025/07/11 15:00	2.6	64
Harbour West	121.3	91%	-	2025/07/17 07:00	3.9	2
Richardia	20.5	15%	-	2025/07/11 15:00	2.8	62
Scorpio	165.3	**123%**	-	2025/07/21 00:00	4.8	18
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	4.4	9%	29%	2025/07/11 00:00	2.9	10
Brackenham	5.2	11%	35%	2025/07/11 00:00	2.4	31
CBD	13.8	29%	92%	2025/07/27 00:00	3.8	233
eSikhaleni	12.3	26%	82%	2025/07/11 00:00	2.2	16
Felixton	5.5	11%	37%	2025/07/11 00:00	2.2	47
Harbour West	40.7	85%	**271%**	2025/07/17 00:00	4.6	13
Richardia	6.1	13%	41%	2025/07/11 00:00	2.9	10
Scorpio	51.5	**107%**	**343%**	2025/07/17 00:00	4.6	13

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	7.0	-	75%	2025/07/06 09:50	1.5	272
eSikhaleni	15.1	-	**162%**	2025/07/24 04:50	1.0	77
Felixton	59.8	-	**643%**	2025/07/15 01:10	0.8	146
Richardia	6.2	-	67%	2025/07/12 01:20	3.8	239
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	5.3	-	**106%**	2025/07/21 22:30	4.6	235
eSikhaleni	9.1	-	**182%**	2025/07/25 02:00	1.0	58
Felixton	44.8	-	**896%**	2025/07/15 01:00	0.9	157
Richardia	5.8	-	**116%**	2025/07/14 20:00	2.1	302
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	2.2	-	22%	2025/07/22 00:00	3.1	235
eSikhaleni	2.0	-	20%	2025/07/11 00:00	2.2	16
Felixton	3.7	-	37%	2025/07/15 00:00	1.9	209
Richardia	3.1	-	31%	2025/07/20 00:00	3.0	1

APPENDIX E
RAINFALL

Table 1: Daily Rainfall

Date	Richards Bay (mm)	Felixton (mm)	RBCT (mm)	South32 (mm)
2025/07/01	0	0	0	0
2025/07/02	0	0	0	0
2025/07/03	0	0	0	0
2025/07/04	0	0	0	0
2025/07/05	0	0	0	0
2025/07/06	0	0	0	0
2025/07/07	0	0	2	0
2025/07/08	0	0	0	0
2025/07/09	0	0	0	0
2025/07/10	0	0	0	0
2025/07/11	0	0	0	0
2025/07/12	61	95	78	0
2025/07/13	8	0	0	0
2025/07/14	0	0	0	0
2025/07/15	0	0	0	0
2025/07/16	0	0	0	0
2025/07/17	0	0	0	1
2025/07/18	4	14	2	8
2025/07/19	103	7	21	49
2025/07/20	0	0	0	0
2025/07/21	0	0	0	0
2025/07/22	27	42	32	30
2025/07/23	2	0	6	1
2025/07/24	0	0	0	0
2025/07/25	1	0	3	0
2025/07/26	0	0	0	0
2025/07/27	12	0	10	9
2025/07/28	0	0	0	0

Date	Richards Bay (mm)	Felixton (mm)	RBCT (mm)	South32 (mm)
2025/07/29	0	0	0	0
2025/07/30	0	0	0	0
2025/07/31	1	0	0	0
Total	220	157	155	98

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	
Sep	85	43	144	216	93	23	186	
Oct	213	260	171	214	101	345	250	
Nov	119	296	122	72	131	61	103	
Dec	156	320	77	464	253	195	145	
Minimum	20	9	47	57	20	20	22	27
Average	150	154	128	186	158	169	136	242
Maximum	311	320	377	464	647	410	271	479
Total	1798	1850	1540	2234	1893	2034	1630	1693

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	
Sep	53	79	84	191	51	43	137	
Oct	201	144	67	145	98	318	187	
Nov	84	121	106	35	174	34	78	
Dec	111	311	64	212	163	146	74	
Minimum	22	9	37	35	15	14	3	16
Average	113	105	82	127	107	112	83	151
Maximum	342	311	214	231	368	318	187	303
Total	1354	1261	987	1530	1288	1347	992	1057

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	
Sep	41	59	104	187	115	30	177	
Oct	80	164	121	156	71	293	121	
Nov	70	186	77	43	129	42	89	
Dec	104	216	104	245	279	127	65	
Minimum	21	5	33	43	25	30	23	27
Average	84	110	87	139	161	145	100	189
Maximum	175	216	166	245	642	442	177	450
Total	1005	1317	1049	1669	1934	1740	1205	1321

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	-	
Sep	-	-	-	-	64	18	129	
Oct	-	-	-	-	64	271	-	
Nov	-	-	-	-	101	36	-	
Dec	-	-	-	-	163	95	92	
Minimum	-	-	-	-	12	11	92	16
Average	-	-	-	-	121	107	121	159
Maximum	-	-	-	-	505	271	144	363
Total	-	-	-	-	1336	1280	485	1110

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	2025/07/06 10:00	Veldenvlei	Odour	Mondi	Pungent Mondi odour	295
2	2025/07/07 06:36	Arboretum	Clinical + Odour	Mondi	Strong chemical smell causing nausea and burning nose"	296
3	2025/07/07 12:15	Arboretum Ext	Clinical + Odour	Unknown source	"Extremely Strong electrical/chemical burning smell. Left with burning tongue, sore throat, and headache"	293, 299
4	2025/07/08 08:30	Arboretum Ext	Odour	Mondi	"Cat urine odour"	297
5	2025/07/08 19:00	Richards Bay	Smoke	ZFPA Controlled Burns	Heavy smoke affecting residents in Birdswood, Wildenweide, Veldenvlei (Reported via WhatsApp group from 19h00)	291
6	2025/07/08 19:00	Richards Bay	Smoke	ZFPA Controlled Burns	Heavy smoke affecting residents in Birdswood, Wildenweide, Veldenvlei (Reported via WhatsApp group from 19h00)	291
7	2025/07/08 19:00	Richards Bay	Smoke	ZFPA Controlled Burns	Heavy smoke affecting residents in Birdswood, Wildenweide, Veldenvlei (Reported via WhatsApp group from 19h00)	291
8	2025/07/08 19:00	Richards Bay	Smoke	ZFPA Controlled Burns	Heavy smoke affecting residents in Birdswood, Wildenweide, Veldenvlei (Reported via WhatsApp group from 19h00)	291
9	2025/07/08 19:00	Richards Bay	Smoke	ZFPA Controlled Burns	Heavy smoke affecting residents in Birdswood, Wildenweide, Veldenvlei (Reported via WhatsApp group from 19h00)	291
10	2025/07/08 19:00	Richards Bay	Smoke	ZFPA Controlled Burns	Heavy smoke affecting residents in Birdswood, Wildenweide, Veldenvlei (Reported via WhatsApp group from 19h00)	291
11	2025/07/12 21:00	Veldenvlei	Clinical + Odour	Mondi	"bad Mondi smell affecting sinuses" (From about 21h)	298
12	2025/07/12 21:20	Veldenvlei	Odour	Mondi	Pungent odour.	298
13	2025/07/13 09:00	Meerensee	Odour	Mondi	"There is a very pungent chemical smell over Meerensee. I know it's the smell that goes with Mondi complaints, but to me it smells like a chemical, very strong."	298
14	2025/07/23 07:30	Arboretum	Odour	Mondi	"A rotten smell"	301
15	2025/07/23 08:45	Alton	Odour	Mondi	"A rotten smell"	301
16	2025/07/25 09:52	Veldenvlei	Odour	Mondi	"Bad cat urine odour"	302
17	2025/07/31 15:32	Alton	Sulphur Spillage	Authorities response required	We place a very high focus on the Safety and Wellness of our Team Members that come to the Richards Bay Operation every day. Sadly there has been little improvement in this pollution over this period. This even with regular concerns being raised with the Municipality and in fact it has got progressively worse. There have for the past few days been water tankers riding up and down Carbonode Cell spraying water in an attempt to limit the volume of Sulphur becoming airborne in the strong prevailing winds. I'm not sure of what the impact is of this Sulphur now washing into the storm water network but Environmentally I would imagine it can't be good. Furthermore it is quite an embarrassment when overseas visitors come to our Richards Bay operations and have to drive around individuals sweeping up Sulphur in the road. For Visitors from first world countries I'm sure you can appreciate this would be deeply concerning and hard for them to even comprehend happening. Apart from the risks above, the roads are being blocked with sweepers and cones requiring trucks and cars to drive into oncoming traffic to get around these areas.	303, 1

