Ms Nompumelelo Simelane
Nkangala District Municipality
PO Box 437
Middleburg
1050

Date:

April 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 MARCH 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 March 2025.

Hoping the above will meet your satisfaction.

Yours sincerely,

Christopher Nani
GENERAL MANAGER
DATE: 30/04/2025

Generation Division – Coal New Build Unit
Management Department (Kusile Power Station)
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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 Mar-2025**
	Coal	Tons	*1 818 083*	*896 361*
	Fuel Oil	Tons	*5 533*	*2007.20*
	Limestone	Tons	*72 017*	*23226*
Production Rates	**Product / By-Product Name**	**Units**	**Max Production Capacity Permitted**	**Indicative Production Rate Mar-2025**
	Energy	GWh	*3 321.216*	*1 566.35*
	Ash	Tons	*796 300*	*264 068.06*
	Gypsum	Tons	*155 100*	*13 006.56*
	RE PM	kg/MWh	*not specified*	*0.01*
	RE SOx	kg/MWh	*not specified*	*1.83*

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*	*0.84*
Ash in Coal	%	*38*	*29.46*
Fuel Oil Sulphur	%	*3.5*	*2.85*

4. Emissions Limits (mg/Nm³)

Associated Unit/Stack	PM	SO_2	NOx
Unit 1	*50*	*3500*	*750*
Unit 2	*50*	*1000*	*750*
Unit 3	*50*	*1000*	*750*
South Stack	*50*	*1000*	*750*

5. Abatement Technology (%)

Associated Unit/Stack	Technology Type	Efficiency Mar-2025	Technology Type	Efficiency Mar-2025
Unit 1	*FFP*	*99.99%*	*FGD*	*Out of service*
Unit 2	*FFP*	*Off*	*FGD*	*Out of service*
Unit 3	*FFP*	*99.99%*	*FGD*	*99.96%*
Unit 4	*FFP*	*99.99%*	*FGD*	*99.95%*
Unit 5	*FFP*	*99.96%*	*FGD*	*99.78%*

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	*Off*	*Off*	*Off*
Unit 3	*100.0*	*100.0*	*100.0*
Unit 4	*100.0*	*99.7*	*100.0*
Unit 5	*100.0*	*99.7*	*99.9*

7. Emissions Performance

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

Associated Unit/Stack	PM	SO_2	NO_x
Unit 1	5.9	2 424	798
Unit 2	Off	Off	Off
Unit 3	5.6	124	599
Unit 4	1.1	178	683
Unit 5	6.5	162	819
SUM	19.1	2 870	2 900

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm³)
Unit 1	27	0	0	0	0	3.5
Unit 2	Off	Off	Off	Off	Off	Off
Unit 3	23	0	0	0	0	3.8
Unit 4	31	0	0	0	0	0.4
Unit 5	31	0	0	0	0	3.6
SUM	**112**	**0**	**0**	**0**	**0**	

Table 7.3: Operating days in compliance to SO_2 AEL Limit - March 2025

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SO_2 (mg/Nm³)
Unit 1	30	0	0	0	0	1 177.9
Unit 2	Off	Off	Off	Off	Off	Off
Unit 3	25	0	0	0	0	60.9
Unit 4	31	0	0	0	0	65.7
Unit 5	31	0	0	0	0	75.9
SUM	**117**	**0**	**0**	**0**	**0**	

Table 7.4: Operating days in compliance to NOx AEL Limit – March 2025

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm³)
Unit 1	30	0	0	0	0	384.0
Unit 2	Off	Off	Off	Off	Off	Off
Unit 3	25	0	0	0	0	359.1
Unit 4	31	0	0	0	0	252.8
Unit 5	31	0	0	0	0	386.4
SUM	**117**	**0**	**0**	**0**	**0**	

Note: NOx emissions is measured as NO in PPM. Final NOx value is expressed as total NO_2

