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Date:
07 October 2024

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Dear Mr. Hlanyane

TUTUKA POWER STATION'S MONTHLY STACK EMISSIONS REPORT FOR THE MONTH OF SEPTEMBER 2024.

This serves as the monthly report required in terms of Section 7.4 in Tutuka Power Station's Atmospheric Emission License (16/4/Lekwa/Eskom H SOC Ltd TPS/0013/2019/F03 dated 25 April 2019). The emissions are for the month of September 2024. Verified emissions of particulates matter, SO_x, and NO_x are also included. The station had five (5) units on load for the month of September. All the Particulate Matter (PM) exceedances were within the grace period. The station did not incur Section 30 or non-compliance during the month of September.

1. RAW MATERIALS

Raw Materials and Products	Raw Material type	Units	Max. Permitted	Actual Consumption
	Coal	Tons	1 200 000	415772
	Fuel Oil	Tons	10 000	488.78
Production Rates	Product/By-Product Name	Units	Mx. Production Capacity Permitted	Indicative production rate
	Energy	GWh	2 5727.200	785.0
	Ash	Tons	350 000	104899
	Re Ash	Kg/MWh	Not specified	0.98

Note: Maximum energy rate is as per the maximum capacity stated in the AEL: [30748MW]/12x 24hrsx 31days in month/1000 to convert to GWh.

2. ENERGY SOURCES CHARACTERISTICS-Waiting for step report.

Coal Characteristics	Units	Stipulated Range	Monthly Average Content
CV Content	MJ/kg	16-24	21.590
Sulphur Content	%	0.6 TO >2.6	1.070
Ash Content	%	21 TO >33	25.230

3. EMISSIONS LIMITS (mg/Nm³)

Associated Unit/Stack	PM	SO ₂	NO _x
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 September-2024
Unit 1	Electro Static Precipitators (ESP)	99.2%
Unit 2	Electro Static Precipitators (ESP)	99.4%
Unit 3	Electro Static Precipitators (ESP)	99.3%
Unit 4	Electro Static Precipitators (ESP)	99.0%
Unit 5	Electro Static Precipitators (ESP)	98.9%
Unit 6	Electro Static Precipitators (ESP)	Unit Off

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

5. MONITOR RELIABILITY

Associated Unit/Stack	PM	SO ₂	NO	Reason for poor Performance of gas analyser
Unit 1	100.0	49.7	99.6	The station calibration short term contract services were for 3 units. New Contract is now in place, calibrations will be done weekly, analyser maintenance monthly and spares will be supplied as and when required.
Unit 2	99.2	23.6	23.6	
Unit 3	99.8	99.2	99.0	
Unit 4	94.0	75.3	69.9	
Unit 5	98.6	99.1	87.7	
Unit 6	Off	Off	Off	The station is also busy with an urgent order to replace all gas analysers

6. EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of September-2024

Associated Unit/Stack	PM (tons)	SO ₂ (tons)	NO _x (tons)
Unit 1	170.2	1 667	727
Unit 2	79.5	439	141
Unit 3	190.7	1 130	806
Unit 4	198.5	1 772	655
Unit 5	132.9	1 303	792
Unit 6	Off	Off	Off
SUM	771.8	6 312	3 120

Table 6.2: Operating days in compliance to PM AEL limit – September 2024

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm ³)
Unit 1	22	0	0	0	0	174.1
Unit 2	15	0	0	0	0	229.9
Unit 3	21	3	0	0	3	261.9
Unit 4	17	1	0	0	1	207.1
Unit 5	13	2	0	0	2	183.4
Unit 6	Off	Off	Off	Off	Off	Off
SUM	88	6	0	0	6	

Table 6.3: Operating days in compliance to SO₂ AEL Limit – September 2024

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SO ₂ (mg/Nm ³)
Unit 1	23	0	0	0	0	1 723.2
Unit 2	15	0	0	0	0	1 283.6
Unit 3	26	0	0	0	0	1 546.5
Unit 4	19	0	0	0	0	1 893.1
Unit 5	18	0	0	0	0	1 684.0
Unit 6	Off	Off	Off	Off	Off	Off
SUM	101	0	0	0	0	

Table 6.4: Operating days in compliance to NOx AEL Limit – September 2024

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm³)
Unit 1	23	0	0	0	0	758.0
Unit 2	15	0	0	0	0	409.1
Unit 3	26	0	0	0	0	1 109.4
Unit 4	19	0	0	0	0	683.7
Unit 5	18	0	0	0	0	1 021.9
Unit 6	Off	Off	Off	Off	Off	Off
SUM	101	0	0	0	0	

