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Ambient Air Quality Monitoring Report for Saldanha Bay and Vredenburg Sites

April 2026

Prepared for

Saldanha Bay Municipality

EXECUTIVE SUMMARY

This report covers data from the Saldanha Bay and Vredenburg Air Quality Monitoring stations which have been commissioned and operated throughout the Saldanha Bay Municipality Area by Argos Scientific Africa (Pty) Ltd since 2015 and by Skyside South Africa (Pty) Ltd since October 2024.

This report covers activities during April 2026.

Data capture as >90% for all pollutants except PM10/PM2.5 (53%) as the analyser developed a fault due to a water leak in the inlet. A spare analyser has been installed.

Data capture was <80% for all pollutants due to an ozone lamp fault on the O3 analyser (76%) which has been attended two and comms issues with SO2 (48%) and NOX (28%) which have also since been resolved.

There were **no** DFFE Air Quality Standard exceedances during April 2026.

Meteorological conditions at the Saldanha AQM site were characterised by moderate to strong winds from the south (S) and south-west (SW), with a significant moderate to strong north-westerly (NW) bias. There was a 6.5% occurrence of calm conditions.

Meteorological conditions at the Vredenburg AQM site were characterised by moderate to strong winds from the south (S) and south-west (SW), with a moderate south-easterly (SE) and northerly (N) bias. There was a 1.5% occurrence of calm conditions.

REPORT DETAILS

Reference	AS1138\sbm\202604
Report Title	Ambient Air Quality Monitoring Report for Saldanha Bay and Vredenburg Sites : April 2026
Date Submitted	19 May 2026
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Signed	
Technical signatory	Grant Ravenscroft Signed: 
Status	Final
Notice	

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1 INTRODUCTION AND BACKGROUND

1.1 SCOPE OF WORK

This project covers the communications, data processing and reporting for two Air Quality Monitoring (AQM) Stations in the Saldanha Bay Municipality Area. Argos Scientific's understanding of the scope of work is as follows:

- Establish 3G communications from ambient air quality monitoring station loggers (PC with Linux Operating System) via 2G/3G modem to a centralised server.
- Provide SIM cards for 2G/3G modems.
- Ensure communication support stations and server.
- Provide real-time access to raw data and validated data from SBM offices.
- Provide real-time downloading of raw data and validated data from SBM offices.
- Submission of monthly reports for each monitoring station, including data graphs, exceedance graphs, meteorology, analysis and station status.

1.2 PROJECT DESCRIPTION

This report evaluates data collected from the Saldanha Bay and Vredenburg Air Quality Monitoring Station. The Saldanha Bay station is located at 32°58'56.16"S, 17°59'21.57"E, at Freeport Saldanha to the north east of the town and the Vredenburg station is located at 32°54'6.20"S, 17°59'31.94"E, to the east of the town. These sites meet all the requirements as outlined in the US EPA's "Quality Assurance Handbook for Air Pollution Measurement Systems" and "SANS 1929" report.

Figure 1.2-1 Location of the Air Quality Monitoring Stations at Saldanha Bay & Vredenburg

2 GUIDELINES AND AIR QUALITY STANDARDS

The National Department of Environmental Affairs (DEA) standards for common pollutants as listed in the Government Gazette No.32816, published 24 October 2009, are listed in Table 2-1 below.

Table 2-1 National Ambient Air Quality Standards for SO_2, NO_2, O_3, PM-10 and PM2.5

Pollutant	SO_2	SO_2	NO_2	O_3	PM-10	PM-2.5
Period	10 minute	1 hour	1 hour	8 hour	1 day	1 day
RSA AQ Standard	191ppb	48ppb	106ppb	61ppb	75 µg/m^3	40 µg/m^3

3 METHODOLOGY

3.1 AMBIENT AIR QUALITY

Ambient concentrations of sulphur dioxide, oxides of nitrogen (NO, NO_2 and NO_X), ozone, and particulates less than 10 µm in diameter (PM-10) are measured at the Saldanha Bay monitoring site and Vredenburg monitoring site in accordance with the latest National Ambient Air Quality Standards (as above) and SANS standard methods. Levels of these pollutants are presented graphically and in table form in section 4 below.

3.2 DATA CAPTURE

Data is analysed for completeness against a required standard of 90% and presented in Table 3.2-1 below.

Table 3.2-1 Percentage Data Capture for Ambient Air Quality Pollutants during April 2026 at the Saldanha & Vredenburg AQM Site

Pollutant\Station	Saldanha Bay	Vredenburg
Nitrogen Dioxide	94.5%	27.7%
Ozone	92.3%	75.6%
PM-10	53.0%	0%
PM-2.5	53.0%	0%
Sulphur Dioxide	95.3%	47.8%

4 RESULTS

4.1 AMBIENT AIR QUALITY TRENDS – SALDANHA BAY AQM STATION

A graphical summary of pollutants for April 2026 is provided in Figure 4.1-1– Figure 4.1-7 below. A tabulated summary of results is attached as Appendix 1.

Figure 4.1-1 Daily Mean SO_2 Concentrations at Saldanha Bay in April 2026

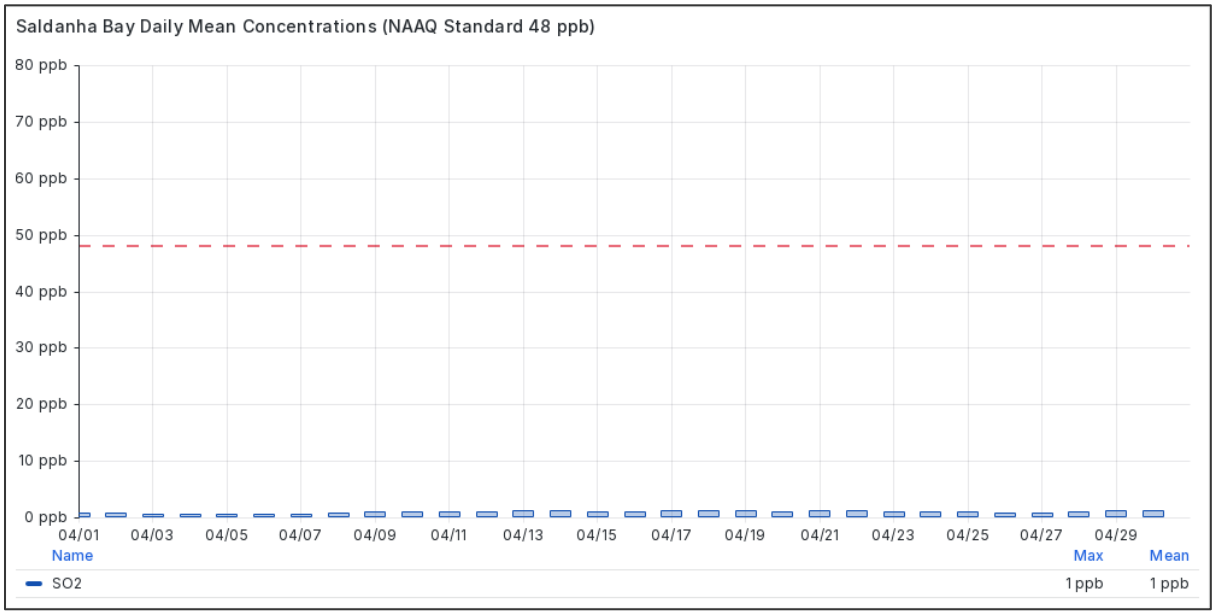


Figure 4.1-2 Mean 10-minute SO_2 Concentrations at Saldanha Bay in April 2026

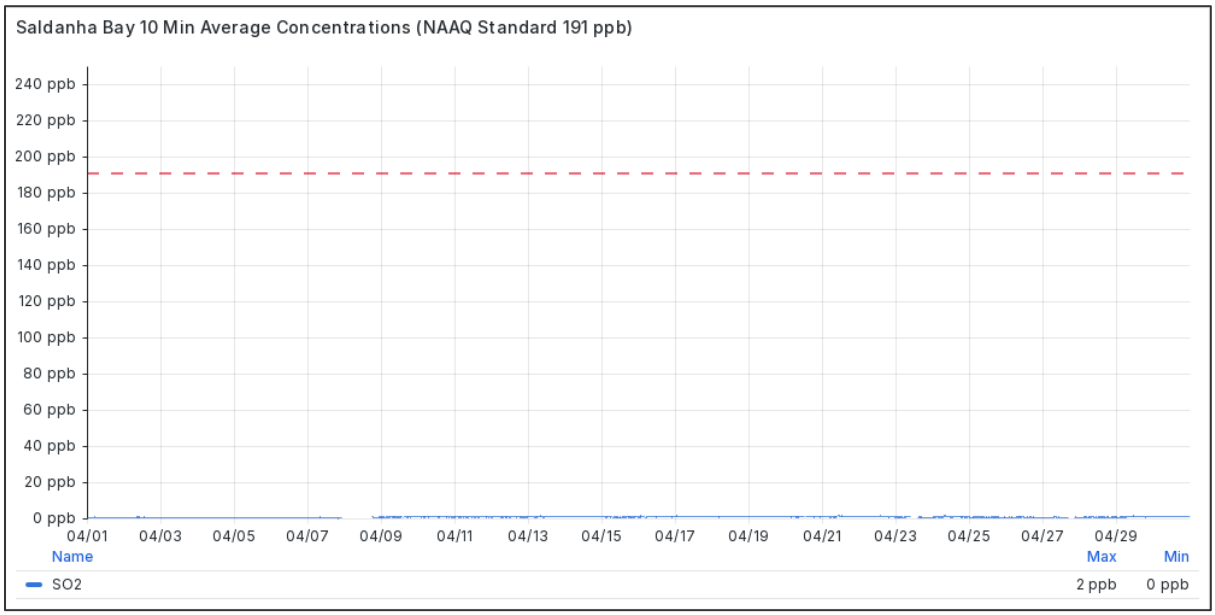


Figure 4.1-3 1 Hourly Mean NO_2 Concentrations at Saldanha Bay in April 2026

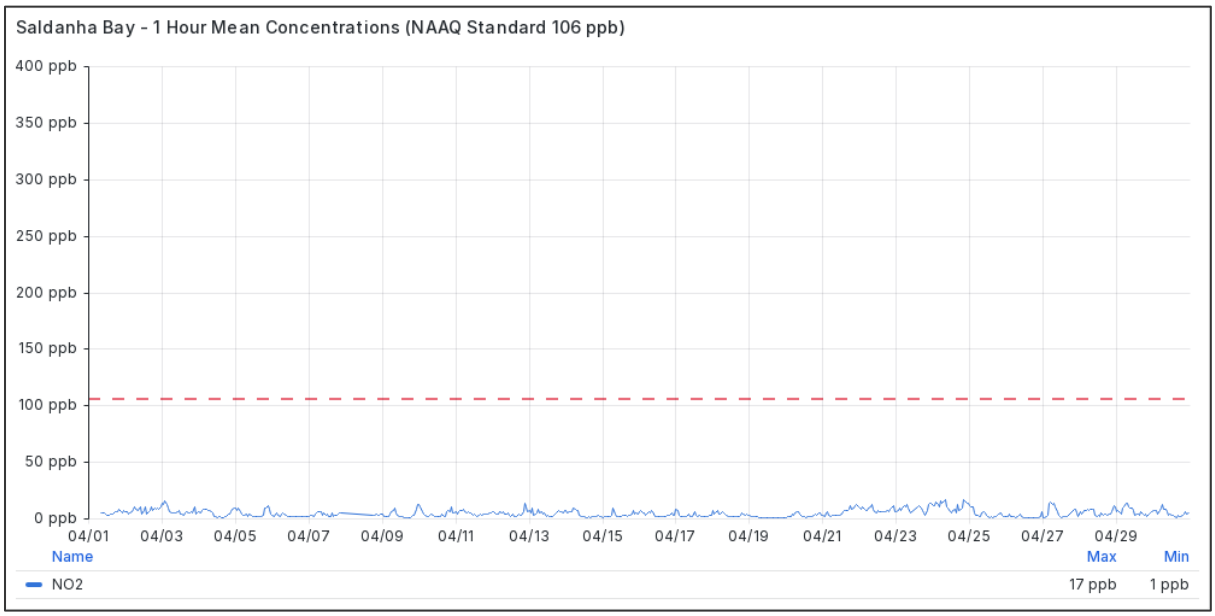


Figure 4.1-4 Daily Mean NO_X Concentrations at Saldanha Bay in April 2026

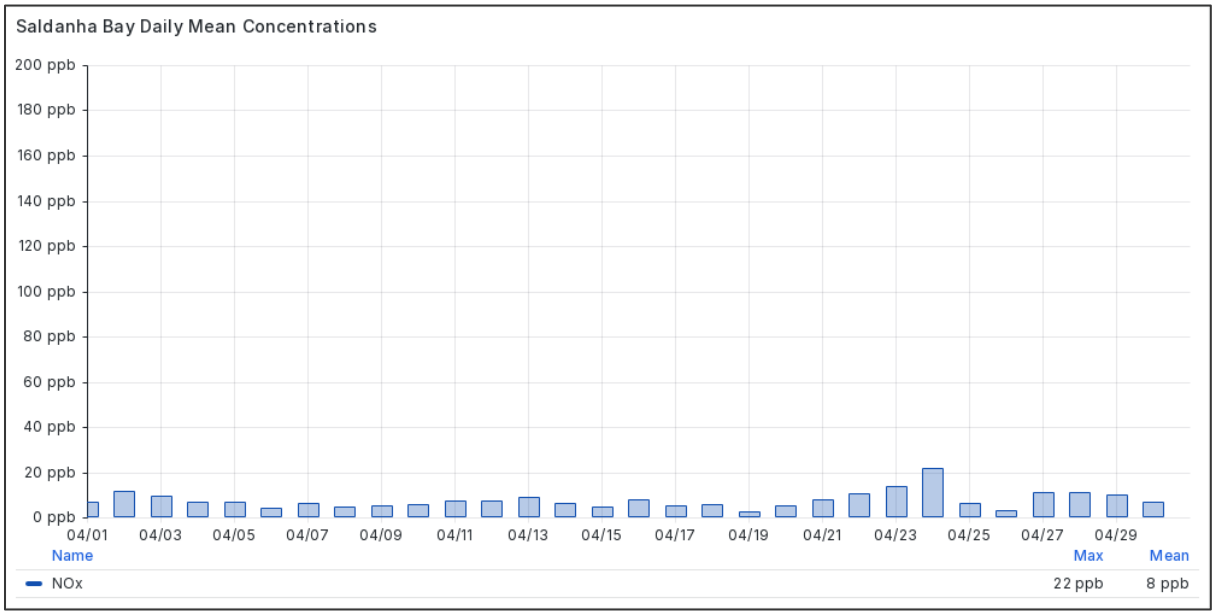


Figure 4.1-5 Eight-hourly Rolling Mean O_3 Concentrations at Saldanha Bay in April 2026

