DUSTWATCH CC
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SHONGWENI LANDFILL SITE - ENVIROSERV

DUST FALL-OUT MONITORING PROGRAMME

DUSTWATCH REPORT 52

JANUARY 2026

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1 INTRODUCTION

The results presented for compliance purposes have been time weighted to 30-days.

The unit design and methodology are based on the ASTM D1739 standard. Additional information is available in the DustWatch manual. Please contact us to enquire about the latest version of the manual; chris@dustwatch.com

The area used in the calculations is 0,022966 m^2. Only the supplied white buckets should be used for the monitoring.

The formulae for time weighting the results to 30 days when the period is not exactly 30 days is the fallout dust result in mg/m^2/day X the number of days / by 30 days.

Unit Number	Area Description	Limit (mg/m²/day)	GPS Position
North Monitor 	North - Opposite the main office block and weigh bridge		29°49'27.90"S 30°44'49.30"E
South Monitor 	South -		NEW (3 January 2022) 29°49'37.2"S 30°44'46.6"E -29.827007, 30.746274 OLD 29°49'36.50"S 30°44'46.90"E
East Monitor 	East	1200	29°49'33.72"S 30°44'59.21"E

Unit Number	Area Description	Limit (mg/m²/day)	GPS Position
West Monitor 	West		29°49'39.60"S 30°44'59.80"E

Table 1: Table showing unit GPS positions.

Figure 1: Map showing the location of the units. The Google Earth KMZ file is available for download.

2 GENERAL AND GENERIC DUST TERMINOLOGY

Dust comes from many different sources. Some, like the by-products of the combustion of fossil fuels, are man-made. [1] Others come from natural sources – like sea-spray blowing off the ocean, or dust blowing in from the desert. [1] Dust comprises inorganic matter, such as sand particles, as well as a large amount of organic matter, including pollen, spores, moulds, and viruses[2]. These minute particles, ranging in size from around 100 micro metres (µm) to a few nano metres (nm)[3], invade our airspace every day, a part of life that we aren't even aware of, except when we dust the furniture! [1]

The different terminology used to describe dust can be quite confusing with different names being given for different size fractions of dust. For the purpose of this report, fall-out or precipitant dust refers to any particle with an aerodynamic diameter less than 100_µm.

Precipitant dust is broadly defined as particulate that ranges in size up to 100_µm in diameter.[4] If the particles settle by gravity, then they are collected as dry deposition. Alternatively, if it rains, then the particles are collected as wet deposition. Total precipitant dust is the sum of dry and wet deposition. The course fraction precipitant dust, generated by mechanical disturbance or wind erosion, usually lands on the ground within a one-kilometre radius [5] of the source, although with thermals and high wind speeds, dust of this size can be blown significantly further.[6] Precipitant dust emitted from a stack can travel varying distances depending on the height of the stack above the ground, the size of the particles emitted and the topography of the area.

Particles between 10 and 100_µm usually lose altitude because of gravity[4]. These particles can be lifted by strong winds but when the wind stops lifting the particles up into the air, they begin to settle. Smaller particles (less than 10_µm) are affected by thermals, turbulence and Brownian motion[7] and will not necessarily settle all the way to ground level. These particles are nevertheless present in the atmosphere at all altitudes, and they also precipitate when climatic conditions are suitable.[4]

For residents living near to significant precipitant dust sources, the precipitant dust is a concern both from an environmental and "quality of life" [5] point of view.[5,8]

Dust particles less than 40_µm in size can be deposited in the nasal passage[9] and this can contribute to allergies, sensitisations, and asthma. [10]

The chemical constituents of the precipitant dust can also be revealing, especially when the chemical composition is significantly different to the chemical composition of the soil in the area or when a trace element can be identified as coming from a dust source in the area.

Precipitant dust is generally regarded as benign, although there are some exceptions.[11] The current trend from a health point of view is to monitor for smaller particulate matter (PM_{10}) as is the case in South Africa, which prescribes ambient air quality standards for PM_{10}.

Each site is unique and the impact of the precipitant dust emanating from a mine or factory or other industrial concern, is dependent on many factors:

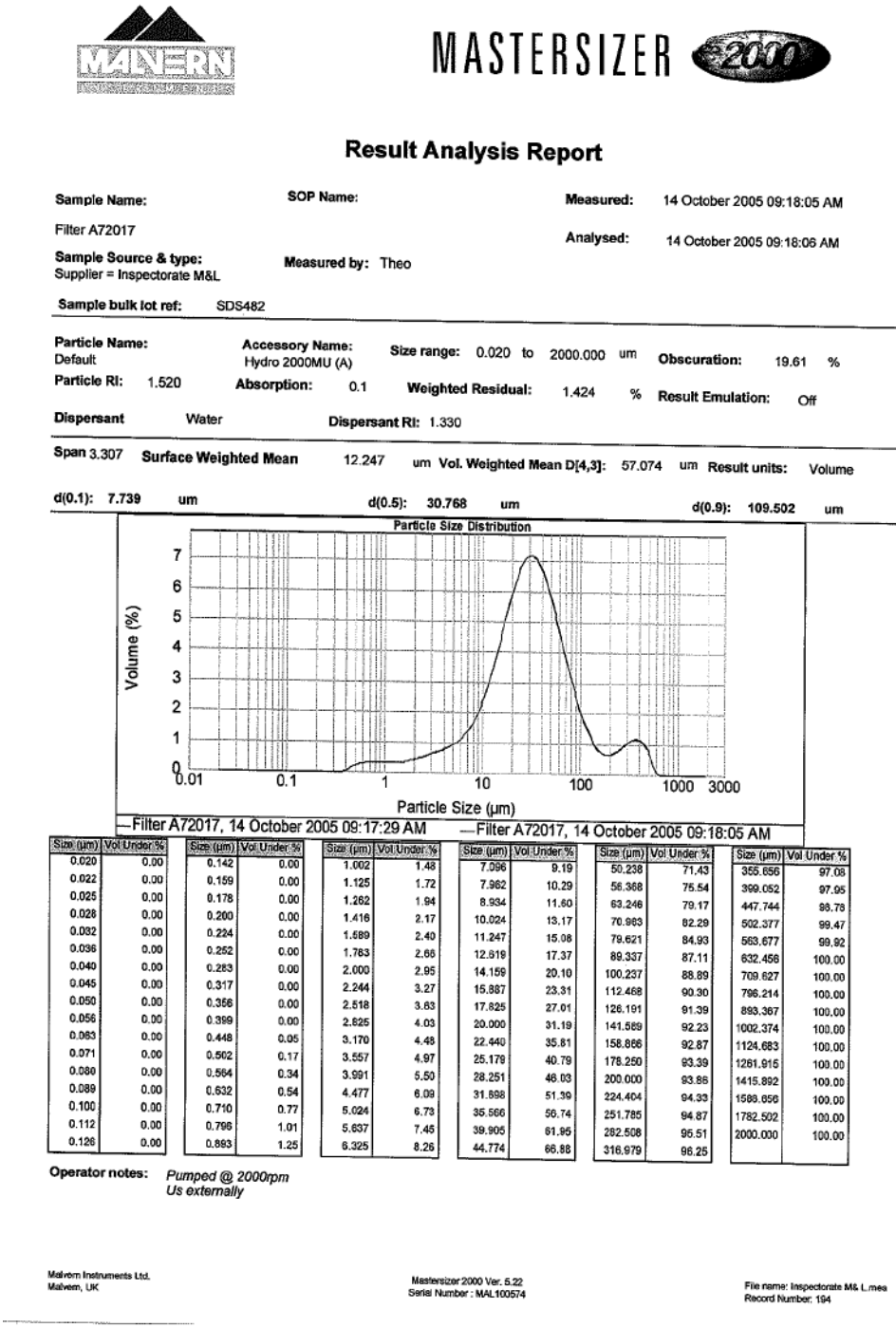
- The type of mineral being processed and
- The methods used. [5]
- The activity on the site,
- The local meteorology, the
- Topography. [5] and the
- The zoning of the land surrounding the site, as shown in Table 1. [5]