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

Table 6.5: Legend

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

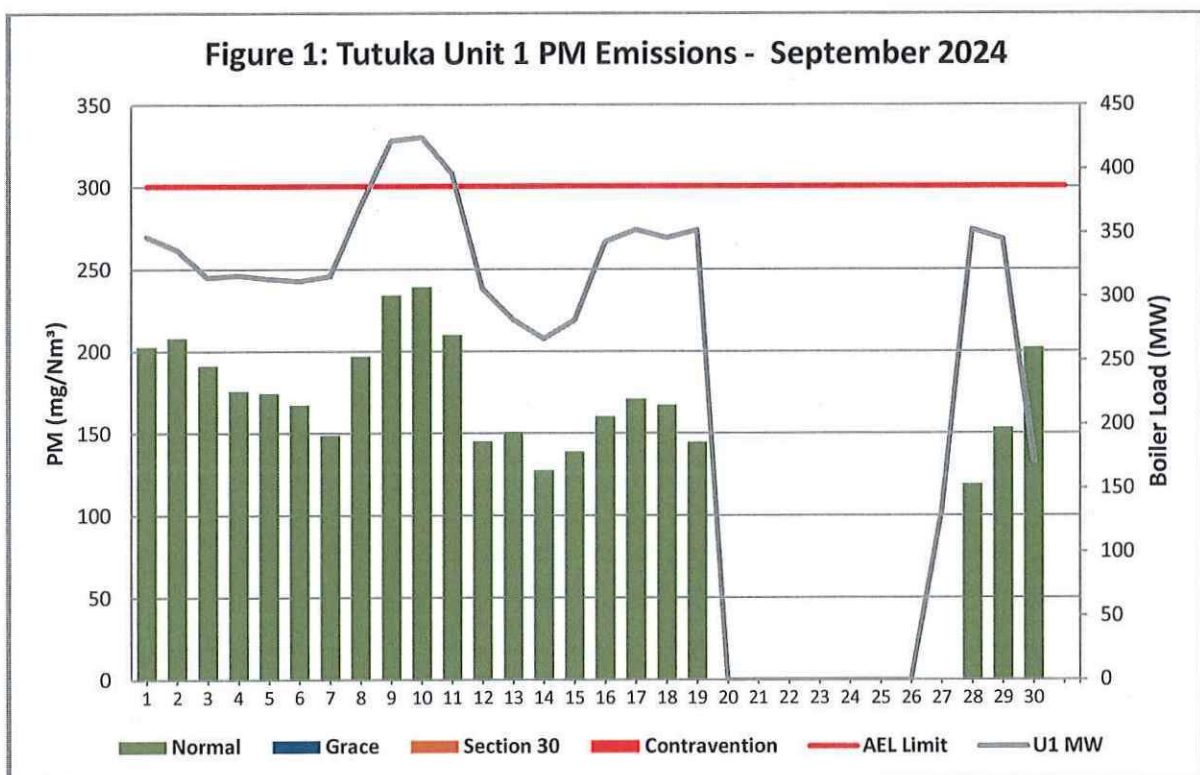


Figure 2: Tutuka Unit 2 PM Emissions - September 2024

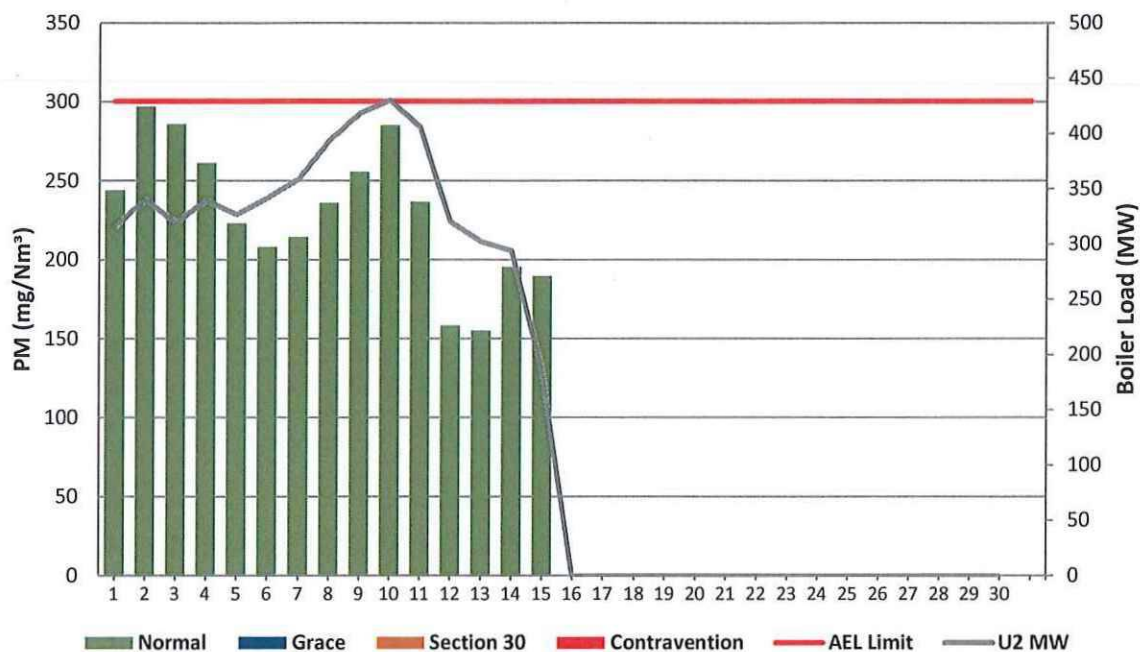


