Eskom

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Date:
31 May 2025

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Ref: Kendal Power Station Annual Emissions Report

Dear Ms. Simelane

KENDAL POWER STATION'S ANNUAL EMISSIONS REPORT FOR THE FINANCIAL YEAR 2024/2025

This serves as the annual report required in terms of Section 7.6 in Kendal Power Station's Atmospheric Emission License, as well as in terms of other reporting requirements listed in the Minimum Emission Standards. The emissions are for Eskom's 2024/2025 financial year, which is from 1 April 2024 to 31 March 2025. Verified emissions of particulates, as measured by installed CEMS and for SO_2 and NO_x (as NO_2) from Eskom Research and Technology Division (RT&D) calculated data was used.

Name, description, and reference number of plant as specified in the AEL:

Name of facility	Eskom Holdings SOC Limited –Kendal Power Station
Description of facility	Power Generation
Reference number of plant	AEL License No: 17/AEL/MP312/11/15

KENDAL POWER STATION'S ANNUAL EMISSIONS REPORT FOR THE FINANCIAL YEAR 2024/2025

Emission Trends:

The emissions in the table below are that of the 2024/2025 financial year. Eskom Research and Technology Division (RT&D) calculated emissions data for **CO_2, N_2O, SO_2** & **NO_2** was used.

Table 1. General oversight of emissions at Kendal Power Station 2024/2025

Power Station	Coal-fired emissions (tons/annum)	Fuel-oil emissions (tons/annum)	Total (tons/annum)
Kendal Power Station	**CO_2:** 17995673	**CO_2:** 294814	**CO_2:** 18,290,487
	N_2O: 254.78		**N_2O:** 254.78
	PM: 21503.89		**PM:** 21503.89
	SO_2: 156360	**SO_2:** 3851.33	**SO_2:** 160,211.33
	NO_2: 52065		**NO_2:** 52065

Figure 1. Kendal PS Daily Unit 1 PM Emissions (FY2024/25)

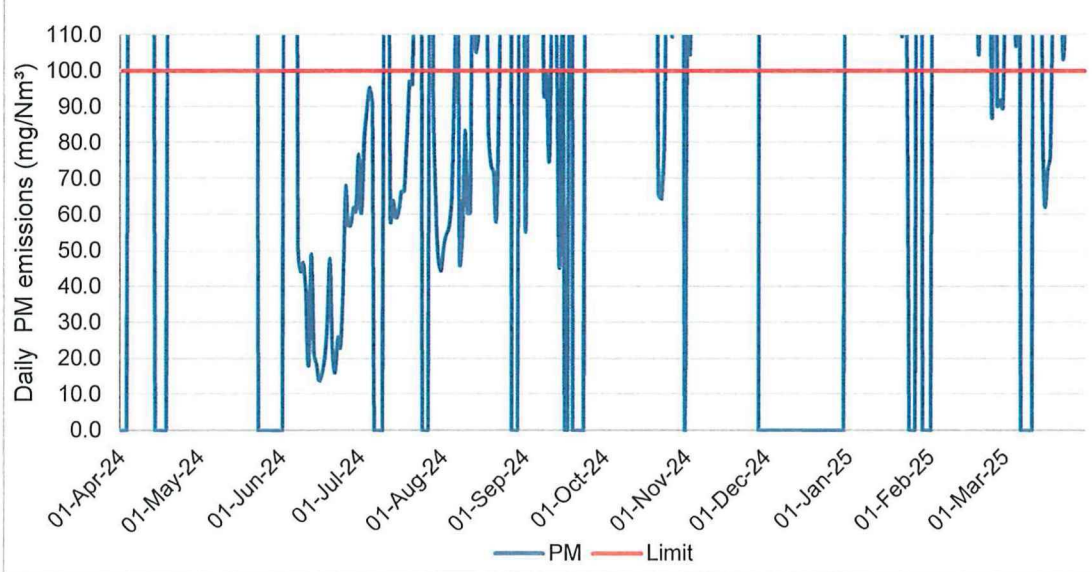

Figure 2. Kendal PS Daily Unit 2 PM Emissions (FY2024/25)

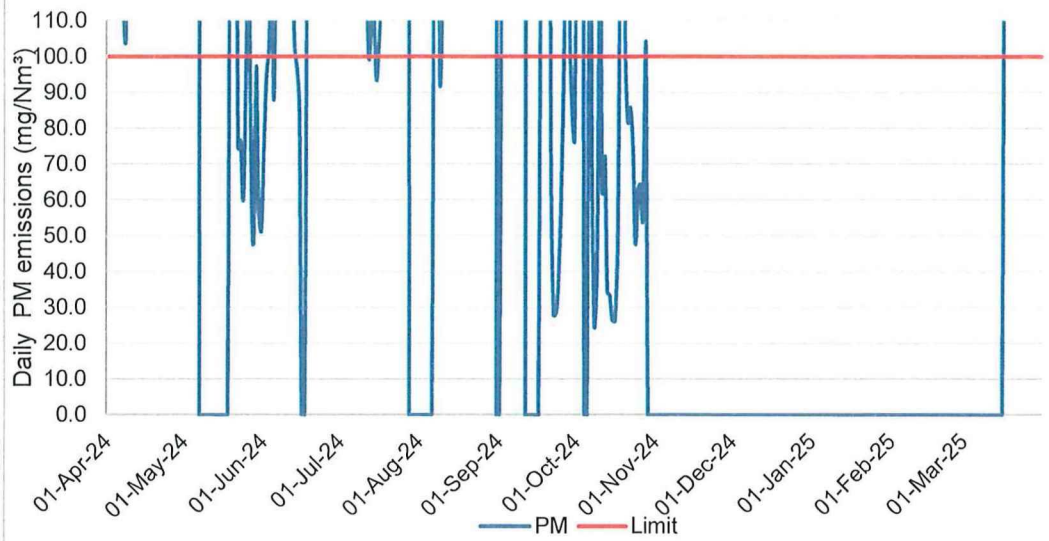

Figure 3. Kendal PS Daily Unit 3 PM Emissions (FY2024/25)

