



Test Report: Dust Fallout Monitoring – December 2025

Prepared for

Saldanha Bay Municipality

AQ344

Test Dates: 10 November to 7 December 2025

EXECUTIVE SUMMARY

Dust fallout sampling was conducted by Skyside South Africa (Pty) Ltd. since September 2024 at seven (7) sites in the Saldanha Bay Municipal area. Sampling commenced in February 2015, and samplers are exchanged and collected monthly.

There was valid data for all (7) samples collected, resulting in 100% data capture for the period under review. This report covers the period 7 November to 4 December 2025.

There were **no exceedances** of the South African National Dust Control Regulations residential limit of 600mg/m²/day for the period under review.

There were **no exceedances** of the South African National Dust Control Regulations non-residential limit of 1200mg/m²/day during the month for sites classed as non-residential.

Net lead masses ranged between 1µg and 9µg during the review period. These are possibly a better measure than concentration when assessing “heavy metal” levels in dust fallout.

Meteorological conditions at Saldanha for the review period were characterised by moderate to strong winds from the south (S) and south- southwest (SSW). There was an 1.4% occurrence of calm conditions during the review period.

REPORT DETAILS

REFERENCE	AQ0344/202512
REPORT TITLE	Dust Fallout Monitoring, December 2025
DATE SUBMITTED	21 January 2026
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SIGNED	GRR
APPROVER	G Ravenscroft Signed: 
STATUS	Final
NOTICE	

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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	Southwest
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 December 2024 at seven (7) sites, including the monitoring and heavy metals (iron, lead, zinc, manganese and copper), in the Saldanha Bay Municipal Area.

Sampling initially commenced in 2015, and samplers are exchanged and collected monthly.

A dust fallout and metals contamination impact assessment will be performed using this data.

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.
- Monthly collection of samples for duration of the project.
- Monthly sample analysis of seven (7) gravimetric samples per month.
- Elemental sample analysis of samples for iron, lead, zinc, manganese and copper.
- Monthly results to be sent to the client in electronic format.
- Data interpretation and reporting to be submitted electronically.

2 METHODOLOGY

2.1 Sample Location

Dust fallout sampling was conducted the seven (7) sites detailed in Table 2.1 below.

