Eskom

Dr Patience Gwaze
National Air Quality Officer
Department of Forestry, Fisheries and the Environment
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0001

Date: 10 March 2025
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Dear Dr Gwaze,

JANUARY 2025 MONTHLY PROGRESS REPORT ON THE POSTPONEMENT OF MINIMUM EMISSION STANDARD CONDITIONS FOR KUSILE POWER STATION: REF: LSA223027

ESKOM WAS ISSUED A MINIMUM EMISSION STANDARDS (MES) POSTPONEMENT IN RESPECT OF KUSILE'S SO_2 LEVELS BY THE DFFE ON 5 JUNE 2023. THE VARIED ATMOSPHERIC EMISSION LICENCE (AEL) WAS ISSUED BY THE NKANGALA DISTRICT MUNICIPALITY ON 13 JUNE 2023. BOTH THE MES APPROVAL AND THE AEL ALLOW ESKOM TO OPERATE THE TEMPORARY STACKS WITHOUT FGD. THE APPROVALS ARE ISSUED SUBJECT TO SEVERAL CONDITIONS, INCLUDING THAT ESKOM IMPLEMENT MEASURES TO MINIMISE THE IMPACT ON HUMAN HEALTH.

This letter provides an update on key issues, including specific reporting requirements identified by the authorities in the various approvals for the Kusile temporary stacks project. Monitoring and mitigation is being implemented as far as practical in line with the programme in the Kusile Power Station Temporary Stack Monitoring Framework approved by the authorities on 18 October 2023.

As an initial point, I would like to confirm that no exceedances of the stack or ambient trigger level conditions were recorded during January 2025.

1. **Progress of repairs of permanent stacks for the duration of the operation of the temporary stacks.**
    I. The target date for the recovery of the west stack of 31 March 2025 is under severe risk due to the damage to internal liner damage.

Risks:

I. No float in the schedule - adverse weather might have an impact on the unit 2 completion date.

It is to be noted that the commitment remains that no unit will be operated without FGD post 31 March 2025.
The Permanent Stack recovery progress report is attached **(Annexures A).**

2. Temporary Stack Emission Monitoring

Continuous Emission Monitoring (CEMS):

I. Unit 1 operates with a unity curve for PM and report will be retrofitted once the test is done and curve implemented. Bags replacement is in progress for both Unit 1 and 2 to improve performance. Unit 3 was taken off on outage on the 23 December 2024 for a reconnection to FGD, returned on the 06 February 2025, with Unit 2 taken off on 14 February 2025 for reconnection to FGD.
II. All units operate with valid parallel (Gaseous) curves.

Stack Performance:

I. The Kusile Monthly Emission report for January 2025, which includes emission data for Units 1,2,4 and 5 is attached **(Annexure B**).
II. **Based on the available data information, Kusile Unit 1, 2,3,4 and 5 operated in compliance with the AEL emission limits for PM, NOx or SO_2** during January 2025, though there were sporadic PM's exceedances recorded on Unit 1 and 2.

3. Health Screening for the increased SO_2 emission and associated health impacts

I. Communication system is developed to enable communication with the health ambassadors in the various receptor areas.
II. The SMS facility is in place for Eskom to communicate with the communities regarding matters pertaining to their health and the SO_2 emissions.
III. The Toll-free number has been finalised. The community is guided through pre-loaded voice messaging regarding possible health concerns that they might be experiencing at that time and further guides them on which health facility nearest to them, can assist them, in case of emergency. It also enables them to leave a voice message if their concerns are not addressed on the pre-loaded voice recordings.
IV. Engagement with GHB Farms and Topigs will be conducted once the date has been agreed upon.

4. Occupational Health and Hygiene status

4.1. Continuous SO_2 Perimeter Monitoring:

I. Weekly monitoring of the plant's perimeter for SO_2 surges was conducted throughout January 2025.
II. SO_2 levels along the perimeter remained below detection levels, meeting the statutory requirement of 0.5 ppm OEL-STEL/C.

4.2. Continuous Personal Exposure Sampling:

I. Four FGD Senior Plant Operators underwent personal exposure sampling for SO_2 during January 2025.
II. Their exposure levels were consistently below detection levels and compliant with the statutory requirement of 0.5 ppm OEL-STEL/C.

Table: Personal Exposure Sulphur Dioxide Concentration for January 2025

Month	Number of samples	Areas Sampled	Designation	Concentration (ppm)	Status	Comment(s)
January 2025	4	FGD	Senior Plant Operators	< 0,005	Complaint	Concentrations below OEL.

4.3. Conclusion:

Our continuous SO_2 personal and perimeter monitoring indicated compliance with regulatory limits with no ongoing issues. We will continue to monitor and investigate any anomalies to ensure the safety and well-being of both our workers and the surrounding community.

5. Stakeholder Engagement Plan and Status

Stakeholders	Method of engagement	Involvement	Status
Employees	• Awareness sessions Leadership briefings (GM's address) Employee engagements	• Once a month • Every Friday Monthly	Complete
Local Municipalities • Emalahleni • Victor Khanye • Bronkhorstspruit	Face-to-face meeting	Once a quarter	Eskom Business Connect - stakeholder engagement – was held in Steve Tshwete 5 – 6 February 2025. Other meetings will be planned for 2025 with the surrounding farms/communities
Media • Emalahleni FM • Witbank News	• Advert • Print	When required	Eskom media desk to publish

6. Ambient Air Quality Monitoring

I. In order to better assess compliance with national ambient air quality standards, identify potential sources of pollution, protect public health and the environment and establish a baseline for future mitigation measures Eskom has installed additional

ambient air quality monitoring stations at Balmoral and Wilge. The existing air quality monitoring station (Phola) will complement the additional monitoring stations to reduce uncertainties, as each monitoring station has an objective linked to a power station of interest.

II. The Balmoral and Wilge monitoring stations are equipped to monitor ambient concentrations of sulphur dioxide (SO_2) continuously. In addition, meteorological parameters of wind velocity, wind direction and ambient temperature, humidity, ambient pressure and rainfall, amongst others, are also recorded.

III. The data for this reporting period (01 – 31 January 2025) were analysed for ambient SO_2 and NO_2 and O_3 as monitored at Balmoral, Phola and Wilge air quality monitoring stations. The Particulate Matter (PM_{10} and $PM_{2.5}$) data were further analysed for Phola, and for Chicken Farm before it was discontinued due to coal mining activities in the area. The poultry farming is no longer taking place at the Chicken Farm monitoring station. The area is currently being utilized for coal mining activities. RT&D has currently stopped monitoring at Chicken farm and relocated the monitoring hut to Ogies Kombineerde school and will commission the monitoring station before the end of February 2025.

IV. Full dynamic calibration audits are carried out on the gas analysers (SO_2, NO_2 and O_3 analysers) quarterly and particulate matter analysers are calibrated every six months. All calibration results and certificates are filed in the laboratory for assessment purposes. Inter-laboratory calibrations are routinely carried out with other accredited laboratories, to enhance quality control.

V. There were no exceedances of the NO_2 hourly limit of 106 ppb recorded at the monitoring stations during the January 2025 monitoring period.

VI. Phola sites are in non-compliance with national ambient air quality limits of PM2.5 daily limit of 40 µg/m³, PM10 daily limit of 75 µg/m³ and O3 8 hourly limit of 61 ppb.

VII. There were no exceedances of SO_2 10-minutes limit of 191 ppb and SO_2 hourly limit of 134 ppb at all the monitoring station under review.

VIII. There were no events that triggered the notification of stakeholders in terms of the agreed AEGL recorded in January 2025.

Table 1 Highest SO_2 concentrations recorded (in ppb)

Monitoring Stations	10-min average (191 ppb)	Date	Hourly average (134 ppb)	Date	Daily average (48 ppb)	Date
Balmoral	112.2	18/01/2025 16:20	68.4	18/01/2025 05:00	15.4	18/01/2025
Chicken Farm	NM	NM	NM	NM	NM	NM
Phola	90.0	29/01/2025 03:10	49.9	28/01/2025 07:00	18.7	24/01/2025
Wilge	21.6	17/01/2025 19:20	13.9	29/01/2025 08:00	2.9	29/01/2025

I. Good representative percentage data was recovered for most of parameters monitored during the monitoring period under review at the other monitoring stations, however Balmoral recorded low data for NO_2 and wind direction sensor due to frequent lightning strikes. NO_2 instrument was repaired and installed back at site and wind direction sensor to be changed and grounded. RT&D to install protection system by end of March 2025. Balmoral recorded low data for SO_2 due to instrument failure however it has been repaired and installed back at site. Phola recorded low data for PM_{10} due to pump failure, however it has been repaired and installed back at site.

II. The raw monitoring data, downloaded at 1-minute averages, is available in real-time to the DFFE-managed South African Air Quality Information System (SAAQIS) since the 14th of December 2023 for all Eskom air quality monitoring sites.
III. The detailed January 2025, Kusile ambient monitoring report is attached (**Annexure C).**

7. Poultry Health Monitoring

I. Kendal Poultry informed Eskom that their properties had been sold to Seriti Mining, however they indicated that monitoring should continue on the eastern and western of Kendal Poultry Layer Farm and Woodsprings Breeder Farm operations.
II. The Service Provider was appointed to monitor and report on a quarterly basis, next quarter report will be by the end of March 2025.

8. Animal Health Monitoring

I. Eskom has reached an agreement with Topigs and GHB farms regarding animal/pig health monitoring since March 2024.
II. Monitoring is carried out according to prescribed protocol and final report for January 2025 is attached (**Annexure D).**

9. Emergency preparedness and response

I. There has been no incidence of exceedance that required emergency response from Kusile Power Station, however the Emergency Response Team (ERT) remained on high alert.
II. The ERT is in regular communication with Emalahleni Local Municipality Emergency Services as per the Mutual Aid Agreement.
III. Emalahleni Local Municipality Emergency Services representatives in Disaster Management, Fire and Emergency Services, and Environment were added in Kusile Power Station Distribution List for regular updates.
IV. All other Service Level Agreement (SLA's) with relevant stakeholder (Kendal Power Station) remain in force for duration of the temporal stack.

In conclusion, I believe the above illustrates that Eskom is committed to complying with the conditions of the approvals granted with respect to the Kusile temporary stacks. Eskom is implementing measures to ensure that it understands its impact and can limit its operations' environmental and health impact. Further, where full implementation of the conditions is not yet completed, Eskom is working with relevant stakeholders with a focus to ensure the remaining issues are resolved as soon as possible.

I hope the above is in order. Please contact our team if you require any further information.

Yours sincerely

Christopher Nani
ACTING GENERAL MANAGER (KUSILE POWER STATION)

DATE: 12/03/2025

MONTHLY PROGRESS REPORTS ON THE POSTPONEMENT OF MINIMUM EMISSION STANDARD CONDITIONS FOR KUSILE POWER STATION: REF: LSA223027

. List of annexures

Annexure A: Kusile West Chimney Recovery Project – January 2025
Annexure B: Kusile Monthly Emission Report – January 2025
Annexure C: Kusile Ambient Air Quality Report – January 2025
Annexure D: Final Animal Health Monitoring report - January 2025

Dr P. Gwaze
National Air Quality Officer
Department of Forestry, Fisheries and Environment
Private Bag X 447
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0001

Date: 21 February 2025

Enquiries: S Mahlangu
Tel: 013 699 7097

Monthly Progress Report for Kusile Power Station West Stack Recovery February 2025:

		Status	Start Date	End Date
	Clear permits unit 3	100%	25 Jan 2025	25 Jan2025
	Unit 3 on load with FGD	100%	4 Feb 2025	6 Feb 2025
	Unit 2 Vertical flu liner replacement	100%	7 Jan 2025	17 Feb 2025
	Unit 2 Lobster liner replacement	60%	7 Jan 2025	3 March 2025
	Unit 2 FGD ducting reinstatement	35%	14 Feb 2025	14 March 2025
	Unit 1 vertical flue liner removal and surface preparation.	50%	9 Feb 2025	10 March 2025

NOTES:

West Stack:

Risks

- No float in the schedule - adverse weather might have an impact on the unit 2 completion date.

Trust you find the above in order.

Kind Regards,

……..
Zandi Shange
General Manager – Project Management
Kusile Power Station Project

Ms Nompumelelo Simelane
Nkangala District Municipality
PO Box 437
Middleburg
1050

Date:
February 2025

Enquiries: Lesiba Kgobe
Tel: +27 13 699 7817

Ref: *Kusile Power Station AEL (17/4/AEL/MP311/12/01)*

Dear Ms. Simelane

KUSILE POWER STATION'S MONTHLY EMISSIONS REPORT FOR JANUARY 2025

This serves as the monthly report required in terms of Section 7.6 in Kusile Power Station's Atmospheric Emission License: 17/4/AEL/MP311/12/01. The emissions are for the month of January 2025.

Hoping the above will meet your satisfaction.

Yours sincerely

Christopher Nani
ACTING GENERAL MANAGER
DATE: 26/02/2025

Generation Division – Coal New Build Unit
Management Department (Kusile Power Station)
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1. KUSILE POWER STATION MONTHLY EMISSIONS REPORT: Atmospheric Emission License 17/4/AEL/MP311/12/01

2. Raw Materials and Products

Raw Materials and Products	**Raw Material Type**	**Units**	**Max Permitted Consumption Rate**	**Consumption Rate Jan-2025**
	Coal	Tons	*1 818 083*	*794 735*
	Fuel Oil	Tons	*5 533*	*2161.4*
	Limestone	Tons	*72 017*	*14031*
Production Rates	**Product / By-Product Name**	**Units**	**Max Production Capacity Permitted**	**Indicative Production Rate Jan-2025**
	Energy	GWh	*3 321.216*	*1 476.07*
	Ash	Tons	*796 300*	*233 413.73*
	Gypsum	Tons	*155 100*	*7 857.40*
	RE PM	kg/MWh	*not specified*	*0.157*
	RE SOx	kg/MWh	*not specified*	*3.617*

Note: Maximum energy rate is as per the maximum capacity stated in the AEL: [4 464 MW] x 24 hrs x days in Month/1000 to convert to GWh

3. Energy source characteristics

Fuel Characteristic	Units	Stipulated Range	Monthly Average Content
Coal Sulphur	%	*1.3*	*0.79*
Ash in Coal	%	*38*	*29.37*
Fuel Oil Sulphur	%	*3.5*	*2.18*

4. Emissions Limits (mg/Nm³)

Associated Unit/Stack	PM	SO_2	NOx
North	*50*	*3500*	*750*
South	*50*	*1000*	*750*

5. Abatement Technology (%)

Associated Unit/Stack	Technology Type	Efficiency Jan-2025	Technology Type	Efficiency Jan-2025
Unit 1	*FFP*	*99.83%*	*FGD*	*Out of service*
Unit 2	*FFP*	*99.73%*	*FGD*	*Out of service*
Unit 3	*FFP*	*Off*	*FGD*	*Out of service*
Unit 4	*FFP*	*99.99%*	*FGD*	*99.96%*
Unit 5	*FFP*	*99.97%*	*FGD*	*99.83%*

Note: Both the FFP and FGD does not have bypass mode operation, hence plant 100% Utilised.

