



In Association with



Test Report: Dust Fallout & Metals Monitoring

Q4 of 2025

Prepared for

Saldanha Bay Municipality

AQ344

Test dates: October – December 2025

EXECUTIVE SUMMARY

Dust fallout sampling was conducted by Argos Scientific Africa (Pty) Ltd. on behalf of Skyside South Africa (Pty) Ltd. since September 2024 at seven (7) sites, including the monitoring and heavy metals (iron, lead, zinc, manganese and copper), in the Saldanha Bay Municipal Area. This report covers data for the period October to December 2025 (Q4).

There was valid data for twenty (20) out of twenty-one (21) dust fall samples collected; due to SBM-01 data being flagged from unusual amount of bird activity. Additionally, all twenty-one (21) metal samples were collected during the Q4 period, October, November and December.

There were no **exceedances** of the South African National Dust Control Regulations residential limit of 600mg/m²/day during Q4 2025.

There were **no** exceedances of the South African National Dust Control Regulations non-residential limit of 1200mg/m²/day during Q4 2025

Meteorological conditions for October - December 2025 and were characterised by moderate to strong southerly (S) winds with a small light to moderate north-westerly (NW) bias, especially during October with an occurrence of 1.1% to 2.7% calm conditions.

Additional information and laboratory results can be found in the monthly reports.

REPORT DETAILS

REFERENCE	AQ344/2025/Q4
REPORT TITLE	Dust Fallout and Metals Monitoring, Q4 of 2025
DATE SUBMITTED	29 June 2026
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ABBREVIATIONS

BDL	Below Detection Limit
DEAT	Department of Environment Affairs and Tourism
EPA	See US EPA
ℓ/min	Litres per minute
m.s ⁻¹	Metres per second
m ³	Cubic metres
Max	Maximum
mg/m ³	milligrams per cubic metre
Min	Minimum
PM ₁₀	Particulate matter of aerodynamic diameter less than 10mm
ppm	Parts per million
SABS	South African Bureau of Standards
SW	South West
US EPA	United States Environmental Protection Agency
VOCs	Volatile Organic Compounds
WHO	World Health Organisation

1 INTRODUCTION

Dust fallout sampling was conducted by Argos Scientific Africa (Pty) Ltd. on behalf of Skyside South Africa (Pty) Ltd. since September 2024 at seven (7) sites, including the monitoring and heavy metals (iron, lead, zinc, manganese and copper), in the Saldanha Bay Municipal Area.

1.1 *Scope of Work*

Argos Scientific's understanding of the scope of work is as follows:

- To measure dust fallout rates at seven (7) sampling points for 12 months.
- Monthly collection of samples for duration of 12 months.
- Monthly sample analysis as follows: Seven (7) gravimetric samples per month.
- Elemental sample analysis as follows: Iron, lead, zinc and copper.
- Monthly results to client in electronic format.
- Data interpretation and reporting will be submitted electronically.

2 METHODOLOGY

2.1 Sample Location

Dust fallout sampling was conducted the following seven sites:

Table 2.1 Dust Fallout Monitoring Sites

Saldanha Bay Dust Fallout Monitoring Network Monitoring Site Locations		
<i>Vredenburg Electricity Dept.: SBM-06</i>	32° 54' 27.2" S	17° 59' 13.7" E
<i>Vredenburg Reservoir: SBM-05</i>	32° 54' 56.1" S	17° 59' 12.9" E
<i>Juffroushoogte: SBM-07</i>	32° 56' 13.8" S	18° 04' 33.6" E
<i>Airport: SBM-01</i>	32° 57' 34.5" S	17° 58' 12.5" E
<i>Saldanha AQM Freeport Station: SBM-02</i>	32°58'56.16"S,	17°59'21.57"E
<i>Blue Water Bay: SBM-04</i>	32° 59' 43.8" S	17° 58' 24.7" E
<i>Curro School: SBM-03</i>	33° 02' 16.2" S	18° 02' 59.9" E

Sites selected had to be:

- Along the prevailing wind vector for the area.
- Distributed evenly within the Saldanha Bay Municipality Area and near areas of possible contamination.

Figure 2.1.1: Location of dust fallout samplers for Saldanha Bay Municipality



2.2 Dust fallout

Dust fallout samplers were deployed in April 2015 and samples are collected on a monthly basis. Each series of samples were analysed at a SANS 17025 accredited facility.

Total insoluble dust fallout was determined in accordance with ASTM D 1739 or demonstrable equivalent, a requirement in terms of the SA National Standards (SANS 1929:2005 - Edition 1.1).

3 GUIDELINES AND AIR QUALITY STANDARDS

3.1 Dust fallout

In terms of the *Government Gazette* Volume 476, No. 27318, the South African Air Quality Act 39 of 2004 was promulgated on 24 April 2005. The South African National Dust Control Regulations describes the proposed guidelines for dust fallout, an extract of which is discussed briefly below.

A standard for the acceptable dustfall rate is set out in Table 3.1. The target, action and alert thresholds are shown in Table 3.2.

Table 3.1: Evaluation criteria for Dust Fallout

Restriction Areas	Dust fall rate (D) mg/m ² /day (30-day average)	Comment
Residential	D < 600	Permissible for residential and light commercial
Non-Residential	600 < D < 1200	Permissible for heavy commercial and industrial

For heavy commercial and industrial regions, the new guidelines state that monthly average dust fallout concentrations below 1200mg/m²/day “are permissible”. For residential regions, monthly average dust fallout concentrations not exceeding 600mg/m²/day “are permissible”.

