

Monthly Air Quality

April 2026

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Table of Contents

1.	Introduction.....	7
2.	Meteorology	9
2.1.	Data Completeness	9
2.2.	Wind Roses.....	10
2.3.	Rainfall	12
3.	Air Quality Complaints.....	15
3.1.	Field Observations	15
3.2.	Complaints Distribution	16
4.	Particulate Monitoring	18
4.1.	Ambient Air Quality Standards.....	18
4.2.	Data Completeness	19
4.3.	Monthly	20
4.4.	Diurnal.....	22
4.5.	Daily	23
4.6.	Exceedances	25
4.7.	Conclusion	26
4.7.1.	Monthly air quality (April 2026).....	26
4.7.2.	Year-to-date (2026 calendar year)	27
5.	Sulphur Dioxide Monitoring	27
5.1.	Ambient Air Quality Standards.....	27
5.2.	Data Completeness	28
5.3.	Monthly	28
5.4.	Diurnal.....	29
5.5.	Daily	30
5.6.	Hourly.....	31
5.7.	10-minute	32
5.8.	Exceedances	32
5.9.	Conclusion	34
5.9.1.	Monthly air quality (April 2026).....	34
5.9.2.	Year-to-date (2026 calendar year)	34
6.	Total Reduced Sulphur Monitoring	35
6.1.	Ambient Air Quality Standards.....	35
6.2.	Data Completeness	36
6.3.	Monthly	36

6.4.	Diurnal.....	37
6.5.	Daily	38
6.6.	30-minute	39
6.7.	10-minute	40
6.8.	Exceedances	41
6.9.	Conclusion	42
6.9.1.	Monthly air quality (April 2026).....	42
6.9.2.	Year-to-date (2026 calendar year)	42
7.	Monthly Air Quality	42
7.1.	Conclusion	42
7.1.1.	April 2026 – Monthly Conclusion	42
7.1.2.	2026 Calendar-Year Conclusion	43
8.	Acknowledgement.....	43
9.	References.....	44

Appendices

Appendix A: List of Abbreviations and Terms

Appendix B: Quality Assurance

Appendix C: Emission Inventory

Appendix D: Operational Report

Appendix E: Rainfall

Appendix F: Complaints Log

Appendix G: PM₁₀ Exceedance Log

Appendix H: PM_{2.5} Exceedance Log

Appendix I: SO₂ Exceedance Log

Appendix J: TRS Exceedance Log

List of Tables

Table 1.1: Primary monitoring network station coordinates.	8
Table 1.2: Secondary screening network coordinates (AirGradient monitors).	8
Table 2.1: Meteorological data capture.	9
Table 2.2: Rainfall – monthly totals and network average.	12
Table 3.1: Complaint - allocation, region, and type.	17
Table 4.1: Particulate ambient air quality limits.	18
Table 4.2: PM data capture.	19
Table 4.3: PM _{2.5} 24-hour exceedances.	24
Table 4.4: PM ₁₀ exceedance summary.	26
Table 4.5: PM _{2.5} exceedance summary.	26
Table 5.1: SO ₂ ambient air quality limits.	27
Table 5.2: SO ₂ data capture.	28
Table 5.3: SO ₂ 24-hour average exceedances.	30
Table 5.4: SO ₂ 1-hour exceedances.	31
Table 5.5: SO ₂ 10-minute exceedances.	32
Table 5.6: SO ₂ exceedance summary.	33
Table 6.1: TRS ambient air quality limits.	35
Table 6.2: TRS data capture.	36
Table 6.3: TRS 30-minute average exceedances (WHO).	39
Table 6.4: TRS exceedance summary.	41

List of Figures

Figure 1.1: RBCAA monitoring network.	7
Figure 2.1: Wind roses - monthly.	10
Figure 2.2: Wind roses - diurnal.	11
Figure 2.3: Rainfall.	12
Figure 2.4: Rainfall – Richards Bay.	12
Figure 2.5: Rainfall – Felixton.	13
Figure 2.6: Rainfall – RBCT.	13
Figure 2.7: Rainfall – South32.	14
Figure 2.8: Rainfall – Meerensee.	14
Figure 3.1: Complaints – daily.	15
Figure 3.2: Complaints - historical monthly comparison.	15

Figure 3.3: Complaints - region.....	16
Figure 3.4: Complaints - type.....	16
Figure 3.5: Complaints - source.....	17
Figure 4.1: PM ₁₀ monthly concentrations.....	20
Figure 4.2: PM ₁₀ monthly comparison.....	20
Figure 4.3: PM _{2.5} monthly concentrations.....	21
Figure 4.4: PM _{2.5} monthly comparison.....	21
Figure 4.5: PM ₁₀ diurnal concentrations.....	22
Figure 4.6: PM _{2.5} diurnal concentrations.....	22
Figure 4.7: PM ₁₀ 24-hour average concentrations.....	23
Figure 4.8: PM _{2.5} daily average concentrations.....	24
Figure 4.9: PM ₁₀ exceedance days.....	25
Figure 4.10: PM _{2.5} exceedance days.....	25
Figure 5.1: SO ₂ monthly concentrations.....	28
Figure 5.2: SO ₂ monthly comparison.....	29
Figure 5.3: SO ₂ diurnal concentrations.....	29
Figure 5.4: SO ₂ 24-hour average concentrations.....	30
Figure 5.5: SO ₂ 1-hour average concentrations.....	31
Figure 5.6: SO ₂ 10-minute average concentrations.....	32
Figure 5.7: SO ₂ exceedance days.....	33
Figure 6.1: TRS monthly concentrations.....	36
Figure 6.2: TRS monthly comparison.....	37
Figure 6.3: TRS diurnal concentrations.....	37
Figure 6.4: TRS daily average concentration.....	38
Figure 6.5: TRS 30-minute average concentration.....	39
Figure 6.6: TRS 10-minute average concentrations.....	40
Figure 6.7: TRS exceedance days.....	41

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 month under review. It aims to provide a detailed analysis of meteorology, particulate matter (PM₁₀ and PM_{2.5}), sulphur dioxide (SO₂), and total reduced sulphur (TRS) levels measured by the RBCAA's monitoring network. Each monthly report focuses on a single calendar month, highlighting any notable incidents or exceedances of the applicable ambient air quality standards during that period. By analysing the monthly data, trends and patterns in air quality can be identified, helping to assess potential environmental impacts and mitigate any adverse effects.

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

The RBCAA monitoring network comprises eleven (11) primary monitoring stations (Figure 1.1 and Table 1.1). Airport, Felixton Met and Meerensee are meteorological stations and do not operate continuous air-quality analysers. The network also includes a secondary screening network comprising 10 AirGradient monitors (Table 1.2).



Figure 1.1: RBCAA monitoring network.

Table 1.1: Primary monitoring network station coordinates.

Station	Latitude	Longitude	Elevation (m)
Airport	-28.738161	32.093332	33.99
Arboretum	-28.752377	32.062791	25.20
Brackenham	-28.731325	32.039059	56.28
CBD	-28.744693	32.054851	32.26
eSikhaleni	-28.865278	31.911679	14.54
Felixton	-28.829255	31.893636	56.59
Meerensee	-28.772104	32.101308	14.89
Felixton Met	-28.836487	31.892513	27.87
Harbour West	-28.787297	32.027133	7.36
Richardia	-28.762769	32.066068	19.96
Scorpio	-28.769694	32.034282	29.39

Table 1.2: Secondary screening network coordinates (AirGradient monitors).

Site	Latitude (°)	Longitude (°)	Elevation (m)	UTM Zone 36S X (m)	UTM Zone 36S Y (m)
Airport	-28.738161	32.093332	33.99	411467	6820686
Brackenham	-28.731325	32.039059	56.28	406161	6821402
CBD	-28.744693	32.054851	32.26	407715	6819933
Empangeni	-28.734970	31.896245	109.85	392217	6820877
eSikhaleni	-28.865278	31.911679	14.54	393857	6806453
Felixton	-28.829255	31.893636	56.59	392060	6810428
Harbour West	-28.787297	32.027133	7.36	405047	6815191
Meerensee	-28.772104	32.101308	14.89	412274	6816931
Mtunzini	-28.959335	31.743905	84.00	377603	6795870
Richardia	-28.762769	32.066068	19.96	408826	6817939

2. METEOROLOGY

2.1. Data Completeness

The percentage of valid data received from the meteorological network for April 2026 is shown in Table 2.1.

Table 2.1: Meteorological data capture.

Station	Availability (%)	Wind (%)	Temperature (%)	RH (%)	Pressure (%)	SR (%)	Rain (%)
Airport	100	100	100	100	100	100	-
Arboretum	100	98	100	-	-	-	-
Brackenham	94	94	94	-	-	-	-
CBD	100	100	100	100	-	-	-
CBD Rain	99	-	-	-	-	-	99
eSikhaleni	100	100	100	100	-	-	-
Felixton	100	-	-	-	-	-	-
Felixton Met	100	100	100	100	-	-	-
Harbour West	100	100	100	-	-	-	-
Meerensee Rain	100	-	-	-	-	-	100

Notes:

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

Missing Data (Meteorology):

- Brackenham – Power outages (3 days with <80% data capture, 12–14 April 2026).

2.2.Wind Roses

Monthly wind roses for April 2025 and April 2026 at 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.

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 summer, which explains the slightly higher proportion of these winds.

Diurnal wind roses for April 2026 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.

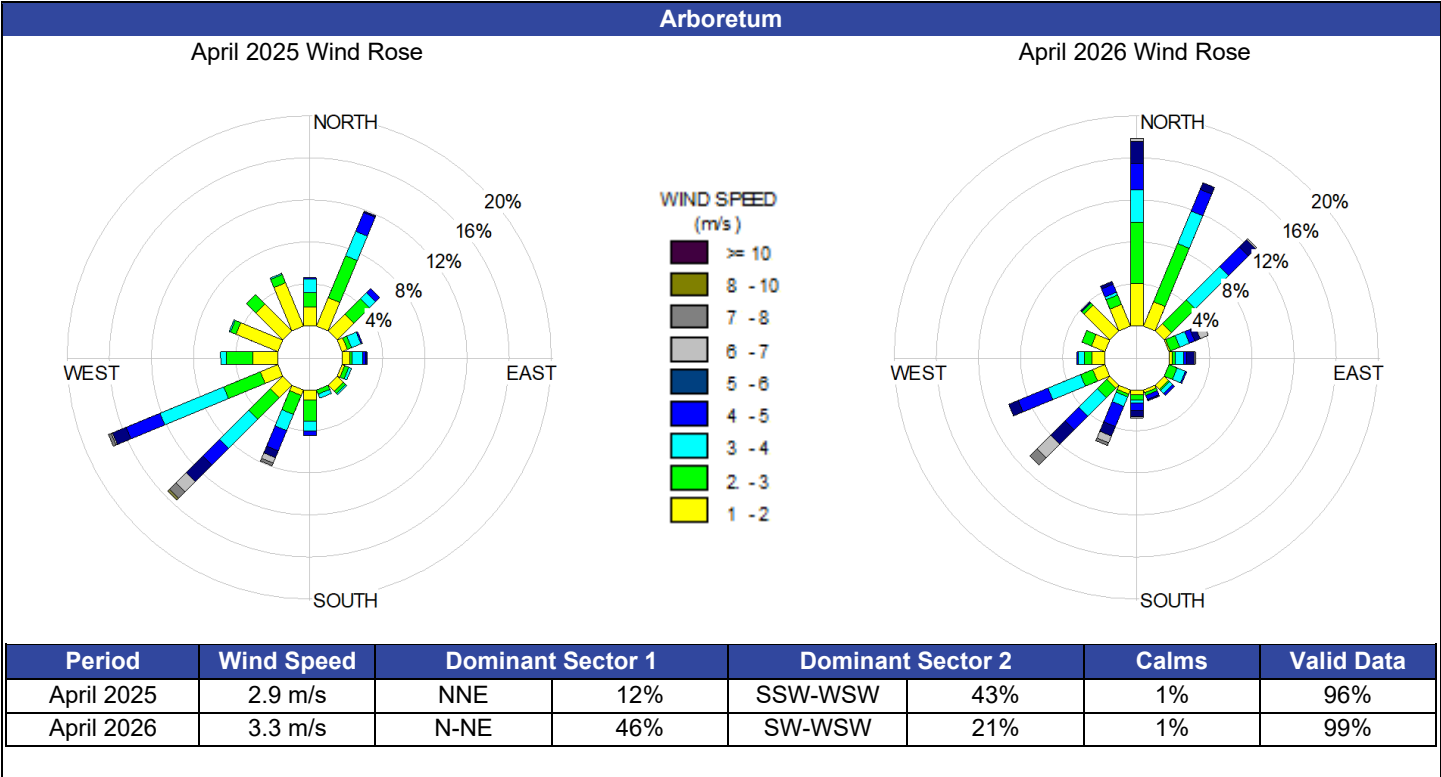


Figure 2.1: Wind roses - monthly.

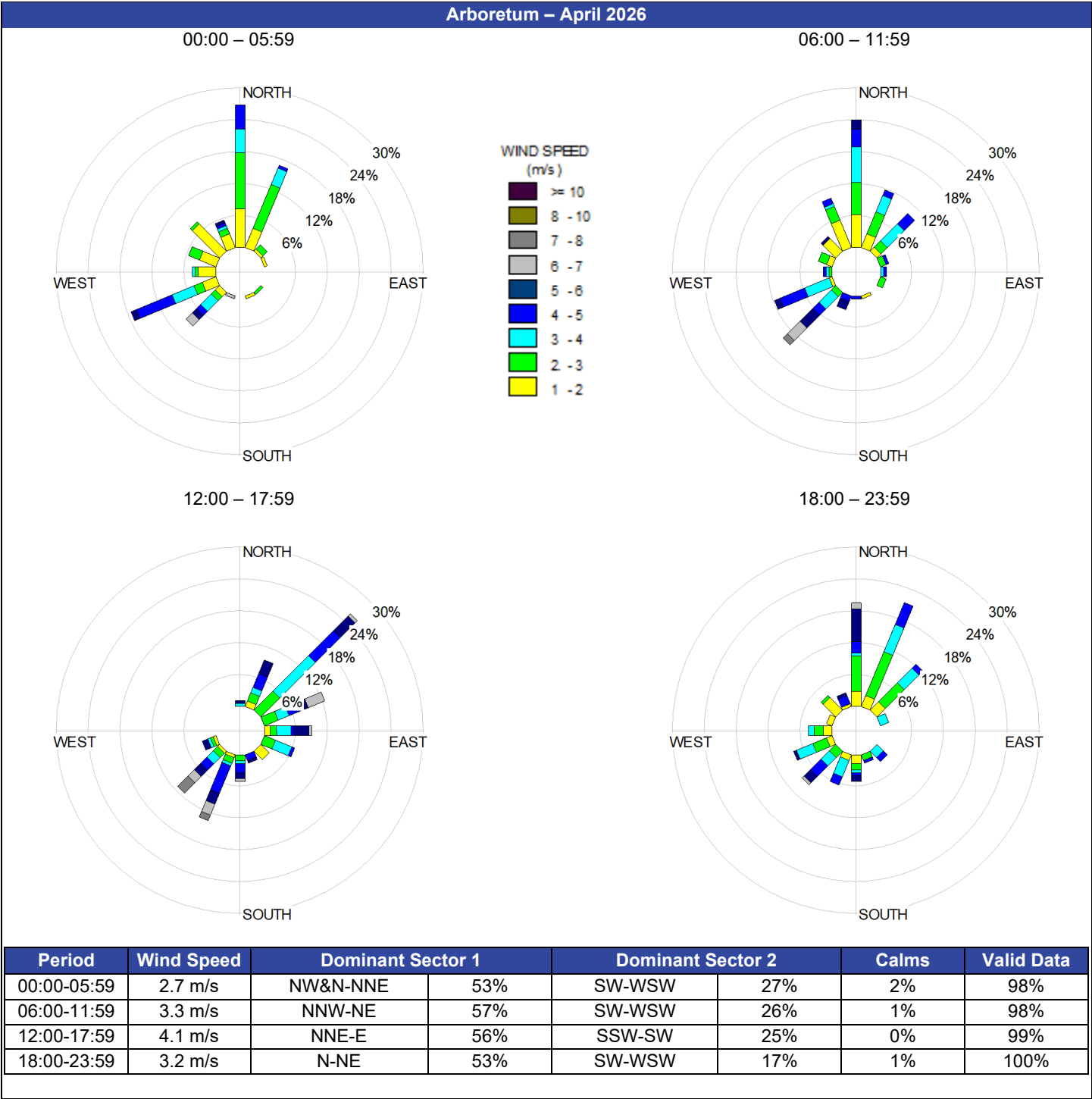


Figure 2.2: Wind roses - diurnal.

2.3. Rainfall

Monthly rainfall totals measured at the reporting locations are presented in Table 2.2 and Figure 2.3 to Figure 2.8 (see Appendix E for tabulated rainfall data).

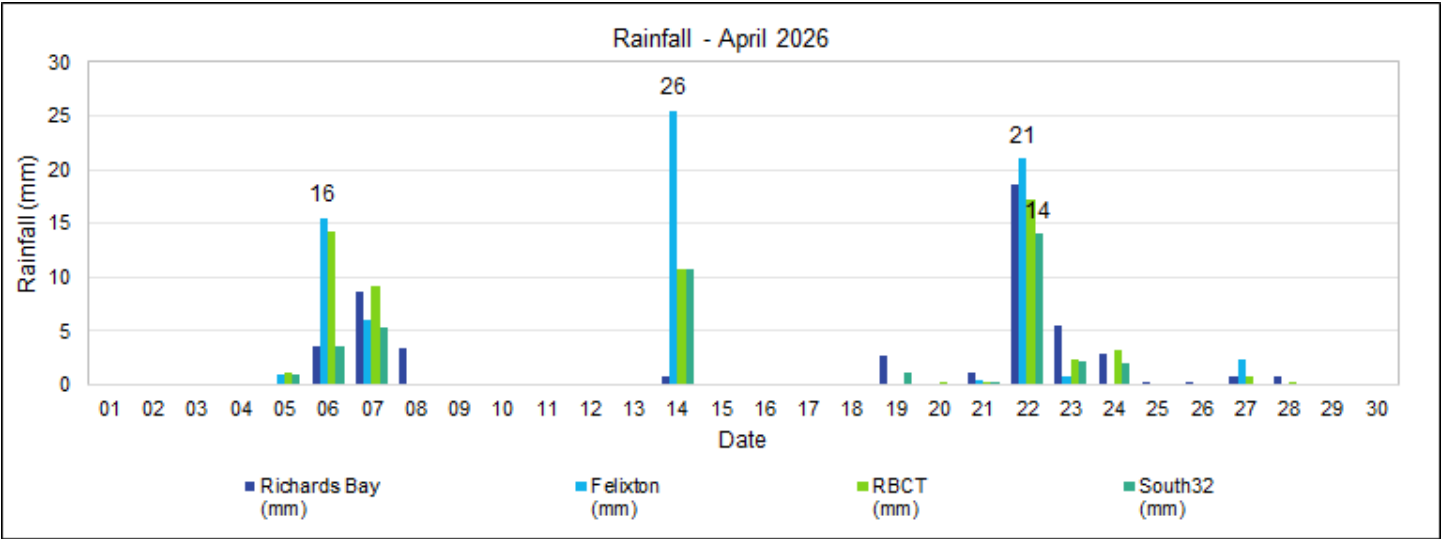


Figure 2.3: Rainfall.

Table 2.2: Rainfall – monthly totals and network average.

Month	Richards Bay (mm)	Felixton (mm)	RBCT (mm)	Meerensee (mm)	South32 (mm)	Average (mm)
April 2026	49	73	60	56	40	55

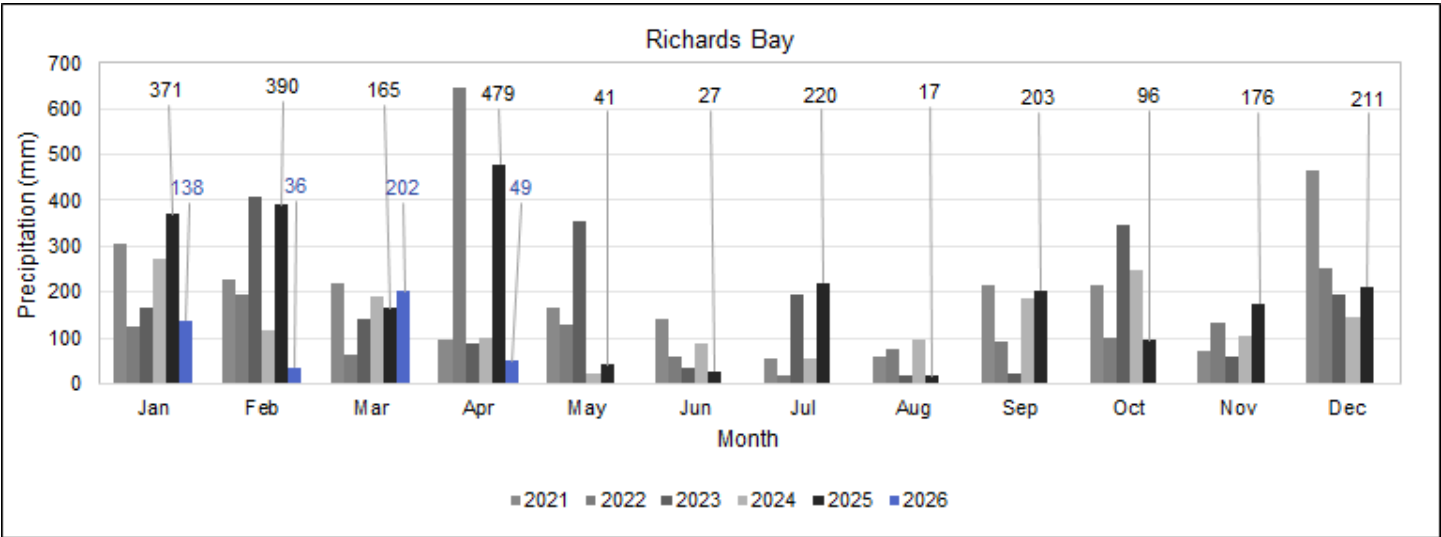


Figure 2.4: Rainfall – Richards Bay.

