

Dan Hlanyane
Senior Manager: Municipal Health & Environmental Services
Gert Sibande District Municipality
P.O Box 1748
Ermelo
2350

Date:
11 November 2024

Enquiries:
Tel +27 17 749 9399

Dear Mr. Hlanyane

TUTUKA POWER STATION'S MONTHLY STACK EMISSIONS REPORT FOR THE MONTH OF OCTOBER 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 October 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 October. All the Particulate Matter (PM) exceedances were within the grace period. The station did not incur Section 30. There is a non-compliance on unit 1, the issue was only observed during the implementation of the new correlations test spot test curve. The station is currently investigating the cause of the exceedance and also to determine if exceedances are real exceedances or not. Unit 6 was off-load and not included as part of the graphs for October 2024.

1. RAW MATERIALS

Raw Materials and Products	Raw Material type	Units	Max. Permitted	Actual Consumption
	Coal	Tons	1 200 000	513 104
	Fuel Oil	Tons	10 000	3727.52
Production Rates	Product/By-Product Name	Units	Mx. Production Capacity Permitted	Indicative production rate
	Energy	GWh	2 5727.200	907.7
	Ash	Tons	350 000	129 456
	Re Ash	Kg/MWh	Not specified	1.14

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



2. ENERGY SOURCES CHARACTERISTICS

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 October-2024
Unit 1	Electro Static Precipitators (ESP)	98.7%
Unit 2	Electro Static Precipitators (ESP)	99.4%
Unit 3	Electro Static Precipitators (ESP)	99.4%
Unit 4	Electro Static Precipitators (ESP)	98.9%
Unit 5	Electro Static Precipitators (ESP)	99.4%
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
Unit 1	99.8	98.6	98.6
Unit 2	98.4	99.1	99.1
Unit 3	99.3	98.7	88.5
Unit 4	80.2	99.2	99.2
Unit 5	100.0	99.1	95.2
Unit 6	Off	Off	Off

6. EMISSION PERFORMANCE

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

Associated Unit/Stack	PM (tons)	SO ₂ (tons)	NO _x (tons)
Unit 1	249.9	1 300	746
Unit 2	173.3	1 183	692
Unit 3	84.8	541	342
Unit 4	398.2	2 973	1 524
Unit 5	130.3	1 982	1 262
Unit 6	Off	Off	Off
SUM	1 036.5	7 979	4 566

Table 6.2: Operating days in compliance to PM AEL Limit - October 2024

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm ³)
Unit 1	7	4	0	6	10	356.8
Unit 2	21	2	0	0	2	274.7
Unit 3	8	3	0	0	3	271.5
Unit 4	29	0	0	0	0	252.7
Unit 5	22	0	0	0	0	103.8
Unit 6	Off	Off	Off	Off	Off	Off
SUM	87	9	0	6	15	

Table 6.3: Operating days in compliance to SO₂ AEL Limit - October 2024

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SO ₂ (mg/Nm ³)
Unit 1	19	0	0	0	0	1 860.5
Unit 2	25	0	0	0	0	1 875.7
Unit 3	13	0	0	0	0	1 718.2
Unit 4	30	0	0	0	0	1 883.6
Unit 5	26	0	0	0	0	1 746.4
Unit 6	Off	Off	Off	Off	Off	Off
SUM	113	0	0	0	0	

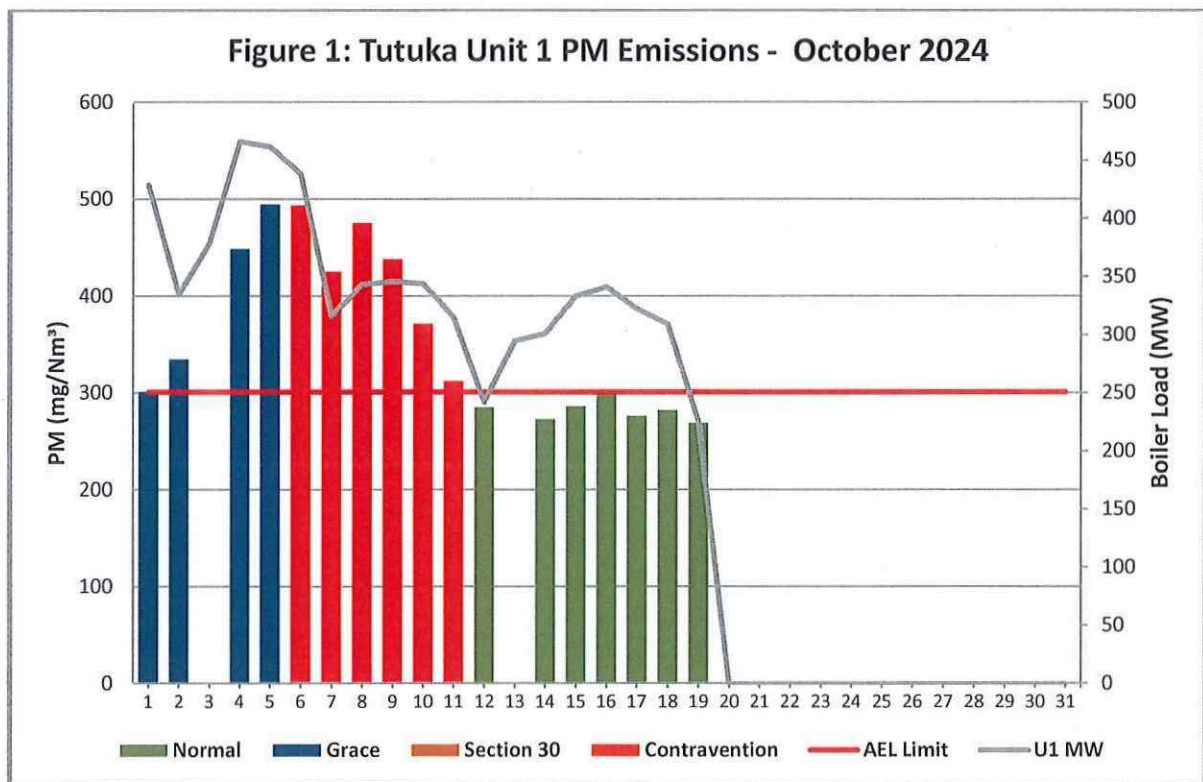
Table 6.4: Operating days in compliance to NOx AEL Limit - October 2024

