

Ms Nompumelelo Simelane
Nkangala District Municipality
PO Box 437
Middleburg
1050

Date:
November 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 OCTOBER 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 October 2024.

Hoping the above will meet your satisfaction.

Yours sincerely



Christopher Nani
ACTING GENERAL MANAGER

DATE: *29/11/2024*

*KUSILE POWER STATION'S MONTHLY EMISSIONS REPORT FOR OCTOBER 2024 -
17/4/AEL/MP311/12/01*

**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 Oct-2024
	Coal	Tons	1 818 083	914 581
	Fuel Oil	Tons	5 533	6686.32
	Limestone	Tons	72 917	14255
Production Rates	Product / By-Product Name	Units	Max Production Capacity Permitted	Indicative Production Rate Oct-2024
	Energy	GWh	3 321.216	1 815.272
	Ash	Tons	796 300	272 270.889
	Gypsum	Tons	155 100	7 983.000
	RE PM	kg/MWh	not specified	0.094
	RE SOx	kg/MWh	not specified	4.463

3. Energy source characteristics

Fuel Characteristic	Units	Stipulated Range	Monthly Average Content
Coal Sulphur	%	1.3	0.80
Ash in Coal	%	38	29.77
Fuel Oil Sulphur	%	3.5	2.29

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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 Oct-2024	Technology Type	Efficiency Oct-2024
Unit 1	FFP	99.880%	FGD	Out of service
Unit 2	FFP	99.894%	FGD	Out of service
Unit 3	FFP	99.877%	FGD	Out of service
Unit 4	FFP	99.993%	FGD	99.953%
Unit 5	FFP	99.995%	FGD	99.966%

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	O ₂
Unit 1	100.0	100.0	100.0	100.0
Unit 2	100.0	100.0	100.0	100.0
Unit 3	100.0	99.5	99.3	100.0
Unit 4	100.0	96.9	95.0	99.7
Unit 5	100.0	99.9	94.9	96.1

7. Emissions Performance

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

Associated Unit/Stack	PM	SO ₂	NO _x
Unit 1	71.7	3 142	1 079
Unit 2	30.0	1 723	372
Unit 3	63.0	3 014	903
Unit 4	3.1	119	604
Unit 5	3.0	105	506
SUM	170.9	8 102	3 463

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm³)
Unit 1	31	0	0	0	0	28.3
Unit 2	17	0	0	0	0	24.2
Unit 3	29	2	0	0	2	29.6
Unit 4	31	0	0	0	0	1.4
Unit 5	31	0	0	0	0	2.4
SUM	139	2	0	0	2	

Table 7.3: Operating days in compliance to SO₂ AEL Limit - October 2024

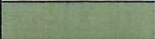
Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SO ₂ (mg/Nm³)
Unit 1	31	0	0	0	0	1 241.7
Unit 2	17	0	0	0	0	1 389.6
Unit 3	31	0	0	0	0	1 408.1
Unit 4	31	0	0	0	0	51.9
Unit 5	31	0	0	0	0	76.4
SUM	141	0	0	0	0	