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

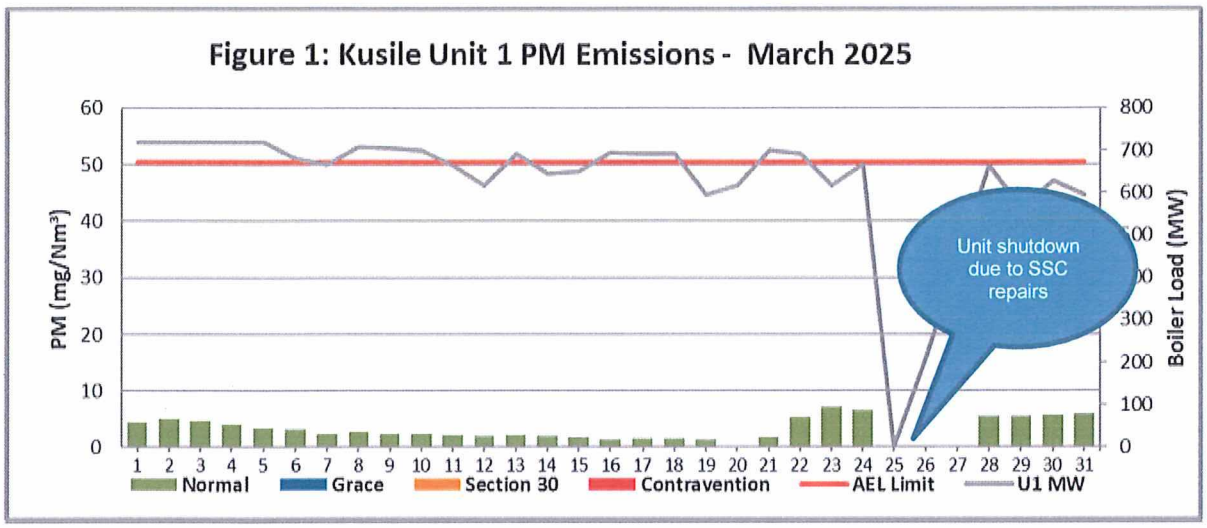


Figure 1: Kusile Unit 1 PM Emissions - March 2025
PM (mg/Nm³)
Boiler Load (MW)
Unit shutdown due to SSC repairs
Normal
Grace
Section 30
Contravention
AEL Limit
U1 MW

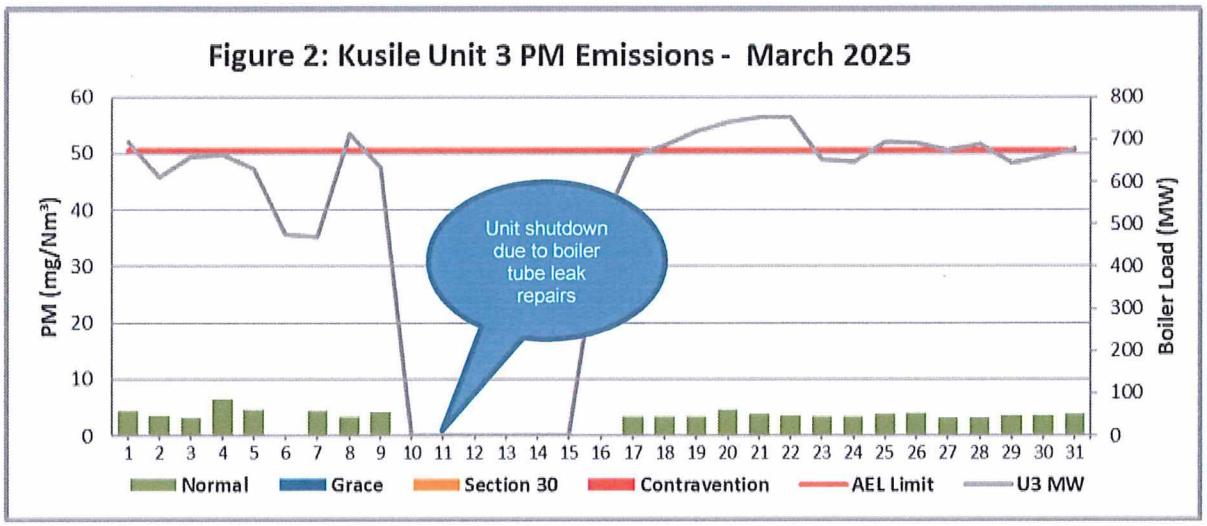


Figure 2: Kusile Unit 3 PM Emissions - March 2025
PM (mg/Nm³)
Boiler Load (MW)
Unit shutdown due to boiler tube leak repairs
Normal
Grace
Section 30
Contravention
AEL Limit
U3 MW