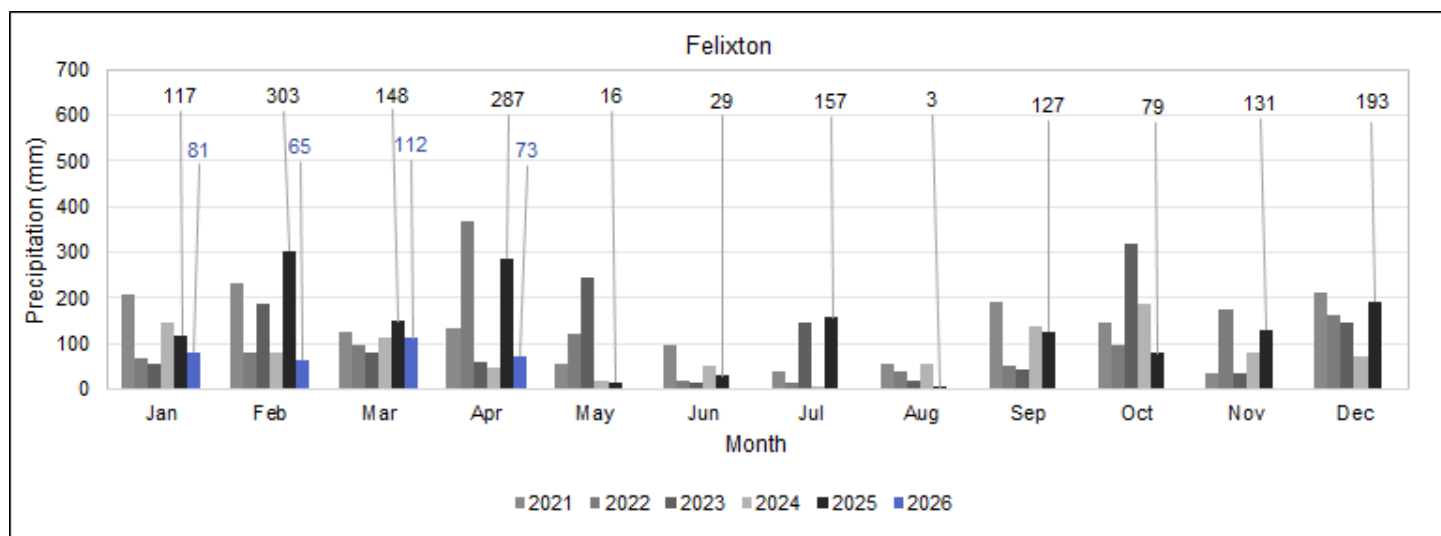


Figure 2.5: Rainfall – Felixton.

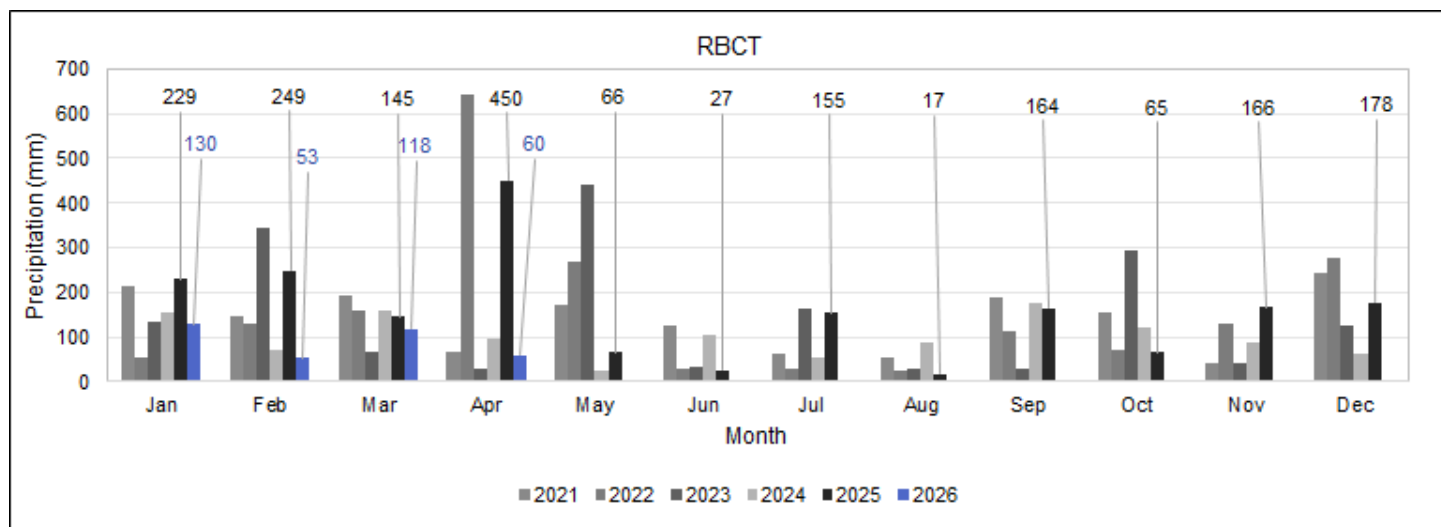


Figure 2.6: Rainfall – RBCT.

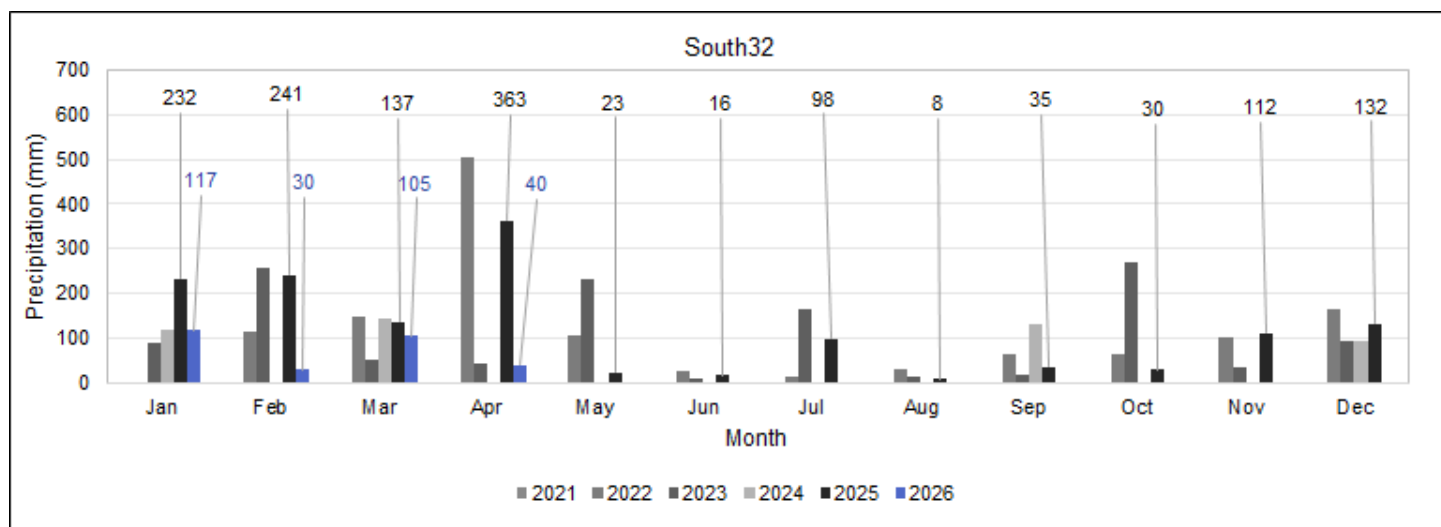


Figure 2.7: Rainfall – South32.

Note: South32 experienced rain-gauge data-quality issues in 2024.

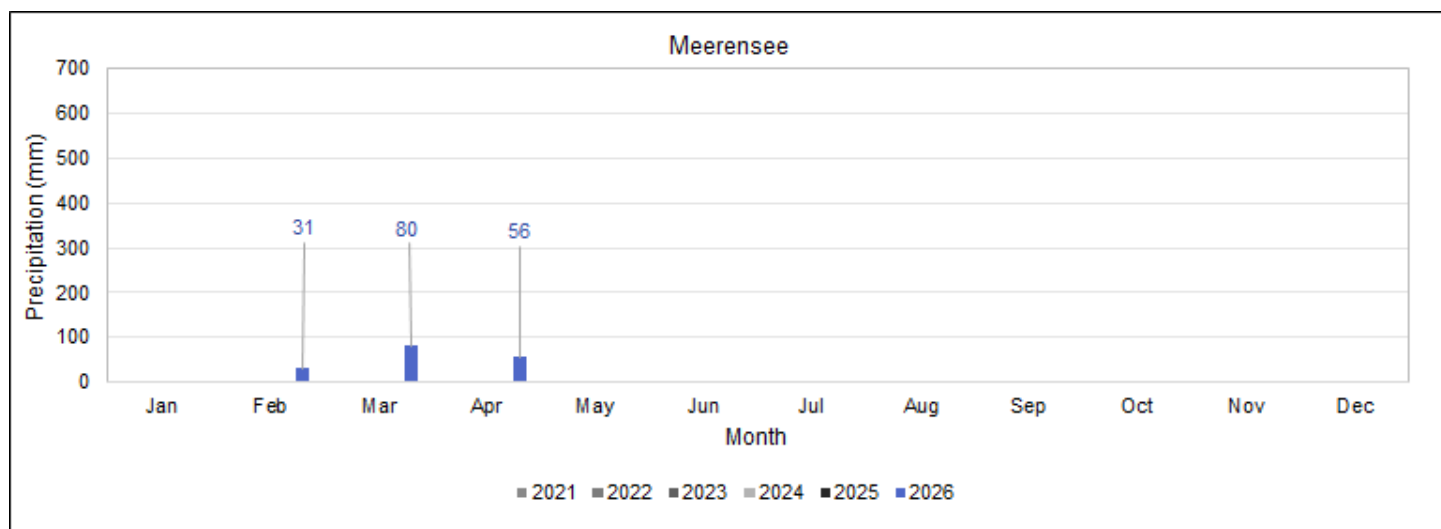


Figure 2.8: Rainfall – Meerensee.

Note: The Meerensee rain gauge was commissioned in February 2026.

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 2026. Please see Appendix F for the complaints log.

3.1. Field Observations

Twenty-seven (27) air quality complaints were received during April 2026, compared with one hundred and eighty-six (186) complaints logged in April 2025. The daily complaint count and monthly historical comparison are shown in Figure 3.1 and Figure 3.2.

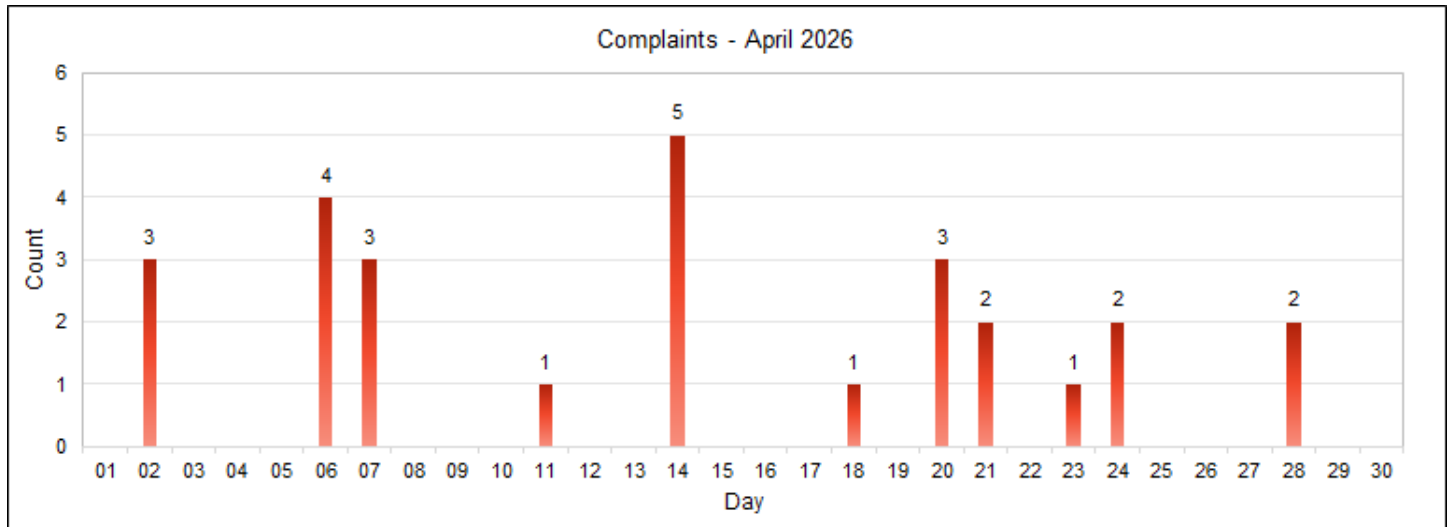


Figure 3.1: Complaints – daily.

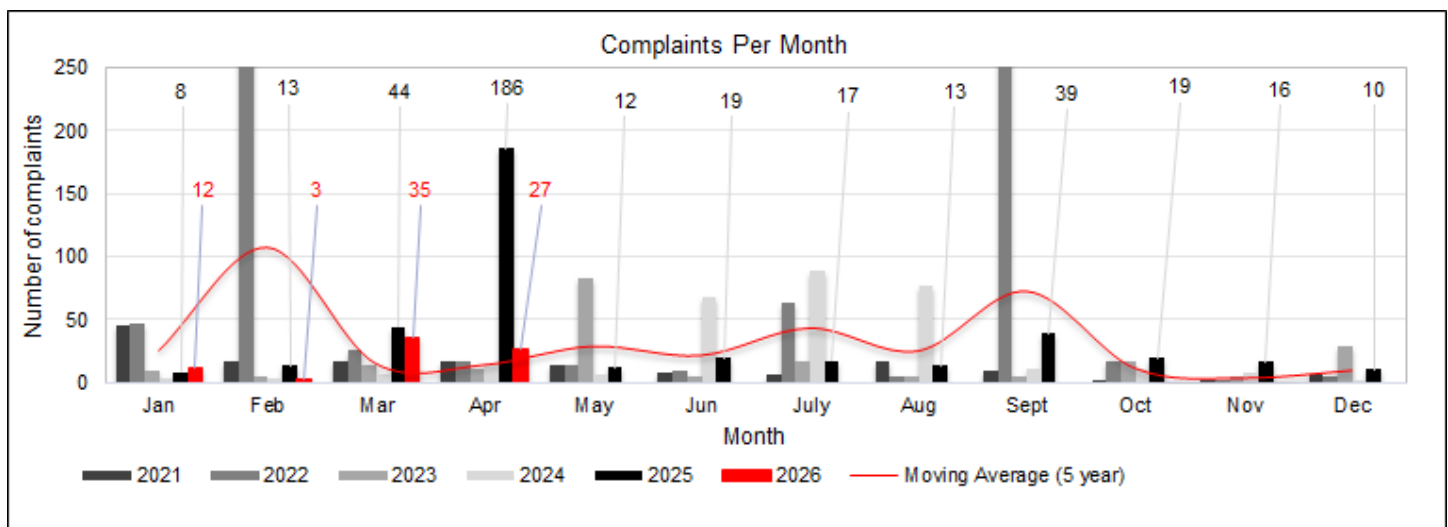


Figure 3.2: Complaints - historical monthly comparison.

3.2. Complaints Distribution

The distribution of complaints in April 2026 by region, type, and source is presented in Figure 3.3, Figure 3.4, and Figure 3.5.

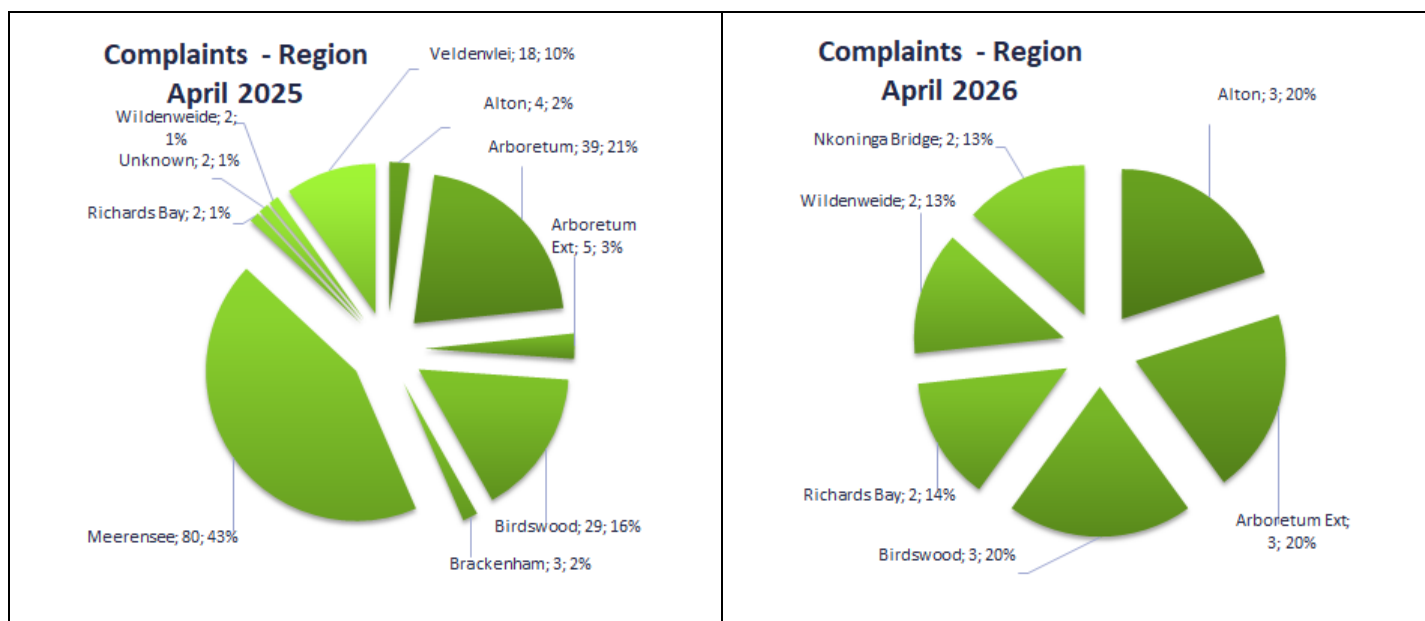


Figure 3.3: Complaints - region.

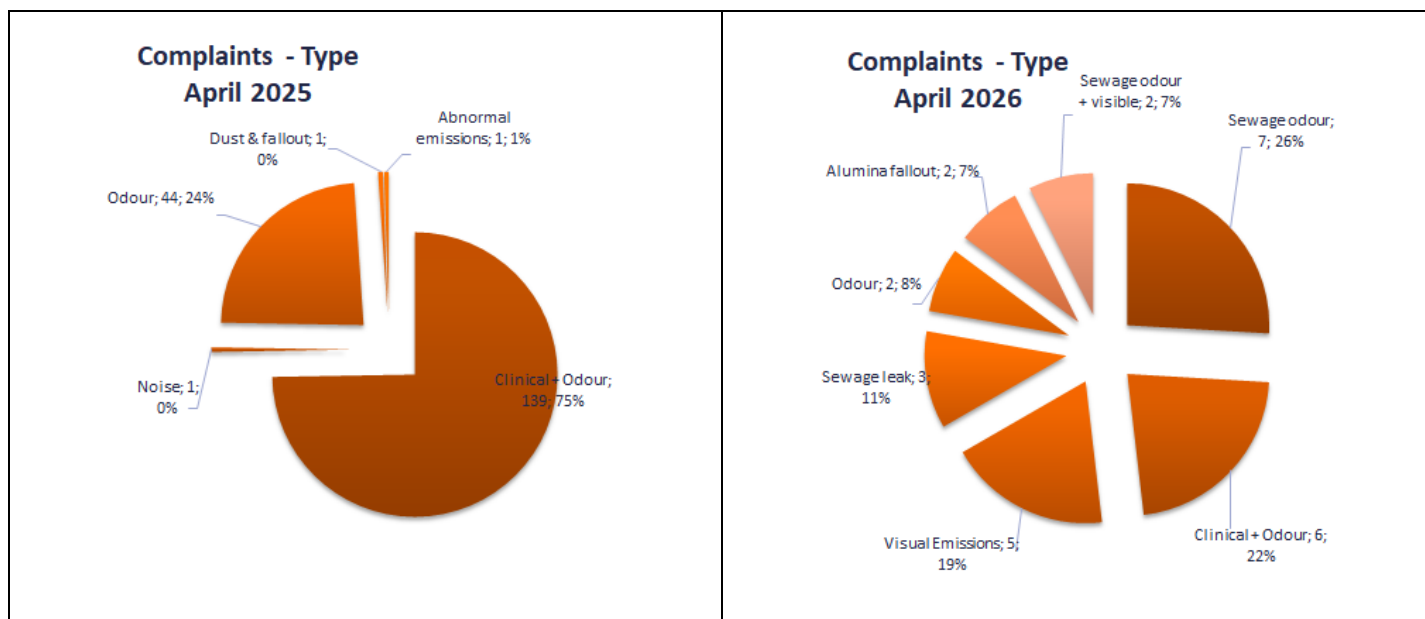


Figure 3.4: Complaints - type.