Table 2: Classification of areas in terms of sensitivity to precipitant dust[5]

High Sensitivity	Medium Sensitivity	Low Sensitivity
Hospitals and clinics	Schools	Farms
Retirement homes	Residential areas	Light and heavy industry
Hi-tech industries	Food retailers	Outdoor storage
Areas where painting is being done	Greenhouses and nurseries	
Food processing	Horticultural land	
	Offices	

The figure below shows particle sizes from 0 to 500 microns with the predominant particle size by volume being between 10 and 100 microns. Some smaller particles below 10 microns are also collected in the samples.

Figure 2: Generic particle size distribution obtained from a single-bucket fallout dust monitoring unit.



MASTERSIZER 2000

Result Analysis Report

Sample Name: Filter A72017

SOP Name:

Measured: 14 October 2005 09:18:05 AM

Analysed: 14 October 2005 09:18:06 AM

Sample Source & type: Supplier = Inspectorate M&L

Measured by: Theo

Sample bulk lot ref: SDS482

Particle Name: Default

Accessory Name: Hydro 2000MU (A)

Size range: 0.020 to 2000.000 um

Obscuration: 19.61 %

Particle RI: 1.520

Absorption: 0.1

Weighted Residual: 1.424 %

Result Emulation: Off

Dispersant Water

Dispersant RI: 1.330

Span 3.307

Surface Weighted Mean 12.247 um

Vol. Weighted Mean D[4,3]: 57.074 um

Result units: Volume

d(0.1): 7.739 um

d(0.5): 30.768 um

d(0.9): 109.502 um

Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %
0.020	0.00	0.142	0.00	1.002	1.48	7.096	9.19	50.238	71.43	355.656	97.08
0.022	0.00	0.159	0.00	1.125	1.72	7.962	10.29	56.368	75.54	399.052	97.95
0.025	0.00	0.178	0.00	1.262	1.94	8.934	11.60	63.246	79.17	447.744	98.78
0.028	0.00	0.200	0.00	1.416	2.17	10.024	13.17	70.963	82.29	502.377	99.47
0.032	0.00	0.224	0.00	1.589	2.40	11.247	15.08	79.621	84.93	563.677	99.92
0.036	0.00	0.252	0.00	1.783	2.66	12.619	17.37	89.337	87.11	632.456	100.00
0.040	0.00	0.283	0.00	2.000	2.95	14.159	20.10	100.237	88.89	709.627	100.00
0.045	0.00	0.317	0.00	2.244	3.27	15.887	23.31	112.468	90.30	796.214	100.00
0.050	0.00	0.356	0.00	2.518	3.63	17.825	27.01	126.191	91.39	893.367	100.00
0.056	0.00	0.399	0.00	2.825	4.03	20.000	31.19	141.589	92.23	1002.374	100.00
0.063	0.00	0.448	0.05	3.170	4.48	22.440	35.81	158.866	92.87	1124.683	100.00
0.071	0.00	0.502	0.17	3.557	4.97	25.179	40.79	178.250	93.39	1261.916	100.00
0.080	0.00	0.564	0.34	3.991	5.50	28.251	46.03	200.000	93.86	1415.892	100.00
0.089	0.00	0.632	0.54	4.477	6.09	31.698	51.39	224.404	94.33	1588.656	100.00
0.100	0.00	0.710	0.77	5.024	6.73	35.566	56.74	251.785	94.87	1782.502	100.00
0.112	0.00	0.796	1.01	5.637	7.45	39.905	61.95	282.508	95.51	2000.000	100.00
0.126	0.00	0.893	1.25	6.325	8.26	44.774	66.88	316.979	96.25		

Operator notes: *Pumped @ 2000rpm*
Us externally

Malvern Instruments Ltd.
Malvern, UK

Mastersizer 2000 Ver. 5.22
Serial Number : MAL100574

File name: Inspectorate M& L.mea
Record Number: 194

3 GENERAL AND GENERIC FACTORS INFLUENCING ATMOSPHERIC DUST EMISSIONS

The impact that climatic conditions have on the precipitant dust levels is important and the factors that could be considered are rainfall (drought), wind speed, and the time periods with little or no wind.

"Depending on climate conditions and topography, fine particles may remain airborne for days or months and may be transported 1000 to 10 000 km or more from their source" [12].

There is usually a heavier load of precipitant dust locally around the source, but this does not mean that the areas further away are not affected.[13]
The interaction between wind and dust is very complicated[6] and the norm is to assume that dust levels are higher when wind speeds are higher, but this is not always the case[14] and high dust levels have also been found to correlate poorly with wind direction in certain situations[14]. The wind direction also changes with altitude[6], resulting in ground level dust being generated by wind from one direction, only for the wind at a higher altitude to blow the dust in a different direction.[6] This is particularly relevant when the dust is being emitted from a stack, a very high stockpile or elevated conveyors. Dust exiting tall buildings will also be distributed per the wind pattern around the building.
The seasonal rainfall variation in different areas has a significant effect on the precipitant dust levels.

In some studies, there have been no statistical seasonal variations noted in the precipitant dust amounts.[15]

The sources of industrial precipitant dust are broadly categorised as either generated by processes or generated by open sources.[4] Process-generated precipitant dust comes from industrial activities where the actual structure of the material is altered, such as a rock crushing operation.[4] Open sources generate precipitant dust as a result of the wind or mechanical contact. Examples of open source dust generation would be the movement of raw material, product, or waste, related to industrial activities. Some non-industrial sources include unpaved parking lots and roads, highways, "heavy construction activities"[4] and "agricultural tilling"[4].

