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Dear Mr. Hlanyane

TUTUKA POWER STATION SUBMISSION MONTHLY EMISSIONS PERFORMANCE MONITORING REPORT AS STIPULATED ON CONDITION 7.5 OF TUTUKA POWER STATION ATMOSPHERIC EMISSION LICENCE NO: Lekwa/Eskom H SOC Ltd TPS/0013/2019/F03 Dated 25 APRIL 2019

In terms of Tutuka PS AEL, the station is required to submit the monthly emissions monitoring report on/before the 12th every month. The report shall indicate the emission performance for the previous month. This report contains the emission performance for the month of May 2021.

1. RAW MATERIALS AND PRODUCTS

Raw Materials and Products	Raw Material Type	Units	Max. Permitted	Actual Consumption May-2021
	Coal	Tons	1 200 000	560 662
	Fuel Oil	Tons	10 000	16224.82
Note: High oil consumption was due to prolonged light up at unit 2 & 5 due to poor vacuum, unit trips and fuel oil support due to poor combustion.				
Production Rates	Product / By-Product Name	Units (per Month)	Max. Production Capacity Permitted	Production Rate May-2021
	Energy	GWh	2611.44	880.5
	Ash	Tons	Not specified	133 101
	RE Ash	kg/MWh	Not specified	1.57

Table 1: Quantity of raw materials and products used/produces for the month of May 2021

2. ENERGY SOURCE CHARACTERISTICS

Coal Characteristics	Units	Stipulated Range	Monthly Average Content
CV Content	MJ/kg	<i>Not specified</i>	21.940
Sulphur Content	%	0.6 -2.6	0.900
Ash Content	%	21 -33	23.740

Table 2:Energy sources material characteristics for the month of May 2021

3. ABATEMET TECHNOLOGY (%)

Associated Unit/Stack	Technology Type	Minimum Control Efficiency (%)	Actual Calculated Efficiency (%)
Unit 1	<i>Electro Static Precipitators (ESP)</i>	95.00	99.2%
Unit 2	<i>Electro Static Precipitators (ESP)</i>	95.00	98.1%
Unit 3	<i>Electro Static Precipitators (ESP)</i>	98.00	99.1%
Unit 4	<i>Electro Static Precipitators (ESP)</i>	95.00	98.8%
Unit 5	<i>Electro Static Precipitators (ESP)</i>	95.00	99.4%
Unit 6	<i>Electro Static Precipitators (ESP)</i>	95.00	99.0%

Table 3.1: Abatement Equipment Control Technology for month of May 2021.

Note: The ESP does not have a bypass mode operation, hence the plant is 100% utilised.

3.2. MONITOR DATA RELIABILITY (%)

Associated Unit/Stack	PM	SO _x	NO _x
Unit 1	100.0	100.0	100.0
Unit 2	97.0	98.0	98.0
Unit 3	100.0	99.0	100.0
Unit 4	100.0	100.0	98.0
Unit 5	100.0	100.0	100.0
Unit 6	95.0	95.0	97.0

Table 3.2: Monitor reliability for month of May 2021

4. EMISSION PERFORMANCE

Associated Unit/Stack	PM (tons)	SO ₂ (tons)	NO _x (tons)
Unit 1	118.3	1 176	490
Unit 2	439.8	2 442	913
Unit 3	171.4	2 108	726
Unit 4	258.6	1 759	722
Unit 5	33.0	345	134
Unit 6	371.0	3 683	1 101
SUM	1 392.1	11 512	4 086

Table 4.1: Monthly tonnages for the month of May 2021

Table 4.2: Legend Description for figure 1-18(below)

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

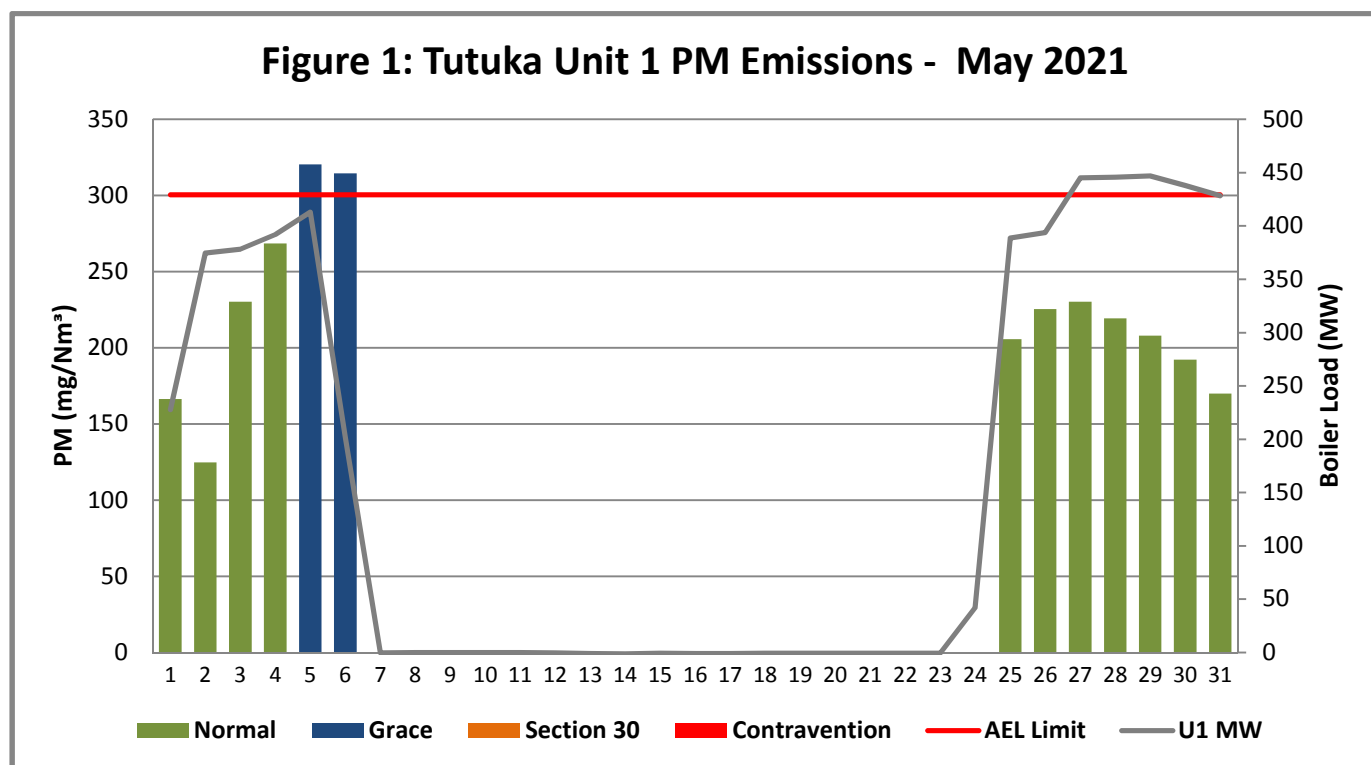


Figure 1: Unit 1 Daily Average PM emissions for the month of May 2021 (against the emission limits and load Generated)