Figure 3: Tutuka Unit 3 PM Emissions - September 2024

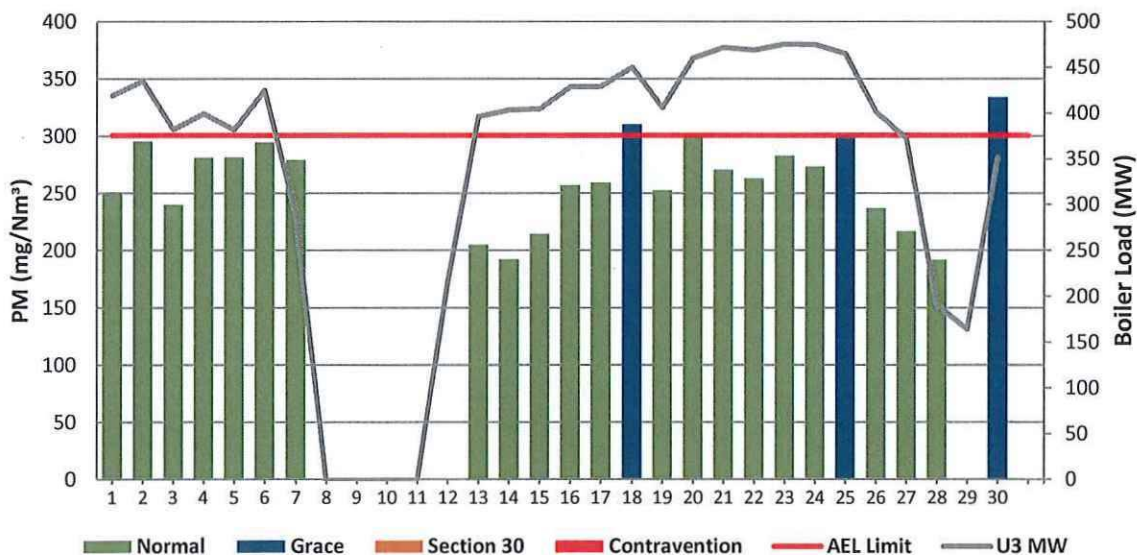


Figure 4: Tutuka Unit 4 PM Emissions - September 2024

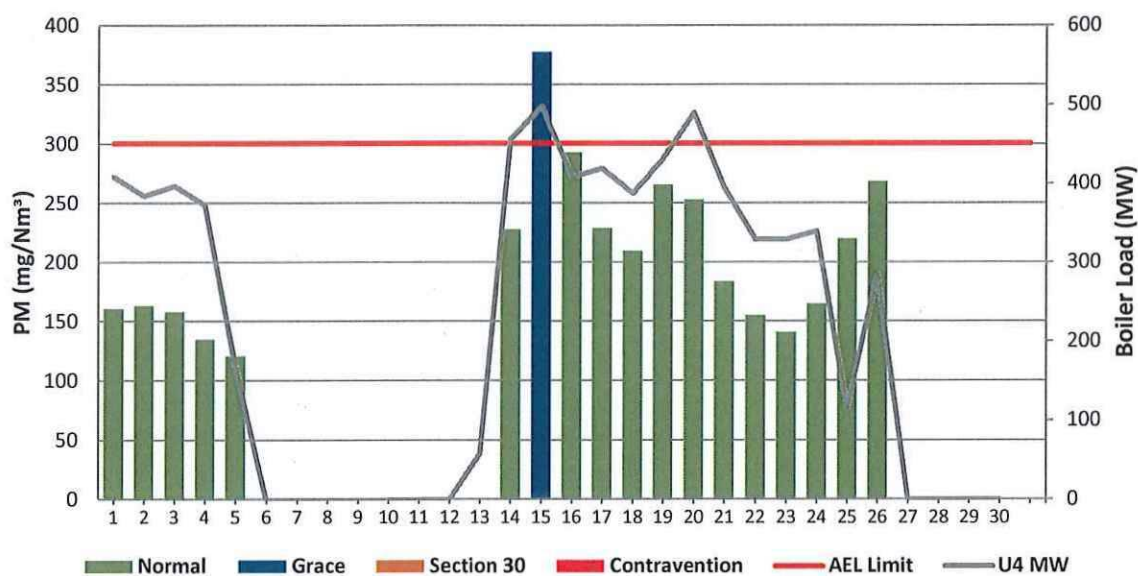
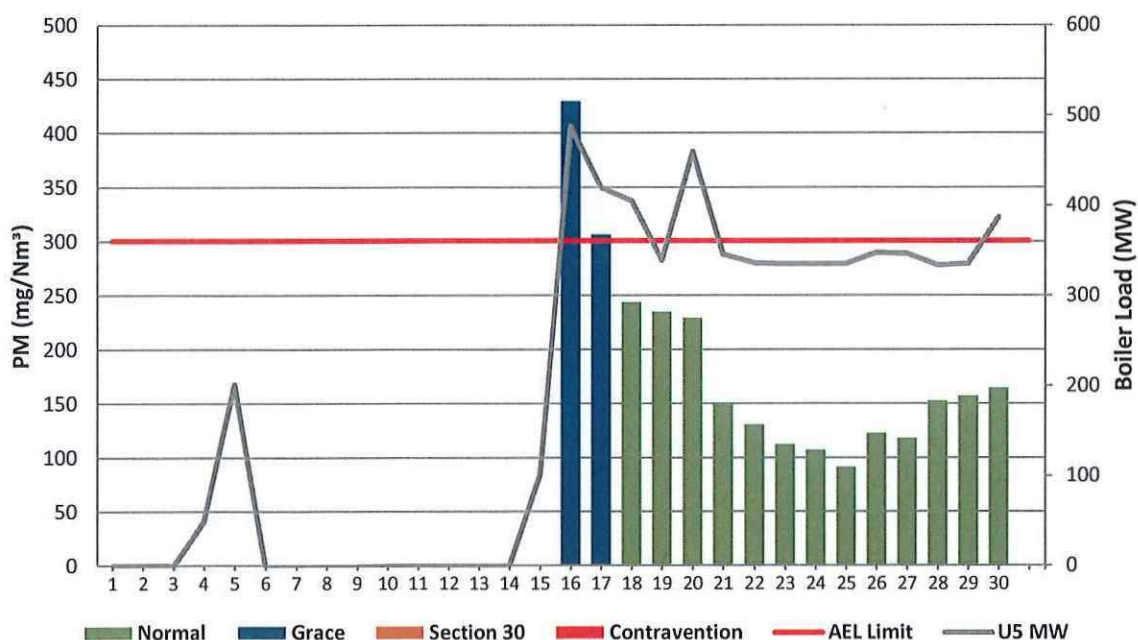