The complaints received were allocated as follows: Mondi (13, 48.1%), CoU (12, 44.4%), and South32 (2, 7.4%).

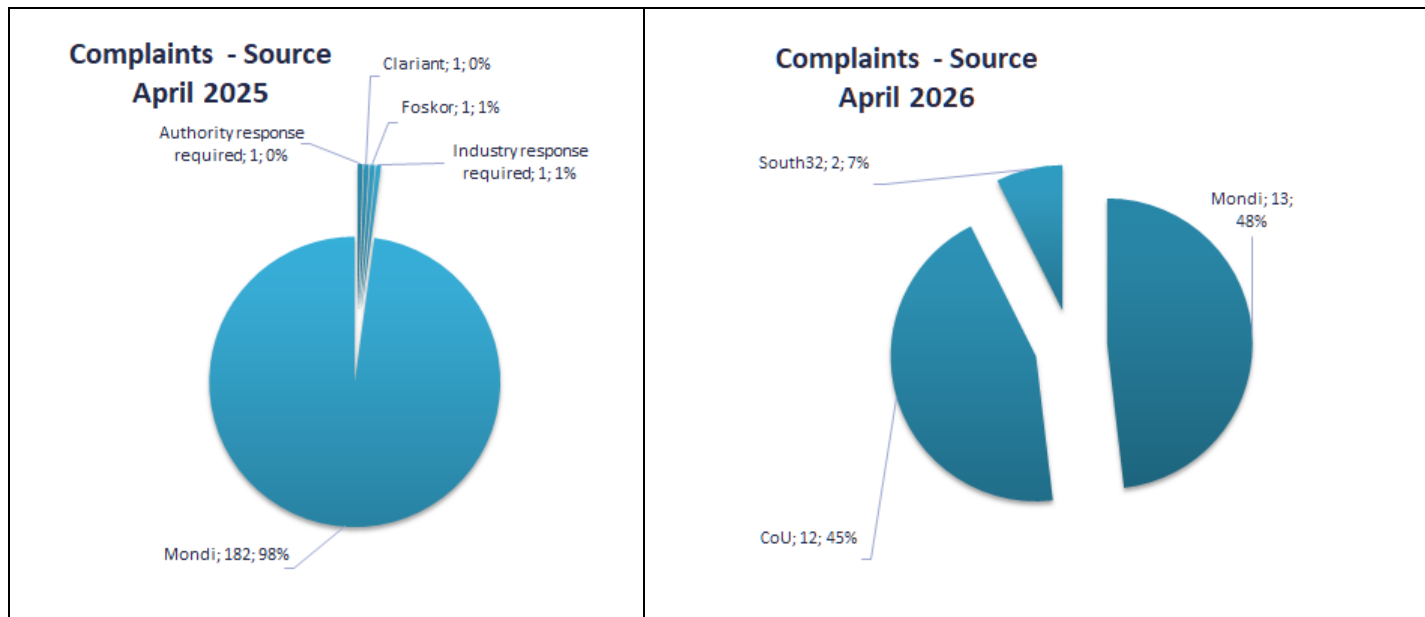


Figure 3.5: Complaints - source.

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

CoU	12
Sewage leak	3
Birdswood	1
Arboretum Ext	1
Veldenvlei	1
Sewage odour	7
Nkoninga Bridge	1
Arboretum Ext	2
Veldenvlei	4
Sewage odour + visible	2
Veldenvlei	1
Nkoninga Bridge	1
Mondi	13
Clinical + Odour	6
Birdswood	1
Wildenweide	2
Veldenvlei	3
Odour	2
Birdswood	1
Veldenvlei	1
Visual Emissions	5
Richards Bay	2
Alton	3
South32	2
Alumina fallout	2
Veldenvlei	2

4. PARTICULATE MONITORING

Particulate Matter (PM) refers to the solid particles and liquid droplets in the atmosphere. Many anthropogenic and natural sources emit PM directly or release other pollutants into the atmosphere, which subsequently form secondary PM. Particle size varies; for example, particles less than 10 micrometres (μm) in aerodynamic diameter are classified as PM_{10} , and particles less than 2.5 micrometres (μm) in aerodynamic diameter are classified as $\text{PM}_{2.5}$.

Inhalable particles, particularly $\text{PM}_{2.5}$, can penetrate deep into the respiratory system. Sustained exposure to high concentrations may therefore be associated with the following health effects:

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

At eSikhaleni and Richardia, particulate matter (PM) monitoring uses Tapered Element Oscillating Microbalance (TEOM) devices, which are U.S. EPA-approved for continuous PM measurement. These instruments determine particle mass by detecting frequency changes in a vibrating element as particles accumulate on it. Brackenham, CBD, Felixton, Scorpio and Harbour West use 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) as an indicative ambient particulate monitor; quantitative interpretation should therefore remain subject to the applicable site-specific calibration and QA/QC controls.

4.1. Ambient Air Quality Standards

Ambient air quality standards for particulate matter are listed in Table 4.1.

Table 4.1: Particulate ambient air quality limits.

Organisation	Limit	PM_{10} Daily Average ($\mu\text{g}/\text{m}^3$)	PM_{10} Annual Average ($\mu\text{g}/\text{m}^3$)	$\text{PM}_{2.5}$ Daily Average ($\mu\text{g}/\text{m}^3$)	$\text{PM}_{2.5}$ Annual Average ($\mu\text{g}/\text{m}^3$)
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 2012) 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 Completeness

The percentage of valid data received from the PM analysers for April 2026 is shown in Table 4.2.

Table 4.2: PM data capture.

Station	Availability (%)	PM ₁₀ (%)	PM _{2.5} (%)
Brackenham ES2	94	-	94
CBD ES1	100	100	-
eSikhaleni	100	100	-
Felixton ES1	100	100	-
Felixton ES2	99	-	99
Harbour West ES2	100	-	100
Richardia	100	-	100
Scorpio ES1	71	71	-
Scorpio ES2	100	-	100

Missing Data (PM₁₀):

- Scorpio ES1 – Analyser decommissioned and sent to the supplier for a firmware upgrade (9 days with <80% data capture, 1–9 April 2026).

Missing Data (PM_{2.5}):

- Brackenham ES2 – Power outages (3 days with <80% data capture, 12–14 April 2026).

4.3. Monthly

Monthly mean PM₁₀ concentrations were below the South African annual standard at all stations with sufficient April PM₁₀ data. The WHO annual guideline value was exceeded at CBD, eSikhaleni and Scorpio; this monthly comparison is indicative only and does not constitute an annual compliance determination (Figure 4.1). Comparisons to previous months are also provided (Figure 4.2).

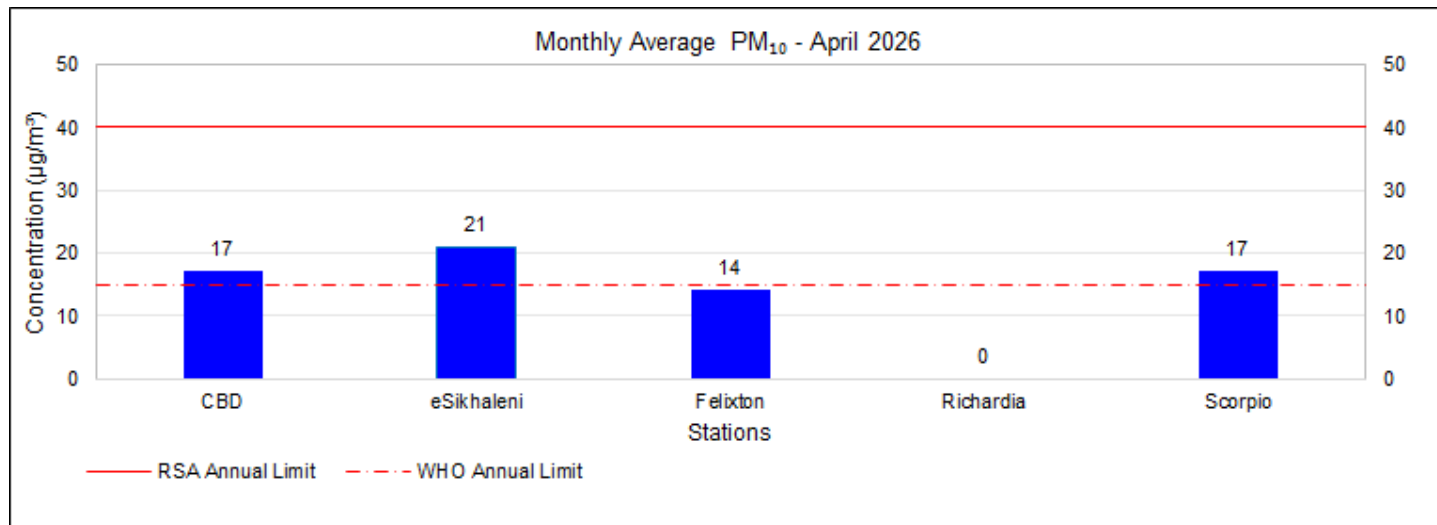


Figure 4.1: PM₁₀ monthly concentrations.

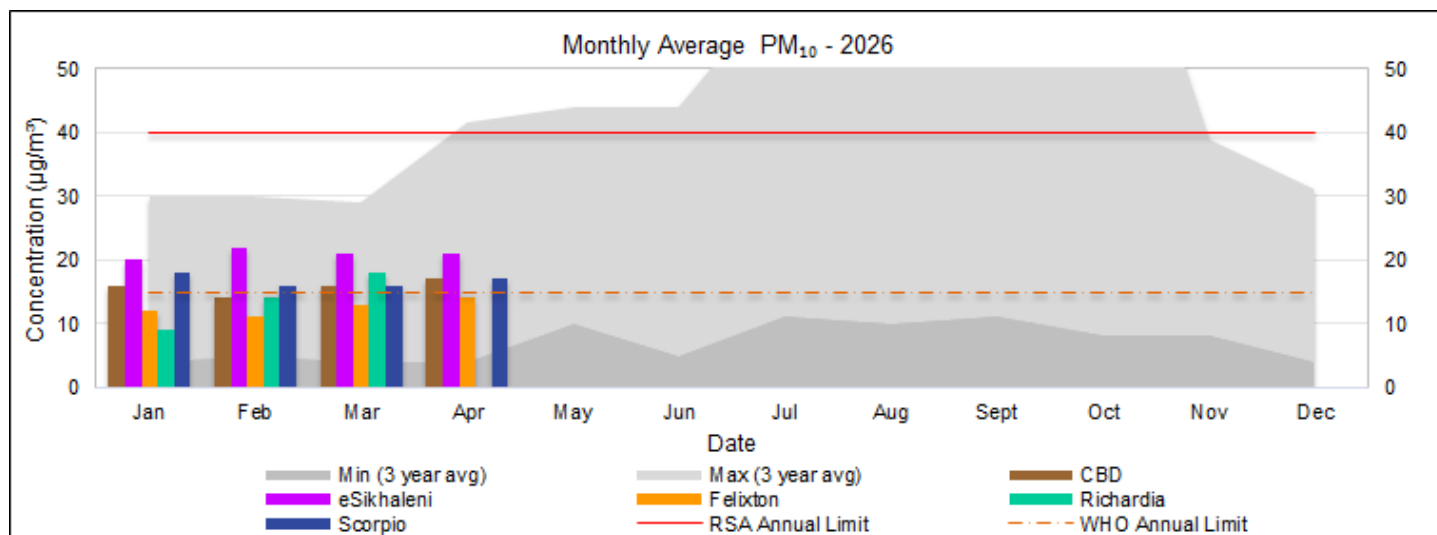


Figure 4.2: PM₁₀ monthly comparison.

Monthly mean $PM_{2.5}$ concentrations were below the South African annual standard at all stations. The WHO annual guideline value was exceeded at Brackenham, Felixton, Harbour West, Richardia and Scorpio; this monthly comparison is indicative only and does not constitute an annual compliance determination (Figure 4.3). Comparisons to previous months are also provided (Figure 4.4).

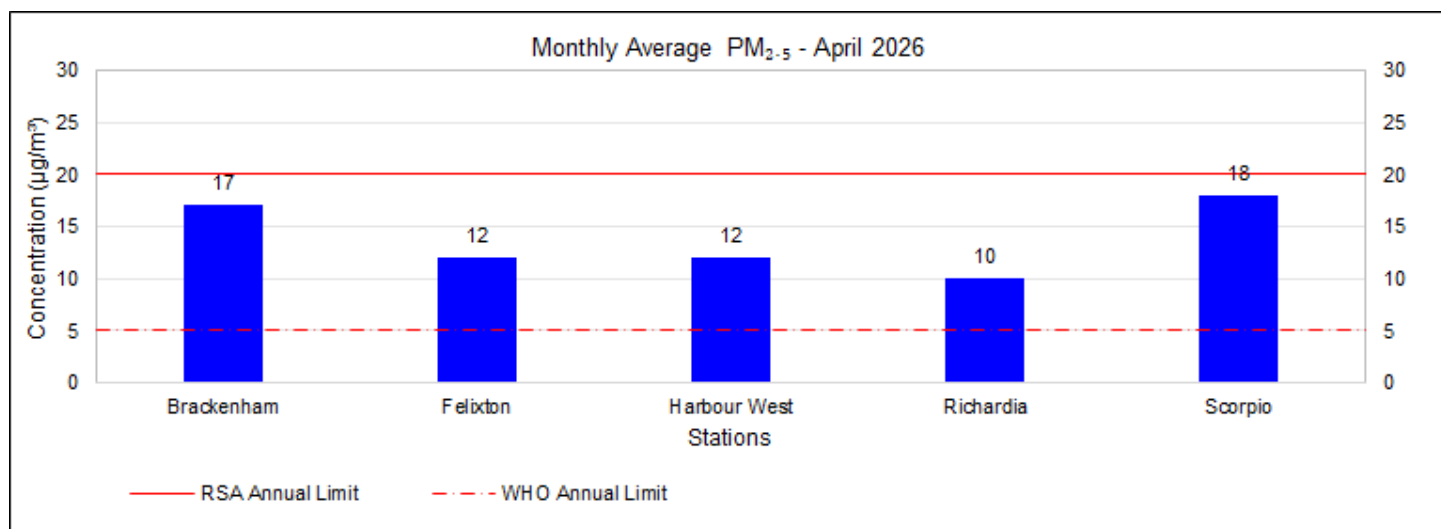


Figure 4.3: $PM_{2.5}$ monthly concentrations.

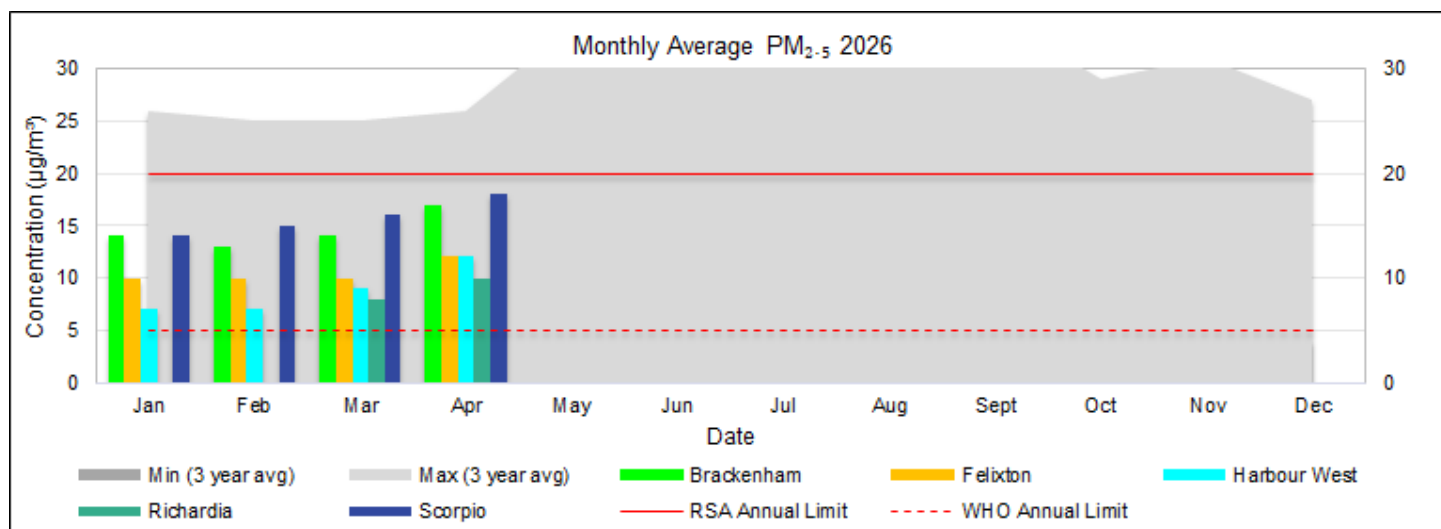


Figure 4.4: $PM_{2.5}$ monthly comparison.

4.4. Diurnal

PM diurnal concentration profiles are shown in Figure 4.5 and Figure 4.6. For visual reference, the diurnal PM profiles are plotted against the 24-hour RSA and WHO reference values. PM₁₀ profile values remained below both the RSA 24-hour value (75 µg/m³) and the WHO 24-hour value (45 µg/m³). PM_{2.5} profile values remained below the RSA 24-hour value (40 µg/m³), while the WHO 24-hour value (15 µg/m³) was exceeded at Brackenham, Harbour West and Scorpio.

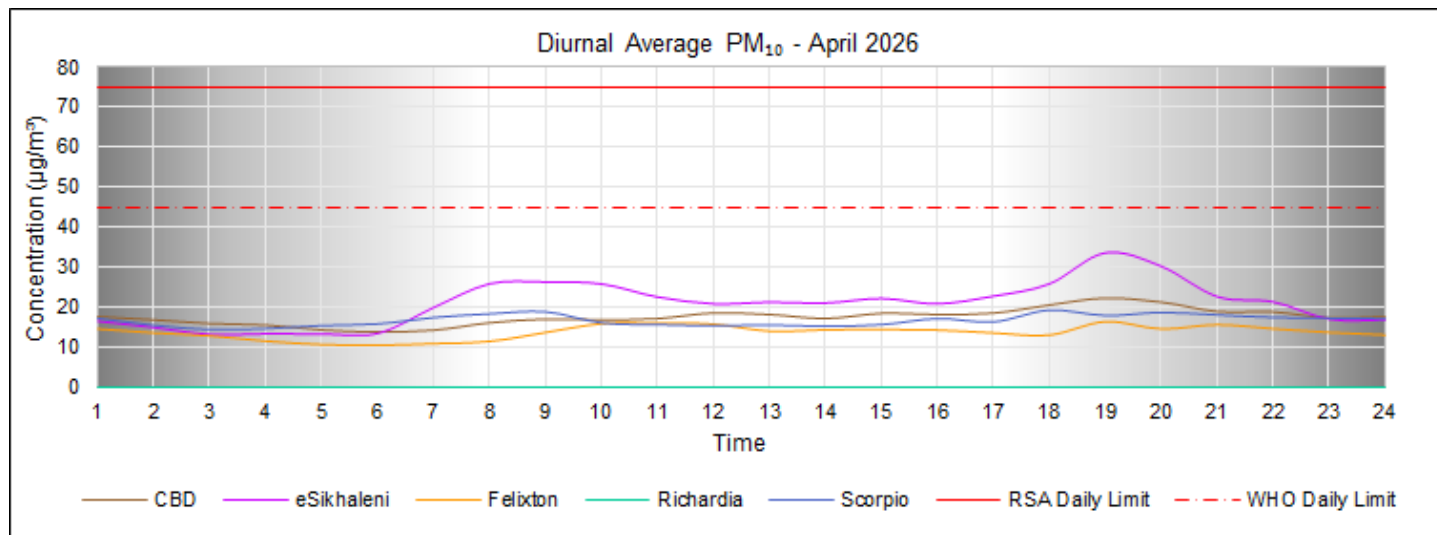


Figure 4.5: PM₁₀ diurnal concentrations.