Table 2: Responses

No.	Industry Feedback
1	Unresolved / No Response
291	RBCAA - Sandy Camminga (2025/07/09 09:27): Complaint; Heavy smoke affecting residents in Birdswood, Wildenweide, Veldenvlei. The RBCAA contacted ZFPA who responded that they had permitted two (2) controlled burns for timber slash. One on Nsezi Plantation near Aquadene, the other north near Mondi nursery. WD was not favourable. There were also a significant number of residents who complained on the evening of 3 July, via the same WhatsApp group. I unfortunately inadvertently deleted the chat, however ZFPA was informed at 20h27 on 3 July and responded as follows on 8 July; ZFPA issued four (4) burn permits for load reduction ; 2 to Mondi, 1 to SiyaQhubeka and 1 to Davidson in Nseleni. The WD on 3 July was not favourable.
293	RBIDZ - Percy Langa responded (2025/07/09 15:49): I have forwarded the email to Wilmar for their (Wilmar) attention.
295	Mondi - Candice Webb responded (2025/07/16 13:44): Unconfirmed source from Mondi.
296	Mondi - Candice Webb responded (2025/07/16 13:44): Unconfirmed source from Mondi.
297	Mondi - Candice Webb responded (2025/07/16 14:14): Unconfirmed source from Mondi.
298	Mondi - Candice Webb responded (2025/07/16 14:14): Unconfirmed source from Mondi.
299	RBCAA - Sandy Camminga (2025/07/21 14:09): Please see attached response from RBIDZ. Allocate complaint to “Unknown source” RBIDZ - Percy Langa (2025/07/11 09:39): From WILMAR "Please note that we have investigated and can confirm that the extremely strong electrical/chemical burning smell did not originate from our site" RBIDZ - Sethabile Gcume (2025/07/23 12:26): Submission of RBIDZ incident report.
301	Mondi - Candice Webb responded (2025/07/25 14:08): Source of Odour: Fugitive emissions from Mondi. Wind direction at the time of the complaints indicated Mondi was the source – 284 deg before complaint. Wind speed was 0.5 m/s prior to complaint on 23/07/2025. Mondi chose to use meteorological data from the Brackenham monitoring station during the period of investigation as it is the RBCAA monitoring station which is situated closest to Mondi. Calculation of Impacts Mondi Monitoring Stations As can be seen from the trend below (1 min avg), elevated TRS was recorded at the Mondi Alton station of 6.0 ppb at 06:10. Two smaller peaks of 3.8 ppb at 07:50 and 4.6 ppb at 08:20 were also recorded. As can be seen from the trend below (1-min avg), elevated TRS was recorded at CBD and Richardia stations. Richardia peaked at 2.9 and 3.7 ppb at 07:37 and 08:04, respectively. CBD station peaked at 3.7 ppb at 07:37. All peaks remained below the WHO limit of 5ppb. The Mondi Environmental Manager received notification of the complaints from the RBCAA at 09h05 on the 23rd of July 2025 and commenced with the investigation. Plant checklists were conducted by the area operators, and respective plant standby engineers as well as the Environmental Manager immediately after the complaint. Following which the odour abatement task team members then convened to complete plant specific checks and review online odour related dashboards and trends. Prior to the time of the complaints Mondi was starting the soft wood system and it is possible fugitive emissions from the start up, coupled with low temperature inversion contributed to the odour.
302	Mondi - Candice Webb responded (2025/07/29 11:19): Source of Odour: Methanol plant. Wind direction at the time of the complaint indicated Mondi was the source – 248 deg before complaint. Wind speed was 1.2 m/s to complaint. Mondi chose to use meteorological data from the Brackenham monitoring station during the period of investigation as it is the RBCAA monitoring station which is situated closest to Mondi. As can be seen from the trend below (1 min avg), elevated TRS was recorded at the Mondi UVS station (peak of 7.3ppb at 07:01) followed by peak at Alton station of 6.2ppb at 09:32 upon change in wind direction from a Northeast to a Southwest. After reviewing the results from the pressure indicator overnight, the methanol plant pressure does appear to be fluctuating between positive and negative pressure. The odour abatement task team is now investigating possible root cause with the intention to address findings as soon as possible.
303	RBCAA - Sandy Camminga (2025/08/01 08:35): The RBCAA acknowledges receipt of your complaint, which we will record and forward to the relevant Authorities for their investigation. In terms of POPIA your contact details will be provided to the Authorities for investigation purposes only.

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)	eSikhaleni	2025/07/10 0:00	47.0	33	2.5	No response required	None	2
2	PM_{10} Daily WHO Limit (45 µg/m³)	eSikhaleni	2025/07/11 0:00	68.0	14	2.2	No response required	None	2
3	PM_{10} Daily WHO Limit (45 µg/m³)	eSikhaleni	2025/07/31 0:00	46.0	21	4.9	No response required	None	2
4	PM_{10} Daily WHO Limit (45 µg/m³)	Felixton	2025/07/16 0:00	47.0	197	1.4	No response required	None	2
5	PM_{10} Daily WHO Limit (45 µg/m³)	Richardia	2025/07/11 0:00	50.0	9	3	No response required	None	2
6	PM_{10} Daily WHO Limit (45 µg/m³)	Scorpio	2025/07/03 0:00	49.0	16	4.3	No response required	None	2
7	PM_{10} Daily WHO Limit (45 µg/m³)	Scorpio	2025/07/11 0:00	51.0	12	3.1	No response required	None	2
8	PM_{10} Daily WHO Limit (45 µg/m³)	Scorpio	2025/07/15 0:00	47.0	334	1.3	No response required	None	2
9	PM_{10} Daily WHO Limit (45 µg/m³)	Scorpio	2025/07/16 0:00	59.0	3	1.4	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	2025/07/02 00:00	15.4	38	3.4	No response required	None	2
2	**$PM_{2.5}$ Daily RSA Limit (40 µg/m³)**	**Brackenham**	**2025/07/03 00:00**	**40.7**	**32**	**3.7**	**ZFPA**	Controlled burns	**37**
3	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/07/03 00:00	40.7	32	3.7	No response required	None	2
4	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/07/04 00:00	30.1	349	2.4	No response required	None	2
5	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/07/07 00:00	16.6	257	2	No response required	None	2
6	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/07/08 00:00	16.2	18	2	No response required	None	2
7	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/07/10 00:00	21.3	37	3.7	No response required	None	2
8	**$PM_{2.5}$ Daily RSA Limit (40 µg/m³)**	**Brackenham**	**2025/07/11 00:00**	**42.8**	**30**	**2.4**	**Industry response required**	Responded: Mondi	38, 1
9	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/07/11 00:00	42.8	30	2.4	No response required	None	2
10	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/07/12 00:00	28.3	255	2.6	No response required	None	2
11	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/07/14 00:00	27.0	306	2.9	No response required	None	2
12	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/07/15 00:00	31.8	25	1.2	No response required	None	2
13	**$PM_{2.5}$ Daily RSA Limit (40 µg/m³)**	**Brackenham**	**2025/07/16 00:00**	**59.4**	**30**	**1.4**	**Cane fires**	Cane fires	39, 40, 41
14	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/07/16 00:00	59.4	30	1.4	No response required	None	2
15	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/07/17 00:00	33.0	33	4.2	No response required	None	2
16	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/07/18 00:00	26.3	269	3	No response required	None	2
17	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/07/21 00:00	19.5	24	3.1	No response required	None	2
18	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/07/22 00:00	18.0	249	2.2	No response required	None	2
19	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/07/25 00:00	28.1	274	3.1	No response required	None	2
20	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/07/26 00:00	20.9	245	2.8	No response required	None	2
21	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/07/31 00:00	23.2	29	4.8	No response required	None	2
22	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Felixton	2025/07/03 00:00	28.0	63	2.3	No response required	None	2
23	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Felixton	2025/07/04 00:00	23.0	251	2.4	No response required	None	2
24	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Felixton	2025/07/09 00:00	16.0	39	4	No response required	None	2
25	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Felixton	2025/07/10 00:00	20.0	53	2.5	No response required	None	2
26	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Felixton	2025/07/11 00:00	34.0	49	2.2	No response required	None	2
27	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Felixton	2025/07/14 00:00	22.0	240	2.7	No response required	None	2
28	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Felixton	2025/07/15 00:00	24.0	203	1.9	No response required	None	2
29	**$PM_{2.5}$ Daily RSA Limit (40 µg/m³)**	**Felixton**	**2025/07/16 00:00**	**48.0**	**197**	**1.4**	**Cane fires**	Cane fires	39, 40, 41
30	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Felixton	2025/07/16 00:00	48.0	197	1.4	No response required	None	2
31	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Felixton	2025/07/17 00:00	33.0	46	3.8	No response required	None	2
32	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Felixton	2025/07/18 00:00	19.0	232	3.8	No response required	None	2
33	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Felixton	2025/07/21 00:00	17.0	41	2.8	No response required	None	2
34	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Felixton	2025/07/25 00:00	22.0	227	2.8	No response required	None	2
35	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Felixton	2025/07/26 00:00	18.0	234	2.9	No response required	None	2
36	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Felixton	2025/07/31 00:00	23.0	48	4	No response required	None	2
37	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Harbour West	2025/07/02 00:00	17.0	26	4.9	No response required	None	2

