AIMS

Report

Monthly Air Quality

Richards Bay April 2025

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Document Approval

Action	Designation	Name	Date
Prepared	Assistant Consultant	Alicia Garnica	2025-05-06
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0	Draft	Lance Coetzee	2025-05-19
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Note

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

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1. INTRODUCTION

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

In addition to the monthly reports, RBCAA publishes annual air quality reports summarising the key findings and trends observed over a complete calendar year. These annual reports 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 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 April 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	100	97	100	-	-	-	-
Brackenham	***89***	***73***	***89***	-	-	-	-
CBD	100	100	100	-	100	-	-
CBD Rain	99	-	-	-	-	-	99
eSikhaleni	100	100	100	-	100	-	-
Felixton Met	***92***	***92***	***92***	-	***92***	-	-
Harbour West	100	100	100	-	-	-	-

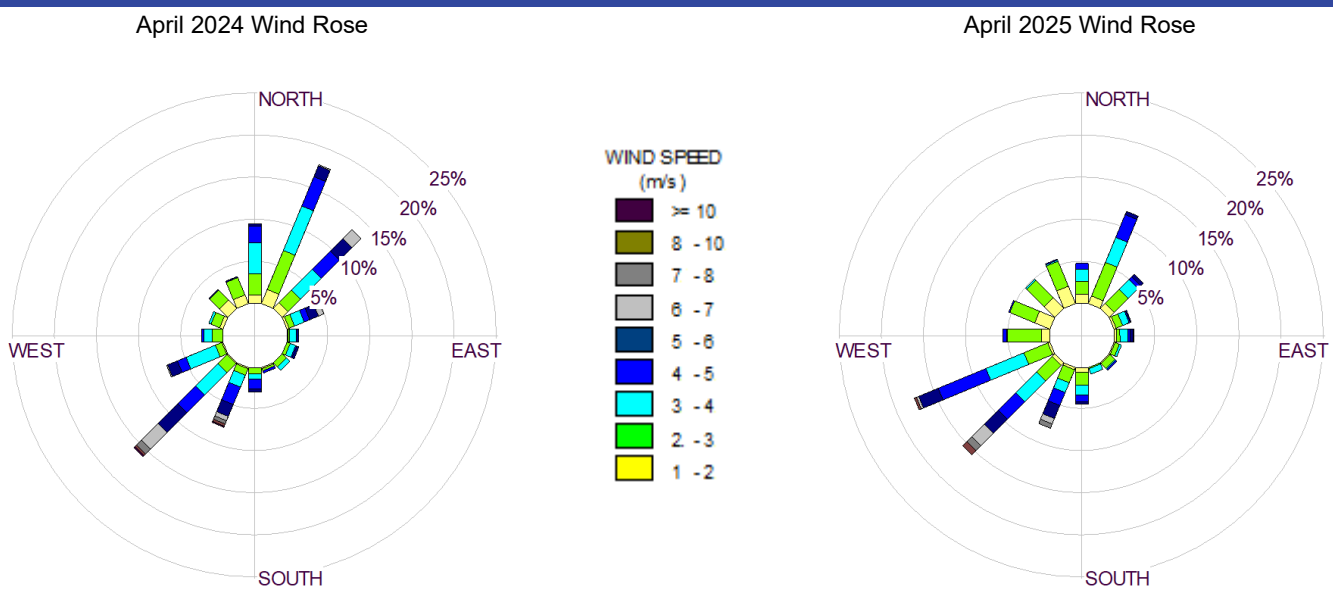
Notes:
1. *Red - Not acceptable for statistical purposes (<80%),*
2. *Orange – Does not meet SANAS data capture requirements (<90%),*
3. *Yellow – RBCAA reporting requirement (<=95%)*

Missing Data (Station and Meteorology):
- *Brackenham (WS/WD) – power outages, faulty equipment, replaced (9 days with <80% data capture, 2-10 April 2025).*
- *Felixton Met (Station) - power outages (1 day with <80% data capture 17, 28-29 April 2025)*

2.2. Wind Roses

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

Arboretum



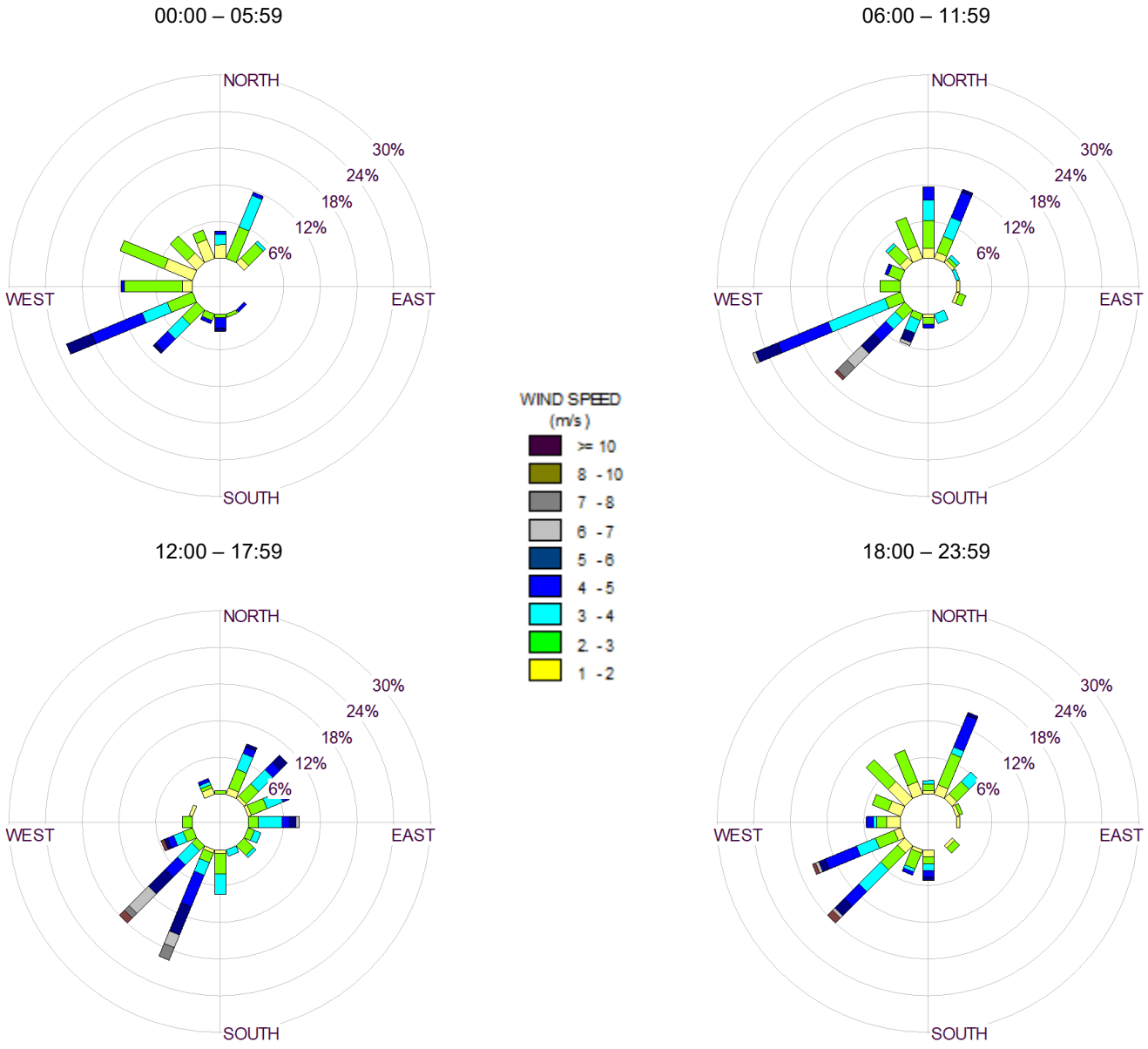
Period	Wind Speed	Dominant Sector 1		Dominant Sector 2		Calms	Valid Data
April 2024	3.3 m/s	N-NE	43%	SSW-WSW	32%	0%	94%
April 2025	3.0 m/s	NNE	12%	SSW-WSW	42%	0%	96%

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 April 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 – April 2025



Period	Wind Speed	Dominant Sector 1		Dominant Sector 2		Calms	Valid Data
00:00-05:59	2.5 m/s	NNE	12%	SW-NW	66%	0%	94%
06:00-11:59	3.2 m/s	NNW-NNE	32%	SW-WSW	43%	0%	98%
12:00-17:59	3.5 m/s	NNE-E	36%	S-SW	46%	0%	96%
18:00-23:59	2.6 m/s	NW-NNW & NNE-NE	39%	SW-WSW	35%	0%	96%

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).

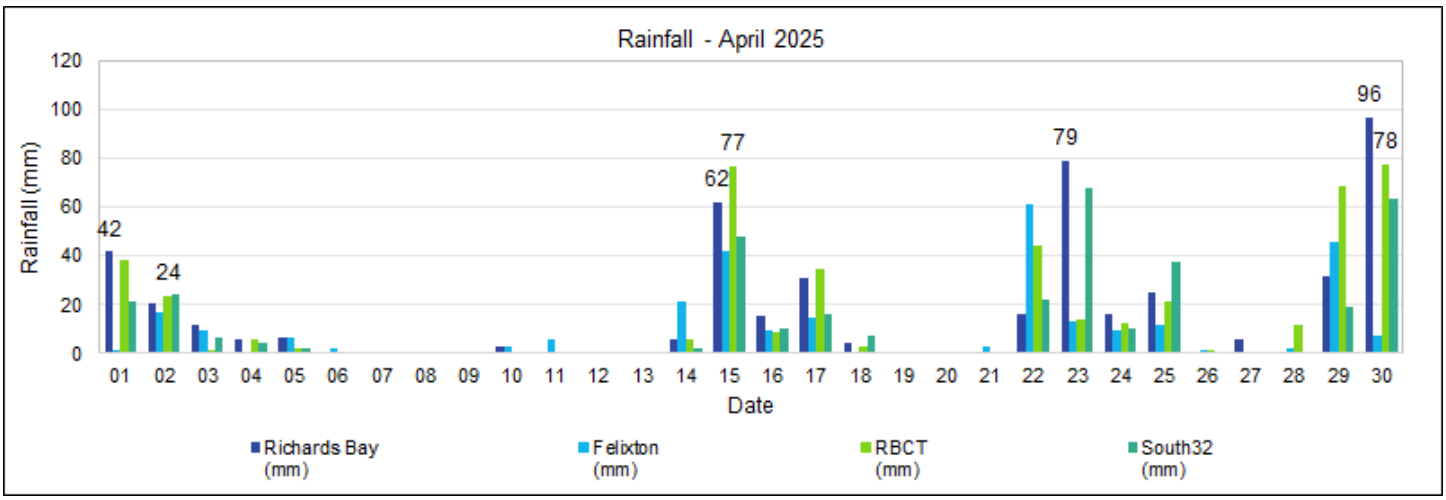


Figure 2.3: Rainfall.

Table 2.2: Rainfall -monthly averages.

Month	Richards Bay (mm)	Felixton (mm)	RBCT (mm)	South32 (mm)	Average (mm)
April 2025	479	287	450	363	395

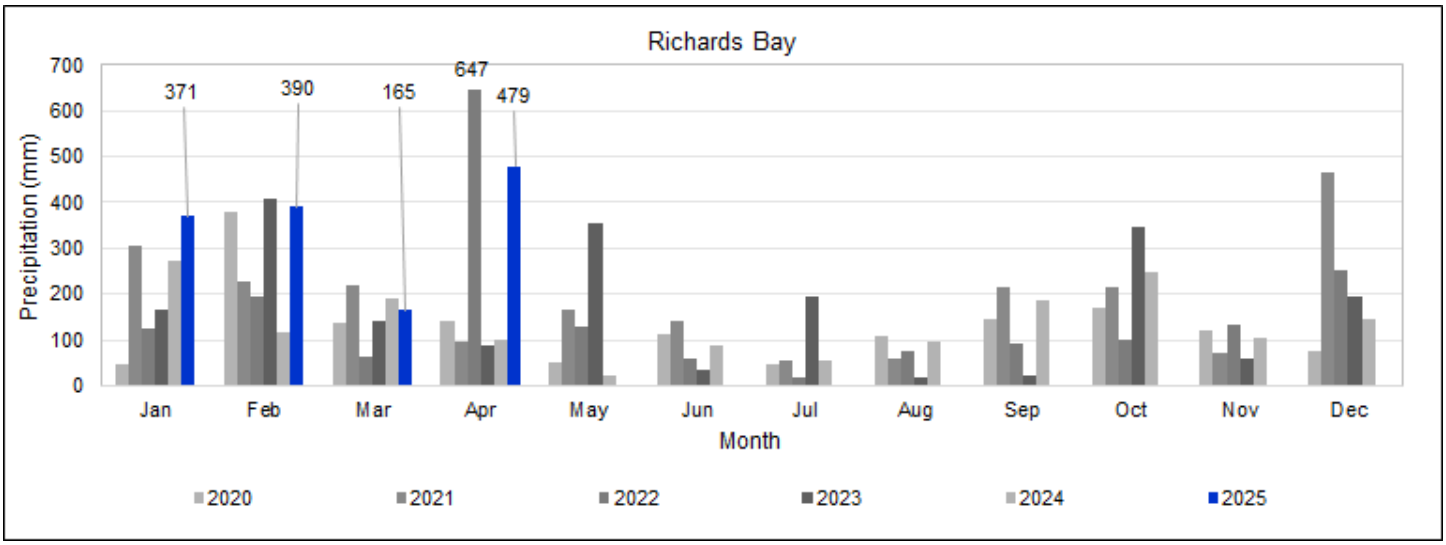


Figure 2.4: Rainfall –Richards Bay.

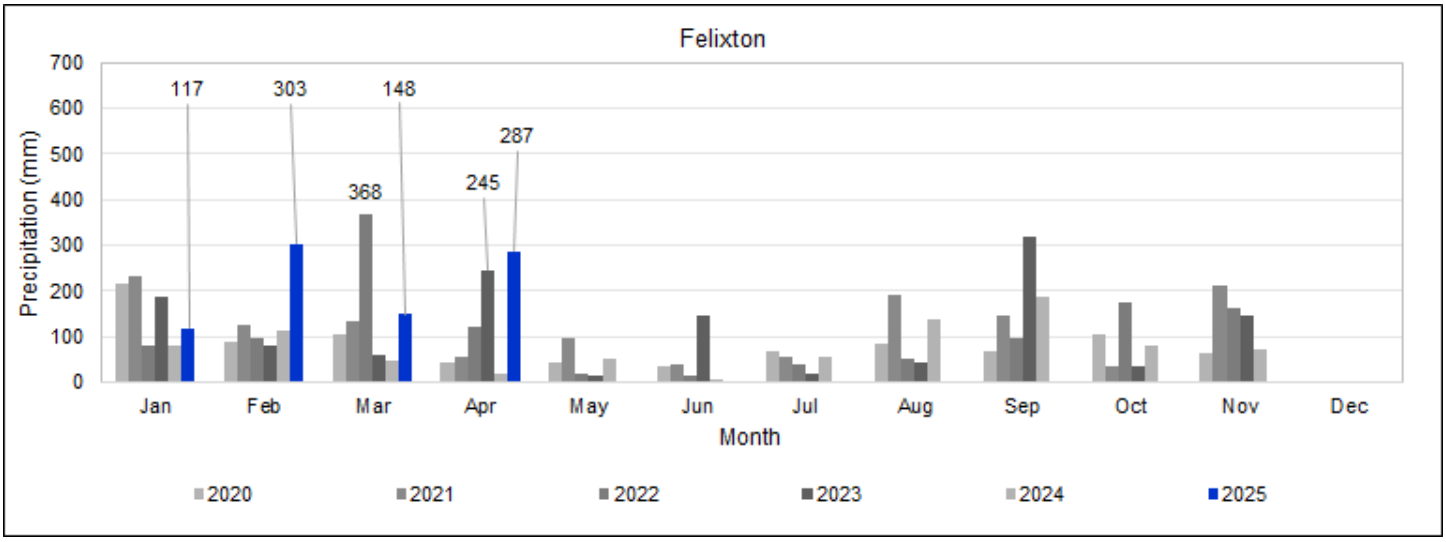


Figure 2.5: Rainfall – Felixton.

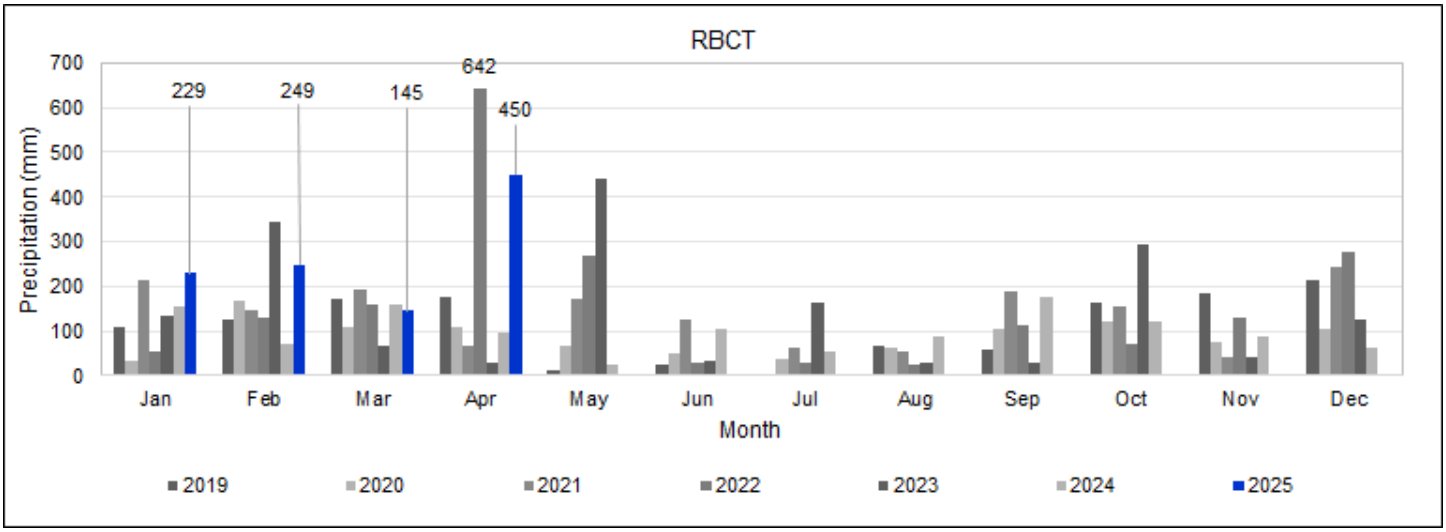


Figure 2.6: Rainfall – RBCT.

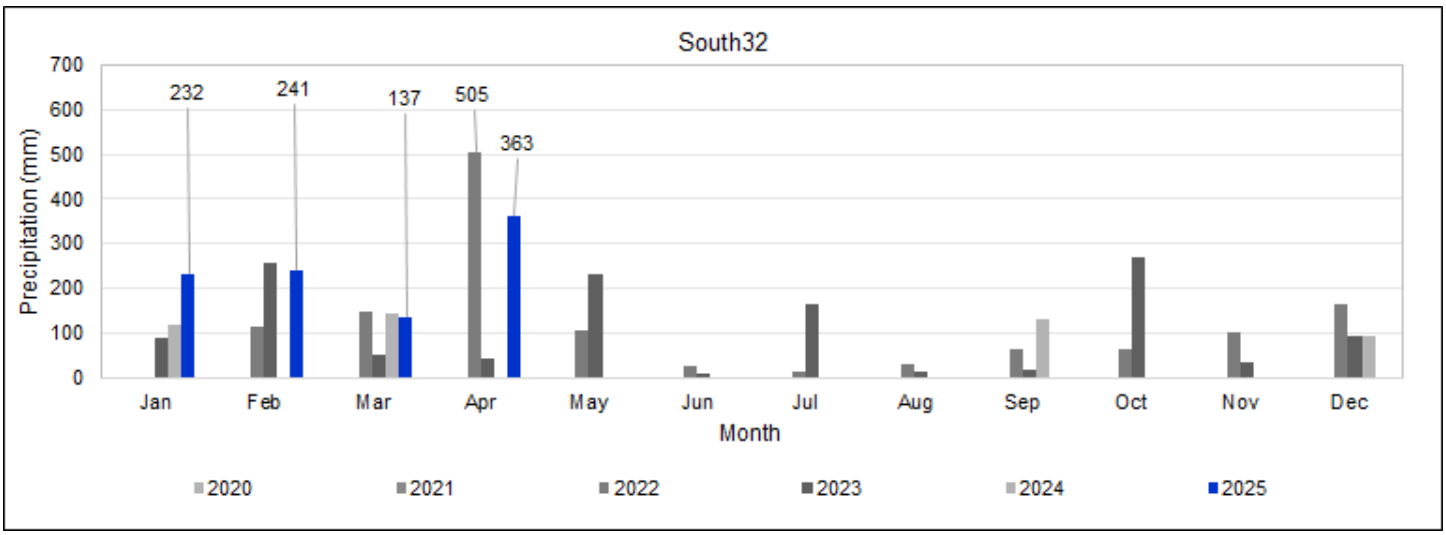


Figure 2.7: Rainfall - South32.
Note: South32 had issues with its rain gauge in 2024.

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

3.1. Field Observations

One hundred and eighty-six (186) air quality complaints were received during April 2025; Thirteen (13) were logged in April 2024. The daily complaints and a monthly historical count are reflected below (Figure 3.1 and Figure 3.2).

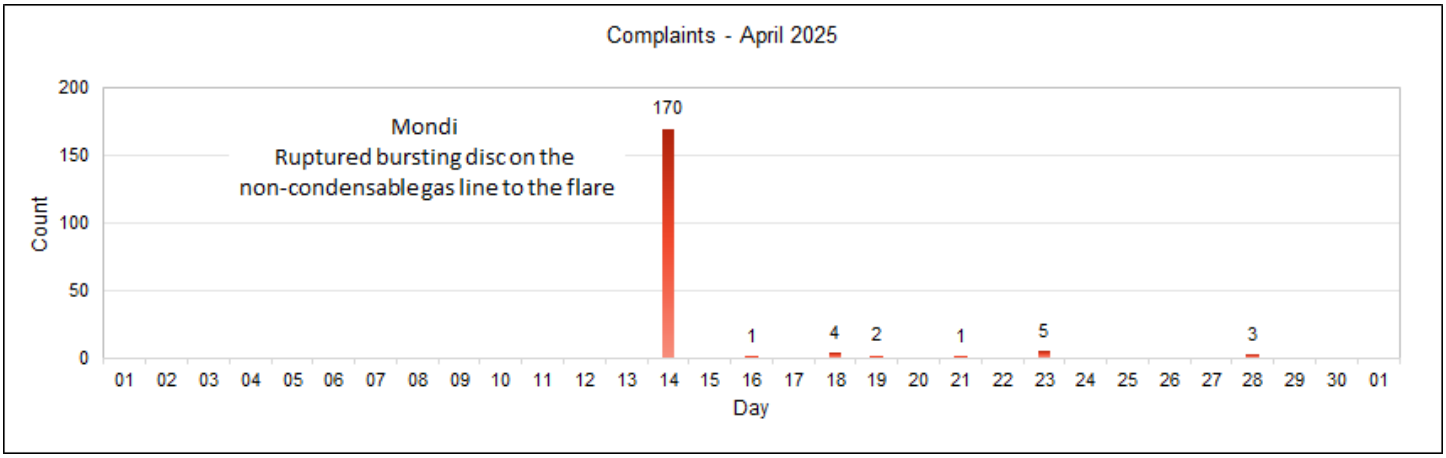


Figure 3.1: Complaints – daily.

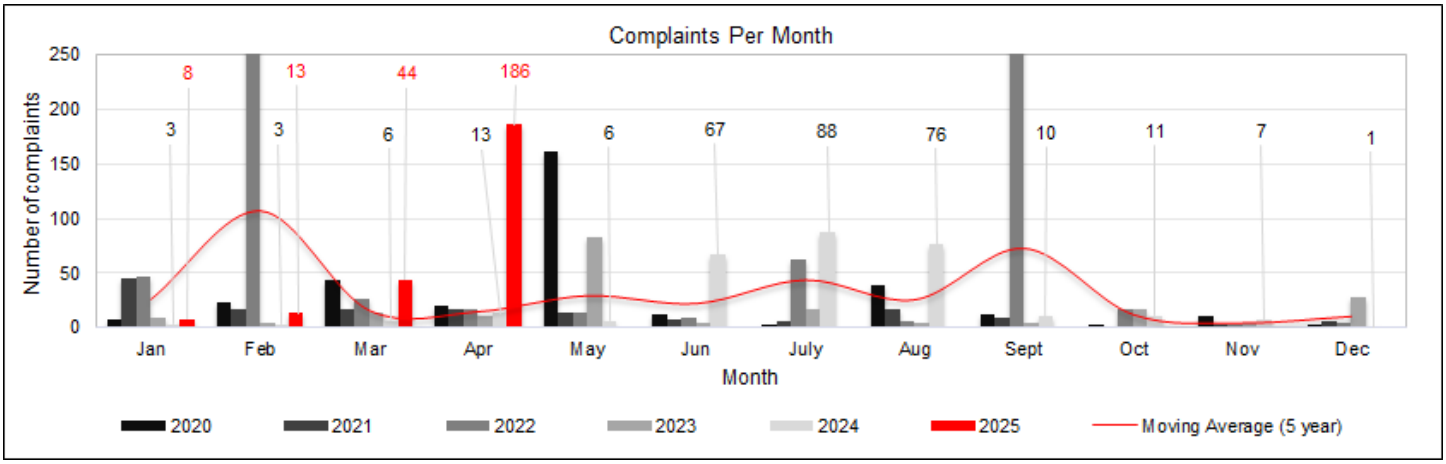


Figure 3.2: Complaints - historical monthly comparison.

3.2. Complaints Distribution

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

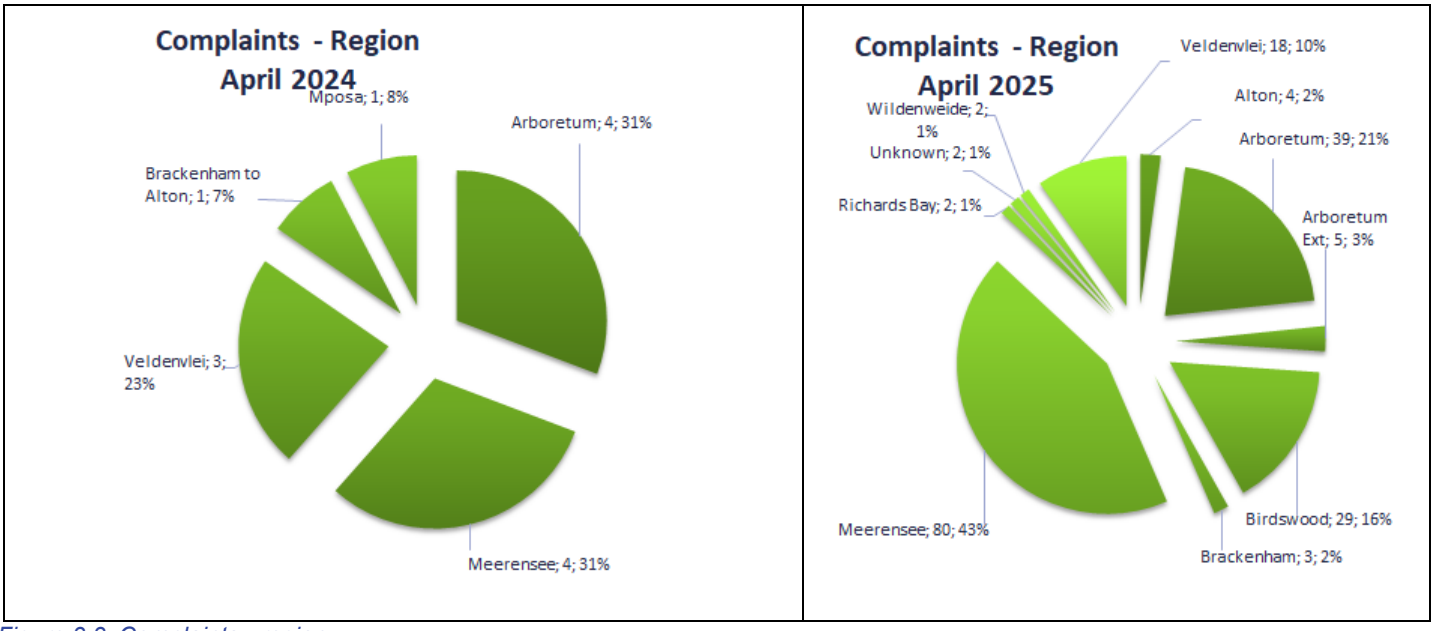


Figure 3.3: Complaints - region.