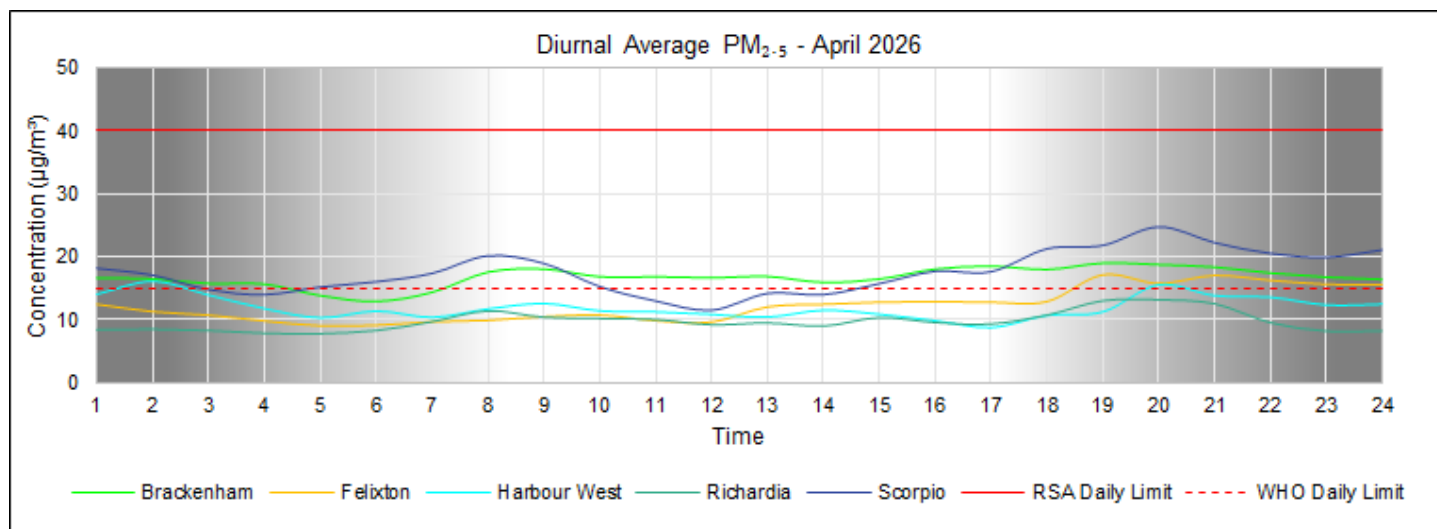


Figure 4.6: PM_{2.5} diurnal concentrations.

4.5. Daily

PM₁₀ daily concentrations are shown in Figure 4.7. No PM₁₀ 24-hour exceedance-allocation table is presented because no exceedances were recorded. There were:

- ▶ No (0) measured exceedances of the RSA 24-hour standard (75 µg/m³); and,
- ▶ No (0) measured exceedances of the WHO 24-hour guideline (45 µg/m³).

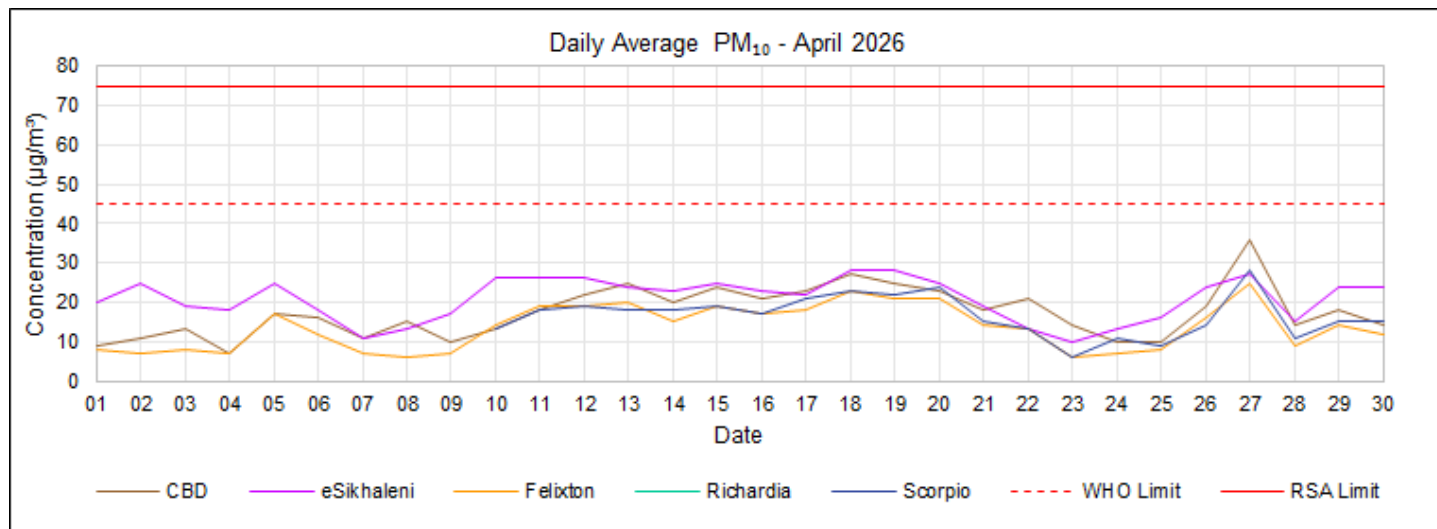


Figure 4.7: PM₁₀ 24-hour average concentrations.

Missing Data (PM₁₀)

- Scorpio ES1 – Analyser decommissioned and sent to the supplier for a firmware upgrade (9 days with <80% data capture, 1–9 April 2026).

PM_{2.5} daily concentrations are shown in Figure 4.8, and exceedances are summarised in Table 4.3. There were:

- ▶ No (0) measured exceedances of the RSA 24-hour standard (40 µg/m³); and,
- ▶ Fifty-four (54) measured exceedance-days of the WHO 24-hour guideline (15 µg/m³).

Table 4.3: PM_{2.5} 24-hour exceedances.

PM _{2.5} Daily WHO Limit (15 µg/m ³)	54
No response required	54
Brackenham	15
Felixton	9
Scorpio	20
Harbour West	10

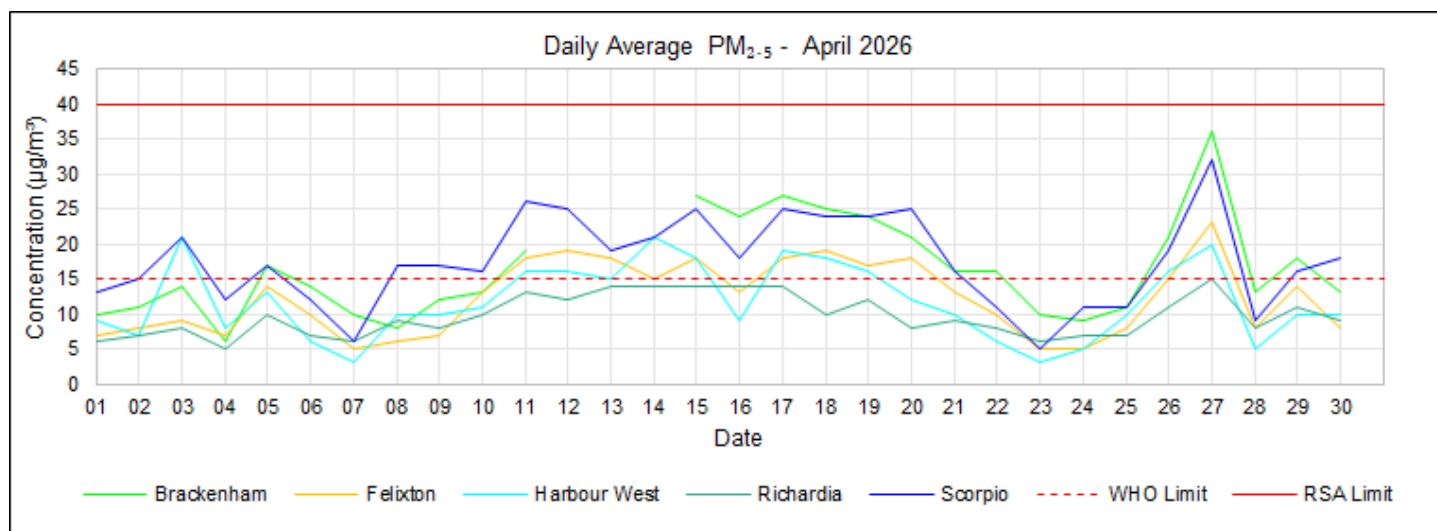


Figure 4.8: PM_{2.5} daily average concentrations.

Missing Data (PM_{2.5})

- Brackenham ES2 – Power outages (3 days with <80% data capture, 12–14 April 2026).

4.6. Exceedances

The number of days on which exceedances occurred, together with comparisons to previous months for PM_{10} and $PM_{2.5}$, is shown in Figure 4.9 and Figure 4.10. Summaries of PM_{10} and $PM_{2.5}$ exceedances by station are presented in Table 4.4 and Table 4.5, respectively. Where no exceedances were measured, the assessed averaging-period results indicate good air quality with respect to PM.

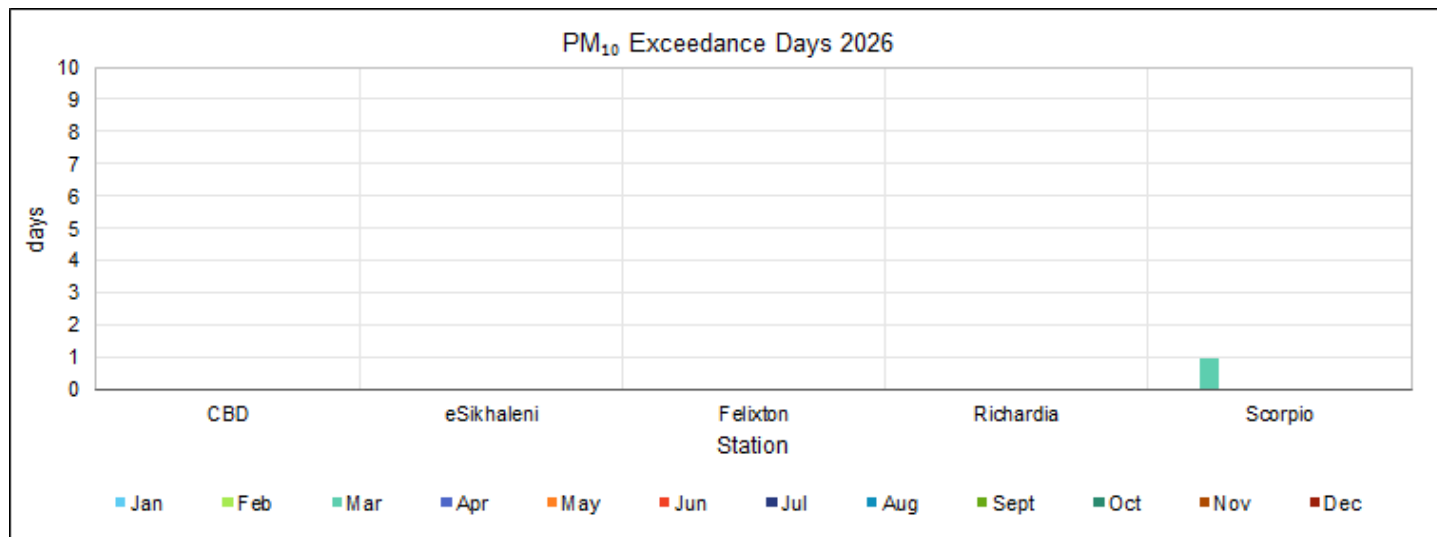


Figure 4.9: PM_{10} exceedance days.

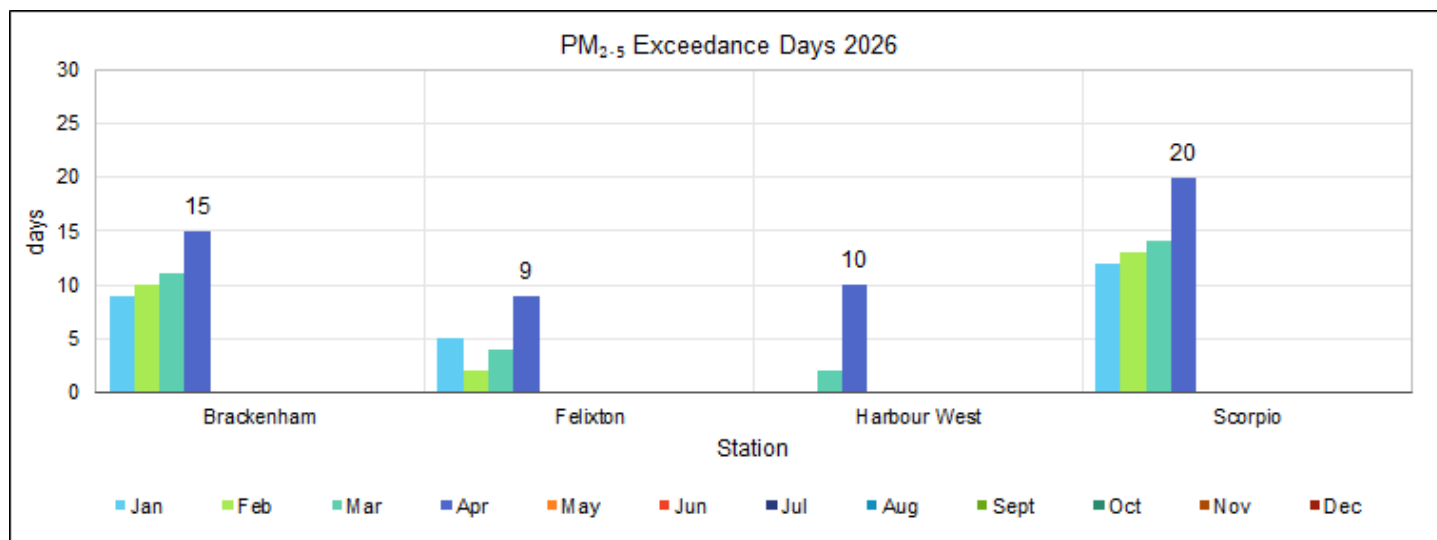


Figure 4.10: $PM_{2.5}$ exceedance days.

Table 4.4: PM₁₀ exceedance summary.

2026	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	-	-	-	-	-	-	-	-	-	-	-	-	0
Scorpio	-	-	1	-	-	-	-	-	-	-	-	-	1

Table 4.5: PM_{2.5} exceedance summary.

2026	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
PM_{2.5} Daily RSA Limit (40 µg/m³)													
Brackenham	-	-	-	-	-	-	-	-	-	-	-	-	0
Felixton	-	-	-	-	-	-	-	-	-	-	-	-	0
Harbour West	-	-	-	-	-	-	-	-	-	-	-	-	0
Scorpio	-	-	1	-	-	-	-	-	-	-	-	-	1
PM_{2.5} Daily WHO Limit (15 µg/m³)													
Brackenham	9	10	11	15	-	-	-	-	-	-	-	-	45
Felixton	5	2	4	9	-	-	-	-	-	-	-	-	20
Harbour West	-	-	2	10	-	-	-	-	-	-	-	-	12
Scorpio	12	13	14	20	-	-	-	-	-	-	-	-	59

4.7. Conclusion

4.7.1. Monthly air quality (April 2026)

- Data completeness (April 2026): PM₁₀ data capture ranged from 71–100% at stations with PM₁₀ reporting, and PM_{2.5} data capture ranged from 94–100% at stations with PM_{2.5} reporting. Scorpio ES1 achieved 71% PM₁₀ capture after the analyser was decommissioned and sent to the supplier for a firmware upgrade (9 days with <80% data capture, 1–9 April 2026). Richardia PM₁₀ was not available for 30 days (1–30 April 2026) after the analyser was converted to PM_{2.5}; Brackenham PM_{2.5} achieved 94% capture due to power outages (3 days with <80% data capture, 12–14 April 2026).
- Regulatory (RSA NAAQS): No (0) exceedances of either the PM₁₀ 24-hour standard (75 µg/m³) or the PM_{2.5} 24-hour standard (40 µg/m³) were recorded.
- Health guidance (WHO): PM₁₀ recorded no (0) exceedances of the WHO 24-hour guideline (45 µg/m³). PM_{2.5} recorded 54 exceedance-days of the WHO 24-hour guideline (15 µg/m³) across Brackenham (15), Felixton (9), Harbour West (10), and Scorpio (20).

4.7.2. Year-to-date (2026 calendar year)

- ▶ Regulatory (RSA NAAQS; max 4 exceedances/year): PM₁₀ remained within the annual allowable exceedance frequency at all reporting stations, with 0 measured exceedances of the 24-hour standard year-to-date. PM_{2.5} remained within the annual allowable exceedance frequency at all reporting stations, with one (1) 24-hour exceedance recorded at Scorpio year-to-date.
- ▶ Health guidance (WHO): PM₁₀ recorded one (1) exceedance of the WHO 24-hour guideline at Scorpio year-to-date. PM_{2.5} WHO 24-hour guideline exceedance-days totalled Brackenham (45), Felixton (20), Harbour West (12), and Scorpio (59).

5. SULPHUR DIOXIDE MONITORING

Sulphur dioxide (SO₂) is one of the highly reactive gases known as "oxides of sulphur." Anthropogenic sources include fossil fuel combustion (particularly coal-burning power plants), industrial processes such as wood pulping, paper manufacturing, petroleum and metal refining, and metal smelting (particularly from sulphide-containing ores, e.g., lead, silver, and zinc ores), as well as vehicle tailpipe emissions. Natural sources of 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 associated with adverse respiratory effects because it is highly soluble and 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]
		191 ppb ^[b]	134 ppb ^[c]	48 ppb ^[d]	19 ppb ^[e]
WHO ^[f]	SO ₂ Guideline	500 µg/m ³	-	40 µg/m ³	-
		191 ppb	-	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 Completeness

The percentage of valid data received from the SO₂ analysers for April 2026 is shown in Table 5.2.

Table 5.2: SO₂ data capture.

Station	Availability (%)	SO ₂ (%)
Arboretum	100	100
Brackenham	94	93
CBD	100	100
eSikhaleni	100	100
Felixton	100	99
Harbour West	100	100
Richardia	100	99
Scorpio	100	100

Notes:

- Red - Not acceptable for statistical purposes (<80%)
- Orange – Does not meet SANAS data capture requirements (<90%)
- Yellow – below the RBCAA operational target (<95%)

Missing Data (SO₂):

- Brackenham – Power outages (3 days with <80% data capture, 12–14 April 2026).

5.3. Monthly

The monthly mean SO₂ concentration was below the South African annual standard at all stations; this monthly comparison is indicative only and does not constitute an annual compliance determination (Figure 5.1). Comparisons to previous months are also provided (Figure 5.2).

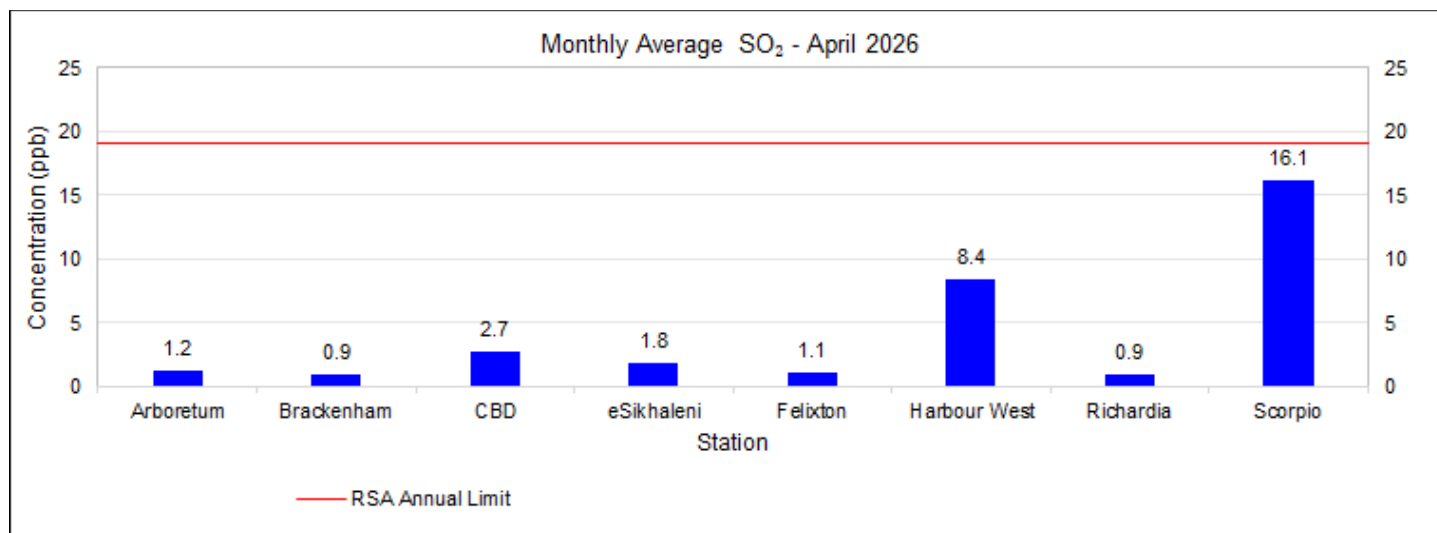


Figure 5.1: SO₂ monthly concentrations.

