



**Ms Mpho Nembilwi**  
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Date

Dec 2022

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


Dear Ms Nembilwi

**KUSILE POWER STATION'S MONTHLY EMISSIONS REPORT FOR OCTOBER 2022**

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 2022.

Hoping the above will meet your satisfaction.

Yours sincerely

  
Bongumusa A. Mashazi  
**GENERAL MANAGER**  
DATE: 29 December 2022

**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	Maximum Permitted Consumption Rate	Consumption Rate Oct-2022
	Coal	Tons	1 818 083	313 947
	Fuel Oil	Tons	5 533	1849.084915
	Limestone	Tons	72 917	13594

Production Rates	Product / By-Product Name	Units	Max. Production Capacity Permitted	Production Rate Oct-2022
	Energy	GWh	3321.216	647.42
	Ash	Tons	663 583	90 950.5
	Gypsum	Tons	129 250	7 612.6
	RE PM	kg/MWh	not specified	0.118
	RE SOx	kg/MWh	not specified	2.427

**3 Energy source characteristics**

Fuel Characteristic	Units	Stipulated Range	Monthly Average Content
Coal CV	MJ/kg	<i>not specified</i>	21 330
Coal Sulphur	%	1.3	0.820
Ash in Coal	%	38	28.970

**4 Emissions Limits (mg/Nm<sup>3</sup>)**

Associated Unit/Stack	PM	SO <sub>2</sub>	NO <sub>x</sub>
North	50	500	750
South	50	500	750

**5 Abatement Technology (%)**

Associated Unit/Stack	Technology Type	Efficiency Oct-2022	Technology Type	Efficiency Oct-2022
Unit 1	FFP	100.000%	FGD	99.685%
Unit 2	FFP	100.000%	FGD	99.804%
Unit 3	FFP	99.998%	FGD	99.483%
Unit 4	FFP	99.997%	FGD	99.528%

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

**6. Monitoring reliability (%)**

Associated Unit/Stack	PM	SO <sub>2</sub>	NO	O <sub>2</sub>
Unit 1	100.0	99.8	96.1	96.6
Unit 2	94.6	95.2	94.7	94.9
Unit 3	37.7	69.8	71.1	71.5
Unit 4	100.0	100.0	100.0	100.0

Note: Due to flue gas duct structural failure which occurred on 23 Oct 2023, CEMS were not available. The monthly average For Unit 3 for the period 23 Oct until 31 Oct 2023 was used

## 7. Emissions Performance

Table 7.1 Monthly tonnages for the month of Oct-2022

Associated Unit/Stack	PM	SO <sub>2</sub>	NO <sub>x</sub>
Unit 1	3.6	402	334
Unit 2	8.0	345	273
Unit 3	60.0	782	387
Unit 4	5.2	43	60
<b>SUM</b>	<b>76.7</b>	<b>1 571</b>	<b>1 054</b>

Table 7.2 Operating days in compliance to PM AEL Limit - October 2022

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm <sup>3</sup> )
Unit 1	16	0	0	0	0	4.4
Unit 2	14	0	0	0	0	9.0
Unit 3	30	0	0	0	0	44.8
Unit 4	4	0	0	0	0	36.2
<b>SUM</b>	<b>64</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	

Table 7.3 Operating days in compliance to SO<sub>2</sub> AEL Limit - October 2022