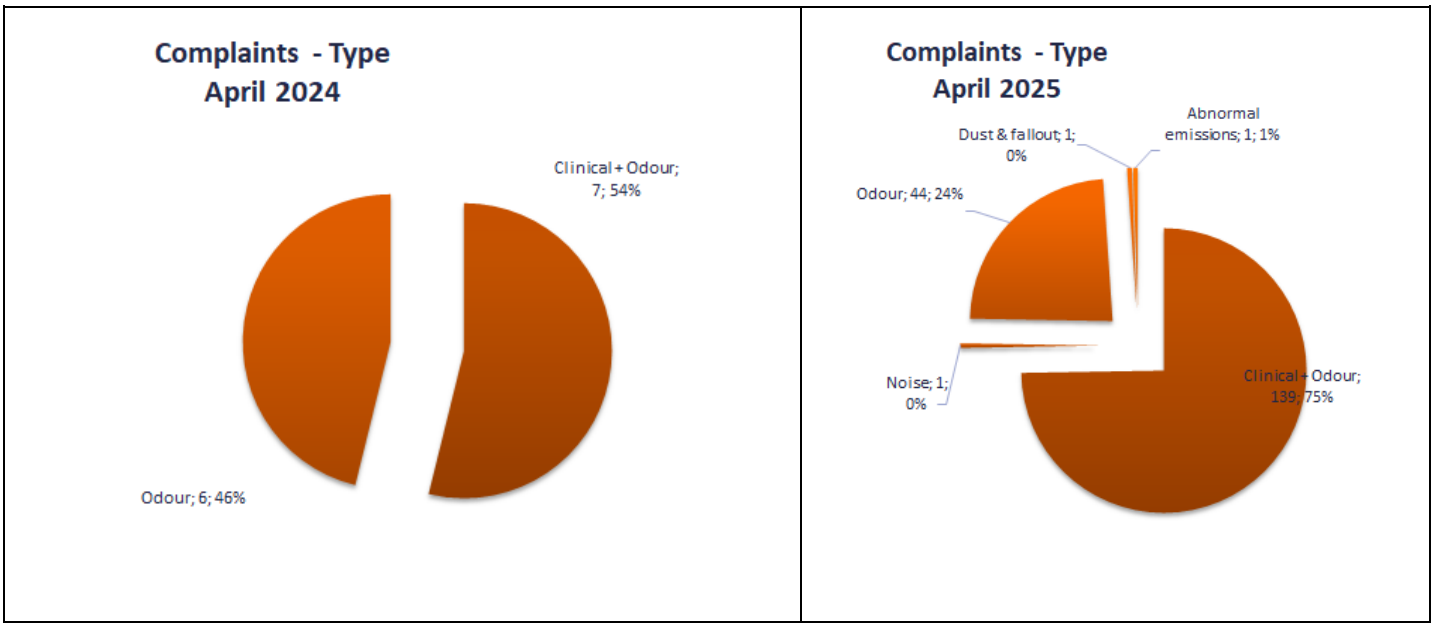


Figure 3.4: Complaints - type.

The complaints received were allocated as follows: Mondi (182, 97.8%), Foskor (1, 0.5%), Industry response required (1, 0.5%), authorities response required (1, 0.5%) and Clariant (1, 0.5%).

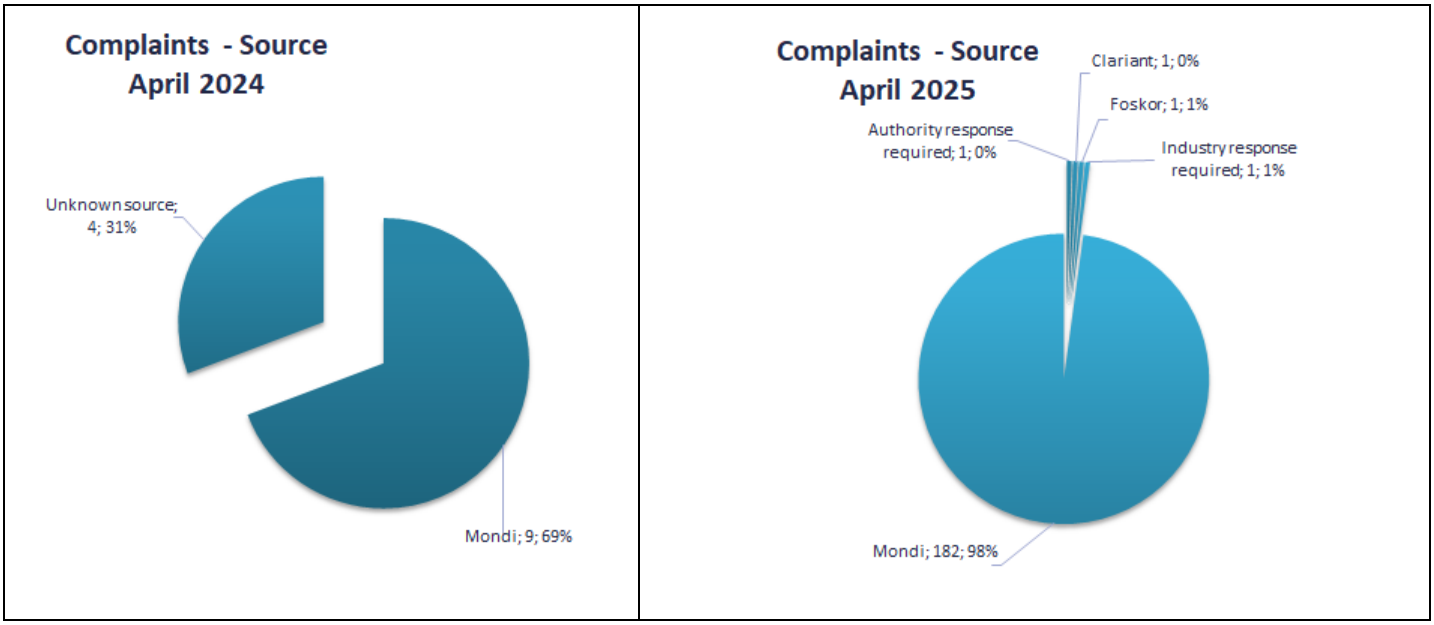


Figure 3.5: Complaints - source.

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

April: Complaint - allocation, region, and type	186
Authority response required	**1**
Alton North	1
Dust & fallout	1
Clariant	**1**
Alton	1
Abnormal emissions	1
Foskor	**1**
Arboretum Ext	1
Noise	1
Industry response required	**1**
Meerensee	1
Clinical + Odour	1
Mondi	**182**
Richards Bay	2
Clinical + Odour	1
Odour	1
Wildenweide	2
Clinical + Odour	2
Unknown	2
Clinical + Odour	2
Brackenham	3
Clinical + Odour	2
Odour	1
Alton	3
Clinical + Odour	2
Odour	1
Arboretum Ext	5
Clinical + Odour	4
Odour	1
Veldenvlei	18
Clinical + Odour	13
Odour	5
Birdswood	29
Clinical + Odour	23
Odour	6
Arboretum	39
Clinical + Odour	30
Odour	9
Meerensee	79
Clinical + Odour	59
Odour	20

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

Notes:

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

4.2. Data Availability

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

Table 4.2: PM data capture.

Station	Availability (%)	PM_{10} (%)	$PM_{2.5}$ (%)
Brackenham ES2	***87***	-	***87***
CBD ES1	100	100	-
eSikhaleni	100	99	-
Felixton ES1	100	100	-
Felixton ES2	99	-	99
Harbour West ES2	100	-	100
Richardia	100	100	-
Scorpio ES1	100	100	-
Scorpio ES2	100	-	100

Missing Data (PM_{10}):
- *None.*

Missing Data ($PM_{2.5}$):
- *Brackenham ES2 - power outages, data invalidation (5 days with <80% data capture, 2-6 April 2025).*

4.3. Monthly

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

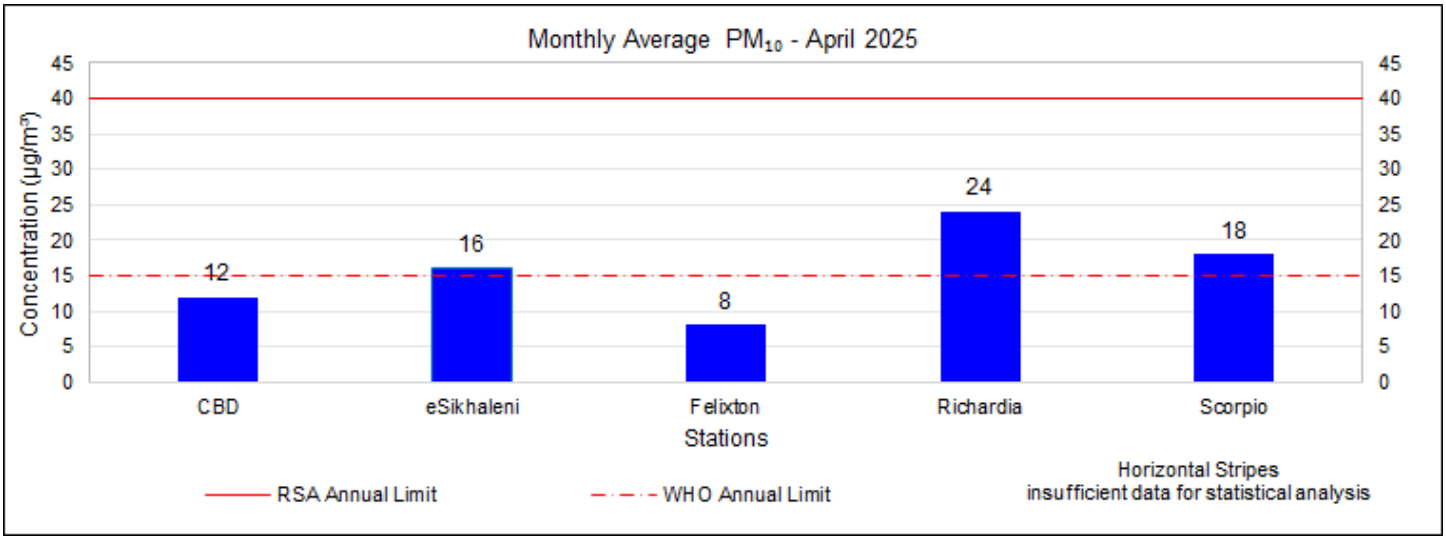


Figure 4.1: PM_{10} monthly concentrations.

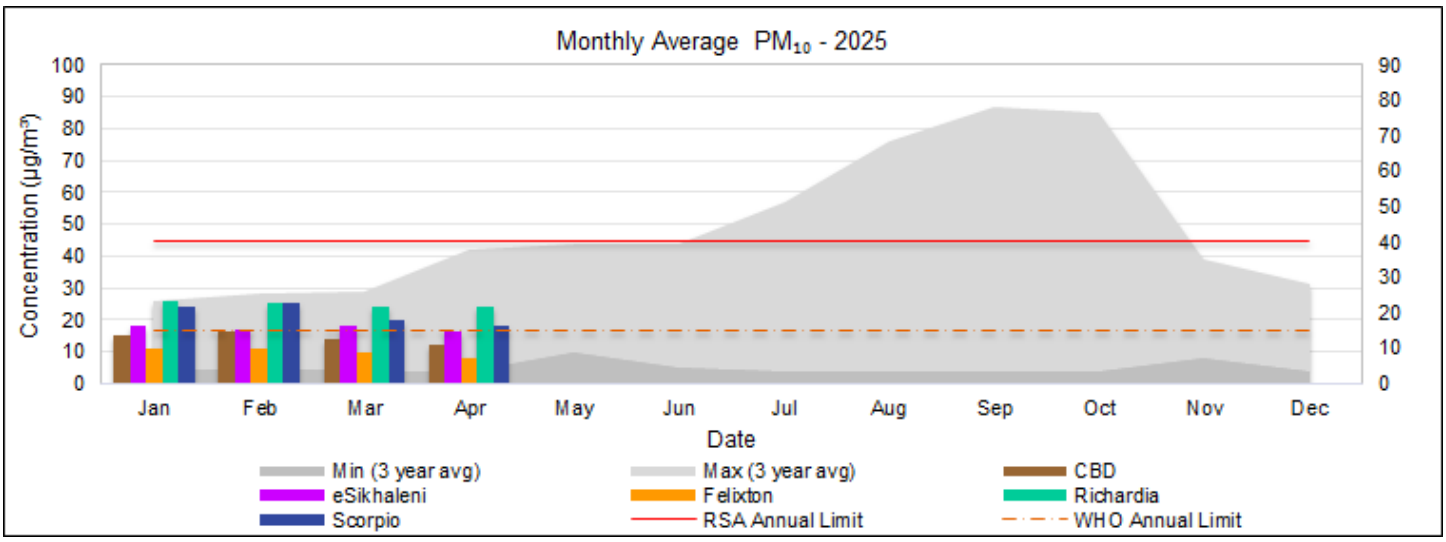


Figure 4.2: PM_{10} monthly comparison.

$PM_{2.5}$ monthly average concentrations did not exceed the RSA Annual Limit. The WHO Annual Limit was exceeded at Brackenham, Felixton, Harbour West and Scorpio (Figure 4.3). Comparisons to previous months are also provided (Figure 4.4).

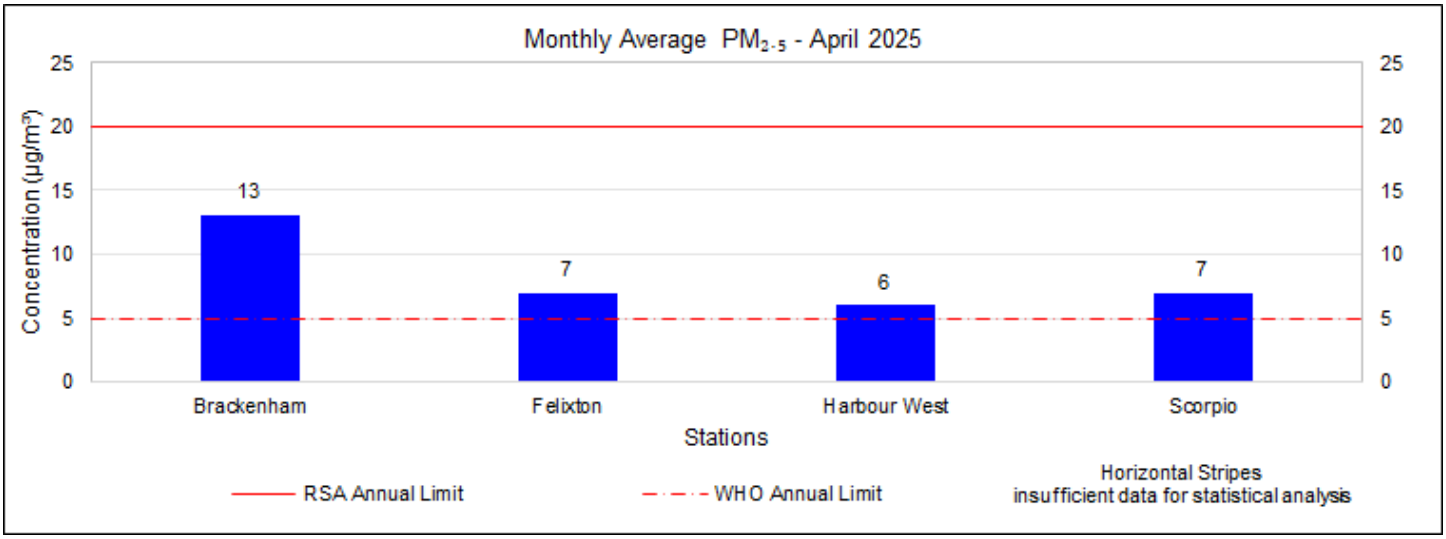


Figure 4.3: $PM_{2.5}$ monthly concentrations.

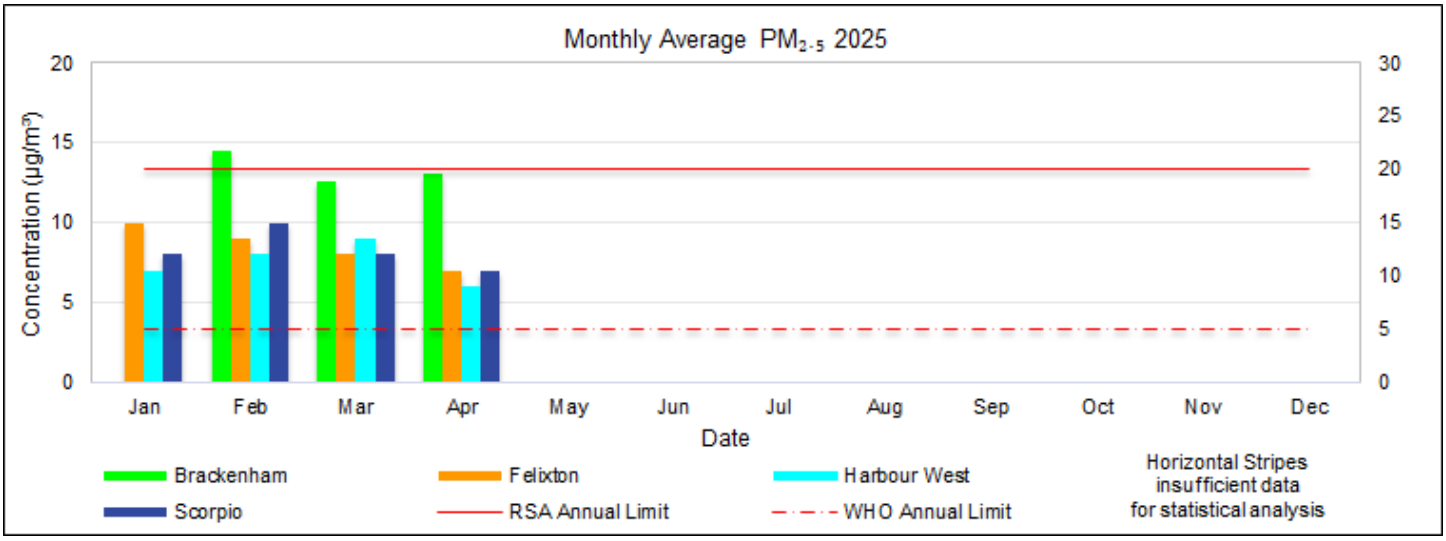


Figure 4.4: $PM_{2.5}$ monthly comparison.

4.4. Diurnal

PM diurnal concentrations are shown below (Figure 4.5 and Figure 4.6). Diurnal concentrations of PM_{10} did not exceed the RSA Daily Limit (75 µg/m³) nor the WHO Daily Limit (45 µg/m³). Diurnal concentrations of $PM_{2.5}$ did not exceed the RSA Daily Limit (40 µg/m³); the WHO Daily Limit (15 µg/m³) was exceeded at Brackenham.

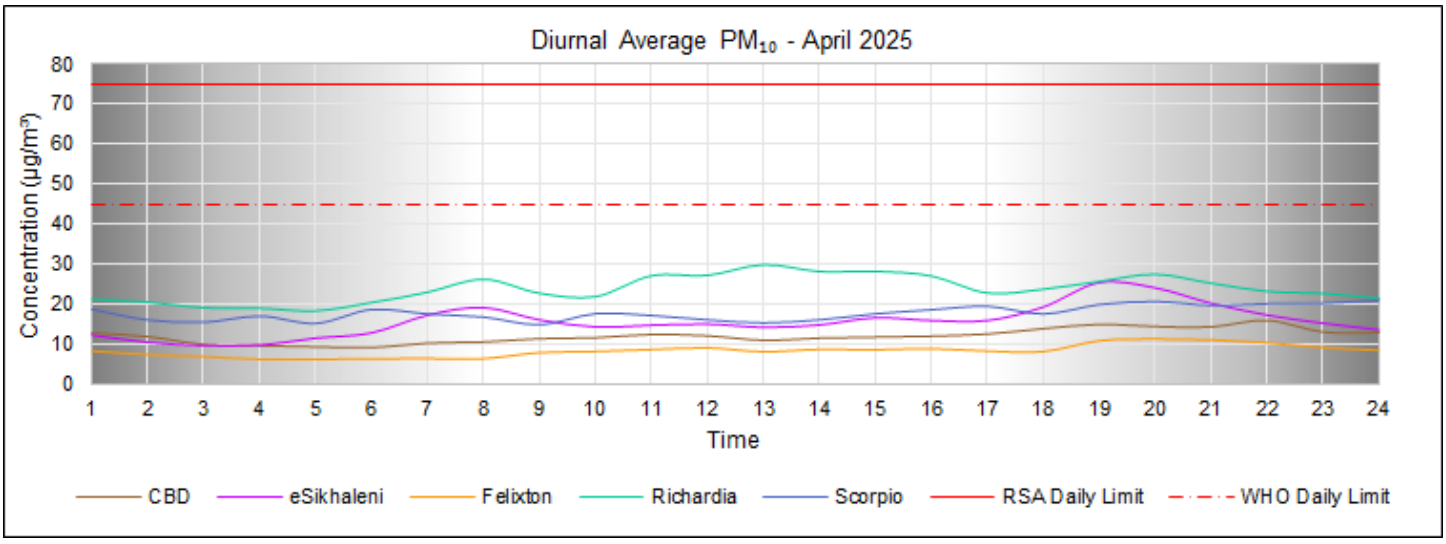


Figure 4.5: PM_{10} diurnal concentrations.

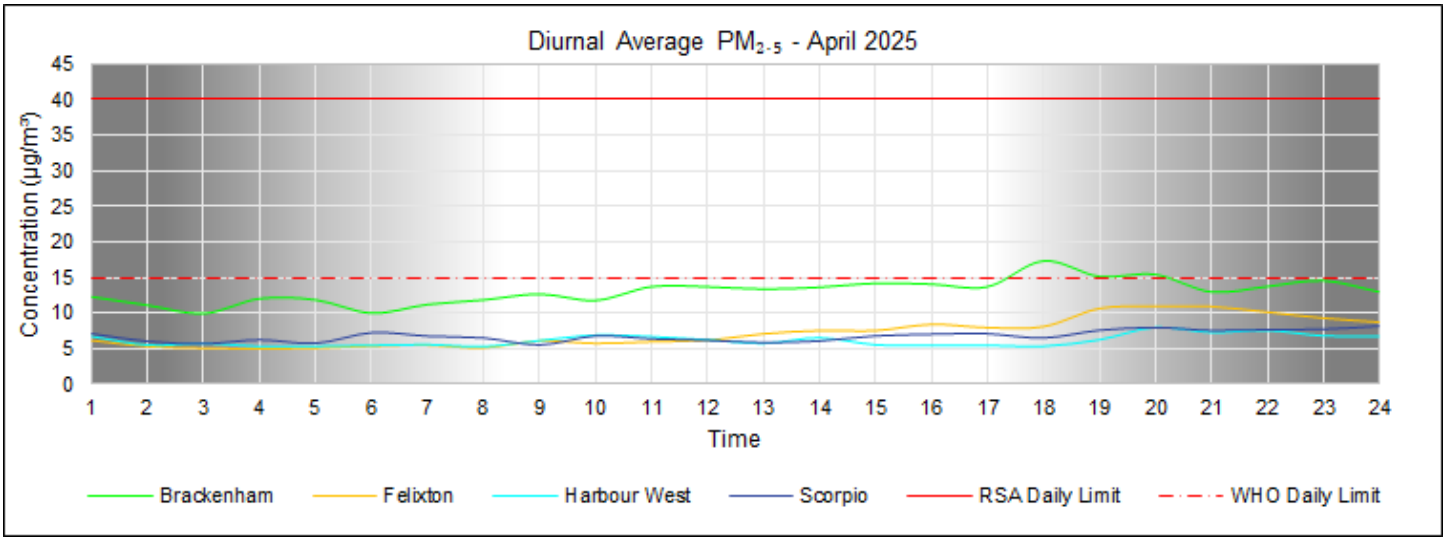


Figure 4.6: $PM_{2.5}$ diurnal concentrations.

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,
- Two (2) measured exceedances of the WHO Limit (45 µg/m³).

Table 4.3: PM_{10} 24-hour exceedances (WHO).

PM_{10} Daily WHO Limit (45 µg/m³)	2
No response required	**2**
Richardia	**2**
No additional comments.	2

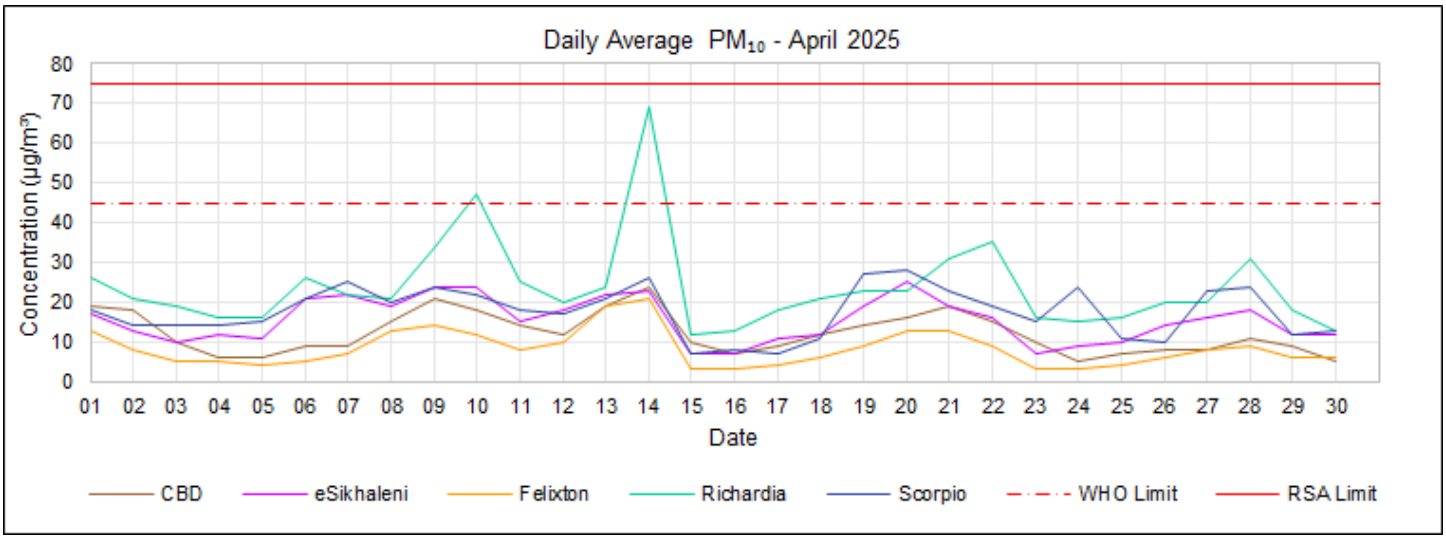


Figure 4.7: PM_{10} 24-hour average concentrations.