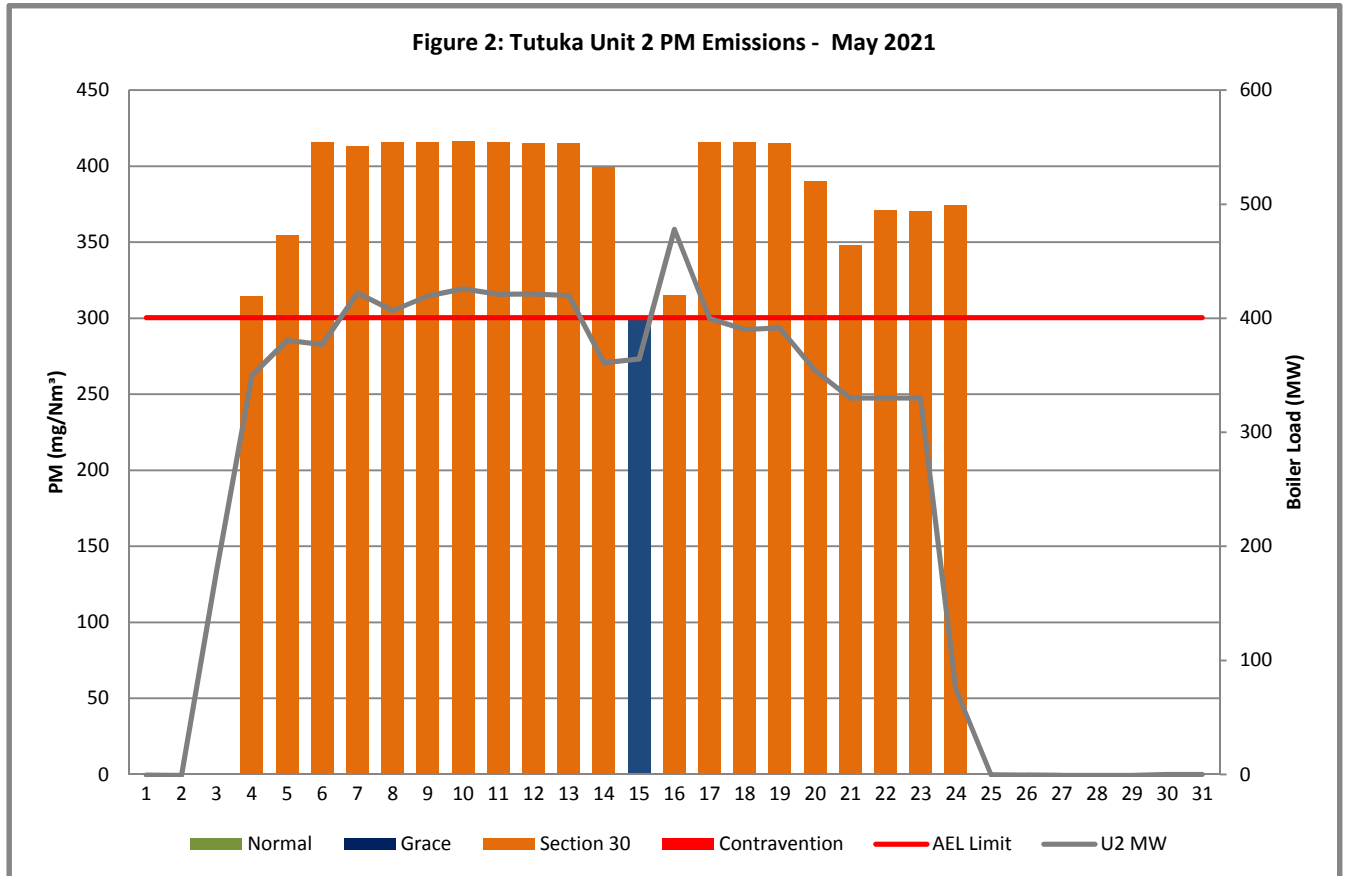


Figure 2: Unit 2 Daily Average PM emissions for the month of May 2021 (against the emission limits and load Generated)

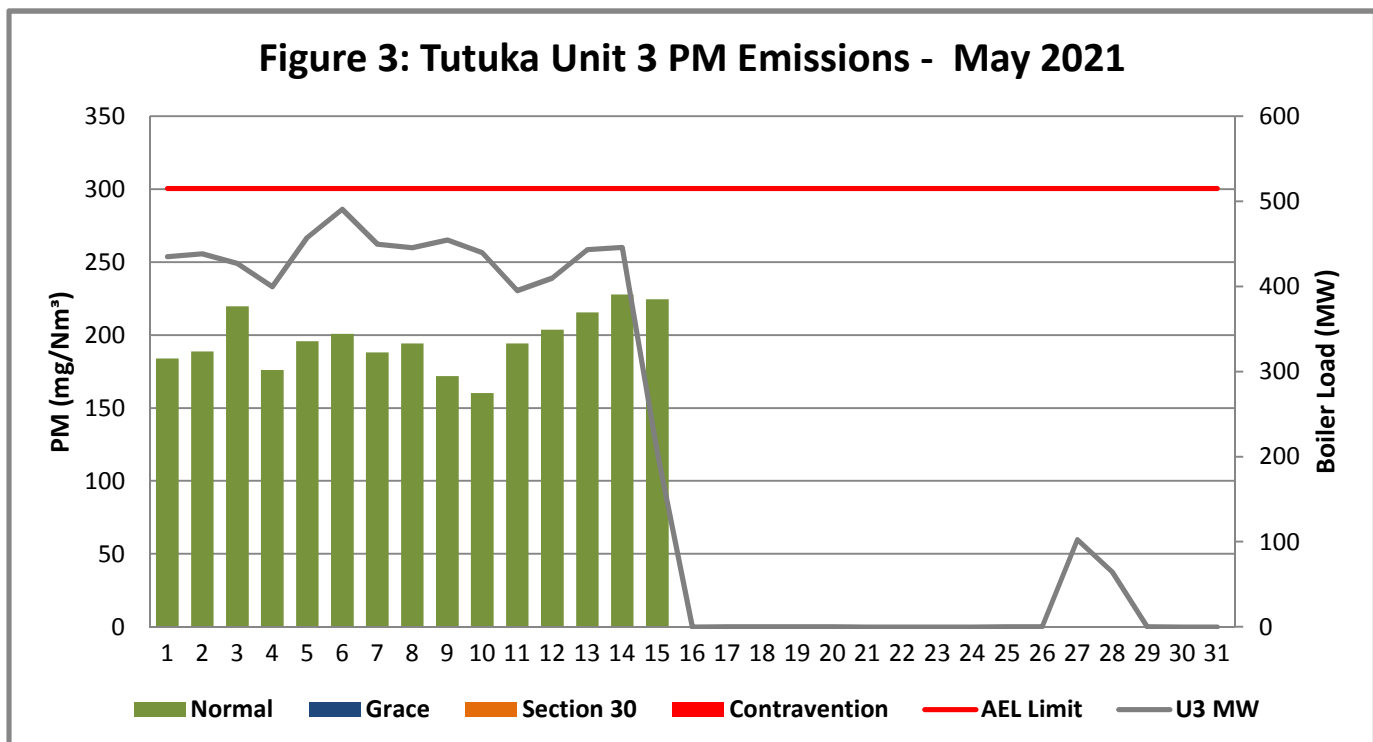


Figure 3: Unit 3 Daily Average PM emissions for the month of May 2021 (against the emission limits and load Generated)

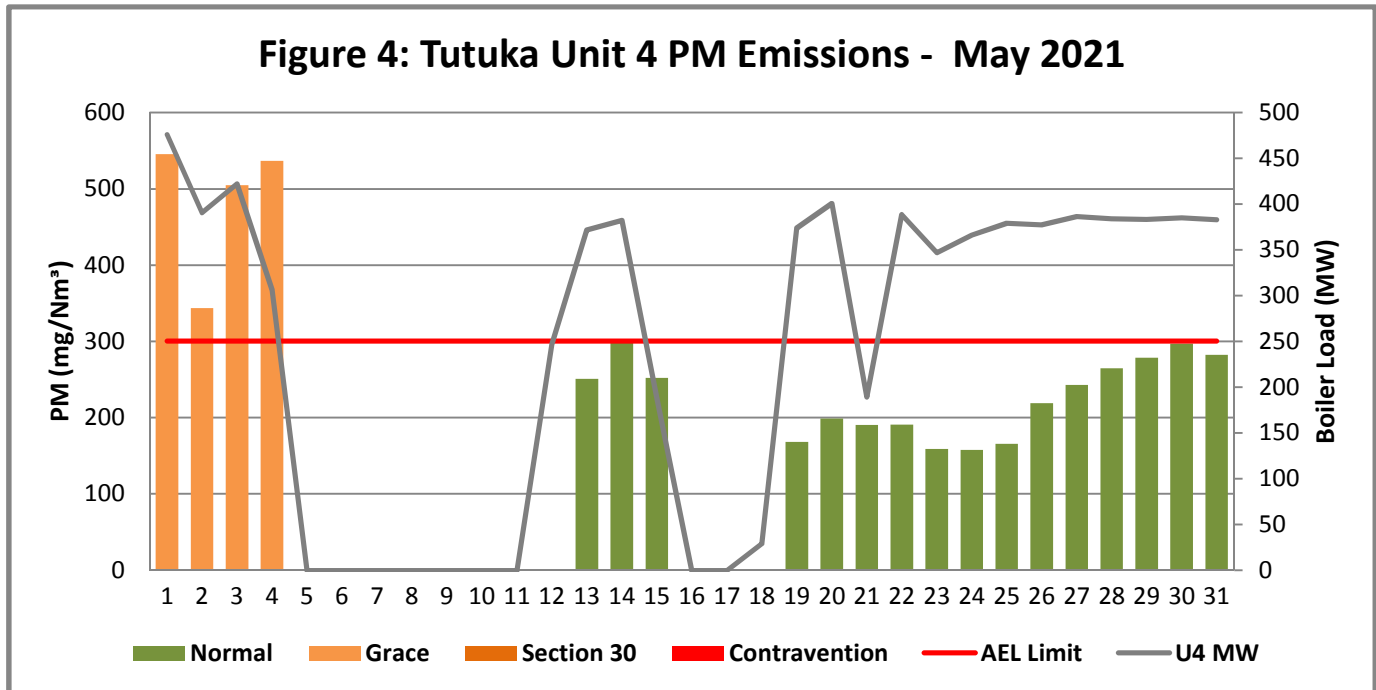


Figure 4: Unit 4 Daily Average PM emissions for the month of May 2021 (against the emission limits and load Generated)