Fugitive dust sources can be process or open source generated, but excludes dust emitted from stacks. Dust emitted from stacks is usually constant all year round with wind and rainfall not affecting the amount of dust emitted from the stack.

There are a wide variety of generic possible fugitive dust sources, namely:

- ploughing on farmlands,
- dust blown from recently ploughed fields,
- traffic on dirt roads,
- blasting at opencast mine operations,
- dust emitted from process buildings (excluding stacks),
- dust blown from stockpiles of raw and finished materials,
- crushing operations, and
- transportation of raw materials and products by rail or road.
- contractors working on site.

The largest proportion of dust particles generated from surface mining activities is greater than 30_µm and these will normally deposit within 100m of the source.[5] This does not include the dust emitted from kiln stacks and other heated processes as the dust emitted from these processes can contain a large proportion of particles less than 10_µm. The heat and exit velocity from stacks makes the dust more likely to travel further from the source.

The smaller the particles the further they can potentially travel.[5]
Large dust storms in arid areas can lift dust particles more than five kilometres up into the atmosphere and the dust can be "transported thousands of kilometres."[12]
The deposition of particles can take place by three dominant routes: wet deposition, dry deposition, and occult deposition.[13] Wet deposition includes rain and snow precipitation.[13] Occult deposition is the deposition that occurs during mist and fog conditions.[13]

There is an interaction between dry deposition and wet deposition in that wet deposition often removes previously deposited dry precipitant dust on exposed surfaces.[13] If the rainfall is very light then it may not be able to wash away the dry deposited material on surfaces and the content of the wet deposition may be added to the exposed surface when the rain stops.[13]

Dry deposition is a slow process compared to wet deposition, but dry deposition occurs almost continuously.[13, 12]

Precipitant dust can be measured as wet deposition, dry deposition, or as total deposition (wet + dry). It is sometimes difficult to separate the wet and dry deposition from each other because occult deposition is halfway between wet and dry deposition. The monitoring of total precipitant dust is relevant as it provides an indication of the pollution amount from the atmosphere. [16]

Only insoluble precipitant dust measurements have been considered in this report. Both wet and dry depositions have been reported on in this report as one figure.
The atmosphere is continuously being gleaned of its dust load through the different deposition mechanisms described. [17]

As a general criterion, generated dust from a source like a factory, plant, or mine rises into the air due to thermal action, wind velocity or by other means. Depending on the particulate size and wind velocity, the dust begins to fall out as soon as the immediate thermal or other effects that lifted the dust are dissipated. This dust source is added to that already in the air and thus it is vital to be able to quantify the latter as well as the former.

While many factors affect the precipitation rate, the main factors are related to wind velocity, air humidity, particulate size and dynamic shape, and prevailing groundcover, in addition to the density of the particle.

4 SAMPLING METHODS FOR DUST FALL-OUT

Many sampling methods can be used to quantify fugitive dust concentrations.
The present accepted method in South Africa to establish precipitant dust levels is the ASTM (American Standard Test Method) D-1739 of 1970 "Standard Method for Collection and Analysis for Dust Fall (Settleable particulates)" [18].
The ASTM Standard prescribes a single bucket method with no wind shield.

While single open buckets partly filled with a capture medium as prescribed by the ASTM standard will accumulate all precipitating dust, this does not establish precipitant dust emanating from a given direction unless the bucket is closed to any dust from other directions[19]. The single bucket precipitant dust collection method[18] "is a crude and non-specific test method, but it is useful in the study of long term trends."[18]

5 METHODOLOGY FOR DUST FALL-OUT MONITORING

The methodology below has been designed to ensure that accurate dust fall-out results are obtained.

This methodology is based on the ASTM standard 1970 and the DustWatch manual.

5.1 Sampling Period and frequency of bucket changes

The monitoring is virtually continuous with only minutes per year constituting down time while samples are changed, the results do represent a continuous sampling method, which has proved to be reliable and repeatable, year after year.

With systems of this nature, the chance of missing an environmental event is extremely low and very often, abnormal results will necessitate investigating the occurrence of an abnormal event.

5.2 Bucket Preparation

The bucket lip should be located two metres above the ground to prevent thermal interference with the precipitation phenomenon as well as the height to which particulate can be lifted with a wind of 3.0 m/s.

The buckets are partly filled with distilled water (or purified water), to which a biocide is added to prevent the growth of algae. This catch media then catches and retains any precipitant reporting into the unit opening.

Detailed Procedure: Clean the buckets well, making sure that no dust or particulate remains in the buckets. Rinse out with a little water, discarding this rinse water. Partially fill with water, allowing for the expected rate of evaporation appropriate to the expected rate of sampling. Add an amount of 5 ml to 10 ml of bleach or proprietary product to each bucket as an algaecide, depending on how full the buckets will be kept. Top-up water does not have to be similarly dosed with bleach. Seal the buckets with the lids, adding labels to the bucket lids. For 1-week sampling, the hypochlorite may be omitted in winter but may be required during summer.

Transport buckets to site.

Precautions and Tips for Bucket Preparation

Transport buckets upright to prevent partial spillage. Add a strip of masking tape to each bucket lid to allow for swap-over bucket marking. Mark each bucket with the fallout dust monitoring unit number/name and bucket – i.e. Stockpile Unit. While often used, copper sulphate solution is not recommended as an algaecide as any salt in the air or precipitant will result in mass addition to the sample that is to be avoided. The presence of copper compounds affect MicroScan results as well as preventing elemental analysis accuracy.

A detailed procedure for testing the water quality used in the buckets is available in the DustWatch manual.

5.3 Bucket Field Collection

Any notes should be made in the field book before proceeding to the next monitoring unit.

Precautions and Tips for Bucket Field Collection

Transport buckets upright to prevent spillage.

The marked lids can be re-labelled when the buckets are used again by replacing the masking tape.

5.4 Filtering Procedure

The clean Buchner funnel assemblies should be fitted with the preweighed and marked filter papers, making sure that the unit is located to prevent by-pass leakage around the filter.

The contents of one bucket must be loaded into each funnel after +1mm discard solids are strained out and the vacuum pump started.

Filters numbers must be entered against the designation of the collected bucket on the assessment form.

Enter all relevant information on the assessment form.

On completion of the filtering process, remove the filters, place these in the petri dishes, and allow these to dry slowly without any artificial heat.

The filter + solids must be weighed once the filters have been desiccated. The stage at which full desiccation has been achieved is defined under Weighing Procedure.