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm³)
Unit 1	19	0	0	0	0	1 060.3
Unit 2	25	0	0	0	0	1 083.8
Unit 3	13	0	0	0	0	1 067.4
Unit 4	30	0	0	0	0	965.7
Unit 5	26	0	0	0	0	1 063.8
Unit 6	Off	Off	Off	Off	Off	Off
SUM	113	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



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Figure 2: Tutuka Unit 2 PM Emissions - October 2024

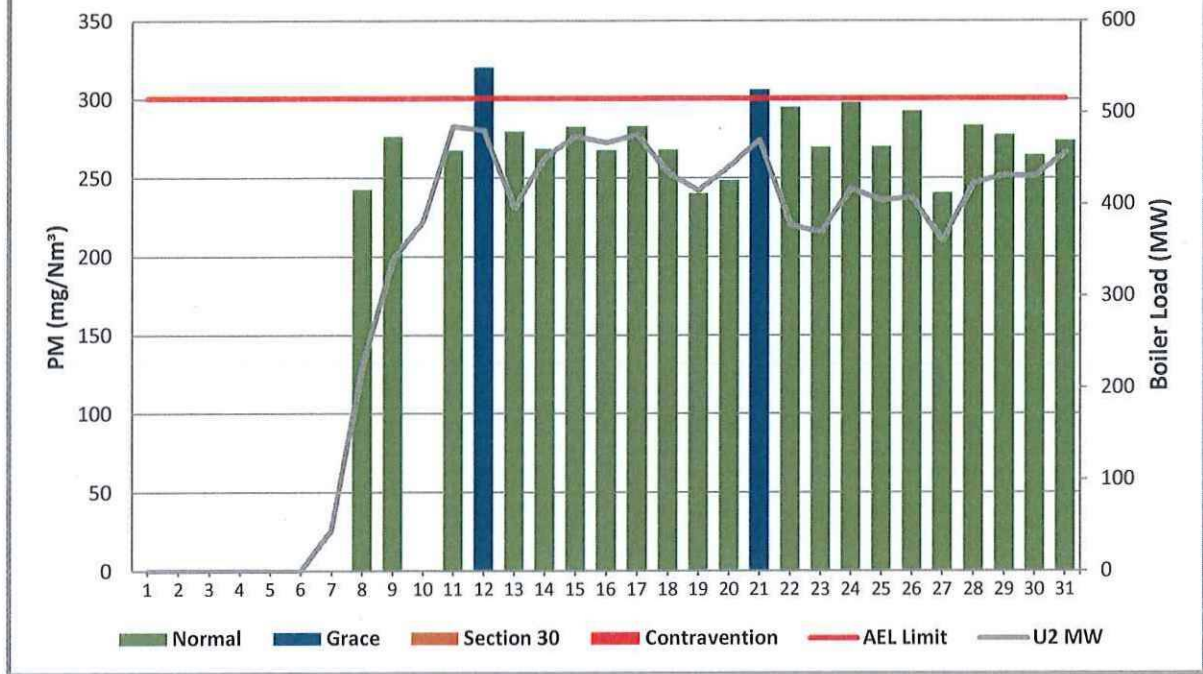