6. Monitoring reliability (%)

Associated Unit/Stack	PM	SO_2	NO
Unit 1	*98.0*	*100.0*	*100.0*
Unit 2	*100.0*	*100.0*	*100.0*
Unit 3	*Off*	*Off*	*Off*
Unit 4	*100.0*	*96.5*	*99.3*
Unit 5	*100.0*	*99.7*	*100.0*

7. Emissions Performance

Table 7.1: Monthly tonnages for the month of Jan - 2025

Associated Unit/Stack	PM	SO_2	NO_x
Unit 1	90.3	2 174	772
Unit 2	121.6	2 543	710
Unit 3	Off	Off	Off
Unit 4	1.2	115	855
Unit 5	19.1	507	3 200
SUM	232.2	5 339	5 537

Table 7.2: Operating days in compliance to PM AEL Limit – January 2025

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm³)
Unit 1	25	6	0	0	6	41.6
Unit 2	16	14	1	0	15	52.7
Unit 3	Off	Off	Off	Off	Off	Off
Unit 4	30	0	0	0	0	0.5
Unit 5	26	0	0	0	0	2.4
SUM	**97**	**20**	**1**	**0**	**21**	

Table 7.3: Operating days in compliance to SO_2 AEL Limit - January 2025

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SO_2 (mg/Nm³)
Unit 1	31	0	0	0	0	977.3
Unit 2	31	0	0	0	0	1 106.0
Unit 3	Off	Off	Off	Off	Off	Off
Unit 4	31	0	0	0	0	43.1
Unit 5	27	0	0	0	0	57.9
SUM	**120**	**0**	**0**	**0**	**0**	

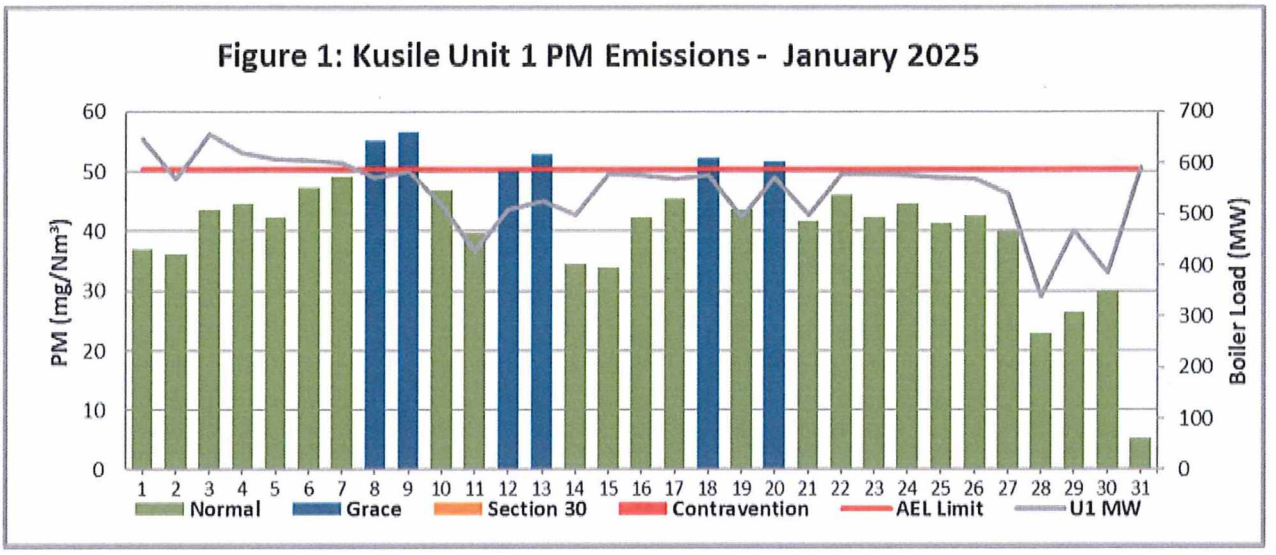
Table 7.4: Operating days in compliance to NOx AEL Limit – January 2025

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm³)
Unit 1	31	0	0	0	0	350.7
Unit 2	31	0	0	0	0	309.0
Unit 3	Off	Off	Off	Off	Off	Off
Unit 4	31	0	0	0	0	324.1
Unit 5	27	0	0	0	0	365.2
SUM	**120**	**0**	**0**	**0**	**0**	

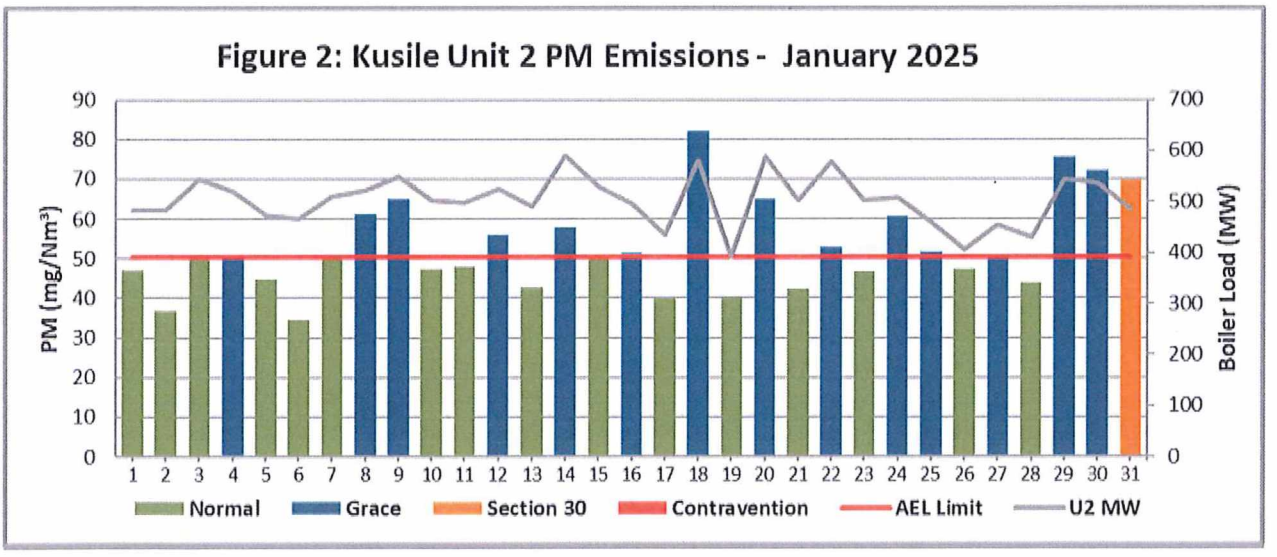
Note: NOx emissions is measured as NO in PPM. Final NOx value is expressed as total NO_2

Table 7.5: Legend Description

Condition	Colour	Description
Normal		Emissions below Emission Limit Value (ELV)
Grace		Emissions above the ELV during grace period
Section 30		Emissions above ELV during a NEMA S30 incident
Contravention		Emissions above ELV but outside grace or S30 incident conditions



Dates	Reason for exceedance
08-09 Jan 2025	Due to failures of fabric filter bags.
12-13 Jan 2025	Due to failures of fabric filter bags.
18 Jan 2025	Due to failures of fabric filter bags.
20 Jan 2025	Due to failures of fabric filter bags.



Date	Reason for exceedance
04 Jan 2025	Due to failures of fabric filter bags.
08-09 Jan 2025	Due to failures of fabric filter bags.
12 Jan 2025	Due to failures of fabric filter bags.
14 Jan 2025	Due to failures of fabric filter bags.
16 Jan 2025	Due to failures of fabric filter bags.
18 Jan 2025	Due to failures of fabric filter bags.
20 Jan 2025	Due to failures of fabric filter bags.
22 Jan 2025	Due to failures of fabric filter bags.
24-25 Jan 2025	Due to failures of fabric filter bags.
27 Jan 2025	Due to failures of fabric filter bags.
29-31 Jan 2025	Due to failures of fabric filter bags.

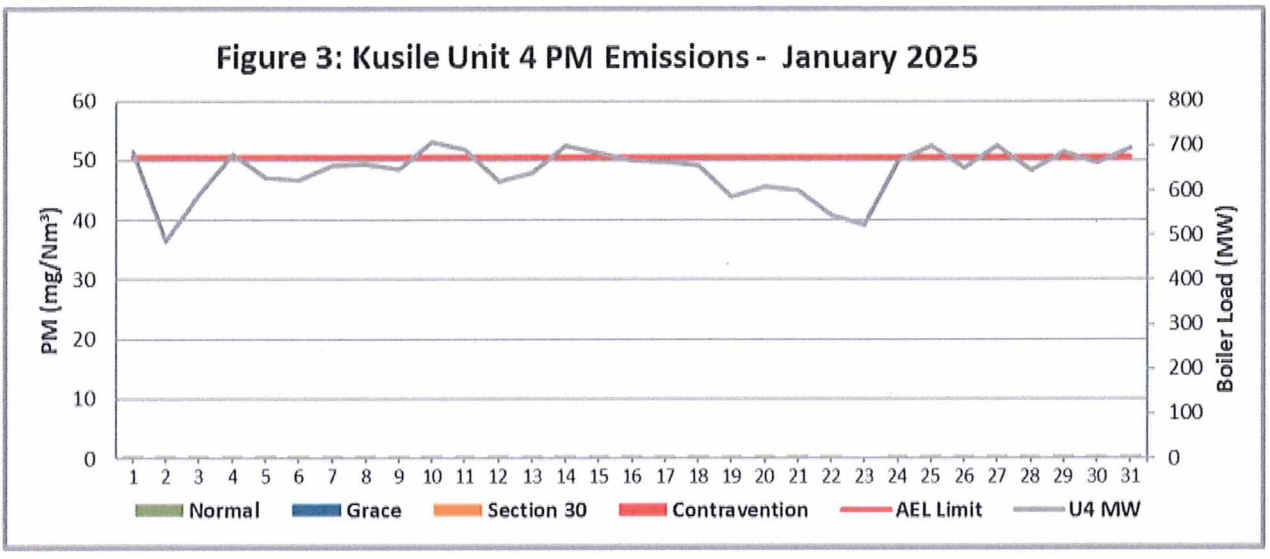


Figure 3: Kusile Unit 4 PM Emissions - January 2025
PM (mg/Nm³)
Boiler Load (MW)
Normal
Grace
Section 30
Contravention
AEL Limit
U4 MW

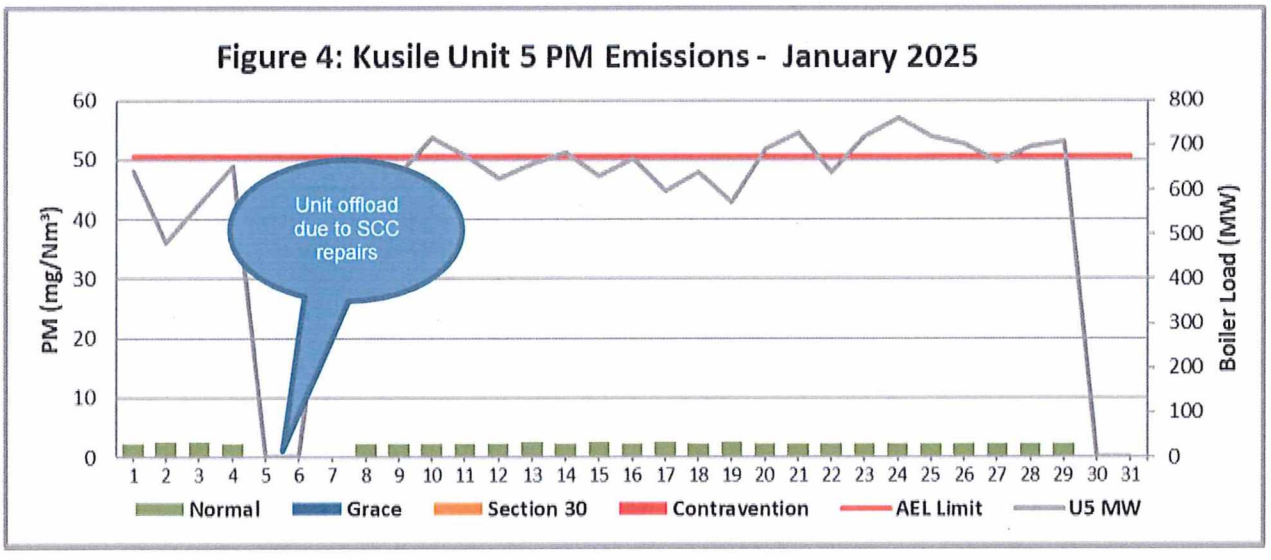


Figure 4: Kusile Unit 5 PM Emissions - January 2025
PM (mg/Nm³)
Boiler Load (MW)
Unit offload due to SCC repairs
Normal
Grace
Section 30
Contravention
AEL Limit
U5 MW

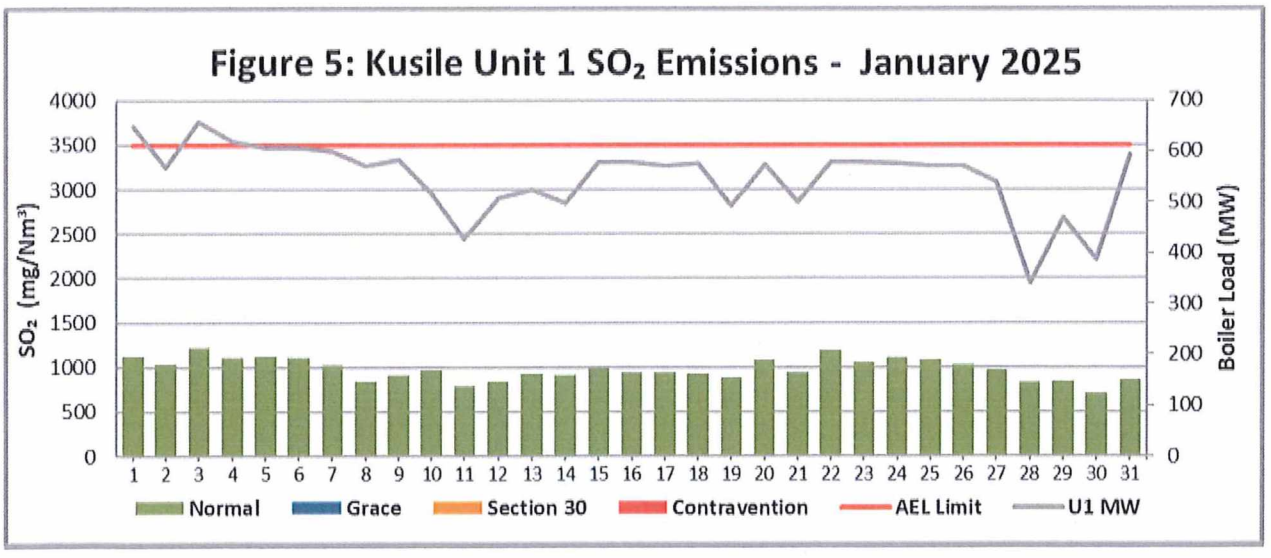


Figure 5: Kusile Unit 1 SO₂ Emissions - January 2025
SO₂ (mg/Nm³)
Boiler Load (MW)
Normal
Grace
Section 30
Contravention
AEL Limit
U1 MW

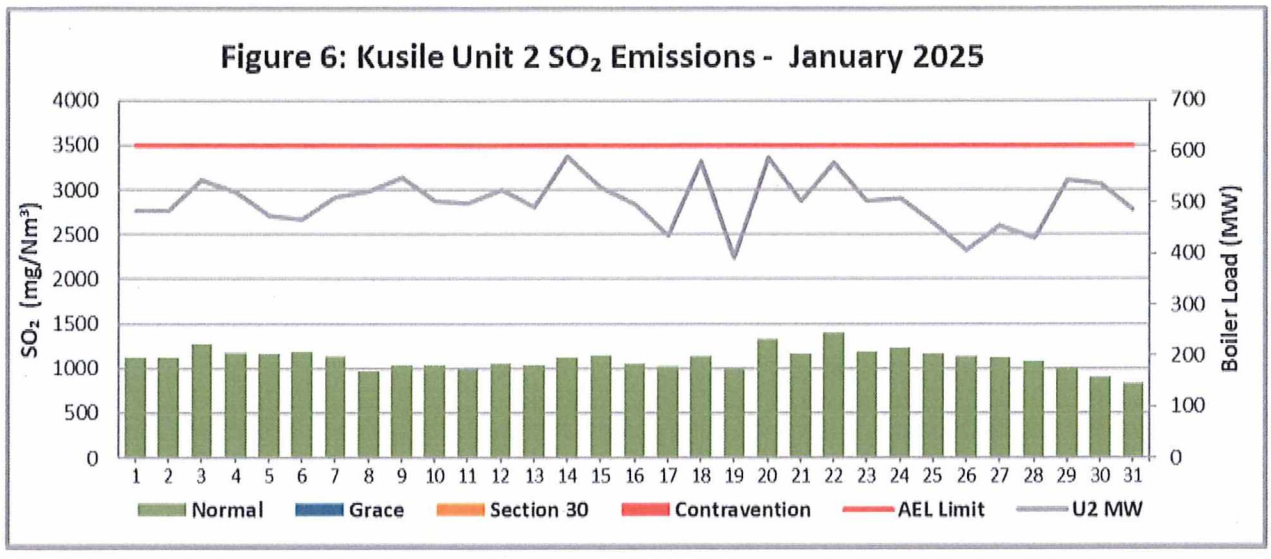


Figure 6: Kusile Unit 2 SO₂ Emissions - January 2025
SO₂ (mg/Nm³)
Boiler Load (MW)
Normal
Grace
Section 30
Contravention
AEL Limit
U2 MW