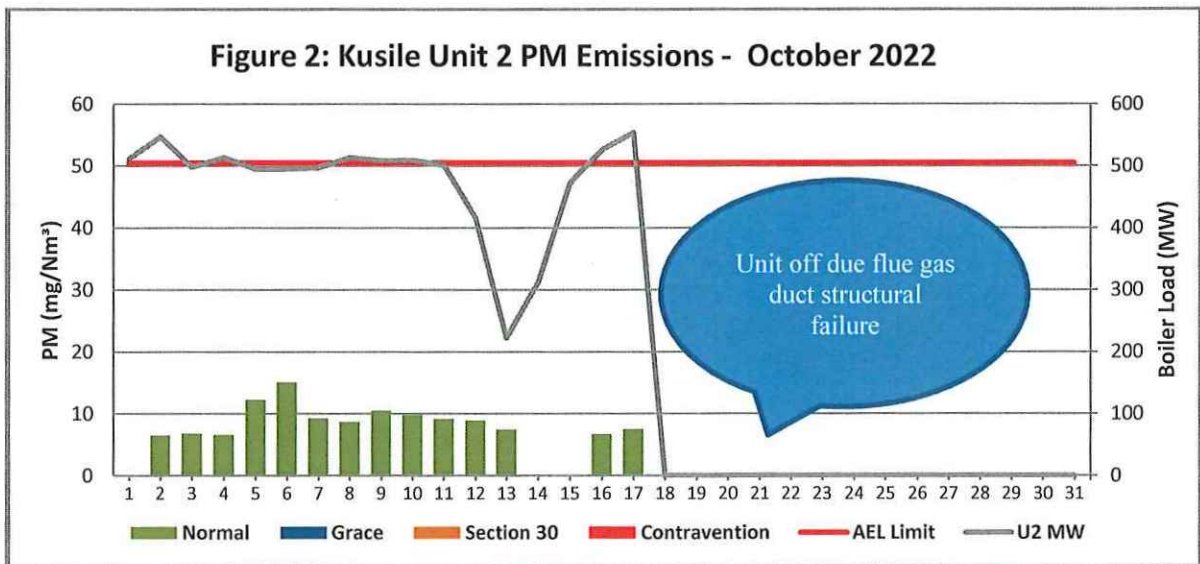
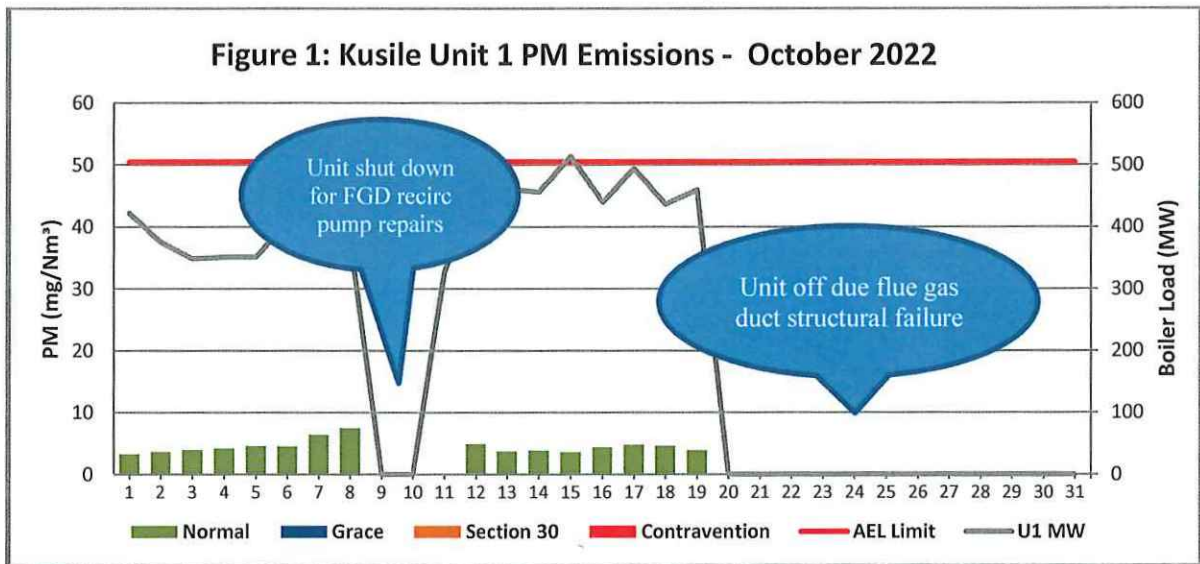
Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SO <sub>2</sub> (mg/Nm <sup>3</sup> )
Unit 1	12	5	0	0	5	401.6
Unit 2	17	0	0	0	0	331.5
Unit 3	13	18	0	0	18	523.6
Unit 4	5	0	0	0	0	195.5
<b>SUM</b>	<b>47</b>	<b>23</b>	<b>0</b>	<b>0</b>	<b>23</b>	