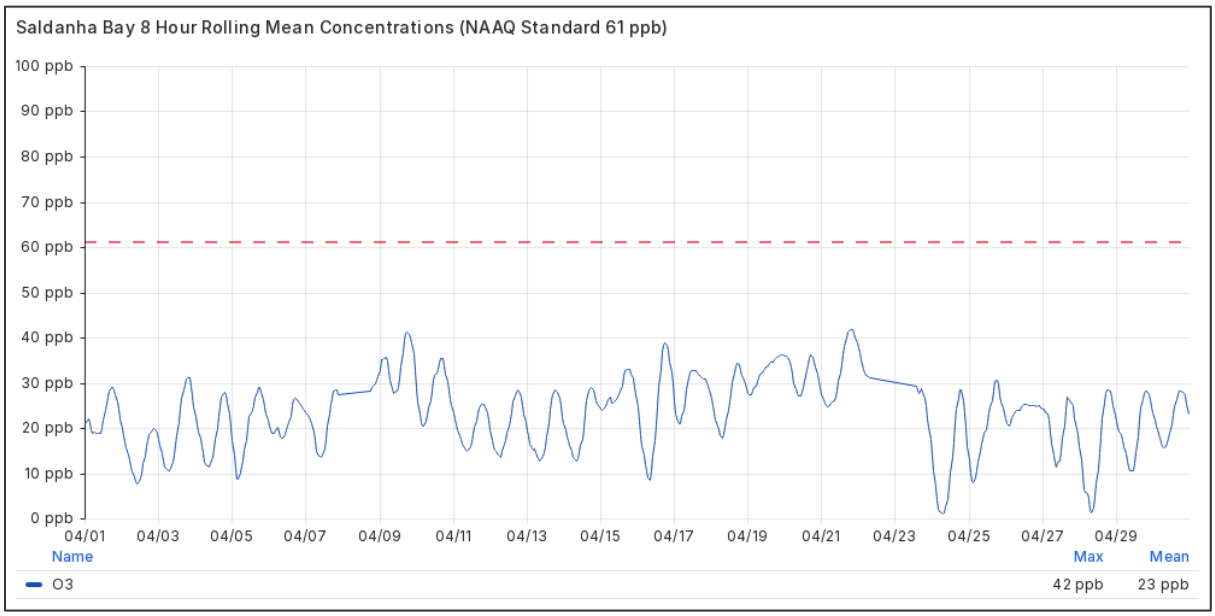


Figure 4.1-6 Daily Mean PM-10 Concentrations at Saldanha Bay in April 2026

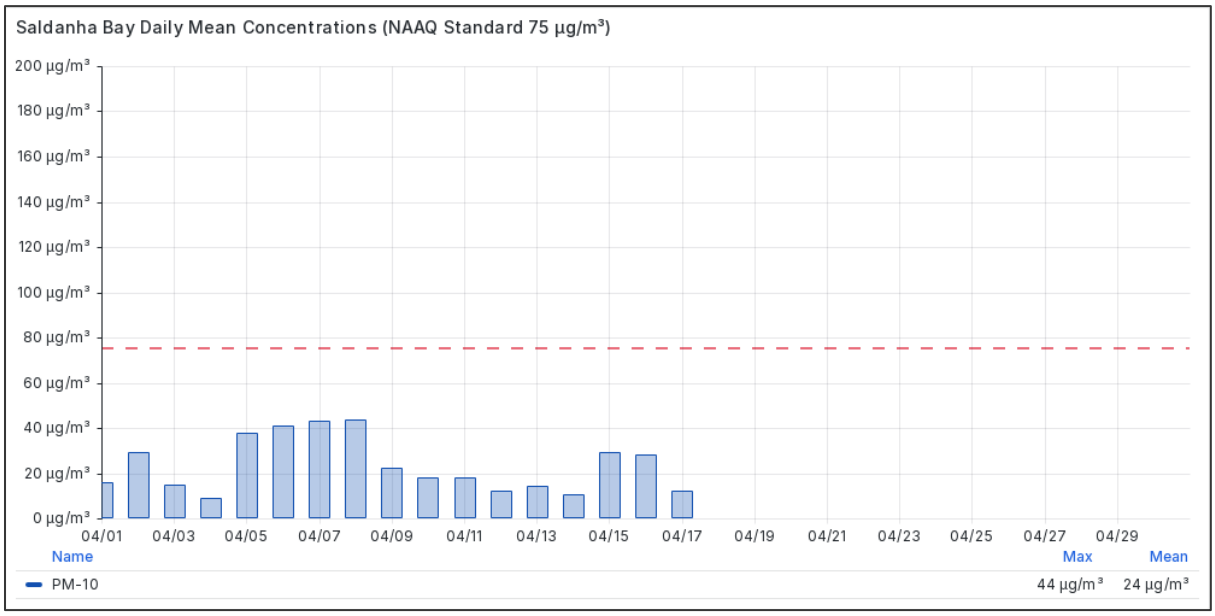
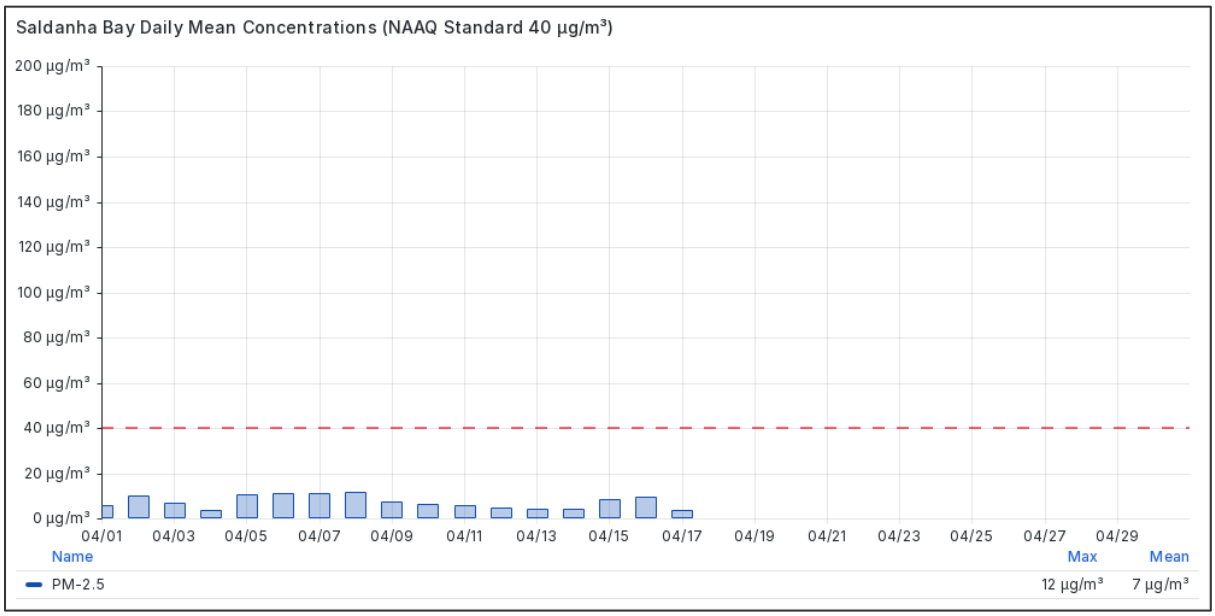


Figure 4.1-7 Daily Mean PM-2.5 Concentrations at Saldanha Bay in April 2026



4.2 AMBIENT AIR QUALITY TRENDS – VREDENBURG AQM STATION

A graphical summary of pollutants for April 2026 is provided in Figure 4.2-1 to Figure 4.2-5 below. A tabulated summary of results is attached as Appendix 2.

Figure 4.2-1 Daily Mean Hourly SO_2 Concentrations at Vredenburg in April 2026

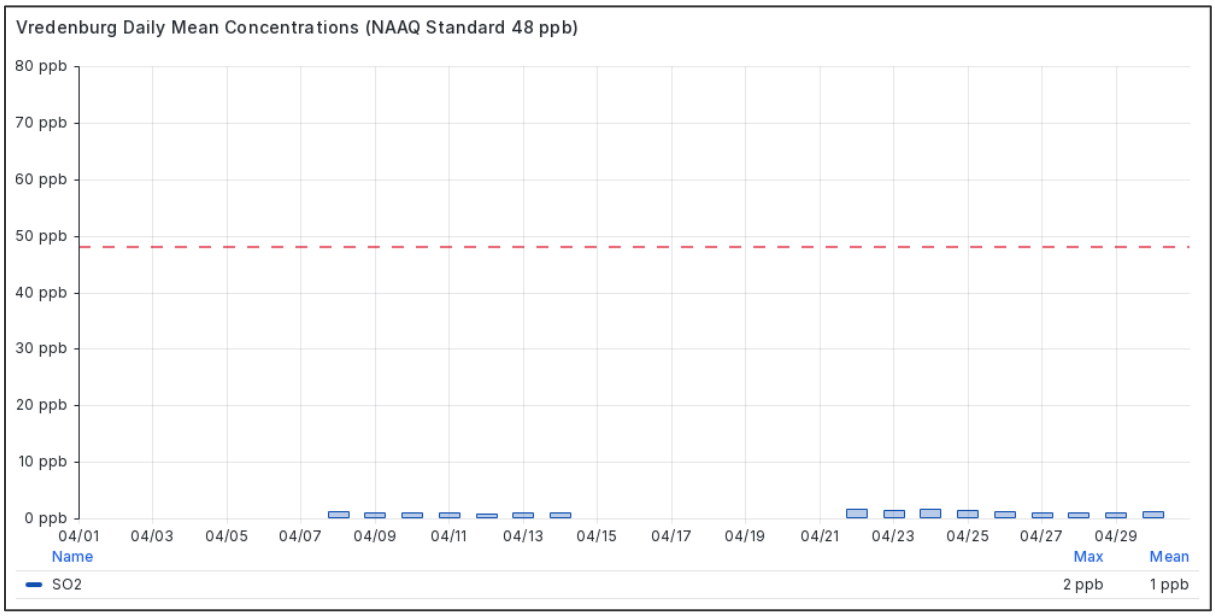


Figure 4.2-2 Daily Maximum 10-minute SO_2 Concentrations at Vredenburg in April 2026

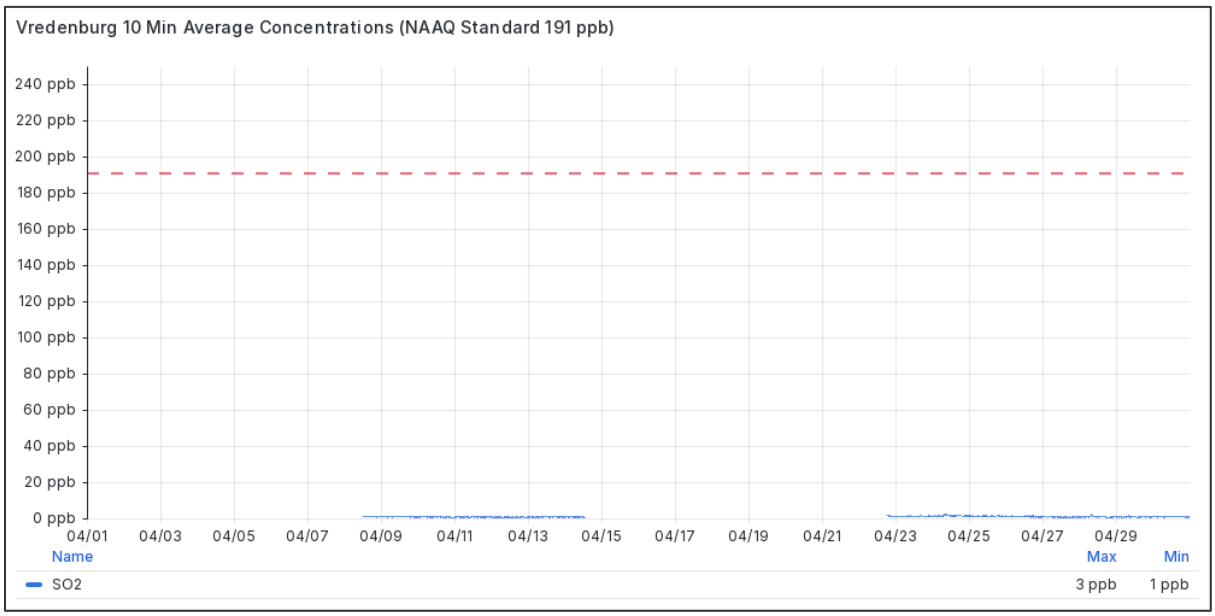


Figure 4.2-3 Daily Maximum NO_2 Concentrations at Vredenburg in April 2026

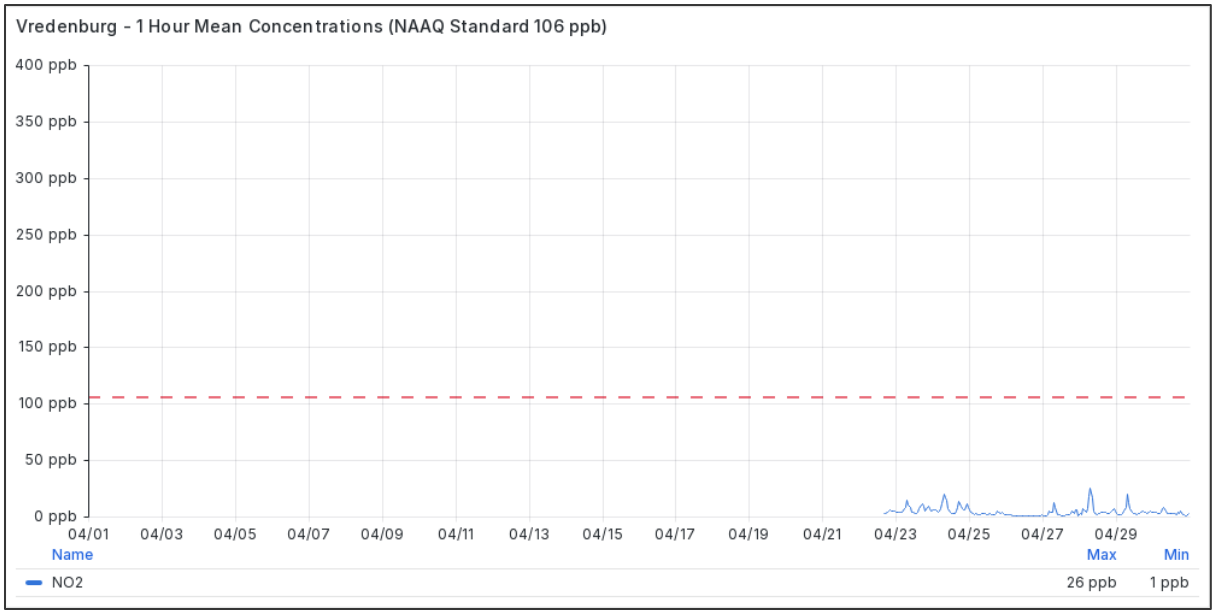


Figure 4.2-4 Daily Mean Hourly NO_X Concentrations at Vredenburg in April 2026

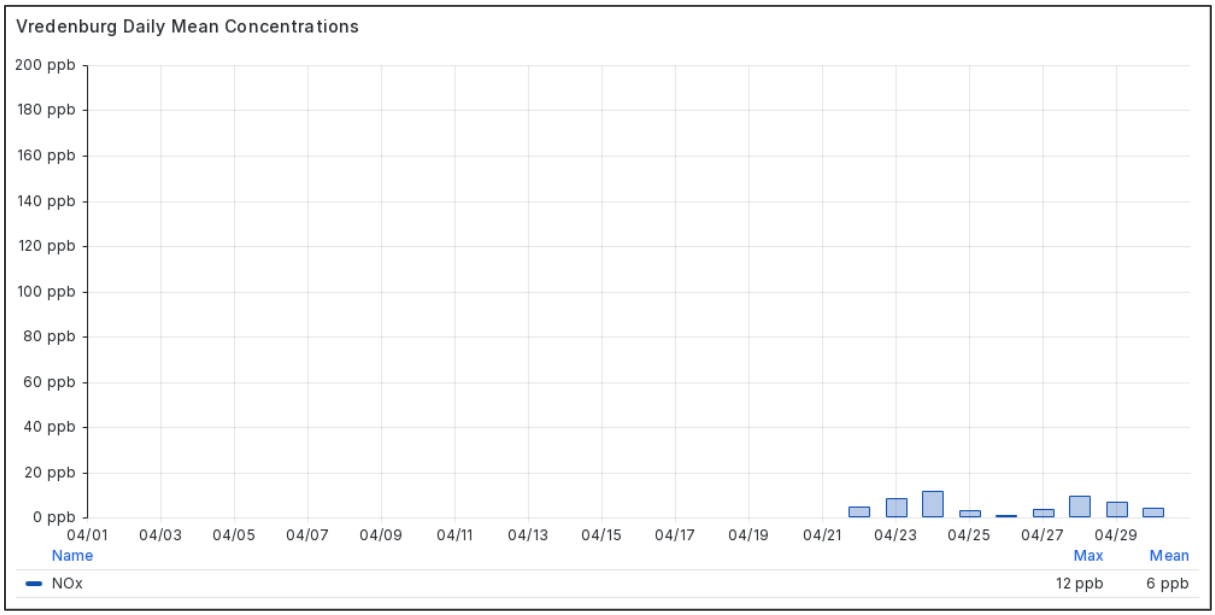
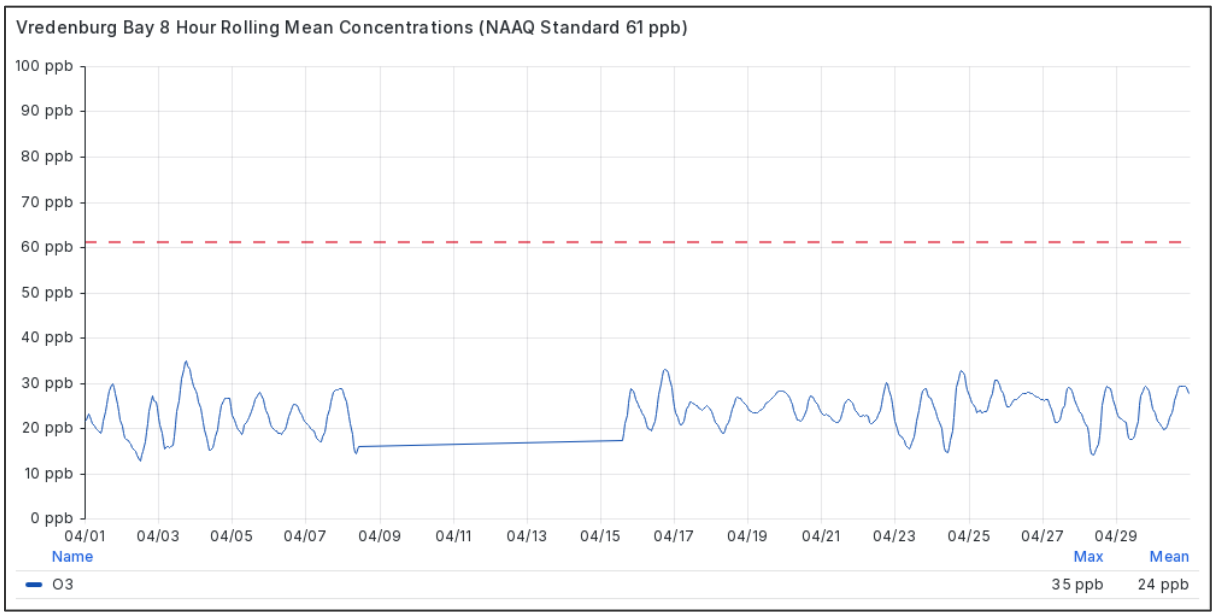


Figure 4.2-5 Eight-hourly Rolling Mean O_3 Concentrations at Vredenburg in April 2026



4.3 COMPLIANCE

Compliance with National Ambient AQM Standards can be found in Table 4.3-1 below.