The filter mass must be noted on the assessment form.

The filter material used has a pore size of ±10µm. As particulate accumulates on the filter, the collection of finer particles, PM_{10} and $PM_{2.5}$ are achieved. The media weave permits capture of 1-2µm particulate and thus the actual collection guarantee is a lot better than 10µm. With the physical dermal layering of the high mass samples, dermal filtration is achieved.

The filter material is made by Schleicher & Schuell and is part of their range of wet strength (ashless) filter papers. Filter size is 47 mm. Ashless grades of filter are selected to enable quantitative analysis of a chemical nature to be undertaken. This analysis can be used to search for elemental tracers, which may indicate the dust source.

To assess the results, the collected dust is filtered through a sub-micronic preweighed filter using a vacuum Buchner filter arrangement. Once the wet filtrate has been desiccated by evaporation of any retained moisture, the filter is reweighed to ascertain the collected mass. (Insoluble particulate)

Precautions and Tips for Filtering Procedure

Filters should be permitted to dry without the petri slide covers fitted.

If dried over a light box or under a lamp, curling up of the filter may be noted. This is not serious, but every effort must be made to prevent loss of any dust from the filter.

Filters should be kept for any future analysis if this is required. All similar position samples are put together into composite samples to recover petri dishes. With this operation, all North samples will be one sample and all the other directions similarly treated.

If solubles are not required, all the water from the Buchner jars can be discarded.

5.5 Filter Drying and Weighing Procedures

Each filter must be placed in its own petri; the petri dishes should also be marked with the filter number and if preferred, the monitoring unit name and the bucket number.

The accuracy required of gravimetric sampling techniques is not required for this assessment although every effort must be made to achieve good consistent readings. We suggest an adherence to the above procedure for continuous acceptable results.

It is imperative not to lose any loose or flaked dust when handling and weighing each filter and thus conditions within the weighing room should be stable with no stray air drafts.

The scale used for the weighing of the filters has a valid calibration certificate. See the appendix for more information.

6 COMMENTS ON THE RESULTS

Precipitant dust levels have been used as a continuous improvement indicator for mining and industrial concerns in South Africa. The regular reports on the precipitant dust levels not only quantify their precipitant dust levels for the period in question, but the reports also maintain awareness with regard to dust sources, and as such enable the fugitive dust sources to be identified.

The fall-out dust standards from National Dust Control Regulations, 2013.

Restriction Areas	**Dustfall rate (D) (mg/m^2/day) – averaged over 30 days.**	**Permitted frequency of exceeding dust fall rate**
Residential area	D < 600	Two within a year, not sequential months.
Non-residential area	D < 1200	Two within a year, not sequential months.

Table 3: Acceptable Dust Fall Rates – National Dust Control Regulations, 2013.

The results have been time weighted to 30-days.

- North Unit (SUMMARY) yielded 218 mg/m^2/day in this period.
- South Unit (SUMMARY) yielded 28 mg/m^2/day in this period. The result is very low and is the lowest obtained in the last 12 months. Well-done to those responsible.
- East Unit (SUMMARY) yielded 181 mg/m^2/day in this period.
- West Unit (SUMMARY) yielded 141 mg/m^2/day in this period.

All units are compliant for the period.

The compliance table for **2026** is shown below.

Unit name	**Residential or Non-residential Area**	**Applicable Compliance - Dustfall rate (D) (mg/m^2/day) – averaged over 30 days.**	**Non-compliant or compliant for this calendar year. Two within a year, not sequential months. ***
North Unit (SUMMARY)	(Non-residential)	D < 1200	**Compliant** in this period. Compliant for the year. No exceedance.
South Unit (SUMMARY)	(Non-residential)	D < 1200	**Compliant** in this period. Compliant for the year. No exceedance.
East Unit (SUMMARY)	(Non-residential)	D < 1200	**Compliant** in this period. Compliant for the year. No exceedance.
West Unit (SUMMARY)	(Non-residential)	D < 1200	**Compliant** in this period. Compliant for the year. No exceedance.

Table 4: Compliance Table **2026**

* The compliance level is based on the ASTM D1739 method and the dust control regulations.

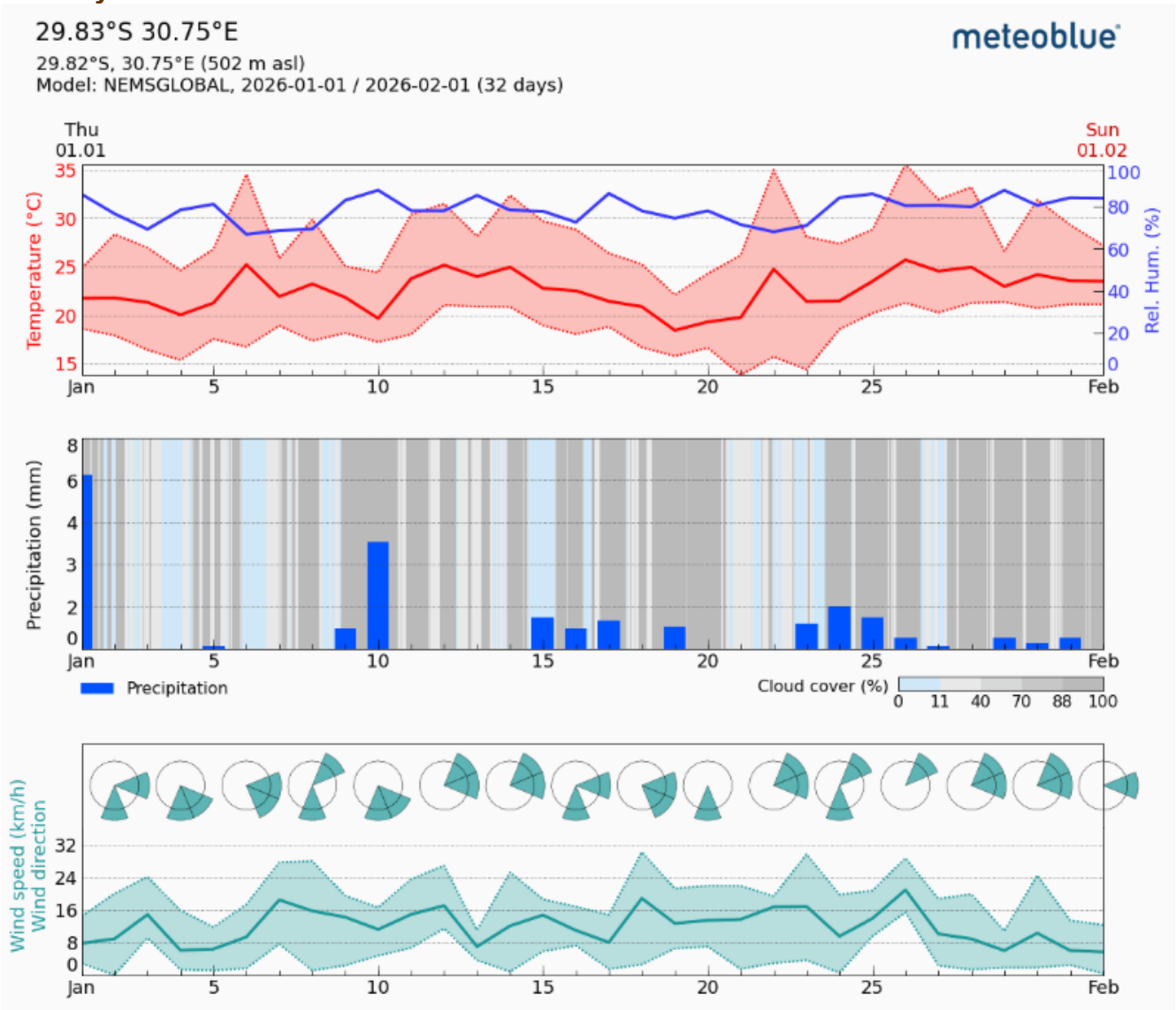
Gerry F. Kuhn (FMVS, MSAIOH, Grad SE)