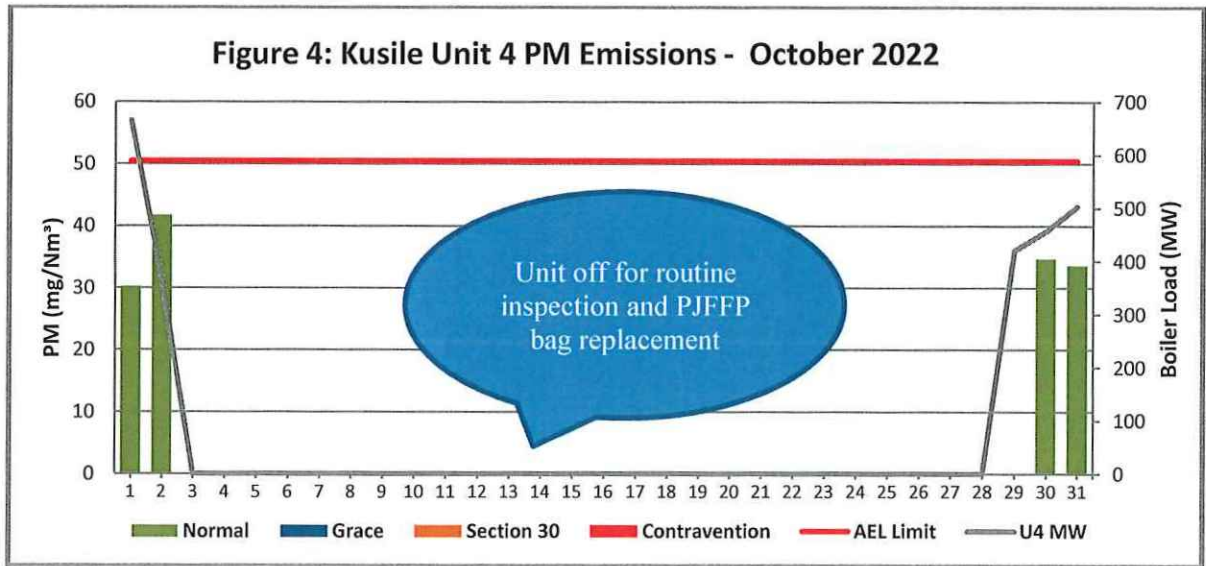
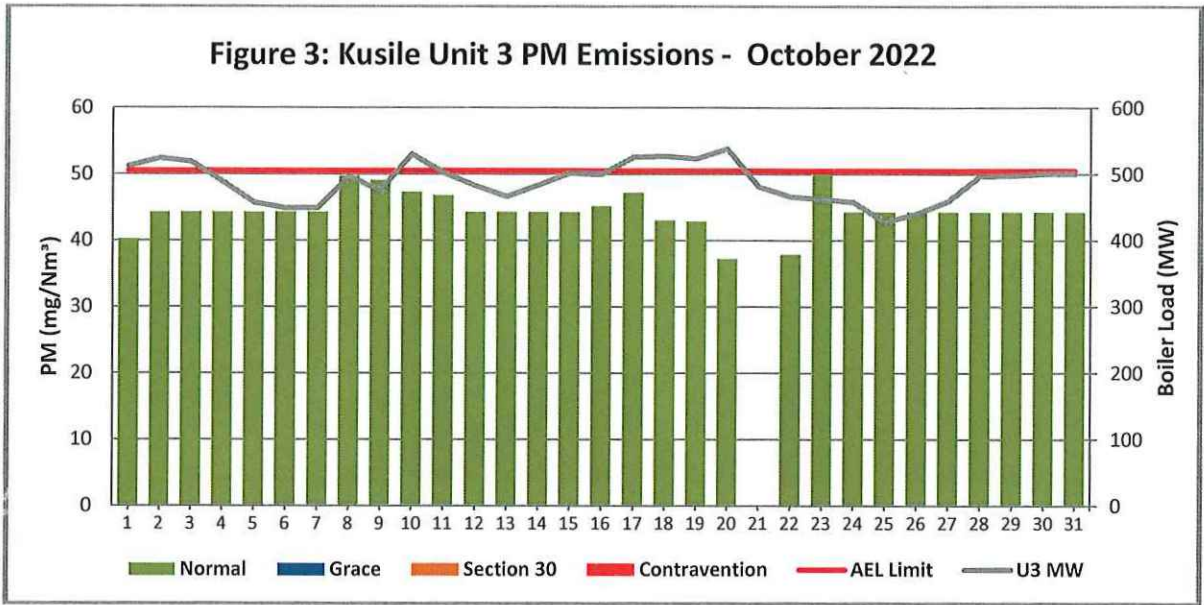
Table 7.4 Operating days in compliance to NO<sub>x</sub> AEL Limit - October 2022