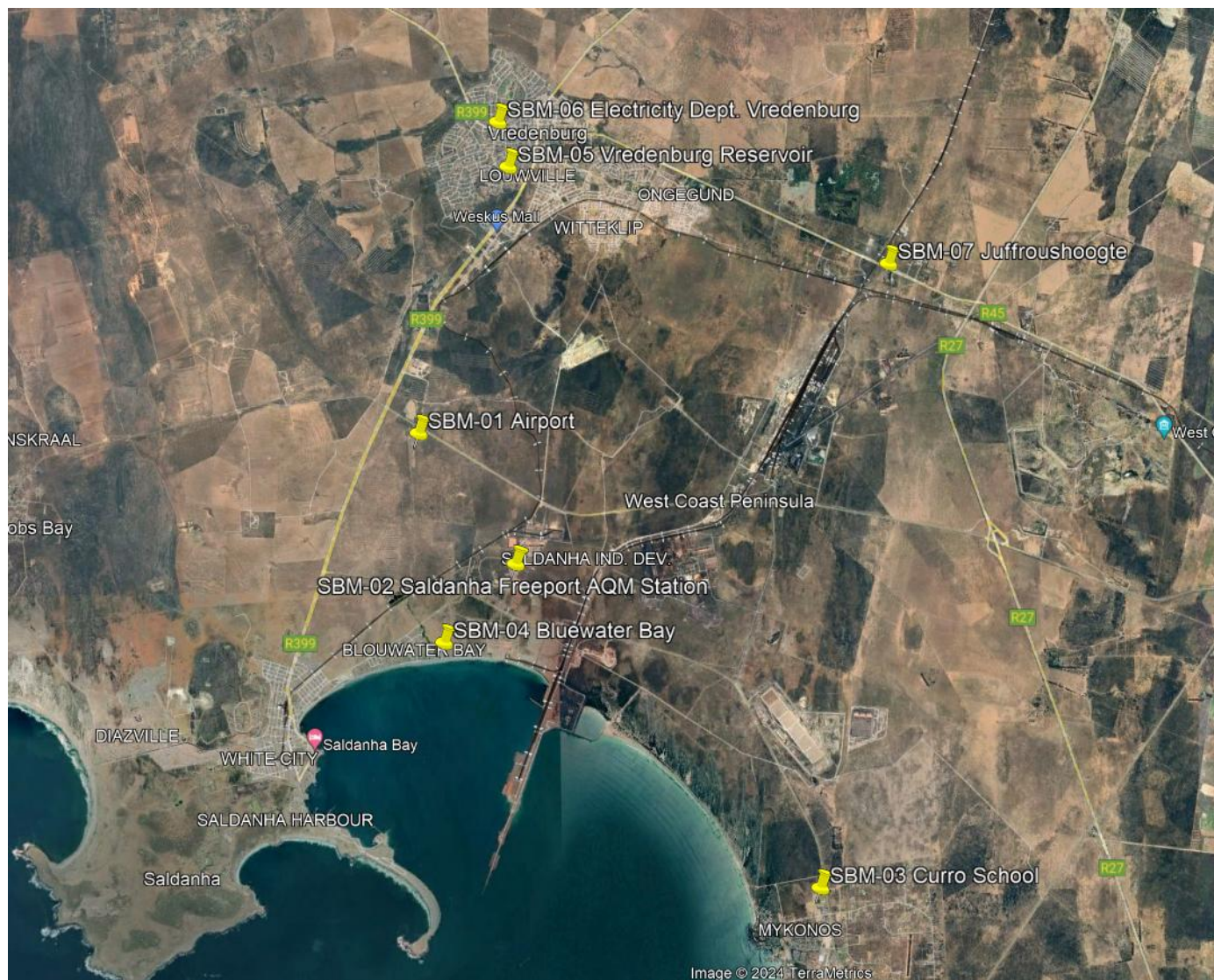
Table 2.1 Dust Fallout Monitoring Sites

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.: Location of Dust Fallout samplers for Saldanha Bay Municipality



2.2 Dust Fallout

Dust fallout samplers were initially deployed in Nov 2015, and samples are collected and analysed monthly at a SANS 17025 accredited facility for insoluble matter content using a gravimetric methodology, in accordance with ASTM D1739: 1970, or demonstrable equivalent, a requirement in terms of the SA National Standards (SANS 1929:2005 - Edition 1.1) and Dust Fallout Regulations.

The insoluble matter contest is then analysed for heavy metals using ICP (OES) by a SANAS Accredited Laboratory for Iron (Fe), Lead (Pb), Manganese (Mn), Copper (Cu) and Zinc (Zn).

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 in 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