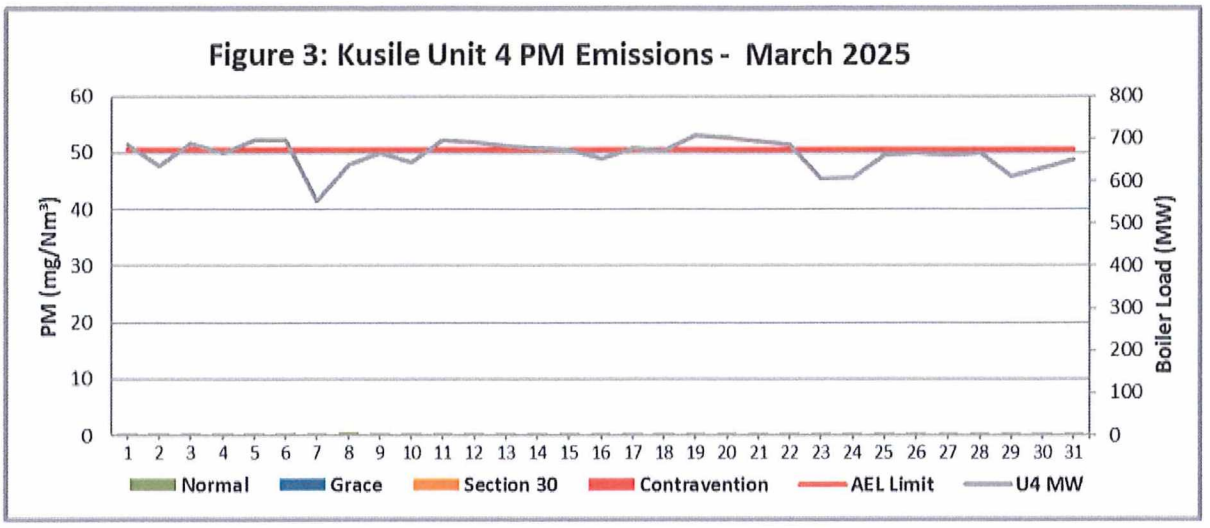


Figure 3: Kusile Unit 4 PM Emissions - March 2025
PM (mg/Nm³)
Boiler Load (MW)
Normal
Grace
Section 30
Contravention
AEL Limit
U4 MW

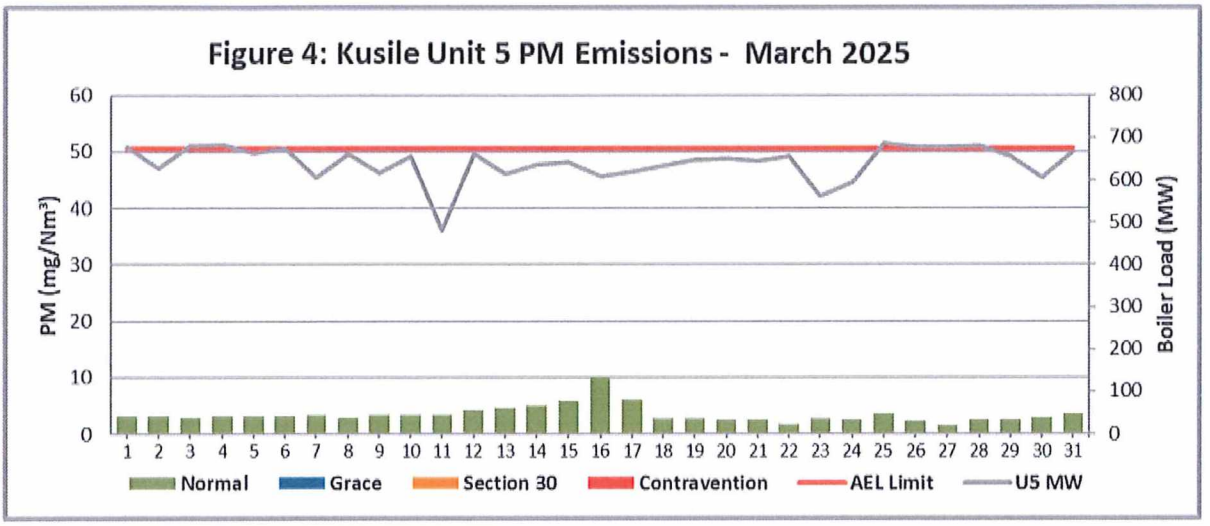


Figure 4: Kusile Unit 5 PM Emissions - March 2025
PM (mg/Nm³)
Boiler Load (MW)
Normal
Grace
Section 30
Contravention
AEL Limit
U5 MW