Figure 3: Tutuka Unit 3 PM Emissions - October 2024

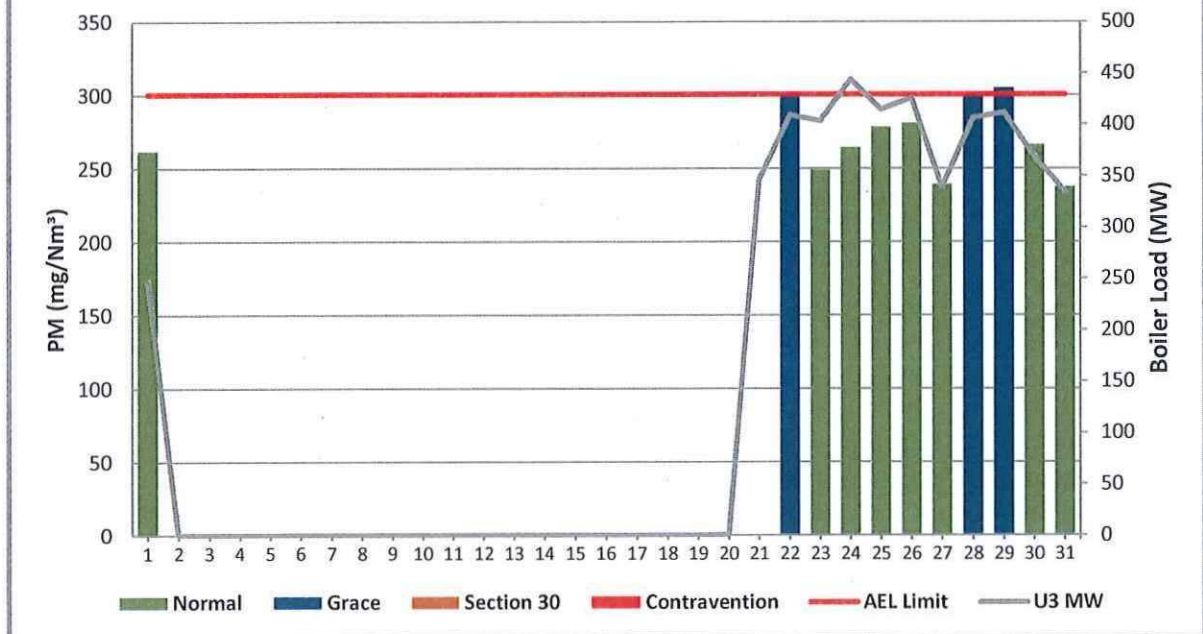


Figure 4: Tutuka Unit 4 PM Emissions - October 2024

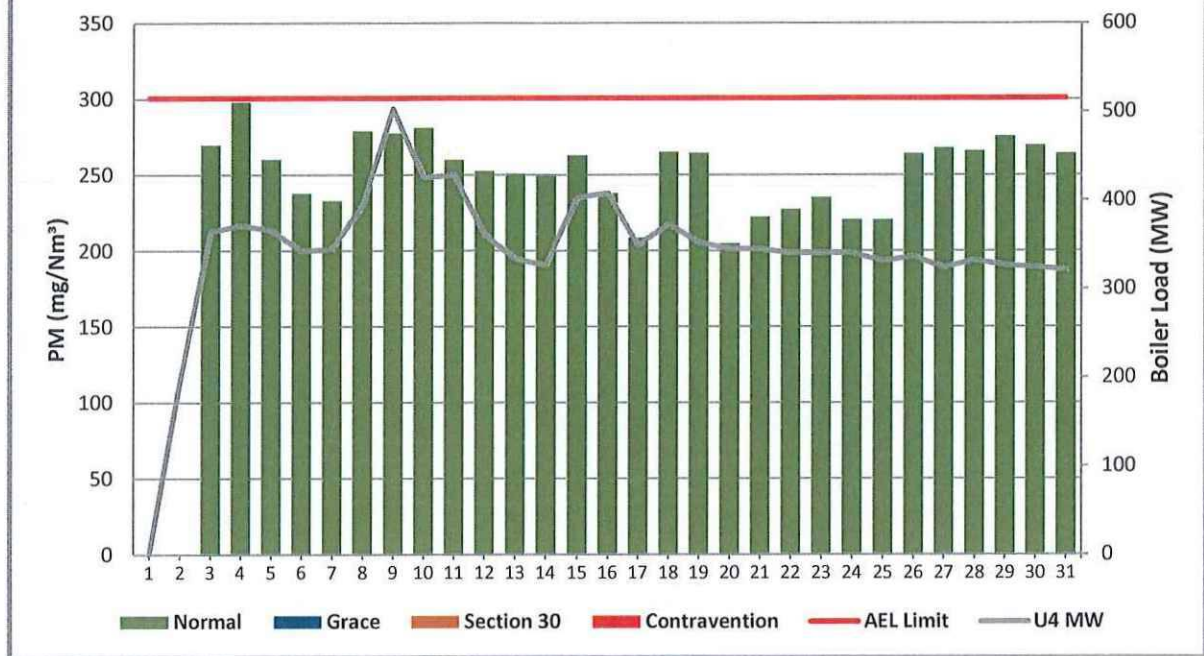


Figure 5: Tutuka Unit 5 PM Emissions - October 2024

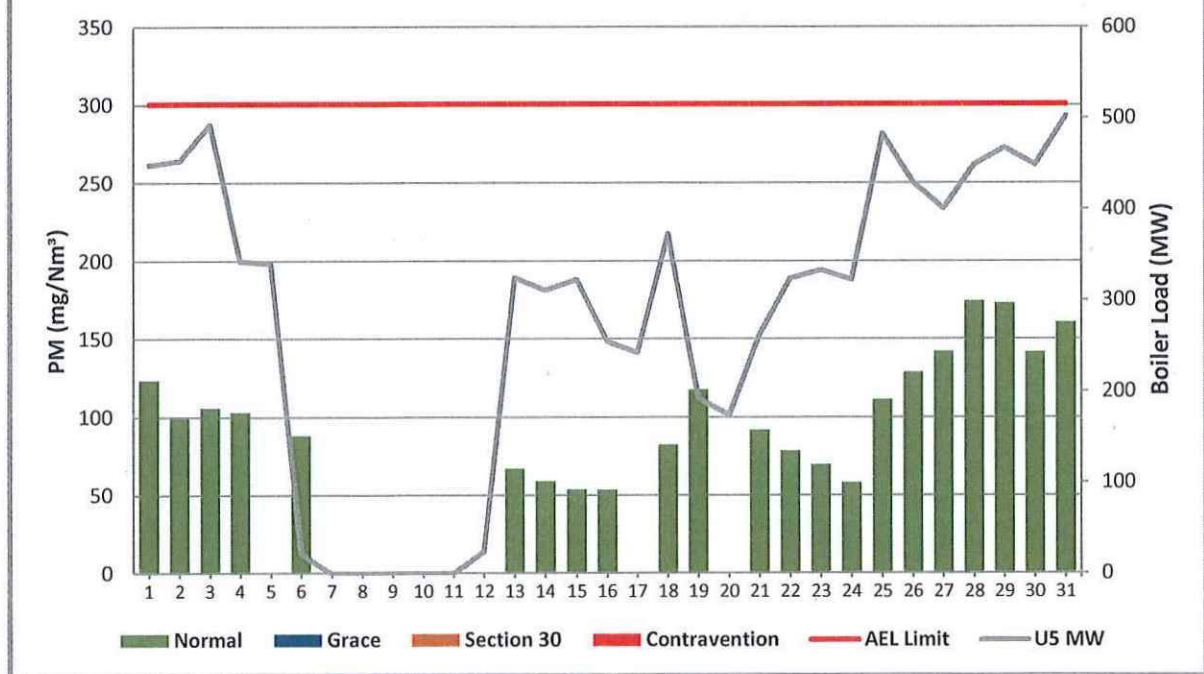


Figure 7: Tutuka Unit 1 SO₂ Emissions - October 2024

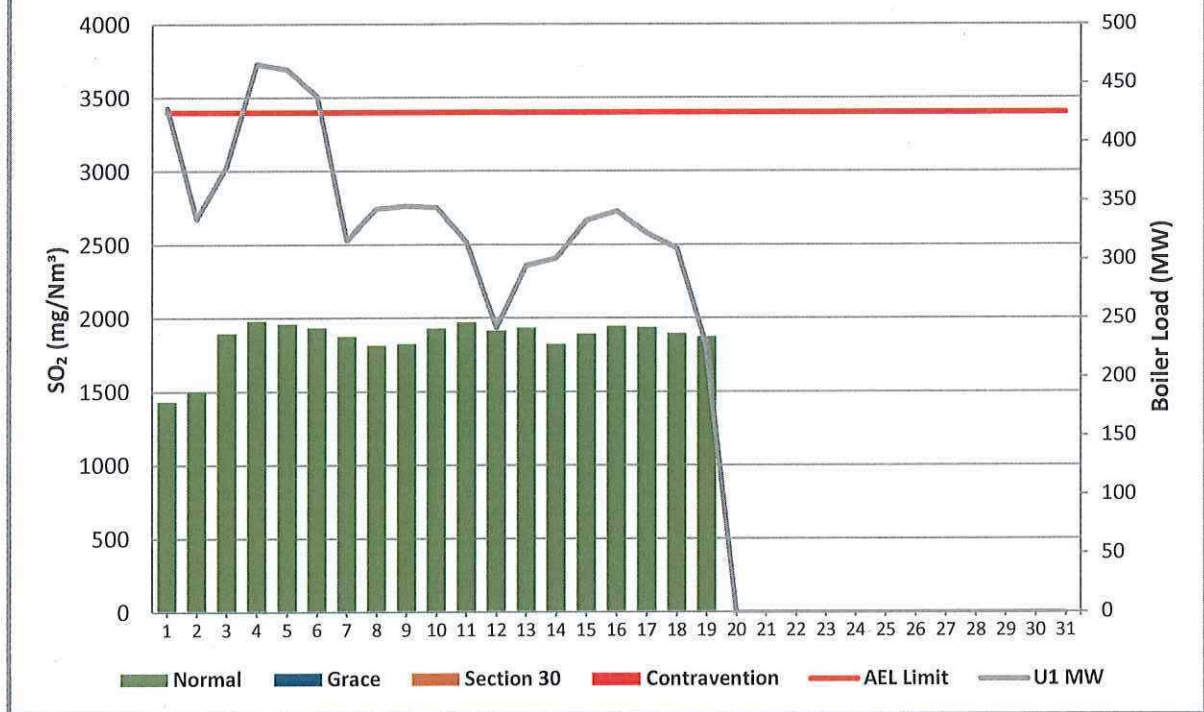


Figure 8: Tutuka Unit 2 SO₂ Emissions - October 2024

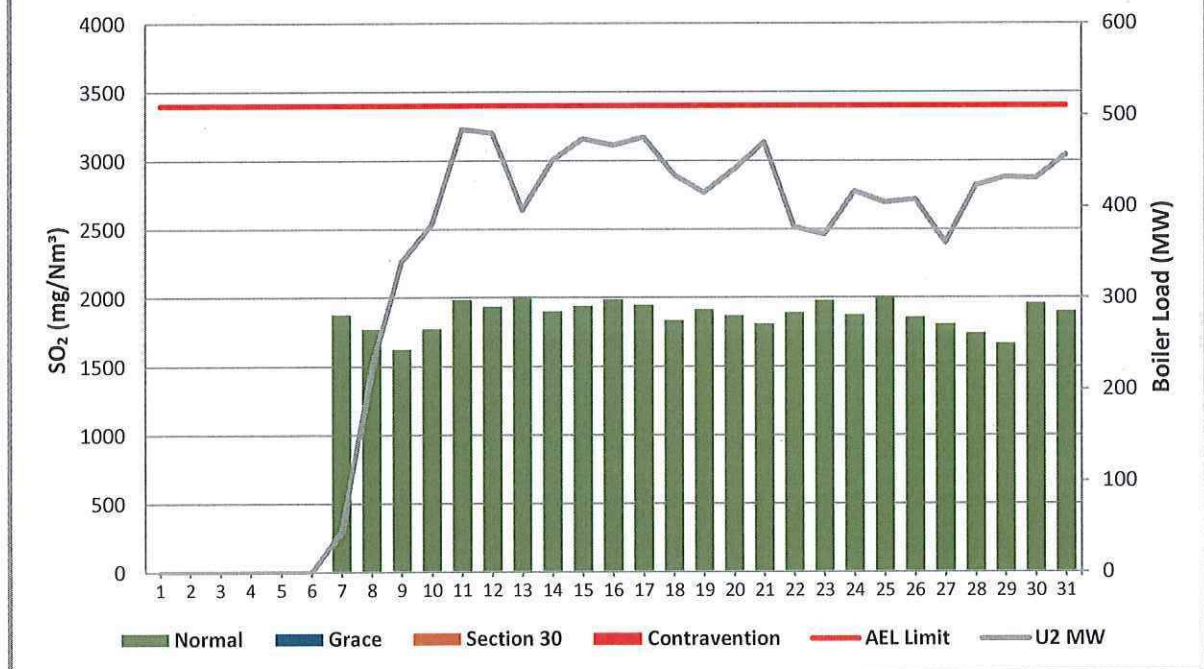