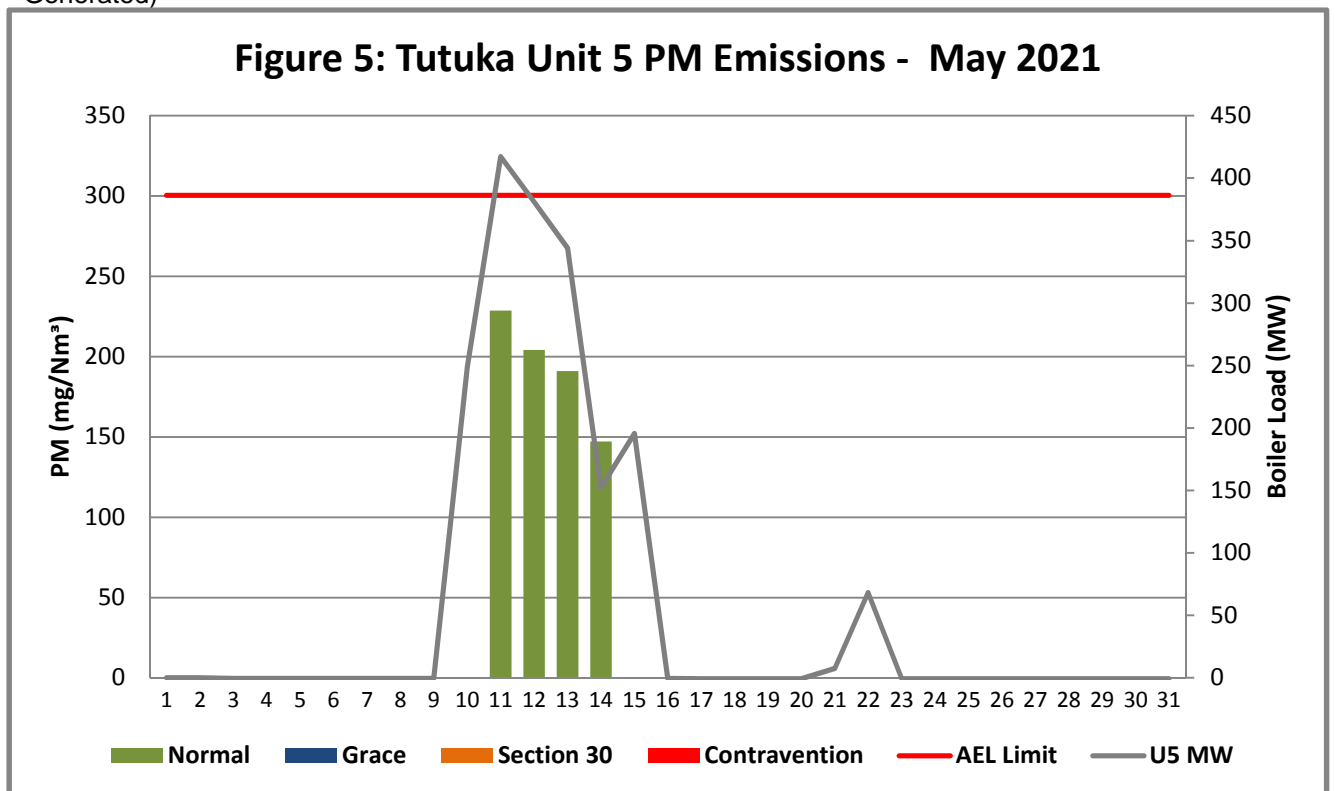


Figure 5: Unit 5 Daily Average PM emissions for the month of May 2021 (against the emission limits and load Generated)

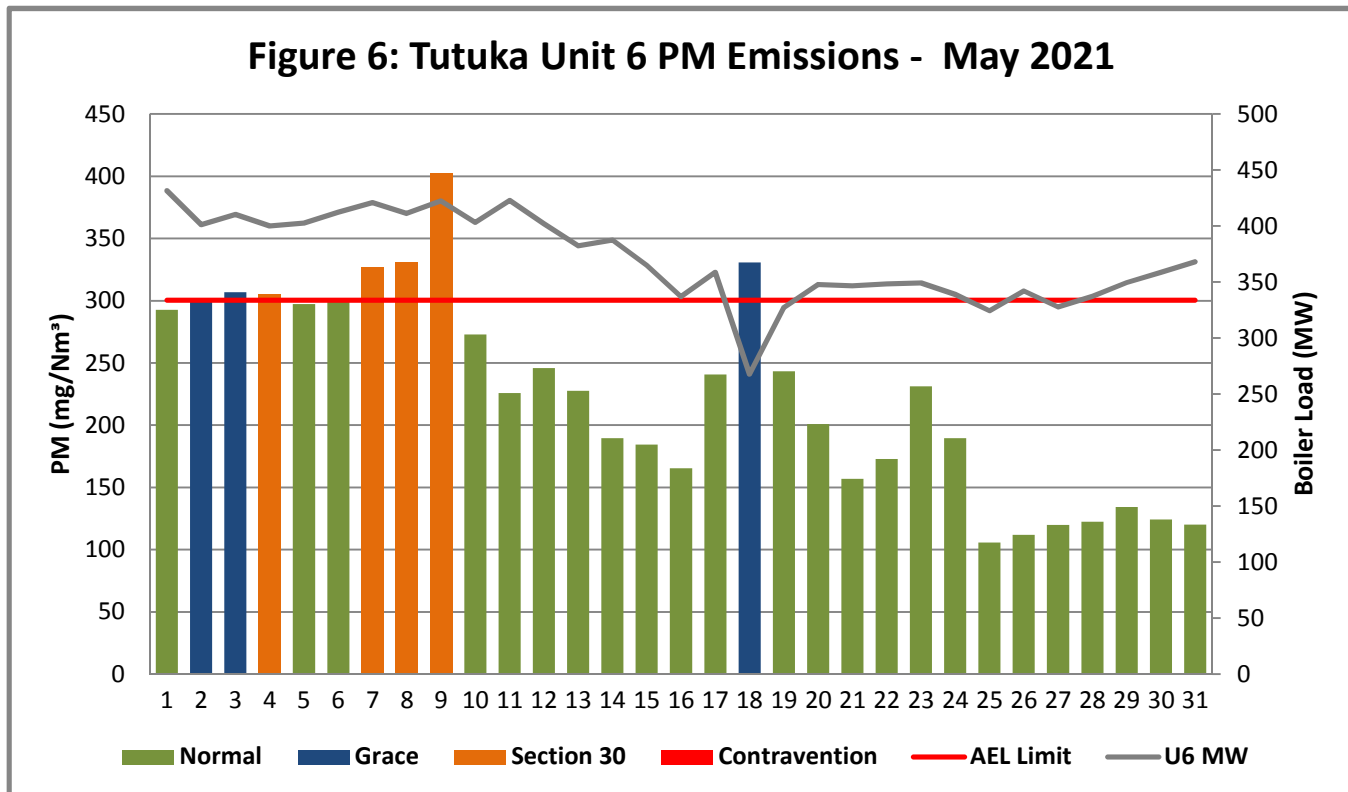


Figure 6: Unit 6 Daily Average PM emissions for the month of May 2021 (against the emission limits and load Generated)