Table 3.2: Acceptable Dust Fall Rates

Restriction Areas	Dust fallout rate (D) mg/m ² /day (30-day average)	Averaging period	Permitted frequency of exceeding dust fall rate
Residential	D<600	30 days	2 within a year, not sequential months
Non-residential	600<D<1200	30 days	2 within a year, not sequential months

The target annual average dust fallout concentration is 300mg/m²/day. This is an ultimate goal set to achieve “ongoing improvement”, even in areas where compliance with all other guidelines can be demonstrated. The monthly average “action level” for residential regions is 600mg/m²/day and for industrial regions 1200mg/m²/day.

Exceptions are granted where elevated concentrations arise on a regional scale from adverse meteorological conditions. Background dust monitoring sites can be used to identify and monitor impacts of such exceptions. Access to historical and current meteorological information, particularly wind conditions, can be used to distinguish between “adverse” and “normal” meteorological conditions.

4 RESULTS

Dust Fallout results are detailed in Table 4.1 and Metals results in Tables 4.2.1 – 4.2.5 as well as graphically in Figures 4.3 to 4.5 respectively.

4.1 Dust fallout results

Table 4.1 Dust fallout results for Q4 2025

Dust Fallout (mg/m ² /day) - Results for Q4 2025			
	Oct-25	Nov-25	Dec-25
SBM-01	736*	475	283
SBM-02	294	174	115
SBM-03	182	342	260
SBM-04	155	90	180
SBM-05	70	34	107
SBM-06	71	57	115
SBM-07	79	96	122

*Flagged due to unusual amount of bird activity

4.2 Heavy metal results

Table 4.2.1 Heavy Metals results for Lead Q4 2025

Lead Content (ppm) for Q4 2025			
	Oct-25	Nov-25	Dec-25
SBM-01	8.2	6.3	16.5
SBM-02	225.6	153.1	108.5
SBM-03	16.4	8.8	3.0
SBM-04	48.5	33.3	4.3
SBM-05	234.0	739.1	87.7
SBM-06	276.6	315.8	121.5
SBM-07	37.7	31.3	12.8

Table 4.2.2 Heavy Metals results for Copper Q4 2025

Copper Content (ppm) for Q4 2025			
	Oct-25	Nov-25	Dec-25
SBM-01	43	35	132
SBM-02	103	102	68
SBM-03	66	39	6
SBM-04	78	100	9
SBM-05	106	522	15
SBM-06	277	526	41
SBM-07	151	359	90

Table 4.2.3 Heavy Metals results for Iron Q4 2025

Iron Content (ppm) for Q4 2025			
	Oct-25	Nov-25	Dec-25
SBM-01	4 898	1 930	3 087
SBM-02	19 487	33 673	23 056
SBM-03	7 213	3 684	5 267
SBM-04	12 621	18 333	4 758
SBM-05	25 532	69 565	8 037
SBM-06	29 787	36 842	11 746
SBM-07	18 679	25 000	15 368

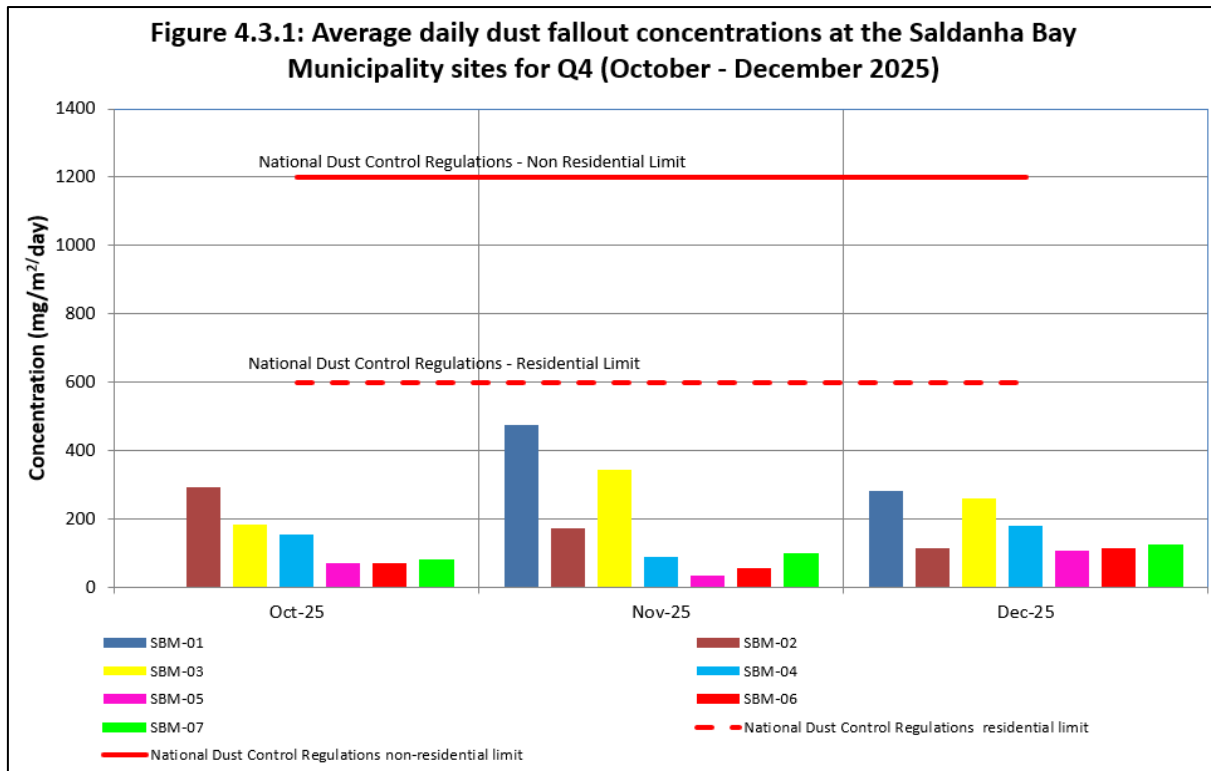
Table 4.2.4 Heavy Metals results for Zinc Q4 2025

