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Dear Mr Hlanyane

TUTUKA POWER STATION'S MONTHLY REPORT FOR THE MONTH OF DECEMBER 2022

This serves as the monthly report required in terms of Section 7.4 of Tutuka Power Station's Atmospheric Emission License (16/4/Lekwa/Eskom H SOC Ltd TPS/0013/2019/f03). The report includes verified Particulate Matters, Sulphur, and Nitrogen dioxides emissions data for the month of December 2022.

The report presents monthly trends for each pollutant monitored from all the units, except units 2 and 6 which have been out of service for the month of December 2022. The Station incurred few legal contraventions for PM exceedances in units 1, 4 and 5.

Few NOx exceedances were recorded in unit 3, however these were attributed to a monitoring instrument error.

1 RAW MATERIALS AND PRODUCTS

Raw Materials and Products	Raw Material Type	Units	Max. Permitted	Actual Consumption Dec-2022
	Coal	Tons	1 200 000	286 429
	Fuel Oil	Tons	10 000	4705.39
Production Rates	Product / By-Product Name	Units	Max. Production Capacity Permitted	Production Rate Dec-2022
	Energy	GWh	2611.44	355.3
	Ash	Tons	350 000	76 190
	RE Ash	kg/MWh	not specified	1.65

2 ENERGY SOURCE CHARACTERISTICS

Coal Characteristics	Units	Stipulated Range	Monthly Average Content
CV Content	MJ/kg	16-24	20.960
Sulphur Content	%	0.6 TO >2.6	1.120
Ash Content	%	21 TO >33	26.600

3 EMISSION LIMITS (mg/Nm³)

Associated Unit/Stack	PM	SOx	NOx
Unit 1	300	3400	1200
Unit 2	300	3400	1200
Unit 3	300	3400	1200
Unit 4	300	3400	1200
Unit 5	300	3400	1200
Unit 6	300	3400	1200

4 ABATEMENT TECHNOLOGY (%)

Associated Unit/Stack	Technology Type	Efficiency Dec-2022
Unit 1	<i>Electro Static Precipitators (ESP)</i>	99.3%
Unit 2	<i>Electro Static Precipitators (ESP)</i>	
Unit 3	<i>Electro Static Precipitators (ESP)</i>	99.5%
Unit 4	<i>Electro Static Precipitators (ESP)</i>	99.0%
Unit 5	<i>Electro Static Precipitators (ESP)</i>	98.2%
Unit 6	<i>Electro Static Precipitators (ESP)</i>	

Note: The ESP does not have bypass mode operation, hence plant considered 100% Utilised.

5 MONITOR RELIABILITY (%)

Associated Unit/Stack	PM	SO ₂	NO	O ₂
Unit 1	100.0	83.9	84.1	83.7
Unit 2				
Unit 3	100.0	98.4	98.7	83.9
Unit 4	100.0	99.4	99.4	99.4
Unit 5	99.6	100.0	91.4	97.8
Unit 6				

6 EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of December-2022

Associated Unit/Stack	PM (tons)	SO ₂ (tons)	NO _x (tons)
Unit 1	167.4	1 107	497
Unit 2	0.0	0	0
Unit 3	96.9	1 343	813
Unit 4	108.5	672	288
Unit 5	214.5	1 128	513
Unit 6	0.0	0	0
SUM	587.4	4 250	2 111

Table 6.2: Operating days in compliance to PM AEL Limit - December 2022

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm ³)
Unit 1	13	0	0	1	1	252.3
Unit 2	0	0	0	0	0	
Unit 3	16	0	0	0	0	131.4
Unit 4	2	1	0	4	5	320.3
Unit 5	4	0	0	6	6	315.2
Unit 6	0	0	0	0	0	
SUM	35	1	0	11	12	

Table 6.3: Operating days in compliance to SO₂ AEL Limit - December 2022

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SO ₂ (mg/Nm ³)
Unit 1	14	0	0	0	0	1 765.2
Unit 2	0	0	0	0	0	
Unit 3	16	0	0	0	0	1 778.4
Unit 4	7	0	0	0	0	2 060.1
Unit 5	11	0	0	0	0	1 771.1
Unit 6	0	0	0	0	0	
SUM	48	0	0	0	0	

Table 6.4: Operating days in compliance to NO_x AEL Limit - December 2022

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NO _x (mg/Nm ³)
Unit 1	14	0	0	0	0	782.0
Unit 2	0	0	0	0	0	
Unit 3	13	0	0	3	3	1 098.3
Unit 4	7	0	0	0	0	891.4
Unit 5	11	0	0	0	0	776.9
Unit 6	0	0	0	0	0	
SUM	45	0	0	3	3	