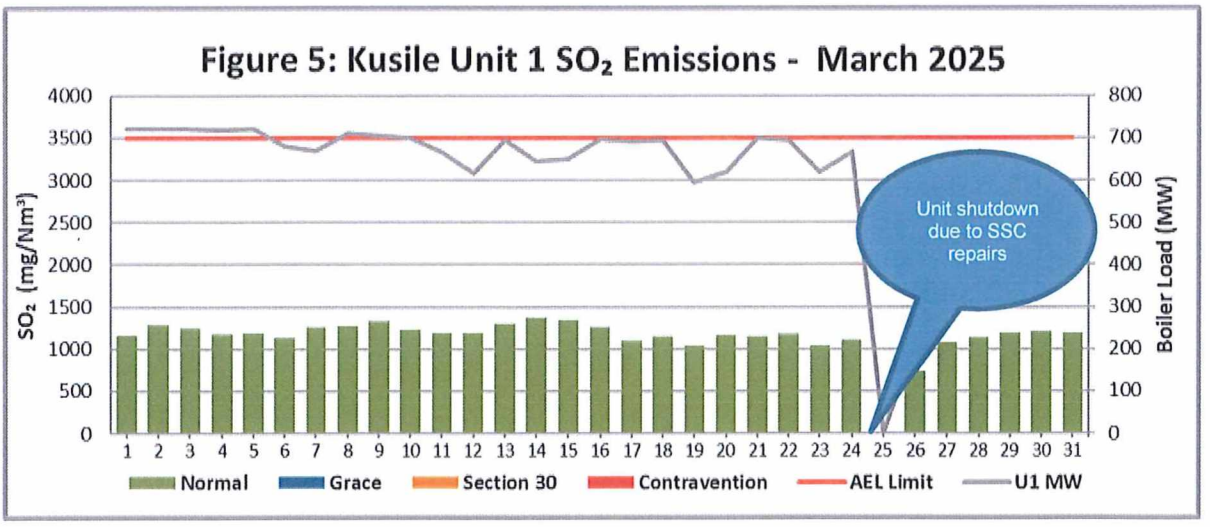


Figure 5: Kusile Unit 1 SO₂ Emissions - March 2025
SO₂ (mg/Nm³)
Boiler Load (MW)
Unit shutdown due to SSC repairs
Normal
Grace
Section 30
Contravention
AEL Limit
U1 MW