Table 7.4: Operating days in compliance to NO_x AEL Limit - October 2024

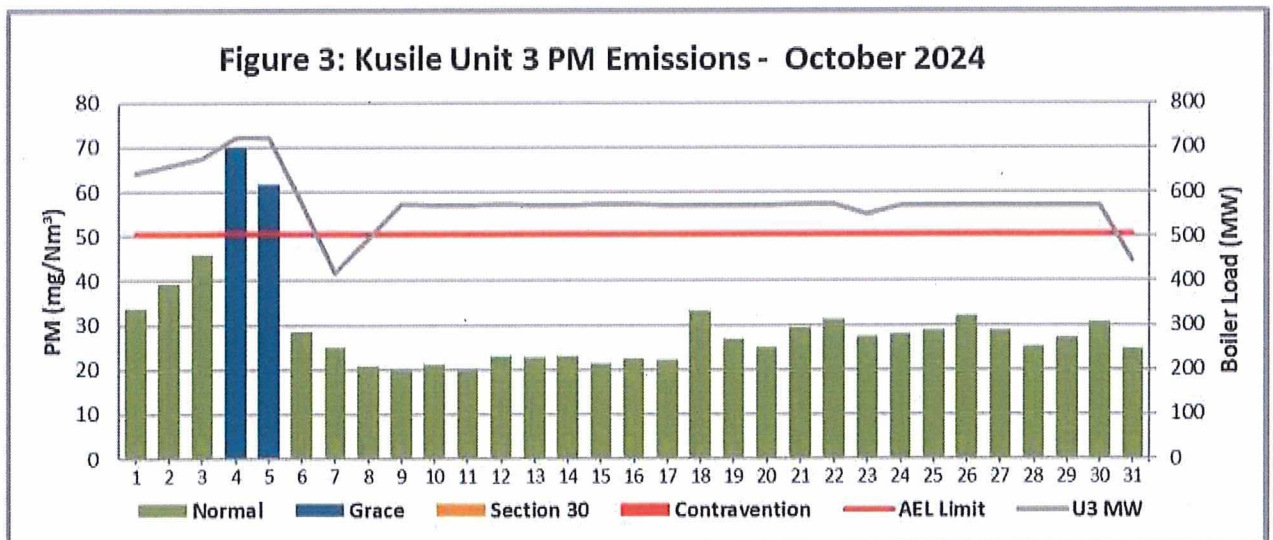
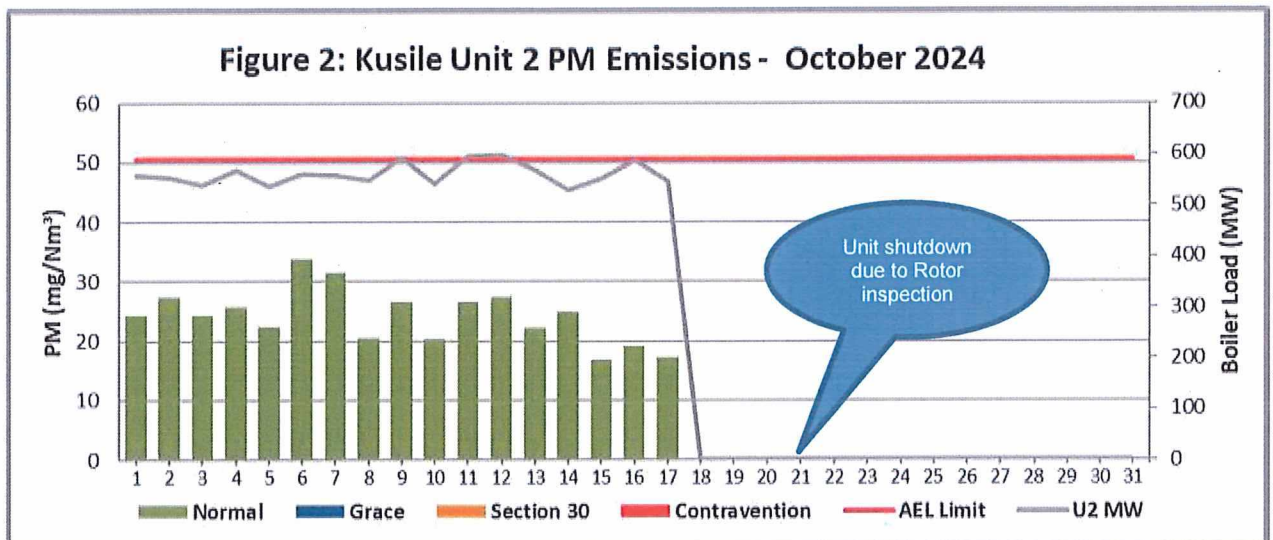
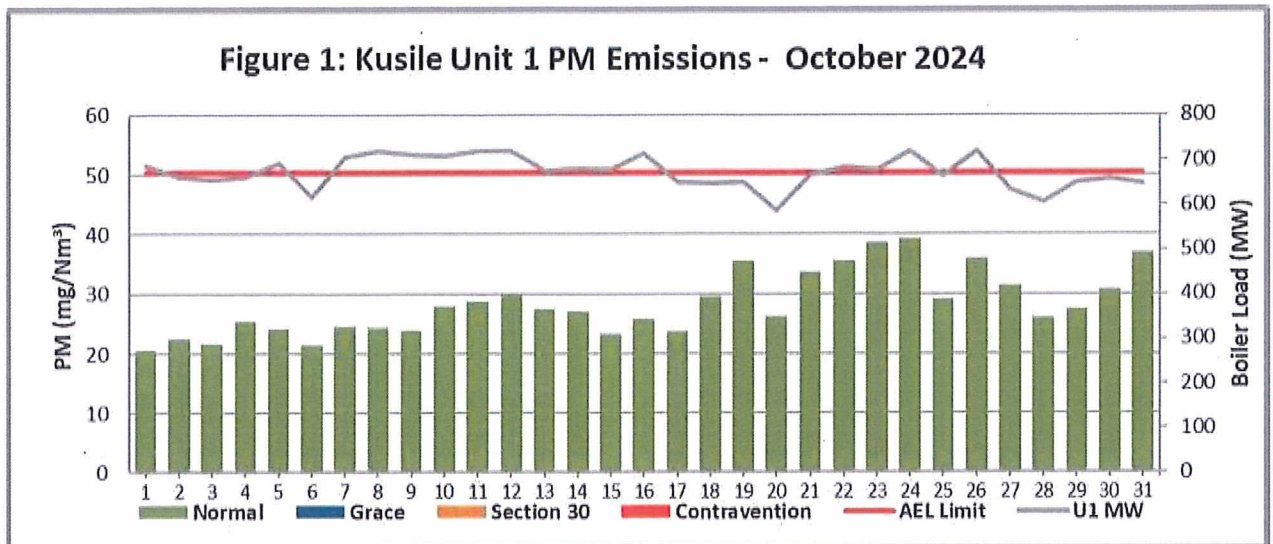
Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NO _x (mg/Nm³)
Unit 1	31	0	0	0	0	426.3
Unit 2	17	0	0	0	0	300.6
Unit 3	31	0	0	0	0	422.8
Unit 4	31	0	0	0	0	265.7
Unit 5	30	0	0	0	0	392.5
SUM	140	0	0	0	0	