4.1 Dust fallout and heavy metal results:

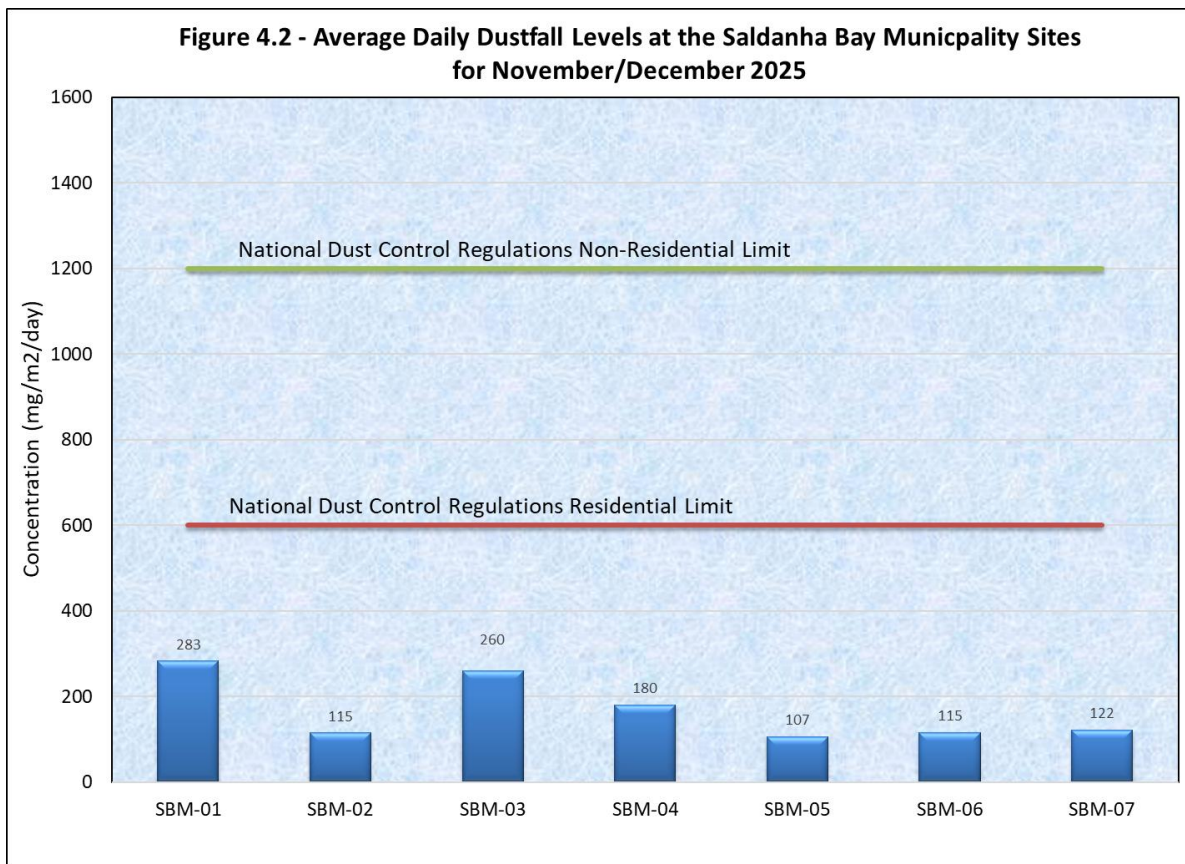
Table 4.1 Dust fallout and Heavy Metal Results for review period. Exceedance of Dust Fallout Industrial Standards in **Red**

Sampling Site	Sampling Start Date	Sampling End Date	Net Mass (g)	No. of Days	Dust Fall rate (mg/m ² /day)	Lead (ppm)	Copper (ppm)	Zinc (ppm)	Iron (ppm)	Manganese (ppm)
SBM-01	07-Nov-25	04-Dec-25	0.181	27	283	17	132	452	3087	435
SBM-02	07-Nov-25	04-Dec-25	0.074	27	115	108	68	732	23056	2306
SBM-03	07-Nov-25	04-Dec-25	0.167	27	260	3	6	84	5267	126
SBM-04	07-Nov-25	04-Dec-25	0.116	27	180	4	9	121	4758	190
SBM-05	07-Nov-25	04-Dec-25	0.068	27	107	88	15	731	8037	906
SBM-06	07-Nov-25	04-Dec-25	0.074	27	115	122	41	891	11746	1229
SBM-07	07-Nov-25	04-Dec-25	0.078	27	122	13	90	231	15368	4226