Figure 9: Tutuka Unit 3 SO₂ Emissions - October 2024

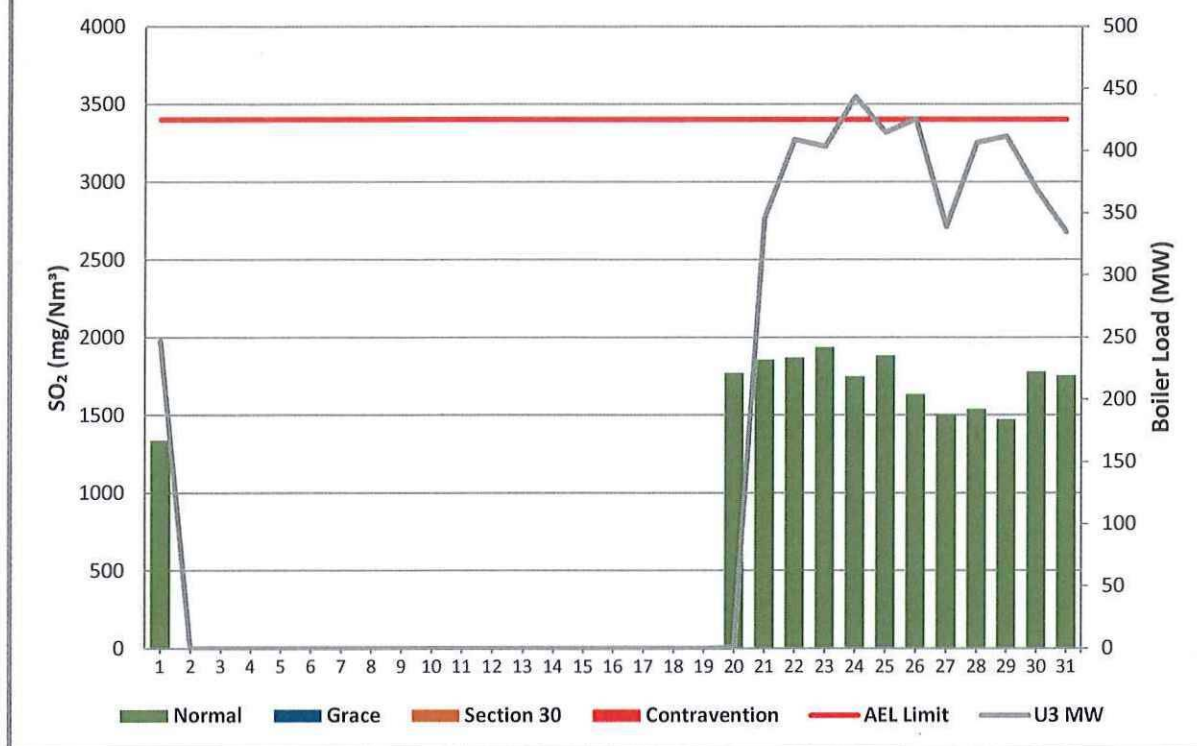


Figure 10: Tutuka Unit 4 SO₂ Emissions - October 2024

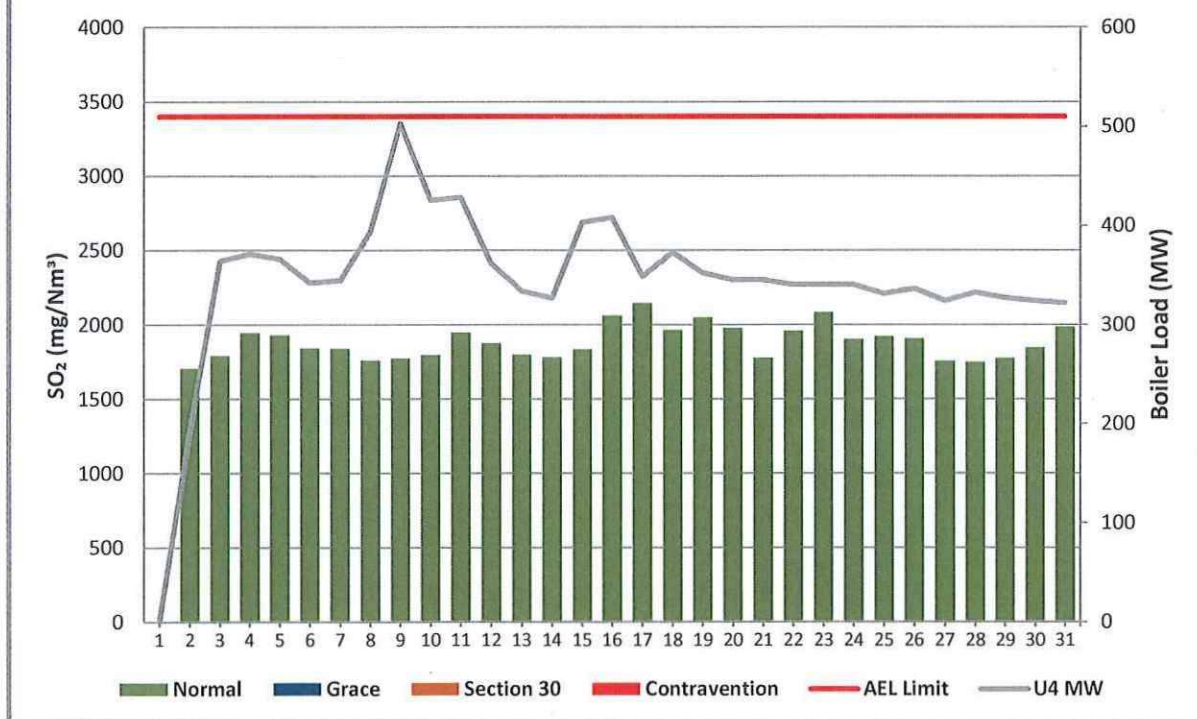


Figure 11: Tutuka Unit 5 SO₂ Emissions - October 2024

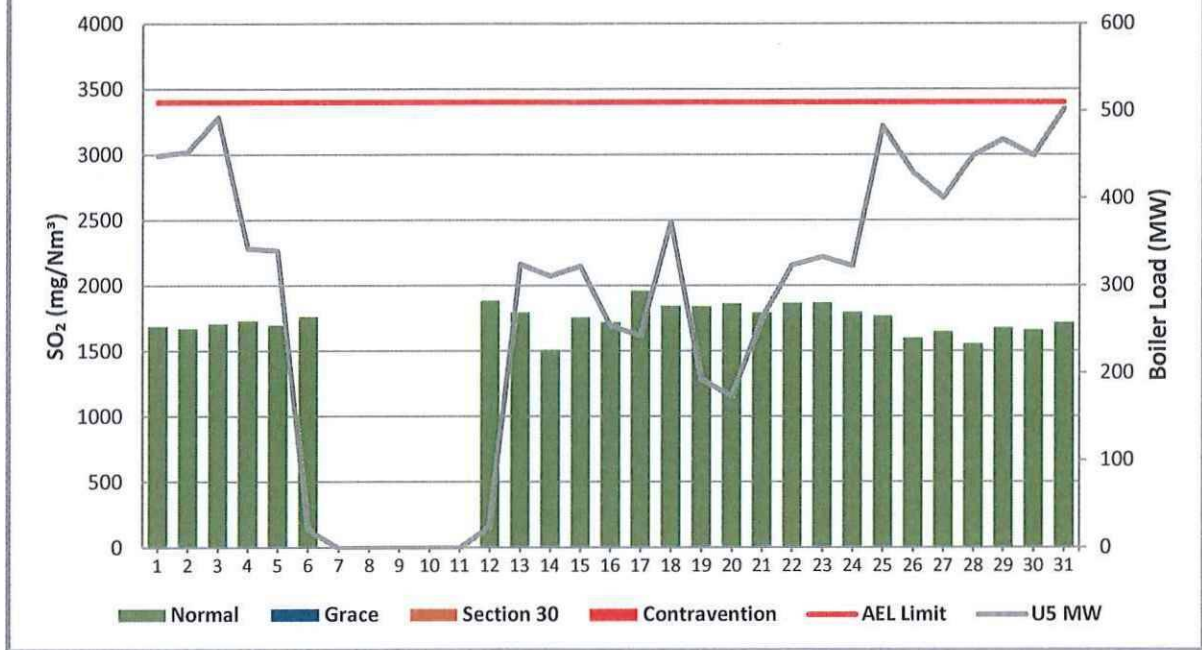


Figure 13: Tutuka Unit 1 NO_x Emissions - October 2024

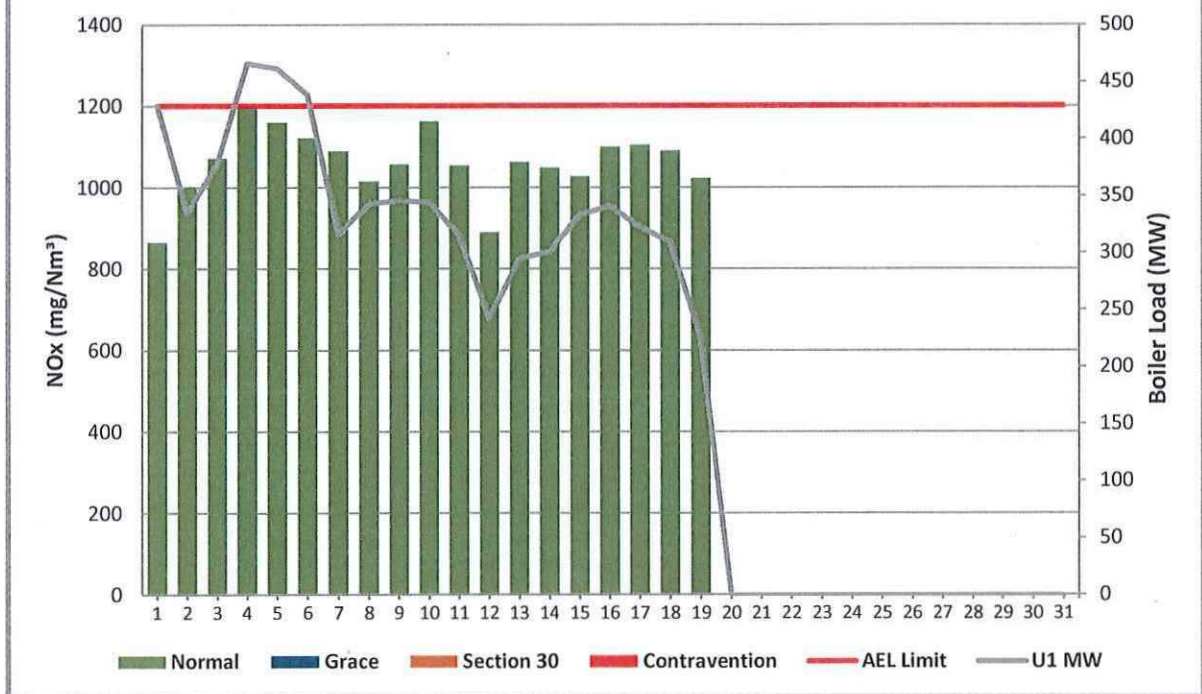


Figure 14: Tutuka Unit 2 NOx Emissions - October 2024