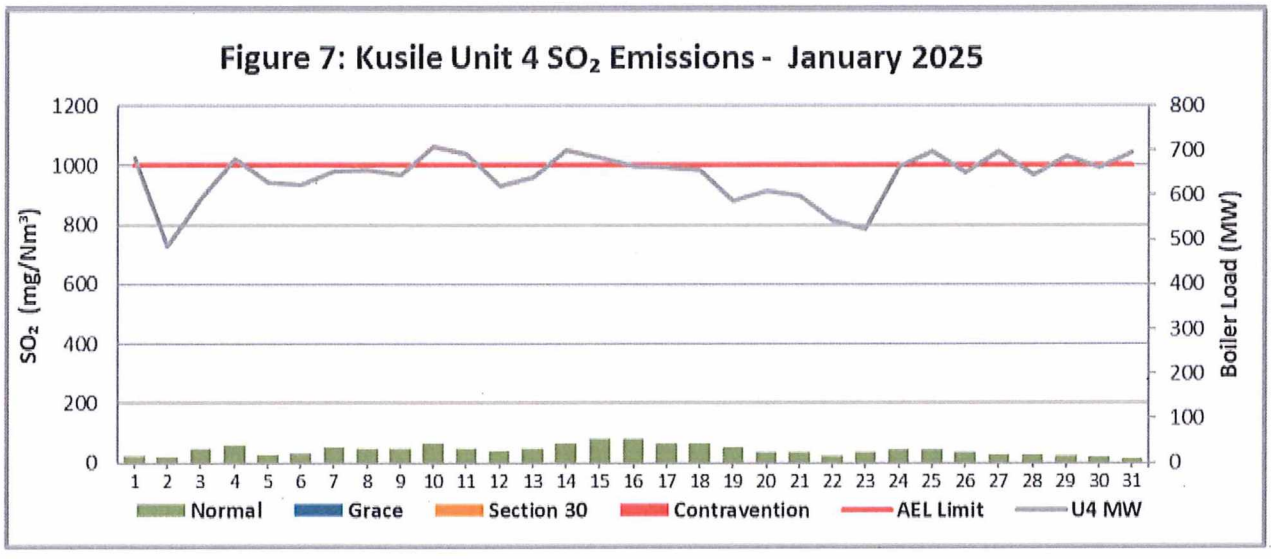


Figure 7: Kusile Unit 4 SO₂ Emissions - January 2025
SO₂ (mg/Nm³)
Boiler Load (MW)
Normal
Grace
Section 30
Contravention
AEL Limit
U4 MW

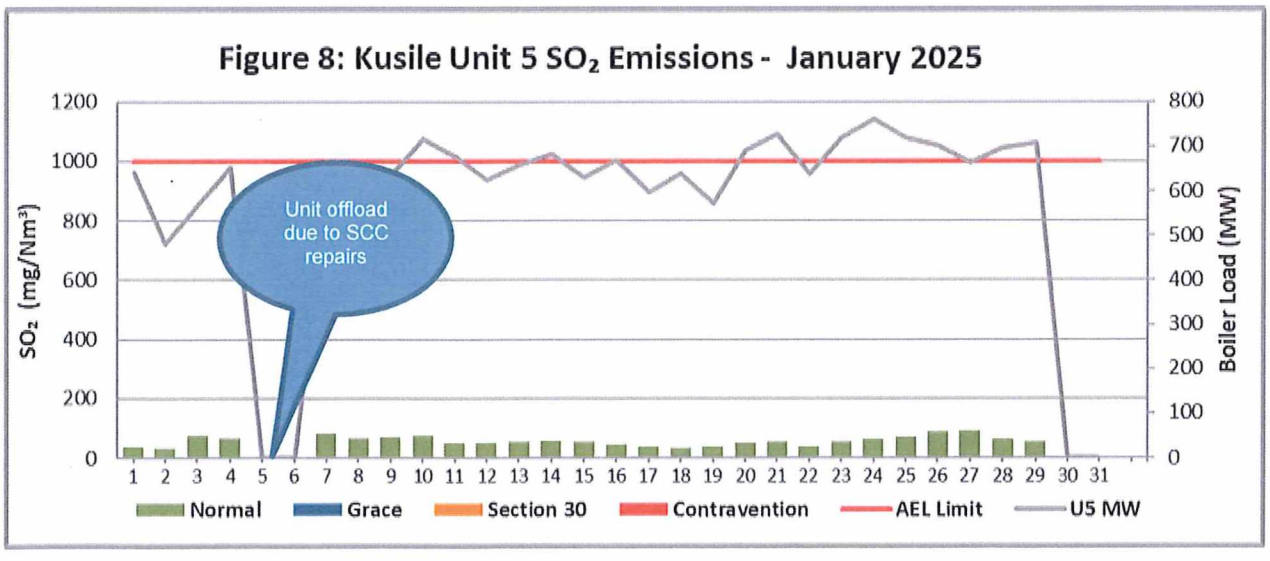


Figure 8: Kusile Unit 5 SO₂ Emissions - January 2025
Unit offload due to SCC repairs
SO₂ (mg/Nm³)
Boiler Load (MW)
Normal
Grace
Section 30
Contravention
AEL Limit
U5 MW

Figure 9: Kusile Unit 1 NOx Emissions - January 2025

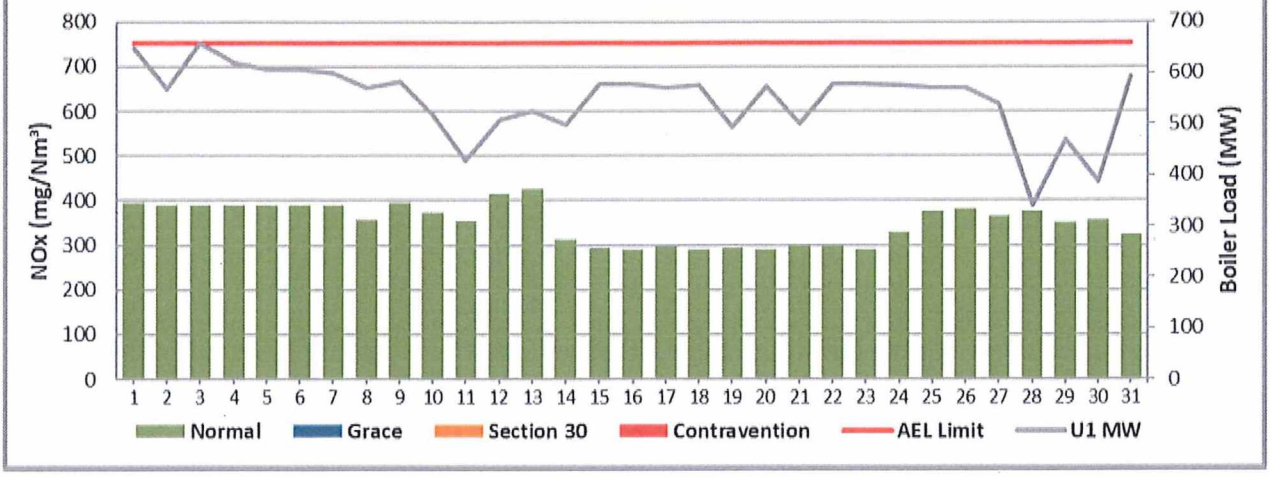


Figure 10: Kusile Unit 2 NOx Emissions - January 2025

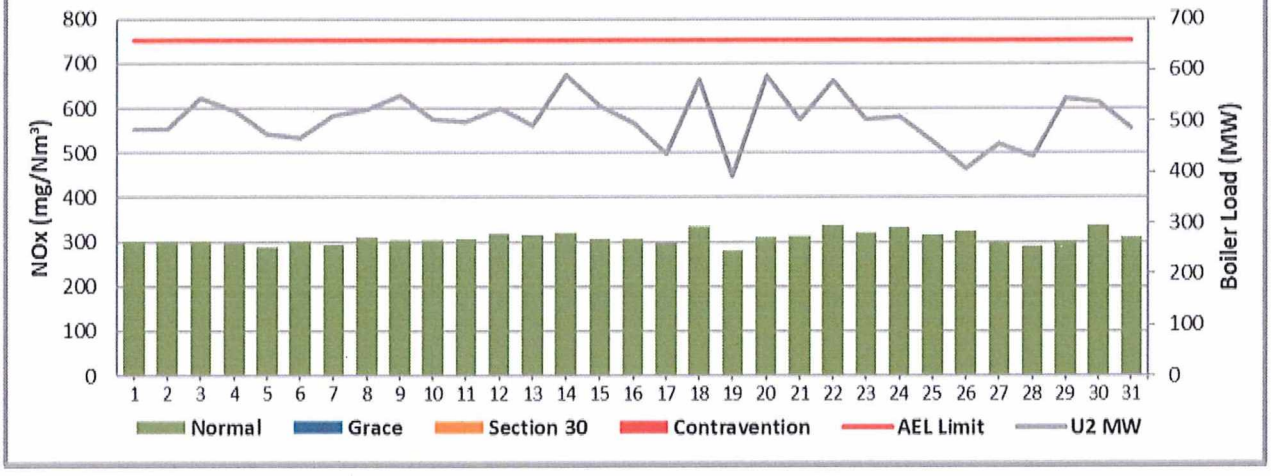
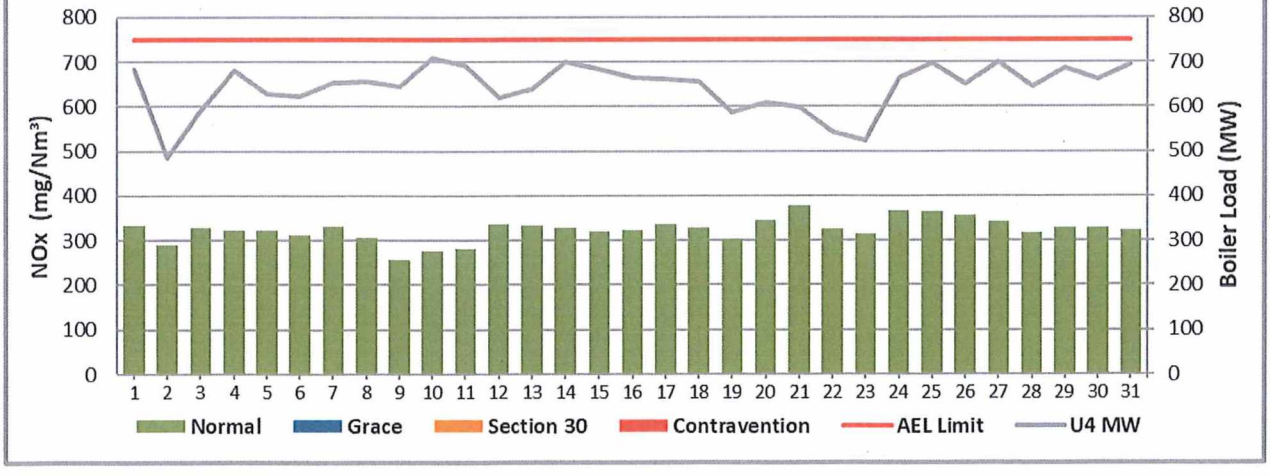
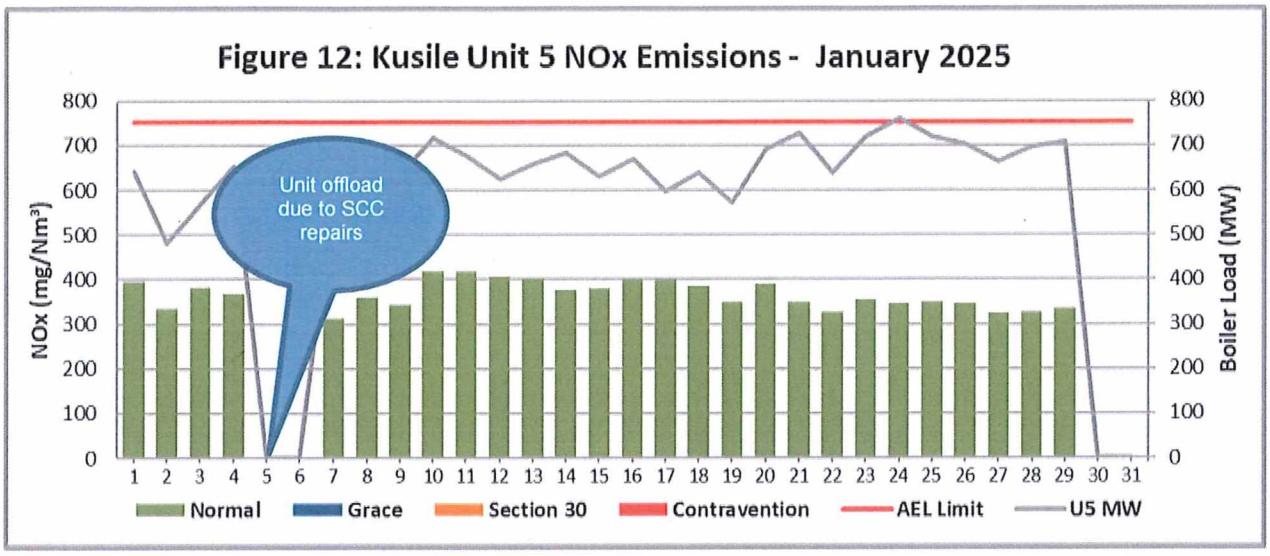


Figure 11: Kusile Unit 4 NOx Emissions - January 2025





8. Correlation and Parallel test status

Unit 1:

- Unit 1 is operating with unity curve for PM. The existing particulate matter emissions correlation test curves became invalided due to the faulty monitor which was replaced. A new correlation test was conducted, however the correlation test failed. A correlation spot test has been conducted and the station is awaiting the report from the Service Provider.
- The unit is operating with a valid parallel curve.

Unit 2:

- Unit 2 is operating with valid correlation and parallel curves.

Unit 3

- Unit 3 is operating with valid correlation and parallel curves.

Unit 4:

- Unit 4 is operated with valid correlation and parallel curves.

Unit 5

- Unit 5 is operated with valid correlation and parallel curves.

9. Shut down and Light up information

Unit No. 1	*Event 1*		*Event 2*	
Breaker Open (BO)	9:15 am	2025/01/28	10:45 am	2025/01/30
Draught Group (DG) Shut Down (SD)	9:15 am	2025/01/28	10:45 am	2025/01/30
BO to DG SD (duration)	00:00:00	DD:HH:MM	00:00:00	DD:HH:MM
Fires in time	10:10 am	2025/01/28	11:50 am	2025/01/30
Synch. to Grid (or BC)	6:15 pm	2025/01/28	4:10 pm	2025/01/30
Fires in to BC (duration)	00:08:05	DD:HH:MM	00:04:20	DD:HH:MM
Emissions below limit from BC (end date)	not > limit	not > limit	not > limit	not > limit
Emissions below limit from BC (duration)	n/a	DD:HH:MM	n/a	DD:HH:MM

Unit No. 4	*Event 1*	
Breaker Open (BO)	5:05 pm	2025/01/22
Draught Group (DG) Shut Down (SD)	DG did not trip or SD	DG did not trip or SD
BO to DG SD (duration)	n/a	DD:HH:MM
Fires in time	8:10 am	2025/01/23
Synch. to Grid (or BC)	1:35 pm	2025/01/23
Fires in to BC (duration)	00:05:25	DD:HH:MM
Emissions below limit from BC (end date)	not > limit	not > limit
Emissions below limit from BC (duration)	n/a	DD:HH:MM

Unit No. 5	*Event 1*		*Event 2*	
Breaker Open (BO)	1:05 pm	2025/01/04	5:10 pm	2025/01/08
Draught Group (DG) Shut Down (SD)	10:45 pm	2025/01/05	DG did not trip or SD	DG did not trip or SD
BO to DG SD (duration)	01:09:40	DD:HH:MM	n/a	DD:HH:MM
Fires in time	9:20 pm	2025/01/06		
Synch. to Grid (or BC)	5:50 am	2025/01/07		
Fires in to BC (duration)	00:08:30	DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	not > limit	not > limit		
Emissions below limit from BC (duration)	n/a	DD:HH:MM		DD:HH:MM

10.Complaints

No complaints reported for the month of January 2025.

Date and time complaint was received	Complaint received	Source code name	Root cause analysis	Calculation of impact/emissions associated with incidents and dispersion modelling of pollutants where applicable	Measures implemented or to be implemented to prevent recurrence	Date by which measures will be implemented
No complaints reported for the month of January 2025.						