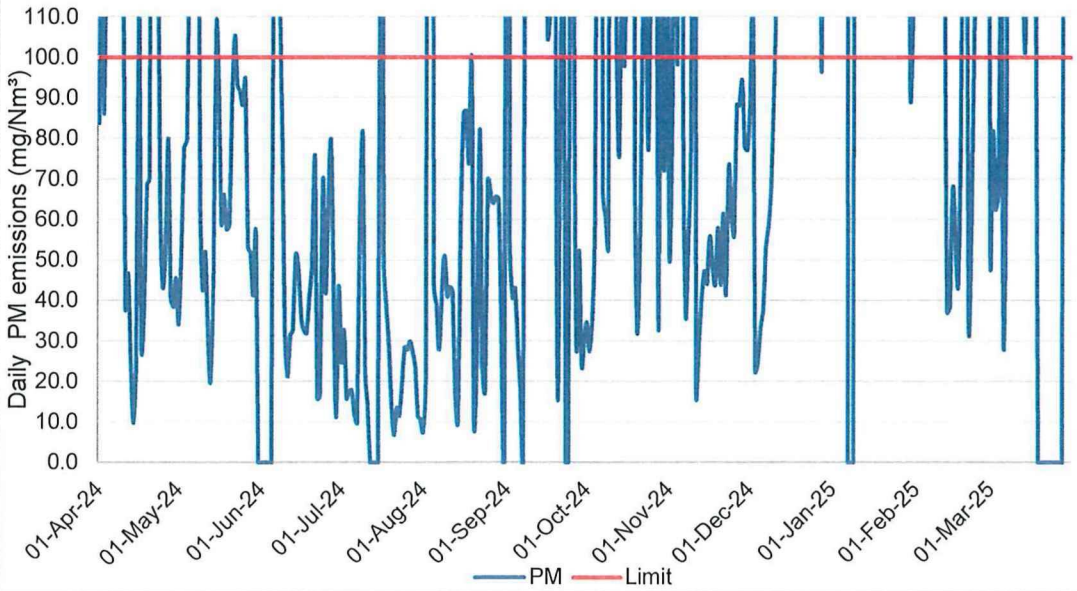

Figure 4. Kendal PS Daily Unit 4 PM Emissions (FY2024/25)

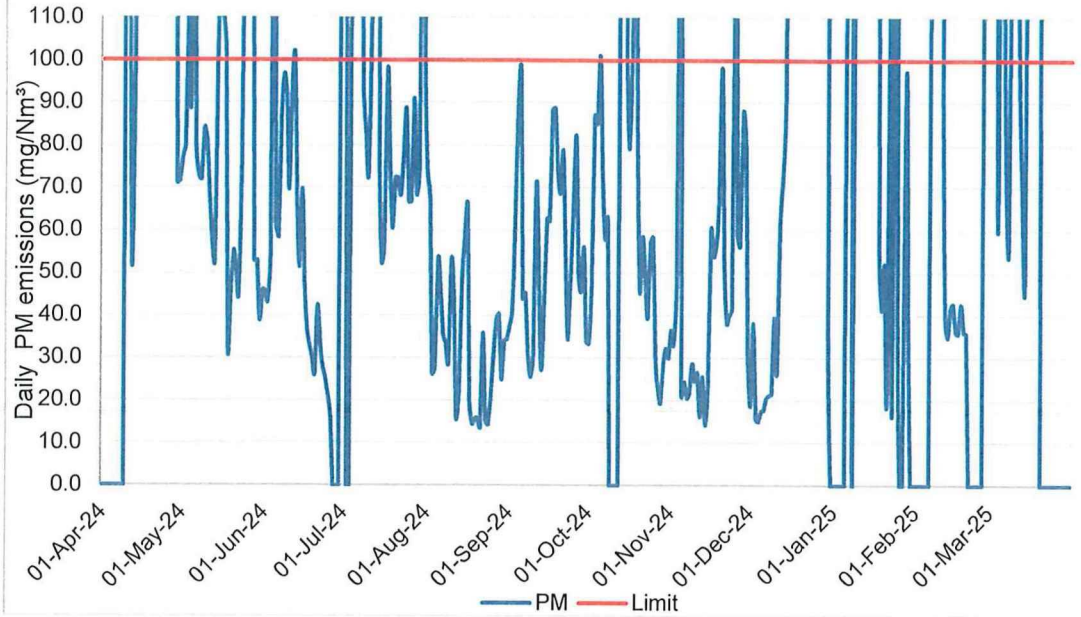

Figure 5. Kendal PS Daily Unit 5 PM Emissions (FY2024/25)

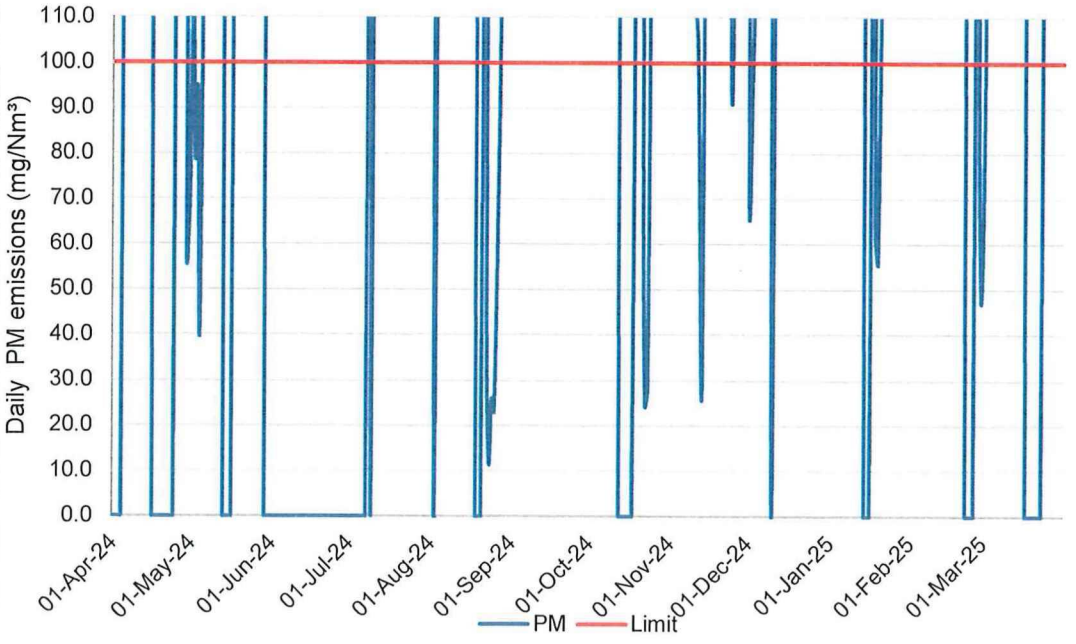

Figure 6. Kendal PS Daily Unit 6 PM Emissions (FY2024/25)

