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Date:

February 2025

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

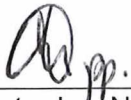
Dear Ms. Simelane

KUSILE POWER STATION'S MONTHLY EMISSIONS REPORT FOR JANUARY 2025

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

Hoping the above will meet your satisfaction.

Yours sincerely



Christopher Nani
ACTING GENERAL MANAGER

DATE: *26/02/2025*

1. KUSILE POWER STATION MONTHLY EMISSIONS REPORT: Atmospheric Emission License 17/4/AEL/MP311/12/01



2. Raw Materials and Products

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

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

3. Energy source characteristics

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

4. Emissions Limits (mg/Nm³)

Associated Unit/Stack	PM	SO ₂	NO _x
North	50	3500	750
South	50	1000	750

5. Abatement Technology (%)

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

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

6. Monitoring reliability (%)

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

7. Emissions Performance

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

Associated Unit/Stack	PM	SO ₂	NO _x
Unit 1	90.3	2 174	772
Unit 2	121.6	2 543	710
Unit 3	Off	Off	Off
Unit 4	1.2	115	855
Unit 5	19.1	507	3 200
SUM	232.2	5 339	5 537

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

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

Table 7.3: Operating days in compliance to SO₂ AEL Limit - January 2025

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

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NO _x (mg/Nm³)
Unit 1	31	0	0	0	0	350.7
Unit 2	31	0	0	0	0	309.0
Unit 3	Off	Off	Off	Off	Off	Off
Unit 4	31	0	0	0	0	324.1
Unit 5	27	0	0	0	0	365.2
SUM	120	0	0	0	0	

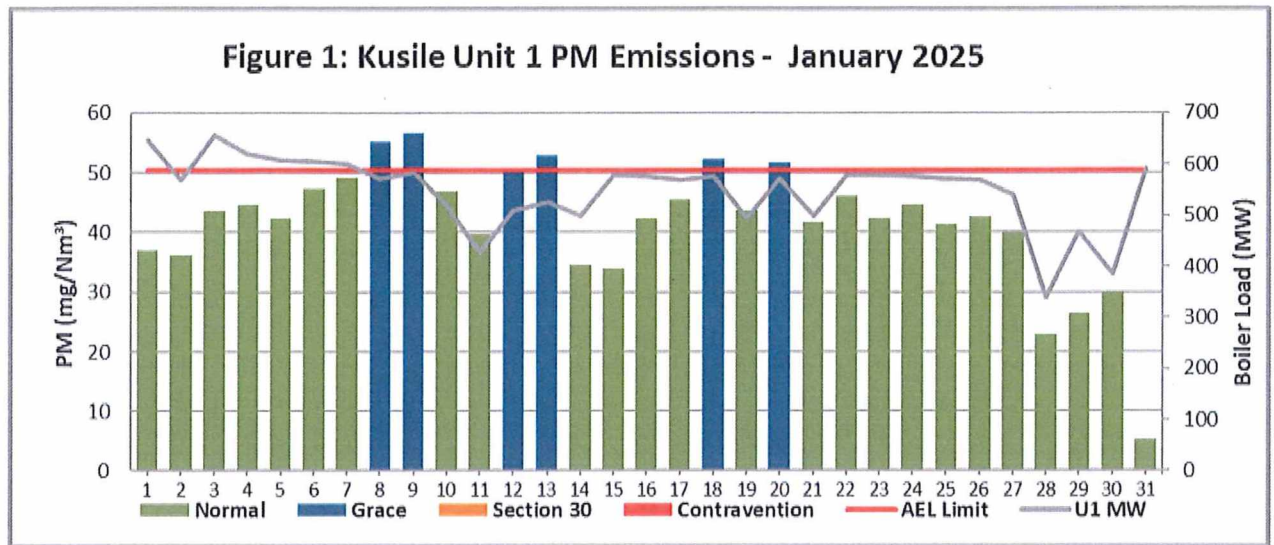
Note: NO_x emissions is measured as NO in PPM. Final NO_x value is expressed as total NO₂

