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Date:
 23 March 2021

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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 October 2020.

We apologise for delay in submitting the reports. We have revised our internal control to avoid this happening again.

1. RAW MATERIALS AND PRODUCTS

Raw Materials and Products	Raw Material Type	Units	Max. Permitted	Actual Consumption Oct-2020
	Coal	Tons	1 200 000	529 773
	Fuel Oil	Tons	10 000	13 842.42
Production Rates	Product / By-Product Name	Units	Max. Production Capacity Permitted	Production Rate Oct-2020
	Energy	MW	30 748	37632
	Ash	Tons	350 000	140 231
	RE Ash	kg/MWh	not specified	1.34

Table 1:Quantity of raw materials and products used/produces for the month of October 2020

2. ENERGY SOURCE CHARACTERISTICS

Coal Characteristics	Units	Stipulated Range	Monthly Average Content
CV Content	MJ/kg	16-24	21.240
Sulphur Content	%	0.6 TO >2.6	0.850
Ash Content	%	21 TO >33	26.470

Table 2:Energy sources material characteristics for the month of October 2020

3. ABATEMET TECHNOLOGY (%)

Associated Unit/Stack	Technology Type	*Minimum Control Efficiency (%)	Actual Efficiency October-2020
Unit 1	<i>Electro Static Precipitators (ESP)</i>	95	99.0%
Unit 2	<i>Electro Static Precipitators (ESP)</i>	95	99.0%
Unit 3	<i>Electro Static Precipitators (ESP)</i>	98	99.1%
Unit 4	<i>Electro Static Precipitators (ESP)</i>	95	100 %
Unit 5	<i>Electro Static Precipitators (ESP)</i>	95	99.0%
Unit 6	<i>Electro Static Precipitators (ESP)</i>	95	99.0%

Table 3.1: Abatement Equipment Control Technology for month of October 2020

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

MONITOR RELIABILITY (%)

Associated Unit/Stack	PM	SO _x	NO _x
Unit 1	100.0	99.1	99.5
Unit 2	97.7	97.3	97.3
Unit 3	96.6	95.5	99.2
Unit 4	100.0	0.0	0.0
Unit 5	98.3	99.0	99.0
Unit 6	99.2	98.8	98.8

Table 3.2:Monitor Reliability for the month of October 2020

4. Monthly tonnages

Associated Unit/Stack	PM (tons)	SO _x (tons)	NO _x (tons)
Unit 1	85.7	1 047	358
Unit 2	167.9	1418	481
Unit 3	288.8	3 406	1 175
Unit 4	0	00	00
Unit 5	303.0	3334	959
Unit 6	416.4	3 337	1 199
SUM	1 261.7	12 542	4 173

Table 4.1: Monthly tonnages for the month of October-2020

Table 4.2: Legend Description

Condition	Colour	Description
Normal		Emissions below Emission Limit Value (ELV)
Grace		Emissions above the ELV during grace period
Section 30		Emissions above ELV during a NEMA S30 incident
Contravention		Emissions above ELV but outside grace or S30 incident conditions