Table 6.5: 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

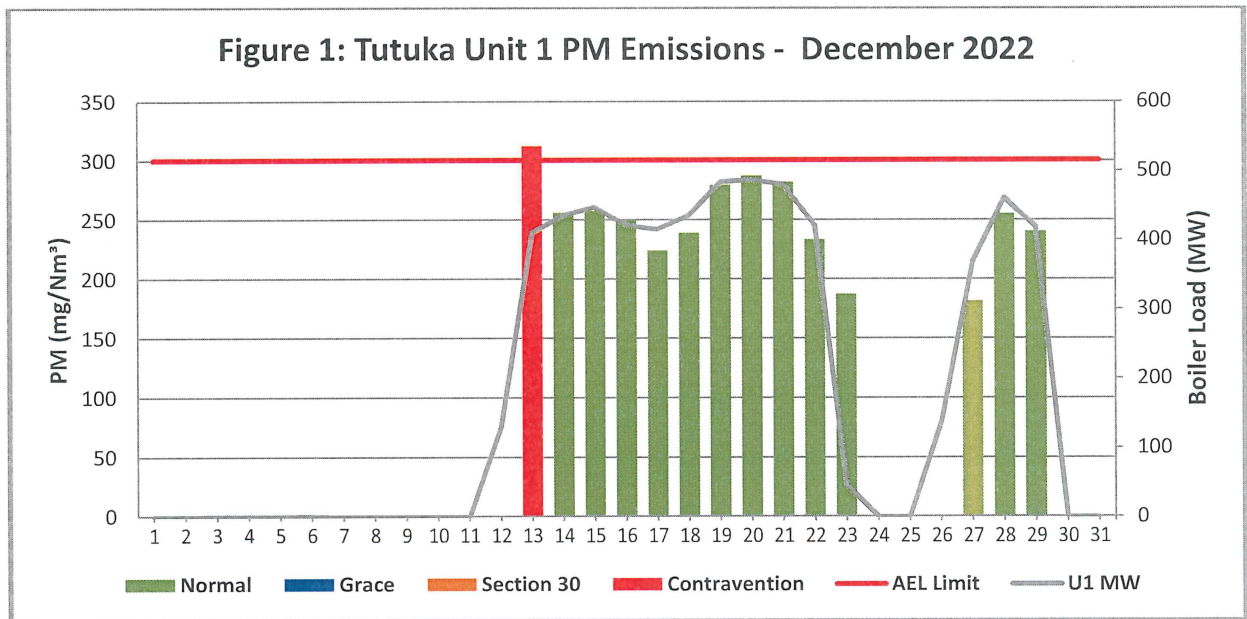


Figure 2: Tutuka Unit 2 PM Emissions - December 2022

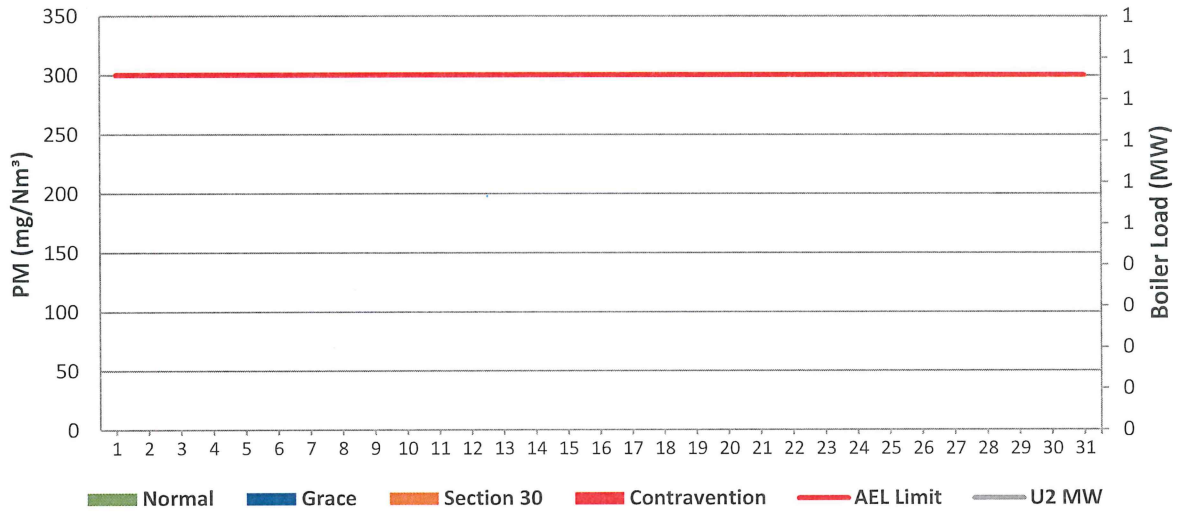