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

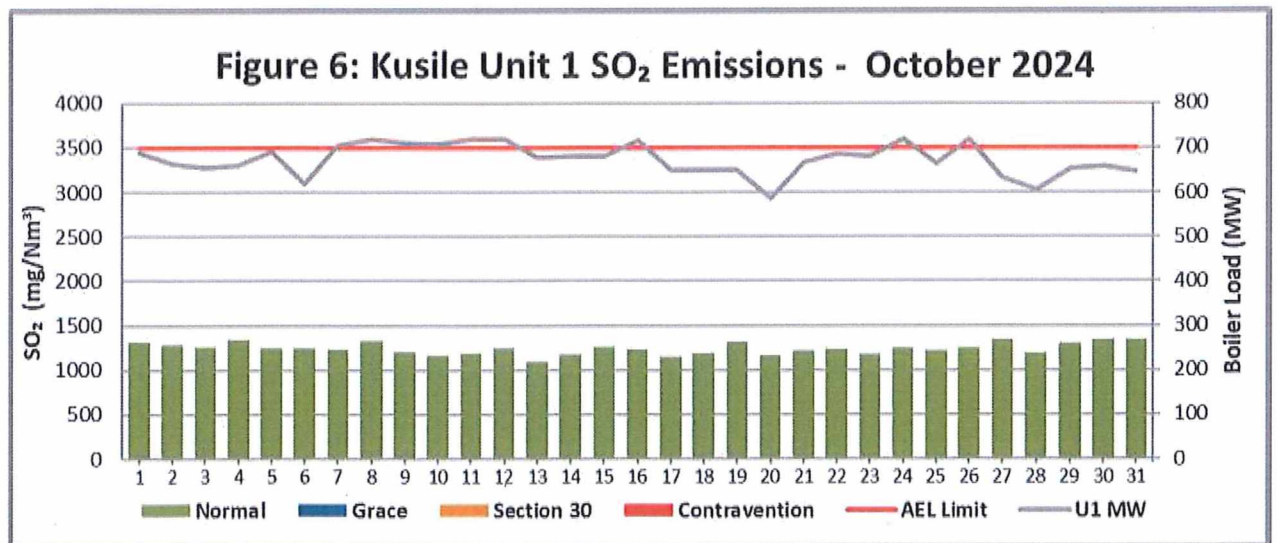
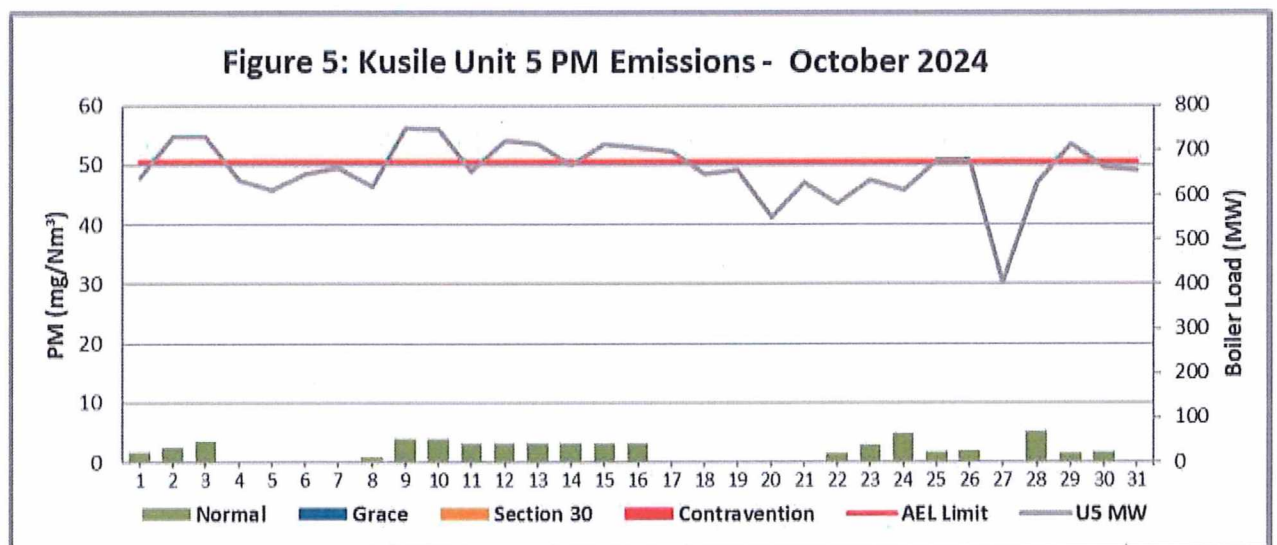
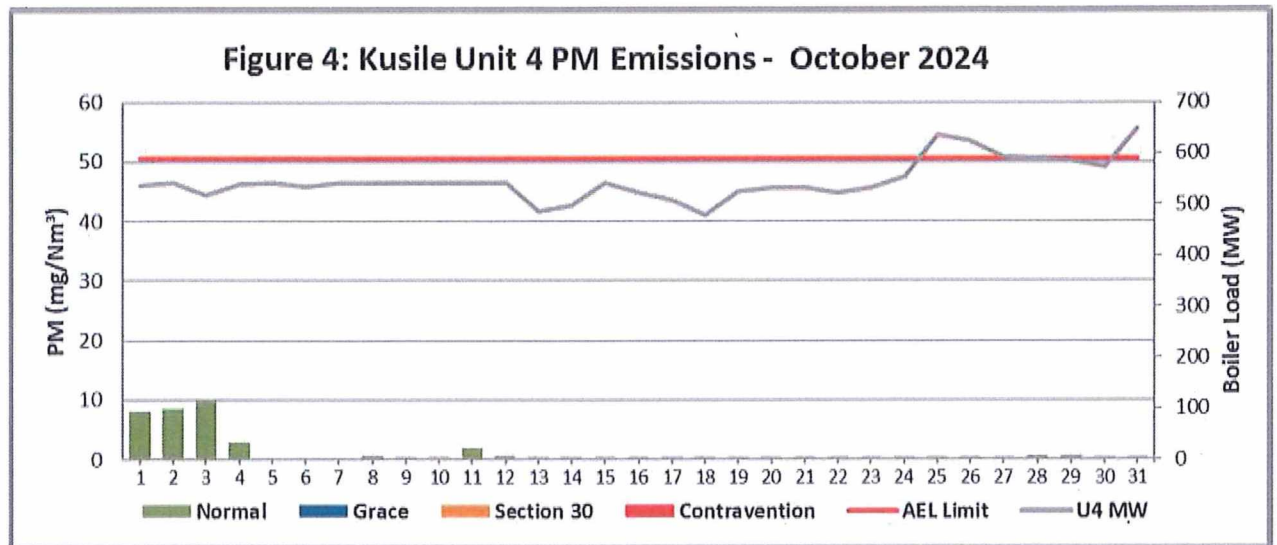
Table 7.5: Legend Description

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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- The unit exceeded the limit on 04-05 October due faulty fabric filter bags.