No	Target / Guideline / Standard	Station	Date	Value (ppb)	Wind Direction (°)	Wind Speed (m/s)	Source	Comment	Response
38	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Harbour West	2025/07/03 00:00	31.0	16	4.3	No response required	None	2
39	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Harbour West	2025/07/04 00:00	19.0	311	2.7	No response required	None	2
40	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Harbour West	2025/07/15 00:00	18.0	334	1.3	No response required	None	2
41	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Harbour West	2025/07/16 00:00	29.0	3	1.4	No response required	None	2
42	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Harbour West	2025/07/17 00:00	22.0	12	4.6	No response required	None	2
43	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Harbour West	2025/07/31 00:00	21.0	16	6	No response required	None	2
44	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Harbour West	2025/07/11 00:00	20.0	12	3.1	No response required	None	2
45	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Scorpio	2025/07/02 00:00	18.0	26	4.9	No response required	None	2
46	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Scorpio	2025/07/03 00:00	23.0	16	4.3	No response required	None	2
47	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Scorpio	2025/07/04 00:00	16.0	311	2.7	No response required	None	2
48	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Scorpio	2025/07/08 00:00	17.0	347	2.5	No response required	None	2
49	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Scorpio	2025/07/10 00:00	20.0	15	4.1	No response required	None	2
50	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Scorpio	2025/07/11 00:00	38.0	12	3.1	No response required	None	2
51	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Scorpio	2025/07/14 00:00	27.0	274	3.2	No response required	None	2
52	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Scorpio	2025/07/15 00:00	31.0	334	1.3	No response required	None	2
53	**$PM_{2.5}$ Daily RSA Limit (40 µg/m³)**	**Scorpio**	**2025/07/16 00:00**	**45.0**	**3**	**1.4**	**Cane fires**	Cane fires	39, 40, 41
54	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Scorpio	2025/07/16 00:00	45.0	3	1.4	No response required	None	2
55	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Scorpio	2025/07/17 00:00	30.0	12	4.6	No response required	None	2
56	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Scorpio	2025/07/18 00:00	17.0	242	4.1	No response required	None	2
57	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Scorpio	2025/07/21 00:00	17.0	22	4	No response required	None	2
58	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Scorpio	2025/07/25 00:00	24.0	235	2.6	No response required	None	2
59	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Scorpio	2025/07/31 00:00	28.0	16	6	No response required	None	2

Table 2: PM $_{2.5}$ Responses

Response	Industry Feedback
1	Unresolved / No Response
2	No response required / Allocated by wind direction
37	RBCAA Allocation - Sandy Camminga (2025/07/09 09:27) - The RBCAA contacted ZFPA who responded that they had permitted two (2) controlled burns for timber slash. One on Nsezi Plantation near Aquadene, the other north near Mondi nursery. WD was not favourable. There were also a significant number of residents who complained on the evening of 3 July, via the same WhatsApp group. I unfortunately inadvertently deleted the chat, however ZFPA was informed at 20h27 on 3 July and responded as follows on 8 July; ZFPA issued four (4) burn permits for load reduction ; 2 to Mondi, 1 to SiyaQhubeka and 1 to Davidson in Nseleni. The WD on 3 July was not favourable.
38	Mondi - Kira Cobbold responded, (2025/07/14 12:06):Mondi has investigated the following PM2.5 exceedance and based on wind direction is unlikely the source of the exceedance. The mill was operating under stable conditions, and all stack emissions were well within their compliance limits.
39	Mondi - Kira Cobbold responded, (2025/07/17 11:17): Mondi has investigated the following PM2.5 exceedances and is unlikely the source due to stable mill operations, wind directions that do not favour Mondi as the source, and PM stack emissions being well within their compliance limits (see table below).
40	Mpact -Traven Chetty responded, (2025/07/18 11:14): An investigation was conducted into this PM2.5 exceedance at the felixton station and it was noted that this was due to cane fires in the area. Mpact is unlikely to be the source of this exceedance. Please see image attached. (Shows a photo of fire at neary Felixton)
41	RBCAA Allocation - Sandy Camminga (2025/07/22 07:55) MPACT has alerted the RBCAA to cane fires on the day. We will therefore allocate the Felixton exceedance accordingly. (Note: check response 40)