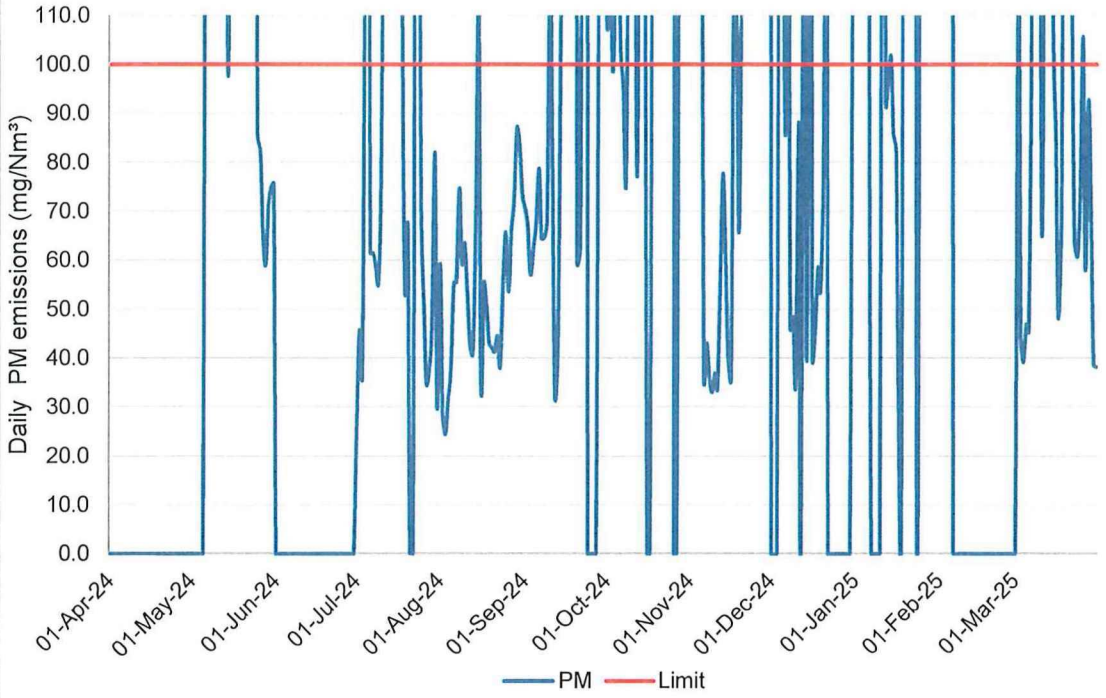

Figure 1 to 6. Monthly Particulate Emissions in mg/Nm^3 per unit for Kendal Power Station 2024/2025

Please note: Gaseous emissions, in particular, are largely dependent on the power generated by the power station, and thus the amount of coal burnt. Eskom Research and Technology Division (RT&D) calculated emissions data for CO2, N2O, SO2 & NO2 was used.

Figure 7. Kendal PS Daily Unit 1 SO_2 Emissions (FY2024/25)

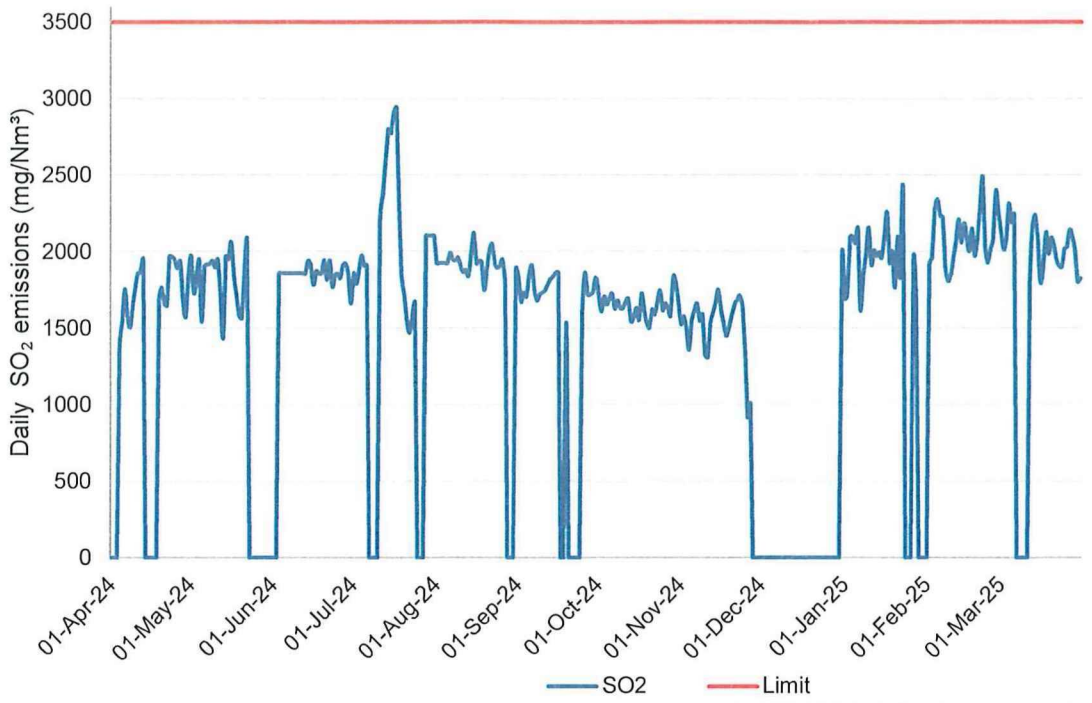

Figure 8. Kendal PS Daily Unit 2 SO_2 Emissions (FY2024/25)

Figure 9. Kendal PS Daily Unit 3 SO_2 Emissions (FY2024/25)