Figure 3: Tutuka Unit 3 PM Emissions - December 2022

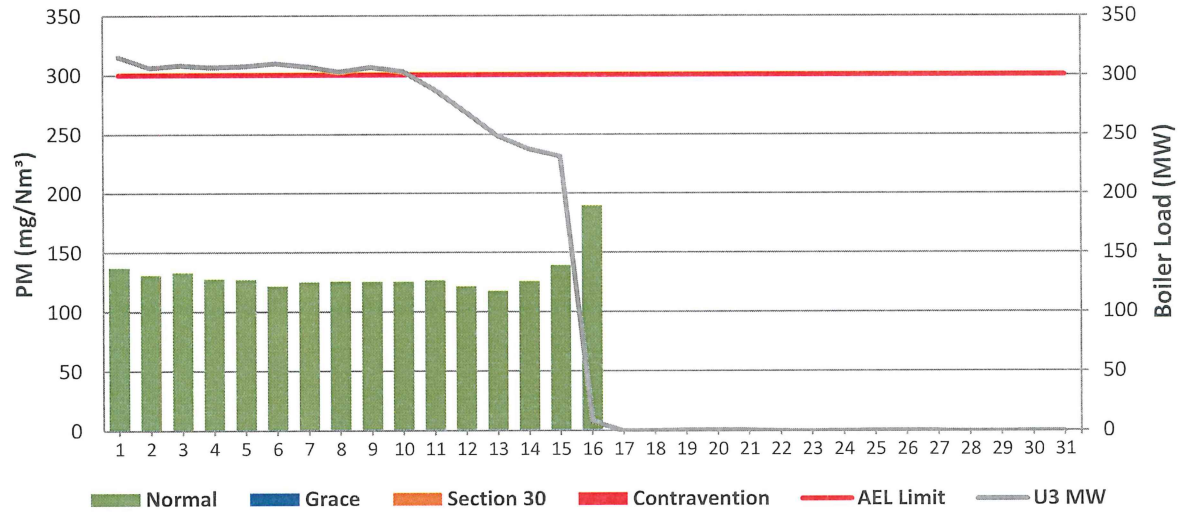


Figure 4: Tutuka Unit 4 PM Emissions - December 2022

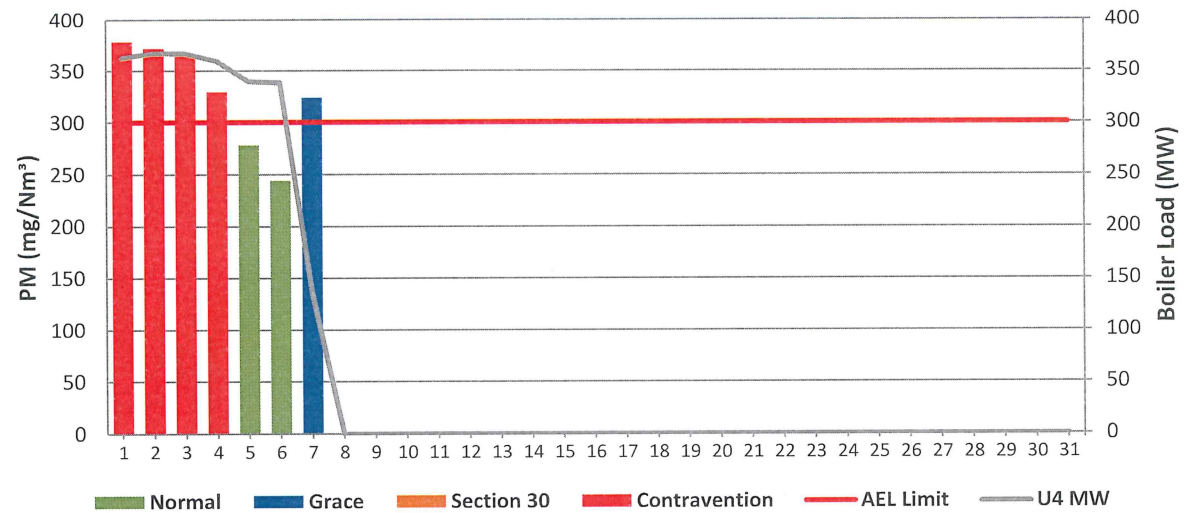


Figure 5: Tutuka Unit 5 PM Emissions - December 2022