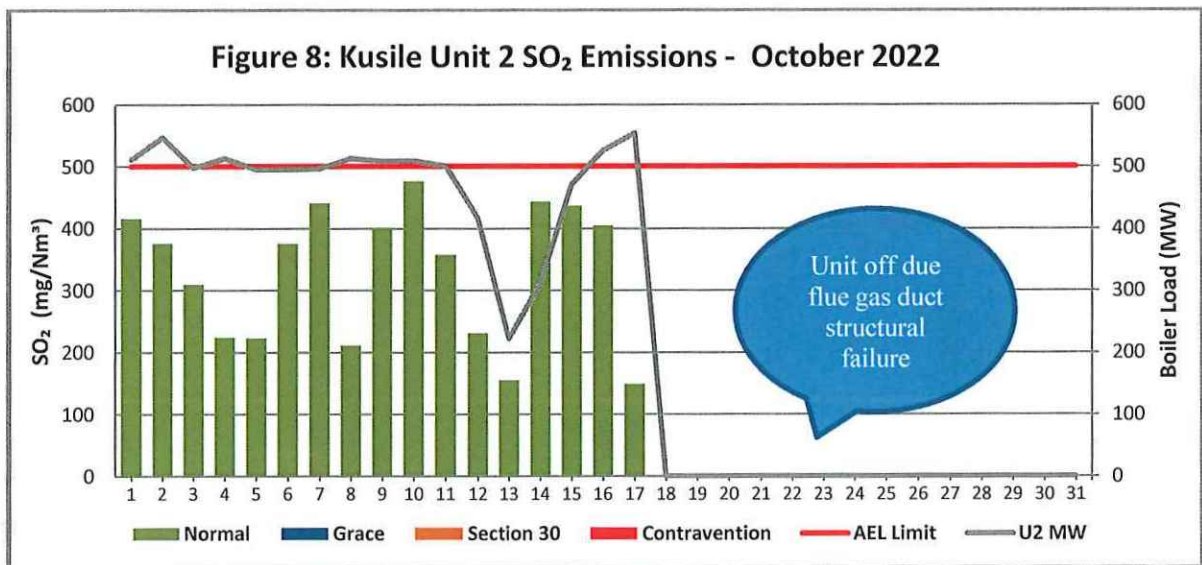
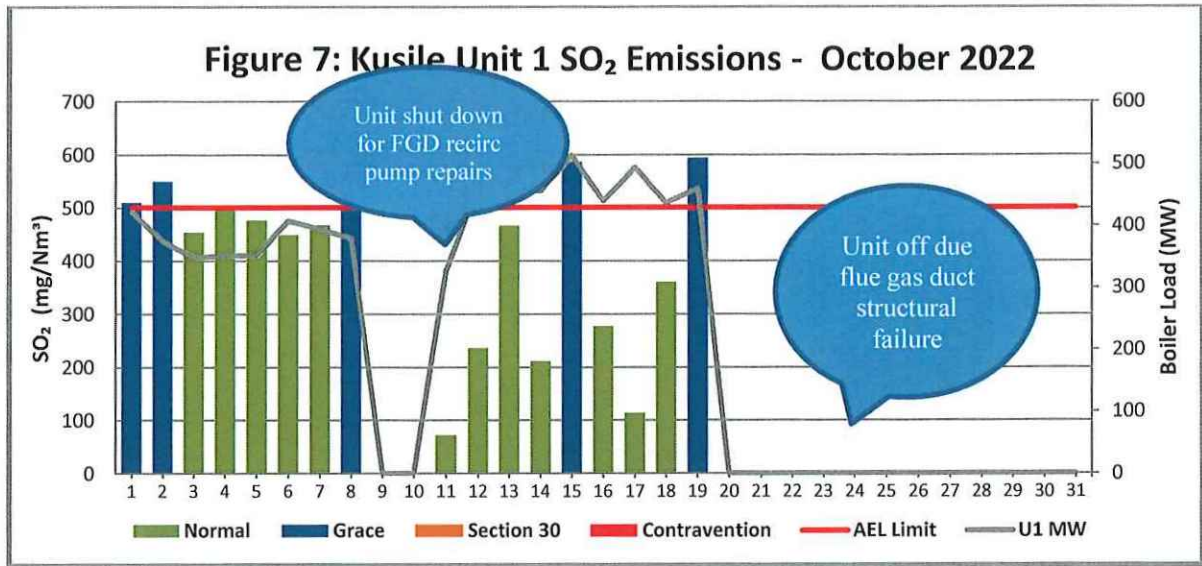
Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NO <sub>x</sub> (mg/Nm <sup>3</sup> )
Unit 1	17	0	0	0	0	356.8
Unit 2	17	0	0	0	0	267.0
Unit 3	31	0	0	0	0	260.2
Unit 4	5	0	0	0	0	275.5
<b>SUM</b>	<b>70</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	

