

Monthly Air Quality

Richards Bay February 2025

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1. INTRODUCTION

This monthly air quality report provided by the Richards Bay Clean Air Association (RBCAA) offers a comprehensive overview of air quality monitoring data for the specific month under review. It aims to provide a detailed analysis of meteorology, sulphur dioxide (SO₂), 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 February 2025 is shown in Table 2-1.

Table 2-1: Meteorological data capture.

Station	Availability (%)	Wind (%)	Temperature (%)	Relative Humidity (%)	Pressure (%)	Solar Radiation (%)	Rain (%)
Airport	97	97	97	97	97	97	-
Arboretum	97	96	97	-	-	-	-
Brackenham	99	99	99	-	-	-	-
CBD	100	100	100	-	100	-	-
CBD Rain	99	-	-	-	-	-	99
eSikhaleni	100	100	100	-	100	-	-
Felixton Met	98	98	98	-	98	-	-
Harbour West	100	100	100	-	-	-	-

Notes:

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

Missing Data (Station and meteorology):

- Airport – power outages (1 day with <80% data capture 16 February 2025).
- Arboretum - power outages (1 day with <80% data capture 13 February 2025).
- Brackenham - power outages (1 day with <80% data capture 26 February 2025).
- Felixton Met – power outages (1 day with <80% data capture 22 February 2025).

2.2. Wind Roses

Monthly wind roses for February 2024 and 2025 for Arboretum are presented in Figure 2-1. They indicate that the wind blew predominantly along the NE and SW axis. 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.

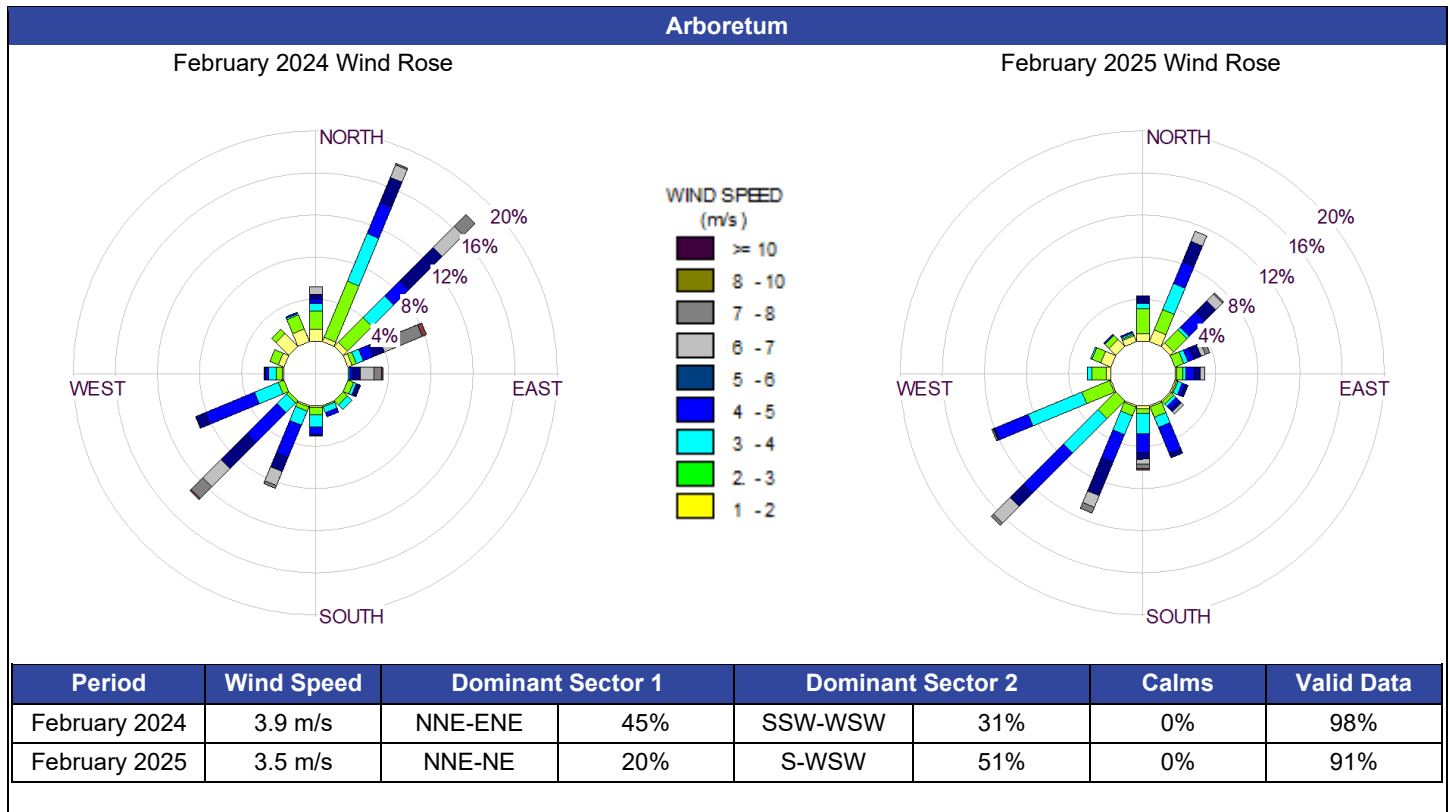


Figure 2-1: Wind roses - monthly.

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 wind occurs throughout the year and is 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 February 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.

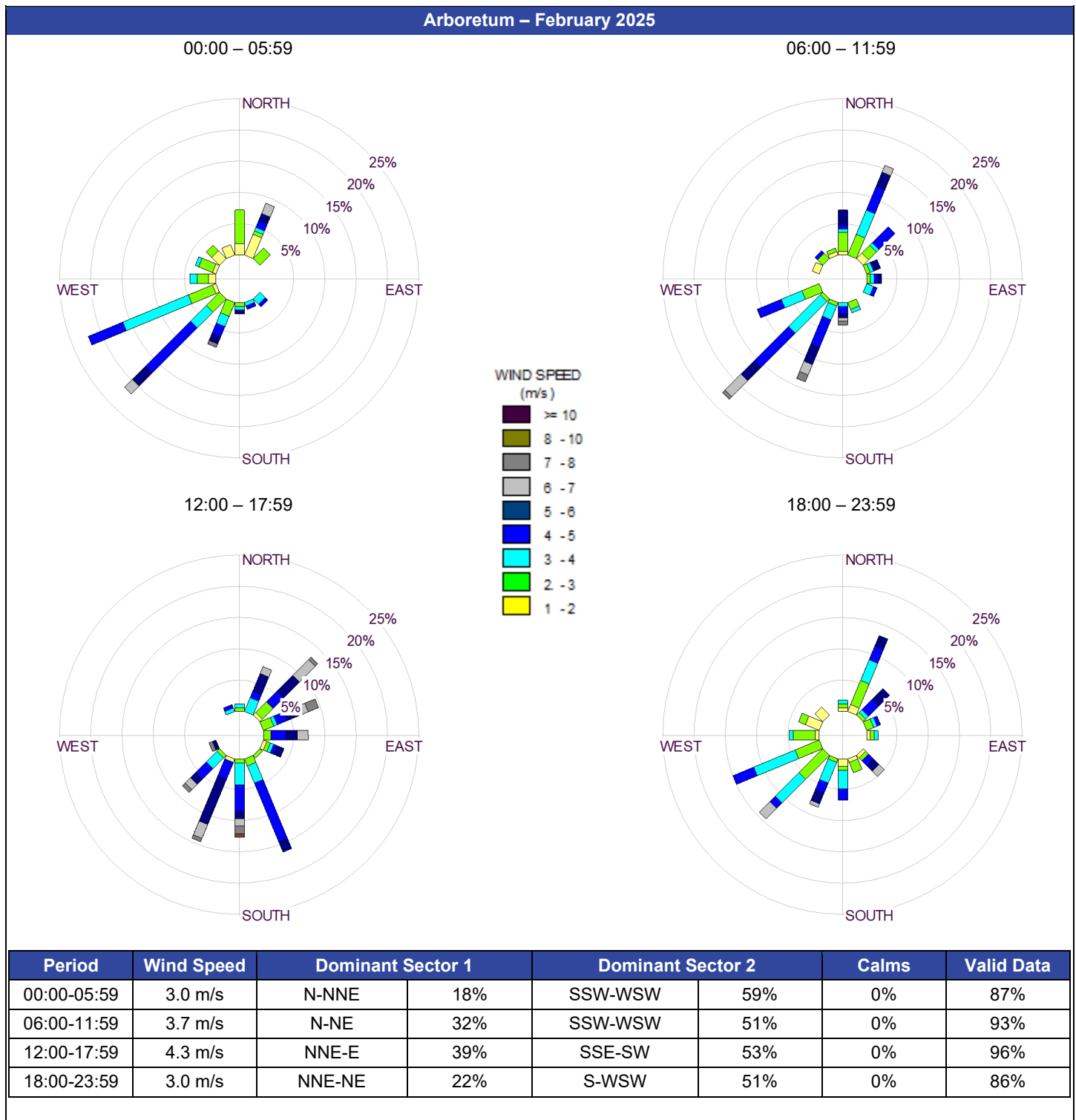


Figure 2-2: Wind roses - diurnal.

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).

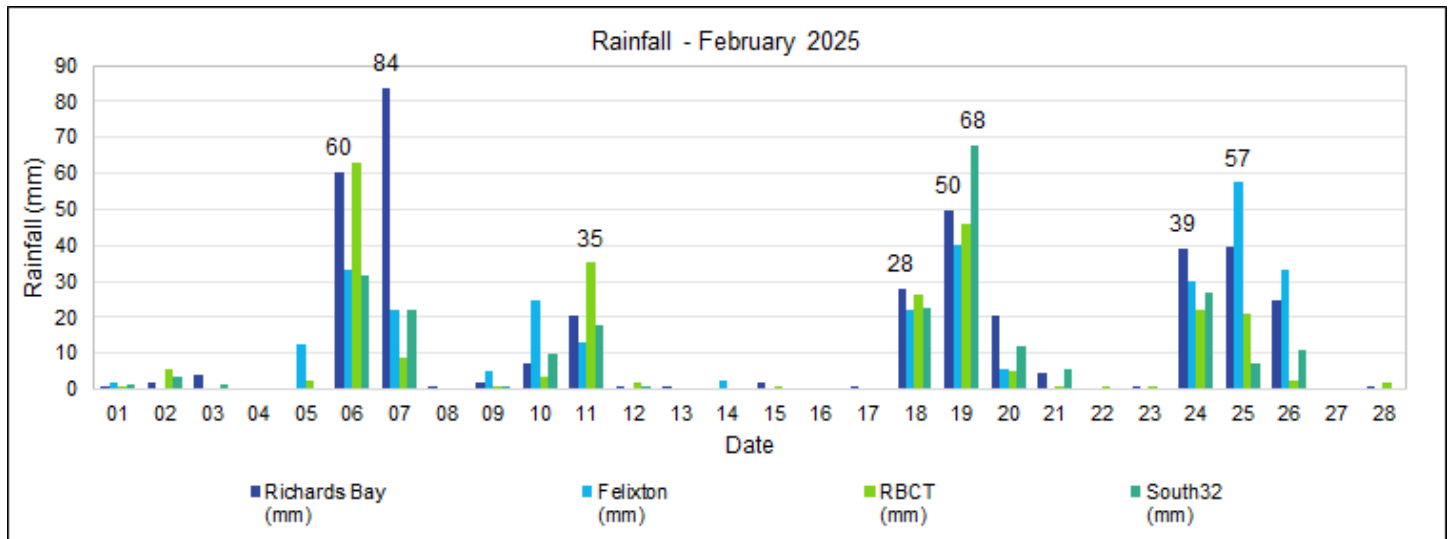


Figure 2-3: Rainfall.

Table 2-2: Rainfall -monthly averages.

Month	Richards Bay (mm)	Felixton (mm)	RBCT (mm)	South 32 (mm)
February 2025	390	303	249	241

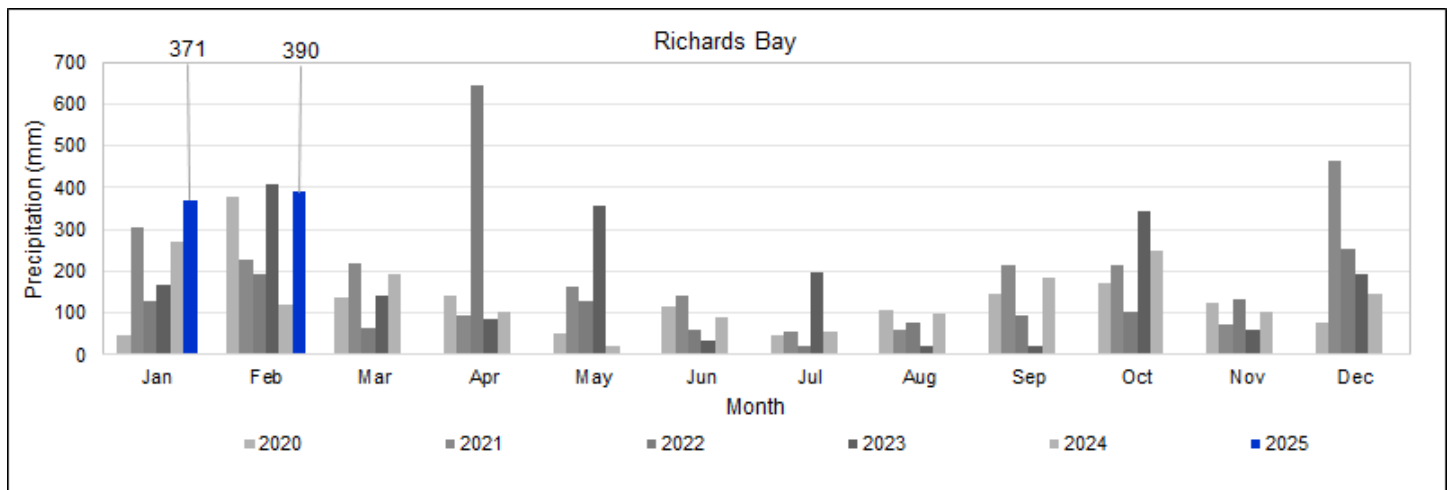


Figure 2-4: Rainfall –Richards Bay.

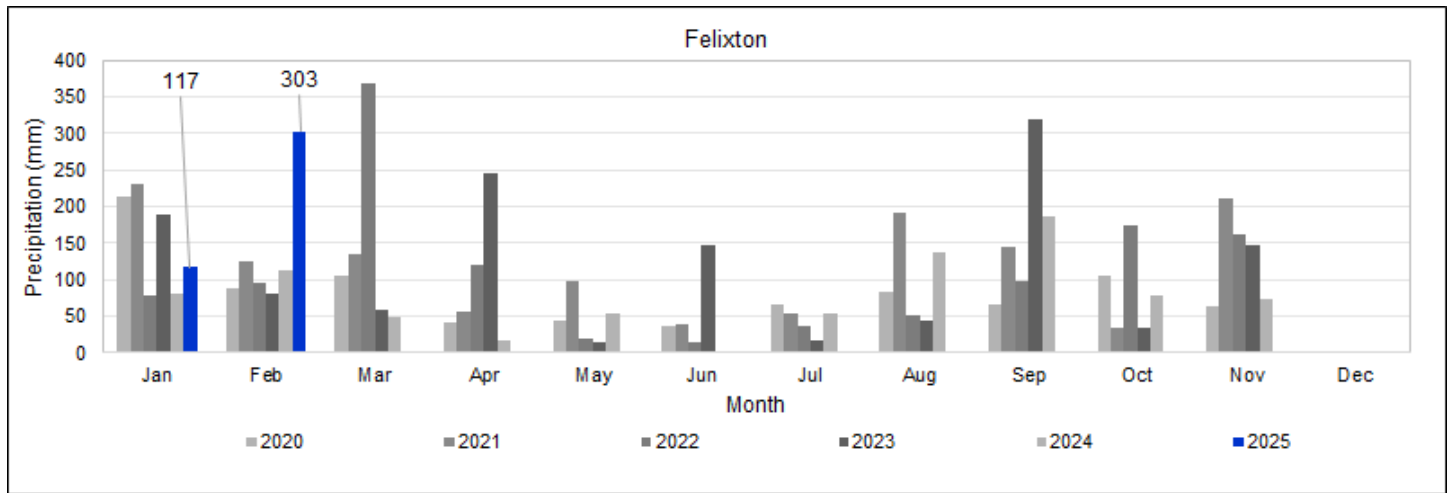


Figure 2-5: Rainfall – Felixton.

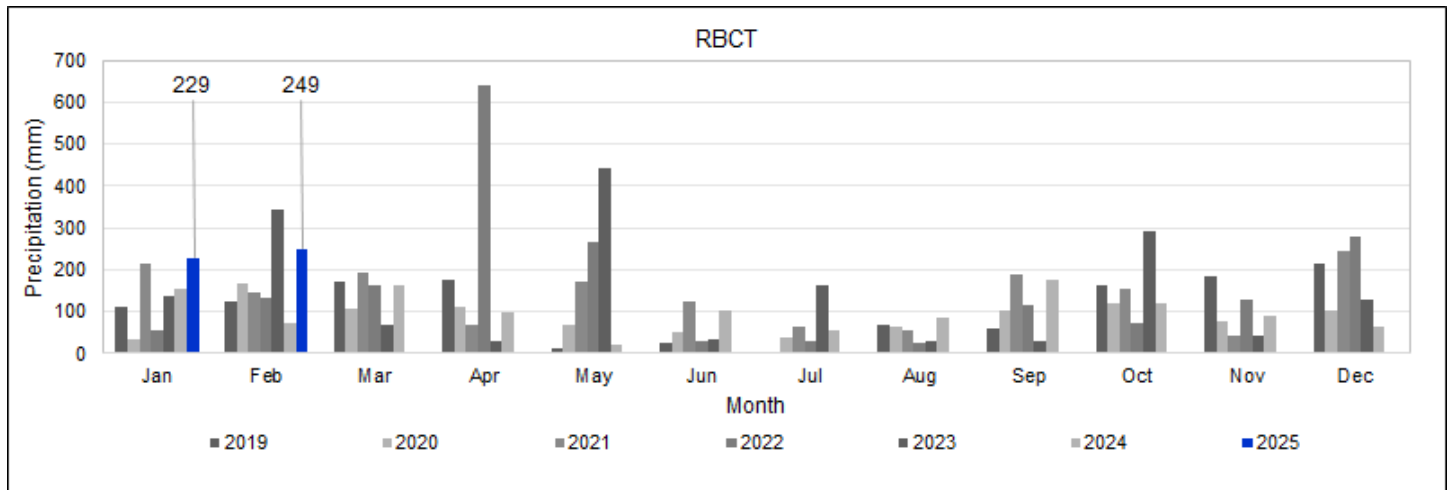


Figure 2-6: Rainfall – RBCT.

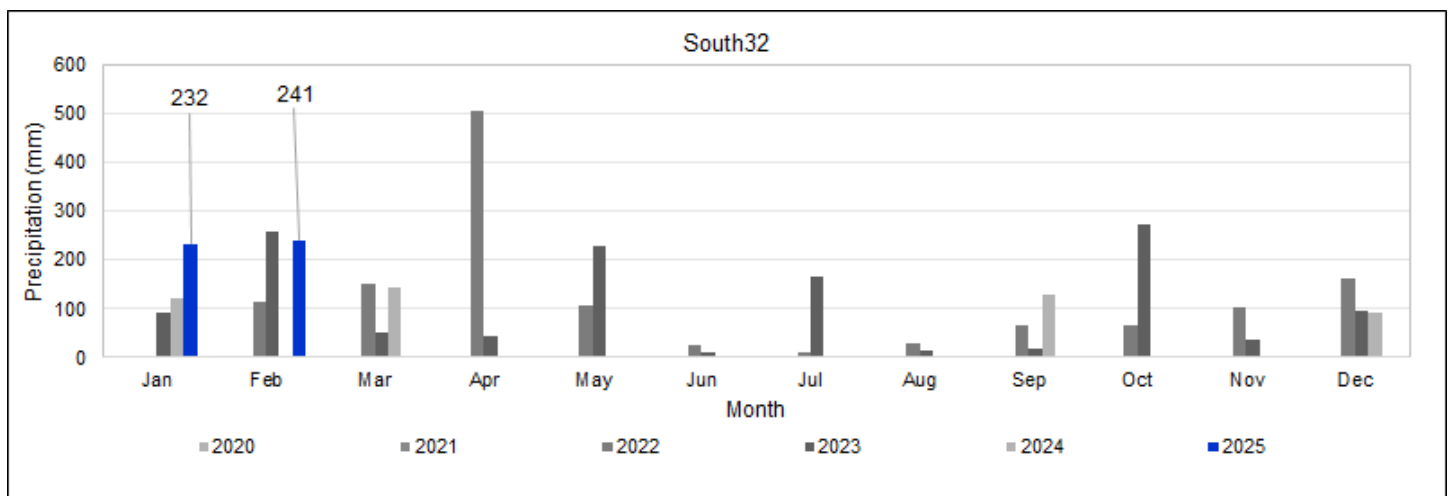


Figure 2-7: Rainfall - South32.

Note: South32 has had issues with its rain gauge during 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 February 2025. Please see APPENDIX F for the Complaints Log.

3.1. Field Observations

Thirteen (13) air quality complaints were received during February 2025; Three (3) were logged in February 2024. The daily complaints and a monthly historical count are reflected below (Figure 3-1 and Figure 3-2).

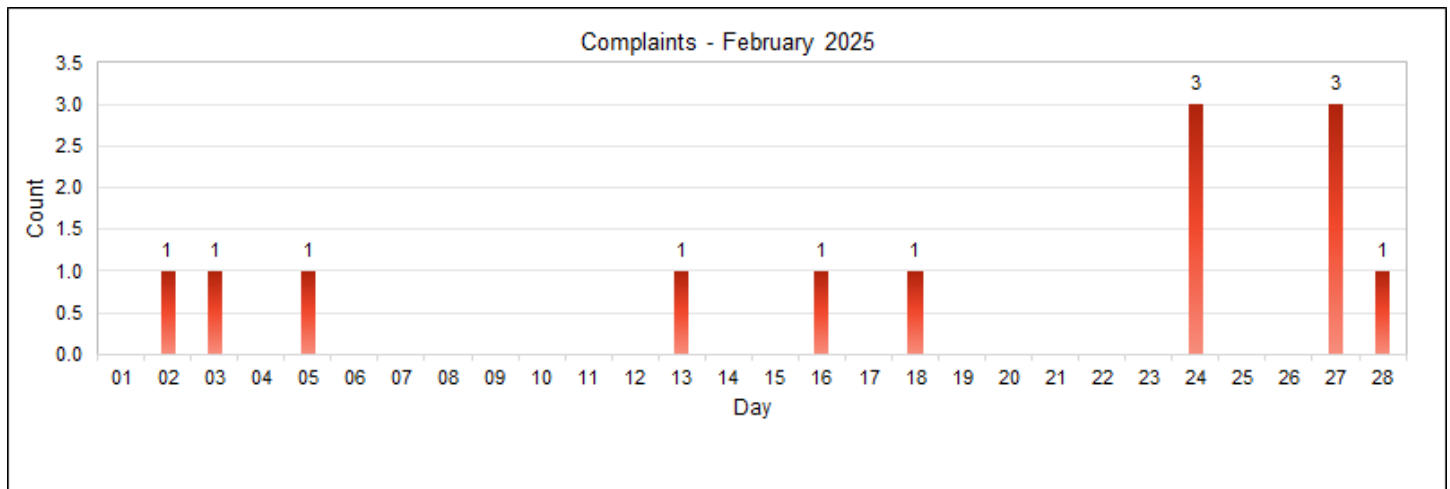


Figure 3-1: Complaints – daily.

