	Monthly Report	Kendal Power Station
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Title: **Kendal Power Station Monthly Emissions Report**

Document Identifier: ***1040094**

Alternative Reference: **N/A**
Number:

Area of Applicability: **Kendal Power Station**

Functional Area: **Environmental Department**

Revision: **0**

Total Pages: **17**

Next Review Date: **December 2028**

Disclosure Classification: **Controlled Disclosure**

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Kendal Power Station December Monthly Emissions Report

Unique Identifier: ***1040094**

Revision: **0**

Page: **2 of 17**

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1. Introduction

KENDAL POWER STATION MONTHLY EMISSIONS REPORT FOR THE MONTH OF DECEMBER

This document serves as the monthly emissions report required in terms of Section 7.4 of Kendal Power Station Provisional Atmospheric Emission License (AEL), **17/4/AEL/MP312/11/15**.

This report reflects Unit 1 to Unit 6 gaseous and particulate emissions performance against the AEL limit for the month of December 2025 only.

2. Raw Materials and Products

Table 1- Quantity of Raw Materials and Products Consumption in December 2025

Raw Materials and Products	Raw Material Type	Units	Max Permitted Consumption Rate	Consumption Rate Dec-2025
	Coal	Tons	2 260 000	296 997
	Fuel Oil	Tons	5 000	11538.660
Production Rates	Product / By-Product Name	Units	Max Production Capacity Permitted	Indicative Production Rate Dec-2025
	Energy	GWh	3 062.304	501.096
	Ash	Tons	770 000	91 475.076
	RE Ash	kg/MWh	<i>not specified</i>	0.102

Note: Max energy rate = AEL capacity [4,116 MW] × 24 hrs × days in month ÷ 1,000 (to convert to GWh).

The station is exceeding the fuel oil consumption limit due to milling plant failures. Most units do not have standby mills because of defective girth gears and pinions that are awaiting spare-part delivery. Worn girth gears and pinions are causing high drive train vibrations, resulting in a high failure rate of mill motors and gearboxes. Consequently, Kendal’s cumulative fuel oil consumption has increased, mainly because units are running on fuel oil support while ongoing maintenance is in progress. The station is actively working to resolve the milling plant issues through the milling plant recovery plan.

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3. Abatement Technology

Table 2-Abatement Equipment Control Technology Efficiency in December 2025

Associated Unit/Stack	Technology Type	ESP Efficiency	Technology Type	SO ₃ Plant Utilization
Unit 1	ESP + SO ₃	99.945%	SO ₃	58.1%
Unit 2	ESP + SO ₃	Off-line	SO ₃	Off-line
Unit 3	ESP + SO ₃	99.955%	SO ₃	96.8%
Unit 4	ESP + SO ₃	99.765%	SO ₃	9.7%
Unit 5	ESP + SO ₃	Off-line	SO ₃	Off-line
Unit 6	ESP + SO ₃	Off-line	SO ₃	3.2%

Note: The ESP plant does not have a bypass mode; therefore, it operates at 100% utilization. There is no Sulphur value for SO₃ utilization due to switch failure on the server, however DCS signals used for its tripping alarms were used to get its utilization values. Sulphur flow will be available once we have commissioned the new PI system.

To achieve the required operational dust removal efficiency based on measured values, several assumptions such as:

- Coal ash content (%) and burnt rate mass
- Fly: Coarse ash ratio of 80:20 - 80% of fly-ash mass obtained from burnt coal goes to ESP
- Measurement of dust emission by Dust Monitor over a period (monthly)

Operational Dust Removal Efficiency

$$\eta = (1 - (Output/Input)) \times 100$$

$$\eta = 1 - \frac{(DustEmissionFromAQR\ Report\ DustMonitor(tons) \times 100}{(CoalBurnt(tons) * \%AshContent * 80\%)}$$

4. Energy Source Characteristics

Table 3: Energy Source Material Characteristics for December 2025

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
CV Content	MJ/kg	16-24 (MJ/kg)	19.060
Sulphur Content	%	<1 (%)	0.700
Ash Content	%	40 (%)	30.800

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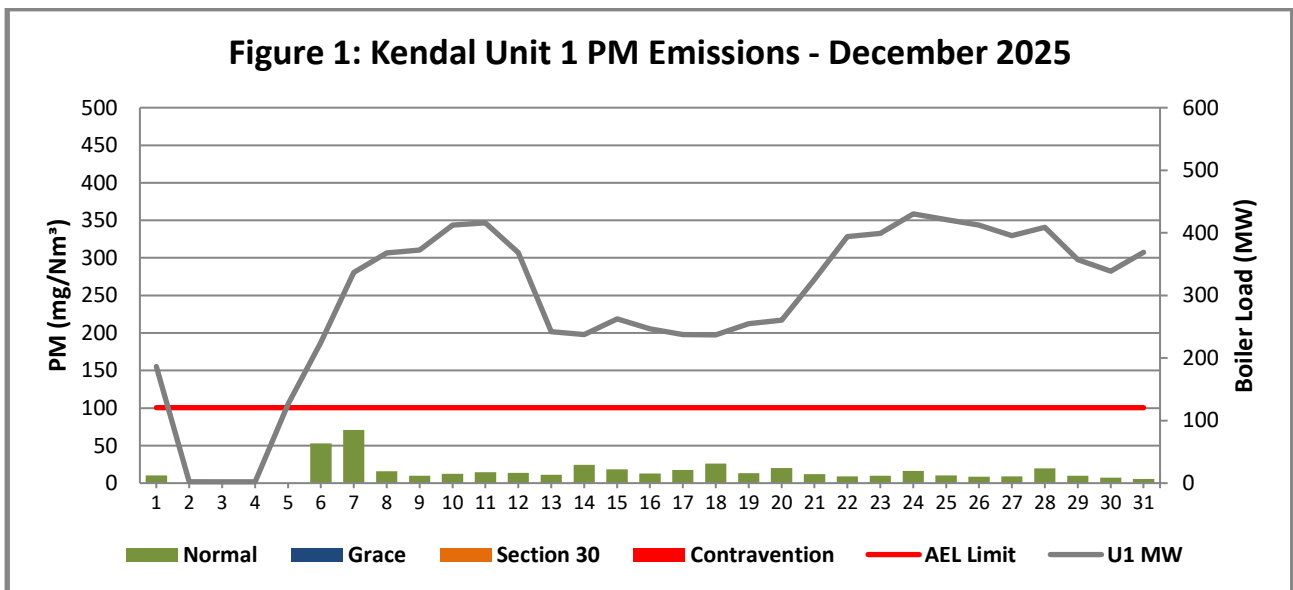
5. Emissions Reporting

In terms of Section 59 of National Environmental Management: Air Quality Act (Act no.39 of 2004) and decision made by the Minister of DFFE, in respect of the Eskom exemption applications for new Minimum Emission Standards (MES) were granted and effective as of 01 April 2025 and 01 October 2025.