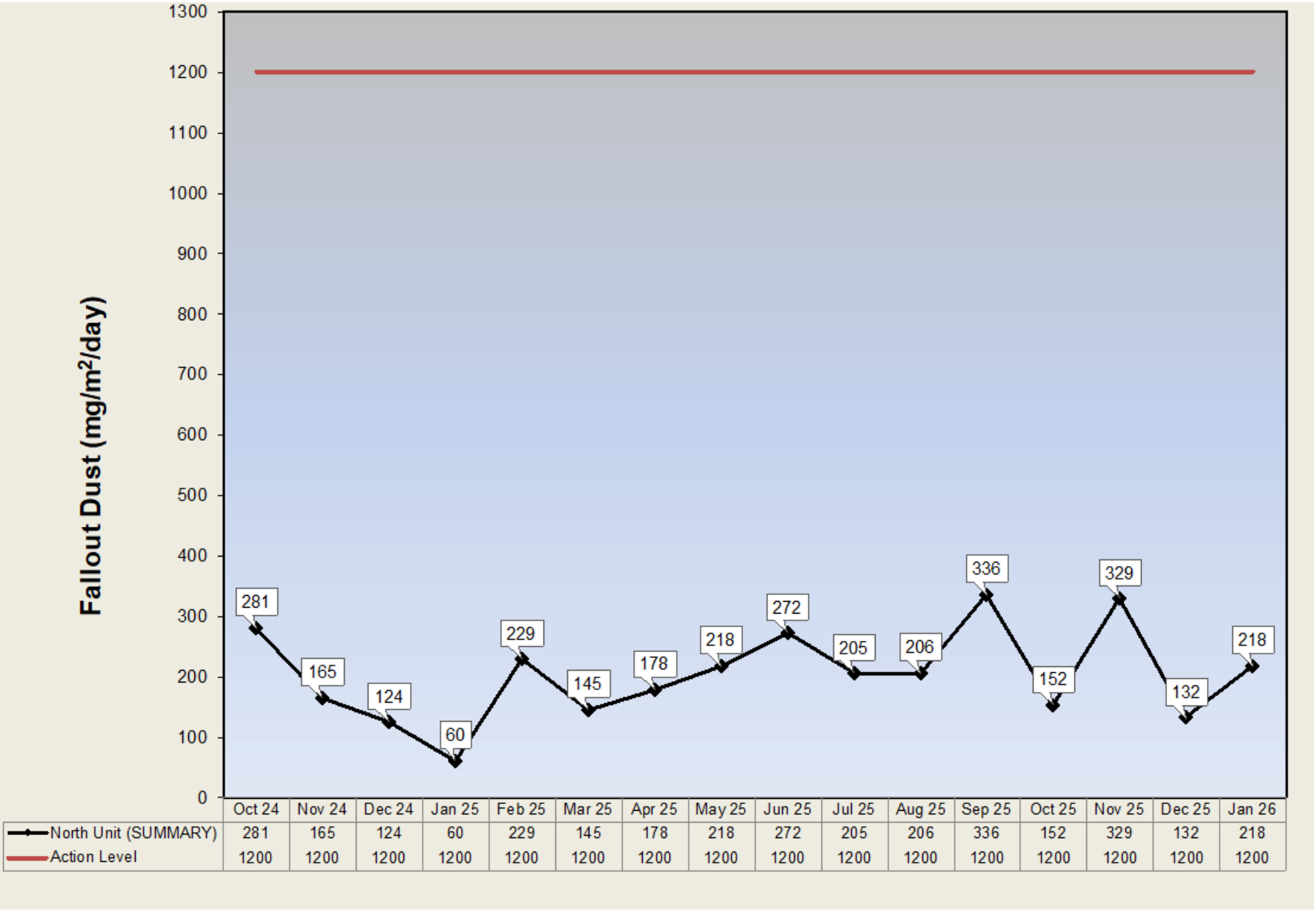
Chris Loans (BSc Chemical Engineer, pr eng)