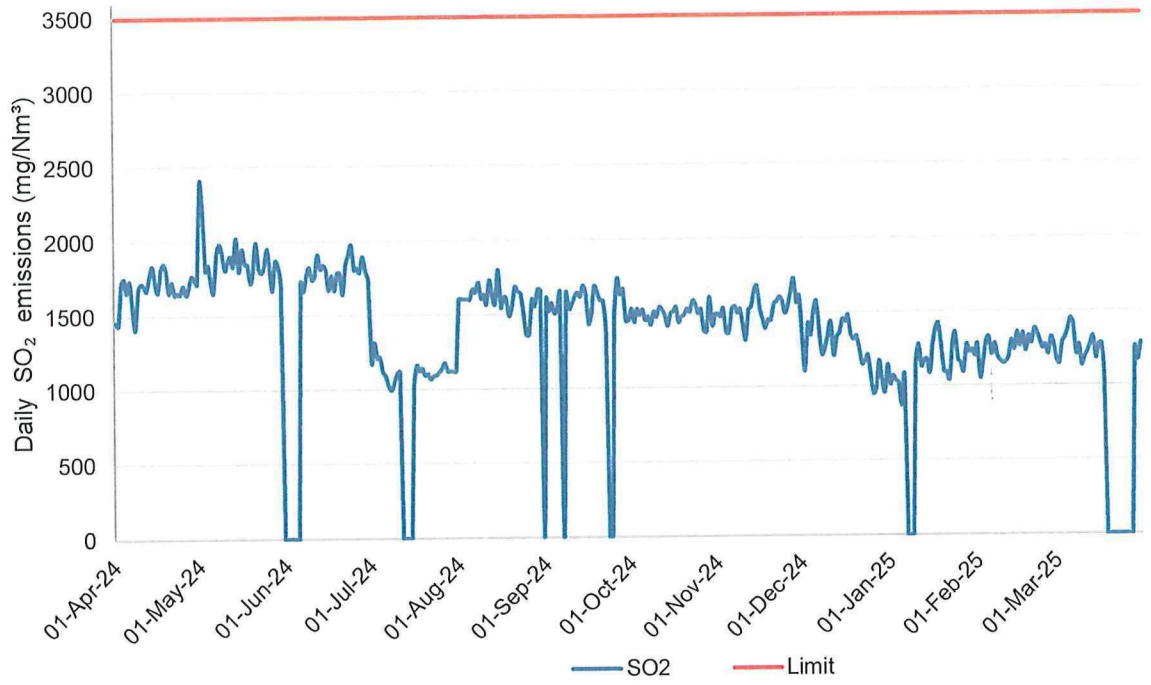

Figure 10. Kendal PS Daily Unit 4 SO_2 Emissions (FY2024/25)

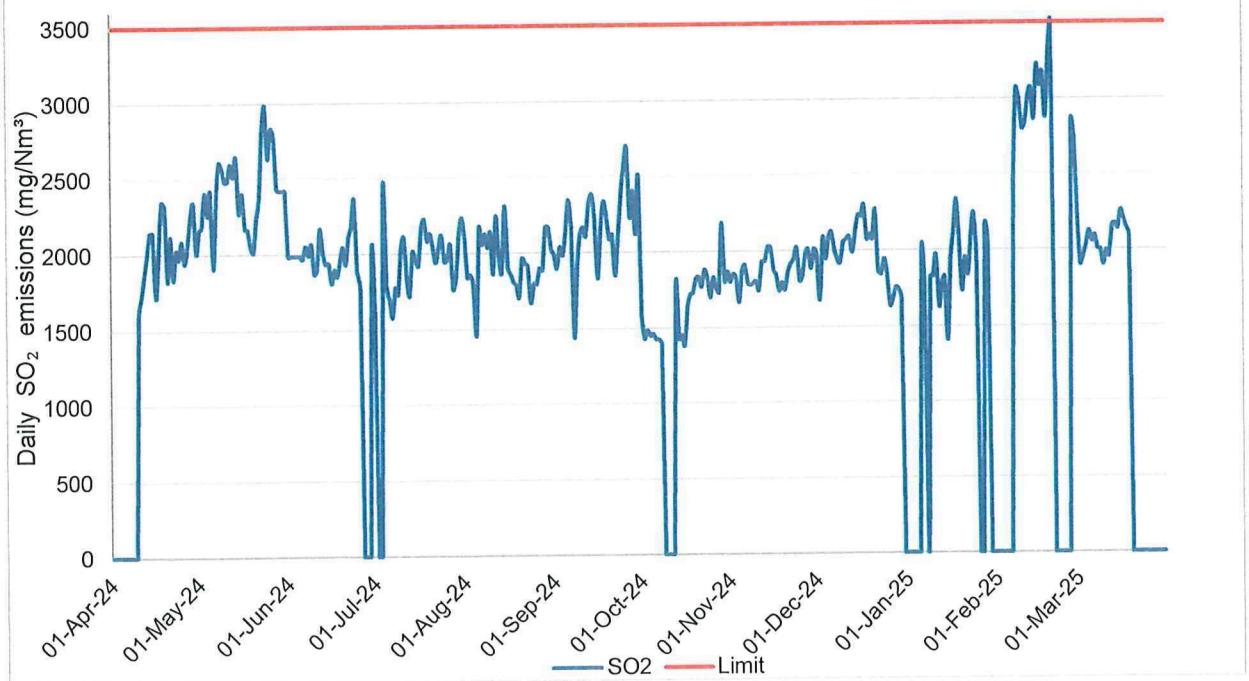

Figure 11. Kendal PS Daily Unit 5 SO_2 Emissions (FY2024/25)

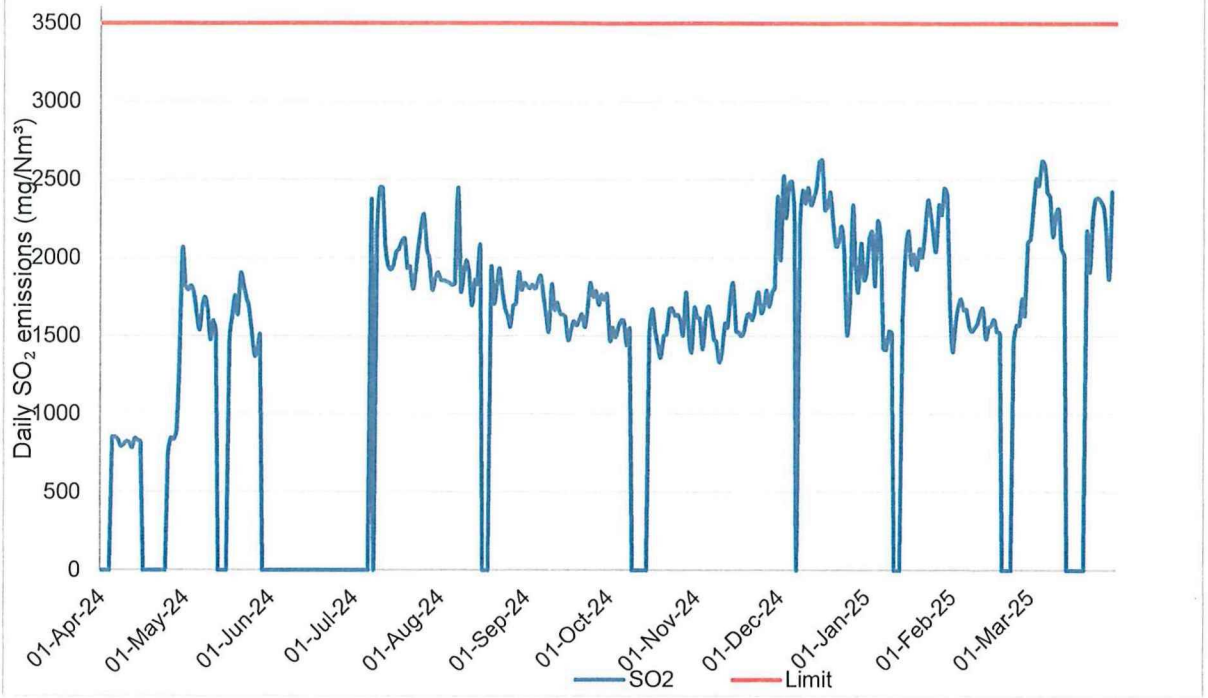

Figure 12. Kendal PS Daily Unit 6 SO_2 Emissions (FY2024/25)