11. S30 INCIDENT OR LEGAL CONTRAVENTION REGISTER

To be completed in the case of a S30 incident or a legal contravention:

Unit no	Incident Start Date	Incident End Date	Incident Cause	Remedial action	S30 initial notification sent	Date S30 investigation report sent	Date DEA Acknowledgment	Date DEA Acceptable	Comments / Reference No.
Unit 2	31/01/2025	31/01/2025	**Direct Cause:** High emission resulting from bag leaks/failures. **Root Cause:** Unit 2 outage deferred (bags exceeding their lifespan). **Contributory Cause:** PPS bags installed instead of PPS /PI Bags (material constraints during RTS of Unit 2)	1. Full replacement with PPS/PI Bags during Unit 2 outage. 2. Full online bag replacement. 3. Update the monthly monitoring dashboard to include the bags running hours (to mitigate the risk of bag running beyond their life span due to outage deferrals).	03/02/2025	21/02/2025	Not yet received		Reference No not yet received.

Kusile Ambient Air Quality Monitoring

JANUARY 2025

1. INTRODUCTION

At the request of Environmental Management, Research, Testing and Development Department (RT&D) air quality team initiated an additional ambient air quality monitoring site at Balmoral and Wilge, in the vicinity of Kusile power station. The objective is to assess compliance with national ambient air quality standards, identify potential sources of pollution, protect public health and the environment and establish a baseline for future mitigation measures to enable Eskom to operate temporary stacks without the flue gas desulphurisation (FGD) and comply with a minimum emission standards (MES) postponement in respect of Kusile's SO_2 levels issued by the DFFE on 5 June 2023. Both the MES approval and the atmospheric emission license (AEL) allow Eskom to operate the temporary stacks without FGD.The existing air quality monitoring station (Phola) will complement the additional monitoring stations to reduce uncertainties, as each monitoring station has an objective linked to a power station of interest.

The commissioning of Ogies air quality monitoring station has been delayed due to procurement issues, however Kusile Power station, Research, Testing and Development and Generation Environmental Management (GEM) are working tirelessly to resolve it and a new date will be communicated to the Department of Fisheries, Forestry and Environment by end of February 2025.

The Balmoral and Wilge monitoring stations are currently equipped to continuously monitor ambient concentrations of sulphur dioxide (SO_2) Ozone (O_3) and nitrogen dioxide (NO_2). In addition, meteorological parameters of wind velocity, wind direction and ambient temperature, humidity, ambient pressure and rainfall, amongst others are also recorded.

The data for this reporting period (01 – 31 January 2025) were analysed for ambient SO_2 and NO_2 and O_3 as monitored at Balmoral, Phola and Wilge air quality monitoring stations. The Particulate Matter (PM_{10} and $PM_{2.5}$) data were further analysed for Phola, and for Chicken Farm before it was discontinued due to coal mining activities in the area. The poultry farming is no longer taking place at the Chicken Farm monitoring station and area is currently being utilized for coal mining activities. RT&D has currently stopped monitoring at Chicken farm and relocated the monitoring hut to Ogies Kombineerde school and will commission the monitoring station before the end of February 2025. Kusile Power Station and Generation Environment is waiting for a decision from DFFE air quality officers regarding the status of Chicken Farm air quality monitoring station.

This report focuses on the results of the ambient air quality monitoring stations; results from stack monitoring, fugitive dust and animal health are addressed in other reports.

2. DATA ACQUISITION AND QUALITY CONTROL

Each monitoring station is visited every two weeks by trained technicians for routine service. Zero and span checks are carried out on each analyser during routine services and any discrepancies are logged and used during data verification at Eskom RT&D Sustainability Department.

Full dynamic calibration audits are carried out on the gas analysers (SO_2, NO_2 and O_3 analysers) quarterly and particulate matter analysers are calibrated every six months. All calibration results and certificates are filed in the laboratory for assessment purposes. Inter-laboratory calibrations are routinely carried out with other accredited laboratories, to enhance quality control.

Data at the monitoring stations are logged directly using dedicated CR-1000 Campbell Scientific data loggers. Permanent data records of all calculated 10-minutes mean values of all parameters monitored, together with minimum and maximum values, are stored on the logging device. These are derived from 10-second scans and are also logged and saved in 1-minute intervals. The raw 1-minute average data is also transferred live to the South African Ambient Air Quality Information System (SAAQIS) server since the 14th of December 2023 daily however due to system challenges the transfer stopped. In the event that the data is not available on the SAAQIS portal the stakeholders are advised to contact Eskom air quality monitoring team at RT&D. Recorded data are downloaded remotely from the site through communicators that are connected to the Eskom network and transferred onto a central computer for verification and validation.

3. MONITORING STATION LOCATIONS

Figure 1 below indicates the locations of the air quality monitoring stations in relation to the Kusile power station. The new monitoring stations, Balmoral and Wilge, are denoted by green icons and the pre-existing monitoring stations, Chicken Farm and Phola, by yellow icons.

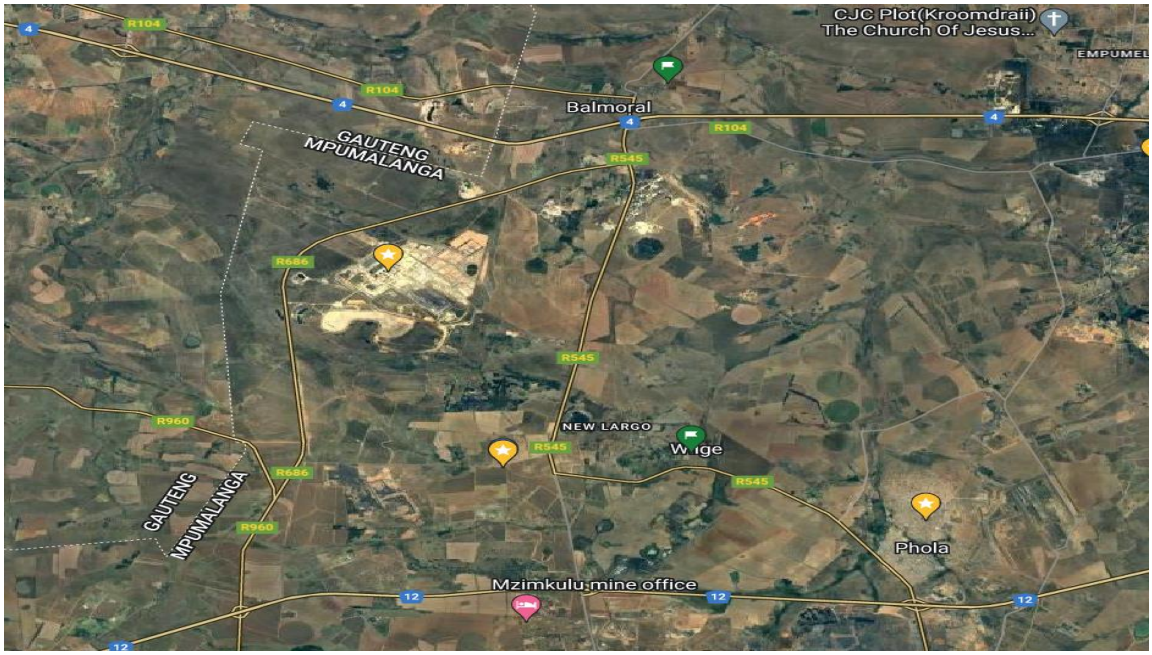


Figure 1: Air Quality Monitoring stations in relation to Kusile power station

4. MONITORING RESULTS AND DISCUSSIONS

The data is statistically analysed to assess the diurnal and monthly variations of the air pollutants, as well as to evaluate it against the current national ambient air quality standards for SO_2, NO_2, O_3, $PM_{2.5}$ and PM_{10}.

4.1. DATA RECOVERY

The SANAS guideline figure of 90% data availability per parameter monitored is used as a standard for representative data capture. This describes the required completeness of data set for the reporting of averages and is based on standard arithmetic calculations. The completeness calculations for data sets exclude zero and span data and times where service and/or maintenance is being conducted on the instruments in question. Station availability is reported as a measure of the percentage of time that electrical power was available to the monitoring station.

Table 1: Percentage data recovery per parameter monitored in January 2025

Stations name	SO_2	NO_2	O_3	$PM_{2.5}$	PM_{10}	WSP	WDR	Station Availability
Balmoral (BL)	99.6	4.8	NM	NM	NM	99.7	14.5	99.7
Chicken Farm (CF)	NM	NM	NM	NM	NM	NM	NM	NM
Phola (PO)	99.5	99.2	99.6	73.4	52.8	99.9	99.9	99.6
Wilge (WL)	31.2	99.5	64.5	NM	NM	100	100	100

NM – not monitored.

Good representative percentage data was recovered for most of parameters monitored during the monitoring period under review at the other monitoring stations, however Balmoral recorded low data for NO_2 and wind direction sensor due to frequent lightning strikes. NO_2 instrument was repaired and installed back at site and wind direction sensor to be changed and grounded. RT&D to install protection system by end of March 2025. Balmoral recorded low data for SO_2 due to instrument failure however it has been repaired and installed back at site. Phola recorded low data for PM_{10} due to pump failure, however it has been repaired and installed back at site. Chicken Farm monitoring station reported no data for all the parameters and the monitoring station has been stopped by RT&D for security reason to avoid vandalism and the monitoring hut and equipments relocated to Ogies Kombineerde Skool to commission the Ogies monitoring station. The poultry farming is no longer taking place at the Chicken Farm monitoring station. The area is currently being utilized for coal mining. Kusile Power Station and Generation Environment is waiting for a decision from DFFE air quality officers regarding the status of Chicken Farm air quality monitoring station.

4.2. METEOROLOGICAL OBSERVATIONS

The distributions of wind direction and wind speed for daytime and night-time hours for the reporting period are summarised on polar diagrams. The centre of the wind rose depicts the position of the air quality monitoring site. The positions of the spokes in the polar diagram represent directions from which the wind was blowing. The length of the segment indicates the percentage of the time the wind blew from that direction and the speed in the various categories are denoted by colours and width.

4.2.1. BALMORAL AIR QUALITY MONITORING STATION

The wind at Balmoral monitoring station was coming from the east-south-east, south-south-east and west-north-west directions during the day and from the east-south-east and south-south-east directions during the night time. The monitoring station is north-east of Kusile power station.

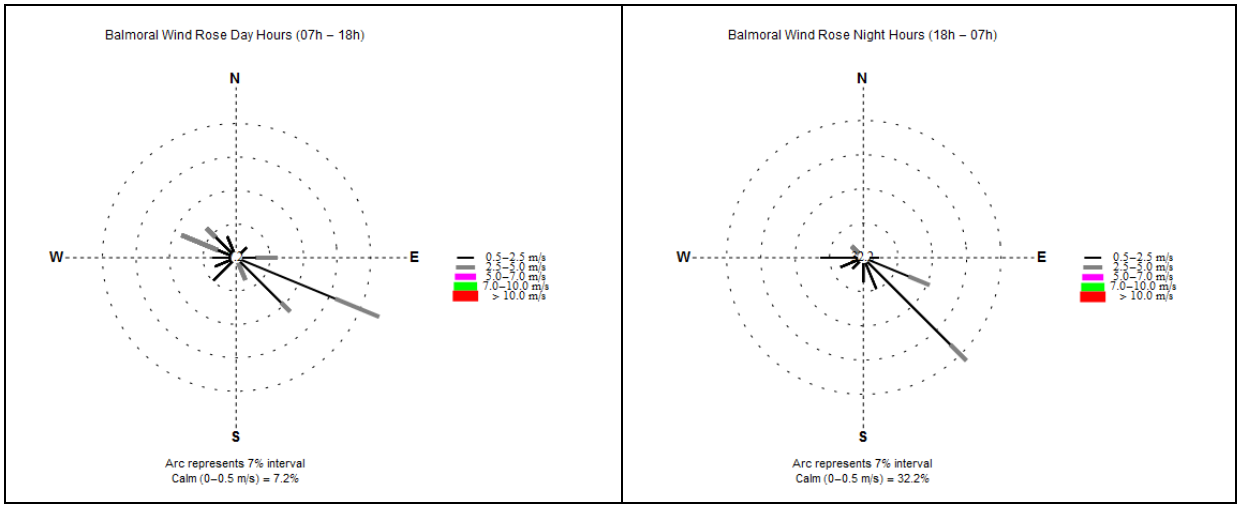


Figure 2: Wind profiles at Balmoral monitoring station

4.2.2. PHOLA AIR QUALITY MONITORING STATION

The dominant wind directions at Phola monitoring station during the day were east, east-south-east, north-west and north-north-west. During the night, the dominant wind directions were east-north-east, east-south-east and north-north-west. The monitoring station is south-east of Kusile power station.

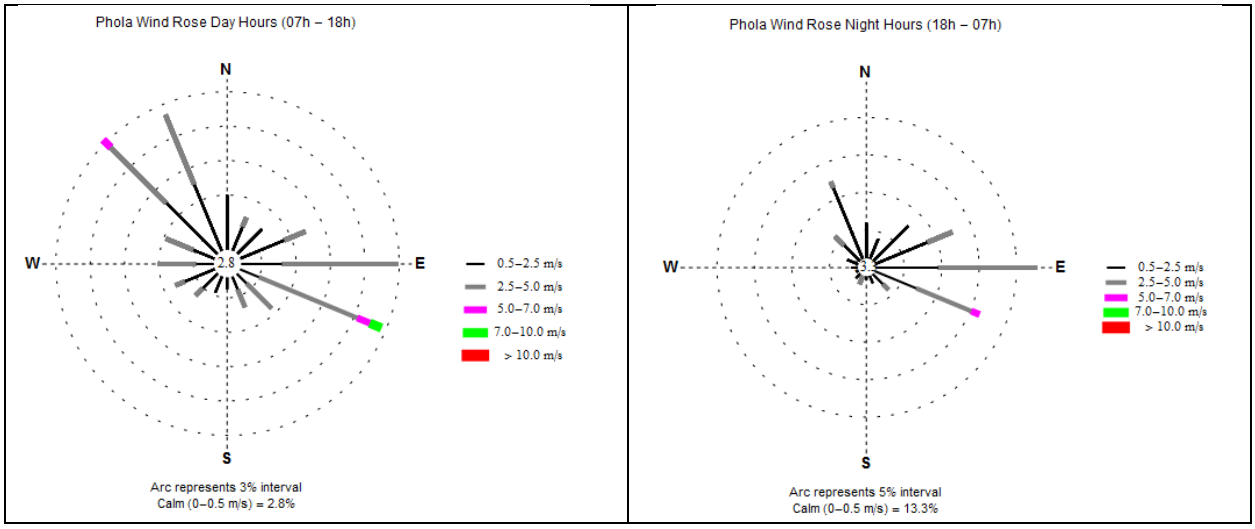


Figure 3: Wind profiles at Phola monitoring station.

4.2.3. WILGE AIR QUALITY MONITORING STATION

The wind at Wilge monitoring station was coming from the north-east, north-north-east to south-south-east directions during the day. The dominant wind sectors during the night are north-east, east-south-east and south-south-east. The monitoring station is south-east of Kusile power station.

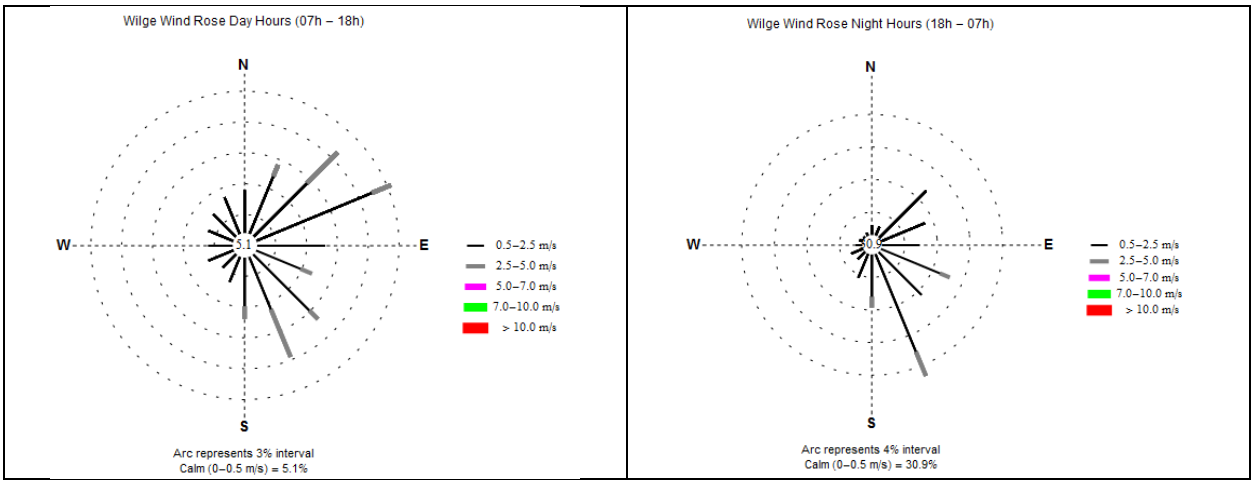


Figure 4: Wind profiles at Wilge monitoring station.