Zinc Content (ppm) for Q4 2025			
	Oct-25	Nov-25	Dec-25
SBM-01	265	114	452
SBM-02	1 692	837	732
SBM-03	508	88	84
SBM-04	583	383	121
SBM-05	2 340	5 217	731
SBM-06	2 128	2 237	891
SBM-07	377	344	231

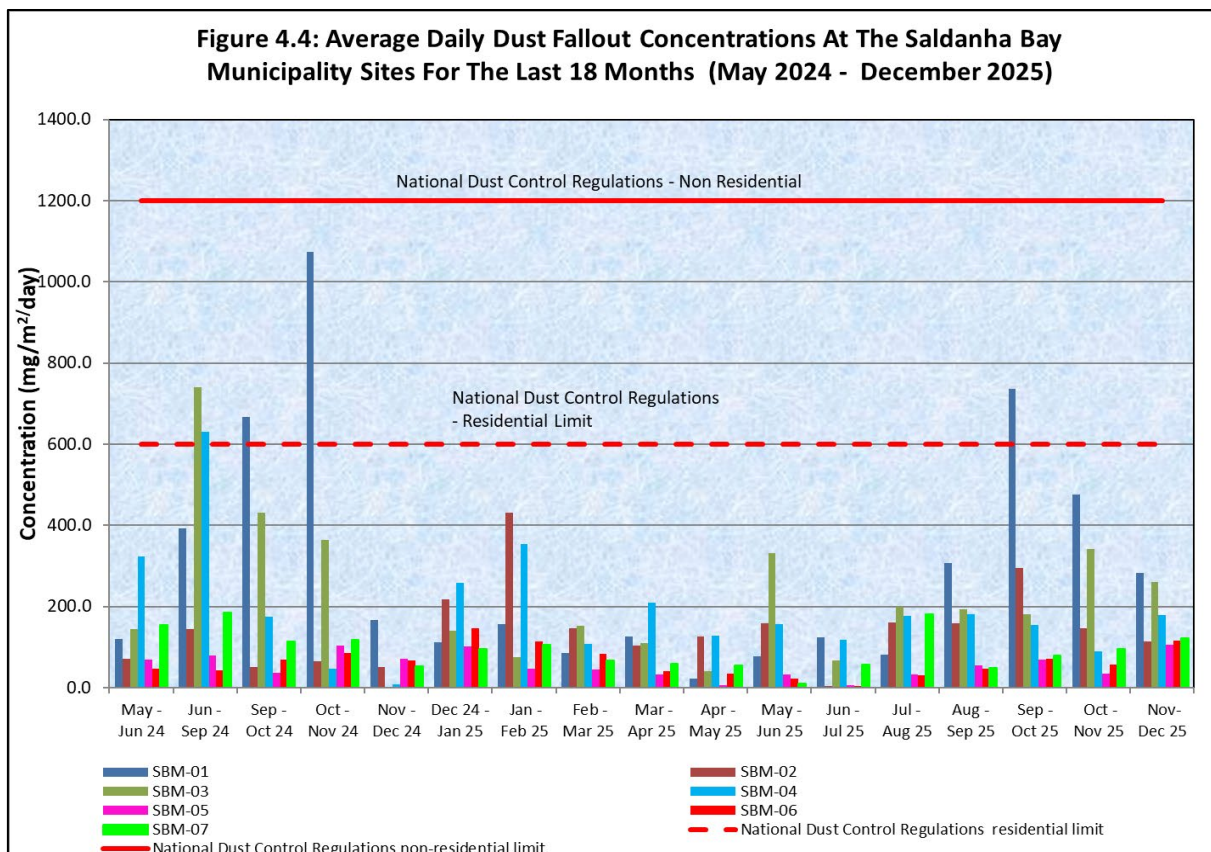
Table 4.2.5 Heavy Metals results for Manganese Q4 2025

Manganese Content (ppm) for Q4 2025			
	Oct-25	Nov-25	Dec-25
SBM-01	145	117	435
SBM-02	1 641	4 082	2 306
SBM-03	213	101	126
SBM-04	505	533	190
SBM-05	1 702	7 391	906
SBM-06	1 979	3 684	1 229
SBM-07	4 340	9 063	4 226