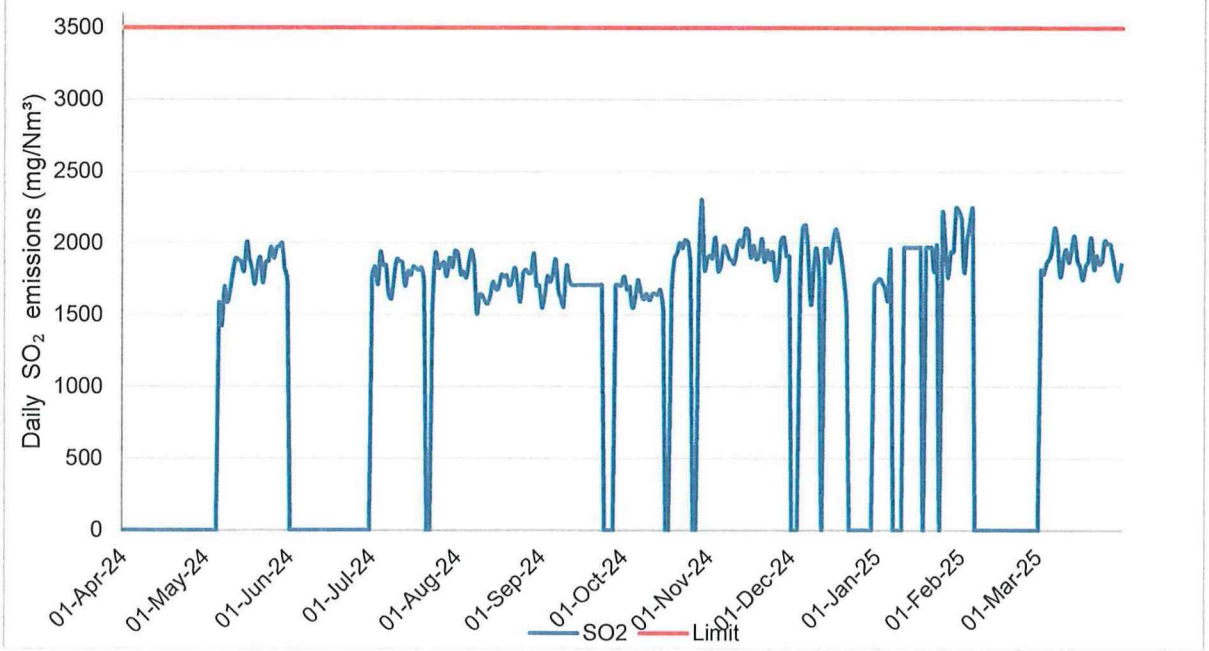

Figure 7 to 12. Monthly SO_2 Emissions in mg/Nm^3 per unit for Kendal Power Station 2024/2025

Figure 13. Kendal PS Daily Unit 1 NOx Emissions (FY2024/25)

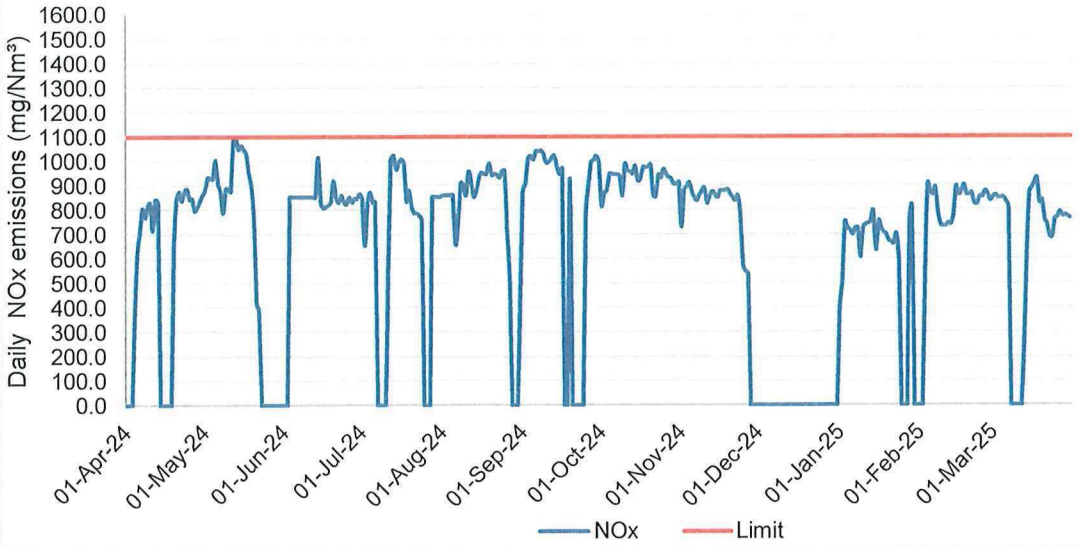

Figure 14. Kendal PS Daily Unit 2 NOx Emissions (FY2024/25)

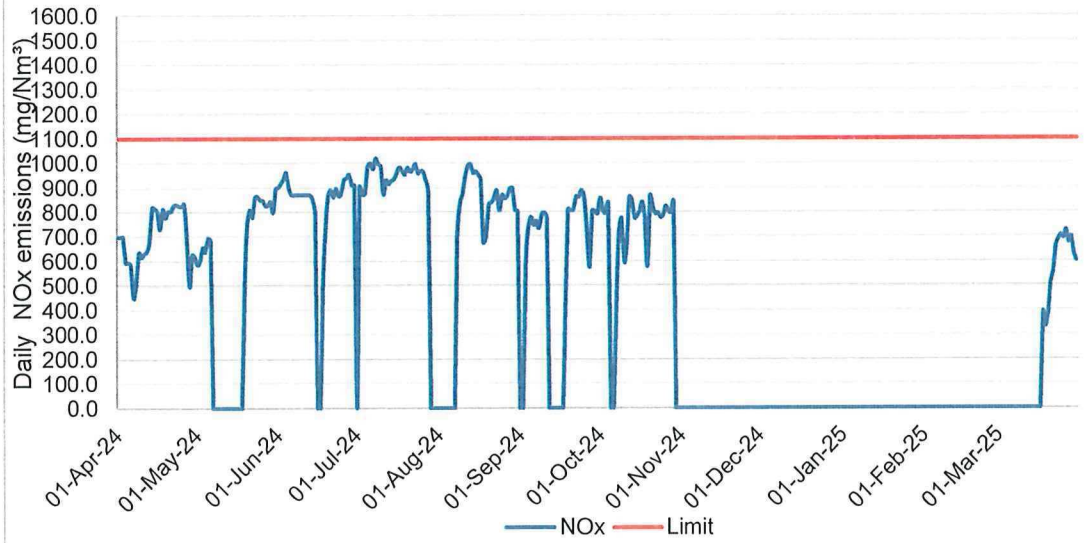

Figure 15. Kendal PS Daily Unit 3 NOx Emissions (FY2024/25)