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

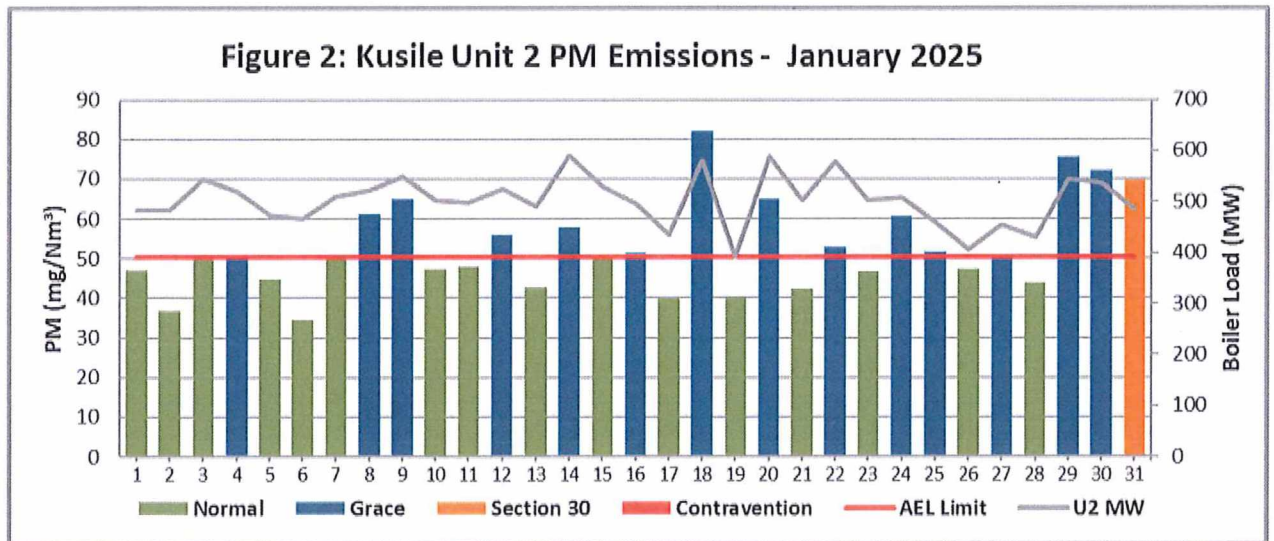
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Figure 1: Kusile Unit 1 PM Emissions - January 2025