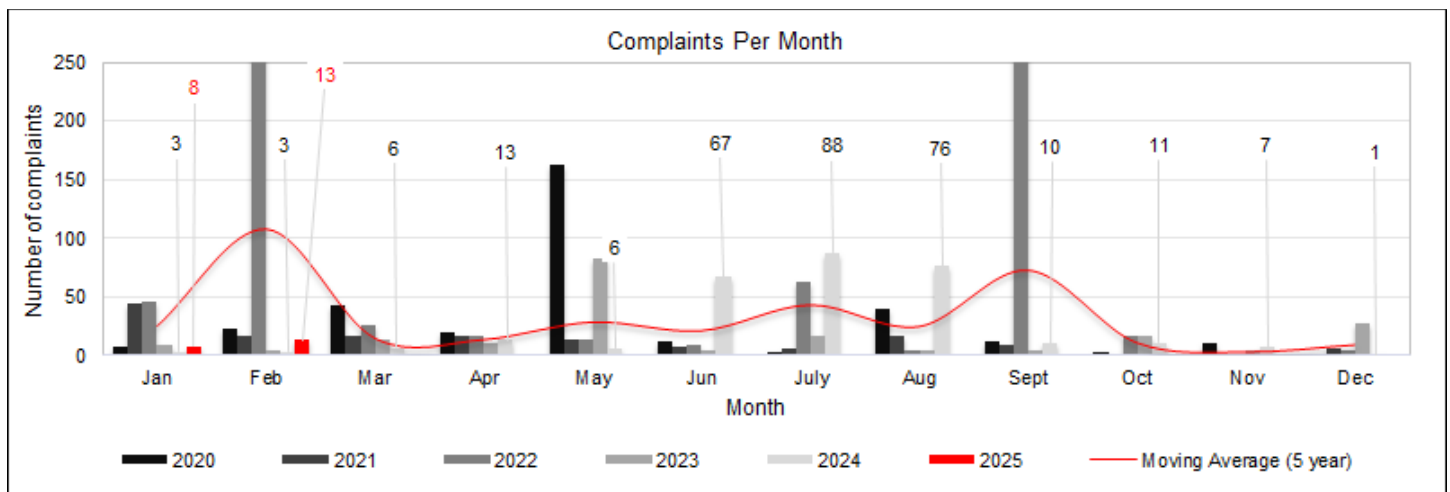


Figure 3-2: Complaints - historical monthly comparison.

3.2. Complaints Distribution

The distribution of complaints in February 2025 by region, source and type is presented in Figure 3-3, Figure 3-4, and Figure 3-5.

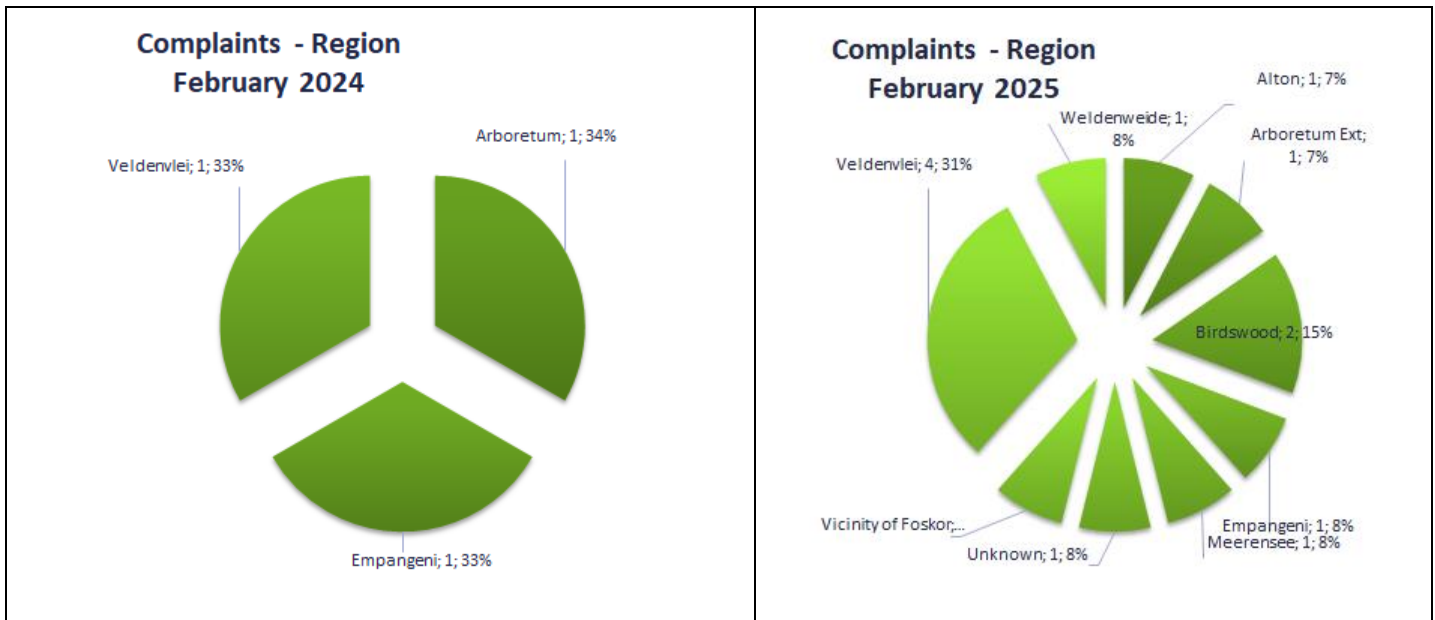


Figure 3-3: Complaints - region.

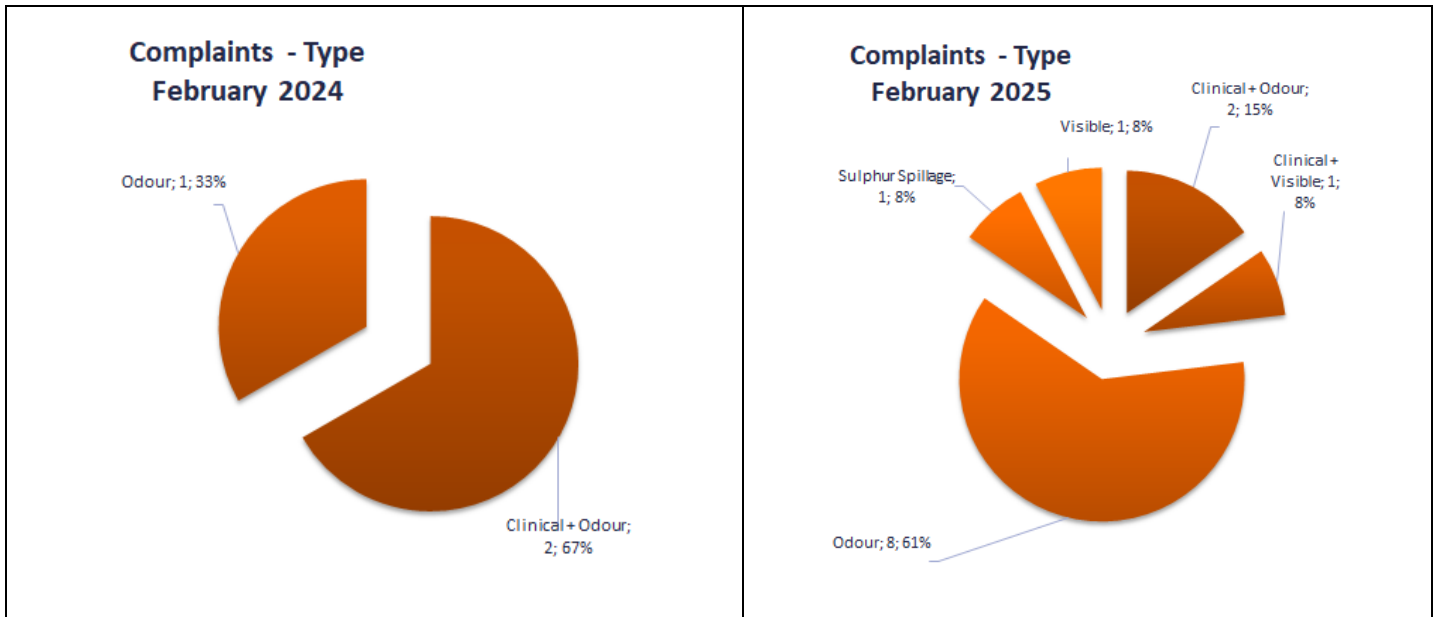


Figure 3-4: Complaints - type.

Table 3-1: Complaint - allocation, region, and type.

Complaint - allocation, region, and type		13
CoU		1
Empangeni		1
Clinical + Visible		1
Foskor		1
Vicinity of Foskor		1
Visible		1
Grindrod		1
Alton		1
Sulphur Spillage		1
Industry response required		1
Meerensee		1
Clinical + Odour		1
Mondi		9
Arboretum Ext		1
Odour		1
Birdswood		2
Odour		2
Unknown		1
Odour		1
Veldenvlei		4
Clinical + Odour		1
Odour		3
Wildenweide		1
Odour		1

The complaints received were allocated as follows: Mondi (9, 69%), Foskor (1, 8%), CoU (1, 7%), Grindrod (1, 8%) and Industry response required (1, 8%).

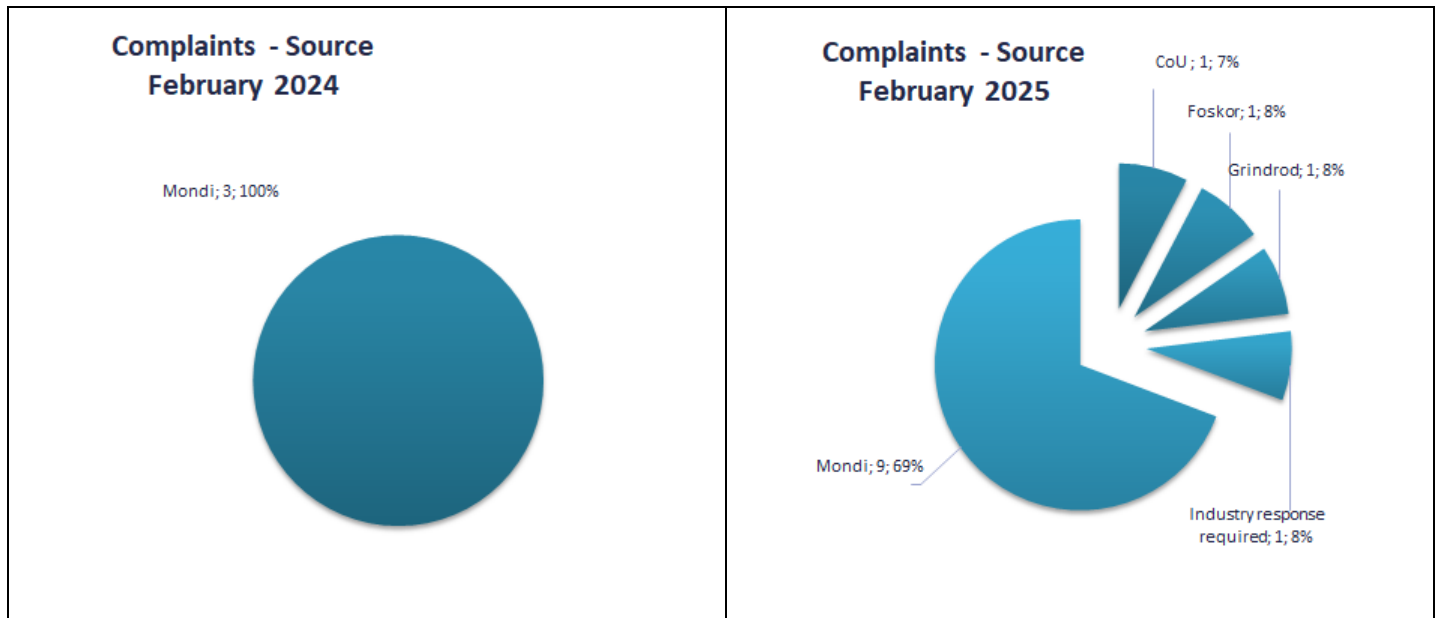


Figure 3-5: Complaints - source.

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 PM₁₀ 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, Brackenhams, 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/m ³)	PM ₁₀ Annual Average (µg/m ³)	PM _{2.5} Daily Average (µg/m ³)	PM _{2.5} Annual Average (µg/m ³)
RSA [a, d]	Standard	75 [b]	40 [c]	40 [b]	20 [c]
WHO [e]	Guideline	45 [c]	15 [c]	15 [c]	5 [c]

Notes:

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

4.2. Data Availability

The percentage of valid data received from the PM analysers for February 2025 is shown in Table 4-2.

Table 4-2: PM data capture.

Station	Availability (%)	PM ₁₀ (%)	PM _{2.5} (%)
Brackenham ES2	59	-	59
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 (PM₁₀):			
<ul style="list-style-type: none"> None. 			
Missing Data (PM_{2.5}):			
<ul style="list-style-type: none"> Brackenham ES2 – station commissioned on the 12th (12 days with <80% data capture 1-12 February 2025). 			

4.3. Monthly

PM₁₀ monthly average concentrations did not exceed the RSA Annual Limit; the WHO Annual Limit was exceeded at CBD, eSikhaleni, Richardia and Scorpio (Figure 4-1). Comparisons to previous months are also provided (Figure 4-2).

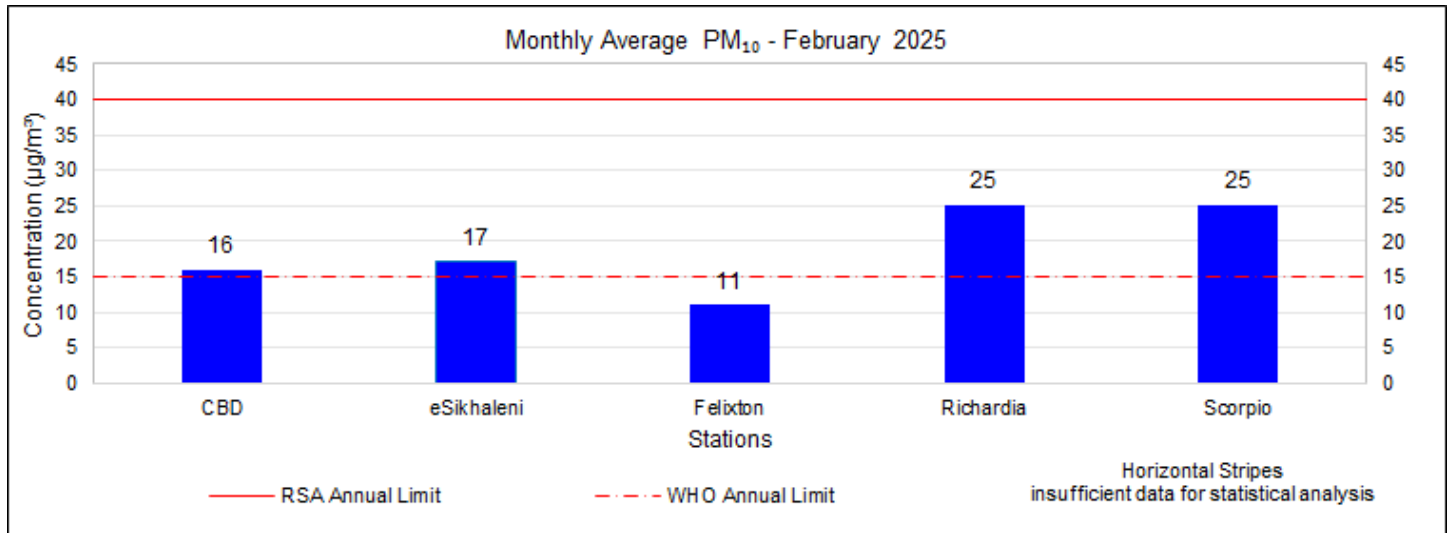


Figure 4-1: PM₁₀ monthly concentrations.

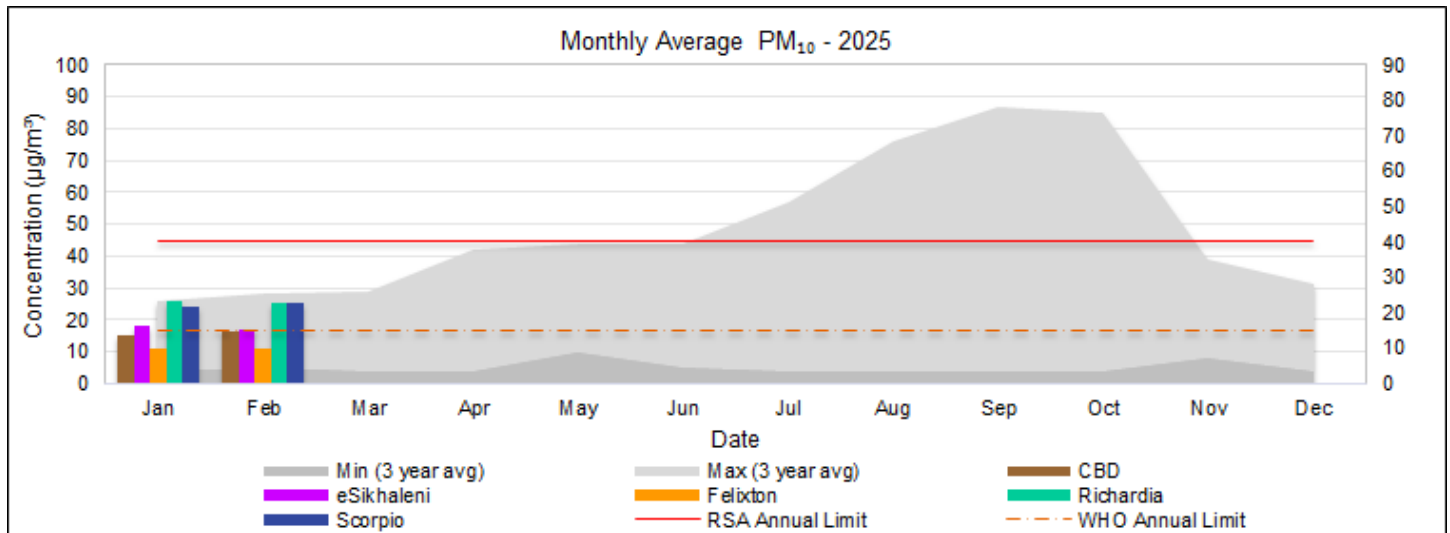


Figure 4-2: PM₁₀ monthly comparison.

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).

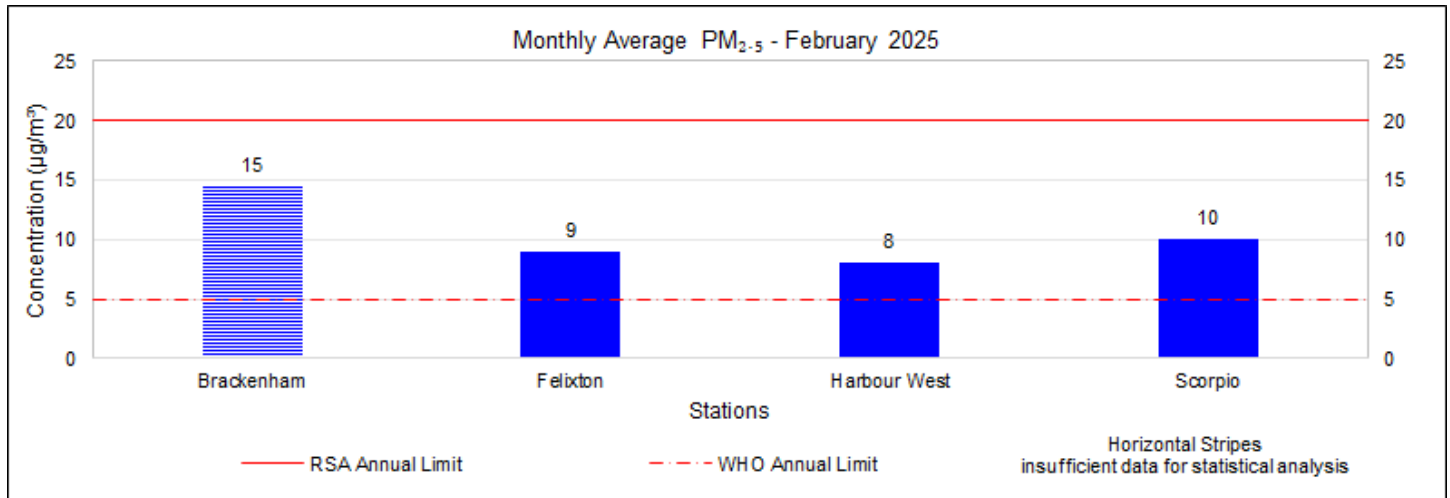


Figure 4-3: PM_{2.5} monthly concentrations.

Note: Brackenham ES2 – station commissioned on the 12th (12 days with <80% data capture 1-12 February 2025).

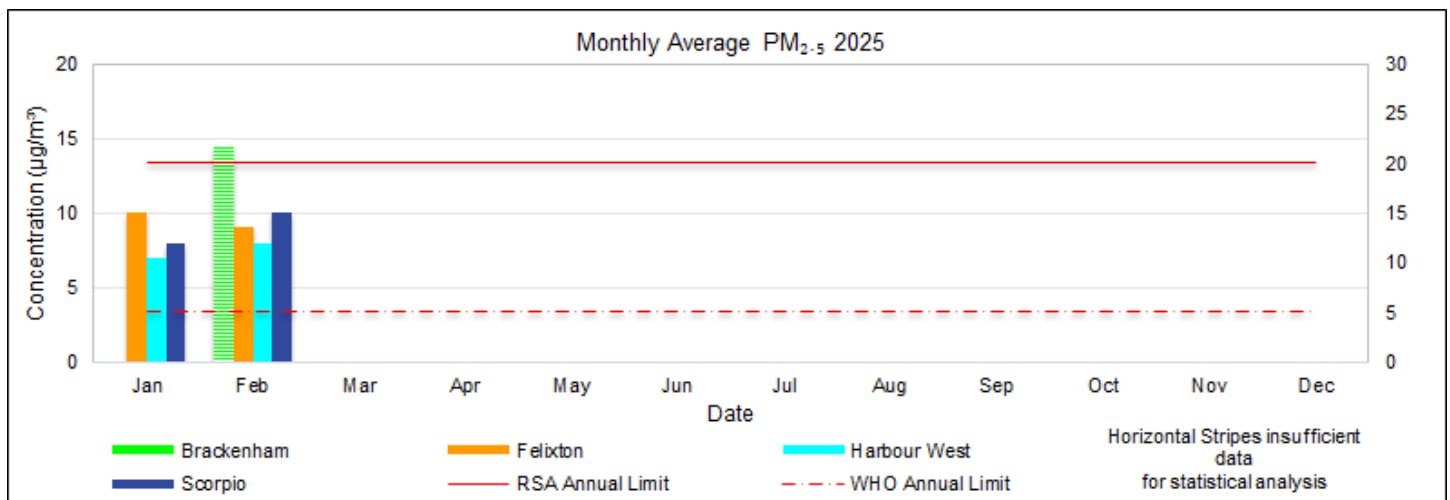


Figure 4-4: PM_{2.5} monthly comparison.

Note: Brackenham ES2 – station commissioned on the 12th (12 days with <80% data capture 1-12 February 2025).

4.4. Diurnal

PM diurnal concentrations are shown below (Figure 4-5 and Figure 4-6). Diurnal concentrations of PM₁₀ 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 Felixton.

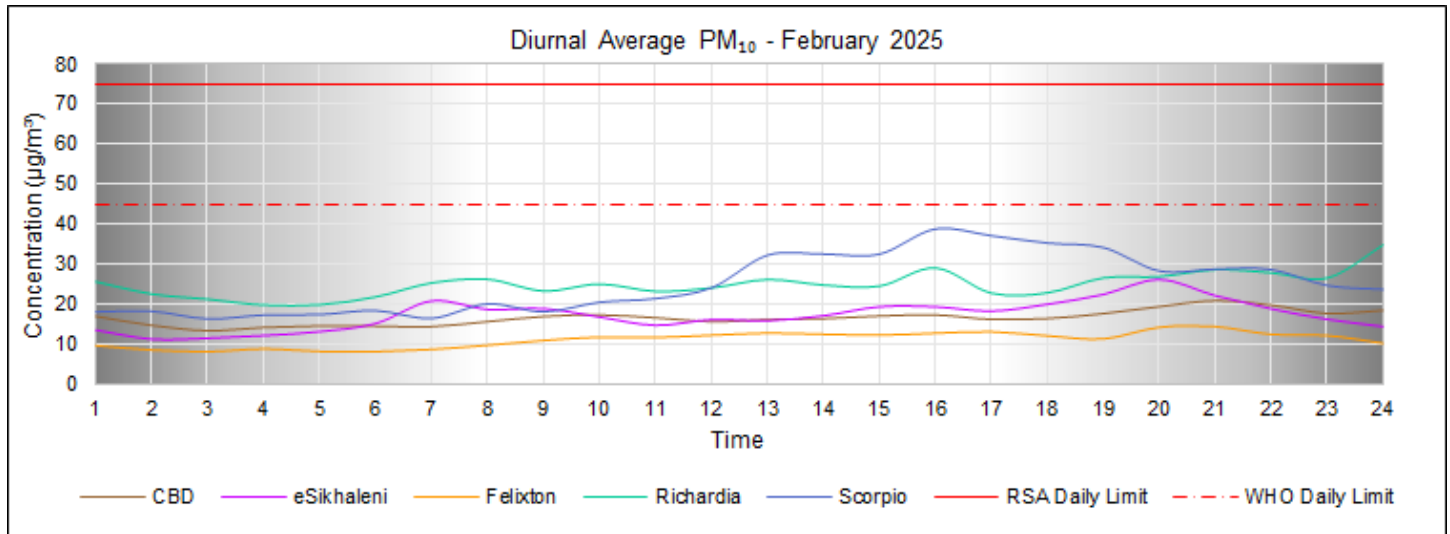


Figure 4-5: PM₁₀ diurnal concentrations.