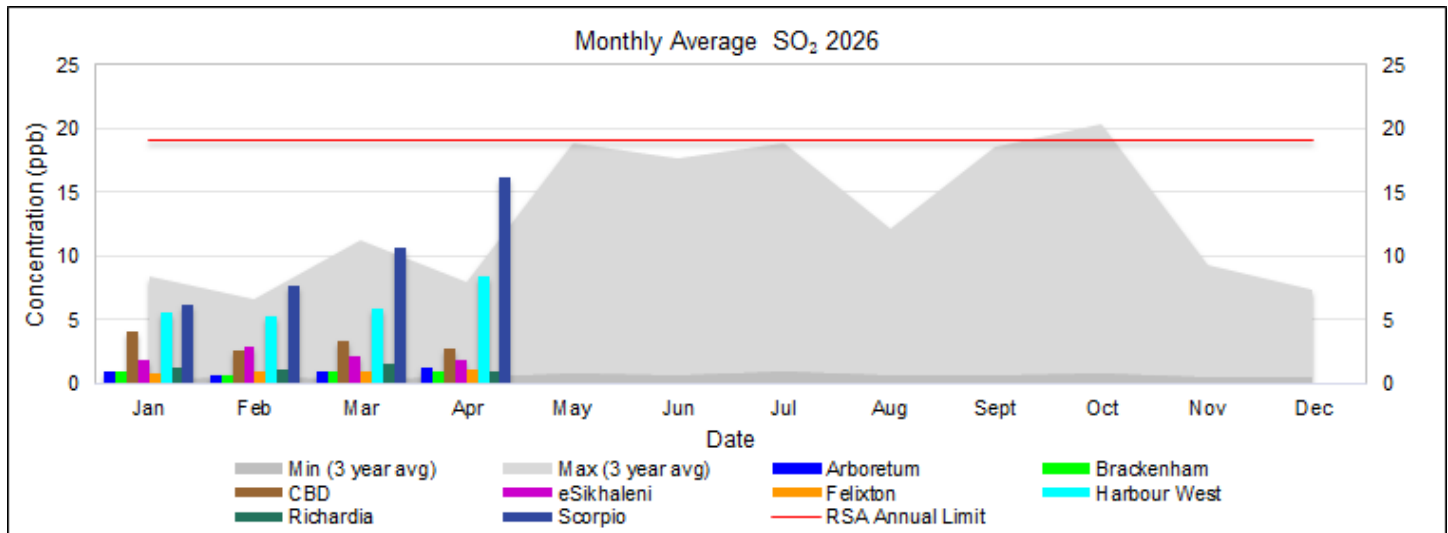


Figure 5.2: SO₂ monthly comparison.

5.4. Diurnal

Diurnal SO₂ concentrations are shown below (Figure 5.3). For visual reference, the diurnal SO₂ profile is plotted against the 24-hour RSA and WHO reference values. SO₂ profile values remained below the RSA 24-hour value (48 ppb), while the WHO 24-hour value (15 ppb) was exceeded at Scorpio.

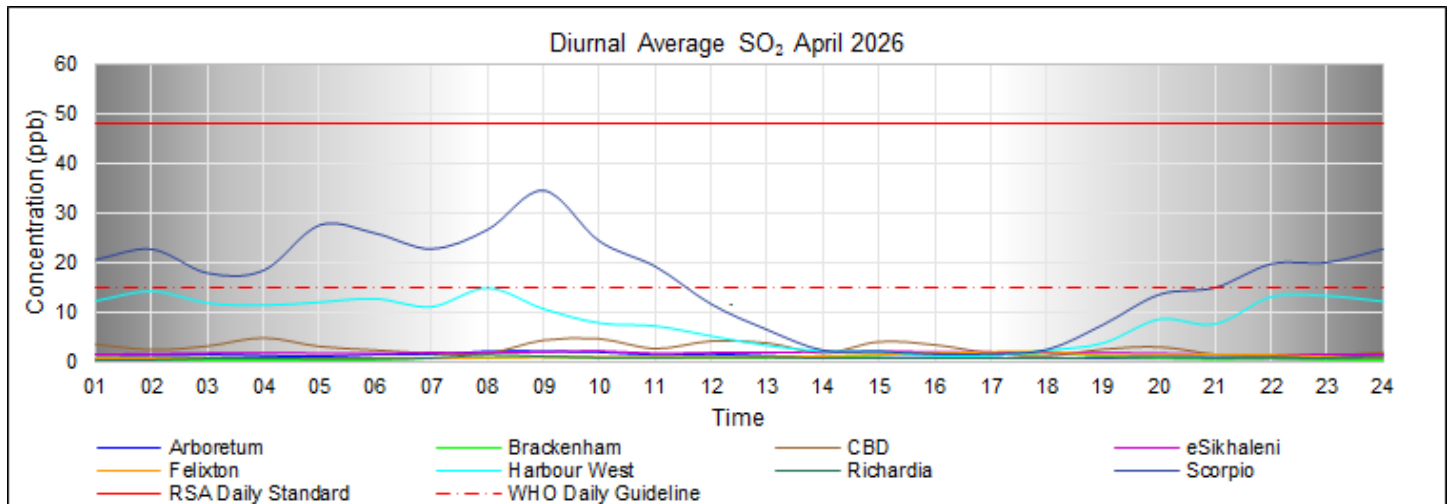


Figure 5.3: SO₂ diurnal concentrations.

5.5. Daily

SO₂ daily average concentrations are shown in Figure 5.4, and exceedances are summarised in Table 5.3. There were:

- ▶ No (0) measured exceedances of the RSA 24-hour standard (48 ppb); and,
- ▶ Eighteen (18) measured exceedance-days of the WHO 24-hour guideline (15 ppb).

Table 5.3: SO₂ 24-hour average exceedances.

SO ₂ Daily WHO Limit (15 ppb)	18
No response required	18
Harbour West	5
Scorpio	13

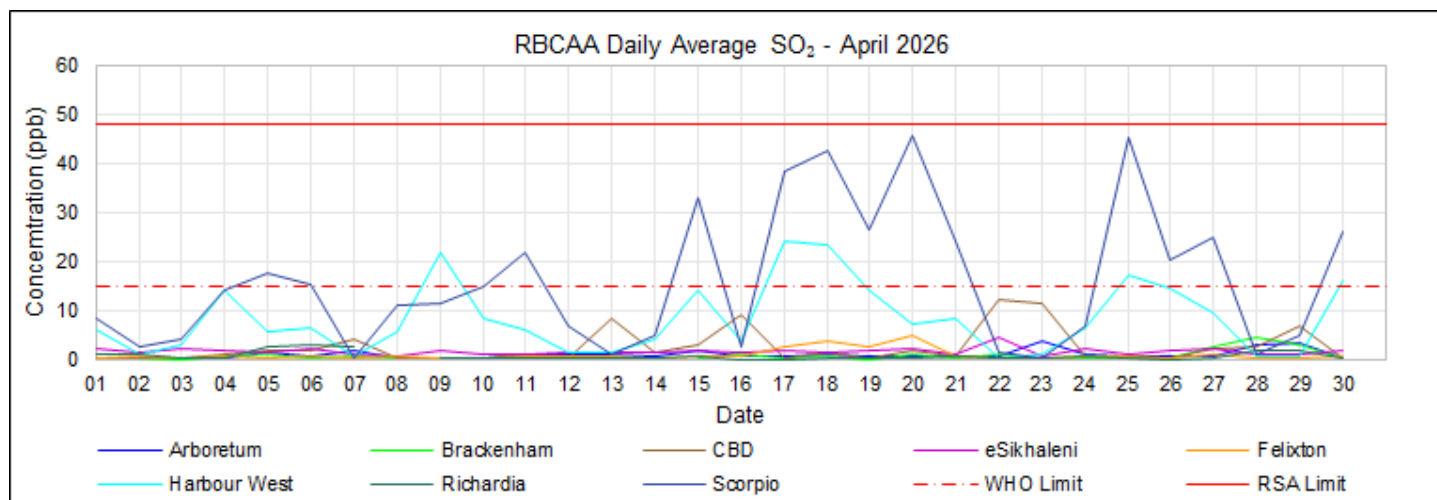


Figure 5.4: SO₂ 24-hour average concentrations.

Missing Data (SO₂):

- Brackenham – Power outages (3 days with <80% data capture, 12–14 April 2026).

5.6. Hourly

SO₂ hourly average concentrations are shown in Figure 5.5. Six (6) measured exceedances of the RSA 1-hour limit (134 ppb) were recorded (Table 5.4).

Table 5.4: SO₂ 1-hour exceedances.

SO ₂ Hourly RSA Limit (134 ppb)	6
South32	6
High SO ₂ emissions at FTC 1 stack	6
Scorpio	6

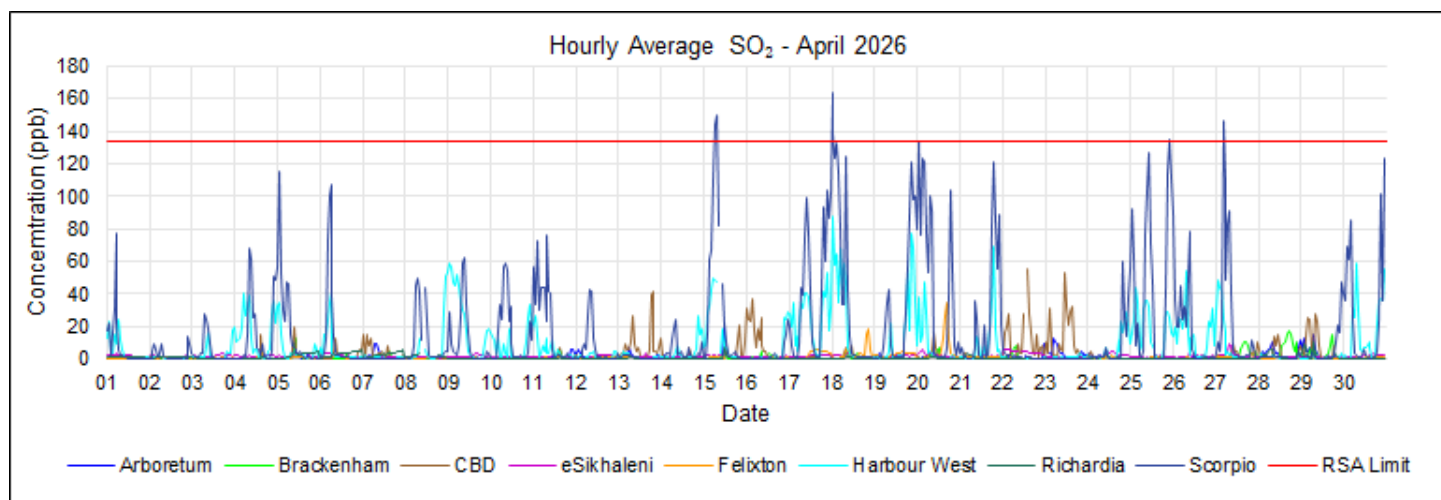


Figure 5.5: SO₂ 1-hour average concentrations.

5.7. 10-minute

SO₂ 10-minute average concentrations are shown in Figure 5.6. Two (2) measured exceedances of the RSA 10-minute standard and the WHO 10-minute guideline (191 ppb) were recorded (Table 5.5).

Table 5.5: SO₂ 10-minute exceedances.

SO ₂ 10-minute RSA & WHO Limit (191 ppb)	2
South32	2
High SO ₂ emissions at FTC 1 stack	2
Scorpio	2

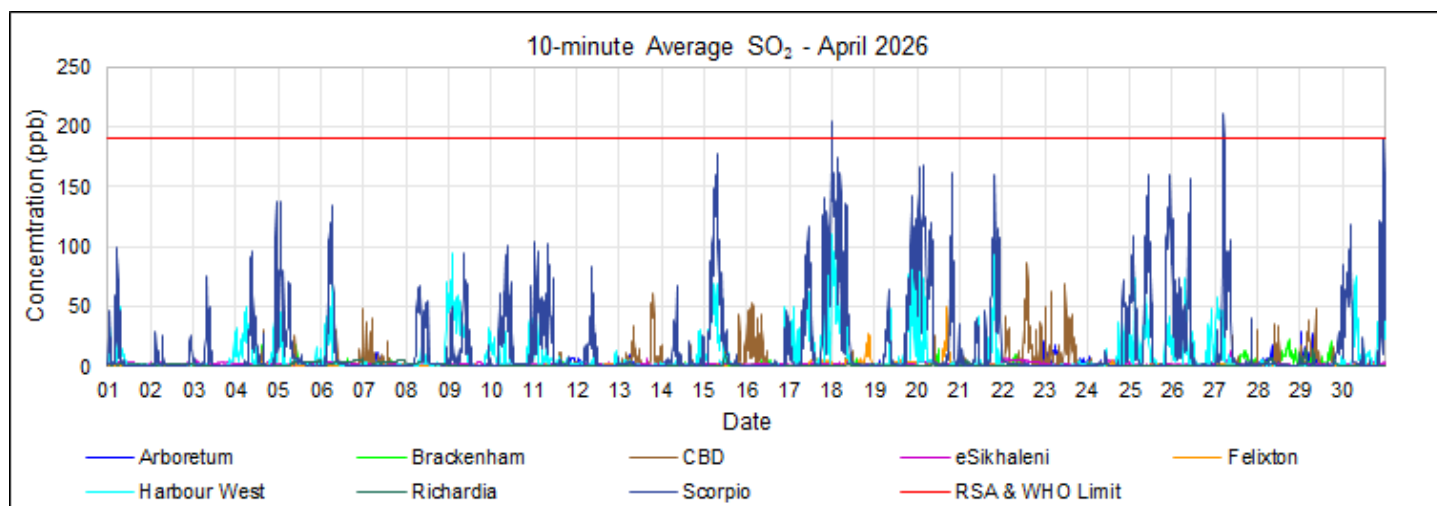
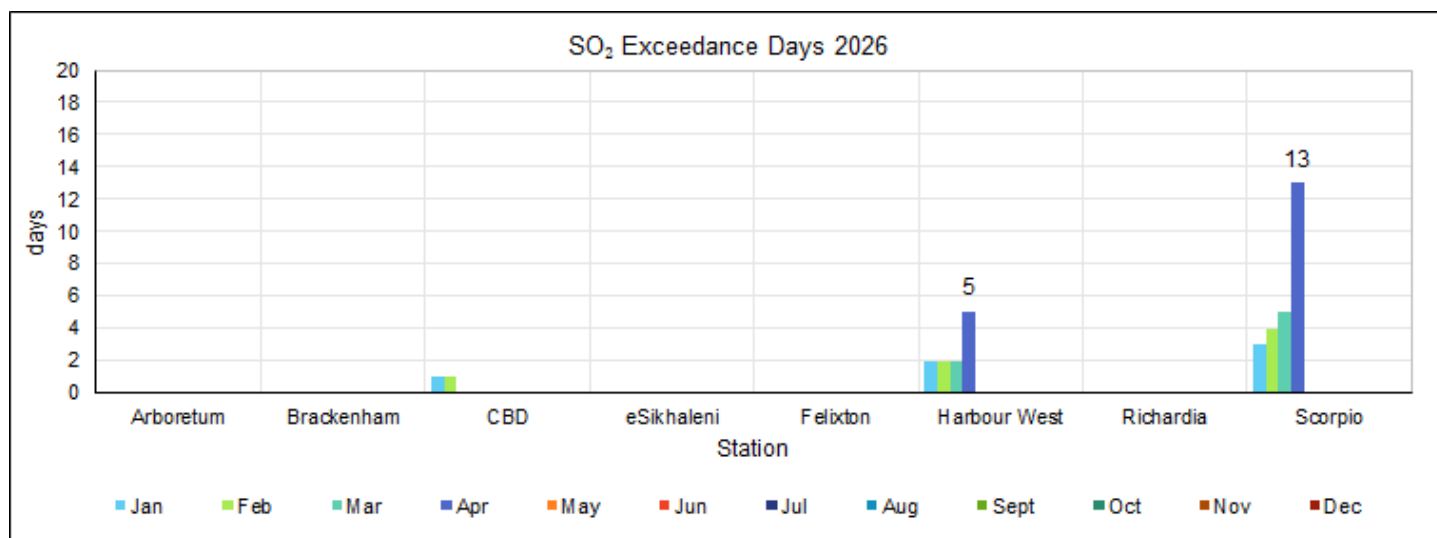


Figure 5.6: SO₂ 10-minute average concentrations.

5.8. Exceedances

SO₂ exceedance days, together with comparisons to previous months, are shown in Figure 5.7. A summary of SO₂ exceedances by station is presented in Table 5.6. SO₂ exceedances may be associated with emissions resulting from process upsets (e.g., planned maintenance, plant shutdowns, or start-ups), equipment leaks, fugitive emissions, fires, or emergency shutdowns. Where no exceedances were measured, the assessed averaging-period results indicate good air quality with respect to SO₂.

Figure 5.7: SO₂ exceedance days.Table 5.6: SO₂ exceedance summary.

2026	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
SO₂ Daily RSA Limit (48 ppb)													
CBD	-	-	-	-	-	-	-	-	-	-	-	-	0
eSikhaleni	-	-	-	-	-	-	-	-	-	-	-	-	0
Harbour West	-	-	-	-	-	-	-	-	-	-	-	-	0
Richardia	-	-	-	-	-	-	-	-	-	-	-	-	0
Scorpio	-	-	2	-	-	-	-	-	-	-	-	-	2
SO₂ Daily WHO Limit (15 ppb)													
CBD	1	1	-	-	-	-	-	-	-	-	-	-	2
eSikhaleni	-	-	-	-	-	-	-	-	-	-	-	-	0
Harbour West	2	2	2	5	-	-	-	-	-	-	-	-	11
Richardia	-	-	-	-	-	-	-	-	-	-	-	-	0
Scorpio	3	4	5	13	-	-	-	-	-	-	-	-	25
SO₂ Hourly RSA Limit (134 ppb)													
CBD	-	-	-	-	-	-	-	-	-	-	-	-	0
eSikhaleni	-	-	-	-	-	-	-	-	-	-	-	-	0
Harbour West	-	-	1	-	-	-	-	-	-	-	-	-	1
Richardia	-	-	-	-	-	-	-	-	-	-	-	-	0
Scorpio	-	-	2	6	-	-	-	-	-	-	-	-	8
SO₂ 10-minute RSA & WHO Limit (191 ppb)													
CBD	-	-	-	-	-	-	-	-	-	-	-	-	0
eSikhaleni	-	-	-	-	-	-	-	-	-	-	-	-	0
Harbour West	-	-	3	-	-	-	-	-	-	-	-	-	3
Richardia	-	-	-	-	-	-	-	-	-	-	-	-	0
Scorpio	-	-	6	2	-	-	-	-	-	-	-	-	8

5.9. Conclusion

5.9.1. Monthly air quality (April 2026)

- ▶ Data completeness (April 2026): SO₂ data capture ranged from 93–100% across the monitoring network. Brackenham achieved 93% SO₂ capture due to power outages (3 days with <80% data capture, 12–14 April 2026). Regulatory (RSA NAAQS): no (0) exceedances of the SO₂ 24-hour standard (48 ppb) were recorded. Six (6) exceedances of the SO₂ 1-hour standard (134 ppb) and two (2) exceedances of the SO₂ 10-minute standard (191 ppb) were recorded at Scorpio.
- ▶ Health guidance (WHO): Eighteen (18) exceedance-days of the WHO 24-hour guideline (15 ppb) were recorded across Harbour West (5) and Scorpio (13).

5.9.2. Year-to-date (2026 calendar year)

- ▶ Regulatory (RSA NAAQS): SO₂ remained within the annual allowable exceedance frequencies year-to-date at all reporting stations. Harbour West recorded one (1) 1-hour exceedance and three (3) 10-minute exceedances. Scorpio recorded two (2) 24-hour exceedance-days against the annual allowance of four (4), eight (8) 1-hour exceedances against the annual allowance of 88, and eight (8) 10-minute exceedances against the annual allowance of 526.
- ▶ Health guidance (WHO): WHO 24-hour guideline exceedance-days totalled CBD (2), Harbour West (11), and Scorpio (25); all other stations recorded 0 exceedance-days year-to-date.

6. TOTAL REDUCED SULPHUR MONITORING

Total reduced sulphur compounds (TRS), often associated with rotten egg or cooked cabbage odour, comprise a gaseous mixture consisting mainly of hydrogen sulphide (H_2S), methyl mercaptan ($\text{CH}_3\text{S-H}$), dimethyl sulphide ($\text{CH}_3\text{-S-CH}_3$) and dimethyl disulphide ($\text{CH}_3\text{-S-S-CH}_3$). 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 environmental acidity. The most commonly 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 of the Environment (OME) have derived guidance values (Table 6.1).

Table 6.1: TRS ambient air quality limits.

Organisation	Limit	10-min Average	30-minute Average	24-hour Average	Annual Average
WHO	Guideline	-	7 $\mu\text{g}/\text{m}^3$ [a]	-	-
		-	5 ppb [a]	-	-
OME	Standard (pulp and paper)	13 $\mu\text{g}/\text{m}^3$ [b]	10 $\mu\text{g}/\text{m}^3$ [c]	14 $\mu\text{g}/\text{m}^3$ [d]	-
		9.3 ppb [b]	7.2 ppb [c]	10.1 ppb [d]	-
OME	Standard (other industries)	13 $\mu\text{g}/\text{m}^3$ [b]	10 $\mu\text{g}/\text{m}^3$ [c]	7 $\mu\text{g}/\text{m}^3$ [d]	-
		9.3 ppb [b]	7.2 ppb [c]	5.0 ppb [d]	-

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).

RBCAA applies the following criteria:

- ▶ 30-minute WHO H_2S guideline; and
- ▶ daily and 10-minute OME standards for the pulp and paper sector.

6.2. Data Completeness

The percentage of valid data received from the TRS analysers for April 2026 is shown in Table 6.2.

Table 6.2: TRS data capture.

Station	Availability (%)	TRS (%)
Brackenham	94	93
CBD	100	100
eSikhaleni	100	100
Felixton	100	100
Richardia	100	100

Notes:

- Red - Not acceptable for statistical purposes (<80%)
- Orange – Does not meet SANAS data capture requirements (<90%)
- Yellow – below the RBCAA operational target (<95%)

Missing Data (TRS):

- Brackenham – Power outages (3 days with <80% data capture, 12–14 April 2026).