Figure 6: Kusile Unit 3 SO_2 Emissions - March 2025

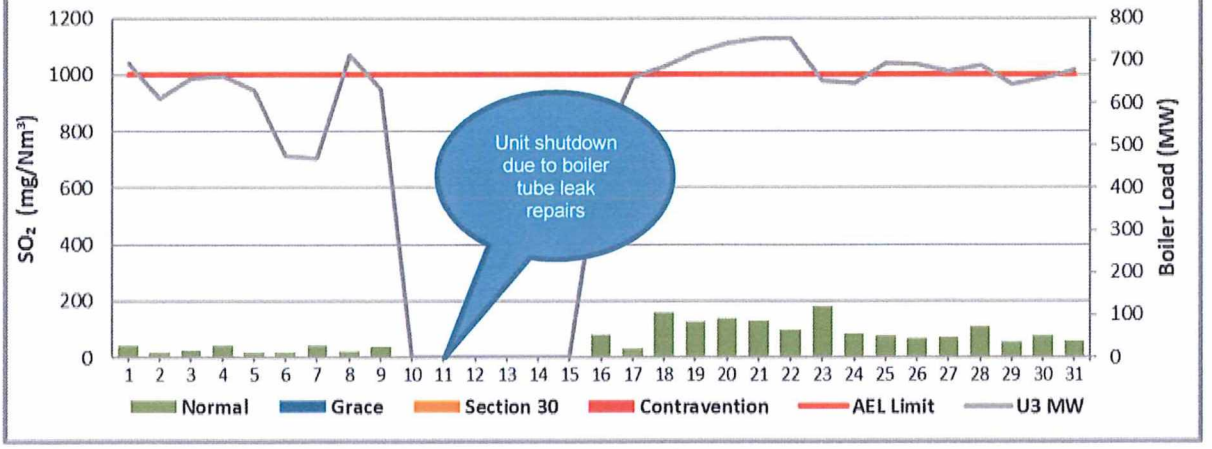


Figure 7: Kusile Unit 4 SO_2 Emissions - March 2025

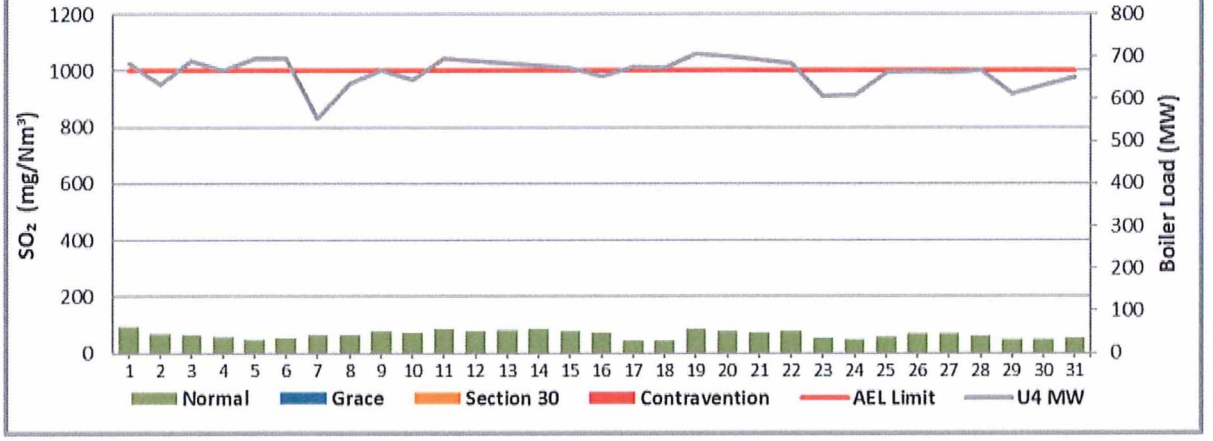
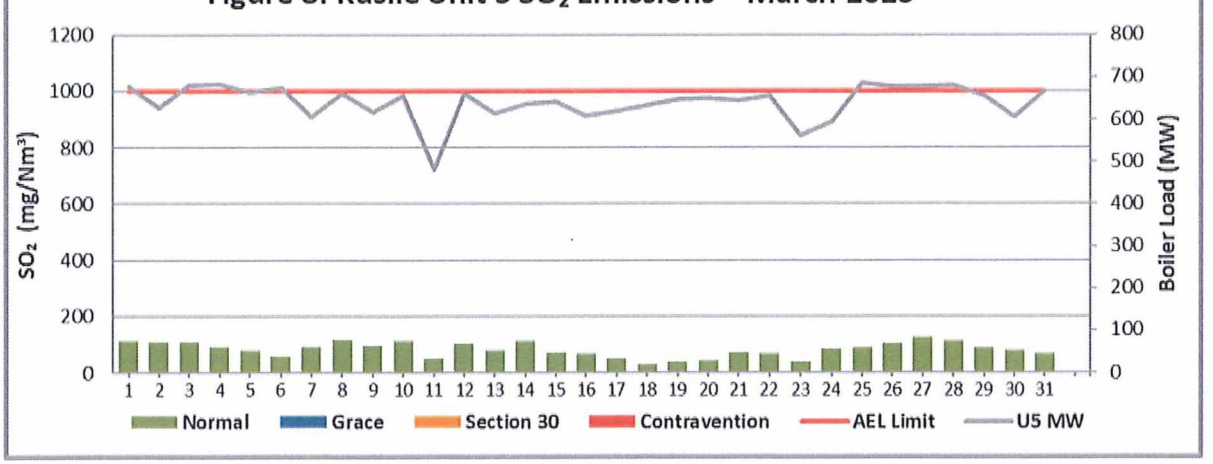