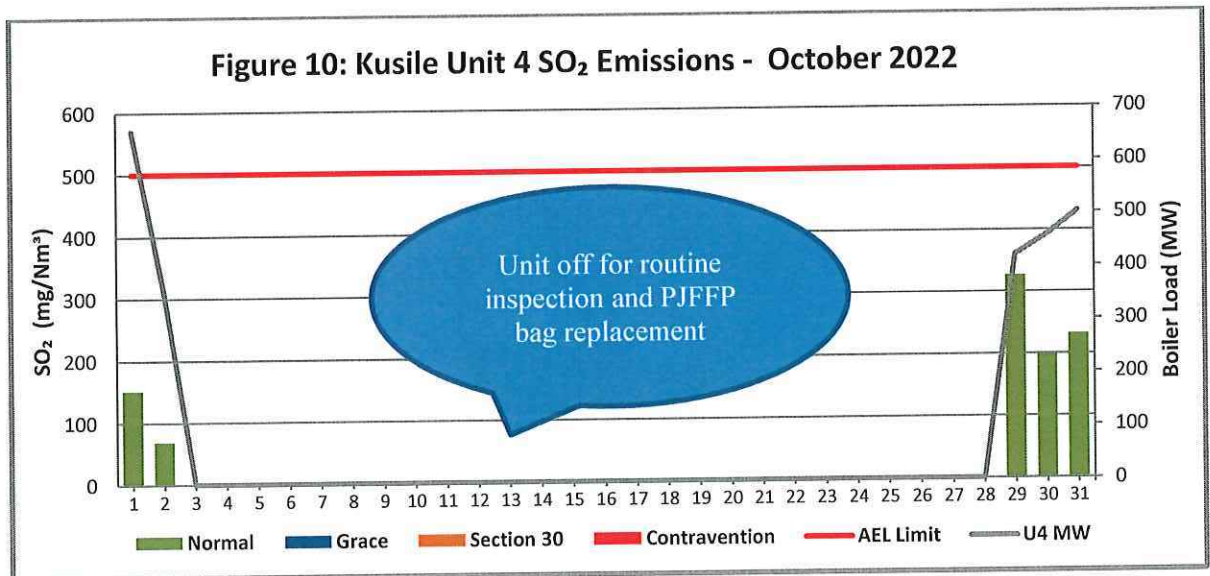
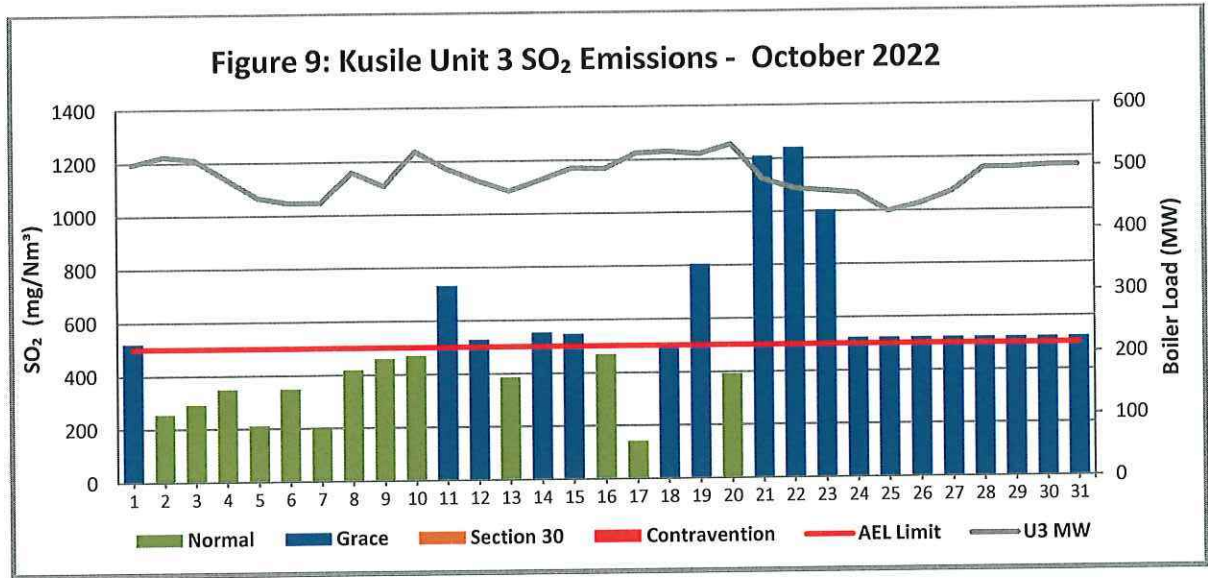
Table 7.5: Legend Description