6.3. Monthly

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

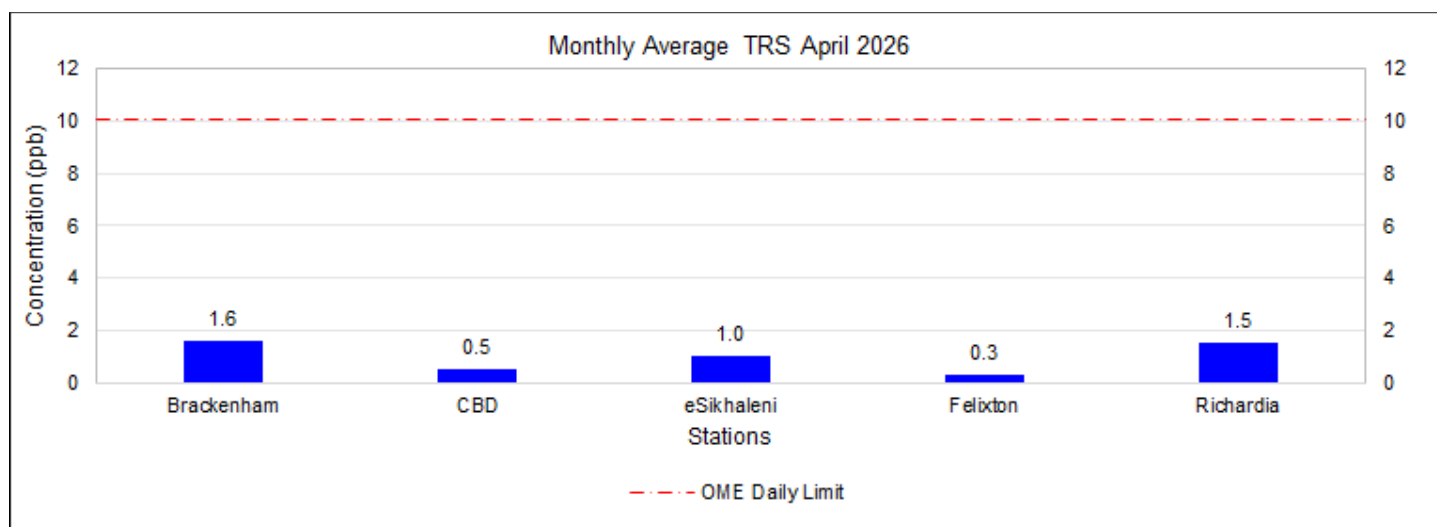


Figure 6.1: TRS monthly concentrations.

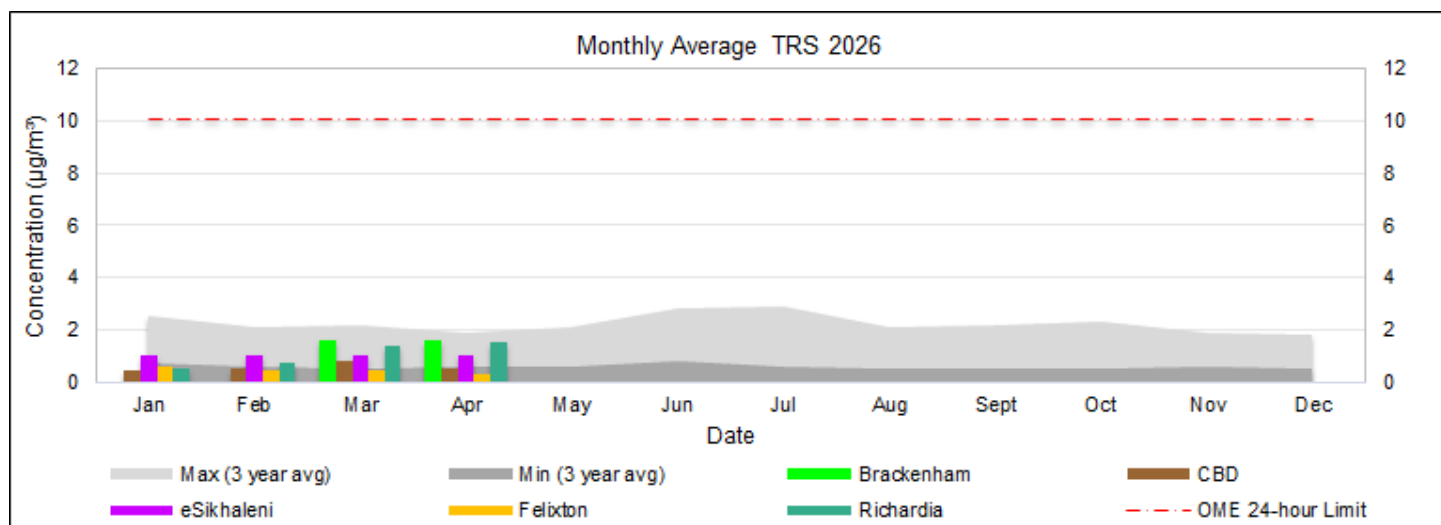


Figure 6.2: TRS monthly comparison.

6.4. Diurnal

The diurnal TRS concentrations are shown below (Figure 6.3). For visual reference, the diurnal TRS profile is plotted against the OME 24-hour reference value (10.1 ppb) and remained below this value.

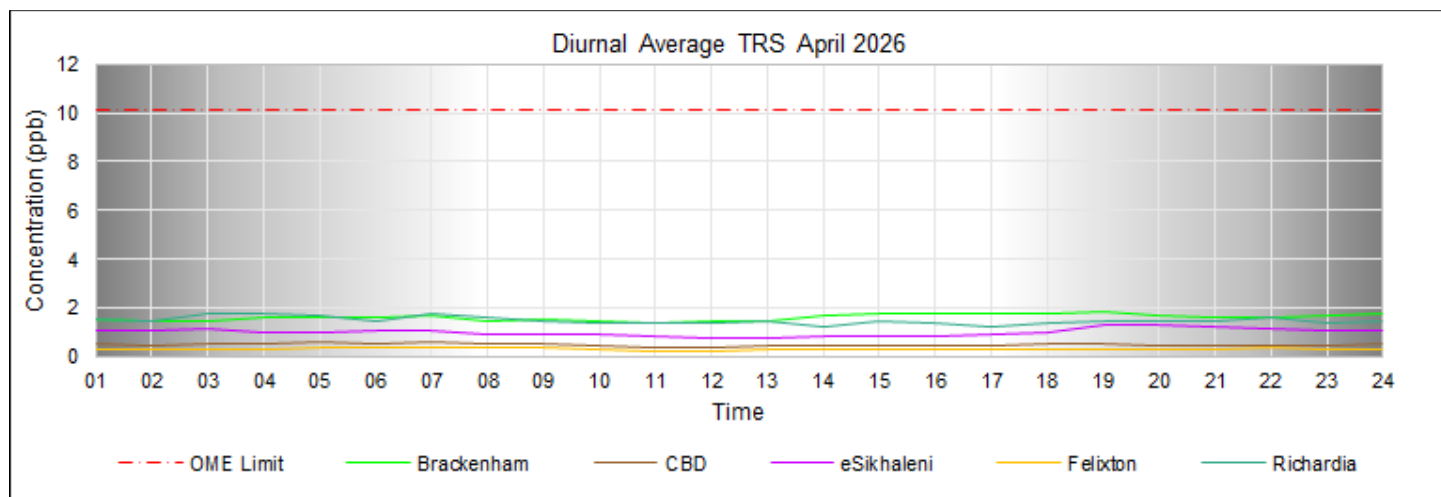


Figure 6.3: TRS diurnal concentrations.

6.5. Daily

The TRS daily average concentrations are shown in Figure 6.4. No (0) exceedances of the OME 24-hour criterion (10.1 ppb) were measured.

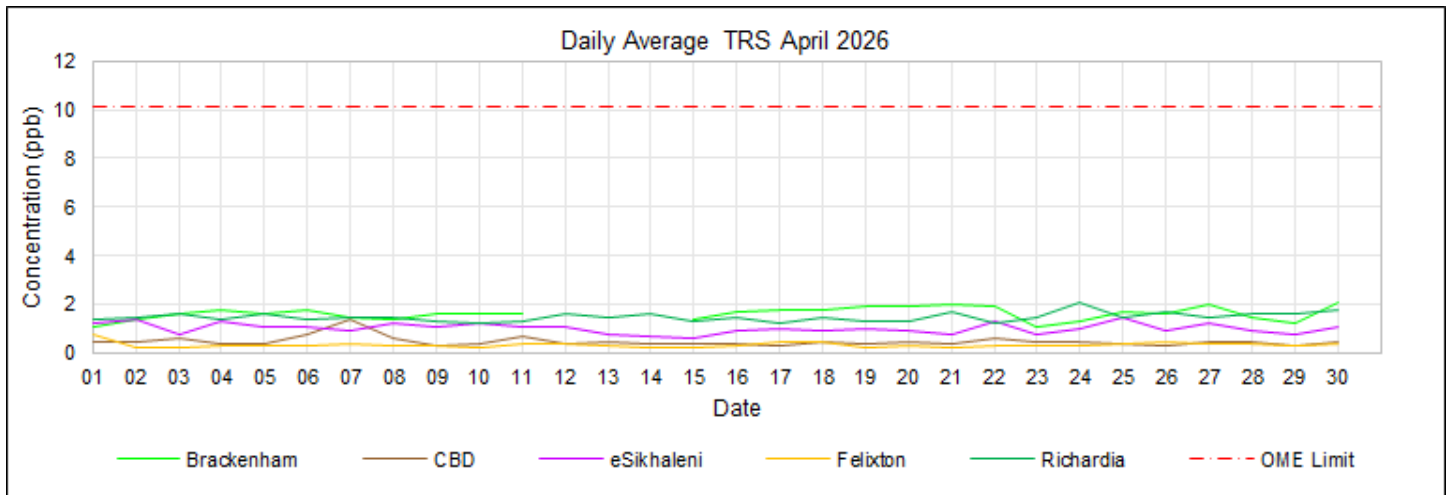


Figure 6.4: TRS daily average concentration.

Missing Data (TRS):

- Brackenham – Power outages (3 days with <80% data capture, 12–14 April 2026).

6.6. 30-minute

TRS 30-minute average concentrations are shown in Figure 6.5. Three (3) exceedances of the WHO 30-minute guideline (5.0 ppb) were measured (Table 6.3).

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

TRS 30-minute WHO H ₂ S Limit (5.0 ppb)	3
Mondi	3
SETP	2
Richardia	2
Fugitive emissions from the mill	1
Brackenham	1

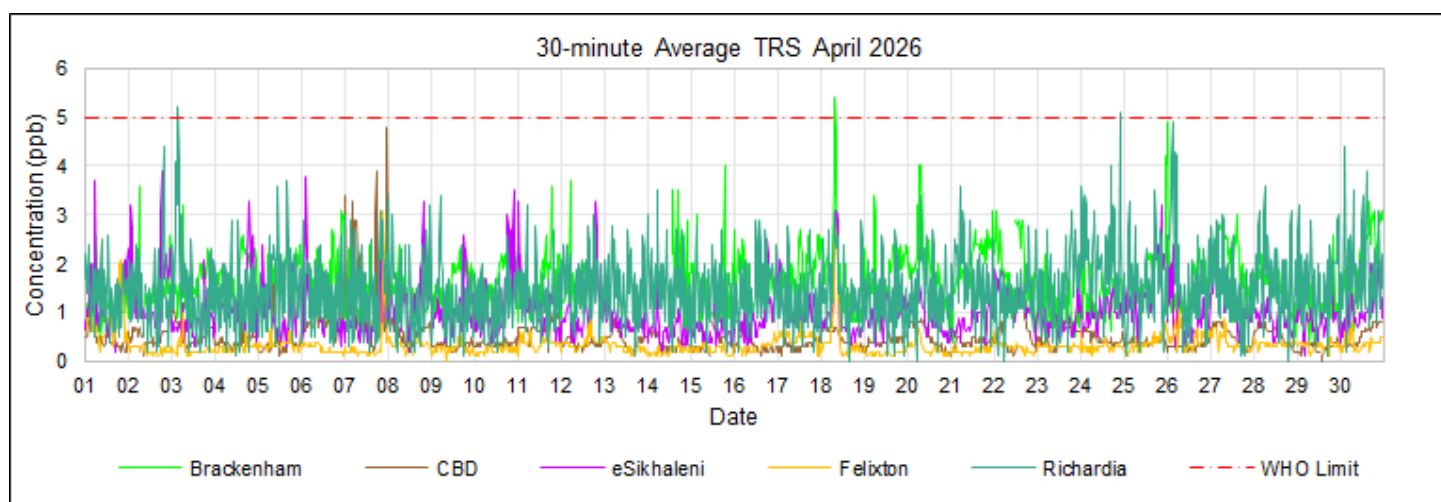


Figure 6.5: TRS 30-minute average concentration.

6.7. 10-minute

TRS 10-minute average concentrations are shown in Figure 6.6. No (0) exceedances of the OME 10-minute criterion (9.3 ppb) were measured; therefore, no exceedance-allocation table is presented for this averaging period.

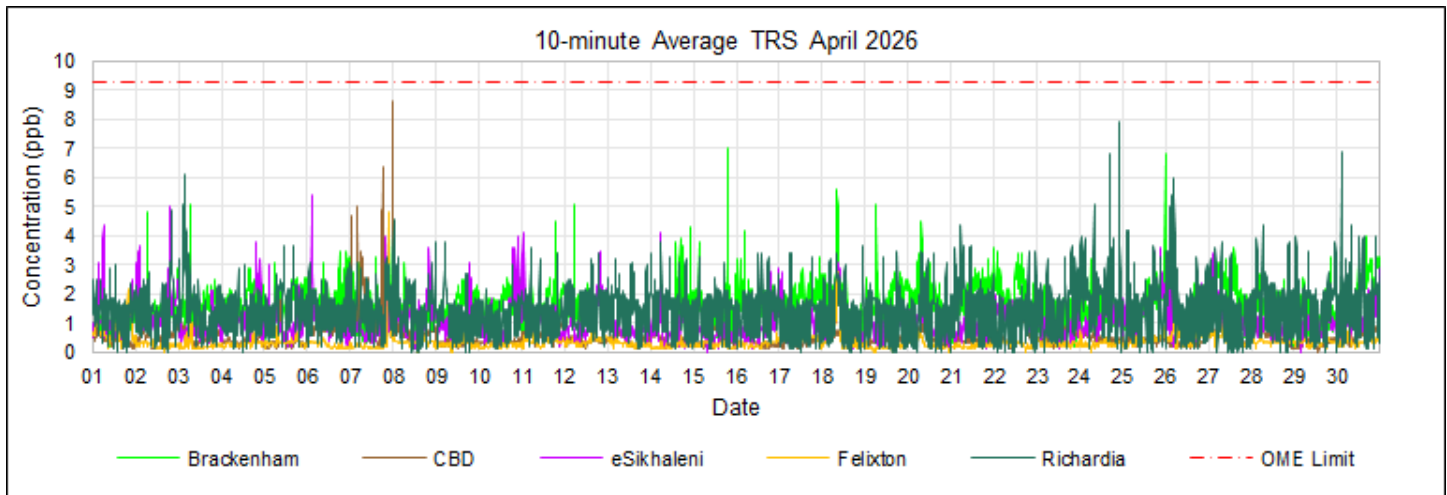


Figure 6.6: TRS 10-minute average concentrations.

6.8. Exceedances

TRS exceedance days, together with comparisons to previous months, are shown in Figure 6.7. A summary of TRS exceedances by station is presented in Table 6.4. TRS exceedances may be associated with emissions resulting from process upsets (e.g., planned maintenance, plant shutdowns, or start-ups), equipment leaks, fugitive emissions, fires, or emergency shutdowns. Where no exceedances were measured, the assessed averaging-period results indicate good air quality with respect to TRS.

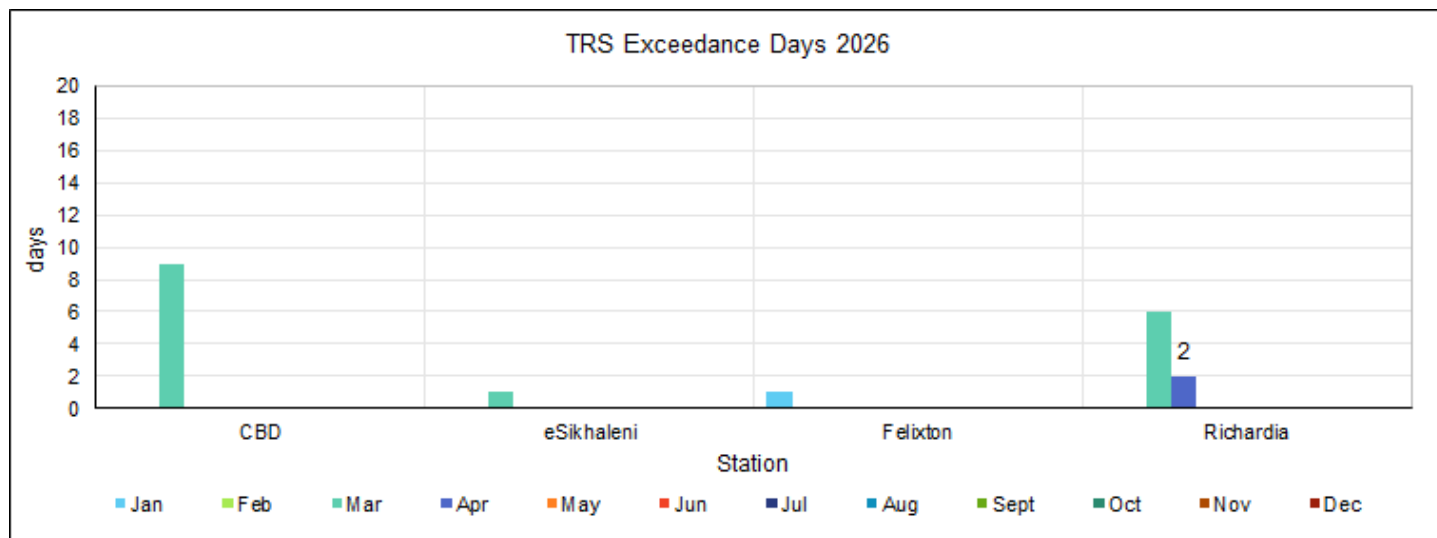


Figure 6.7: TRS exceedance days.

Table 6.4: TRS exceedance summary.

2026	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
TRS 24-hour OME Limit (10.1 ppb)													
Brackenham	-	-	-	-	-	-	-	-	-	-	-	-	0
CBD	-	-	-	-	-	-	-	-	-	-	-	-	0
eSikhaleni	-	-	-	-	-	-	-	-	-	-	-	-	0
Felixton	-	-	-	-	-	-	-	-	-	-	-	-	0
Richardia	-	-	-	-	-	-	-	-	-	-	-	-	0
TRS 30-minute WHO H₂S Limit (5.0 ppb)													
Brackenham	-	-	26	1	-	-	-	-	-	-	-	-	27
CBD	-	-	25	-	-	-	-	-	-	-	-	-	25
eSikhaleni	-	-	1	-	-	-	-	-	-	-	-	-	1
Felixton	1	-	-	-	-	-	-	-	-	-	-	-	1
Richardia	-	-	13	2	-	-	-	-	-	-	-	-	15
TRS 10-minute OME Limit (9.3 ppb)													
Brackenham	-	-	16	-	-	-	-	-	-	-	-	-	16
CBD	-	-	8	-	-	-	-	-	-	-	-	-	8
eSikhaleni	-	-	1	-	-	-	-	-	-	-	-	-	1
Felixton	2	-	-	-	-	-	-	-	-	-	-	-	2
Richardia	-	-	-	-	-	-	-	-	-	-	-	-	0

6.9. Conclusion

6.9.1. Monthly air quality (April 2026)

- ▶ Data completeness (April 2026): TRS data capture ranged from 93–100% across the monitoring network. Brackenham achieved 93% TRS capture due to power outages (3 days with <80% data capture, 12–14 April 2026).
- ▶ No South African ambient air quality standard exists for TRS/H₂S; therefore, no regulatory compliance determination applies.
- ▶ Health/odour guidance (WHO + RBCAA-adopted OME criteria): No (0) exceedances of the OME 24-hour criterion (10.1 ppb) were recorded during April 2026. Three (3) exceedances of the WHO 30-minute guideline (5.0 ppb) were recorded across Brackenham (1) and Richardia (2). Exceedances of the OME 10-minute criterion (9.3 ppb) were not recorded across the monitoring network.

6.9.2. Year-to-date (2026 calendar year)

- ▶ Regulatory (RSA NAAQS): No South African ambient air quality standard exists for TRS/H₂S.
- ▶ Health/odour guidance (2026): OME 24-hour exceedances were 0 at all stations year-to-date. WHO 30-minute exceedances totalled CBD (25), Brackenham (27), eSikhaleni (1), Felixton (1), and Richardia (15). OME 10-minute exceedances totalled CBD (8), Brackenham (16), eSikhaleni (1), and Felixton (2).

7. MONTHLY AIR QUALITY

Where possible, the RBCAA assesses data collected by its network against national standards, international guidelines, and local targets. WHO air quality guidelines (AQGs) are intended for global use and support actions to protect public health in different contexts. By contrast, air quality standards and local targets are set by individual countries or regions and are essential components of national risk management and environmental policy. They vary according to how health risks, technological feasibility, economic considerations, and political and social factors are balanced; these factors are influenced by the level of development and national air-quality management capability (WHO, 2005).

7.1. Conclusion

Regulatory assessment is based on comparison to the South African National Ambient Air Quality Standards (NAAQS). Health/odour assessment is based on WHO guidelines and RBCAA-adopted TRS/H₂S reference criteria; exceedances of these criteria do not constitute NAAQS non-compliance, but they indicate potential short-term exposure or odour-annoyance conditions requiring attention.

