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Date:
16 January 2025

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Dear Mr. Hlanyane

TUTUKA POWER STATION'S MONTHLY STACK EMISSIONS REPORT FOR THE MONTH OF DECEMBER 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 December 2024. Verified emissions of particulates matter, SO_x, and NO_x are also included. The station had two (2) units on load for the month of December 2024. The station incurred Section 30 on unit 4. The incidents resulted from issues on field 11,13,25,14,31 and 41. The issues that were identified during inspection required the station to appoint the contractor to address them. The issues included two fields that were off due to diode short alarm that required the team to remove the transformer and test/replace diode. The other two fields had low power to HFPS and required VI curve tests by external consultants.

1. RAW MATERIALS

Raw Materials and Products	Raw Material type	Units	Max. Permitted	Actual Consumption
	Coal	Tons	1 200 000	195 106
	Fuel Oil	Tons	10 000	2974.7
Production Rates	Product/By-Product Name	Units	Mx. Production Capacity Permitted	Indicative production rate
	Energy	GWh	2 5727.200	396.6
	Ash	Tons	350 000	49 362
	Re Ash	Kg/MWh	Not specified	1.21

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

Coal Characteristics	Units	Stipulated Range	Monthly Average Content
CV Content	MJ/kg	16-24	21.530
Sulphur Content	%	0.6 TO >2.6	0.650
Ash Content	%	21 TO >33	25.300

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 December-2024
Unit 1	Electro Static Precipitators (ESP)	Unit Off
Unit 2	Electro Static Precipitators (ESP)	Unit Off
Unit 3	Electro Static Precipitators (ESP)	Unit Off
Unit 4	Electro Static Precipitators (ESP)	98.8%
Unit 5	Electro Static Precipitators (ESP)	99.0%
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	Off	Off	Off
Unit 2	Off	Off	Off
Unit 3	Off	Off	Off
Unit 4	72.4	99.7	99.7
Unit 5	98.6	99.5	99.5
Unit 6	Off	Off	Off

6. EMISSION PERFORMANCE

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

Associated Unit/Stack	PM (tons)	SO ₂ (tons)	NO _x (tons)
Unit 1	Off	Off	Off
Unit 2	Off	Off	Off
Unit 3	Off	Off	Off
Unit 4	306.1	2 150	1 187
Unit 5	174.9	2 632	1 485
Unit 6	Off	Off	Off
SUM	481.1	4 782	2 672

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm ³)
Unit 1	Off	Off	Off	Off	Off	Off
Unit 2	Off	Off	Off	Off	Off	Off
Unit 3	Off	Off	Off	Off	Off	Off
Unit 4	13	8	0	0	8	275.5
Unit 5	20	0	0	0	0	128.9
Unit 6	Off	Off	Off	Off	Off	Off
SUM	23	8	0	0	8	

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SO ₂ (mg/Nm ³)
Unit 1	Off	Off	Off	Off	Off	Off
Unit 2	Off	Off	Off	Off	Off	Off
Unit 3	Off	Off	Off	Off	Off	Off
Unit 4	27	0	0	0	0	1 894.2
Unit 5	22	0	0	0	0	1 934.7
Unit 6	Off	Off	Off	Off	Off	Off
SUM	27	0	0	0	0	

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm³)
Unit 1	Off	Off	Off	Off	Off	Off
Unit 2	Off	Off	Off	Off	Off	Off
Unit 3	Off	Off	Off	Off	Off	Off
Unit 4	27	0	0	0	0	1 031.5
Unit 5	21	0	0	1	1	1 068.5
Unit 6	Off	Off	Off	Off	Off	Off
SUM	27	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