Table 4.3-1 Compliance with National Ambient Air Quality Standards at the Saldanha & Vredenburg Site – Number of Exceedances for April 2026

Pollutant	Saldanha	Vredenburg	Averaging Period	NAAQ Standard
Sulphur Dioxide	0	0	10 minutes	191
Sulphur Dioxide	0	0	1 hour	134
Sulphur Dioxide	0	0	24 hour	48
Nitrogen Dioxide	0	0	1 hour	106
Ozone	0	0	8 hour	61
PM-10	0	0	24 hour	75
PM-2.5	0	0	24 hour	40

4.4 MEAN AND MAXIMUM CONCENTRATIONS

Statistical Analysis of ambient pollutants can be found in Table 4.4-1 below.

Table 4.4-1 Mean and Maximum Pollutant Concentrations during April 2026 at Saldanha & Vredenburg sites (80% data capture required)

Pollutant	Saldanha	Vredenburg	Averaging Period
Sulphur Dioxide	1	1	Monthly Mean (ppb)
Sulphur Dioxide	1	2	24 Hour Avg Maximum (ppb)
Sulphur Dioxide	2	2	1 Hour Avg Maximum (ppb)
Nitrogen Dioxide	5	5	Monthly Mean (ppb)
Nitrogen Dioxide	12	8	24 Hour Avg Maximum (ppb)
Nitrogen Dioxide	17	26	1 Hour Avg Maximum (ppb)
Ozone	23	24	Monthly Mean (ppb)
Ozone	34	27	24 Hour Avg Maximum (ppb)
Ozone	43	39	1 Hour Avg Maximum (ppb)
PM-10	23	-	Monthly Mean (µg/m³)
PM-10	44	-	24 Hour Avg Maximum (µg/m³)
PM-10	109	-	1 Hour Avg Maximum (µg/m³)
PM-2.5	7	-	Monthly Mean (µg/m³)
PM-2.5	12	-	24 Hour Avg Maximum (µg/m³)
PM-2.5	24	-	1 Hour Avg Maximum (µg/m³)

4.5 DIURNAL TRENDS

Diurnal trends of the ambient pollutants are only shown for those pollutants where overall data capture was above 50%, which is considered representative enough for providing an indication of diurnal trends. These trends can be found in Table 4.5-1 and Table 4.5-2 below.

Figure 4.5-1 Diurnal Trend for Ambient Air Pollutants at Saldanha Bay in April 2026

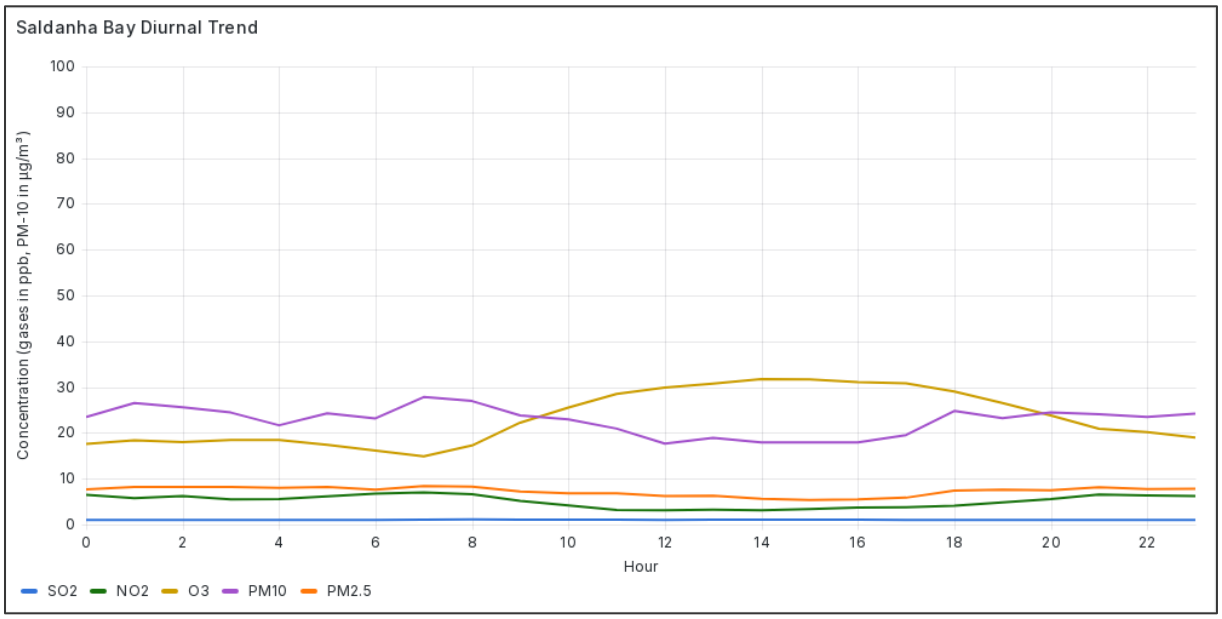
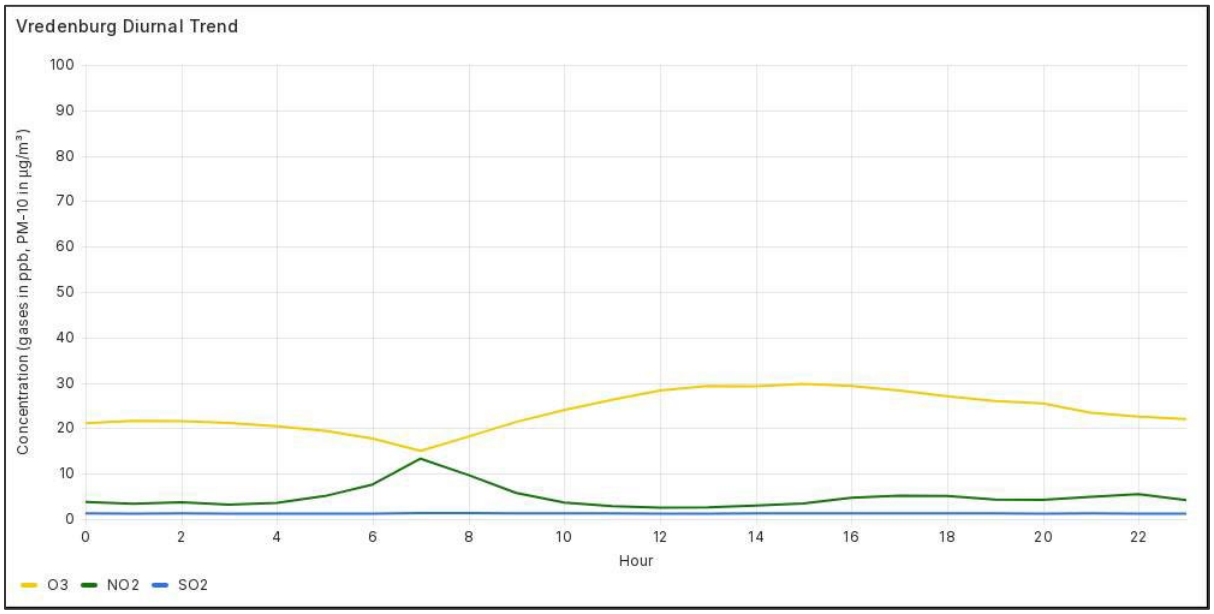


Figure 4.5-2 Diurnal Trend for Ambient Air Pollutants at Vredenburg in April 2026



4.6 WIND AND POLLUTION ROSES

Wind roses for March 2026 is shown in Figures 4.6-1 and 4.6-2 below.

Figure 4.6-1 Wind Rose for Saldanha Bay for April 2026

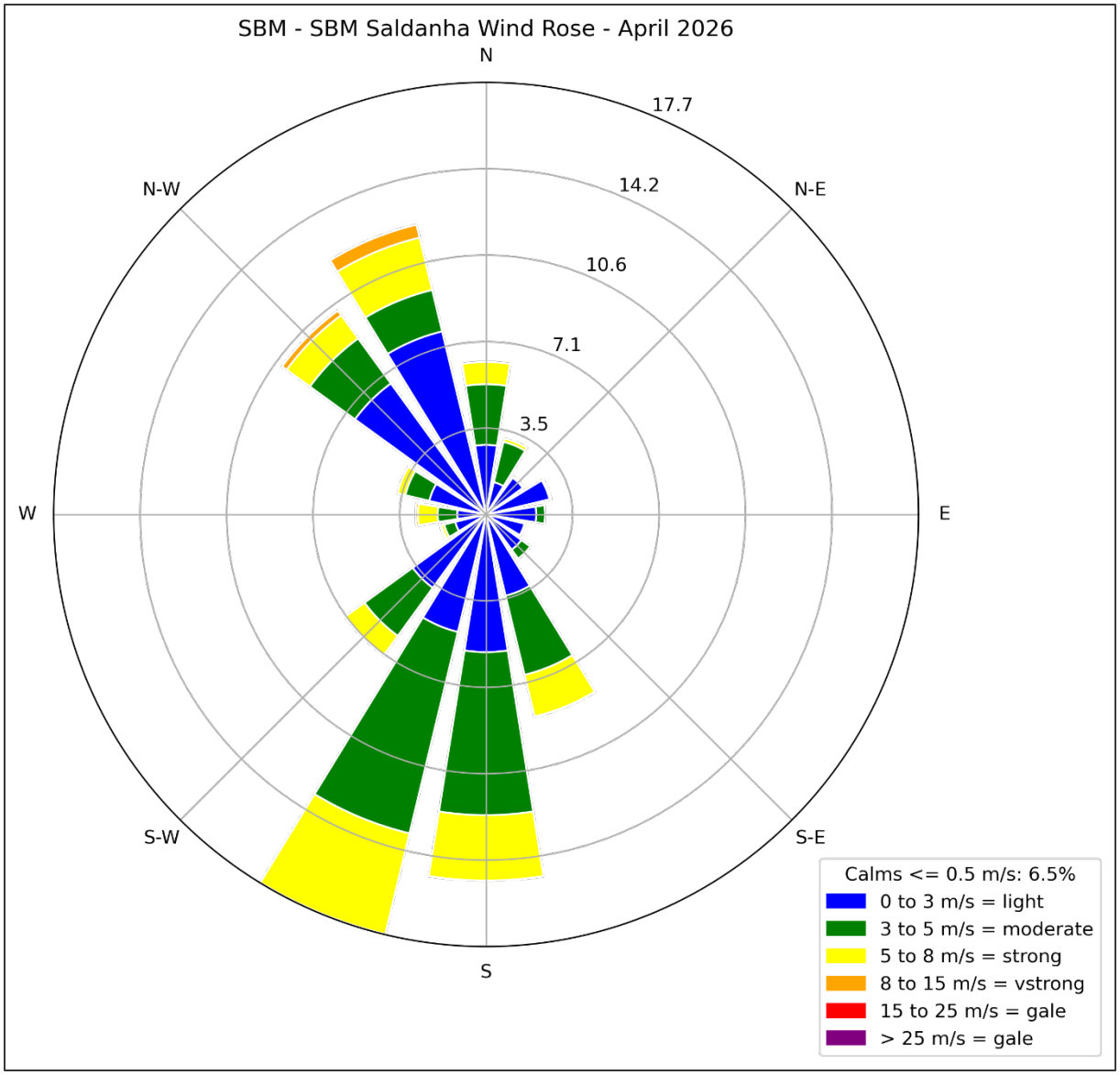
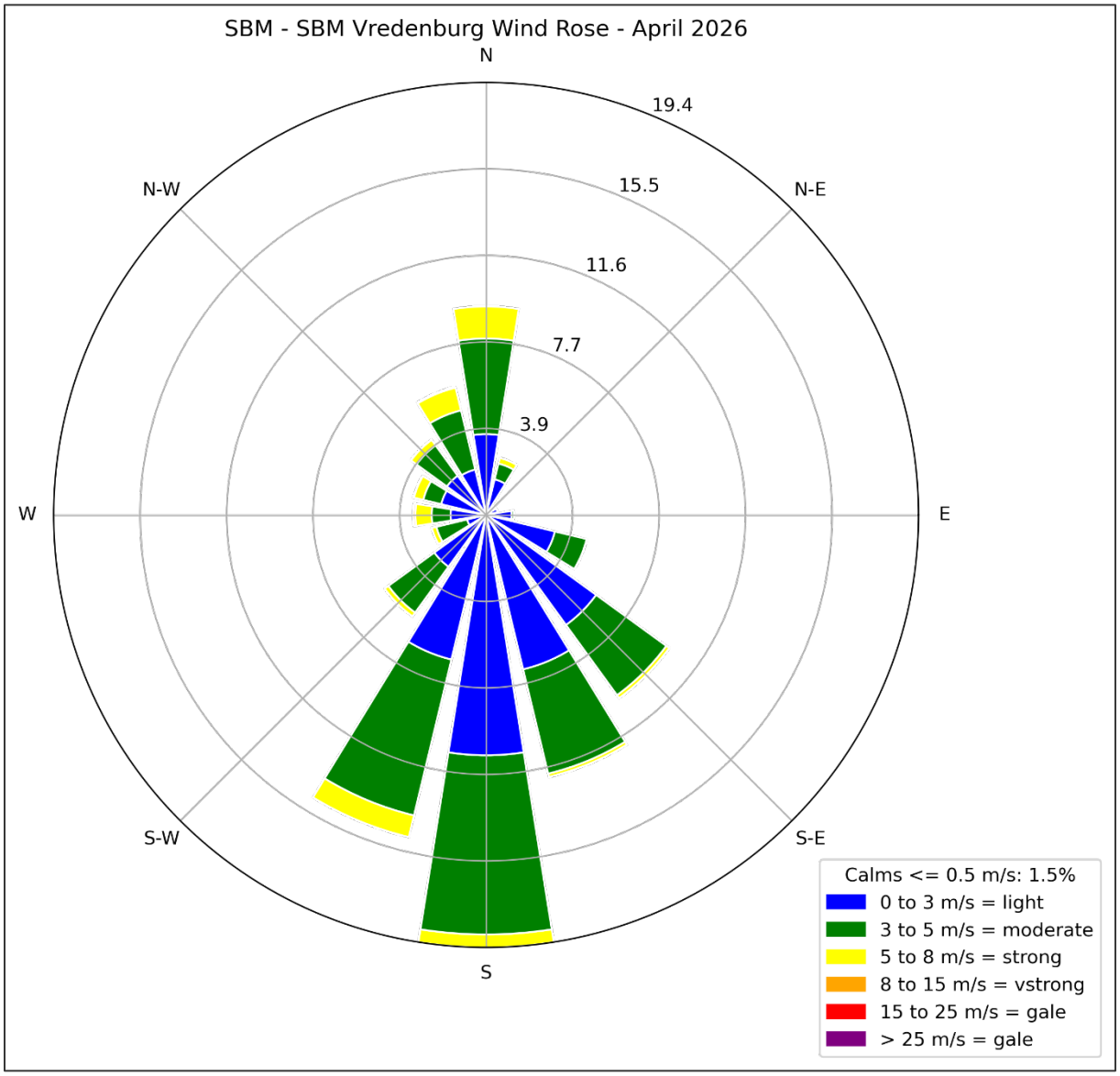


Figure 4.6-2 Wind Rose for Vredenburg for April 2026



5 CONCLUSIONS AND RECOMMENDATIONS

Information on data collection and compliance with standards are presented below and covers activities during April 2026.