4.3. EXCEEDANCES OF THE NATIONAL AMBIENT AIR QUALITY LIMITS

Table 2: National Ambient Air Quality Standards

Pollutant	Unit	Period	Limit	Number of annual exceedances allowed	Source
Carbon Monoxide	Ppm	1hr	26.	88.	DFFE
Carbon Monoxide	Ppm	8hr	8.7	11.	DFFE
(PM_{10}) by Beta gauge	µg/m^3	24hr	75.	4.	DFFE
(PM_{10}) by Beta gauge	µg/m^3	1year	40.	0.	DFFE
($PM_{2.5}$) by Beta gauge	µg/m^3	24hr	40	4	DFFE
($PM_{2.5}$) by Beta gauge	µg/m^3	1year	20	0	DFFE
Nitrogen dioxide	Ppb	1year	21.	0.	DFFE
Nitrogen dioxide	Ppb	1hr	106.	88.	DFFE
Ozone	Ppb	8hr	61.	11.	DFFE
Sulphur dioxide	Ppb	1hr	134.	88.	DFFE
Sulphur dioxide	Ppb	10min	191.	526.	DFFE
Sulphur dioxide	Ppb	24hr	48.	4.	DFFE
Sulphur dioxide	Ppb	1year	19.	0.	DFFE

The National Department of Forestry, Fisheries and the Environment (DFFE) has set the South African Ambient Air Quality Standards for the criteria pollutants as illustrated in Table 2.

Table 3: Highest SO_2 concentration recorded (in ppb). (NAAQS in brackets)

Monitoring Stations	10-min average (191 ppb)	Date	Hourly average (134 ppb)	Date	Daily average (48 ppb)	Date
Balmoral	112.2	18/01/2025 16:20	68.4	18/01/2025 05:00	15.4	18/01/2025
Chicken Farm	NM	NM	NM	NM	NM	NM
Phola	90.0	29/01/2025 03:10	49.9	28/01/2025 07:00	18.7	24/01/2025
Wilge	21.6	17/01/2025 19:20	13.9	29/01/2025 08:00	2.9	29/01/2025

NM – not monitored.

There were no exceedances of SO_2 10-minutes limit of 191 ppb and SO_2 hourly limit of 134 ppb at all the monitoring station under review. The highest SO_2 concentrations recorded at the monitoring stations are indicated in Table 3 and figures 6 to 8 below.

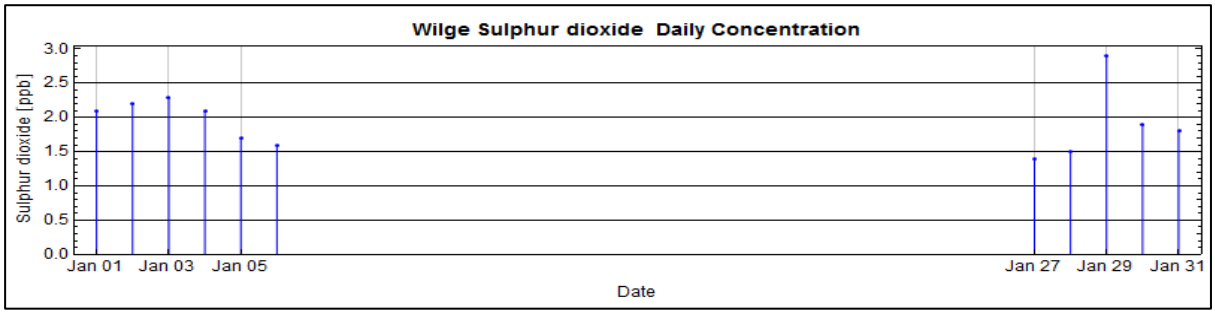


Figure 6: Time series graph for the SO_2.daily mean concentrations at Wilge AQM station (NAAQS 48 ppb)

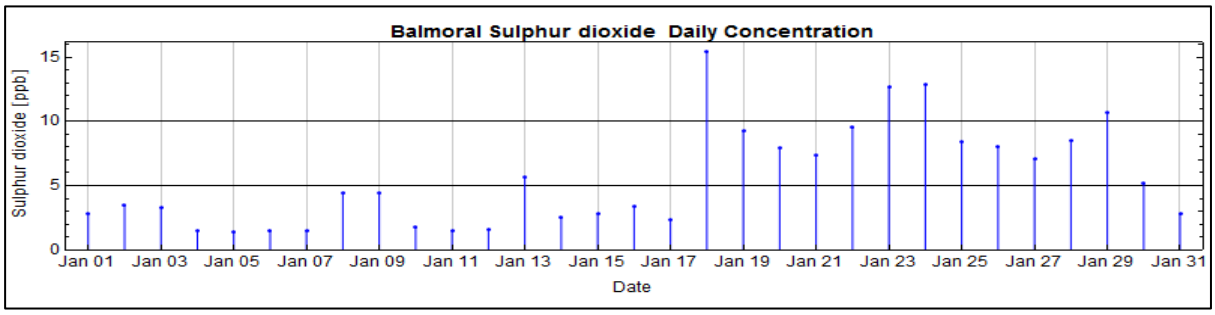


Figure 7: Time series graph for the SO_2 daily mean concentrations at Balmoral AQM station (NAAQS 48 ppb)

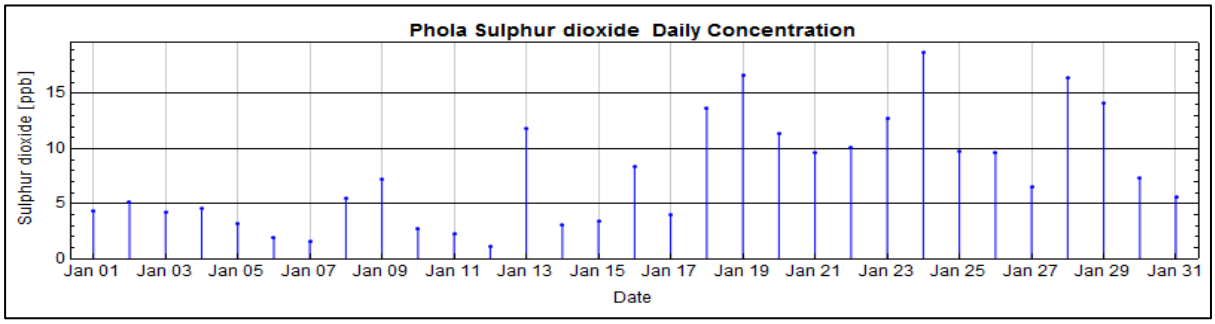


Figure 8: Time series graph for the SO_2 daily mean concentrations at Phola AQM station (NAAQS 48 ppb)

There were no exceedances of the NO_2 hourly limit of 106 ppb recorded at the monitoring stations during the January 2025 monitoring period. There were no exceedances of the $PM_{2.5}$ daily limit of 40 µg/m^3 and PM_{10} daily limit of 75 µg/m^3 at all the monitoring station under review. See Figure 09 to 10 below.

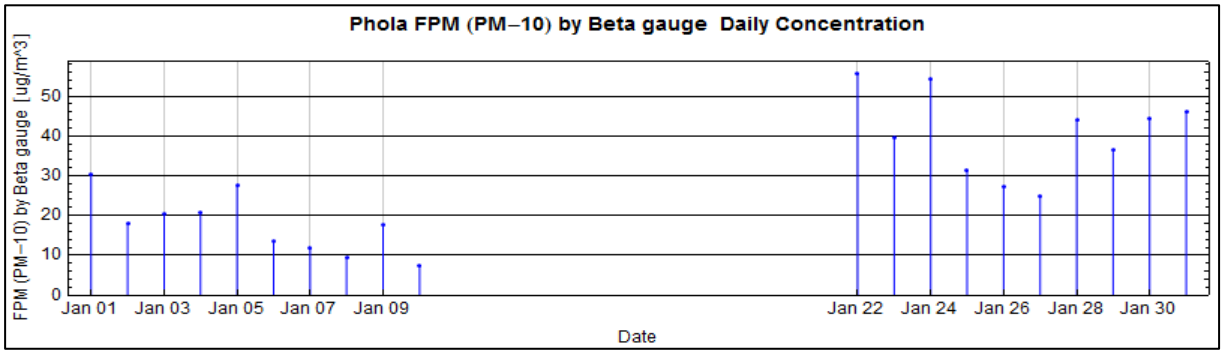


Figure 09: Time series graph for the PM_{10} daily mean concentrations at Phola AQM station (NAQS = 75 ppb)

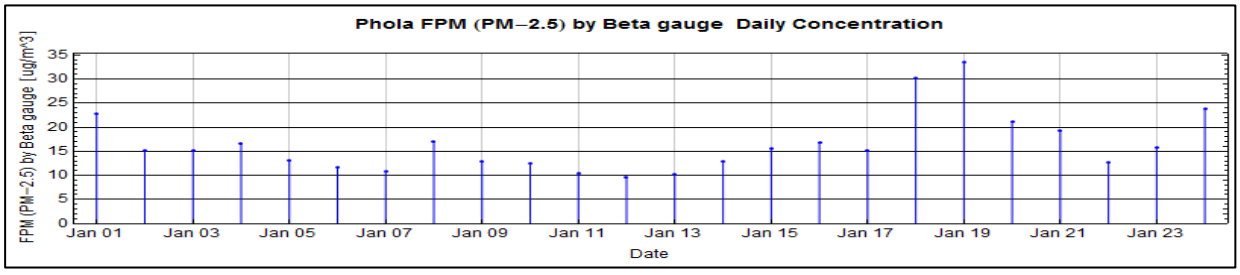


Figure 10: Time series graph for the $PM_{2.5}$ daily mean concentrations at Phola AQM station (NAAQS = 40 ppb)

Table 4: Exceedances of the NAAQ Limits per pollutant- January 2025

Averaging Period	Balmoral	Chicken Farm	Phola	Wilge
SO_2 10-min	0	NM	0	0
SO_2 Hourly	0	NM	0	0
SO_2 Daily	0	NM	0	0
NO_2 Hourly	0	NM	0	0
O_3 8-hourly	NM	NM	22	85
$PM_{2.5}$ Daily	NM	NM	0	NM
PM_{10} Daily	NM	NM	0	NM

NM – not monitored.

A summary of all exceedances per pollutant for January 2025 is shown in Table 5.

SO_2 trigger levels or emergency response levels will be based on the United States Acute Exposure Guideline Levels for Hazardous Substances. (AEGL) as amended for South African circumstances. Levels confirmed with the authorities are as follows.

a. AEGL 1 – the cautionary notification level (non-disabling level) - is based on the South African NAAQS limit – for SO_2 this will be 191 ppb over 10-minute for exposure more than 4 hours.

b. AEGL 2 – the warning notification level (disabling level for those with asthma) – is aligned to the US AEGL approach – for SO_2 will be 744 ppb over a 10-minute for exposure up to 8 hours.

c. AEGL – the lethality level – for SO_2, this will be 29 771 ppb over a 10-minute period.

As indicated in the tables and figures above there were no events that triggered the notification of stakeholders in terms of the agreed AEGL recorded in January 2025.

Table 5: Number of exceedances recorded from November 2023 to January 2025

SITES	CF	PO	BL	WL	Allowed No. of Exceedances (November 2023 to January 2025)
PM_{10} (Daily)	89	91	NM	NM	4
$PM_{2.5}$ (Daily)	93	71	NM	NM	4
NO_2 (hourly)	0	0	NM	0	88
SO_2 (Hourly	0	5	1	9	88
SO_2 (Daily)	1	0	0	0	4
O_3 (8h moving)	376	567	NM	219	11
SO_2 (10 minute)	0	14	3	10	526

NM – not monitored. Exceedance of permitted rate show in red

Chicken Farm air quality monitoring station is in non-compliance with national ambient air quality limits of $PM_{2.5}$ daily limit of 40 µg/m³, PM_{10} daily limit of 75 µg/m³ and O_3 8 hourly limit of 61 ppb. The sources that have an impact on Chicken farm are Eva high Steel and Vanadium in the north-east, Phola Township in the east-south-east, Klipspruit Colliery in the south-east and Kusile Power station in the north to north-west sectors.

The monitoring of particulate matter ($PM_{2.5}$) at Chicken Farm was started with the temporary stack project in November 2023. Phola air quality monitoring station site is in non-compliance with national ambient air quality limits of $PM_{2.5}$ daily limit of 40 µg/m³, PM_{10} daily limit of 75 µg/m³ and O_3 8 hourly limit of 61 ppb.

Both Phola and Chicken Farm are characterised by elevated levels of air pollutants, particularly particulate matter (PM_{10} and $PM_{2.5}$ and Ozone (O_3) with exceedances observed at the monitoring stations. These general trends of increasing both PM_{10} and $PM_{2.5}$ might be due low levels activities (burning of coal) for both cooking and heating from low income area and mining activities areas.

5. DFFE AND SAAQIS REPORTING

The raw monitoring data, downloaded at 1-minute averages is available in real-time to the DFFE-managed South African Air Quality Information System (SAAQIS) since the 14th of December 2023 for all Eskom air quality monitoring stations daily. Data not submitted on a real time basis is provided to DFFE for inclusion in the data base for historical reporting. In the event that the data is not available on the SAAQIS portal the stakeholders are advised to contact Eskom air quality monitoring team at RT&D.

6. CONCLUSIONS

There were no exceedances of the NO_2 hourly limit of 106 ppb recorded at the monitoring stations during the January 2025 monitoring period.

There were no exceedances of SO_2 10-minutes limit of 191 ppb and SO_2 hourly limit of 134 ppb at all the monitoring station under review.

There were no exceedances of the $PM_{2.5}$ daily limit of 40 µg/m^3 and PM_{10} daily limit of 75 µg/m^3 at all the monitoring station under review.

Both Chicken Farm air quality monitoring station and Phola sites are in non-compliance with national ambient air quality limits of $PM_{2.5}$ daily limit of 40 µg/m³, PM_{10} daily limit of 75 µg/m³ and O_3 8 hourly limit of 61 ppb.

There were no events that triggered the notification of stakeholders in terms of the agreed AEGL recorded in January 2025.