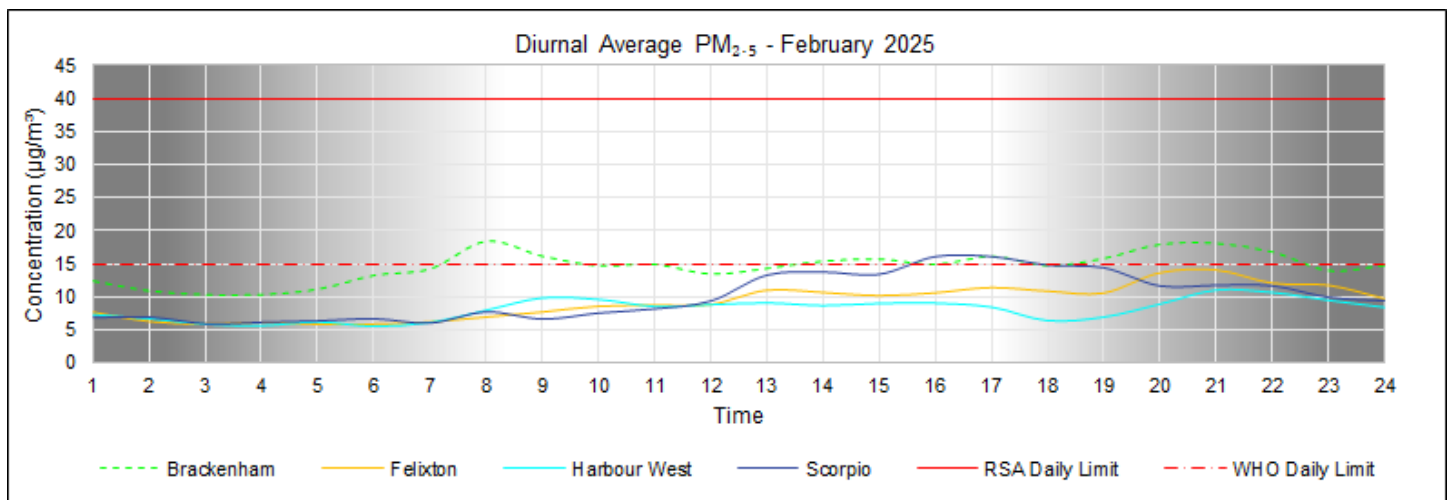


Figure 4-6: PM_{2.5} diurnal concentrations.

Note: Brackenham – the station was commissioned on the 12th (12 days with <80% data capture 1-12 February 2025).

4.5. Daily

PM₁₀ 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: PM₁₀ 24-hour exceedances (WHO).

PM ₁₀ Daily WHO Limit (45 µg/m ³)	2
No response required	2
Richardia	1
None	1
Scorpio ES1	1
None	1

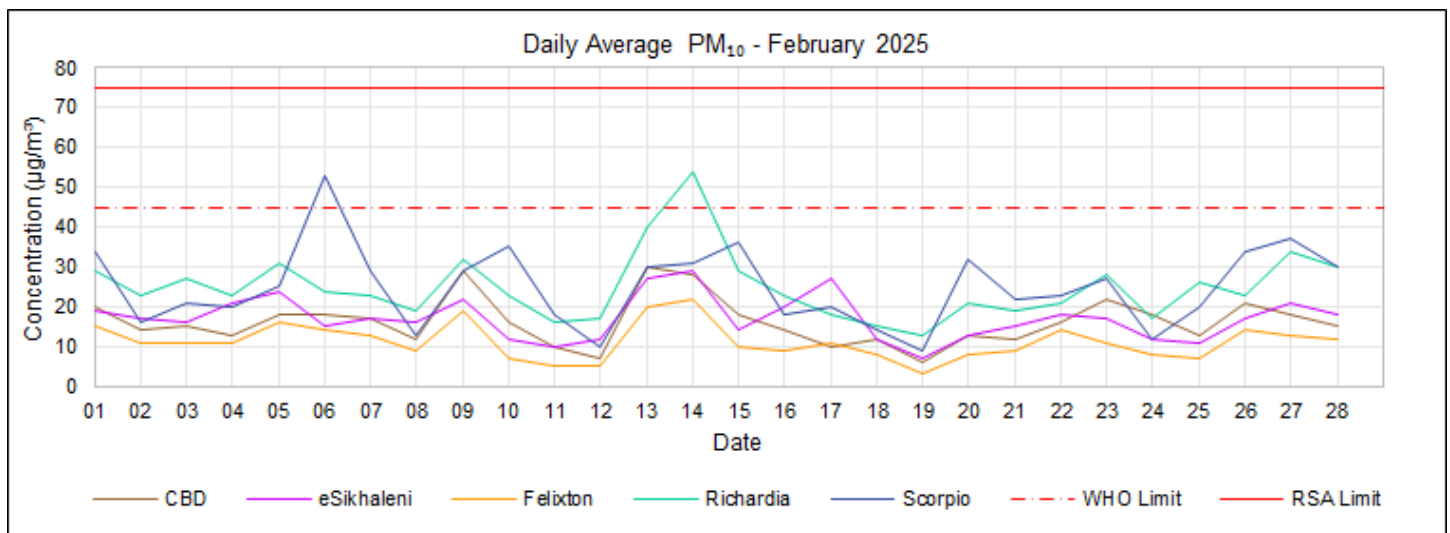


Figure 4-7: PM₁₀ 24-hour average concentrations.
Missing Data (PM₁₀)

- 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,
- ▶ Twelve (12) 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/m ³)	12
No response required	12
Scorpio ES2	4
None	4
Felixton ES2	2
None	2
Brackenham ES2	5
None	5
Harbour West ES2	1
None	1

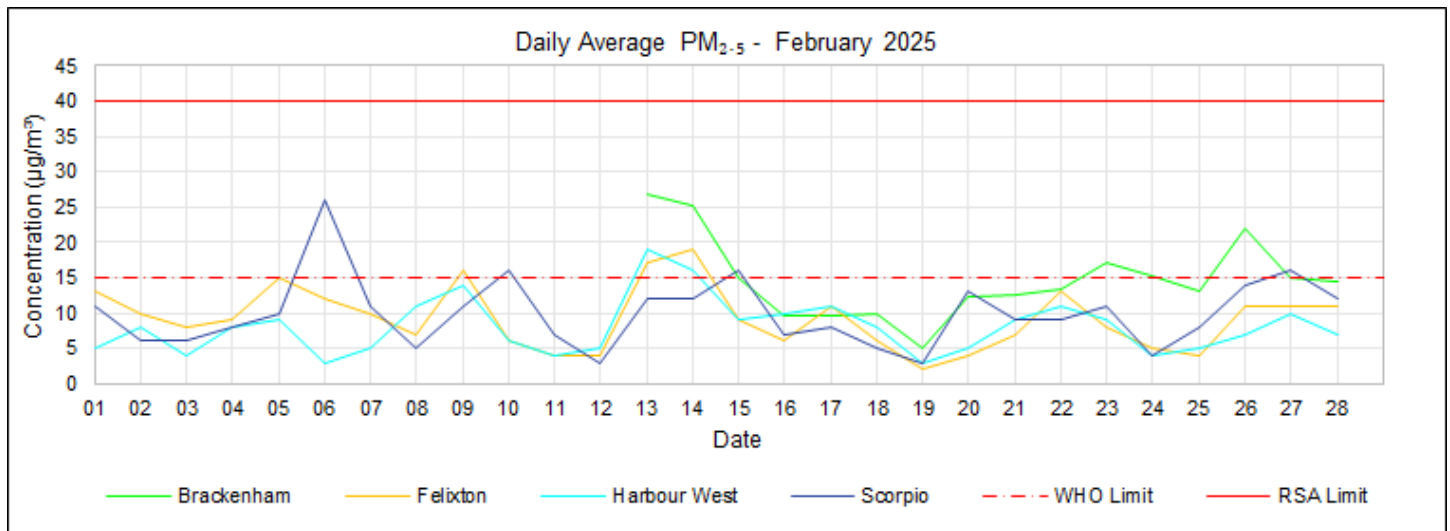


Figure 4-8: PM_{2.5} daily average concentrations.
Missing Data (PM_{2.5}):

- Brackenham – the station was commissioned on the 12th (12 days with <80% data capture 1-12 February 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 **Error! Reference source not found.** 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.

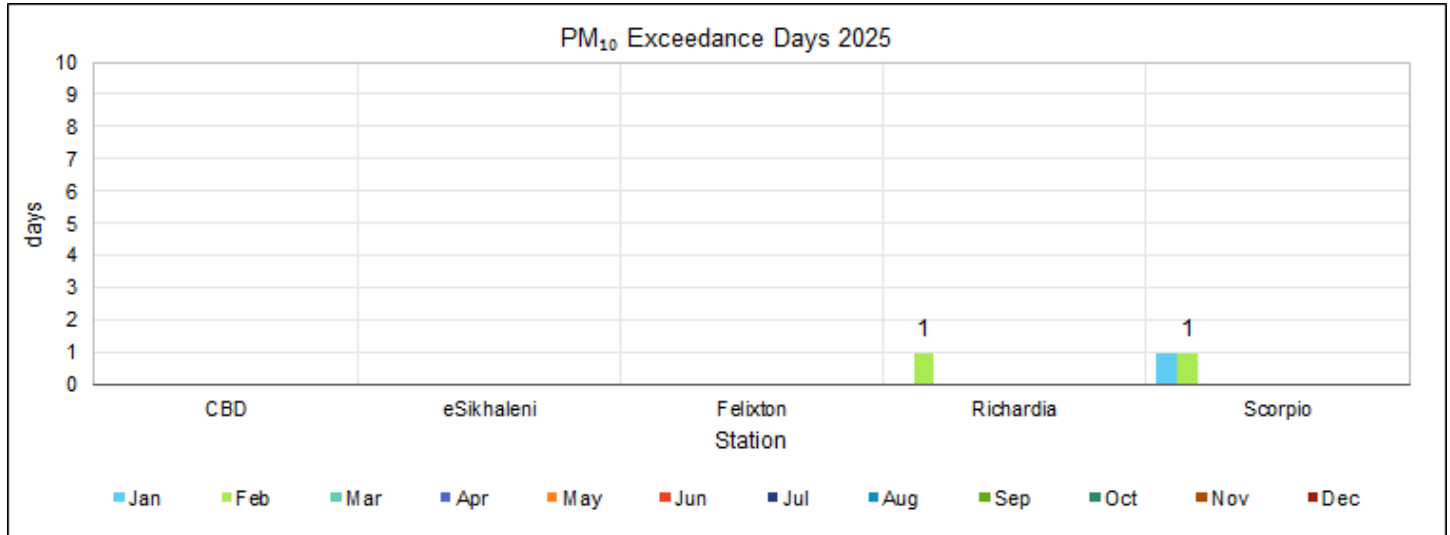


Figure 4-9: PM₁₀ exceedance days.

Table 4-5: PM₁₀ exceedance summary.

2025	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
PM₁₀ Daily RSA Limit (75 µg/m³)													
Brackenham	-	-	-	-	-	-	-	-	-	-	-	-	0
CBD	-	-	-	-	-	-	-	-	-	-	-	-	0
eSikhaleni	-	-	-	-	-	-	-	-	-	-	-	-	0
Felixton	-	-	-	-	-	-	-	-	-	-	-	-	0
Richardia	-	-	-	-	-	-	-	-	-	-	-	-	0
Scorpio	-	-	-	-	-	-	-	-	-	-	-	-	0
PM₁₀ Daily WHO Limit (45 µg/m³)													
Brackenham	-	-	-	-	-	-	-	-	-	-	-	-	0
CBD	-	-	-	-	-	-	-	-	-	-	-	-	0
eSikhaleni	-	-	-	-	-	-	-	-	-	-	-	-	0
Felixton	-	-	-	-	-	-	-	-	-	-	-	-	0
Richardia	-	1	-	-	-	-	-	-	-	-	-	-	1
Scorpio	1	1	-	-	-	-	-	-	-	-	-	-	2

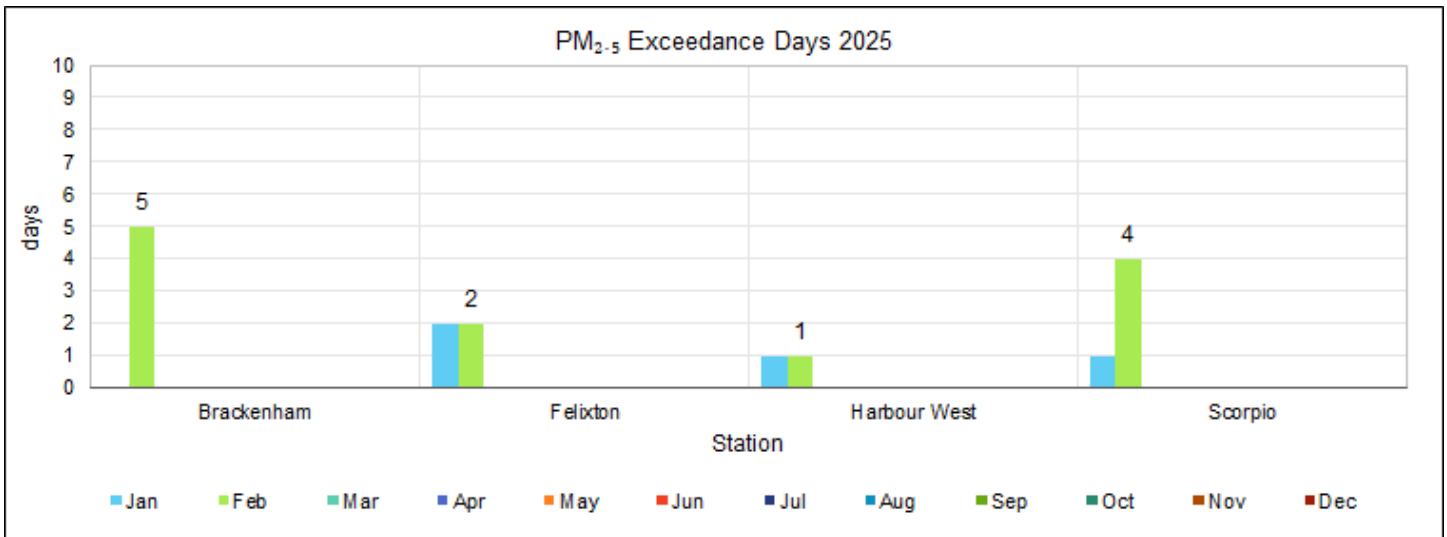


Figure 4-10: PM_{2.5} exceedance days.

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	-	-	-	-	-	-	-	-	-	-	5
Felixton	2	2	-	-	-	-	-	-	-	-	-	-	4
Harbour West	1	1	-	-	-	-	-	-	-	-	-	-	2
Scorpio	1	4	-	-	-	-	-	-	-	-	-	-	5

5. SULPHUR DIOXIDE MONITORING

Sulphur dioxide (SO₂) is one gas of highly reactive gasses 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 SO₂ emissions include geothermal activity (including hot springs and volcanic activity) and the natural decay of vegetation on land in wetlands and oceans.

SO₂ 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 SO₂ are listed below (Table 5-1).

Table 5-1: SO₂ ambient air quality limits.

Organisation	Limit	10-min Average	Hourly Average	Daily Average	Annual Average
RSA ^[a]	SO ₂ Standard	500 µg/m ³ ^[b]	350 µg/m ³ ^[c]	125 µg/m ³ ^[d]	50 µg/m ³ ^[e]
		191ppb ^[b]	134 ppb ^[c]	48 ppb ^[d]	19 ppb ^[e]
WHO ^[f]	SO ₂ Guideline	500 µg/m ³	-	40 µg/m ³	-
		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 SO₂ analysers for February 2025 is shown in Table 5-2.

Table 5-2: SO₂ data capture.

Station	Availability (%)	SO ₂ (%)
Arboretum	97	97
Brackenham	99	98
CBD	100	100
eSikhaleni	100	99
Felixton	100	100
Harbour West	100	98
Richardia	100	98
Scorpio	99	99

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 (SO₂):

- Arboretum - power outages, data invalidation (2 days with <80% data capture 13, 18 February 2025).
- Brackenham - power outages, data invalidation (2 days with <80% data capture 12, 26 February 2025).
- Harbour West - power outages, data invalidation (1 day with <80% data capture 8 February 2025).
- Richardia - power outages, data invalidation (1 day with <80% data capture 18 February 2025).

5.3. Monthly

Monthly average SO₂ 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).

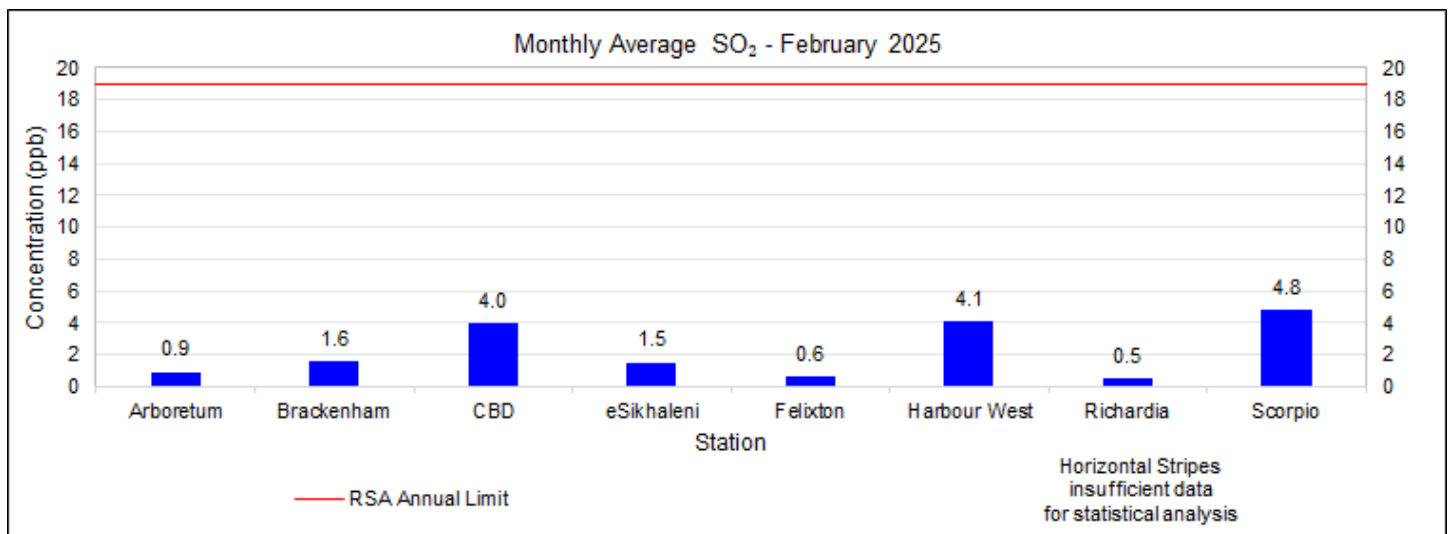


Figure 5-1: SO₂ monthly concentrations.

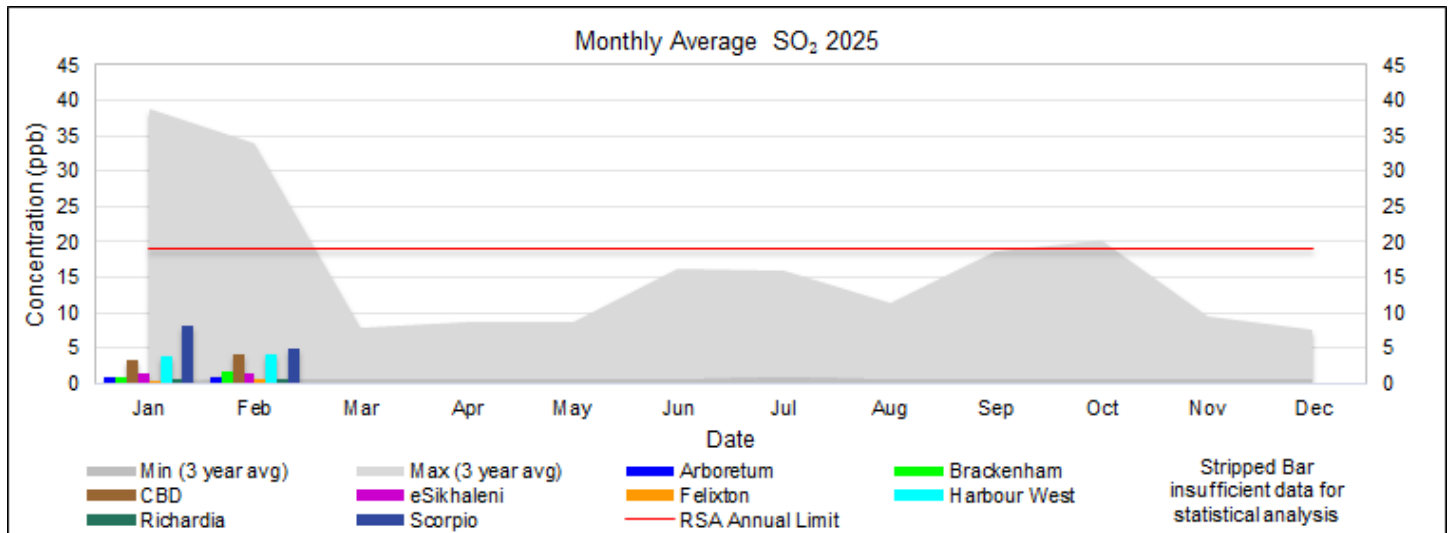


Figure 5-2: SO₂ monthly comparison.

5.4. Diurnal

Diurnal SO₂ concentrations are shown below (Figure 5-3). Diurnal concentrations of SO₂ did not exceed the RSA Daily Limit (48 ppb) or the WHO Daily Limit (15 ppb).

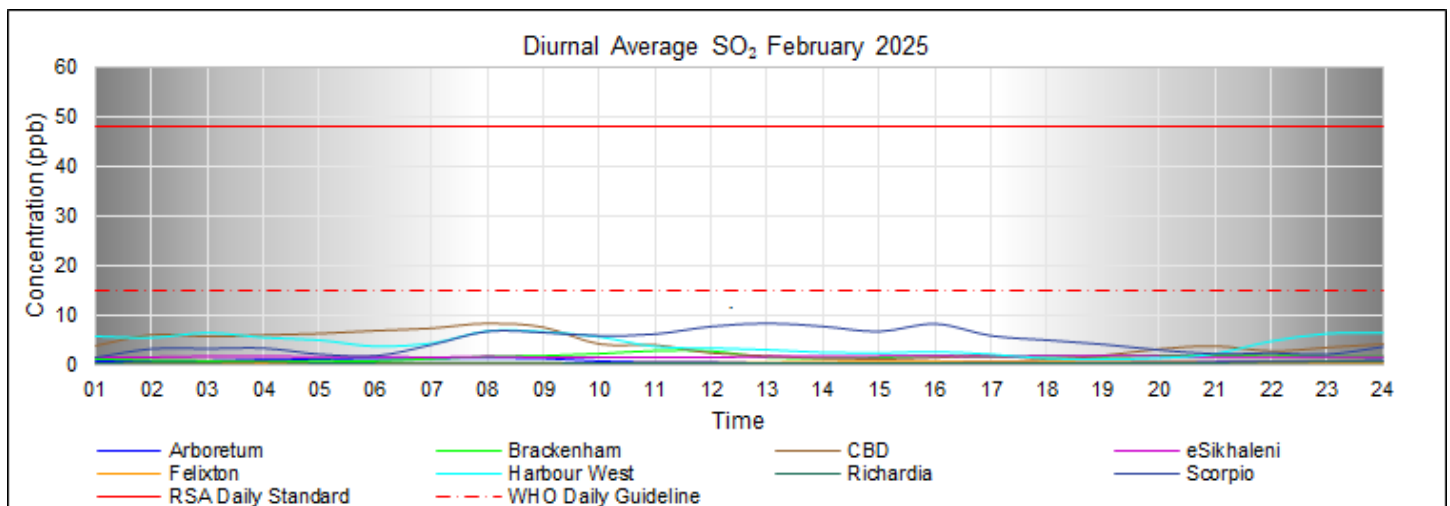


Figure 5-3: SO₂ diurnal concentrations.