Figure 8: Kusile Unit 5 SO_2 Emissions - March 2025



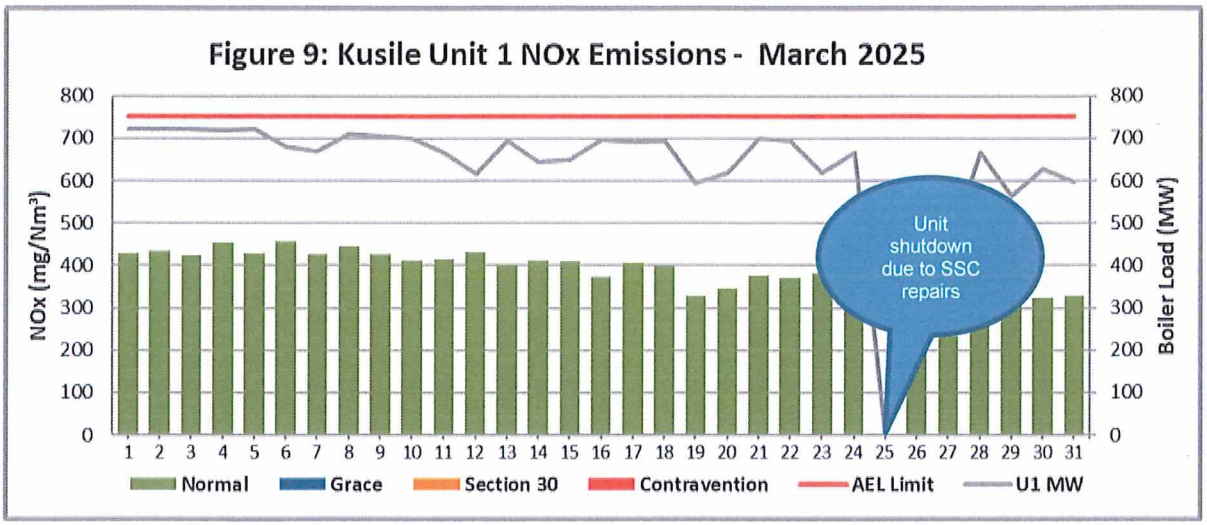


Figure 9: Kusile Unit 1 NOx Emissions - March 2025
NOx (mg/Nm³)
Boiler Load (MW)
Unit shutdown due to SSC repairs
Normal
Grace
Section 30
Contravention
AEL Limit
U1 MW

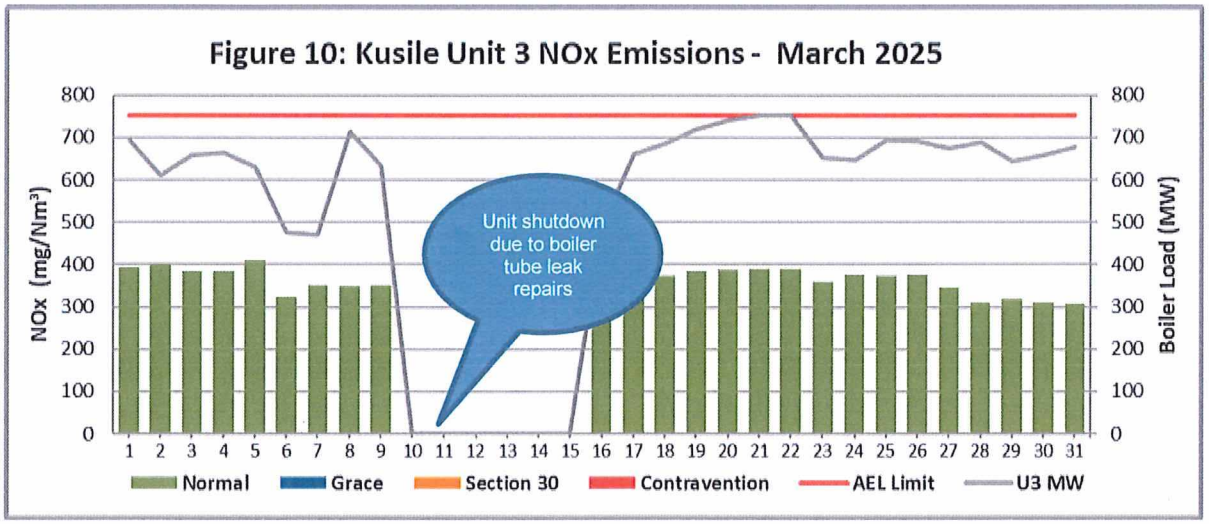


Figure 10: Kusile Unit 3 NOx Emissions - March 2025
NOx (mg/Nm³)
Boiler Load (MW)
Unit shutdown due to boiler tube leak repairs
Normal
Grace
Section 30
Contravention
AEL Limit
U3 MW