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	2025/07/01 00:00	24.7	26	4.5	No response required	None	2
2	SO_2 Daily WHO Limit (15 ppb)	Harbour West	2025/07/02 00:00	21.8	26	4.9	No response required	None	2
3	SO_2 Daily WHO Limit (15 ppb)	Harbour West	2025/07/03 00:00	32.7	16	4.3	No response required	None	2
4	SO_2 Daily WHO Limit (15 ppb)	Harbour West	2025/07/09 00:00	36.3	14	5.4	No response required	None	2
5	SO_2 Daily WHO Limit (15 ppb)	Harbour West	2025/07/10 00:00	21.0	15	4.1	No response required	None	2
6	SO_2 Daily WHO Limit (15 ppb)	Harbour West	2025/07/11 00:00	20.2	12	3.1	No response required	None	2
7	SO_2 Daily WHO Limit (15 ppb)	Harbour West	2025/07/13 00:00	18.5	349	2.8	No response required	None	2
8	SO_2 Daily WHO Limit (15 ppb)	Harbour West	2025/07/17 00:00	40.7	12	4.6	No response required	None	2
9	SO_2 Daily WHO Limit (15 ppb)	Harbour West	2025/07/21 00:00	22.3	22	4	No response required	None	2
10	SO_2 Daily WHO Limit (15 ppb)	Harbour West	2025/07/29 00:00	28.3	20	4	No response required	None	2
11	SO_2 Daily WHO Limit (15 ppb)	Harbour West	2025/07/30 00:00	15.6	25	5.1	No response required	None	2
12	SO_2 Daily WHO Limit (15 ppb)	Scorpio	2025/07/01 00:00	17.8	26	4.5	No response required	None	2
13	SO_2 Daily WHO Limit (15 ppb)	Scorpio	2025/07/03 00:00	42.9	16	4.3	No response required	None	2
14	SO_2 Daily WHO Limit (15 ppb)	Scorpio	2025/07/04 00:00	16.0	311	2.7	No response required	None	2
15	SO_2 Daily WHO Limit (15 ppb)	Scorpio	2025/07/06 00:00	17.2	221	2.6	No response required	None	2
16	SO_2 Daily WHO Limit (15 ppb)	Scorpio	2025/07/09 00:00	42.7	14	5.4	No response required	None	2
17	SO_2 Daily WHO Limit (15 ppb)	Scorpio	2025/07/10 00:00	30.2	15	4.1	No response required	None	2
18	SO_2 Daily WHO Limit (15 ppb)	Scorpio	2025/07/11 00:00	34.7	12	3.1	No response required	None	2
19	SO_2 Daily WHO Limit (15 ppb)	Scorpio	2025/07/13 00:00	16.0	349	2.8	No response required	None	2
20	SO_2 Daily WHO Limit (15 ppb)	Scorpio	2025/07/14 00:00	21.4	274	3.2	No response required	None	2
21	**SO_2 Daily RSA Limit (48 ppb)**	**Scorpio**	**2025/07/17 00:00**	**51.5**	**12**	**4.6**	**South32 - meteorology**	RBCAA Allocation	149, 152, 165
22	SO_2 Daily WHO Limit (15 ppb)	Scorpio	2025/07/17 00:00	51.5	12	4.6	No response required	None	2
23	**SO_2 Hourly RSA Limit (134 ppb)**	**Scorpio**	**2025/07/17 05:00**	**135.7**	**1**	**3.4**	**South32 - meteorology**	RBCAA Allocation	149, 151, 165
24	**SO_2 Hourly RSA Limit (134 ppb)**	**Scorpio**	**2025/07/17 06:00**	**136.1**	**1**	**4**	**South32 - meteorology**	RBCAA Allocation	149, 151, 165
25	**SO_2 Hourly RSA Limit (134 ppb)**	**Scorpio**	**2025/07/21 00:00**	**165.3**	**18**	**4.8**	**South32 - meteorology**	RBCAA Allocation	153, 165
26	SO_2 Daily WHO Limit (15 ppb)	Scorpio	2025/07/21 00:00	44.0	22	4	No response required	None	2
27	SO_2 Daily WHO Limit (15 ppb)	Scorpio	2025/07/24 00:00	36.7	16	2.4	No response required	None	2
28	**SO_2 10-minute RSA & WHO Limit (191 ppb)**	**Scorpio**	**2025/07/24 23:00**	**196.2**	**332**	**1.5**	**South32 - meteorology**	RBCAA Allocation	155, 159, 165

No	Target / Guideline / Standard	Station	Date	Value (ppb)	Wind Direction (°)	Wind Speed (m/s)	Source	Comment	Response
29	**SO_2 Hourly RSA Limit (134 ppb)**	**Scorpio**	**2025/07/24 23:00**	**146.3**	**347**	**1.6**	**South32 - meteorology**	RBCAA Allocation	155, 159, 165
30	SO_2 Daily WHO Limit (15 ppb)	Scorpio	2025/07/25 00:00	27.5	235	2.6	No response required	None	2
31	**SO_2 10-minute RSA & WHO Limit (191 ppb)**	**Scorpio**	**2025/07/25 01:50**	**206.8**	**9**	**1.8**	**South32 - meteorology**	RBCAA Allocation	156, 158, 165
32	**SO_2 10-minute RSA & WHO Limit (191 ppb)**	**Scorpio**	**2025/07/25 02:00**	**238.1**	**231**	**0.6**	**South32 - meteorology**	RBCAA Allocation	156, 158, 165
33	SO_2 Daily WHO Limit (15 ppb)	Scorpio	2025/07/29 00:00	36.1	20	4	No response required	None	2
34	**SO_2 Hourly RSA Limit (134 ppb)**	**Scorpio**	**2025/07/29 05:00**	**150.3**	**351**	**1.4**	**South32 - meteorology**	RBCAA Allocation	163, 164, 165
35	**SO_2 Hourly RSA Limit (134 ppb)**	**Scorpio**	**2025/07/29 06:00**	**137.3**	**343**	**1.1**	**South32 - meteorology**	RBCAA Allocation	163, 164, 165
36	SO_2 Daily WHO Limit (15 ppb)	Scorpio	2025/07/31 00:00	24.9	16	6	No response required	None	2

Table 2: SO_2 Responses.

Response	Industry Feedback
2	No response required
149	Mondi - Kira Cobbold responded, (2025/07/17 14:29): Mondi has investigated the following SO2 exceedance at Scorpio on 26/06/2025 and based on the NNE wind direction Mondi is unlikely the source.
151	Foskor - Silungile Msane responded (Tue 2025/07/22 12:35): 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 north and north-north east at an average speed ranging from 4 – 6 m/s (Arboretum) and 4 – 8 m/s (Harbour West). Sulphuric Acid Plant A and C Plants were offline and the Sulphuric Acid B Plant was functioning within the permitted emission limits and no abnormal or upset conditions were present at the time of the exceedance. Considering the conditions of the Plant during the time and the prevailing wind direction, Foskor concludes that it did not contribute to the reported SO_2 exceedance. There was no root cause identified as there were no abnormalities in the plant furthermore the wind direction was north westerly
152	Foskor - Silungile Msane responded (Tue 2025/07/22 12:37): 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 north north east , in the direction of the Harbour at an average speed ranging from 0.5 – 4 m/s (Arboretum) and 0.5 – 6m/s (Harbour West) Sulphuric Acid Plants were functioning within the permitted emission limits and no abnormal or upset conditions were present at the time of the exceedance. Considering the conditions of the Plant during the time and the prevailing wind direction, Foskor concludes that it did not contribute to the reported SO_2 exceedance. There was no root cause identified as there were no abnormalities in the plant furthermore the wind direction was Northerly which was blowing towards the Harbour.
153	Mondi - Kira Cobbold responded, (2025/07/23 14:28): Mondi has investigated the following SO2 exceedance at Scorpio and based on the prevailing north easterly wind direction Mondi is unlikely the source. Stack emissions were also well within their compliance limits.
155	Mondi - Kira Cobbold responded, (2025/07/25 11:18): Mondi has investigated the SO2 exceedance at Scorpio on 24/07/2025 and based on the north easterly wind direction Mondi is unlikely the source. Additionally, SO2 stack emissions were also well within their compliance limits, and the mill was operating under stable conditions.
156	Mondi - Kira Cobbold responded, (2025/07/28 11:20): Mondi has investigated the following SO2 exceedances and based on wind direction and stable operating conditions at the mill, Mondi is unlikely the source.
158	Foskor - Silungile Msane responded (Tue 2025/07/29 10:04): Meteorological data also show that, during the period in question, the wind was primarily blowing from the north-northeast toward the Harbour. As illustrated in Figure 1and Figure 2 below, wind speeds averaged between 0.5 - 2 m/s at the Arboretum station and 0.5- 2 m/s at the CBD station. The Sulphuric Acid Plants were operating within the allowable emission limits, with no abnormal or upset conditions reported during the time of the recorded exceedance. Taking into account the operational status of the plant during the period in question and the prevailing wind direction, Foskor determines that it did not contribute to the reported SO2

Response	Industry Feedback
	exceedance. Incident Root cause: There was no root cause identified as there were no abnormalities in the plant furthermore the wind direction was Northerly which was blowing towards the Harbour.
159	Foskor - Silungile Msane responded (Tue 2025/07/29 10:05 & 10:08): The Sulphuric Acid Plant engineers were informed, and an investigation was promptly undertaken. Meteorological data indicate that, during the period in question, prevailing winds were predominantly northerly, blowing in the direction of the Harbour. As depicted in Figures 1and 2 below, average wind speeds ranged between 0.5-4 m/s at the Arboretum station and 0.5-2 m/s at the CBD station. The Sulphuric Acid Plants were operating within the permitted emission limits, and no abnormal or upset conditions were observed duringthe time of the reported exceedance. Considering the plant's operational status and the prevailing wind direction during the period in question, Foskor concludes that it was not a contributing source to the reported SO2 exceedance. Incident Root cause There was no root cause identified as there were no abnormalities in the plant furthermore the wind direction was Northerly which was blowing towards the Harbour.
163	Mondi - Kira Cobbold responded, (2025/07/30 09:58): Mondi has investigated the SO2 exceedance at Scorpio on 29/07/25 and based on north easterly wind direction and stack emissions within compliance limits, Mondi is unlikely the source.
164	Foskor - Silungile Msane responded (Tue 2025/07/30 14:29): 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 north at an average speed ranging from 2 – 6 m/s (Arboretum) and 0.5 – 6 m/s (Harbour West). Additional Information: Sulphuric Acid Plant A was offline and the Sulphuric Acid B and C Plants were functioning within the per- mitted emission limits and no abnormal or upset conditions were present at the time of the exceedance. Considering the conditions of the Plant during the time and the prevailing wind direction, Foskor concludes that it did not contribute to the reported SO_2 exceedance. Incident Root cause: There was no root cause identified as there were no abnormalities in the plant furthermore the wind direction was northerly.
165	RBCAA Allocation - Sandy Camminga (2025/08/06 23:24): Please allocate the outstanding SO2 exceedances recorded at Scorpio for June and July to SOUTH32 based on wind direction.