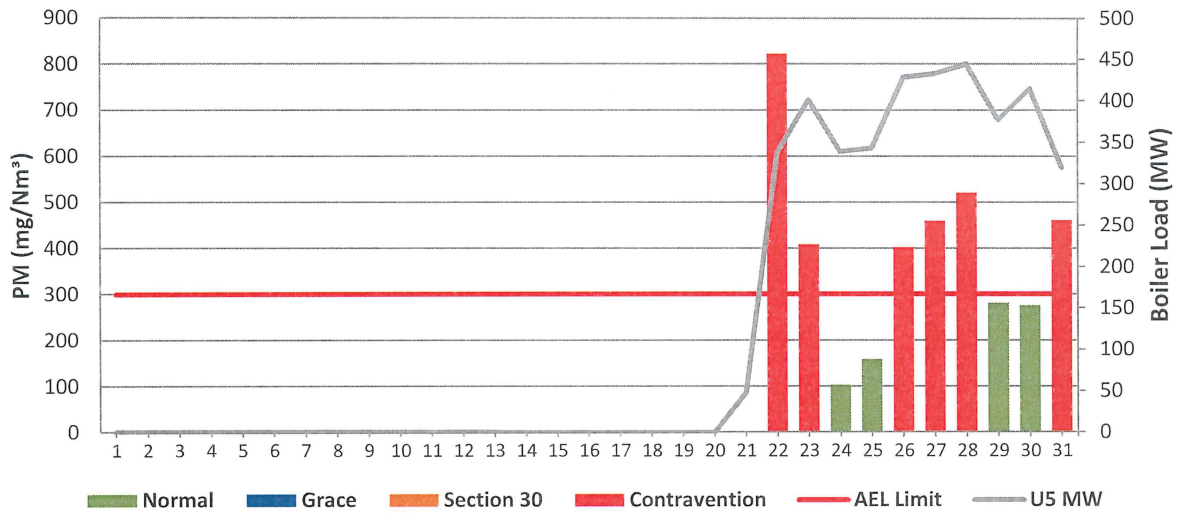


Figure 6: Tutuka Unit 6 PM Emissions - December 2022

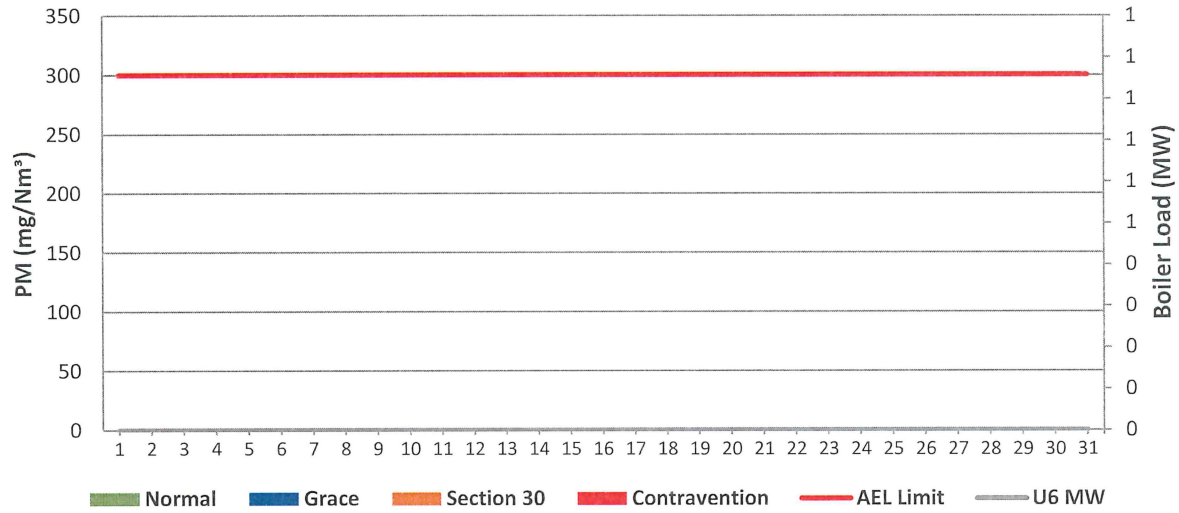


Figure 7: Tutuka Unit 1 SO₂ Emissions - December 2022

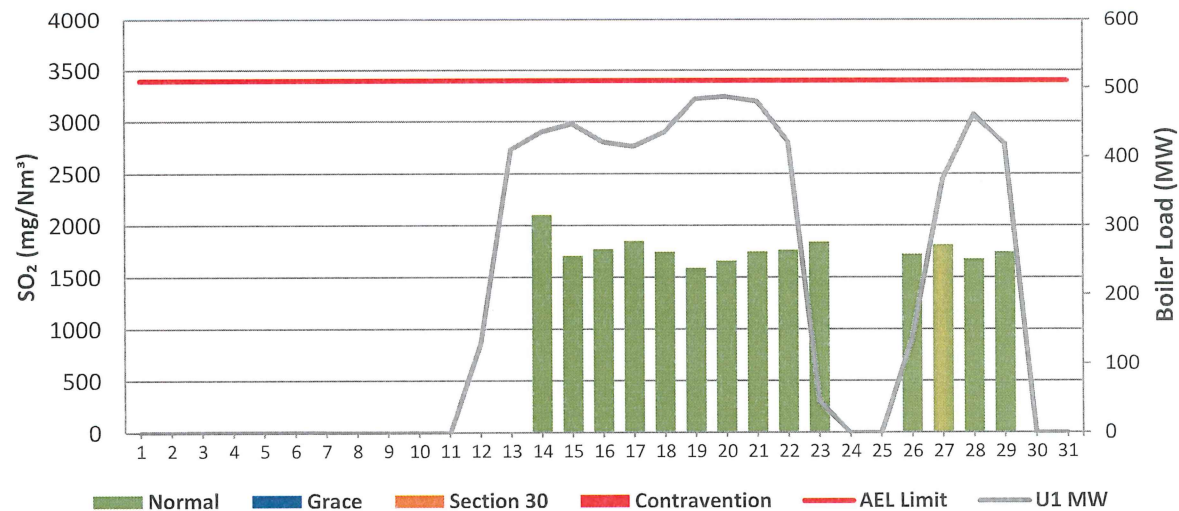