Figure 5: Tutuka Unit 5 PM Emissions - September 2024



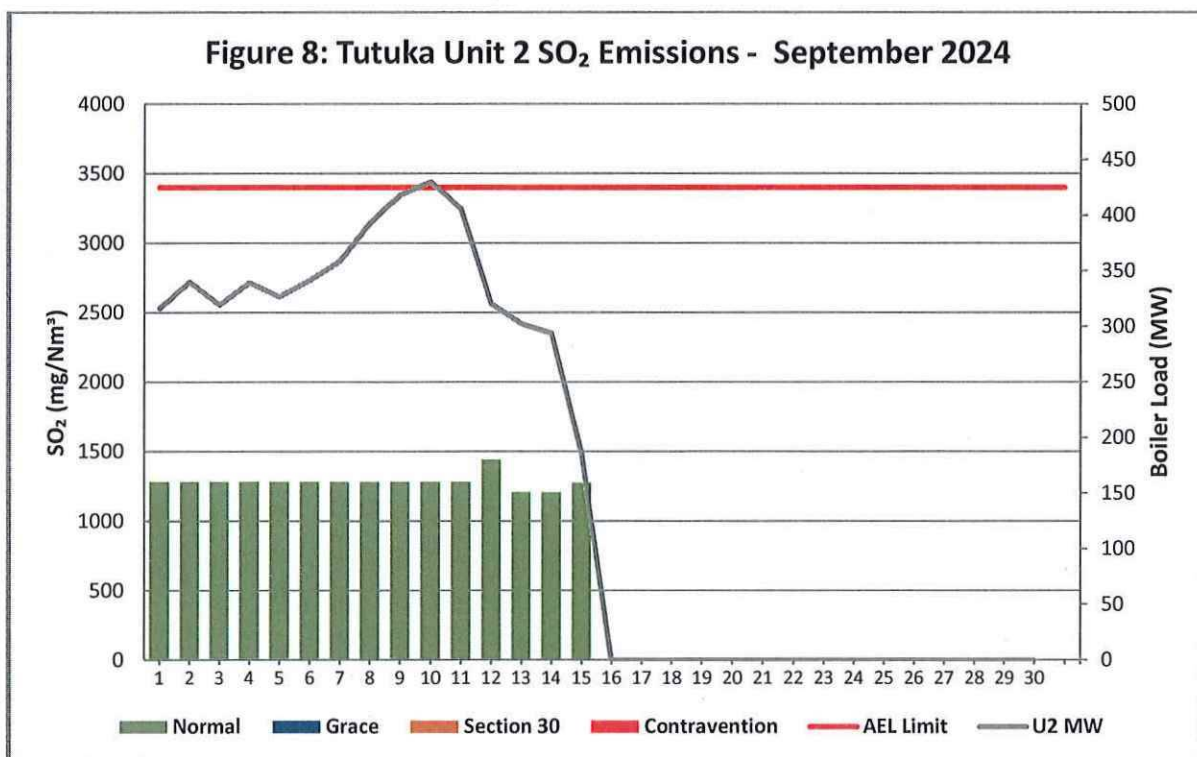
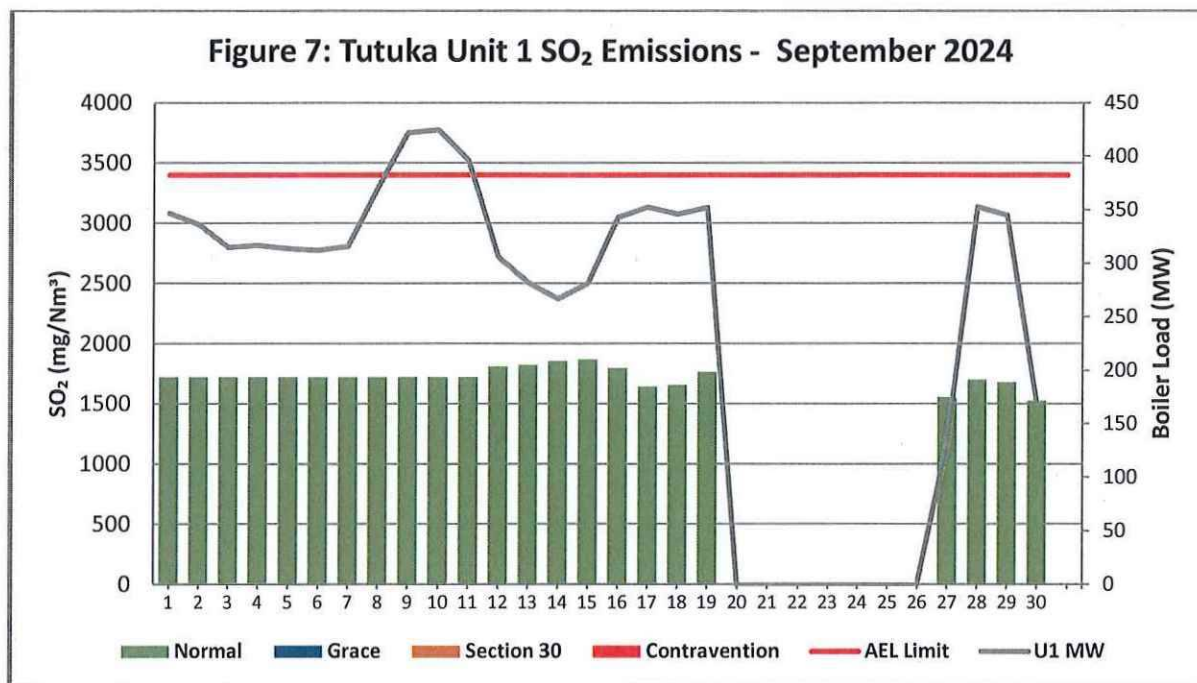