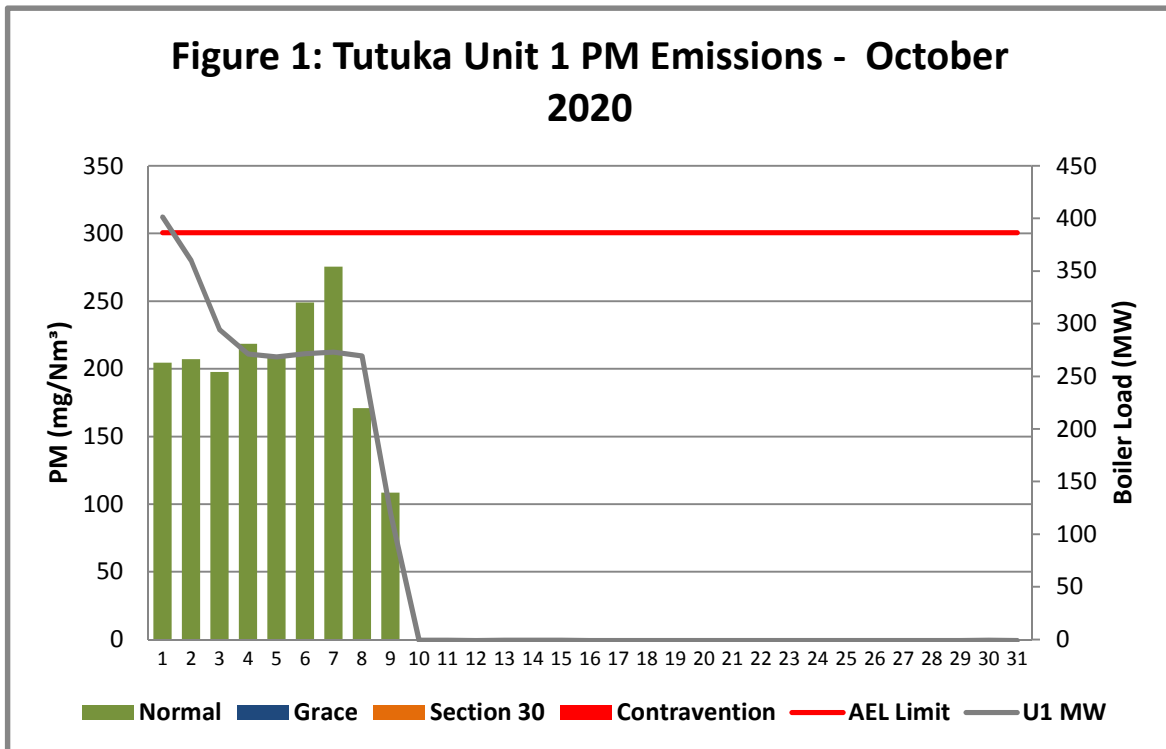


Figure 1: Unit 1 Daily Average PM emissions for the month of October 2020 (against the emission limits and load generated).

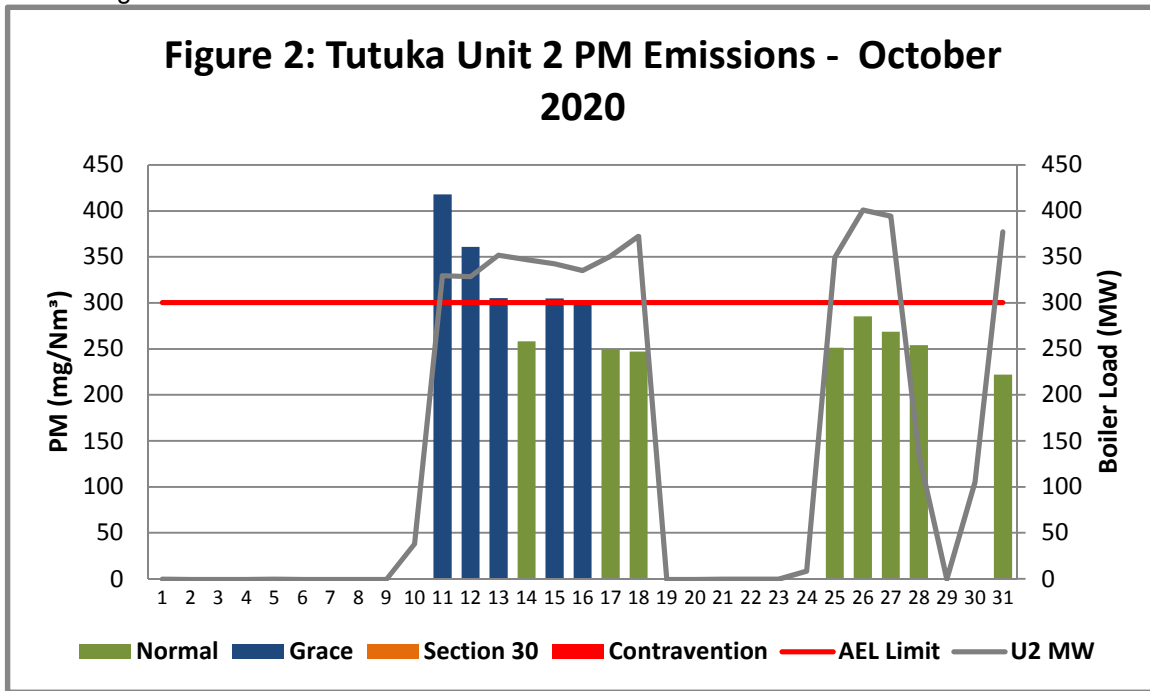


Figure 2: Unit 2 Daily Average PM emissions for the month of October 2020 (against the emission limits and load generated).