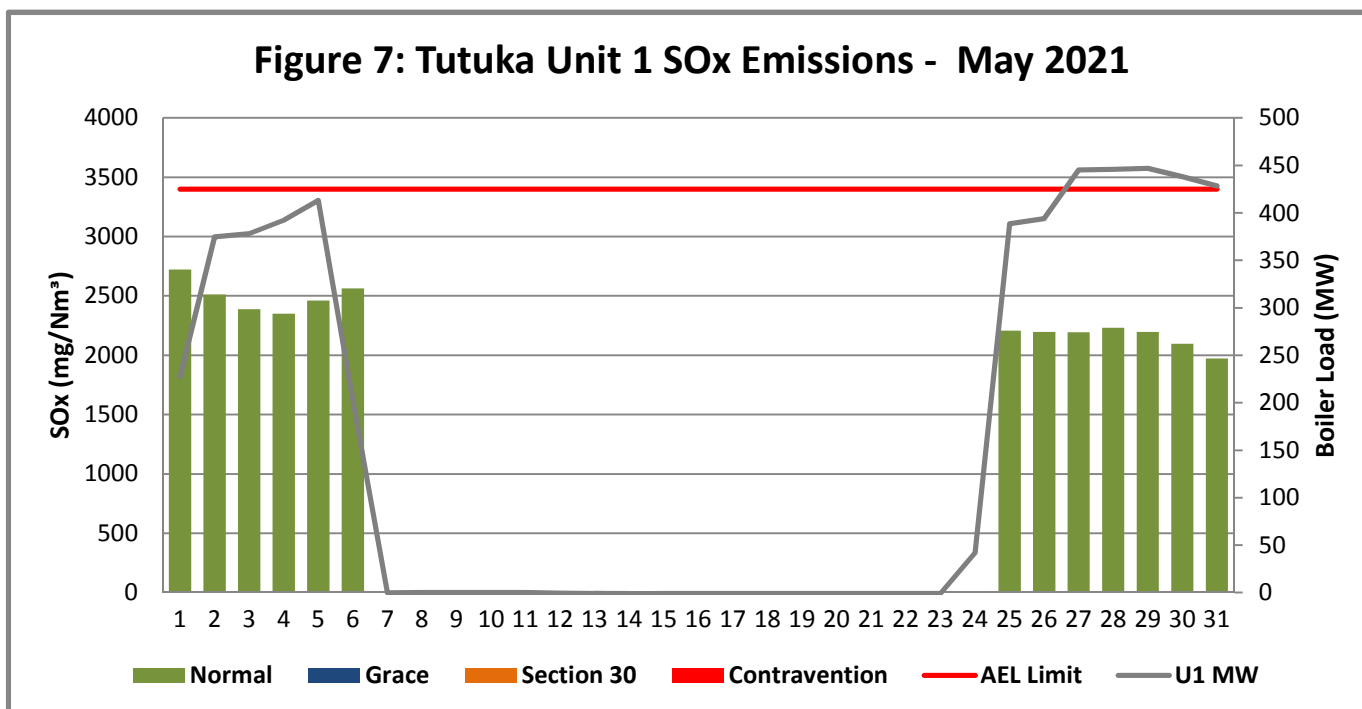


Figure 7: Unit 1 Daily Average SOx emissions for the month of May 2021 (against the emission limits and load Generated)

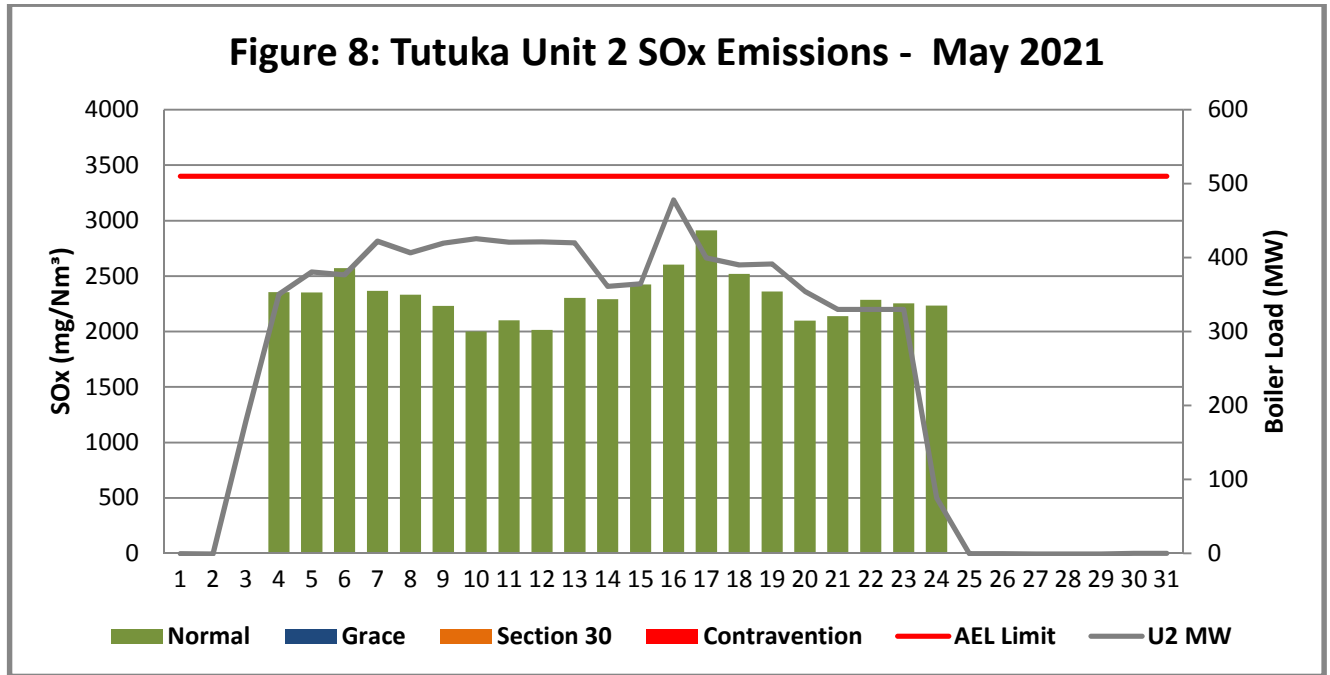


Figure 8: Unit 2 Daily Average SOx emissions for the month of May 2021 (against the emission limits and load Generated)

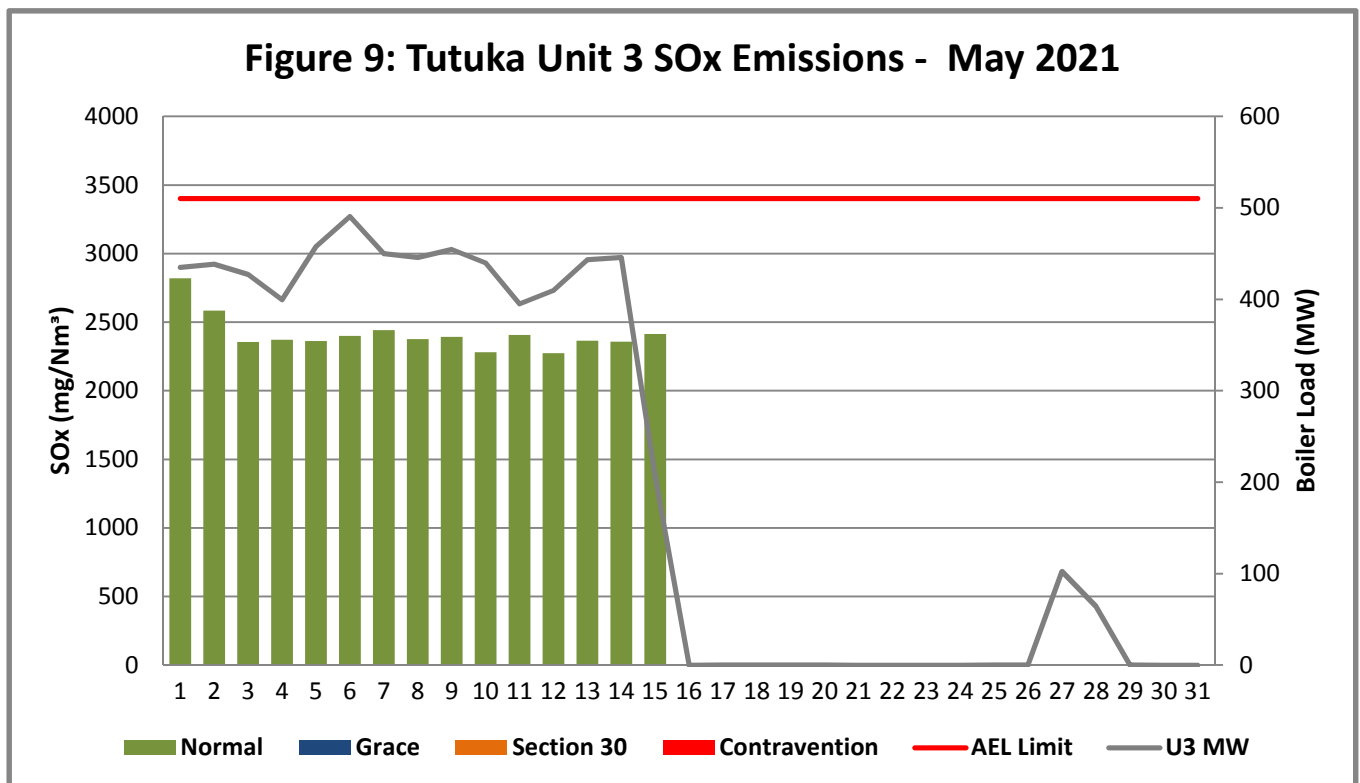


Figure 9: Unit 3 Daily Average SOx emissions for the month of May 2021 (against the emission limits and load Generated)