Figure 8: Tutuka Unit 2 SO₂ Emissions - December 2022

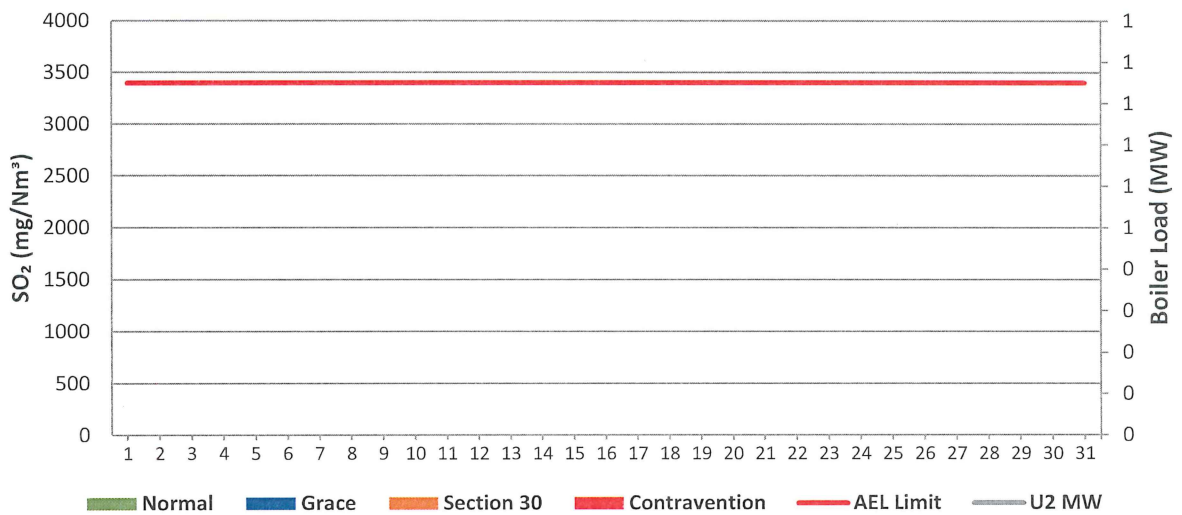


Figure 9: Tutuka Unit 3 SO₂ Emissions - December 2022

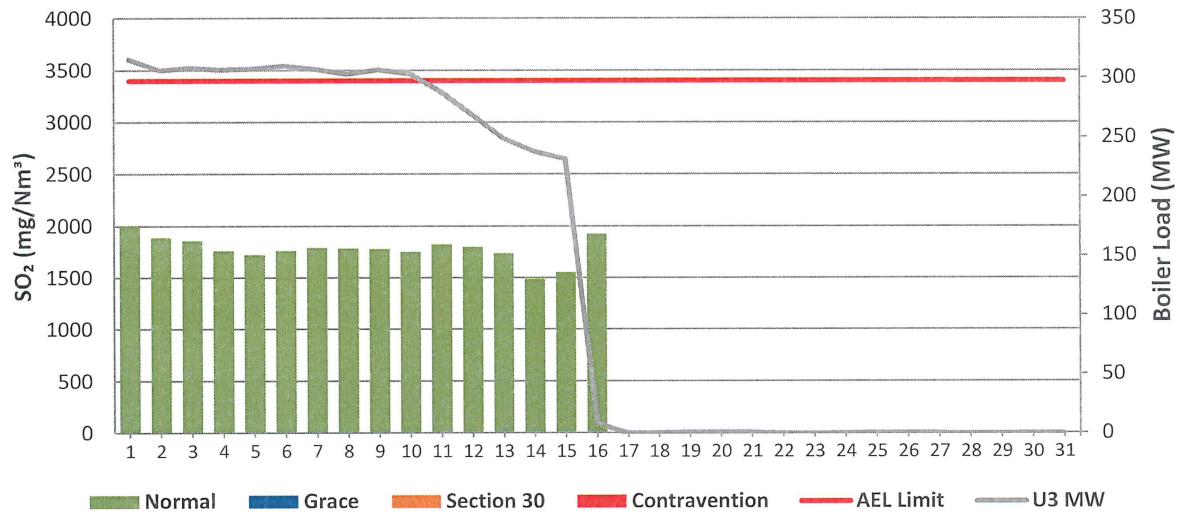
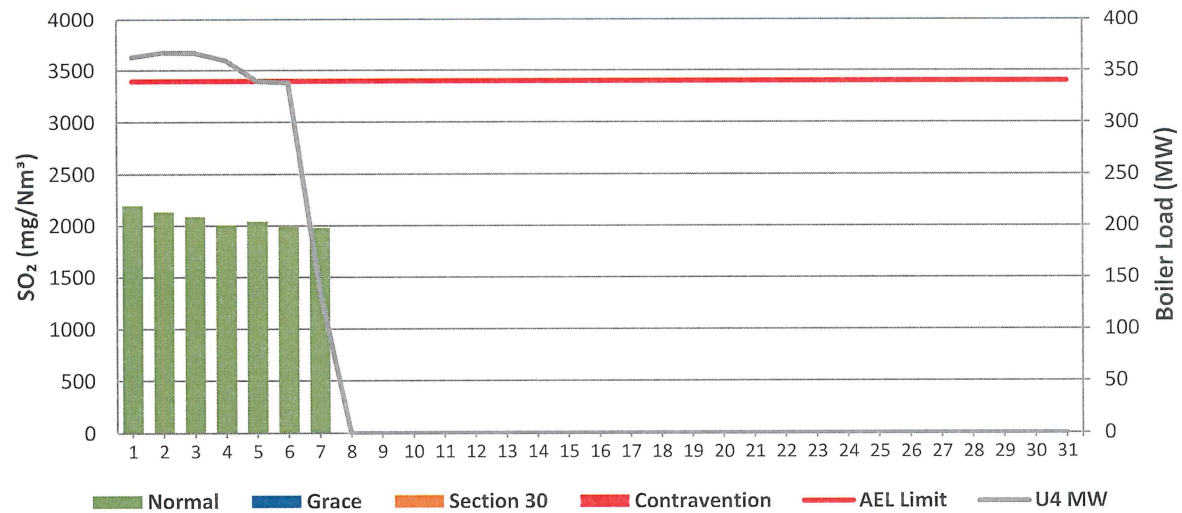