- Data capture as >90% for all pollutants except PM10/PM2.5 (53%) as the analyser developed a fault due to a water leak in the inlet. A spare analyser has been installed.
- Data capture was <80% for all pollutants due to an ozone lamp fault on the O3 analyser (76%) which has been attended to and comms issues with SO2 (48%) and NOX (28%) which have also since been resolved.
- There were **no** DFFE Air Quality Standard exceedances during March 2026.

Meteorological conditions at the Saldanha AQM site were characterised by moderate to strong winds from the south (S) and south-west (SW), with a significant moderate to strong north-westerly (NW) bias. There was a 6.5% occurrence of calm conditions.

Meteorological conditions at the Vredenburg AQM site were characterised by moderate to strong winds from the south (S) and south-west (SW), with a moderate south-easterly (SE) and northerly (N) bias. There was a 1.5% occurrence of calm conditions.

APPENDIX 1: MONITORING METHODOLOGIES

1. CONTINUOUS REAL TIME MONITORS

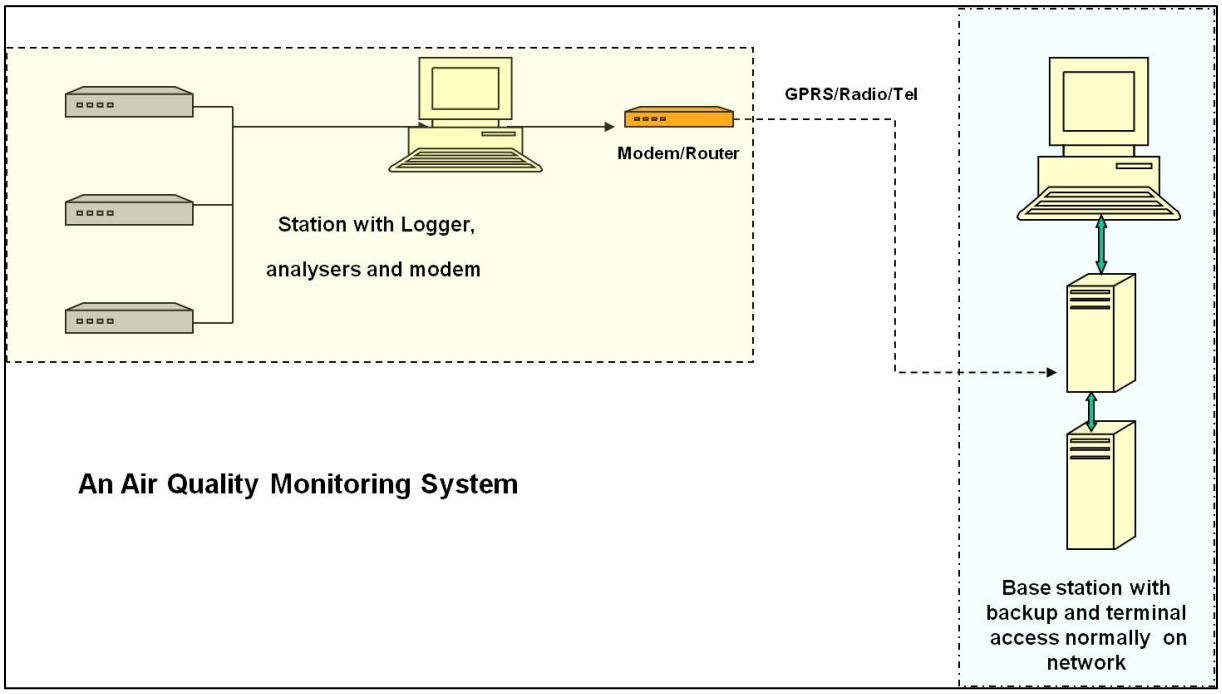
Continuous real-time monitors are used to measure real-time concentrations of gases. These are usually one part of an AQMS and often are remote in location and need to be connected in a network as per Figure A below. Such a system would have the following as a minimum requirement:

- Environmental enclosure
- Inlet manifold
- Analysers
- Calibration
- Meteorological instrumentation
- Data acquisition
- Data reporting
- Communication
- Housekeeping (log book, shelter check sheet, instruments data sheets)

In particular the monitoring station would have the following basic components:

- Monitoring station design
  - Housing
  - Air inlet system
  - Monitoring instrumentation
  - Calibration of monitors
  - Logging devices

Figure A. A Typical Air Quality Monitoring System Design



- Monitoring Methods

This section gives an overview of the methods employed in the continuous monitoring of ambient compounds.

1.1 CO/CO_2

CO and CO_2 are monitored continuously by non-dispersive infrared photometry.

The non-dispersive infrared photometry process is based upon the absorption of infrared light by CO or CO_2.

1.2 NO_X

Oxides of nitrogen are measured continuously by the principle of chemiluminescence.

The air sample is split into two pathways: one to measure NO and the other to measure total NO_X. The intensity of light is measured with a photomultiplier to obtain the concentration of NO. To obtain NO_2 the sample gas is passed through a moly converter.

Measurement is the sum of NO_2 and NO, expressed as NO_X.

1.3 SO_2/H_2S

SO_2 and H_2S are monitored continuously by pulsed fluorescence.

In this method, air is drawn through a chamber where it is irradiated with pulses of ultra-violet (UV) light. Any SO_2 in the sample is excited to a higher energy level and upon returning to its original state, light or fluorescence is released. The amount of fluorescence measured is proportional to the SO_2 concentration.

1.4 O_3

O_3 is monitored continuously using ultra-violet (UV) light absorption.

The sampled air is exposed to UV light which is absorbed by the O_3. The amount of UV light absorbed is proportional to the amount of O_3 in the sample; that is, the more UV light is absorbed, the greater the amount of O3 in the sample.

1.5 PM-10 and PM-2.5

Particulate matter is monitored continuously and intermittently. The Tapered Element Oscillating Microbalance (TEOM) is the most widely used and continuous PM-10 (or PM-2.5) monitor.

The TEOM draws an air sample through an inlet system that aerodynamically separates particles of a specified diameter. The air sample then passes through a filter that is attached to a tapered element in the mass transducer. This tapered element vibrates at its natural frequency. As particles are deposited onto the filter, the oscillating frequency changes in proportion to the amount of mass deposited.

1.6 Meteorological Parameters

Meteorological parameters such as wind direction, wind speed, temperature, relative humidity, solar radiation and atmospheric pressure are monitored in order to assist in identifying the sources of elevated concentration events or episodes.

2. Quality Control Requirements

Quality control of the monitored data is important to verify that the data reported is accurate and of a low uncertainty. Each monitoring station or passive monitoring site should be treated as if it were a laboratory. A laboratory is defined as “A place equipped for testing and analysis” or “A place providing the opportunity for observation in a field of study”.

It must be noted that it has been stated by DEA that only air quality data that is accredited will be accepted by DEA. The definition for accreditation is “the procedure by which an authoritative body gives formal recognition that a body is competent to carry out specific tasks”. In order to be accredited a sampling method must have:

- A recognised methodology that competence can be measured against
- A quality system
- Have been audited by a certification body

A relevant quality system for air quality measurements according to SANAS is ISO 17025. This system provides guidance to laboratories on essential elements for both:

- Quality management
- Technical requirements for the proper operation of a testing laboratory

3. Instrument Calibration and Frequency

This section covers the calibration of continuous air quality monitors. The basic requirements based on the US EPA Red Book are:

- Each analyser must have a dynamic calibration every three months
- This type of calibration must also be carried out on installation, after any repair, if tolerances of zero/ span are not met and if the analyser is relocated
- Zero and span calibration every two weeks
- Zero check every other week

4. Data Acquisition Requirements

This section also refers to an AQMS based on continuous monitoring from a monitoring station and to the data logging system:

The data logger must:

- Be verified annually
- Output from the analyser must be recorded
- Generate hourly mean concentrations
- Be able to scan at 30 second intervals with a minimum scan period of 1 hour and store this data
- Collect at least 40 minutes of uninterrupted data per hour for a valid average
- Use calculations verified by a statistician

5. SITE SELECTION

The following quote is noteworthy when considering the location of sites: *"Irrespective of how well a monitoring station is run, if it is not sited correctly data collected will have little value"*

As was mentioned earlier sites are selected for one of the following reasons:

- To judge compliance with air quality standards
- To activate emergency control procedures for episodes
- To observe pollution trends throughout a region
- To provide a database for research.

When selecting monitoring sites the following must be considered:

- **Economic**: Resources must be available for the expensive instrumentation, data retrieval and evaluation, maintenance and quality assurance and reporting of data
- **Security**: Problems can arise in this regard that make a site unsuitable when standard measures are taken into account
- **Logistics:** Planning, staffing, procurement procedures, training, communications, safety, task scheduling
- **Atmospheric conditions:**
    - Variability of air pollutants and their transport (effects of buildings, terrain and heat sources)
    - Dispersion factors – wind speed, wind direction, atmospheric stability
- **Topography**: Transport and diffusion of air pollutants are complicated by topographical features such as valleys or hills
- **Pollutant consideration:** A sampling site for one pollutant may or may not be suitable for other pollutants
    - For example, monitoring ozone close to primary NO emissions would not provide accurate pollutant information
- The final placement once a monitoring site has been selected depends on the presence of physical obstructions, accessibility and availability of utilities.
- **Obstructions** such as trees and buildings significantly affect the air flow over the monitoring station and the placement should expose the station to the general air flow of the area to prevent sampling bias.
- **Major roads** can produce bias, and sites should be 15-60m away unless there are specific requirements for roadway monitoring. Typically, sites would be between 3m and 15m away in this case.

6. DATA MANAGEMENT

All monitoring stations produce data that may be used for various reasons as outlined above. The following should be noted when dealing with this monitoring data and systems should be designed to accommodate the following:

- A copy of the raw data must always be available
- A record must be kept of any adjustments made
- All multiplication factors/ algorithms/ manipulations on the data must be recorded and reported
- Data must be kept for a minimum of 3 years
- When data is reported the temperature and pressure at which the analyser was last calibrated must be indicated on the test report

The following points must be considered when preparing a monitoring plan:

- Local authority responsible for monitoring
- Check to see if Province has information about your area
- Check to see whether DEA has information about your area (SAAQIS)
- Do screening study to see which pollutants, if any are of concern
- SANS 1929 lets you make management decisions on whether costly continuous monitoring is needed
- If so, focus on quality control, reporting 80% or more of available data
- Use data to manage improvements in air quality

APPENDIX 2: QUALITY ASSURANCE STATEMENT

The Q2 Dynamic Calibrations were done on 22 and 23 April 2026, all analysers meeting EPA requirements and giving a linear response. Site visits were conducted on 7 & 24 April 2026.

NO_X, SO_2 and O_3 were operational at Saldanha (PM10/PM2.5 for part of the month) & NO_X, SO_2 and O_3 at Vredenburg.

Analyser	Expected	Actual	Error (%)
SO2 (Saldanha - 23/04/2026)	401ppb**	410ppb	+2.2%
NO2 (Saldanha - 23/04/2026)	400ppb**	392ppb	-2.0%
O3 (Saldanha – 23/04/2026)	400ppb**	408ppb	+2.0%
SO2 (Saldanha - 23/04/2026)	254ppb*	231ppb	-9.1%
NO2 (Saldanha - 23/04/2026)	1008ppb*	1011ppb	+0.3%
O3 (Saldanha – 23/04/2026)	400ppb*	366ppb	-8.5%
SO2 (Vredenburg - 22/04/2026)	400ppb**	381ppb	-5.0%
NO2 (Vredenburg - 22/04/2026)	400ppb**	404ppb	+1.0%
O3 (Vredenburg – 22/04/2026)	400ppb**	402ppb	+0.5%
O3 (Vredenburg – 22/04/2026)	400ppb*	376ppb	-6.0%

**Dynamic Calibration 80% set-point

*IZS

APPENDIX 3: SUMMARY TABLE OF HOURLY MEANS (SALDANHA)

POLLUTANT: no_ **HOURLY MEAN CONCENTRATIONS**

Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean	Max
2026-04-01										2	3	2	2	2	2	2	2	2	1	1	1	1	1	1	2	3
2026-04-02	1	1	1	1	1	1	5	3	15	13	11	2	4	11	2	3	2	3	1	1	1	1	1	1	4	15
2026-04-03	2	2	4	5	3	1	1	2	3	4	5	5	2	2	2	2	3	2	1	1	1	1	1	2	2	5
2026-04-04	2	1	1	1	1	1	1	2	5	7	2	2	1	2	1	1	1	1	1	1	1	1	5	4	2	7
2026-04-05	8	6	6	5	1	1	1	2	2	3	3	2	2	1	1	1	1	1	1	1	1	1	1	1	2	8
2026-04-06	1	1	1	1	1	1	1	6	4	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	2	6
2026-04-07	1	1	1	1	1	1	3	11	7	3	5	3	3	1	2	3	2	1	1	1	1	1			2	11
2026-04-08																			2	1	1	1	1	1	1	2
2026-04-09	1	1	1	1	1	1	1	2	5	3	2	1	1		1	1	1	1	1	1	1	1	2	2	1	5
2026-04-10	2	3	1	1	1	1	1	1	2	2	2	2	1	1	1	2	1	1	1	1	1	2	1	1	1	3
2026-04-11	1	1	2	2	3	2	2	2	5	5	5	3	4	3	3	3	3	2	1	1	1	1	1	2	2	5
2026-04-12	4	5	3	1	1	2	1	2	2	4	6	2	2	5	2	2	1	2	1	1	2	3	2	2	2	6
2026-04-13	2	1	2	1	1	1	10	20	15	4	7	2	2	2	2	2	2	2	2	1	1	1	1	6	4	20
2026-04-14	1	1	1	1	1	4	8	10	12	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	2	12
2026-04-15	1	1	1	1	1	1	1	3	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	2	3
2026-04-16	6	18	6	7	1	2	4	13	17	6	2	2	2	1	1	1	1	1	1	1	1	1	1	1	4	18
2026-04-17	14	9	1	1	1	1	1	1	2	2	1	1	2	2	1	1	1	1	1	1	1	1	1	1	2	14
2026-04-18	4	1	8	3	1	1	2	1	2	3	3	1	1	1	1	2	1	1	1	1	1	1	1	1	2	8
2026-04-19	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
2026-04-20	1	1	1	1	2	1	1	3	4	4	1	2		1	1	1	2	1	1	1	1	6	5	1	2	6
2026-04-21	2	1	2	3	1	1	2	1	2	3	2	2	2	1	2	1	2	2	1	1	1	1	1	2	2	3
2026-04-22	2	1	2	2	2	2	2	4	8	5	3	2		3	2	2	2	2	2	1	1	1	3	2	2	8
2026-04-23	2	2	2	4	3	4	3	19	14							6	3	2	2	1	1	4	4	5	4	19
2026-04-24	8	14	18	15	16	14	9	40	47	12	10	5	3	4	5	3	5	2	1	1	3	3	2	4	10	47
2026-04-25	3	7	5	10	1	1	1	1	2	3	4	3	1	1	2	1	1	1	1	1	1	1	1	1	2	10
2026-04-26	1	1	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
2026-04-27	1	1	1	1	2	4	6	28	26	4	2	1	1	2	2	1	2				5	17	7	1	5	28
2026-04-28	2	2	4	10	8	10	10	23	26	12	3	2	3	2	3	2	2	2	1	1	1	1	2	1	6	26
2026-04-29	1	1	1	1	2	2	6	14	11	8	9	6	2	2	2	2	3	2	1	1	1	1	1	1	3	14
2026-04-30	1	1	1	1	1	2	1	2	3	4	2	3	3	3	2	1	2	1	1	1	1	1	1	1	2	4
Mean	**3**	**3**	**3**	**3**	**2**	**2**	**3**	**8**	**9**	**4**	**4**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**1**	**1**	**1**	**2**	**2**	**2**	**3**	
Max	**14**	**18**	**18**	**15**	**16**	**14**	**10**	**40**	**47**	**13**	**11**	**6**	**4**	**11**	**5**	**6**	**5**	**3**	**2**	**1**	**5**	**17**	**7**	**6**	**10**	**47**