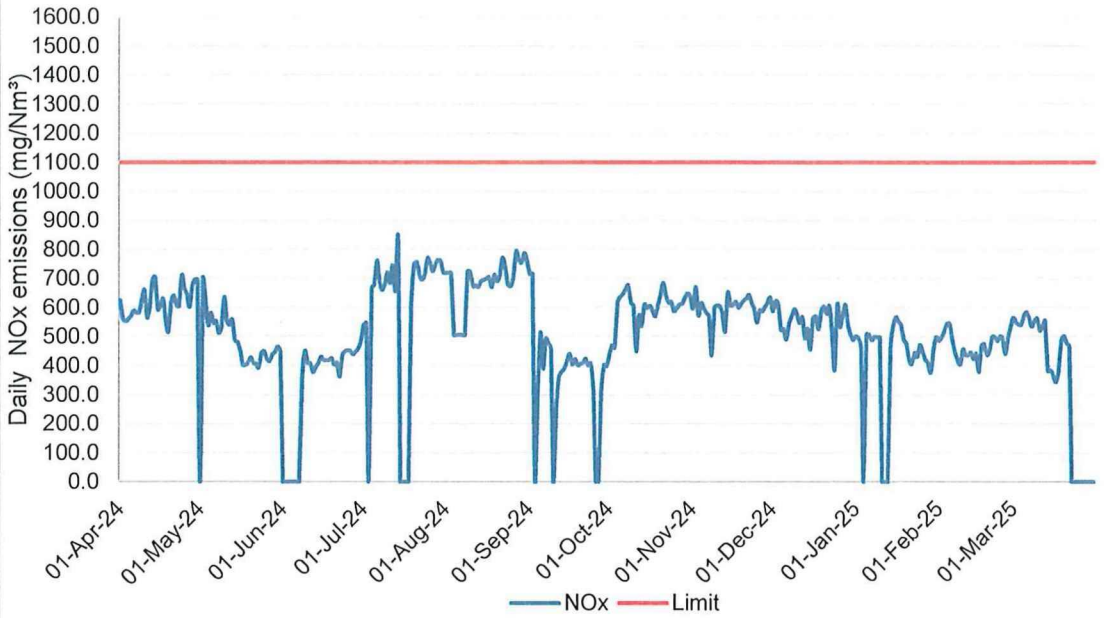

Figure 16. Kendal PS Daily Unit 4 NOx Emissions (FY2024/25)

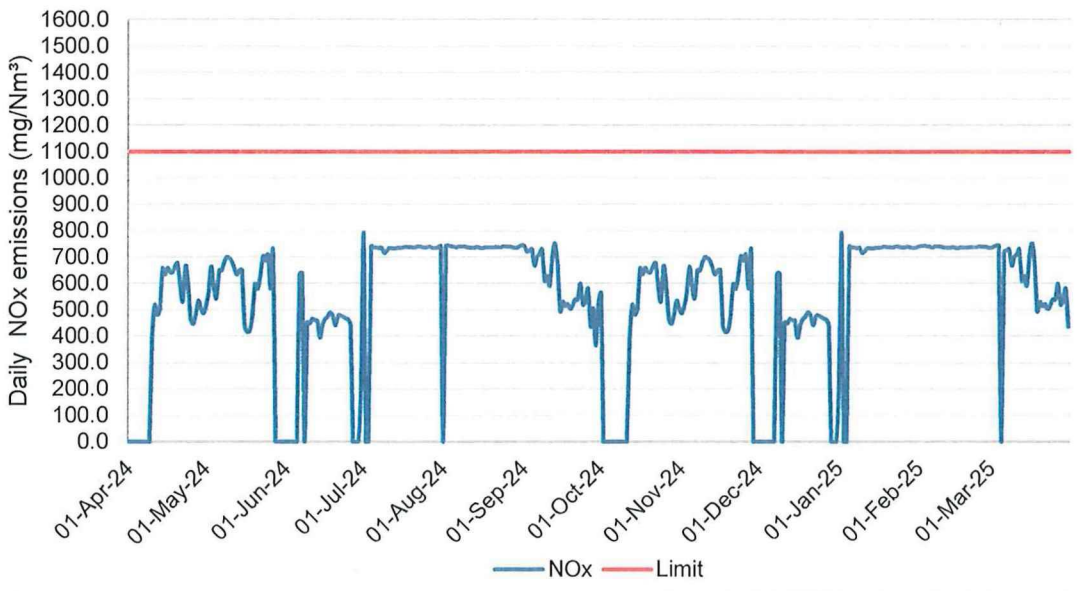

Figure 17. Kendal PS Daily Unit 5 NOx Emissions (FY2024/25)

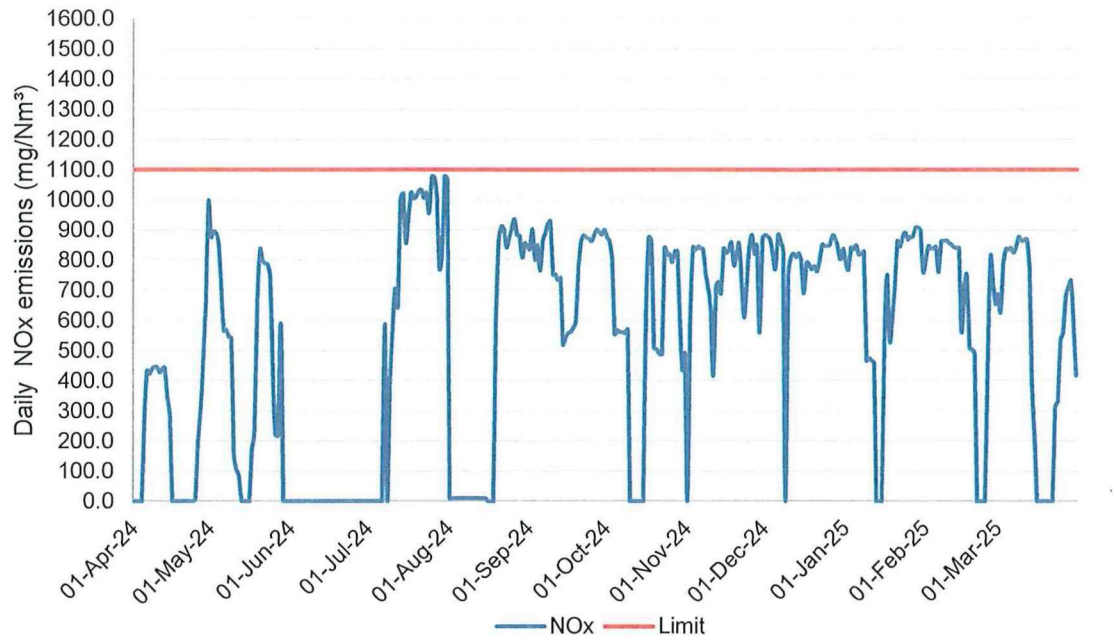

Figure 18. Kendal PS Daily Unit 6 NOx Emissions (FY2024/25)