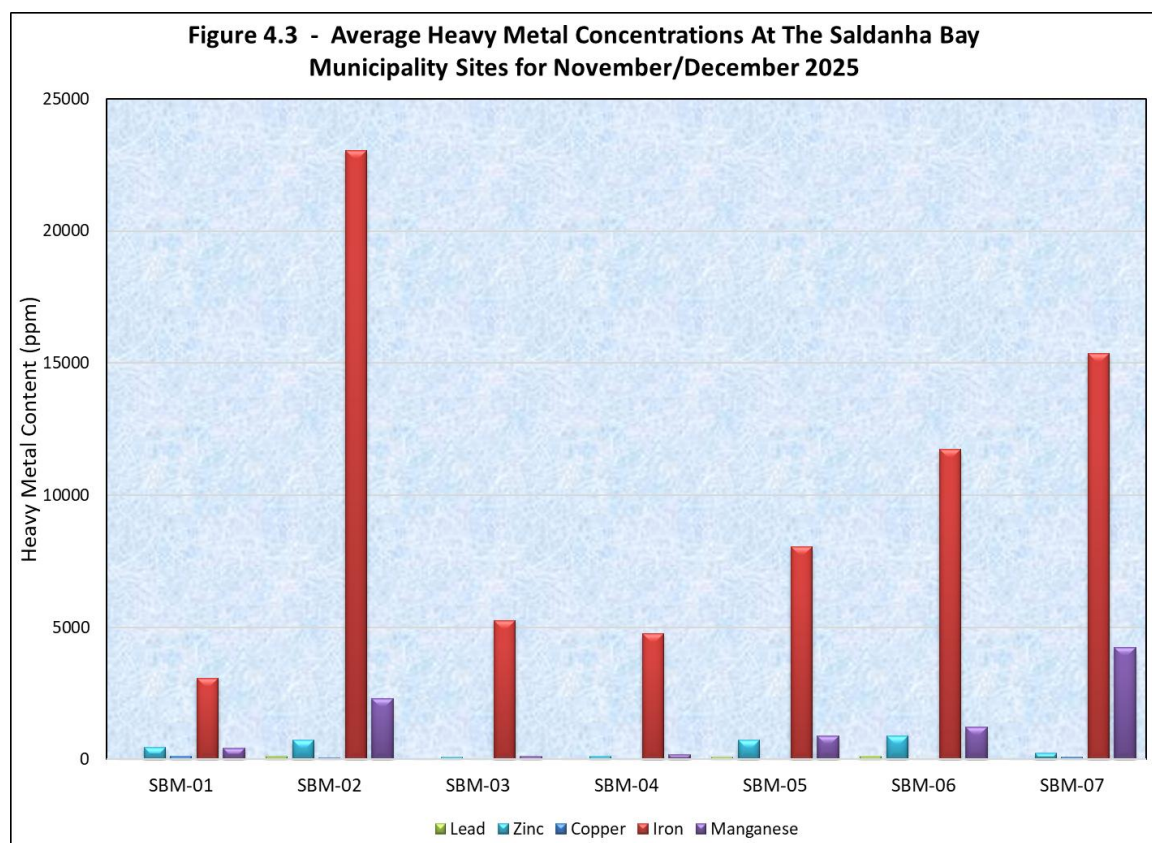
Table 4.2 Lead content (net mass, mg) in dust fallout, past 18 months: Sep/Oct 2024 to Nov/Dec2025

Site/Period	Sep - Oct 24	Oct - Nov 24	Nov - Dec 24	Dec 24 - Jan 25	Jan - Feb 25	Feb - Mar 25	Mar - Apr 25	Apr - May 25	May - Jun 25	Jun - Jul 25	Jul - Aug 25	Aug - Sep 25	Sep - Oct 25	Oct - Nov 25	Nov - Dec 25
SBM-01	0.006	0.007	0.003	0.001	0.001	0.001	0.003	0.008	0.004	0.001	0.001	0.003	0.004	0.002	0.003
SBM-02	0.025	0.019	0.006	0.006	0.012	0.017	0.029	0.023	0.055	0.007	0.043	0.010	0.044	0.015	0.008
SBM-03	0.004	0.005	N/A	0.003	0.001	0.001	0.002	0.001	0.005	0.001	0.001	0.001	0.002	0.002	0.0005
SBM-04	0.016	0.001	0.003	0.003	0.001	0.001	0.007	0.003	0.006	0.002	0.003	0.001	0.005	0.002	0.0005
SBM-05	0.005	0.013	0.009	0.005	0.016	0.013	0.010	0.004	0.003	0.004	0.003	0.004	0.011	0.017	0.006
SBM-06	0.011	0.015	0.010	0.008	0.016	0.016	0.009	0.013	0.003	0.003	0.003	0.005	0.013	0.012	0.009
SBM-07	0.002	0.003	0.002	0.001	0.001	0.001	0.003	0.002	0.002	0.001	0.001	0.001	0.002	0.002	0.001