POLLUTANT: no2 **HOURLY MEAN CONCENTRATIONS**

Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean	Max
2026-04-01										6	5	4	3	3	4	4	5	7	6	6	8	7	5	7	5	8
2026-04-02	7	7	5	5	6	8	11	9	8	9	10	5	7	11	4	7	7	11	8	10	9	9	8	10	8	11
2026-04-03	14	13	16	13	10	7	6	5	5	6	7	8	4	4	3	5	6	5	5	7	6	11	5	5	7	16
2026-04-04	6	6	8	8	9	8	8	7	6	6	2	2	2	2	2	2	1	2	3	4	5	6	8	10	5	10
2026-04-05	9	7	9	7	4	3	4	4	3	4	3	2	2	2	2	2	2	2	3	9	10	12	9	4	5	12
2026-04-06	3	2	4	6	3	2	4	5	4	3	2	2	3	2	2	2	2	2	3	2	2	2	2	2	3	6
2026-04-07	3	3	3	2	4	5	6	7	6	3	5	3	4	2	3	5	3	3	3	4	5	5			4	7
2026-04-08																			4	3	4	3	3	5	4	5
2026-04-09	4	2	2	2	2	4	7	8	10	6	3	3	3		1	1	1	1	1	2	4	3	9	12	4	12
2026-04-10	12	11	6	4	3	2	2	3	4	3	2	2	2	2	2	4	2	2	6	8	6	10	5	5	4	12
2026-04-11	7	4	6	7	8	8	7	6	7	5	6	4	4	3	3	3	4	4	5	4	5	5	6	5	5	8
2026-04-12	7	6	4	4	4	7	5	7	4	4	5	3	2	5	3	2	2	4	3	3	6	14	11	7	5	14
2026-04-13	8	5	10	4	4	5	9	5	6	4	5	2	3	2	2	2	4	5	6	8	6	6	5	8	5	10
2026-04-14	8	5	6	7	7	9	8	8	7	3	3	2	2	2	2	2	1	2	2	3	3	3	2	2	4	9
2026-04-15	2	2	2	2	2	2	4	9	4	2	2	2	3	3	3	3	2	3	3	4	8	5	5	4	3	9
2026-04-16	6	8	5	6	3	4	6	6	8	6	3	2	3	2	2	2	2	2	3	3	3	5	3	3	4	8
2026-04-17	9	8	4	3	2	2	2	3	4	3	2	3	6	3	2	4	2	2	2	2	2	2	3	3	3	9
2026-04-18	7	4	5	8	5	4	7	5	4	3	2	2	2	2	2	3	2	2	3	5	5	3	4	3	4	8
2026-04-19	3	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	2	1	1	1	2	1	2	1	3
2026-04-20	2	2	2	2	4	3	5	6	7	5	2	2		2	2	2	2	2	3	5	3	5	6	3	3	7
2026-04-21	3	3	5	6	3	2	3	4	4	4	3	3	4	7	7	7	7	9	12	9	10	12	12	11	6	12
2026-04-22	10	8	11	9	7	8	10	11	13	8	6	6		7	7	6	6	6	7	6	8	9	12	6	8	13
2026-04-23	7	8	10	8	10	11	10	13	9							12	10	7	5	4	7	12	14	14	10	14
2026-04-24	12	12	15	13	11	16	14	16	17	11	10	6	5	7	9	6	13	7	8	10	17	16	14	14	12	17
2026-04-25	12	11	11	6	3	3	2	3	6	6	5	3	2	1	2	1	2	2	3	5	5	3	2	2	4	12
2026-04-26	2	2	4	2	2	2	1	2	4	4	2	1	1	1	1	1	1	1	1	1	1	1	2	6	2	6
2026-04-27	1	1	2	3	14	14	13	14	11	6	3	2	2	2	2	2	2				9	8	6	2	6	14
2026-04-28	7	5	5	8	7	9	8	8	8	9	4	3	3	2	5	3	5	5	3	4	4	7	12	10	6	12
2026-04-29	7	7	5	5	10	11	14	14	11	9	10	8	3	4	4	4	6	5	4	4	3	5	6	6	7	14
2026-04-30	7	8	8	4	7	9	12	9	8	7	3	5	3	3	2	2	3	2	2	3	4	7	4	5	5	12
Mean	**7**	**6**	**6**	**6**	**6**	**6**	**7**	**7**	**7**	**5**	**4**	**3**	**3**	**3**	**3**	**3**	**4**	**4**	**4**	**5**	**6**	**7**	**6**	**6**	**5**	
Max	**14**	**13**	**16**	**13**	**14**	**16**	**14**	**16**	**17**	**11**	**10**	**8**	**7**	**11**	**9**	**12**	**13**	**11**	**12**	**10**	**17**	**16**	**14**	**14**	**12**	**17**

POLLUTANT: nox **HOURLY MEAN CONCENTRATIONS**

Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean	Max
2026-04-01										8	8	6	5	5	6	6	7	9	7	7	9	8	7	9	7	9
2026-04-02	8	8	6	7	8	10	16	12	23	22	21	7	12	22	6	9	10	14	9	11	10	10	10	12	12	23
2026-04-03	16	14	21	17	13	8	7	7	8	9	12	12	6	6	5	7	9	7	7	8	7	12	6	8	10	21
2026-04-04	9	7	9	10	10	9	9	10	11	12	4	4	3	3	3	3	3	3	4	5	6	7	13	14	7	14
2026-04-05	17	13	15	12	5	4	5	6	4	7	6	4	3	3	3	3	3	3	4	10	11	13	10	6	7	17
2026-04-06	4	3	5	7	4	3	5	11	8	5	4	4	5	3	4	3	3	4	4	3	3	3	3	4	4	11
2026-04-07	4	4	4	4	5	7	10	18	13	6	10	6	8	3	4	8	4	4	4	5	6	6			6	18
2026-04-08																			5	5	5	4	4	6	5	6
2026-04-09	5	3	3	3	3	5	8	10	15	9	4	4	4		3	2	3	3	3	3	5	4	10	14	5	15
2026-04-10	14	13	7	5	4	3	3	4	6	5	4	4	3	3	4	6	4	4	7	9	7	12	6	6	6	14
2026-04-11	8	6	8	10	11	10	8	8	12	10	11	7	9	6	5	5	7	5	6	6	6	6	7	7	8	12
2026-04-12	11	11	7	5	6	9	6	9	6	8	11	5	4	10	5	4	3	6	4	4	8	17	13	8	8	17
2026-04-13	9	6	12	5	6	6	18	26	21	9	13	4	5	4	3	3	6	7	7	9	7	7	6	14	9	26
2026-04-14	9	6	8	8	8	13	16	17	19	5	5	3	3	3	3	3	3	3	3	4	4	4	3	3	6	19
2026-04-15	3	3	3	3	3	3	5	12	7	4	4	4	5	5	5	5	4	4	4	5	9	6	6	6	5	12
2026-04-16	12	26	11	12	4	5	10	19	25	12	4	4	4	3	3	3	3	3	4	4	4	6	4	4	8	26
2026-04-17	22	16	5	4	3	3	3	4	6	4	3	4	8	5	4	5	3	4	3	3	3	3	4	4	5	22
2026-04-18	11	5	13	11	6	5	9	7	6	6	5	3	3	3	3	4	3	3	4	7	6	4	5	5	6	13
2026-04-19	5	3	3	3	3	3	2	3	3	3	3	2	2	3	3	2	3	2	2	3	3	3	3	3	3	5
2026-04-20	3	3	3	3	6	5	6	9	11	9	3	4		3	3	3	4	3	4	6	4	11	11	5	5	11
2026-04-21	5	4	7	9	5	4	5	5	6	7	5	5	6	8	9	8	9	11	14	10	11	13	14	12	8	14
2026-04-22	12	9	13	11	9	9	12	14	21	14	10	8		9	9	8	8	8	9	8	9	11	15	8	11	21
2026-04-23	9	10	12	12	13	15	13	32	23							18	14	9	7	5	8	17	17	19	14	32
2026-04-24	20	26	33	28	27	30	22	56	64	22	20	11	8	11	14	8	17	9	10	11	19	18	16	18	22	64
2026-04-25	15	18	15	16	4	4	4	4	7	9	9	6	3	3	3	2	3	3	4	6	6	4	3	3	6	18
2026-04-26	3	4	6	3	3	3	3	4	6	7	4	3	2	2	3	3	2	3	2	2	2	2	3	8	3	8
2026-04-27	3	2	4	4	16	19	18	41	37	10	5	3	3	3	4	3	4				13	25	13	3	11	41
2026-04-28	8	6	10	18	16	19	17	31	34	21	7	5	6	4	8	5	7	6	4	5	6	8	13	12	12	34
2026-04-29	8	8	6	6	11	13	20	28	22	18	18	14	5	6	6	5	9	6	5	6	4	6	7	7	10	28
2026-04-30	9	9	9	5	8	11	14	10	11	11	6	8	6	6	4	3	6	3	4	4	5	8	6	7	7	14
Mean	**9**	**9**	**9**	**9**	**8**	**8**	**10**	**15**	**16**	**10**	**8**	**6**	**5**	**5**	**5**	**5**	**6**	**5**	**5**	**6**	**7**	**9**	**8**	**8**	**8**	
Max	**22**	**26**	**33**	**28**	**27**	**30**	**22**	**56**	**64**	**22**	**21**	**14**	**12**	**22**	**14**	**18**	**17**	**14**	**14**	**11**	**19**	**25**	**17**	**19**	**22**	**64**

POLLUTANT: o3_ **HOURLY MEAN CONCENTRATIONS**

Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean	Max
2026-04-01	21	21	24	19	14	15	20	18	20	21	25	28	29	31	30	31	30	29	25	23	20	18	18	15	23	31
2026-04-02	13	16	15	11	9	9	5	6	4	8	8	16	16	15	23	20	21	20	19	20	20	17	18	15	14	23
2026-04-03	11	10	5	6	10	13	16	15	15	20	18	23	29	36	39	35	28	30	29	24	28	20	23	16	21	39
2026-04-04	9	15	18	14	12	10	7	8	10	13	22	25	27	28	27	29	28	30	28	26	22	14	7	6	18	30
2026-04-05	5	3	4	8	22	24	21	16	22	22	26	28	28	29	29	31	30	30	27	20	17	15	17	21	21	31
2026-04-06	18	23	21	19	21	20	18	5	15	23	26	28	28	28	27	26	26	25	24	24	24	23	23	22	22	28
2026-04-07	22	21	20	20	16	10	7	4	14	20	19	24	26	28	29	27	30	30	31	28	25	20			21	31
2026-04-08																			35	34	33	34	37	34	34	37
2026-04-09	36	38	36	36	35	26	20	17	21	31	38	39	41		42	42	42	43	40	36	33	32	23	14	33	43
2026-04-10	11	17	19	22	27	32	30	25	24	29	36	40	37	37	37	34	32	30	25	24	24	19	24	23	27	40
2026-04-11	19	19	16	15	14	12	15	16	15	17	18	22	23	25	27	28	27	27	24	23	21	20	18	15	20	28
2026-04-12	9	8	14	18	18	15	16	12	19	21	21	29	31	25	29	31	30	27	27	25	20	12	14	16	20	31
2026-04-13	16	17	12	19	17	14	7	5	11	18	19	26	27	31	30	29	29	29	28	23	24	20	18	8	20	31
2026-04-14	18	19	16	15	16	10	6	7	12	24	26	27	29	29	30	30	31	29	27	23	20	20	22	27	21	31
2026-04-15	26	27	28	27	27	28	25	17	25	30	31	32	32	33	34	34	36	33	32	30	25	25	18	21	28	36
2026-04-16	14	8	9	8	10	8	7	7	11	25	34	37	39	40	41	40	40	38	36	34	29	19	23	19	24	41
2026-04-17	11	16	22	29	30	31	33	34	33	35	33	33	29	33	32	30	32	30	31	30	30	26	25	23	29	35
2026-04-18	18	16	20	17	18	20	16	19	24	28	32	34	35	34	35	35	36	34	30	24	26	29	25	26	26	36
2026-04-19	27	32	30	31	32	32	33	33	34	33	34	34	35	36	35	36	36	36	37	37	37	37	35	34	34	37
2026-04-20	35	35	34	30	28	24	19	25	26	30	35	35		36	37	37	37	36	31	28	28	24	22	28	30	37
2026-04-21	24	26	26	23	25	27	27	28	28	32	36	40	41	42	43	42	43	43	40	41	40	37	34	33	34	43
2026-04-22	35	34	27	24	33	34	32	29																	31	35
2026-04-23																23	29	29	27	23	18	6	5	3	18	29
2026-04-24	1	0	1	1	1	1	4	1	4	11	13	23	26	29	30	36	28	30	27	21	8	7	5	2	13	36
2026-04-25	3	8	11	19	18	18	20	22	16	17	22	25	32	33	32	33	33	33	25	18	13	20	22	23	22	33
2026-04-26	24	23	21	23	24	25	25	25	24	24	26	25	27	26	25	24	23	25	25	25	25	26	26	20	24	27
2026-04-27	21	25	18	24	13	6	5	0	5	20	26	28	29	30	28	27	27				5	2	10	20	18	30
2026-04-28	8	4	2	0	1	1	0	0	2	12	22	25	26	29	30	33	30	28	27	25	23	20	14	15	16	33
2026-04-29	19	19	19	20	14	9	2	2	8	14	17	20	27	28	29	32	29	29	27	25	26	22	20	20	20	32
2026-04-30	18	17	17	17	13	12	14	18	20	23	26	26	28	28	30	30	29	29	27	25	25	23	15	12	22	30
Mean	**18**	**18**	**18**	**18**	**18**	**17**	**16**	**15**	**17**	**22**	**26**	**29**	**30**	**31**	**32**	**32**	**31**	**31**	**29**	**26**	**24**	**21**	**20**	**19**	**23**	
Max	**36**	**38**	**36**	**36**	**35**	**34**	**33**	**34**	**34**	**35**	**38**	**40**	**41**	**42**	**43**	**42**	**43**	**43**	**40**	**41**	**40**	**37**	**37**	**34**	**34**	**43**

POLLUTANT: p10 **HOURLY MEAN CONCENTRATIONS**

Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean	Max
2026-04-01	13	18	14	18	17	12	9	8	14	13	14	8	5	13	18	21	21	31	16	18	20	20	19	19	16	31
2026-04-02	24	26	33	28	21	28	28	25	25	39	35	28	27	43	24	33	40	42	39	46	22	11	17	24	30	46
2026-04-03	22	18	24	21	15	15	12	10	10	10	24	20	17	13	10	12	13	15	12	19	15	12	12	12	15	24
2026-04-04	7	6	3	3	3	2	2	2	3	9	8	9	7	9	7	7	8	9	10	15	14	21	24	32	9	32
2026-04-05	17	38	59	61	31	35	39	42	38	42	41	32	29	28	30	32	32	33	61	41	41	37	36	33	38	61
2026-04-06	48	50	44	45	52	82	49	69	61	37	43	33	36	33	39	43	26	32	19	20	28	30	33	35	41	82
2026-04-07	40	61	50	64	59	52	69	109	45	14	29	39	30	31	41	26	21	22	21	38	36	52			43	109
2026-04-08																			80	41	52	32	33	24	44	80
2026-04-09	24	29	28	14	12	28	19	21	28	37	30	37	20		13	11	16	15	18	16	19	20	26	36	22	37
2026-04-10	31	42	32	16	12	10	12	11	7	13	11	18	17	17	18	17	22	17	19	19	25	18	17	18	18	42
2026-04-11	22	14	12	19	18	19	19	17	21	21	25	21	19	16	12	16	20	19	19	15	14	14	18	20	18	25
2026-04-12	19	18	17	10	2	6	11	8	11	10	15	15	12	17	13	10	9	15	16	15	12	9	9	7	12	19
2026-04-13	9	9	8	7	8	11	11	32	20	13	14	14	10	7	6	8	17	17	15	16	20	20	23	26	14	32
2026-04-14	14	9	9	12	22	26	24	10	16	9	11	7	5	6	8	7	6	9	10	10	12	7	6	5	11	26
2026-04-15	7	9	10	15	21	28	27	28	40	33	27	29	25	27	24	27	18	19	31	27	44	69	59	61	29	69
2026-04-16	46	57	57	51	44	28	28	40	73	54	23	18	16	15	13	10	13	8	14	15	15	13	19	11	28	73
2026-04-17	32	20	9	8	9	8	10	14	18	26	15	9	7	8	11	8	6	8							13	32
2026-04-18																										
2026-04-19																										
2026-04-20																										
2026-04-21																										
2026-04-22																										
2026-04-23																										
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2026-04-25																										
2026-04-26																										
2026-04-27																										
2026-04-28																										
2026-04-29																										
2026-04-30																										
Mean	**23**	**26**	**26**	**24**	**22**	**24**	**23**	**28**	**27**	**24**	**23**	**21**	**18**	**19**	**18**	**18**	**18**	**19**	**25**	**23**	**24**	**24**	**23**	**24**	**24**	
Max	**48**	**61**	**59**	**64**	**59**	**82**	**69**	**109**	**73**	**54**	**43**	**39**	**36**	**43**	**41**	**43**	**40**	**42**	**80**	**46**	**52**	**69**	**59**	**61**	**44**	**109**

