

Ms Nompumelelo Simelane
Nkangala District Municipality
PO Box 437
Middleburg
1050

Date:

March 2025

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 FEBRUARY 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 February 2025.

Hoping the above will meet your satisfaction.

Yours sincerely



Christopher Nani

GENERAL MANAGER

DATE: *28/03/2025*

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 Feb-2025
	Coal	Tons	1 818 083	854 649
	Fuel Oil	Tons	5 533	2 234.86
	Limestone	Tons	72 017	20642
Production Rates	Product / By-Product Name	Units	Max Production Capacity Permitted	Indicative Production Rate Feb-2025
	Energy	GWh	2 999.808	1 582.77
	Ash	Tons	796 300	261 577.28
	Gypsum	Tons	155 100	11 549.40
	RE PM	kg/MWh	not specified	0.05
	RE SOx	kg/MWh	not specified	2.31

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	0.82
Ash in Coal	%	38	30.61
Fuel Oil Sulphur	%	3.5	2.19

4. Emissions Limits (mg/Nm³)

Associated Unit/Stack	PM	SO ₂	NO _x
Unit 1	50	3500	750
Unit 2	50	3500	750
Unit 3	50	1000	750
South Stack	50	1000	750

5. Abatement Technology (%)

Associated Unit/Stack	Technology Type	Efficiency Feb-2025	Technology Type	Efficiency Feb-2025
Unit 1	FFP	99.95%	FGD	Out of service
Unit 2	FFP	99.84%	FGD	Out of service
Unit 3	FFP	99.99%	FGD	99.98%
Unit 4	FFP	99.99%	FGD	99.98%
Unit 5	FFP	99.99%	FGD	99.95%

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	97.3	97.1
Unit 4	100.0	88.7	100.0
Unit 5	100.0	100.0	100.0

7. Emissions Performance

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

Associated Unit/Stack	PM	SO ₂	NO _x
Unit 1	26.3	2 232	748
Unit 2	38.8	1 171	301
Unit 3	4.8	40	505
Unit 4	1.0	59	654
Unit 5	6.4	148	742
SUM	77.3	3 649	2 949

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm³)
Unit 1	26	0	0	0	0	15.1
Unit 2	14	1	0	0	1	36.6
Unit 3	21	0	0	0	0	3.8
Unit 4	28	0	0	0	0	0.5
Unit 5	28	0	0	0	0	2.9
SUM	117	1	0	0	1	

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SO ₂ (mg/Nm³)
Unit 1	28	0	0	0	0	1 037.1
Unit 2	15	0	0	0	0	1 122.6
Unit 3	23	0	0	0	0	25.7
Unit 4	28	0	0	0	0	24.1
Unit 5	28	0	0	0	0	67.0
SUM	122	0	0	0	0	

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NO _x (mg/Nm³)
Unit 1	28	0	0	0	0	346.1
Unit 2	15	0	0	0	0	290.4
Unit 3	23	0	0	0	0	354.0
Unit 4	28	0	0	0	0	273.2
Unit 5	28	0	0	0	0	339.9
SUM	122	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