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)	CBD	2025/07/12 02:30	5.2	244	3.7	Mondi	Source of TRS unknown	710
2	TRS 30-minute WHO H_2S Limit (5.0 ppb)	CBD	2025/07/21 22:30	5.3	235	4.6	Mondi	Meteorology - Source not identified	731
3	TRS 30-minute WHO H_2S Limit (5.0 ppb)	CBD	2025/07/21 23:00	5.3	238	5.3	Mondi	Meteorology - Source not identified	731
4	TRS 30-minute WHO H_2S Limit (5.0 ppb)	eSikhaleni	2025/07/05 23:30	5.9	14	3.4	THS + Mondi (Meteorology)	Desludging	699, 702, 713
5	TRS 10-minute OME Limit (9.3 ppb)	eSikhaleni	2025/07/10 06:50	10.3	33	1.6	THS + Mondi (Meteorology)	Desludging	700, 714, 702
6	TRS 10-minute OME Limit (9.3 ppb)	eSikhaleni	2025/07/10 07:00	10.5	9	0.6	THS + Mondi (Meteorology)	Desludging	700, 714, 702
7	TRS 30-minute WHO H_2S Limit (5.0 ppb)	eSikhaleni	2025/07/10 07:00	6.8	3	0.5	THS + Mondi (Meteorology)	Desludging	700, 714, 702
8	TRS 30-minute WHO H_2S Limit (5.0 ppb)	eSikhaleni	2025/07/10 08:00	8.0	36	2.0	THS + Mondi (Meteorology)	Desludging	700, 714, 702
9	TRS 10-minute OME Limit (9.3 ppb)	eSikhaleni	2025/07/10 08:10	13.9	42	2.0	THS + Mondi (Meteorology)	Desludging	700, 714, 702
10	TRS 30-minute WHO H_2S Limit (5.0 ppb)	eSikhaleni	2025/07/16 22:30	5.8	26	0.8	Mondi	H_2S released from effluent plant	709, 711, 1
11	TRS 30-minute WHO H_2S Limit (5.0 ppb)	eSikhaleni	2025/07/21 07:30	7.2	14	1.8	Mondi	Meteorology - Source not identified	720, 731
12	TRS 30-minute WHO H_2S Limit (5.0 ppb)	eSikhaleni	2025/07/24 04:30	8.7	66	1.0	Mondi	Methanol system	722, 728, 1
13	TRS 10-minute OME Limit (9.3 ppb)	eSikhaleni	2025/07/24 04:40	9.4	63	0.8	Mondi	Methanol system	722, 728, 1
14	TRS 10-minute OME Limit (9.3 ppb)	eSikhaleni	2025/07/24 04:50	15.1	77	1.0	Mondi	Methanol system	722, 728, 1
15	TRS 10-minute OME Limit (9.3 ppb)	eSikhaleni	2025/07/24 05:00	10.3	44	1.0	Mondi	Methanol system	722, 728, 1
16	TRS 30-minute WHO H_2S Limit (5.0 ppb)	eSikhaleni	2025/07/24 05:00	7.1	71	0.6	Mondi	Methanol system	722, 728, 1
17	TRS 30-minute WHO H_2S Limit (5.0 ppb)	eSikhaleni	2025/07/24 07:30	5.1	35	0.9	Mondi	Methanol system	722, 728, 1
18	TRS 10-minute OME Limit (9.3 ppb)	eSikhaleni	2025/07/25 02:00	13.7	90	0.5	Mondi	Methanol system	723, 726,
19	TRS 30-minute WHO H_2S Limit (5.0 ppb)	eSikhaleni	2025/07/25 02:00	9.1	58	1.0	Mondi	Methanol system	723, 726,
20	TRS 30-minute WHO H_2S Limit (5.0 ppb)	eSikhaleni	2025/07/25 03:30	9.1	46	1.6	Mondi	Methanol system	723, 726,
21	TRS 10-minute OME Limit (9.3 ppb)	eSikhaleni	2025/07/25 03:40	13.1	44	1.6	Mondi	Methanol system	723, 726,
22	TRS 30-minute WHO H_2S Limit (5.0 ppb)	eSikhaleni	2025/07/29 02:30	5.1	33	1.5	Mondi	Methanol system	727, 729, 1
23	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/02 04:00	11.2	249	1.1	THS	Desludging	695, 702
24	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/02 04:10	17.7	230	0.9	THS	Desludging	695, 702
25	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/02 04:20	11.5	17	1.1	THS	Desludging	695, 702
26	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/03 05:00	12.5	76	1.5	THS	Desludging	695, 702
27	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/03 05:10	20.1	72	1.5	THS	Desludging	695, 702
28	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/03 05:20	16.4	68	1.9	THS	Desludging	695, 702
29	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/04 12:30	6.2	222	4.5	THS	Desludging	698, 702, 712
30	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/04 20:00	11.8	226	1.7	THS	Desludging	698, 702, 712
31	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/05 03:30	15.1	194	1.6	THS + Mondi (Meteorology)	Desludging	699, 702, 713
32	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/05 03:40	33.1	211	2.0	THS + Mondi (Meteorology)	Desludging	699, 702, 713
33	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/05 03:50	11.1	144	1.1	THS + Mondi (Meteorology)	Desludging	699, 702, 713
34	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/05 06:30	19.9	189	1.3	THS + Mondi (Meteorology)	Desludging	699, 702, 713
35	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/05 06:30	11.4	195	1.4	THS + Mondi (Meteorology)	Desludging	699, 702, 713