5.5. Daily

SO₂ daily average concentrations are shown in Figure 5-4 and exceedances in **Error! Reference source not found**.Table 5-3: There were:

- ▶ No (0) measured exceedance of the RSA Limit (48 ppb); and,
- ▶ One (1) measured exceedance of the WHO Limit (15 ppb).

Table 5-3: SO₂ 24-hour average exceedance (WHO).

SO ₂ Daily WHO Limit (15 ppb)	1
No response required	1
CBD	1
None	1

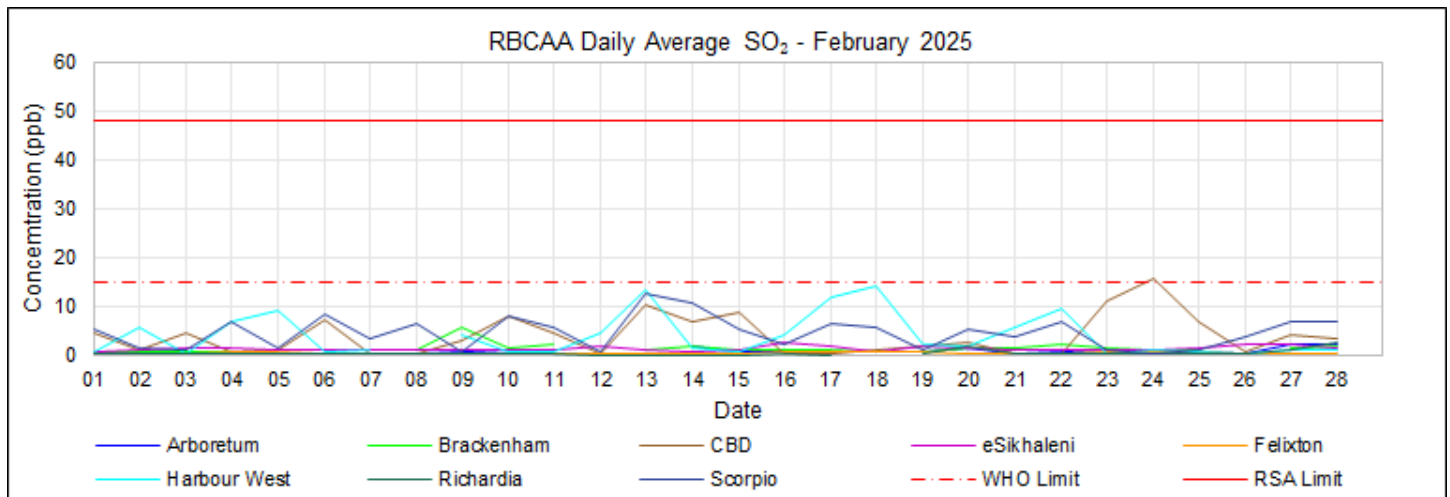


Figure 5-4: SO₂ 24-hour average concentrations.

Missing Data (SO₂):

- Arboretum - power outages, data invalidation (2 days with <80% data capture 13, 18 February 2025).
- Brackenham - power outages, data invalidation (2 days with <80% data capture 12, 26 February 2025).
- Harbour West - power outages, data invalidation (1 day with <80% data capture 8 February 2025).
- Richardia - power outages, data invalidation (1 day with <80% data capture 18 February 2025).

5.6. Hourly

SO₂ hourly average concentrations are shown in Figure 5-5. There were no (0) measured exceedances of the RSA Limit (134 ppb).

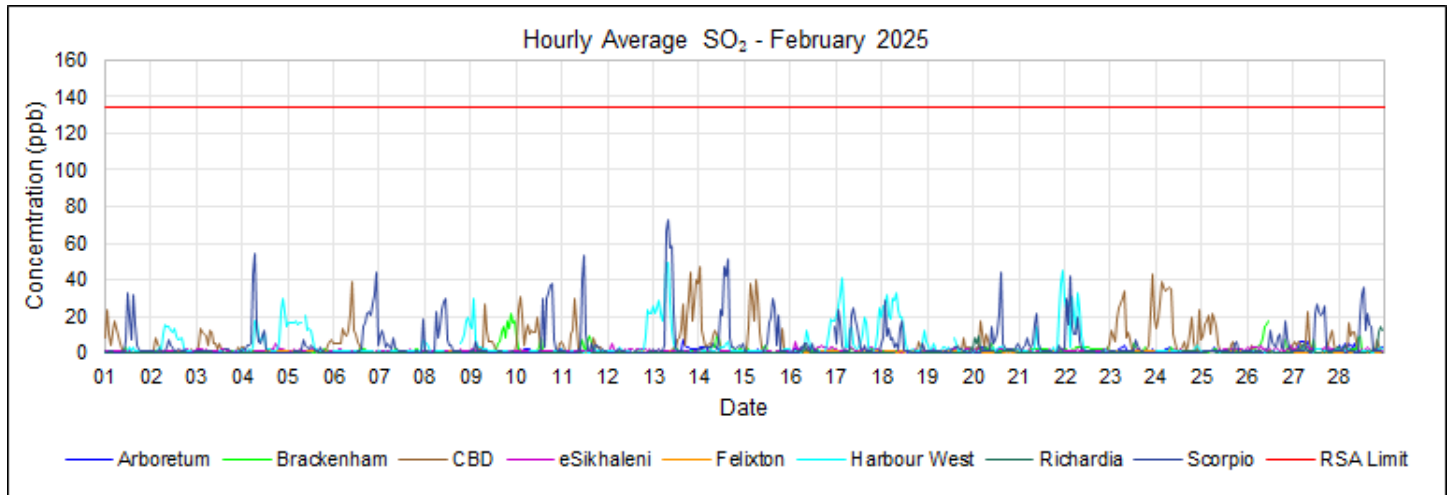


Figure 5-5: SO₂ 1-hour average concentrations.

5.7. 10-minute

SO₂ 10-minute average concentrations are shown in Figure 5-6 and exceedances in Table 5-4. There was (1) measured exceedances of the RSA and WHO Limit (191 ppb).

Table 5-4: SO₂ 10-minute average exceedance (RSA & WHO).

SO ₂ 10-minute RSA & WHO Limit (191 ppb)		1
Foskor		1
Scorpio		1
Smouldering sulphur residue		1

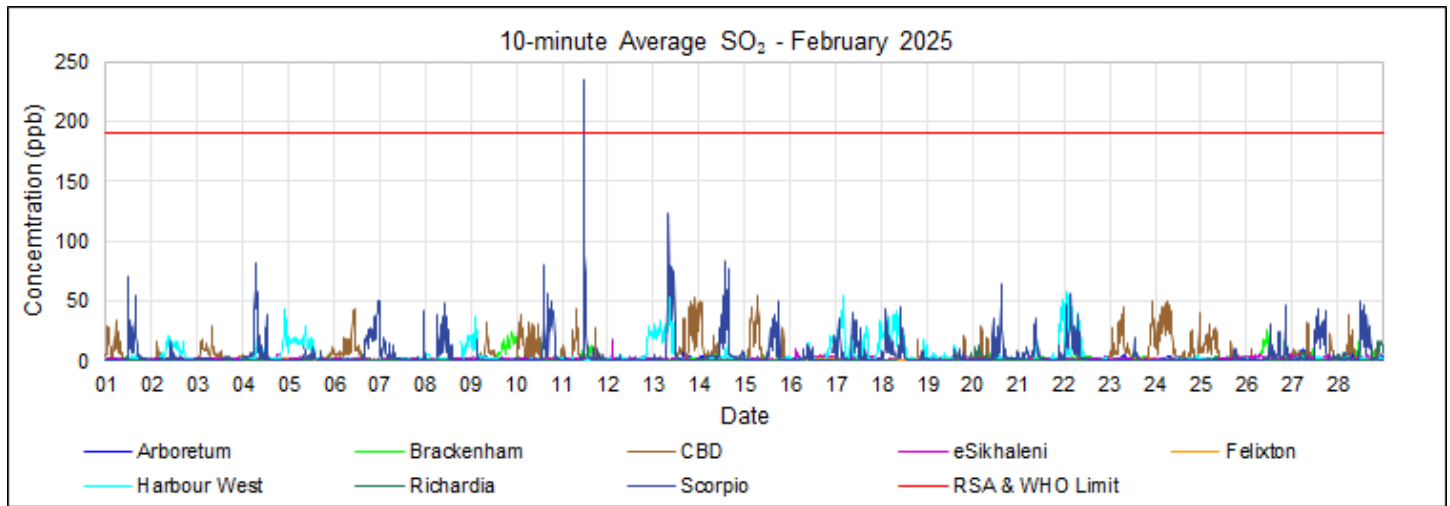


Figure 5-6: SO₂ 10-minute average concentrations.

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 SO₂ exceedances broken down per station is presented in Table 5-5. SO₂ 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 SO₂.

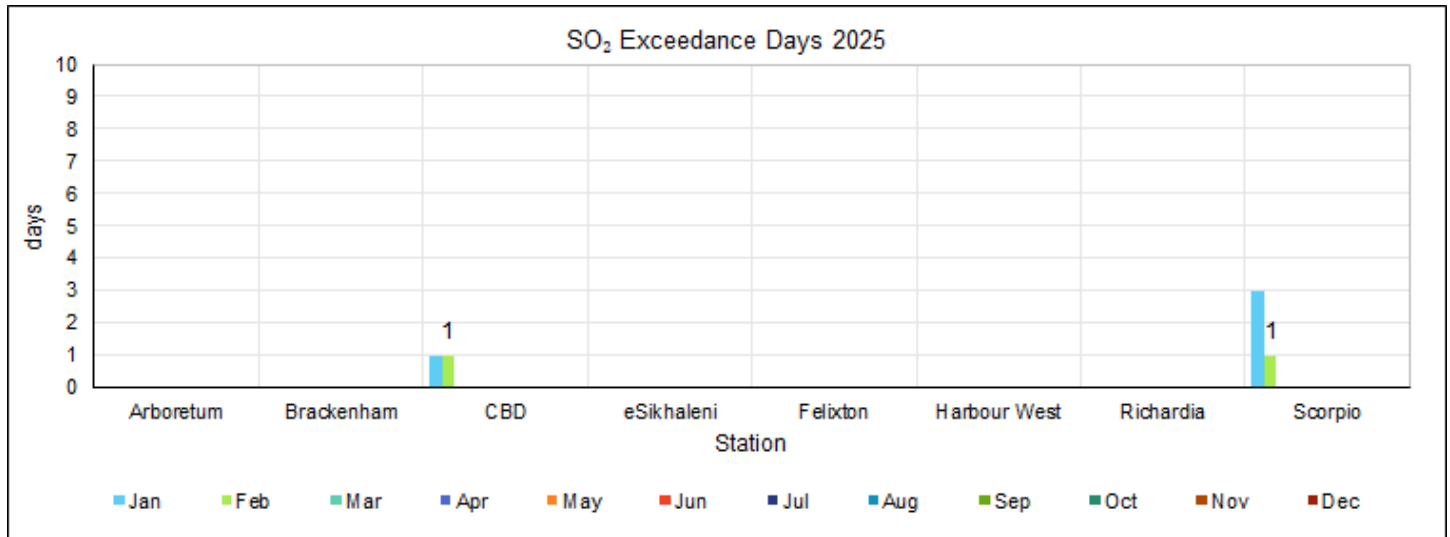


Figure 5-7: SO₂ exceedance days.

Table 5-5: SO₂ exceedance summary.

2025	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
SO₂ Daily WHO Limit (15 ppb)													
CBD	1	1	-	-	-	-	-	-	-	-	-	-	2
eSikhaleni	-	-	-	-	-	-	-	-	-	-	-	-	0
Harbour West	-	-	-	-	-	-	-	-	-	-	-	-	1
Richardia	-	-	-	-	-	-	-	-	-	-	-	-	0
Scorpio	3	-	-	-	-	-	-	-	-	-	-	-	3
SO₂ Hourly RSA Limit (134 ppb)													
CBD	-	-	-	-	-	-	-	-	-	-	-	-	0
eSikhaleni	-	-	-	-	-	-	-	-	-	-	-	-	0
Harbour West	-	-	-	-	-	-	-	-	-	-	-	-	0
Richardia	-	-	-	-	-	-	-	-	-	-	-	-	0
Scorpio	4	-	-	-	-	-	-	-	-	-	-	-	4
SO₂ 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 (H₂S), methyl mercaptan (CH₃S-H), dimethyl sulphide (CH₃-S-CH₃) and dimethyl disulphide (CH₃-S-S-CH₃). 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 characteristics and effects.

6.1. Ambient Air Quality Standards

There are no South African standards for TRS; however, the World Health Organization (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/m ³ [a]	-	-
		-	5 ppb [a]	-	-
OME	Standard (pulp and paper)	13 µg/m ³ [b]	10 µg/m ³ [b]	14 µg/m ³ [c]	-
		9.3 ppb [b]	7.2 ppb [b]	10.1 ppb [c]	-
OME	Standard (other industries)	13 µg/m ³ [b]	10 µg/m ³ [b]	7 µg/m ³ [b]	-
		9.3 ppb [b]	7.2 ppb [b]	5.0 ppb [b]	-

Notes:

- a) World Health Organization 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 H₂S 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 February 2025 is shown in Table 6-2.

Table 6-2: TRS data capture.

Station	Availability (%)	TRS (%)
CBD	100	100
eSikhaleni	100	99
Felixton	100	100
Richardia	100	92

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 18-20 February 2025).

6.3. Monthly

Monthly average TRS concentrations are shown in Figure 6-1. Comparisons to previous months are also provided (Figure 6-2).

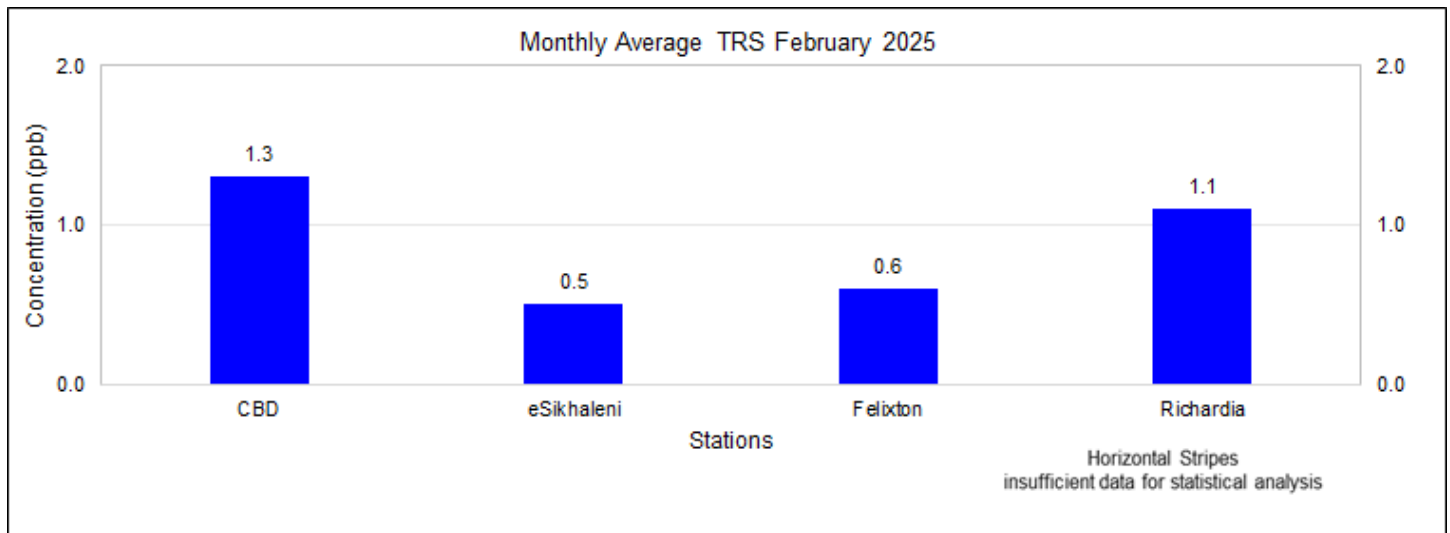


Figure 6-1: TRS monthly concentrations.

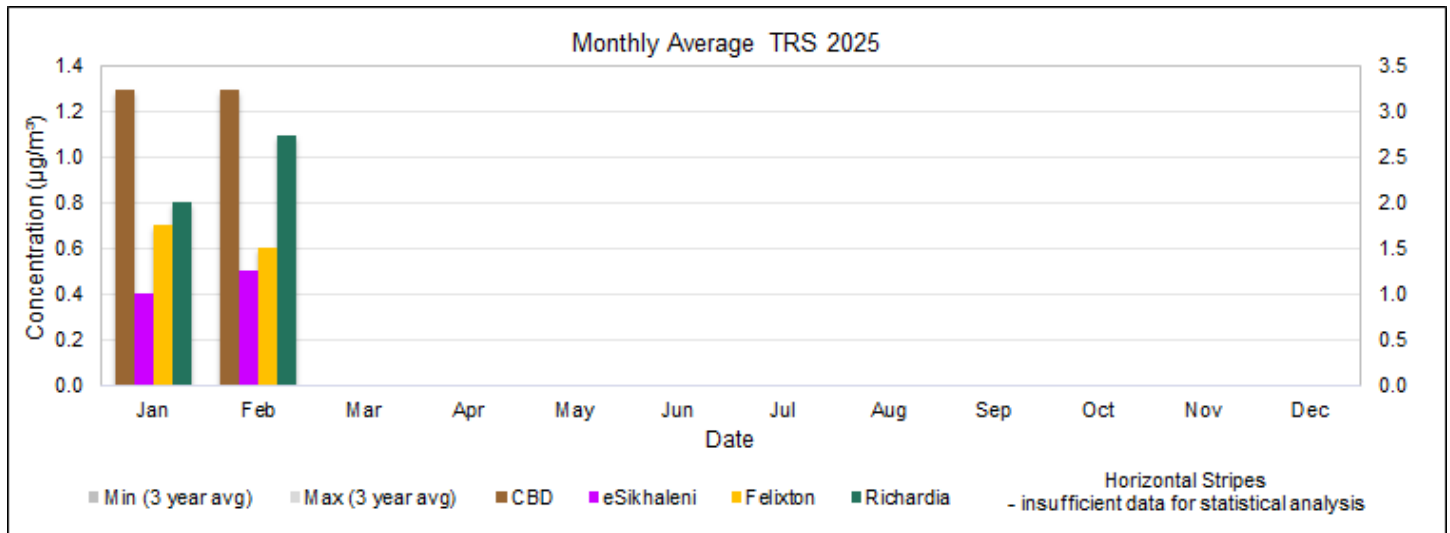


Figure 6-2: TRS monthly comparison.

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).

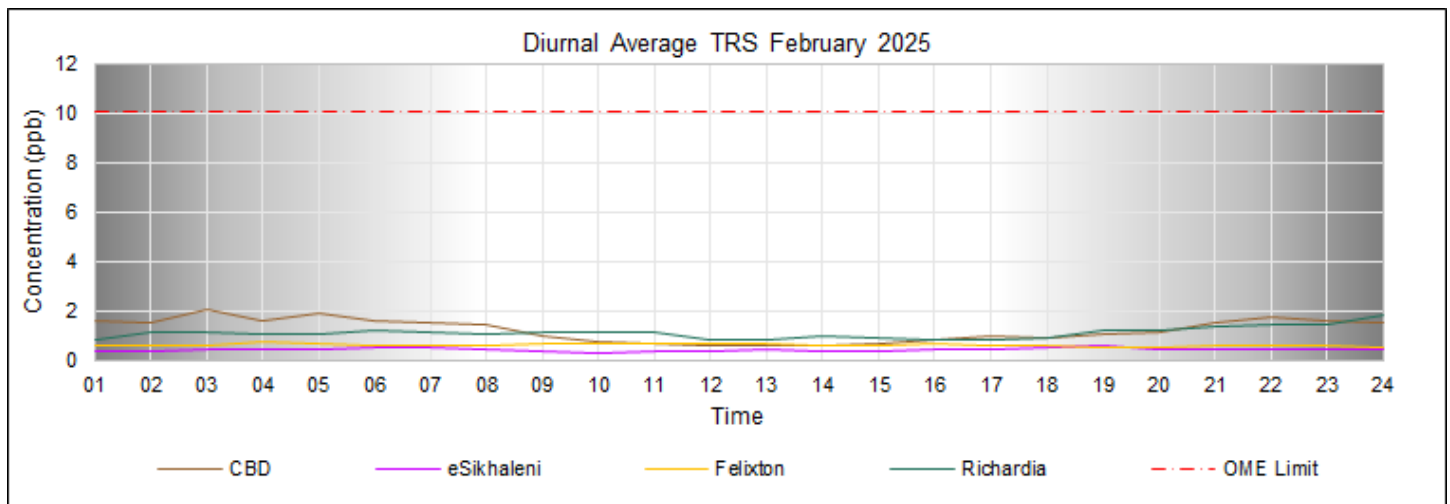


Figure 6-3: TRS diurnal concentrations.

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 at CBD.

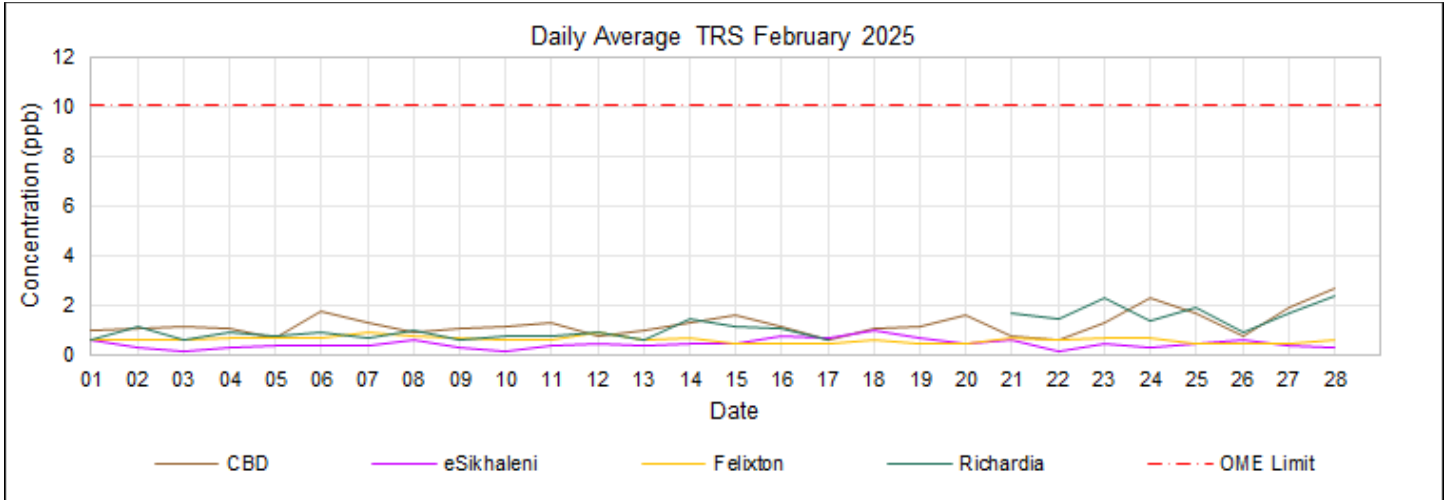


Figure 6-4: TRS daily average concentration.

Missing Data (TRS):

- Richardia – power outages, data invalidation (3 days with <80% data capture 18-20 February 2025).

6.6. 30-minute

TRS 30-minute average concentrations are shown in Figure 6-5, and exceedances in Table 6-3. Thirty-two (32) exceedances of the WHO Limit (5.0 ppb) were measured.

Table 6-3: TRS 30-minute average exceedances (WHO).

