Eskom

Dr Patience Gwaze
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Date: 29 July 2024
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Dear Dr Gwaze,

MAY 2024 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 September 2023.

As an initial point, I would like to confirm that no exceedances of the stack or ambient trigger level conditions were recorded during June 2024.

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 remains 31 December 2024.

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Risks:

I. Alimak operation is not possible during windy conditions and wind direction can result in flue gas contamination at the top of the stack from units 1 or 3 preventing safe access to the stack.

II. Product removed with the cleaning process, totally different as expected from original samples taken, imposing a risk with the cleaning process.

The Permanent Stack recovery progress report is attached **(Annexures A).**

2. Temporary Stack Emission Monitoring

Continuous Emission Monitoring (CEMS):

I. Unit 1, 2 and 3 CEMS are installed and commissioned.

II. Unit 1 is operated with unity curve for PM and 3 is operating on spot curve for PM, due to monitor replaced and Unit 2 PM is also operating with a spot check due to a failed correlation test. New correlation tests are planned and information on the outcomes of the test will be included in the future monthly progress report. Unit 2 emissions monitoring will be retrofitted upon finalization of correlation test and implementation of correlation curves.

III. All units are operating with valid parallel curves.

Stack Performance:

I. The Kusile Monthly Emission report for May 2024, which includes emission data for Units 1,2, 3 and 4 is attached **(Annexure B)**.

II. **Based on the available data information, Kusile Unit 1, 2 and 3 operated in compliance with the AEL emission limits for PM, NOx or SO_2** during June 2024.

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. Two SMS's have been communicated thus far to the ambassadors and communities. The first SMS was to assure ambassadors that the stacks are operating within the MES limit, and the second SMS was to keep ambassadors on the loop and that they shall be contacted with regards to emergencies and general update on the operations of the temporary stacks SO2 limits.

III. The IT department has finalized the toll-free line for the communities to use should a need arise regarding the SO2 emission. A pre-loaded voice messaging will be loaded on the toll free line, which will guide the community members on the various health enquiries that they will be having. The process is at its final stage, pending the recording and voice upload stage.

IV. Engagement with GHB Farms and Topigs will be conducted once the date had 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 were conducted throughout June 2024.

II. SO_2 levels along the perimeter remained below detection levels, meeting the statutory requirement of 0.5 ppm OEL-STEL/C.

III. However, on the 20th of June 2024, a request was received from the Engineering Department to investigate a SO_2 leak after damage to the Unit Absorber Flue Gas Inlet Duct Damaged Expansion Bellow occurred.

IV. The site emergency preparedness plan was activated, and the onsite Environmental department confirmed that stack SO_2 levels were within licensed limits via Continuous Emissions Monitoring System (CEMS) checks.

V. Upon assessment and evaluation of the area, the occupational hygiene team recorded SO_2 levels ranging between 0.2 – 2.6 ppm at the K2 Absorber Flue Gas Inlet Duct Damaged Expansion Bellow, Expansion Joint and the surrounding areas of the Absorber Flue Gas Inlet Duct Manhole (Refer to Memo Report KSL – HCS – K2 ABSORBER FLUE GAS INLET DUCT – 2024- 06-A0).

VI. Subsequent measurements were taken on the 21st of June 2024 and measurements showed levels ranging between 0.2 – 1.6 ppm. Recommendations on how to contain, minimize and control exposure were provided to the Engineering Department. Furthermore, the area is access controlled and only authorized personnel are allowed to enter the area.

VII. The K2 Absorber Flue Gas Inlet Duct Damaged Expansion Bellow was later repaired during the K2 Outage which took place from the 25th – 27th of June 2024. Follow up measurements were taken after repairs which showed levels returning to normal at 0 ppm at the K2 Absorber Flue Gas Inlet Duct Damaged Expansion Bellow, Expansion Joint and the surrounding areas of the Absorber Flue Gas Inlet Duct Manhole.

4.2. Conclusion:

Our continuous SO2 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	Meeting was held on the 9th of July 2024
Media • Emalahleni FM • Witbank News	• Advert • Print	When required	Eskom media desk to publish

5.1 Stakeholder Engagement

Kusile Power station in collaboration with the Kendal Power Station organized meeting on 09 July 2024, coordinated through three elected local councilors. The councilors each attended the meeting with 30 people in total from their respective areas (wards 28, 30 and 31) of Phola, local Farms and Wilge. The community members were pleased with the information shared and found the presentation very insightful. They further expressed that in case of an emergency they know who to contact.

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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 stations (Kendal, Phola and Chicken Farm) will complement the additional monitoring sites to reduce uncertainties and improve the understanding of air quality issues in the area.

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 following parameters, nitrogen dioxide (NO2), ozone (O3) and fine particulate matter of particulate size <10µm and particulate size <2.5µm in diameter (PM10 and PM2.5) will be monitored from 01 July 2024.

IV. The data for this reporting period (01 – 30 June 2024) were analysed for ambient SO2 as monitored at Balmoral, Chicken Farm, Phola and Wilge air quality monitoring stations. The Particulate Matter and NO2 data were further analysed for Chicken Farm and Phola.

V. 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.

VI. There were no exceedances of the NO2 hourly limit of 106 ppb recorded at the monitoring stations during the June 2024 monitoring period.

VII. There was one (1) exceedance of SO2 10-minutes limit of 191 ppb recorded during the monitoring period at Balmoral air quality monitoring site.

VIII. There were nineteen (19) exceedances of the PM2.5 daily limit of 40 µg/m3 at Phola, and sixteen (16) exceedances of the PM2.5 daily limit of 40 µg/m3the Chicken Farm monitoring station. There were nineteen (19) exceedances of PM10 daily limit of 75 µg/m3 at Phola air quality monitoring station and twenty-five (25) exceedances of PM10 daily limit of 75 µg/m3 recorded at Chicken Farm air quality monitoring station.

IX. There were no events that triggered the notification of stakeholders in terms of the agreed AEGL recorded in June 2024.

Table 1 Highest SO_2 concentrations recorded (in ppb)

Monitoring Stations	10-min average	Date	Hourly average	Date	Daily average	Date
Balmoral	197.1	05/06/2024 10:00	108.5	13/06/2024 12h00	22.4	13/06/2024
Chicken Farm	129.2	22/06/2024 12:20	100.3	14/06/2024 06:00	36.9	14/06/2024
Phola	151.8	28/06/2024 22:30	97.3.6	13/06/2024 05:00	37.1	14/06/2024
Wilge	120.3	15/06/2024 11:00	162.1	25/06/2024 03:00	45.8	15/06/2024

X. Good representative percentage data was recovered for all the parameters monitored during the monitoring period under review at all the monitoring stations.

XI. 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.

XII. The detailed June 2024 Kusile ambient monitoring report is attached (**Annexure C).**

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7. Poultry Health Monitoring

I. A service provider had been appointed for Kendal Poultry monitoring per the condition of environmental authorisation (record of decision) and the MES approval. Execution of the monitoring is on hold due to the outbreak of Avian Influenza.
II. Engagements between Eskom and Kendal Poultry are ongoing regarding resumption of monitoring.
III. Alternative options are being explored by Kendal Poultry and Eskom on how to resume monitoring.

8. Animal Health Monitoring

I. Eskom has reached an agreement with Topigs and GHB farms regarding animal/pig health monitoring continues since March 2024.
II. Monitoring is carried out according to prescribed protocol.

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) remain 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 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

Compiled by:

Lesiba Kgobe
ENVIRONMENTAL MANAGER

DATE: 31/07/2024

Approved by:

Christopher Nani
ACTING GENERAL MANAGER (KUSILE POWER STATION)
DATE: 02/8/2024

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List of annexures

Annexure A: Kusile West Chimney Recovery Project – June 2024
Annexure B: Kusile Monthly Emission Report – June 2024
Annexure C: Kusile Ambient Air Quality Report – June 2024

Eskom

Dr P. Gwaze
National Air Quality Officer
Department of Forestry, Fisheries and Environment
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Date: 24 July 2024

Enquiries: S Mahlangu
Tel: 013 699 7097

Monthly Progress Report for Kusile Power Station West Stack Recovery July 2024:

	Status	Start Date	End Date
Cleaning Lobster K1			
Cleaning Damaged lobster	100%	20 May 2024	24 May 2024
Vertical Flue Cleaning unit 1 to 3			
Clean vertical flue unit 3 first pass	100%	19 April 2024	7 June 2024
Clean vertical flue unit 2	0%		
Clean vertical flue unit 1: manual cleaning	20%	6 June 2024	30 August 2024
Clean vertical flue unit 3: manual cleaning	40%	12 June 2024	15 August 2024
Fabricate new Lobster for K1	14%	7 June 2024	30 August 2024
Fabricate new 55m platform	28%	7 June 2024	30 August 2024
Suspended platform installation flue 3	100%	3 June 2024	13 June 2024
Suspended platform installation flue 1	100%	26 June 2024	23 July 2024

Notes:

West Stack: The target date for the recovery of the permanent west stack remains the 31 December 2024.

Risks:

- Alimak operation is not possible during windy conditions and wind direction can result in flue gas contamination at the top of the stack from units 1, 2 and 3 temporary stacks preventing safe access to the permanent chimney. Impact is two (2) weeks lost in twelve (12) weeks.
- The slurry build-up removed during the cleaning process is totally different from original samples taken, posing a risk with the cleaning process progress. Cleaning process changed to manual hand cleaning.
- Flue lining blocks found to be cracked / damaged underneath the slurry build-up. Significant replacement will be required.

Remedial action under review due to time lost and the recovery program is being developed.

Trust you find the above in order.

Kind Regards,

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Zandi Shange
General Manager - Kusile Power Station Project

Generation Division - Group Capital
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Eskom

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Date:

July 2024

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

Dear Ms. Simelane

KUSILE POWER STATION'S MONTHLY EMISSIONS REPORT FOR MAY 2024

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 June 2024.

Hoping the above will meet your satisfaction.