No	Target / Guideline / Standard	Station	Date	Value (ppb)	Wind Direction (°)	Wind Speed (m/s)	Source	Comment	Response
36	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/05 06:40	13.0	186	1.4	THS + Mondi (Meteorology)	Desludging	699, 702, 713
37	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/05 20:30	14.2	188	1.1	THS + Mondi (Meteorology)	Desludging	699, 702, 713
38	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/05 20:30	18.7	181	1.0	THS + Mondi (Meteorology)	Desludging	699, 702, 713
39	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/05 20:40	23.9	184	1.1	THS + Mondi (Meteorology)	Desludging	699, 702, 713
40	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/05 20:50	17.9	173	0.9	THS + Mondi (Meteorology)	Desludging	699, 702, 713
41	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/05 21:00	26.5	144	0.7	THS + Mondi (Meteorology)	Desludging	699, 702, 713
42	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/05 21:00	20.6	117	0.5	THS + Mondi (Meteorology)	Desludging	699, 702, 713
43	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/05 21:10	22.4	111	0.5	THS + Mondi (Meteorology)	Desludging	699, 702, 713
44	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/05 21:20	12.8	98	0.4	THS + Mondi (Meteorology)	Desludging	699, 702, 713
45	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/05 21:30	6.1	201	1.0	THS + Mondi (Meteorology)	Desludging	699, 702, 713
46	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/11 22:30	16.6	247	2.4	THS	Desludging	701, 705
47	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/11 22:30	9.6	239	2.4	THS	Desludging	701, 705
48	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/12 04:30	11.0	224	4.8	THS	Desludging	703, 704, 710
49	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/12 04:30	11.3	222	5.1	THS	Desludging	703, 704, 710
50	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/12 04:40	10.6	221	5.7	THS	Desludging	703, 704, 710
51	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/12 04:50	12.5	222	4.6	THS	Desludging	703, 704, 710
52	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/12 05:00	11.5	221	4.8	THS	Desludging	703, 704, 710
53	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/12 05:00	8.7	220	4.2	THS	Desludging	703, 704, 710
54	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/12 05:30	6.4	218	3.7	THS	Desludging	703, 704, 710
55	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/12 06:30	5.8	223	3.3	THS	Desludging	703, 704, 710
56	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/12 07:00	10.2	224	3.1	THS	Desludging	703, 704, 710
57	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/12 07:00	6.0	239	3.1	THS	Desludging	703, 704, 710
58	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/12 12:30	8.4	224	3.7	THS	Desludging	703, 704, 710
59	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/12 12:40	10.3	224	4.1	THS	Desludging	703, 704, 710
60	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/12 13:00	6.5	203	2.6	THS	Desludging	703, 704, 710
61	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/12 13:30	6.5	211	2.5	THS	Desludging	703, 704, 710
62	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/12 15:00	8.4	225	4.3	THS	Desludging	703, 704, 710
63	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/12 15:20	11.1	225	4.3	THS	Desludging	703, 704, 710
64	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/12 15:30	11.5	229	4.1	THS	Desludging	703, 704, 710
65	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/12 15:30	7.4	231	3.6	THS	Desludging	703, 704, 710
66	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/15 01:00	36.0	167	1.2	Mondi	White liquor (WWL) tank overflow	708
67	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/15 01:00	44.8	157	0.9	Mondi	White liquor (WWL) tank overflow	708
68	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/15 01:10	59.8	146	0.8	Mondi	White liquor (WWL) tank overflow	708
69	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/15 01:20	38.5	159	0.9	Mondi	White liquor (WWL) tank overflow	708
70	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/15 01:30	30.9	191	0.5	Mondi	White liquor (WWL) tank overflow	708
71	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/15 01:30	23.5	236	1.2	Mondi	White liquor (WWL) tank overflow	708
72	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/15 01:40	24.7	246	1.4	Mondi	White liquor (WWL) tank overflow	708
73	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/15 01:50	14.8	262	1.8	Mondi	White liquor (WWL) tank overflow	708
74	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/15 02:00	12.2	262	2.1	Mondi	White liquor (WWL) tank overflow	708
75	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/15 02:00	6.9	273	2.6	Mondi	White liquor (WWL) tank overflow	708
76	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/15 05:30	9.1	225	1.2	Mondi	White liquor (WWL) tank overflow	708

No	Target / Guideline / Standard	Station	Date	Value (ppb)	Wind Direction (°)	Wind Speed (m/s)	Source	Comment	Response
77	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/15 05:40	14.3	138	0.8	Mondi	White liquor (WWL) tank overflow	708
78	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/15 05:50	12.4	240	1.2	Mondi	White liquor (WWL) tank overflow	708
79	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/15 06:00	10.2	216	0.8	Mondi	White liquor (WWL) tank overflow	708
80	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/15 06:00	12.8	208	0.9	Mondi	White liquor (WWL) tank overflow	708
81	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/15 06:20	21.3	228	0.8	Mondi	White liquor (WWL) tank overflow	708
82	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/15 06:30	42.1	165	0.4	Mondi	White liquor (WWL) tank overflow	708
83	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/15 06:30	21.2	213	1.0	Mondi	White liquor (WWL) tank overflow	708
84	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/15 06:40	10.1	238	1.3	Mondi	White liquor (WWL) tank overflow	708
85	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/15 06:50	11.4	216	1.2	Mondi	White liquor (WWL) tank overflow	708
86	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/15 07:00	21.2	207	1.1	Mondi	White liquor (WWL) tank overflow	708
87	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/15 07:00	9.7	229	1.3	Mondi	White liquor (WWL) tank overflow	708
88	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/15 07:30	6.7	234	1.6	Mondi	White liquor (WWL) tank overflow	708
89	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/15 07:50	15.8	229	1.4	Mondi	White liquor (WWL) tank overflow	708
90	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/15 08:00	24.6	247	1.7	Mondi	White liquor (WWL) tank overflow	708
91	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/15 08:00	15.3	243	1.4	Mondi	White liquor (WWL) tank overflow	708
92	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/15 08:10	15.9	233	1.2	Mondi	White liquor (WWL) tank overflow	708
93	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/16 07:30	6.1	148	0.7	THS	High sulphite in the clarifier water	709, 711, 716
94	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/16 07:50	14.9	147	0.3	THS	High sulphite in the clarifier water	709, 711, 716
95	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/16 08:00	10.3	232	1.4	THS	High sulphite in the clarifier water	709, 711, 716
96	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/16 08:00	5.8	209	1.3	THS	High sulphite in the clarifier water	709, 711, 716
97	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/16 22:00	9.9	100	0.7	THS	High sulphite in the clarifier water	709, 711, 716
98	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/16 22:00	22.4	70	1.2	THS	High sulphite in the clarifier water	709, 711, 716
99	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/16 22:10	36.4	66	1.4	THS	High sulphite in the clarifier water	709, 711, 716
100	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/16 22:20	21.1	57	1.5	THS	High sulphite in the clarifier water	709, 711, 716
101	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/18 05:00	11.2	143	1.2	THS	Desludging process	715, 717
102	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/18 05:10	15.3	88	1.1	THS	Desludging process	715, 717
103	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/18 05:20	16.1	98	0.6	THS	Desludging process	715, 717
104	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/18 05:30	20.6	227	1.2	THS	Desludging process	715, 717
105	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/18 05:30	18.5	159	0.9	THS	Desludging process	715, 717
106	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/18 05:40	16.7	166	0.5	THS	Desludging process	715, 717
107	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/18 05:50	18.1	63	1.0	THS	Desludging process	715, 717
108	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/18 06:00	15.6	98	1.0	THS	Desludging process	715, 717
109	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/18 06:00	12.1	112	0.8	THS	Desludging process	715, 717
110	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/18 06:10	11.3	128	0.8	THS	Desludging process	715, 717
111	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/18 06:30	10.6	190	0.6	THS	Desludging process	715, 717
112	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/22 10:30	6.7	200	2.6	THS	Smuts Clarifiers	718, 719, 721
113	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/22 10:50	12.9	165	2.4	THS	Smuts Clarifiers	718, 719, 721
114	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/22 11:00	14.9	165	2.5	THS	Smuts Clarifiers	718, 719, 721
115	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/22 11:00	6.8	163	2.2	THS	Smuts Clarifiers	718, 719, 721
116	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/22 11:30	34.1	161	1.8	THS	Smuts Clarifiers	718, 719, 721
117	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/22 11:30	14.8	186	1.6	THS	Smuts Clarifiers	718, 719, 721

No	Target / Guideline / Standard	Station	Date	Value (ppb)	Wind Direction (°)	Wind Speed (m/s)	Source	Comment	Response
118	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/24 01:50	12.1	154	0.9	THS	Desludging process	722, 730
119	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/24 02:00	15.7	219	1.3	THS	Desludging process	722, 730
120	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/24 02:00	6.3	197	1.0	THS	Desludging process	722, 730
121	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/24 03:30	18.3	211	1.1	THS	Desludging process	722, 730
122	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/24 03:30	22.2	141	0.7	THS	Desludging process	722, 730
123	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/24 03:40	26.7	177	0.4	THS	Desludging process	722, 730
124	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/24 03:50	21.6	79	0.7	THS	Desludging process	722, 730
125	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/24 04:00	17.3	68	1.0	THS	Desludging process	722, 730
126	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/24 04:00	11.5	98	0.7	THS	Desludging process	722, 730
127	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/24 04:10	10.1	112	0.7	THS	Desludging process	722, 730
128	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/25 16:30	6.6	225	3.5	THS	Desludging process	723, 726, 730
129	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/25 22:30	5.1	224	2.9	THS	Desludging process	723, 726, 730
130	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/25 23:00	5.3	225	2.8	THS	Desludging process	723, 726, 730
131	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/26 14:00	5.7	229	4.5	THS	Desludging process	724, 730
132	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/26 19:30	6.2	221	2.9	THS	Desludging process	724, 730
133	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/26 20:00	6.9	226	3.3	THS	Desludging process	724, 730
134	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/26 21:00	6.9	224	4.4	THS	Desludging process	724, 730
135	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/27 12:30	5.2	225	6.6	THS	Desludging process	725, 730
136	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/27 13:30	5.8	225	5.8	THS	Desludging process	725, 730
137	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/27 14:00	5.6	229	5.4	THS	Desludging process	725, 730
138	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/07/27 17:00	5.9	226	4.5	THS	Desludging process	725, 730
139	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/07/27 17:20	9.4	223	3.9	THS	Desludging process	725, 730
140	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Richardia	2025/07/14 19:00	5.6	257	2.4	Mondi	Secondary Effluent Treatment Plant	707
141	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Richardia	2025/07/14 20:00	5.8	302	2.1	Mondi	Secondary Effluent Treatment Plant	707
142	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Richardia	2025/07/27 21:00	5.5	249	1.3	Mondi	Methanol system (possible cause)	725, 735