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

Figure 2: Kusile Unit 2 PM Emissions - January 2025



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

Figure 3: Kusile Unit 4 PM Emissions - January 2025

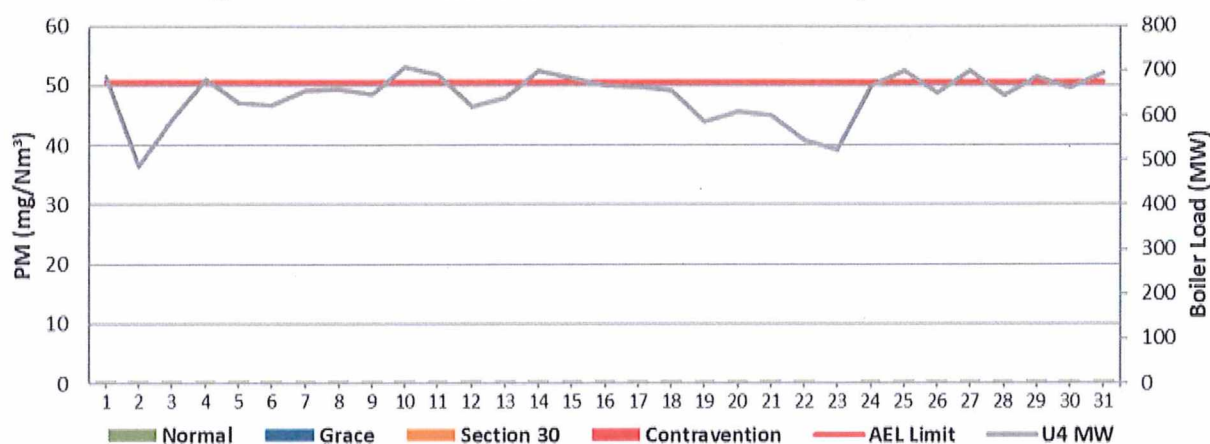


Figure 4: Kusile Unit 5 PM Emissions - January 2025

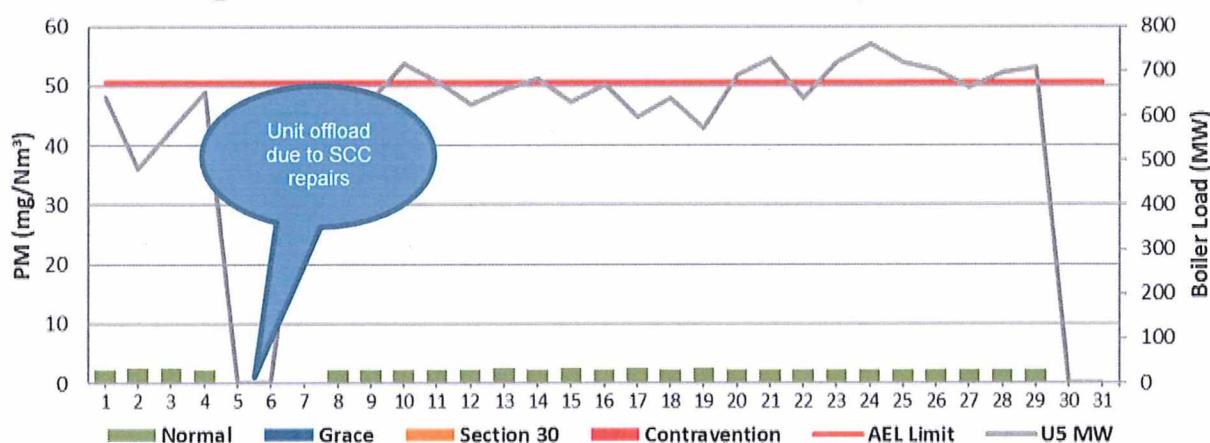