Table 4- New Minimum Emission Limits are as follows:

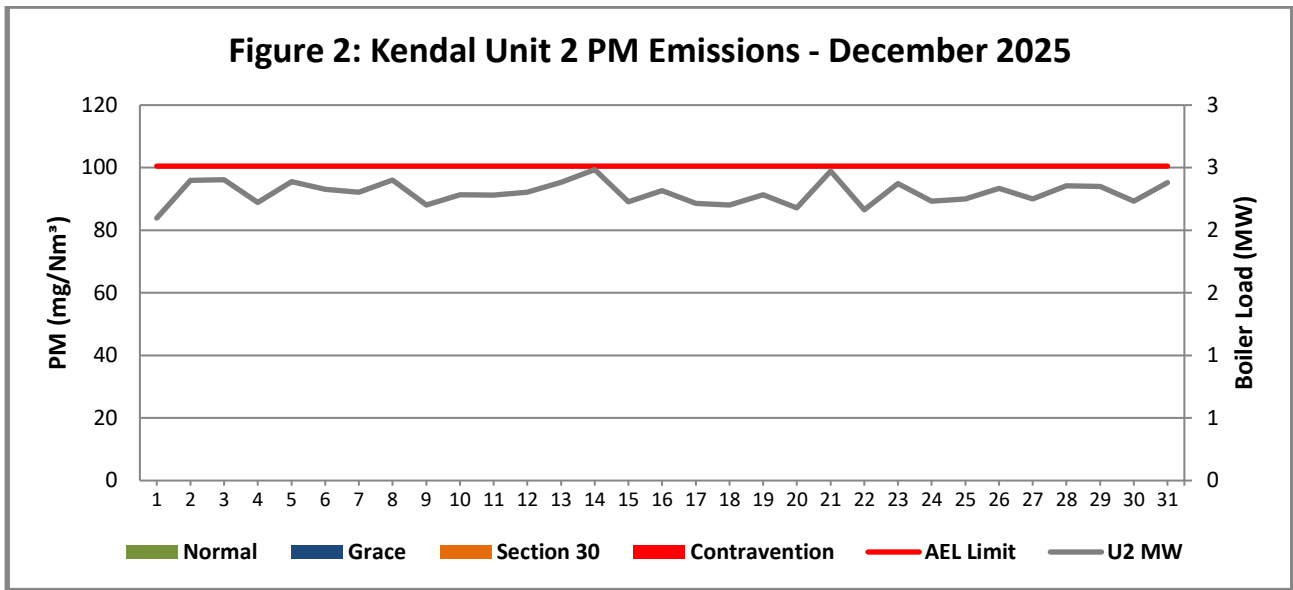
SO ₂ Monthly = 3000 mg/Nm ³	Dust Daily= 50 mg/Nm ³ (Unit 3, 4 and 6) Dust Daily= 100 mg/Nm ³ (Unit 1, 2 and 5)	NO ₂ Daily=750 mg/Nm ³
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5.1 PM Daily Averages

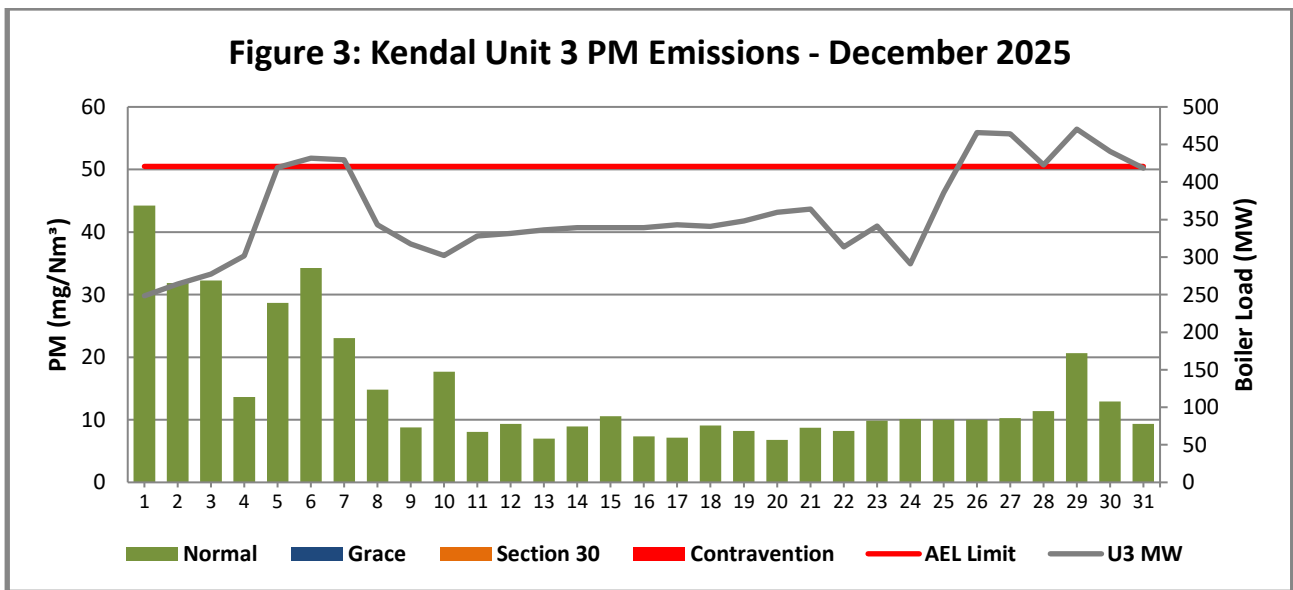


Note: Kendal Power Station did not exceed particulate matter (PM) MES limit of 100 mg/Nm³.

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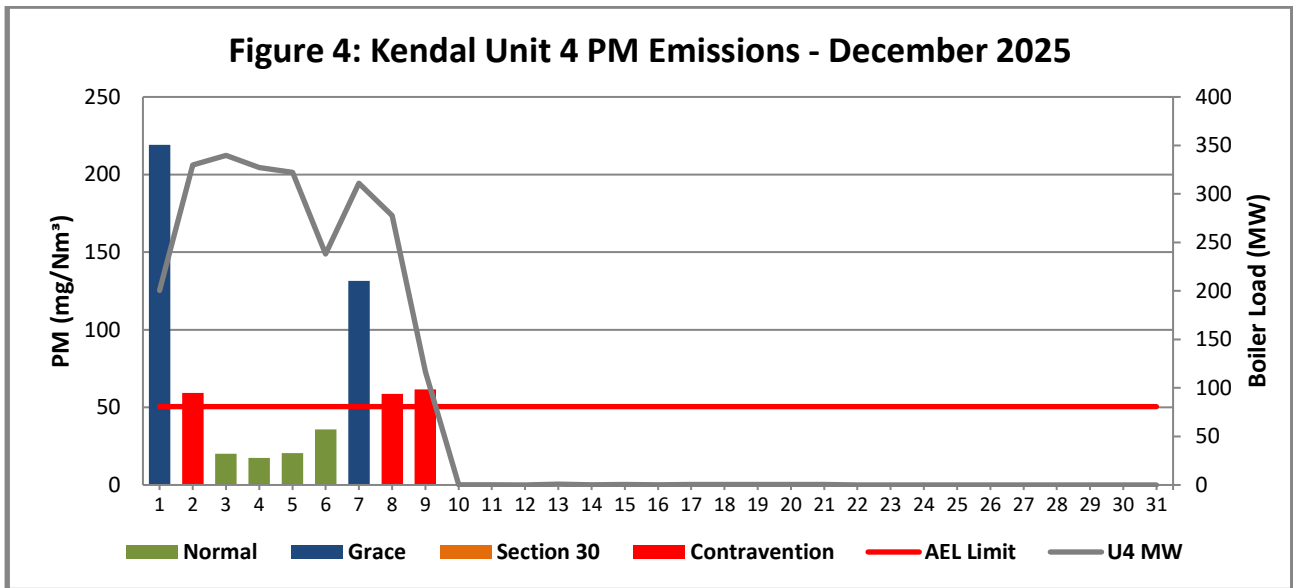