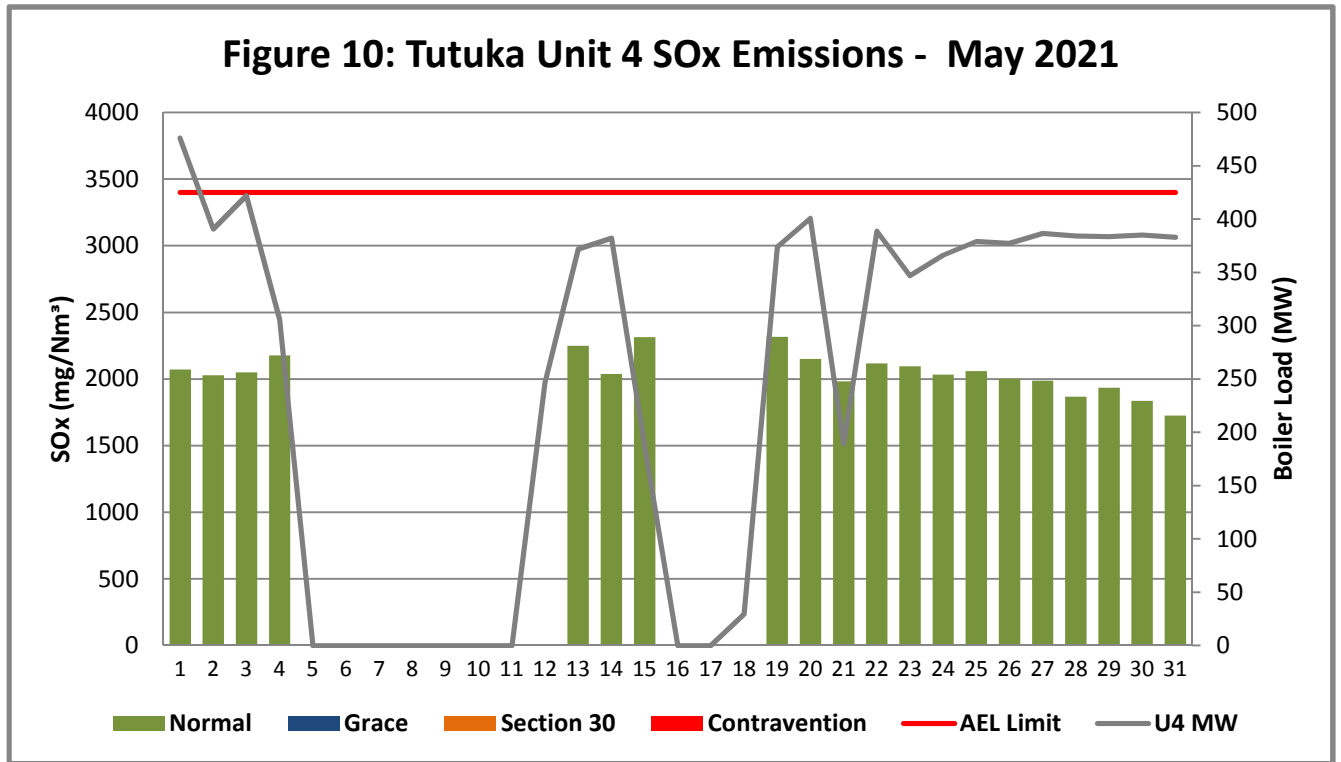


Figure 10: Unit 4 Daily Average SOx emissions for the month of May 2021 (against the emission limits and load Generated)

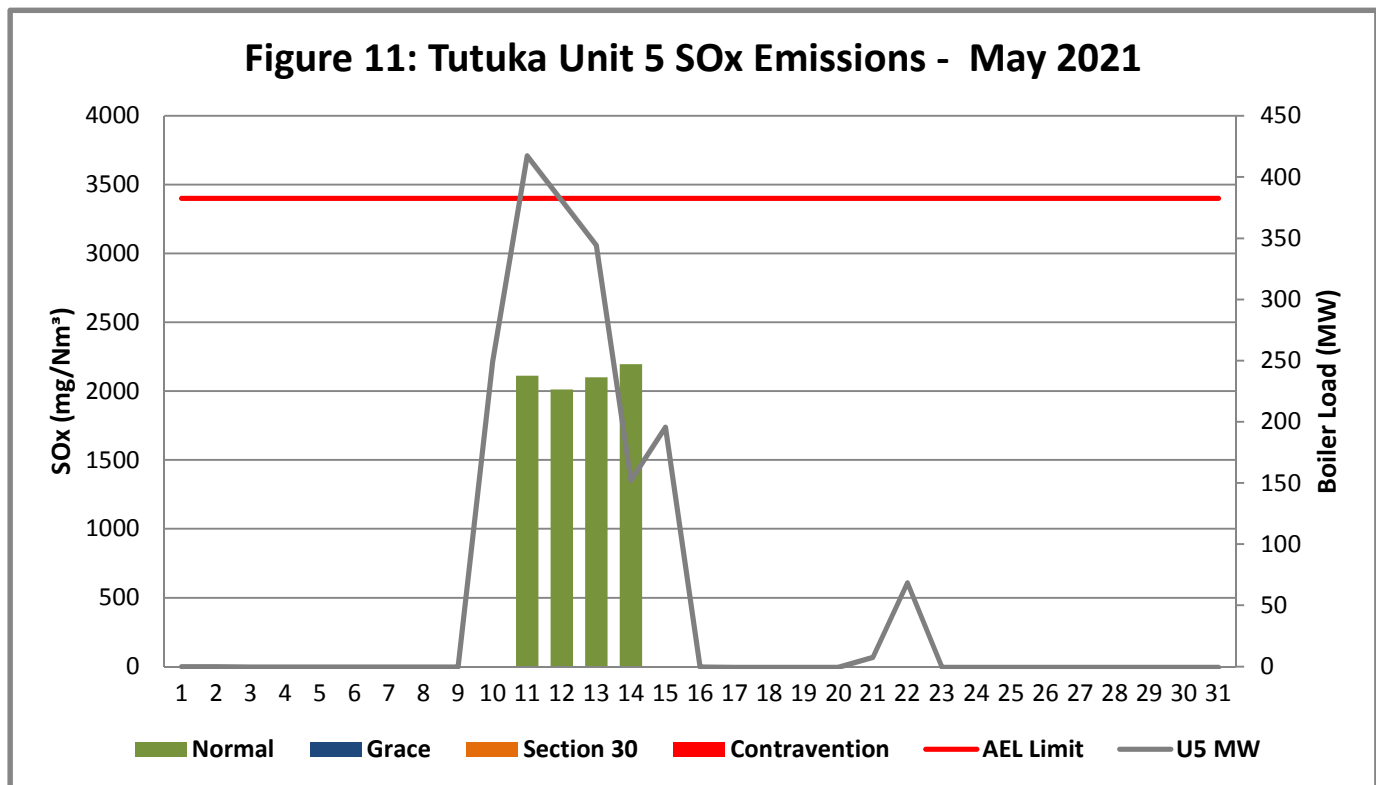


Figure 11: Unit 5 Daily Average SOx emissions for the month of May 2021 (against the emission limits and load Generated)

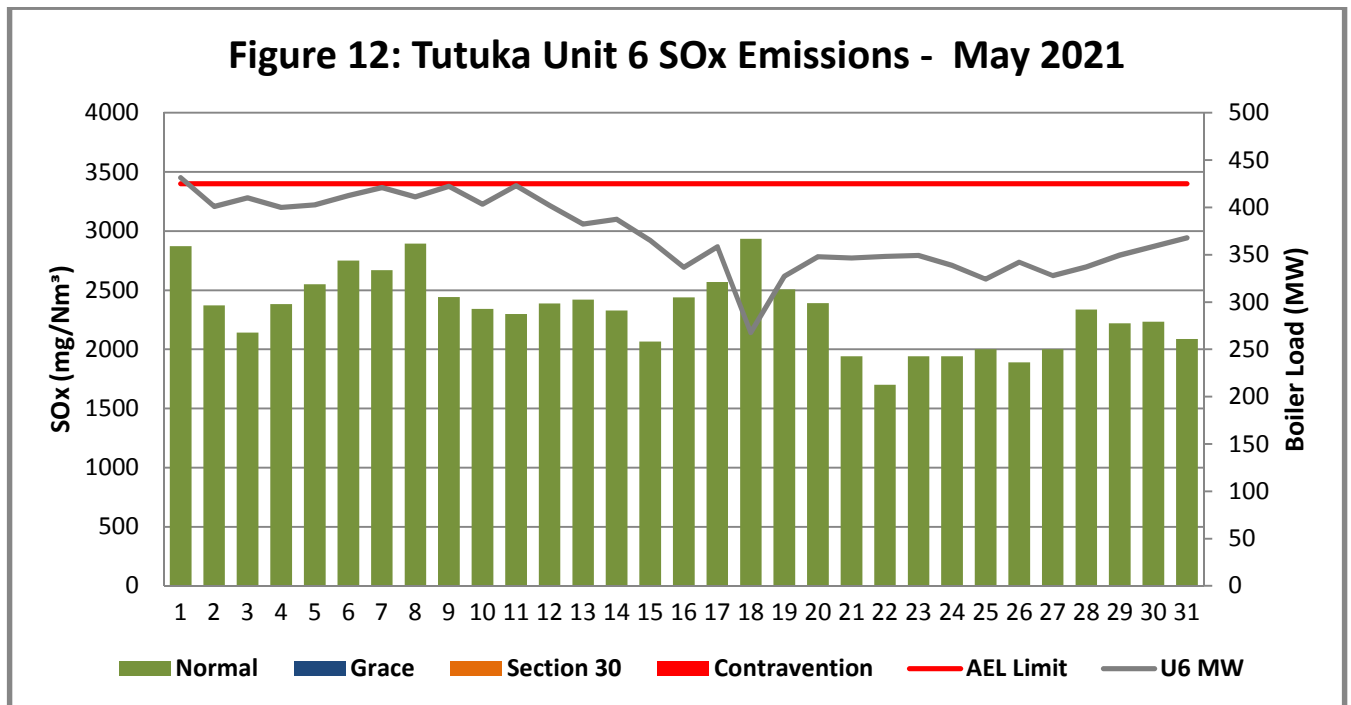


Figure 12: Unit 6 Daily Average SOx emissions for the month of May 2021 (against the emission limits and load Generated)