Yours sincerely

Christopher Nani
ACTING GENERAL MANAGER
DATE: 26/07/2024

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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 June-2024**
	Coal	Tons	*1 818 083*	*676 280*
	Fuel Oil	Tons	*5 533*	*2289.85*
	Limestone	Tons	*72 917*	*12033*
Production Rates	**Product / By-Product Name**	**Units**	**Max Production Capacity Permitted**	**Indicative Production Rate June-2024**
	Energy	GWh	*3 214.08*	*1 343.55*
	Ash	Tons	*796 300*	*216 003.85*
	Gypsum	Tons	*155 100*	*6 738.48*
	RE PM	kg/MWh	*not specified*	*0.05*
	RE SOx	kg/MWh	*not specified*	*5.34*

3. Energy source characteristics

Fuel Characteristic	Units	Stipulated Range	Monthly Average Content
Coal Sulphur	%	*1.3*	*0.79*
Ash in Coal	%	*38*	*31.94*
Fuel Oil Sulphur	%	*3.5*	*2.35*

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 Jun-2024	Utilisation Jun - 2024	Technology Type	Efficiency Jun-2024	Utilisation Jun- 2024
Unit 1	*FFP*	*99.93%*	*100%*	*FGD*	*Out of service*	*Out of service*
Unit 2	*FFP*	*99.97%*	*100%*	*FGD*	*Out of service*	*Out of service*
Unit 3	*FFP*	*99.96%*	*100%*	*FGD*	*Out of service*	*Out of service*
Unit 4	*FFP*	*99.99%*	*100%*	*FGD*	*99.94%*	*100%*

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	*65.8*	*100.0*	*100.0*
Unit 2	*100.0*	*100.0*	*100.0*
Unit 3	*77.3*	*100.0*	*100.0*
Unit 4	*88.5*	*94.6*	*90.0*

Unit 1: From the 01 until 10th June 2024, the PM monitor was fault. The monitor was replaced and returned to service and during this period a monthly average emission figure was used.
Unit 3: From the 01 until 7th June 2024, the PM monitor was fault. The monitor was cleaned, adapters replaced and returned to service and during this period a monthly average emissions figure was used.

7. Emissions Performance

Table 7.1: Monthly tonnages for the month of June - 2024

Associated Unit/Stack	PM	SO_2	NO_x
Unit 1	32.7	2 445	683
Unit 2	12.1	1 084	315
Unit 3	22.9	3 482	1 009
Unit 4	0.9	161	768
SUM	68.6	7 172	2 775

Table 7.2: Operating days in compliance to PM AEL Limit - June 2024

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm³)
Unit 1	26	0	0	0	0	17.9
Unit 2	19	0	0	0	0	16.7
Unit 3	29	0	0	0	0	11.0
Unit 4	26	0	0	0	0	0.7
SUM	**100**	**0**	**0**	**0**	**0**	

Table 7.3: Operating days in compliance to SO_2 AEL Limit – June 2024

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SO_2 (mg/Nm³)
Unit 1	28	0	0	0	0	1 257.7
Unit 2	21	0	0	0	0	1 347.3
Unit 3	30	0	0	0	0	1 638.5
Unit 4	27	0	0	0	0	88.7
SUM	**106**	**0**	**0**	**0**	**0**	

Table 7.4: Operating days in compliance to NOx AEL Limit - June 2024

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm³)
Unit 1	28	0	0	0	0	350.6
Unit 2	21	0	0	0	0	392.4
Unit 3	30	0	0	0	0	473.5
Unit 4	27	0	0	0	0	428.8
SUM	**106**	**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

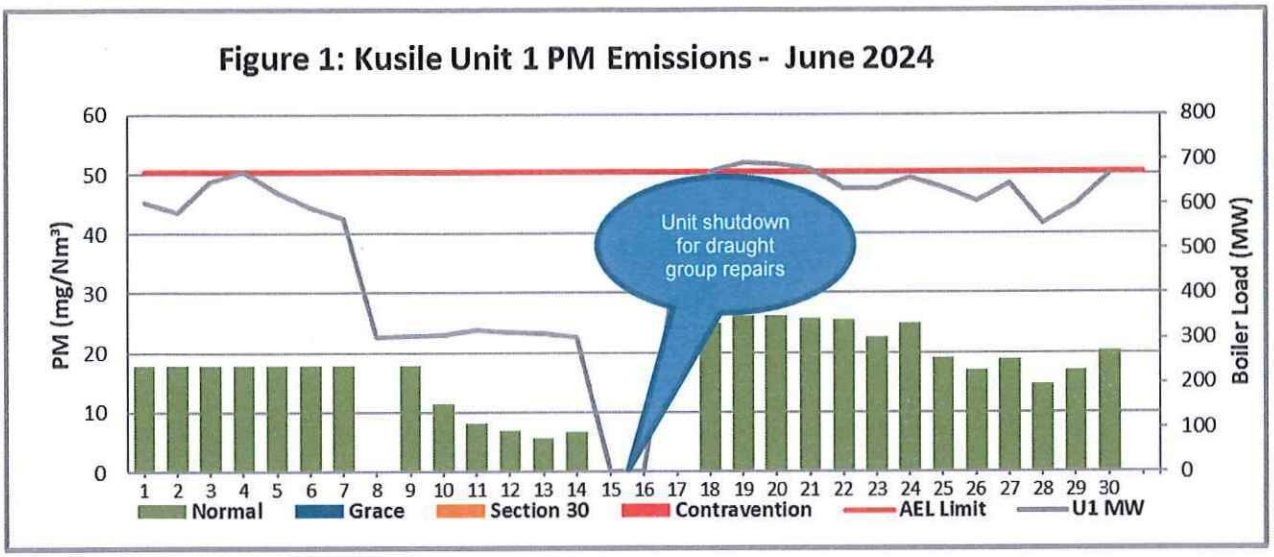


Figure 1: Kusile Unit 1 PM Emissions - June 2024
PM (mg/Nm³)
Boiler Load (MW)
Unit shutdown for draught group repairs
Normal
Grace
Section 30
Contravention
AEL Limit
U1 MW

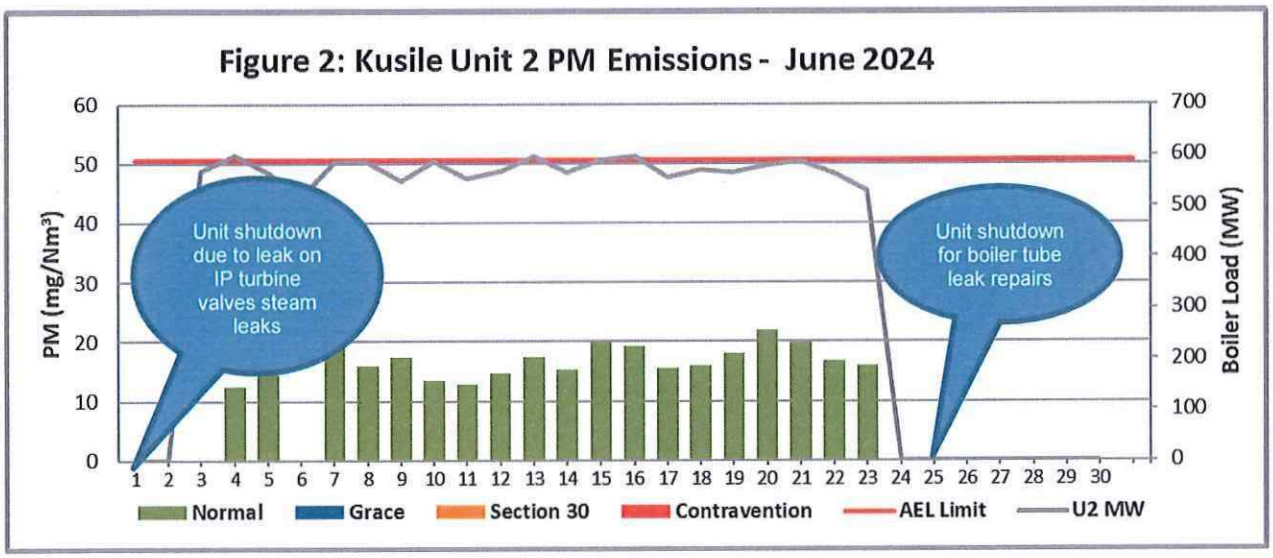


Figure 2: Kusile Unit 2 PM Emissions - June 2024
PM (mg/Nm³)
Boiler Load (MW)
Unit shutdown due to leak on IP turbine valves steam leaks
Unit shutdown for boiler tube leak repairs
Normal
Grace
Section 30
Contravention
AEL Limit
U2 MW

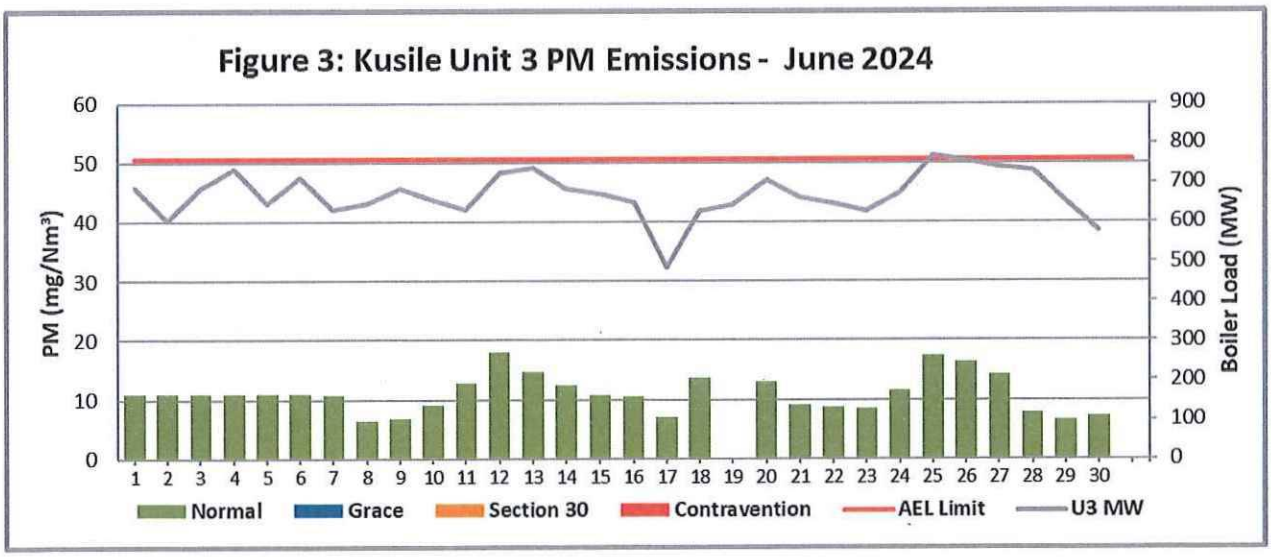


Figure 3: Kusile Unit 3 PM Emissions - June 2024
PM (mg/Nm³)
Boiler Load (MW)
Normal
Grace
Section 30
Contravention
AEL Limit
U3 MW