TRS 30-minute WHO H ₂ S Limit (5.0 ppb)	32
Industry response required	3
CBD	3
None	3
Mondi	29
CBD	22
Based on meteorology	2
Non-condensable Gas system	1
Secondary Effluent Treatment Plant	5
Softwood (SW) blowdowns	14
Richardia	7
Secondary Effluent Treatment Plant	3
Softwood (SW) blowdowns	4

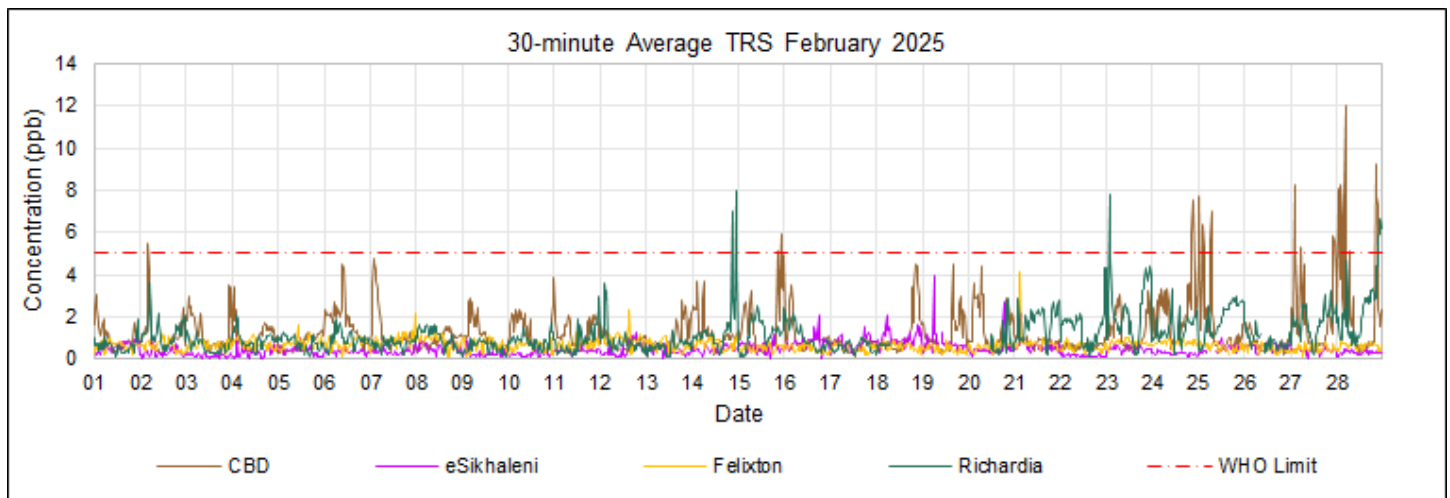


Figure 6-5: TRS 30-minute average concentration.

6.7. 10-minute

TRS 10-minute average concentrations are shown in Figure 6-6 and exceedances in Table 6-4. Fifty-eight (58) 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)	11
Mondi	11
CBD	10
Secondary Effluent Treatment Plant	1
Softwood (SW) blowdowns	9
Richardia	1
Secondary Effluent Treatment Plant	1

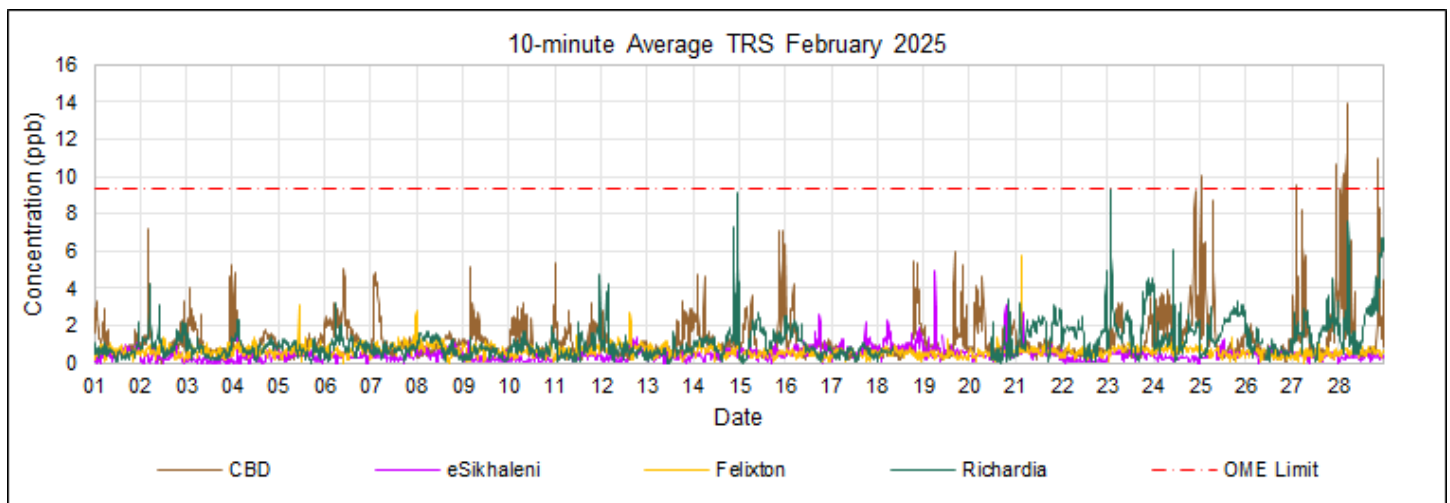


Figure 6-6: TRS 10-minute average concentrations.

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.

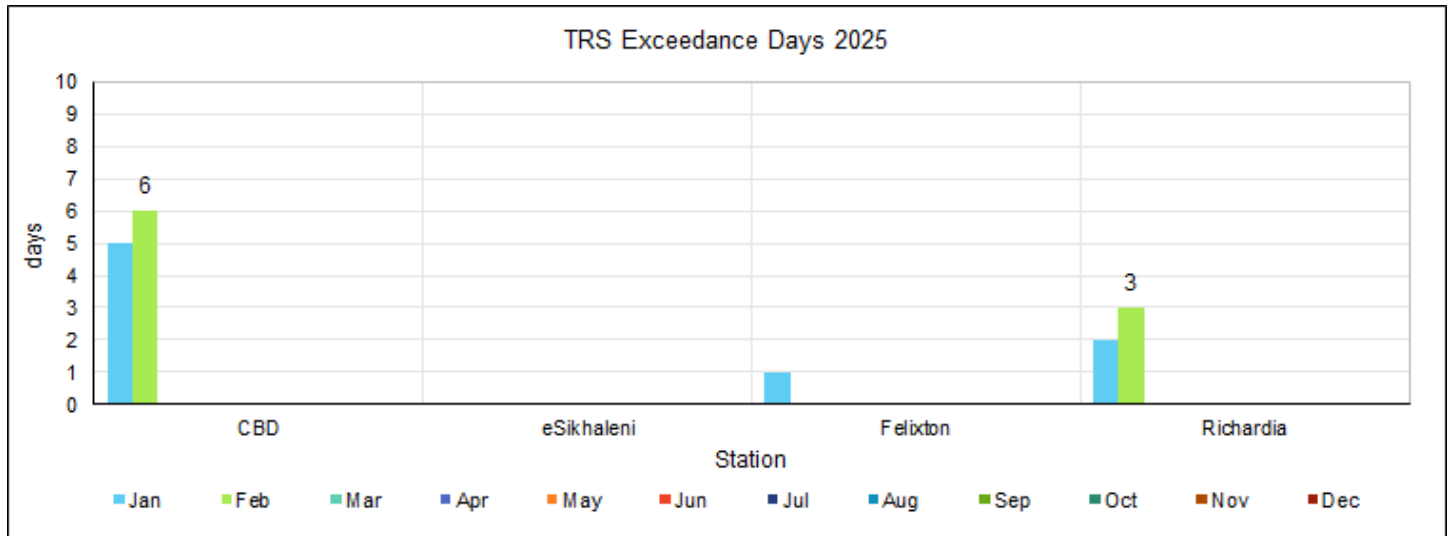


Figure 6-7: TRS exceedance days.

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 H₂S Limit (5.0 ppb)													
CBD	34	25	-	-	-	-	-	-	-	-	-	-	59
eSikhaleni	-	-	-	-	-	-	-	-	-	-	-	-	0
Felixton	1	-	-	-	-	-	-	-	-	-	-	-	1
Richardia	5	7	-	-	-	-	-	-	-	-	-	-	12
TRS 10-minute OME Limit (9.3 ppb)													
CBD	53	10	-	-	-	-	-	-	-	-	-	-	63
eSikhaleni	-	-	-	-	-	-	-	-	-	-	-	-	0
Felixton	2	-	-	-	-	-	-	-	-	-	-	-	2
Richardia	3	1	-	-	-	-	-	-	-	-	-	-	4

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 February 2025, based on the following:

- ▶ Measured long-term average concentrations (chronic exposure) and WHO health guidelines of concern are:
 - PM₁₀ at CBD, eSikhaleni, Richardia and Scorpio;
 - PM_{2.5} at Brackenham, Felixton, Harbour West and Scorpio.

- ▶ Measured short-term average concentrations (acute exposure) and WHO health guidelines ambient air quality was compromised by:
 - PM₁₀ Richardia and Scorpio;
 - PM_{2.5} at Brackenham, Felixton, Harbour West and Scorpio; and
 - TRS at CBD, 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 (PM₁₀, PM_{2.5} and PM₁) 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 (CO₂).

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 CO₂, which are reliable but may not match the stringent accuracy levels of certified equipment. For instance, the SenseAir S8 has an accuracy of $\pm 30 \text{ ppm} \pm 3\%$ 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

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 – communication was down during power outages (load shedding).
- **CBD**
 - February '25 – communication was down during power outages (load shedding).
- **eSikhaleni**
 - February '25 – communication was down during power outages (load shedding).
- **Felixton**
 - February '25 – communication was down during power outages (load shedding).
- **Harbour West**
 - February '25 – communication was down during power outages (load shedding).
- **Richardia**
 - February '25 – communication was down during power outages (load shedding).

8.2. Particulate Monitoring

8.2.1. Monthly

PM₁₀, PM_{2.5} and PM₁ 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.

- ▶ PM₁₀ 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 all points monitored.

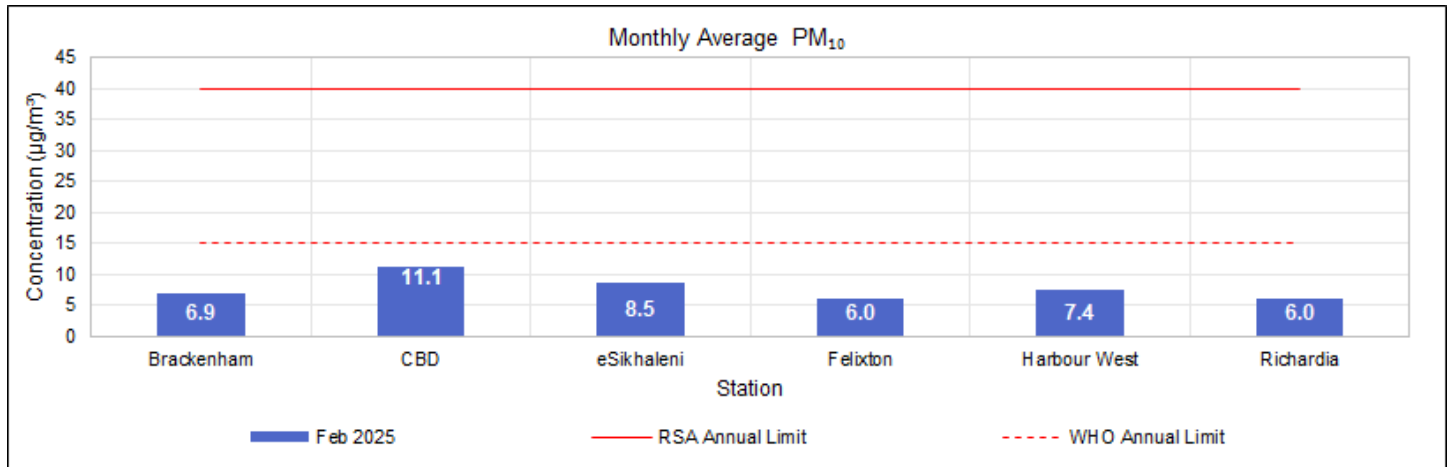


Figure 8-2: PM₁₀ monthly concentration.

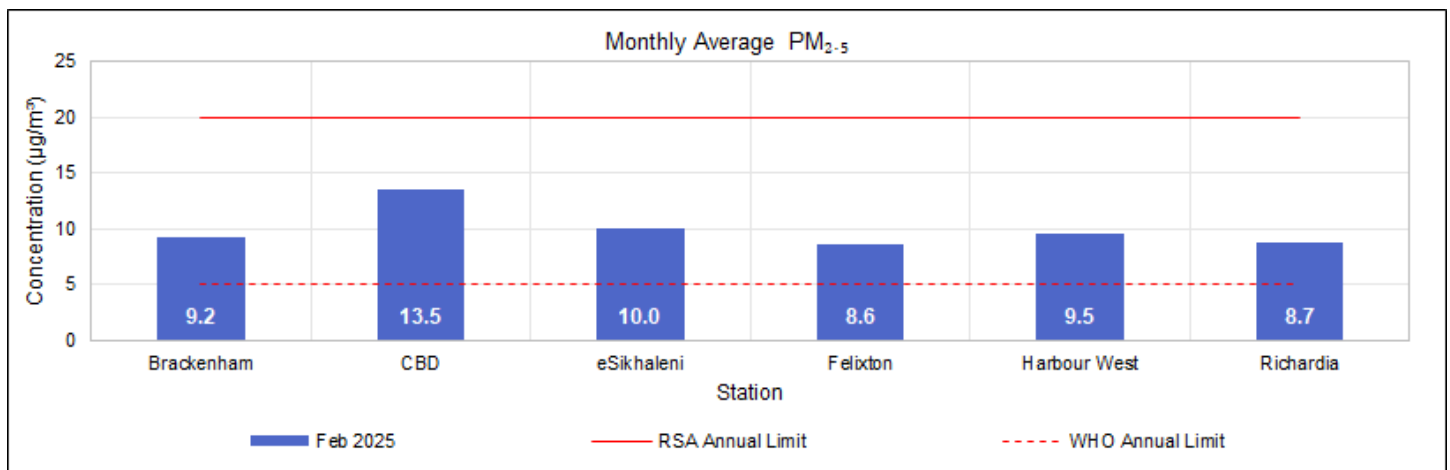


Figure 8-3: PM_{2.5} monthly concentration.

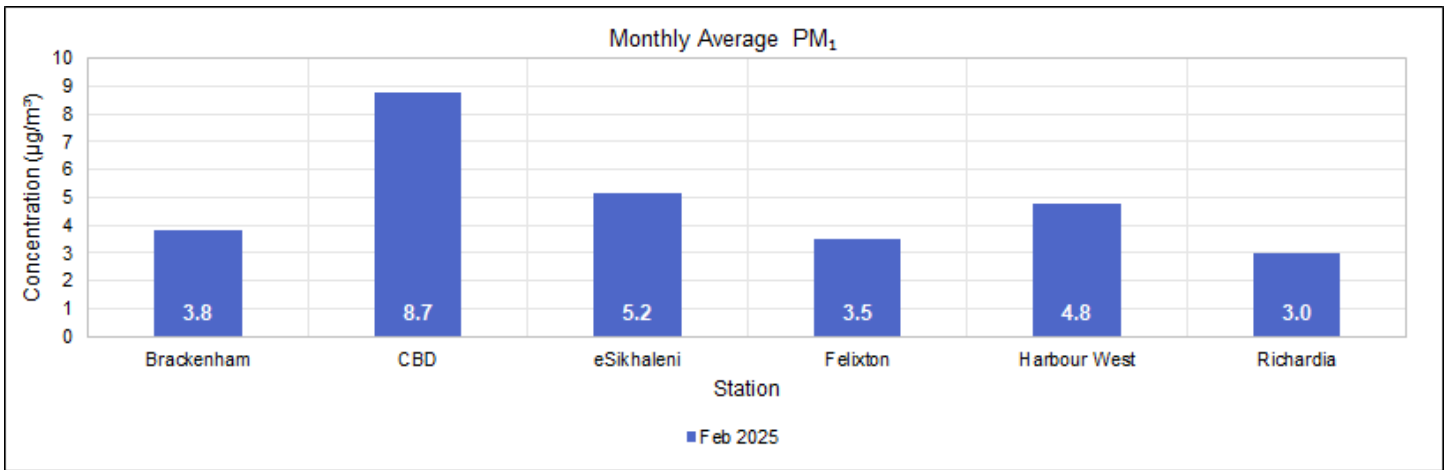


Figure 8-4: PM₁₀ monthly concentration.

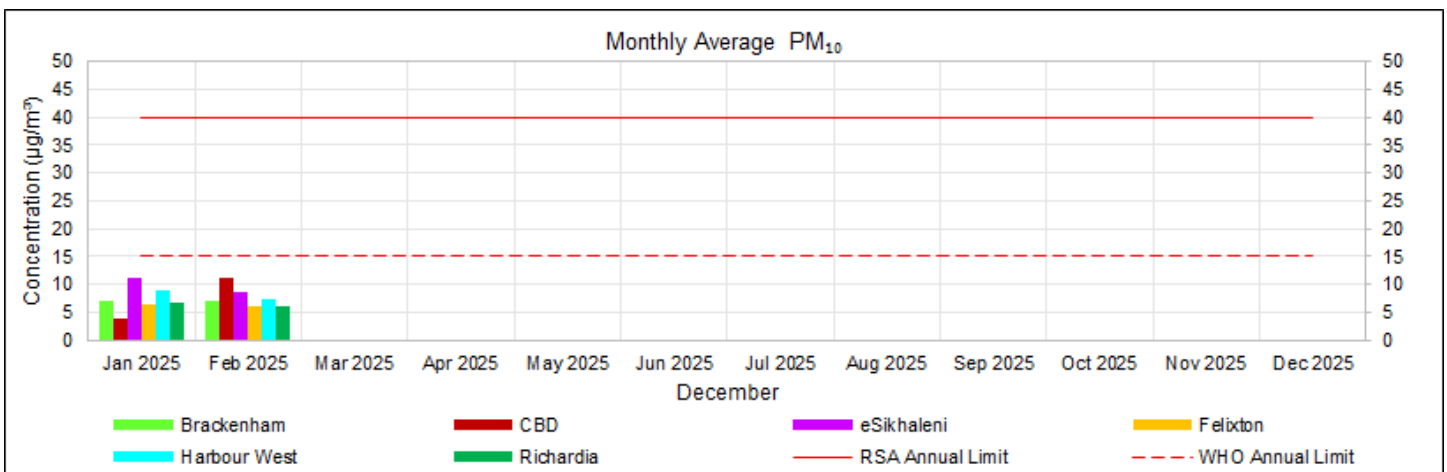


Figure 8-5: PM₁₀ monthly comparison.

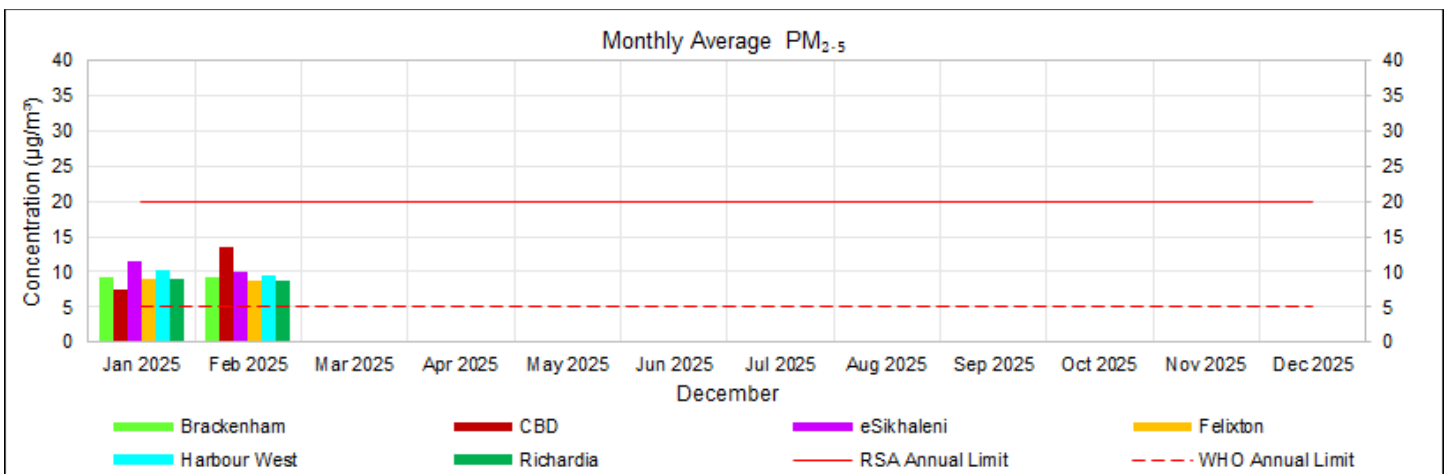


Figure 8-6: PM_{2.5} monthly comparison.

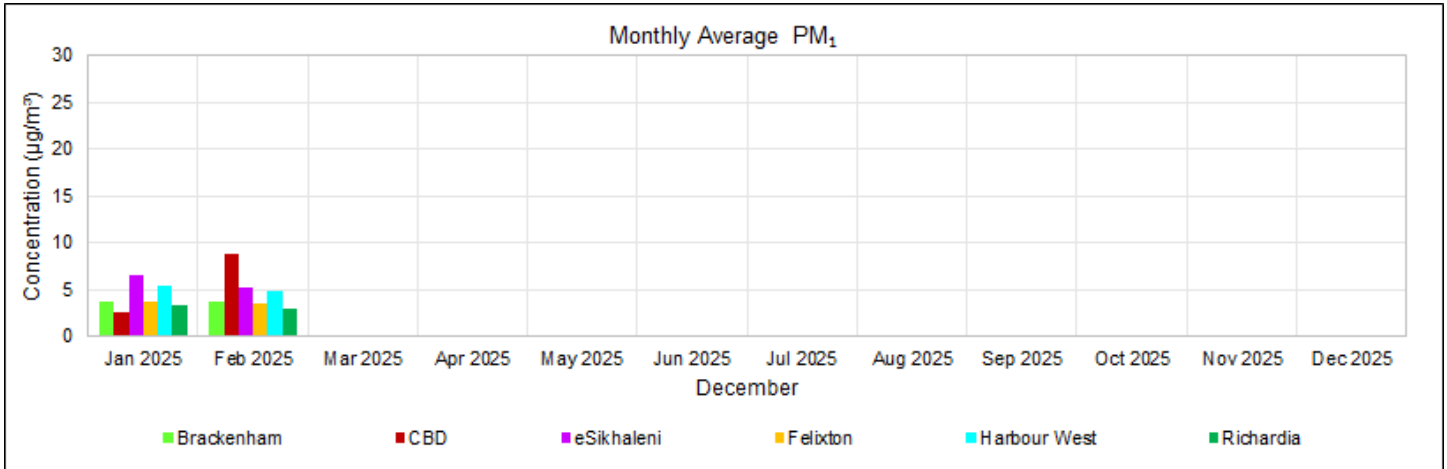


Figure 8-7: PM₁ monthly comparison.

8.2.2. Diurnal

PM diurnal concentrations are shown below (Figure 8-8, Figure 8-9, and Figure 8-10).

- ▶ RSA daily limits for PM₁₀ and PM_{2.5} were not exceeded, and,
- ▶ WHO daily limits for PM_{2.5} were exceeded at eSikhaleni.

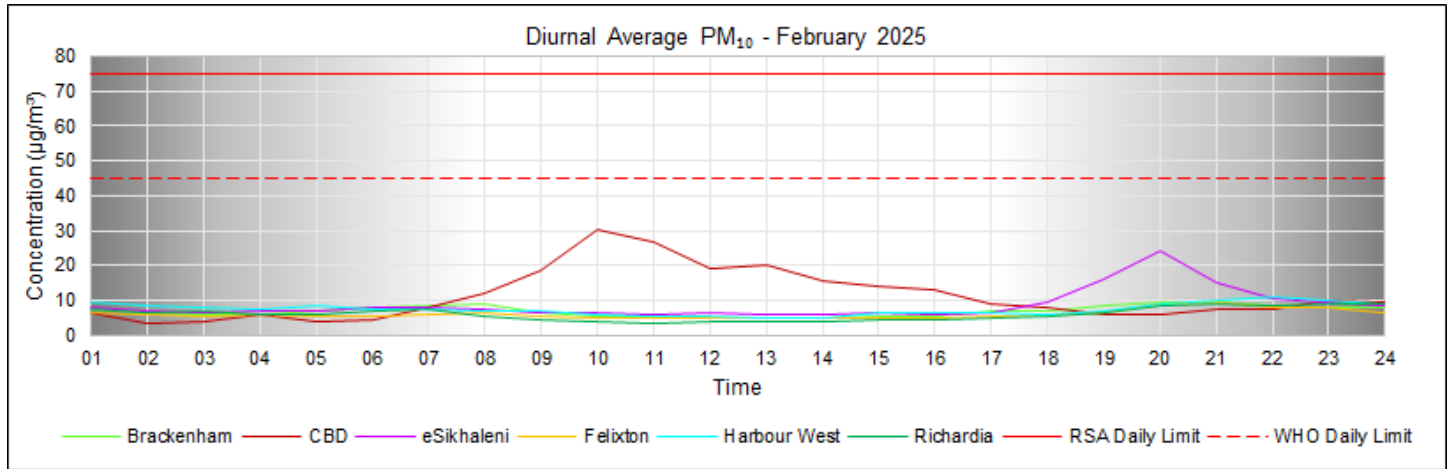


Figure 8-8: PM₁₀ diurnal concentrations.