Figure 10: Tutuka Unit 4 SO₂ Emissions - December 2022



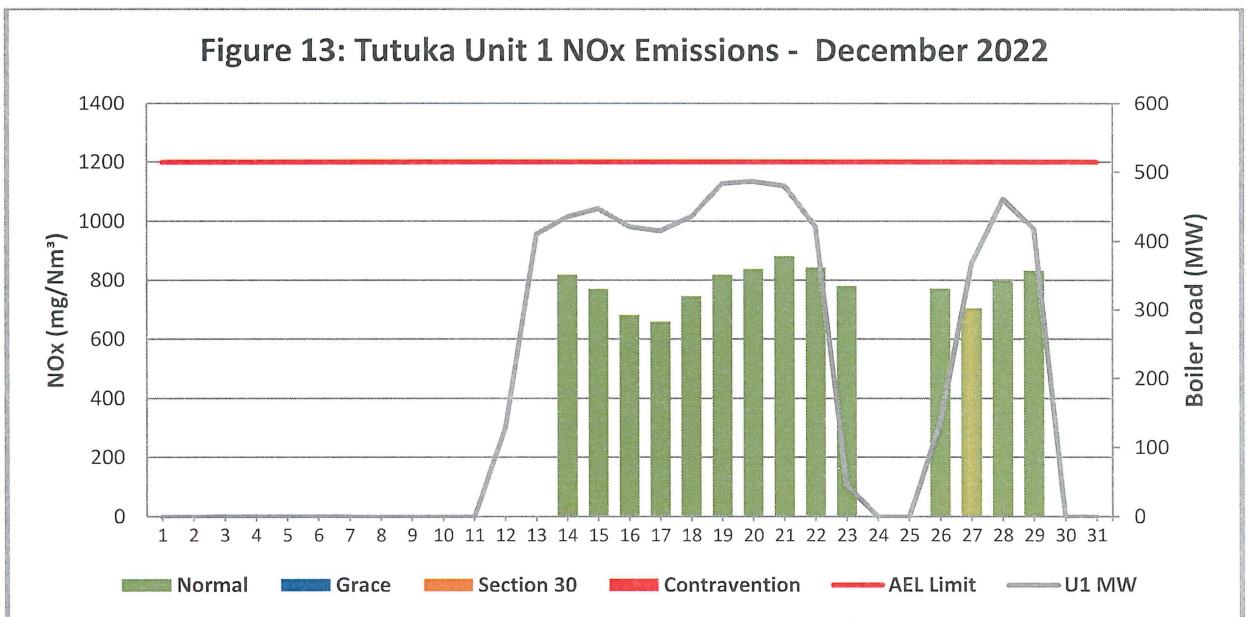
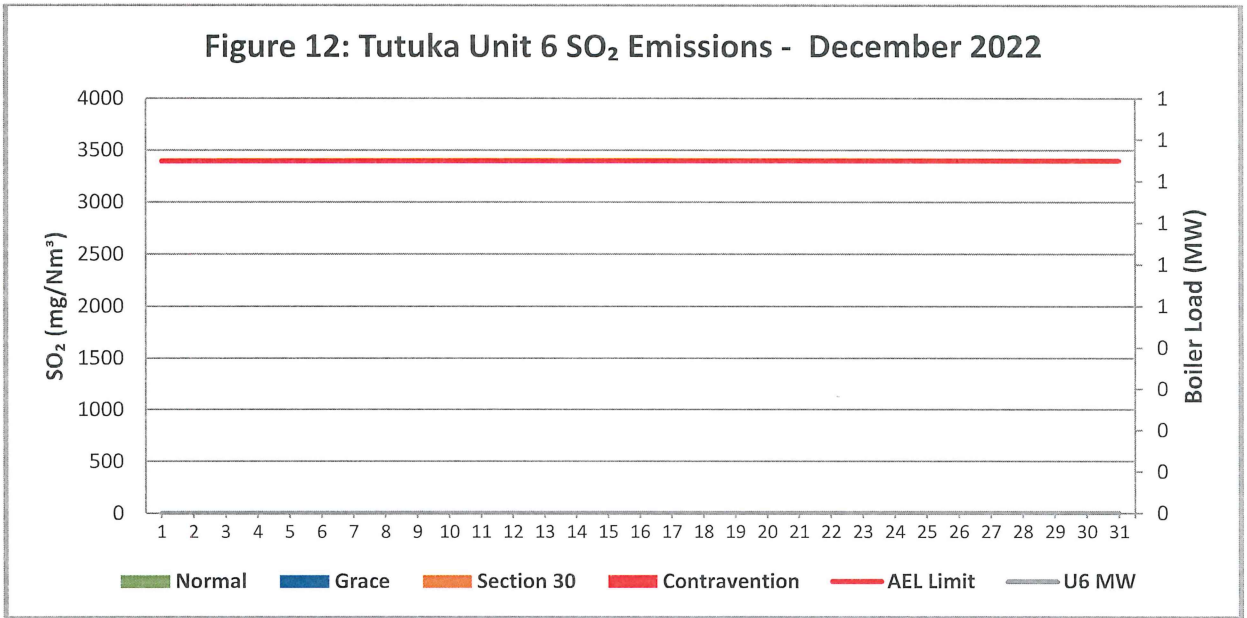
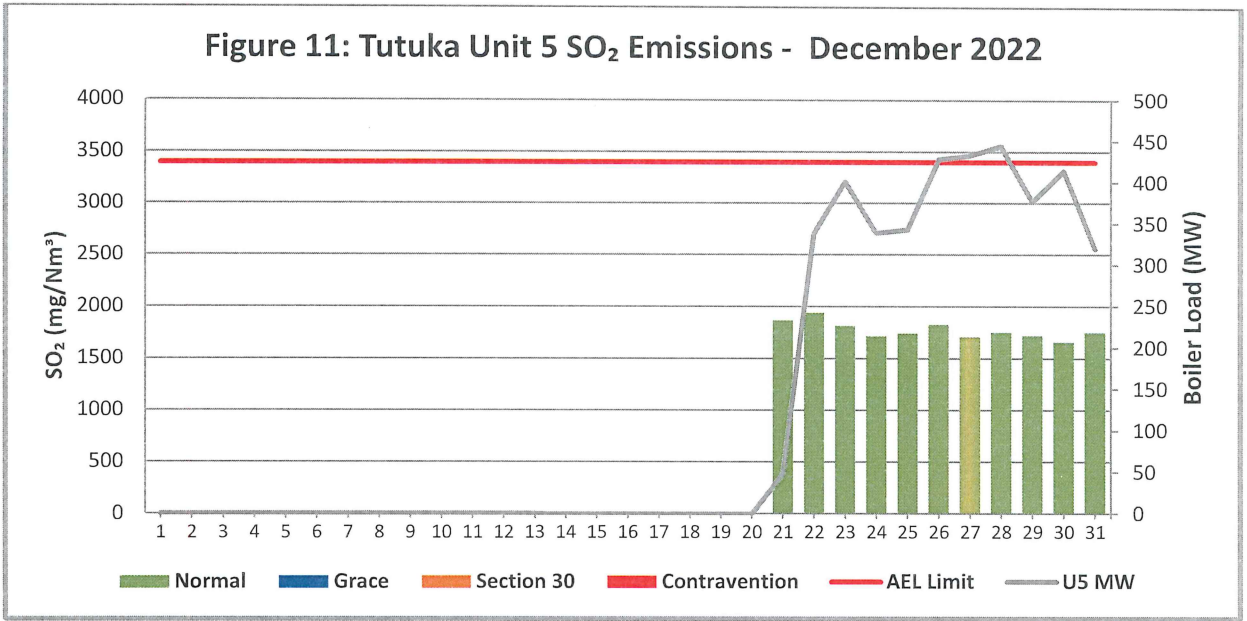