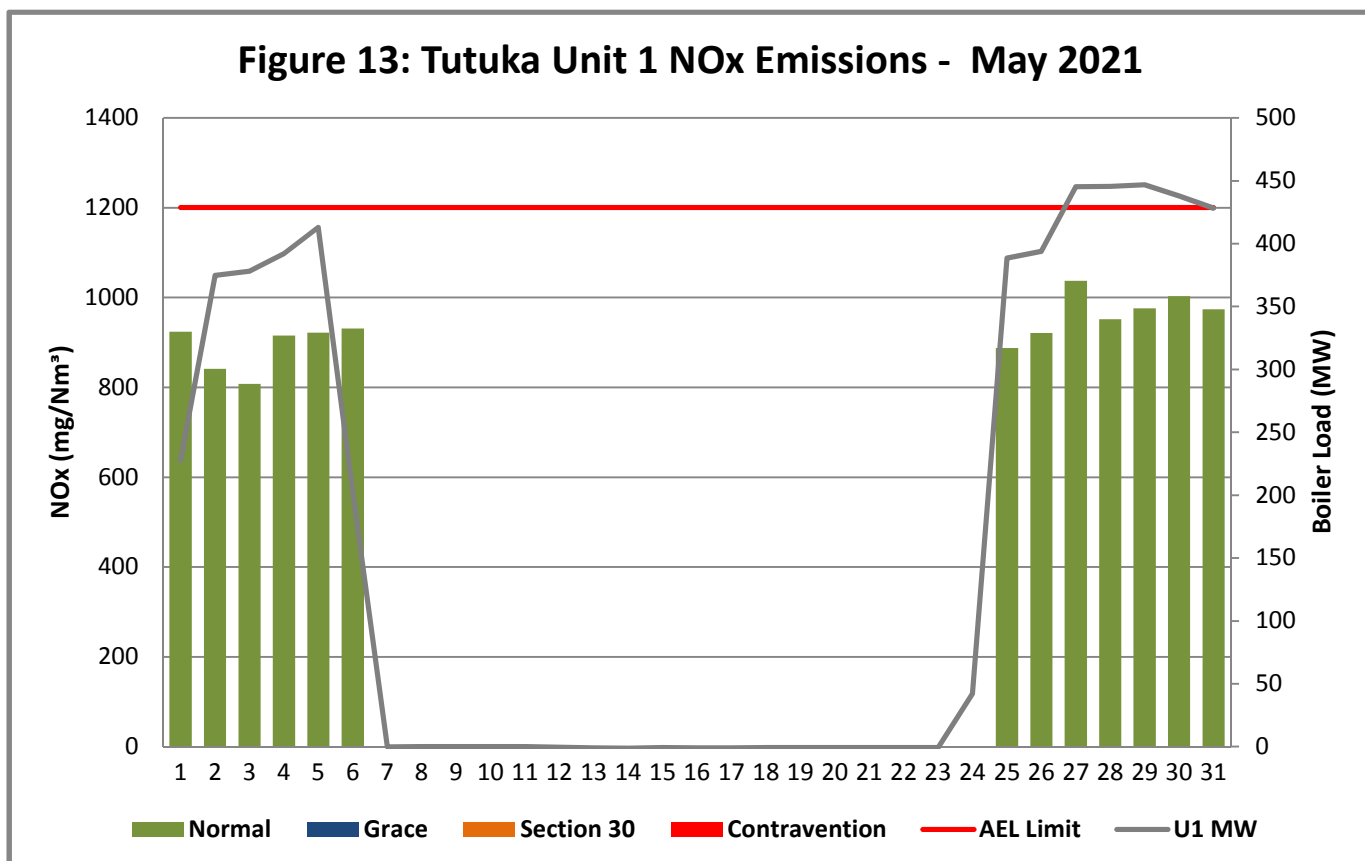


Figure 13: Unit 1 Daily Average NOx emissions for the month of May 2021 (against the emission limits and load Generated)

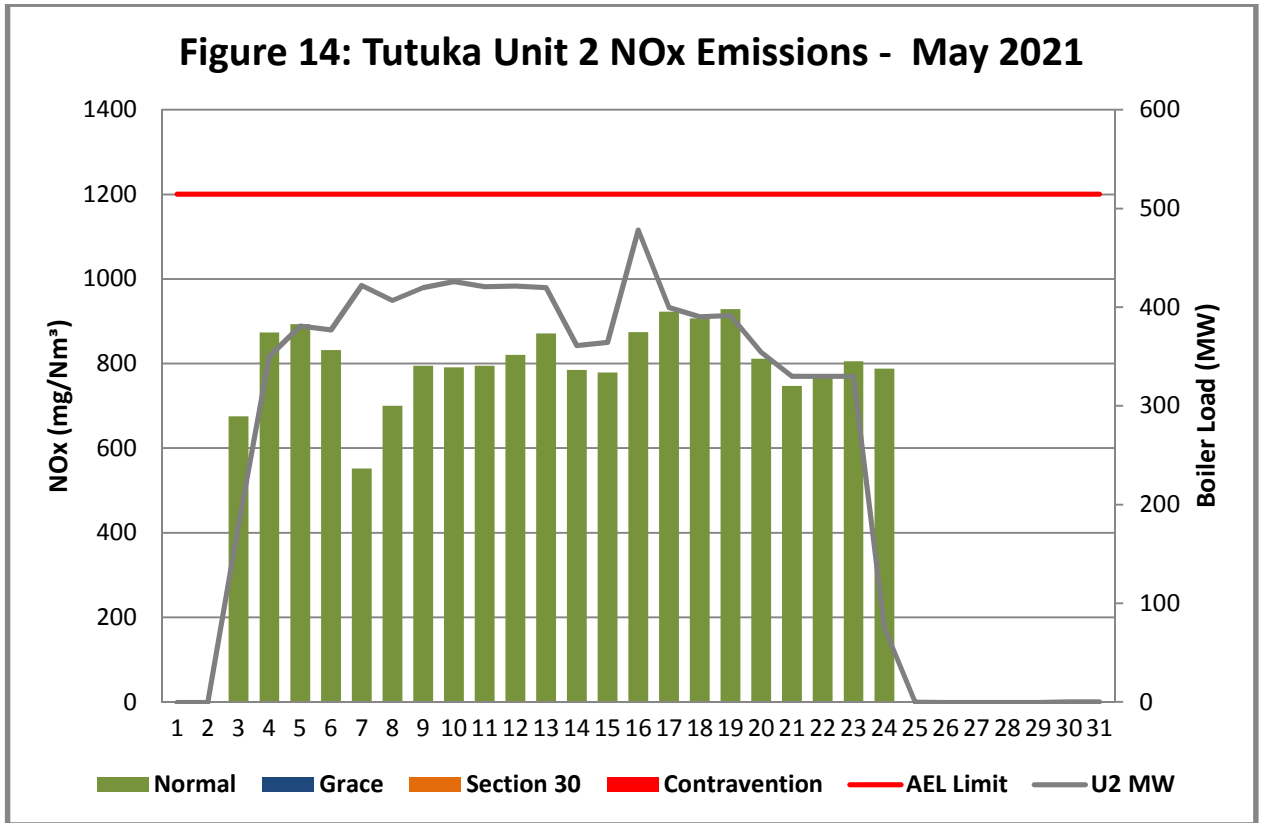


Figure 14: Unit 2 Daily Average NOx emissions for the month of May 2021 (against the emission limits and load Generated)