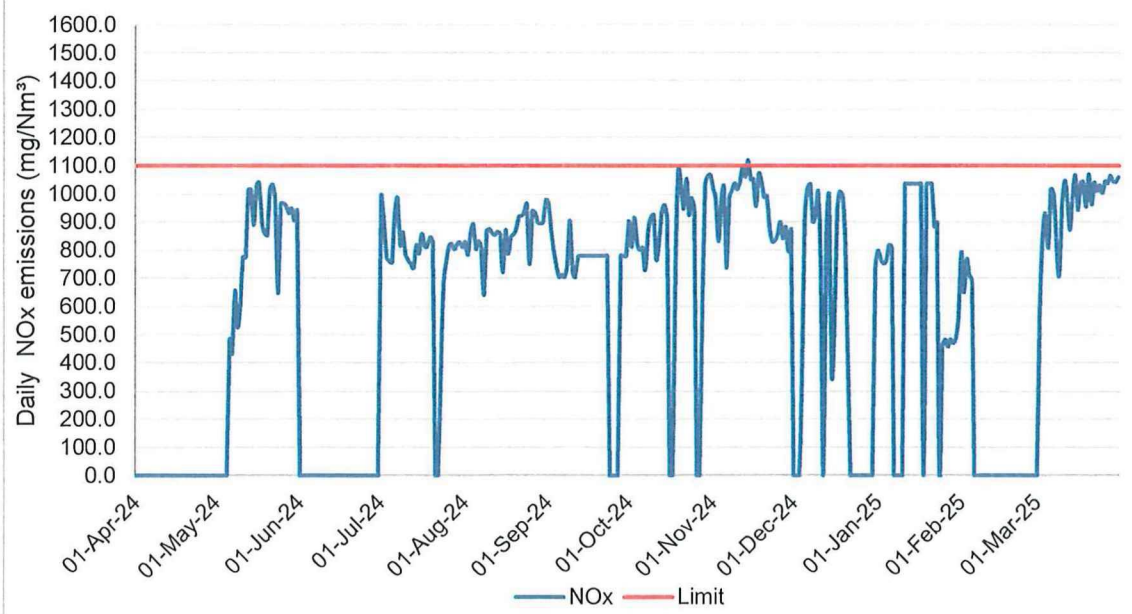

Figure 13 to 18. Monthly NO_2 Emissions in mg/Nm^3 for Kendal Power Station 2024/2025

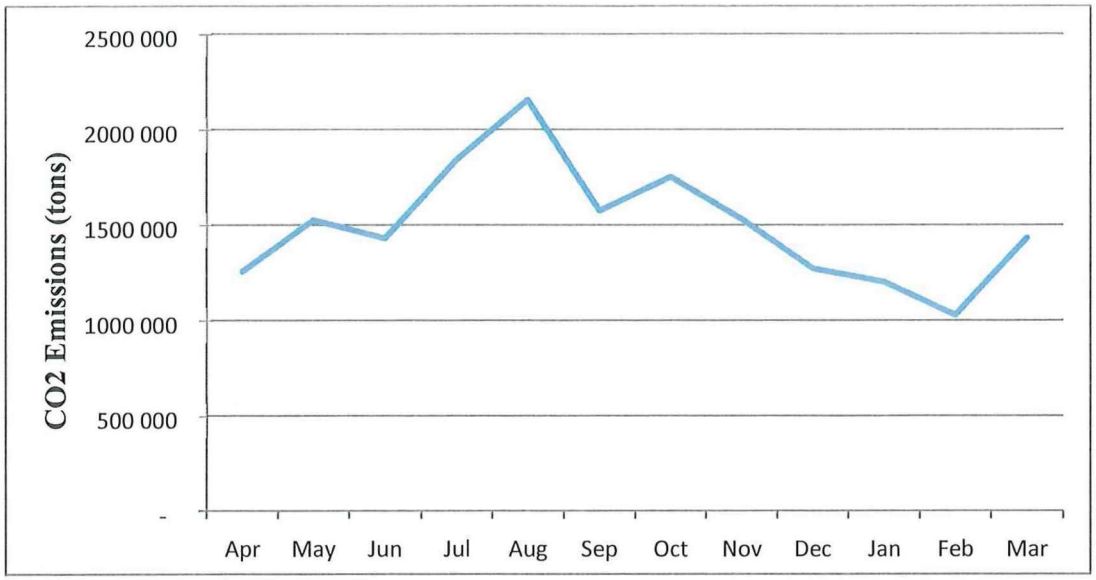

Figure 19. Monthly CO_2 Emissions in tons from Kendal Power Station 2024/2025

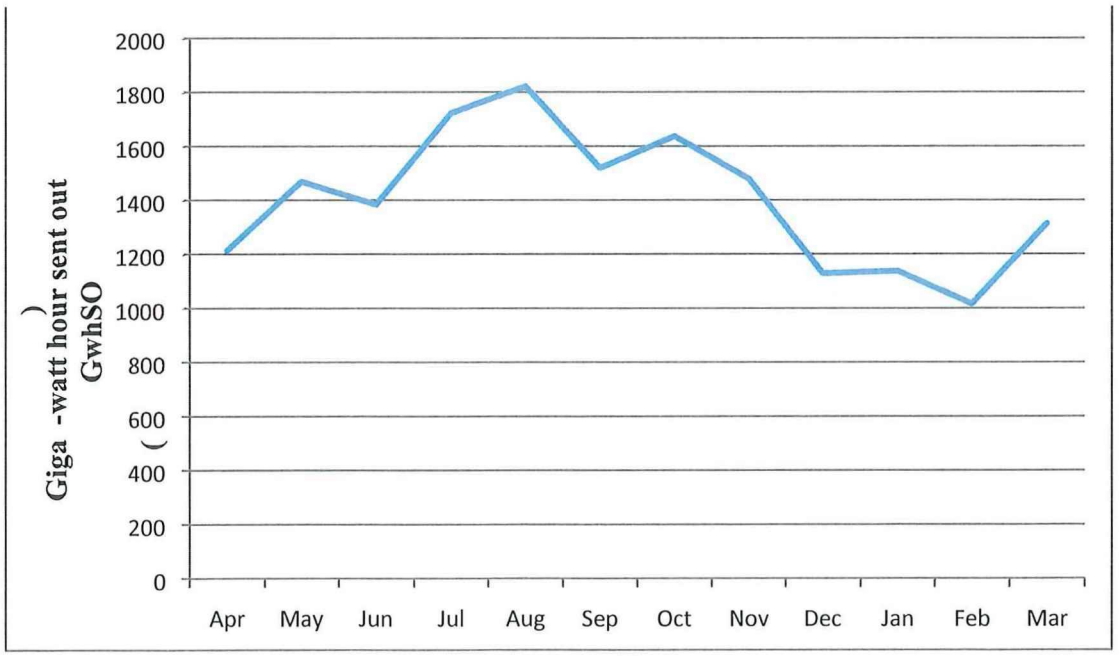

Figure 20. Monthly Energy sent out in GWh at Kendal Power Station 2024/2025

Figures showing compliance with the daily average emission limits of the respective pollutants have been presented to you in the monthly emission reports sent to your offices.