Note: Kendal Power Station unit 2 was off load.

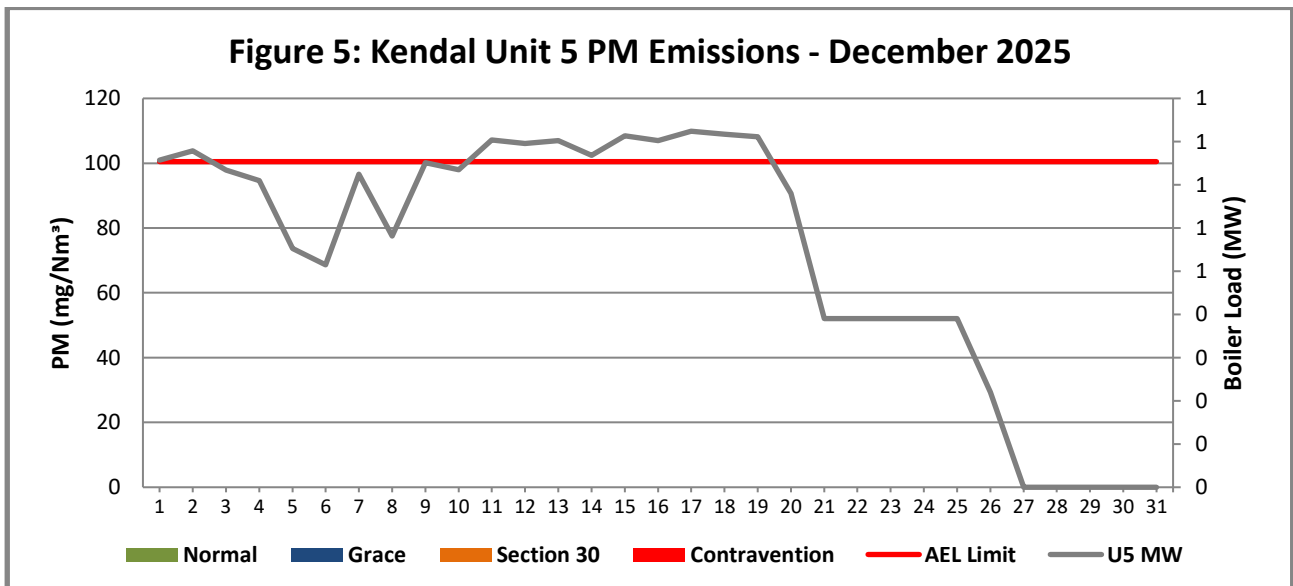


Note: Kendal Power Station unit 3 did not exceed particulate matter (PM) MES limit of 50 mg/Nm³.

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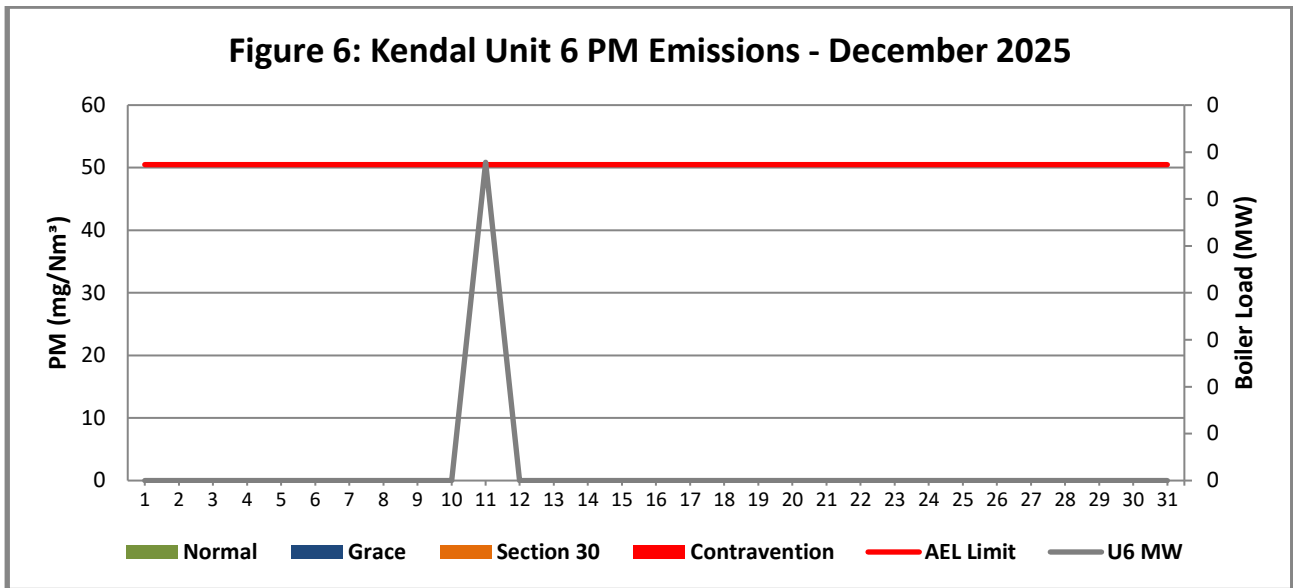


Kendal Power Station unit 4 exceeded particulate matter (PM) MES limit of 50 mg/Nm³ from 01 – 2 December due to Unit been supplemented with fuel oil supply during start up and the unit and it was also experiencing LH/RH forced draft fan vibration. Low BETs due to reduced load that resulted in SO₃ plant temperatures dropping below 110 °C. LH Dust Extractor Rapper 5 was tripping on overload. F45 had a high-temperature fault, and F36 was operating in local control. Additionally, LH Induced Draft (ID) fan issues were impacting BET performance, and the cladding and lagging on the Fisher valves required reinstatement. On the 6th there was also a unit trip which contributed to elevated PM emission from 07 – 9 of December.