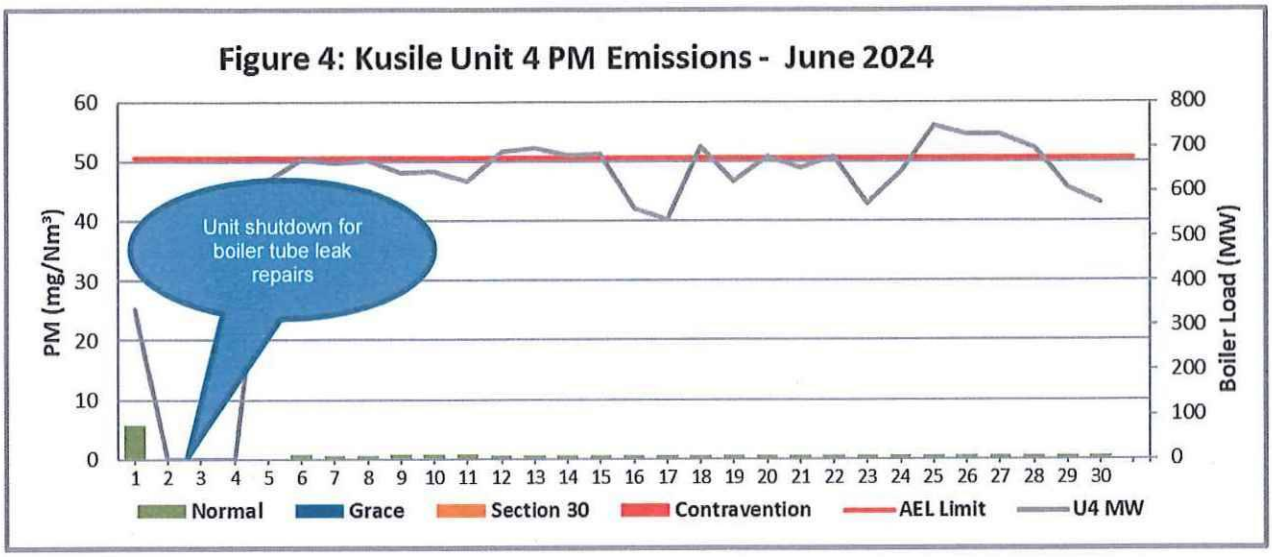


Figure 4: Kusile Unit 4 PM Emissions - June 2024
PM (mg/Nm³)
Boiler Load (MW)
Unit shutdown for boiler tube leak repairs
Normal
Grace
Section 30
Contravention
AEL Limit
U4 MW

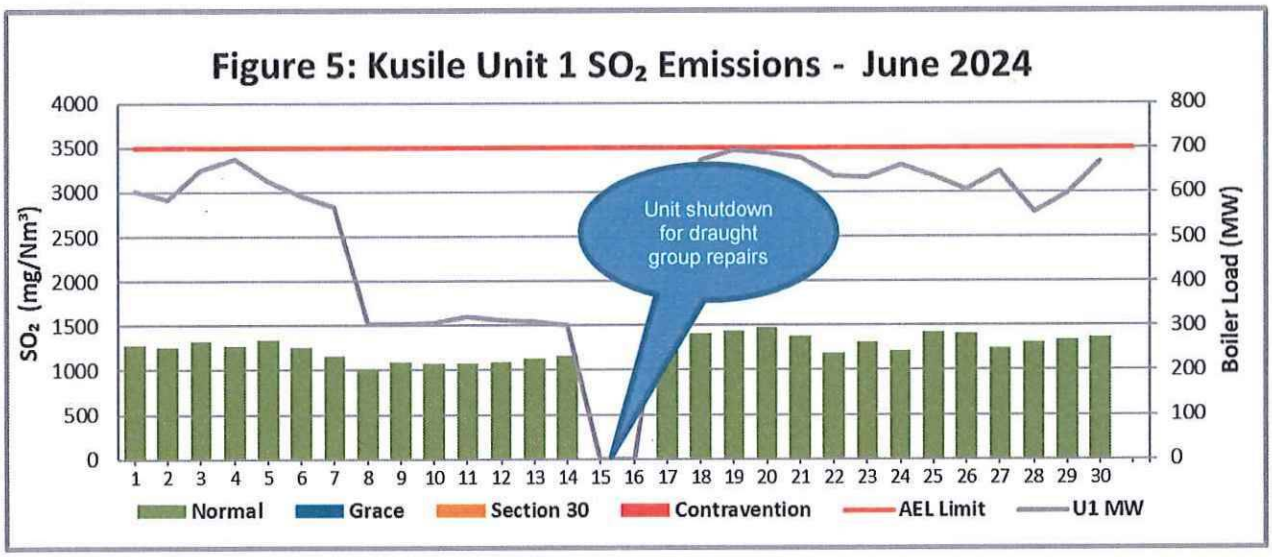


Figure 5: Kusile Unit 1 SO₂ Emissions - June 2024
SO₂ (mg/Nm³)
Boiler Load (MW)
Unit shutdown for draught group repairs
Normal
Grace
Section 30
Contravention
AEL Limit
U1 MW

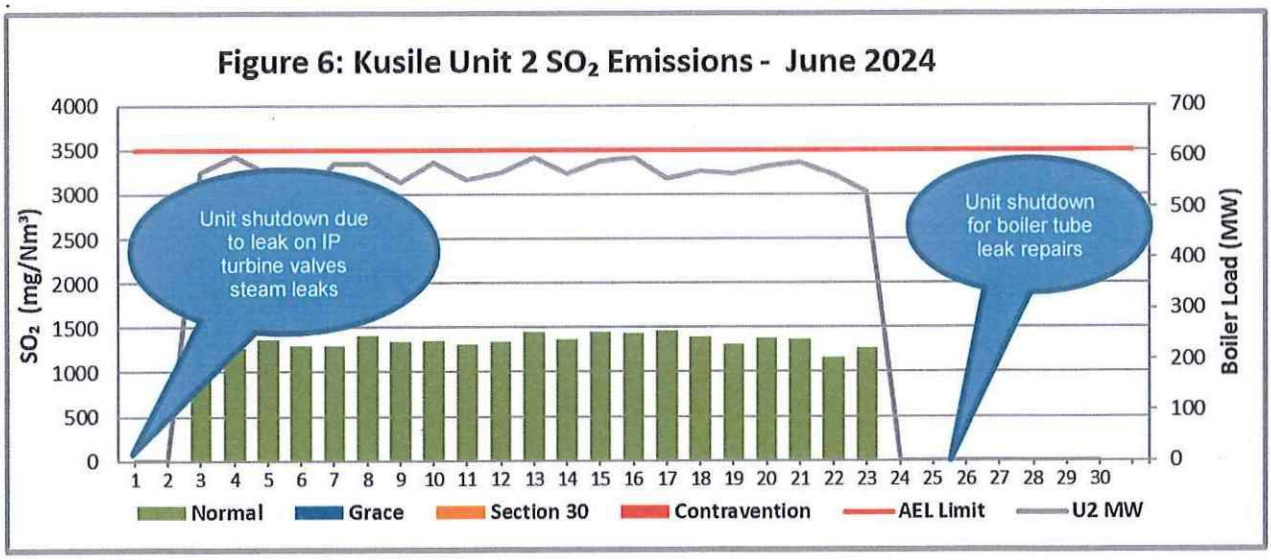


Figure 6: Kusile Unit 2 SO₂ Emissions - June 2024
SO₂ (mg/Nm³)
Boiler Load (MW)
Unit shutdown due to leak on IP turbine valves steam leaks
Unit shutdown for boiler tube leak repairs
Normal
Grace
Section 30
Contravention
AEL Limit
U2 MW

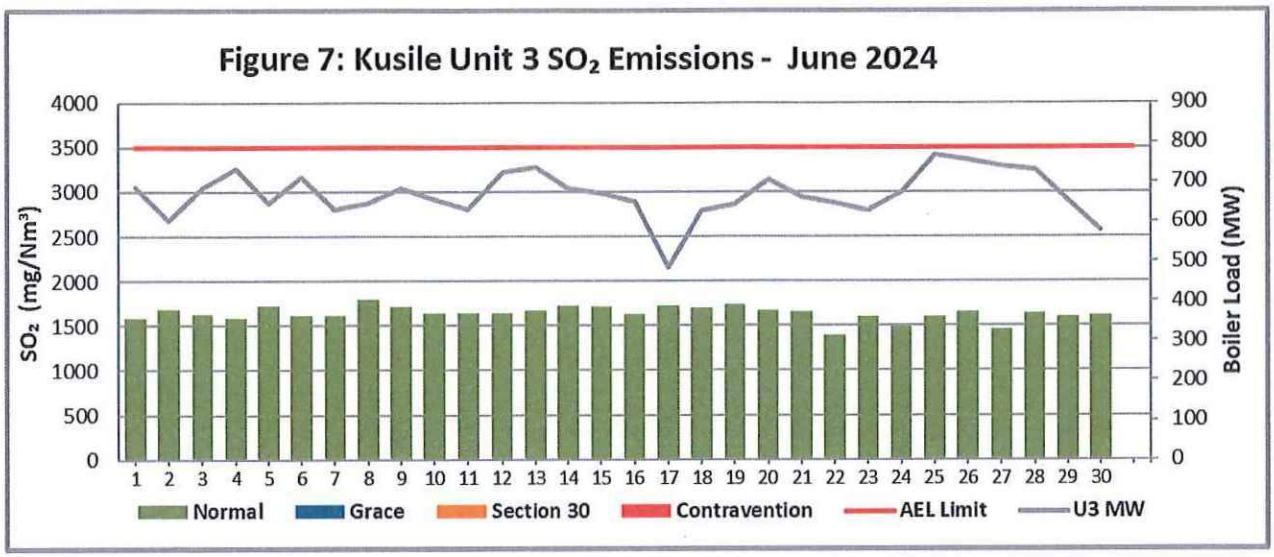


Figure 7: Kusile Unit 3 SO2 Emissions - June 2024
SO2 (mg/Nm3)
Boiler Load (MW)
Normal
Grace
Section 30
Contravention
AEL Limit
U3 MW

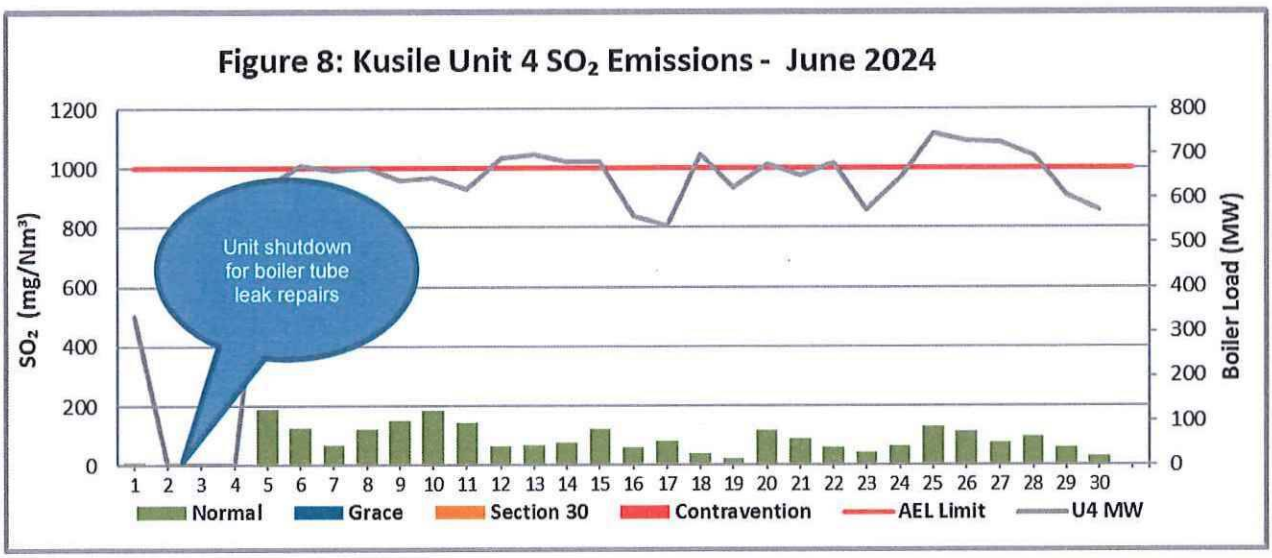


Figure 8: Kusile Unit 4 SO2 Emissions - June 2024
SO2 (mg/Nm3)
Boiler Load (MW)
Unit shutdown for boiler tube leak repairs
Normal
Grace
Section 30
Contravention
AEL Limit
U4 MW

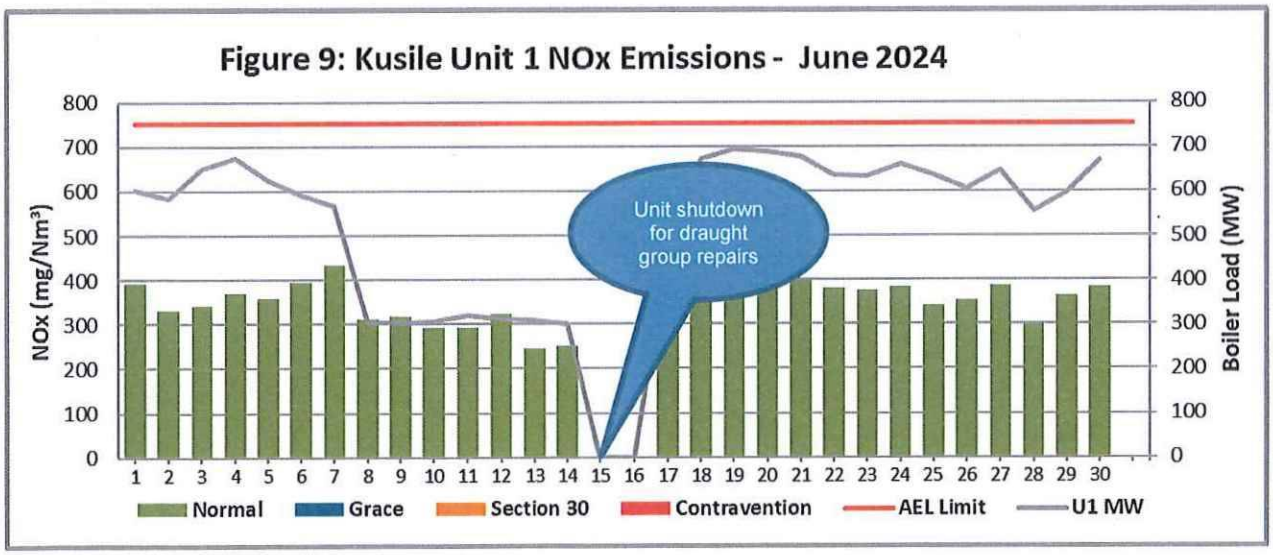


Figure 9: Kusile Unit 1 NOx Emissions - June 2024
NOx (mg/Nm3)
Boiler Load (MW)
Unit shutdown for draught group repairs
Normal
Grace
Section 30
Contravention
AEL Limit
U1 MW

Figure 10: Kusile Unit 2 NOx Emissions - June 2024

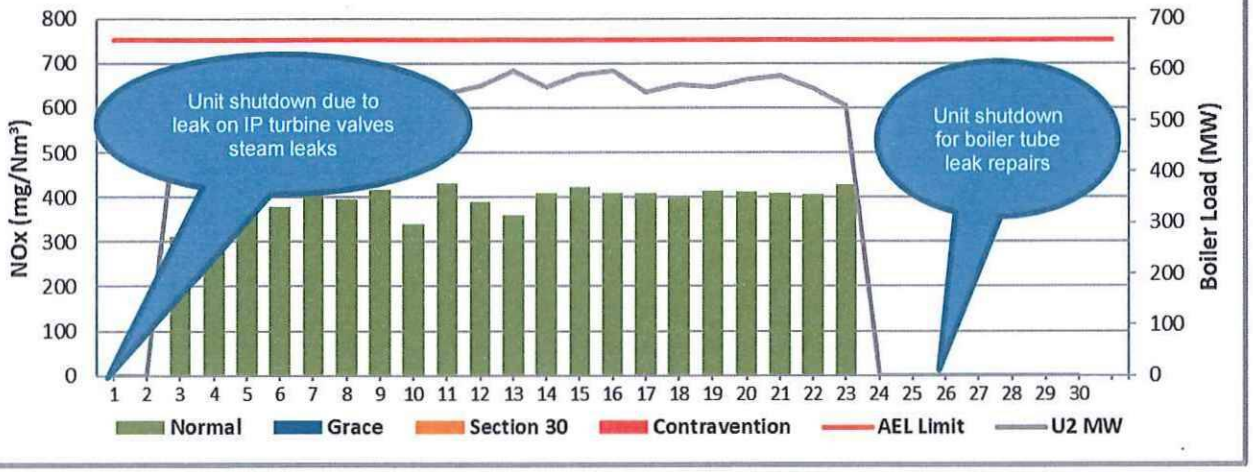


Figure 11: Kusile Unit 3 NOx Emissions - June 2024

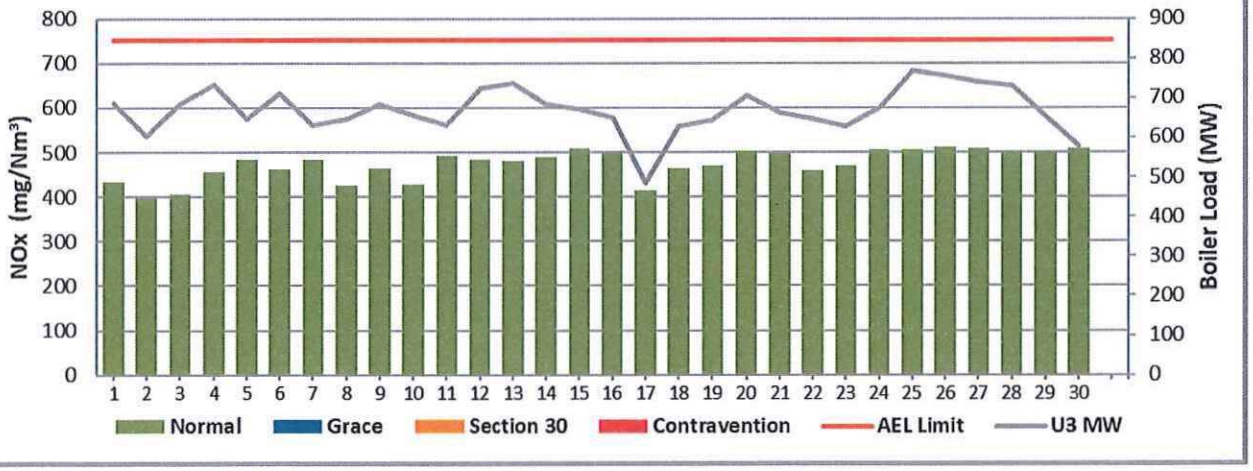
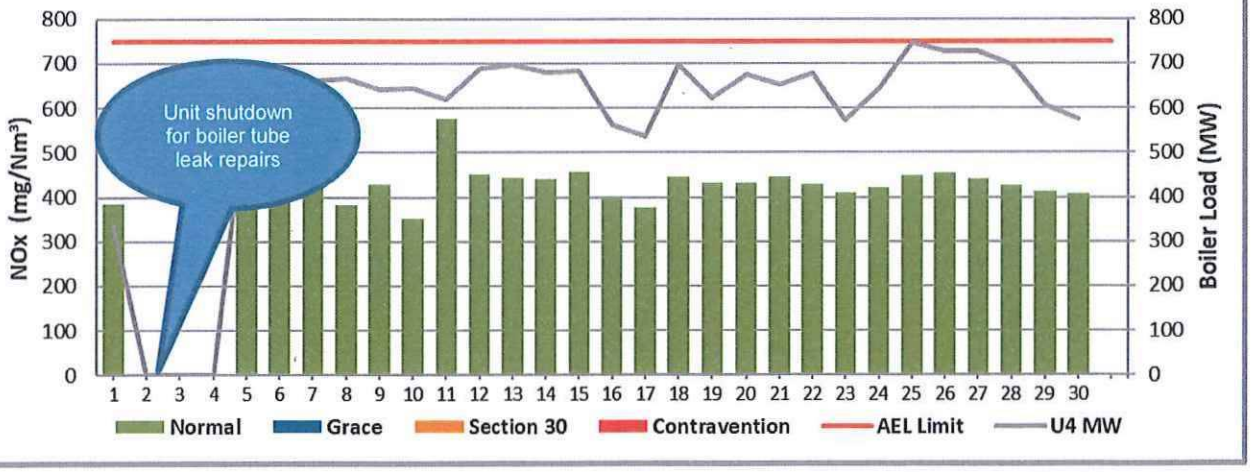


Figure 12: Kusile Unit 4 NOx Emissions - June 2024



8. Correlation and Parallel test status

Unit 1:

- Unit 1 is operating with unity curve for PM. PM correlation test is invalid due to the monitor that was replaced, and the full correlation test is planned.
- The unit is operating with a valid parallel curve.

Unit 2:

- Unit 2 is operating with spot check. The full PM correlation test was conducted, and it failed. A new correlation test will be conducted.
- The unit is operating with a valid parallel curve.

Unit 3

- Unit 3 is operating with spot check test curve. PM correlation test is invalid due to the monitor that was replaced and the full correlation test is planned.

Unit 4:

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

Unit 1, 2 and 3 PM correlation test will be rescheduled, and reports be resubmitted where necessary.

9. Shut down and Light up information

Unit No. 1	*Event 1*		*Event 2*		*Event 3*	
Breaker Open (BO)	2:05 pm	2024/06/07	5:35 pm	2024/06/10	1:20 am	2024/06/14
Draught Group (DG) Shut Down (SD)	5:30 pm	2024/06/07	DG did not trip or SD	DG did not trip or SD	1:20 am	2024/06/14
BO to DG SD (duration)	00:03:25	DD:HH:MM	n/a	DD:HH:MM	14:01:20	DD:HH:MM
Fires in time	6:05 pm	2024/06/07			3:00 am	2024/06/17
Synch. to Grid (or BC)	8:00 am	2024/06/08			12:00 pm	2024/06/17
Fires in to BC (duration)	00:13:55	DD:HH:MM		DD:HH:MM	00:09:00	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		DD:HH:MM	n/a	DD:HH:MM

Unit No. 2	*Event 1*		*Event 2*		*Event 3*	
Breaker Open (BO)	BO previously	BO previously	12:00 am	2024/06/06	9:00 pm	2024/06/23
Draught Group (DG) Shut Down (SD)	n/a	n/a	DG did not trip or SD	DG did not trip or SD	3:40 pm	2024/06/24
BO to DG SD (duration)	n/a	DD:HH:MM	n/a	DD:HH:MM	00:18:40	DD:HH:MM
Fires in time	9:10 pm	2024/06/02	1:10 am	2024/06/06		
Synch. to Grid (or BC)	1:05 am	2024/06/03	5:20 am	2024/06/06		
Fires in to BC (duration)	00:03:55	DD:HH:MM	00:04:10	DD:HH:MM		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		DD:HH:MM

Unit No. 3	*Event 1*	
Breaker Open (BO)	4:20 pm	2024/06/18
Draught Group (DG) Shut Down (SD)	6:40 pm	2024/06/18
BO to DG SD (duration)	00:02:20	DD:HH:MM
Fires in time	7:35 pm	2024/06/18
Synch. to Grid (or BC)	3:15 am	2024/06/19
Fires in to BC (duration)	00:07:40	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. 4	*Event 1*	
Breaker Open (BO)	12:25 am	2024/06/01
Draught Group (DG) Shut Down (SD)	11:50 pm	2024/06/01
BO to DG SD (duration)	00:23:25	DD:HH:MM
Fires in time	12:55 pm	2024/06/04
Synch. to Grid (or BC)	9:10 am	2024/06/05
Fires in to BC (duration)	00:20:15	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

11.Complaints

No complaints reported for the month of June 2024

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 June 2024						

Kusile Ambient Air Quality Monitoring

JUNE 2024

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 at the Kusile power stations at emission levels above the levels authorised in the station's Atmospheric Emission Licence (AEL). The existing air quality monitoring stations (Phola and Chicken Farm) 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.

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

The following parameters, nitrogen dioxide (NO_2), ozone (O_3) and fine particulate matter of particulate size <10µm and particulate size <2.5µm in diameter (PM_{10} and $PM_{2.5}$) will be monitored from 01 July 2024.

The data for this reporting period (01 – 30 June 2024) were analysed for ambient SO_2 as monitored at Balmoral, Chicken Farm, Phola and Wilge air quality monitoring stations. The Particulate Matter and NO_2 data were further analysed for Chicken Farm and Phola.

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.

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.

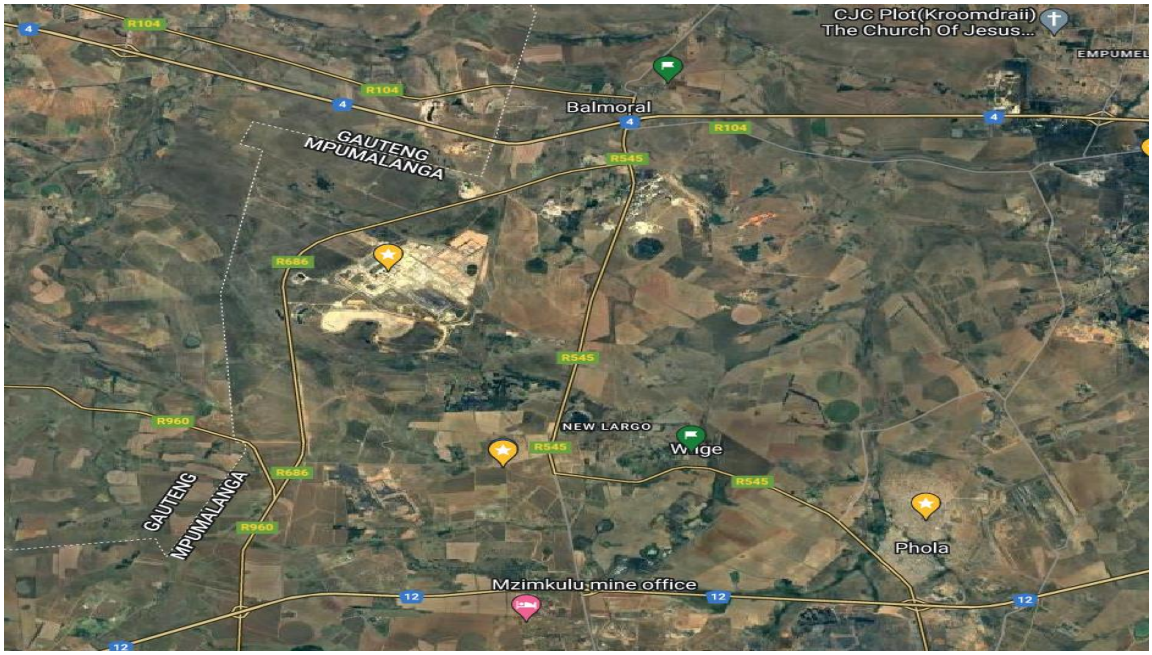


Figure 1: Air Quality Monitoring stations in relation to Kusile power station

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 June 2024

Stations name	SO_2	NO_2	O_3	$PM_{2.5}$	PM_{10}	WSP	WDR	Station Availability
Balmoral (BL)	99.2	NM	NM	NM	NM	99.7	99.7	99.7
Chicken Farm (CF)	99.9	99.3	99.6	100	99.7	100	100	100
Phola (PO)	99.0	99.2	99.6	99.9	99.7	99.9	99.7	99.9
Wilge (WL)	99.9	NM	NM	NM	NM	100	100	100

NM – not monitored.

Good representative percentage data was recovered for all the parameters monitored during the monitoring period under review at all the monitoring stations.

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 north-north-easterly to north-east directions during the day and from the southerly to westerly directions during the night time. The monitoring station is north-east of Kusile power station.

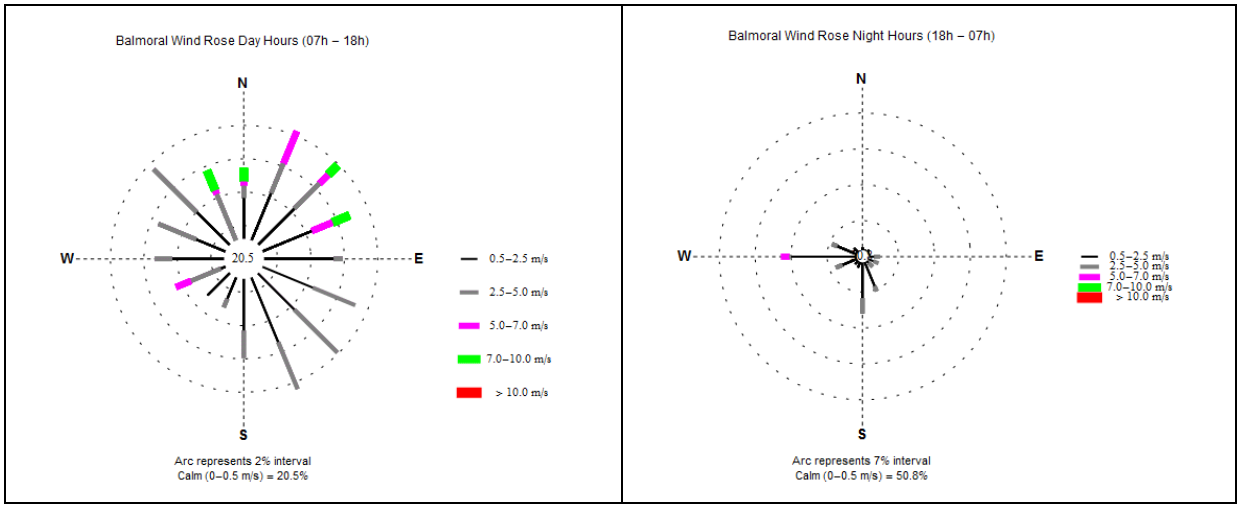


Figure 2: Wind profiles at Balmoral monitoring station

4.2.2. CHICKEN FARM AIR QUALITY MONITORING STATION

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

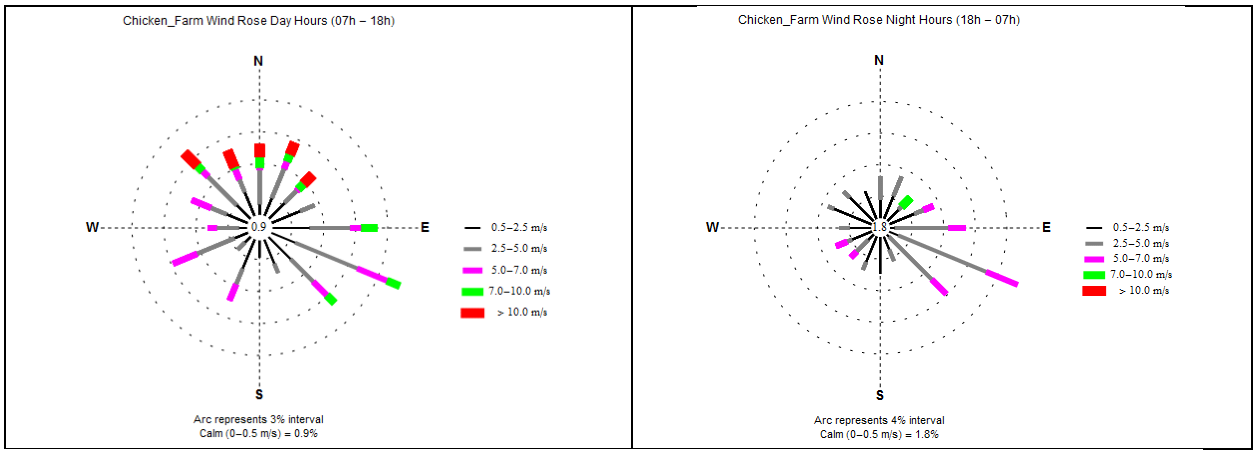


Figure 3: Wind profiles at Chicken Farm monitoring station

4.2.3. PHOLA AIR QUALITY MONITORING STATION

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

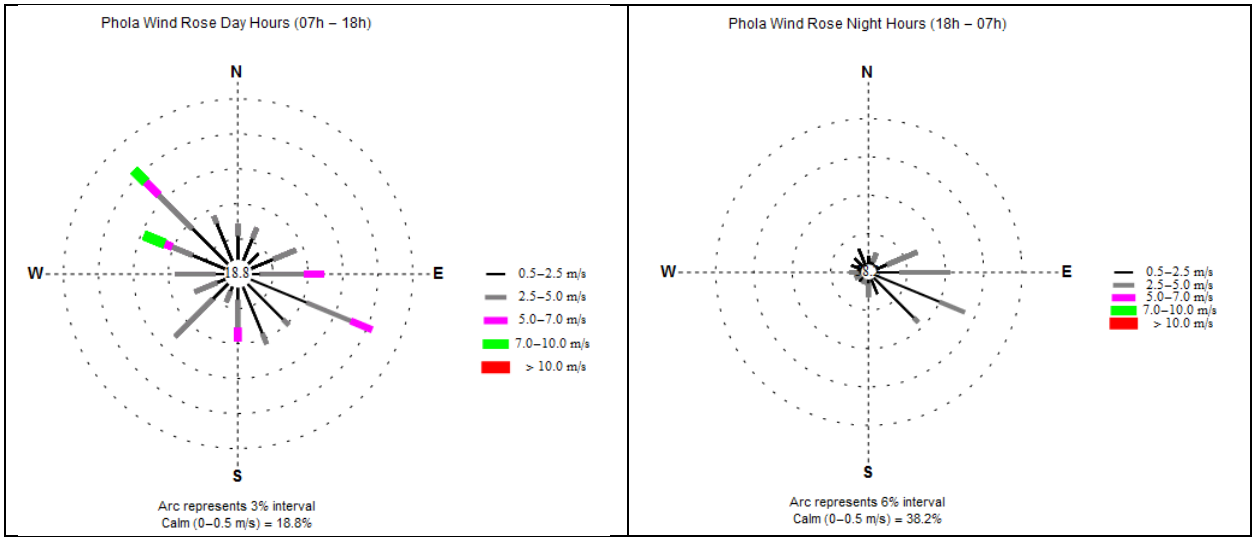


Figure 4: Wind profiles at Phola monitoring station.

4.2.4. WILGE AIR QUALITY MONITORING STATION

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

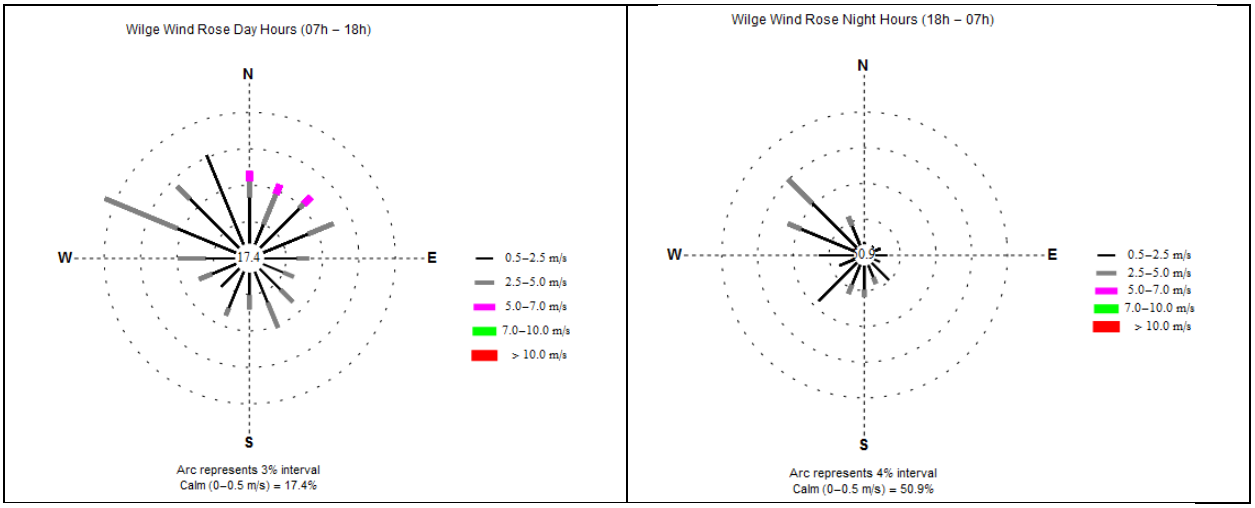


Figure 5: Wind profiles at Wilge monitoring station.

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).

Monitoring Stations	10-min average	Date	Hourly average	Date	Daily average	Date
Balmoral	197.1	05/06/2024 10:00	108.5	13/06/2024 12h00	22.4	13/06/2024
Chicken Farm	129.2	22/06/2024 12:20	100.3	14/06/2024 06:00	36.9	14/06/2024
Phola	151.8	28/06/2024 22:30	97.3.6	13/06/2024 05:00	37.1	14/06/2024
Wilge	120.3	15/06/2024 11:00	162.1	25/06/2024 03:00	45.8	15/06/2024

There was one (1) exceedance of SO_2 10-minutes limit of 191 ppb recorded during the monitoring period at Balmoral air quality monitoring site. The highest SO_2 concentrations recorded at the monitoring stations are indicated in Table 3 and figures 6 to 9 below.

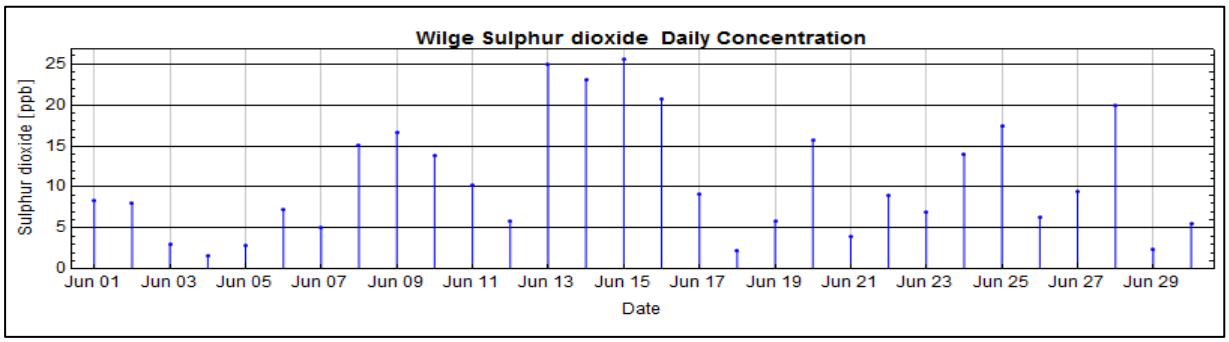


Figure 6: Time series graph for the SO_2 daily mean concentrations at Wilge AQM station

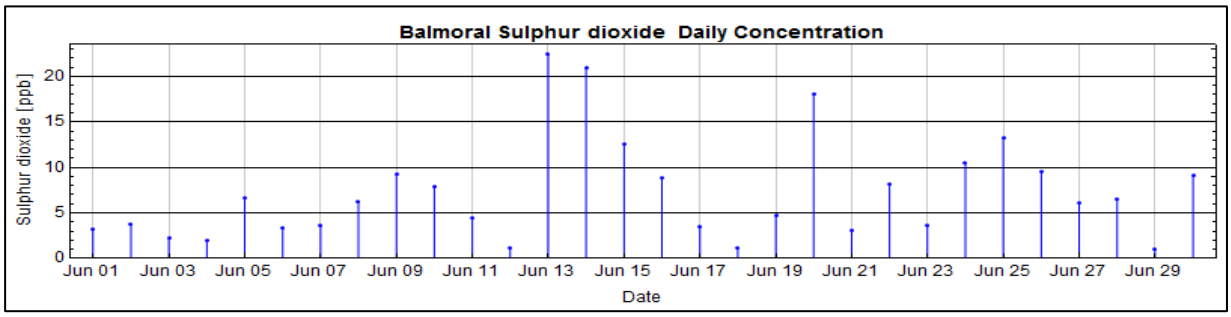


Figure 7: Time series graph for the SO_2 daily mean concentrations at Balmoral AQM station

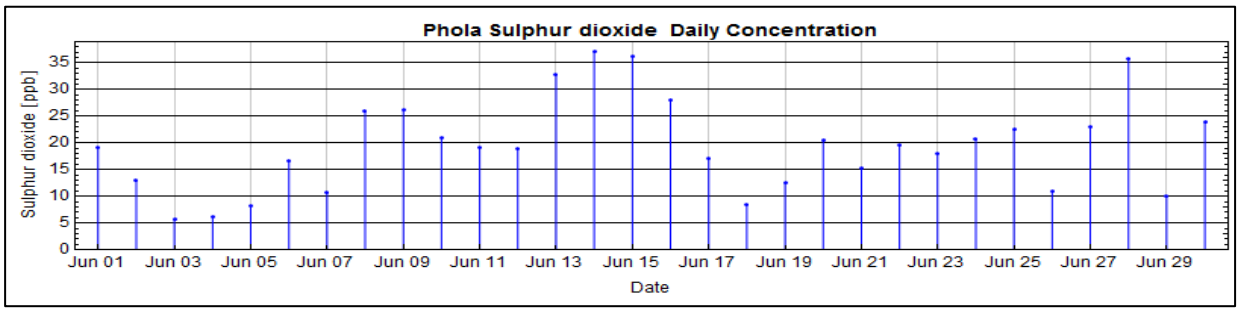


Figure 8: Time series graph for the SO_2 daily mean concentrations at Phola AQM station

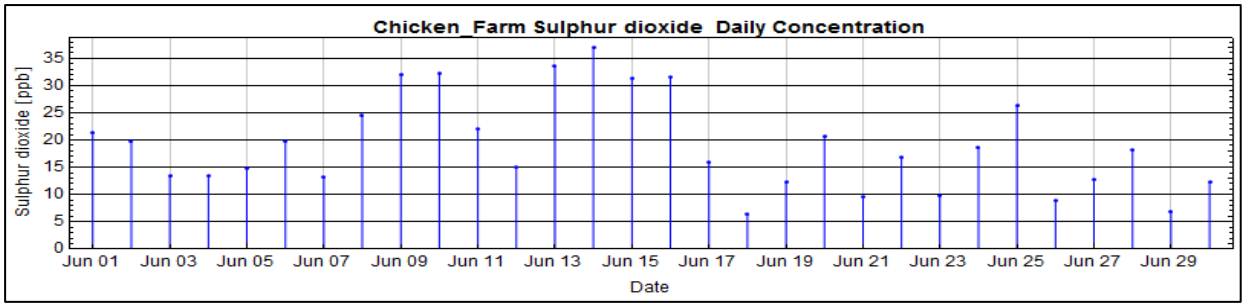


Figure 9: Time series graph for the SO_2 daily mean concentrations at Chicken Farm AQM station

There were no exceedances of the NO_2 hourly limit of 106 ppb recorded at the monitoring stations during the June 2024 monitoring period. There were nineteen (19) exceedances of the $PM_{2.5}$ daily limit of 40 µg/m^3 at Phola, and sixteen (16) exceedances of the $PM_{2.5}$ daily limit of 40 µg/m^{3}the Chicken Farm monitoring station. There were nineteen (19) exceedances of PM_{10} daily limit of 75 µg/m^3 at Phola air quality monitoring station and twenty-five (25) exceedances of PM_{10} daily limit of 75 µg/m^3 recorded at Chicken Farm air quality monitoring station. See Figure 10 to 11 below.

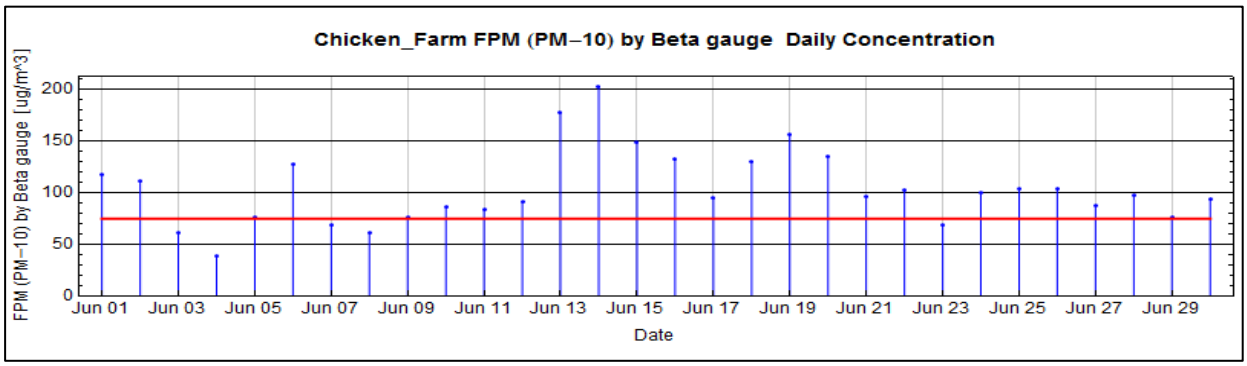


Figure 10: Time series graph for the PM_{10} daily mean concentrations at Chicken Farm AQM station

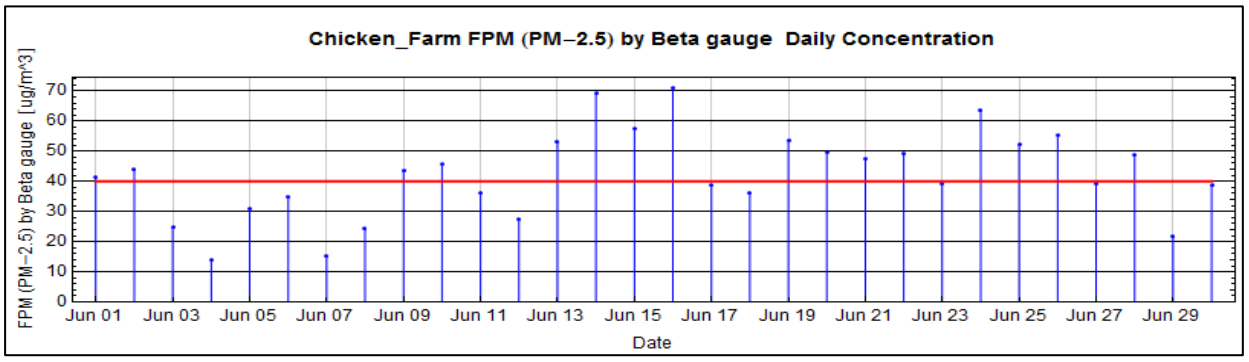


Figure 10: Time series graph for the $PM_{2.5}$ daily mean concentrations at Chicken Farm AQM station

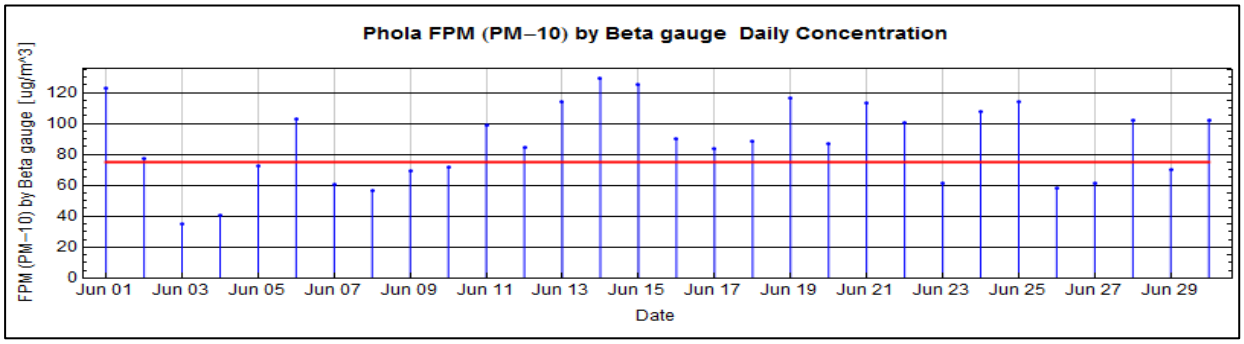


Figure 11: Time series graph for the PM_{10} daily mean concentrations at Phola AQM station

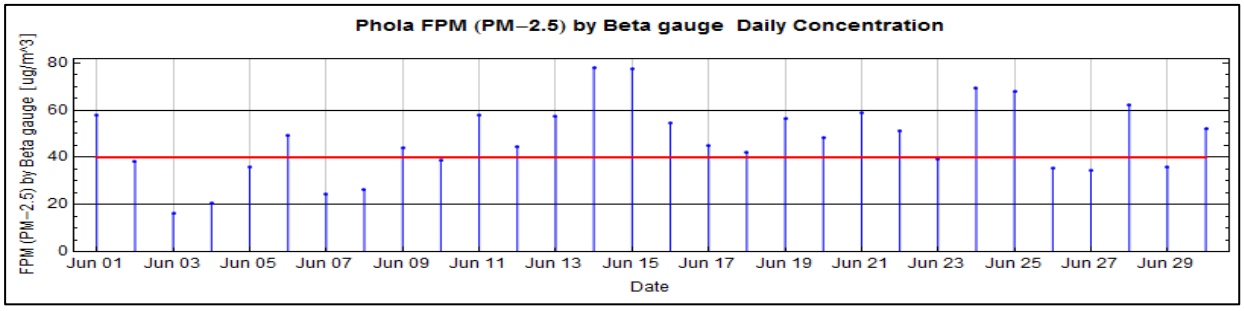


Figure 12: Time series graph for the $PM_{2.5}$ daily mean concentrations at Phola AQM station

Table 4: Exceedances above national ambient air quality limits

PM_{10} Daily Exceedances (Phola)					
Pollutant	**Limit**	**Year**	**Month**	**Day**	**Conc. (µg/m³)**
$PM_{10.}$	75	2024	June	01	122.8
$PM_{10.}$	75	2024	June	02	77.5
$PM_{10.}$	75	2024	June	06	103.3
$PM_{10.}$	75	2024	June	11	99.3
$PM_{10.}$	75	2024	June	12	84.7
$PM_{10.}$	75	2024	June	13	113.9
$PM_{10.}$	75	2024	June	14	129.1
$PM_{10.}$	75	2024	June	15	125
$PM_{10.}$	75	2024	June	16	90.1
$PM_{10.}$	75	2024	June	17	83.6
$PM_{10.}$	75	2024	June	18	88.9
$PM_{10.}$	75	2024	June	19	116.5
$PM_{10.}$	75	2024	June	20	87.1

$PM_{10.}$	75	2024	June	21	113.6
$PM_{10.}$	75	2024	June	22	100.6
$PM_{10.}$	75	2024	June	24	107.6
$PM_{10.}$	75	2024	June	25	113.8
$PM_{10.}$	75	2024	June	28	102.1
$PM_{10.}$	75	2024	June	30	102.4
$PM_{2.5}$ Daily Exceedances (Phola)					
$PM_{2.5}$	40	2024	June	01	57.7
$PM_{2.5}$	40	2024	June	06	49.4
$PM_{2.5}$	40	2024	June	09	44.2
$PM_{2.5}$	40	2024	June	11	57.7
$PM_{2.5}$	40	2024	June	12	44.3
$PM_{2.5}$	40	2024	June	13	57.5
$PM_{2.5}$	40	2024	June	14	77.9
$PM_{2.5}$	40	2024	June	15	77.4
$PM_{2.5}$	40	2024	June	16	54.6
$PM_{2.5}$	40	2024	June	17	45.1
$PM_{2.5}$	40	2024	June	18	41.9
$PM_{2.5}$	40	2024	June	19	56.3
$PM_{2.5}$	40	2024	June	20	48.3
$PM_{2.5}$	40	2024	June	21	58.9
$PM_{2.5}$	40	2024	June	22	51.0
$PM_{2.5}$	40	2024	June	24	69.1
$PM_{2.5}$	40	2024	June	25	68.0
$PM_{2.5}$	40	2024	June	28	62.2
$PM_{2.5}$	40	2024	June	30	51.9
PM_{10} Daily Exceedances (Chicken Farm)					
$PM_{10.}$	75	2024	June	01	118.2
$PM_{10.}$	75	2024	June	02	111.6
$PM_{10.}$	75	2024	June	05	76.1
$PM_{10.}$	75	2024	June	06	128.1
$PM_{10.}$	75	2024	June	09	76.6
$PM_{10.}$	75	2024	June	10	86.6
$PM_{10.}$	75	2024	June	11	84.3
$PM_{10.}$	75	2024	June	12	91.0
$PM_{10.}$	75	2024	June	13	178.4
$PM_{10.}$	75	2024	June	14	202.7
$PM_{10.}$	75	2024	June	15	149.1
$PM_{10.}$	75	2024	June	16	133.1
$PM_{10.}$	75	2024	June	17	95.4
$PM_{10.}$	75	2024	June	18	130
$PM_{10.}$	75	2024	June	19	156.8
$PM_{10.}$	75	2024	June	20	135.8
$PM_{10.}$	75	2024	June	21	96.5
$PM_{10.}$	75	2024	June	22	102.1
$PM_{10.}$	75	2024	June	24	100.4
$PM_{10.}$	75	2024	June	25	104.4
$PM_{10.}$	75	2024	June	26	103.9
$PM_{10.}$	75	2024	June	27	88.2
$PM_{10.}$	75	2024	June	28	97.4
$PM_{10.}$	75	2024	June	29	75.8
$PM_{10.}$	75	2024	June	30	93.8
$PM_{2.5}$ Daily Exceedances (Chicken Farm)					
Pollutant	**Limit**	**Year**	**Month**	**Day**	**Conc. (µg/m^3)**
$PM_{2.5}$	40	2024	June	01	41.4

$PM_{2.5}$	40	2024	June	02	44.1
$PM_{2.5}$	40	2024	June	09	43.8
$PM_{2.5}$	40	2024	June	10	45.9
$PM_{2.5}$	40	2024	June	13	53.1
$PM_{2.5}$	40	2024	June	14	69.1
$PM_{2.5}$	40	2024	June	15	57.5
$PM_{2.5}$	40	2024	June	16	71.0
$PM_{2.5}$	40	2024	June	19	53.7
$PM_{2.5}$	40	2024	June	20	49.8
$PM_{2.5}$	40	2024	June	21	47.4
$PM_{2.5}$	40	2024	June	22	49.1
$PM_{2.5}$	40	2024	June	24	63.5
$PM_{2.5}$	40	2024	June	25	52.1
$PM_{2.5}$	40	2024	June	26	55.4
$PM_{2.5}$	40	2024	June	28	48.6

Table 5: Exceedances of the NAAQ Limits per pollutant- June 2024

Averaging Period	Balmoral	Chicken Farm	Phola	Wilge
SO_2 10-min	1	0	0	0
SO_2 Hourly	0	0	0	0
SO_2 Daily	0	0	0	0
NO_2 Hourly	NM	0	0	NM
O_3 8-hourly	NM	0	2	NM
$PM_{2.5}$ Daily	NM	16	19	NM
PM_{10} Daily	NM	25	19	NM

NM – not monitored.

A summary of all exceedances per pollutant for June 2024 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.

There were no events that triggered the notification of stakeholders in terms of the agreed AEGL recorded in June 2024.

Table 6: Number of exceedances recorded from November 2023 to June 2024

SITES	CF	PO	BL	WL	Allowed No. of Exceedances (November 2023 to June 2024)
PM_{10} (Daily)	32	45	NM	NM	**4**
$PM_{2.5}$ (Daily)	68	42	NM	NM	**4**
NO_2 (hourly)	0	0	NM	NM	**88**
SO_2 (Hourly	0	0	0	4	**88**
SO_2 (Daily)	0	0	0	0	**4**
O_3 (8h moving)	355	71	NM	NM	**11**
SO_2 (10 minute)	0	1	1	8	**526**

NM – not monitored.

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 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.

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.

6. CONCLUSIONS

There were no exceedances of the NO_2 hourly limit of 106 ppb recorded at the monitoring stations during the June 2024 monitoring period.

There was one (1) exceedance of SO_2 10-minutes limit of 191 ppb recorded during the monitoring period at Balmoral air quality monitoring site.

There were nineteen (19) exceedances of the $PM_{2.5}$ daily limit of 40 µg/m^3 at Phola, and sixteen (16) exceedances of the $PM_{2.5}$ daily limit of 40 µg/m^{3}the Chicken Farm monitoring station. There were nineteen (19) exceedances of PM_{10} daily limit of 75 µg/m^3 at Phola air quality monitoring station and twenty-five (25) exceedances of PM_{10} daily limit of 75 µg/m^3 recorded at Chicken Farm air quality monitoring station.

Both Chicken Farm air quality monitoring station and Phola 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 June 2024.

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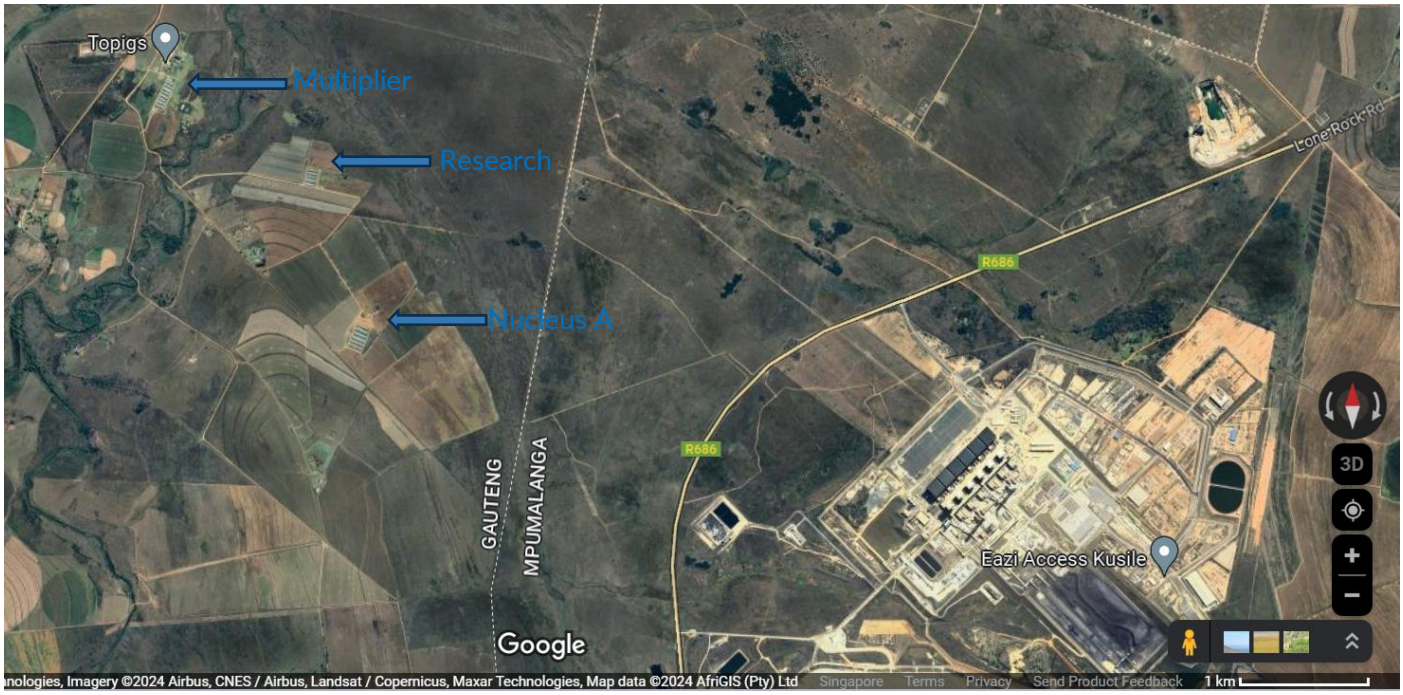
Animal Health Monitoring Summary Report June 2024



Rietfontein (Control Piggery in Mpumalanga province near Villiers):
In the clinical assessment all animals were found to be clinically normal, exhibiting expected health parameters. Laboratory analysis indicated that 23.3% of haemoglobin samples from suckling piglets were anaemic, with a notable decrease in normal levels compared to previous reports. Amyloid A levels were all below the normal cutoff, suggesting no significant health issues. Full blood counts showed mildly lowered lymphocyte levels in three sows, potentially indicating a subclinical infection, though other parameters remained normal. Nasal swabs revealed three positive and one weak positive result for Glaesserella parasuis, which is not concerning in the absence of clinical disease.

Nucleus A:
The clinical assessment all animals to be clinically normal. However, laboratory analysis indicated significant anaemia among the suckling piglets, with 66.7% classified as anaemic and 30% exhibiting low haemoglobin levels, raising concerns about their health. Amyloid A test results were normal, indicating no significant inflammatory response. Full blood counts generally remained within normal limits, though one sow showed increased neutrophils and decreased lymphocytes, potentially indicating a subclinical infection. Nasal swab results for Glaesserella parasuis showed five strong positives and two weak positives, but no clinical symptoms were observed, suggesting the pathogen's presence may not signify an immediate health issue.

Multiplier:
The clinical assessment of the Multiplier unit revealed all pigs to be clinically normal, with no observable health issues. Laboratory findings indicated that 86.7% of the piglets had normal haemoglobin levels, suggesting good overall levels, while only 13.3% had low levels. Amyloid A levels remained below the reference range, indicating no significant inflammatory response. Full blood counts showed normal haematology results for most animals; however, three sows exhibited mild to moderate lymphocytopenia (lowered lymphocyte count), which may point to underlying subclinical infections or reduced immune function. PCR tests for Glaesserella parasuis yielded eight strong positives and one weak positive, with no corresponding clinical signs, suggesting the pathogen's presence may not necessarily indicate a health risk at this time but requires close monitoring.

Research:
During the clinical assessment, all examined piglets, gilts, and sows were found to be clinically normal, showing no signs of respiratory distress or illness. However, laboratory analysis revealed that 10% of the haemoglobin samples from suckling piglets were anaemic, and 60% were classified as low, indicating a need for improved haemoglobin levels. All Amyloid A test results were below the reference range, suggesting no significant inflammatory processes, although mild increases in some gilts warrant monitoring. Additionally, four nasal swabs tested positive for Glaesserella parasuis, yet no clinical symptoms of Glässer's disease were observed, indicating that while the bacterium is present, it is not currently a concern. Overall, the

findings highlight the need for attention to piglet haemoglobin levels and ongoing monitoring of Amyloid A in gilts

GHB Spitskop:

The clinical assessment revealed that all animals were clinically normal except for one gilt exhibiting an elevated rectal temperature of 40.7°C. Laboratory analysis indicated concerning patterns in haemoglobin levels, with 23.3% of piglets classified as anaemic and 53.3% having low haemoglobin. All Amyloid A results were below the reference range, although slight increases were noted in some gilts, warranting monitoring. Most full blood counts were normal, except for two gilts showing neutrophilia (increased neutrophil count), indicating possible subclinical infection. Notably, all nasal swabs tested positive for Glaesserella parasuis, suggesting a potential for subclinical infection linked to Glässer's disease. While no overt clinical signs were observed, these findings necessitate further investigation and continued monitoring to assess any progression to clinical disease.

Discussion:

In comparing the health assessments of Rietfontein with those from Nucleus A, Multiplier, Research, and GHB Spitskop, notable differences in health markers were observed. At Rietfontein, all animals were clinically normal, though 23.3% of piglets showed signs of anaemia, three sows had mildly decreased lymphocyte levels, and a few nasal swabs tested positive for Glaesserella parasuis. In contrast, Nucleus A reported significant anaemia in 66.7% of piglets, along with a higher number of positive nasal swabs for Glaesserella parasuis, though no clinical symptoms were present. Multiplier had better haemoglobin levels, with only 13.3% of piglets anaemic, but a higher prevalence of positive nasal swabs, warranting further monitoring. The Research unit found 60% of piglets with low haemoglobin and 10% anaemic and slight increases in Amyloid A. GHB Spitskop, had a gilt with an elevated temperature and 53.3% of piglets showed low haemoglobin and 23,3% of piglets were anaemic. Notably, Spitskop had 100% of nasal swabs testing positive for Glaesserella parasuis, raising concern despite the absence of clinical disease at all sites. These results suggest that while all sites demonstrated good general health, anaemia in piglets and the presence of *Glaesserella parasuis* were more prominent in other units compared to Rietfontein.

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