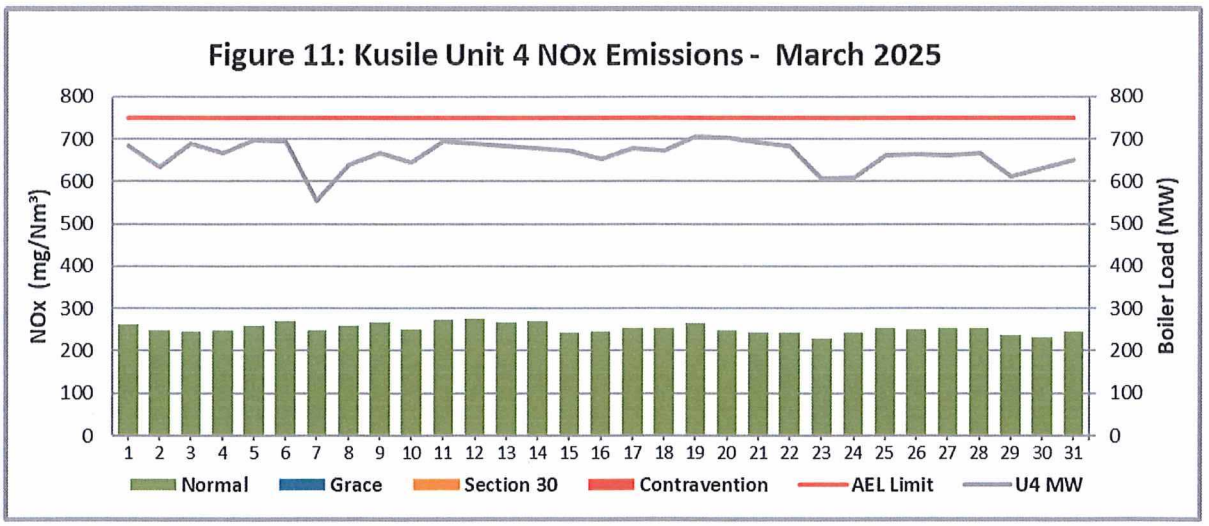
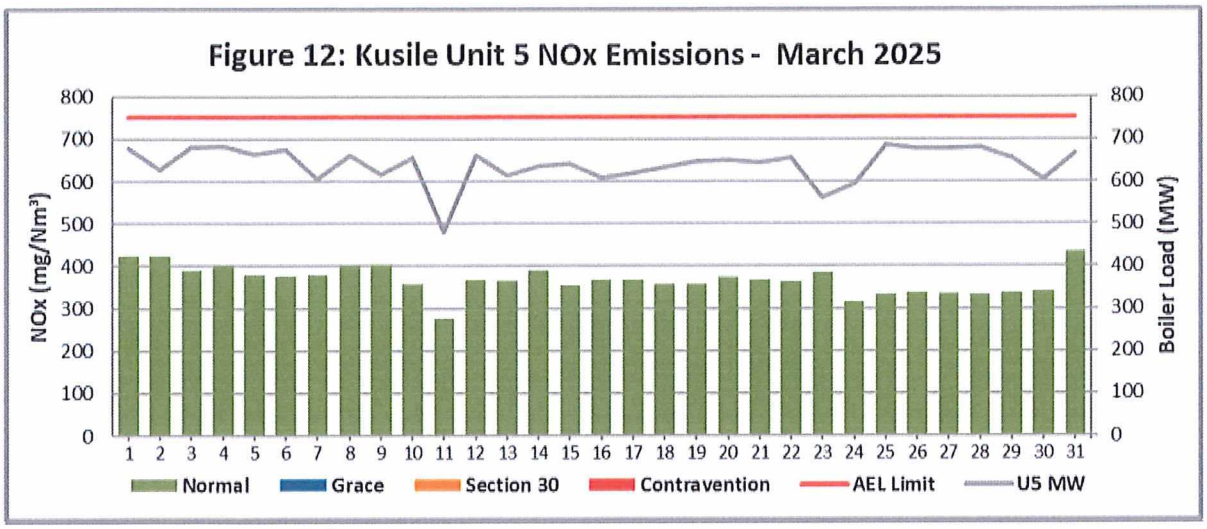