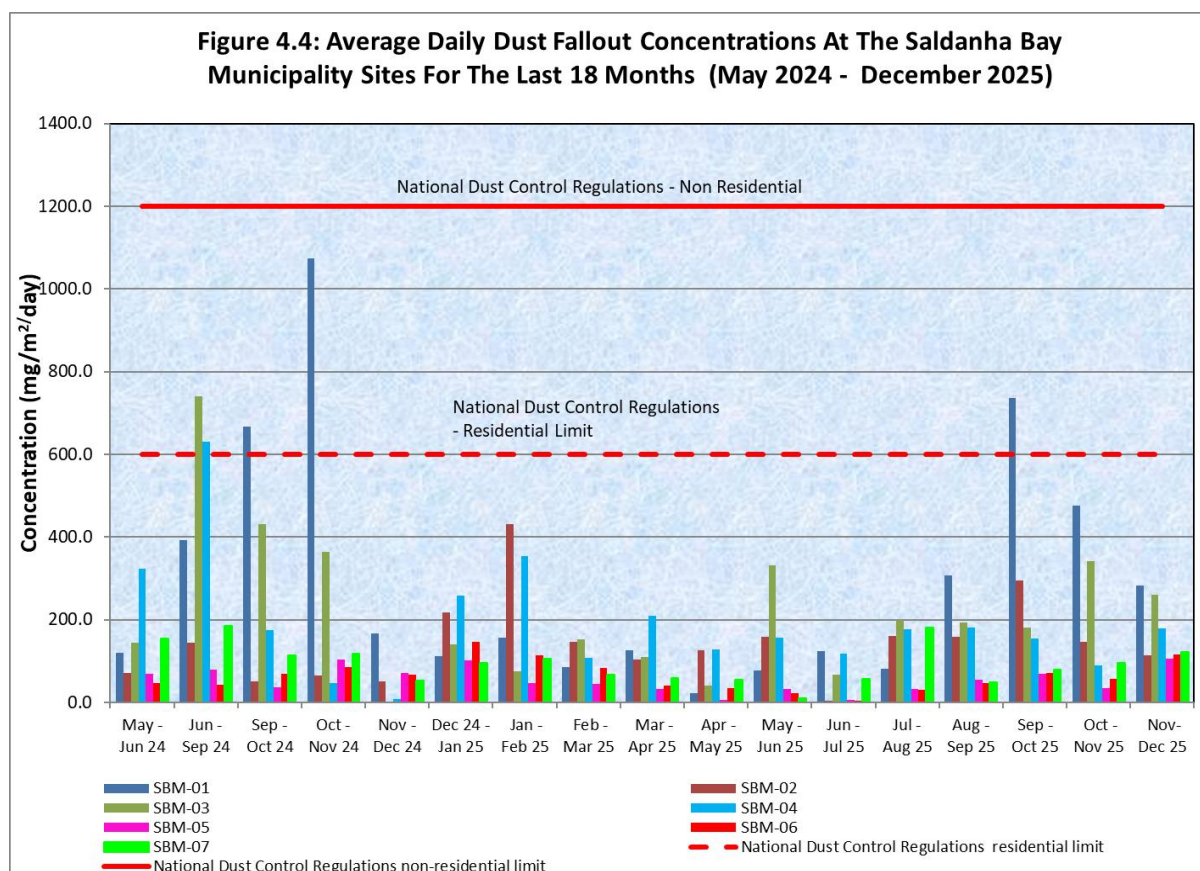
4.2 Dust Fallout Levels



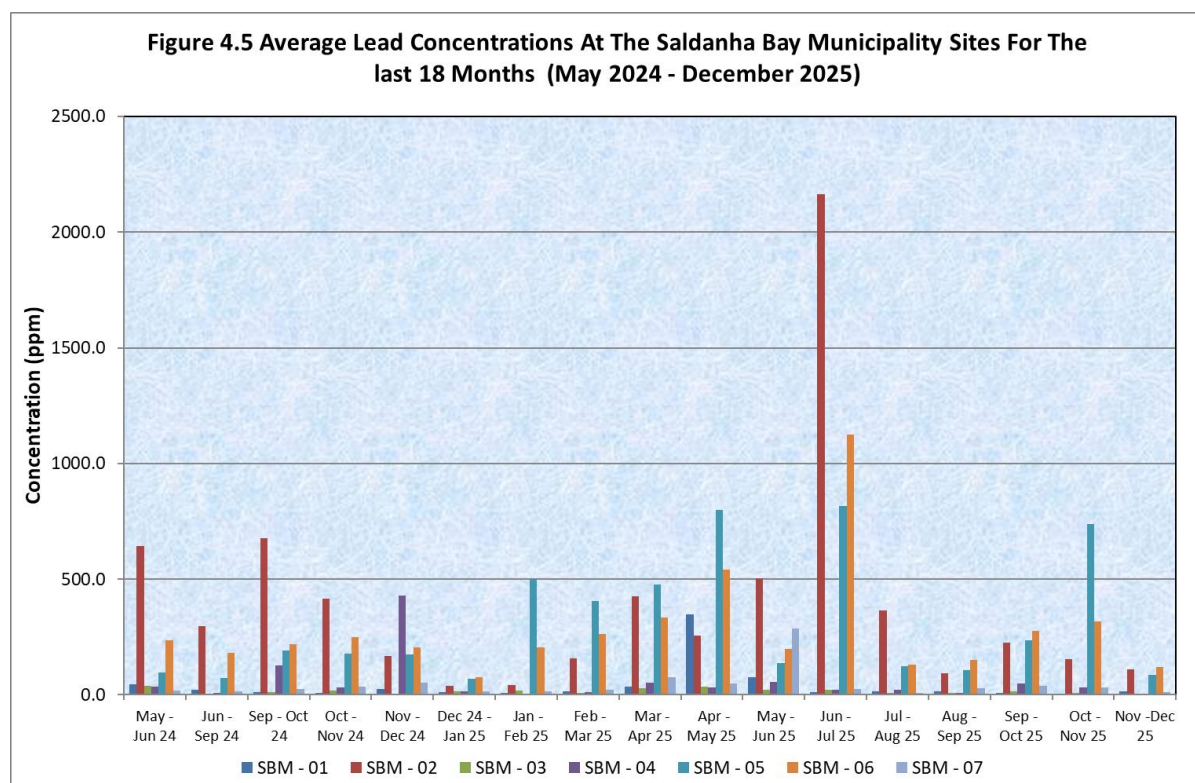
4.3 Heavy metal concentration



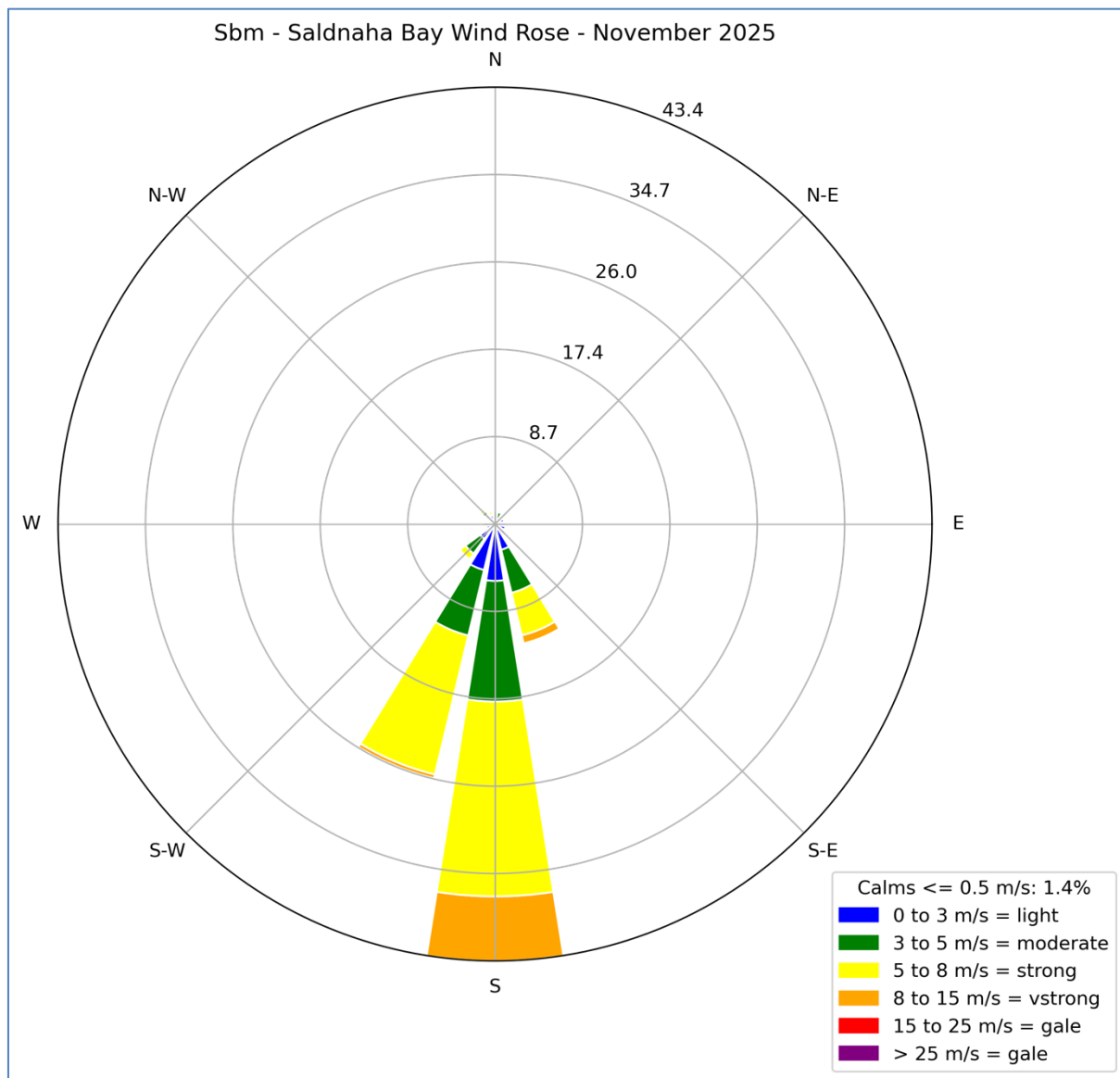
4.4 Average Historical Daily Dust Levels



4.5 Average Historical Lead Fallout Concentrations



4.6 Wind Roses for Saldanha Bay Municipality



5 CONSULTANT'S OBSERVATIONS AND CONCLUSIONS

- There was valid data for all seven (7) Metal results collected, resulting in 100% data capture for the period under review. This report covers the period 10 November to 7 December 2025.
- There were **no exceedances** of the South African National Dust Control Regulations residential limit of 600mg/m²/day for the period under review.
- There were **no exceedances** of the South African National Dust Control Regulations non-residential limit of 1200mg/m²/day during the month for sites classed as non-residential.
- Net lead masses ranged between 2µg and 9µg during the review period. These are possibly a better measure than concentration when assessing “heavy metal” levels in dust fallout.
- Meteorological conditions at Saldanha for the review period were characterised by moderate to strong winds from the south (S) and south- southwest (SSW). There was an 1.4% occurrence of calm conditions during the review period.

5.1 SANAS Accredited Certificates of Analysis for Dust Fallout & Metals



Analytical Report

Report **SBM**
Issue date **04 December 2025**



Customer details

Company **Skyside**
Contact **Grant Ravenscroft**
Address **12 Main Rd
Vredenburg, 7380**
Project **SBM**
Reference **AS1138**
samples **7**

Laboratory details

Laboratory **SKYSIDE SA**
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Address **17 Bay View St
Saldanha Bay, 7395**
Telephone **(021) 300 8705**
Analysis **04 December 2025**
Received **04 December 2025**

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Report authorised by **Quentin Hurt**
Designation **Technical Signatory**

Signature


.....