POLLUTANT: p25 **HOURLY MEAN CONCENTRATIONS**

Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean	Max
2026-04-01	6	8	6	7	8	7	5	5	5	5	6	4	3	5	6	6	6	7	6	6	6	6	6	6	6	8
2026-04-02	7	8	10	9	7	10	10	9	8	10	11	9	10	15	9	11	14	16	14	17	8	6	8	10	10	17
2026-04-03	11	9	12	10	7	6	5	4	4	4	8	9	8	6	5	6	6	6	6	8	6	6	5	5	7	12
2026-04-04	5	4	3	2	3	2	2	2	2	4	3	3	3	3	3	2	3	3	3	5	5	7	7	7	4	7
2026-04-05	6	7	11	13	11	11	12	13	11	12	11	10	9	9	9	9	10	10	19	12	12	11	11	10	11	19
2026-04-06	13	14	13	13	15	24	15	22	19	11	11	10	11	9	8	7	6	6	5	6	8	8	9	10	11	24
2026-04-07	11	16	14	18	17	12	13	20	9	4	7	13	10	9	12	7	6	7	6	10	10	14			11	20
2026-04-08																			18	13	12	10	10	8	12	18
2026-04-09	7	8	8	6	6	9	8	9	9	9	7	8	8		5	4	5	4	5	6	8	10	10	12	7	12
2026-04-10	10	11	9	7	6	5	6	5	3	3	6	7	7	6	7	7	7	6	6	7	8	6	6	6	7	11
2026-04-11	7	5	5	7	7	7	7	7	7	7	7	7	6	5	4	5	6	6	6	5	5	5	6	7	6	7
2026-04-12	7	8	8	5	2	3	5	4	5	4	6	6	5	6	4	4	4	5	5	5	4	4	3	3	5	8
2026-04-13	4	4	4	3	4	4	4	6	5	3	4	4	4	3	2	3	4	4	4	4	5	6	6	6	4	6
2026-04-14	5	4	4	5	9	9	9	4	5	3	4	2	2	2	2	2	2	3	4	4	4	3	2	2	4	9
2026-04-15	3	3	4	5	6	8	7	8	11	9	7	8	7	8	7	7	5	5	8	8	13	24	19	21	9	24
2026-04-16	15	15	17	18	18	10	10	15	21	20	7	6	5	5	4	3	4	3	4	5	5	5	6	4	9	21
2026-04-17	8	6	3	3	3	3	3	4	5	6	4	4	3	3	4	3	2	3							4	8
2026-04-18																										
2026-04-19																										
2026-04-20																										
2026-04-21																										
2026-04-22																										
2026-04-23																										
2026-04-24																										
2026-04-25																										
2026-04-26																										
2026-04-27																										
2026-04-28																										
2026-04-29																										
2026-04-30																										
Mean	**8**	**8**	**8**	**8**	**8**	**8**	**8**	**9**	**8**	**7**	**7**	**7**	**6**	**6**	**6**	**5**	**6**	**6**	**7**	**8**	**7**	**8**	**8**	**8**	**7**	
Max	**15**	**16**	**17**	**18**	**18**	**24**	**15**	**22**	**21**	**20**	**11**	**13**	**11**	**15**	**12**	**11**	**14**	**16**	**19**	**17**	**13**	**24**	**19**	**21**	**12**	**24**

POLLUTANT: Sulphur Dioxide **HOURLY MEAN CONCENTRATIONS µg/m³**

Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean	Max
2026-04-01	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2026-04-02	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2026-04-03	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2026-04-04	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	0	1	0	1	1	1	1	1	1	1	1
2026-04-05	1	0	1	1	1	1	0	1	0	1	1	0	0	1	0	1	1	1	1	0	1	1	1	1	1	1
2026-04-06	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1
2026-04-07	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			1	1
2026-04-08																			1	1	1	1	1	1	1	1
2026-04-09	1	1	1	1	1	1	1	1	1	1	1	1	1			1	1	1	1	1	1	1	1	1	1	1
2026-04-10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2026-04-11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2026-04-12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2026-04-13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2026-04-14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2026-04-15	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2026-04-16	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2026-04-17	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2026-04-18	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2026-04-19	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1
2026-04-20	1	1	1	1	1	1	1	1	1	1	1	1			1	1	1	1	1	1	1	1	1	1	1	1
2026-04-21	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	2
2026-04-22	1	1	1	1	1	1	1	1		1	2	1		1	2	1	1	1	1	1	1	1	1	1	1	2
2026-04-23	1	1	1	1	1	1	1	1	1							1	1	1	1	1	1	1	1	1	1	1
2026-04-24	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
2026-04-25	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2026-04-26	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2026-04-27	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				1	1	1	1	1	1
2026-04-28	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2026-04-29	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	2	1	1	1	1	1	1	1	1	1	2
2026-04-30	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mean	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	
Max	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**2**	**2**	**1**	**2**	**2**	**2**	**2**	**2**	**2**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**2**

APPENDIX 4: SUMMARY TABLE OF HOURLY MEANS(VREDENBURG)

POLLUTANT: no2 **HOURLY MEAN CONCENTRATIONS**

Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean	Max
2026-04-01																										
2026-04-02																										
2026-04-03																										
2026-04-04																										
2026-04-05																										
2026-04-06																										
2026-04-07																										
2026-04-08																										
2026-04-22																		4	4	5	6	6	5	5	5	6
2026-04-23	5	4	4	4	4	8	8	15	11	8	4	4	3	3	4	7	11	11	10	5	8	10	8	6	7	15
2026-04-24	7	6	6	5	5	8	12	20	18	14	8	4	3	3	3	5	9	13	9	7	6	6	11	8	8	20
2026-04-25	6	5	4	2	3	2	2	2	4	4	3	3	2	3	2	2	2	3	5	4	3	4	3	2	3	6
2026-04-26	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2
2026-04-27	1	1	1	2	5	4	4	13	9	2	2	2	1	1	2	2	2	2	3	5	4	6	7	1	3	13
2026-04-28	3	2	7	6	4	8	18	26	17	5	3	3	3	3	5	5	4	4	4	4	4	6	8	5	7	26
2026-04-29	3	2	2	2	3	5	8	20	13	7	4	3	3	2	4	3	4	5	4	4	4	4	5	4	5	20
2026-04-30	4	4	4	3	3	4	8	8	6	4	3	3	3	3	3	3	4	4	5	3	2	1	1	4	4	8
Mean	**4**	**3**	**4**	**3**	**4**	**5**	**8**	**13**	**10**	**6**	**4**	**3**	**2**	**2**	**3**	**4**	**5**	**5**	**5**	**4**	**4**	**5**	**5**	**4**	**5**	
Max	**7**	**6**	**7**	**6**	**5**	**8**	**18**	**26**	**18**	**14**	**8**	**4**	**3**	**3**	**5**	**7**	**11**	**13**	**10**	**7**	**8**	**10**	**11**	**8**	**8**	**26**

POLLUTANT: o3_ **HOURLY MEAN CONCENTRATIONS**

Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean	Max
2026-04-01	22	22	26	21	18	18	17	16	20	19	22	28	32	36	30	30	29	29	25	22	20	18	16	17	23	36
2026-04-02	17	18	16	19	18	13	15	11	12	15	10	10	17	24	20	29	29	29	31	30	26	15	18	17	19	31
2026-04-03	13	16	16	15	14	20	17	14	16	19	31	36	37	39	36	34	33	32	33	28	29	27	25	26	25	39
2026-04-04	24	26	20	17	18	13	13	12	13	16	20	22	25	25	26	28	27	28	28	26	25	25	25	14	22	28
2026-04-05	11	19	22	21	20	22	20	19	22	24	26	27	29	28	28	28	29	29	26	22	21	19	19	19	23	29
2026-04-06	20	20	21	18	19	18	16	18	19	23	25	26	28	27	26	24	24	23	23	22	21	20	20	20	22	28
2026-04-07	20	20	20	19	19	17	14	13	16	18	19	27	29	29	29	28	27	28	28	30	31	29	31	28	24	31
2026-04-08	22	19	18	18	17	15	13	6	11	17															16	22
2026-04-09																										
2026-04-10																										
2026-04-11																										
2026-04-12																										
2026-04-13																										
2026-04-14																										
2026-04-15															30	31	31	29	27	27	28	24	24	21	27	31
2026-04-16	23	24	23	21	21	18	17	14	20	23	29	32	33	34	34	34	34	32	31	30	29	24	20	15	26	34
2026-04-17	18	22	21	22	24	24	25	27	29	29	27	24	21	22	24	25	26	25	25	26	25	24	22	23	24	29
2026-04-18	21	19	18	20	19	19	19	18	20	24	26	26	27	27	28	28	28	27	24	24	24	25	24	25	23	28
2026-04-19	23	23	22	23	24	24	25	25	25	25	25	26	27	28	27	28	28	28	28	29	29	28	27	28	26	29
2026-04-20	26	26	26	24	23	23	17	16	20	25	25	26	27	27	27	28	28	27	24	23	23	23	21	24	24	28
2026-04-21	22	24	24	24	22	20	20	18	21	22	24	26	27	28	28	28	27	24	24	22	24	23	22	22	24	28
2026-04-22	22	23	23	24	23	23	19	12	20				31	31	32			30	27	22	19	20	19	18	23	32
2026-04-23	18	18	18	18	17	16	15	10	14	15	21	25	28	29	30	28	28	28	29	30	26	23	23	24	22	30
2026-04-24	22	21	20	21	20	18	13	5	9	14	19	28	34	35	35	35	34	29	29	31	30	29	22	24	24	35
2026-04-25	24	22	24	28	24	22	23	25	21	22	25	27	29	30	33	34	34	32	26	23	24	22	26	26	26	34
2026-04-26	26	25	25	26	27	28	27	27	28	28	28	28	29	28	28	28	26	26	26	26	26	27	28	25	27	29
2026-04-27	25	26	27	25	20	22	22	11	18	26	27	29	30	30	30	29	29	28	26	23	24	21	20	26	25	30
2026-04-28	21	23	19	19	20	14	6	3	11	22	23	26	27	29	30	33	32	30	27	26	25	21	18	21	22	33
2026-04-29	23	23	23	23	22	19	16	5	13	19	22	25	27	29	30	32	31	28	28	26	25	23	20	22	23	32
2026-04-30	21	21	21	20	20	20	18	18	22	26	27	29	29	29	31	31	30	29	27	29	28	29	28	22	25	31
Mean	**21**	**22**	**21**	**21**	**20**	**19**	**18**	**15**	**18**	**21**	**24**	**26**	**28**	**29**	**29**	**30**	**29**	**28**	**27**	**26**	**25**	**23**	**23**	**22**	**24**	
Max	**26**	**26**	**27**	**28**	**27**	**28**	**27**	**27**	**29**	**29**	**31**	**36**	**37**	**39**	**36**	**35**	**34**	**32**	**33**	**31**	**31**	**29**	**31**	**28**	**27**	**39**

POLLUTANT: Sulphur Dioxide **HOURLY MEAN CONCENTRATIONS µg/m³**

Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean	Max
2026-04-08													1	1	1	1	1	1	1	1	1	1	1	1	1	1
2026-04-09	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2026-04-10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2026-04-11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2026-04-12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2026-04-13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2026-04-14	1	1	1	1	1	1	1	1	1	1	1	1	1												1	1
2026-04-15																										
2026-04-16																										
2026-04-17																										
2026-04-18																										
2026-04-19																										
2026-04-20																										
2026-04-21																										
2026-04-22																			2	2	2	2	1	1	2	2
2026-04-23	1	1	1	1	1	1	1	2	1	2	1	1	2	1	1	2	2	2	2	1	2	2	2	2	1	2
2026-04-24	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
2026-04-25	2	2	2	2	2	2	2	2	2	2	2	1	1	1	2	2	1	2	2	2	1	1	1	2	2	2
2026-04-26	1	1	1	2	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	2
2026-04-27	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2026-04-28	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
2026-04-29	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
2026-04-30	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mean	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	
Max	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**

APPENDIX 5: 2026 Q2 DYNAMIC CALIBRATIONS

skYSIDE
In association with SKYSIDE SOUTH AFRICA

Test Report

Q2 Calibration Report for

Saldanha & Vredenburg AQM Stations

Prepared for

Saldanha Municipality

AS1138

Date of calibration:

22 and 23 April 2026

Executive Summary

This report covers the on-site calibration of API T400 O_3 (SN1306), API T101 SO_2 (SN 231) and API T200 NO_X (SN 1339) analysers at Vredenburg and API T400 O_3 (SN 1305), API T101 SO_2 (SN 230) and API T200 NO_X (SN1338) and TEOM (SN 1405A228211404) analysers at Saldanha Air Quality Monitoring stations by SKYSIDE (now incorporating Argos Scientific), located in the Municipality of Saldanha Western Cape, undertaken on 22 and 23 April 2026 respectively.

All operational analysers were calibrated successfully within the required operational parameters and gave a linear response when challenged dynamically by various gas concentrations.

All analysers complied with US EPA requirements.

REPORT DETAILS

REFERENCE	AQ1138/sb1; sb2/ 2026-04
REPORT TITLE	Saldanha Municipality Quarterly Calibration Report – Q2 2026
DATE SUBMITTED	22 April 2026
CLIENT	René Toesie Saldanha Municipality Buller Centre 15 Main Street Vredenburg Tel: +27 22 701 7052 E-mail: Rene.Toesie@sbm.gov.za
PREPARED BY:	Shamira Pillay
SIGNED	
APPROVER	G Ravenscroft Signed: 
STATUS	Final
NOTICE	**This document is issued by SKYSIDE under it's General Conditions of Service . Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.** **Any holder of this document is advised that information contained herein reflects the Company's findings at the time of its testing only and within the limits of Client's written instructions, if any. SKYSIDES sole responsibility is to its Client. Any unauthorised alteration, forgery or falsification of the content or appearance of this document is unlawful.**

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ABBREVIATIONS AND DEFINITIONS

The following abbreviations might be used in this report:

AQM – Air Quality Monitoring
cc/min – cubic centimetres per minute
CO – carbon dioxide
Drk – dark
GPT – gas phase titration
IZS – internal zero/span
mV – millivolts
M – Meters
NO – nitric oxide
NO – nitrogen dioxide
NO_x – total oxides of nitrogen
PMT – photo-multiplier tube
Ppb – parts per billion
Ppm – parts per million
psi – pounds per square inch
RX – reaction
SO_2 – sulphur dioxide
V – volts

1 INTRODUCTION

This report covers the calibration of API T400 O_3 (SN1306), API T101 SO_2 (SN 231) and API T200 NO_X (SN 1339) analysers at Vredenburg and API T400 O_3 (SN 1305), API T101 SO_2 (SN 230) and API T200 NO_X (SN1338) and TEOM (SN 1405A228211404) analysers at Saldanha Air Quality Monitoring stations undertaken on 22 and 23 April 2026 respectively. A NMISA referenced calibrator (Sabio calibrator SN 3720608) together with zero gas (Sabio2020) were used in the calibration.