Figure 9: Tutuka Unit 3 SO₂ Emissions - September 2024

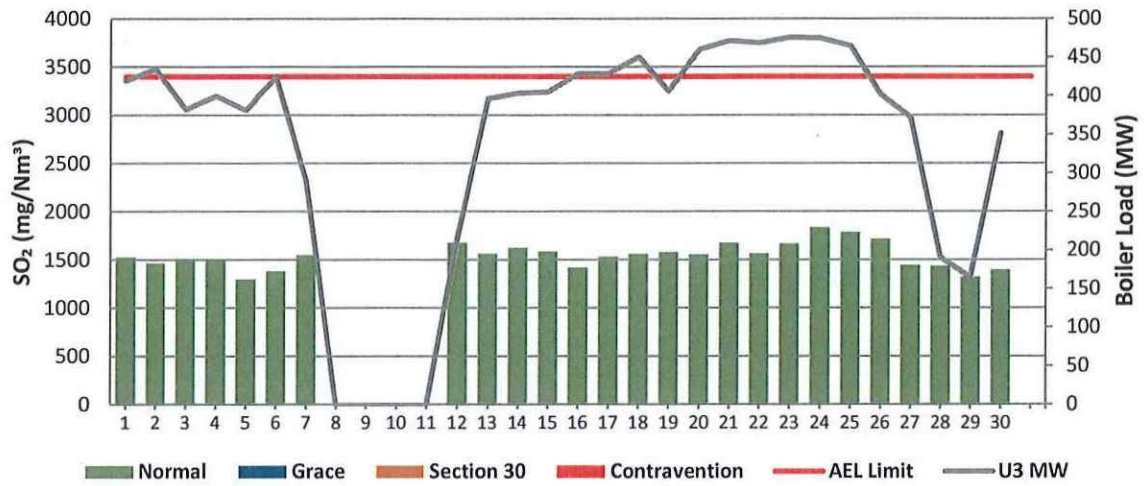


Figure 10: Tutuka Unit 4 SO₂ Emissions - September 2024

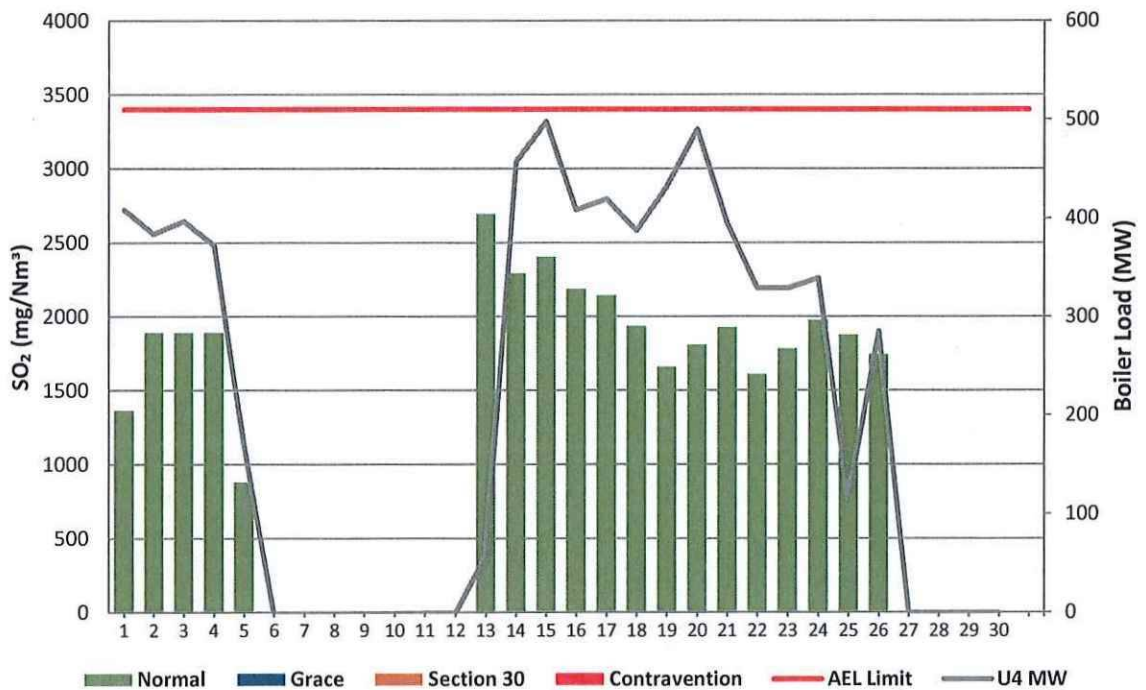


Figure 11: Tutuka Unit 5 SO₂ Emissions - September 2024

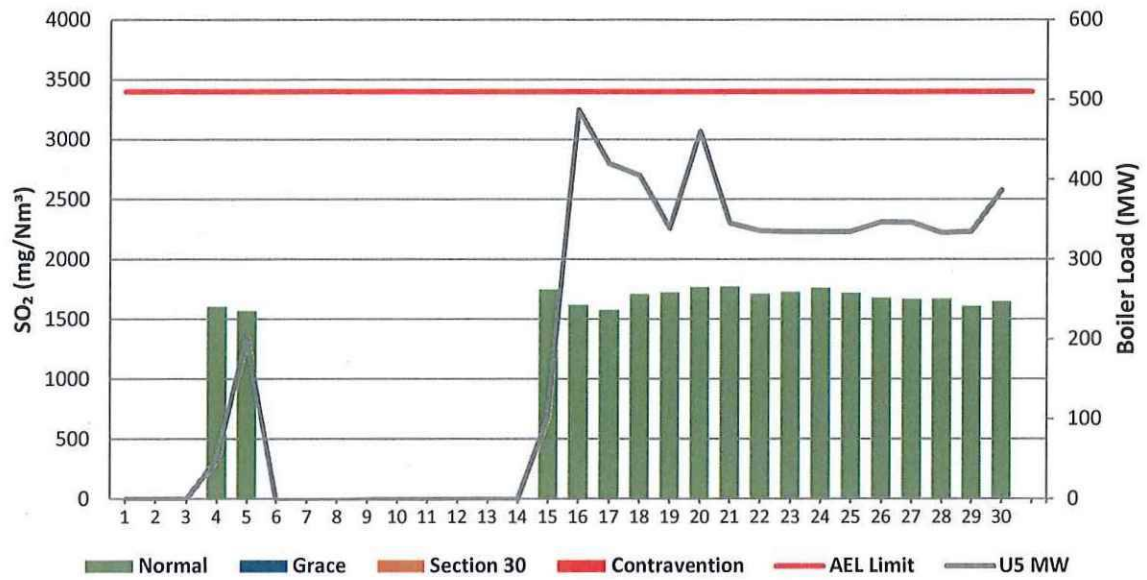


Figure 13: Tutuka Unit 1 NO_x Emissions - September 2024

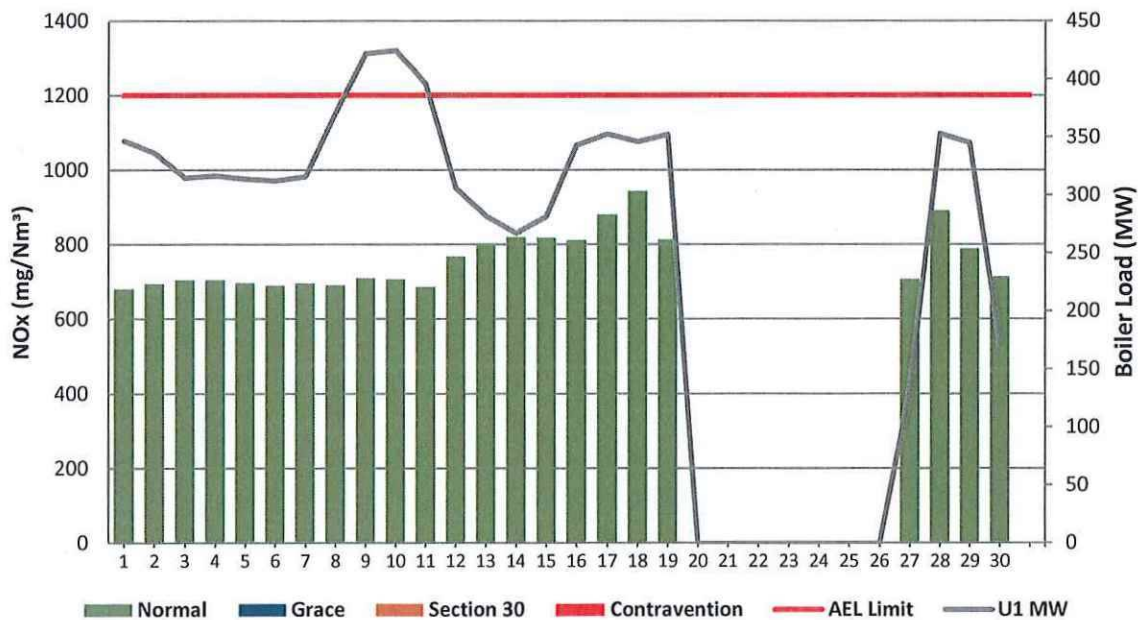


Figure 14: Tutuka Unit 2 NOx Emissions - September 2024

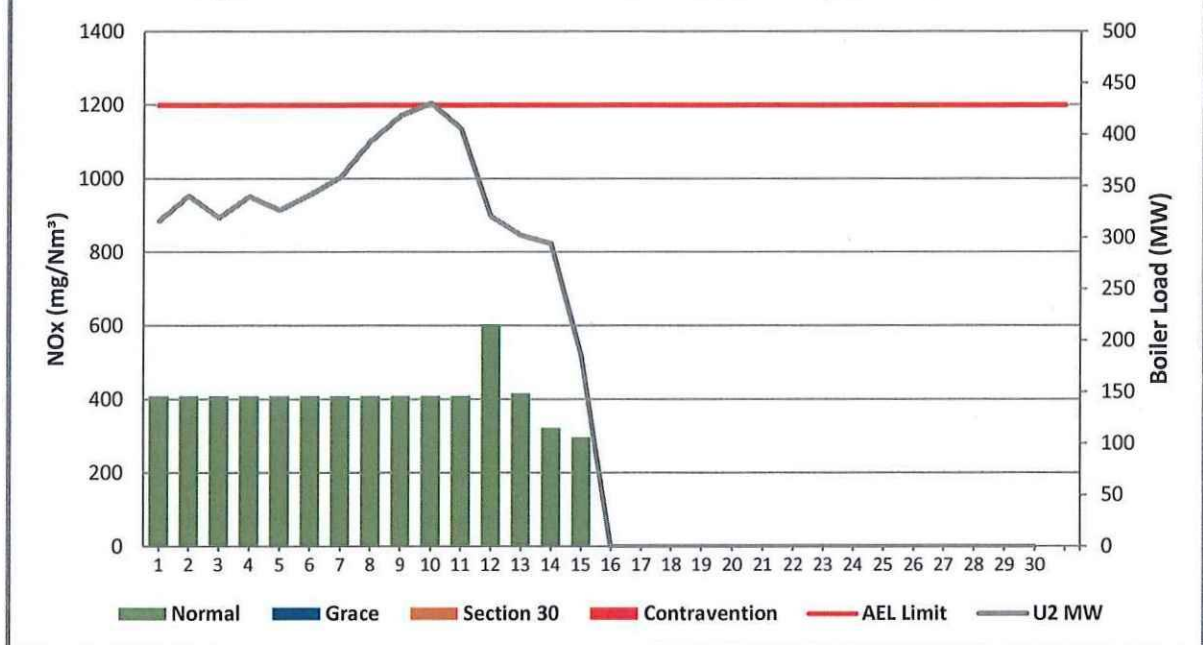


Figure 15: Tutuka Unit 3 NOx Emissions - September 2024

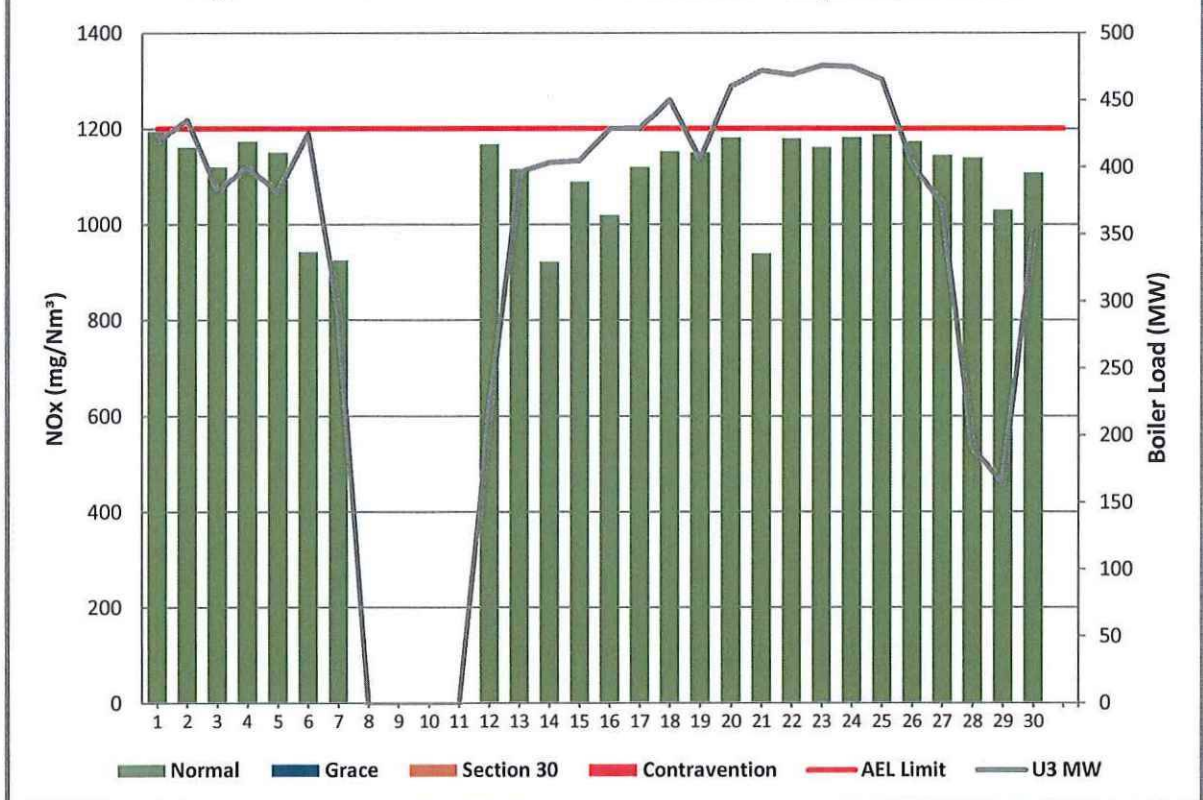