Missing Data (PM_{10})

- *None.*

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

- No (0) measured exceedances of the RSA Limit (40 µg/m³); and,
- Thirteen (15) measured exceedances of the WHO Limit (15 µg/m³).

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

$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	13
No response required	**13**
Brackenham	10
No additional comments.	10
Felixton	2
No additional comments.	2
Harbour West	1
No additional comments.	1

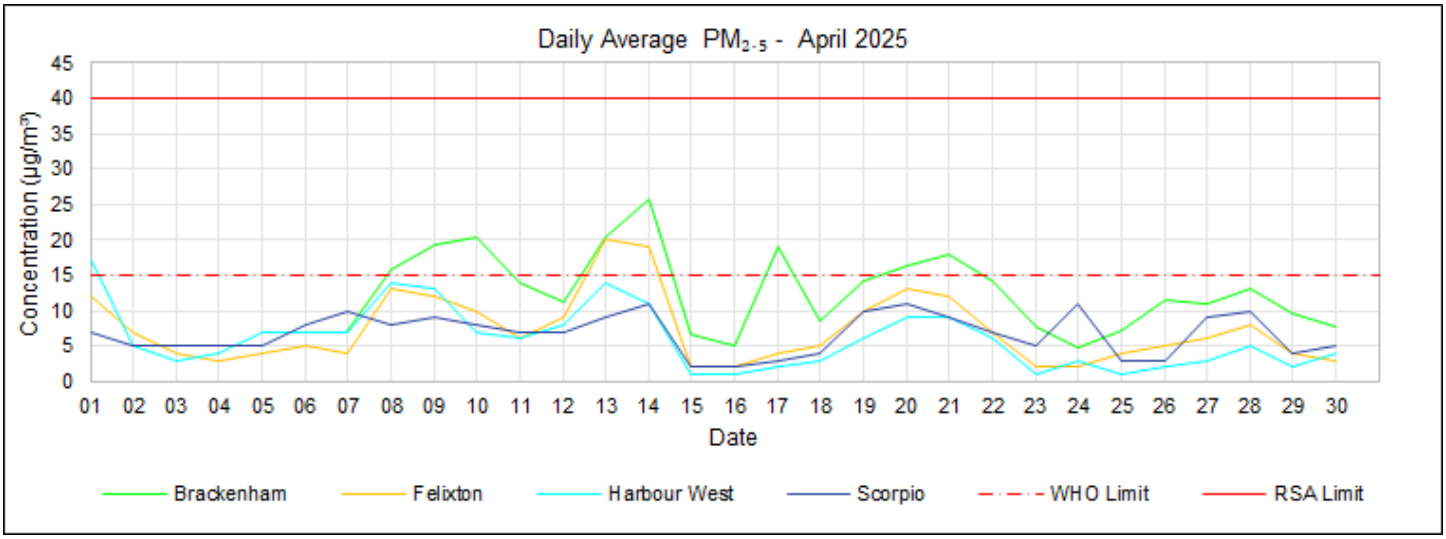


Figure 4.8: $PM_{2.5}$ daily average concentrations.
Missing Data ($PM_{2.5}$):
- *Brackenham ES2 - power outages, data invalidation (5 days with <80% data capture, 2-6 April 2025).*

4.6. Exceedances

The number of days on which exceedances occurred, plus comparisons to previous months, are 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.

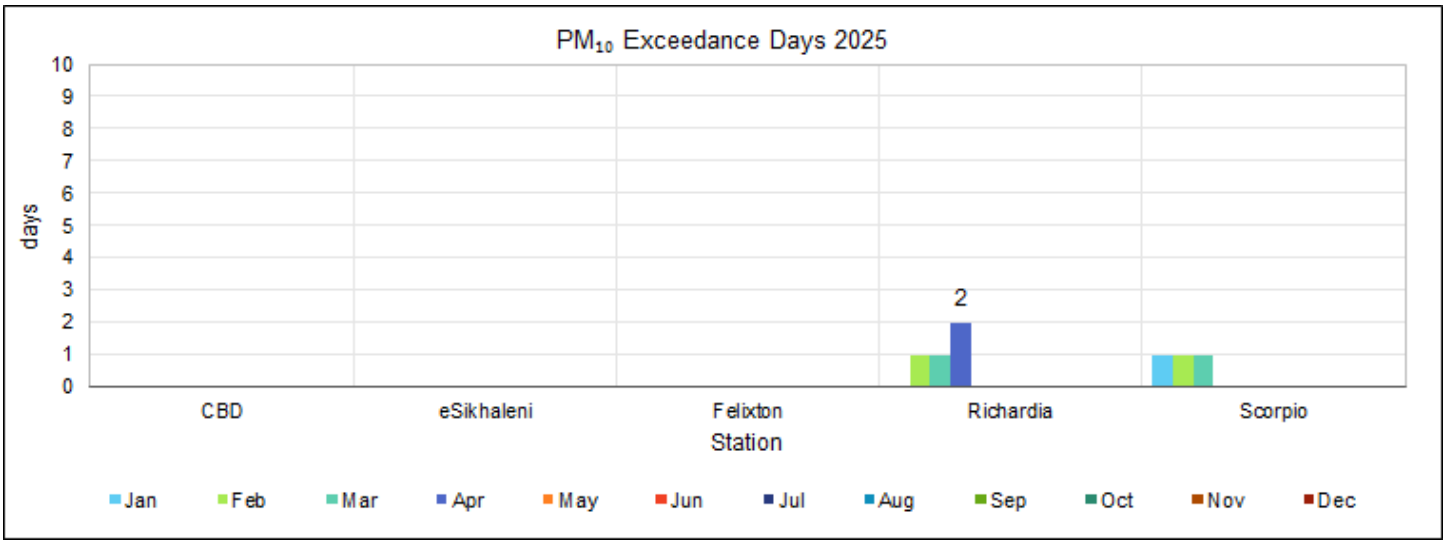


Figure 4.9: PM_{10} exceedance days.

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

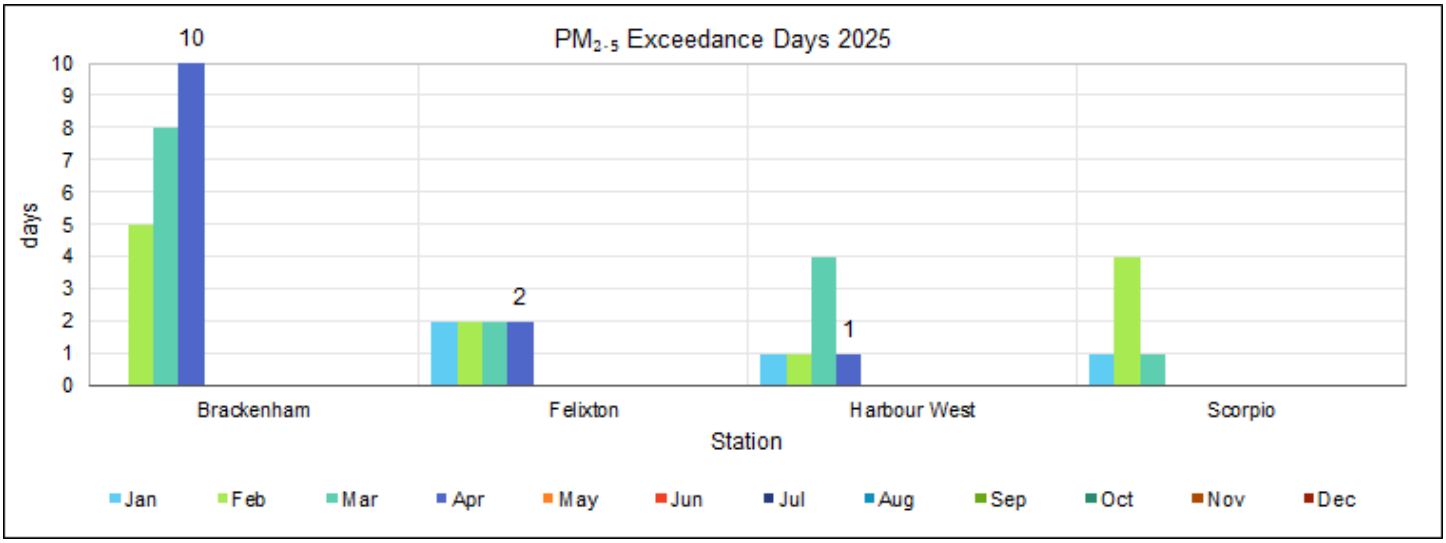


Figure 4.10: $PM_{2.5}$ exceedance days.

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	-	-	-	-	-	-	-	-	-	-	-	-	-
Felixton	-	-	-	-	-	-	-	-	-	-	-	-	-
Harbour West	-	-	-	-	-	-	-	-	-	-	-	-	-
Scorpio	-	-	-	-	-	-	-	-	-	-	-	-	-
$PM_{2.5}$ Daily WHO Limit (15 µg/m³)													
Brackenham	-	5	8	10	-	-	-	-	-	-	-	-	**23**
Felixton	2	2	2	2	-	-	-	-	-	-	-	-	**8**
Harbour West	1	1	4	1	-	-	-	-	-	-	-	-	**7**
Scorpio	1	4	1	-	-	-	-	-	-	-	-	-	**6**

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 April 2025 is shown in Table 5.2.

Table 5.2: SO_2 data capture.

Station	Availability (%)	SO_2 (%)
Arboretum	100	100
Brackenham	***89***	***89***
CBD	100	100
eSikhaleni	100	99
Felixton	100	99
Harbour West	100	100
Richardia	100	99
Scorpio	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 (SO_2):
- *Brackenham – power outages, data invalidation (4 days with <80% data capture, 2-5 April 2025).*

5.3. Monthly

Monthly average SO_2 concentrations did not exceed the RSA Annual Limit nor the WHO Annual Limit (Figure 5.1). Comparisons to previous months are also provided (Figure 5.2).

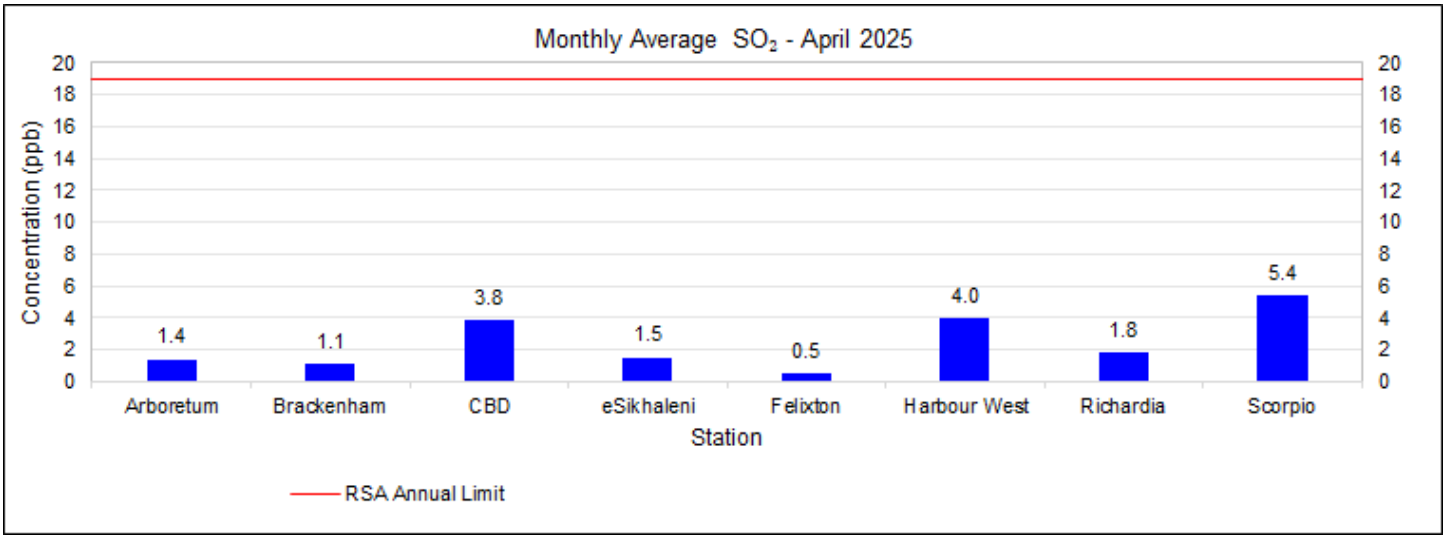


Figure 5.1: SO_2 monthly concentrations.

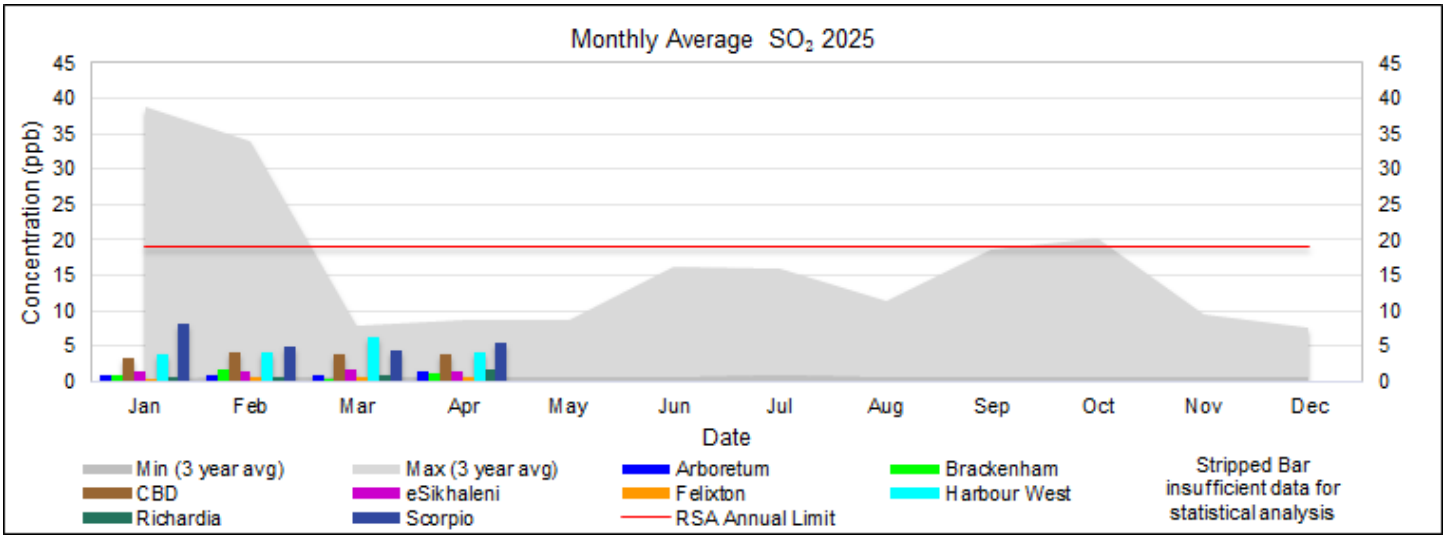


Figure 5.2: SO_2 monthly comparison.

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) or the WHO Daily Limit (15 ppb).

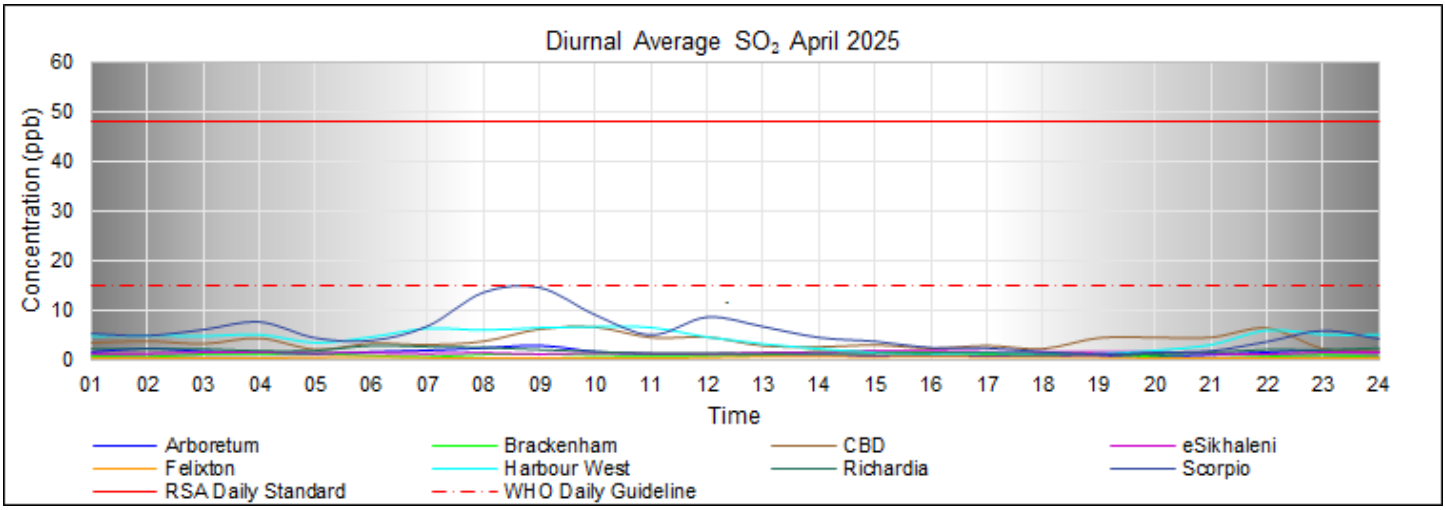


Figure 5.3: SO_2 diurnal concentrations.

5.5. Daily

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

- No (0) measured exceedance of the RSA Limit (48 ppb); and,
- Two (2) measured exceedances of the WHO Limit (15 ppb).

Table 5.3: SO_2 24-hour average exceedance (WHO).

SO_2 Daily WHO Limit (15 ppb)	2
No response required	**2**
Harbour West	1
No additional comments	1
Scorpio	1
No additional comments	1

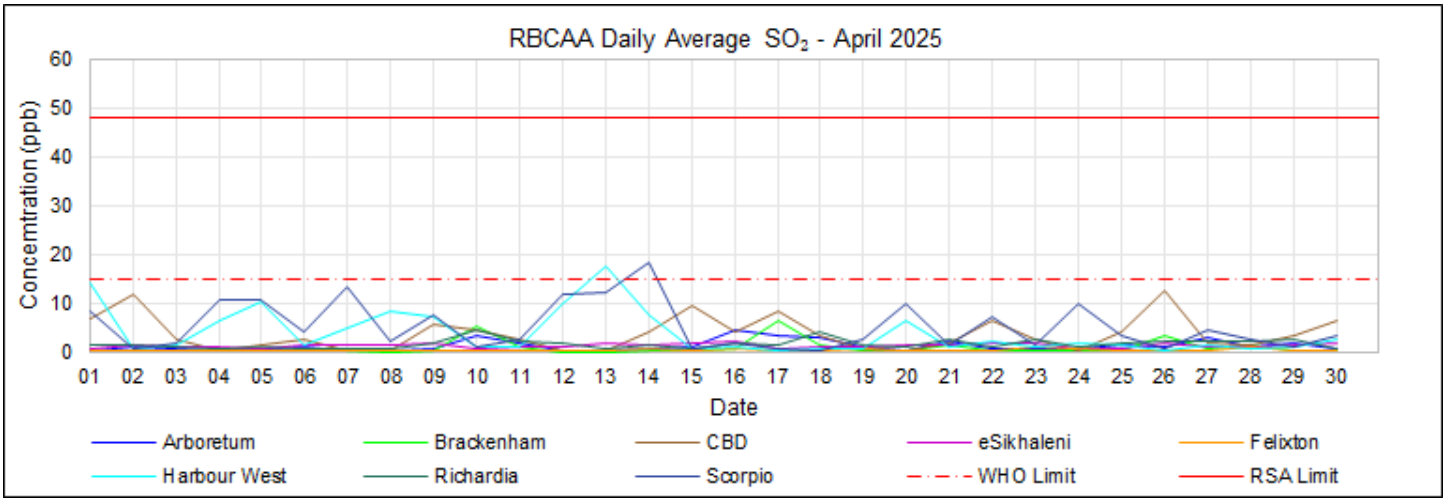


Figure 5.4: SO_2 24-hour average concentrations.
Missing Data (SO_2):

- *Brackenham – power outages, data invalidation (4 days with <80% data capture, 2-5 April 2025).*

5.6. Hourly

SO_2 hourly average concentrations are shown in Figure 5.5. There were no (0) measured exceedances of the RSA Limit (134 ppb).

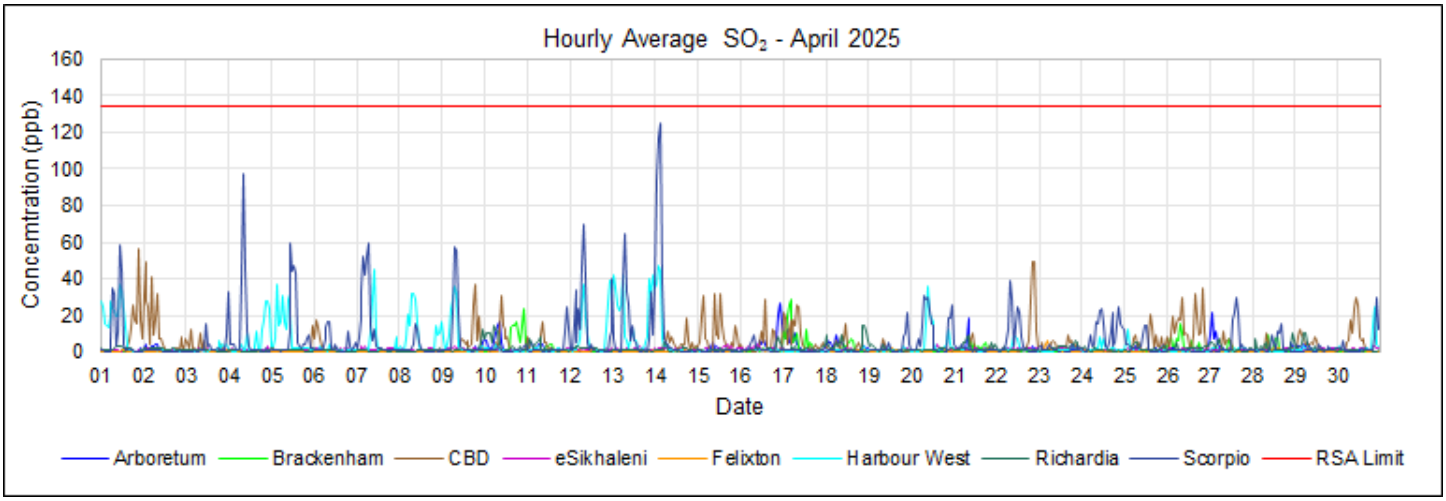


Figure 5.5: SO_2 1-hour average concentrations.

5.7. 10-minute

SO_2 10-minute average concentrations are shown in Figure 5.6. There were no (0) measured exceedances of the RSA and WHO Limit (191 ppb).

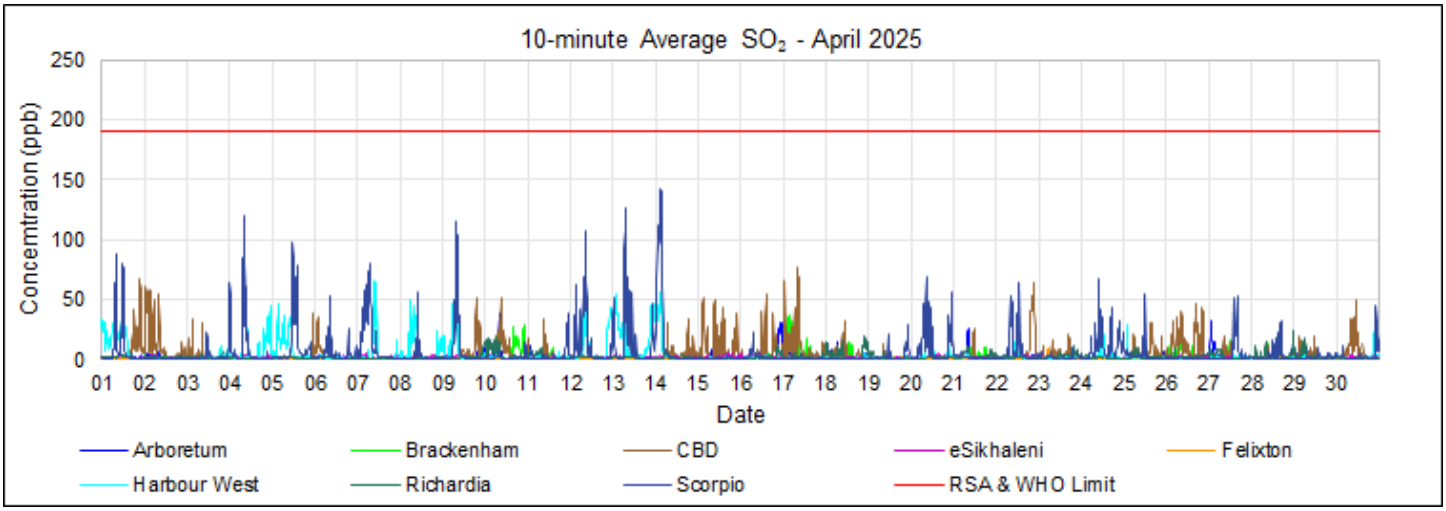


Figure 5.6: SO_2 10-minute average concentrations.

5.8. Exceedances

The number of days on which exceedances occurred, plus comparisons to previous months, are shown in Figure 5.7, and a summary of the SO_2 exceedances broken down per station is presented in Table 5.4. SO_2 exceedances can be associated with emissions because of process upsets (i.e., planned maintenance, plant shutdowns or start-up), leaks in equipment, pipelines, seals, 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.