7.1.1. April 2026 – Monthly Conclusion

Regulatory (RSA NAAQS)

- ▶ PM: No PM₁₀ 24-hour NAAQS exceedances (75 µg/m³) and no PM_{2.5} 24-hour NAAQS exceedances (40 µg/m³) were recorded.
- ▶ SO₂: No 24-hour NAAQS exceedance-days (48 ppb) were recorded. Six (6) 1-hour NAAQS exceedances (134 ppb) and two (2) 10-minute NAAQS exceedances (191 ppb) were recorded at Scorpio.
- ▶ TRS/H₂S has no South African NAAQS standard; therefore, no regulatory compliance determination applies for TRS/H₂S.

Health/odour guidance (WHO + RBCAA-adopted TRS/H₂S criteria)

- ▶ PM₁₀: No (0) exceedances of the WHO 24-hour guideline (45 µg/m³) were recorded. PM_{2.5}: 54 exceedance-days of the WHO 24-hour guideline (15 µg/m³) were recorded across Brackenham (15), Felixton (9), Harbour West (10), and Scorpio (20).
- ▶ SO₂: 18 exceedance-days of the WHO 24-hour guideline (15 ppb) were recorded across Harbour West (5) and Scorpio (13).
- ▶ TRS/H₂S: No (0) exceedances of the OME 24-hour criterion (10.1 ppb), three (3) exceedances of the WHO 30-minute guideline (5.0 ppb), and no (0) exceedances of the OME 10-minute criterion (9.3 ppb) were recorded during April 2026.

7.1.2. 2026 Calendar-Year Conclusion**Regulatory (RSA NAAQS)**

- ▶ PM₁₀ (24-hour NAAQS; max 4 exceedances/year): within the annual allowable exceedance frequency at all stations reporting PM₁₀.
- ▶ PM_{2.5} (24-hour NAAQS; max 4 exceedances/year): within the annual allowable exceedance frequency at all reporting stations year-to-date; one (1) exceedance has been recorded at Scorpio.
- ▶ SO₂ remained within the annual allowable exceedance frequencies year-to-date at all reporting stations: Harbour West recorded one (1) hourly exceedance and three (3) 10-minute exceedances; Scorpio recorded two (2) 24-hour exceedance-days against the annual allowance of four (4), eight (8) hourly exceedances against the annual allowance of 88, and eight (8) 10-minute exceedances against the annual allowance of 526.

Health/odour guidance (WHO + RBCAA-adopted TRS/H₂S criteria)

- ▶ PM₁₀ (WHO 24-hour guideline: 45 µg/m³): one (1) exceedance was recorded at Scorpio year-to-date. PM_{2.5} (WHO 24-hour guideline: 15 µg/m³): exceedance-days during 2026 year-to-date totalled Brackenham (45), Felixton (20), Harbour West (12), and Scorpio (59).
- ▶ SO₂ (WHO 24-hour guideline: 15 ppb): exceedance-days during 2026 year-to-date totalled CBD (2), Harbour West (11), and Scorpio (25); all other stations recorded 0 exceedance-days.
- ▶ TRS/H₂S: exceedances of RBCAA-adopted criteria during 2026 year-to-date comprised 0 OME 24-hour exceedances at all stations, WHO 30-minute exceedances at CBD (25), Brackenham (27), eSikhaleni (1), Felixton (1), and Richardia (15), and OME 10-minute exceedances at CBD (8), Brackenham (16), eSikhaleni (1), and Felixton (2).

8. 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/m³	Micrograms per cubic meter
BMC	Best Measurement Capabilities
g/s	Grams per second
K	Kelvin
km	Kilometre
km/h	Kilometres per hour
m	Metres
m/s	Metres per second
mg	Milligrams
mg/m²/day	Milligrams per meter squared per day
mg/m³	Milligrams per cubic meter
ppb	Parts per billion
ppm	Parts per million
t/day	Tons per day
t/hr	Tons per hour
tpa	Tons per annum

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

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

APPENDIX B
QUALITY ASSURANCE

The 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. Every effort is made to minimise the error. The minimum threshold for statistical analyses is at least 80% valid data to maintain reliability and minimise bias; the South African National Accreditation Standard requires 90%. (SANAS, 2012)

Table 1: Quality Assurance

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

APPENDIX C
EMISSION INVENTORY*Table 1: Emission Inventory – 2026.*

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%
<i>Note: Tongaat Hullet shut down during the year's 1st quarter and last month.</i>				

APPENDIX D
OPERATIONAL REPORTTable 1: Maximum concentrations for PM₁₀ and PM_{2.5}.

RBCAA: Monthly Report						
PM ₁₀ daily averages						
Station	Concentration (µg/m ³)	% of the RSA Standard (75 µg/m ³)	% of WHO Guideline (45 µg/m ³)	Time	Wind Direction (°)	Wind Speed (m/s)
CBD ES1	36.0	48%	80%	2026/04/27 00:00	3.3	234
eSikhaleni	28.0	37%	62%	2026/04/18 00:00	2.7	176
Felixton ES1	25.0	33%	56%	2026/04/27 00:00	3.1	222
Richardia	28.0	37%	62%	2026/04/27 00:00	3.8	215
Scorpio ES1	36.0	48%	80%	2026/04/27 00:00	3.3	234
PM _{2.5} daily averages						
Station	Concentration (µg/m ³)	% of the RSA Standard (40 µg/m ³)	% of WHO Guideline (15 µg/m ³)	Time	Wind Direction (°)	Wind Speed (m/s)
Brackenhams ES2	36.0	90%	240%	2026/04/27 00:00	4.4	241
Felixton ES2	23.0	58%	153%	2026/04/27 00:00	3.1	222
Harbour West ES2	21.0	53%	140%	2026/04/03 00:00	2.9	18
Scorpio ES2	15.0	38%	100%	2026/04/27 00:00	4.3	229
LEGEND Yellow: = 50% of the guideline/standard Red: >= 100% of the guideline/standard (i.e. exceedance) Turquoise: = 10% of the guideline/standard						
NOTES Dates used for time intervals are the time beginning. Wind speeds of < 1 m/s are considered calm; wind directions measured under these conditions cannot be used for incident investigations. This report is an interim report regarding AIMS' quality system classification. The final data will be published in the system's monthly report.						
STATUS Meteorology Airport, Arboretum, 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/m³ / 191 ppb)		Time	Wind Direction (°)	Wind Speed (m/s)
Arboretum	29.9	16%		2026/04/15 11:20	-	218
Brackenham	23.0	12%		2026/04/28 18:10	4.0	193
CBD	86.7	45%		2026/04/22 14:10	4.7	241
eSikhaleni	13.7	7%		2026/04/27 08:50	1.0	2
Felixton	50.5	26%		2026/04/20 17:10	2.8	158
Harbour West	141.2	74%		2026/04/18 05:20	3.8	14
Richardia	14.5	8%		2026/04/29 02:40	4.6	242
Scorpio	211.2	111%		2026/04/27 05:00	0.5	123
SO ₂ hourly averages						
Station	Concentration (ppb)	% of the RSA Standard (350 µg/m³ / 134 ppb)	No WHO Guideline	Time	Wind Direction (°)	Wind Speed (m/s)
Arboretum	19.2	14%	-	2026/04/15 11:00	1.1	253
Brackenham	17.1	13%	-	2026/04/28 17:00	5.0	192
CBD	55.7	42%	-	2026/04/22 14:00	4.8	249
eSikhaleni	9.4	7%	-	2026/04/27 08:00	1.0	9
Felixton	34.3	26%	-	2026/04/20 17:00	2.8	164
Harbour West	87.9	66%	-	2026/04/18 00:00	4.5	4
Richardia	10.4	8%	-	2026/04/29 07:00	4.0	243
Scorpio	163.6	122%	-	2026/04/18 00:00	4.5	4
SO ₂ daily averages						
Station	Concentration (ppb)	% of the RSA Standard (125 µg/m³ / 48 ppb)	% of WHO Guideline (40 µg/m³ / 15 ppb)	Time	Wind Direction (°)	Wind Speed (m/s)
Arboretum	3.8	8%	25%	2026/04/23 00:00	4.1	242
Brackenham	4.6	10%	31%	2026/04/28 00:00	2.4	222
CBD	12.5	26%	83%	2026/04/22 00:00	4.5	227
eSikhaleni	4.5	9%	30%	2026/04/22 00:00	4.6	205
Felixton	4.9	10%	33%	2026/04/20 00:00	3.5	173
Harbour West	24.2	50%	161%	2026/04/17 00:00	4.9	17
Richardia	3.0	6%	20%	2026/04/06 00:00	4.4	234
Scorpio	45.8	95%	305%	2026/04/20 00:00	4.6	163

Table 3: Maximum concentrations for TRS.

RBCAA: Monthly Report						
TRS 10-minute averages						
Station	Concentration (ppb)	No RSA Standard	% of OME TRS Guideline (13.0 µg/m³ / 9.3 ppb)	Time	Wind Direction (°)	Wind Speed (m/s)
CBD	7.0	-	75%	2026/04/15 19:00	1.5	227
eSikhaleni	8.6	-	92%	2026/04/07 23:50	0.9	314
Felixton	5.4	-	58%	2026/04/06 02:30	1.7	24
Richardia	4.8	-	52%	2026/04/07 21:20	0.6	76
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	5.4	-	108%	2026/04/18 08:00	4.2	353
eSikhaleni	4.8	-	96%	2026/04/07 23:30	0.9	299
Felixton	3.9	-	78%	2026/04/02 19:00	0.2	7
Richardia	3.1	-	62%	2026/04/07 21:30	0.9	151
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	2.1	-	21%	2026/04/30 00:00	3.0	7
eSikhaleni	1.4	-	14%	2026/04/07 00:00	2.5	251
Felixton	1.5	-	15%	2026/04/25 00:00	2.8	12
Richardia	0.8	-	8%	2026/04/01 00:00	3.0	45

APPENDIX E
RAINFALL*Table 1: Daily Rainfall*

Date	Richards Bay (mm)	Felixton (mm)	RBCT (mm)	Meerensee (mm)	South32 (mm)
2026/04/01	0	0	0	0	0
2026/04/02	0	0	0	0	0
2026/04/03	0	0	0	0	0
2026/04/04	0	0	0	0	0
2026/04/05	0	1	1	0	1
2026/04/06	4	16	14	5	4
2026/04/07	9	6	9	14	5
2026/04/08	3	0	0	0	0
2026/04/09	0	0	0	0	0
2026/04/10	0	0	0	0	0
2026/04/11	0	0	0	0	0
2026/04/12	0	0	0	0	0
2026/04/13	0	0	0	0	0
2026/04/14	1	26	11	0	11
2026/04/15	0	0	0	0	0
2026/04/16	0	0	0	0	0
2026/04/17	0	0	0	0	0
2026/04/18	0	0	0	3	0
2026/04/19	3	0	0	1	1
2026/04/20	0	0	0	0	0
2026/04/21	1	1	0	1	0
2026/04/22	19	21	17	20	14
2026/04/23	6	1	2	9	2
2026/04/24	3	0	3	2	2
2026/04/25	0	0	0	0	0
2026/04/26	0	0	0	0	0
2026/04/27	1	2	1	0	0
2026/04/28	1	0	0	1	0
2026/04/29	0	0	0	0	0
2026/04/30	0	0	0	0	0
Total	49	73	60	56	40

Table 2: Monthly Rainfall, Richards Bay

Month	Richards Bay (mm)							
	2019	2020	2021	2022	2023	2024	2025	2026
Jan	182	47	305	127	167	271	371	138
Feb	195	377	229	193	410	118	390	36
Mar	78	139	217	62	141	192	165	202
Apr	214	141	96	647	87	101	479	49
May	9	53	165	130	356	22	41	
Jun	78	114	140	60	33	89	27	
Jul	16	48	57	20	196	57	220	
Aug	160	107	59	77	20	97	17	
Sep	43	144	216	93	23	186	203	
Oct	260	171	214	101	345	250	96	
Nov	296	122	72	131	61	103	176	
Dec	320	77	464	253	195	145	211	
Minimum	9	47	57	20	20	22	17	36
Average	154	128	186	158	169	136	200	106
Maximum	320	377	464	647	410	271	479	202
Total	1850	1540	2234	1893	2034	1630	2396	425

Table 3: Monthly Felixton

Month	Felixton (mm)							
	2019	2020	2021	2022	2023	2024	2025	2026
Jan	138	71	207	68	57	146	117	81
Feb	138	214	231	78	188	82	303	65
Mar	70	89	126	95	80	113	148	112
Apr	143	106	135	368	58	49	287	73
May	9	42	57	120	245	17	16	
Jun	53	44	98	20	14	53	29	
Jul	17	37	39	15	146	2.5	157	
Aug	39	67	55	37	18	54	3	
Sep	79	84	191	51	43	137	127	
Oct	144	67	145	98	318	187	79	
Nov	121	106	35	174	34	78	131	
Dec	311	64	212	163	146	74	193	
Minimum	9	37	35	15	14	3	3	65
Average	105	82	127	107	112	83	133	83
Maximum	311	214	231	368	318	187	303	112
Total	1261	987	1530	1288	1347	992	1590	331

Table 4: RBCT

Month	RBCT (mm)							
	2019	2020	2021	2022	2023	2024	2025	2026
Jan	110	33	215	54	136	154	229	130
Feb	124	166	146	131	344	72	249	53
Mar	172	109	194	161	69	161	145	118
Apr	174	111	69	642	30	98	450	60
May	14	69	171	268	442	23	66	
Jun	24	52	124	30	34	104	27	
Jul	5	39	64	30	162	56	155	
Aug	68	64	56	25	30	86	17	
Sep	59	104	187	115	30	177	164	
Oct	164	121	156	71	293	121	65	
Nov	186	77	43	129	42	89	166	
Dec	216	104	245	279	127	65	178	
Minimum	5	33	43	25	30	23	17	53
Average	110	87	139	161	145	100	159	90
Maximum	216	166	245	642	442	177	450	130
Total	1317	1049	1669	1934	1740	1205	1911	361

Table 5: South32

Month	South32 (mm)							
	2019	2020	2021	2022	2023	2024	2025	2026
Jan	-	-	-	-	91	120	232	117
Feb	-	-	-	115	256	-	241	30
Mar	-	-	-	149	51	144	137	105
Apr	-	-	-	505	43	-	363	40
May	-	-	-	106	230	-	23	
Jun	-	-	-	25	11	-	16	
Jul	-	-	-	12	165	-	98	
Aug	-	-	-	30	13	-	8	
Sep	-	-	-	64	18	129	35	
Oct	-	-	-	64	271	-	30	
Nov	-	-	-	101	36	-	112	
Dec	-	-	-	163	95	92	132	
Minimum	-	-	-	12	11	92	8	30
Average	-	-	-	121	107	121	119	73
Maximum	-	-	-	505	271	144	363	117
Total	-	-	-	1336	1280	485	1427	292

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

Table 6: Meerensee

Month	Meerensee (mm)							
	2019	2020	2021	2022	2023	2024	2025	2026
Jan	-	-	-	-	-	-	-	-
Feb	-	-	-	-	-	-	-	31
Mar	-	-	-	-	-	-	-	80
Apr	-	-	-	-	-	-	-	56
May	-	-	-	-	-	-	-	
Jun	-	-	-	-	-	-	-	
Jul	-	-	-	-	-	-	-	
Aug	-	-	-	-	-	-	-	
Sep	-	-	-	-	-	-	-	
Oct	-	-	-	-	-	-	-	
Nov	-	-	-	-	-	-	-	
Dec	-	-	-	-	-	-	-	
Minimum	-	-	-	-	-	-	-	31
Average	-	-	-	-	-	-	-	56
Maximum	-	-	-	-	-	-	-	80
Total	-	-	-	-	-	-	-	167

APPENDIX F COMPLAINTS LOG

Table 1: Complaints

No	Date	Region	Type	Source	Description	Response
1	2026/04/02 08:58	Veldenvlei	Sewage leak	CoU	"The level of contamination is not acceptable. Visitors from out of town shocked at the state of sewer waste in eco areas. Water below Honeysuckle is black, green colour covered with Hyacinth and green moss"	383, 1
2	2026/04/02 18:10	Birdswood	Sewage leak	CoU	Sewage leak	383, 1
3	2026/04/02 21:38	Veldenvlei	Sewage odour	CoU	"The smell in Honeysuckle is absolutely nauseating."	383, 1
4	2026/04/06 00:00	Wildenweide	Clinical + Odour	Mondi	6 April – 7 April, "Rotten smell, gas-like burning. Major headache, sinus burning, eyes burning. Son vomited from the smell."	364
5	2026/04/06 00:00	Veldenvlei	Clinical + Odour	Mondi	6-7 April, "Guava-like odour on and off throughout the night. It's a dense smell that burns the eyes and causes sinus congestion, and it leaves a taste."	364
6	2026/04/06 02:00	Wildenweide	Clinical + Odour	Mondi	"Heavy gas smell. My nose is now blocked from the smell, and my head feels heavy almost like flu symptoms." Complainant added that it's a heavy smell that she can taste."	364
7	2026/04/06 23:08	Veldenvlei	Clinical + Odour	Mondi	"A very strong smell. Smells a bit like rotten egg. Sinuses affected."	364
8	2026/04/07 06:00	Birdswood	Clinical + Odour	Mondi	"Bad gas smell acrid rotten eggs. Breathing difficulty."	364
9	2026/04/07 07:09	Birdswood	Odour	Mondi	"Gas smell in the air."	364
10	2026/04/07 09:25	Nkoninga Bridge	Sewage odour + visible	CoU	"Section on East Central Arterial when you go over the bridge is a putrid stench especially in the evenings. It's actually nauseating it is so bad."	383, 1
11	2026/04/11 12:12	Arboretum Ext	Sewage odour	CoU	"The sewage smell has been on and off this week but have reached our limits today. The smell is unbearable."	383, 1
12	2026/04/14 06:05	Alton	Visual Emissions	Mondi	Thick black smoke coming from Mondi stack.	365
13	2026/04/14 06:29	Alton	Visual Emissions	Mondi	"please check what is going into the air from Mondi."	365
14	2026/04/14 07:21	Alton	Visual Emissions	Mondi	Black smoke from Mondi.	365
15	2026/04/14 10:14	Richards Bay	Visual Emissions	Mondi	Black smoke emanating from Mondi.	365
16	2026/04/14 11:24	Richards Bay	Visual Emissions	Mondi	Mondi emitting thick black smoke.	365
17	2026/04/18 10:31	Veldenvlei	Sewage odour + visible	CoU	"River is smelling VERY bad today. The state of sewer spills is shocking. We have been fighting for years, and NOTHING has changed."	383, 1

No	Date	Region	Type	Source	Description	Response
18	2026/04/20 06:57	Veldenvlei	Sewage odour	CoU	"The smell is horrible ! If this doesn't get fixed it will dramatically affect our property values."	383, 1
19	2026/04/20 09:10	Veldenvlei	Sewage odour	CoU	"I live at #35 smell there but at my folks #49 it literally feels like you are standing in a porta loo after a long day that hasn't been cleaned. This needs to be made an asap situation, it is not fair for those having to breathe this in."	383, 1
20	2026/04/20 10:20	Nkoninga Bridge	Sewage odour	CoU	"The sewage smell when you drive over the Nkoninga bridge to Birdwood was very strong this morning."	383, 1
21	2026/04/21 06:55	Arboretum Ext	Sewage leak	CoU	Manhole at #66 leaking sewage.	383, 1
22	2026/04/21 07:26	Arboretum Ext	Sewage odour	CoU	"The smell is bad again this morning."	383, 1
23	2026/04/23 11:31	Veldenvlei	Sewage odour	CoU	"The there was a sewer leak that I constantly reported to the municipality. It took them a month to come have a look at it. When they were there they decided to dig out and open the sewer and dig a huge trench. They then decided to leave it like that and disappear. It's been 2 weeks now and we are forced to inhale the smell of an open sewer that is very smelly. Now I don't know what the procedure is but I don't think people can go around doing half jobs and instead of finishing that particular job, they drop it rush to do another one in Meerensee. I have posted multiple times in this page and even on WhatsApp and you have blatantly ignored both my comments and WhatsApp messages. I have gone to the municipality multiple times but instead I keep receiving messages saying the issue has been fixed but the issue is not fixed. I honestly don't know what to do anymore. I have tried following the correct channels but I haven't been helped. This is frustrating because I have a 1 year old daughter and an elderly mother that are forced to inhale this sewer smell."	383, 1
24	2026/04/24 08:30	Veldenvlei	Alumina fallout	South32	Alumina fallout on outdoor plants.	383, 1
25	2026/04/24 09:00	Veldenvlei	Alumina fallout	South32	White fallout on vehicle.	383, 386
26	2026/04/28 02:45	Veldenvlei	Odour	Mondi	"Woke me up to close windows. Smells like an overcharged battery rotten smell."	366
27	2026/04/28 08:00	Veldenvlei	Clinical + Odour	Mondi	lingering background odour that smells like burning rubber/tar.	366

Table 2: Responses

No.	Industry Feedback
1	Unresolved / No Response
364	Mondi - Candice Webb responded (2026/04/08 10:47): Source of Odour: Emissions associated with the Secondary Effluent Treatment Plant. "Plant-specific checklists indicated no abnormalities. The Environmental Manager identified the Secondary Effluent Treatment Plant (SETP) as a possible source and the SETP was switched off at 07:00. Further investigations identified that there has been an increase in A-condensate overflow to effluent plant between 23:00 on the 6th of April and 05:15 on the 7th of April. Although routine grab samples of condensate did not indicate any quality concerns, it is possible that the3 condensate contained more odorous compounds than normal. Mondi will take the next available opportunity to open the Evaporation plant stripper system for inspection. In the meantime, a SETP odour management plan has been put into place to stop the SETP in the evenings and early hours of the morning when temperature inversion is at its lowest, as well as during wet weather conditions. In addition, condensate volumes will be monitored closely to ensure no unnecessary overflows to effluent plant. 7. Corrective Actions 1) SETP was taken offline at 07:00 2) SETP Odour Management Plan initiated. 8. Preventative Measures 1) Inspection of the Evaporation plant stripper system at next opportunity.
365	Mondi - Candice Webb responded (2026/04/23 10:48): Source of Emissions associated with Startup of Recovery Boiler 1 after uncontrolled shut down. 3. Metrological Conditions: RBCAA Brackenham monitoring station. Average wind direction at Brackenham station prior to the complaints = 260. Average wind speed = 1.3 m/s – very low wind speeds. However, wind rose for the 24-hour period shows prevailing wind direction of NNE for most of the day.
366	Mondi - Candice Webb responded (2026/04/29 14:44): Emissions associated with the Secondary Effluent Treatment Plant
383	RBCAA Allocation- Sandy Camminga (2026/06/06 09:51): RBCAA allocation due to industry failure to respond.
386	South 32 -Londiwe Molebale responded (2026/06/08 11:34): On the 23rd of April, no bag replacements were carried out at GTC5, as trend analysis indicated a significantly low number of leaking filters and relatively stable particulate emission performance at the time. Consequently, production resources were prioritised and deployed to other GTC's experiencing higher numbers of leaking filters and elevated particulate emissions. However, on the 24th of April there was a visible stack emission at GTC5. 5-Whys Analysis Why? High fresh alumina particulate emission resulting in visible stack emission from GTC5 on the 24th of April. Why? The stack emission resulted from 1filter that had 100% particulate emission (i.e. filter 6). Why? 6 leaking filter bags were found to be damaged (holes identified). Why? These filter bags failed prematurely. Root Cause 6 filter bags were identified to be damaged prematurely and had holes resulting in a stack emission.