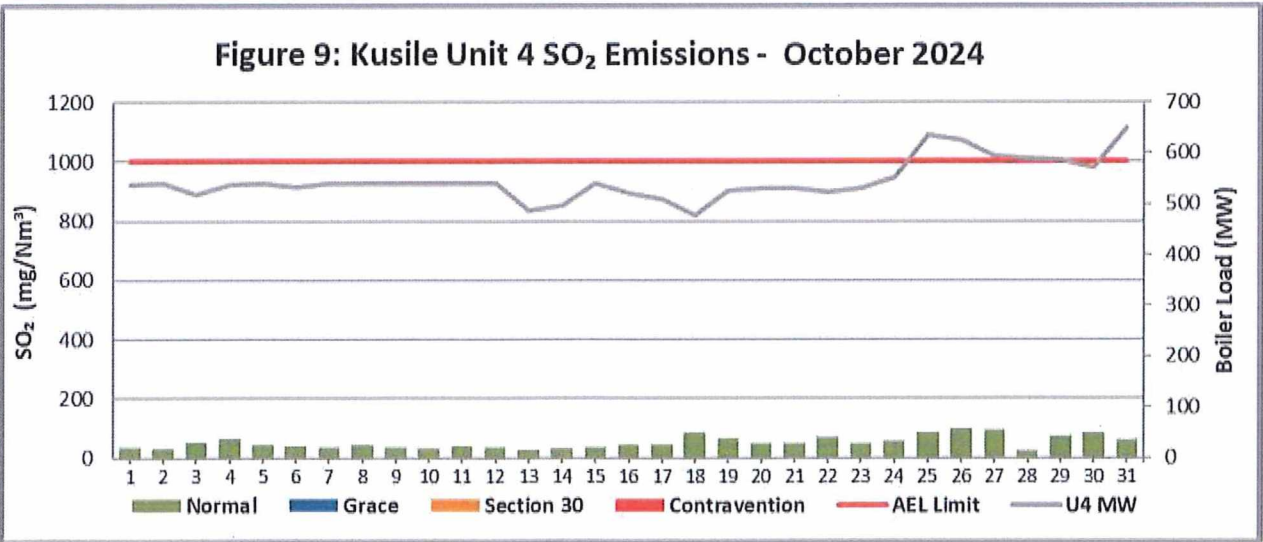
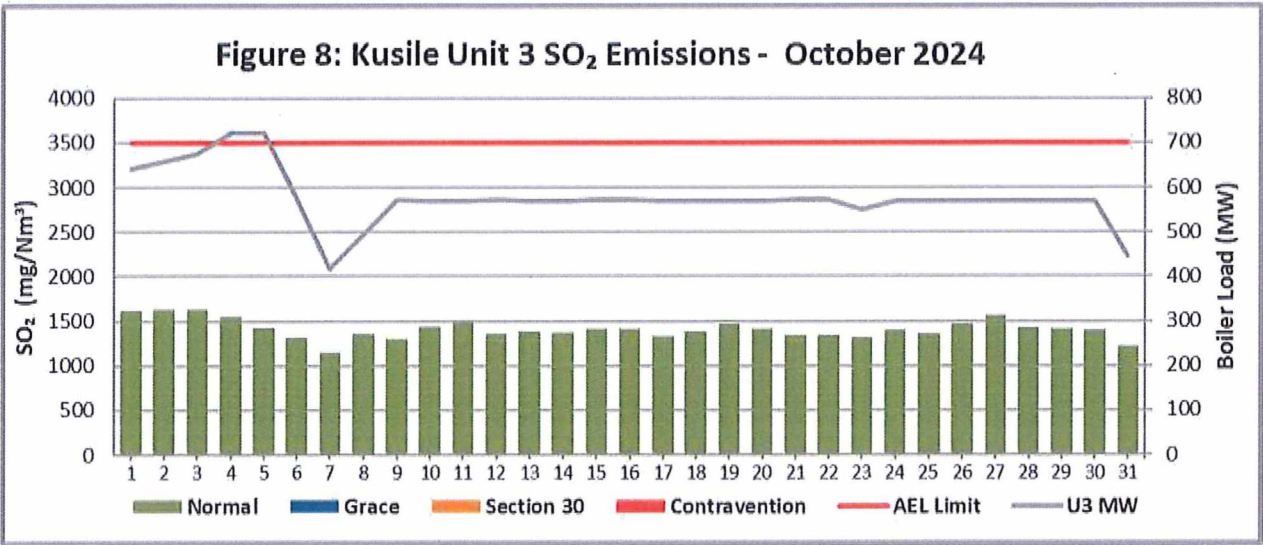
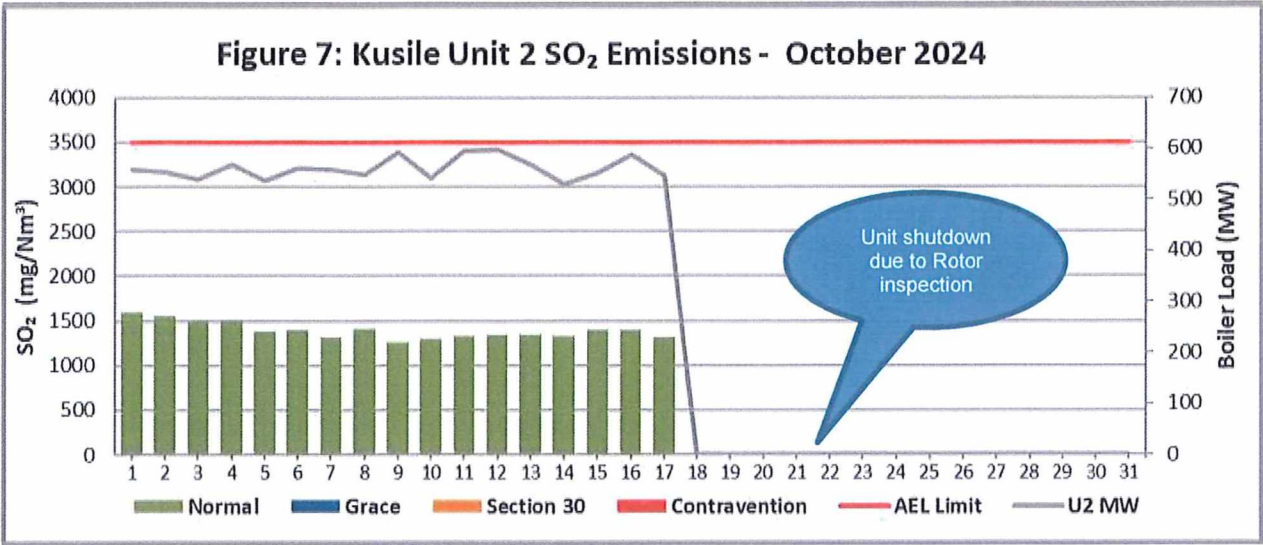