Figure 1: Kusile Unit 1 PM Emissions - February 2025

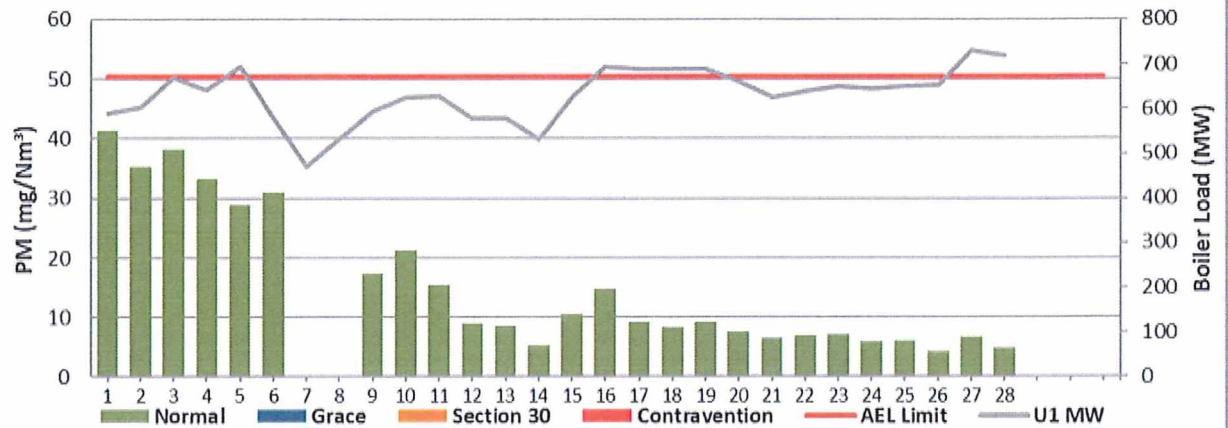
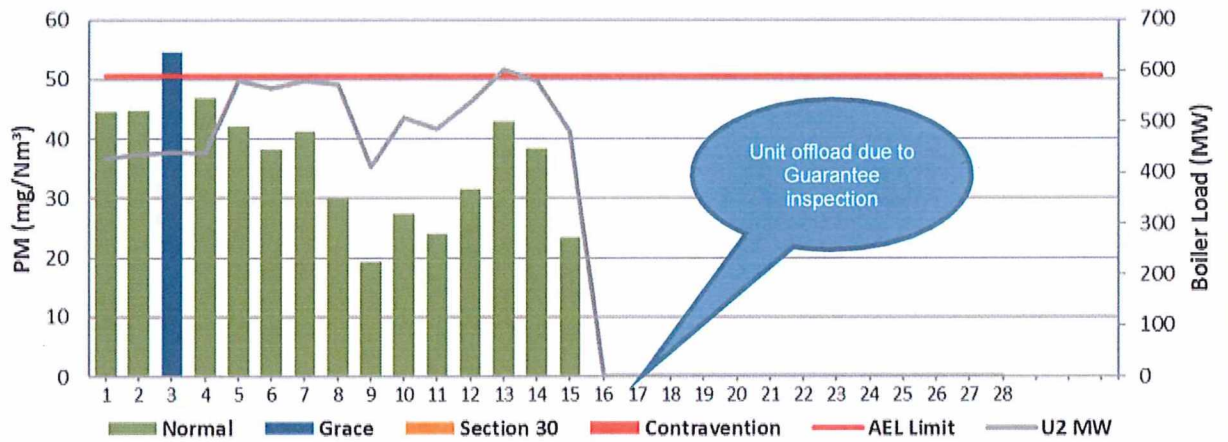


Figure 2: Kusile Unit 2 PM Emissions - February 2025



- The unit exceeded the limit on 3 February 2025 due to failures of fabric filter bags.