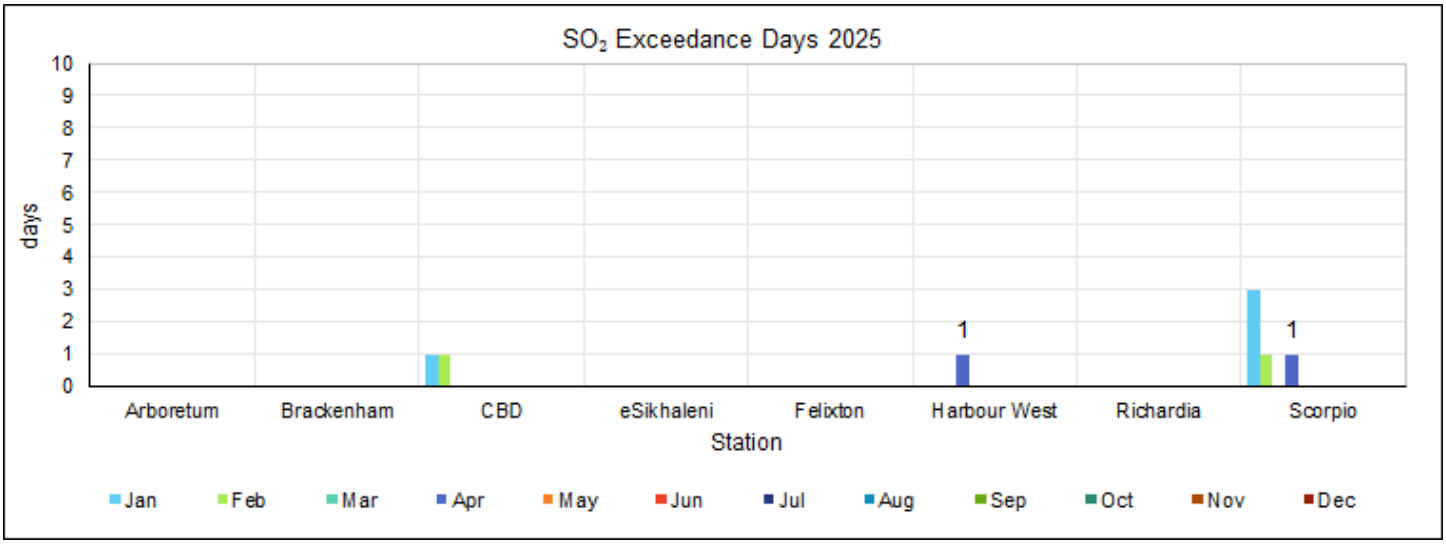


Figure 5.7: SO_2 exceedance days.

Table 5.4: SO_2 exceedance summary.

2025	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
SO_2 Daily WHO Limit (15 ppb)													
CBD	1	1	3	-	-	-	-	-	-	-	-	-	**5**
eSikhaleni	-	-	-	-	-	-	-	-	-	-	-	-	0
Harbour West	-	-	4	1	-	-	-	-	-	-	-	-	**5**
Richardia	-	-	-	-	-	-	-	-	-	-	-	-	0
Scorpio	3	-	1	1	-	-	-	-	-	-	-	-	**5**
SO_2 Hourly RSA Limit (134 ppb)													
CBD	-	-	-	-	-	-	-	-	-	-	-	-	0
eSikhaleni	-	-	-	-	-	-	-	-	-	-	-	-	0
Harbour West	-	-	-	-	-	-	-	-	-	-	-	-	0
Richardia	-	-	-	-	-	-	-	-	-	-	-	-	0
Scorpio	4	-	-	-	-	-	-	-	-	-	-	-	4
SO_2 10-minute RSA & WHO Limit (191 ppb)													
CBD	-	-	-	-	-	-	-	-	-	-	-	-	0
eSikhaleni	-	-	-	-	-	-	-	-	-	-	-	-	0
Harbour West	-	-	-	-	-	-	-	-	-	-	-	-	0
Richardia	-	-	-	-	-	-	-	-	-	-	-	-	0
Scorpio	18	1	-	-	-	-	-	-	-	-	-	-	19

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 April 2025 is shown in Table 6.2.

Table 6.2: TRS data capture.

Station	Availability (%)	TRS (%)
CBD	100	100
eSikhaleni	100	98
Felixton	100	100
Richardia	100	***94***

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 (TRS):
- *Richardia – power outages, data invalidation (3 days with <80% data capture, 14, 25-26 April 2025).*

6.3. Monthly

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

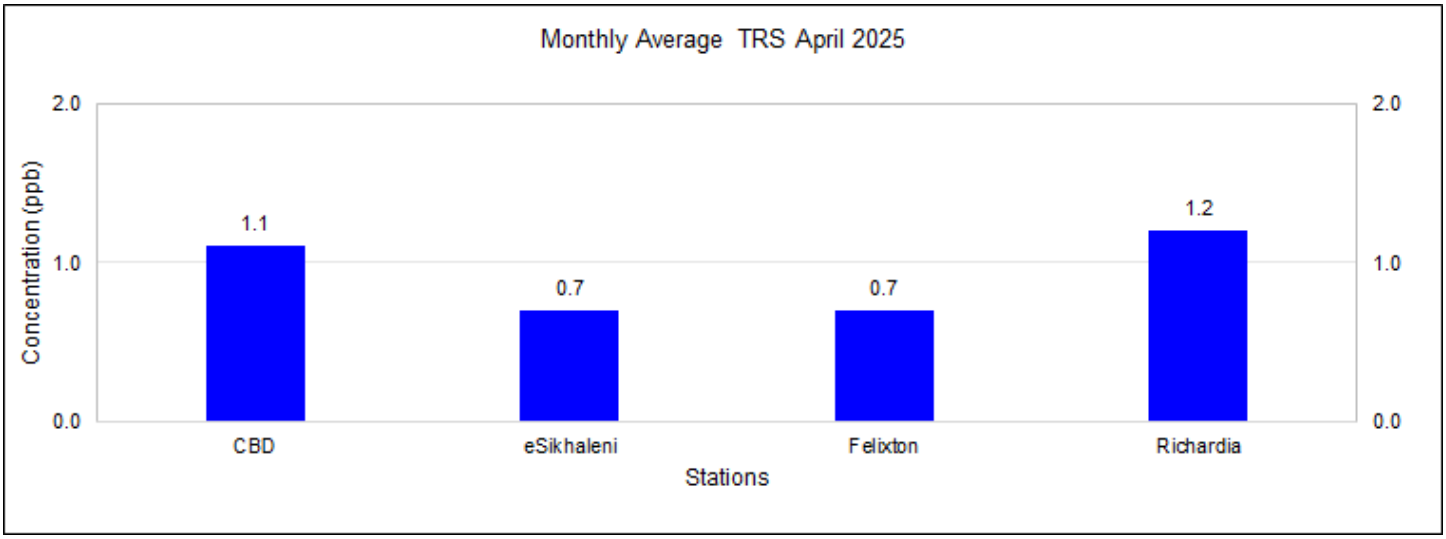


Figure 6.1: TRS monthly concentrations.

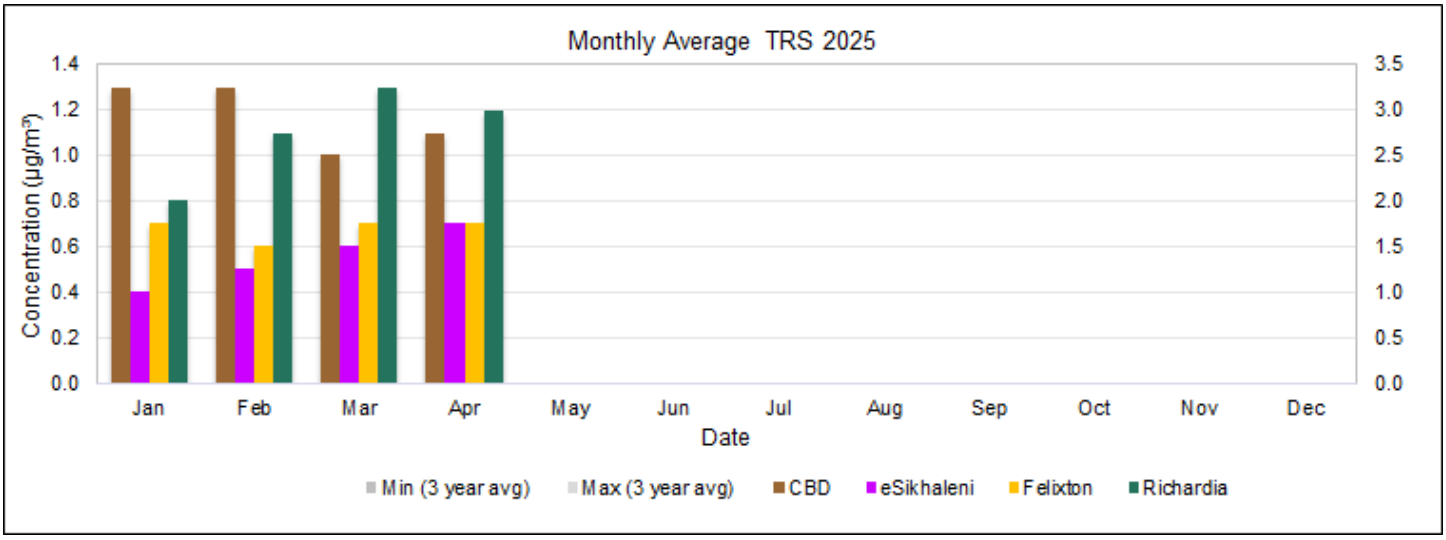


Figure 6.2: TRS monthly comparison.

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).

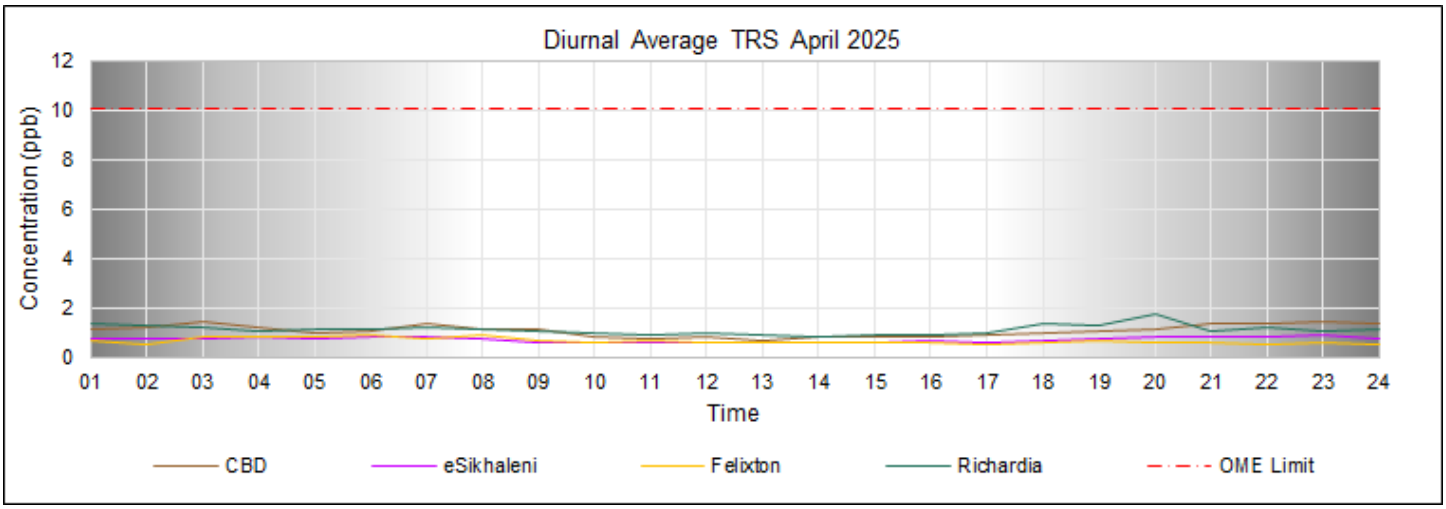


Figure 6.3: TRS diurnal concentrations.

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.

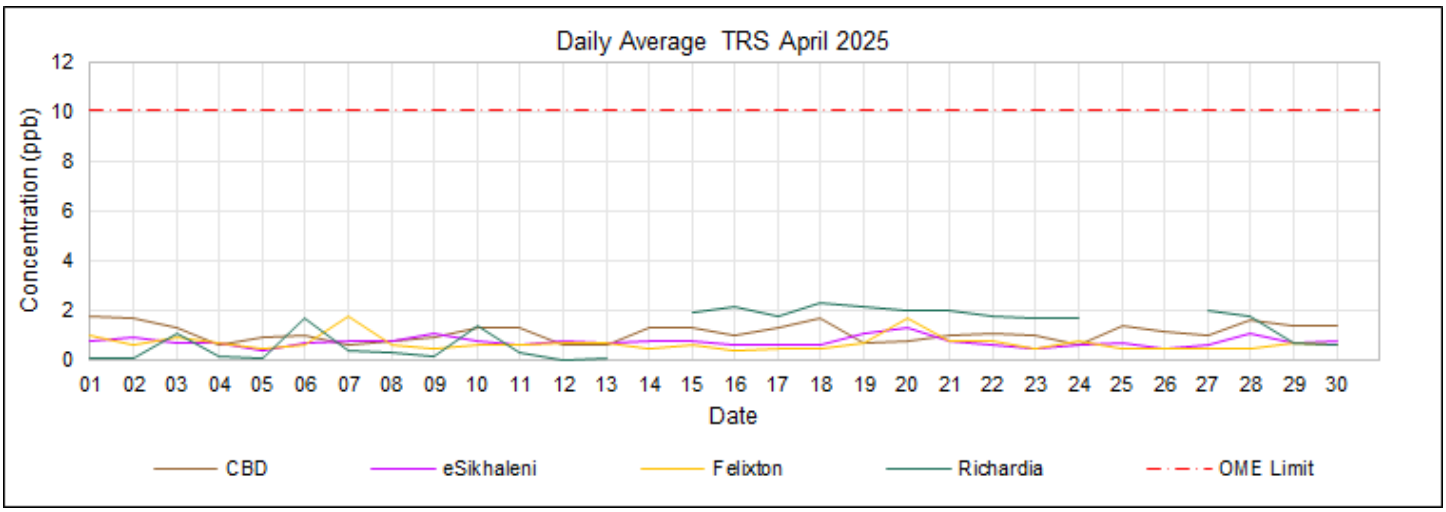


Figure 6.4: TRS daily average concentration.
Missing Data (TRS):

- *Richardia – power outages, data invalidation (3 days with <80% data capture, 14, 25-26 April 2025).*

6.6. 30-minute

TRS 30-minute average concentrations are shown in Figure 6.5, and exceedances are in Table 6.3. Twenty-four (24) 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)	24
Industry response required	**14**
CBD	**4**
No responses,	4
Felixton	**7**
Responded: Mondi, Mpact and THS	3
Responded: Mpact	1
Responded: Mpact, Mondi	3
Richardia	**3**
Responded: Mondi	3

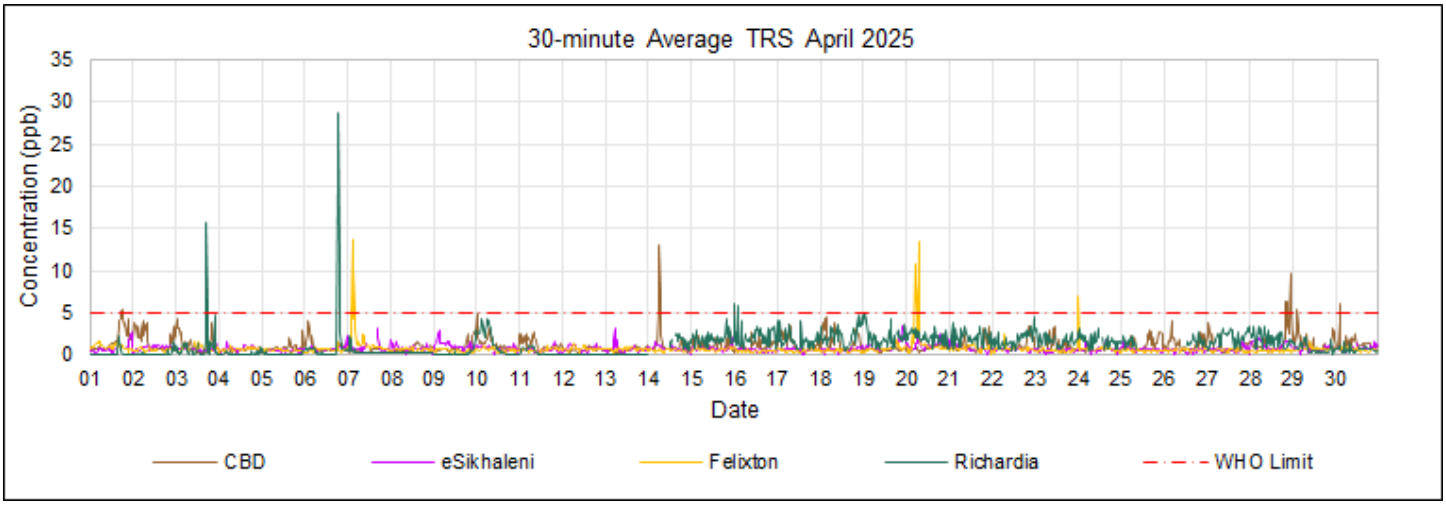


Figure 6.5: TRS 30-minute average concentration.

6.7. 10-minute

TRS 10-minute average concentrations are shown in Figure 6.6 and exceedances in Table 6.4. Twenty-six (26) 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)	26
Industry response required	**19**
CBD	**3**
No responses.	3
Felixton	**10**
Responded: Mondi, Mpact and THS	4
Responded: Mpact	1
Responded: Mpact, Mondi	5
Richardia	**6**
Responded: Mondi	6
Mondi	**7**
CBD	**4**
Ruptured bursting disc on the non-condensable gas line to the flare	4
Richardia	**3**
Elevated H_2S levels	3

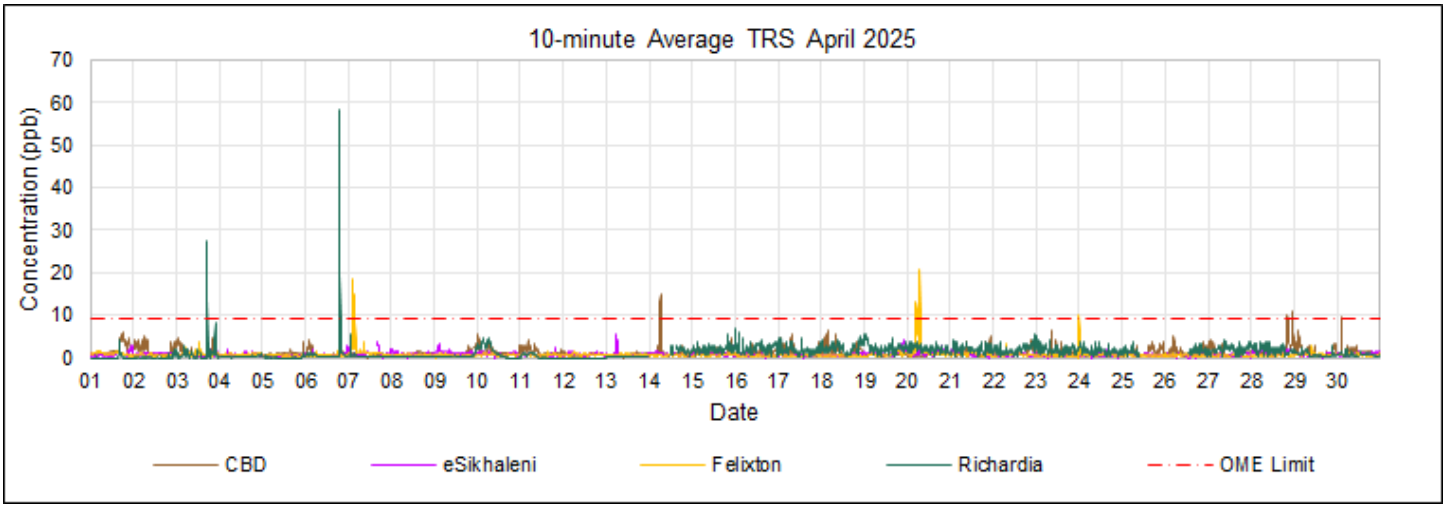


Figure 6.6: TRS 10-minute average concentrations.

6.8. Exceedances

The number of days on which exceedances occurred, plus comparisons to previous months, are shown in Figure 6.7, and a summary of the TRS exceedances broken down per station is presented in Table 6.5. TRS exceedances can be associated with emissions because of process upsets (i.e., planned maintenance, plant shutdowns or start-up), leaks in equipment, pipelines, seals, 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.

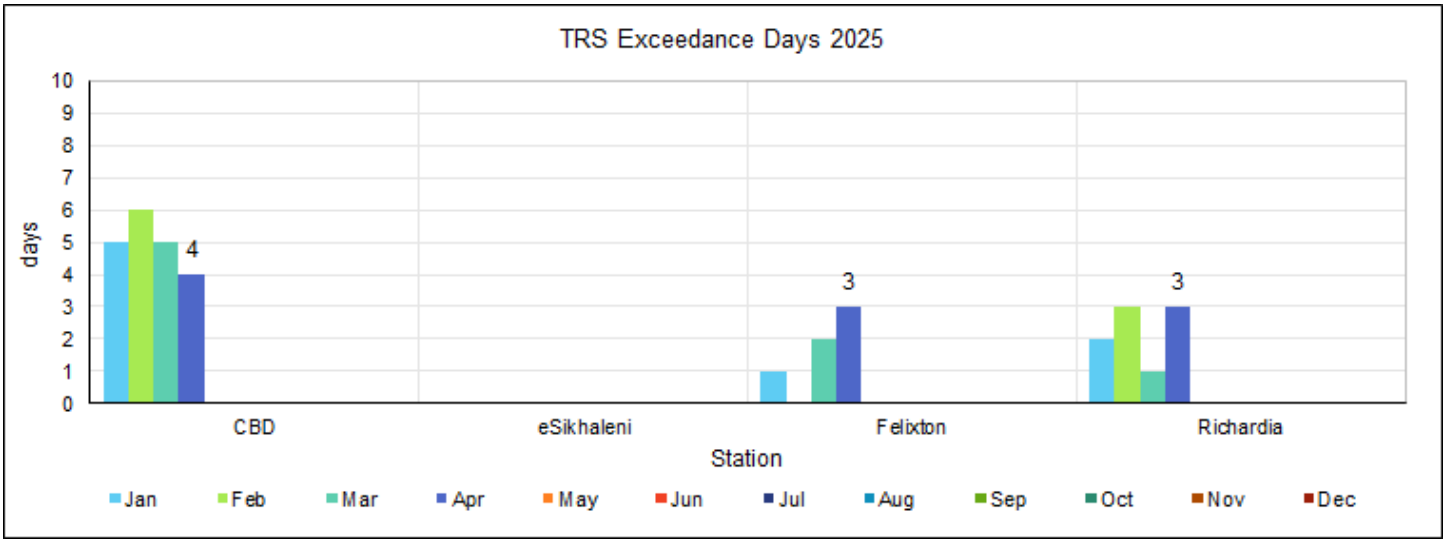


Figure 6.7: TRS exceedance days.

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	9	-	-	-	-	-	-	-	-	**83**
eSikhaleni	-	-	-	-	-	-	-	-	-	-	-	-	0
Felixton	1	-	8	7	-	-	-	-	-	-	-	-	**16**
Richardia	5	7	3	7	-	-	-	-	-	-	-	-	**22**
TRS 10-minute OME Limit (9.3 ppb)													
CBD	53	10	8	7	-	-	-	-	-	-	-	-	**78**
eSikhaleni	-	-	-	-	-	-	-	-	-	-	-	-	0
Felixton	2	-	4	10	-	-	-	-	-	-	-	-	**16**
Richardia	3	1	-	9	-	-	-	-	-	-	-	-	**13**

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 April 2025, based on the following:

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

8. AIRGRADIENT MONITORING NETWORK

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

AirGradient monitors are designed to provide accessible and cost-effective 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 utilise 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

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.*
- *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.*
- *Harbour West*
  - *February '25 –power outages (load shedding).*
- *Richardia*
  - *February '25 –power outages (load shedding).*

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 or the WHO Annual Limit.
- $PM_{2.5}$ monthly average concentrations did not exceed the RSA Annual Limit; the WHO Annual Limit was exceeded at Brackenham, eSikhaleni, Harbour West and Richardia.

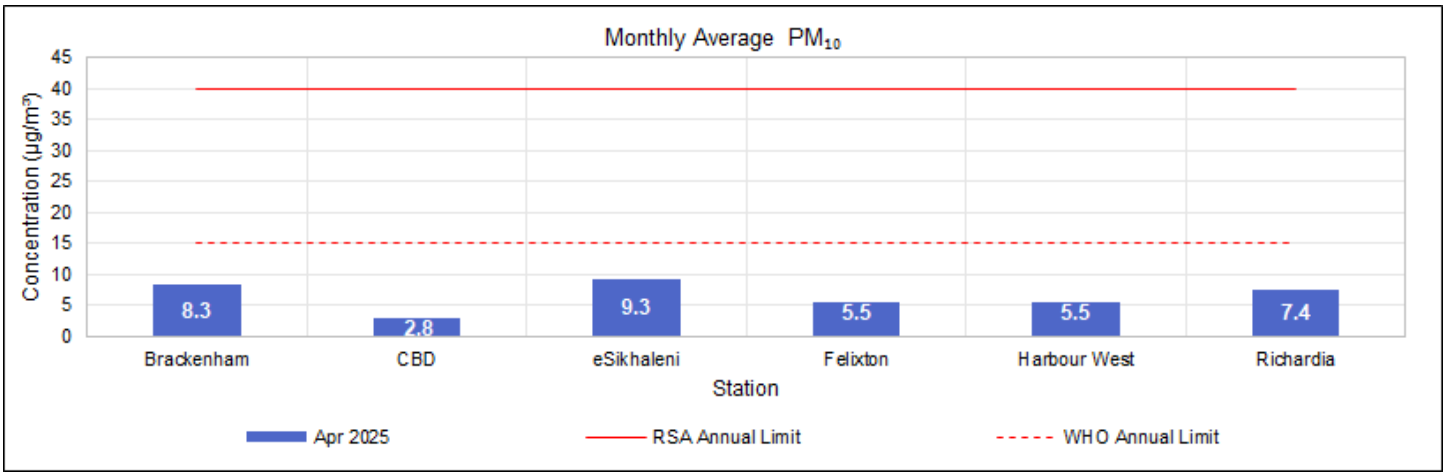


Figure 8.2: PM_{10} monthly concentration.

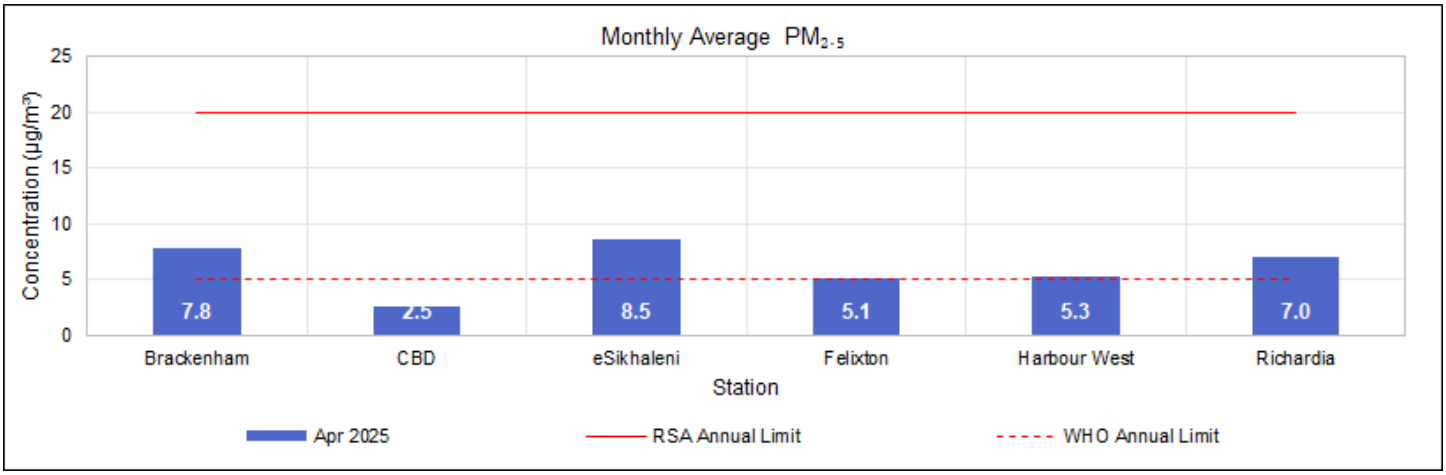


Figure 8.3: $PM_{2.5}$ monthly concentration.