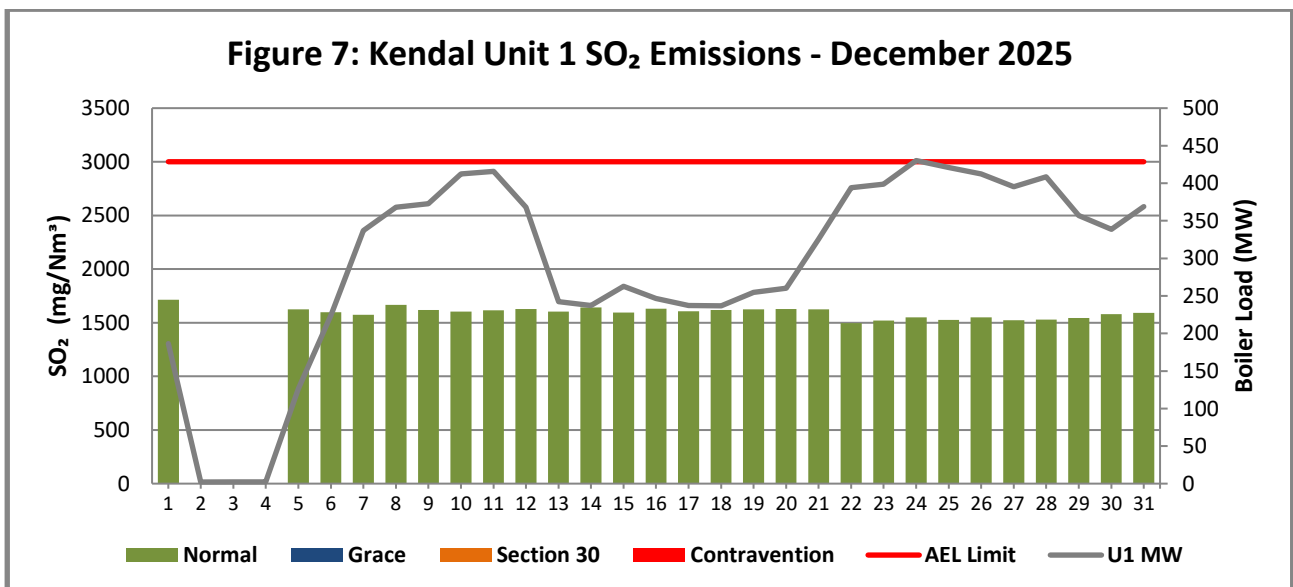
Note: Kendal Power Station unit 5 was off load.

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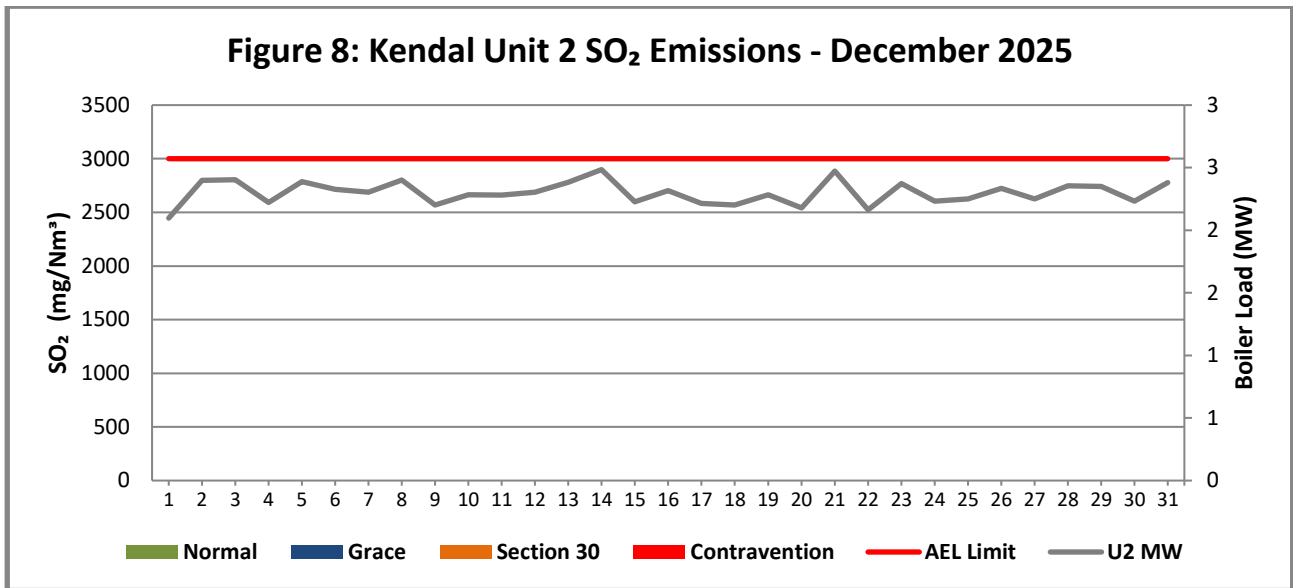
Note: Kendal Power Station unit 6 was off load.

5.2 Sox Daily Averages

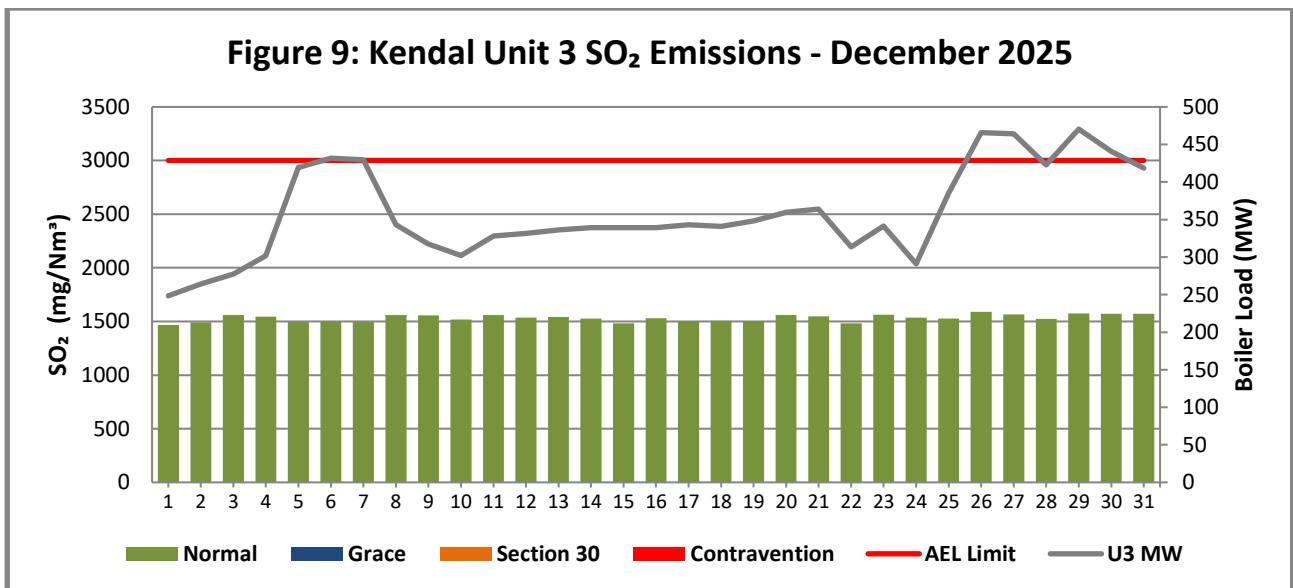


Note: Kendal Power Station unit 1 did not exceed SO_x limit of 3000 mg/Nm³.