Figure 5: Kusile Unit 1 SO₂ Emissions - January 2025

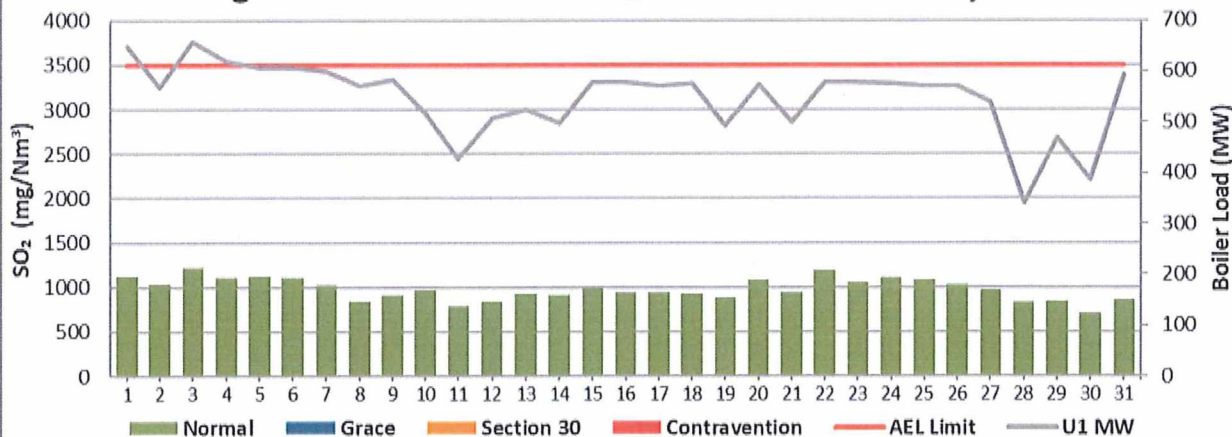


Figure 6: Kusile Unit 2 SO₂ Emissions - January 2025

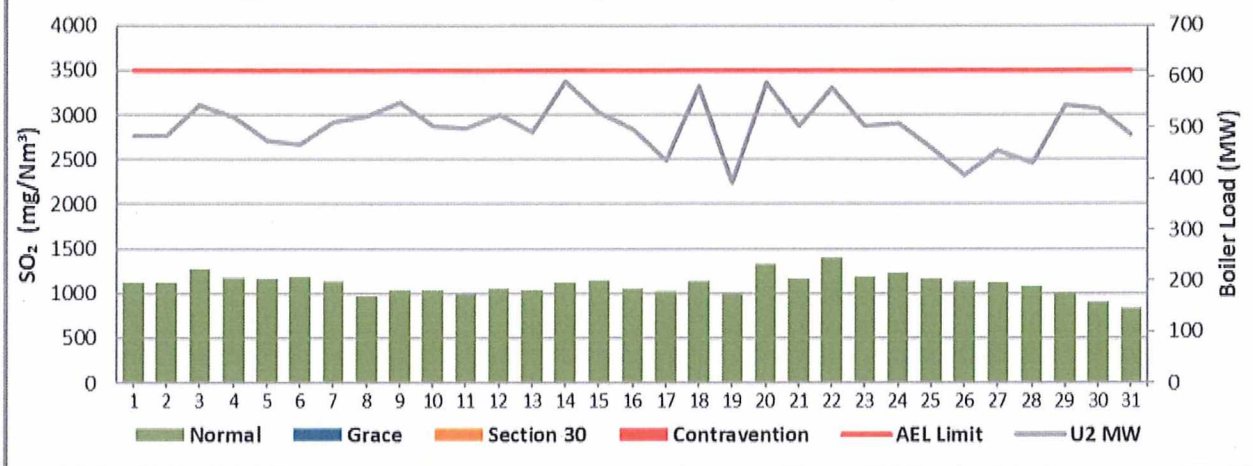


Figure 7: Kusile Unit 4 SO₂ Emissions - January 2025

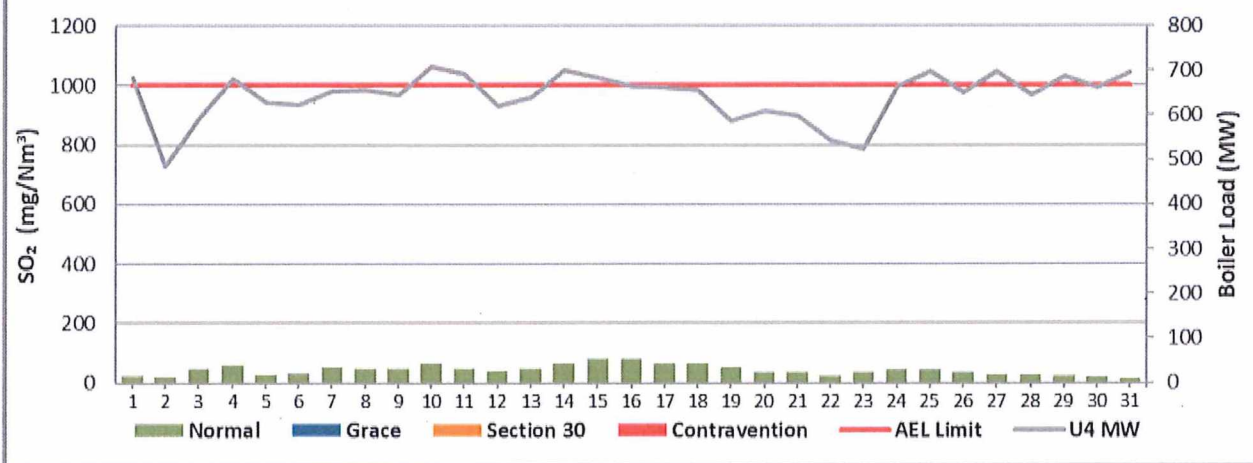
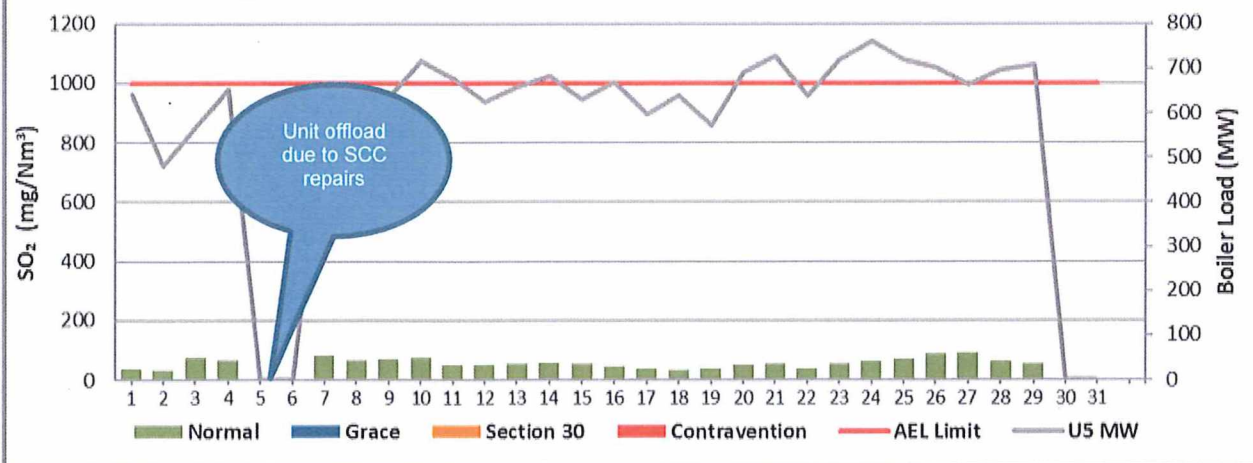
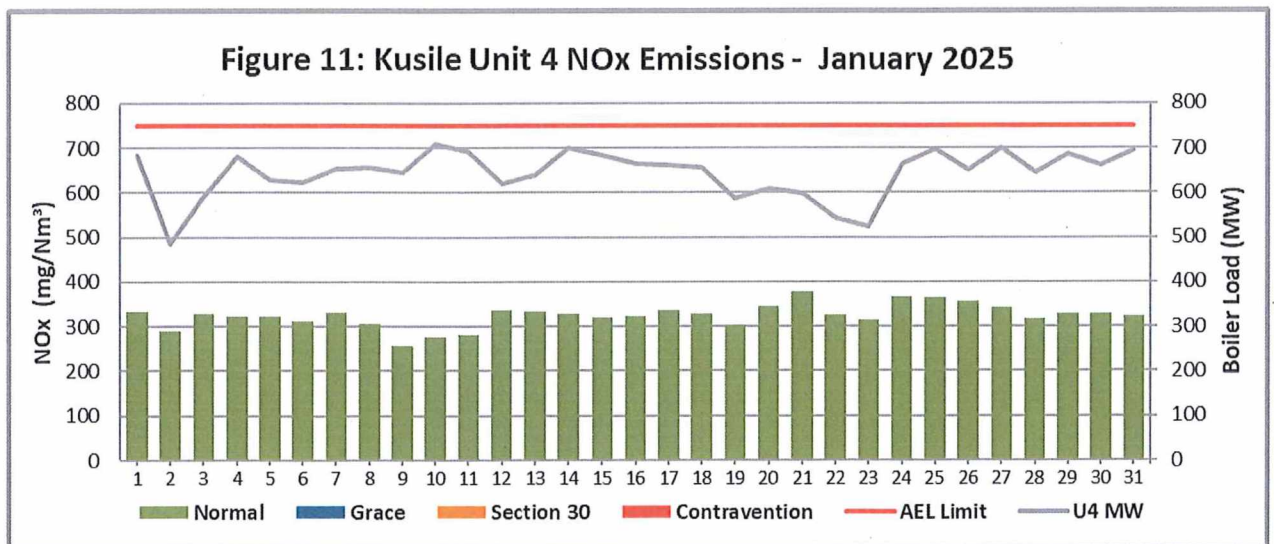