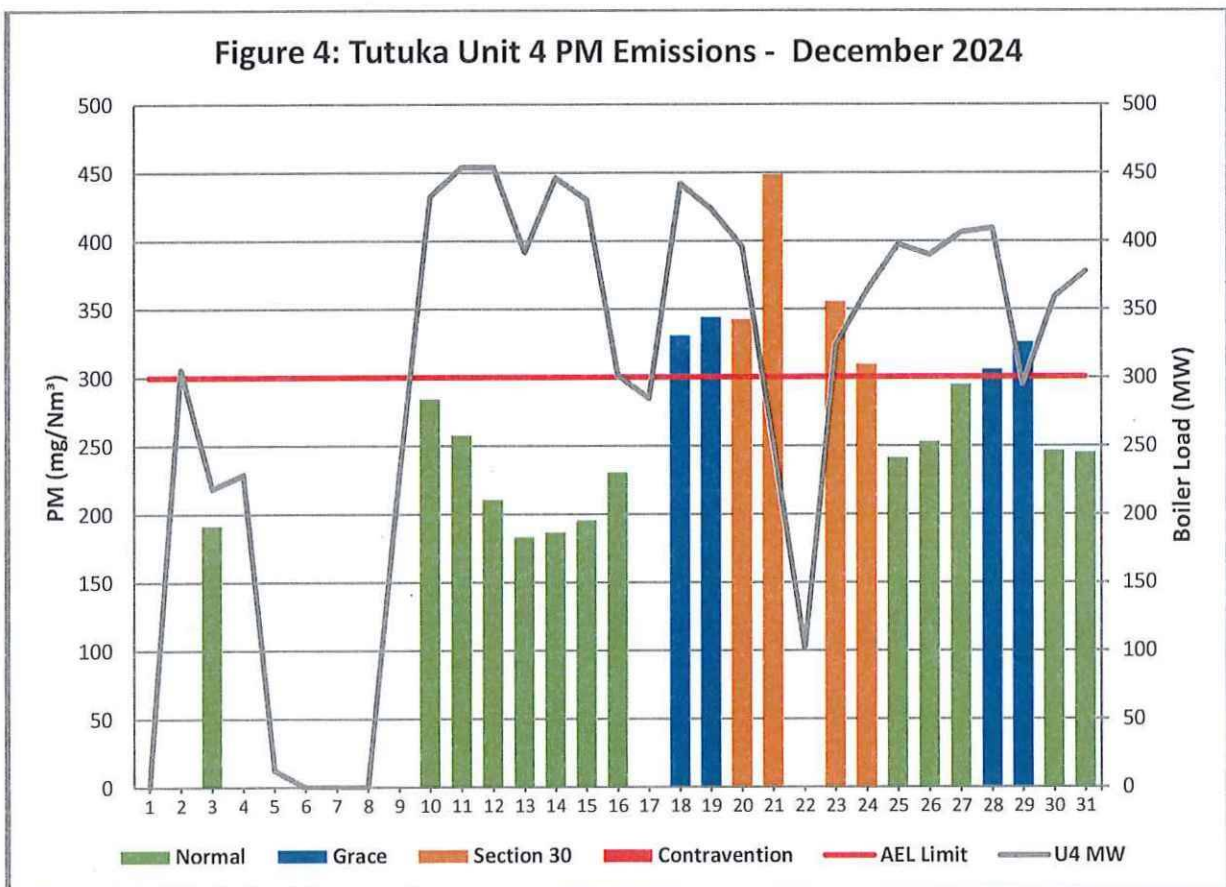


Figure 5: Tutuka Unit 5 PM Emissions - December 2024

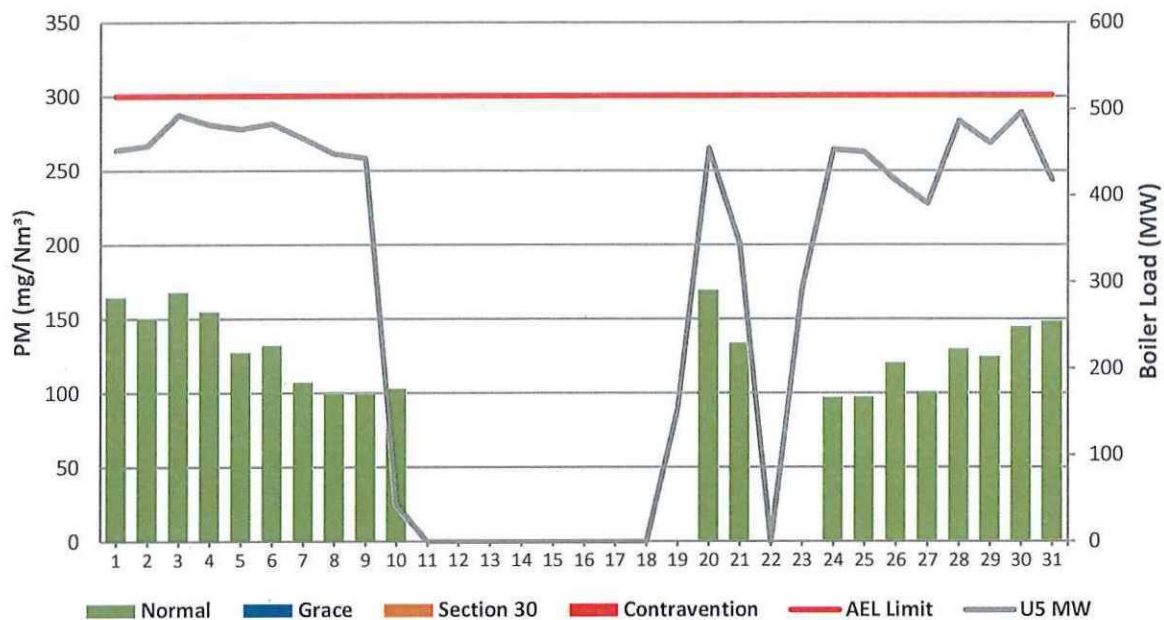