4.3 Average Dust fallout concentration – Q4 2025

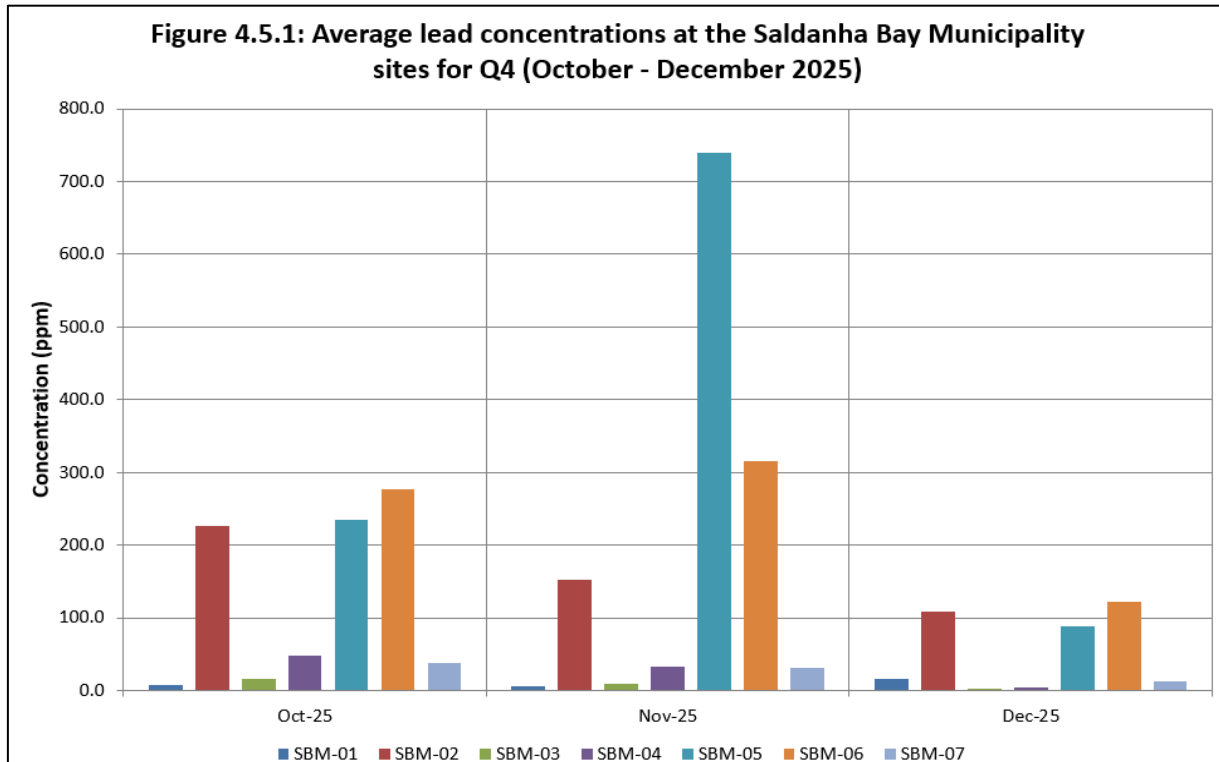


4.4 Average Dust fallout concentration – Past 18 Months

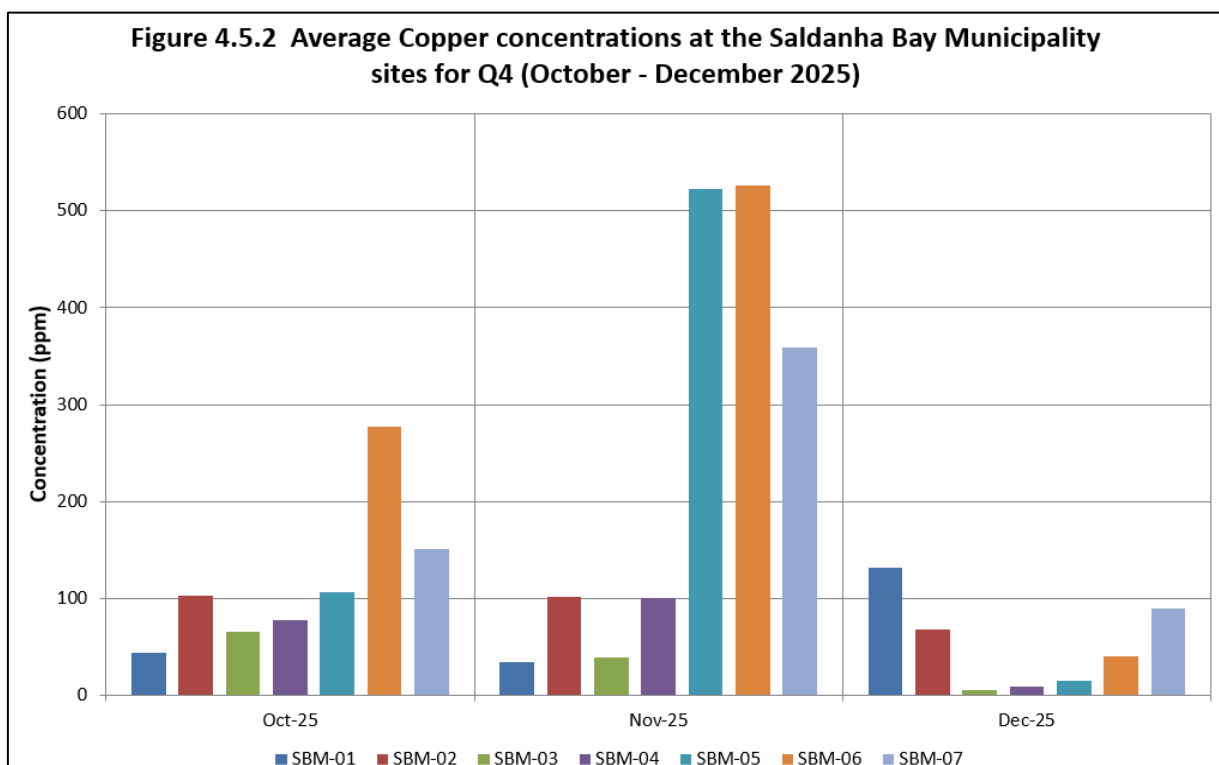