Figure 3: Kusile Unit 3 PM Emissions - February 2025

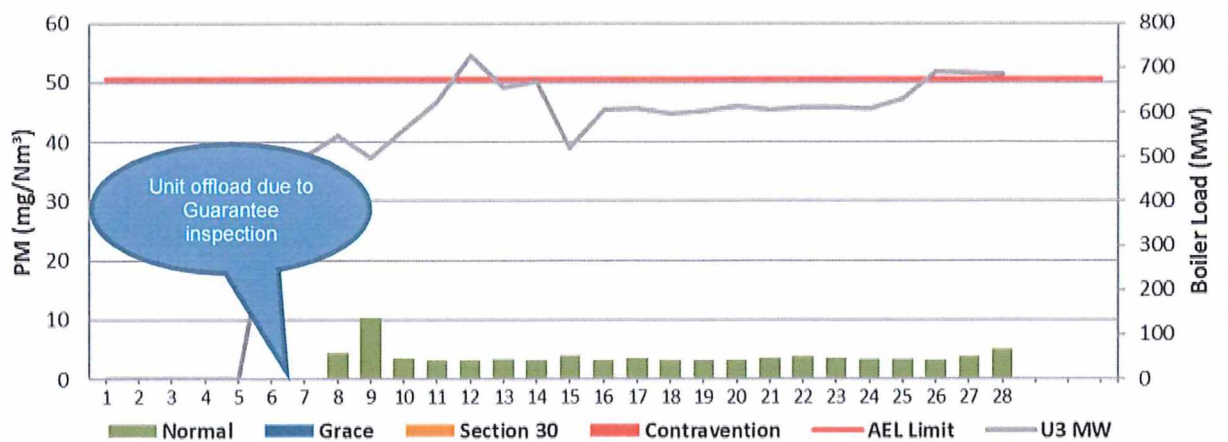


Figure 4: Kusile Unit 4 PM Emissions - February 2025

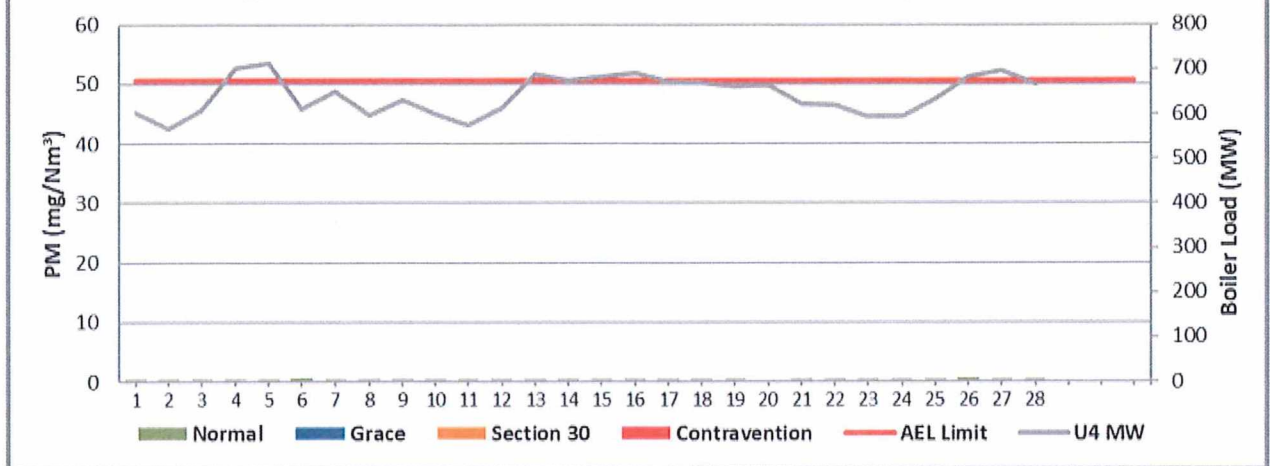