The temperature and pressure conditions at Saldanha were on average 22°C and pressure was 1017hPa. And at Vredenburg the temperature and pressure conditions were 18°C and pressure was 1010hPa.

NMISA Primary Reference Material (PRM) gases were used for the calibration, and calibrators were traceable directly to NMISA.

2 CALIBRATION RESULTS AT SALDANHA

2.1 *API T400 O_3 analyser – SN 1305*

2.1.1 Initial zero and span check

The results of the initial span and zero check performed on this analyser are shown in Table 2.1.1 below. The analyser was calibrated at the 80% set-point.

Table 2.1.1: Initial analyser response

Audit Concentration (ppb)	Analyser Response (ppb)	Deviation (ppb)	Deviation (%)
0.0	5.6ppb	+5.6	Adjusted to zero
400	408ppb	+8.0	+2.0% (Adjusted)

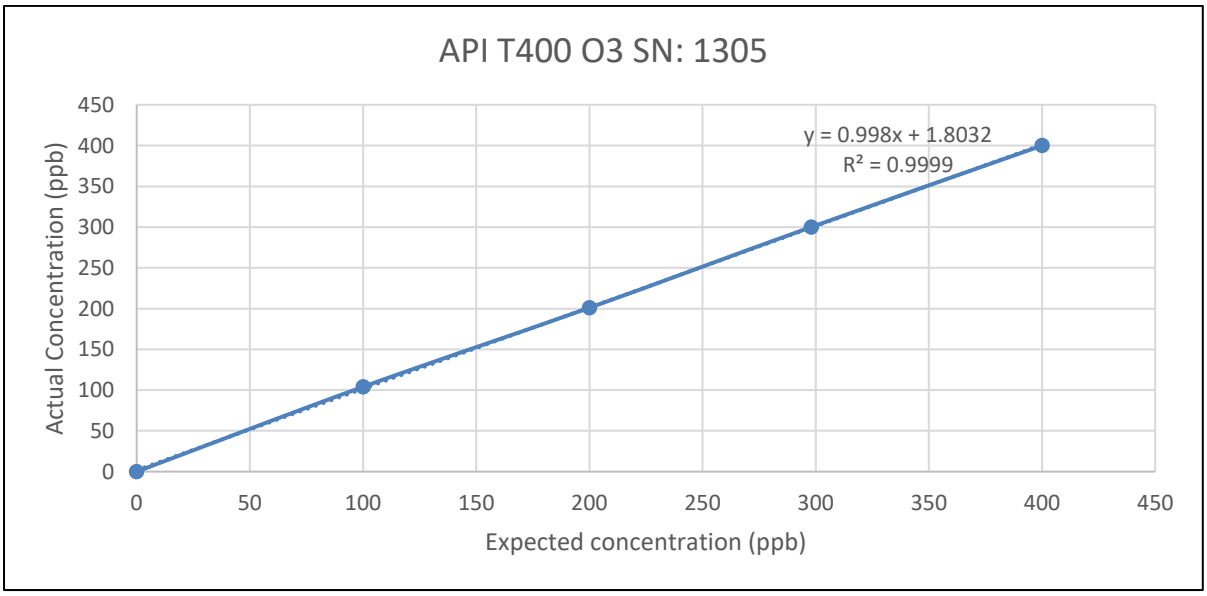
2.1.2 Dynamic calibration – O_3

The final calibration results (zero, intermediate and span checks) are shown in Table 2.1.2

Table 2.1.2: Analyser responses

Audit Concentration (ppb)	Analyser Response (ppb)	Deviation (ppb)	Deviation (%)
0.0	0	-	-
100	104	+4	+4.0%
200	201	+1	+0.5%
298	300	+2	+0.7%
400	400	0	0.0%
IZS Span	**366**		

2.1.3 Evaluation of Results – O_3



2.1.4 Instrument status

The analyser diagnostics of the instrument are contained in Table 2.1.4 below.

Table 2.1.4: Analyser diagnostics

System function	Operating spec	Previous Cal. value	Final value
Range	500 – 2000 ppb	500	500
Stability	0.02 – 4 ppb	0.9	0.9
O3 measure	2500 – 4800 mV	3154.6	3154.6
O3 ref	2500 – 4800 mV	3162.8	3162.8
O3 gen	80 – 5000 mV	869.8	869.8
O3 drive	0 – 5000 (400ppb)	1383.7	1383.7
Pres	26 – 31 in HG	19.2	19.2
Samp flow	720 – 880 cc/m	550	550
Sample temp	30 – 40 ºC	35.8	35.8
Photo lamp	57 – 59 ºC	58.0	58.0
O3 gen tmp	47 – 49 ºC	48.0	48.0
Box temp	20 – 40 ºC	26.1	26.1
Slope	0.7 -1.3	0.997	0.991
offset	-10 – 100	2.6	8.3

2.2 *API T101 SO_2 analyser – SN 230*

2.2.1 Initial zero and span check

The results of the initial span and zero check performed on this analyser are shown in Table 2.2.1 below. The analyser was calibrated and adjusted.

Table 2.2.1: Initial analyser response

Audit Concentration (ppb)	Analyser Response (ppb)	Deviation (ppb)	Deviation (%)
0.0	3	+3	Adjusted to zero
401	410	+9	+2.2 (Adjusted)

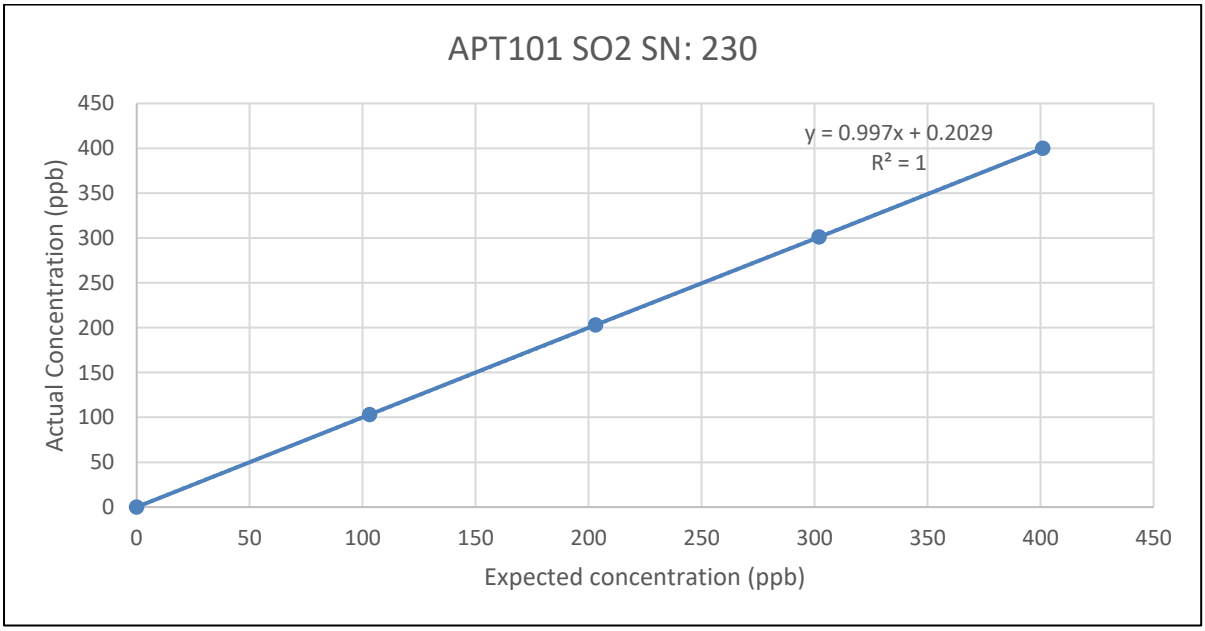
2.2.2 Dynamic calibration – SO_2

The final calibration results are shown in Table 2.2.2 below.

Table 2.2.2: Analyser responses

Audit Concentration (ppb)	Analyser Response (ppb)	Deviation (ppb)	Deviation (%)
0.0	0	-	-
103	103	0	0.0%
203	203	0	0.0%
302	301	-1	-0.3%
401	400	-1	-0.2%
IZS Span	**231ppb**		

2.2.3 Evaluation of Results – SO_2



2.2.4 **Instrument status**

The analyser diagnostics of the instrument are contained in Table 2.2.4 below

Table 2.2.4: Analyser diagnostics

System function	Operating spec	Previous Cal. value	Final value
Range	500 – 2000 ppb	500	500
SO_2 stb	0.02 – 2 ppb	-	-
Sample flow	650 ±10% cc/m	676	676
Pressure	21.5 @ 5000 M	20.8	20.8
UV lamp	1000 – 4000 mV	3691.2	3691.2
Pmt	-20 – 150 (zero)	24.8	24.8
Norm Pmt	0 - 100 mV	37.4	37.4
Lamp ratio	30 – 120 %	91.1	91.1
Str light	<100	16.9	16.9
Dark Pmt	-50 – 200 mV	25.9	25.9
Dark lamp	-50 – 200 ºC	3.2	3.2
Slope	1.0 ± 0.3	1.049	1.037
Offset	<250	32.1	32.1
Hvps	400 – 900 V	576	576
Rxcell temp	50 ± 1 ºC	50.0	50.0
Box temp	5 – 40 ºC	32.0	32.0
Pmt temp	7 ± 2.0 ºC	8.4	8.4
Izs temp	50 ± 0.1 ºC	50.0	50.0
Conversion temp	315 ± 10	315.8	315.8

2.3 *API T200 NO_x analyser – SN 1338*

2.3.1 Initial zero and span check

The results of the initial span and zero check performed on this analyser are shown in Table 2.3.1 below. The analyser was calibrated and adjusted.

Table 2.3.1: Initial analyser response

Audit Concentration (ppb)	Analyser Response (ppb)	Deviation (ppb) - NO	Deviation (%)
0.0	1; 1; 2	+1	Not adjusted
400	392; -21; 370	-8	-2.0% (Adjusted)

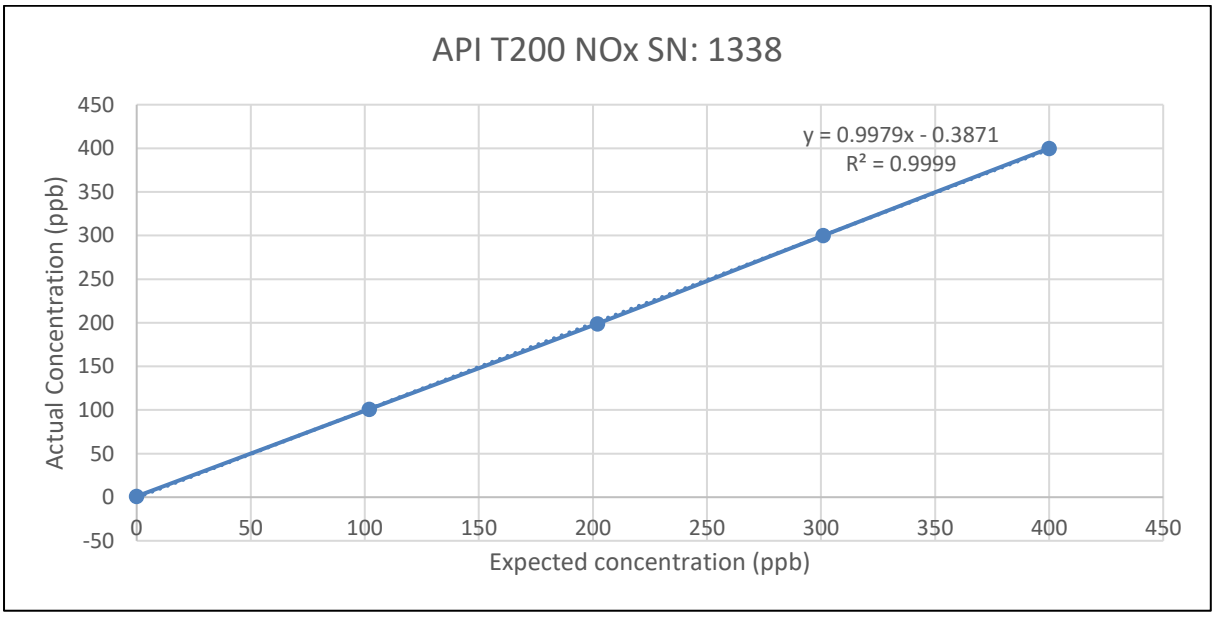
2.3.2 Dynamic calibration – NO_x

The final calibration results (zero, intermediate and span check (NO)) are shown in Table 2.3.2 below.

Table 2.3.2: Analyser responses (NO, NO2, NOx)

Audit Concentration (ppb)	Analyser Response (ppb)	Deviation (ppb) - NO	Deviation (%)
0; 0; 0	1; 1; 2	-	-
102; 0; 102	101; 0; 101	-1	-1.0%
202; 0; 202	199; 0; 199	-3	-1.5%
301; 0; 301	300; 0; 300	-1	-0.3%
400; 0; 400	400; 0; 400	0	0.0%
Ref NO2	**1011ppb**		

2.3.3 Evaluation of Results – NOx



2.3.4 **Instrument status**

The analyser diagnostics of the instrument are contained in Table 2.3.4 below.

Table 2.3.4: Analyser diagnostics

System function	Operating spec	Previous Cal. value	Final value
Range	500 – 2000 ppb	500	500
Nox stb	0.02 – 2 ppb	0.1	0.1
Samp flw	500 ±50 cc/m	491	491
Ozone fl	80 ±15 cc/m	90	90
PMT	0 ±50 cc/m	718.9	718.9
Azero	-20 – 150	66.2	66.2
Hvps	400 -900 V	782	782
Rxcell temp	50 ±1 ºC	50.0	50.0
Box temp	Ambient plus 3-7	28.0	28.0
Pmt temp	7 ±2 ºC	7.4	7.4
Izs temp	50 ±1 ºC	51.0	51.0
Moly temp	315 ±5 ºC	315.7	315.7
Rxcell press.	2 – 10 in-hg-a	3.1	3.1
Samp	Amb. Pres. – 1”	28.5	28.5
Nox slope	1.00 ± 0.3	1.481	1.600
Nox offs	-20 – 150 mV	0.6	0.6
No slope	1.00 ± 0.3	1.579	1.615
No offs	-20 – 150 mV	-0.3	-0.3

2.4 *Thermo1405D $PM_{10/2.5}$ TEOM analyser – SN 1405A228211404*

2.4.1 Mass flow calibrator: Challenger SN 000078 & Cal Kit CVK4496-3

Table 2.4 .1: Analyser response

Parameters	Expected	Measured	Deviation (%)
K_o		-*	-*
K_o (coarse)	16750	-*	-*
K_o (P 2.5)	15219	-*	-*
Mass flow rate		-*	-*
PM_{coarse} (l/min)	1.67	-*	-*
$PM_{2.5}$ (l/min)	3.0	-*	-*
Bypass (l/min)	12.00	-*	-*
Total flow (l/min)	16.67	-*	-*

- Sent for repairs*

2.4.2 Instrument status

The analyser diagnostics of the instrument are contained in Table 2.4.2 below – Analyser not operational due to comms fault.

Table 2.3.2: PM-10/PM-2.5 Analyser diagnostics

System function	Operating spec	Initial value	Final value
Case Temp	50 ºC	-*	-*
Air Temp	50 ºC	-*	-*
Cap Temp	50ºC	-*	-*
Main Flow $P_{2.5}$	3.01 l/min	-*	-*
Flow P_{course}	1.67 l/min	-*	-*
Aux Flow	13.69 l/min	-*	-*
% filter PM coarse	8-80%	-*	-*
% Filter 2.5	15-80%	-*	-*
Operating mode	-	-*	-*
Status code	-	-*	-*

- Sent for repairs*

3 CALIBRATION RESULTS AT VREDENBURG

3.1 *API T400 O_3 analyser – SN 1306*

3.1.1 Initial zero and span check – VREDENBURG

The results of the initial span and zero check performed on this analyser are shown in Table 3.1.1 below. The analyser was calibrated.