4.5 Average heavy metals concentrations – Q4 2025:

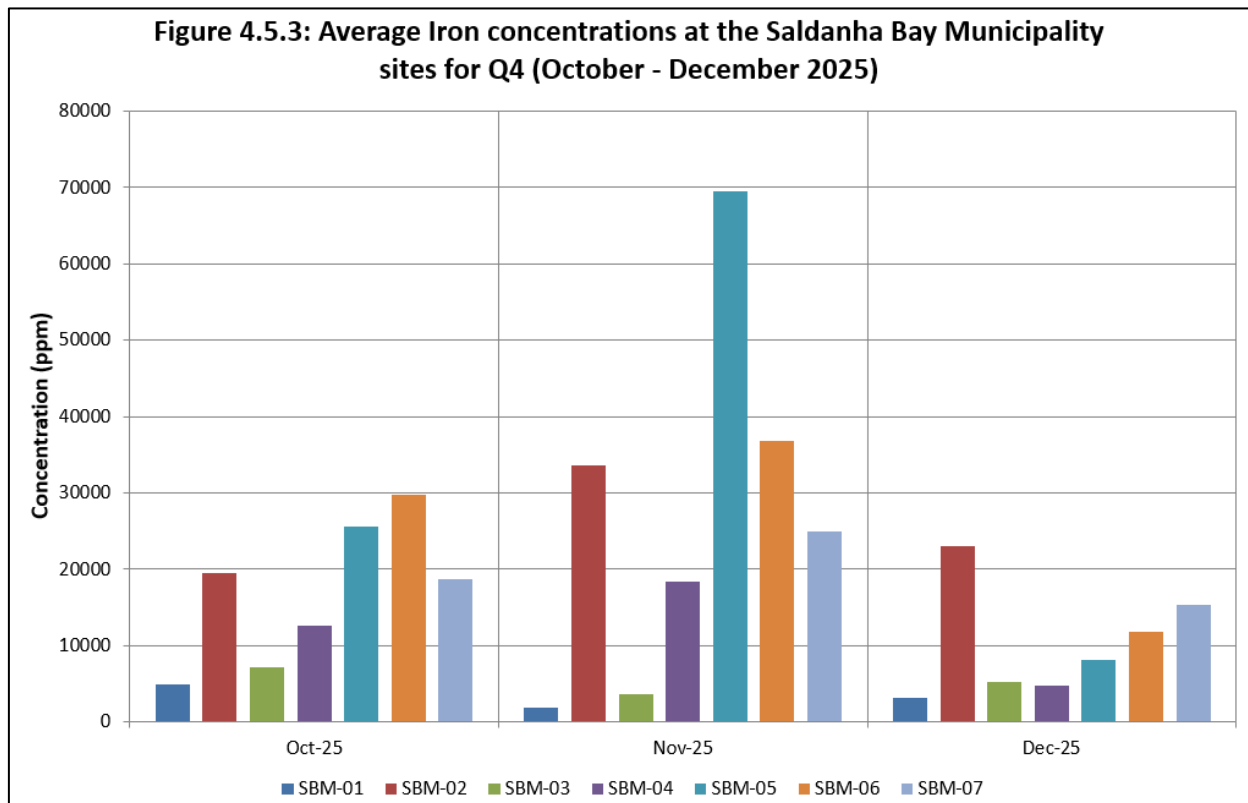
4.5.1 LEAD (Pb)



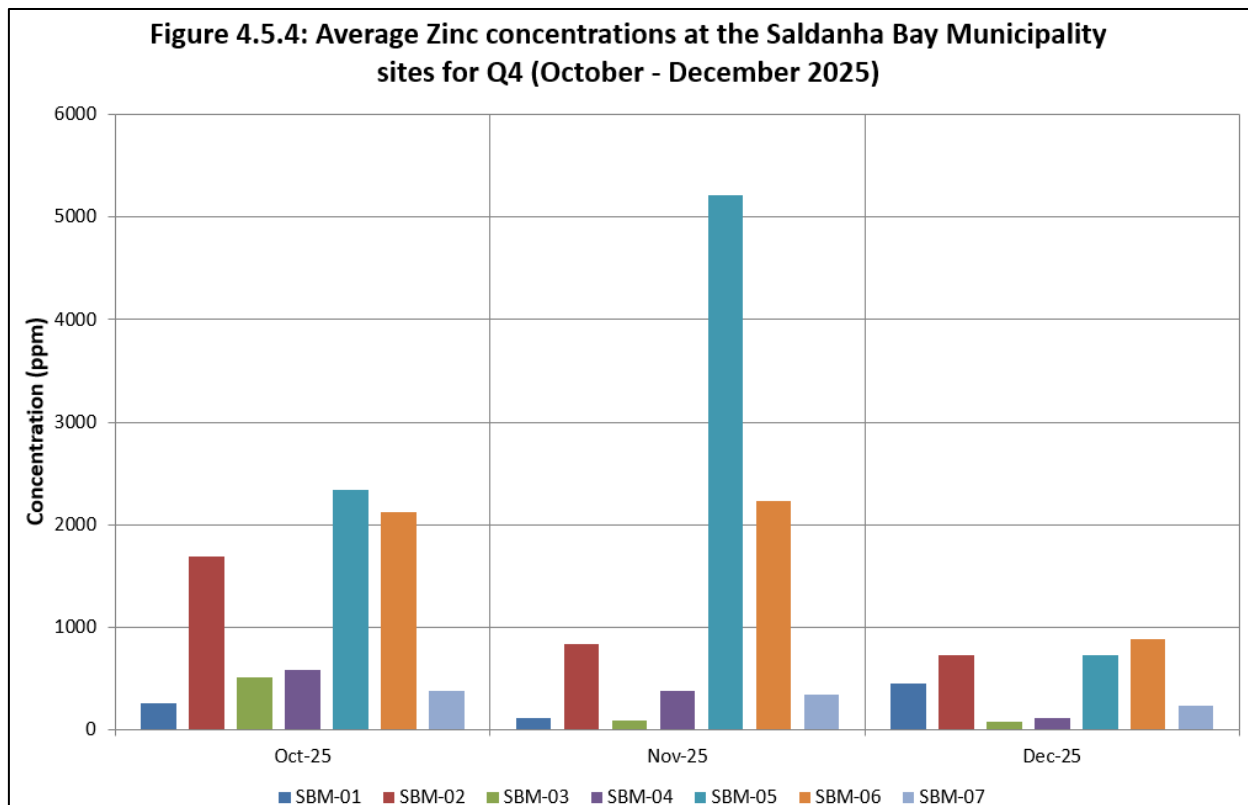
4.5.2 COPPER (Cu)