Figure 5: Kusile Unit 5 PM Emissions - February 2025

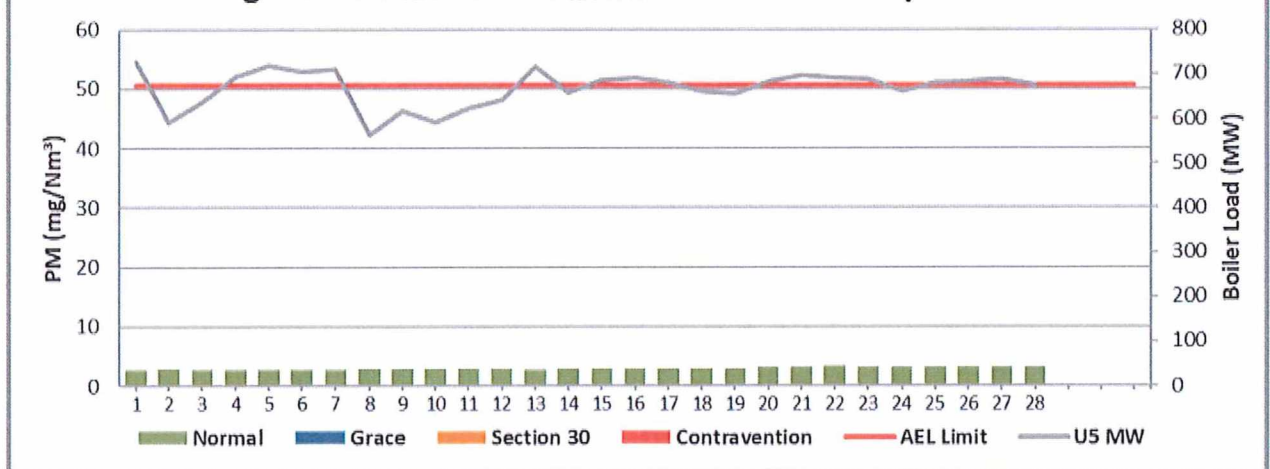


Figure 6: Kusile Unit 1 SO_2 Emissions - February 2025

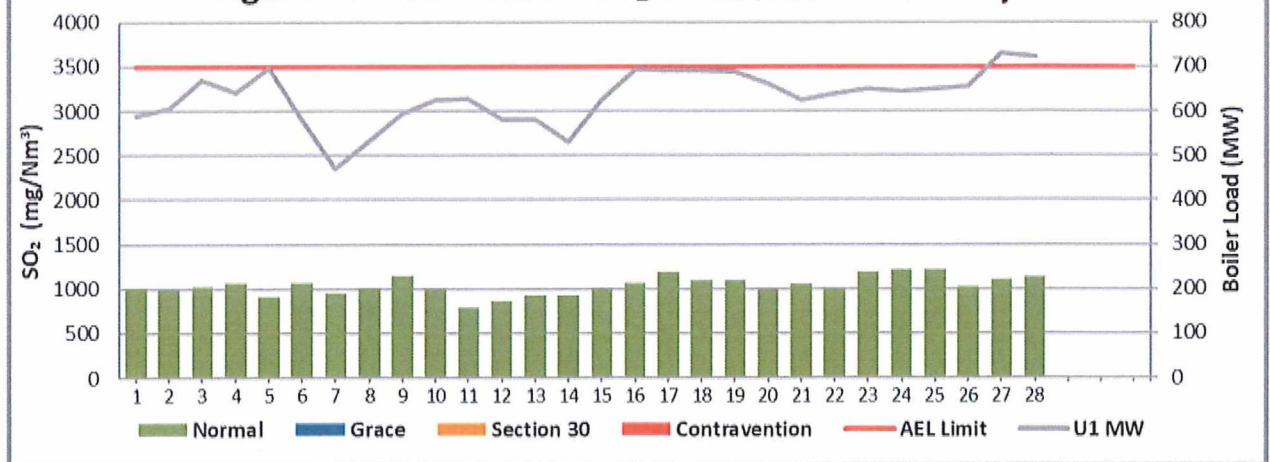


Figure 7: Kusile Unit 2 SO₂ Emissions - February 2025