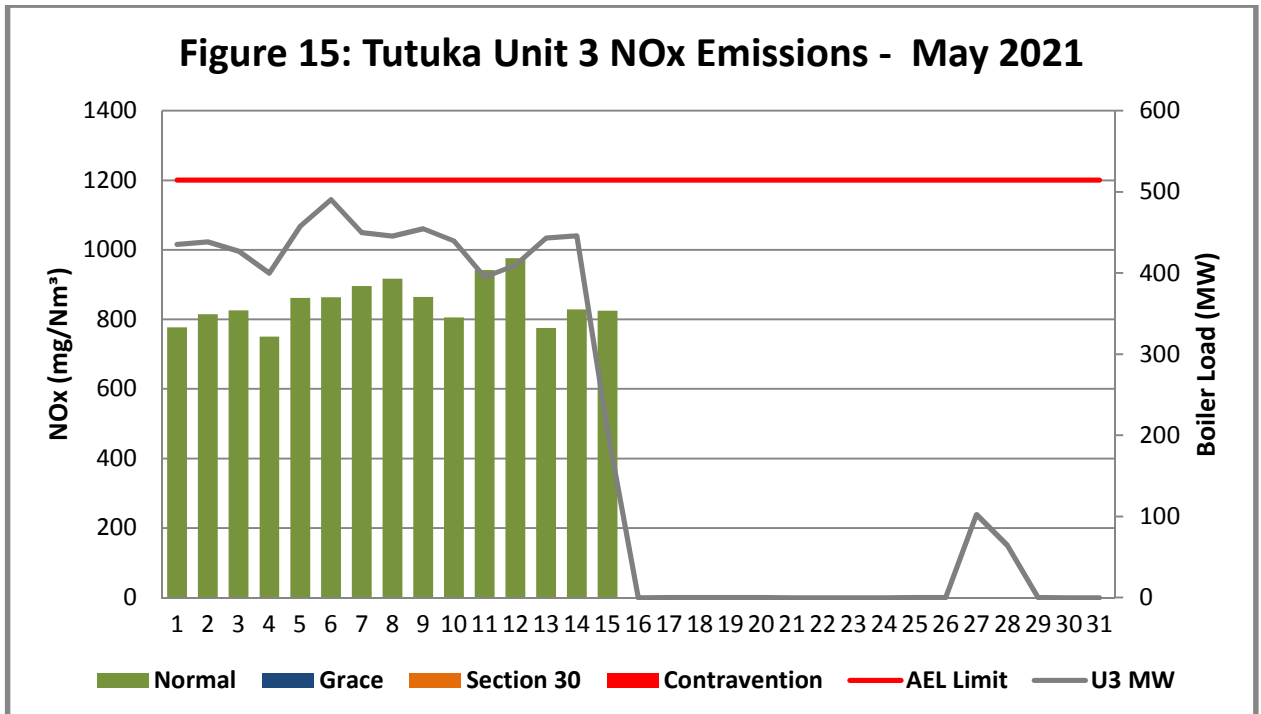


Figure 15: Unit 3 Daily Average NOx emissions for the month of May 2021 (against the emission limits and load Generated)

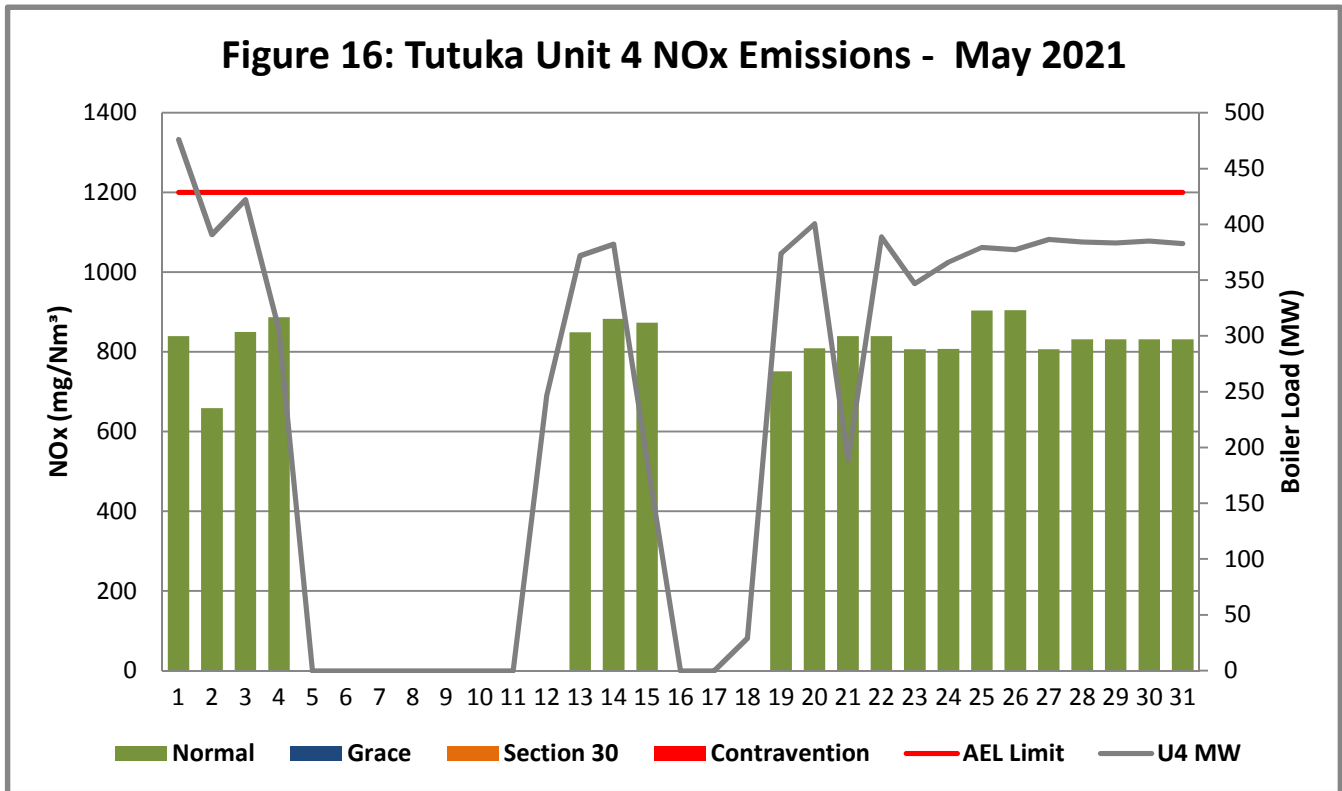


Figure 16: Unit 4 Daily Average NOx emissions for the month of May 2021 (against the emission limits and load Generated)

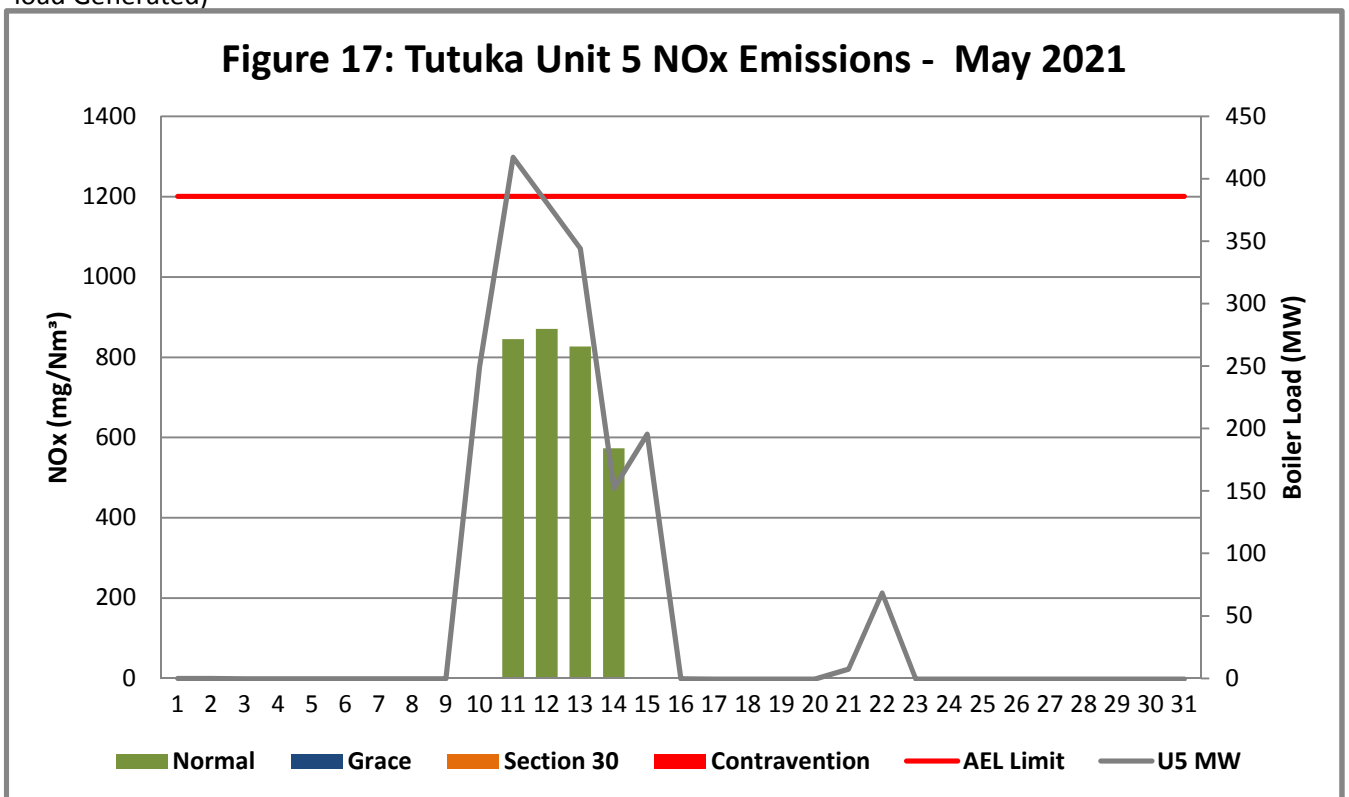


Figure 17: Unit 5 Daily Average NOx emissions for the month of May 2021 (against the emission limits and load Generated)