Figure 10: Kusile Unit 5 SO₂ Emissions - October 2024

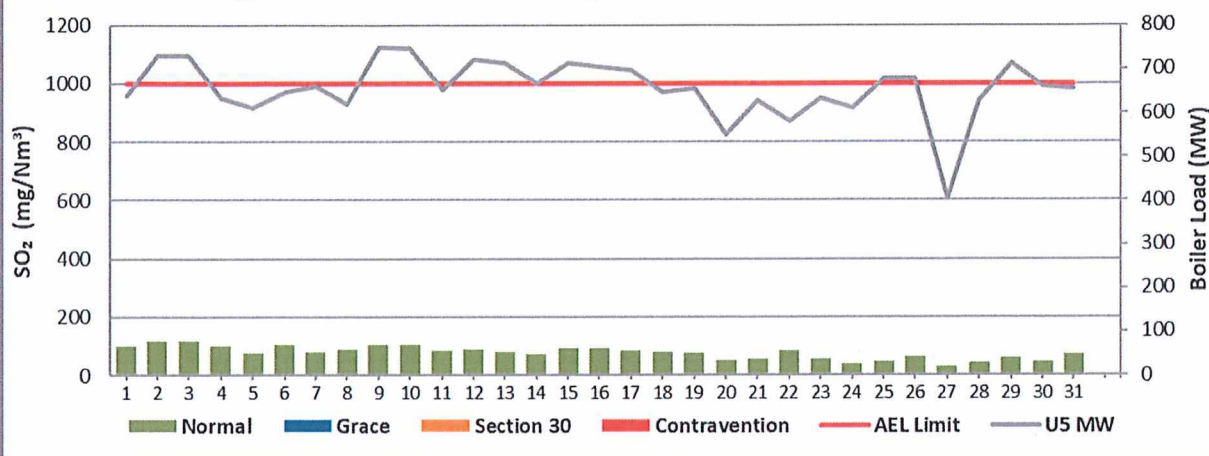


Figure 11: Kusile Unit 1 NO_x Emissions - October 2024

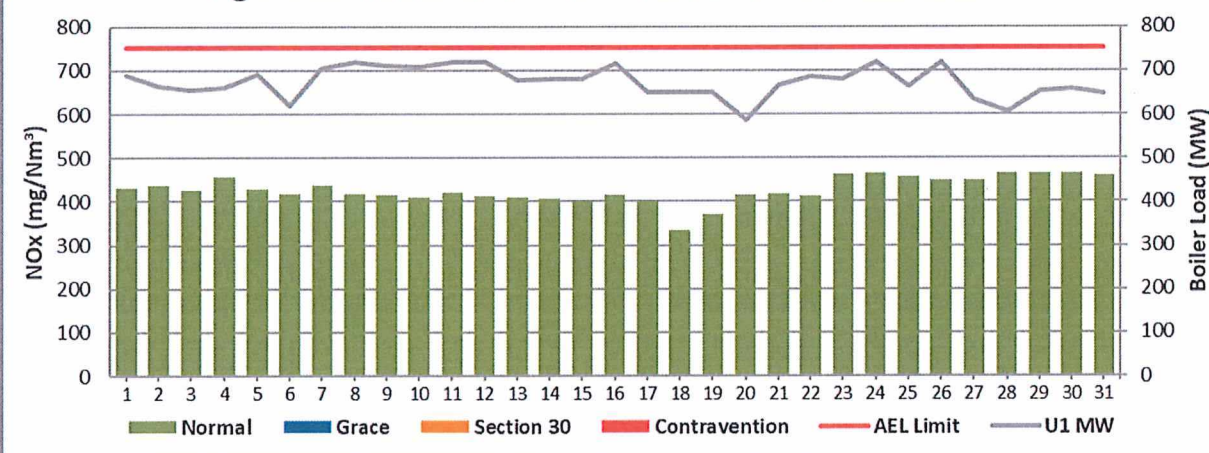


Figure 12: Kusile Unit 2 NO_x Emissions - October 2024

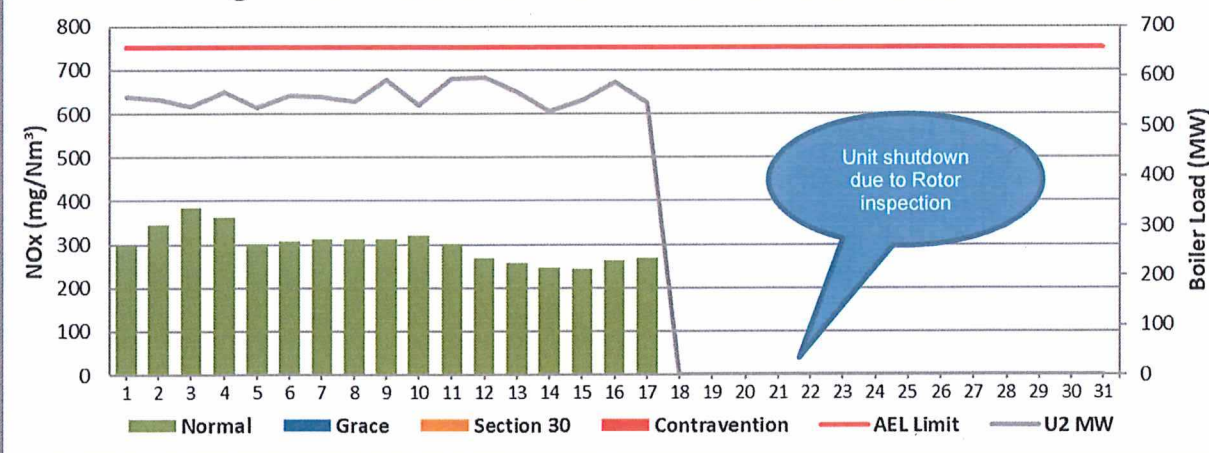


Figure 13: Kusile Unit 3 NOx Emissions - October 2024

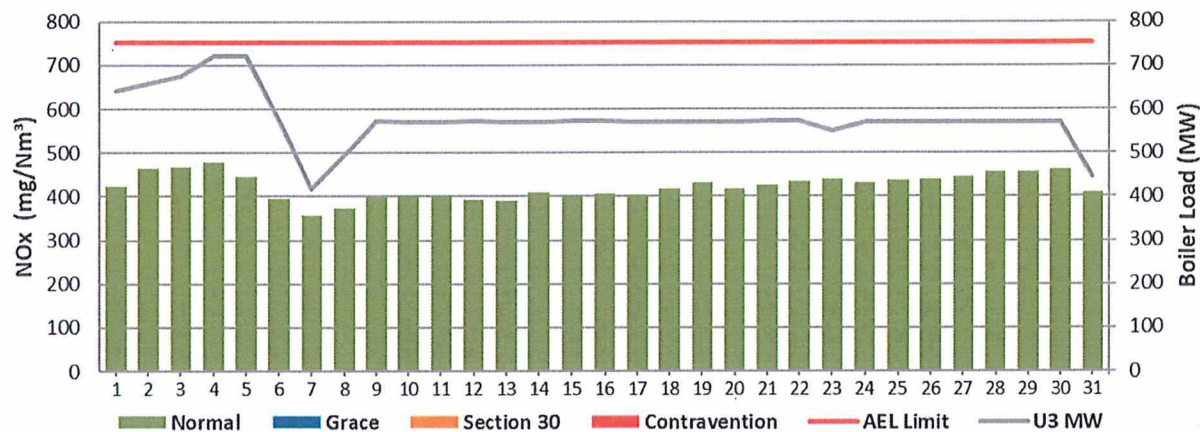


Figure 14: Kusile Unit 4 NOx Emissions - October 2024

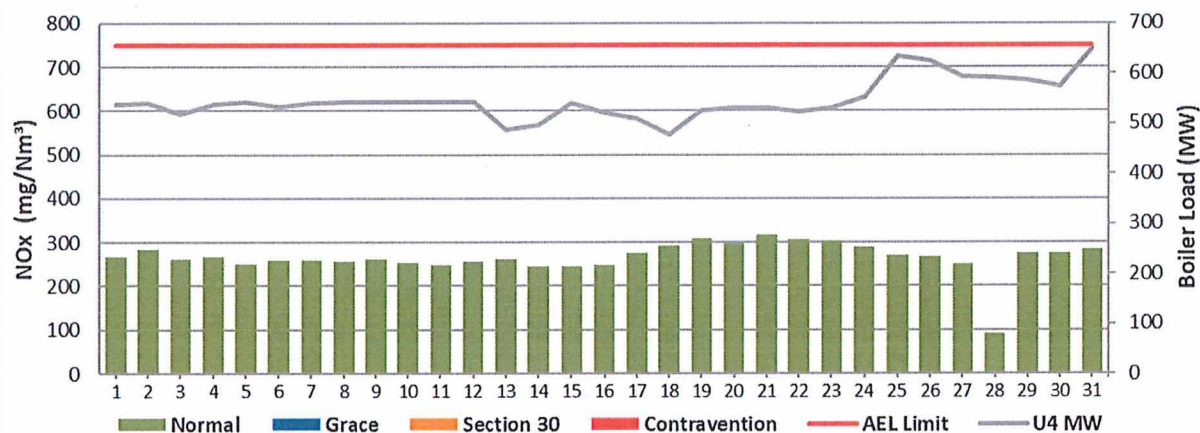
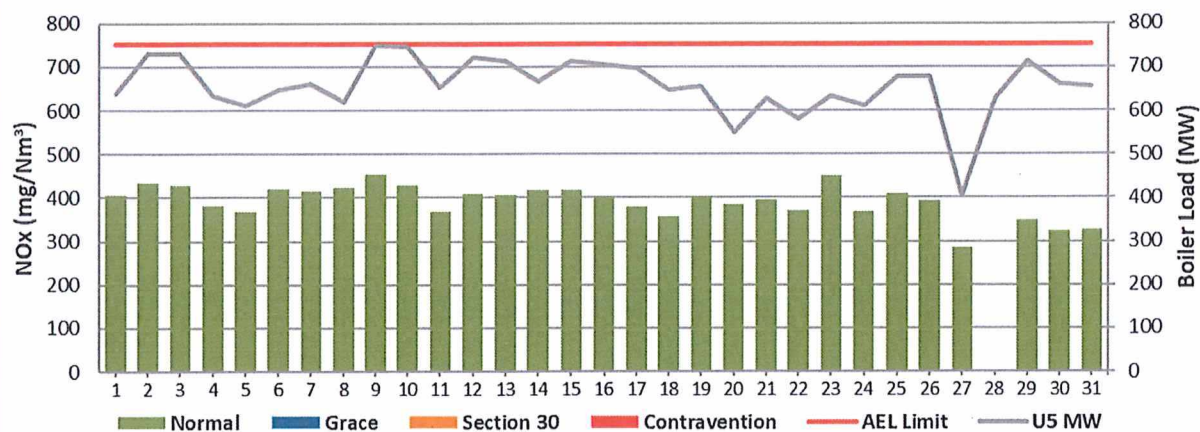


Figure 15: Kusile Unit 5 NOx Emissions - October 2024



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 that was replaced. A new correlation test is planned to be conducted again after the correlation test that was completed in October 2024 failed.
- 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 4 is operated with valid correlation and parallel curves.

9. Shut down and Light up information

Unit No. 1	Event 1	
Breaker Open (BO)	10:35 pm	2024/10/31
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		
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. 2	Event 1	
Breaker Open (BO)	9:25 pm	2024/10/17
Draught Group (DG) Shut Down (SD)	8:30 am	2024/10/19
BO to DG SD (duration)	01:11:05	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

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Unit No. 3	Event 1		Event 2	
Breaker Open (BO)	12:40 pm	2024/10/07	10:45 am	2024/10/31
Draught Group (DG) Shut Down (SD)	12:40 pm	2024/10/07	DG did not trip or SD	DG did not trip or SD
BO to DG SD (duration)	00:00:00	DD:HH:MM	n/a	DD:HH:MM
Fires in time	1:05 pm	2024/10/07		
Synch. to Grid (or BC)	3:35 pm	2024/10/07		
Fires in to BC (duration)	00:02:30	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

Unit No. 5	Event 1	
Breaker Open (BO)	10:05 pm	2024/10/30
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		
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

11.Complaints

No complaints reported for the month of October 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 October 2024.						