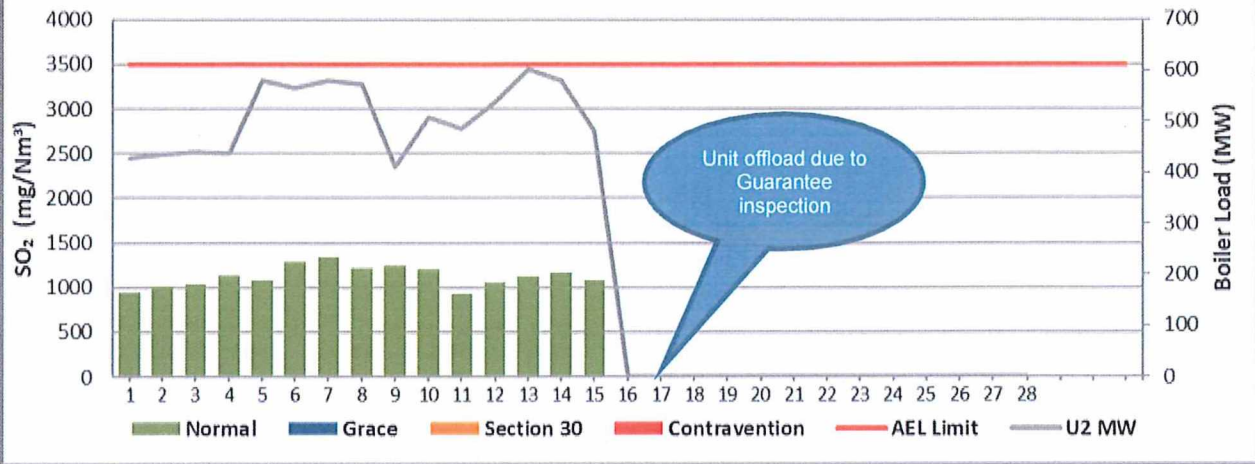


Figure 8: Kusile Unit 3 SO₂ Emissions - February 2025

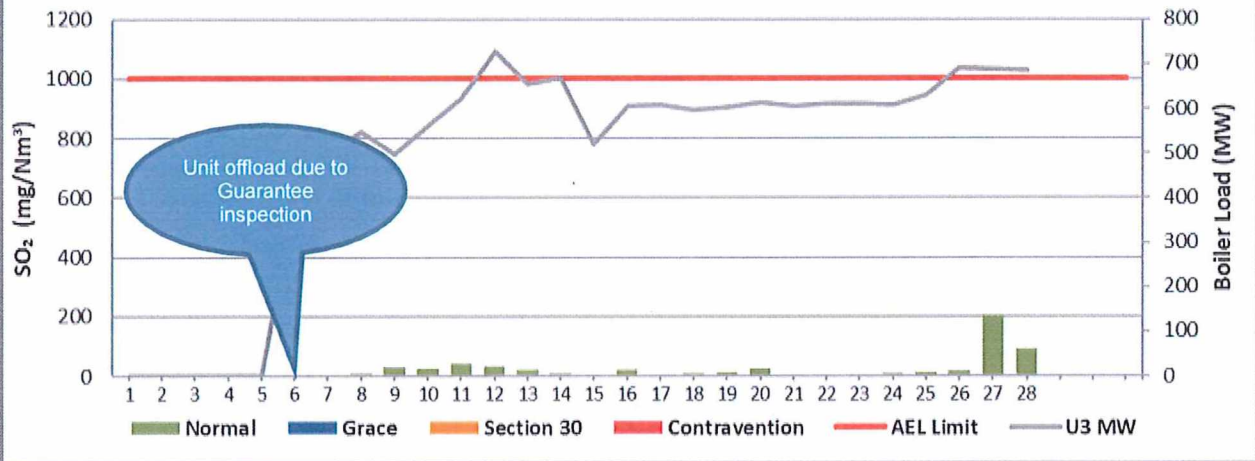
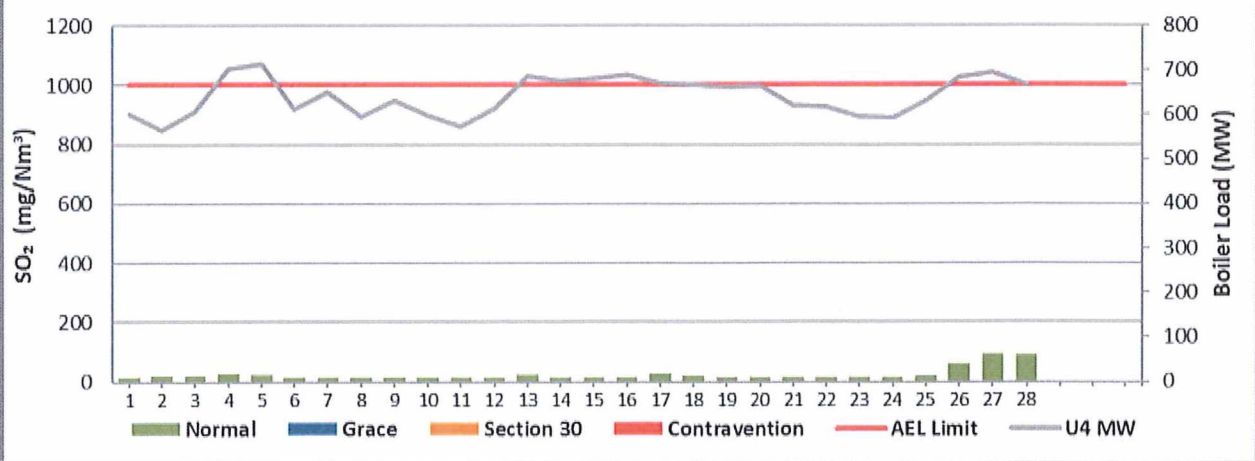