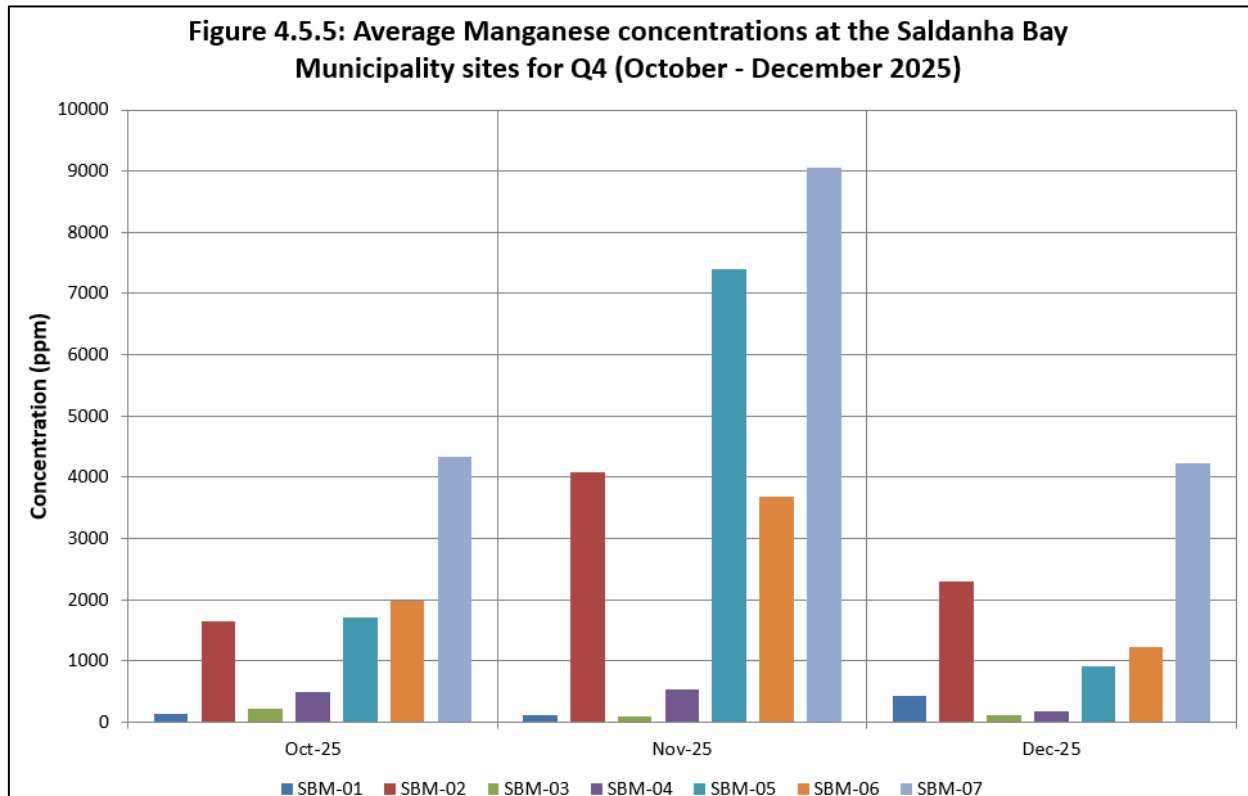
4.5.3 IRON (Fe)