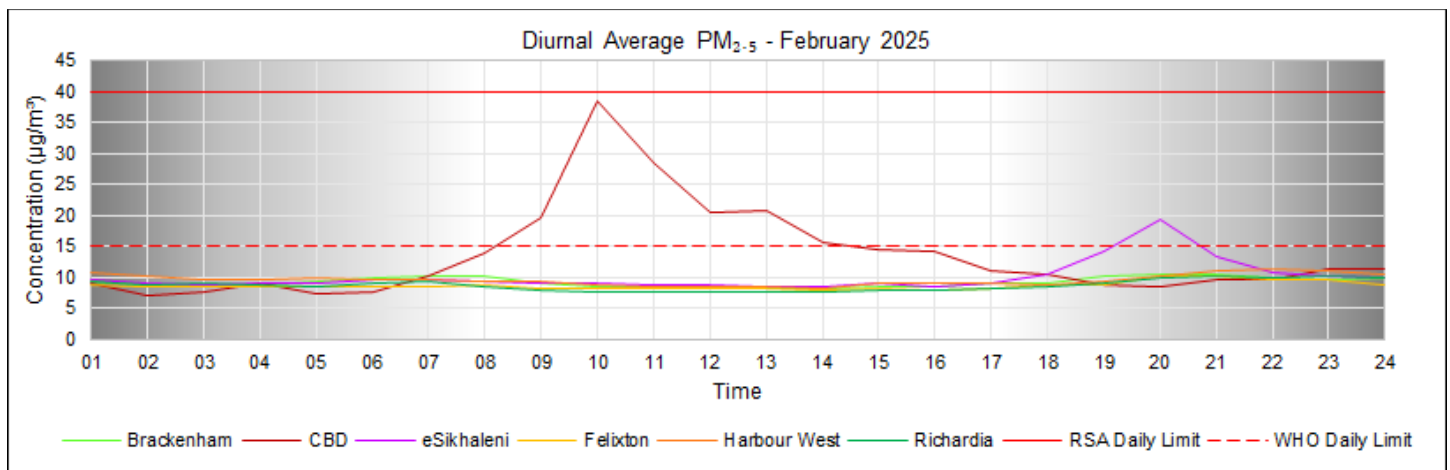


Figure 8-9: PM_{2.5} diurnal concentrations.

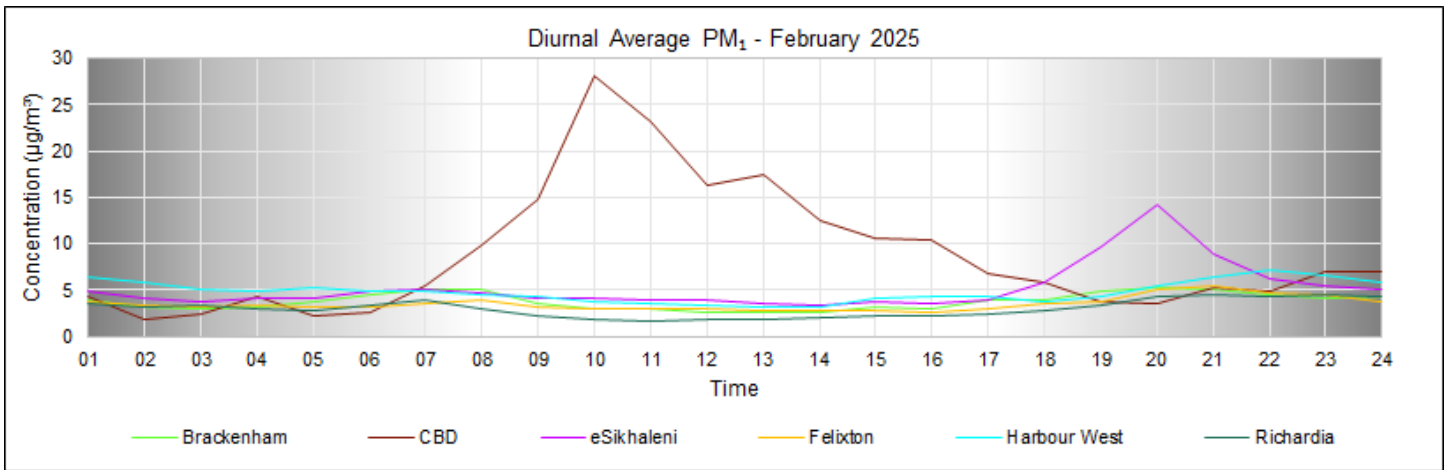


Figure 8-10: PM₁ diurnal concentrations.

8.2.3. Daily

PM daily concentrations are shown below (Figure 8-11, Figure 8-12, and Figure 8-13).

- ▶ The RSA daily limits for PM₁₀ and PM_{2.5} were exceeded at CBD;
- ▶ The WHO daily limit for PM₁₀ and PM_{2.5} were exceeded at CBD.

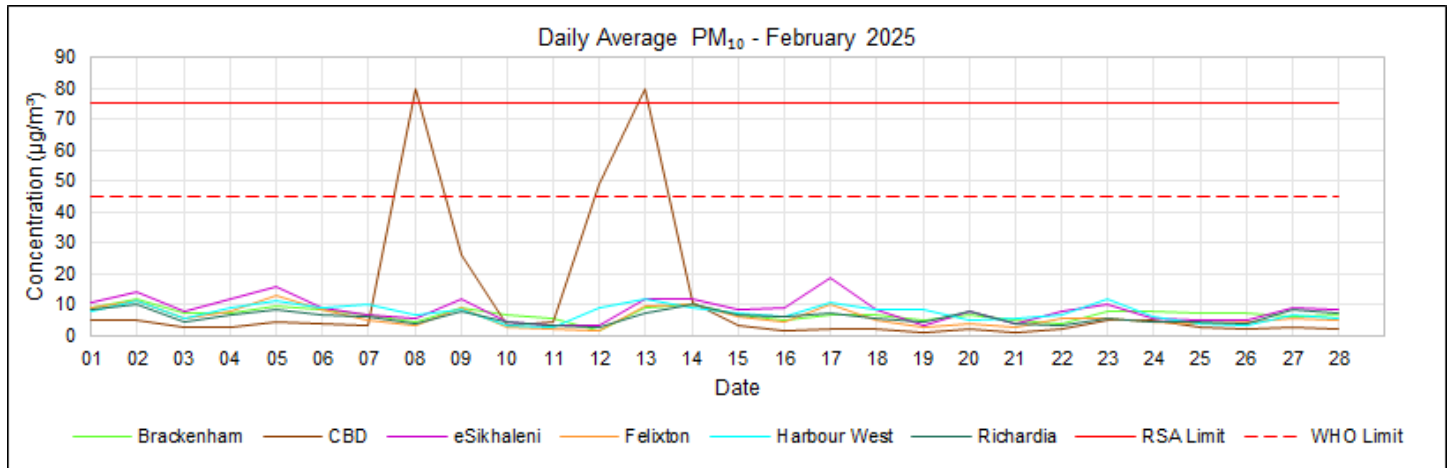


Figure 8-11: PM₁₀ daily concentrations.

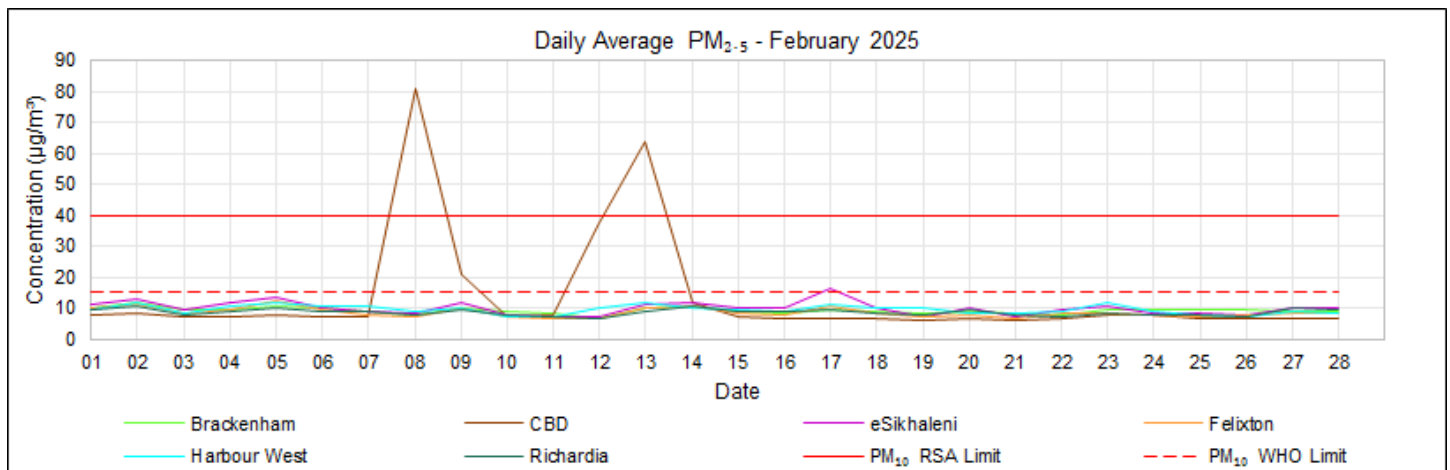


Figure 8-12: PM_{2.5} daily concentrations.

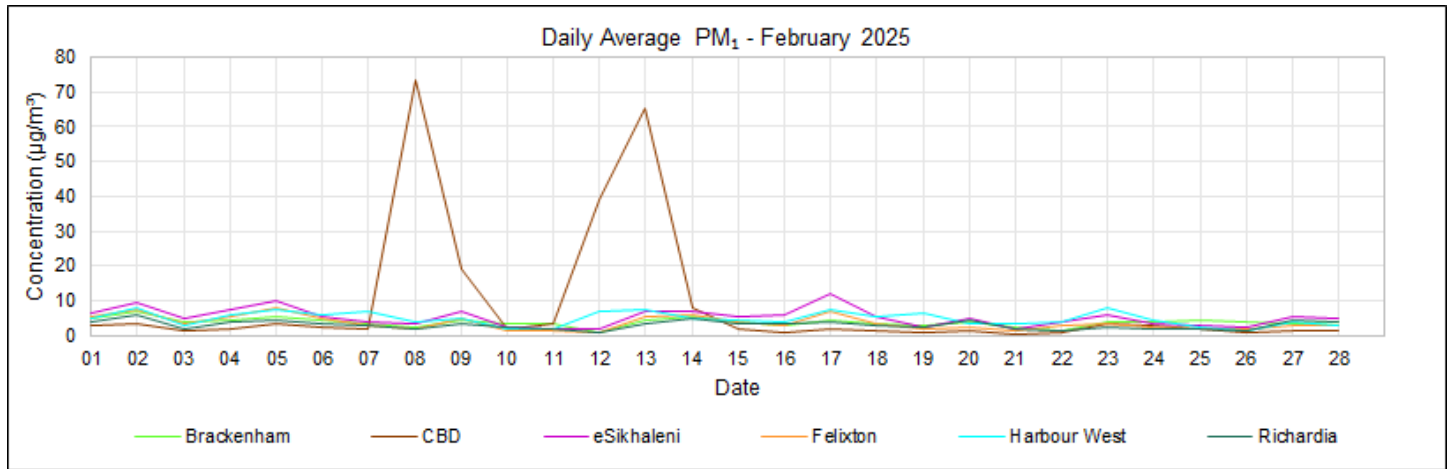


Figure 8-13: PM₁ daily concentrations.

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).

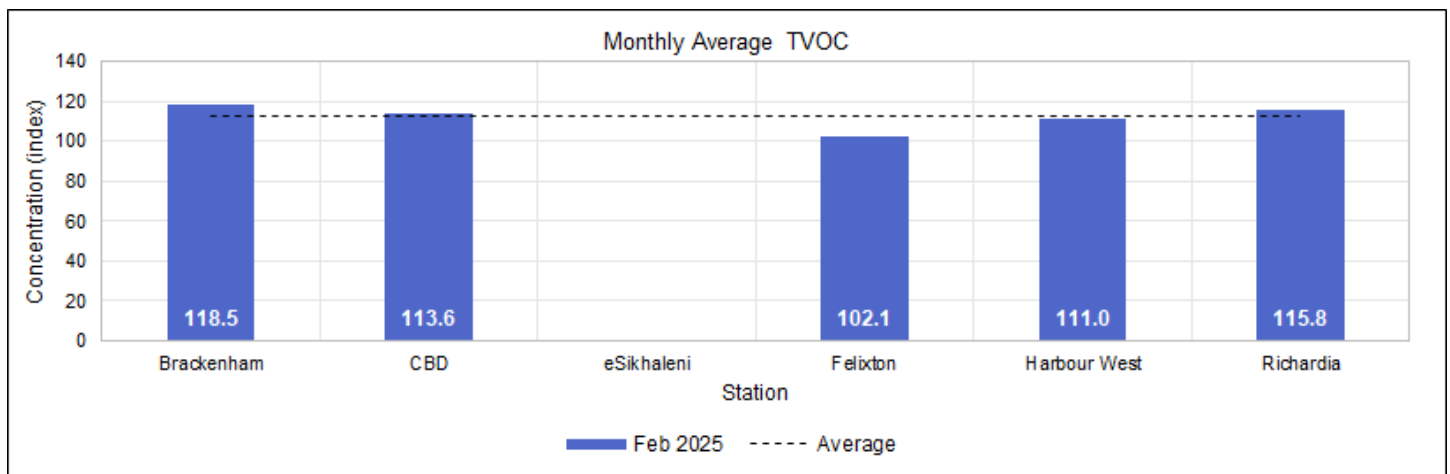


Figure 8-14: TVOC monthly concentration.
 eSikhaleni - sensor failure

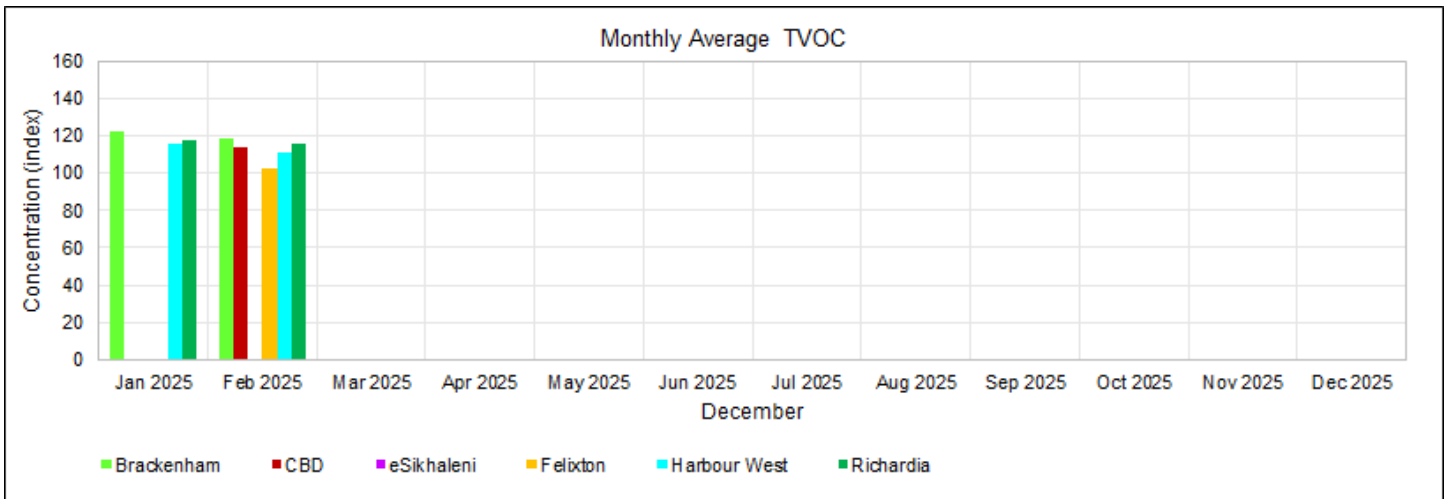


Figure 8-15: TVOC monthly comparison.
 eSikhaleni - sensor failure

8.3.2. Diurnal

TVOC diurnal concentrations are shown below (Figure 8-8, Figure 8-9, and Figure 8-10).

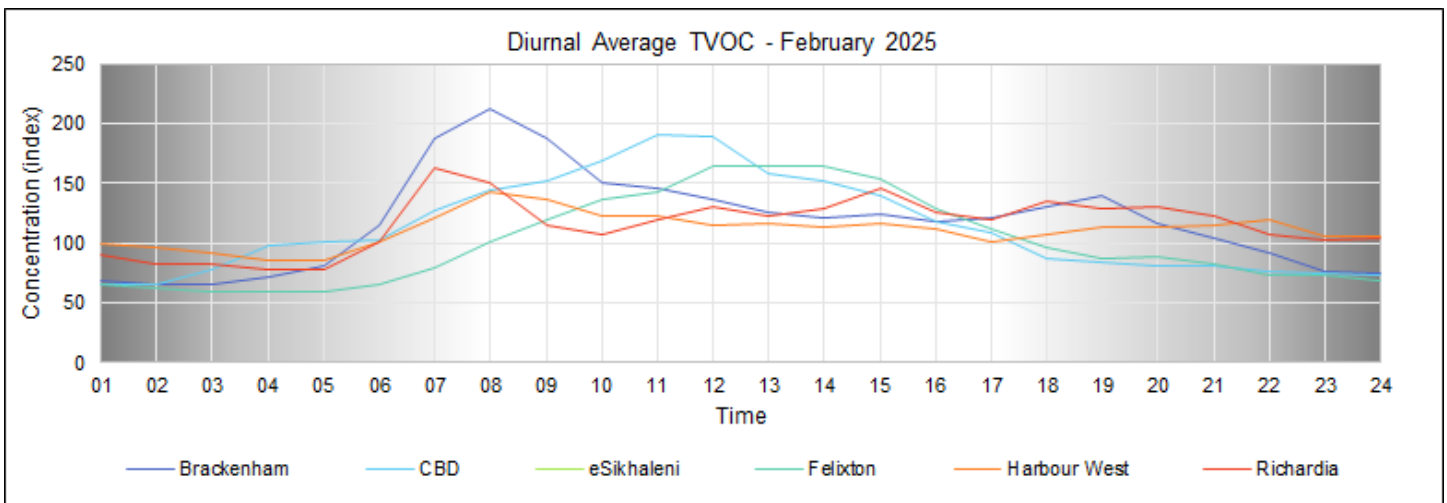


Figure 8-16: TVOC diurnal concentrations.
 eSikhaleni - sensor failure

8.3.3. Daily

TVOC daily concentrations are shown below (Figure 8-17).

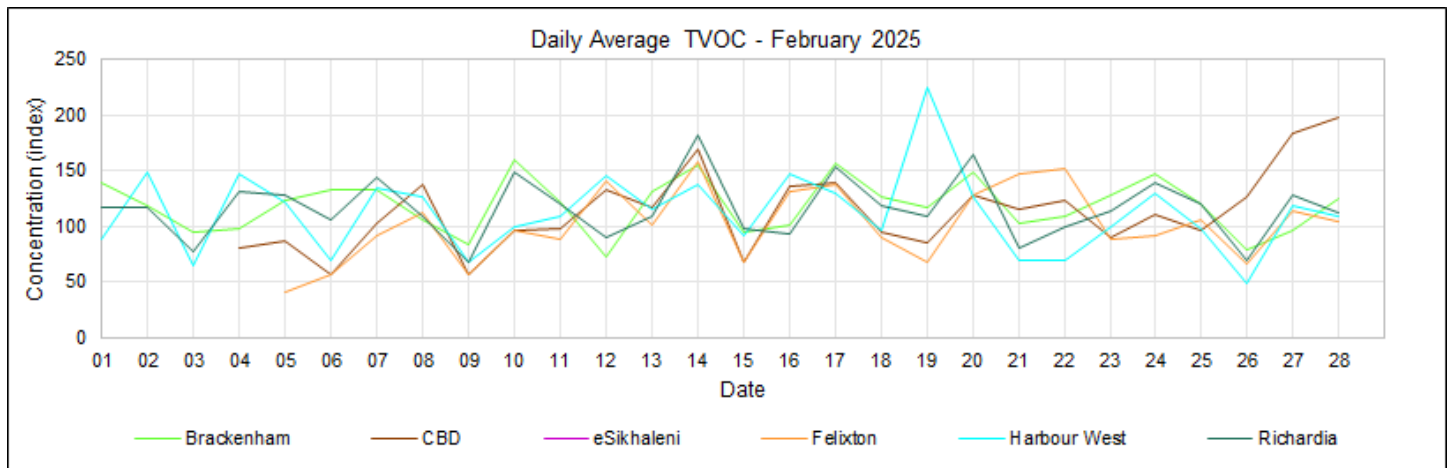


Figure 8-17: TVOC daily concentrations.
CBD - sensor failure
eSikhaleni - sensor failure
Felixton - sensor failure

8.3.4. Hourly

TVOC hourly concentrations are shown below (Figure 8-18).

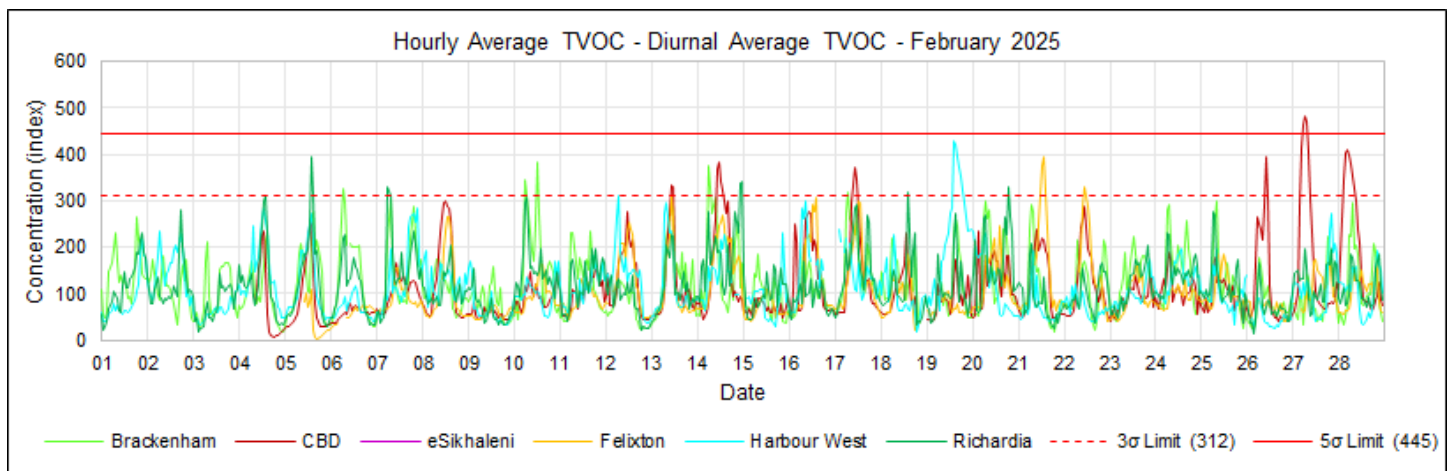


Figure 8-18: TVOC hourly concentrations.
CBD - sensor failure
eSikhaleni - sensor failure
Felixton - sensor failure

8.4. Nitrogen Oxides Monitoring

Nitrogen oxides (NO_x) refer to a group of highly reactive gases that are primarily composed of nitrogen dioxide (NO₂) 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).