Figure 9: Kusile Unit 4 SO₂ Emissions - February 2025



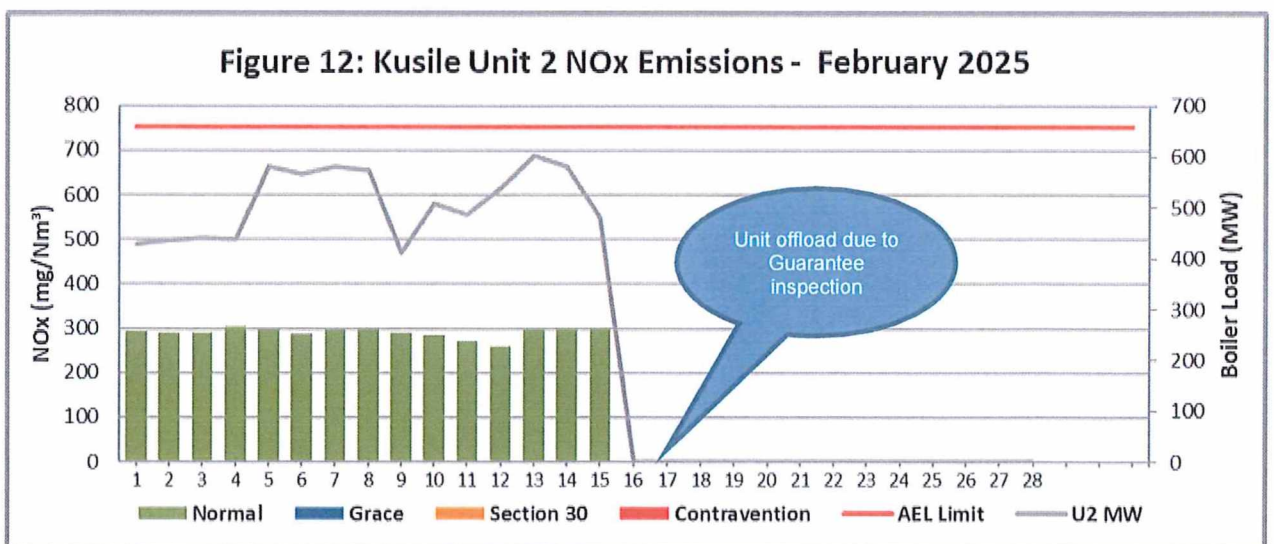
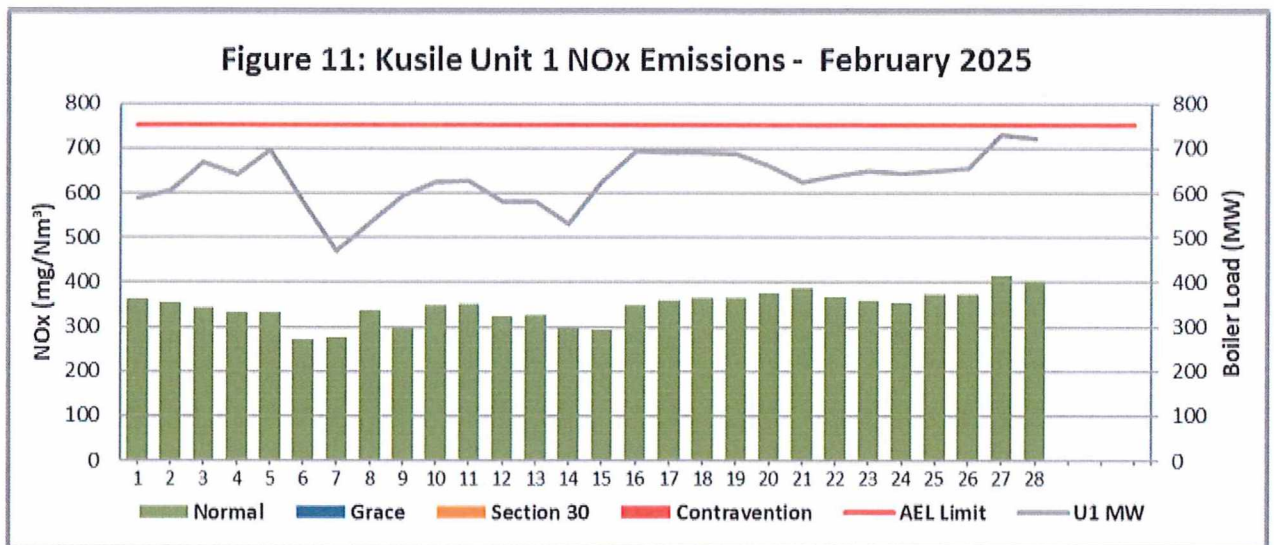
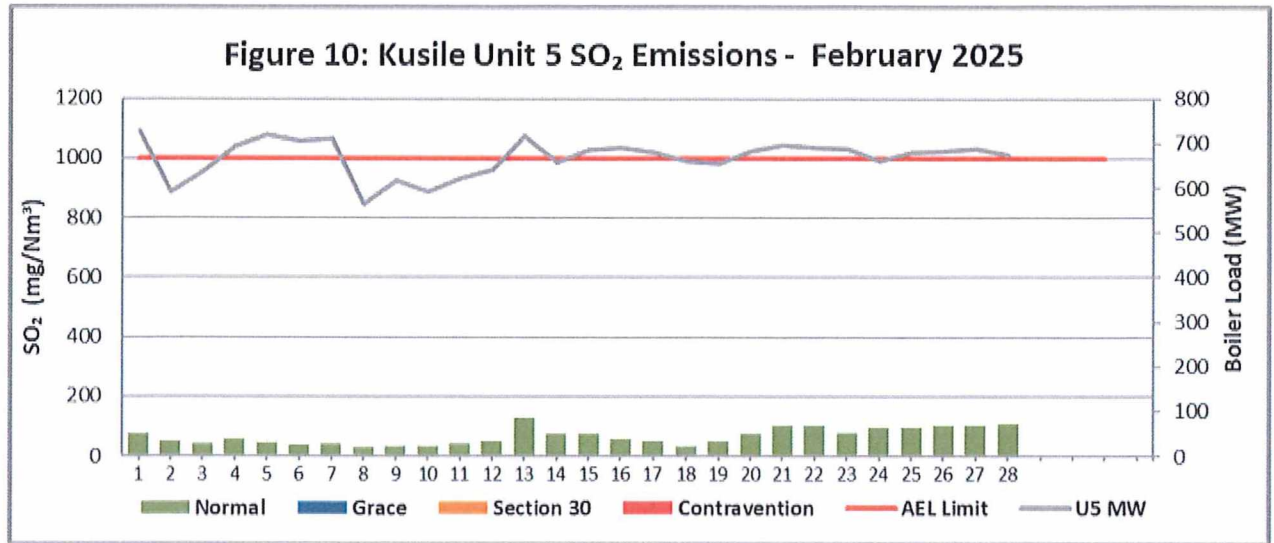