Cape Town, Doc Number: 0226241216: Date: 24-Feb-26

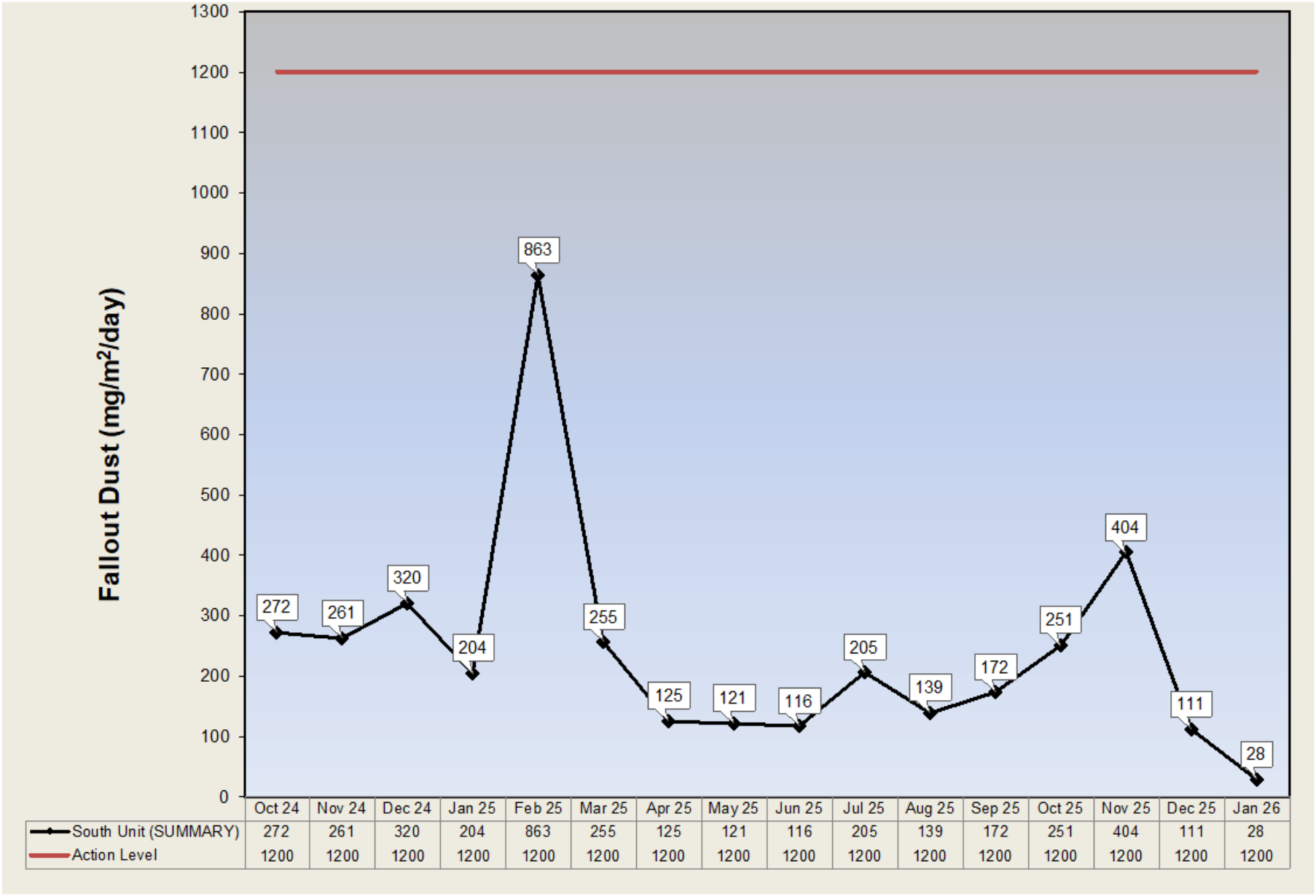
Appendix: MeteoBlue Weather - Weather Information - Weather – 29.83°S 30.75°E