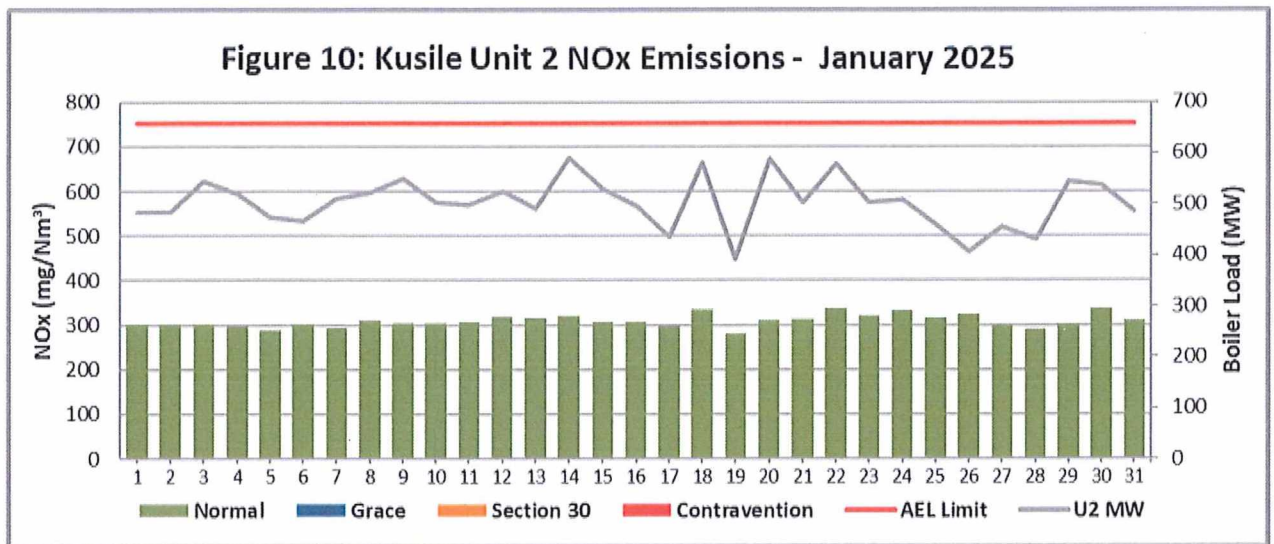
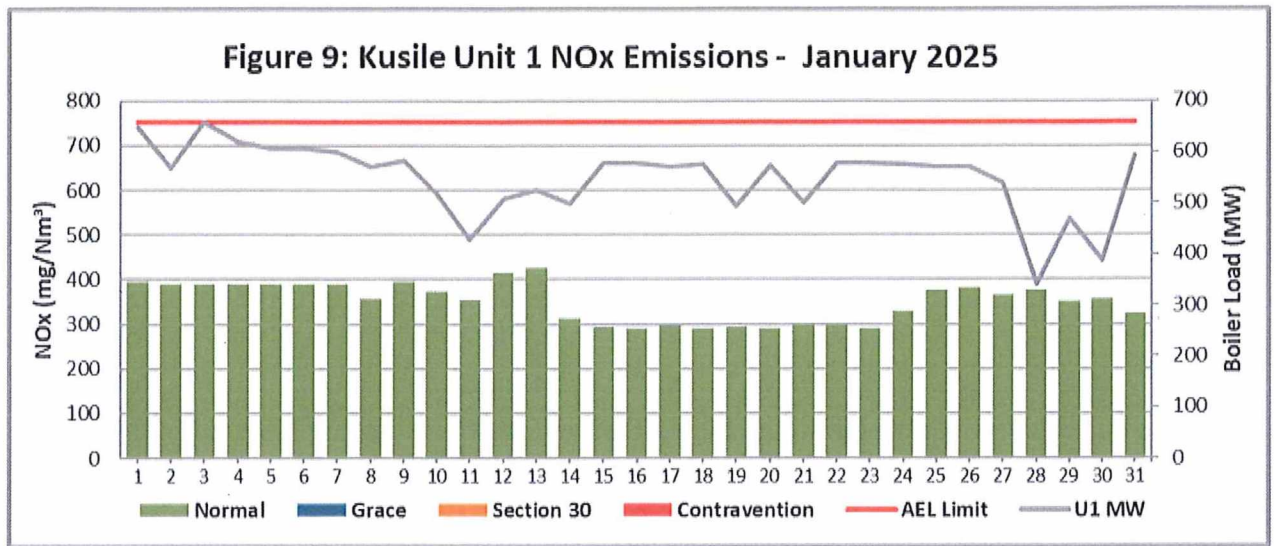
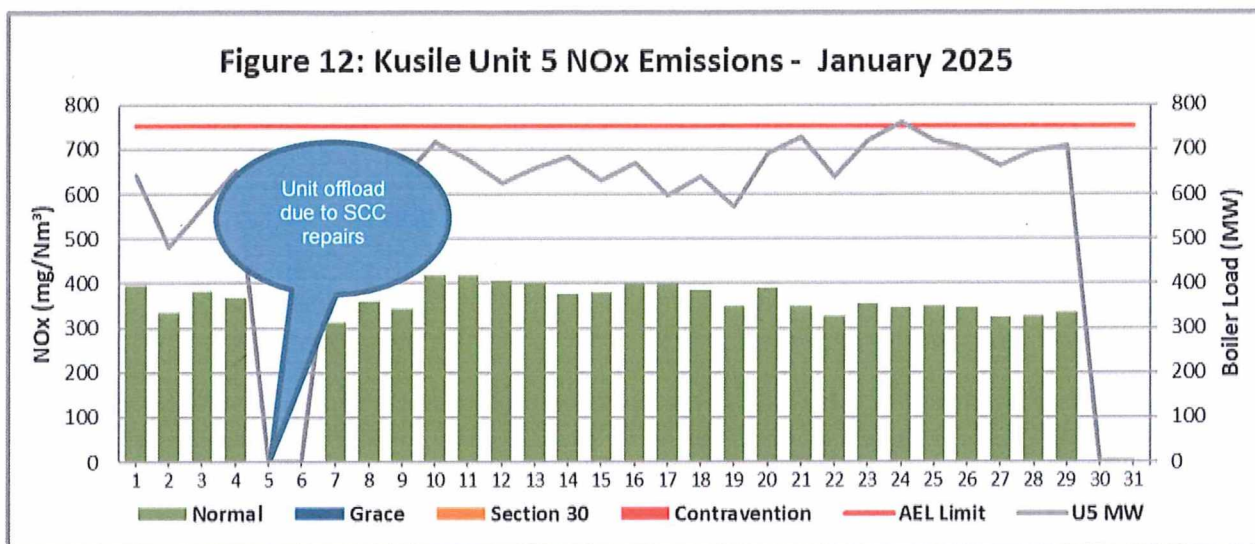


Figure 8: Kusile Unit 5 SO₂ Emissions - January 2025







8. Correlation and Parallel test status

Unit 1:

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

Unit 2:

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

Unit 3

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

Unit 4:

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

Unit 5

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

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9. Shut down and Light up information

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

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

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

10.Complaints

No complaints reported for the month of January 2025.

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

11. S30 INCIDENT OR LEGAL CONTRAVENTION REGISTER

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

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