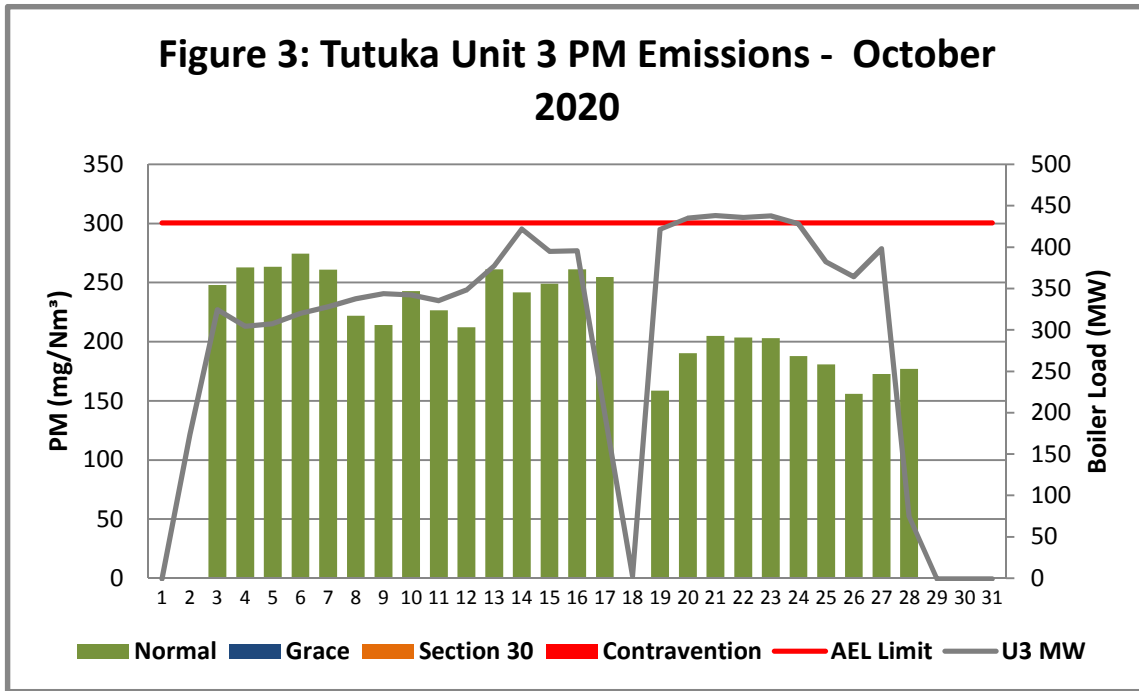


Figure 3: Unit 3 Daily Average PM emissions for the month of October 2020 (against the emission limits and load generated).