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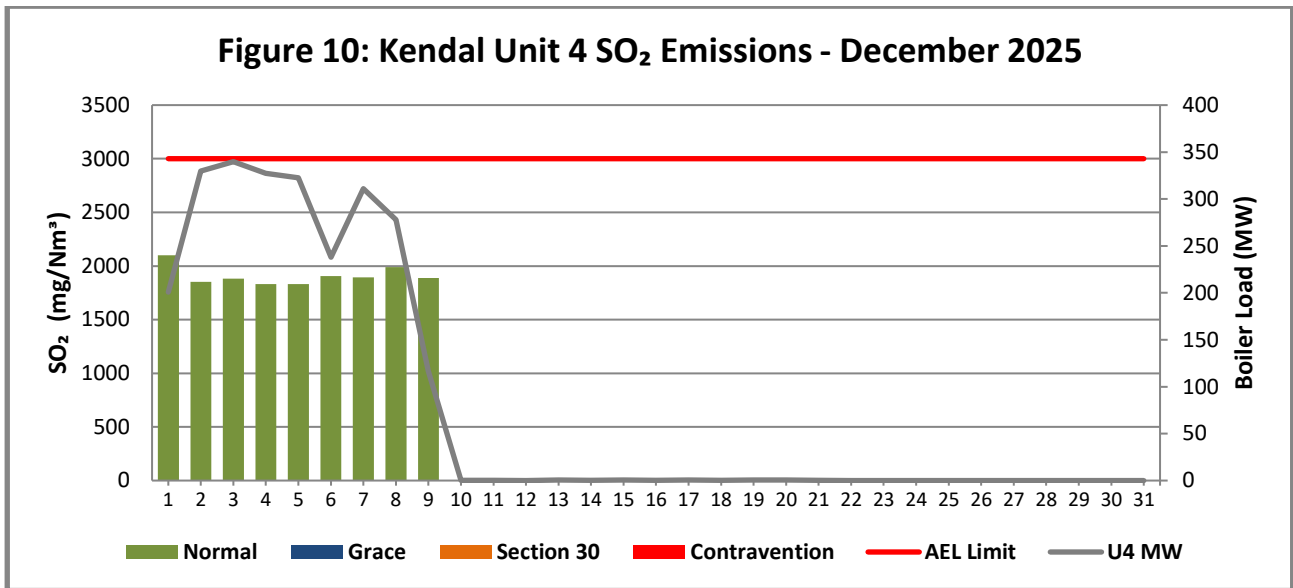


Note: Kendal Power Station unit 2 was off load.

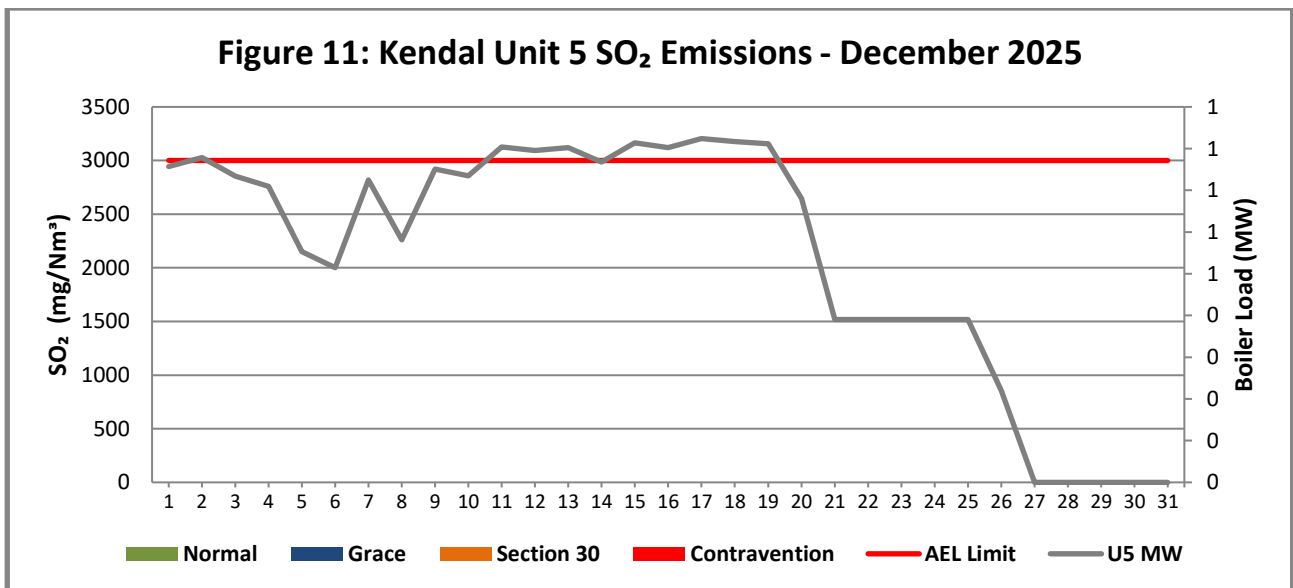


Note: Kendal Power Station unit 3 did not exceed SO_x limit of 3000 mg/Nm³.