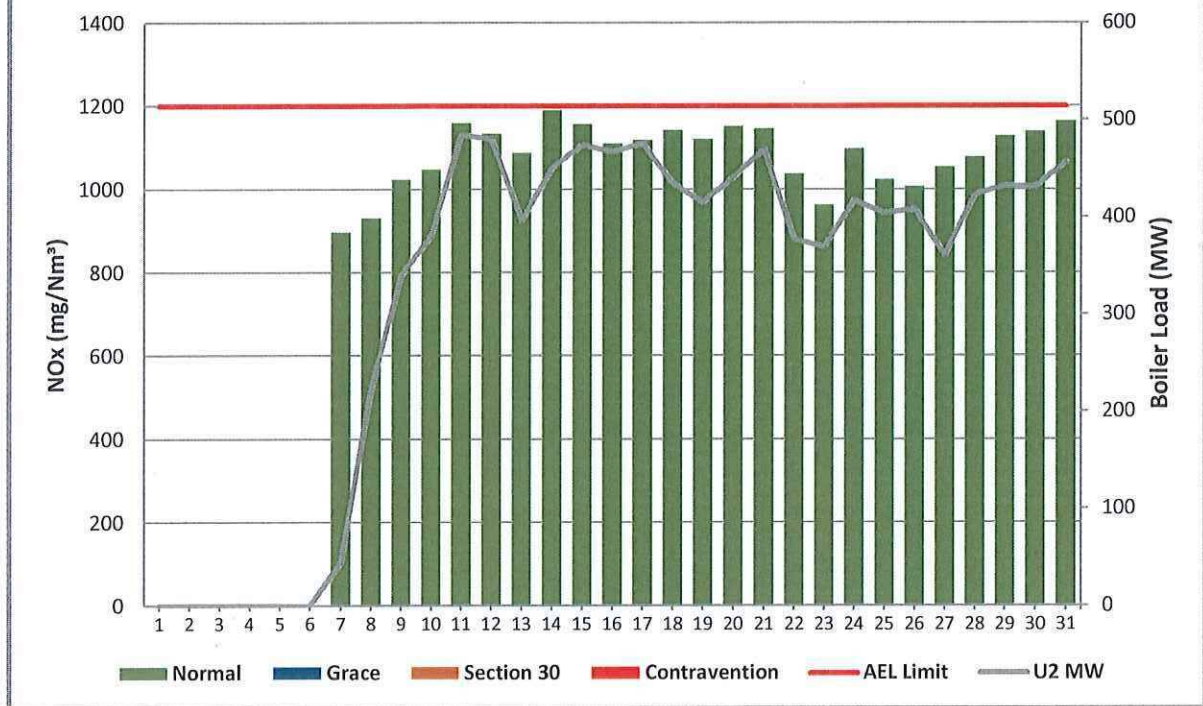


Figure 15: Tutuka Unit 3 NOx Emissions - October 2024

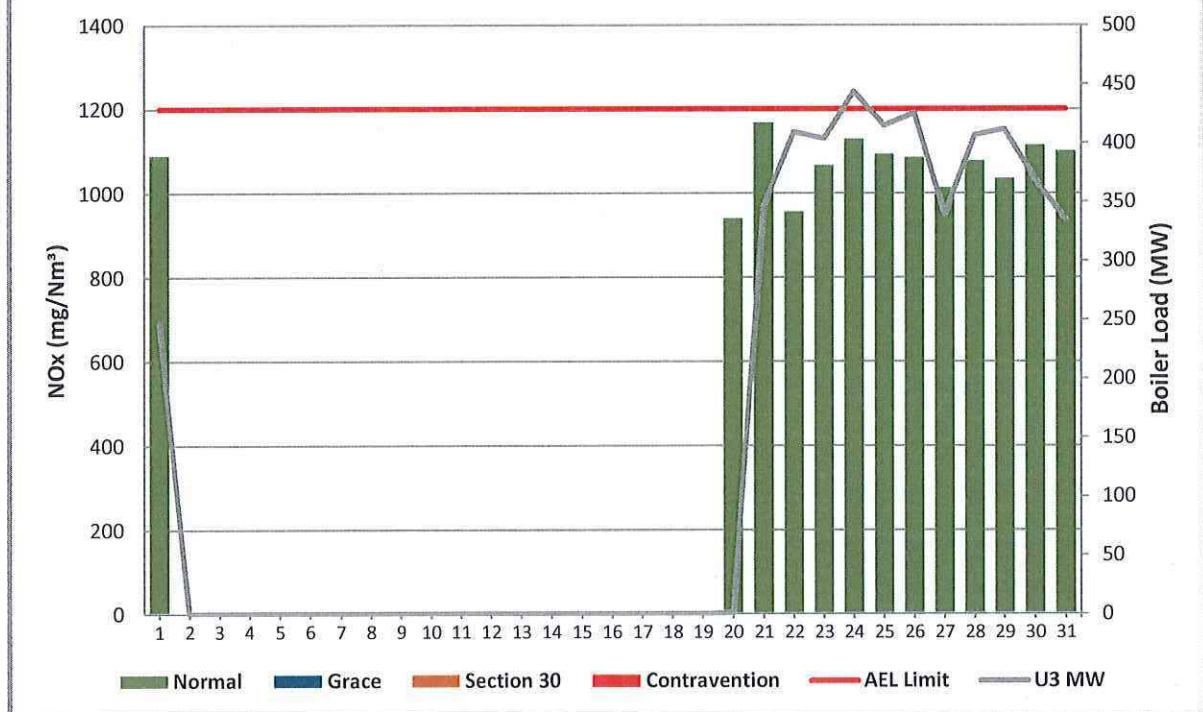


Figure 16: Tutuka Unit 4 NOx Emissions - October 2024

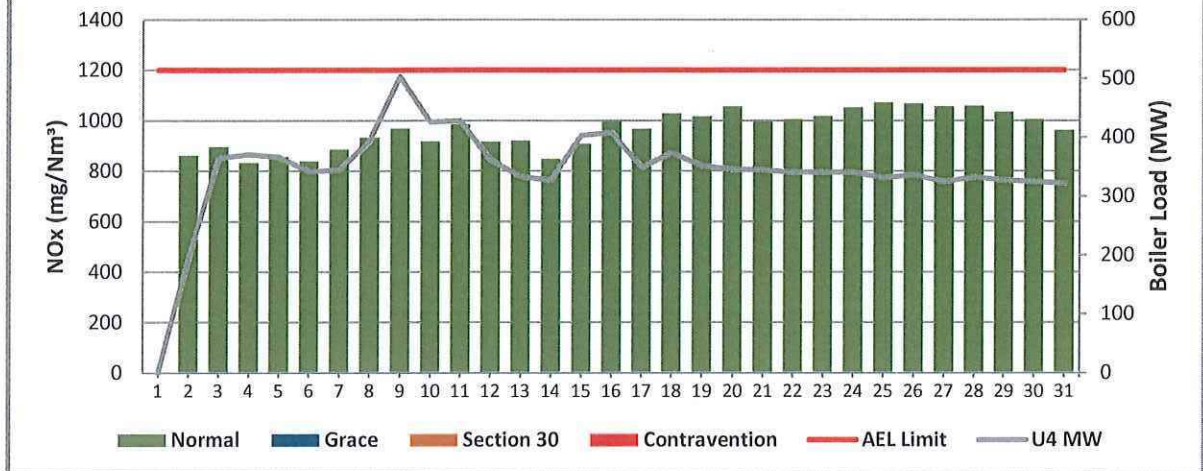
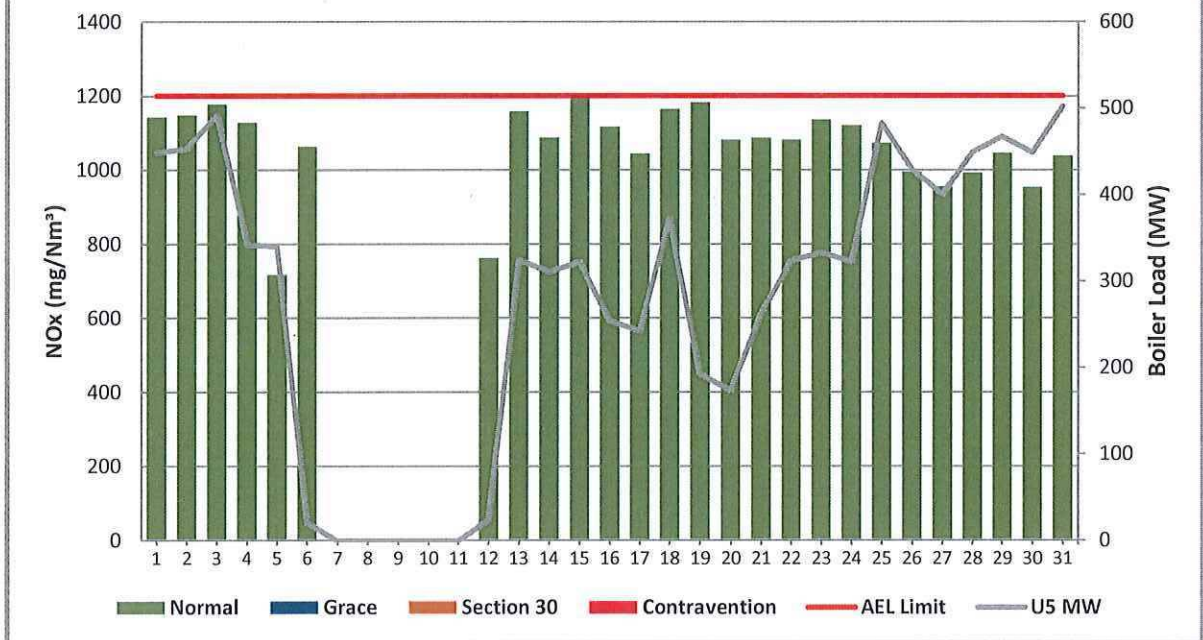


Figure 17: Tutuka Unit 5 NOx Emissions - October 2024



7.LIGHT-UP INFORMATION

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

Number & Type of Starts	Unit	1	2	3	4	5	6