Figure 10: Tutuka Unit 4 SO₂ Emissions - December 2024

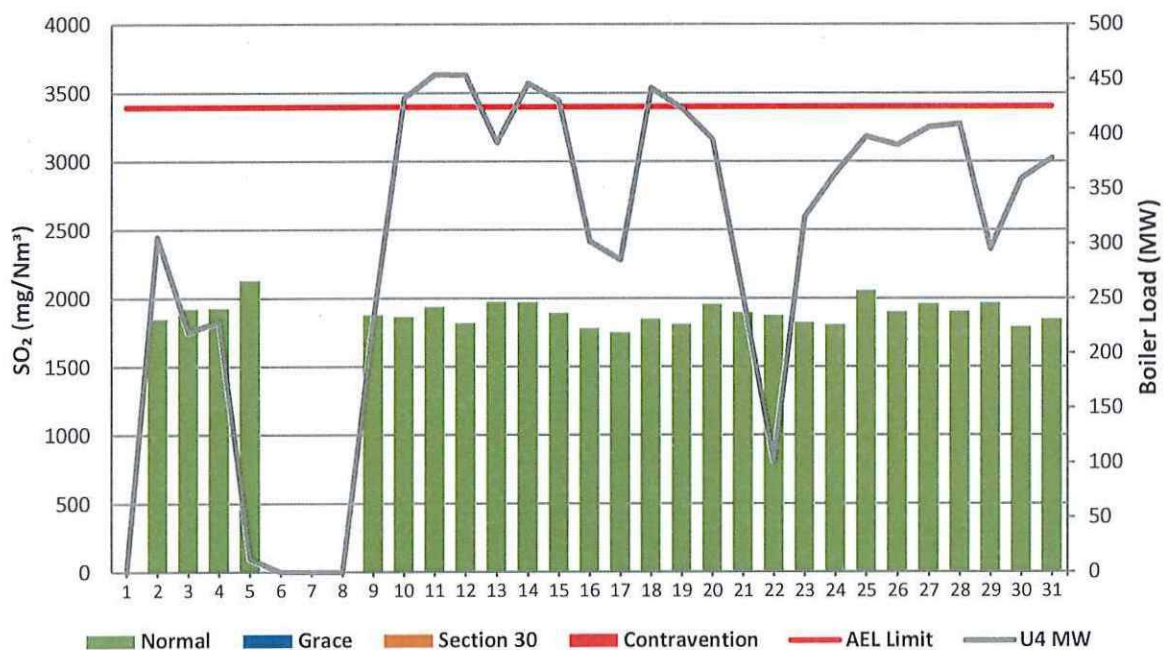