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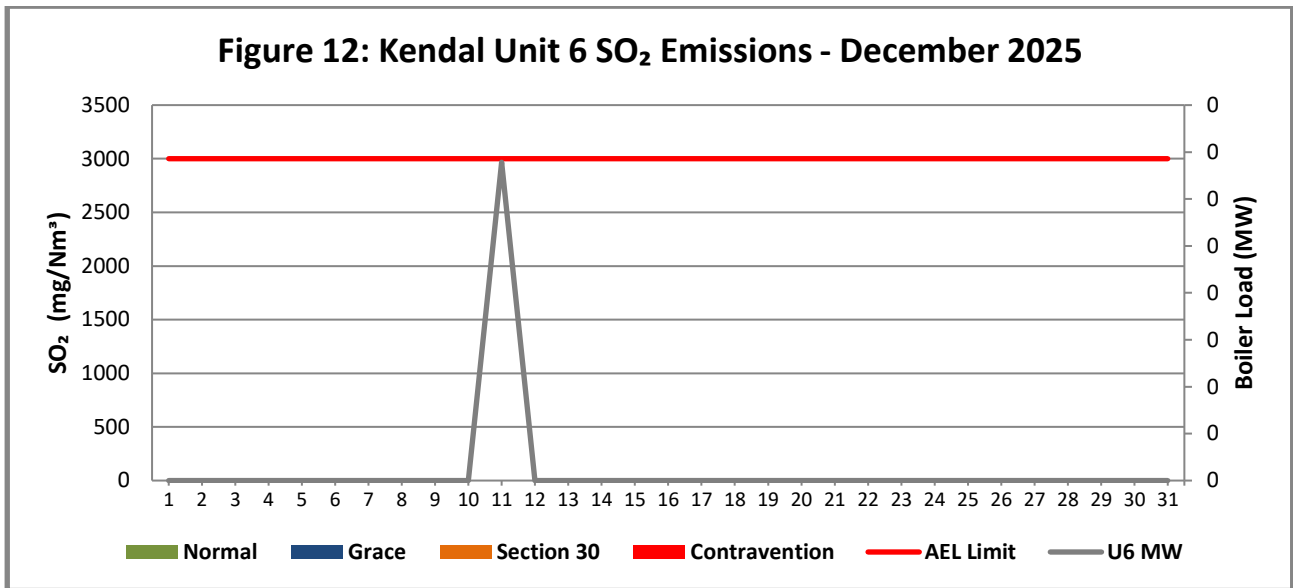


Note: Kendal Power Station unit 4 did not exceed SO_x limit of 3000 mg/Nm³.



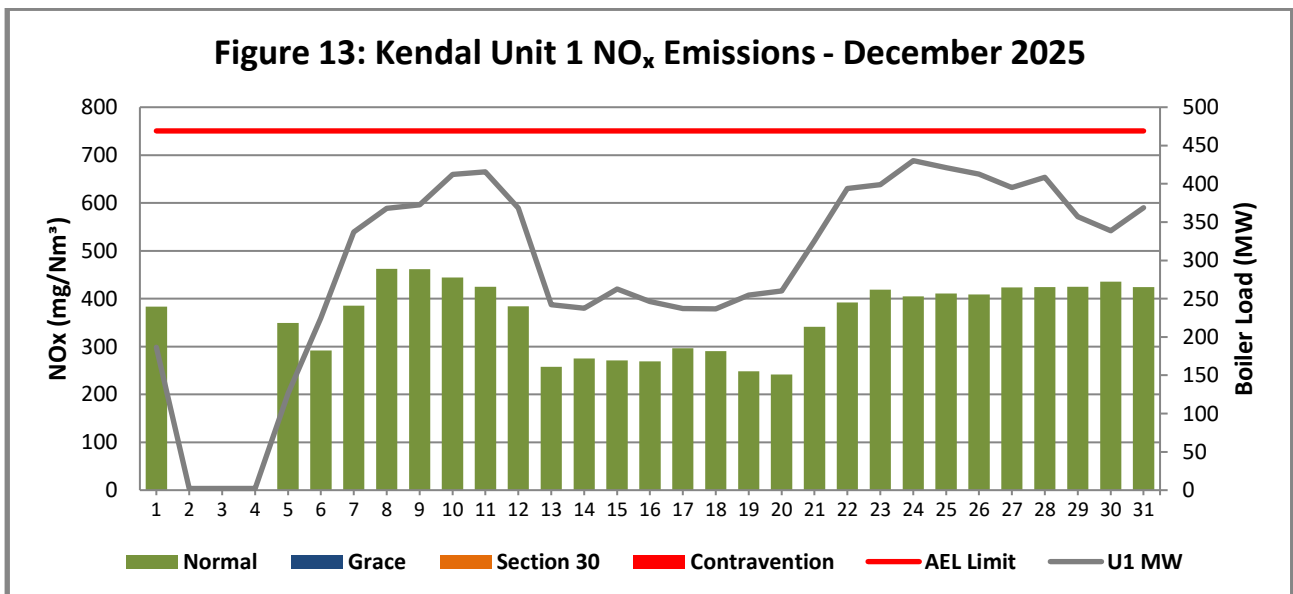
Note: Kendal Power Station unit 5 was off load.

CONTROLLED DISCLOSURE



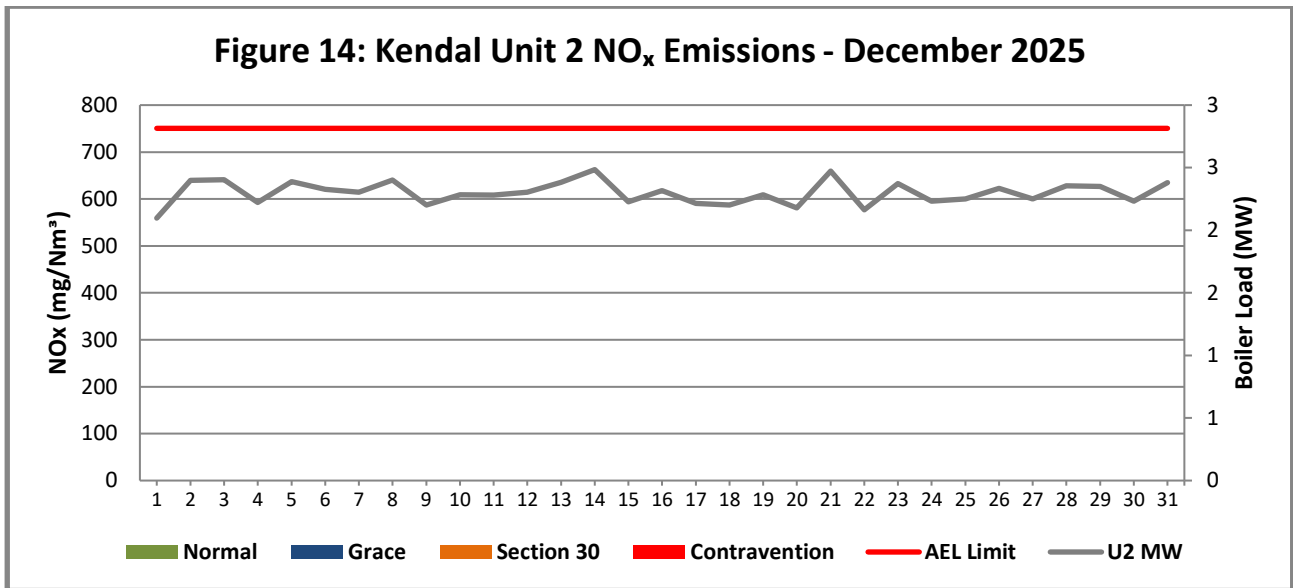
Note: Kendal Power Station unit 6 was off load.