APPENDIX G
PM₁₀ EXCEEDANCE LOG

Table 1: PM₁₀ exceedances.

No exceedances were recorded during April 2026.

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	2026/04/05 00:00	17.0	25	2.3	No response required	None	2
2	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Brackenham	2026/04/11 00:00	19.0	356	1.7	No response required	None	2
3	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Brackenham	2026/04/12 00:00	25.0	358	2.2	No response required	None	2
4	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Brackenham	2026/04/14 00:00	23.0	28	3.1	No response required	None	2
5	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Brackenham	2026/04/15 00:00	27.0	348	2.6	No response required	None	2
6	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Brackenham	2026/04/16 00:00	24.0	211	1.8	No response required	None	2
7	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Brackenham	2026/04/17 00:00	27.0	7	3.7	No response required	None	2
8	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Brackenham	2026/04/18 00:00	25.0	233	3.7	No response required	None	2
9	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Brackenham	2026/04/19 00:00	24.0	355	2.9	No response required	None	2
10	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Brackenham	2026/04/20 00:00	21.0	186	3.7	No response required	None	2
11	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Brackenham	2026/04/21 00:00	16.0	347	2.5	No response required	None	2
12	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Brackenham	2026/04/22 00:00	16.0	217	3.7	No response required	None	2
13	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Brackenham	2026/04/26 00:00	21.0	13	2.7	No response required	None	2
14	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Brackenham	2026/04/27 00:00	36.0	240	4.4	No response required	None	2
15	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Brackenham	2026/04/29 00:00	18.0	242	2.2	No response required	None	2
16	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Felixton	2026/04/11 00:00	18.0	301	1.5	No response required	None	2
17	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Felixton	2026/04/12 00:00	19.0	346	2.5	No response required	None	2
18	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Felixton	2026/04/13 00:00	18.0	237	2.9	No response required	None	2
19	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Felixton	2026/04/15 00:00	18.0	20	2.3	No response required	None	2
20	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Felixton	2026/04/17 00:00	18.0	17	3.1	No response required	None	2
21	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Felixton	2026/04/18 00:00	18.0	204	2.7	No response required	None	2
22	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Felixton	2026/04/19 00:00	17.0	349	3.2	No response required	None	2
23	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Felixton	2026/04/20 00:00	18.0	173	3.5	No response required	None	2
24	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Felixton	2026/04/27 00:00	23.0	223	3.1	No response required	None	2
25	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Harbour West	2026/04/03 00:00	21.0	17	2.9	No response required	None	2
26	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Harbour West	2026/04/11 00:00	16.0	2	1.8	No response required	None	2
27	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Harbour West	2026/04/12 00:00	16.0	2	2.6	No response required	None	2
28	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Harbour West	2026/04/14 00:00	21.0	16	2.6	No response required	None	2
29	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Harbour West	2026/04/15 00:00	18.0	19	3.2	No response required	None	2
30	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Harbour West	2026/04/17 00:00	19.0	18	4.9	No response required	None	2
31	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Harbour West	2026/04/18 00:00	18.0	200	3.9	No response required	None	2
32	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Harbour West	2026/04/19 00:00	16.0	356	3.5	No response required	None	2
33	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Harbour West	2026/04/26 00:00	16.0	30	2.2	No response required	None	2
34	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Harbour West	2026/04/27 00:00	20.0	216	3.8	No response required	None	2

No	Target / Guideline / Standard	Station	Date	Value (ppb)	Wind Direction (°)	Wind Speed (m/s)	Source	Comment	Response
35	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Scorpio	2026/04/03 00:00	21.0	17	2.9	No response required	None	2
36	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Scorpio	2026/04/05 00:00	17.0	33	2.5	No response required	None	2
37	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Scorpio	2026/04/08 00:00	17.0	9	2.4	No response required	None	2
38	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Scorpio	2026/04/09 00:00	17.0	31	4.2	No response required	None	2
39	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Scorpio	2026/04/10 00:00	16.0	22	2.7	No response required	None	2
40	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Scorpio	2026/04/11 00:00	26.0	2	1.8	No response required	None	2
41	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Scorpio	2026/04/12 00:00	25.0	2	2.6	No response required	None	2
42	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Scorpio	2026/04/13 00:00	19.0	234	3.1	No response required	None	2
43	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Scorpio	2026/04/14 00:00	21.0	16	2.6	No response required	None	2
44	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Scorpio	2026/04/15 00:00	25.0	19	3.2	No response required	None	2
45	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Scorpio	2026/04/16 00:00	18.0	200	2.6	No response required	None	2
46	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Scorpio	2026/04/17 00:00	26.0	18	4.9	No response required	None	2
47	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Scorpio	2026/04/18 00:00	24.0	200	3.9	No response required	None	2
48	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Scorpio	2026/04/19 00:00	24.0	356	3.5	No response required	None	2
49	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Scorpio	2026/04/20 00:00	25.0	164	4.6	No response required	None	2
50	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Scorpio	2026/04/21 00:00	16.0	355	3.1	No response required	None	2
51	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Scorpio	2026/04/26 00:00	19.0	30	2.2	No response required	None	2
52	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Scorpio	2026/04/27 00:00	32.0	216	3.8	No response required	None	2
53	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Scorpio	2026/04/29 00:00	16.0	243	3	No response required	None	2
54	PM _{2.5} Daily WHO Limit (15 µg/m ³)	Scorpio	2026/04/30 00:00	18.0	19	3.5	No response required	None	2

Table 2: PM_{2.5} Responses

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)	Harbour West	2026/04/09 00:00	22.1	31	4.2	No response required	None	2
2	SO ₂ Daily WHO Limit (15 ppb)	Harbour West	2026/04/17 00:00	24.2	18	4.9	No response required	None	2
3	SO ₂ Daily WHO Limit (15 ppb)	Harbour West	2026/04/18 00:00	23.5	200	3.9	No response required	None	2
4	SO ₂ Daily WHO Limit (15 ppb)	Harbour West	2026/04/25 00:00	17.3	21	3	No response required	None	2
5	SO ₂ Daily WHO Limit (15 ppb)	Harbour West	2026/04/30 00:00	16.3	19	3.5	No response required	None	2
6	SO ₂ Daily WHO Limit (15 ppb)	Scorpio	2026/04/05 00:00	17.9	33	2.5	No response required	None	2
7	SO ₂ Daily WHO Limit (15 ppb)	Scorpio	2026/04/06 00:00	15.6	228	4.1	No response required	None	2
8	SO ₂ Daily WHO Limit (15 ppb)	Scorpio	2026/04/10 00:00	15.3	22	2.7	No response required	None	2
9	SO ₂ Daily WHO Limit (15 ppb)	Scorpio	2026/04/15 00:00	32.7	19	3.2	No response required	None	2
10	SO ₂ Hourly RSA Limit (134 ppb)	Scorpio	2026/04/15 06:00	143.6	4	3.2	South32	High SO ₂ emissions at FTC 1stack	194, 205
11	SO ₂ Hourly RSA Limit (134 ppb)	Scorpio	2026/04/15 07:00	149.9	3	4.1	South32	High SO ₂ emissions at FTC 1stack	194, 205
12	SO ₂ Daily WHO Limit (15 ppb)	Scorpio	2026/04/17 00:00	38.5	18	4.9	No response required	None	2
13	SO ₂ 10-minute RSA & WHO Limit (191 ppb)	Scorpio	2026/04/18 00:00	205.4	12	5.5	South32	High SO ₂ emissions at FTC 1stack	194, 205
14	SO ₂ Hourly RSA Limit (134 ppb)	Scorpio	2026/04/18 00:00	163.6	4	4.5	South32	High SO ₂ emissions at FTC 1stack	195, 205
15	SO ₂ Daily WHO Limit (15 ppb)	Scorpio	2026/04/18 00:00	42.5	200	3.9	No response required	None	2

No	Target / Guideline / Standard	Station	Date	Value (ppb)	Wind Direction (°)	Wind Speed (m/s)	Source	Comment	Response
16	SO ₂ Hourly RSA Limit (134 ppb)	Scorpio	2026/04/18 01:00	138.3	2	3.4	South32	High SO ₂ emissions at FTC 1stack	196, 205
17	SO ₂ Daily WHO Limit (15 ppb)	Scorpio	2026/04/19 00:00	26.4	356	3.5	No response required	None	2
18	SO ₂ Daily WHO Limit (15 ppb)	Scorpio	2026/04/20 00:00	45.8	164	4.6	No response required	None	2
19	SO ₂ Daily WHO Limit (15 ppb)	Scorpio	2026/04/21 00:00	24.3	355	3.1	No response required	None	2
20	SO ₂ Daily WHO Limit (15 ppb)	Scorpio	2026/04/25 00:00	45.3	21	3	No response required	None	2
21	SO ₂ Hourly RSA Limit (134 ppb)	Scorpio	2026/04/25 22:00	135.0	24	0.4	South32	High SO ₂ emissions at FTC 1stack	197, 205
22	SO ₂ Daily WHO Limit (15 ppb)	Scorpio	2026/04/26 00:00	20.6	30	2.2	No response required	None	2
23	SO ₂ Daily WHO Limit (15 ppb)	Scorpio	2026/04/27 00:00	25.0	216	3.8	No response required	None	2
24	SO ₂ Hourly RSA Limit (134 ppb)	Scorpio	2026/04/27 04:00	146.2	349	1.8	South32	High SO ₂ emissions at FTC 1stack	199, 205
25	SO ₂ 10-minute RSA & WHO Limit (191 ppb)	Scorpio	2026/04/27 05:00	211.2	123	0.5	South32	High SO ₂ emissions at FTC 1stack	198, 205
26	SO ₂ Daily WHO Limit (15 ppb)	Scorpio	2026/04/30 00:00	26.3	19	3.5	No response required	None	2

Table 2: SO₂ Responses.

Response	Industry Feedback
1	Unresolved / No Response
2	No response required
194	Foskor - Kirona Harrypersad responded (2026/04/17 09:49): Immediate Actions Taken: The Sulphuric Acid Plant engineers were informed, and an investigation was conducted thereafter. Meteorological records further indicate that the wind direction at the time in question, as displayed below in Figure 1 & 2, was predominantly blowing from the North at an average speed ranging from 2 – 4 m/s (Arboretum) and 2 – 6 m/s (Harbour West). Additional Information: Sulphuric Acid B and C Plant was offline at the time of the exceedance. Considering the conditions of the Plant during the time and the prevailing wind direction, Foskor concludes that it did not contribute to the reported SO₂ exceedance. Incident Root cause: There was no root cause identified as the Sulphuric Acid Plants were offline.
195	Foskor - Kirona Harrypersad responded (2026/04/21 16:09): Immediate Actions Taken The Sulphuric Acid Plant engineers were informed and an investigation was conducted thereafter. Meteorological records further indicate that the wind direction at the time in question, as displayed below in Figure 1 & Figure 2, was predominantly blowing from the North at an average speed ranging from 4 – 6 m/s for Arboretum and Harbour West. Additional Information: Sulphuric Acid B and C Plant was offline at the time of the exceedance. Considering the conditions of the Plant during the time and the prevailing wind direction, Foskor concludes that it did not contribute to the reported SO₂ exceedance. Incident Root cause: There was no root cause identified as the Sulphuric Acid Plants were offline.
196	Foskor - Kirona Harrypersad responded (2026/04/21 16:09): Immediate Actions Taken The Sulphuric Acid Plant engineers were informed and an investigation was conducted thereafter. Meteorological records further indicate that the wind direction at the time in question, as displayed below in Figure 1 & Figure 2, was predominantly blowing from the North at an average speed ranging from 4 – 6 m/s for Arboretum and Harbour West. Additional Information: Sulphuric Acid B and C Plant was offline at the time of the exceedance. Considering the conditions of the Plant during the time and the prevailing wind direction, Foskor concludes that it did not contribute to the reported SO₂ exceedance. Incident Root cause: There was no root cause identified as the Sulphuric Acid Plants were offline.
197	Foskor - Kirona Harrypersad responded (2026/04/29 12:11): Immediate Actions Taken: The Sulphuric Acid Plant engineers were informed and an investigation was conducted thereafter. Meteorological records further indicate that the wind direction at the time in question, as displayed below in Figure 1 & Figure 2, was predominantly blowing from the North at an average speed ranging from 2-4 m/s for Arboretum and 0.5- 2 m/s for Harbour West. Additional Information: Sulphuric Acid B plant is on planned shutdown, and Sulphuric Acid C plant was on startup scrubber at the time of the exceedance. Sulphuric Acid C plant as functioning within the SO₂ permitted emissions limit (350 mg/Nm³). Please refer to Figure 1 below for more information on Foskor's SO₂ emissions during the time of the exceedance. There was no fugitive emissions observed. Considering the conditions of the Plant during the time and the prevailing wind direction, Foskor concludes that it did not contribute to the reported SO₂ exceedance. Figure 1: Foskor C Plant stack SO₂ emissions trend at the time of the exceedance Incident Root cause: There was no root cause identified as there were no abnormalities in the plant. Corrective/Preventative Actions: No corrective actions required since there were no abnormalities. General comments: Despite the presence of very low wind speeds, the prevailing wind direction was northerly, suggesting that our operations were unlikely to have contributed to the exceedance.

Response	Industry Feedback
198	Foskor - Kirona Harrypersad responded (2026/04/29 12:12): Immediate Actions Taken: The Sulphuric Acid Plant engineers were informed and an investigation was conducted thereafter. Meteorological records further indicate that the wind direction at the time in question, as displayed below in Figure 1& Figure 2, was predominantly blowing from the North at an average speed ranging from 2-4 m/s for Arboretum and 0.5- 4 m/s for Harbour West. Additional Information: Sulphuric Acid B plant is on planned shutdown, and Sulphuric Acid C plant was on startup scrubber at the time of the exceedance. Sulphuric Acid C plant as functioning within the SO2 permitted emissions limit (350 mg/Nm3). Please refer to Figure 1below for more information on Foskor's SO2 emissions during the time of the exceedance. There was no fugitive emissions observed. Considering the conditions of the Plant during the time and the prevailing wind direction, Foskor concludes that it did not contribute to the reported SO2 exceedance. Incident Root cause: There was no root cause identified as there were no abnormalities in the plant. Corrective/Preventive Actions: No corrective actions required since there were no abnormalities. General comments: Despite the presence of very low wind speeds, the prevailing wind direction was northerly, suggesting that our operations were unlikely to have contributed to the exceedance
199	Foskor - Kirona Harrypersad responded (2026/04/29 12:12): Immediate Actions Taken: The Sulphuric Acid Plant engineers were informed and an investigation was conducted thereafter. Meteorological records further indicate that the wind direction at the time in question, as displayed below in Figure1& Figure 2, was predominantly blowing from the North at an average speed ranging from 2-4 m/s for Arboretum and Harbour West. Additional information: Sulphuric Acid B plant is on planned shutdown, and Sulphuric Acid C plant was on startup scrubber at the time of the exceedance. Sulphuric Acid C plant as functioning within the SO2 permitted emissions limit (350 mg/Nm3). Please refer to Figure 1below for more information on Foskor's SO2 emissions during the time of the exceedance. There was no fugitive emissions observed. Considering the conditions of the Plant during the time and the prevailing wind direction, Foskor concludes that it did not contribute to the reported SO2 exceedance. Incident Root cause: There was no root cause identified as there were no abnormalities in the plant. Corrective/Preventative Actions: No corrective actions required since there were no abnormalities. General comments: Despite the presence of very low wind speeds, the prevailing wind direction was northerly, suggesting that our operations were unlikely to have contributed to the exceedance.
205	South32 - Molebale, Londiwe responded (2026/06/03 16:06): Event Description: Between 15 March and 30 April 2026, FTC 1 stack SO2 emissions exceeded the daily average limit of 500 mg/Nm3 on different days as per the graph below. Findings: Multivariate Anomaly Detection is a data analysis technique that evaluates how multiple process parameters behave together under normal operating conditions. Rather than assessing one variable in isolation, the method identifies situations where the relationships between variables become abnormal or inconsistent with historical plant behaviour. In simple terms, the analysis looks for periods where the process "stops behaving normally" even if individual parameters may still appear to be within expected operating ranges. The multivariate anomaly detection analysis showed that the abnormal operating periods were characterised by disproportionately elevated SO2 emissions occurring simultaneously with disrupted relationships between draft, temperature, fume flow, and furnace operating behaviour. This indicates that the exceedances were more likely associated with a breakdown in normal process interaction and operating stability rather than a single isolated change in feed composition or operating setpoint. The analysis identified the following parameters as the most significant contributors to the abnormal operating condition: • High sulphur coke ratio within the coke blend, contributing increased sulphur loading potential • ABF fire cycle duration and inlet fume temperature, indicating potential ABF fire delays. Root Cause: The SO2 exceedances were caused by the combined effect of multiple process parameters i.e. high Sulphur coke ratio within the coke blend, ABF fire cycle duration and inlet fume temperature, and low FTC inlet fume/gas flows which although not historically problematic individually, collectively resulted in elevated SO2 emissions.

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)	Brackenham	2026/04/18 08:00	5.4	353	4.2	Mondi	Fugitive emissions from the mill	892, 1
2	TRS 30-minute WHO H ₂ S Limit (5.0 ppb)	Richardia	2026/04/03 03:30	5.2	7	0.9	Mondi	SETP	891, 1
3	TRS 30-minute WHO H ₂ S Limit (5.0 ppb)	Richardia	2026/04/24 22:00	5.1	18	1.8	Mondi	SETP	893, 1

Table 2: TRS Responses

No	Industry Feedback
1	Unresolved / No Response
891	Mondi - Candice Webb responded, (2026/05/19 08:28): Mondi has investigated the exceedance reported below and identified the Secondary Effluent Treatment Plant as the most likely source. Prior to this exceedance there was and an increase in A-condensate overflow to effluent plant. Although routine grab samples of condensate did not indicate any quality concerns, it is possible that the condensate contained more odorous compounds than normal. Mondi will take the next available opportunity to open the Evaporation plant stripper system for inspection. In the meantime, a SETP odour management plan remains in place to stop the SETP in the evenings 20:00- 23:00 and early hours of the morning 04:00-08:00 when temperature inversion is at its lowest, as well as during wet weather conditions, to reduce the risk of odour complaints. In addition, condensate volumes will be monitored closely to ensure no unnecessary overflows to effluent plant.
892	Mondi - Candice Webb responded, (2026/05/19 08:38): Mondi has investigated the exceedance reported below and identified fugitive emissions from the mill as the most likely source of the TRS. At the time of the exceedance the mill was still in process of stabilising after the emergency shutdown which occurred between 08 and 16 April 2026. No obvious source was identified by the online continuous monitoring system for odour, and the Secondary Effluent Treatment Plant was offline at the time for planned odour mitigation measures. However, as the mill operating conditions were still not stable and, and based on wind direction prior to the exceedance, Mondi is the most likely source of the TRS.
893	Mondi - Candice Webb responded, (2026/05/19 08:38): Mondi has investigated the exceedance reported below and identified the Secondary Effluent Treatment Plant as the most likely source. Prior to this exceedance there was and an increase in A-condensate overflow to effluent plant. Although routine grab samples of condensate did not indicate any quality concerns, it is possible that the condensate contained more odourous compounds than normal. Mondi will take the next available opportunity to open the Evaporation plant stripper system for inspection. Although the SETP was switched off in line with our odour mitigation plan between 20:00- 23:00 as planned. It is possible that based on low level wind speeds and direction, it was still able to cause the exceedance at Ricarda.