January 2026

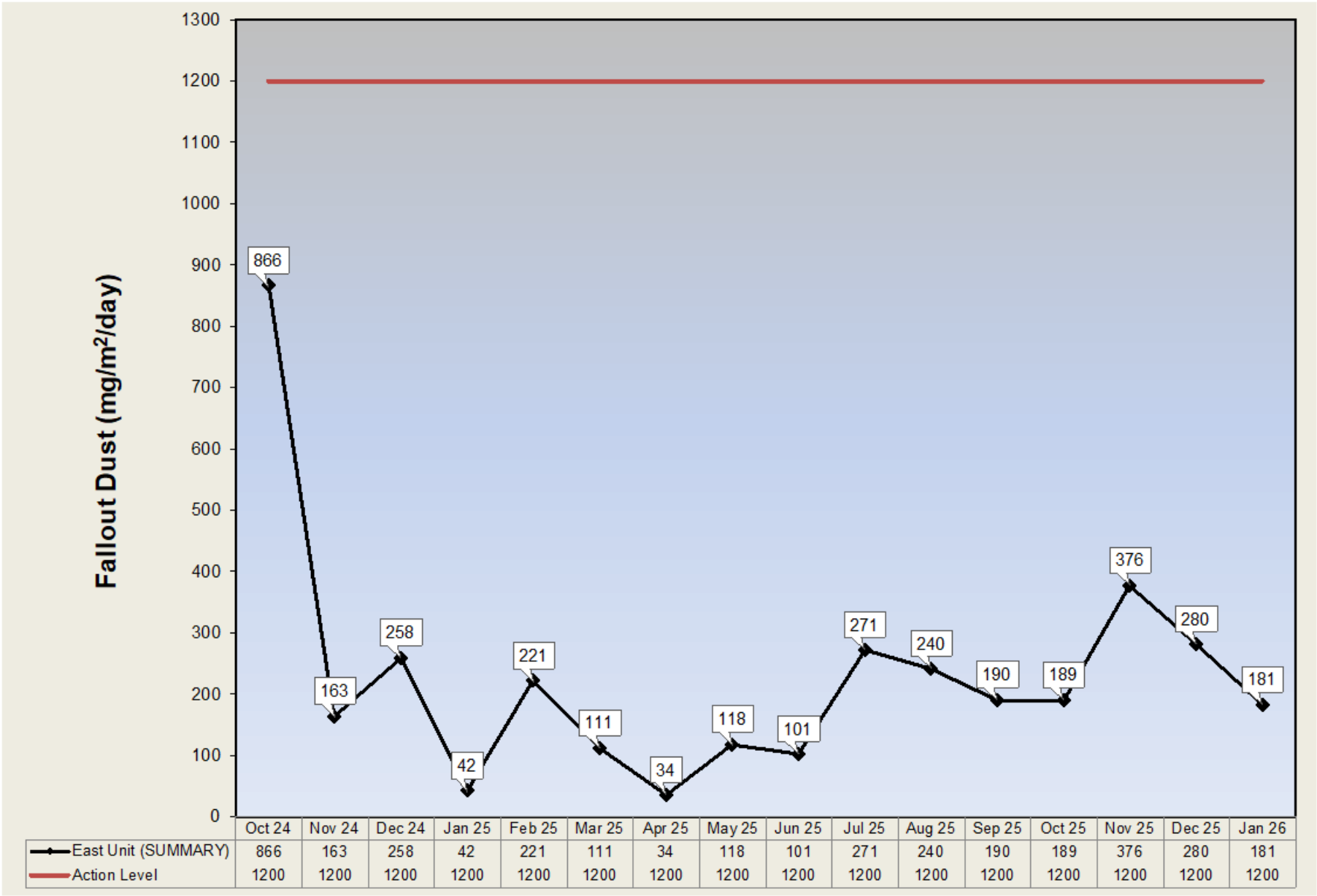




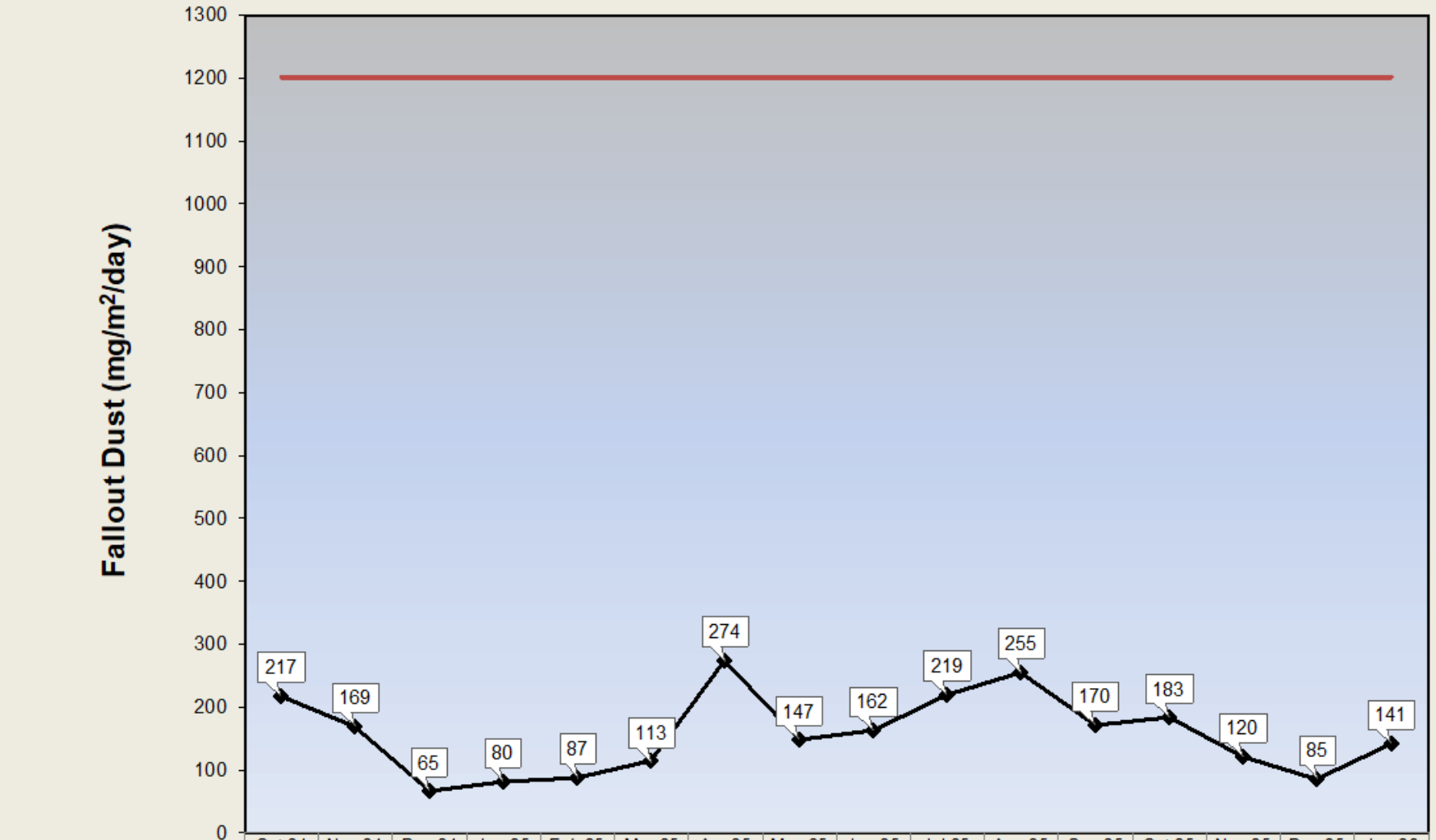
	Oct 24	Nov 24	Dec 24	Jan 25	Feb 25	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25	Sep 25	Oct 25	Nov 25	Dec 25	Jan 26
North Unit (SUMMARY)	281	165	124	60	229	145	178	218	272	205	206	336	152	329	132	218
Action Level	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200



	Oct 24	Nov 24	Dec 24	Jan 25	Feb 25	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25	Sep 25	Oct 25	Nov 25	Dec 25	Jan 26
South Unit (SUMMARY)	272	261	320	204	863	255	125	121	116	205	139	172	251	404	111	28
Action Level	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200



	Oct 24	Nov 24	Dec 24	Jan 25	Feb 25	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25	Sep 25	Oct 25	Nov 25	Dec 25	Jan 26
East Unit (SUMMARY)	866	163	258	42	221	111	34	118	101	271	240	190	189	376	280	181
Action Level	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200



	Oct 24	Nov 24	Dec 24	Jan 25	Feb 25	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25	Sep 25	Oct 25	Nov 25	Dec 25	Jan 26
West Unit (SUMMARY)	217	169	65	80	87	113	274	147	162	219	255	170	183	120	85	141
Action Level	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200

7 APPENDIX: SCALE CALIBRATION CERTIFICATE

www.dustwatch.com/calibration-certificate.jpg

1 Otto Road Beaconvale Parow, PO Box 1556 Parow 7499

Tel: 021 933 5403 Fax: 021 933 5409

sanas CAL 168-14-00

UWE Scales Mass Laboratory Calibration Certificate

Certificate No. 22244

Issue No. 1

Customer Details:		Calibration Details:	
Company Name:	Dustwatch	Make and Model:	FA 2104B
Address:	45 Die Trek	Serial Number:	075034
	Piketberg	Unit of Measure:	g
	C/o The Scale Doctor	Capacity:	210
		Resolution:	0,0001
Contact:	Chris	Description:	Electronic Scale
Date Of Calibration:	2026/01/26	Unit Condition:	Good
Issue Date:	2026/02/03	Location:	Lab
Recalibration Date:	N/A	Type of Calibration:	Partial

Calibration Results

Test Load g	As Found g	Average of Results g	Uncertainties g	Weights Used # CG Set
1,0000	0,9999	0,9999	Repeatability 0,0001	Repeatability 50-80% 100,0001
5,0000	5,0000	5,0000		
10,0000	9,9999	10,0000	Corner load error 0,0001	Corner Load Applied 49,9998
20,0000	19,9999	19,9999		
49,9998	49,9999	49,9998	Temperature (°C) 26,6	STD's Traceability CG25/001
100,0001	100,0004	99,9998		
149,9999	150,0013	149,9998	Total Uncertainty of Measurement @ 95.45% Confidence Level of ± 0,0002 g	
200,0001	200,0042	200,0000		

All Standards are traceable to International Measurement Standards, Calibration performed to Quality Procedure QP/UWE/02

Remarks: *Tested to Customers Working Range*

Signatories: **Technical Signatory** S. Peters **Calibrated By** H.Valtyn

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k = 2 Providing a level of confidence of approximately 95.45%, the uncertainty of measurement has been calculated in accordance with the principles defined in the GUM, Guide to Uncertainty of Measurement, ISO, Geneva, 2008. This certificate is issued in accordance with ISO IEC 17025, the conditions approved by SANAS and the policies of UWE Scales. It is a correct record of measurements made and relate only to the items calibrated."Statements of conformity to specifications are not made or implied in this report. Review the results, expanded uncertainty, and specfications to ensure they meet your requirement.This certificate may not be reproduced other than in full, except with a prior written approval of the issuing laboratory.The values in this certificate are valid at the time of calibration. Subsequently the accuracy shall depend on such factors as the care exercised in handling, use of the instrument and frequency of use. Re- calibration should be performed after a period which has been chosen to ensure that the instrument's accuracy remains within the desired limits. The applicant hereby indemnifies, holds harmless and absolves UWE Scales and the Mass Laboratory, from any damage whatsoever and any legal liability in the event of a mistake in the services performed for the applicant.