4.5.4 ZINC (Zn)

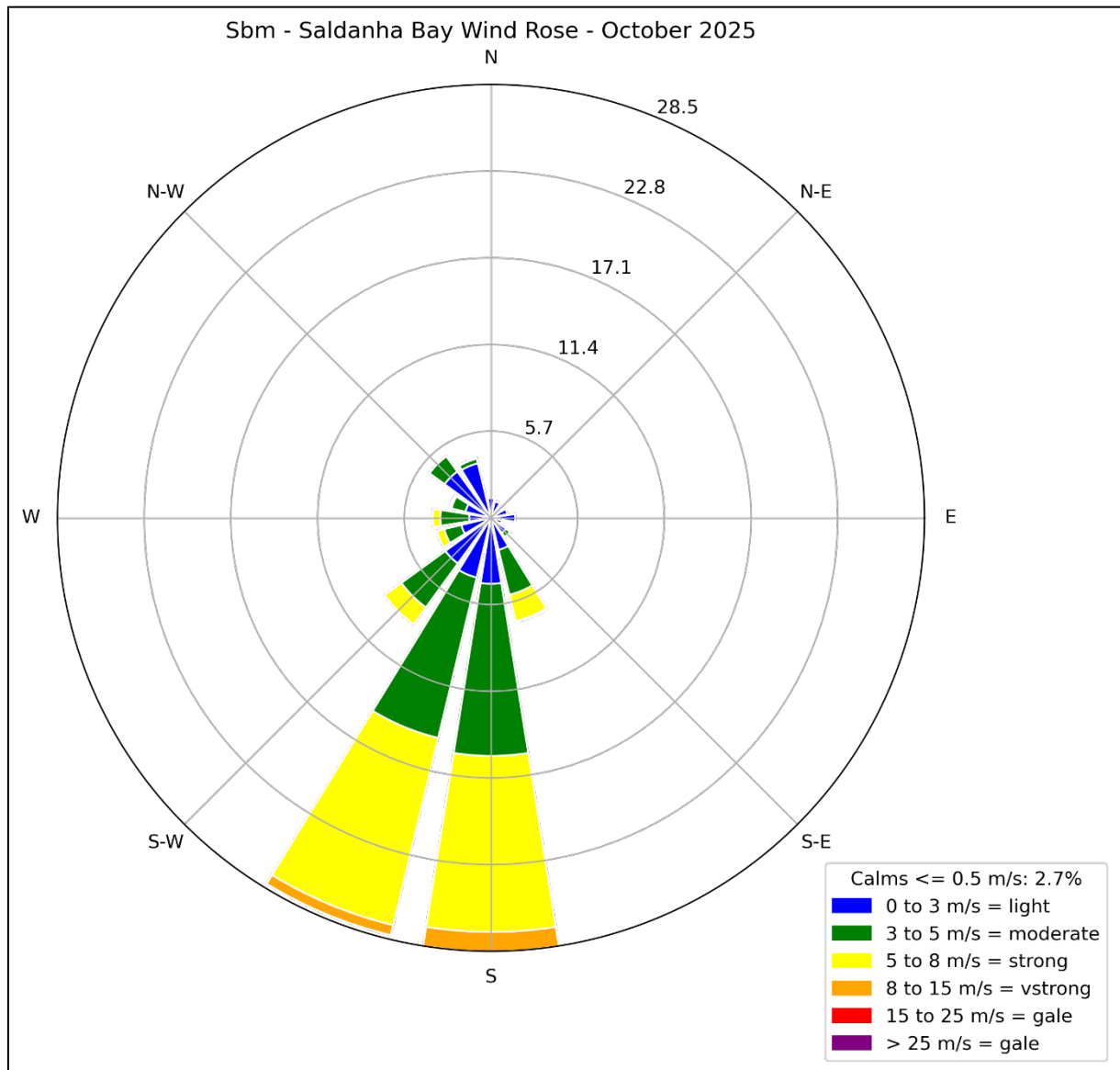


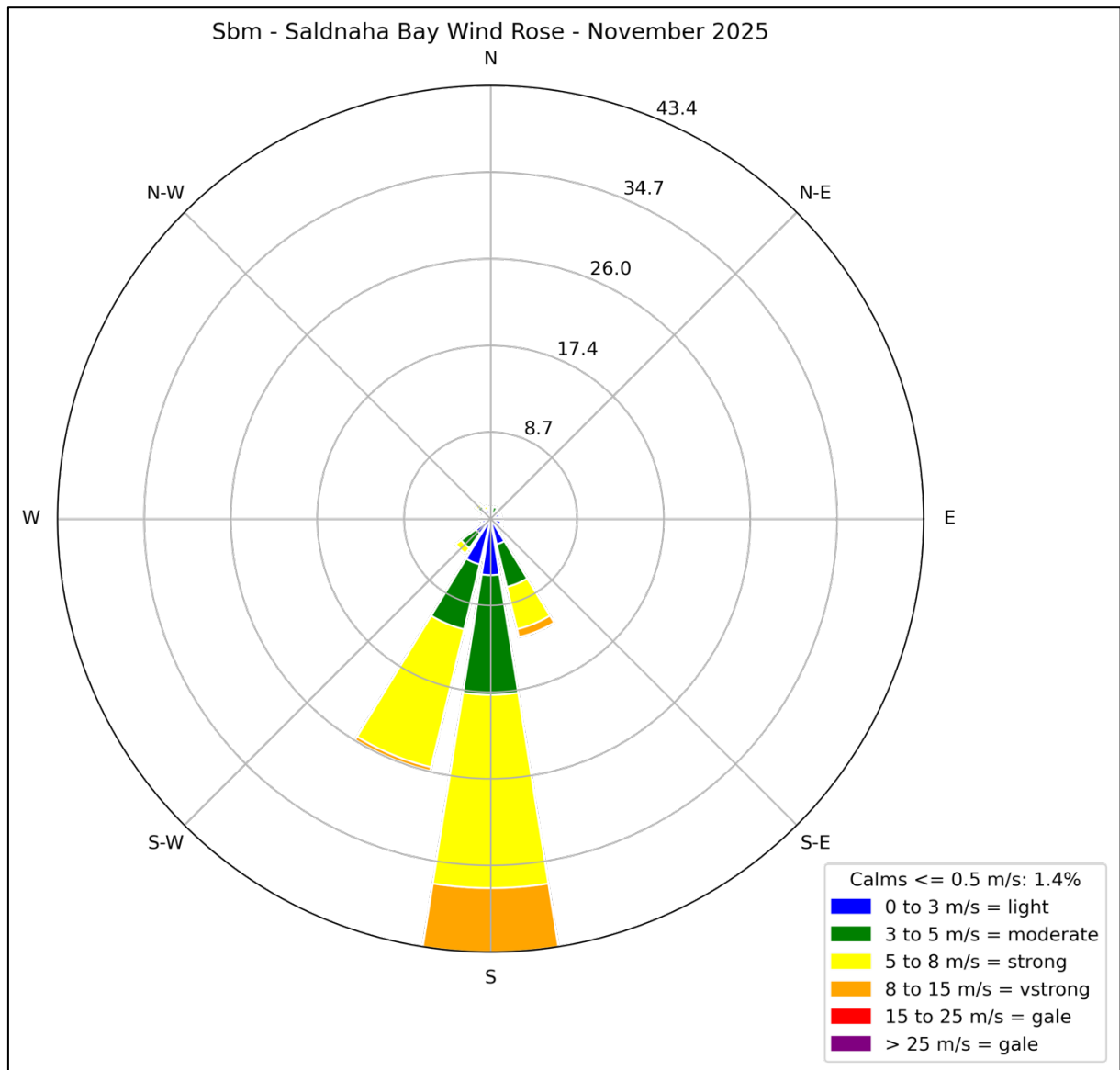
4.5.5 MANGANESE (*Mn*)