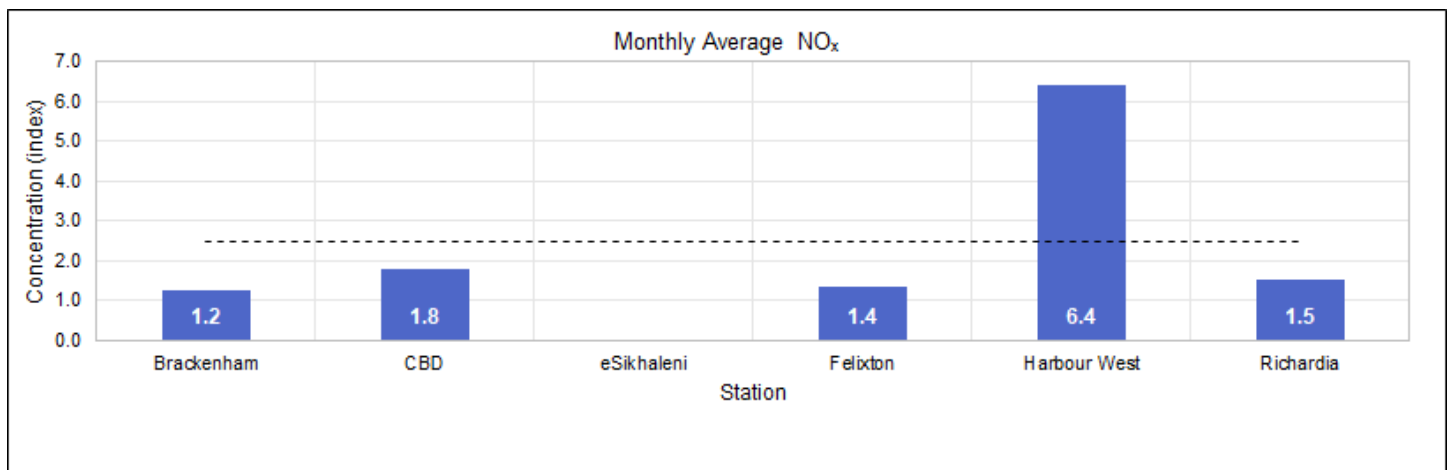


Figure 8-19: NO_x monthly concentration.
 eSikhaleni - sensor failure

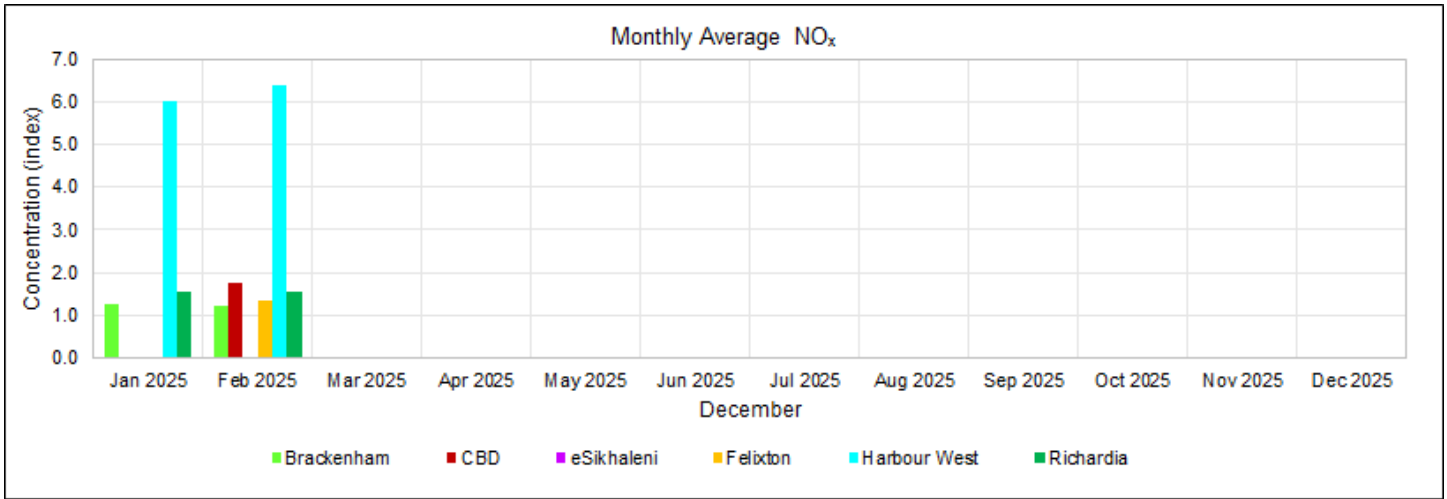


Figure 8-20: NO_x monthly comparison.
eSikhaleni - sensor failure

8.4.2. Diurnal

NO_x diurnal concentrations are shown below (Figure 8-21).

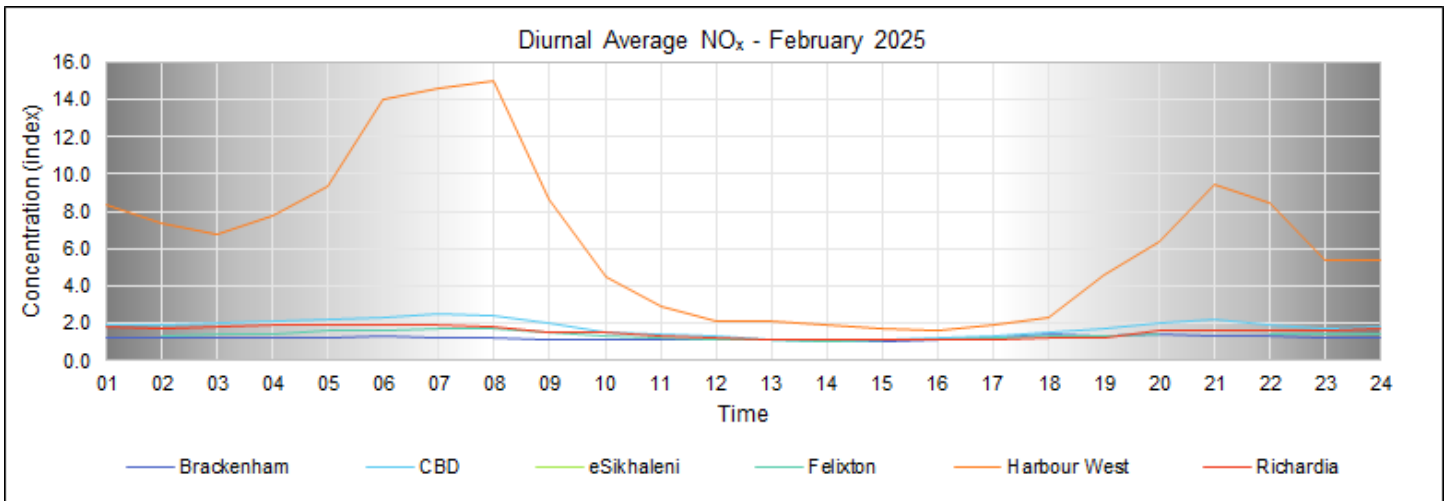


Figure 8-21: NO_x diurnal concentrations.
eSikhaleni - sensor failure

8.4.3. Daily

NO_x daily concentrations are shown below (Figure 8-22).

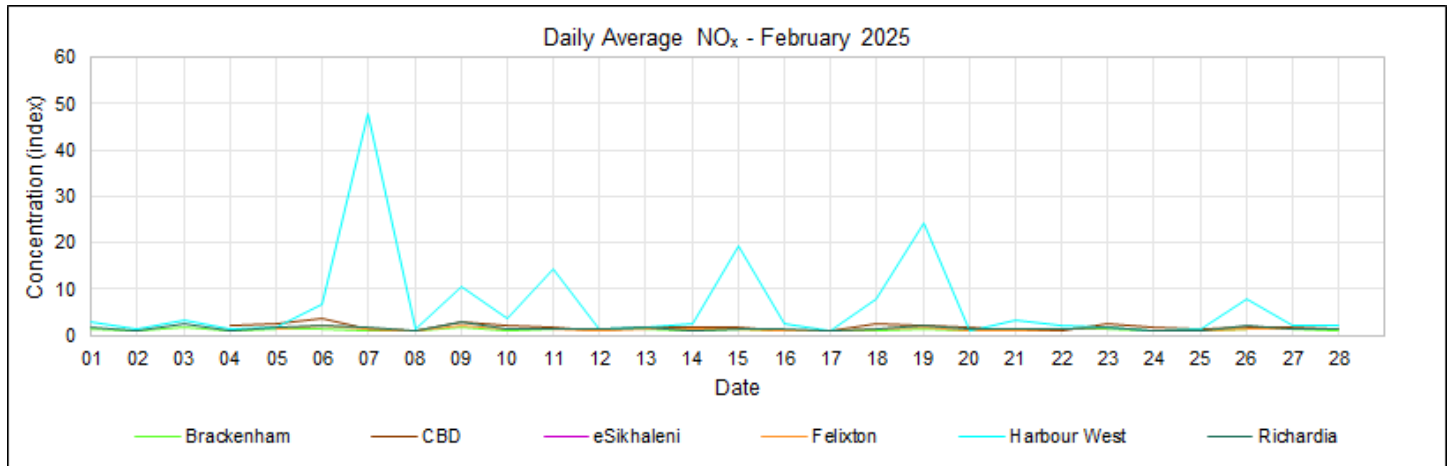


Figure 8-22: NO_x daily concentrations.
CBD - sensor failure
eSikhaleni - sensor failure
Felixton - sensor failure

8.4.4. Hourly

NO_x hourly concentrations are shown below (Figure 8-23).

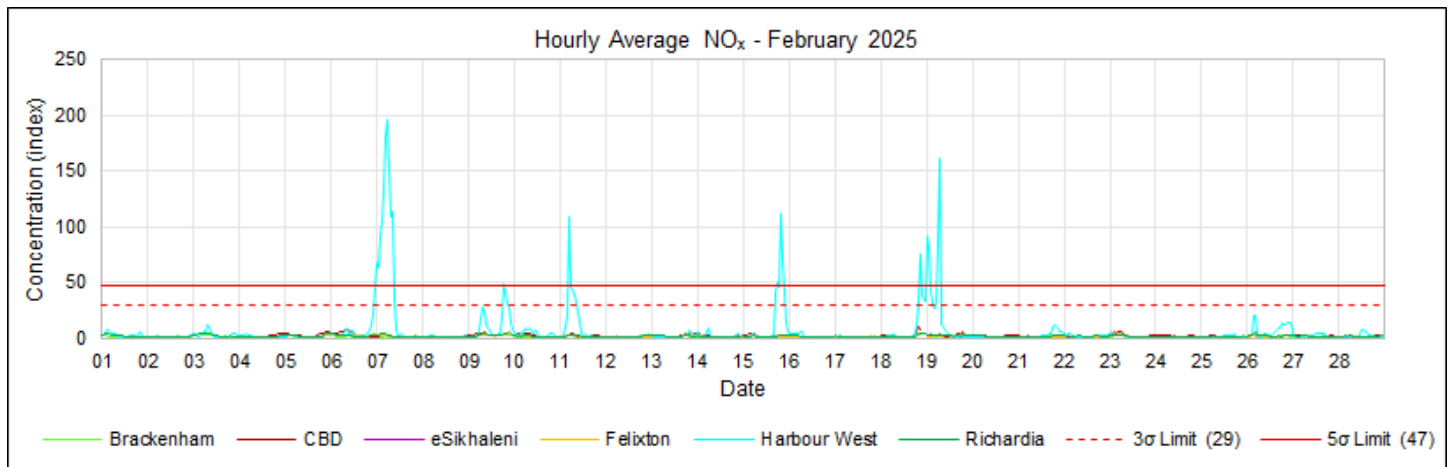


Figure 8-23: NO_x hourly concentrations.
CBD - sensor failure
eSikhaleni - sensor failure
Felixton - sensor failure

8.5. Carbon Dioxide Monitoring

In the year 2000, the global background concentration of carbon dioxide (CO₂) was approximately 370 ppm; this marked a significant increase from the pre-industrial level of around 280 ppm and reflected the continued growth in CO₂ emissions from fossil fuel combustion, deforestation, and other human activities during the 20th century. The rate of increase in atmospheric CO₂ 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

CO₂ monthly average concentrations are shown in Figure 8-24; comparisons to previous months are also provided (Figure 8-25).

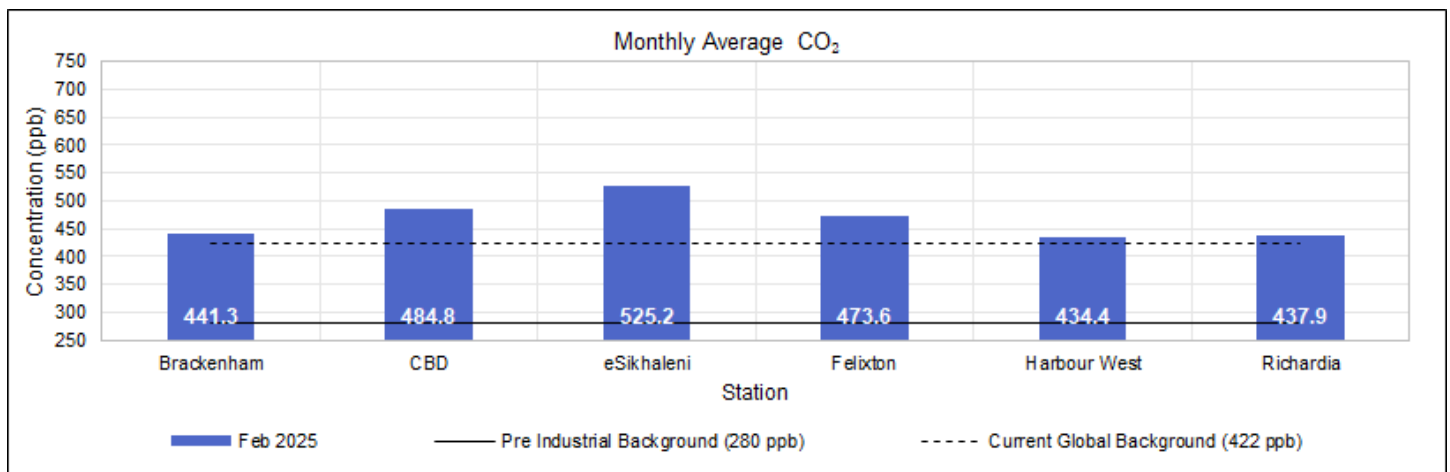


Figure 8-24: CO₂ monthly concentration.

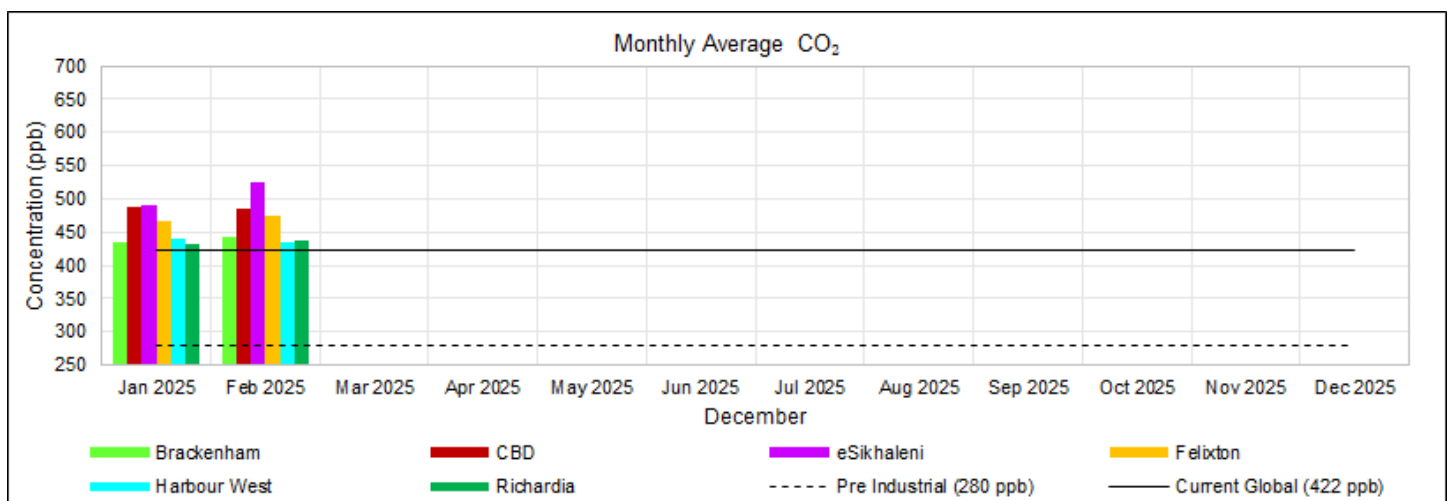


Figure 8-25: CO₂ monthly comparison.

8.5.2. Diurnal

CO₂ diurnal concentrations are shown below (Figure 8-26).

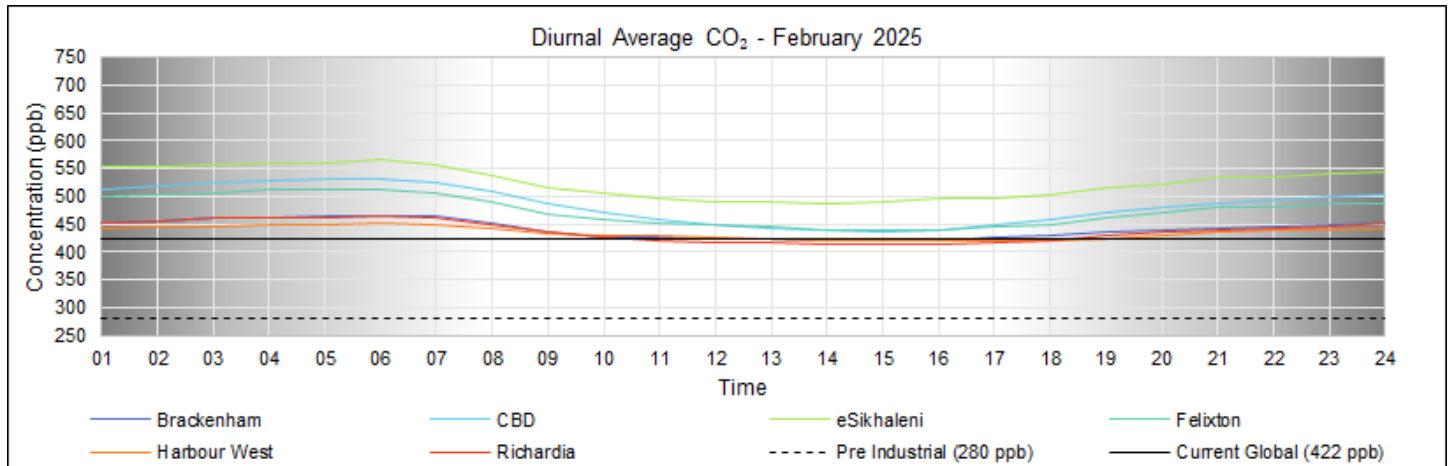


Figure 8-26: CO₂ diurnal concentrations.

8.5.3. Daily

CO₂ daily concentrations are shown below (Figure 8-27).

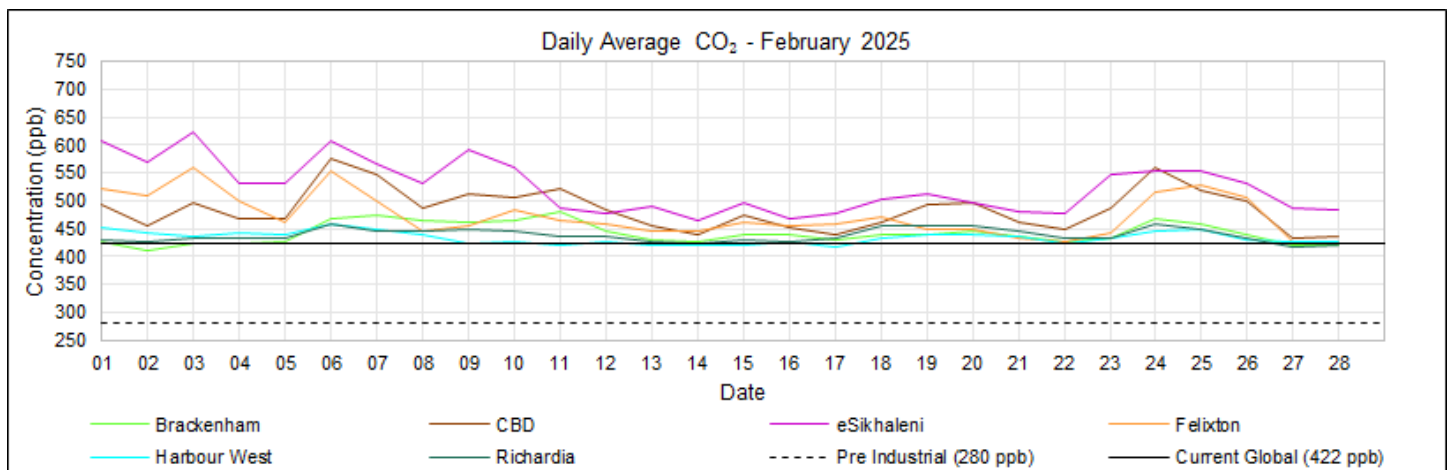


Figure 8-27: CO₂ daily concentrations.

8.5.4. Hourly

CO₂ hourly concentrations are shown below (Figure 8-28).

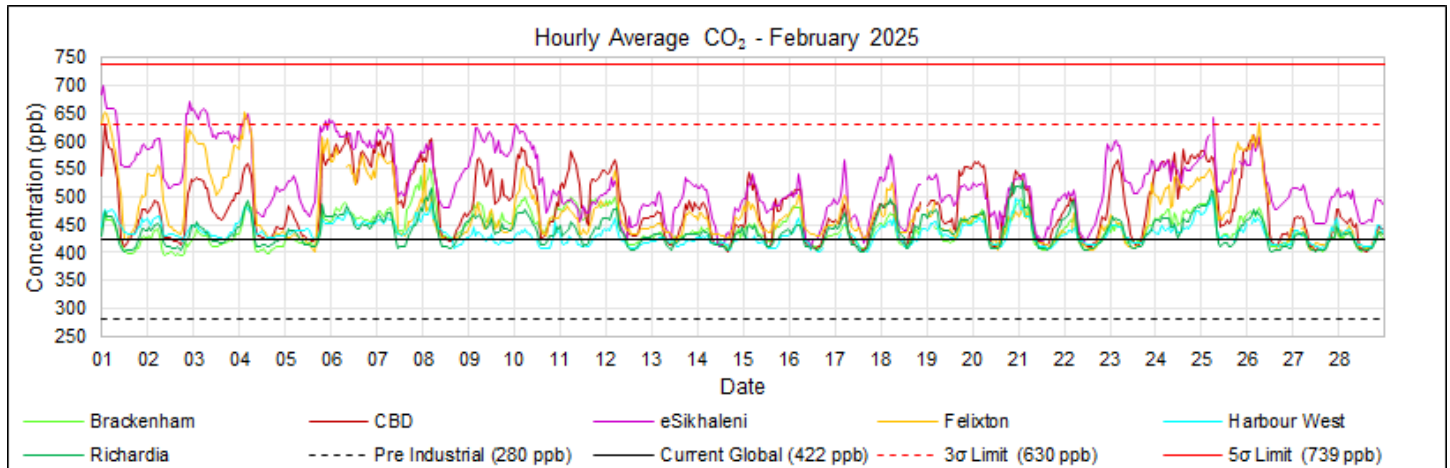


Figure 8-28: CO₂ hourly concentrations.

9. ACKNOWLEDGEMENT

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

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 ₃ S-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 ₂ S	Hydrogen Sulphide
H ₂ SO ₃	Sulphurous Acid
H ₂ SO 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/m ³	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/m ² /day	Milligrams per meter squared per day
mg/m ³	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 SO₂ concentrations reported are determined by the United States Environmental Protection Agency (US EPA) equivalent method, EQSA-0193-092. SO₂ 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 – 2024.

Industry	Description	SO ₂ Emission 2023 (t)	SO ₂ Emission 2023 (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 PM₁₀ and PM_{2.5}.

RBCAA: Monthly Report						
PM ₁₀ daily averages						
Station	Concentration (µg/m ³)	% of RSA Standard (75 µg/m ³)	% of WHO Guideline (45 µg/m ³)	Time	Wind Direction (°)	Wind Speed (m/s)
CBD ES1	30.0	40%	67%	2025/02/13 00:00	4.6	305
eSikhaleni	29.0	39%	64%	2025/02/14 00:00	2.0	212
Felixton ES1	22.0	29%	49%	2025/02/14 00:00	2.1	323
Richardia	54.0	72%	120%	2025/02/14 00:00	2.7	242
Scorpio ES1	53.0	71%	118%	2025/02/06 00:00	3.6	191
PM _{2.5} daily averages						
Station	Concentration (µg/m ³)	% of RSA Standard (40 µg/m ³)	% of WHO Guideline (15 µg/m ³)	Time	Wind Direction (°)	Wind Speed (m/s)
Brackenhams ES2	26.7	67%	178%	2025/02/13 00:00	3.6	321
Felixton ES2	19.0	48%	127%	2025/02/14 00:00	2.1	323
Harbour West ES2	19.0	48%	127%	2025/02/13 00:00	4.5	290
Scorpio ES2	26.0	65%	173%	2025/02/06 00:00	3.6	191
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, Brackenhams, 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 SO₂.