Figure 11: Tutuka Unit 5 SO₂ Emissions - December 2024

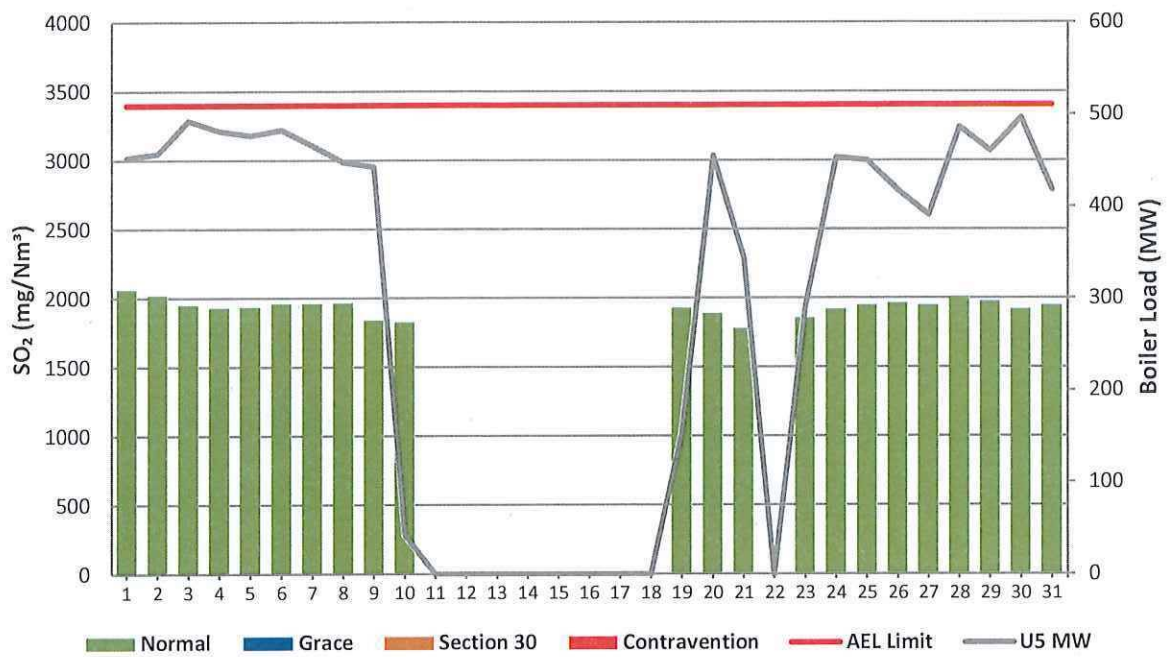
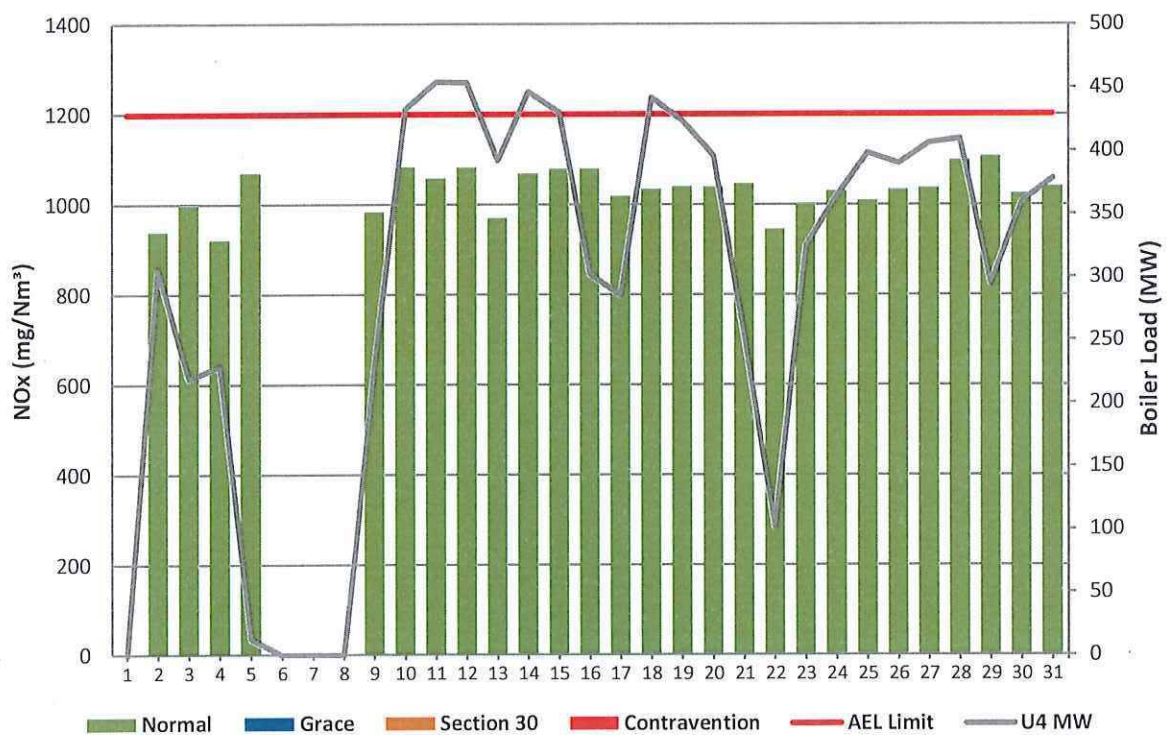