Condition	Colour	Description
Normal	Green	Emissions below Emission Limit Value (ELV)
Grace	Blue	Emissions above the ELV during grace period
Section 30	Orange	Emissions above ELV during a NEMA S30 incident
Contravention	Red	Emissions above ELV but outside grace or S30 incident conditions



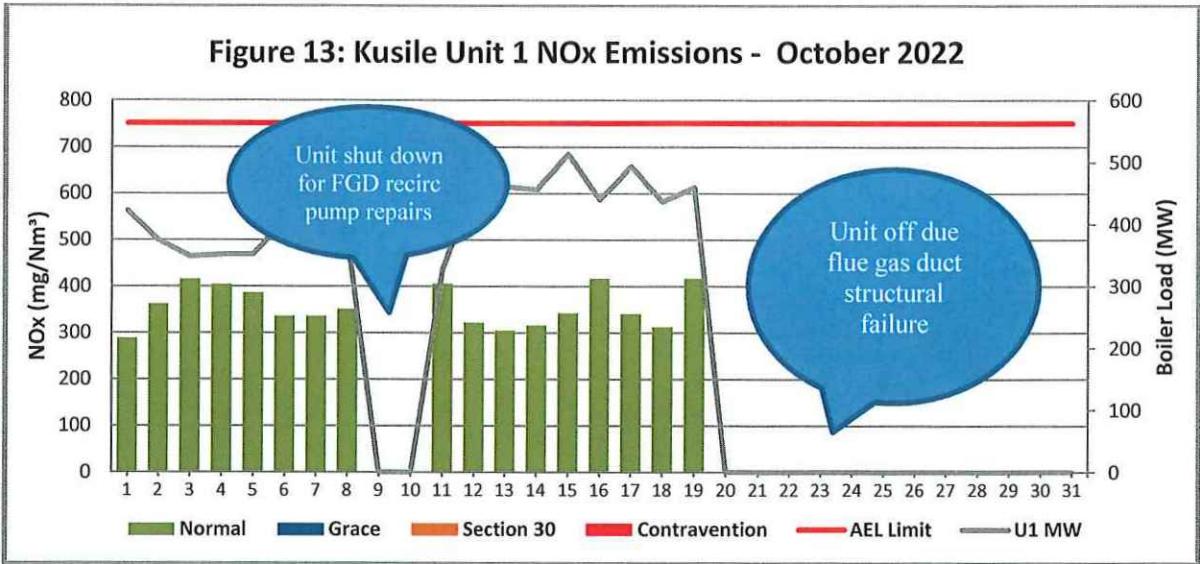




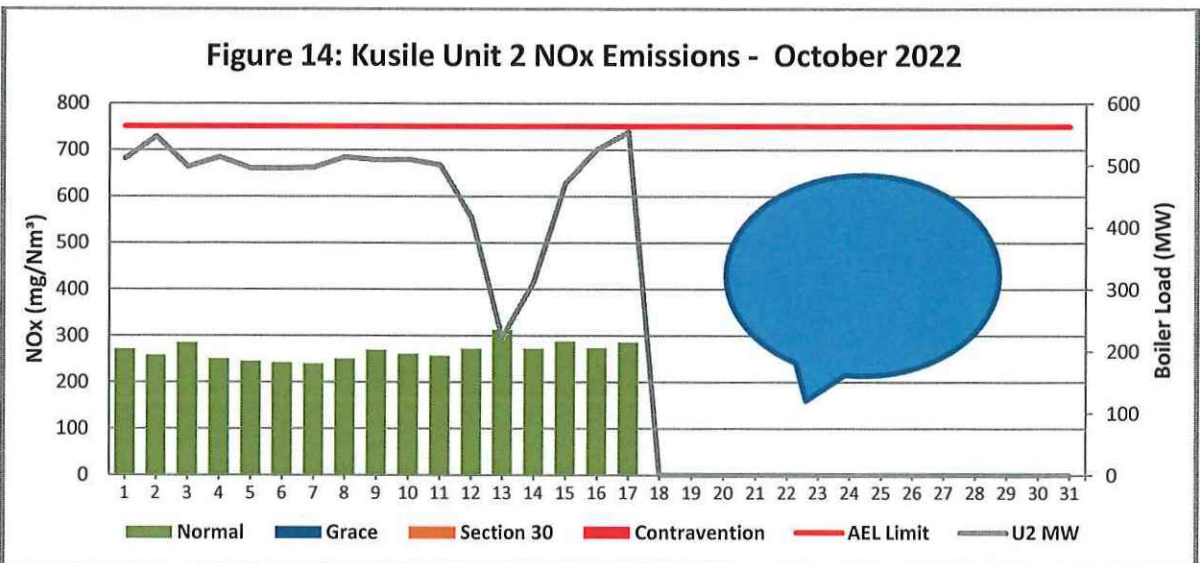


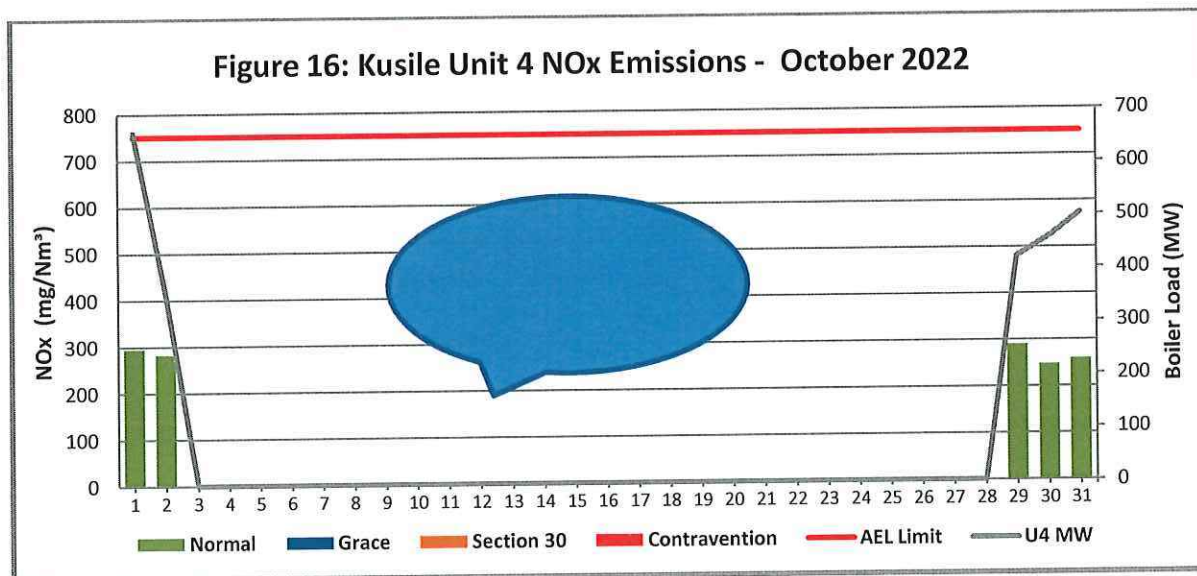
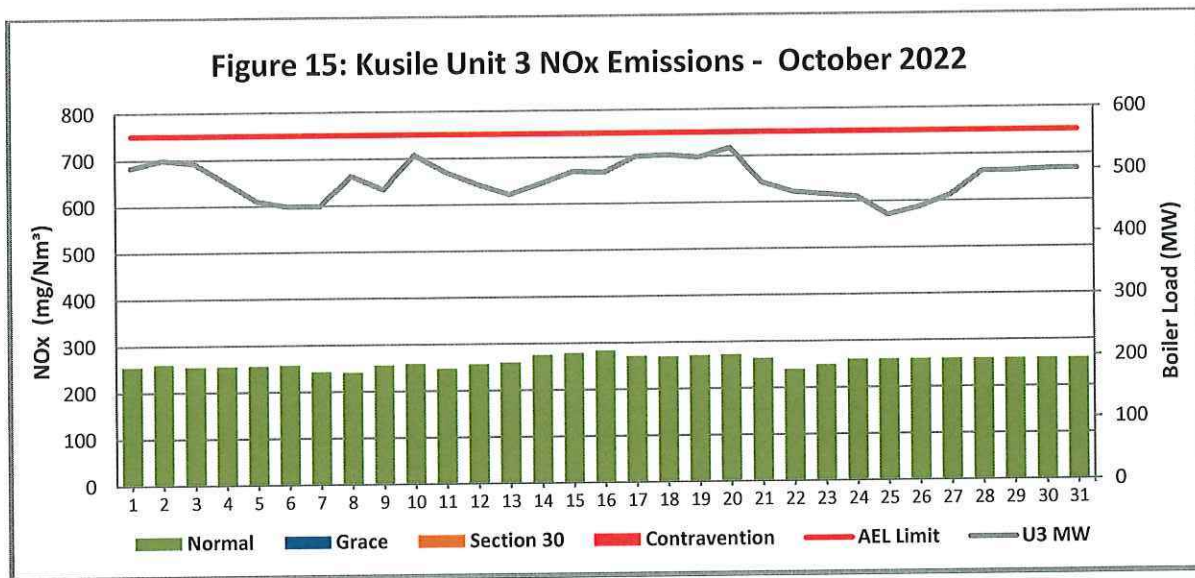