5.3 NO_x Daily Averages

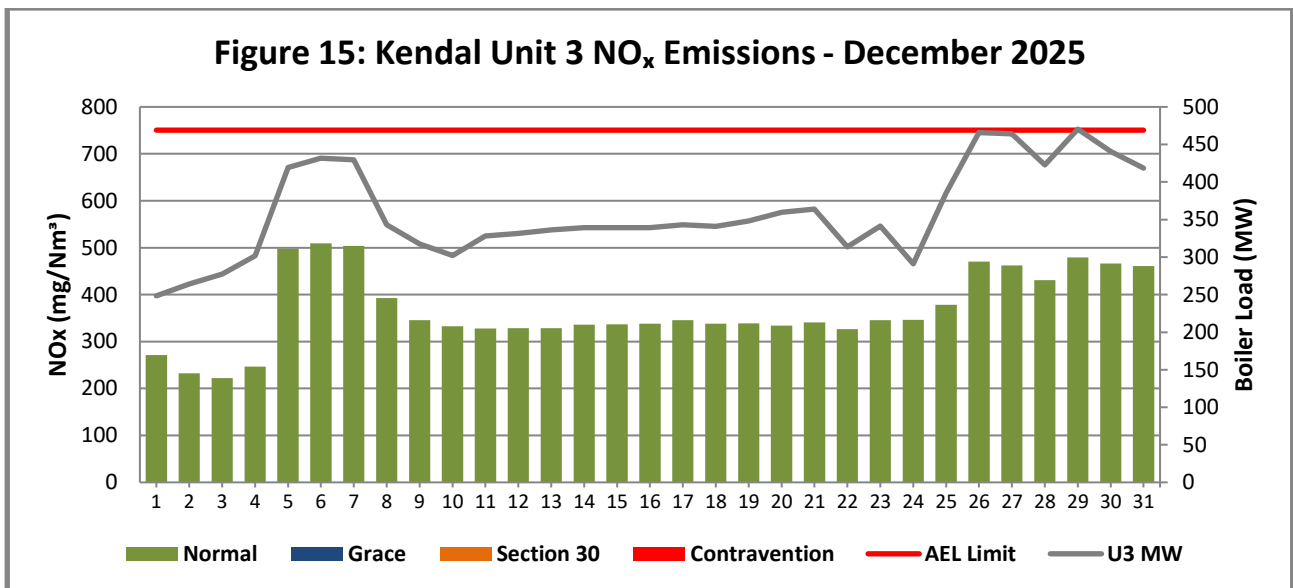


Note: Kendal Power Station unit 1 did not exceed NO_x limit of 750 mg/Nm³.

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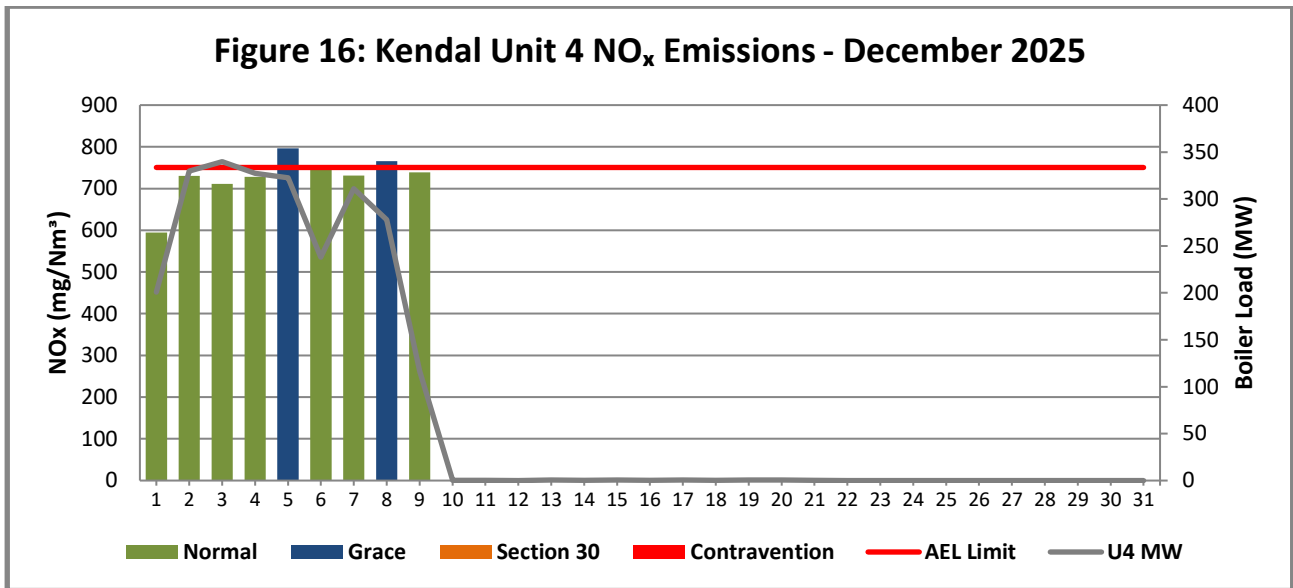
Note: Kendal Power Station unit 2 was off load.



Note: Kendal Power Station unit 3 did not exceed NO_x limit of 750 mg/Nm³.

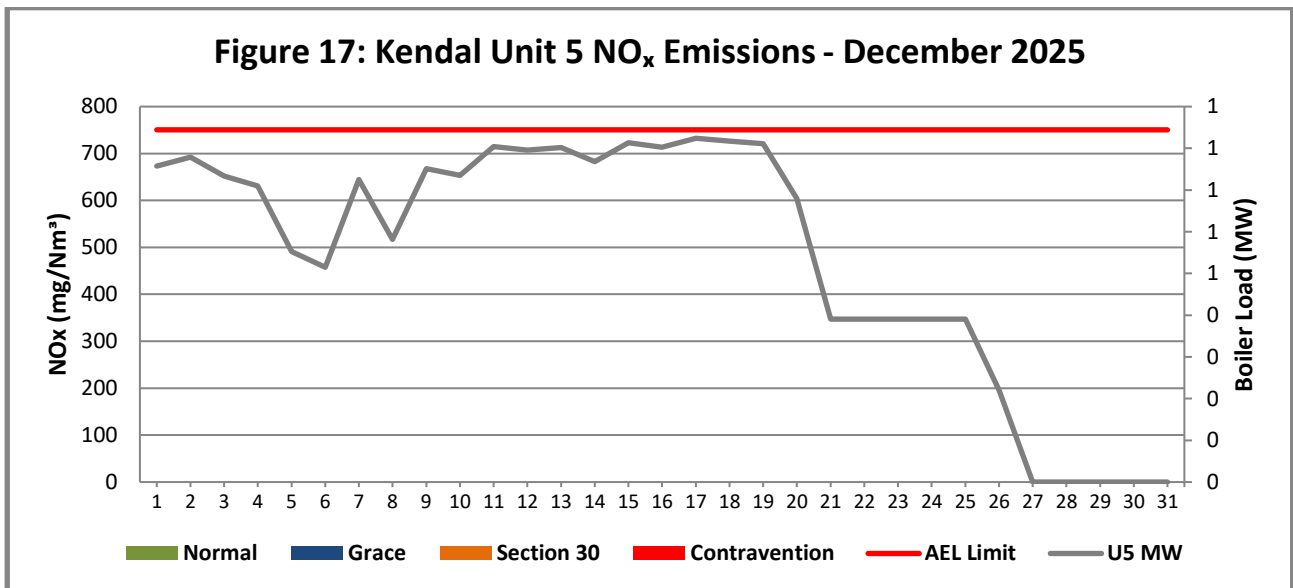
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Figure 16: Kendal Unit 4 NO_x Emissions - December 2025