Table 2: TRS Responses

Response	Industry Feedback
1	Unresolved / No Response
695	Mpact -Traven Chetty responded, (2025/07/04 12:50): Please take note, Mpact has conducted an investigation into this exceedance and our process plant shift reports indicated that the plant was stable and running well on 2 July 2025. There were no abnormal activities that took and based on our investigations, it is unlikely that Mpact would have contributed to this exceedance at the Felixton station.
698	Mpact -Traven Chetty responded, (2025/07/08 13:58): Please take note, Mpact has conducted an investigation into this exceedance and our process plant shift reports indicated that the plant was stable and running well on 4th July 2025. There were no abnormal activities that took place, furthermore, the wind direction is also not in favour of emissions from Mpact. Based on our investigations, it is unlikely that Mpact would have contributed to this exceedance at the Felixton station.
699	Mpact -Traven Chetty responded, (2025/07/08 14:45):Mpact has conducted an investigation into these exceedances on 5th July 2025 and our process plant shift reports indicated that the plant was stable and running well. There were no abnormal activities that took place. Based on our investigations, it is unlikely that Mpact would have contributed to this exceedance at both Felixton and eSikhaleni stations
700	Mpact -Traven Chetty responded, (2025/07/14 15:42): We have conducted an investigation into the exceedances on 10th July 2025 between 7am and 8am. Our process plant shift reports indicated that the plant was stable and running well. There were no abnormal activities that took place. Based on our investigations, it is unlikely that Mpact would have contributed to this exceedance at the eSikhaleni station
701	Tongaat Hulett - Nicolas Govender responded (2025/07/15 12:48): This exceedance is related to the desludging at the effluent plant.
702	Tongaat Hulett - Nicolas Govender responded (2025/07/15 12:46): Note: Although Felixton Sugar mill has identified possible sources of TRS, which we are trying to resolve timeously. It must be noted that not all TRS exceedances will be related to this source or TH operations. Kindly see responses below, Lines 2539 – 2545, effluent plant was stable, the mill operations had not resumed and therefore it is unlikely to have been caused by TH. Lines 2546 – 2555, although effluent plant operations were normal, we was busy with steam trails and commissioning so we may have contributed to these exceedances. Lines 2676 – 2685, We had issues with the B5 conveyor, we did burn coal whilst boilers were banked. This may have contributed to the exceedances. Lines 2810 – 2815, This maybe related to the desludging that is underway. Lines 2822 – 2838, TH was commissioning the desludging processes. This may have triggered the exceedances.
703	Tongaat Hulett - Nicolas Govender responded (2025/07/15 12:49 & 12:50): This exceedance is related to the desludging at the effluent plant.
704	Mpact -Traven Chetty responded, (2025/07/15 12:52): An investigation was conducted into these exceedances at the Felixton station and the following was determined. The process plant reports for the 12/07/25, showed it was running well and under stable conditions, no abnormal activities took place. It was also noted that the wind direction is not in favour or emissions from Mpact. Based on this, it is unlikely that Mpact was the source of this exceedance.
705	Mpact -Traven Chetty responded, (2025/07/15 13:00): An investigation was conducted into these exceedances at the Felixton station. The process plant reports for the 11/07/25, showed it was running well and under stable conditions, no abnormal activities took place. The wind direction is not in favour or emissions from Mpact as well. Based on this, it is unlikely that Mpact was the source of this exceedance.
707	Mondi - Kira Cobbold responded, (2025/07/15 16:06): Mondi has investigated the following exceedances and, based on wind direction and elevated TRS levels recorded at the Mondi Alton station, Mondi is considered a likely source. Stack emissions were within compliance; however, elevated H_2S was recorded at the effluent stack prior to the exceedances at Richardia. This suggests the TRS release likely originated from the Secondary Effluent Treatment Plant (SETP).
708	Mondi - Kira Cobbold responded, (2025/07/16 15:57): Mondi has investigated the TRS exceedances that occurred at Felixton on 15/07/2025 and can be considered a potential source. An H_2S peak of 65.5 ppm was recorded at the effluent stack at 23:38, followed by a TRS peak of 5.9 ppb at the Mondi UVS station at 00:18, indicating the plume had moved in the direction of Felixton. The investigation identified a weak white liquor (WWL) tank overflow, which began at 16:20 on 14/07/2025, as the likely cause of the elevated H_2S levels. The overflow was due to a breakdown on Recovery Boiler 1, which disrupted liquor balance within the mill. Corrective actions were implemented by 13:10 on 15/07/2025, with the WWL tank overflow stopped by 13:19 once RB1 resumed receiving liquor. The root cause of the exceedances can therefore be attributed to TRS releases from the effluent plant as a result of the WWL overflow. Reducing WWL overflows remains a key focus area of Mondi's odour abatement strategy, as part of ongoing improvements to minimise odour impact
709	Mondi - Kira Cobbold responded, (2025/07/17 13:46):Mondi has investigated the TRS exceedances recorded at eSikhaleni and Felixton on 16/07/2025. Based on prevailing wind direction and elevated TRS levels observed at the Mondi UVS station, Mondi can be considered a potential source. An H_2S peak of 63.4 ppm was recorded at the effluent stack at 23:40, which may have contributed to the elevated levels recorded first at eSikhaleni and later at Felixton between 01:00 and 09:00. Low wind speeds during this period likely contributed to a lingering odour plume. From 18:12 onwards, several slightly smaller H_2S peaks were also recorded at the effluent stack, with the highest being 23 ppm at 18:53. These may have contributed to the exceedance observed at 22:00 when considered alongside the additional/more continuous H_2S released from effluent plant during this period.