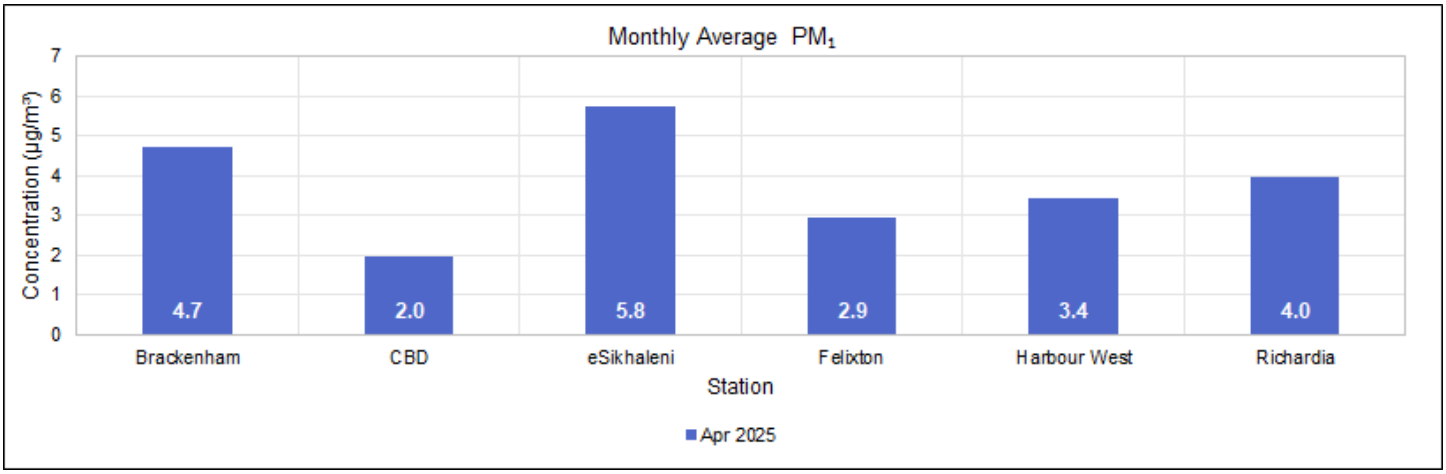


Figure 8.4: PM_{10} monthly concentration.

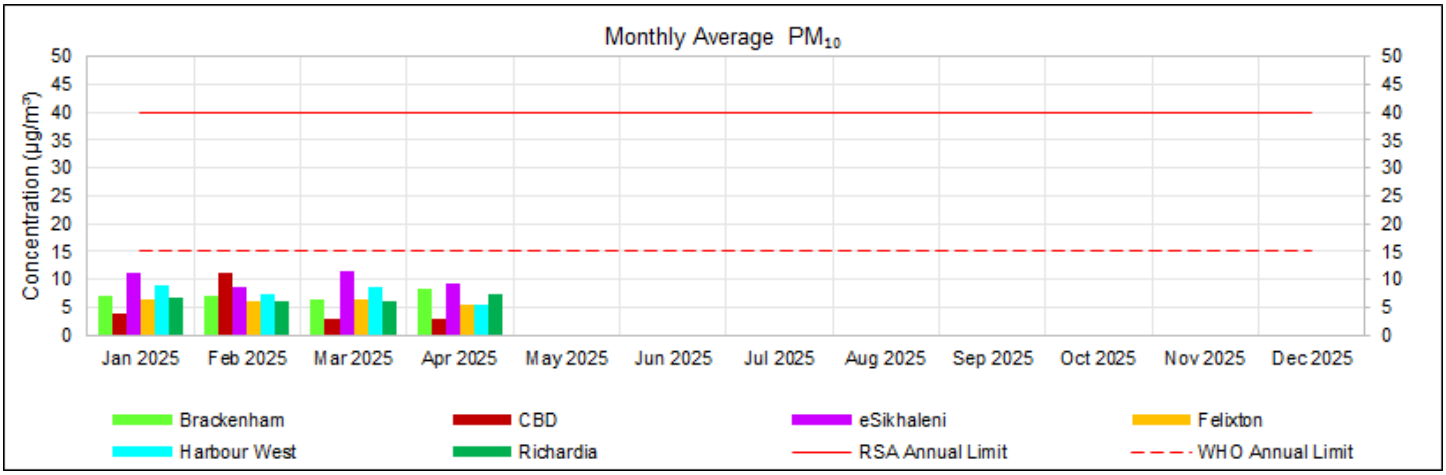


Figure 8.5: PM_{10} monthly comparison.

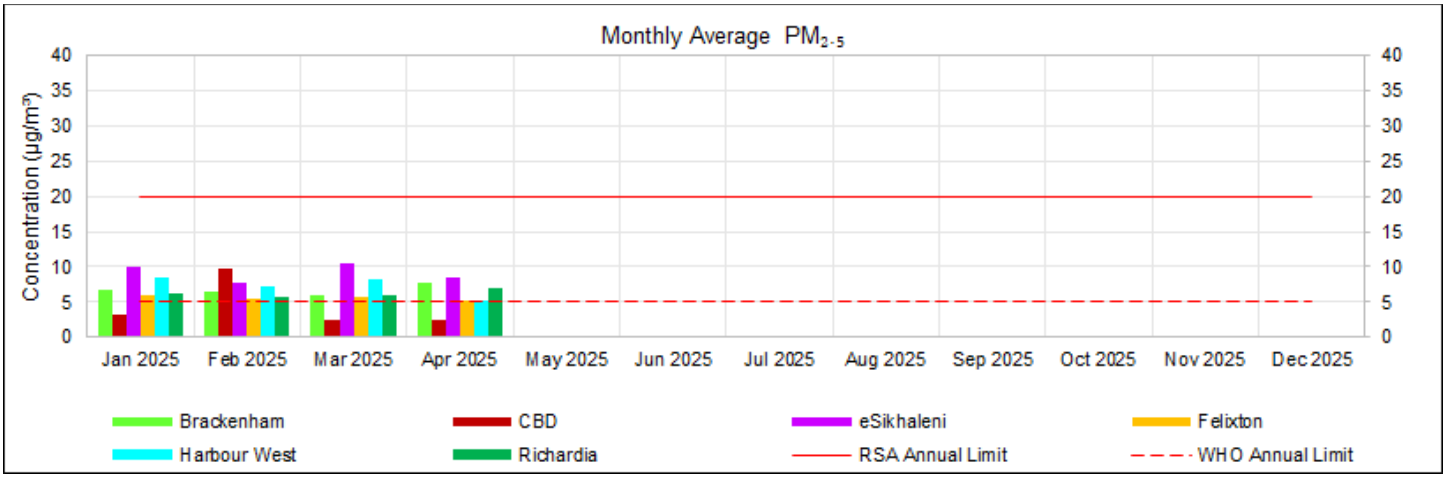


Figure 8.6: $PM_{2.5}$ monthly comparison.

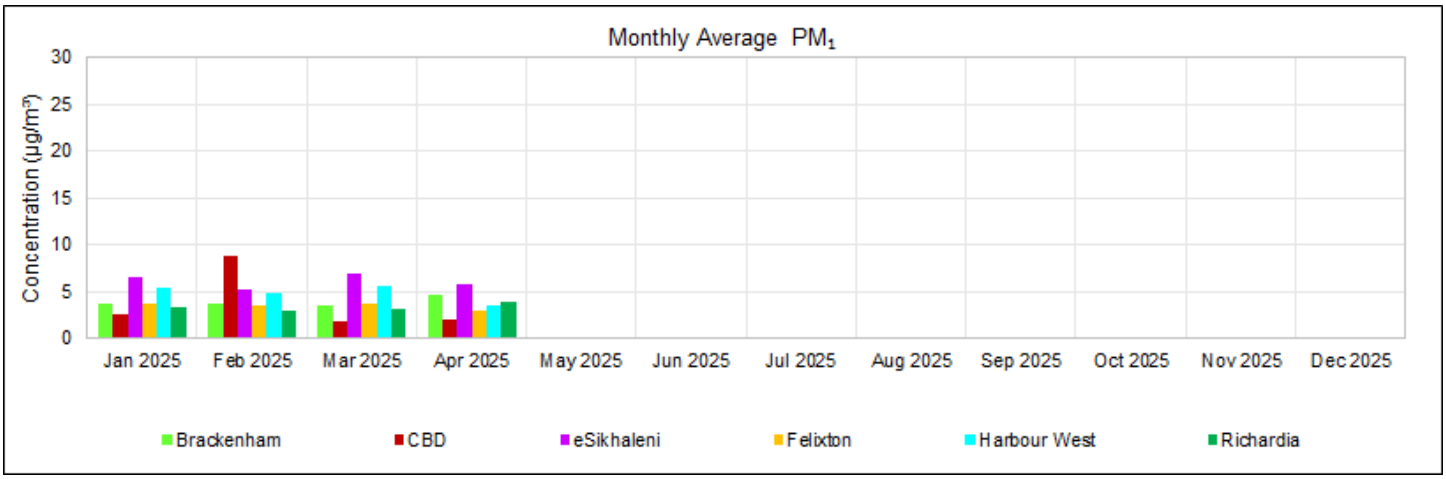


Figure 8.7: PM_1 monthly comparison.

8.2.2. Diurnal

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

- RSA daily limits for PM_{10} and $PM_{2.5}$ were not exceeded, and,
- WHO daily limits for $PM_{2.5}$ were exceeded at eSikhaleni.

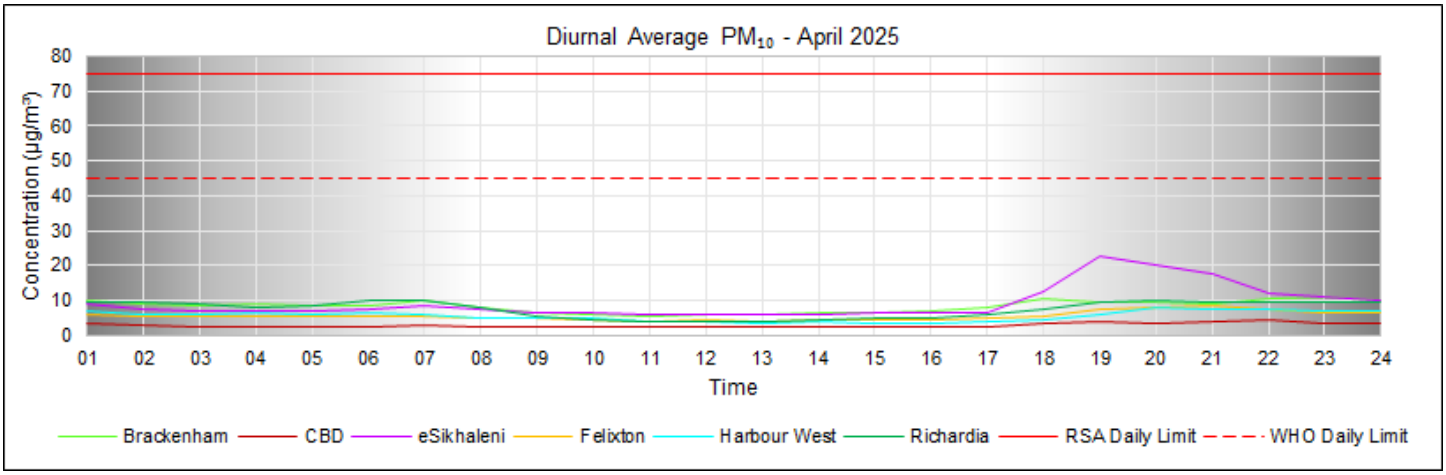


Figure 8.8: PM_{10} diurnal concentrations.

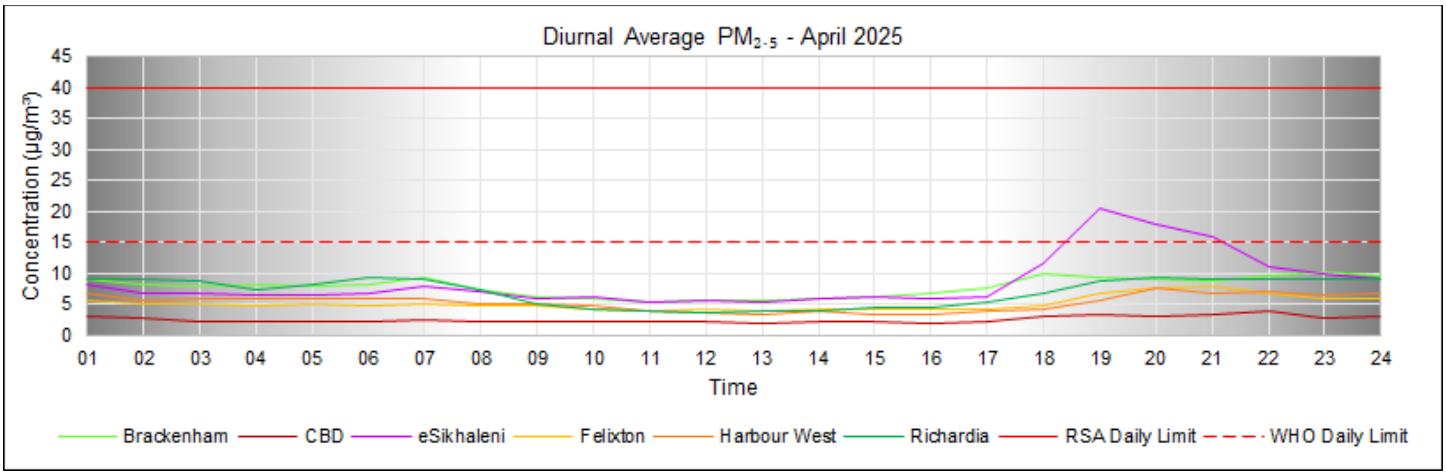


Figure 8.9: $PM_{2.5}$ diurnal concentrations.

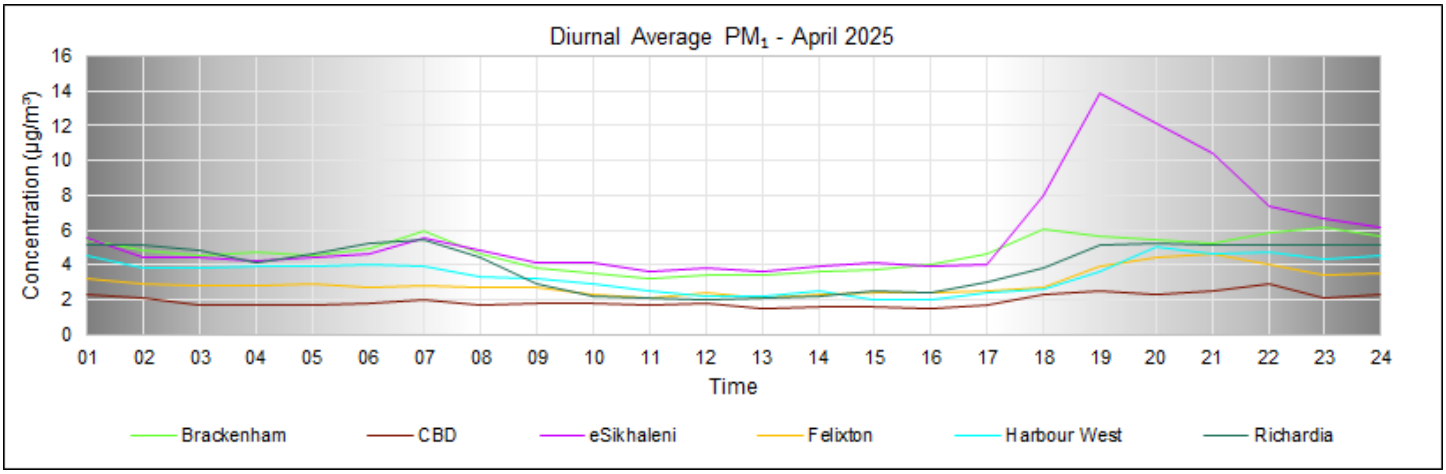


Figure 8.10: PM_1 diurnal concentrations.

8.2.3. Daily

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

- The RSA and WHO limits for PM_{10} were not exceeded.
- The RSA limit for $PM_{2.5}$ was not exceeded, but the WHO limit for $PM_{2.5}$ was exceeded at CBD, eSikhaleni and Harbour West.

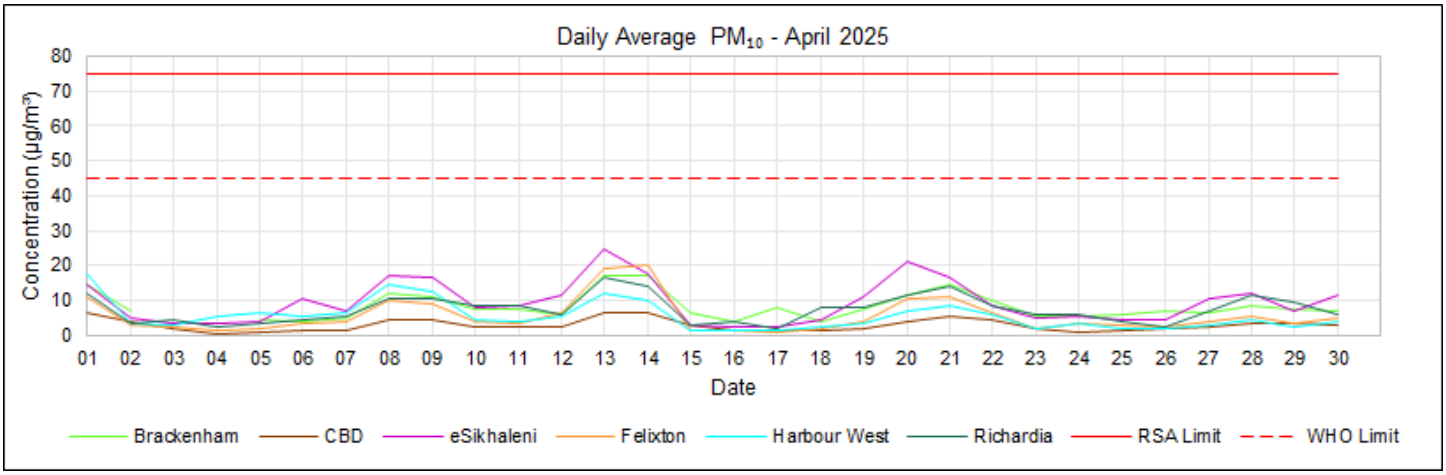


Figure 8.11: PM_{10} daily concentrations.

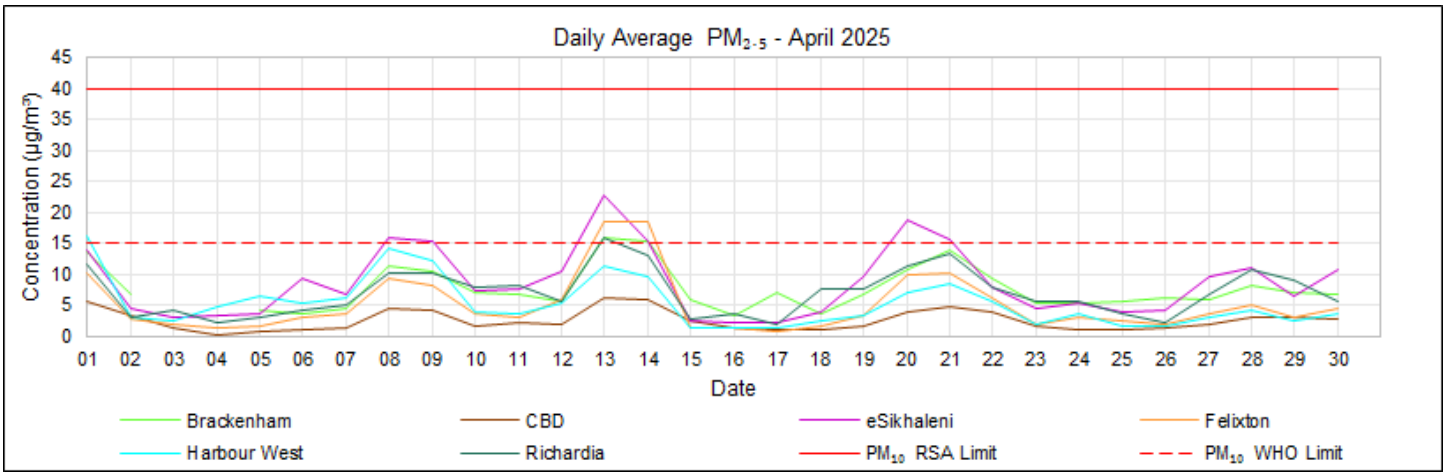


Figure 8.12: $PM_{2.5}$ daily concentrations.

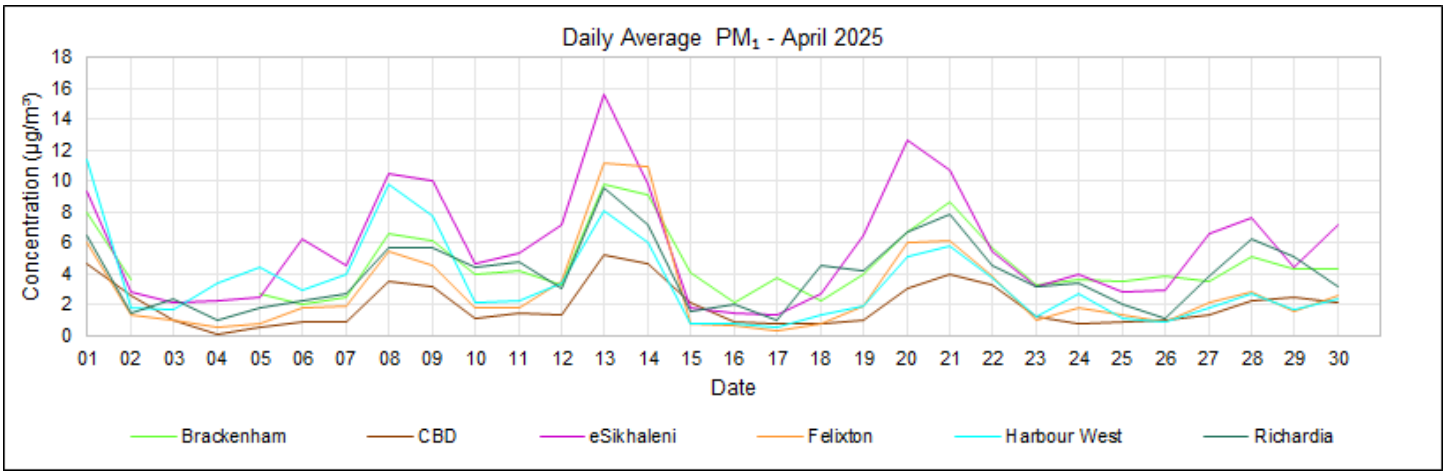


Figure 8.13: PM_1 daily concentrations.

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).

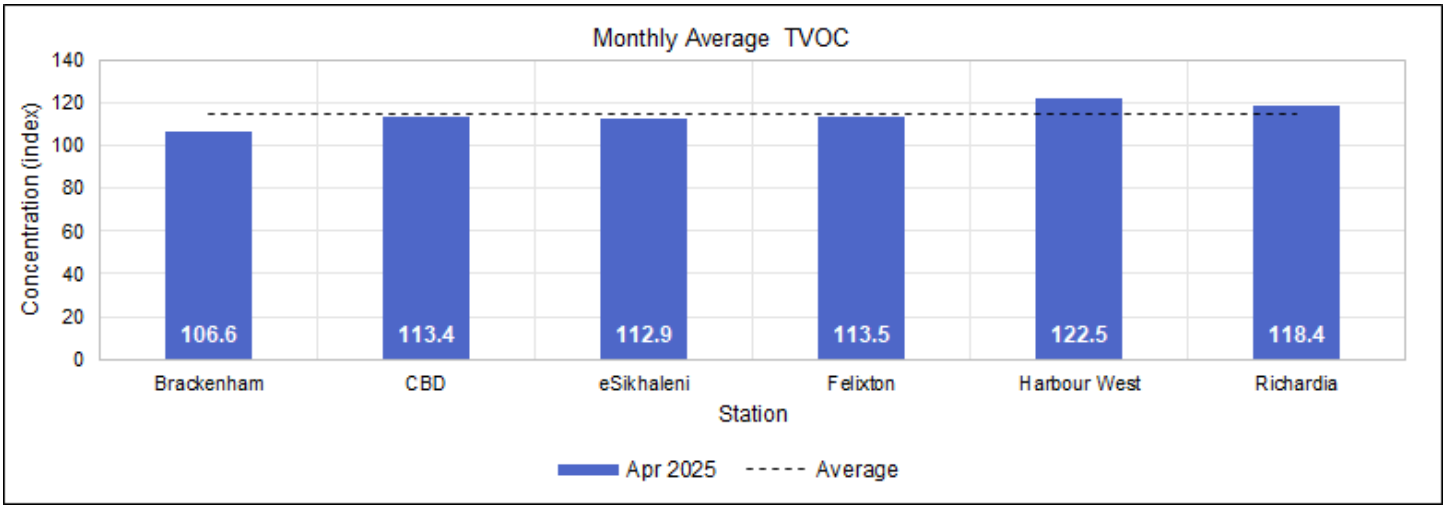


Figure 8.14: TVOC monthly concentration.

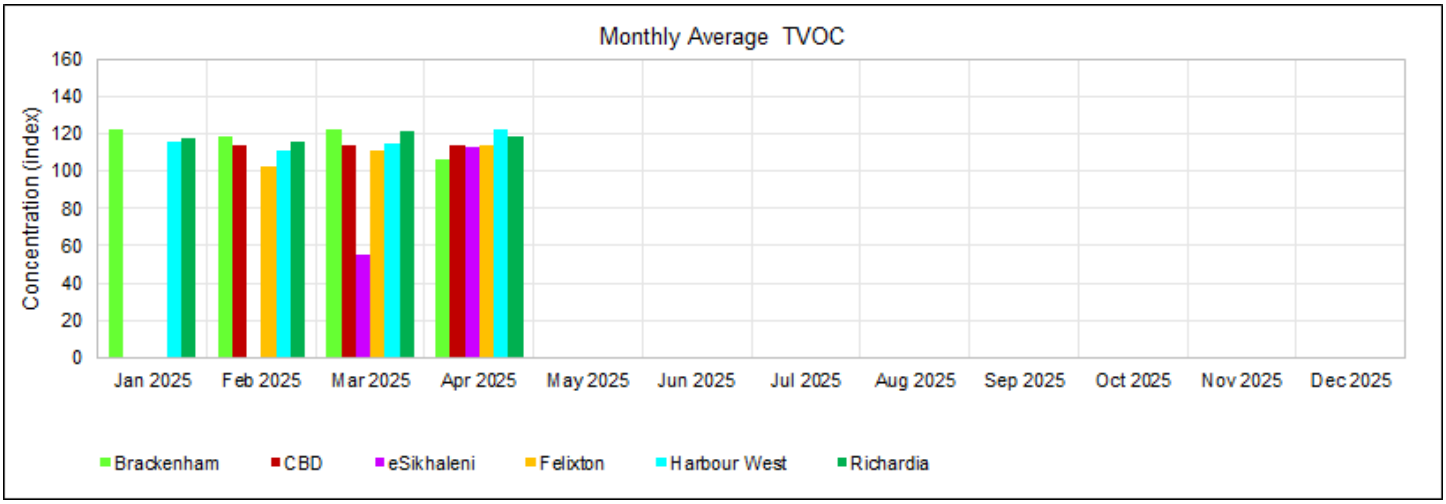


Figure 8.15: TVOC monthly comparison.