AB Moatshe

Report Compiled by:
Abel Moatshe

Reviewed and Authorised by: Date of Issue: 05-March 2025

Lufuno Tshidzumba
Middle Manager Environmental Management
Research, Testing and Development (RT&D)

7. . DISTRIBUTION LIST

SUSTAINABILITY ENVIRONMENTAL Attention: Bryan McCourt	MWP
KUSILE ENVIRONMENTAL MANAGER Attention: Lesiba Kgobe	KUSILE
Online Electronic Air Quality System Project Leader: Abel Moatshe	RT&D

8. . ABBREVIATIONS

µ/m^3	Microgram per cubic meter
DEA	Department of Environmental Affairs
deg	Degree
deg C	Degree Celsius
E	East
ENE	East-north-east
ESE	East-south-east
FPM	Fine particulate matter
HUM	Humidity
m/s	Meters per second
MWP	Megawatt Park
N	North
NE	North-east
NNE	North-north-east
NNW	North-north-west
NO_1	Nitric oxide
NO_2	Nitrogen dioxide
NOX	Oxides of nitrogen
NW	North-west
O_3	Ozone
PM-10	Particulate matter < 10 microns in diameter
PM-2.5	Particulate matter < 2.5 microns in diameter
ppb	Parts per billion
ppm	Parts per million
S	South
SE	South-east
SGT	Sigma theta
SSE	South-south-east
SSW	South-south-west
SW	South-west
TMP	Ambient temperature
W	West
WDR	Wind direction from true North
WNW	West-north-west
WSP	Wind speed
WSW	West-south-west
WVL	Wind velocity

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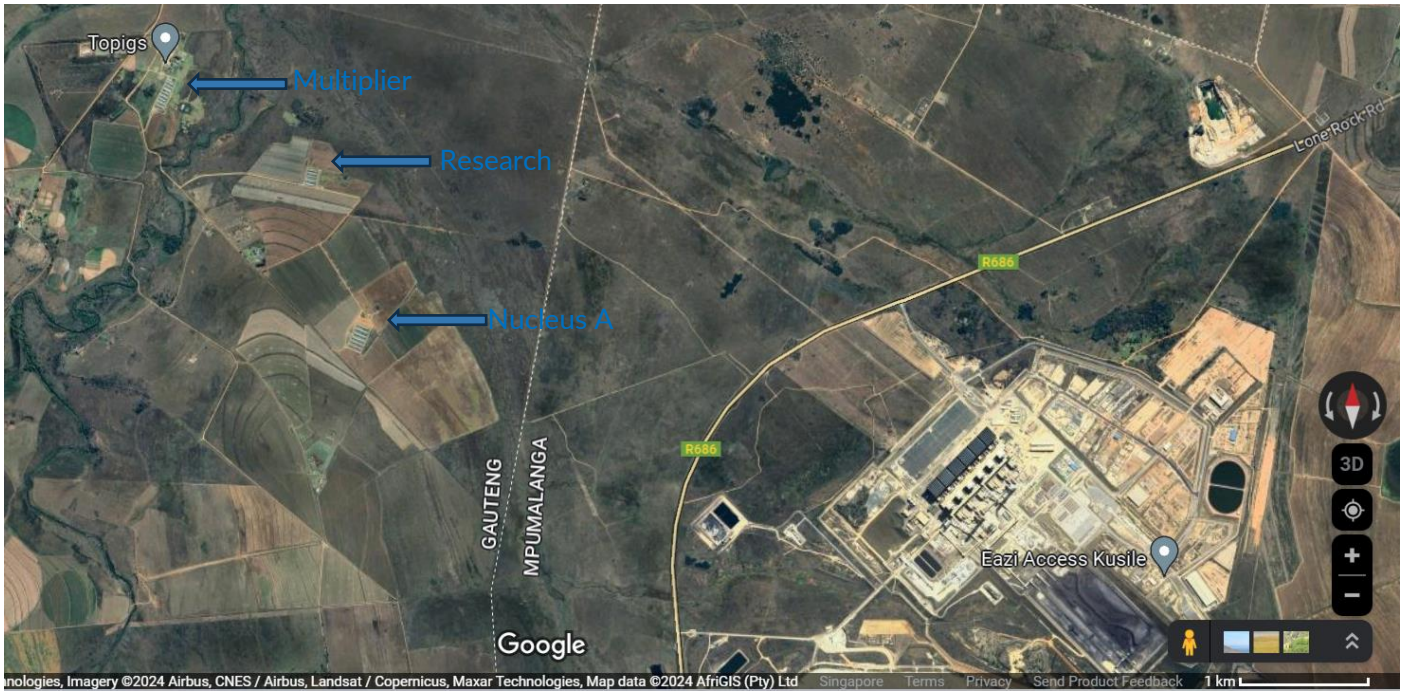
Animal Health Monitoring Summary Report January 2025



Rietfontein (Control Piggery in Mpumalanga province near Villiers):

The clinical assessment confirmed that all piglets, gilts, and sows were clinically normal with no respiratory signs observed. Haemoglobin levels have improved, with anaemic cases dropping to 3.3% and normal cases increasing to 50.0%, while the average haemoglobin has risen to 11.1 g/dL. Full blood counts remained largely within normal ranges, though mild lymphocytopenia and neutrophilia were noted in a few cases, possibly indicating subclinical infections. Amyloid A levels were normal across all tested animals. Nasal swabs detected *Glaesserella parasuis* in two gilts, but no clinical signs of Glässer's disease were observed.

Nucleus A:

All animals examined were clinically normal, with no signs of respiratory distress or systemic illness. Haemoglobin analysis showed 6.7% of the animals were anaemic, 83.3% had low haemoglobin levels, and 10% had normal haemoglobin levels, with an average concentration of 10.4 g/dL, which reflects a slight improvement from the previous average of 10.2 g/dL. Despite this improvement, the high percentage of animals with low haemoglobin levels requires continued monitoring. Full blood count results indicated that most gilts and sows had normal haematology parameters, with a few sows showing mild lymphocytopenia, suggesting potential subclinical infection, although no clinical signs were observed. Nasal swab results showed an increased number of positives for Glaesserella parasuis, with two gilts testing positive and four showing weak positive results. While no clinical signs of Glässer's disease were observed, the higher number of positive results suggests subclinical infection, and close monitoring for clinical disease is recommended.

Multiplier:

The clinical assessment found all animals to be clinically normal, except for one sow with a neck abscess. Haemoglobin levels have improved, with no anaemic pigs (0.0%), a decrease in pigs with low haemoglobin levels from 63.3% to 56.7%, and an increase in pigs within the normal range from 33.3% to 43.3%. The average haemoglobin concentration has slightly increased from 11.6 g/dL to 11.8 g/dL. Amyloid A levels were within normal limits, indicating no significant inflammatory response. Full blood counts were largely normal, with only one sow showing mild lymphocytopenia, suggesting a mild immune response or subclinical infection. PCR testing detected *Glaesserella parasuis* in some animals, but no clinical signs of Glässer's disease were observed. Overall, the herd remains in good health, with no immediate concerns, though ongoing monitoring is advised.

Research:

All animals examined were clinically normal, with no signs of respiratory distress or systemic illness. Haemoglobin analysis showed 3.3% of the animals were anaemic, 76.7% had low haemoglobin levels, and 20% had normal haemoglobin levels, with an average concentration of 11.3 g/dL, which is consistent with previous results. Despite a decrease in the percentage of anaemic pigs, the high percentage of animals with

low haemoglobin levels remains a concern and requires continued monitoring. Full blood count results indicated that most gilts and sows had normal haematology parameters, with no significant abnormalities observed. Nasal swab results showed four positive cases for Glaesserella parasuis, but no clinical signs of Glässer's disease were observed. While the detection of Glaesserella parasuis suggests potential subclinical infection, clinical disease has not yet emerged, and ongoing monitoring is advised.

GHB Spitskop:

The clinical assessment showed that all animals appeared healthy, with no observed signs of illness. Haemoglobin testing indicated that 23.3% of piglets were anaemic, and 73.3% had low haemoglobin levels, though the average haemoglobin level improved slightly to 10.0 g/dL. Amyloid A levels remained within the normal range, and haematology results for gilts and sows were largely unremarkable, except for mild neutrophilia in one gilt and mild lymphocytopenia in two sows, suggesting minor immune activity or subclinical infection. PCR testing detected three weak positive cases for *Glaesserella parasuis*, but no clinical signs of Glässer's disease or indications of active infection were observed. Continued monitoring is still recommended.

Discussion:

The clinical assessments confirmed stable health across all units, with Rietfontein (control) showing the best haemoglobin improvement (11.1 g/dL) and a low anaemia rate (3.3%). FBC results for Rietfontein remained largely normal, though mild lymphocytopenia and neutrophilia were observed in a few cases, suggesting possible subclinical infections. Nucleus A had the highest proportion of low haemoglobin cases (83.3%) and a lower average (10.4 g/dL), with FBC results mostly normal, but a few sows showed mild lymphocytopenia, hinting at subclinical infection. The Multiplier unit showed continued improvement in haemoglobin (11.8 g/dL) with no anaemic pigs, and FBC was largely normal, though one sow had mild lymphocytopenia, indicating minor immune response or subclinical infection. Research unit haemoglobin levels were stable (11.3 g/dL), but with 76.7% of animals having low haemoglobin, and FBC was normal for most gilts and sows, with no significant abnormalities noted. GHB Spitskop had the lowest average haemoglobin (10.0 g/dL) and the highest anaemia rate (23.3%), with FBC largely unremarkable except for mild neutrophilia in one gilt and mild lymphocytopenia in two sows. Glaesserella parasuis was detected in all units, but no clinical Glässer's disease was observed. While overall herd health remains stable, anaemia and subclinical infections require continued surveillance.

Dr A.H. Westerink
BVSc
D18/11784

cs vet
Veterinary Consultancy

Topigs SA Dalplaas Health Monitoring Report 2025-01-20

Assessment and Sampling date: 2025-01-20

Nucleus A

Clinical Assessment:

Clinical examination of 30 pigs (10 sows, 10 suckling piglets, 10 replacement gilts)

Clinical assessments will be scored as follows:

- Habitus:
  - 0 – normal
  - 1 – listless
- Respiratory rate:
  - 0 – normal
  - 1 – slightly elevated
  - 2 – moderately elevated
  - 3 – clearly elevated, distinct abdominal breathing
- Nasal Discharge:
  - 0 – absent
  - 1 – present
- Coughing:
  - 0 – normal
  - 1 – mild
  - 2 – moderate
  - 3 – severe
- Sneezing:
  - 0 – absent
  - 1 – present
- Rectal temperature:
  - 0 – normal
  - 1 – elevated (above 40°C)

Number	Piglet/Gilt/Sow	Habitus	Respiratory rate	Nasal Discharge	Coughing	Sneezing	Rectal temp	Comment
1	Piglet	0	0	0	0	0	0	Clinically Normal
2	Piglet	0	0	0	0	0	0	Clinically Normal
3	Piglet	0	0	0	0	0	0	Clinically Normal
4	Piglet	0	0	0	0	0	0	Clinically Normal
5	Piglet	0	0	0	0	0	0	Clinically Normal
6	Piglet	0	0	0	0	0	0	Clinically Normal
7	Piglet	0	0	0	0	0	0	Clinically Normal
8	Piglet	0	0	0	0	0	0	Clinically Normal

9	Piglet	0	0	0	0	0	0	Clinically Normal
10	Piglet	0	0	0	0	0	0	Clinically Normal
11	Gilt	0	0	0	0	0	0	Clinically Normal
12	Gilt	0	0	0	0	0	0	Clinically Normal
13	Gilt	0	0	0	0	0	0	Clinically Normal
14	Gilt	0	0	0	0	0	0	Clinically Normal
15	Gilt	0	0	0	0	0	0	Clinically Normal
16	Gilt	0	0	0	0	0	0	Clinically Normal
17	Gilt	0	0	0	0	0	0	Clinically Normal
18	Gilt	0	0	0	0	0	0	Clinically Normal
19	Gilt	0	0	0	0	0	0	Clinically Normal
20	Gilt	0	0	0	0	0	0	Clinically Normal
21	Sow	0	0	0	0	0	0	Clinically Normal
22	Sow	0	0	0	0	0	0	Clinically Normal
23	Sow	0	0	0	0	0	0	Clinically Normal
24	Sow	0	0	0	0	0	0	Clinically Normal
25	Sow	0	0	0	0	0	0	Clinically Normal, Neck Abscess
26	Sow	0	0	0	0	0	0	Clinically Normal
27	Sow	0	0	0	0	0	0	Clinically Normal
28	Sow	0	0	0	0	0	0	Clinically Normal
29	Sow	0	0	0	0	0	0	Clinically Normal
30	Sow	0	0	0	0	0	0	Clinically Normal

Remarks:

All examined animals were clinically normal, with no respiratory signs or abnormalities detected. One sow presented with a neck abscess, but was otherwise clinically normal.

Laboratory analysis:

Haemoglobin (Hb):

% Anaemic	6,7%
% Low	83,3%
% Normal	10,0%
Average g/dL	10,4

Number	Hb result (g/dL)	Interpretation
1	8,8	Anaemic
2	8,9	Anaemic
3	9,0	Low
4	9,2	Low
5	9,4	Low
6	9,5	Low
7	9,8	Low
8	9,8	Low

9	9,9	Low
10	9,9	Low
11	9,9	Low
12	10,0	Low
13	10,0	Low
14	10,0	Low
15	10,1	Low
16	10,1	Low
17	10,3	Low
18	10,4	Low
19	10,4	Low
20	10,5	Low
21	10,5	Low
22	10,6	Low
23	11,2	Low
24	11,5	Low
25	11,6	Low
26	11,7	Low
27	11,9	Low
28	12,0	Normal
29	12,3	Normal
30	12,3	Normal

Remarks

The latest haemoglobin results indicate a slight increase in anaemia cases (6.7%) while the percentage of low haemoglobin cases has decreased to 83.3%, with 10.0% now falling within the normal range. The average haemoglobin level has slightly improved to 10.4 g/dL. Despite this improvement, most piglets still have low haemoglobin levels, emphasizing the need for ongoing monitoring.

Amyloid A:

Number	Sow/Gilt	Result (mg/L)	Interpretation
1	Gilt	<3	Normal
2	Gilt	<3	Normal
3	Gilt	<3	Normal
4	Gilt	<3	Normal
5	Gilt	<3	Normal
6	Gilt	<3	Normal
7	Gilt	<3	Normal
8	Gilt	<3	Normal
9	Gilt	3,10	Normal
10	Gilt	5,90	Normal
11	Sow	4,30	Normal
12	Sow	4,50	Normal
13	Sow	<3	Normal
14	Sow	<3	Normal

15	Sow	4,30	Normal
16	Sow	3,90	Normal
17	Sow	<3	Normal
18	Sow	4,30	Normal
19	Sow	4,50	Normal
20	Sow	3,50	Normal

Remarks:

All Amyloid A test results are below the cutoff reference range (<42,7mg/L) for pigs. No increase in Amyloid A levels is seen and results are therefore interpreted as normal.

Full blood counts:

Number	Gilt/Sow	Hb	Result	Interpretation
1	Gilt	Normal	Haematology results within normal parameters	Haematology normal
2	Gilt	Normal	Haematology results within normal parameters	Haematology normal
3	Gilt	Normal	Haematology results within normal parameters	Haematology normal
4	Gilt	Normal	Haematology results within normal parameters	Haematology normal
5	Gilt	Normal	Haematology results within normal parameters	Haematology normal
6	Gilt	Normal	Haematology results within normal parameters	Haematology normal
7	Gilt	Normal	Haematology results within normal parameters	Haematology normal
8	Gilt	Normal	Haematology results within normal parameters	Haematology normal
9	Gilt	Normal	Haematology results within normal parameters	Haematology normal
10	Gilt	Normal	Haematology results within normal parameters	Haematology normal
11	Sow	Normal	Haematology results within normal parameters	Haematology normal
12	Sow	Normal	Haematology results within normal parameters	Haematology normal
13	Sow	Normal	Haematology results within normal parameters	Haematology normal
14	Sow	Normal	Haematology results within normal parameters	Haematology normal
15	Sow	Normal	Mild Lymphocytopenia	Lowered Lymphocyte count
16	Sow	Normal	Mild Lymphocytopenia	Lowered Lymphocyte count
17	Sow	Normal	Haematology results within normal parameters	haematology normal
18	Sow	Normal	Mild Lymphocytopenia	Lowered Lymphocyte count
19	Sow	Normal	Haematology results within normal parameters	Haematology normal
20	Sow	Normal	Haematology results within normal parameters	Haematology normal

Remarks

The latest results indicate that most gilts and sows have haematology values within normal parameters. However, three sows showed mild lymphocytopenia, which may suggest a subclinical infection. However, no clinical signs were noted. Continued monitoring is recommended to track any potential changes.

Nasal Swabs (Glässer's disease)

Number	Animal	Test	Pathogen tested for	Result
1	Gilt	PCR	Glaesserella parasuis	Negative
2	Gilt	PCR	Glaesserella parasuis	Weak Positive

3	Gilt	PCR	Glaesserella parasuis	Negative
4	Gilt	PCR	Glaesserella parasuis	Positive
5	Gilt	PCR	Glaesserella parasuis	Negative
6	Gilt	PCR	Glaesserella parasuis	Negative
7	Gilt	PCR	Glaesserella parasuis	Weak Positive
8	Gilt	PCR	Glaesserella parasuis	Weak Positive
9	Gilt	PCR	Glaesserella parasuis	Weak Positive
10	Gilt	PCR	Glaesserella parasuis	Positive

Remarks:

The latest nasal swab results show an increased number of positives for Glaesserella parasuis, with two gilts testing positive and four showing weak positive results. These findings suggest the possibility of subclinical infection. However, no clinical signs of Glässer's disease have been observed. Given the higher number of positive results, close monitoring for the development of clinical disease is recommended.

Conclusion

All animals examined were clinically normal, with no signs of respiratory distress or systemic illness. Haemoglobin analysis showed 6.7% of the animals were anaemic, 83.3% had low haemoglobin levels, and 10% had normal haemoglobin levels, with an average concentration of 10.4 g/dL, which reflects a slight improvement from the previous average of 10.2 g/dL. Despite this improvement, the high percentage of animals with low haemoglobin levels requires continued monitoring. Full blood count results indicated that most gilts and sows had normal haematology parameters, with a few sows showing mild lymphocytopenia, suggesting potential subclinical infection, although no clinical signs were observed. Nasal swab results showed an increased number of positives for Glaesserella parasuis, with two gilts testing positive and four showing weak positive results. While no clinical signs of Glässer's disease were observed, the higher number of positive results suggests subclinical infection, and close monitoring for clinical disease is recommended.