Figure 11: Kusile Unit 4 NOx Emissions - March 2025
NOx (mg/Nm³)
Boiler Load (MW)
Normal
Grace
Section 30
Contravention
AEL Limit
U4 MW



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 invalided due to the faulty monitor which was replaced. A new correlation test was conducted, however the correlation test failed. A full PM correlation test completed on the 24th of March 2025.Awaiting report from services provider

- The unit operated with valid parallel factors for gaseous emissions.

- Unit was shut down on 31 March 2025 for Inspection (IN) outage and to connect the unit to the main stack with FGD.

Unit 2:

- The unit was offload in the month of March 2025 due to Guarantee Inspection (GI) outage and to connect the unit to the main stack with FGD.

Unit 3

- The unit is operating with unity curves for particulate matter and gaseous emissions. The full PM emissions correlation test was completed on the 8th of April 2025. The station is waiting for the report from service provider. The gaseous emissions parallel test is planned to be conducted

Unit 4:

- Unit 4 is operating with valid correlation curves and parallel factors.

Unit 5

- Unit 5 is operating with valid correlation curves and parallel factors.

9. Shut down and Light up information

Unit No. 1	*Event 1*		*Event 2*		*Event 3*		*Event 4*	
Breaker Open (BO)	3:25 am	2025/03/19	1:30 pm	2025/03/24	6:25 am	2025/03/29	9:30 pm	2025/03/31
Draught Group (DG) Shut Down (SD)	3:30 am	2025/03/19	8:35 am	2025/03/25	DG did not trip or SD	DG did not trip or SD	9:30 am	2025/04/01
BO to DG SD (duration)	00:00:05	DD:HH:MM	00:19:05	DD:HH:MM	n/a	DD:HH:MM	01:09:30	DD:HH:MM
Fires in time	4:15 am	2025/03/19	1:40 pm	2025/03/26				
Synch. to Grid (or BC)	12:35 am	2025/03/20	4:05 pm	2025/03/27				
Fires in to BC (duration)	00:20:20	DD:HH:MM	01:02:25	DD:HH:MM		DD:HH:MM		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		DD:HH:MM		DD:HH:MM

Unit No. 3	*Event 1*		*Event 2*		*Event 3*	
Breaker Open (BO)	10:10 pm	2025/03/05	7:10 pm	2025/03/09	9:00 am	2025/03/23
Draught Group (DG) Shut Down (SD)	DG did not trip or SD	DG did not trip or SD	4:15 pm	2025/03/10	DG did not trip or SD	DG did not trip or SD
BO to DG SD (duration)	n/a	DD:HH:MM	00:21:05	DD:HH:MM	n/a	DD:HH:MM
Fires in time			10:05 pm	2025/03/15		
Synch. to Grid (or BC)			9:00 am	2025/03/16		
Fires in to BC (duration)		DD:HH:MM	00:10:55	DD:HH:MM		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		DD:HH:MM

Unit No. 4	*Event 1*	
Breaker Open (BO)	10:30 am	2025/03/07
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. 5	*Event 1*		*Event 2*		*Event 3*		*Event 4*		*Event 5*	
Breaker Open (BO)	11:00 am	2025/03/07	2:15 am	2025/03/11	12:35 am	2025/03/22	10:30 pm	2025/03/26	8:25 pm	2025/03/30
Draught Group (DG) Shut Down (SD)	DG did not trip or SD	DG did not trip or SD	2:25 am	2025/03/11	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	00:00:10	DD:HH:MM	n/a	DD:HH:MM	n/a	DD:HH:MM	n/a	DD:HH:MM
Fires in time			3:10 am	2025/03/11						
Synch. to Grid (or BC)			12:50 pm	2025/03/11						
Fires in to BC (duration)		DD:HH:MM	00:09:40	DD:HH:MM		DD:HH:MM		DD:HH:MM		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		DD:HH:MM		DD:HH:MM		DD:HH:MM

10.Complaints

No complaints reported for the month of March 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 March 2025.						