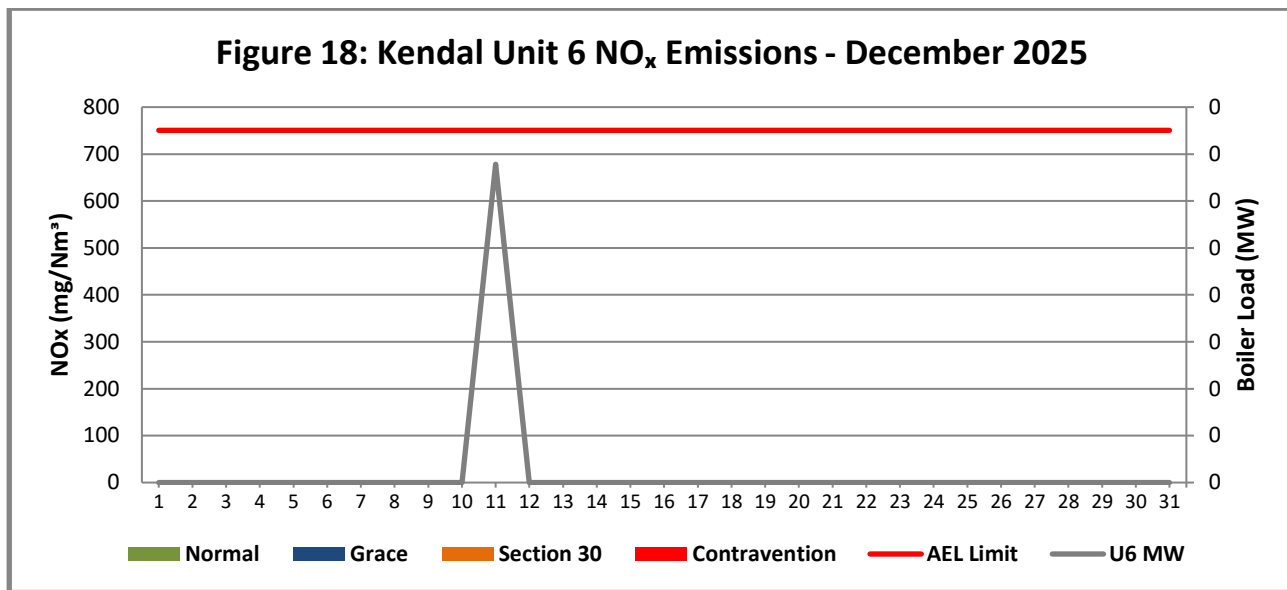
Note: Kendal Power Station Unit 4 exceeded the NO_x limit of 750 mg/Nm³ on the 5th and 8th of December due to the unit being supplemented with fuel oil. There was also a unit trip on the 6th of December, which further contributed to the exceedances.

Figure 17: Kendal Unit 5 NO_x Emissions - December 2025



Note: Kendal Power Station unit 5 was off load.

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Note: Kendal Power Station unit 6 was off load.

Table 5-Monthly Tonnages for December 2025

Associated Unit/Stack	PM (tons)	SO ₂ (tons)	NO _x (tons)
Unit 1	16.2	1 686	403
Unit 2	Off	Off	Off
Unit 3	16.0	1 755	444
Unit 4	18.6	611	235
Unit 5	Off	Off	Off
Unit 6	Off	Off	Off
SUM	50.89	4 051	1 083

Table 6-Monthly Averages Concentration for December 2025 in mg/Nm³

Associated Unit/Stack	PM	SO ₂	NO ₂
Unit 1	16.1	1 593.9	366.0
Unit 3	Off	Off	Off
Unit 2	14.6	1 531.7	368.1
Unit 4	69.3	1 908.3	727.1
Unit 5	Off	Off	Off
Unit 6	Off	Off	Off

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6. Continuous Emissions Monitoring System (CEMS)

Table 7- Periods during which was inoperative/malfunctioning.

Date	CEMS status	Comments
December 2025	Malfunctioning	The station gas monitors for Unit 3 have been reading CO ₂ and O ₂ inaccurately. To ensure accurate reporting for this period, the QAL2 average (parallel test) values were used. In cases where the monitors had errors, in raw data surrogate values were applied.

Table 8-CEMS Monitor Reliability Percentage

Associated Unit/Stack	PM	SO ₂	NO	O ₂
Unit 1	97.9	100.0	98.1	100.0
Unit 2	Off	Off	Off	Off
Unit 3	98.9	100.0	100.0	100.0
Unit 4	100.0	100.0	100.0	100.0
Unit 5	Off	Off	Off	Off
Unit 6	Off	Off	Off	Off

Note: NO_x emissions are measured as NO in PPM. The final NO_x value is expressed as total NO₂ equivalent.

In terms of the minimum emissions standard, the requirement is that a monitor should be 80% reliable on a monthly average. The monitor reliability refers to data reliability because the assumed value of 99.325% reliability is compared to the dust concentration signal. If the dust concentration signal is above 99.325% opacity, the data information is no longer reliable because the monitor reading is out of its maximum reading range. The data reliability looks at how many times the dust concentration signal goes above 98% over a period e.g. 24hours.

The formula is as follows:

$$= (1 - (\text{count hours above } 99.325\%/24\text{hours})) \times 100$$

7. CEMS Calibration and Equipment Used for Calibration

Calibration certificates to be made available upon request.

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8. Validity of Correlation and Parallel Test

Table 9-Validity of Correlation and Parallel Test.

Associated Unit/Stack	Correlation Test (PM)	Parallel Test (NO ₂ , CO ₂ , O ₂ , SO ₂)
Unit 1	Valid until March 2027	Valid until September 2027
Unit 2	Valid until May 2025	Valid until August 2027
Unit 3	Valid Until February 2027	Valid until October 2027
Unit 4	Valid until March 2026	Valid until March 2026
Unit 5	Valid until January 2026 (Spot check curve)	Valid until March 2027
Unit 6	Valid until March 2027	Valid until September 2027

Note: Unit 2 correlation test has not been completed, as the unit has been on a outage for electrostatic precipitators (ESP) repairs. The unit is scheduled to return to service on the 20th of February 2026, and the test is planned to commence on the 26th of February 2026.

9. Complaint Register

Table 10-Complaints for the month of December 2025

Source Code / Name	Root Cause Analysis	Calculation of Impacts / emissions associated with the incident	Dispersion modelling of pollutants where applicable	Measures implemented to prevent reoccurrence
N/A	N/A	N/A	N/A	N/A

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