Multiplier

Clinical Assessment:

Number	Piglet/Gilt/Sow	Habitus	Respiratory rate	Nasal Discharge	Coughing	Sneezing	Rectal temp	Comment
1	Piglet	0	0	0	0	0	0	Clinically Normal
2	Piglet	0	0	0	0	0	0	Clinically Normal
3	Piglet	0	0	0	0	0	0	Clinically Normal
4	Piglet	0	0	0	0	0	0	Clinically Normal
5	Piglet	0	0	0	0	0	0	Clinically Normal
6	Piglet	0	0	0	0	0	0	Clinically Normal
7	Piglet	0	0	0	0	0	0	Clinically Normal
8	Piglet	0	0	0	0	0	0	Clinically Normal
9	Piglet	0	0	0	0	0	0	Clinically Normal
10	Piglet	0	0	0	0	0	0	Clinically Normal
11	Gilt	0	0	0	0	0	0	Clinically Normal
12	Gilt	0	0	0	0	0	0	Clinically Normal
13	Gilt	0	0	0	0	0	0	Clinically Normal
14	Gilt	0	0	0	0	0	0	Clinically Normal

15	Gilt	0	0	0	0	0	0	Clinically Normal
16	Gilt	0	0	0	0	0	0	Clinically Normal
17	Gilt	0	0	0	0	0	0	Clinically Normal
18	Gilt	0	0	0	0	0	0	Clinically Normal
19	Gilt	0	0	0	0	0	0	Clinically Normal
20	Gilt	0	0	0	0	0	0	Clinically Normal
21	Sow	0	0	0	0	0	0	Clinically Normal
22	Sow	0	0	0	0	0	0	Clinically Normal
23	Sow	0	0	0	0	0	0	Clinically Normal
24	Sow	0	0	0	0	0	0	Clinically Normal
25	Sow	0	0	0	0	0	0	Clinically Normal
26	Sow	0	0	0	0	0	0	Clinically Normal, Neck abscess
27	Sow	0	0	0	0	0	0	Clinically Normal
28	Sow	0	0	0	0	0	0	Clinically Normal
29	Sow	0	0	0	0	0	0	Clinically Normal
30	Sow	0	0	0	0	0	0	Clinically Normal

Remarks:

All animals examined during the clinical assessment were found to be clinically normal. One sow exhibited a neck abscess but was otherwise clinically normal and does not show any additional health concerns at this time.

Laboratory analysis:

Haemoglobin (Hb):

% Anaemic	0,0%
% Low	56,7%
% Normal	43,3%
Average g/dL	11,8

Number	Hb result (g/dL)	Interpretation
1	10,5	Low
2	10,7	Low
3	10,7	Low
4	10,7	Low
5	10,7	Low
6	10,9	Low
7	11,0	Low
8	11,1	Low
9	11,3	Low
10	11,3	Low
11	11,4	Low
12	11,5	Low
13	11,6	Low

14	11,6	Low
15	11,7	Low
16	11,8	Low
17	11,9	Low
18	12,0	Normal
19	12,1	Normal
20	12,1	Normal
21	12,1	Normal
22	12,2	Normal
23	12,3	Normal
24	12,4	Normal
25	12,5	Normal
26	12,7	Normal
27	12,7	Normal
28	12,8	Normal
29	13,2	Normal
30	13,8	Normal

Remarks

The haemoglobin status has improved compared to the previous report. The percentage of anaemic pigs has decreased from 3.3% to 0.0%, while the percentage of pigs with low haemoglobin levels has decreased from 63.3% to 56.7%. Additionally, the proportion of pigs within the normal range has increased from 33.3% to 43.3%. The average haemoglobin concentration has slightly increased from 11.6 g/dL to 11.8 g/dL. These results indicate a positive trend in haemoglobin levels.

Amyloid A:

Number	Sow/Gilt	Result (mg/L)	Interpretation
1	Gilt	<3	Normal
2	Gilt	<3	Normal
3	Gilt	7,40	Normal
4	Gilt	<3	Normal
5	Gilt	7,60	Normal
6	Gilt	<3	Normal
7	Gilt	<3	Normal
8	Gilt	<3	Normal
9	Gilt	<3	Normal
10	Gilt	3,20	Normal
11	Sow	<3	Normal
12	Sow	<3	Normal
13	Sow	<3	Normal
14	Sow	<3	Normal
15	Sow	<3	Normal
16	Sow	<3	Normal
17	Sow	<3	Normal

18	Sow	<3	Normal
19	Sow	<3	Normal
20	Sow	<3	Normal

Remarks:

All Amyloid A test results are below the cutoff reference range (<42,7mg/L) for pigs. No significant increase in Amyloid A levels is seen and results are therefore interpreted as normal.

Full blood counts:

Number	Gilt/Sow	Hb	Result	Interpretation
1	Gilt	Normal	Haematology results within normal parameters	Haematology normal
2	Gilt	Normal	Haematology results within normal parameters	Haematology normal
3	Gilt	Normal	Haematology results within normal parameters	Haematology normal
4	Gilt	Normal	Haematology results within normal parameters	Haematology normal
5	Gilt	Normal	Haematology results within normal parameters	Haematology normal
6	Gilt	Normal	Haematology results within normal parameters	Haematology normal
7	Gilt	Normal	Haematology results within normal parameters	Haematology normal
8	Gilt	Normal	Haematology results within normal parameters	Haematology normal
9	Gilt	Normal	Haematology results within normal parameters	Haematology normal
10	Gilt	Normal	Haematology results within normal parameters	Haematology normal
11	Sow	Normal	Haematology results within normal parameters	Haematology normal
12	Sow	Normal	Haematology results within normal parameters	Haematology normal
13	Sow	Normal	Haematology results within normal parameters	Haematology normal
14	Sow	Normal	Haematology results within normal parameters	Haematology normal
15	Sow	Normal	Haematology results within normal parameters	Haematology normal
16	Sow	Normal	Mild Lymphocytopenia	Lowered Lymphocyte count
17	Sow	Normal	Haematology results within normal parameters	Haematology normal
18	Sow	Normal	Haematology results within normal parameters	Haematology normal
19	Sow	Normal	Haematology results within normal parameters	Haematology normal
20	Sow	Normal	Haematology results within normal parameters	Haematology normal

Remarks

The latest results indicate that most gilts and sows have haematology values within normal parameters. However, one sow showed mild lymphocytopenia, which may suggest a mild immune response or subclinical infection. No clinical signs were noted, and continued monitoring is recommended to track any potential changes.

Nasal Swabs (Glässer's disease)

Number	Test	Pathogen tested for	Result
1	PCR	Glaesserella parasuis	Positive
2	PCR	Glaesserella parasuis	Negative
3	PCR	Glaesserella parasuis	Weak Positive

4	PCR	Glaesserella parasuis	Negative
5	PCR	Glaesserella parasuis	Positive
6	PCR	Glaesserella parasuis	Negative
7	PCR	Glaesserella parasuis	Positive
8	PCR	Glaesserella parasuis	Negative
9	PCR	Glaesserella parasuis	Negative
10	PCR	Glaesserella parasuis	Weak Positive

Remarks:

PCR testing for *Glaesserella parasuis* detected three positive and two weak positive results. Despite the presence of the pathogen in some individuals, no clinical signs of Glässer's disease were observed, and other laboratory parameters remain within normal ranges. This suggests that while *G. parasuis* is present, there is no active clinical disease, but continued monitoring is recommended.

Conclusion

The clinical assessment found all animals to be clinically normal, except for one sow with a neck abscess. Haemoglobin levels have improved, with no anaemic pigs (0.0%), a decrease in pigs with low haemoglobin levels from 63.3% to 56.7%, and an increase in pigs within the normal range from 33.3% to 43.3%. The average haemoglobin concentration has slightly increased from 11.6 g/dL to 11.8 g/dL. Amyloid A levels were within normal limits, indicating no significant inflammatory response. Full blood counts were largely normal, with only one sow showing mild lymphocytopenia, suggesting a mild immune response or subclinical infection. PCR testing detected *Glaesserella parasuis* in some animals, but no clinical signs of Glässer's disease were observed. Overall, the herd remains in good health, with no immediate concerns, though ongoing monitoring is advised.

Research

Clinical Assessment:

Number	Piglet/Gilt/Sow	Habitus	Respiratory rate	Nasal Discharge	Coughing	Sneezing	Rectal temp	Comment
1	Piglet	0	0	0	0	0	0	Clinically Normal
2	Piglet	0	0	0	0	0	0	Clinically Normal
3	Piglet	0	0	0	0	0	0	Clinically Normal
4	Piglet	0	0	0	0	0	0	Clinically Normal
5	Piglet	0	0	0	0	0	0	Clinically Normal
6	Piglet	0	0	0	0	0	0	Clinically Normal
7	Piglet	0	0	0	0	0	0	Clinically Normal
8	Piglet	0	0	0	0	0	0	Clinically Normal
9	Piglet	0	0	0	0	0	0	Clinically Normal
10	Piglet	0	0	0	0	0	0	Clinically Normal
11	Gilt	0	0	0	0	0	0	Clinically Normal
12	Gilt	0	0	0	0	0	0	Clinically Normal
13	Gilt	0	0	0	0	0	0	Clinically Normal
14	Gilt	0	0	0	0	0	0	Clinically Normal
15	Gilt	0	0	0	0	0	0	Clinically Normal

16	Gilt	0	0	0	0	0	0	Clinically Normal
17	Gilt	0	0	0	0	0	0	Clinically Normal
18	Gilt	0	0	0	0	0	0	Clinically Normal
19	Gilt	0	0	0	0	0	0	Clinically Normal
20	Gilt	0	0	0	0	0	0	Clinically Normal
21	Sow	0	0	0	0	0	0	Clinically Normal
22	Sow	0	0	0	0	0	0	Clinically Normal
23	Sow	0	0	0	0	0	0	Clinically Normal
24	Sow	0	0	0	0	0	0	Clinically Normal
25	Sow	0	0	0	0	0	0	Clinically Normal
26	Sow	0	0	0	0	0	0	Clinically Normal
27	Sow	0	0	0	0	0	0	Clinically Normal
28	Sow	0	0	0	0	0	0	Clinically Normal
29	Sow	0	0	0	0	0	0	Clinically Normal
30	Sow	0	0	0	0	0	0	Clinically Normal

Remarks:

All animals examined during the clinical assessment were found to be clinically normal and within expected parameters for healthy pigs.

Laboratory analysis:

Haemoglobin (Hb):

% Anaemic	3,3%
% Low	76,7%
% Normal	20,0%
Average g/dL	11,3

Number	Hb result (g/dL)	Interpretation
1	7,4	Anaemic
2	9,8	Low
3	9,9	Low
4	10,0	Low
5	10,0	Low
6	10,5	Low
7	10,6	Low
8	10,8	Low
9	10,8	Low
10	10,8	Low
11	10,8	Low
12	11,0	Low
13	11,4	Low
14	11,5	Low
15	11,5	Low
16	11,6	Low

17	11,6	Low
18	11,6	Low
19	11,7	Low
20	11,7	Low
21	11,8	Low
22	11,9	Low
23	11,9	Low
24	11,9	Low
25	12,1	Normal
26	12,4	Normal
27	12,5	Normal
28	12,5	Normal
29	12,5	Normal
30	13,0	Normal

Remarks

The latest haemoglobin (Hb) results show a slight decrease in the average Hb level from 11.4 g/dL to 11.3 g/dL. The percentage of anaemic pigs has decreased from 6.7% to 3.3%, but the proportion of pigs with low Hb has increased from 60.0% to 76.7%, with fewer pigs classified as normal (down from 33.3% to 20.0%). This shift indicates a trend towards more pigs falling into the low Hb category.

Amyloid A:

Number	Sow/Gilt	Result (mg/L)	Interpretation
1	Gilt	<3	Normal
2	Gilt	<3	Normal
3	Gilt	<3	Normal
4	Gilt	<3	Normal
5	Gilt	<3	Normal
6	Gilt	<3	Normal
7	Gilt	<3	Normal
8	Gilt	<3	Normal
9	Gilt	<3	Normal
10	Gilt	<3	Normal
11	Sow	<3	Normal
12	Sow	<3	Normal
13	Sow	<3	Normal
14	Sow	<3	Normal
15	Sow	<3	Normal
16	Sow	<3	Normal
17	Sow	<3	Normal
18	Sow	<3	Normal
19	Sow	<3	Normal
20	Sow	<3	Normal

Remarks:

The Amyloid A test results for all sows and gilts are below the threshold of 42.7 mg/L, indicating no significant inflammatory or chronic disease processes.

Full blood counts:

Number	Gilt/Sow	Hb	Result	Interpretation
1	Gilt	Normal	Haematology results within normal parameters	Haematology normal
2	Gilt	Normal	Haematology results within normal parameters	Haematology normal
3	Gilt	Normal	Haematology results within normal parameters	Haematology normal
4	Gilt	Normal	Haematology results within normal parameters	Haematology normal
5	Gilt	Normal	Haematology results within normal parameters	Haematology normal
6	Gilt	Normal	Haematology results within normal parameters	Haematology normal
7	Gilt	Normal	Haematology results within normal parameters	Haematology normal
8	Gilt	Normal	Haematology results within normal parameters	Haematology normal
9	Gilt	Normal	Haematology results within normal parameters	Haematology normal
10	Gilt	Normal	Haematology results within normal parameters	Haematology normal
11	Sow	Normal	Haematology results within normal parameters	Haematology normal
12	Sow	Normal	Haematology results within normal parameters	Haematology normal
13	Sow	Normal	Haematology results within normal parameters	Haematology normal
14	Sow	Normal	Haematology results within normal parameters	Haematology normal
15	Sow	Normal	Haematology results within normal parameters	Haematology normal
16	Sow	Normal	Haematology results within normal parameters	Haematology normal
17	Sow	Normal	Haematology results within normal parameters	Haematology normal
18	Sow	Normal	Haematology results within normal parameters	Haematology normal
19	Sow	Normal	Haematology results within normal parameters	Haematology normal
20	Sow	Normal	Haematology results within normal parameters	Haematology normal

Remarks

The latest full blood count results indicate that all gilts and sows have haematology values within normal parameters, confirming stable blood profiles across the group. No abnormalities or deviations were observed, suggesting that the herd is maintaining good health status.

Nasal Swabs (Glässer's disease)

Number	Test	Pathogen tested for	Result
1	PCR	Glaesserella parasuis	Positive
2	PCR	Glaesserella parasuis	Negative
3	PCR	Glaesserella parasuis	Negative
4	PCR	Glaesserella parasuis	Negative
5	PCR	Glaesserella parasuis	Negative
6	PCR	Glaesserella parasuis	Positive
7	PCR	Glaesserella parasuis	Positive
8	PCR	Glaesserella parasuis	Negative
9	PCR	Glaesserella parasuis	Positive
10	PCR	Glaesserella parasuis	Negative

Remarks:

The latest PCR results for Glaesserella parasuis show four positive cases, with six negative results. Despite the positive detections, no clinical signs of Glässer's disease were observed in the gilts. Monitoring will continue to assess any potential future developments.

Conclusion

All animals examined were clinically normal, with no signs of respiratory distress or systemic illness. Haemoglobin analysis showed 3.3% of the animals were anaemic, 76.7% had low haemoglobin levels, and 20% had normal haemoglobin levels, with an average concentration of 11.3 g/dL, which is consistent with previous results. Despite a decrease in the percentage of anaemic pigs, the high percentage of animals with low haemoglobin levels remains a concern and requires continued monitoring. Full blood count results indicated that most gilts and sows had normal haematology parameters, with no significant abnormalities observed. Nasal swab results showed four positive cases for Glaesserella parasuis, but no clinical signs of Glässer's disease were observed. While the detection of Glaesserella parasuis suggests potential subclinical infection, clinical disease has not yet emerged, and ongoing monitoring is advised.