Table 3.1.1: Initial analyser response

Audit Concentration (ppb)	Analyser Response (ppb)	Deviation (ppb)	Deviation (%)
0.0	1.3	+1.3	Not Adjusted
400	402	+2	0.5% (Adjusted)

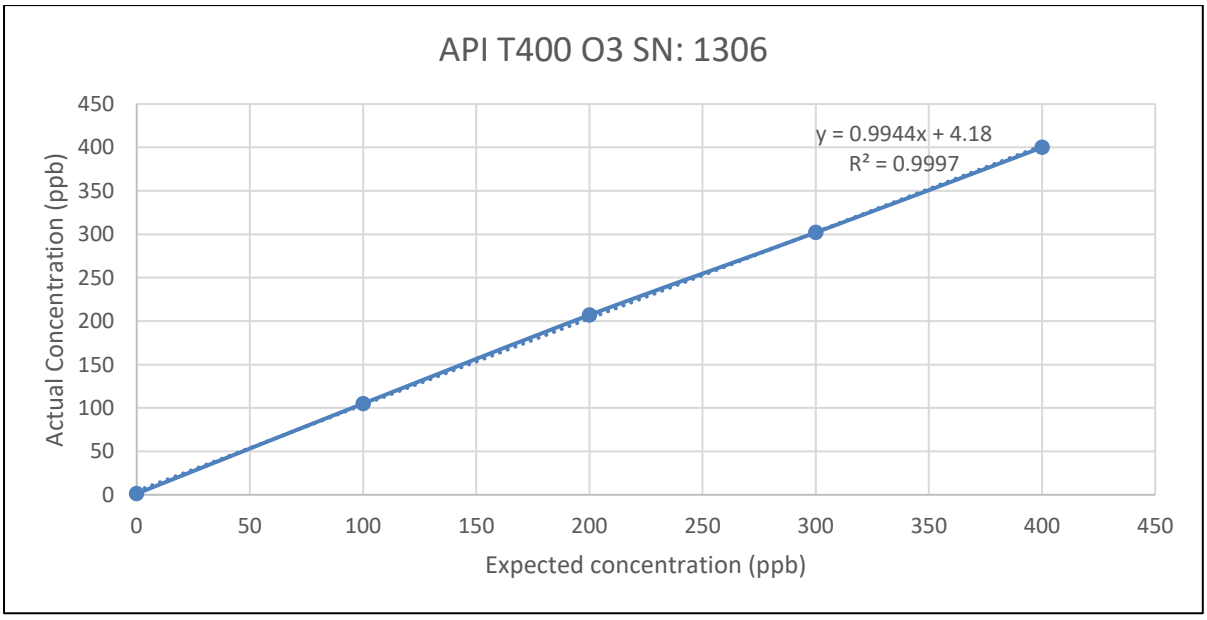
3.1.2 Dynamic calibration – O_3

The final calibration results (zero, intermediate and span checks) are shown in Table 3.1.2

Table 3.1.2: Analyser responses

Audit Concentration (ppb)	Analyser Response (ppb)	Deviation (ppb)	Deviation (%)
0.0	1.3	-	-
100	105	+5	5.0%
200	207	+7	3.5%
300	302	+2	0.7%
400	400	0	0.0%
IZS Span	**377ppb**		

3.1.3 Evaluation of Results – O_3



3.1.4 **Instrument status**

The analyser diagnostics of the instrument are contained in Table 3.1.4 below.

Table 3.1.4: Analyser diagnostics

System function	Operating spec	Previous Cal. value	Final value
Range	500 – 2000 ppb	500	500
Stabil	0.02 – 4 ppb	0.2	0.2
O3 meas	2500 – 4800 mV	3153.9	3153.9
O3 ref	2500 – 4800 mV	3158.6	3158.6
O3 gen	80 – 5000 mV	844.9	844.9
O3 drive	0 – 5000 (400ppb)	1498.9	1498.9
Pres	26 – 31 in HG	25.7	25.7
Samp flow	720 – 880 cc/m	859	859
Sample temp	30 – 40 ºC	38.4	38.4
Photo lamp	57 – 59 ºC	58.0	58.0
O3 gen tmp	47 – 49 ºC	48.0	48.0
Box temp	20 – 40 ºC	26.6	26.6
Slope	0.7 -1.3	0.932	0.928
Offset	-10 – 100	-0.7	-0.7

3.2 *API T101 SO_2 analyser – SN 231*

3.2.1 Initial zero and span check – VREDENBURG

The results of the initial span and zero check performed on this analyser are shown in Table 3.2.1. Below. The analyser was calibrated and adjusted.

Table 3.2.1: Initial analyser response

Audit Concentration (ppb)	Analyser Response (ppb)	Deviation (ppb)	Deviation (%)
0.0	-2.1	-2.1	Adjusted to zero
401	381	-20	5.0% (Adjusted)

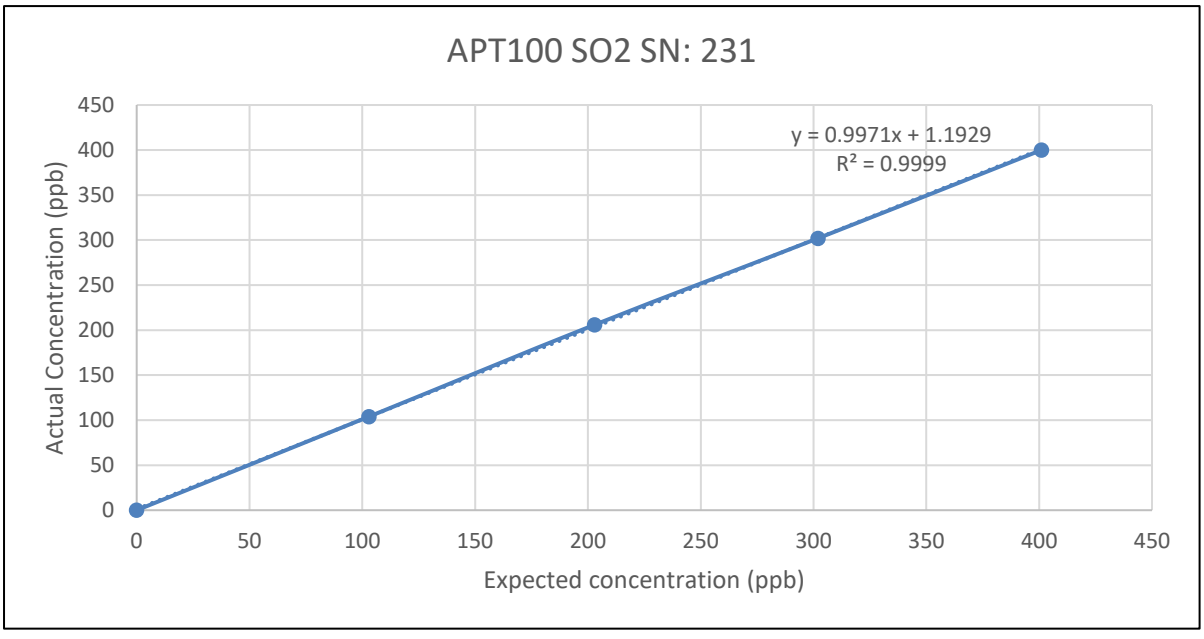
3.2.2 Dynamic calibration – SO_2

The final calibration results (zero, intermediate and span checks) are shown in Table 3.2.2.

Table 3.2.2: Analyser response

Audit Concentration (ppb)	Analyser Response (ppb)	Deviation (ppb)	Deviation (%)
0.0	0	0	-
103	104	+1	1.0%
203	206	+3	1.5%
302	302	0	0.0%
401	400	-1	0.2%

3.2.3 Evaluation of Results – SO_2



3.2.4 **Instrument status**

The analyser diagnostics of the instrument are contained in Table 3.2.4 below.

Table 3.2.4: Analyser diagnostics

System function	Operating spec	Previous Cal. value	Final value
Range	500 – 2000 ppb	500	500
SO_2 stb	0.02 – 2 ppb	-	-
Sample flow	650 ±10% cc/m	711	711
Press	21.5 @ 5000 M	26.3	26.3
UV lamp	1000 – 4000 mV	3793.4	3793.4
Pmt	-20 – 150 (zero)	581.0	581.0
Norm Pmt	0 - 100 mV	694.6	694.6
Lamp ratio	30 – 120 %	94.1	94.1
Str light	<100	21.5	21.5
Dark Pmt	-50 – 200 mV	60.6	60.6
Dark lamp	-50 – 200 ºC	-1.1	-1.1
Slope	1.0 ± 0.3	0.986	1.035
Offset	<250	43.5	43.5
Hvps	400 – 900 V	594	594
Rxcell temp	50 ± 1 ºC	50.0	50.0
Box temp	5 – 40 ºC	33.6	33.6
Pmt temp	7 ± 2.0 ºC	8.5	8.5
Izs temp	50 ± 0.1 ºC	50.0	50.0

3.3 *API T200 NO_x analyser – SN 1339*

3.3.1 Initial zero and span check – VREDENBURG

The results of the initial span and zero check performed on this analyser are shown in Table 2.7.1 below. The analyser was calibrated and adjusted.

Table 2.7.1: Initial analyser response (NO; NO_2; NO_X)

Audit Concentration (ppb)	Analyser Response (ppb)	Deviation (ppb)	Deviation (%)
0.0	6; -3; 3	+6; -3; +3	Adjusted to zero
400	404; -8; 396	+4	+1.0% (Adjusted)

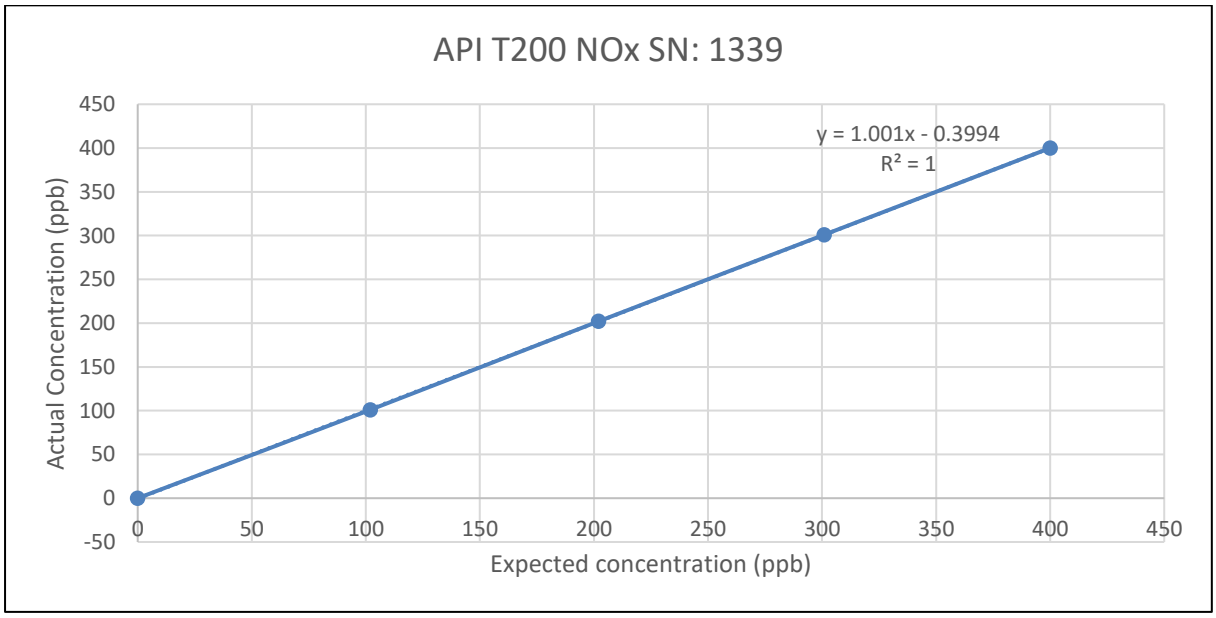
3.3.2 Dynamic calibration – NO_x (API T200: S/N 1339)

The final calibration results (zero, intermediate and span check (NO)) are shown in Table 2.7.2 below.

Table 2.7.2: Analyser responses (NO; NO_2; NO_X)

Audit Concentration (ppb)	Analyser Response (ppb)	Deviation (ppb)	Deviation (%)
0.0	0; 0; 0	-	-
102	101; 1; 102	-1	1.0%
202	202; 1; 203	0	0.0%
301	301; -3; 298	0	0.0%
400	400; 1; 401	0	0.0%

3.3.3 Evaluation of Results – NO_x



3.3.4 **Instrument Status**

The analyser diagnostics of the instrument are contained in Table 3.3.4 below

Table 3.3.4: Analyser diagnostics

System function	Operating spec	Previous Cal. value	Final value
Range	500 – 2000 ppb	500	500
Nox stb	0.02 – 2 ppb	0.2	0.2
Samp flw	500 ±50 cc/m	517	517
Ozone fl	80 ±15 cc/m	78	78
Pmt	0 ±50 cc/m	187.6	187.6
Azero	-20 – 150	22.8	22.8
Hvps	400 -900 V	790	790
Rxcell temp	50 ±1 ºC	50.0	50.0
Box temp	Ambient plus 3-7	29.0	29.0
Pmt temp	7 ±2 ºC	7.0	7.0
Izs temp	50 ±1 ºC	50.9	50.9
Moly temp	315 ±5 ºC	313.7	313.7
Rxcell press.	2 – 10 in-Hg-A	3.6	3.6
Samp	Amb. Pres. – 1”	28.5	28.5
Nox slope	1.00 ± 0.3	1.066	1.084
Nox offs	-20 – 150 mV	-4.8	-0.4
No slope	1.00 ± 0.3	1.094	1.098
No offs	-20 – 150 mV	-11.2	-0.4

4 DISCUSSION AND RECOMMENDATION

- All operational gas and a particulate analyser were calibrated successfully within their required operational parameters.

  .
- The linear responses of the dynamic calibration are depicted on the correlation graphs showing R^2 equal or greater than 0.99 ($R^2 \geq 0.99$) and a linear response meeting EPA requirement.

Notes:

1. Calibrations were undertaken using traceable calibration equipment and gases to NMISA Primary Standards. SKYSIDE is not a SANAS Accredited Calibration Laboratory.

2. Saldanha Bay:

- The O_3 analyser calibrated well.
- The NO_x analyser calibrated well.
- The SO_2 analyser calibrated well.
- TEOM 1405 was installed 19-Mar-26 but was sent for repairs, on the 21-Apr-26, due to water ingress from.

3. Vredenburg:

- The O_3 analyser calibrated well and had a fast response; on the 15-Apr-26 the O_3 analyser lamp voltage was adjusted.
- The NO_x analyser has a slow response to zero gas.
- The SO_2 analyser had a slow response to 80% calibration gas.
- Wind speed and other met need a pneumatic mast.

Appendix 1 – Gas & Calibrator Certification & Validation Information

1. Primary Reference Materials

Gas Standard	Standard Gas Provider	Cylinder number	Certificate number**	Date of certification	Date of expiry of certification	Composition
Primary Standard	NMISA	D73 3636	PRGM0400733636	15-Jan-25	15-Jan-27	CO - 99.4ppm
Primary Standard	NMISA	D54 3854	PRGM0900543854	09-Jan-25	9-Jan-26	SO2-502.1ppm
Primary Standard	NMISA	D73 3753	PRGM0700733753	16-Jan-25	16-Jan-27	NO - 500.3ppm

**Available on request

2. Transfer Standards – Validated 29/7/2025

Gas Standard	Standard Gas Provider	Cylinder number	Certificate number**	Composition
Transfer Standard	NMISA	M518138	PRGM2000518138	CO 1000.1ppm
Transfer Standard	NMISA	D194846	PRGM70004846	NO 30.01ppm
Transfer Standard	NMISA	D194905	PRGM0700733753	SO2 30.12ppm
Transfer Standard	NMISA	M395431	PRGM0100395431	H2S 29.98ppm

**Available on request

3. Test Calibration & Validation Items

Gas Calibrator/ Zero Air Standard	Certified by	Certificate number / Reference	Traceability to / Validation Reference
Primary Standard – API700 SN628	NMISA	FL\G 1335	SANAS Cal Lab 180-15-00 via ILC
Transfer Standard – Sabio 2010	Skyside	QAPP_2025/02	SANAS Cal Lab 180-15-00
API Zero Air SN 929	Skyside	QAPP_2025/02	SANAS Cal Lab 180-15-00
Sabio Zero Air 2020	Skyside	QAPP_2025/02	SANAS Cal Lab 180-15-00

Remarks and Statement

- The measurement results recorded in this test certificate were correct at the time of calibration.
- The subsequent accuracy will depend on factors such as care, handling and frequency of use.
- It is recommended that recalibration be undertaken at quarterly intervals per SANAS TR 07-03.
- The results relate only to the items tested and identified by the serial number stated in this document.
- This certificate may not be reproduced except in full, without written approval of the laboratory.
- The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage