Eskom

**Dr Patience Gwaze**
**National Air Quality Officer**
Department of Forestry, Fisheries and the Environment
473 Steve Biko Street,
Arcadia,
**Pretoria**
0001

Date: 05 September 2024
Enquiries: Lesiba Kgobe
Tel: 013 699 7817

By email: pgwaze@dffe.gov.za

Cc: dmakhubele@dffe.gov.za
simelanenl@nkangaladm.gov.za

Dear Dr Gwaze,

**JULY 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 July 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 currently forecasted to January 2025.

**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. The slurry build-up removed during the cleaning process totally different from original samples taken, posing a risk with the cleaning process progress. Cleaning process changed to manual hand cleaning.

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 Unit 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. Correlation tests for Unit 2 and 3 completed on 07/08/2024 and 17/08/2024 respectively. Correlation test for Unit 1 will be planned and dates will be reported in the future reporting. 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 July 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 July 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 $SO_2$ limits.

III. The IT department has finalized the toll-free line for the communities to use should a need arise regarding the $SO_2$ 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. Kusile Power Station Stakeholder Management is engaging with Emalahleni FM for voice recording.

V. 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:

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

I. Weekly monitoring of the plant's perimeter for $SO_2$ surges were conducted throughout July 2024.
II. $SO_2$ levels along the perimeter remained below detection levels, meeting the statutory requirement of 0.5 ppm OEL-STEL/C.

### 4.2. Conclusion:

Our continuous $SO_2$ 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<br>Leadership briefings (GM's address)<br>Employee engagements | • Once a month<br>• Every Friday<br>Monthly | Complete |
| Local Municipalities<br>• Emalahleni<br>• Victor Khanye<br>• Bronkhorstspruit | Face-to-face meeting | Once a quarter | Meeting was held on the 9th of July 2024, follow up meeting planned for 3rd September 2024 |
| Media<br>• Emalahleni FM<br>• Witbank News | • Advert<br>• 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 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 July 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 $NO_2$ hourly limit of 106 ppb recorded at the monitoring stations during the July 2024 monitoring period.

VII. There were two (2) exceedances of $SO_2$ 10-minutes limit of 191 ppb at both Balmoral and Chicken Farm and three (3) exceedances at Phola recorded during the monitoring period. There were exceedances of SO2 hourly limit of 134 ppb at all the monitoring site under review.

VIII. There were twenty (20) exceedances of the PM2.5 daily limit of 40 µg/m3 at Phola, and ten (10) exceedances of the PM2.5 daily limit of 40 µg/m3the Chicken Farm monitoring station. There were eighteen (18) exceedances of PM10 daily limit of 75 µg/m3 at Phola air quality monitoring station and twenty-nine (29) 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 July 2024.

**Table 1 Highest $SO_2$ concentrations recorded (in ppb)**

| Monitoring Stations | 10-min average | Date | Hourly average | Date | Daily average | Date |
|---|---|---|---|---|---|---|
| Balmoral | 325.9 | 05/07/2024 10:30 | 197.0 | 05/07/2024 11h00 | 15.1 | 13/07/2024 |
| Chicken Farm | 228.8 | 21/07/2024 12:40 | 149.1 | 21/07/2024 13:00 | 32.4 | 21/07/2024 |
| Phola | 236.6 | 25/07/2024 20:30 | 145.0 | 17/07/2024 09:00 | 42.0 | 13/07/2024 |
| Wilge | 166.9 | 13/07/2024 08:00 | 150.8 | 13/07/2024 08:00 | 30.1 | 13/07/2024 |

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 July 2024 Kusile ambient monitoring report is attached (**Annexure C).**

## 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 and analysis production data to assess any potential impacts.

## 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.

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

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

Christopher Nani
**ACTING GENERAL MANAGER (KUSILE POWER STATION)**
**DATE:** 05/09/2024

List of annexures

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

Eskom

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

Date: 15 August 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 |
|---|---|---|---|---|
| | Clean vertical flue unit 2 | 0% | 3 September 24 | 11 October 24 |
| | Clean vertical flue unit 1 | 65% | 6 June 2024 | 30 August 2024 |
| | Clean vertical flue unit 3: | 95% | 12 June 2024 | 19 August 2024 |
| | **Fabricate new Lobster for K1(First Delivery** | 80% | 7 June 2024 | 16 August 24 |
| | **Fabricate new 55 m platform** | 20% | 7 June 2024 | 30 Aug 2024 |

**NOTES:**

**West Stack:**

- The target date for the recovery of the West stack currently forecasted to January 2025.

**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 or 3 preventing safe access to the stack.
- The slurry build-up removed during the cleaning process 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 and/ or damaged underneath the slurry build-up. Significant replacement will be required.

Remedial action under review due to time lost and recovery program is being developed.
Processes activated in term of funding required for liner replacement.

Trust, you find the above in order.

Kind Regards,

……..
Zandi Shange
General Manager - Kusile Power Station Project

**Generation Division - Group Capital**
Kusile Power Station Project
R545 Kendal/Balmoral Rd Haartebeesfontein Farm Witbank
Postnet Suite 46 Emalahleni 1035 SA
Tel +27 13 699 7097 www.eskom.co.za

Eskom

**Ms Nompumelelo Simelane**
Nkangala District Municipality
PO Box 437
Middleburg
1050

Date:

*August 2024*

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 JULY 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 July 2024.

Hoping the above will meet your satisfaction.

Yours sincerely

Christopher Nani
***ACTING GENERAL MANAGER***
***DATE:*** 29/08/2024

Generation Division – Coal New Build Unit
Management Department (Kusile Power Station)
R545 Kendal/Balmoral Road, Haartebeesfontein Farm, Witbank
Postnet Suite 283 Private Bag X 7297 Witbank 1035 SA
Tel+27 13 693 4320 Fax +27 86 768 3030 www.eskom.co.za

## 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 July-2024** |
| | Coal | Tons | *1 818 083* | *744 712* |
| | Fuel Oil | Tons | *5 533* | *2816.31* |
| | Limestone | Tons | *72 917* | *10436* |
| | | | | |
| **Production Rates** | **Product / By-Product Name** | **Units** | **Max Production Capacity Permitted** | **Indicative Production Rate July-2024** |
| | Energy | GWh | *3 214.08* | *1 411.46* |
| | Ash | Tons | *796 300* | *206 732.17* |
| | Gypsum | Tons | *155 100* | *5 844.16* |
| | RE PM | kg/MWh | *not specified* | *0.07* |
| | RE SOx | kg/MWh | *not specified* | *5.46* |

## 3. Energy source characteristics

| Fuel Characteristic | Units | Stipulated Range | Monthly Average Content |
|---|---|---|---|
| **Coal Sulphur** | % | *1.3* | *0.74* |
| **Ash in Coal** | % | *38* | *27.76* |
| **Fuel Oil Sulphur** | % | *3.5* | *2.97* |

## 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 Jul-2024 | Utilisation Jul - 2024 | Technology Type | Efficiency Jul-2024 | Utilisation Jul- 2024 |
|---|---|---|---|---|---|---|
| Unit 1 | *FFP* | *99.92%* | *100%* | *FGD* | *Out of service* | *Out of service* |
| Unit 2 | *FFP* | *99.97%* | *100%* | *FGD* | *Out of service* | *Out of service* |
| Unit 3 | *FFP* | *99.94%* | *100%* | *FGD* | *Out of service* | *Out of service* |
| Unit 4 | *FFP* | *99.99%* | *100%* | *FGD* | *99.93%* | *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 | *100.0* | *100.0* | *100.0* |
| Unit 2 | *100.0* | *100.0* | *100.0* |
| Unit 3 | *100.0* | *100.0* | *100.0* |
| Unit 4 | *100.0* | *62.3* | *86.8* |

*Unit 4: From the 15th of July 2024 Unit 4 SO2 monitor was fault, the monitor was fixed and calibrated.*

## 7. Emissions Performance

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

| Associated Unit/Stack | PM | $SO_2$ | $NO_x$ |
|---|---|---|---|
| Unit 1 | 43.3 | 2 899 | 884 |
| Unit 2 | 13.1 | 1 240 | 346 |
| Unit 3 | 35.5 | 3 437 | 1 040 |
| Unit 4 | 0.7 | 125 | 595 |
| SUM | 92.6 | 7 701 | 2 865 |

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

| Associated Unit/Stack | Normal | Grace | Section 30 | Contravention | Total Exceedance | Average PM (mg/Nm³) |
|---|---|---|---|---|---|---|
| Unit 1 | 31 | 0 | 0 | 0 | 0 | 18.5 |
| Unit 2 | 26 | 0 | 0 | 0 | 0 | 14.5 |
| Unit 3 | 31 | 0 | 0 | 0 | 0 | 16.8 |
| Unit 4 | 26 | 0 | 0 | 0 | 0 | 0.5 |
| **SUM** | **114** | **0** | **0** | **0** | **0** | |

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

| Associated Unit/Stack | Normal | Grace | Section 30 | Contravention | Total Exceedance | Average $SO_2$ (mg/Nm³) |
|---|---|---|---|---|---|---|
| Unit 1 | 31 | 0 | 0 | 0 | 0 | 1 208.7 |
| Unit 2 | 30 | 0 | 0 | 0 | 0 | 1 290.0 |
| Unit 3 | 31 | 0 | 0 | 0 | 0 | 1 650.5 |
| Unit 4 | 27 | 0 | 0 | 0 | 0 | 95.0 |
| **SUM** | **119** | **0** | **0** | **0** | **0** | |

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

| Associated Unit/Stack | Normal | Grace | Section 30 | Contravention | Total Exceedance | Average NOx (mg/Nm³) |
|---|---|---|---|---|---|---|
| Unit 1 | 31 | 0 | 0 | 0 | 0 | 370.8 |
| Unit 2 | 30 | 0 | 0 | 0 | 0 | 353.6 |
| Unit 3 | 31 | 0 | 0 | 0 | 0 | 498.9 |
| Unit 4 | 27 | 0 | 0 | 0 | 0 | 409.5 |
| **SUM** | **119** | **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 - July 2024**

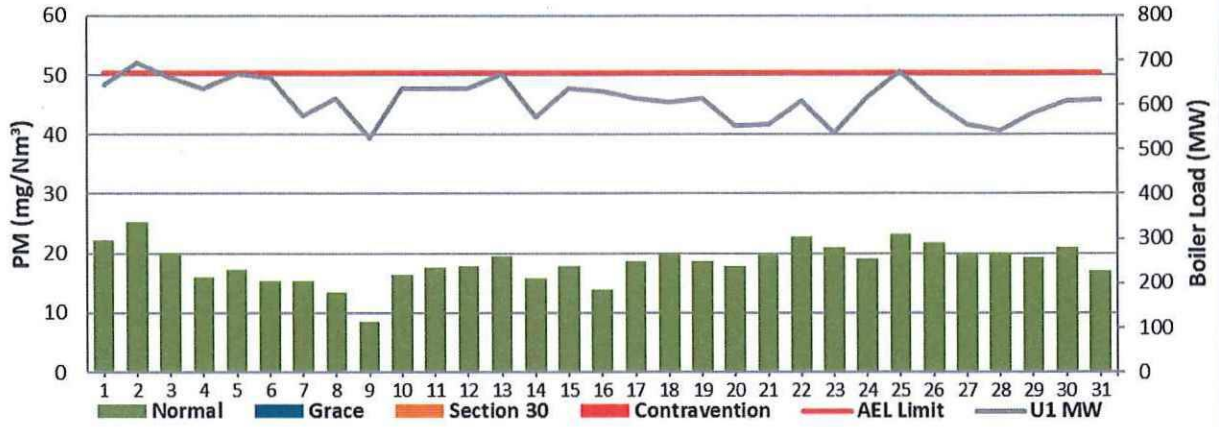



**Figure 2: Kusile Unit 2 PM Emissions - July 2024**

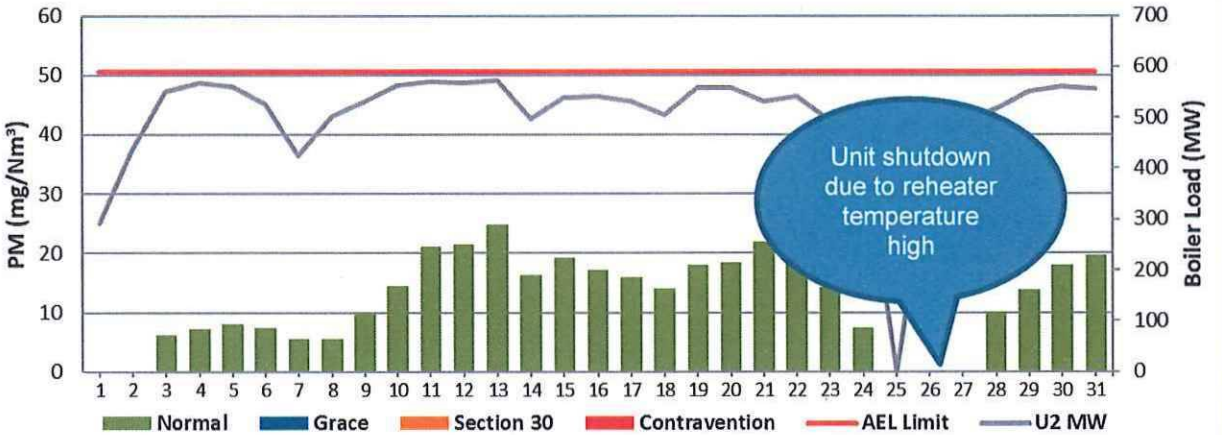
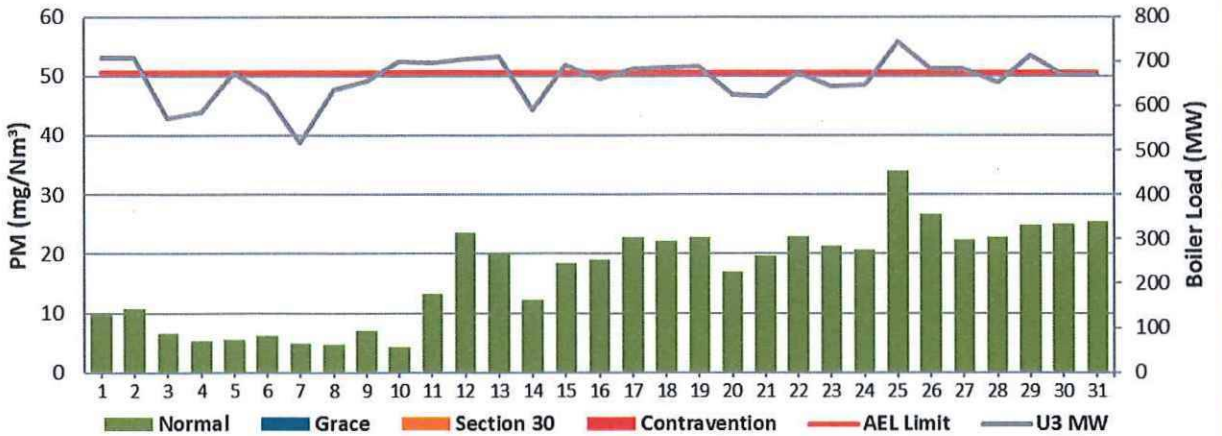



**Figure 3: Kusile Unit 3 PM Emissions - July 2024**



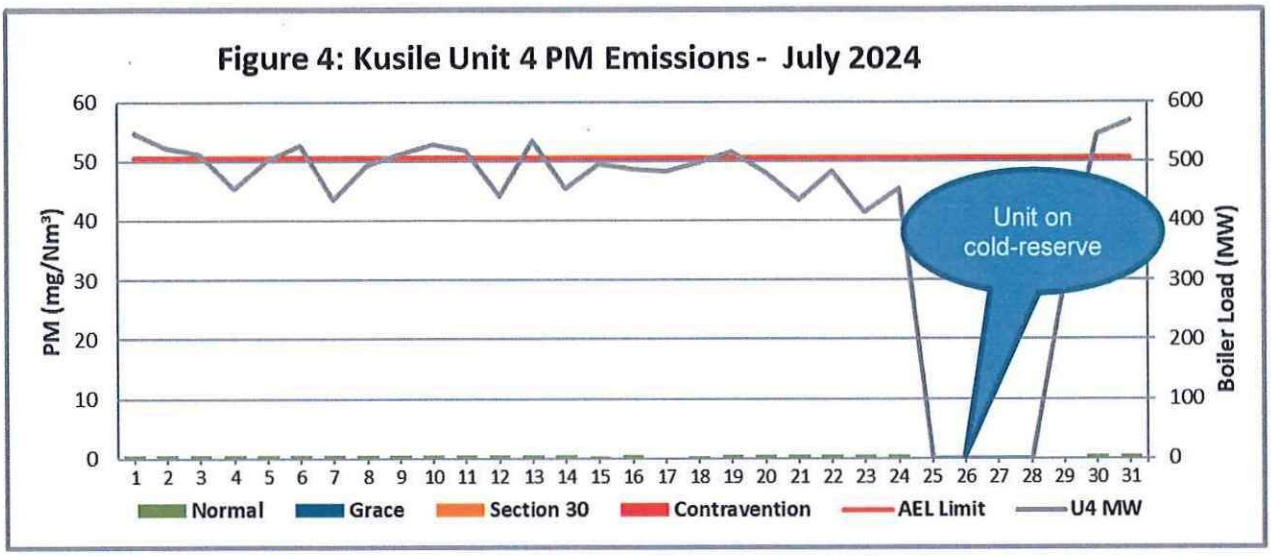


Figure 4: Kusile Unit 4 PM Emissions - July 2024
PM (mg/Nm³)
Boiler Load (MW)
Unit on cold-reserve
Normal
Grace
Section 30
Contravention
AEL Limit
U4 MW

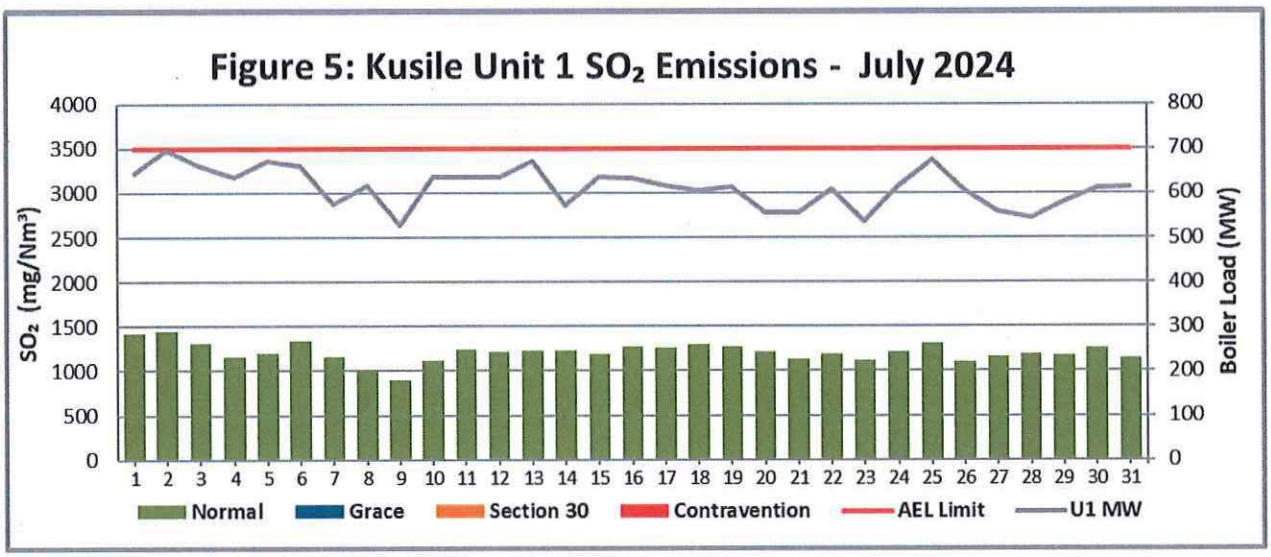


Figure 5: Kusile Unit 1 SO₂ Emissions - July 2024
SO₂ (mg/Nm³)
Boiler Load (MW)
Normal
Grace
Section 30
Contravention
AEL Limit
U1 MW

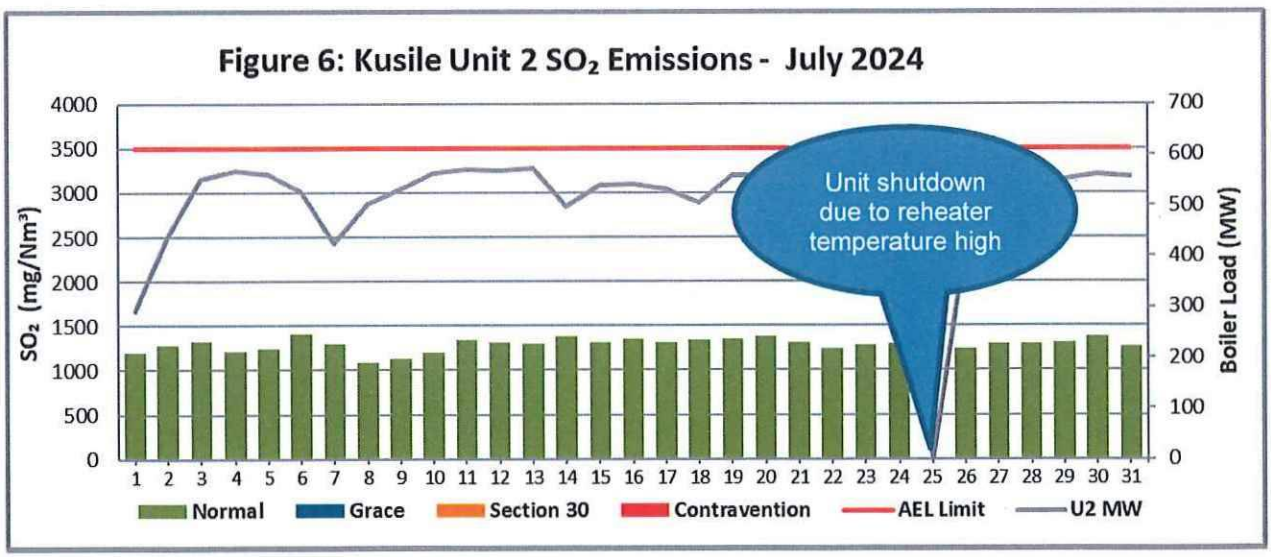


Figure 6: Kusile Unit 2 SO₂ Emissions - July 2024
SO₂ (mg/Nm³)
Boiler Load (MW)
Unit shutdown due to reheater temperature high
Normal
Grace
Section 30
Contravention
AEL Limit
U2 MW

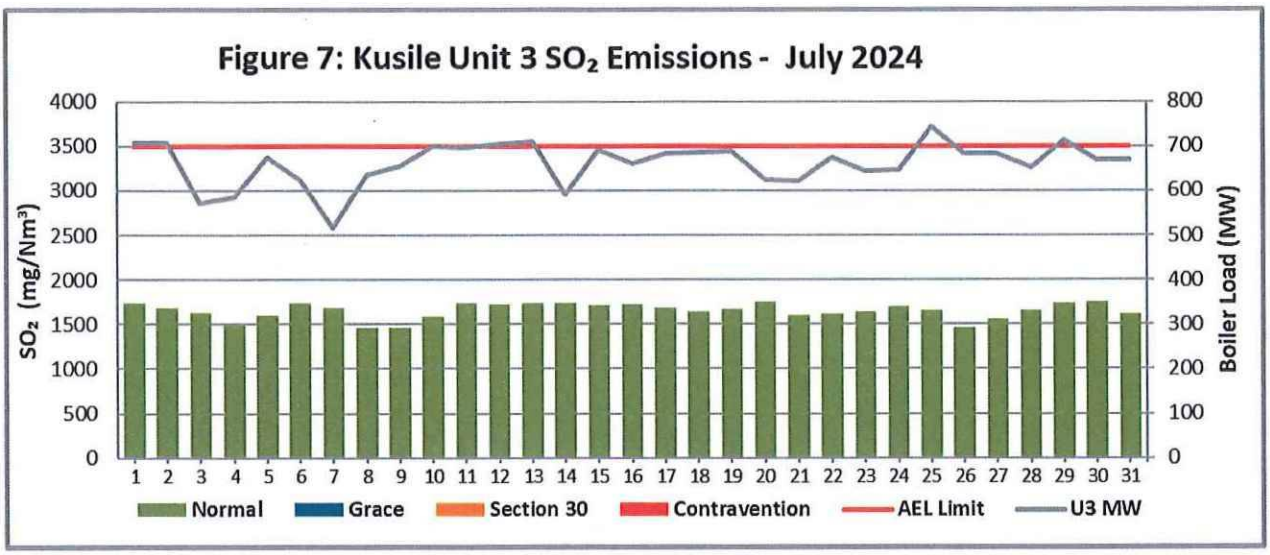


Figure 7: Kusile Unit 3 SO2 Emissions - July 2024
SO2 (mg/Nm3)
Boiler Load (MW)
Normal
Grace
Section 30
Contravention
AEL Limit
U3 MW

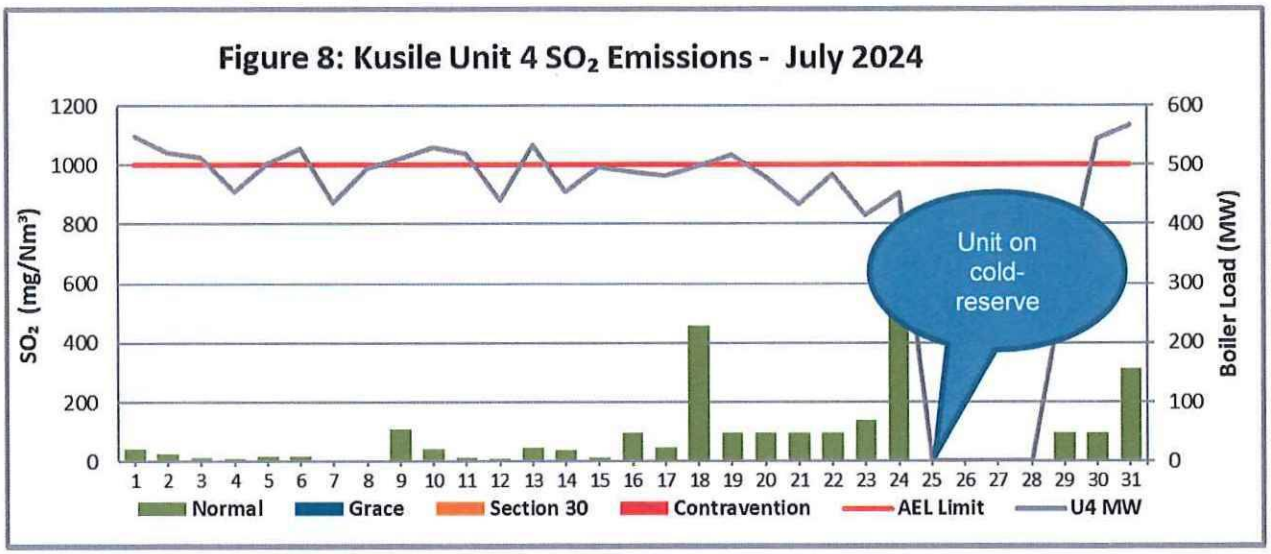


Figure 8: Kusile Unit 4 SO2 Emissions - July 2024
SO2 (mg/Nm3)
Boiler Load (MW)
Unit on cold-reserve
Normal
Grace
Section 30
Contravention
AEL Limit
U4 MW

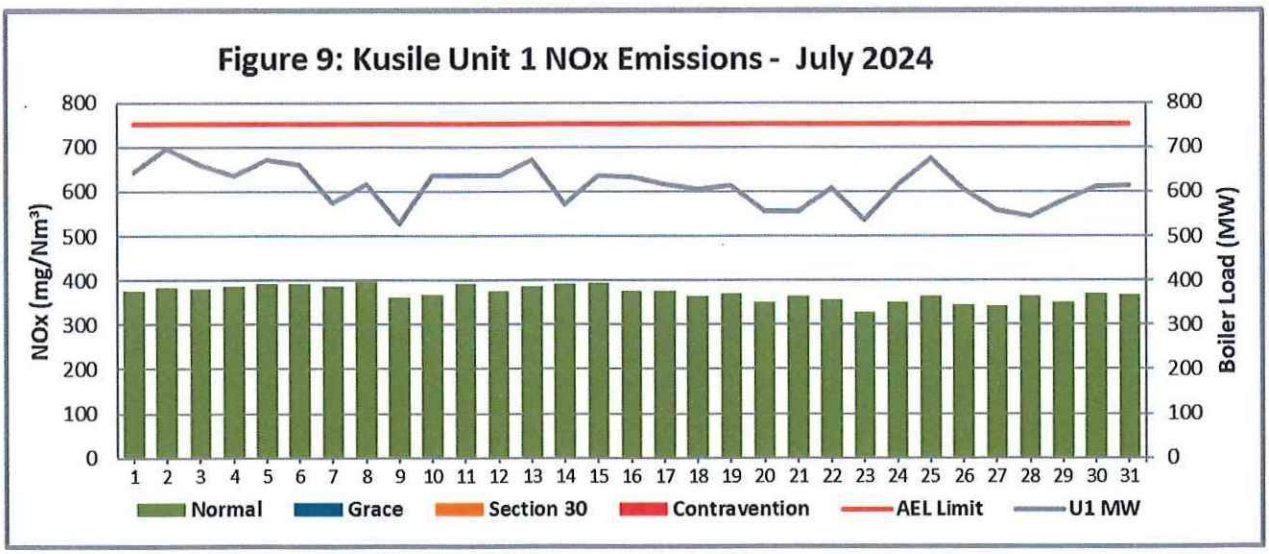


Figure 9: Kusile Unit 1 NOx Emissions - July 2024
NOx (mg/Nm3)
Boiler Load (MW)
Normal
Grace
Section 30
Contravention
AEL Limit
U1 MW

**Figure 10: Kusile Unit 2 NOx Emissions - July 2024**

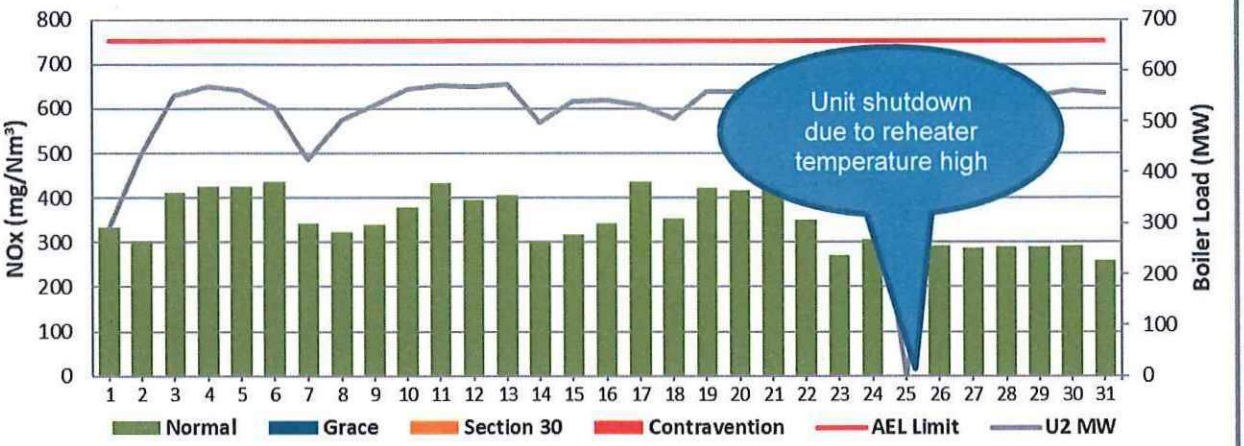



**Figure 11: Kusile Unit 3 NOx Emissions - July 2024**

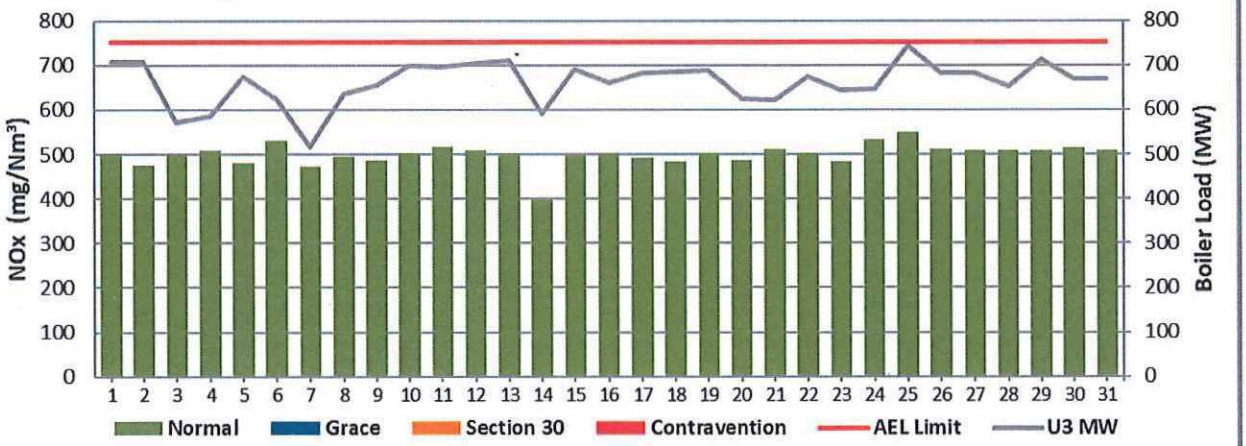
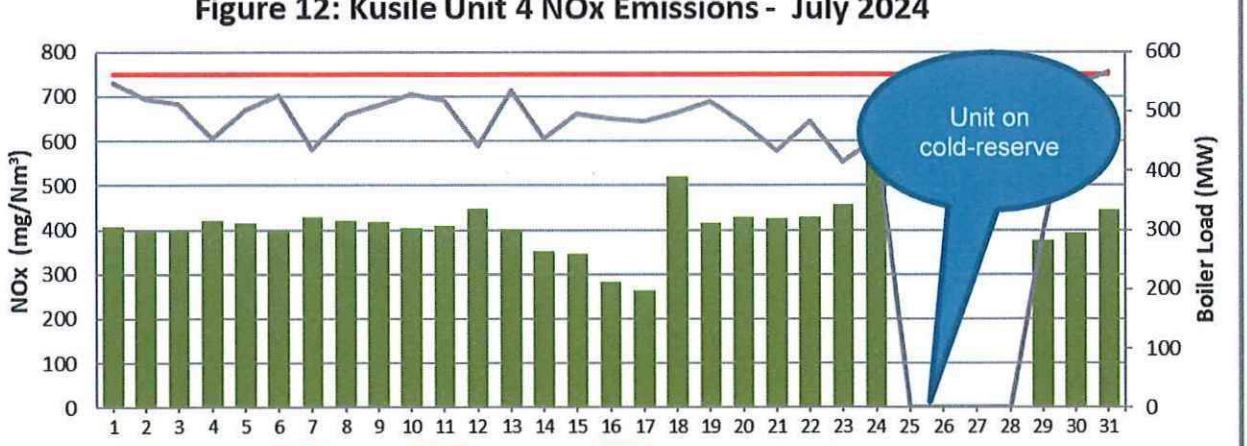



**Figure 12: Kusile Unit 4 NOx Emissions - July 2024**



## 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 tests is planned for 30/08/2024 to 06/09/2024.
- The unit is operating with a valid parallel curve.

Unit 2:

- Unit 2 is operating with spot check. Correlation tests completed on 07/08/2024. Station awaiting report from service provider.
- 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, a new correlation tests completed on 17/08/2024. Station awaiting report from service provider.

Unit 4:

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

## 9. Shut down and Light up information

| **Unit No. 1** | *Event 1* | |
|---|---|---|
| **Breaker Open (BO)** | 6:40 am | 2024/07/09 |
| **Draught Group (DG) Shut Down (SD)** | 6:40 am | 2024/07/09 |
| **BO to DG SD (duration)** | 00:00:00 | DD:HH:MM |
| **Fires in time** | 8:05 am | 2024/07/09 |
| **Synch. to Grid (or BC)** | 10:25 pm | 2024/07/09 |
| **Fires in to BC (duration)** | 00:14:20 | 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. 2 | *Event 1* | | *Event 2* | |
|---|---|---|---|---|
| **Breaker Open (BO)** | | | 3:15 pm | 2024/07/24 |
| **Draught Group (DG) Shut Down (SD)** | | | DG did not trip or SD | DG did not trip or SD |
| **BO to DG SD (duration)** | | DD:HH:MM | n/a | DD:HH:MM |
| **Fires in time** | | | | |
| **Synch. to Grid (or BC)** | | | | |
| **Fires in to BC (duration)** | | DD:HH:MM | | DD:HH:MM |
| **Emissions below limit from BC (end date)** | | | | |
| **Emissions below limit from BC (duration)** | | DD:HH:MM | | DD:HH:MM |

| Unit No. 4 | *Event 1* | | *Event 2* | |
|---|---|---|---|---|
| **Breaker Open (BO)** | 4:20 am | 2024/07/15 | 10:25 am | 2024/07/24 |
| **Draught Group (DG) Shut Down (SD)** | 4:20 am | 2024/07/15 | 7:35 pm | 2024/07/24 |
| **BO to DG SD (duration)** | 00:00:00 | DD:HH:MM | 00:09:10 | DD:HH:MM |
| **Fires in time** | 4:45 am | 2024/07/15 | 11:00 am | 2024/07/29 |
| **Synch. to Grid (or BC)** | 12:15 pm | 2024/07/15 | 8:40 pm | 2024/07/29 |
| **Fires in to BC (duration)** | 00:07:30 | DD:HH:MM | 00:09:40 | 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 |

## 11.Complaints

No complaints reported for the month of July 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 July 2024 | | | | | | |

# Kusile Ambient Air Quality Monitoring

## JULY 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 ($SO_2$) 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 following parameters, 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$^{st}$ of October 2024.

The data for this reporting period (01 – 31 July 2024) were analysed for ambient $SO_2$ and $NO_2$ as monitored at Balmoral, Chicken Farm, Phola and Wilge air quality monitoring stations. The Particulate Matter ($PM_{10}$ and $PM_{2.5}$) 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 14$^{th}$ 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. Kendal air quality monitoring station commenced in 1993 in response to research needs identified to understand the short-range impacts from Kendal power station. The monitoring station was located to monitor the worst-case impacts of emissions from the power station as highest impacts have been proven to be 2-5km from point of source. The data has been made available to Department of Forestry, Fisheries and the Environment (DFFE).

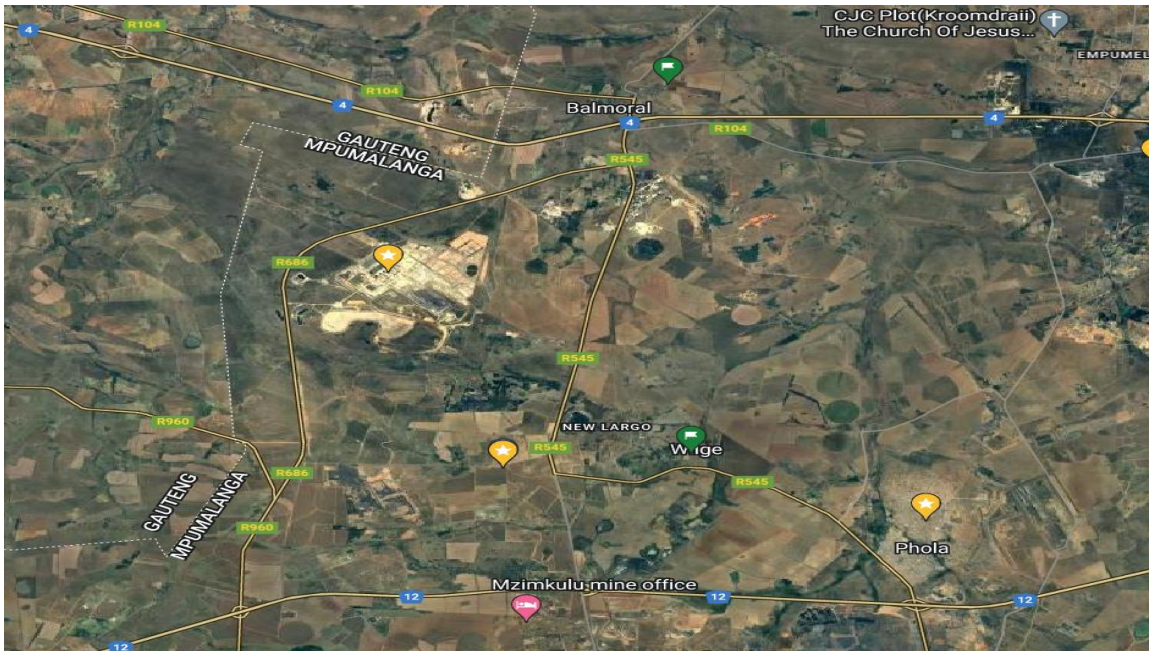



Figure 1: Air Quality Monitoring stations in relation to Kusile power station

## 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 July 2024

| Stations name | $SO_2$ | $NO_2$ | $O_3$ | $PM_{2.5}$ | $PM_{10}$ | WSP | WDR | Station Availability |
|---|---|---|---|---|---|---|---|---|
| **Balmoral (BL)** | 99.3 | NM | NM | NM | NM | 99.7 | 99.7 | 99.7 |
| **Chicken Farm (CF)** | 96.4 | 98.0 | 99.5 | 75.1 | 95.8 | 99.9 | 98.5 | 99.9 |
| **Phola (PO)** | 99.1 | 98.9 | 98.7 | 98.5 | 69.4 | 99.7 | 99.7 | 99.3 |
| **Wilge (WL)** | 99.9 | 69.2 | NM | NM | NM | 9.3 | 9.3 | 100 |

NM – not monitored.

Good representative percentage data was recovered for most of parameters monitored during the monitoring period under review at all the monitoring stations. Wilge monitoring station reported low data for meteorological parameters due to a faulty wind sensor, however it has been replaced.

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

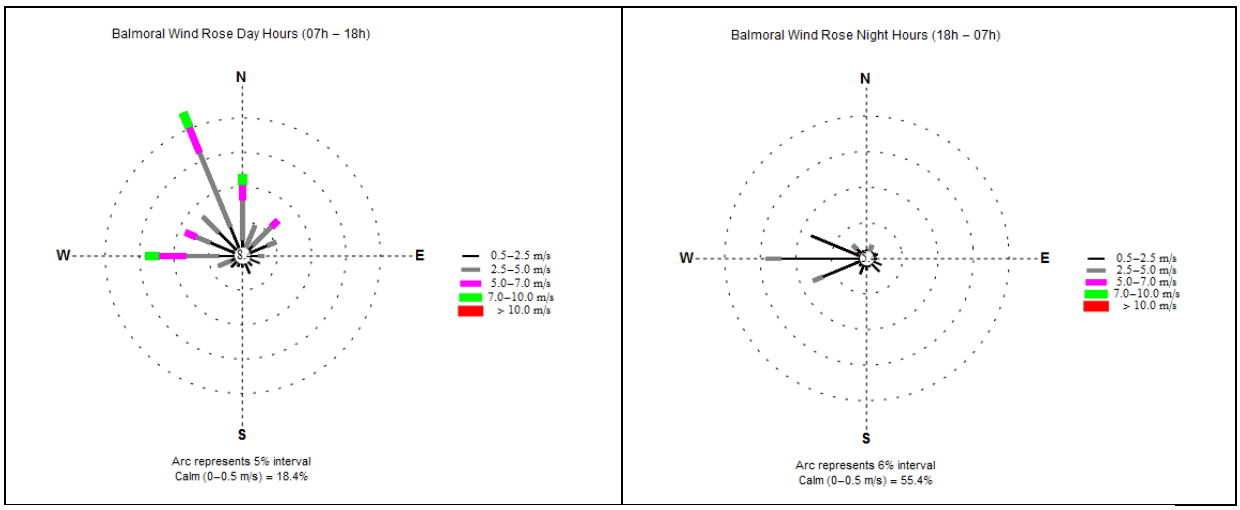



Figure 2: Wind profiles at Balmoral monitoring station

### 4.2.2. CHICKEN FARM AIR QUALITY MONITORING STATION

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

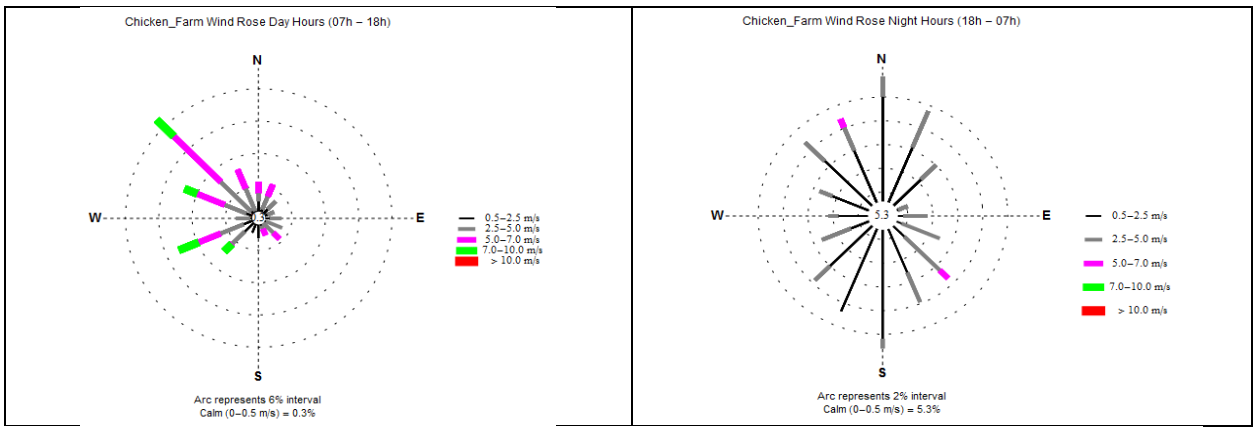



Figure 3: Wind profiles at Chicken Farm monitoring station

### 4.2.3. PHOLA AIR QUALITY MONITORING STATION

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

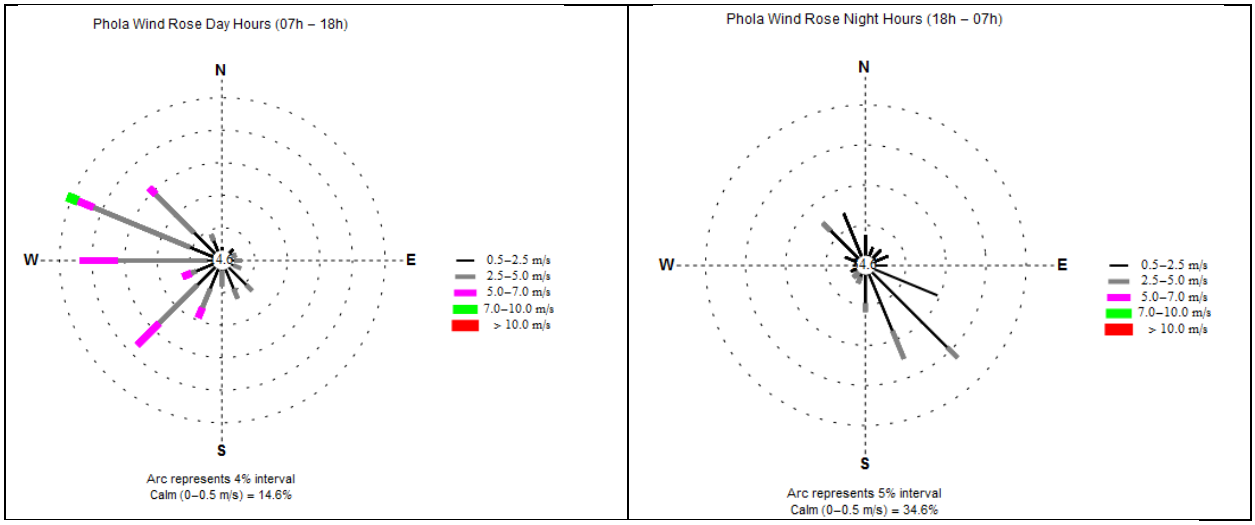



Figure 4: Wind profiles at Phola monitoring station.

### 4.2.4. WILGE AIR QUALITY MONITORING STATION

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

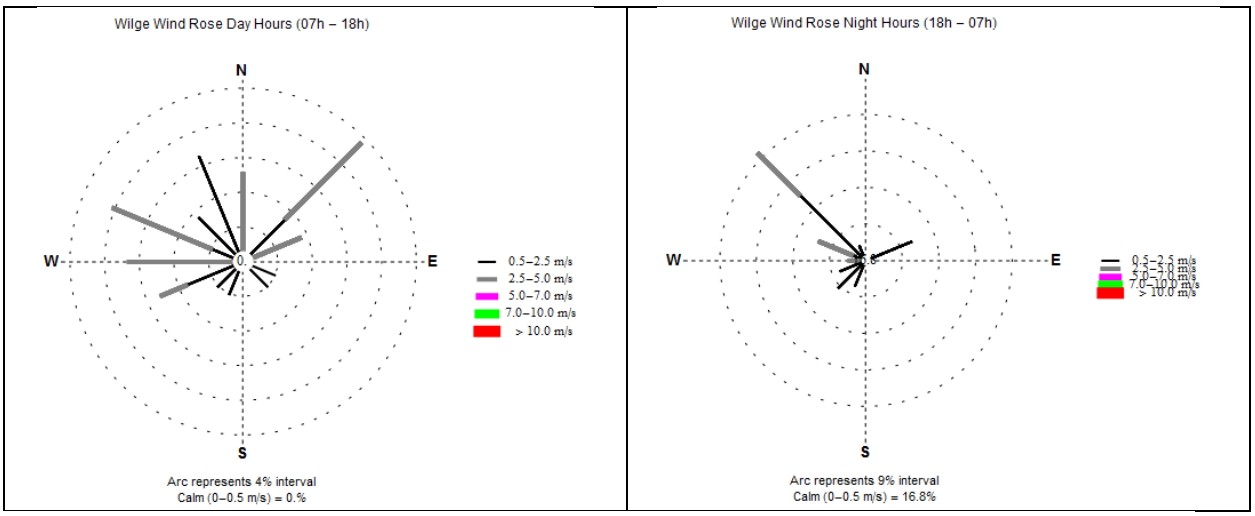



Figure 5: Wind profiles at Wilge monitoring station.

## 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 | 325.9 | 05/07/2024 10:30 | 197.0 | 05/07/2024 11h00 | 15.1 | 13/07/2024 |
| Chicken Farm | 228.8 | 21/07/2024 12:40 | 149.1 | 21/07/2024 13:00 | 32.4 | 21/07/2024 |
| Phola | 236.6 | 25/07/2024 20:30 | 145.0 | 17/07/2024 09:00 | 42.0 | 13/07/2024 |
| Wilge | 166.9 | 13/07/2024 08:00 | 150.8 | 13/07/2024 08:00 | 30.1 | 13/07/2024 |

There were two (2) exceedances of $SO_2$ 10-minutes limit of 191 ppb at both Balmoral and Chicken Farm and three (3) exceedances at Phola recorded during the monitoring period. There were exceedances of $SO_2$ hourly limit of 134 ppb at all the monitoring site under review. The highest $SO_2$ concentrations recorded at the monitoring stations are indicated in Table 3 and figures 6 to 9 below.

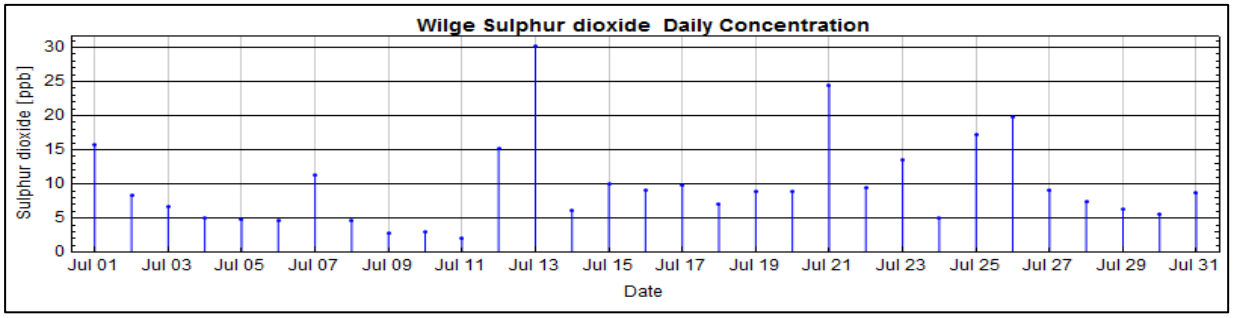



Figure 6: Time series graph for the $SO_2$ daily mean concentrations at Wilge AQM station

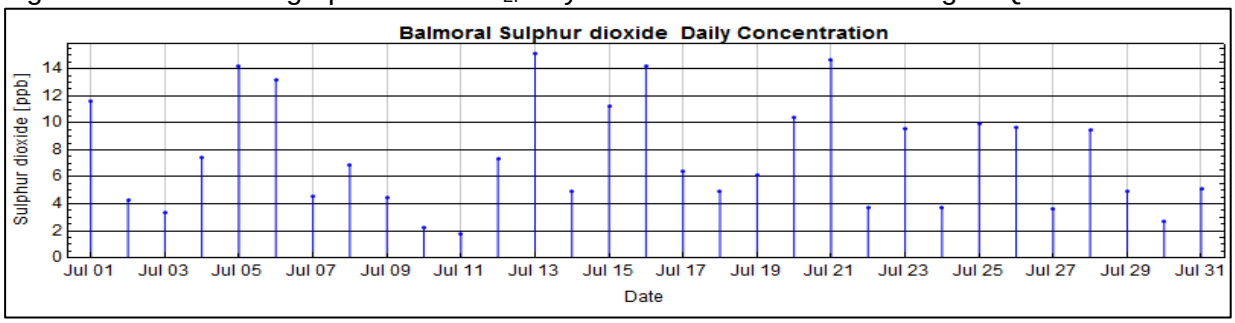



Figure 7: Time series graph for the $SO_2$ daily mean concentrations at Balmoral AQM station

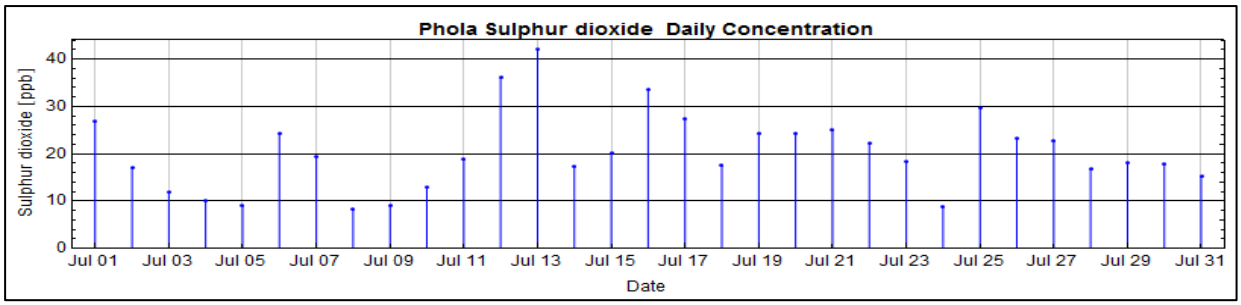



Figure 8: Time series graph for the $SO_2$ daily mean concentrations at Phola AQM station

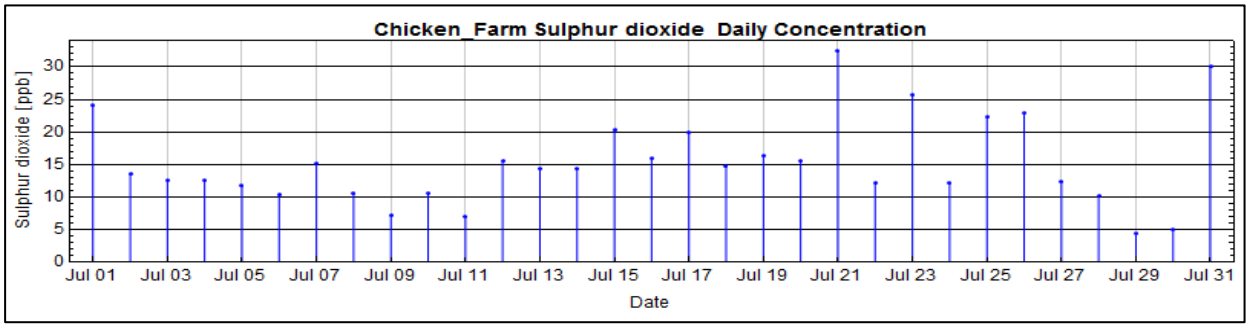



Figure 9: Time series graph for the $SO_2$ daily mean concentrations at Chicken Farm AQM station

There were no exceedances of the $NO_2$ hourly limit of 106 ppb recorded at the monitoring stations during the July 2024 monitoring period. There were twenty (20) exceedances of the $PM_{2.5}$ daily limit of 40 µg/m$^3$ at Phola, and ten (10) exceedances of the $PM_{2.5}$ daily limit of 40 µg/m$^3$the Chicken Farm monitoring station. There were eighteen (18) exceedances of $PM_{10}$ daily limit of 75 µg/m$^3$

at Phola air quality monitoring station and twenty-nine (29) 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.

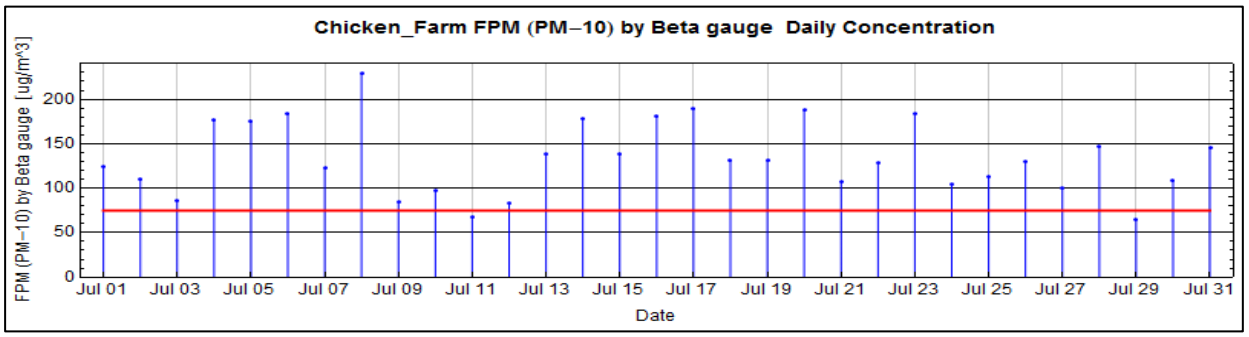



Figure 10: Time series graph for the $PM_{10}$ daily mean concentrations at Chicken Farm AQM station

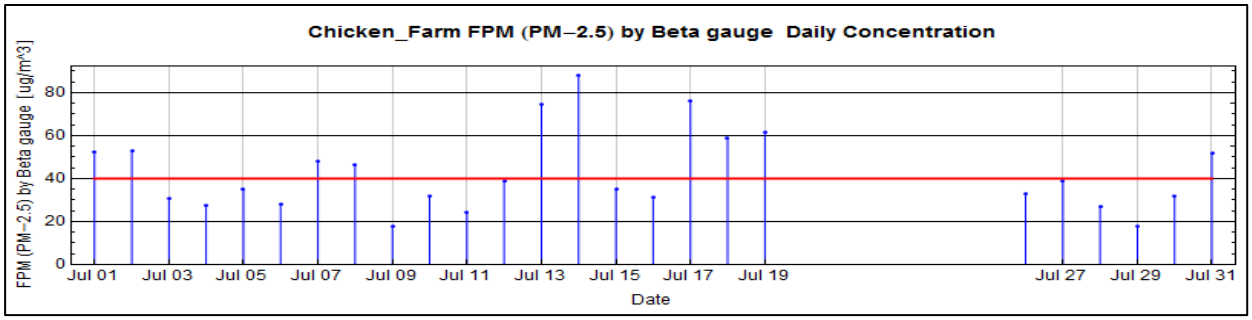



Figure 10: Time series graph for the $PM_{2.5}$ daily mean concentrations at Chicken Farm AQM station

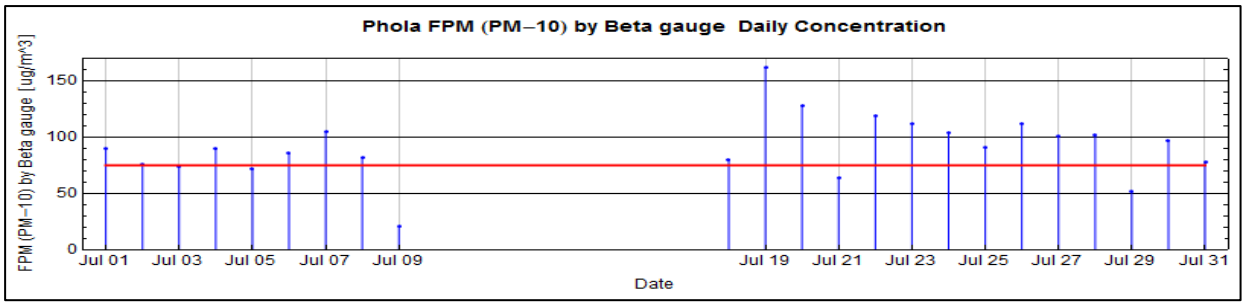



Figure 11: Time series graph for the $PM_{10}$ daily mean concentrations at Phola AQM station

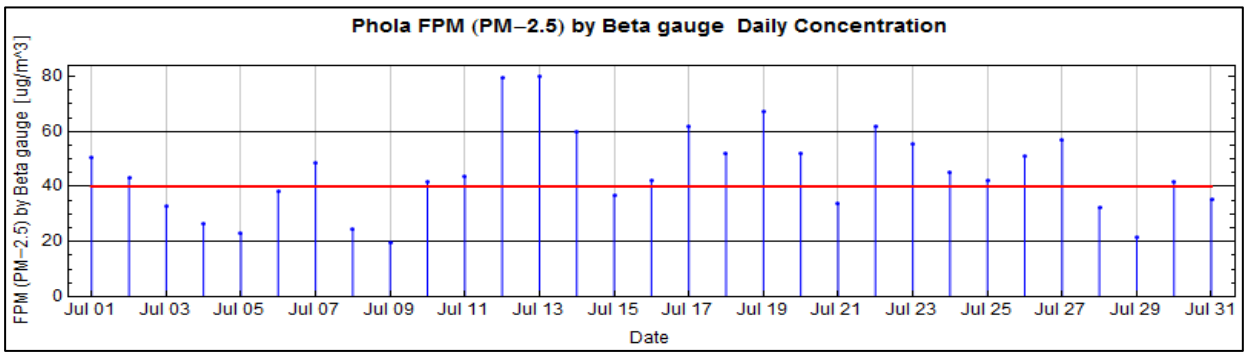



Figure 12: Time series graph for the $PM_{2.5}$ daily mean concentrations at Phola AQM station