Monitoring Data Reliability

Table 2. General oversight of average monitoring data availability in percentage for Kendal Power Station 2024/2025 in terms of the number of full hours per annum that valid result were obtained for the CEMS in question (2024/2025)

	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
PM	86.24	65.52	56.52	76.08	95.2	76.35
SO_2	83.47	94.96	78.14	55.91	93.61	63.74
NOx	68.52	94.87	76.13	55.41	93.84	72.21

Compliance Audit Report(s):

The Eskom Generation Air Quality Centre of Excellence (AQ CoE) conducted an Atmospheric Emissions License (AEL) No. 17/4/AEL/MP312/11/15 compliance Review audit for Kendal Power Station on 1 August 2023.

Summary of the findings were as follows:

- AEL condition 4.1- While operating procedures and maintenance strategies for the SO3, DHP and ESP were indicated to be available and implemented, it was clear that the mitigation measures were not adequate to prevent and reduce atmospheric emissions. Within the review period (Q1_April to June 2023)- Kendal incurred emission limit non-compliances based on poorly maintained plants such as the DHP which negatively affected the abatement technology (ESP).
- AEL condition 4.2 deals with duty of care. The station has a procedure in place to demonstrate duty of care in terms of NEMA Section 28(3), however, from the extended non-compliance noted during the period under review (Q1), it was clear that the procedure was not followed to reduce and minimize the PM emissions.
- Under AEL condition 7.2 a non-compliance was raised, the station incurred 312 PM, 10 SO2, and NOx exceedances recorded in Q1. The station is implementing an emission recovery /turnaround plan to address emission non-compliance. However, some of these projects are delayed as per committed due dates, and revised dates are anticipated.
- Under AEL condition 7.4 it was found that all units had expired correlation tests.
- Under AEL condition 7.3 (sub-condition 7.3.1;7.3.2;7.3.3,7.3.9) it was found that the station did not take reasonable measures to control emissions during start-up after an outage still exceeded the emissions beyond the grace periods.

Major Upgrades Projects:

1. ESP refurbishment- Unit 2,3,4,5 & 6 completed, and unit 1 will be completed during the next outage.
2. SO3 plant tanks & common line refurbishment- Completed.
3. High frequency Transformers Installation on all units- Completed.
4. Refurbishment/replacement of primary & secondary Air heaters- Unit 2,3,4,5 & 6- Completed, unit 1 is outstanding and it will be done during the next outage.
5. Ash handling plant recovery GO scope of work-Completed on unit 2,3,4,5 & 6 and unit 1 will be executed during the next outage.

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Greenhouse Gas Emissions:

Greenhouse gas emissions as CO_2 and N_2O have been reported on in table 1 above. These have been calculated.

Results of Spot Measurements or Correlation Tests:

Table 3. Overview of dates of last conducted CEMS verification tests for PM, SO_2 and NOx

Stack/Unit	PM	SO_2	NOx
1	13th to 18th of June 2024	14th and the 17th of June 2024	14th and the 17th of June 2024
2	03rd and the 11th of May 2023	28th and the 30th of May 2024	28th and the 30th of May 2024
3	19th March and the 04th April 2024	3rd to the 5th of April 2024	3rd to the 5th of April 2024
4	23rd February to 24th March 2024	26th February to the 04th of March 2024	26th February to the 04th of March 2024
5	08th to the 15th of November 2023	9th to the 15th November 2023	9th to the 15th November 2023
6	25th to 5th July 2024	27th of June to the 5th July 2024	27th of June to the 5th July 2024

Please see attached appendices 1 to12 for the recent parallel tests and correlation tests. Conducted at Kendal Power Station.

An explanation of all instances where minimum emission standards were exceeded:

All of the exceedances within the grace period and those that exceeded the grace period are reported in monthly reports as submitted to your Office on a monthly basis.

Emission monitoring and reporting will continue on these units and the monthly reports will be submitted to the Licensing Authorities as required and in instances where the emission performance has improved or not improved, such will be displayed in the reports as submitted.

KENDAL POWER STATION'S ANNUAL EMISSIONS REPORT FOR THE FINANCIAL YEAR 2024/2025

Summary of PM Emission Exceedance per month per unit for 2024/2025 year:

	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
April	19	29	12	15	13	Unit off
May	22	9	6	8	20	15
June	4	22	2	3	Unit off	Unit off
July	2	21	0	5	11	4
August	9	21	Unit off	Unit off	22	Unit off
September	14	14	13	Unit off	29	0
October	28	4	14	2	21	22
November	26	Unit off	2	Unit off	24	17
December	Unit off	Unit off	21	13	29	2
January	21	Unit off	25	11	24	15
February	22	Unit off	20	4	19	5
March	21	13	13	10	20	12
Total	**188**	**133**	**128**	**71**	**232**	**92**

NAEIS reporting:

Kendal Power Station annual report on the NAEIS system is due on the 30th Of June 2025.

The rest of the information demonstrating compliance with the emission license conditions is supplied in the monthly emission reports sent to your office.

Hoping the above will meet your satisfaction.

Compiled by:

Tsakani Holeni
ENVIRONMENTAL SENIOR ADVISOR- KENDAL

Date: 20/06/2025

Supported by:

Solly Chokoe
ENVIRONMENTAL MANAGER- KENDAL

Date: 20/06/2025

KENDAL POWER STATION'S ANNUAL EMISSIONS REPORT FOR THE FINANCIAL YEAR 2024/2025

Verified by:

Jacob Zwane
BOILER ENGINEERING SYSTEM ENGINEER -KENDAL

Date: 25/06/2025

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BOILER ENGINEERING MANAGER-KENDAL

Date: 30/06/2025

Supported by:

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ENGINEERING MANAGER-KENDAL

Date: 30/06/2025.

Approved by:

Tshepiso Temo
GENERAL MANAGER-KENDAL

Date: 01/07/2025