Figure 16: Tutuka Unit 4 NOx Emissions - September 2024

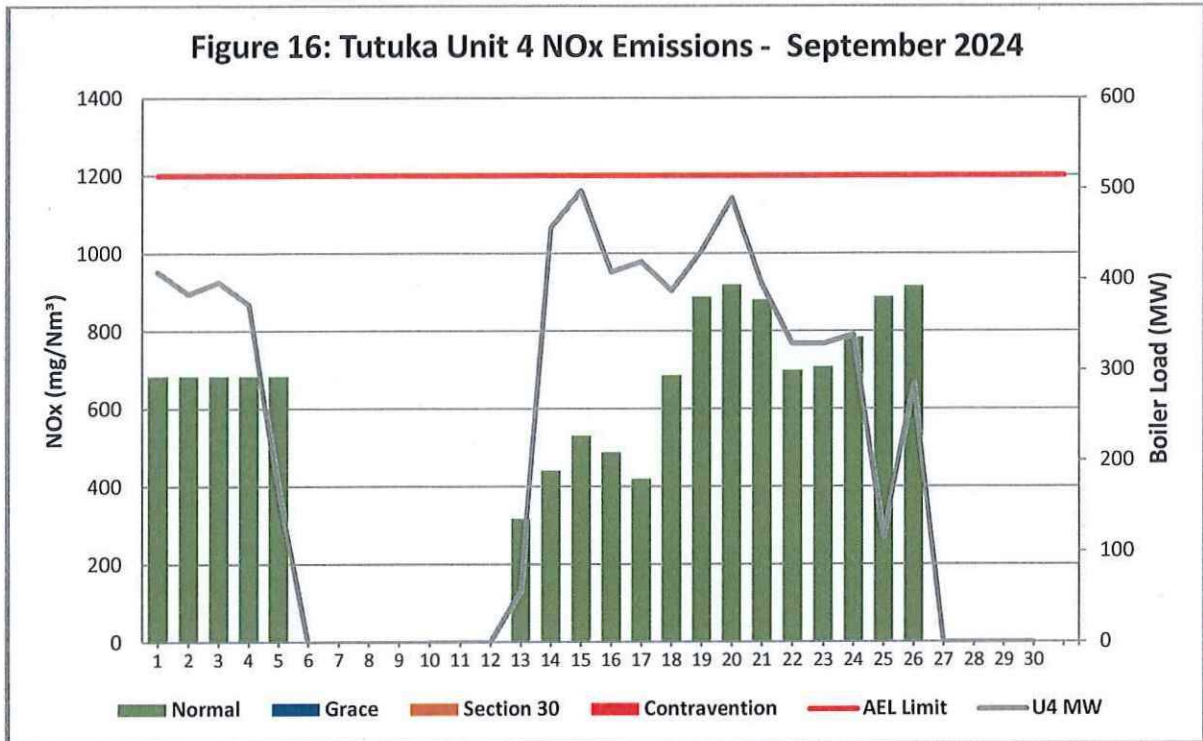
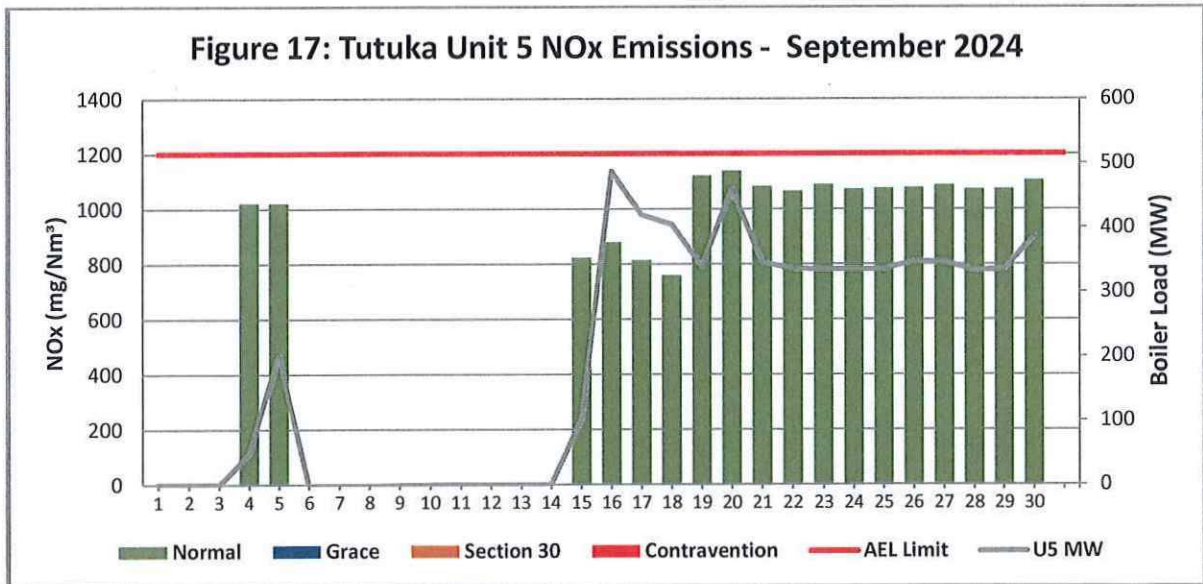


Figure 17: Tutuka Unit 5 NOx Emissions - September 2024



7.LIGHT-UP INFORMATION

PM Start-up information for the month of fabricate September 2024

Number & Type of Starts	Unit	1	2	3	4	5	6
Number Of Hot Starts (Off-Load < 30 Hrs)	-	1.00	0.00	1.00	0.00	2.00	0.00
Number Of Cold Starts (Off-Load > 30 hrs)	-	1.00	0.00	1.00	1.00	1.00	0.00

8.GENERAL DISCUSSION

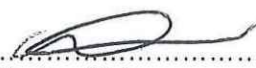
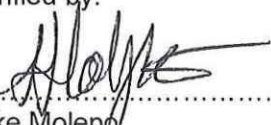
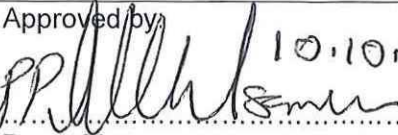
The station had Particulate matter (PM10) emissions exceedances on Unit 3, Unit 4 and Unit 5. The exceedances were within the grace period and experienced during the unit's return to service (RTS) and others during when the unit had upset condition.

The monitor reliability issues on Unit 1,2 and 4 is due to the fact that gas analysers are obsolete, the station is busy with the procurement process to replace the dust monitors and gas analysers. There is a three-year contactor who is appointed for calibration and the maintenance of the analysers. The contactor will also supply spares to keep the analysers working until replacement.

9.COMPLANTS 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 received for the month of September 2024					

Tutuka Power station reiterate its commitment to comply with the atmospheric emission license, which to us is not just a matter of compliance, but also a commitment which is core in our principles of doing business.

Compiled by:  Rendani Nematshema EMISSIONS CONTROL OFFICER: TUTUKA POWER STATION	Recommended by:  Monica Mokgawa ENVIRONMENTAL MANAGER: TUTUKA POWER STATION
Verified by:  Mike Molepo SENIOR CHEMIST (BOILER ENGINEERING): TUTUKA POWER STATION	Approved by:  Bruce Moyo 10.10.2024 GENERAL MANAGER: TUTUKA POWER STATION