Response	Industry Feedback
	The likely root cause of the increased H_2S emissions was reduced effluent quality, resulting from elevated sodium losses due to Reject and Dump tank overflows. Corrective actions have since been taken, and tanks are no longer overflowing. Each business unit involved was requested to complete a deviation form.
710	Mondi - Kira Cobbold responded, (2025/07/18 10:48): Mondi has investigated the following exceedances and based on the south westerly wind direction Mondi is the likely source for the exceedance at CDB station. However, the south westerly wind direction indicates that Mondi is unlikely the source for the exceedances recorded at Felixton. The exceedance at CBD aligns with an increase in TRS recorded at Mondi Alton and portable stations, although no deviations were noted during this period. Mondi also received two odour complaints on the evening of 12 July 2025, where, after a full investigation was completed, the source of TRS was still unknown. The investigation report has been submitted to the RBCAA. Based on wind direction and ambient TRS it is evident that Mondi is the source. The Odour Abatement Task Team continues to conduct biweekly walkabouts with Technical and Operations to identify any unknown TRS sources. On alternate weeks, the team meets to review findings track corrective action and identify continuous improvement ideas for both plant, people and process conditions for odour management.
711	Mpact -Traven Chetty responded, (2025/07/18 11:18): We have conducted an investigation into these exceedances for the 16th July 2025. Our process plant reports show no abnormal activities and it was running under stable conditions. It is unlikely that Mpact was the source of this exceedance at both Esikhaleni and Felixton stations.
712	Mondi - Kira Cobbold responded, (2025/07/18 11:37): Mondi has investigated the following TRS exceedance and based on wind direction Mondi is unlikely the source. The mill was operating under stable conditions, and all point source parameters were within specification.
713	Mondi - Kira Cobbold responded, (2025/07/18 13:20): Mondi has investigated the TRS exceedances recorded on 05/07/2025. Mondi can be considered a source based on wind direction. Small peaks were noted at the effluent stack however, remained below 10ppm in the periods leading up to the exceedances. No further deviations were noted during investigation and the mill was under stable conditions. Mondi monitoring stations remained on low levels and all stack emissions were well within their compliance limits. Therefore, root source of TRS remains unknown however the odour abatement task team continues to perform biweekly walkabouts in order to account for any unknown TRS sources.
714	Mondi - Kira Cobbold responded, (2025/07/18 15:28): Mondi has investigated the TRS exceedances recorded on 10/07/2025. Mondi can be considered a source based on wind direction. Some peaks were noted at the effluent stack however, do not align with the timings of the exceedances. No further deviations were noted during investigation and the mill was under stable conditions. Mondi monitoring stations remained on low levels and all stack emissions were well within their compliance limits. Therefore, root source of TRS remains unknown however the odour abatement task team continues to perform biweekly walkabouts in order to account for any unknown TRS sources.
715	Mpact -Traven Chetty responded, (2025/07/22 14:16): Mpact has conducted an investigation into these exceedances for the 18th July 2025 between 5am and 6am. Our process plant reports show no abnormal activities and it was running under stable conditions. It is unlikely that Mpact was the source of this exceedance at the Felixton station.
716	Tongaat Hulett - Nicolas Govender responded (2025/07/23 14:44): There was problems with bagasse feed to the boilers, B8 and B5 conveyors had chokes. The team used coal to sustain steam demand, this may have caused high sulphite in the clarifier water. The exceedances was caused by TH.
717	Tongaat Hulett - Nicolas Govender responded (2025/07/23 14:38): This exceedances was related to the desludging processes.
718	Mondi - Kira Cobbold responded, (2025/07/23 14:45): Mondi has investigated the following TRS exceedances and based on the south westerly wind direction Mondi is unlikely the source.
719	Tongaat Hulett - Nicolas Govender responded (2025/07/23 14:47 & 14:48): Due to the rainfall, which interrupts the supply of cane, the boilers used coal to sustain steam loads. This effects the quality of the smuts clarifiers water and may have caused the exceedances.
720	Mpact -Traven Chetty responded, (2025/07/23 15:22): Mpact has conducted an investigation into these exceedance for the 21th July 2025. Our process plant reports show no abnormal activities and it was running under stable conditions. It is unlikely that Mpact was the source of this exceedance at the eSikhaleni station.
721	Mpact -Traven Chetty responded, (2025/07/25 09:29): Mpact has conducted an investigation into these exceedance for the 22th July 2025. Our process plant reports show no abnormal activities. Our processes were running under stable conditions during these exceedance times. The wind direction is also not in favour of Mpact. It is unlikely that Mpact was the source of this exceedance at the felixton station.
722	Mpact -Traven Chetty responded, (2025/07/28 15:49): Mpact has conducted an investigation into these exceedances for the 24th July 2025. Our process plant reports show no abnormal activities which occurred during this time of the exceedances and it was running under stable conditions. Furthermore, desludging of the secondary clarifier took place between 07:00am and 16:00pm however this is outside the timeframe of these exceedances. Based on this, It is unlikely that Mpact was the source of these exceedances at the Felixton and eSikhaleni station.
723	Mpact -Traven Chetty responded, (2025/07/29 13:48): Mpact has conducted an investigation into these exceedance for the 25th July 2025. Our process plant reports show no abnormal activities. Our processes were running under stable conditions during these exceedance times. The wind direction is also not in favour of Mpact. It is unlikely that Mpact was the source of this exceedance at eSikhaleni and Felixton stations.
724	Mpact -Traven Chetty responded, (2025/07/29 13:53): Mpact has conducted an investigation into these exceedance for the 26th July 2025. Our process plant reports show no abnormal activities and was running under stable conditions during these exceedance times. It is unlikely that Mpact was the source of this exceedance below as the wind direction is also not in favour of Mpact.
725	Mpact -Traven Chetty responded, (2025/07/29 14:08): Mpact has conducted an investigation into these exceedance for the 27th July 2025. Our process plant reports show no abnormal activities and our processes were running under stable conditions. It is unlikely that Mpact was the source of this exceedance at the felixton station as the wind direction was also not in favour of emissions from Mpact.

Response	Industry Feedback
726	Mondi - Kira Cobbold responded, (2025/07/30 09:47): Based on wind direction, Mondi can be considered a potential source for the exceedances that took place at eSikhaleni. Mondi also received a complaint at 09:52am on 25/07/25 in Veldenvlei which aligns with the change in wind direction between 9 and 10am. The root cause of the odour is still under investigation however a pressure indicator has since been installed on the methanol system and it does appear to be fluctuating between positive and negative pressure. This means the methanol plant may be over pressurised allowing odour to escape via small leaks. The odour abatement task team is now investigating possible root cause with the intention to address findings as soon as possible. Based on wind direction, Mondi is unlikely the source for the TRS exceedances that occurred in Felixton.
727	Mondi - Kira Cobbold responded, (2025/07/30 10:25): Mondi has investigated the TRS exceedance that took place at eSikhaleni on 29/07/25 and based on wind direction Mondi can be considered a potential source. Mondi monitoring stations remained on low levels and stack emissions were within their compliance limits. However, a fluctuating positive pressure has been observed on the methanol system (pressure transmitter installed 28/07) which could allow odour to escape via small leaks. The odour abatement task team is investigating possible root cause with the intention to address findings as soon as possible.
728	Mondi - Kira Cobbold responded, (2025/07/30 14:08): Mondi has investigated the following exceedances at Felixton and eSikhaleni and based on wind direction Mondi can be considered a potential source. The mill was stable at the time of the exceedances, and all stack emissions were within specification. Although no exact root cause has been identified, a fluctuating positive pressure has since been observed on the methanol system (pressure transmitter installed 28/07) which could have been allowing odour to escape via small leaks. The odour abatement task team is investigating possible root cause with the intention to address findings as soon as possible.
729	Mpact -Traven Chetty responded, (2025/07/31 12:28): Mpact has conducted an investigation into the exceedance on the 29th July 2025. Our process plant reports show no abnormal activities and was running under stable conditions. It is unlikely that Mpact was the source of this exceedance at eSikhaleni station.
730	Tongaat Hulett - Nicolas Govender responded (2025/07/31 16:01): Please see feedback for TRS exceedances below. Lines 2927 – lines 2948 : the M4 smuts conveyor breakdown led to high volumes of smuts to effluent plant. This would have been compounded by the desludging process therefore we TH is responsible for the exceedances.
731	Mondi - Kira Cobbold responded, (2025/08/04 12:18): Mondi has investigated the following exceedances and based on wind direction can be considered a potential source. The mill was under stable conditions and stack emissions were within compliance limits, however, an increase in TRS was noted at the portable station from 20:00 in alignment with the wind direction change, indicating Mondi as the likely source. Although no root cause has been identified Mondi continues to walk the plant in order to identify any unknown TRS sources which may be contributing to the TRS exceedances observed.
735	Mondi - Kira Cobbold responded, (2025/08/08 11:25): Mondi has investigated the following exceedances at Felixton station on 27/07 and based on the south westerly wind direction is unlikely the source. However, the wind direction does indicate Mondi as a potential source for the exceedance at Richardia on 27/07. The mill was stable at the time of the exceedance, and all stack emissions were within specification. Mondi Alton and portable stations did pick up fluctuating TRS levels with the shift in wind direction from south westerly to westerly/north westerly indicating Mondi as a likely source. Although no exact root cause has been identified, a fluctuating positive pressure has since been observed on the methanol system (pressure transmitter installed 28/07) which likely could have been allowing odour to escape via small leaks. The odour abatement task team is investigating possible root cause with the intention to address findings as soon as possible.


AIMS