**Figure 13: Kusile Unit 1 NOx Emissions - October 2022**



**Figure 14: Kusile Unit 2 NOx Emissions - October 2022**





**8. Shut down and Light up information**

Unit No 1	Event 1		Event 2		Event 3	
Breaker Open (BO)	3 30 pm	2022/10/08	2 25 am	2022/10/16	4 15 pm	2022/10/19
Draught Group (DG) Shut Down (SD)	5 10 pm	2022/10/08	2 25 am	2022/10/16	4 15 pm	2022/10/19
BO to DG SD (duration)	00 01 40	DD HH MM	00 00 00	DD HH MM	19 16 15	DD HH MM
Fires in time	6 20 pm	2022/10/09	5 10 am	2022/10/16		
Synch. to Grid (or BC)	6 30 pm	2022/10/11	12 25 pm	2022/10/16		
Fires in to BC (duration)	02 00 10	DD HH MM	00 07 15	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

Unit No. 2	Event 1		Event 2		Event 3	
Breaker Open (BO)	BO previously	BO previously	10 45 am	2022/10/13	9 55 pm	2022/10/17
Draught Group (DG) Shut Down (SD)	n/a	n/a	DG did not trip or SD	DG did not trip or SD	9 55 pm	2022/10/17
BO to DG SD (duration)	n/a	DD HH MM	n/a	DD HH MM	00 00 00	DD HH MM
Fires in time	4 00 am	2022/10/01				
Synch. to Grid (or BC)	9 55 am	2022/10/01				
Fires in to BC (duration)	00 05 55	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)	n/a	DD HH MM		DD HH MM		DD HH MM

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Unit No. 3	Event 1		Event 2		Event 3		Event 4	
Breaker Open (BO)	2 10 am	2022/10/15	1 50 pm	2022/10/20	4 30 pm	2022/10/23	11 55 pm	2022/11/03
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	1 45 am	2022/11/04
BO to DG SD (duration)	n/a	DD HH MM	n/a	DD HH MM	n/a	DD HH MM	00 01 50	DD HH MM
Fires in time	4 15 am	2022/10/15	8 20 pm	2022/10/20				
Synch. to Grid (or BC)	8 00 am	2022/10/15	12 15 am	2022/10/21				
Fires in to BC (duration)	00 03 45	DD HH MM	00 03 55	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. 4	Event 1	
Breaker Open (BO)	12 30 am	2022/10/02
Draught Group (DG) Shut Down (SD)	5 30 am	2022/10/03
BO to DG SD (duration)	01 05 00	DD HH MM
Fires in time	9 45 pm	2022/10/28
Synch. to Grid (or BC)	7 30 pm	2022/10/29
Fires in to BC (duration)	00 21 45	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

**9. Complaints**

No complaints reported for the month of October 2022

<b>Date and time complaint was received</b>	<b>Complaint received</b>	<b>Source code name</b>	<b>Root cause analysis</b>	<b>Calculation of impact/emissions associated with incidents and dispersion modelling of pollutants where applicable.</b>	<b>Measures implemented or to be implemented to prevent recurrence</b>	<b>Date by which measures will be implemented</b>
N/A						