RBCAA: Monthly Report						
SO ₂ 10-minute averages						
Station	Concentration (ppb)	% of RSA Standard & WHO Guideline (500 µg/m ³ / 191 ppb)		Time	Wind Direction (°)	Wind Speed (m/s)
Arboretum	10.1	5%		2025/02/27 08:00	2.3	238
Brackenham	25.6	13%		2025/02/26 11:10	7.8	230
CBD	54.9	29%		2025/02/15 06:30	3.7	231
eSikhaleni	18.1	9%		2025/02/12 02:20	0.0	188
Felixton	2.6	1%		2025/02/05 13:50	3.3	62
Harbour West	70.5	37%		2025/02/13 07:40	5.0	18
Richardia	16.6	9%		2025/02/28 22:00	2.9	239
Scorpio	235.2	123%		2025/02/11 11:50	3.0	187
SO ₂ hourly averages						
Station	Concentration (ppb)	% of RSA Standard (350 µg/m ³ / 134 ppb)	No WHO Guideline	Time	Wind Direction (°)	Wind Speed (m/s)
Arboretum	7.2	5%	-	2025/02/13 16:00	6.5	237
Brackenham	21.6	16%	-	2025/02/09 21:00	4.4	226
CBD	47.7	36%	-	2025/02/14 01:00	4.2	239
eSikhaleni	6.4	5%	-	2025/02/16 03:00	0.0	245
Felixton	1.5	1%	-	2025/02/05 10:00	3.3	48
Harbour West	49.1	37%	-	2025/02/13 08:00	4.3	4
Richardia	15.0	11%	-	2025/02/28 22:00	3.2	242
Scorpio	72.8	54%	-	2025/02/13 08:00	4.3	4
SO ₂ daily averages						
Station	Concentration (ppb)	% of RSA Standard (125 µg/m ³ / 48 ppb)	% of WHO Guideline (40 µg/m ³ / 15 ppb)	Time	Wind Direction (°)	Wind Speed (m/s)
Arboretum	2.3	5%	15%	2025/02/27 00:00	3.2	214
Brackenham	5.9	12%	39%	2025/02/09 00:00	3.9	244
CBD	15.7	33%	105%	2025/02/24 00:00	3.4	234
eSikhaleni	2.8	6%	19%	2025/02/16 00:00	2.2	3
Felixton	1.0	2%	7%	2025/02/23 00:00	2.5	249
Harbour West	14.4	30%	96%	2025/02/18 00:00	1.8	22
Richardia	2.7	6%	18%	2025/02/28 00:00	3.1	217
Scorpio	12.7	26%	85%	2025/02/13 00:00	4.5	290

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	13.9	-	149%	2025/02/28 04:40	2.3	237
eSikhaleni	5.0	-	54%	2025/02/19 06:10	0.1	301
Felixton	5.8	-	62%	2025/02/21 03:00	0.6	23
Richardia	9.4	-	101%	2025/02/23 01:30	3.5	220
TRS 30-minute averages						
Station	Concentration (ppb)	No RSA Standard	% of WHO H ₂ S Guideline (7.0 µg/m³ / 5.0 ppb)	Time	Wind Direction (°)	Wind Speed (m/s)
CBD	12.0	-	240%	2025/02/28 04:30	2.2	251
eSikhaleni	4.0	-	80%	2025/02/19 06:00	0.2	317
Felixton	4.1	-	82%	2025/02/21 03:00	0.9	26
Richardia	8.0	-	160%	2025/02/14 23:00	1.0	182
TRS daily averages						
Station	Concentration (ppb)	No RSA Standard	% of OME TRS Guideline (14.0 µg/m³ / 10.1 ppb)	Time	Wind Direction (°)	Wind Speed (m/s)
CBD	2.7	-	27%	2025/02/28 00:00	2.9	228
eSikhaleni	1.0	-	10%	2025/02/18 00:00	1.4	23
Felixton	0.9	-	9%	2025/02/07 00:00	1.9	91
Richardia	2.4	-	24%	2025/02/28 00:00	3.1	217

**APPENDIX E
 RAINFALL**

Table 1: Daily Rainfall

Date	Richards Bay (mm)	Felixton (mm)	RBCT (mm)	South32 (mm)
2025/02/01	1	2	1	1
2025/02/02	2	0	6	4
2025/02/03	4	0	0	1
2025/02/04	0	0	0	0
2025/02/05	0	13	3	0
2025/02/06	60	33	63	31
2025/02/07	84	22	9	22
2025/02/08	0	0	0	0
2025/02/09	2	5	1	0
2025/02/10	7	25	3	10
2025/02/11	20	13	35	18
2025/02/12	0	0	2	1
2025/02/13	0	0	0	0
2025/02/14	0	3	0	0
2025/02/15	2	0	0	0
2025/02/16	0	0	0	0
2025/02/17	0	0	0	0
2025/02/18	28	22	26	23
2025/02/19	50	40	46	68
2025/02/20	21	6	5	12
2025/02/21	5	0	1	5
2025/02/22	0	0	1	0
2025/02/23	0	0	1	0
2025/02/24	39	30	22	27
2025/02/25	40	57	21	7
2025/02/26	25	33	3	11
2025/02/27	0	0	0	0
2025/02/28	0	0	2	0
Total	390	303	249	241

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	
Apr	261	214	141	96	647	87	101	
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	371
Average	150	154	128	186	158	169	136	381
Maximum	311	320	377	464	647	410	271	390
Total	1798	1850	1540	2234	1893	2034	1630	761

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	
Apr	138	143	106	135	368	58	49	
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	210
Maximum	342	311	214	231	368	318	187	303
Total	1354	1261	987	1530	1288	1347	992	420

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	
Apr	161	174	111	69	642	30	98	
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	229
Average	84	110	87	139	161	145	100	239
Maximum	175	216	166	245	642	442	177	249
Total	1005	1317	1049	1669	1934	1740	1205	478

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	
Apr	-	-	-	-	505	43	-	
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	232
Average	-	-	-	-	121	107	121	237
Maximum	-	-	-	-	505	271	144	241
Total	-	-	-	-	1336	1280	485	473

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	2025/02/02 20:53	Weldenweide	Odour	Mondi	Strong Mondi odour.	240
2	2025/02/03 23:04	Arboretum Ext	Odour	Mondi	"Strong Burnt Match" type of odour, which had dissipated by 23h37.	239, 243
3	2025/02/05 12:44	Vicinity of Foskor	Visible	Foskor	"Excessive emissions emanating from the Foskor stack" (Complainant stated on a social media group that it is SO3. The complainant has not yet logged an official complaint with the RBCAA)	241
4	2025/02/13 17:27	Unknown	Odour	Mondi	Strong Mondi odour.	244
5	2025/02/16 06:30	Meerensee	Clinical + Odour	Industry response required	Strong odour causing skin irritation (rash and itch). Complainant described odour as "sulphur gas".	242, 245, 248, 1
6	2025/02/18 19:07	Veldenvlei	Odour	Mondi	"Guava odour"	246
7	2025/02/24 21:12	Veldenvlei	Odour	Mondi	"Very strong cat urine smell."	250
8	2025/02/24 21:46	Birdswood	Odour	Mondi	"Very strong cat urine smell."	250
9	2025/02/24 21:54	Birdswood	Odour	Mondi	"Very strong odour." (this was a complaint I received directly from a complainant).	250
10	2025/02/27 06:07	Veldenvlei	Clinical + Odour	Mondi	"Strong Mondi smell again, whole house smells of it and sinuses affected."	255
11	2025/02/27 16:09	Alton	Sulphur Spillage	Grindrod	Significant sulphur spillage along Geleier Gang in Alton. Complainant reported observing trucks carrying sulphur entering Grindrod's Seamunye facility, and that trucks were not correctly tarped.	257
12	2025/02/27 22:48	Veldenvlei	Odour	Mondi	Mondi odour . "Same smell as this morning"	256
13	2025/02/28 00:00	Empangeni	Clinical + visible	CoU	occurs on southerly winds, Fumes emanating from fibre glassing activities taking place in the neighbouring premises previously occupied by AMS, affecting employees at HAIGS. Complainant reported that there is currently no identifiable signage but that the business in question manufactures jet-skis. The complainant further reported that the business in question has attempted to implement mitigation measures but unsuccessfully. This complaint will be forwarded to the Authorities.	252

Response	Industry Feedback
239	Mondi - Candice Webb responded (2025/02/04 09:28): Source of odour: Methanol leak.
240	Mondi - Candice Webb responded (2025/02/04 07:46): Source of odour: Non condensable gas system. RBCAA - Sandy Camminga responded (2025/02/04 09:51): Although Mondi identified a flange leak on the methanol system this morning, based on the description of the odour I don't believe the source to be Mondi. A burnt match smell is associated with burning sulphur.
241	Foskor- Silungile Msane responded (2025/01/07 13:09): Acid strength below the specification limits.
242	Foskor- Silungile Msane responded (2025/02/18 16:09): There were no corrective actions that needed to be executed as there were no upset conditions.
243	Foskor- Silungile Msane responded (2025/02/05 18:22): There is no root cause as there was no indication of Foskor's operations contributing to the odour.
244	Mondi - Candice Webb responded (2025/02/24 09:32): Source of odour: Non condensable gas system.
245	Mondi - Candice Webb responded (2025/02/24 10:39): Unlikely that Mondi was the source.
246	Mondi - Candice Webb responded (2025/02/24 11:04): Source of odour: Secondary Effluent Treatment Plant.
248	South 32 -Londiwe Molebale responded (2025/02/20 08:54): No abnormalities noted on the trends nor from the plant shift reports on the GTC's.
250	Mondi - Candice Webb responded (2025/02/26 12:42): Source of odour: Secondary Effluent Treatment Plant (due to condensate flow).
251	RBCAA - Sandy Camminga (2025/03/02 17:56): Complainant reported observing trucks carrying sulphur entering Grindrod's Seamunye facility, and that trucks were not correctly tarped. The Authorities were notified via WhatsApp at 16h14 on 27 February.
252	CoU - Lindiwe Khumalo responded (2025/03/04 9:18:35): City of uMhlathuze, Air Quality Management Unit officials visited the site in discussion at Kuleka Street in eMpangeni yesterday on the 3rd of March 2025 and it was noted that there are mitigation measures that the Facility has taken to minimize air pollution including the installation of a spray booth. The Facility further notified the officials of the ambient monitoring plan for volatile organic compounds that it is currently undertaking and the results will be shared by the Facility to all authorities. City of uMhlathuze: Air Quality Management Unit officials also advised the Facility to apply for the Scheduled Trade Permit. CoU - Nozipho Khathi responded (2025/03/04 9:10:06): The facility has been visited by KCDM Air Quality, Environmental Health and Fire and Rescue in the previous two months, a report was issued to the facility. The main issue is cross ventilation within the building. CoU Building Inspector conducted an inspection on 11.02.2025 to ascertain compliance with building regulations.
255	Mondi - Candice Webb responded (2025/03/06 11:56): Non-Condensable gas system.
256	Mondi - Candice Webb responded (2025/03/06 11:56): Non-Condensable gas venting.
257	Grindrod- Sibahle Dladla responded (2025/03/03 14:02): Spillages was from trucks that have offloaded already with cargo stuck on tailgate/wheel arches. Trucks are tarped as we have teams on vessel and the port and will not allow trucks to leave without being tarped or that are leaking, they will be stopped at the gate by TPT security. At Seamunye trucks remove the tarps outside the facility before entering.

APPENDIX G
PM₁₀ EXCEEDANCE LOG

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/m ³)	Richardia	2025/02/14 0:00	54.0	244	2.7	No response required	None	2
2	PM ₁₀ Daily WHO Limit (45 µg/m ³)	Scorpio ES1	2025/02/06 0:00	53.0	192	3.6	No response required	None	2

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/m ³)	Brackenham ES2	2025/02/14 00:00	25.2	292	1.8	No response required	None	2
2	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Brackenham ES2	2025/02/23 00:00	17.0	240	2.8	No response required	None	2
3	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Brackenham ES2	2025/02/24 00:00	15.3	254	2.3	No response required	None	2
4	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Brackenham ES2	2025/02/26 00:00	22.1	230	5.3	No response required	None	2
5	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Brackenham ES2	2025/02/27 00:00	15.1	246	2	No response required	None	2
6	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Felixton ES2	2025/02/09 00:00	16.0	248	2.8	No response required	None	2
7	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Felixton ES2	2025/02/14 00:00	19.0	322	2.1	No response required	None	2
8	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Harbour West ES2	2025/02/14 00:00	16.0	192	1.6	No response required	None	2
9	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Scorpio ES2	2025/02/06 00:00	26.0	192	3.6	No response required	None	2
10	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Scorpio ES2	2025/02/10 00:00	16.0	218	1.8	No response required	None	2
11	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Scorpio ES2	2025/02/15 00:00	16.0	211	2.3	No response required	None	2
12	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Scorpio ES2	2025/02/27 00:00	17.0	219	2	No response required	None	2

Response	Industry Feedback
2	No response required

APPENDIX I SO₂ EXCEEDANCE LOG

Table 1: SO₂ 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)	CBD	2025/02/24 00:00	15.7	234	3.4	No response required	None	2
2	SO ₂ 10-minute RSA & WHO Limit (191 ppb)	Scorpio	2025/02/11 11:50	235.2	187	3	Foskor	Smouldering of Sulphur residue	132

Table 2: SO₂ Responses.

Response	Industry Feedback
2	No response required
132	Foskor - Silungile Msane responded (Tue 2025/02/24 19:24): Smouldering of Sulphur residue.

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 ₂ S Limit (5.0 ppb)	CBD	2025/02/02 04:00	5.5	360	1.0	Mondi	Non-condensable Gas system	610
2	TRS 30-minute WHO H ₂ S Limit (5.0 ppb)	CBD	2025/02/15 20:30	5.1	259	1.9	Mondi	Based on meteorology	613
3	TRS 30-minute WHO H ₂ S Limit (5.0 ppb)	CBD	2025/02/15 22:30	5.9	266	2.6	Mondi	Based on meteorology	613
4	TRS 30-minute WHO H ₂ S Limit (5.0 ppb)	CBD	2025/02/24 20:30	6.0	263	2.5	Industry response required	None	1
5	TRS 30-minute WHO H ₂ S Limit (5.0 ppb)	CBD	2025/02/24 21:00	7.5	265	2.4	Industry response required	None	1
6	TRS 30-minute WHO H ₂ S Limit (5.0 ppb)	CBD	2025/02/24 21:30	7.4	252	2.2	Industry response required	None	1
7	TRS 30-minute WHO H ₂ S Limit (5.0 ppb)	CBD	2025/02/25 00:30	7.7	256	2.9	Mondi	Secondary Effluent Treatment Plant	615
8	TRS 10-minute OME Limit (9.3 ppb)	CBD	2025/02/25 00:40	10.1	255	2.8	Mondi	Secondary Effluent Treatment Plant	615
9	TRS 30-minute WHO H ₂ S Limit (5.0 ppb)	CBD	2025/02/25 02:30	6.4	256	2.4	Mondi	Secondary Effluent Treatment Plant	615
10	TRS 30-minute WHO H ₂ S Limit (5.0 ppb)	CBD	2025/02/25 03:00	5.2	258	1.9	Mondi	Secondary Effluent Treatment Plant	615
11	TRS 30-minute WHO H ₂ S Limit (5.0 ppb)	CBD	2025/02/25 06:30	5.7	262	2.8	Mondi	Secondary Effluent Treatment Plant	615
12	TRS 30-minute WHO H ₂ S Limit (5.0 ppb)	CBD	2025/02/25 07:00	7.0	262	2.6	Mondi	Secondary Effluent Treatment Plant	615
13	TRS 30-minute WHO H ₂ S Limit (5.0 ppb)	CBD	2025/02/27 02:00	8.3	262	2.8	Mondi	Softwood (SW) blowdowns	616
14	TRS 10-minute OME Limit (9.3 ppb)	CBD	2025/02/27 02:20	9.6	260	2.8	Mondi	Softwood (SW) blowdowns	616
15	TRS 30-minute WHO H ₂ S Limit (5.0 ppb)	CBD	2025/02/27 05:30	5.3	262	3.8	Mondi	Softwood (SW) blowdowns	616

No	Target / Guideline / Standard	Station	Date	Value (ppb)	Wind Direction (°)	Wind Speed (m/s)	Source	Comment	Response
16	TRS 30-minute WHO H ₂ S Limit (5.0 ppb)	CBD	2025/02/27 22:30	5.8	286	2.1	Mondi	Softwood (SW) blowdowns	616
17	TRS 10-minute OME Limit (9.3 ppb)	CBD	2025/02/27 22:50	10.7	289	2.0	Mondi	Softwood (SW) blowdowns	616
18	TRS 30-minute WHO H ₂ S Limit (5.0 ppb)	CBD	2025/02/27 23:00	5.6	293	2.0	Mondi	Softwood (SW) blowdowns	616
19	TRS 30-minute WHO H ₂ S Limit (5.0 ppb)	CBD	2025/02/28 00:30	7.5	266	4.4	Mondi	Softwood (SW) blowdowns	617
20	TRS 10-minute OME Limit (9.3 ppb)	CBD	2025/02/28 00:50	9.4	266	4.5	Mondi	Softwood (SW) blowdowns	617
21	TRS 30-minute WHO H ₂ S Limit (5.0 ppb)	CBD	2025/02/28 01:00	8.1	260	3.7	Mondi	Softwood (SW) blowdowns	617
22	TRS 30-minute WHO H ₂ S Limit (5.0 ppb)	CBD	2025/02/28 02:00	8.3	256	2.5	Mondi	Softwood (SW) blowdowns	617
23	TRS 10-minute OME Limit (9.3 ppb)	CBD	2025/02/28 02:30	10.2	249	2.0	Mondi	Softwood (SW) blowdowns	617
24	TRS 30-minute WHO H ₂ S Limit (5.0 ppb)	CBD	2025/02/28 02:30	6.6	270	2.0	Mondi	Softwood (SW) blowdowns	617
25	TRS 30-minute WHO H ₂ S Limit (5.0 ppb)	CBD	2025/02/28 04:00	7.8	243	1.3	Mondi	Softwood (SW) blowdowns	617
26	TRS 10-minute OME Limit (9.3 ppb)	CBD	2025/02/28 04:20	10.2	238	1.2	Mondi	Softwood (SW) blowdowns	617
27	TRS 10-minute OME Limit (9.3 ppb)	CBD	2025/02/28 04:30	11.4	256	1.1	Mondi	Softwood (SW) blowdowns	617
28	TRS 30-minute WHO H ₂ S Limit (5.0 ppb)	CBD	2025/02/28 04:30	12.0	251	2.2	Mondi	Softwood (SW) blowdowns	617
29	TRS 10-minute OME Limit (9.3 ppb)	CBD	2025/02/28 04:40	13.9	237	2.3	Mondi	Softwood (SW) blowdowns	617
30	TRS 10-minute OME Limit (9.3 ppb)	CBD	2025/02/28 04:50	10.8	259	3.1	Mondi	Softwood (SW) blowdowns	617
31	TRS 30-minute WHO H ₂ S Limit (5.0 ppb)	CBD	2025/02/28 06:30	5.1	259	2.8	Mondi	Softwood (SW) blowdowns	617
32	TRS 30-minute WHO H ₂ S Limit (5.0 ppb)	CBD	2025/02/28 20:30	9.2	270	2.2	Mondi	Softwood (SW) blowdowns	617
33	TRS 10-minute OME Limit (9.3 ppb)	CBD	2025/02/28 20:40	11.0	264	2.4	Mondi	Softwood (SW) blowdowns	617

No	Target / Guideline / Standard	Station	Date	Value (ppb)	Wind Direction (°)	Wind Speed (m/s)	Source	Comment	Response
34	TRS 30-minute WHO H ₂ S Limit (5.0 ppb)	CBD	2025/02/28 21:00	7.7	283	1.9	Mondi	Softwood (SW) blowdowns	617
35	TRS 30-minute WHO H ₂ S Limit (5.0 ppb)	CBD	2025/02/28 21:30	7.3	265	3.0	Mondi	Softwood (SW) blowdowns	617
36	TRS 30-minute WHO H ₂ S Limit (5.0 ppb)	Richardia	2025/02/14 21:00	7.0	169	1.4	Mondi	Secondary Effluent Treatment Plant	612
37	TRS 30-minute WHO H ₂ S Limit (5.0 ppb)	Richardia	2025/02/14 23:00	8.0	182	1.0	Mondi	Secondary Effluent Treatment Plant	612
38	TRS 10-minute OME Limit (9.3 ppb)	Richardia	2025/02/23 01:30	9.4	220	3.5	Mondi	Secondary Effluent Treatment Plant	614
39	TRS 30-minute WHO H ₂ S Limit (5.0 ppb)	Richardia	2025/02/23 01:30	7.8	222	3.6	Mondi	Secondary Effluent Treatment Plant	614
40	TRS 30-minute WHO H ₂ S Limit (5.0 ppb)	Richardia	2025/02/28 22:00	5.8	241	2.9	Mondi	Softwood (SW) blowdowns	617
41	TRS 30-minute WHO H ₂ S Limit (5.0 ppb)	Richardia	2025/02/28 22:30	5.9	243	3.5	Mondi	Softwood (SW) blowdowns	617
42	TRS 30-minute WHO H ₂ S Limit (5.0 ppb)	Richardia	2025/02/28 23:00	6.6	243	3.5	Mondi	Softwood (SW) blowdowns	617
43	TRS 30-minute WHO H ₂ S Limit (5.0 ppb)	Richardia	2025/02/28 23:30	6.2	236	4.0	Mondi	Softwood (SW) blowdowns	617

Table 2: TRS Responses

Response	Industry Feedback
1	Unresolved / No Response
610	Mondi - Candice Webb responded, (2025/02/13 08:44): Mondi has investigated the exceedance below and identified the following root cause: The Environmental Manager investigated the morning of 03 Feb 2025 and noticed the vacuum of the Non-condensable Gas system to be slightly positive pressure (0.1 kPA) where a negative pressure is required (-2kPA). Although there was no evidence of venting non-condensable gases, it is possible that during period of positive pressure odorous gases were released to atmosphere. The Odour Abatement Task Team is working on identifying actions to resolve the issue.
612	Mondi - Kira Cobbold responded, (2025/02/21 08:58): Mondi has investigated the exceedance below and identified that based on wind speed and direction the Secondary Treatment Effluent Plant (SETP) was likely the root cause on the elevated TRS levels observed on 14/02/25. The Odour Abatement Task Team is working on identifying actions to resolve the issue and will provide an update in the next MANCO meeting.
613	Mondi - Kira Cobbold responded, (2025/02/21 08:54): Following an internal investigation, it was unclear the exact root cause of the elevated TRS levels recorded on 15/02/25. However, based on wind speed and direction at the time, it is likely that Mondi was the source. The Odour Abatement Task Team continues to meet bi-weekly to address our odour-related issues.
614	Mondi - Kira Cobbold responded, (2025/02/25 11:20): Following an internal investigation, we have identified the SETP as the root cause of the elevated TRS levels recorded on 23/02/25. This conclusion is supported by wind speed and direction, as well as an increase in TRS detected by Mondi's portable monitoring station currently located at clarifier 1 at the primary effluent treatment plant (across the road from SETP). The Odour Abatement Task Team continues to address this issue in its bi-weekly meetings, focusing on improving effluent management and reducing odour emissions.
615	Mondi - Kira Cobbold responded, (2025/02/26 12:50): Our investigation confirms that Mondi was the source of the elevated TRS levels recorded on 25/02/2025. This is supported by wind speed and direction, as well as our monitoring stations, which recorded elevated H ₂ S levels consistent with RBCAA data. The exceedances were caused by poor effluent quality, leading to increased odour emissions from the SETP. The TRS peaks align with the mills attempt to put the SETP back online after it was initially switched off to address odour complaints on 24/02/2025 evening. The shift coordinator noted the TRS increase at the CBD station and switched the SETP off again in each instance.
616	Mondi - Kira Cobbold responded, (2025/02/28 14:01): Our investigation confirms that Mondi was the source of the TRS (30 min and 10 min avgs) exceedances recorded on 27/02/2025, based on wind speed, direction, and corresponding increases in TRS levels at our monitoring stations. These exceedances have been linked to softwood (SW) blowdowns, which occurred in both the early morning and evening of the 27th. Additionally, SW venting through the carbon filter aligns with the odour complaint received at 22:48 in Veldenvlei yesterday evening. The Odour Abatement Task Team held a meeting today to discuss the above-mentioned issues, and corrective actions have been implemented.
617	Mondi - Kira Cobbold responded, (2025/03/05 08:09): Please use this as the response for the 30 min & 10 min avg. exceedances. Based on wind direction, wind speed, and elevated TRS levels recorded at Mondi's monitoring stations, we confirm that Mondi was the source of the exceedances (CBD and Richardia) on 28/02/2025. Our investigation has linked both the morning and evening exceedances to softwood (SW) blowdowns, which correlate with increased TRS levels observed in the old flare burning zone. Our odour abatement team continues to focus on this issue to mitigate future impacts.