Number Of Hot Starts (Off-Load < 30 Hrs)	-	3.00	1.00	1.00	0.00	7.00	0.00
Number Of Cold Starts (Off-Load > 30 hrs)	-	0.00	1.00	1.00	1.00	1.00	0.00

8.GENERAL DISCUSSION

The station had Particulate matter (PM10) emissions exceedances on Unit 2 and Unit 3. The exceedances were within the grace period. Exceedances were experienced when unit 3 return to service(RTS) and Unit 2 exceedance happened when the unit had upset condition. The new correlation test curve was implemented during the month and information was back dated. The exceedances on Unit 1 are still under investigation.

Surrogate values were used for U3 and U5 Nox. The station is experiencing challenges with the obsolete gas analysers and currently busy with procurement process to replace the CEMS gas analysers and dust monitors.

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 October 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:


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Monica Mokgawa

ENVIRONMENTAL MANAGER: TUTUKA POWER STATION

Verified by:


.....
Mike Molepo

SENIOR CHEMIST (BOILER ENGINEERING): TUTUKA POWER STATION

Approved by:


.....
Bruce Moyo

GENERAL MANAGER: TUTUKA POWER STATION

Generation
Tutuka Power Station
Standerton/Bethal Road
Private Bag X2016 Standerton 2430 SA
Tel +27 17 749 9399 www.eskom.co.za
Eskom Holdings SOC Ltd Reg No 2002/015527/30