CERTIFICATE OF ACCREDITATION

In terms of section 22(2) (b) of the Accreditation for Conformity Assessment, Calibration and Good Laboratory Practice Act, 2006 (Act 19 of 2006), read with sections 23(1), (2) and (3) of the said Act, I hereby certify that:-

ELCONDOR TRADING CC
Co. Reg. No.: 2006/119689/23

TRADING AS

UWE SCALES

Accreditation Number: **1468**

is a South African National Accreditation System accredited Calibration Laboratory provided that all SANAS conditions and requirements are complied with

This certificate is valid as per the scope as stated in the accompanying scope of accreditation Annexure "A", bearing the above accreditation number for

MASS METROLOGY

The facility is accredited in accordance with the recognised International Standard

ISO/IEC 17025:2017

The accreditation demonstrates technical competency for a defined scope and the operation of a laboratory quality management system

While this certificate remains valid, the Accredited Facility named above is authorised to use the relevant SANAS accreditation symbol to issue facility reports and/or certificates

Mr T Baleni
Acting Chief Executive Officer

Effective Date: 26 May 2022
Certificate Expires: 10 May 2027

ANNEXURE A

SCOPE OF ACCREDITATION

MASS METROLOGY

Accreditaiton Number: 1468

Permanent Address of Laboratory: Elcondor Trading CC; T/a UWE Scales Mass Calibration Laboratory 1 Otto Road Beaconvale Parow 7500	**Technical Signatories:** Mr S Gamildien Mr S Peters
Postal Address: P O Box 1556 Parow 7499	**Nominated Representative:** Mr D de Vos
Tel: (021) 933 5403 Fax: (021) 933 5409 E-mail: calibrations@uwescales.co.za	Issue No.: 09 Date of Issue: 26 May 2022 Expiry Date: 10 May 2027

ITEM	MEASURED QUANTITY OR TYPE OF GAUGE OR INSTRUMENT	RANGE OF MEASURED QUANTITY	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	METHOD / PROCEDURE
1	**MASS**			
1.1	**Mass standard**			
1.1.1	Mass pieces / weights <100 kg	1 mg to 500 mg 0,5 g to 10 g 10 g to 50 g 50 g to 200 g 200 g to 1 kg 1 kg to 20 kg	0,07 mg 0,3 mg 0,4 mg 0,0015 % 0,003 % 0,002 %	Calibration using the single substitution method.
1.2	**Weighing Equipment**			
1.2.1	Digital Self Indicating (incl. Balances, Scales)	0 g to 360 g 360 g to 30 kg 30 kg to 2 000 kg	0,0002 % + 0,4 mg 0,008 % 0,06 %	Evaluation of linearity, eccentricity and repeatability using standard weights.
2	On-site calibration for item 1.2 above			

Original Date of Accreditation: 11 May 2012

The CMC, expressed as an expanded uncertainty of measurement, is stated as the standard uncertainty of measurement multiplied by a coverage factor $k = 2$, corresponding to a confidence level of approximately 95%.

ISSUED BY THE SOUTH AFRICAN NATIONAL ACCREDITATION SYSTEM

Accreditation Manager

Appendix – Ligno Sulphate Information – Chryso Eco Dust 200D

DustWatch can provide quotations for this product if required and provide advice on optimized application for different area requirements. **Gravel Roads, Haul Roads, Unpaved open areas, Stockpiles** and **Berms**. On site advice is available for site specific requirements and optimization.

The application spreadsheet is available here if required.

Revision number: 1
Date: 2017/05/07

Technical data sheet

CHRYSO® Eco Dust 200D (CPT)

High range dust suppressant.

Description

CHRYSO® Eco Dust 200D is an emulsified dust lubrication system that aids in the coalescing, stabilisation and suppression of rising dust particles and spores, preventing them from becoming air-borne.

Advantages

- Easy application and safe to use
- Helps with compliance to safety, environmental, health and occupational regulations
- Safety - Increased road visibility, increased grip
- Creates a dust free environment, complete dust suppression
- Less fuel usage
- Reduced road and vehicle maintenance
- Reduced man hours
- UV resistance
- Cuts down water usage
- Eliminate grading and watering
- Savings compared to traditional paving and tar roads
- VOC free

Application guidelines

Use

- Unpaved roads (gravel, farm, quarry roads)
- Road stabilization (gravel airstrips)
- Mine and industrial dust suppression (stock pile, mine dumps)

Directions

- For surface suppression
  - Apply to the surface by a water/tank truck with a rear mounted distribution bar that spreads the liquid evenly over the surface.

Physical and chemical properties

- Physical state (@25°C): Liquid
- Colour: Brown
- Specific gravity (@25°C): 1.095 (±0.02)
- pH: 5.00 (±0.01)
- Cl Ion content: ≤0.01%
- Na_2O equivalent: ≤1%

- **CHRYSO® Eco Dust 200D:** 10 – 15% mixture by volume of water
- Maintenance of 2.5% to 5% mixture, depending on surface condition
- Coverage
  - Coverage depends on the method of application

Maintenance

- Factors that will influence the intervals between maintenance applications and life time of the surface include:
  - Quality of the base material
  - Climate conditions
  - Volumes and type of traffic

Storage

- If in the original sealed packaging at room temperature, **CHRYSO® Eco Dust 200D** has a shelf life of up to 12 months from the date of manufacturing.
- Should the product freeze, it will recover its properties after thawing and agitating.
- Avoid storing **CHRYSO® Eco Dust 200D** in direct sunlight.
- Avoid all contact with water (especially rain water).

CHRYSO Southern Africa (Pty) Ltd
Gauteng (head office): 26 Malcom Moodie, Crescent, Jet Park
. Sharecall facility: 0861 CHRYSO | T: +27(0)11 395 9700 | F: +27(0)11 397 6644 | W: www.za.chryso.com

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