Figure 14: Tutuka Unit 2 NOx Emissions - December 2022

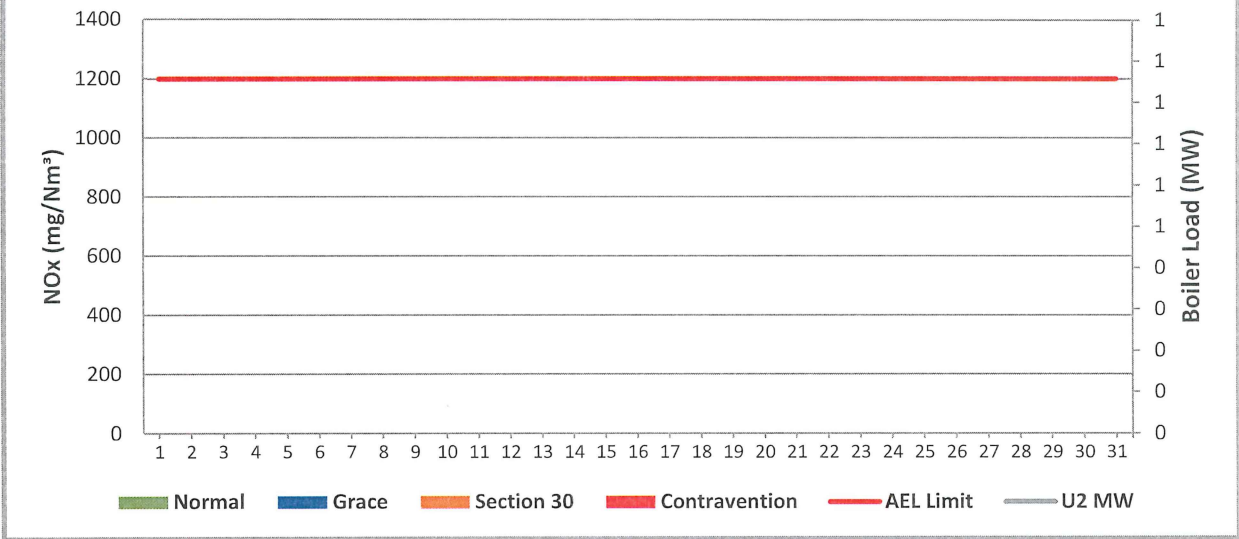
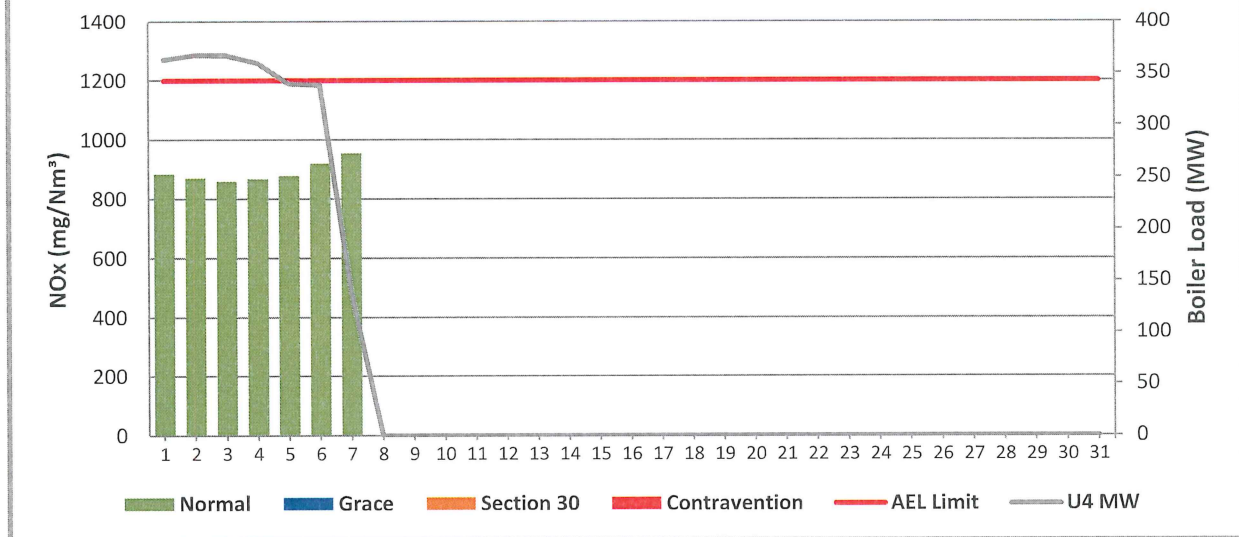
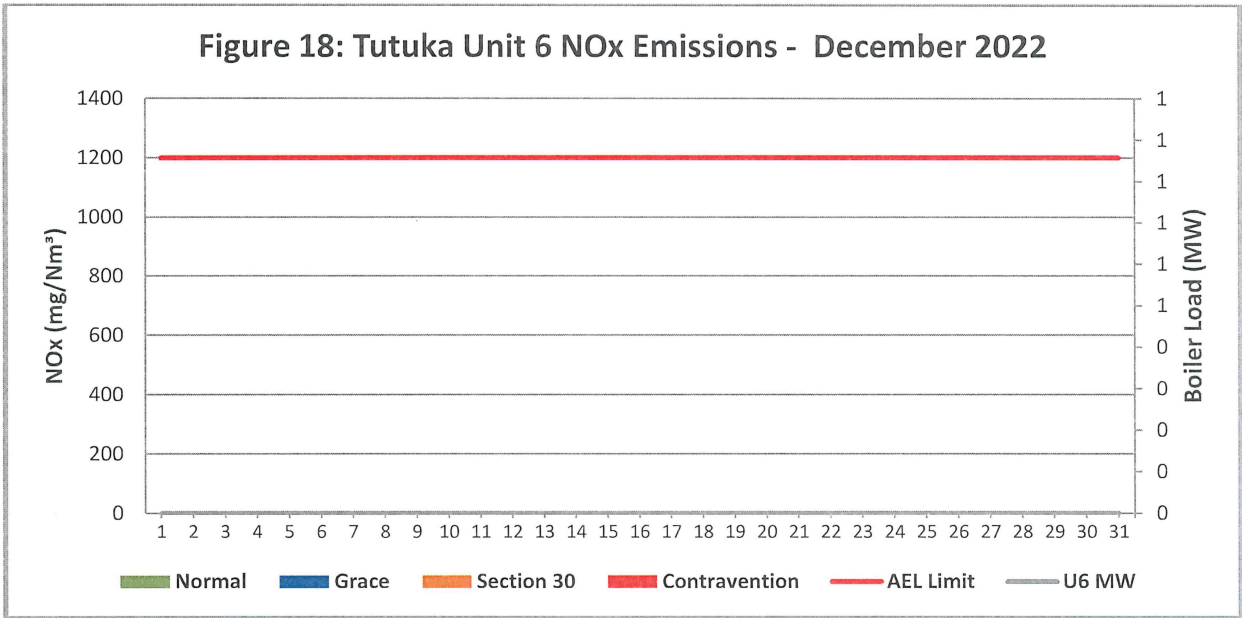
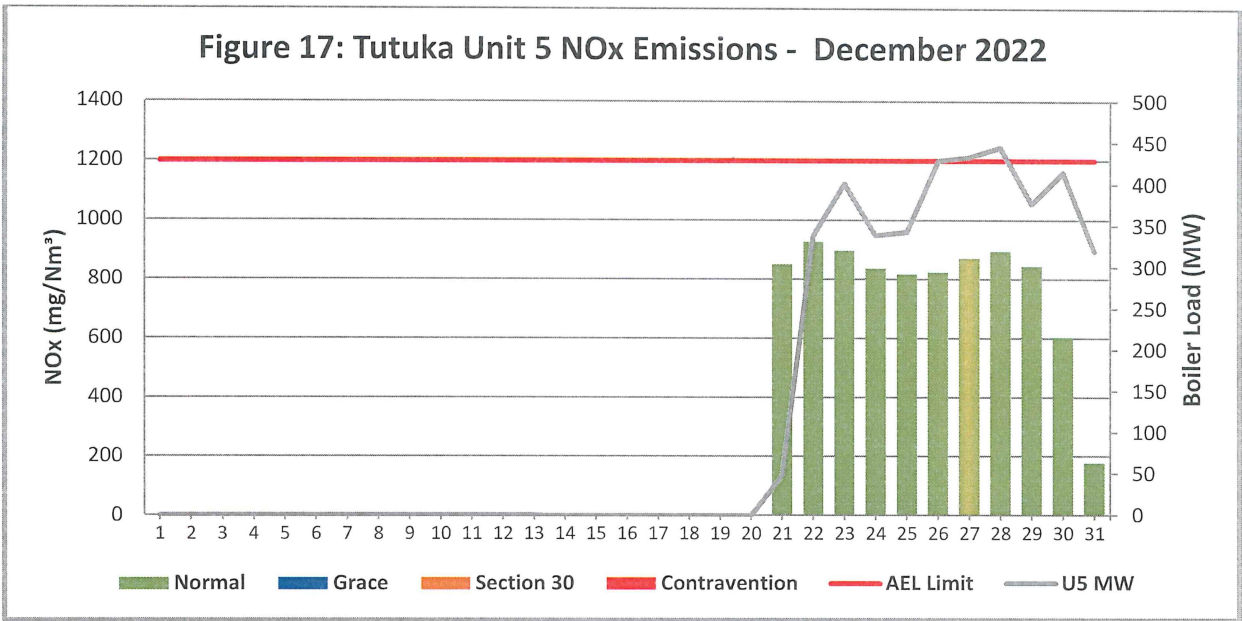