Figure 13: Kusile Unit 3 NOx Emissions - February 2025

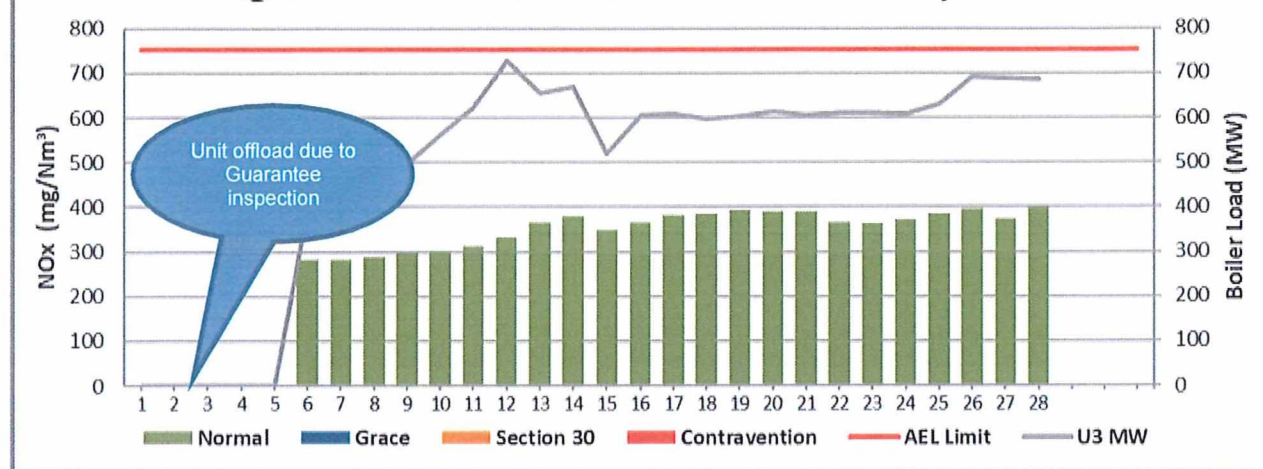


Figure 14: Kusile Unit 4 NOx Emissions - February 2025

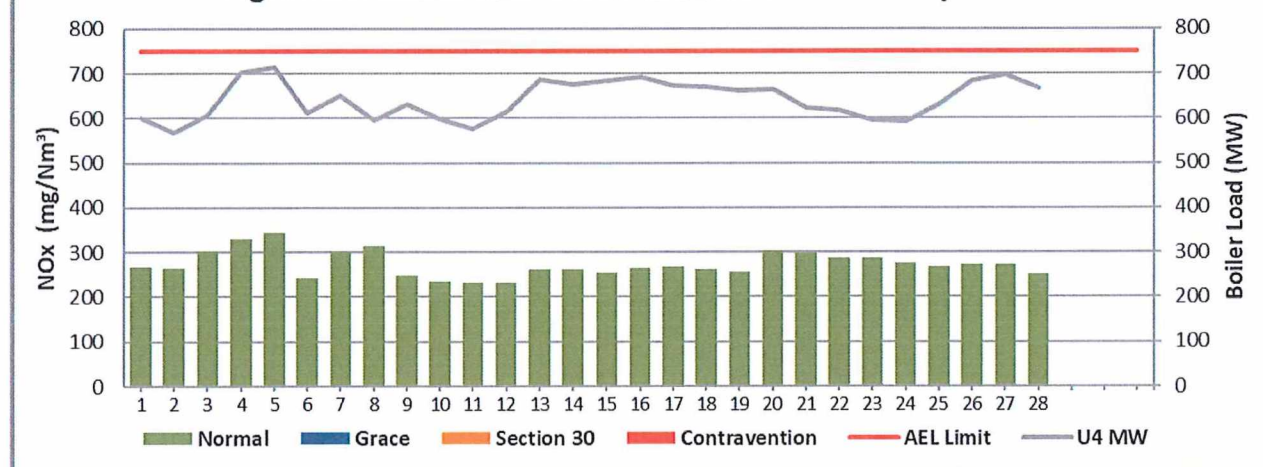
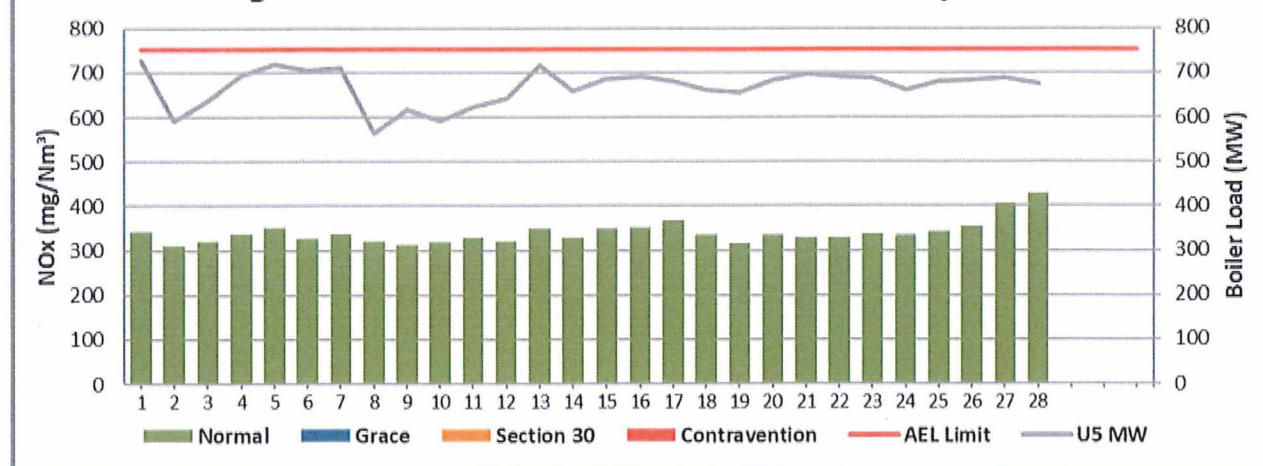