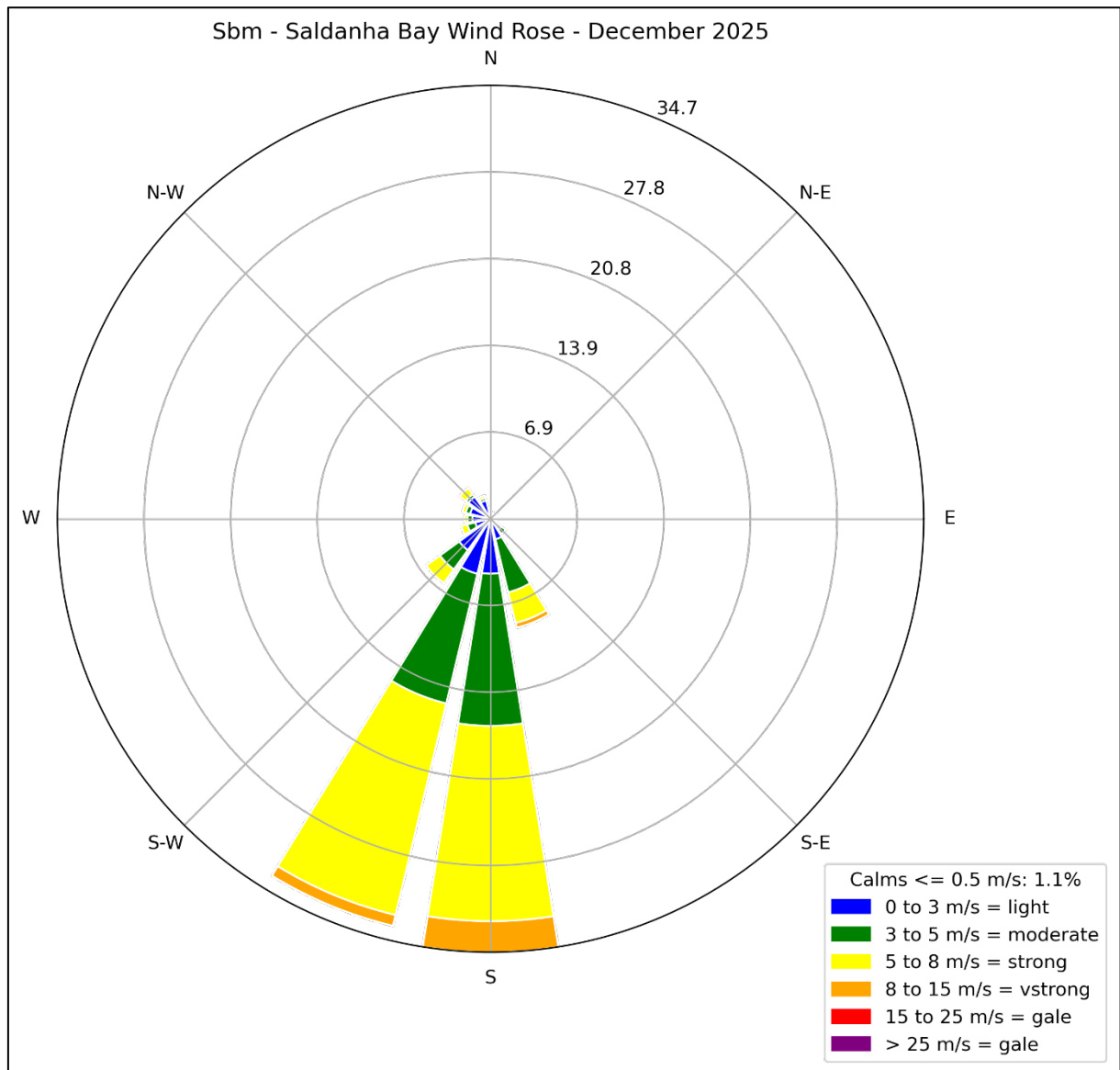


4.6 Wind Roses for Saldanha Bay Municipality

The wind roses for Saldanha Bay Area for the Q4 period of October - December 2025.







5 CONSULTANT'S OBSERVATIONS AND CONCLUSIONS

5.1 *Dust fallout*

- Dust fallout sampling was conducted at seven (7) sites in the Saldanha Bay Municipal area, collected monthly.
- There was valid data for twenty (20) out of twenty-one (21) dust fall samples collected during the Q4 period October, November and December 2025; due to unusual bird activity.
- There was valid data for all twenty-one (21) metal samples collected during the Q4 period October, November and December 2025.
- There were **no** exceedances of the South African National Dust Control Regulations residential limit of 600mg/m²/day during Q4 of 2025.
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