8.3.2. Diurnal

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

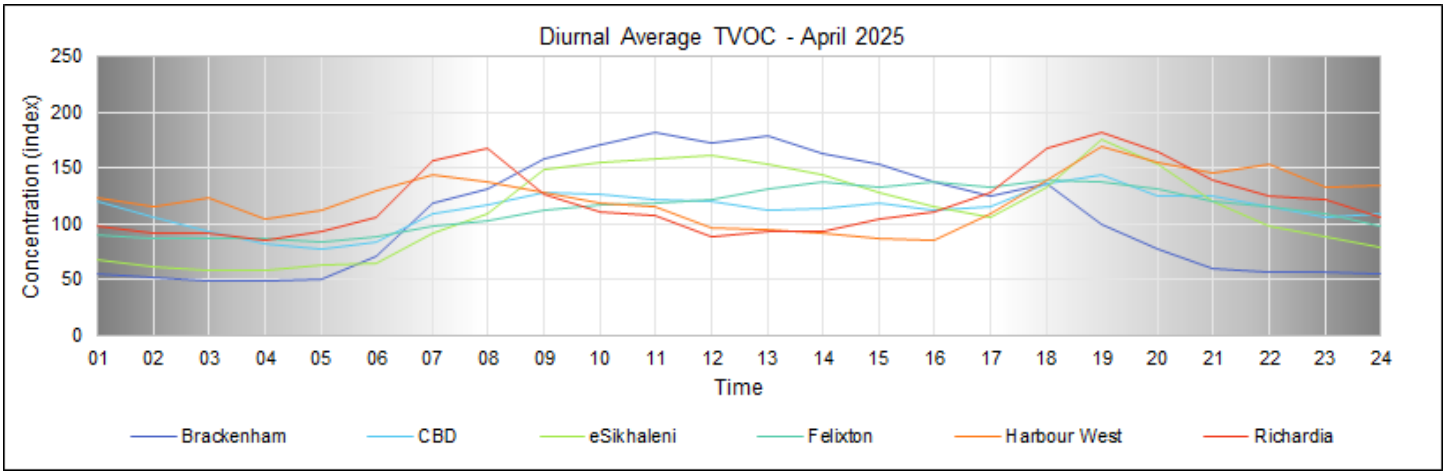


Figure 8.16: TVOC diurnal concentrations.

8.3.3. Daily

TVOC daily concentrations are shown below (Figure 8.17).

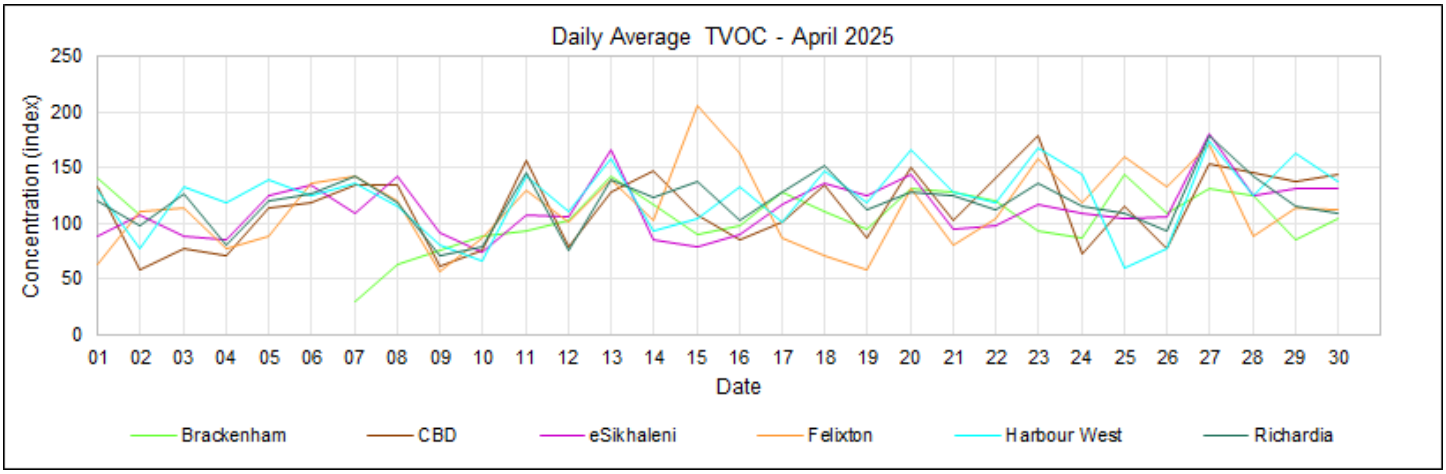


Figure 8.17: TVOC daily concentrations.

8.3.4. Hourly

TVOC hourly concentrations are shown below (Figure 8.18).

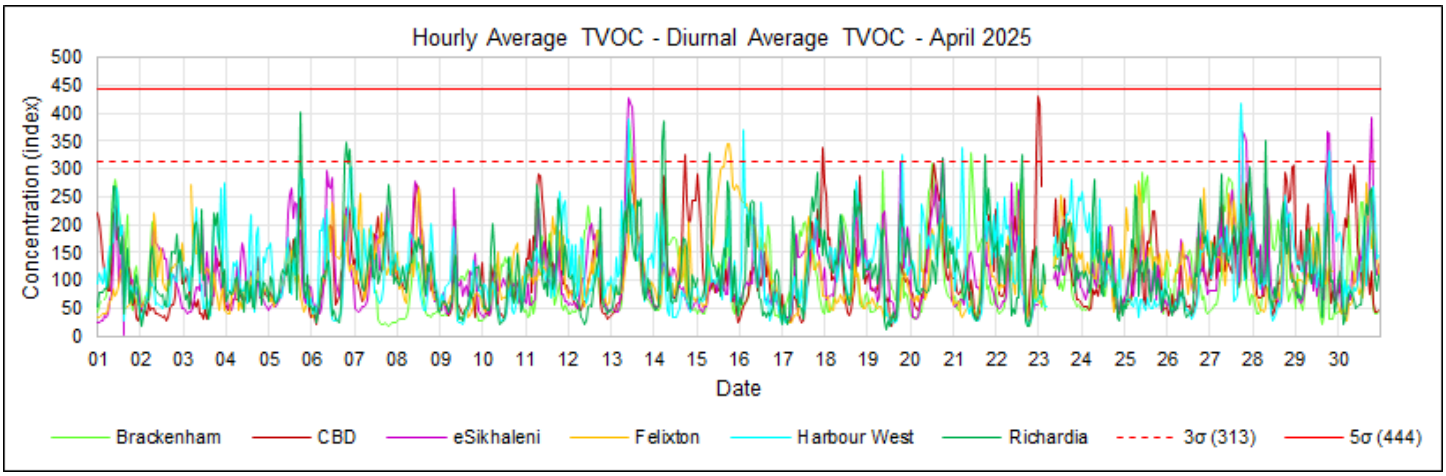


Figure 8.18: TVOC hourly concentrations.

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

Limit	Brackenham	CBD	eSikhaleni	Felixton	Harbour West	Richardia
3σ	5	5	13	5	8	10
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).

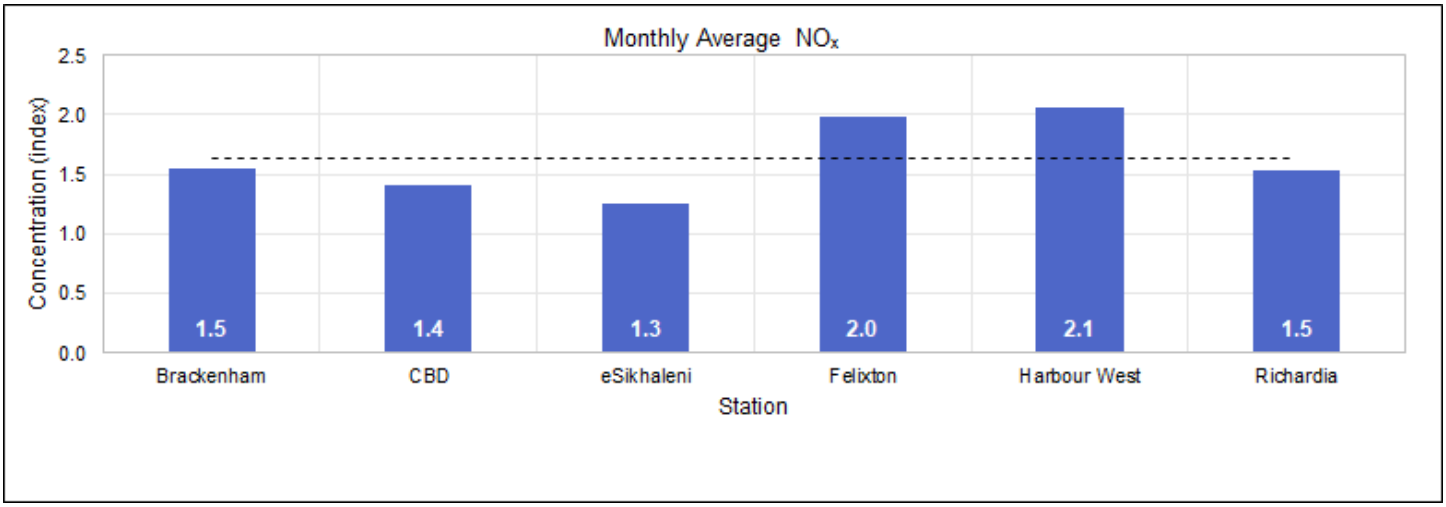


Figure 8.19: NO_x monthly concentration.

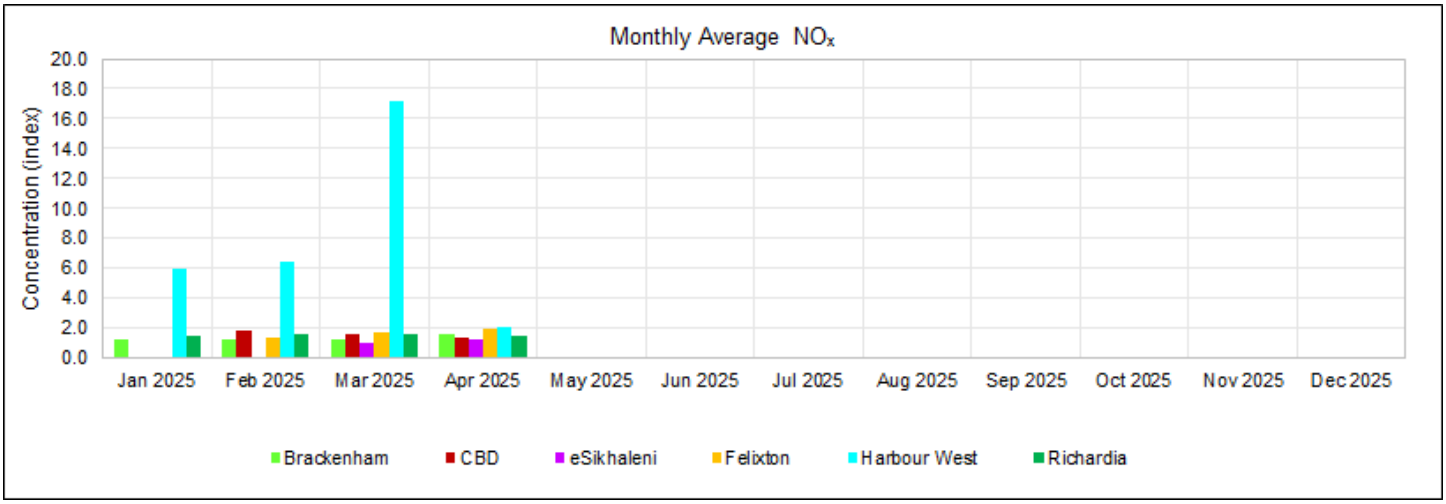


Figure 8.20: NO_x monthly comparison.

8.4.2. Diurnal

NO_x diurnal concentrations are shown below (Figure 8.21).

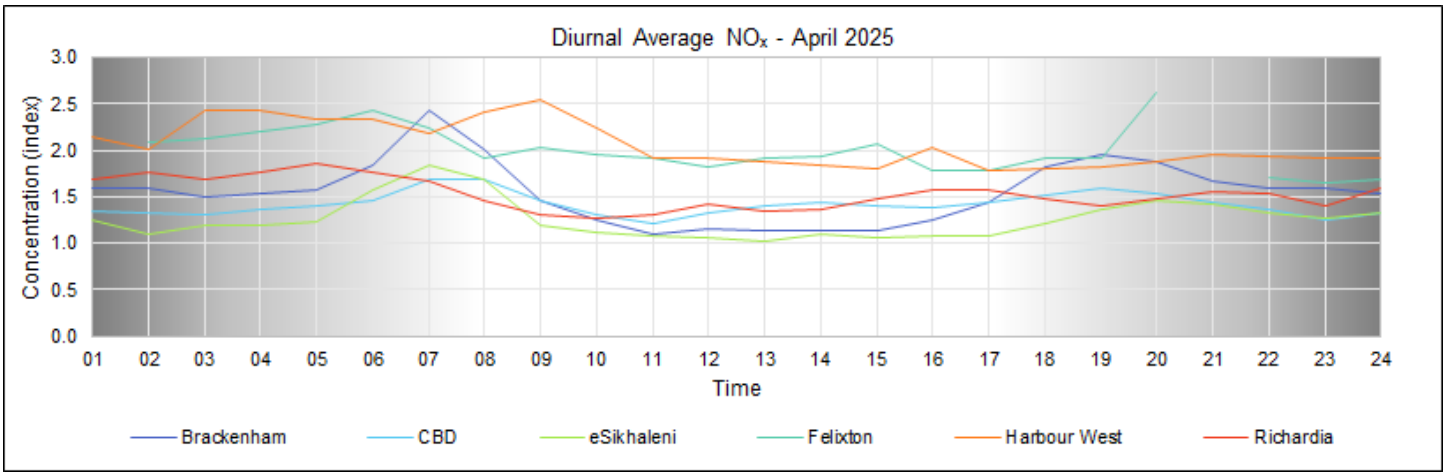


Figure 8.21: NO_x diurnal concentrations.

8.4.3. Daily

NO_x daily concentrations are shown below (Figure 8.22).

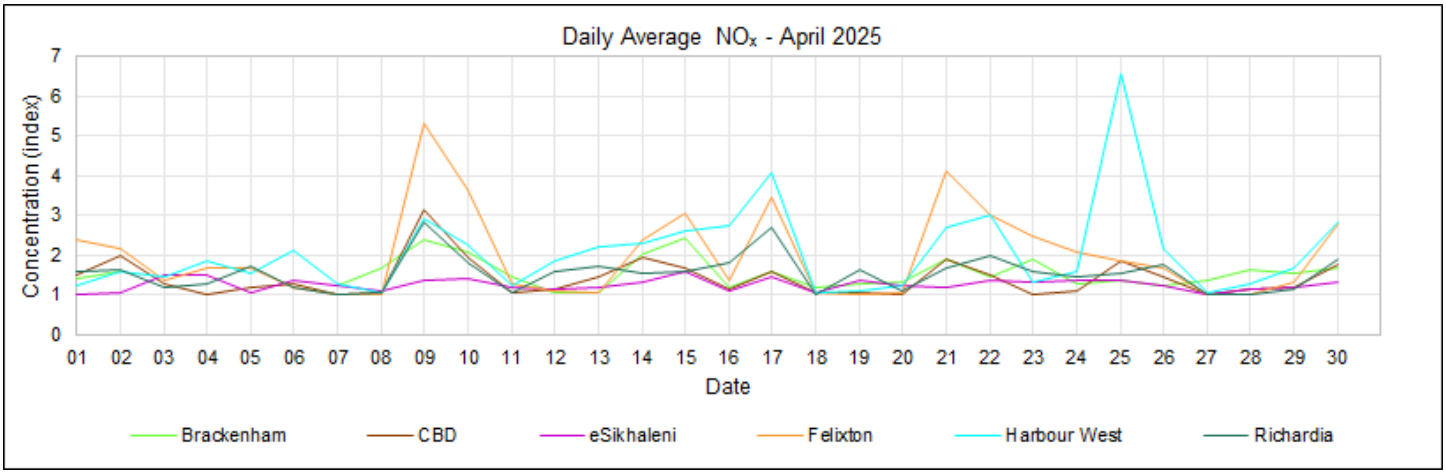


Figure 8.22: NO_x daily concentrations.

8.4.4. Hourly

NO_x hourly concentrations are shown below (Figure 8.23).

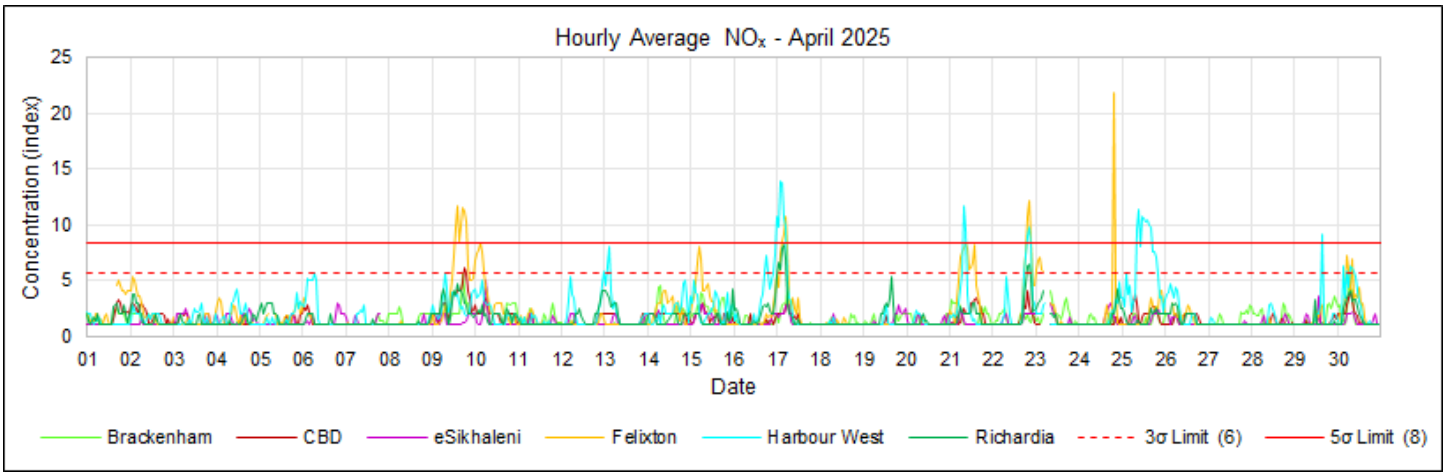


Figure 8.23: NO_x hourly concentrations.

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

Limit	Brackenham	CBD	eSikhaleni	Felixton	Harbour West	Richardia
3σ	0	1	0	45	36	7
5σ	0	0	0	16	19	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).

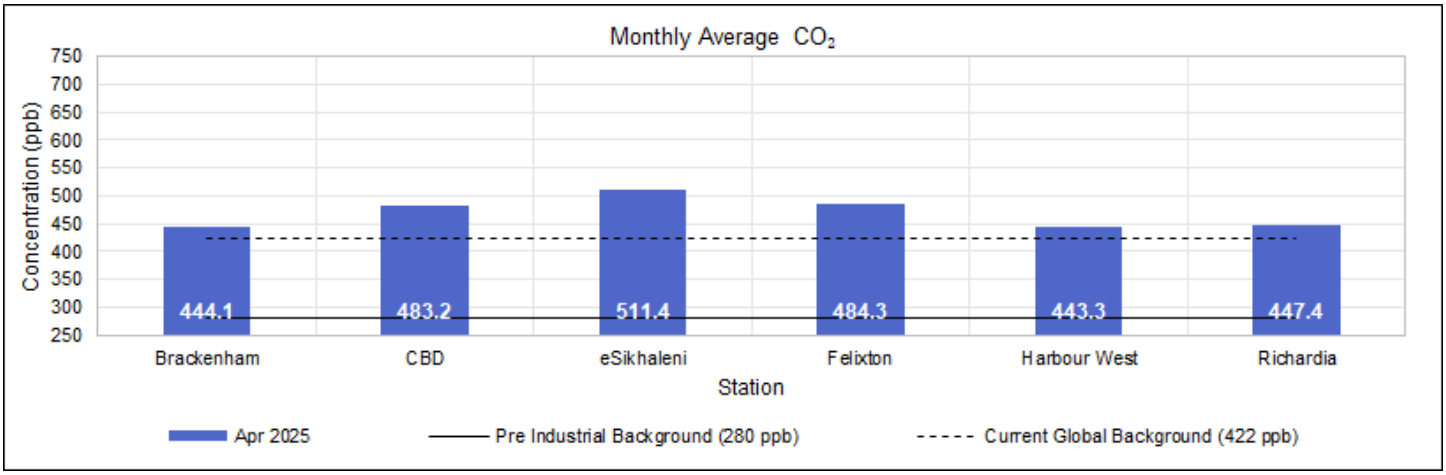


Figure 8.24: CO_2 monthly concentration.

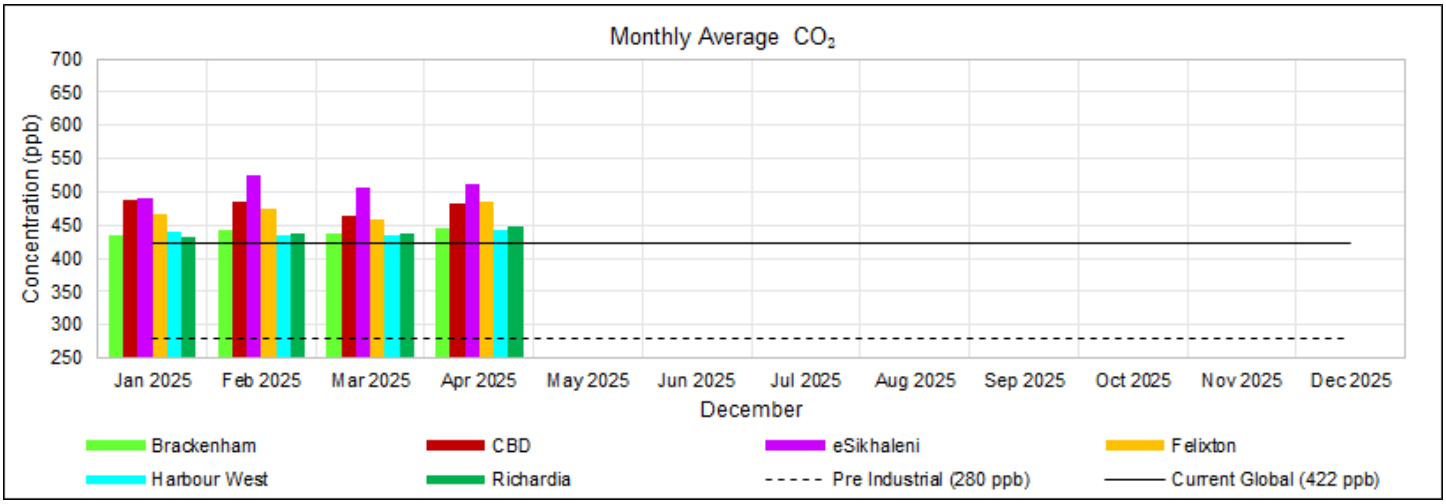


Figure 8.25: CO_2 monthly comparison.

8.5.2. Diurnal

CO_2 diurnal concentrations are shown below (Figure 8.26).

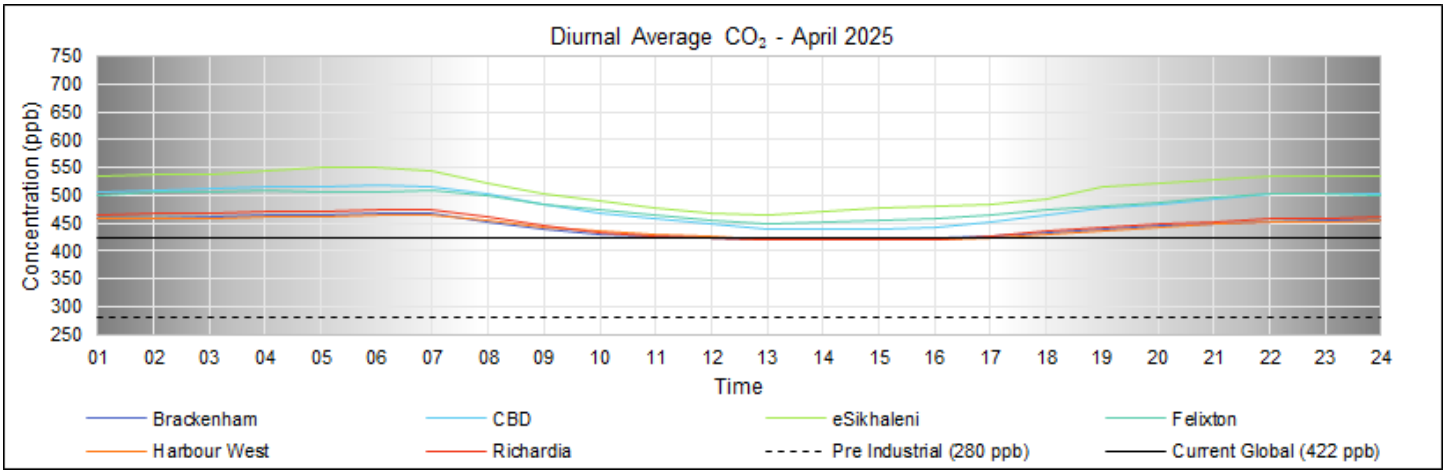


Figure 8.26: CO_2 diurnal concentrations.

8.5.3. Daily

CO_2 daily concentrations are shown below (Figure 8.27).

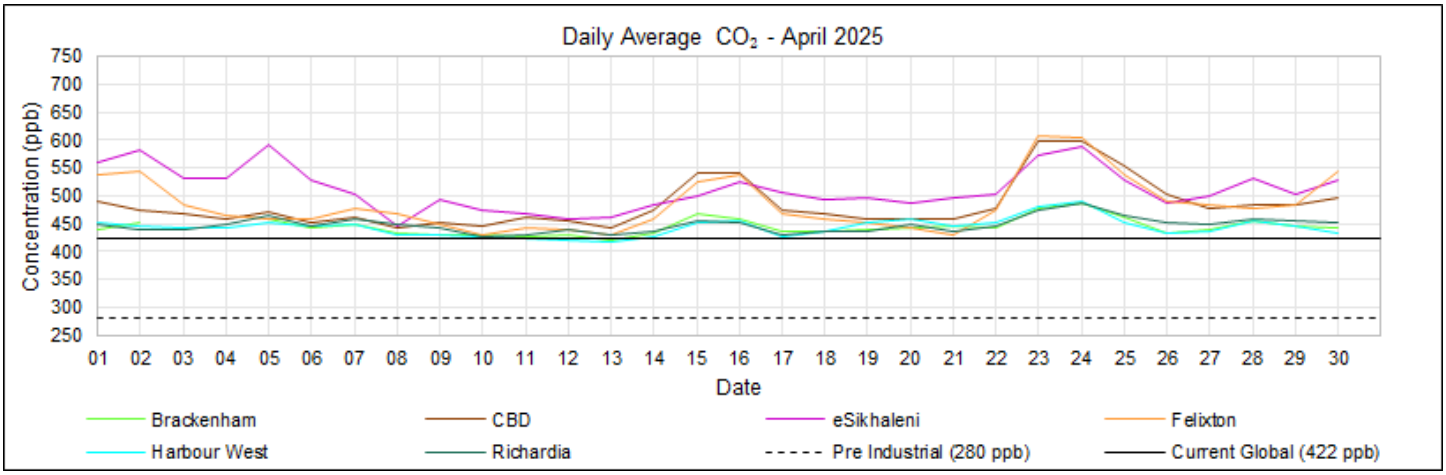


Figure 8.27: CO_2 daily concentrations.