Figure 16: Tutuka Unit 4 NO_x Emissions - December 2024

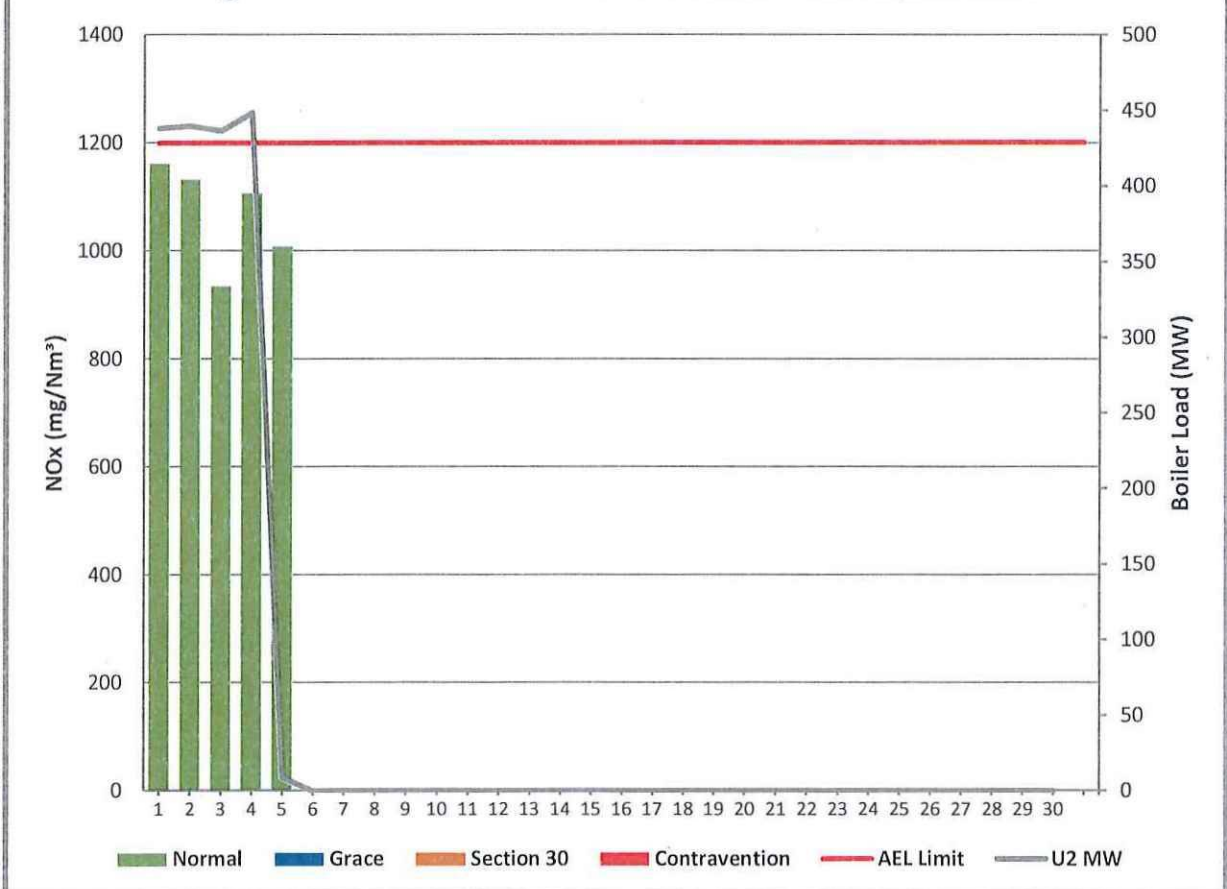


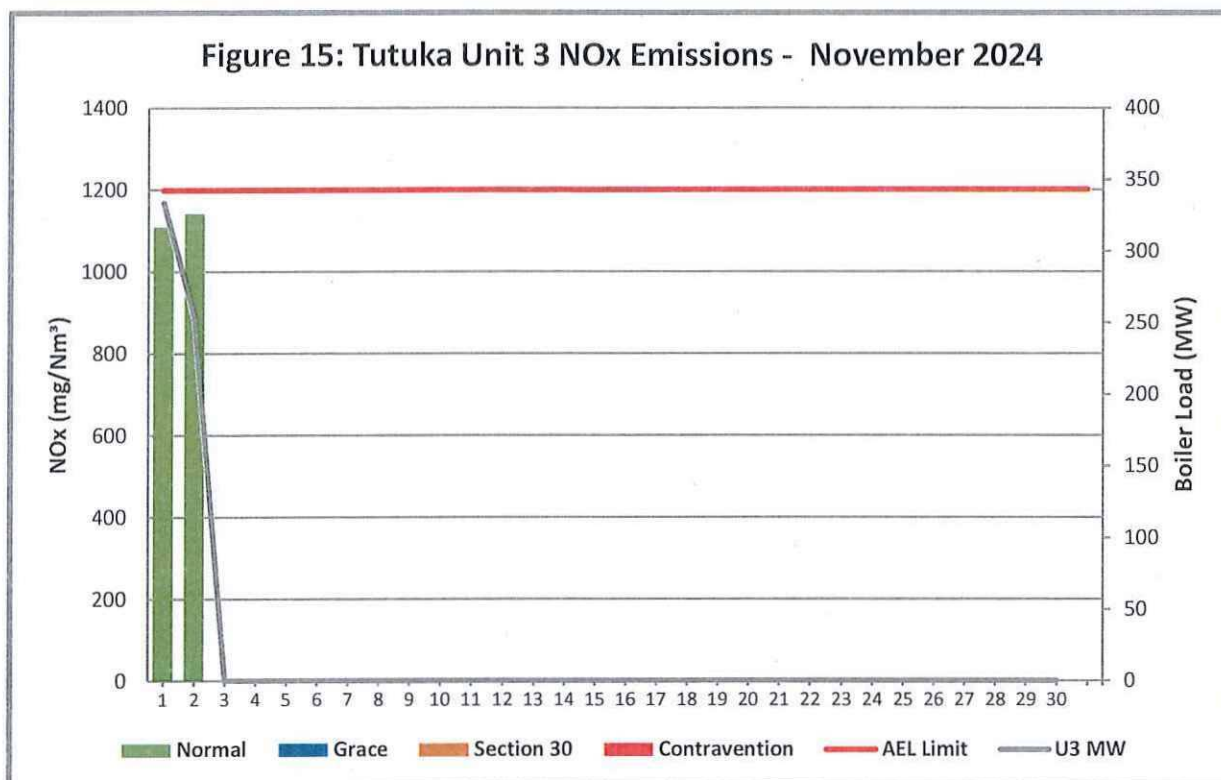
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Figure 17: Tutuka Unit 5 NOx Emissions - December 2024



Figure 14: Tutuka Unit 2 NOx Emissions - November 2024





7.LIGHT-UP INFORMATION

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

Number & Type of Starts	Unit	1	2	3	4	5	6
Number Of Hot Starts (Off-Load < 30 Hrs)	-	0.00	0.00	0.00	5.00	2.00	0.00
Number Of Cold Starts (Off-Load > 30 hrs)	-	0.00	0.00	0.00	4.00	2.00	0.00

8.GENERAL DISCUSSION

The station had PM exceedances on Unit 4. The exceedances resulted in a section 30 incident.

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 December 2024					

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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:

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Mike Molepo

SENIOR CHEMIST (BOILER ENGINEERING): TUTUKA POWER STATION

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