Figure 15: Kusile Unit 5 NOx Emissions - February 2025



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 full PM correlation test is planned for 21-26 March 2025.
- 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 was connected back to the main permanent stack with FGD on the 6th of February 2025 after it has been on the Guarantee Inspection outage. The full particulate matter and parallel emissions correlation tests are planned to be conducted once the unit has stabilized.

Unit 4:

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

Unit 5

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

9. Shut down and Light up information

Unit No. 1	Event 1		Event 2	
Breaker Open (BO)	4:25 pm	2025/02/04	7:30 am	2025/02/06
Draught Group (DG) Shut Down (SD)	DG did not trip or SD	DG did not trip or SD	11:35 pm	2025/02/07
BO to DG SD (duration)	n/a	DD:HH:MM	01:16:05	DD:HH:MM
Fires in time			12:25 am	2025/02/08
Synch. to Grid (or BC)			9:55 am	2025/02/08
Fires in to BC (duration)		DD:HH:MM	00:09:30	DD:HH:MM
Emissions below limit from BC (end date)			not > limit	not > limit
Emissions below limit from BC (duration)		DD:HH:MM	n/a	DD:HH:MM

*KUSILE POWER STATION'S MONTHLY EMISSIONS REPORT FOR FEBRUARY 2025 -
17/4/AEL/MP311/12/01*

Unit No. 2	Event 1	
Breaker Open (BO)	3:50 am	2025/02/15
Draught Group (DG) Shut Down (SD)	10:00 am	2025/02/16
BO to DG SD (duration)	01:06:10	DD:HH:MM
Fires in time		
Synch. to Grid (or BC)		
Fires in to BC (duration)		DD:HH:MM
Emissions below limit from BC (end date)		
Emissions below limit from BC (duration)		DD:HH:MM

Unit No. 3	Event 1		Event 2		Event 3	
Breaker Open (BO)	BO previously	BO previously	10:10 pm	2025/02/08	8:20 am	2025/02/15
Draught Group (DG) Shut Down (SD)	n/a	n/a	12:25 am	2025/02/09	DG did not trip or SD	DG did not trip or SD
BO to DG SD (duration)	n/a	DD:HH:MM	00:02:15	DD:HH:MM	n/a	DD:HH:MM
Fires in time	9:10 pm	2025/02/06	8:50 am	2025/02/09	1:00 pm	2025/02/15
Synch. to Grid (or BC)	1:35 am	2025/02/07	4:05 pm	2025/02/09	4:50 pm	2025/02/15
Fires in to BC (duration)	00:04:25	DD:HH:MM	00:07:15	DD:HH:MM	00:03:50	DD:HH:MM
Emissions below limit from BC (end date)	not > limit	not > limit	not > limit	not > limit	not > limit	not > limit
Emissions below limit from BC (duration)	n/a	DD:HH:MM	n/a	DD:HH:MM	n/a	DD:HH:MM

Unit No. 4	Event 1		Event 2		Event 3	
Breaker Open (BO)	2:45 am	2025/02/06	10:55 am	2025/02/11	3:25 pm	2025/02/19
Draught Group (DG) Shut Down (SD)	DG did not trip or SD	DG did not trip or SD	DG did not trip or SD	DG did not trip or SD	DG did not trip or SD	DG did not trip or SD
BO to DG SD (duration)	n/a	DD:HH:MM	n/a	DD:HH:MM	n/a	DD:HH:MM
Fires in time	3:50 am	2025/02/06			3:25 pm	2025/02/19
Synch. to Grid (or BC)	8:45 am	2025/02/06			9:00 pm	2025/02/19
Fires in to BC (duration)	00:04:55	DD:HH:MM		DD:HH:MM	00:05:35	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

10.Complaints