Figure 15: Tutuka Unit 3 NOx Emissions - December 2022



Figure 16: Tutuka Unit 4 NOx Emissions - December 2022





8. COMPLAINTS REGISTER

Source Code/Name	Root Cause Analysis	Calculation of Impacts/emissions associated with the incident	Dispersion modelling of pollutants where applicable	Measures implemented to prevent recurrence	Date by which measure will be implemented
No complaints were received for the month of December 2022					

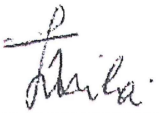
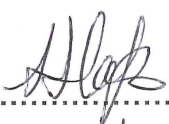

9. LIGHT UP INFORMATION

PM Start-up information for the month of November 2022

	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Number of Hot Starts (Off-Load<30Hrs)	1	0	0	0	0	0
Number of Cold Starts (Off-Load>30hrs)	1	0	0	1	1	0

For more information or enquiries contact the Tutuka environmental team.

Yours Sincerely

<p>Compiled by: Xoli Jila</p> <p>SENIOR ADVISOR ENVIRONMENTAL</p> <p>Signature: </p> <p>Date :11 January 2023</p>	<p>Supported By: Mike Molepo</p> <p>SENIOR CHEMIST: BOILER ENGINEERING</p> <p>Signature: </p> <p>Date : 13/01/2023</p>
<p>Approved by: Sello Mametja</p> <p>GENERAL MANAGER: TUTUKA POWER STATION</p> <p>Signature: </p> <p>Date: 2023/01/13</p>	