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 | July | 01 | 90.3 |
| $PM_{10.}$ | 75 | 2024 | July | 02 | 76.1 |
| $PM_{10.}$ | 75 | 2024 | July | 04 | 89.8 |
| $PM_{10.}$ | 75 | 2024 | July | 06 | 86.2 |
| $PM_{10.}$ | 75 | 2024 | July | 07 | 104.7 |
| $PM_{10.}$ | 75 | 2024 | July | 08 | 81.4 |
| $PM_{10.}$ | 75 | 2024 | July | 18 | 80.3 |
| $PM_{10.}$ | 75 | 2024 | July | 19 | 161.7 |
| $PM_{10.}$ | 75 | 2024 | July | 20 | 128.2 |
| $PM_{10.}$ | 75 | 2024 | July | 22 | 118.7 |
| $PM_{10.}$ | 75 | 2024 | July | 23 | 111.8 |
| $PM_{10.}$ | 75 | 2024 | July | 24 | 104 |
| $PM_{10.}$ | 75 | 2024 | July | 25 | 91.1 |
| $PM_{10.}$ | 75 | 2024 | July | 26 | 111.5 |
| $PM_{10.}$ | 75 | 2024 | July | 27 | 100.8 |
| $PM_{10.}$ | 75 | 2024 | July | 28 | 101.6 |
| $PM_{10.}$ | 75 | 2024 | July | 30 | 97.2 |
| $PM_{10.}$ | 75 | 2024 | July | 31 | 77.5 |
| **$PM_{2.5}$ Daily Exceedances (Phola)** | | | | | |
| $PM_{2.5}$ | 40 | 2024 | July | 01 | 50.7 |
| $PM_{2.5}$ | 40 | 2024 | July | 02 | 43.1 |
| $PM_{2.5}$ | 40 | 2024 | July | 07 | 48.5 |
| $PM_{2.5}$ | 40 | 2024 | July | 10 | 41.7 |
| $PM_{2.5}$ | 40 | 2024 | July | 11 | 43.8 |
| $PM_{2.5}$ | 40 | 2024 | July | 12 | 79.6 |
| $PM_{2.5}$ | 40 | 2024 | July | 13 | 79.9 |
| $PM_{2.5}$ | 40 | 2024 | July | 14 | 59.8 |
| $PM_{2.5}$ | 40 | 2024 | July | 16 | 42.0 |
| $PM_{2.5}$ | 40 | 2024 | July | 17 | 61.7 |
| $PM_{2.5}$ | 40 | 2024 | July | 18 | 52.1 |
| $PM_{2.5}$ | 40 | 2024 | July | 19 | 67.2 |
| $PM_{2.5}$ | 40 | 2024 | July | 20 | 51.8 |
| $PM_{2.5}$ | 40 | 2024 | July | 22 | 61.9 |
| $PM_{2.5}$ | 40 | 2024 | July | 23 | 55.6 |
| $PM_{2.5}$ | 40 | 2024 | July | 24 | 45.0 |
| $PM_{2.5}$ | 40 | 2024 | July | 25 | 42.4 |
| $PM_{2.5}$ | 40 | 2024 | July | 26 | 51.2 |
| $PM_{2.5}$ | 40 | 2024 | July | 27 | 56.7 |
| $PM_{2.5}$ | 40 | 2024 | July | 30 | 41.6 |
| **$PM_{10}$ Daily Exceedances (Chicken Farm)** | | | | | |
| $PM_{10.}$ | 75 | 2024 | July | 01 | 123.7 |
| $PM_{10.}$ | 75 | 2024 | July | 02 | 110.8 |
| $PM_{10.}$ | 75 | 2024 | July | 03 | 85.4 |
| $PM_{10.}$ | 75 | 2024 | July | 04 | 176.8 |
| $PM_{10.}$ | 75 | 2024 | July | 05 | 175.7 |
| $PM_{10.}$ | 75 | 2024 | July | 06 | 184.3 |
| $PM_{10.}$ | 75 | 2024 | July | 07 | 123.4 |
| $PM_{10.}$ | 75 | 2024 | July | 08 | 228.6 |
| $PM_{10.}$ | 75 | 2024 | July | 09 | 84.7 |
| $PM_{10.}$ | 75 | 2024 | July | 10 | 97.6 |
| $PM_{10.}$ | 75 | 2024 | July | 12 | 83.4 |

| | | | | | |
|---|---|---|---|---|---|
| $PM_{10.}$ | 75 | 2024 | July | 13 | 138.3 |
| $PM_{10.}$ | 75 | 2024 | July | 14 | 178.4 |
| $PM_{10.}$ | 75 | 2024 | July | 15 | 138.5 |
| $PM_{10.}$ | 75 | 2024 | July | 16 | 180.7 |
| $PM_{10.}$ | 75 | 2024 | July | 17 | 190.0 |
| $PM_{10.}$ | 75 | 2024 | July | 18 | 130.8 |
| $PM_{10.}$ | 75 | 2024 | July | 19 | 131.1 |
| $PM_{10.}$ | 75 | 2024 | July | 20 | 187.5 |
| $PM_{10.}$ | 75 | 2024 | July | 21 | 107.6 |
| $PM_{10.}$ | 75 | 2024 | July | 22 | 127.9 |
| $PM_{10.}$ | 75 | 2024 | July | 23 | 184.1 |
| $PM_{10.}$ | 75 | 2024 | July | 24 | 104.3 |
| $PM_{10.}$ | 75 | 2024 | July | 25 | 113.2 |
| $PM_{10.}$ | 75 | 2024 | July | 26 | 129.7 |
| $PM_{10.}$ | 75 | 2024 | July | 27 | 100.6 |
| $PM_{10.}$ | 75 | 2024 | July | 28 | 147.5 |
| $PM_{10.}$ | 75 | 2024 | July | 30 | 108.9 |
| $PM_{10.}$ | 75 | 2024 | July | 31 | 145.1 |

**$PM_{2.5}$ Daily Exceedances (Chicken Farm)**

| Pollutant | Limit | Year | Month | Day | Conc. (µg/m$^3$) |
|---|---|---|---|---|---|
| $PM_{2.5}$ | 40 | 2024 | July | 01 | 52.5 |
| $PM_{2.5}$ | 40 | 2024 | July | 02 | 52.7 |
| $PM_{2.5}$ | 40 | 2024 | July | 07 | 47.9 |
| $PM_{2.5}$ | 40 | 2024 | July | 08 | 46.6 |
| $PM_{2.5}$ | 40 | 2024 | July | 13 | 74.7 |
| $PM_{2.5}$ | 40 | 2024 | July | 14 | 87.9 |
| $PM_{2.5}$ | 40 | 2024 | July | 17 | 75.9 |
| $PM_{2.5}$ | 40 | 2024 | July | 18 | 58.8 |
| $PM_{2.5}$ | 40 | 2024 | July | 19 | 61.5 |
| $PM_{2.5}$ | 40 | 2024 | July | 31 | 51.8 |

**$SO_2$ Hourly Exceedances (Balmoral)**

| Pollutant | Limit | Year | Month | Day | WSP | WDR | Time | Conc. |
|---|---|---|---|---|---|---|---|---|
| $SO_2$ | 134 | 2024 | July | 05 | 2.37 | W | 11h00 | 196.99 |

**$SO_2$ Hourly Exceedances (Phola )**

| Pollutant | Limit | Year | Month | Day | WSP | WDR | Time | Conc. |
|---|---|---|---|---|---|---|---|---|
| $SO_2$ | 134 | 2024 | July | 13 | 0.29 | SSW | 10h00 | 143.91 |
| $SO_2$ | 134 | 2024 | July | 17 | 0.19 | WSW | 09h00 | 144.98 |

**$SO_2$ Hourly Exceedances (Chicken Farm)**

| Pollutant | Limit | Year | Month | Day | WSP | WDR | Time | Conc. |
|---|---|---|---|---|---|---|---|---|
| $SO_2$ | 134 | 2024 | July | 21 | 1.32 | N | 13h00 | 149.1 |

**$SO_2$ Hourly Exceedances (Wilge)**

| Pollutant | Limit | Year | Month | Day | WSP | WDR | Time | Conc. |
|---|---|---|---|---|---|---|---|---|
| $SO_2$ | 134 | 2024 | July | 05 | 0.69 | NNE | 13h00 | 152.1 |
| $SO_2$ | 134 | 2024 | July | 13 | 1.14 | N | 08h00 | 154.72 |
| $SO_2$ | 134 | 2024 | July | 21 | 1.29 | WSW | 11h00 | 153.82 |

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

| Averaging Period | Balmoral | Chicken Farm | Phola | Wilge |
|---|---|---|---|---|
| $SO_2$ 10-min | 2 | 2 | 3 | 0 |
| $SO_2$ Hourly | 1 | 1 | 2 | 3 |
| $SO_2$ Daily | 0 | 0 | 0 | 0 |
| $NO_2$ Hourly | NM | 0 | 0 | 0 |
| $O_3$ 8-hourly | NM | 0 | 11 | NM |
| $PM_{2.5}$ Daily | NM | 10 | 20 | NM |
| $PM_{10}$ Daily | NM | 29 | 18 | NM |

NM – not monitored.

A summary of all exceedances per pollutant for July 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 July 2024.

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

| SITES | CF | PO | BL | WL | Allowed No. of Exceedances (November 2023 to July 2024) |
|---|---|---|---|---|---|
| **$PM_{10}$ (Daily)** | 61 | 63 | NM | NM | **4** |
| **$PM_{2.5}$ (Daily)** | 78 | 62 | NM | NM | **4** |
| **$NO_2$ (hourly)** | 0 | 0 | NM | 0 | **88** |
| **$SO_2$ (Hourly** | 0 | 2 | 1 | 7 | **88** |
| **$SO_2$ (Daily)** | 0 | 0 | 0 | 0 | **4** |
| **$O_3$ (8h moving)** | 355 | 82 | NM | NM | **11** |
| **$SO_2$ (10 minute)** | 0 | 4 | 3 | 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 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 areas during the winter months in Phola.

## 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 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.

## 6. CONCLUSIONS

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

There were two (2) exceedances of $SO_2$ 10-minutes limit of 191 ppb at both Balmoral and Chicken Farm and three (3) exceedances at Phola recorded during the monitoring period. There were exceedances of $SO_2$ hourly limit of 134 ppb at all the monitoring site under review.

There were twenty (20) exceedances of the $PM_{2.5}$ daily limit of 40 µg/m$^3$ at Phola, and ten (10) exceedances of the $PM_{2.5}$ daily limit of 40 µg/m$^3$the Chicken Farm monitoring station. There were eighteen (18) exceedances of $PM_{10}$ daily limit of 75 µg/m$^3$ at Phola air quality monitoring station and twenty-nine (29) 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 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 July 2024.