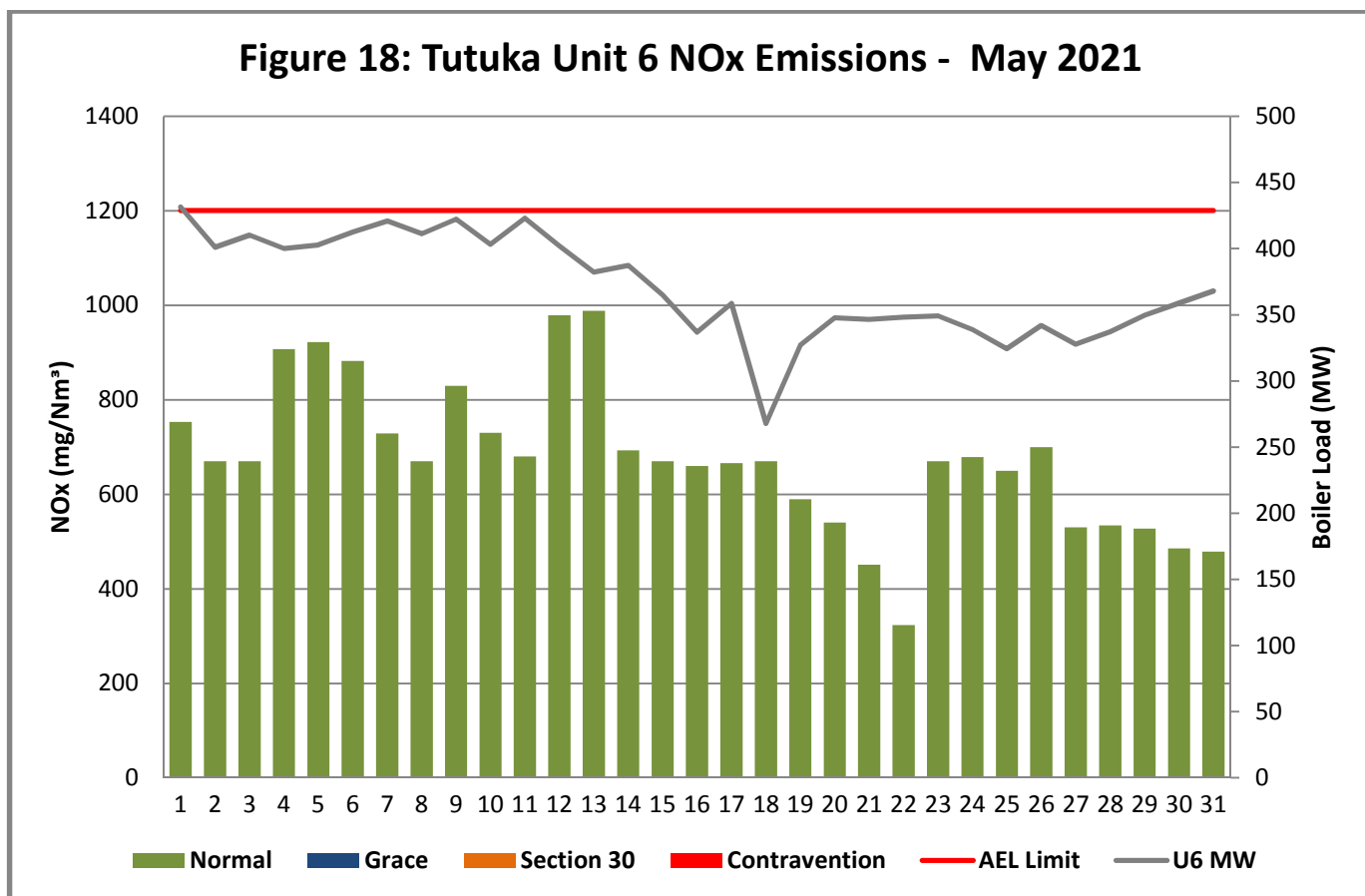


Figure 18: Unit 6 Daily Average NOx emissions for the month of May 2021 (against the emission limits and load Generated)

5. Number and Types of unit's start-ups

Number & Type of Starts	U1	U2	U3	U4	U5	U6
Number Of Hot Starts (Off-Load < 30 Hrs)	1	4	2	0	6	0
Number Of Cold Starts (Off-Load > 30 hrs)	1	0	1	1	1	0

Table 5: Number and type of Unit start-ups for each unit respectively for the month of May 2021

6. Complaints

No public complaints received for the month of May 2021

Source Code/ Name	Root Cause Analysis	Calculation of Impacts/ emissions associated with the incident	Dispersion modeling of pollutants where applicable	Measures implemented to prevent reoccurrence	Date by which measure will be implemented
None		N/A	N/A	N/A	N/A

Table 6: Complaints for the month of May 2021

7. General

Section 30 incidents were incurred on unit 2, 4, &6 in the month of May 2021. This were continuous section 30 from April 2021(See table 7.4 below).

Unit 2:The incident was due to the unavailability of the ash conditioners and downstream conveyors. The absence of air conditioners and conveyors resulted in 37 full hoppers. The incident ended on the 11 May 2021

Unit 4: The unit had challenges with HFPS defects, Dust handling plant (DHP) defects as well as internal faults on the precip. Most of the defects were cleared and the unit was back to normal operation on the 4th of May 2021.

Unit 6: The incident was due to failure of conveyors (overland and ash transverse convers) and the unavailability of ash conditioners,The situation went back to normal on the 10th May 2021..

There were no SOx and NOx exceedances were incurred in the month of May 2021(See tables 7.1 -7.3 below).

Table 7.1: Operating days in compliance to PM AEL Limit – May 2021

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm ³)
Unit 1	11	2	0	0	2	221.3
Unit 2	1	2	18	0	20	379.8
Unit 3	15	0	0	0	0	196.4
Unit 4	16	0	4	0	4	277.3
Unit 5	4	0	0	0	0	192.8
Unit 6	24	3	4	0	7	224.3
SUM	71	7	26	0	33	

Table 7.2: Operating days in compliance to SOx AEL Limit –May 2021

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SOx (mg/Nm ³)
Unit 1	13	0	0	0	0	2 314.5
Unit 2	21	0	0	0	0	2 134.5
Unit 3	15	0	0	0	0	2 413.3
Unit 4	20	0	0	0	0	2 051.8
Unit 5	4	0	0	0	0	2 106.1
Unit 6	31	0	0	0	0	2 243.5
SUM	104	0	0	0	0	

Table 7.3: Operating days in compliance to NOx AEL Limit - May 2021

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm ³)
Unit 1	13	0	0	0	0	930.3
Unit 2	21	0	0	0	0	794.4
Unit 3	15	0	0	0	0	828.4
Unit 4	20	0	0	0	0	831.8
Unit 5	4	0	0	0	0	778.8
Unit 6	31	0	0	0	0	670.4
SUM	104	0	0	0	0	



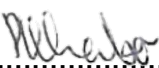

8. Conclusion

Eskom Centre of Excellence (CoE): Air Quality submitted an application on behalf of Tutuka PS for the postponement for the implementation of the Minimum Emissions Standard (MES) limits to the Department of Environment Fisheries and Forestry (DEFF) and Gert Sibande District Municipality on the 09th of November 2018. In the application, a postponement of 300 mg/Nm³ was requested (24 hour moving average). Tutuka PS's new PM emissions limit of 100 mg/Nm³ (previously- 350 mg/Nm³), came into effect on the 1st January 2020. The Station is unable to meet the limits with the current abatement technology.

All documentation in respect of the stations MES postponement application was submitted and DEFF has confirmed that while the application is being assessed the previous emission limits apply i.e. 300 mg/Nm³ for PM. In addition to that, the station has also submitted an AEL variation request.

For more information or enquiries contact the Tutuka environmental team.

Yours Sincerely

<p>Compiled by: Monica Mkgawa</p> <p>ENVIRONMENTAL MANAGER: TUTUKA POWER STATION</p> <p>Signature: </p>	<p>Verified By: Mike Molepo</p> <p>SENIOR CHEMIST CHEMISTRY: TUTUKA POWER STATION</p> <p>Signature:  19/07/2021</p>
<p>Supported By: Puleng Khabo</p> <p>RISK AND ASSURANCE MANAGER</p> <p>Signature: </p>	<p>Approved by: Sello Mametja</p> <p>GENERAL MANAGER: TUTUKA POWER STATION</p> <p>Signature: </p> <p>Date : 2021/07/21</p>