8.5.4. Hourly

CO_2 hourly concentrations are shown below (Figure 8.28).

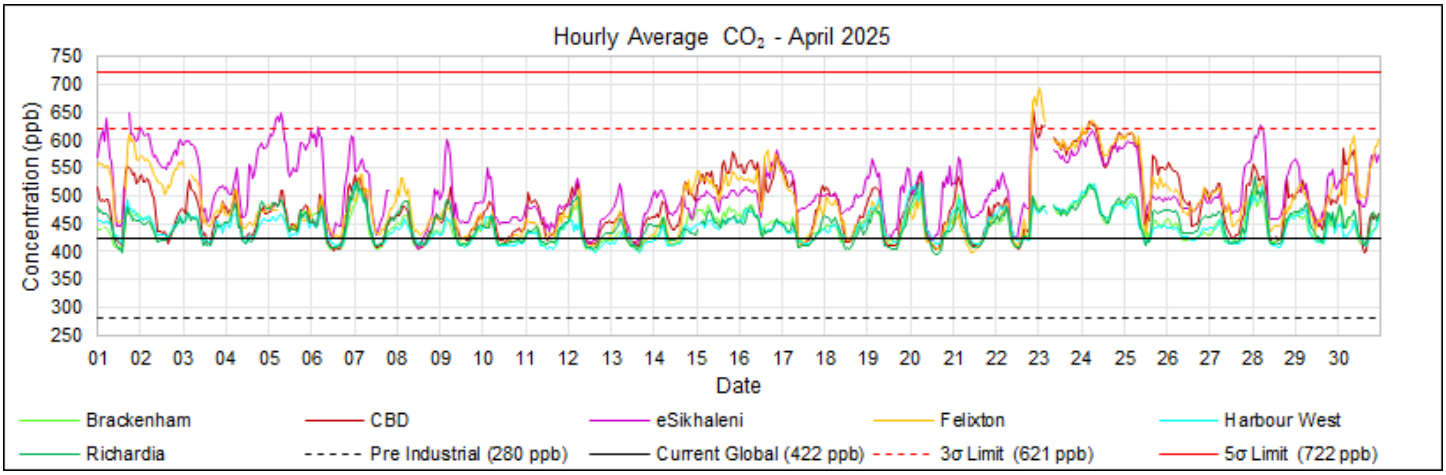


Figure 8.28: CO_2 hourly concentrations.

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

Limit	Brackenham	CBD	eSikhaleni	Felixton	Harbour West	Richardia
3σ	0	9	12	16	0	0
5σ	0	0	0	0	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	Kilometre 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 Africa 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 database).
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. All 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 minimize bias; the South African National Accreditation (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 RSA Standard (75 µg/m³)*	*% of WHO Guideline (45 µg/m³)*	*Time*	*Wind Direction (°)*	*Wind Speed (m/s)*
CBD ES1	24.0	32%	53%	2025/04/14 00:00	4.0	238
eSikhaleni	25.0	33%	56%	2025/04/20 00:00	1.3	21
Felixton ES1	21.0	28%	47%	2025/04/14 00:00	2.9	260
Richardia	69.0	92%	**153%**	2025/04/14 00:00	4.3	231
Scorpio ES1	28.0	37%	62%	2025/04/20 00:00	0.5	7
$PM_{2.5}$ daily averages						
Station	*Concentration (µg/m³)*	*% of RSA Standard (40 µg/m³)*	*% of WHO Guideline (15 µg/m³)*	*Time*	*Wind Direction (°)*	*Wind Speed (m/s)*
Brackenham ES2	25.6	64%	**171%**	2025/04/14 00:00	3.7	251
Felixton ES2	20.0	50%	**133%**	2025/04/13 00:00	2.4	34
Harbour West ES2	17.0	43%	**113%**	2025/04/01 00:00	4.1	355
Scorpio ES2	11.0	28%	73%	2025/04/14 00:00	4.5	226

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

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	38.6	20%		2025/04/10 08:00	5.9	252
Brackenham	36.8	19%		2025/04/17 04:00	2.0	256
CBD	77.0	40%		2025/04/17 07:50	4.5	243
eSikhaleni	5.9	3%		2025/04/16 10:50	3.0	247
Felixton	9.3	5%		2025/04/23 05:30	2.1	215
Harbour West	74.3	39%		2025/04/09 08:10	3.5	345
Richardia	23.7	12%		2025/04/28 23:10	1.6	251
Scorpio	142.1	74%		2025/04/14 02:50	1.5	3
SO_2 hourly averages						
Station	*Concentration (ppb)*	*% of RSA Standard (350 µg/m³ / 134 ppb)*	*No WHO Guideline*	*Time*	*Wind Direction (°)*	*Wind Speed (m/s)*
Arboretum	27.3	20%	-	2025/04/16 22:00	6.0	247
Brackenham	29.3	22%	-	2025/04/17 04:00	2.1	254
CBD	56.2	42%	-	2025/04/01 21:00	4.2	242
eSikhaleni	4.4	3%	-	2025/04/15 17:00	0.6	115
Felixton	5.9	4%	-	2025/04/23 05:00	2.1	224
Harbour West	47.2	35%	-	2025/04/14 02:00	3.4	12
Richardia	14.5	11%	-	2025/04/18 22:00	1.1	284
Scorpio	124.7	93%	-	2025/04/14 03:00	3.1	9
SO_2 daily averages						
Station	*Concentration (ppb)*	*% of RSA Standard (125 µg/m³ / 48 ppb)*	*% of WHO Guideline (40 µg/m³ / 15 ppb)*	*Time*	*Wind Direction (°)*	*Wind Speed (m/s)*
Arboretum	4.6	10%	31%	2025/04/16 00:00	3.9	243
Brackenham	6.7	14%	45%	2025/04/17 00:00	2.8	247
CBD	12.7	26%	85%	2025/04/26 00:00	4.2	243
eSikhaleni	2.2	5%	15%	2025/04/16 00:00	2.9	243
Felixton	1.1	2%	7%	2025/04/23 00:00	2.0	276
Harbour West	17.6	37%	**117%**	2025/04/13 00:00	3.5	20
Richardia	4.5	9%	30%	2025/04/10 00:00	4.1	224
Scorpio	18.3	38%	**122%**	2025/04/14 00:00	4.5	226

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	15.0	-	**161%**	2025/04/14 06:20	1.0	281
eSikhaleni	5.4	-	58%	2025/04/13 05:30	1.2	4
Felixton	21.0	-	**226%**	2025/04/20 07:10	0.9	49
Richardia	58.2	-	**626%**	2025/04/06 18:50	1.0	150
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	13.1	-	**262%**	2025/04/14 06:00	1.0	285
eSikhaleni	3.6	-	72%	2025/04/20 06:30	0.5	28
Felixton	13.6	-	**272%**	2025/04/07 02:30	1.4	293
Richardia	28.8	-	**576%**	2025/04/06 19:00	1.2	188
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	1.8	-	18%	2025/04/01 00:00	3.8	356
eSikhaleni	1.3	-	13%	2025/04/20 00:00	1.3	21
Felixton	1.8	-	18%	2025/04/07 00:00	2.0	38
Richardia	2.3	-	23%	2025/04/18 00:00	2.8	243

APPENDIX E
RAINFALL

Table 1: Daily Rainfall

Date	Richards Bay (mm)	Felixton (mm)	RBCT (mm)	South32 (mm)
2025/04/01	42	1.5	39	21
2025/04/02	21	16.5	24	24
2025/04/03	12	9.5	1	6
2025/04/04	6	0.0	6	4
2025/04/05	6	6.5	2	2
2025/04/06	0	2.0	0	0
2025/04/07	0	0.0	0	0
2025/04/08	0	0.0	0	0
2025/04/09	0	0.0	0	0
2025/04/10	3	2.5	1	0
2025/04/11	1	6.0	0	0
2025/04/12	0	0.0	0	0
2025/04/13	0	0.0	0	0
2025/04/14	6	21.5	6	2
2025/04/15	62	42.0	77	48
2025/04/16	15	9.5	9	10
2025/04/17	31	15.0	35	16
2025/04/18	4	0.0	3	7
2025/04/19	0	0.0	0	0
2025/04/20	0	0.0	0	0
2025/04/21	0	3.0	0	0
2025/04/22	16	61.0	44	22
2025/04/23	79	13.0	14	68
2025/04/24	16	9.5	12	10
2025/04/25	25	12.0	21	38
2025/04/26	0	1.2	2	0
2025/04/27	6	0.0	0	0
2025/04/28	0	2.0	11	0

Date	Richards Bay (mm)	Felixton (mm)	RBCT (mm)	South32 (mm)
2025/04/29	32	46.0	68	19
2025/04/30	96	7.0	78	64
Total	479	287	450	363

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	
Jun	70	78	114	140	60	33	89	
Jul	20	16	48	57	20	196	57	
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	165
Average	150	154	128	186	158	169	136	351
Maximum	311	320	377	464	647	410	271	479
Total	1798	1850	1540	2234	1893	2034	1630	1405

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	
Jun	60	53	44	98	20	14	53	
Jul	22	17	37	39	15	146	2.5	
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	117
Average	113	105	82	127	107	112	83	214
Maximum	342	311	214	231	368	318	187	303
Total	1354	1261	987	1530	1288	1347	992	855

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	
Jun	59	24	52	124	30	34	104	
Jul	21	5	39	64	30	162	56	
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	145
Average	84	110	87	139	161	145	100	268
Maximum	175	216	166	245	642	442	177	450
Total	1005	1317	1049	1669	1934	1740	1205	1073

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	-	
Jun	-	-	-	-	25	11	-	
Jul	-	-	-	-	12	165	-	
Aug	-	-	-	-	30	13	-	
Sep	-	-	-	-	64	18	129	
Oct	-	-	-	-	64	271	-	
Nov	-	-	-	-	101	36	-	
Dec	-	-	-	-	163	95	92	
Minimum	-	-	-	-	12	11	92	137
Average	-	-	-	-	121	107	121	243
Maximum	-	-	-	-	505	271	144	363
Total	-	-	-	-	1336	1280	485	973

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	2025/04/14 00:00	Meerensee	Clinical + Odour	Mondi	Terrible chemical smell, so bad I woke up and became nauseous following by a headache. (Early hours)	267
2	2025/04/14 00:00	Arboretum	Clinical + Odour	Mondi	Odour causing headache affecting breathing (early hours)	267
3	2025/04/14 00:00	Meerensee	Clinical + Odour	Mondi	Very bad gas like odour. Sinus and headache. (Early hours)	267
4	2025/04/14 00:00	Birdswood	Clinical + Odour	Mondi	The smell is disgusting. I have had to nebulise twice this morning. Can hardly breathe. (Early hours)	267
5	2025/04/14 00:00	Meerensee	Clinical + Odour	Mondi	Chemical smell. Bad headaches, burning airways and burning chests. (Early Hours)	267
6	2025/04/14 03:00	Arboretum	Clinical + Odour	Mondi	Horrible strong smell causing headache and nausea.	267
7	2025/04/14 04:00	Arboretum	Clinical + Odour	Mondi	Chemical smell. Coughing, burning and puffy eyes.	267
8	2025/04/14 04:00	Meerensee	Clinical + Odour	Mondi	Very strong Mondi odour. Nauseous.	267
9	2025/04/14 04:00	Arboretum Ext	Clinical + Odour	Mondi	Very gassy smell. Had to use my asthma pump for breathing.	267
10	2025/04/14 04:00	Birdswood	Clinical + Odour	Mondi	Sulphuric odour. Woke at 4am with a burning throat, eyes and lungs and headache.	267
11	2025/04/14 04:05	Arboretum	Clinical + Odour	Mondi	Chemical smell. Smells like cat pee. Tight heavy chest and coughing	267
12	2025/04/14 04:30	Veldenvlei	Clinical + Odour	Mondi	Extreme odour of ammonia woke us from sleep, causing nausea, vomiting child, burning eyes, battling to breathe and severe headaches.	267
13	2025/04/14 04:30	Veldenvlei	Clinical + Odour	Mondi	I woke up this morning with an asthma attack and swollen eyes. I am 75 years old and this is causing further damage to my lungs. Will Mondi or whoever pay if I am hospitalized?	267
14	2025/04/14 04:30	Meerensee	Clinical + Odour	Mondi	Strong chemical odour. Sinusitis and headache	267
15	2025/04/14 04:30	Meerensee	Clinical + Odour	Mondi	Very bad smell. Almost like ammonia. Headache	267

No	Date	Region	Type	Source	Description	Response
16	2025/04/14 04:30	Meerensee	Odour	Mondi	Terrible cat pee smell	267
17	2025/04/14 04:30	Meerensee	Odour	Mondi	Very strong odour, nuisance no symptoms. (4h30 – 07h00)	267
18	2025/04/14 04:34	Meerensee	Clinical + Odour	Mondi	Very funky chemical smell that woke me up. Chest closing.	267
19	2025/04/14 04:35	Meerensee	Clinical + Odour	Mondi	Terrible cat urine smell in the air. Coughing and burning throat. About to vomit	267
20	2025/04/14 04:39	Arboretum	Clinical + Odour	Mondi	Chemical smell like cat urine\onion causing headache and breathing difficulties	267
21	2025/04/14 04:45	Meerensee	Clinical + Odour	Mondi	Terrible gas rotten ammonia smell came into our house at 04h45 this morning. t was so terrible that I closed windows and doors and the smell still came through. I suffer with asthma and my fiancé has terrible sinus problems. We both started our day with an awful headache, nauseas and dizzy.	267
22	2025/04/14 04:45	Arboretum Ext	Clinical + Odour	Mondi	Bad cat urine odour. Sneezing, sore throat, tight burning chest, burning nose and nauseous.	267
23	2025/04/14 04:45	Meerensee	Clinical + Odour	Mondi	Chemical cat urine smell. Nausea, tight chest and burning eyes.	267
24	2025/04/14 04:45	Meerensee	Clinical + Odour	Mondi	Foul cat urine smell in the air. Sneezing. Difficult to breathe. Burns when inhaling.	267
25	2025/04/14 04:50	Meerensee	Clinical + Odour	Mondi	I woke up from the toxic smell. Burning throat and lungs and the smell was unbearable.	267
26	2025/04/14 04:50	Meerensee	Clinical + Odour	Mondi	Very strong ammonia smell causing nausea	267
27	2025/04/14 04:50	Meerensee	Clinical + Odour	Mondi	Chemical cat pee smell. Headache and nausea	267
28	2025/04/14 04:50	Meerensee	Clinical + Odour	Mondi	Extremely bad ammonia (cat urine) smell. Headache and sore throat	267
29	2025/04/14 04:50	Arboretum	Clinical + Odour	Mondi	Hideous smell in the air. Nausea and tight chest.	267
30	2025/04/14 04:50	Meerensee	Clinical + Odour	Mondi	Chemical cat urine smell. Runny nose and headache	267
31	2025/04/14 04:55	Birdswood	Clinical + Odour	Mondi	Bad chemical odour causing nausea, eye irritation and headache	267
32	2025/04/14 04:56	Meerensee	Odour	Mondi	Sudden heavy onset of a very strong rotten egg\cat pee smell	267
33	2025/04/14 05:00	Mango Grove	Clinical + Odour	Mondi	Plasticky or very strong chemical smell causing headache, and could not breathe	267

No	Date	Region	Type	Source	Description	Response
34	2025/04/14 05:00	Meerensee	Clinical + Odour	Mondi	Chemical smell causing nausea and headache	267
35	2025/04/14 05:00	Meerensee	Odour	Mondi	Chemical smell	267
36	2025/04/14 05:00	Meerensee	Odour	Mondi	The air smells like cat pee, chemical smell	267
37	2025/04/14 05:00	Meerensee	Clinical + Odour	Mondi	Very bad smell in the air. It is so bad, I've got a bad headache and feel nauseous	267
38	2025/04/14 05:00	Arboretum Ext	Odour	Mondi	Terrible cat wee odour.	267
39	2025/04/14 05:00	Meerensee	Clinical + Odour	Mondi	Gas smell. Very nauseating, almost too afraid to breathe. All doors and windows shut. Burning itchy eyes	267
40	2025/04/14 05:00	Veldenvlei	Clinical + Odour	Mondi	Bad odour. Smells like onion. Burning sinuses.	267
41	2025/04/14 05:00	Veldenvlei	Clinical + Odour	Mondi	Bad chemical smell. Headache	267
42	2025/04/14 05:00	Meerensee	Clinical + Odour	Mondi	Bad smell in the air that woke me up this morning. Caused headache and light headedness.	267
43	2025/04/14 05:00	Arboretum	Clinical + Odour	Mondi	Bad urine acid smell woke both me and my family. We all have bad headache, watery eyes and my son has burning sinuses	267
44	2025/04/14 05:00	Meerensee	Clinical + Odour	Mondi	Terrible ammonia smell in my house. Burning nose.	267
45	2025/04/14 05:00	Arboretum	Clinical + Odour	Mondi	Extremely strong cat urine smell. Headache, bu8rning throat, eyes and nose. Tight chest. Difficulty breathing. Headache.	267
46	2025/04/14 05:00	Meerensee	Clinical + Odour	Mondi	Very bad smell. Headache and closed chest.	267
47	2025/04/14 05:00	Meerensee	Odour	Mondi	Very strong cat urine smell	267
48	2025/04/14 05:00	Veldenvlei	Clinical + Odour	Mondi	Strong cat urine smell. Irritating sinuses.	267
49	2025/04/14 05:00	Arboretum	Clinical + Odour	Mondi	Terrible smell in the air. Having terrible headache	267
50	2025/04/14 05:00	Birdswood	Odour	Mondi	Bad pungent odour.	267
51	2025/04/14 05:00	Meerensee	Clinical + Odour	Mondi	Very bad smell in the air, similar to cat urine. Throat burning and sinuses extremely bad	267
52	2025/04/14 05:00	Meerensee	Clinical + Odour	Mondi	Terrible ammonia smell in my house. Burning nose	267

No	Date	Region	Type	Source	Description	Response
53	2025/04/14 05:00	Arboretum	Clinical + Odour	Mondi	Bad air. Rotten onion smell. Blocked nose and headache	267
54	2025/04/14 05:00	Birdswood	Clinical + Odour	Mondi	Terrible smell. Sore throat, tight chest and headaches	267
55	2025/04/14 05:00	Meerensee	Clinical + Odour	Mondi	Particularly strong odour (Catwee / guava) nausea. (05h00-06h30)Undetectable by 08h00.	267
56	2025/04/14 05:00	Meerensee	Clinical + Odour	Mondi	Terrible rotten smell in the air. Stuffy nose.	267
57	2025/04/14 05:00	Meerensee	Odour	Mondi	Pungent chemical odour.	267
58	2025/04/14 05:00	Arboretum	Odour	Mondi	Very bad cat urine smell	267
59	2025/04/14 05:00	Arboretum	Clinical + Odour	Mondi	Gas smell mixed with something else. Coughing, sinus and headache.	267
60	2025/04/14 05:00	Meerensee	Clinical + Odour	Mondi	Chemical gas smell. Leaves a funny taste in your mouth. Headache and nausea	267
61	2025/04/14 05:00	Arboretum	Odour	Mondi	Bad cat urine odour	267
62	2025/04/14 05:00	Arboretum	Odour	Mondi	Foul musty smell.	267
63	2025/04/14 05:00	Meerensee	Odour	Mondi	Chemical smell. Like cat urine but much stronger	267
64	2025/04/14 05:00	Arboretum	Odour	Mondi	Nasty chemical smell	267
65	2025/04/14 05:10	Meerensee	Clinical + Odour	Mondi	Chemical cat urine smell. Headache	267
66	2025/04/14 05:15	Meerensee	Odour	Mondi	Chemical smell	267
67	2025/04/14 05:15	Meerensee	Odour	Mondi	Rotten egg smell	267
68	2025/04/14 05:15	Meerensee	Clinical + Odour	Mondi	This feels like serious poison in the air. Eyes and chest burning.	267
69	2025/04/14 05:15	Meerensee	Clinical + Odour	Mondi	Chemical cat urine smell. Cough and closed chest	267
70	2025/04/14 05:15	Meerensee	Odour	Mondi	Bad chemical smell like cat pee	267
71	2025/04/14 05:15	Veldenvlei	Clinical + Odour	Mondi	Woke with unexplained extreme nausea and headache. Burning eyes. Pungent Mondi odour.	267

No	Date	Region	Type	Source	Description	Response
72	2025/04/14 05:16	Arboretum	Clinical + Odour	Mondi	Sulphur smell. Burns sinuses	267
73	2025/04/14 05:18	Richards Bay	Clinical + Odour	Mondi	The air outside smells so bad. Woke me. Sinus and headache	267
74	2025/04/14 05:20	Meerensee	Clinical + Odour	Mondi	Chemical smell causing headache	267
75	2025/04/14 05:20	Arboretum	Clinical + Odour	Mondi	Chemical smell causing headache.	267
76	2025/04/14 05:23	Arboretum	Clinical + Odour	Mondi	Chemical smell. Can hardly breathe	267
77	2025/04/14 05:26	Arboretum	Clinical + Odour	Mondi	Chemical smell. Coughing and tight chest	267
78	2025/04/14 05:27	Arboretum	Clinical + Odour	Mondi	Very bad chemical smell like cat urine. Sinus and nausea	267
79	2025/04/14 05:30	Arboretum	Clinical + Odour	Mondi	Terrible sickening odour in the air causing nausea	267
80	2025/04/14 05:30	Veldenvlei	Odour	Mondi	Rotten egg smell. Had to shut window to avoid breathing in.	267
81	2025/04/14 05:30	Arboretum	Odour	Mondi	Woke up and room was smelling of a very strong chemicalised onion smell.	267
82	2025/04/14 05:30	Birdswood	Clinical + Odour	Mondi	The air in Birdswood this morning smells putrid. It is so strong no one in my house of 6 people can breathe or catch their breath. Coughing, burning nose and throats, watery eyes and feeling short of breath, like we can't breathe.	267
83	2025/04/14 05:30	Meerensee	Clinical + Odour	Mondi	Very bad gas smell. Woke up with a very tight chest and extreme headache. Forced to nebulise.	267
84	2025/04/14 05:30	Meerensee	Clinical + Odour	Mondi	We were greeted this morning with the horrible smell like cat pee. Its really very bad. Nauseating and very unpleasant.	267
85	2025/04/14 05:30	Meerensee	Clinical + Odour	Mondi	Terrible smell. Impossible to breathe.	267
86	2025/04/14 05:30	Arboretum	Clinical + Odour	Mondi	Woke up to a foul smell. Headache	267
87	2025/04/14 05:30	Meerensee	Clinical + Odour	Mondi	Bad odour. Burning throat, irritated eyes, bad sinus and headache	267
88	2025/04/14 05:30	Meerensee	Clinical + Odour	Mondi	Bad odour. I have asthma - coughing badly right now.	267
89	2025/04/14 05:30	Birdswood	Odour	Mondi	Bad smell	267
90	2025/04/14 05:30	Arboretum	Odour	Mondi	Really bad cat pee smell	267

No	Date	Region	Type	Source	Description	Response
91	2025/04/14 05:31	Meerensee	Odour	Mondi	Terrible smell	267
92	2025/04/14 05:32	Meerensee	Clinical + Odour	Mondi	Terrible gas smell. Not good for my lungs	267
93	2025/04/14 05:32	Meerensee	Odour	Mondi	Very strong odour. (04:30 to 07:00)	267
94	2025/04/14 05:32	Arboretum	Clinical + Odour	Mondi	Woke this morning to an unpleasant smell. Smells like cat urine. Burning eyes, nose and throat.	267
95	2025/04/14 05:36	Arboretum	Clinical + Odour	Mondi	Foul smell in the air. Affecting sinuses	267
96	2025/04/14 05:40	Arboretum	Clinical + Odour	Mondi	This morning we woke up with a very bad smell. It smelled like cat pee, but hectically bad. Have a huge headache that no panado or Nurofen can take away and just not feeling well.	267
97	2025/04/14 05:40	Meerensee	Clinical + Odour	Mondi	Burning odour. Extreme burning of nose, throat and eyes	267
98	2025/04/14 05:40	Arboretum Ext	Clinical + Odour	Mondi	Terrible rotten onion type smell in the air. Burning eyes and Nausea	267
99	2025/04/14 05:40	Alton	Odour	Mondi	Very strong cat pee smell.	267
100	2025/04/14 05:40	Meerensee	Clinical + Odour	Mondi	Chemical smell. 8 months pregnant and smell is causing nausea	267
101	2025/04/14 05:40	Meerensee	Clinical + Odour	Mondi	Terrible ammonia smell. Eyes burning, sneezing, coughing and a massive headache	267
102	2025/04/14 05:40	Birdswood	Odour	Mondi	Rotten smell in the air	267
103	2025/04/14 05:41	Meerensee	Clinical + Odour	Mondi	Chemical smell. Terrible headache	267
104	2025/04/14 05:42	Arboretum	Clinical + Odour	Mondi	I woke up gasping to breathe from the terrible stink. Gassy cat urine odour mixed with other chemicals. My sinuses that I have spent months and money to get right are back. Nausea, Sore throat and blocked nose	267
105	2025/04/14 05:43	Meerensee	Clinical + Odour	Mondi	Chemical smell. Irritated airways.	267
106	2025/04/14 05:43	Veldenvlei	Odour	Mondi	Terrible sulphur guava smell	267
107	2025/04/14 05:44	Alton	Clinical + Odour	Mondi	Smell of gas. Can’t breathe properly	267
108	2025/04/14 05:44	Arboretum	Odour	Mondi	Rotten egg smell	267

No	Date	Region	Type	Source	Description	Response
109	2025/04/14 05:45	Birdswood	Clinical + Odour	Mondi	Bad smell in the air. So bad that you cannot breathe. Nausea, headache and battle to breathe.	267
110	2025/04/14 05:48	Arboretum	Clinical + Odour	Mondi	Chemical smell causing burning nose and asthma	267
111	2025/04/14 05:48	Veldenvlei	Clinical + Odour	Mondi	Very strong cat pee smell. Difficulty breathing. Sinuses affected.	267
112	2025/04/14 05:49	Meerensee	Clinical + Odour	Mondi	Chemical smell. Bad cough and closed chest	267
113	2025/04/14 05:52	Meerensee	Clinical + Odour	Mondi	Extremely bad odour. Sour onion smell. Burning nose and nausea	267
114	2025/04/14 05:52	Arboretum	Clinical + Odour	Mondi	Rotten egg smell. Headache, burning throat	267
115	2025/04/14 05:53	Arboretum	Clinical + Odour	Mondi	Unbearable chemical smell. Coughing	267
116	2025/04/14 05:56	Meerensee	Odour	Mondi	Strong cat urine smell	267
117	2025/04/14 05:56	Meerensee	Odour	Mondi	Chemical smell	267
118	2025/04/14 05:59	Birdswood	Clinical + Odour	Mondi	Very bad smell causing irritation due to asthma	267
119	2025/04/14 06:00	Birdswood	Odour	Mondi	Cat urine smell in the air	267
120	2025/04/14 06:00	Birdswood	Clinical + Odour	Mondi	Terrible smell. Burning nose.	267
121	2025/04/14 06:00	Birdswood	Clinical + Odour	Mondi	Awful smell in the air. Asthmatic making my breathing even more difficult	267
122	2025/04/14 06:00	Veldenvlei	Clinical + Odour	Mondi	Strong smell. Nose burning.	267
123	2025/04/14 06:00	Arboretum	Clinical + Odour	Mondi	Bad urine type smell in the air causing headache, chest pain.	267
124	2025/04/14 06:00	Birdswood	Odour	Mondi	Chemical cat urine smell	267
125	2025/04/14 06:00	Meerensee	Clinical + Odour	Mondi	Terrible sweet gas smell. Headache	267
126	2025/04/14 06:07	Meerensee	Clinical + Odour	Mondi	Chemical odour. Burning eyes, Nose and Headache	267
127	2025/04/14 06:10	Meerensee	Clinical + Odour	Mondi	Terrible chemical smell. Nausea and headache.	267