Dr A.H. Westerink
D18/11784

cs vet
Veterinary Consultancy

Topigs SA Rietfontein Health Monitoring Report 2025-01-13

Assessment and Sampling date: 2025-01-13

Clinical Assessment:

Clinical examination of 30 pigs (10 sows, 10 suckling piglets, 10 replacement gilts)

Clinical assessments will be scored as follows:

- Habitus:
  - 0 – normal
  - 1 – listless
- Respiratory rate:
  - 0 – normal
  - 1 – slightly elevated
  - 2 – moderately elevated
  - 3 – clearly elevated, distinct abdominal breathing
- Nasal Discharge:
  - 0 – absent
  - 1 – present
- Coughing:
  - 0 – normal
  - 1 – mild
  - 2 – moderate
  - 3 – severe
- Sneezing:
  - 0 – absent
  - 1 – present
- Rectal temperature:
  - 0 – normal
  - 1 – elevated (above 40°C)

Number	Piglet/Gilt/Sow	Habitus	Respiratory rate	Nasal Discharge	Coughing	Sneezing	Rectal temp	Comment
1	Piglet	0	0	0	0	0	0	Clinically Normal
2	Piglet	0	0	0	0	0	0	Clinically Normal
3	Piglet	0	0	0	0	0	0	Clinically Normal
4	Piglet	0	0	0	0	0	0	Clinically Normal
5	Piglet	0	0	0	0	0	0	Clinically Normal
6	Piglet	0	0	0	0	0	0	Clinically Normal
7	Piglet	0	0	0	0	0	0	Clinically Normal
8	Piglet	0	0	0	0	0	0	Clinically Normal
9	Piglet	0	0	0	0	0	0	Clinically Normal

10	Piglet	0	0	0	0	0	0	Clinically Normal
11	Gilt	0	0	0	0	0	0	Clinically Normal
12	Gilt	0	0	0	0	0	0	Clinically Normal
13	Gilt	0	0	0	0	0	0	Clinically Normal
14	Gilt	0	0	0	0	0	0	Clinically Normal
15	Gilt	0	0	0	0	0	0	Clinically Normal
16	Gilt	0	0	0	0	0	0	Clinically Normal
17	Gilt	0	0	0	0	0	0	Clinically Normal
18	Gilt	0	0	0	0	0	0	Clinically Normal
19	Gilt	0	0	0	0	0	0	Clinically Normal
20	Gilt	0	0	0	0	0	0	Clinically Normal
21	Sow	0	0	0	0	0	0	Clinically Normal
22	Sow	0	0	0	0	0	0	Clinically Normal
23	Sow	0	0	0	0	0	0	Clinically Normal
24	Sow	0	0	0	0	0	0	Clinically Normal
25	Sow	0	0	0	0	0	0	Clinically Normal
26	Sow	0	0	0	0	0	0	Clinically Normal
27	Sow	0	0	0	0	0	0	Clinically Normal
28	Sow	0	0	0	0	0	0	Clinically Normal
29	Sow	0	0	0	0	0	0	Clinically Normal
30	Sow	0	0	0	0	0	0	Clinically Normal

Remarks:

All animals that were examined during the clinical assessment were found clinically normal and within the expected clinical parameters of a healthy pig.

Laboratory analysis:

Haemoglobin*:

% Anaemic	3,3%
% Low	46,7%
% Normal	50,0%
Average (g/dL)	11,1

Number	Hb result (g/dL)	Interpretation
1	8,3	Anaemic
2	9,8	Low
3	9,9	Low
4	10,2	Low
5	10,2	Low
6	10,3	Low
7	10,4	Low
8	10,5	Low

9	10,6	Low
10	10,6	Low
11	10,6	Low
12	10,8	Low
13	10,8	Low
14	10,8	Low
15	10,9	Low
16	11,0	normal
17	11,0	normal
18	11,1	normal
19	11,5	normal
20	11,5	normal
21	11,6	normal
22	11,6	normal
23	11,7	normal
24	11,7	normal
25	11,7	normal
26	12,4	normal
27	12,5	normal
28	12,5	normal
29	12,6	normal
30	13,5	normal

Remarks

The latest results indicate an improvement in haemoglobin levels, with anaemic cases dropping from 20.0% to 3.3% and normal cases rising from 13.3% to 50.0%. The percentage of pigs in the low category has also decreased from 66.7% to 46.7%. Additionally, the average haemoglobin has increased from 10.5 g/dL to 11.1 g/dL, reflecting better overall haemoglobin levels.

Amyloid A:

Number	Gilt/Sow	Result	Interpretation
1	Gilt	16,5	Normal
2	Gilt	10,4	Normal
3	Gilt	10,5	Normal
4	Gilt	15,8	Normal
5	Gilt	12,7	Normal
6	Gilt	17,6	Normal
7	Gilt	8,1	Normal
8	Gilt	14,5	Normal
9	Gilt	14,9	Normal
10	Gilt	8,3	Normal
11	Sow	<3	Normal
12	Sow	<3	Normal
13	Sow	<3	Normal

14	Sow	<3	Normal
15	Sow	<3	Normal
16	Sow	<3	Normal
17	Sow	<3	Normal
18	Sow	<3	Normal
19	Sow	<3	Normal
20	Sow	<3	Normal

Remarks:

All Amyloid A test results remain within the reference range for pigs (below 42.7 mg/L), with no significant elevations detected. While some gilts show relatively lower values, these are still within the normal range and are not a cause for concern.

Full blood counts:

Number	Gilt/Sow	Hb	Result	Interpretation
1	Gilt	Normal	Haematology results within normal parameters	Haematology normal
2	Gilt	Normal	Haematology results within normal parameters	Haematology normal
3	Gilt	Normal	Haematology results within normal parameters	Haematology normal
4	Gilt	Normal	Mild Lymphocytopenia	Lowered Lymphocyte count
5	Gilt	Normal	Haematology results within normal parameters	Haematology normal
6	Gilt	Normal	Haematology results within normal parameters	Haematology normal
7	Gilt	Normal	Haematology results within normal parameters	Haematology normal
8	Gilt	Normal	Neutrophilia	Increase in neutrophil count
9	Gilt	Normal	Haematology results within normal parameters	Haematology normal
10	Gilt	Normal	Haematology results within normal parameters	Haematology normal
11	Sow	Normal	Mild Lymphocytopenia	Lowered Lymphocyte count
12	Sow	Normal	Mild Lymphocytopenia	Lowered Lymphocyte count
13	Sow	Normal	Haematology results within normal parameters	Haematology normal
14	Sow	Normal	Haematology results within normal parameters	Haematology normal
15	Sow	Normal	Haematology results within normal parameters	Haematology normal
16	Sow	Normal	Haematology results within normal parameters	Haematology normal
17	Sow	Normal	Haematology results within normal parameters	Haematology normal
18	Sow	Normal	Haematology results within normal parameters	Haematology normal
19	Sow	Normal	Haematology results within normal parameters	Haematology normal
20	Sow	Normal	Haematology results within normal parameters	Haematology normal

Remarks

The recent full blood counts indicate that most gilts and sows have haematological parameters within normal ranges. However, mild lymphocytopenia was observed in a few cases, and one gilt showed neutrophilia. These findings may suggest underlying subclinical infections but are not of immediate concern as no clinical signs were observed.

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Nasal Swabs (Glässer's disease)

Number	Animal	Test	Pathogen tested for	Result
1	Gilt	PCR	Glaesserella parasuis	Negative
2	Gilt	PCR	Glaesserella parasuis	Negative
3	Gilt	PCR	Glaesserella parasuis	Negative
4	Gilt	PCR	Glaesserella parasuis	Negative
5	Gilt	PCR	Glaesserella parasuis	Negative
6	Gilt	PCR	Glaesserella parasuis	Negative
7	Gilt	PCR	Glaesserella parasuis	Negative
8	Gilt	PCR	Glaesserella parasuis	Negative
9	Gilt	PCR	Glaesserella parasuis	Positive
10	Gilt	PCR	Glaesserella parasuis	Positive

Remarks:

Among the ten nasal swab PCR tests conducted for *Glaesserella parasuis*, two tested positive while the rest were negative. Despite these findings, the gilts showed no clinical signs of Glässer's disease, suggesting that the presence of the pathogen does not currently indicate an active infection.

Conclusion

The clinical assessment confirmed that all piglets, gilts, and sows were clinically normal with no respiratory signs observed. Haemoglobin levels have improved, with anaemic cases dropping to 3.3% and normal cases increasing to 50.0%, while the average haemoglobin has risen to 11.1 g/dL. Full blood counts remained largely within normal ranges, though mild lymphocytopenia and neutrophilia were noted in a few cases, possibly indicating subclinical infections. Amyloid A levels were normal across all tested animals. Nasal swabs detected *Glaesserella parasuis* in two gilts, but no clinical signs of Glässer's disease were observed.

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GHB Spitskop Health Monitoring Report 2025-01-17

Assessment and Sampling date: 2025-01-17

Clinical Assessment:

Clinical examination of 30 pigs (10 sows, 10 suckling piglets, 10 replacement gilts)

Clinical assessments will be scored as follows:

- Habitus:
  - 0 – normal
  - 1 – listless
- Respiratory rate:
  - 0 – normal
  - 1 – slightly elevated
  - 2 – moderately elevated
  - 3 – clearly elevated, distinct abdominal breathing
- Nasal Discharge:
  - 0 – absent
  - 1 – present
- Coughing:
  - 0 – normal
  - 1 – mild
  - 2 – moderate
  - 3 – severe
- Sneezing:
  - 0 – absent
  - 1 – present
- Rectal temperature:
  - 0 – normal
  - 1 – elevated (above 40°C)

Number	Piglet/Gilt/Sow	Habitus	Respiratory rate	Nasal Discharge	Coughing	Sneezing	Rectal temp	Comment
1	Piglet	0	0	0	0	0	0	Clinically Normal
2	Piglet	0	0	0	0	0	0	Clinically Normal
3	Piglet	0	0	0	0	0	0	Clinically Normal
4	Piglet	0	0	0	0	0	0	Clinically Normal
5	Piglet	0	0	0	0	0	0	Clinically Normal
6	Piglet	0	0	0	0	0	0	Clinically Normal
7	Piglet	0	0	0	0	0	0	Clinically Normal
8	Piglet	0	0	0	0	0	0	Clinically Normal

9	Piglet	0	0	0	0	0	0	Clinically Normal
10	Piglet	0	0	0	0	0	0	Clinically Normal
11	Gilt	0	0	0	0	0	0	Clinically Normal
12	Gilt	0	0	0	0	0	0	Clinically Normal
13	Gilt	0	0	0	0	0	0	Clinically Normal
14	Gilt	0	0	0	0	0	0	Clinically Normal
15	Gilt	0	0	0	0	0	0	Clinically Normal
16	Gilt	0	0	0	0	0	0	Clinically Normal
17	Gilt	0	0	0	0	0	0	Clinically Normal
18	Gilt	0	0	0	0	0	0	Clinically Normal
19	Gilt	0	0	0	0	0	0	Clinically Normal
20	Gilt	0	0	0	0	0	0	Clinically Normal
21	Sow	0	0	0	0	0	0	Clinically Normal
22	Sow	0	0	0	0	0	0	Clinically Normal
23	Sow	0	0	0	0	0	0	Clinically Normal
24	Sow	0	0	0	0	0	0	Clinically Normal
25	Sow	0	0	0	0	0	0	Clinically Normal
26	Sow	0	0	0	0	0	0	Clinically Normal
27	Sow	0	0	0	0	0	0	Clinically Normal
28	Sow	0	0	0	0	0	0	Clinically Normal
29	Sow	0	0	0	0	0	0	Clinically Normal
30	Sow	0	0	0	0	0	0	Clinically Normal

Remarks:

All animals examined during the clinical assessment were found to be clinically healthy, with no respiratory signs observed

Laboratory analysis:

Haemoglobin:

% Anaemic	23,3%
% Low	73,3%
% Normal	3,3%
Average g/dL	10,0

Number	Hb result (g/dL)	Interpretation
1	7,6	Anaemic
2	8,1	Anaemic
3	8,1	Anaemic
4	8,1	Anaemic
5	8,3	Anaemic
6	8,6	Anaemic
7	8,7	Anaemic
8	9,3	Low

9	9,4	Low
10	9,5	Low
11	9,6	Low
12	9,8	Low
13	9,8	Low
14	9,9	Low
15	10,2	Low
16	10,3	Low
17	10,4	Low
18	10,4	Low
19	10,5	Low
20	10,8	Low
21	10,8	Low
22	10,9	Low
23	11,0	Low
24	11,0	Low
25	11,1	Low
26	11,4	Low
27	11,5	Low
28	11,6	Low
29	11,9	Low
30	12,5	Normal

Remarks

The percentage of anaemic piglets has slightly decreased to 23.3%, while those in the low haemoglobin range have risen to 73.3%, leaving only 3.3% within the normal range. Although the average haemoglobin level has improved from 9.6 g/dL to 10.0 g/dL, the overall distribution still indicates ongoing difficulties in achieving optimal haemoglobin levels. Continued monitoring is still recommended.

Amyloid A:

Number	Sow/Gilt	Result (mg/L)	Interpretation
1	Gilt	<3	Normal
2	Gilt	8,70	Normal
3	Gilt	9,50	Normal
4	Gilt	12,90	Normal
5	Gilt	<3	Normal
6	Gilt	4,10	Normal
7	Gilt	<3	Normal
8	Gilt	3,90	Normal
9	Gilt	<3	Normal
10	Gilt	<3	Normal
11	Sow	<3	Normal
12	Sow	<3	Normal
13	Sow	<3	Normal
14	Sow	<3	Normal

15	Sow	<3	Normal
16	Sow	<3	Normal
17	Sow	<3	Normal
18	Sow	<3	Normal
19	Sow	<3	Normal
20	Sow	<3	Normal

Remarks:

All Amyloid A test results are below the cutoff reference range(<42,7mg/L) for pigs. No significant rise in inflammatory markers is noted.

Full blood counts:

Number	Gilt/Sow	Hb	Result	Interpretation
1	Gilt	Normal	Haematology results within normal parameters	Haematology normal
2	Gilt	Normal	Haematology results within normal parameters	Haematology normal
3	Gilt	Normal	Haematology results within normal parameters	Haematology normal
4	Gilt	Normal	Haematology results within normal parameters	Haematology normal
5	Gilt	Normal	Haematology results within normal parameters	Haematology normal
6	Gilt	Normal	Haematology results within normal parameters	Haematology normal
7	Gilt	Normal	Mild Neutrophilia	Increased Neutrophil count
8	Gilt	Normal	Haematology results within normal parameters	Haematology normal
9	Gilt	Normal	Haematology results within normal parameters	Haematology normal
10	Gilt	Normal	Haematology results within normal parameters	Haematology normal
11	Sow	Normal	Haematology results within normal parameters	Haematology normal
12	Sow	Normal	Haematology results within normal parameters	Haematology normal
13	Sow	Normal	Mild Lymphocytopenia	Lowered Lymphocyte count
14	Sow	Normal	Haematology results within normal parameters	Haematology normal
15	Sow	Normal	Haematology results within normal parameters	Haematology normal
16	Sow	Normal	Haematology results within normal parameters	Haematology normal
17	Sow	Normal	Haematology results within normal parameters	Haematology normal
18	Sow	Normal	Mild Lymphocytopenia	Lowered Lymphocyte count
19	Sow	Normal	Haematology results within normal parameters	Haematology normal
20	Sow	Normal	Haematology results within normal parameters	Haematology normal

Remarks

The latest full blood count results for gilts and sows indicate that haematology parameters are mostly within normal ranges, with stable haemoglobin levels. However, one gilt exhibited mild neutrophilia, while two sows showed mild lymphocytopenia, both of which could suggest a subclinical infection or a low-grade immune reaction.

Nasal Swabs (Glässer's disease)

Number	Test	Pathogen tested for	Result
1	PCR	Glaesserella parasuis	Weak Positive
2	PCR	Glaesserella parasuis	Weak Positive

3	PCR	Glaesserella parasuis	Negative
4	PCR	Glaesserella parasuis	Negative
5	PCR	Glaesserella parasuis	Negative
6	PCR	Glaesserella parasuis	Negative
7	PCR	Glaesserella parasuis	Negative
8	PCR	Glaesserella parasuis	Negative
9	PCR	Glaesserella parasuis	Weak Positive
10	PCR	Glaesserella parasuis	Negative

Remarks:

The latest PCR results for Glaesserella parasuis show three weak positive cases, while the remaining samples tested negative. This suggests the presence of the pathogen at low levels, but without clinical signs of Glässer's disease or supportive laboratory findings of active infection. Continued monitoring is advised to track any changes in pathogen presence and potential disease development.

Conclusion

The clinical assessment showed that all animals appeared healthy, with no observed signs of illness. Haemoglobin testing indicated that 23.3% of piglets were anaemic, and 73.3% had low haemoglobin levels, though the average haemoglobin level improved slightly to 10.0 g/dL. Amyloid A levels remained within the normal range, and haematology results for gilts and sows were largely unremarkable, except for mild neutrophilia in one gilt and mild lymphocytopenia in two sows, suggesting minor immune activity or subclinical infection. PCR testing detected three weak positive cases for *Glaesserella parasuis*, but no clinical signs of Glässer's disease or indications of active infection were observed. Continued monitoring is recommended.

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