Sampling data provided by Skyside

Samples deployed on	07-Nov-25
Samples retrieved on	04-Dec-25
Number of days sampled	27

Sample recovery and weighing follows ASTM D-1739

Sample	Net Mass (mg)	Dust fallout (mg/m ² /d)	Laboratory uncertainty (mg/m ² /d)
SBM1	181	283	17
SBM2	74	115	7
SBM3	167	260	16
SBM4	116	180	11
SBM5	68	107	6
SBM6	74	115	7
SBM7	78	122	7

Report produced by Zahra Swindell of Skyside.

Conditions during weighing 20 °C 55 % RH



TEST REPORT

Contact	Quentin Hurt	Project Number	SBM AS599
Client	Skyside (South Africa) Cape Town	Lab Reference	JBX26-026234
Email	Lizanne@skyside.co.za,qh@skyside.co.za	Report Number	LIM26/0004
Address		Date Received	05-Jan-2026
Order Number	SBM	Date Test(s) Started	05-Jan-2026
Samples	7	Date Reported	09-Jan-2026
Sample Matrix			

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Sample No.			JBX26-026234-01	JBX26-026234-02	JBX26-026234-03	JBX26-026234-04
Sample ID			SBM1	SBM2	SBM3	SBM4
Sample Comment			-	-	-	-
Analysis	Unit	LOR	Result	Result	Result	Result
Multi Element Determination of Metals by ICP OES (ME-AN-027) - LAB-QLT-MET-027						
Copper (Cu)	mg/filter	0.002	0.024	0.005	<0.002	<0.002
Iron (Fe)	mg/filter	0.005	0.56	1.7	0.88	0.55
Lead (Pb)	mg/filter	0.001	0.003	0.008	< 0.001	< 0.001
Manganese (Mn)	mg/filter	0.001	0.079	0.17	0.021	0.022
Zinc (Zn)	mg/filter	0.001	0.082	0.054	0.014	0.014

Sample No.			JBX26-026234-05	JBX26-026234-06	JBX26-026234-07
Sample ID			SBM5	SBM6	SBM7
Sample Comment			-	-	-
Analysis	Unit	LOR	Result	Result	Result
Multi Element Determination of Metals by ICP OES (ME-AN-027) - LAB-QLT-MET-027					
Copper (Cu)	mg/filter	0.002	< 0.002	0.003	0.007
Iron (Fe)	mg/filter	0.005	0.55	0.87	1.2
Lead (Pb)	mg/filter	0.001	0.006	0.009	0.001
Manganese (Mn)	mg/filter	0.001	0.062	0.091	0.33
Zinc (Zn)	mg/filter	0.001	0.050	0.066	0.018

Sasha Maistry
 Technical Signatory (Approver)

Sarah Newton
 Technical Signatory (Reviewer)

Method	Method Summary
Multi Element Determination of Metals by ICP OES (ME-AN-027)	Dissolved metals are determined on a filtered and acidified portion of aqueous sample by inductively coupled plasma optical emission spectrometry (ICP-OES). The method is based on US EPA 200.7 and Standard Methods for the Examination of Water and Wastewater Method 3120. Total metals are determined on a nitric acid digested portion of well-shaken aqueous sample by inductively coupled plasma optical emission spectrometry (ICP-OES). The method is based on US EPA 200.2 and 200.7. Recoverable metals are determined on an acid digested portion of sample by inductively coupled plasma optical emission spectrometry (ICP-OES). The method is based on US EPA 200.2, 3050B and 200.7. Silicon is not recovered. Metals are determined on acid digestions of filters by inductively coupled plasma optical emission spectrometry (ICP-OES). The method is based on NIOSH 7300 and 7301.

IS	Insufficient sample for analysis	NA	Not analysed
LNR	Sample listed but not received	-	Not applicable
LOR	Limit of reporting	UTD	Unable to determine
*	Not SANAS accredited. This result is not included in the SANAS scope of accreditation for this laboratory	NR	Not Requested

Samples analysed as received. Solid samples expressed on a dry weight basis. Unless otherwise indicated, samples were received in containers fit for purpose at ambient temperature.

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