No	Date	Region	Type	Source	Description	Response
128	2025/04/14 06:13	Meerensee	Clinical + Odour	Mondi	Cat urine smell. My eyes are on fire and my chest is tight.	267
129	2025/04/14 06:13	Birdswood	Clinical + Odour	Mondi	Rotten guava smell. Sneezing and coughing	267
130	2025/04/14 06:14	Wildenweide	Clinical + Odour	Mondi	Bad cat urine smell. Eyes burning, struggling to breath	267
131	2025/04/14 06:15	Meerensee	Clinical + Odour	Mondi	Terrible smell. Headache, dizziness, cough, sneezing	267
132	2025/04/14 06:18	Veldenvlei	Odour	Mondi	Sharp guava odour in Veldenvlei	267
133	2025/04/14 06:19	Meerensee	Clinical + Odour	Mondi	String gas smell in the air. Difficult to breathe. Lungs and eyes burning.	267
134	2025/04/14 06:20	Meerensee	Odour	Mondi	Chemical smell	267
135	2025/04/14 06:21	Meerensee	Odour	Mondi	Terrible smell. Cat pee with a chemical quality	267
136	2025/04/14 06:23	Meerensee	Clinical + Odour	Mondi	Awful cat pee smell. Woke up with headache	267
137	2025/04/14 06:27	Birdswood	Clinical + Odour	Mondi	The smell is very bad in Birdswood. Sore eyes and causing a headache since I got up this morning.	267
138	2025/04/14 06:27	Meerensee	Clinical + Odour	Mondi	Terrible smell. Headache.	267
139	2025/04/14 06:27	Meerensee	Clinical + Odour	Mondi	Really rotten smell in the air. Burning nose.	267
140	2025/04/14 06:27	Arboretum	Clinical + Odour	Mondi	Bad cat urine odour causing burning throat	267
141	2025/04/14 06:30	Arboretum	Odour	Mondi	Terrible acidic smell	267
142	2025/04/14 06:30	Birdswood	Clinical + Odour	Mondi	Smell was unbearable when I woke this morning. Strong cat pee smell.	267
143	2025/04/14 06:30	Veldenvlei	Clinical + Odour	Mondi	Woke up with this terrible smell outside. These factories are taking advantage. This can cause long term damage	267
144	2025/04/14 06:30	Birdswood	Clinical + Odour	Mondi	Chemical Smell. Headache and nausea	267
145	2025/04/14 06:31	Birdswood	Clinical + Odour	Mondi	Horrible smell. Tight chest and headache.	267
146	2025/04/14 06:31	Meerensee	Clinical + Odour	Mondi	Whole house inside and outside smells like rotten egg\cat urine and cabbage. Tight chest, nausea, runny nose	267

No	Date	Region	Type	Source	Description	Response
147	2025/04/14 06:34	Arboretum	Clinical + Odour	Mondi	Bad smell. Headache and sinus	267
148	2025/04/14 06:35	Arboretum	Clinical + Odour	Mondi	We got smell all around here even in my house, it suffocates.	267
149	2025/04/14 06:36	Meerensee	Clinical + Odour	Mondi	Terrible rotten smell. Headache	267
150	2025/04/14 06:40	Brackenham	Clinical + Odour	Mondi	There is a bad odour which may possibly be industrial activities of Mondi. It is unpleasant and also affects could be affecting our health.	267
151	2025/04/14 06:40	Meerensee	Clinical + Odour	Mondi	Woke up to bad smell and bad smell also in CBD. Headache and sneezing	267
152	2025/04/14 06:40	Birdswood	Clinical + Odour	Mondi	Bad smell. Strong. Burning nose	267
153	2025/04/14 06:40	Birdswood	Clinical + Odour	Mondi	Bad odour. My throat is burning. Headache. Family of 4 all have the same symptoms	267
154	2025/04/14 06:42	Brackenham	Clinical + Odour	Mondi	The odour in the air has caused major issues to my lungs. Being an asthma patient this odour in the air has agitated it severely and I had to seek medical attention.	267
155	2025/04/14 06:42	Wildenweide	Clinical + Odour	Mondi	There is a bad odour in the air and is affecting our breathing especially my son. Cough.	267
156	2025/04/14 06:45	Alton	Clinical + Odour	Mondi	Smell in the air. Burning nose and throat.	267
157	2025/04/14 06:45	Birdswood	Clinical + Odour	Mondi	Very bad smell in the AIR. Can hardly breathe. Sinus and nose blocked.	267
158	2025/04/14 06:45	Meerensee	Clinical + Odour	Mondi	Mondi odour. Headache and tinnitus.	267
159	2025/04/14 06:47	Meerensee	Odour	Mondi	Very bad odour (From Meerensee to Alton)	267
160	2025/04/14 06:48	Meerensee	Clinical + Odour	Mondi	Air quality is getting worse and affecting people with severe asthma. Have to resort to nebulisers. Shortness of breath.	267
161	2025/04/14 06:50	Meerensee	Odour	Mondi	Very bad smell	267
162	2025/04/14 06:55	Unknown	Clinical + Odour	Mondi	Bad smell making me get asthma.	267
163	2025/04/14 06:57	Birdswood	Clinical + Odour	Mondi	Bad smell. Can’t breathe. Feels like there is not clean air.	267
164	2025/04/14 06:58	Veldenvlei	Clinical + Odour	Mondi	Gas smell in Veldenvlei area. Woke up with itchy eyes and a runny nose.	267
165	2025/04/14 07:01	Arboretum	Clinical + Odour	Mondi	Terrible smell that caused challenges in breathing and led to tight chest. My grandson had teary eyes.	267

No	Date	Region	Type	Source	Description	Response
166	2025/04/14 07:05	Birdswood	Clinical + Odour	Mondi	Horrid cat urine smell. Makes you want to throw up	267
167	2025/04/14 07:09	Birdswood	Odour	Mondi	Bad smell	267
168	2025/04/14 07:16	Birdswood	Clinical + Odour	Mondi	Terrible Mondi smell in the air. Terrible sinus and headache.	267
169	2025/04/14 07:28	Veldenvlei	Clinical + Odour	Mondi	Very strong gassy smell. Can't breathe.	267
170	2025/04/14 13:15	Alton North	Dust & fallout	Authority response required	Dust fallout from land cleared by IDZ is still impacting on businesses in Alton North. (photos attached)	1
171	2025/04/16 22:45	Arboretum Ext	Noise	Foskor	"A loud noise and odour coming from Foskor"	269
172	2025/04/18 09:23	Richards Bay	Odour	Mondi	"Mondi smell hanging in the air"	270
173	2025/04/18 09:45	Veldenvlei	Odour	Mondi	"Hanging guava odour"	270
174	2025/04/18 18:58	Meerensee	Clinical + Odour	Mondi	Strong distinct smell of cat urine. Nose is burning and getting headache."	271
175	2025/04/18 22:00	Arboretum	Odour	Mondi	"Strong smelling gas and chemicals inside my house. Even my 11-year-old stepdaughter could smell it all the way upstairs. (Complaint received by RBCAA on 20 April)"	271
176	2025/04/19 13:05	Alton	Abnormal emissions	Clariant	Abnormal emissions	268
177	2025/04/19 14:13	Meerensee	Clinical + Odour	Industry response required	"Strong distinct smell of cat urine. Nose is burning and my eyes. It comes in waves.	276, 1
178	2025/04/21 22:05	Veldenvlei	Odour	Mondi	"Strong cabbage like smell."	272
179	2025/04/23 11:45	Veldenvlei	Clinical + Odour	Mondi	Pungent Mondi guava odour causing instantaneous headache and nausea."	274
180	2025/04/23 11:50	Veldenvlei	Clinical + Odour	Mondi	"VERY strong smell of cat urine/rotten onions. Nose burning."	274
181	2025/04/23 11:54	Birdswood	Clinical + Odour	Mondi	"Rotten smell in the air causing headache."	274
182	2025/04/23 11:55	Birdswood	Clinical + Odour	Mondi	"that same smell is very string again in Birdswood causing headache."	274
183	2025/04/23 12:02	Birdswood	Clinical + Odour	Mondi	insane smell in Birdswood again. My asthmatic daughter is struggling and it's burning our eyes and throat and causes severe sinus blockage and pain."	274
184	2025/04/28 07:53	Meerensee	Odour	Mondi	Mondi odour.	275

No	Date	Region	Type	Source	Description	Response
185	2025/04/28 08:35	Brackenham	Odour	Mondi	“terrible smell like cat pee”	275
186	2025/04/28 08:42	Unknown	Clinical + Odour	Mondi	Today's Mondi smell is bad. Will Mondi compensate me with my previous attack where I fell I chipped my tooth and broke my glasses after the asthma attack when I fell. Please advice. I am a chronic patient and cannot handle this anymore.”	275

Table 2: Responses.

Response	Industry Feedback
1	Unresolved / No Response
267	Sandy Camminga (in behalf of Mondi - Candice Webb) responded (2025/04/16 23:13): Source of odour: Ruptured bursting disc on the non-condensable gas line to the flare.
268	Sandy Camminga (in behalf of CoU) responded (2025/04/21 20:12): The RBCAA notified the Authorities on receipt of the complaint. CoU responded and provided the following response from Clariant; “We had a process upset; the incinerator tripped. The situation was resolved. We will send a forma response during the week when we are back in the office.”Clariant operates under a Scheduled Trade Permit. CoU will monitor and provide feedback. Donny Naidoo (in behalf of Clariant) responded (2025/04/22): The investigation determined that a process upset has occured, causing the incinerator to trip. As a result, the offgas bypassed the standard treatment process normally provided by the incinerator, leading to the visible emission. Note: full report / letter available)
269	Foskor- Silungile Msane responded (2025/04/23 16:47): Noise complaint: around the time of the exceedance, the steam pressure exceeded maximun settings on the relief valve on the 11-bar steam system in Sulphuric acid C plant causing a loud noise. Odour complaint: Based on the SO2 trends around the time of the complaint, there were no abnormalities present in the plant conditions. However it must be noted that the odour complaint was not clear regarding the type of odour experienced.
270	Mondi - Candice Webb responded (2025/04/24 14:55): Source of Odour: Fugitive emissions as a result of unstable mill conditions. "...All point source emissions found to be well within specification. The hardwood and softwood gasses were stable in the Recovery Boiler Flare and the Lime Kiln for incineration. Area operators undertook plant specific odour checks and investigated any possible leaks, no deviations identified were found in the non-condensable gas system. The Mondi Secondary Effluent Treatment Plant (SETP) was offline at the time for odour control. However, based on unstable operating conditions during a difficult start-up of the mill and wind direction, Mondi is the most likely source of the odour."
271	Mondi - Candice Webb responded (2025/04/24 14:55): Source of Odour: Secondary Effluent Plant. "...All point source emissions found to be well within specification. The hardwood and softwood gasses were stable in the Recovery Boiler Flare and the Lime Kiln for incineration. Area operators undertook plant specific odour checks and investigated any possible leaks, no deviations identified were found in the non-condensable gas system. However, based on upset conditions in the mill and poor quality effluent, and elevated TRS at the Alton station, the Secondary Effluent Treatment Plant (SETP) was determined to be the most likely source of the odour. The SETP was switch off until 08:00 the following morning."
272	Mondi - Candice Webb responded (2025/04/24 14:55): Source of Odour: Secondary Effluent Treatment Plant. "...All point source emissions found to be well within specification. The hardwood and softwood gasses were stable in the Recovery Boiler Flare and the Lime Kiln for incineration. Area operators undertook plant specific odour checks and investigated any possible leaks, no deviations identified were found in the non-condensable gas system. However, based on upset conditions in the mill and poor-quality effluent and elevated TRS at the Alton station, the Secondary Effluent Treatment Plant (SETP) was determined to be the most likely source of the odour. The SETP was switch off until 08:00 the following morning."
273	South 32 -Londiwe Molebale responded (2025/05/08 16:58): The cause of the alumina dust is from the Gas Treatment Centre, it was identified that some gaskets were not tighten enough the during HF reduction project.
274	Mondi - Candice Webb responded (2025/05/14 12:36): Mondi Environmental Manager received notification of odour complaint from the RBCAA at 11:45 and an investigation was undertaken. All point source emissions found to be well within specification. The hardwood and softwood gasses were stable in the Lime Kiln for incineration. Area operators undertook plant specific odour checks and investigated any possible leaks, no deviations identified. However, the Mondi Secondary Effluent Treatment Plant (SETP) was identified as a potential source. Consequently, it was taken offline and flushed with clean water.
275	Mondi - Candice Webb responded (2025/05/14 15:33): "...the Mondi Secondary Effluent Treatment Plant (SETP) was identified as a potential source, based on the elevated TRS recorded at the Alton station between 05:00 and 08:00. In addition, area operators undertook plant specific odour checks and investigated any possible leaks, a leak on the CPX system was identified at 10:00 and the plant isolated for repairs. The repair was completed by 15:00."

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)	Richardia	2025/04/10 0:00	48.0	224	4.1	No response required	None	2
2	PM_{10} Daily WHO Limit (45 µg/m³)	Richardia	2025/04/14 0:00	69.0	231	4.3	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	2025/04/01 00:00	19.3	15	8.9	No response required	None	2
2	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/04/02 00:00	17.7	No data	No data	No response required	None	2
3	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/04/08 00:00	15.8	No data	No data	No response required	None	2
4	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/04/09 00:00	19.4	No data	No data	No response required	None	2
5	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/04/10 00:00	20.4	248	4.5	No response required	None	2
6	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/04/13 00:00	20.3	37	2.9	No response required	None	2
7	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/04/14 00:00	25.6	252	3.7	No response required	None	2
8	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/04/17 00:00	19.0	247	2.8	No response required	None	2
9	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/04/20 00:00	16.2	27	1.9	No response required	None	2
10	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Brackenham	2025/04/21 00:00	17.9	279	1.6	No response required	None	2
11	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Felixton	2025/04/13 00:00	20.0	34	2.4	No response required	None	2
12	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Felixton	2025/04/14 00:00	19.0	260	2.9	No response required	None	2
13	$PM_{2.5}$ Daily WHO Limit (15 µg/m³)	Harbour West	2025/04/01 00:00	17.0	355	4.1	No response required	None	2

Table 1: PM $_{2.5}$ Responses

Response	Industry Feedback
2	No response required

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	2025/04/13 00:00	17.6	19	3.5	No response required	None	2
2	SO_2 Daily WHO Limit (15 ppb)	Scorpio	2025/04/14 00:00	18.3	226	4.5	No response required	None	2

Table 2: SO_2 Responses.

Response	Industry Feedback
2	No response required

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	2025/04/01 17:30	5.2	257	3.7	Mondi	Increased TRS levels at the effluent stack	627
2	TRS 30-minute WHO H_2S Limit (5.0 ppb)	CBD	2025/04/01 18:00	5.4	246	4.4	Mondi	Increased TRS levels at the effluent stack	627
3	TRS 30-minute WHO H_2S Limit (5.0 ppb)	CBD	2025/04/14 05:30	5.4	295	1.7	Mondi	Ruptured bursting disc on the non-condensable gas line to the flare	633
4	TRS 10-minute OME Limit (9.3 ppb)	CBD	2025/04/14 06:00	11.3	284	1.2	Mondi	Ruptured bursting disc on the non-condensable gas line to the flare	633
5	TRS 30-minute WHO H_2S Limit (5.0 ppb)	CBD	2025/04/14 06:00	13.1	285	1.0	Mondi	Ruptured bursting disc on the non-condensable gas line to the flare	633
6	TRS 10-minute OME Limit (9.3 ppb)	CBD	2025/04/14 06:10	13.0	#N/A	0.8	Mondi	Ruptured bursting disc on the non-condensable gas line to the flare	633
7	TRS 10-minute OME Limit (9.3 ppb)	CBD	2025/04/14 06:20	15.0	281	1.0	Mondi	Ruptured bursting disc on the non-condensable gas line to the flare	633
8	TRS 10-minute OME Limit (9.3 ppb)	CBD	2025/04/14 06:30	10.8	286	1.5	Mondi	Ruptured bursting disc on the non-condensable gas line to the flare	633
9	TRS 30-minute WHO H_2S Limit (5.0 ppb)	CBD	2025/04/14 06:30	7.1	274	2.0	Mondi	Ruptured bursting disc on the non-condensable gas line to the flare	633
10	TRS 30-minute WHO H_2S Limit (5.0 ppb)	CBD	2025/04/28 20:00	6.4	276	1.3	Industry response required	None	1
11	TRS 10-minute OME Limit (9.3 ppb)	CBD	2025/04/28 20:20	10.1	271	1.2	Industry response required	None	1
12	TRS 30-minute WHO H_2S Limit (5.0 ppb)	CBD	2025/04/28 20:30	6.4	287	1.0	Industry response required	None	1
13	TRS 10-minute OME Limit (9.3 ppb)	CBD	2025/04/28 23:00	10.8	263	1.6	Industry response required	None	1
14	TRS 30-minute WHO H_2S Limit (5.0 ppb)	CBD	2025/04/28 23:00	9.6	268	1.4	Industry response required	None	1
15	TRS 10-minute OME Limit (9.3 ppb)	CBD	2025/04/28 23:10	10.0	270	1.5	Industry response required	None	1

No	Target / Guideline / Standard	Station	Date	Value (ppb)	Wind Direction (°)	Wind Speed (m/s)	Source	Comment	Response
16	TRS 30-minute WHO H_2S Limit (5.0 ppb)	CBD	2025/04/29 02:30	5.5	No data	0.7	Industry response required	None	1
17	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/04/07 02:30	11.9	251	1.5	Industry response required	Responded: Mondi, Mpact and THS	629, 631, 632, 1
18	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/04/07 02:30	13.6	293	1.4	Industry response required	Responded: Mondi, Mpact and THS	629, 631, 632, 1
19	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/04/07 02:40	18.6	301	1.1	Industry response required	Responded: Mondi, Mpact and THS	629, 631, 632, 1
20	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/04/07 02:50	10.3	331	1.7	Industry response required	Responded: Mondi, Mpact and THS	629, 631, 632, 1
21	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/04/07 03:30	14.8	41	1.0	Industry response required	Responded: Mondi, Mpact and THS	629, 631, 632, 1
22	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/04/07 03:30	10.1	14	1.5	Industry response required	Responded: Mondi, Mpact and THS	629, 631, 632, 1
23	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/04/07 04:00	5.3	18	2.9	Industry response required	Responded: Mondi, Mpact and THS	629, 631, 632, 1
24	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/04/20 05:00	13.3	352	3.0	Industry response required	Responded: Mpact, Mondi	636,641, 1
25	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/04/20 05:00	10.7	325	2.6	Industry response required	Responded: Mpact, Mondi	636,641, 1
26	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/04/20 05:10	11.2	338	2.8	Industry response required	Responded: Mpact, Mondi	636,641, 1
27	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/04/20 05:30	9.8	10	3.1	Industry response required	Responded: Mpact, Mondi	636,641, 1
28	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/04/20 05:30	8.5	18	2.6	Industry response required	Responded: Mpact, Mondi	636,641, 1
29	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/04/20 07:00	13.4	61	0.6	Industry response required	Responded: Mpact, Mondi	636,641, 1
30	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/04/20 07:10	21.0	49	0.9	Industry response required	Responded: Mpact, Mondi	636,641, 1
31	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/04/20 07:20	10.4	53	0.4	Industry response required	Responded: Mpact, Mondi	636,641, 1
32	TRS 10-minute OME Limit (9.3 ppb)	Felixton	2025/04/24 00:00	10.1	337	0.2	Industry response required	Responded: Mpact	635, 1
33	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Felixton	2025/04/24 00:00	6.9	309	0.7	Industry response required	Responded: Mpact	635, 1

No	Target / Guideline / Standard	Station	Date	Value (ppb)	Wind Direction (°)	Wind Speed (m/s)	Source	Comment	Response
34	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Richardia	2025/04/03 17:00	15.7	357	1.3	Mondi	Elevated H_2S levels	628
35	TRS 10-minute OME Limit (9.3 ppb)	Richardia	2025/04/03 17:10	12.2	336	1.0	Mondi	Elevated H_2S levels	628
36	TRS 10-minute OME Limit (9.3 ppb)	Richardia	2025/04/03 17:20	27.6	343	1.3	Mondi	Elevated H_2S levels	628
37	TRS 10-minute OME Limit (9.3 ppb)	Richardia	2025/04/03 17:30	13.0	320	1.0	Mondi	Elevated H_2S levels	628
38	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Richardia	2025/04/03 17:30	5.4	311	1.2	Mondi	Elevated H_2S levels	628
39	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Richardia	2025/04/06 18:30	23.2	138	1.0	Industry response required	Responded: Mondi	640, 1
40	TRS 10-minute OME Limit (9.3 ppb)	Richardia	2025/04/06 18:50	59.7	150	1.0	Industry response required	Responded: Mondi	640, 1
41	TRS 10-minute OME Limit (9.3 ppb)	Richardia	2025/04/06 19:00	37.9	185	1.4	Industry response required	Responded: Mondi	640, 1
42	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Richardia	2025/04/06 19:00	30.3	188	1.2	Industry response required	Responded: Mondi	640, 1
43	TRS 10-minute OME Limit (9.3 ppb)	Richardia	2025/04/06 19:10	30.4	188	1.2	Industry response required	Responded: Mondi	640, 1
44	TRS 10-minute OME Limit (9.3 ppb)	Richardia	2025/04/06 19:20	22.7	192	1.1	Industry response required	Responded: Mondi	640, 1
45	TRS 10-minute OME Limit (9.3 ppb)	Richardia	2025/04/06 19:30	20.5	198	1.3	Industry response required	Responded: Mondi	640, 1
46	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Richardia	2025/04/06 19:30	12.6	191	1.1	Industry response required	Responded: Mondi	640, 1
47	TRS 10-minute OME Limit (9.3 ppb)	Richardia	2025/04/06 19:40	10.0	185	1.0	Industry response required	Responded: Mondi	640, 1
48	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Richardia	2025/04/16 00:00	6.1	225	2.5	Mondi	Unstable mill conditions during restart	634
49	TRS 30-minute WHO H_2S Limit (5.0 ppb)	Richardia	2025/04/16 02:00	5.8	148	1.8	Mondi	Unstable mill conditions during restart	634

Table 2: TRS Responses

Response	Industry Feedback
1	Unresolved / No Response
627	Mondi - Kira Cobbold responded, (2025/04/03 08:23): The TRS exceedances recorded at the CBD station on 01/04/2025 are accepted by Mondi based on wind speed and direction. Mondi also observed increased TRS levels at the effluent stack, and with the mill undergoing a shutdown (1-3 April), it is likely that the exceedances are linked to lower effluent quality due to unstable mill conditions.
628	Mondi - Kira Cobbold responded, (2025/04/04 13:15): The TRS exceedances (30 & 10 mins) recorded at the Richardia station on 03/04/2025 are likely attributed to Mondi based on wind speed and direction. A spike in H_2S levels was also observed at the ground floor flame arrestor area, where gases were likely vented to the atmosphere due to instability surrounding Recovery Boiler 1 during that period. The team was aware of the elevated H_2S levels and managed to bring them back down again by 17:00
629	Mondi - Kira Cobbold responded, (2025/04/09 09:41): An investigation into the TRS exceedances recorded at the Felixton station on 07/04/2025 concluded that Mondi is unlikely to be the source. Wind direction was erratic throughout the period, with only partial alignment to Mondi as a potential contributor (northeast wind direction required). All point source emissions were within specification, and no elevated TRS levels were observed at other monitoring stations (particularly eSikhaleni and Mondi UVS stations), suggesting a potentially more localised source.
631	Mpact - Maggie Odayar responded, (2025/04/16 10:52): The TRS exceedances for the 7th of April was investigated. There were no abnormal conditions found that could have contributed to these exceedances. All processes were operating under steady state conditions.
632	Tongaat Hulett - Nicolas Govender responded (2025/04/16 11:45): Lines 2531 to 2537 for the TRS exceedance, TH is shut since December 2024 and factory cleaning was concluded in December. Effluent plant was stable with no abnormal activities conducted at the time. Wind direction was NW to NNE as well, therefore it is unlikely to have been caused by TH.
633	Mondi - Kira Cobbold responded, (2025/04/17 12:43): The TRS exceedances recorded on 14/04/2025 at the CBD station are attributed to a ruptured bursting disc on the non-condensable gas line to the flare. Corrective action was taken, and preventative measures put in place. The full investigation report addressing all associated odour complaints has been submitted to the relevant authorities.
634	Mondi - Kira Cobbold responded, (2025/04/23 12:47): The TRS exceedances recorded at the Richardia station on 16/04 occurred during a period when the mill was restarting following a major shutdown. Based on wind conditions, as well as elevated TRS levels recorded at both the Mondi mobile station and Hytec station prior to the exceedance, Mondi is the likely source. The root cause is attributed to unstable mill conditions during restart, resulting in odour being released from the secondary effluent treatment plant (SETP).
635	Mpact - Maggie Odayar responded, (2025/04/30 10:38): Mpact has investigated the exceedance on the 24th of April, around midnight. Based on shift reports and plant conditions there were no abnormal activities that could have caused the TRS exceedance. The operation was stable at the time.
636	Mpact - Maggie Odayar responded, (2025/05/06 12:55): Mpact has investigated the exceedance dated Sunday, 20th April 2025 and according to the shift reports, trends and logsheets there were no abnormal activities that during the time of the incident. It is highly unlikely that Mpact is the source of the TRS exceedance.
640	Mondi - Kira Cobbold responded, (2025/05/16 15:26): The TRS exceedance recorded at Richardia on 06/04/2025 occurred under low wind speed conditions with wind directions that do not align clearly with Mondi as the source. For this reason, Mondi believes they are unlikely the source. Additionally, all Mondi monitoring stations also remained on low TRS levels (as depicted in graph below - the marker has been placed at 18:32pm). We remain open to discussion should AIMS or RBCAA require further detail.
641	Mondi - Kira Cobbold responded, (2025/05/16 15:52):Mondi has investigated the TRS exceedances recorded at the Felixton monitoring station on 20/04/2025. Based on shifting wind directions and low wind speeds, Mondi could be a potential source, as these conditions may have contributed to odour lingering in the area. However, all Mondi monitoring stations recorded low TRS levels, and TRS stack emissions remained well within the AEL compliance limits. No specific root cause has been identified in investigations so far. The Odour Abatement Task Team continues to meet bi-weekly to drive improvements in odour management at Mondi.


AIMS