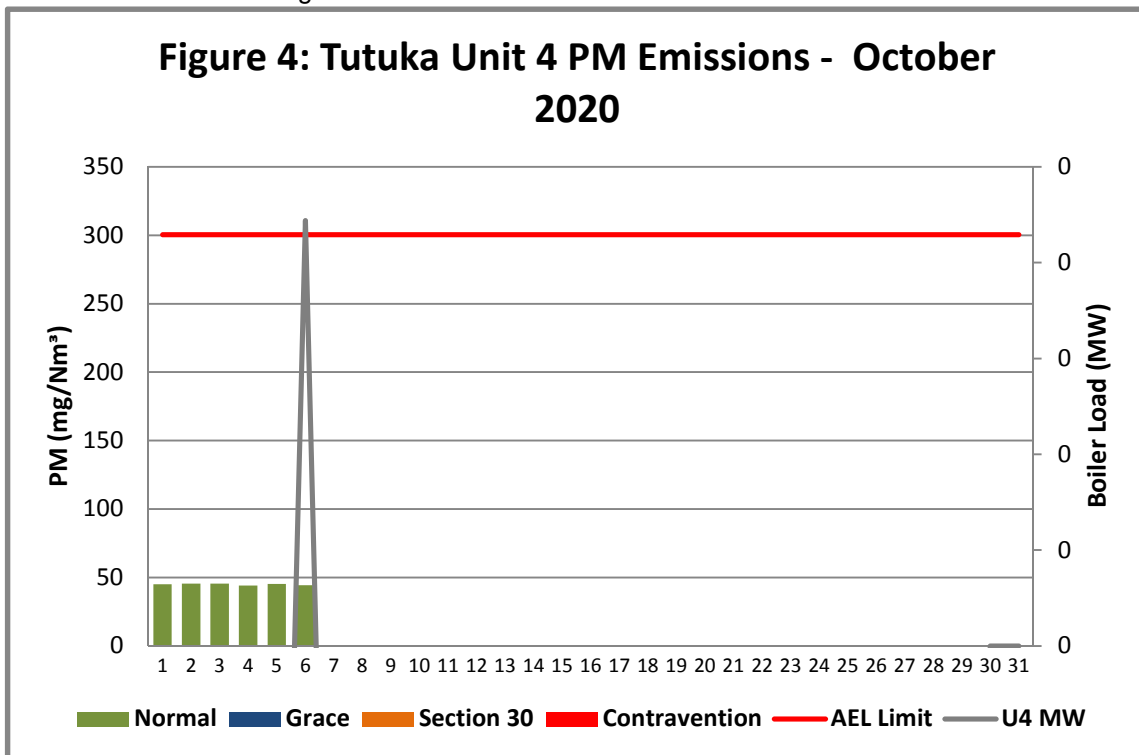


Figure 4: Unit 4 Daily Average PM emissions for the month of October 2020 (against the emission limits and load generated).

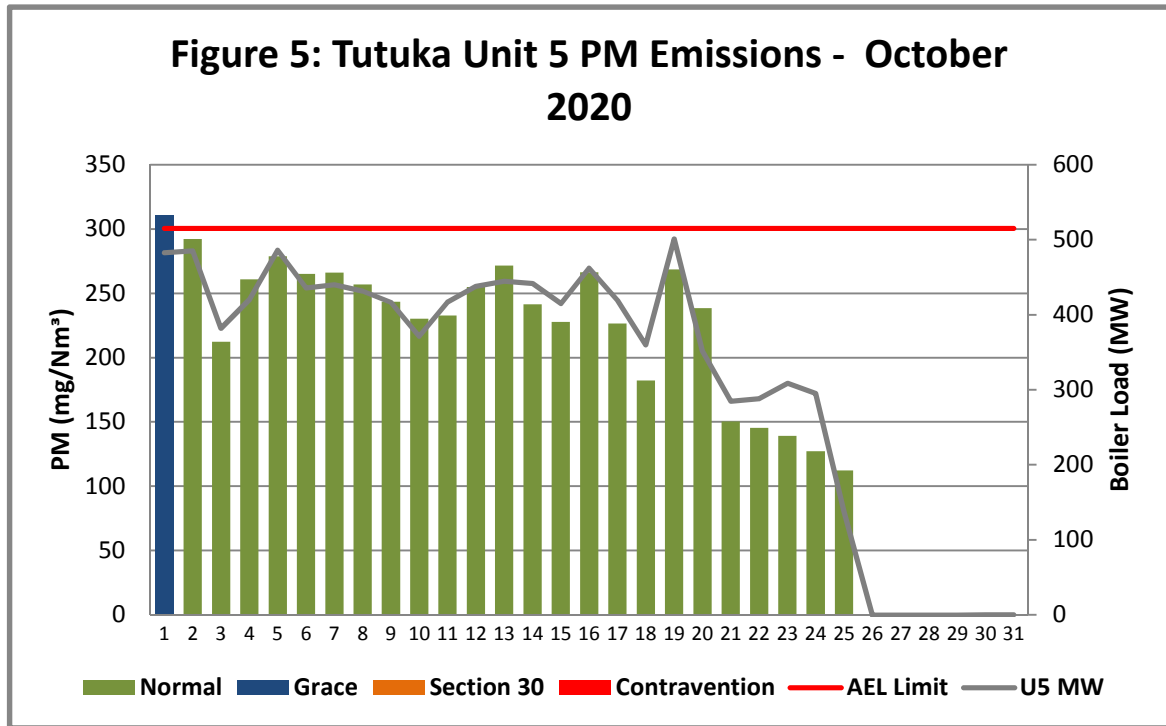


Figure 5: Unit 5 Daily Average PM emissions for the month of October 2020 (against the emission limits and load generated).

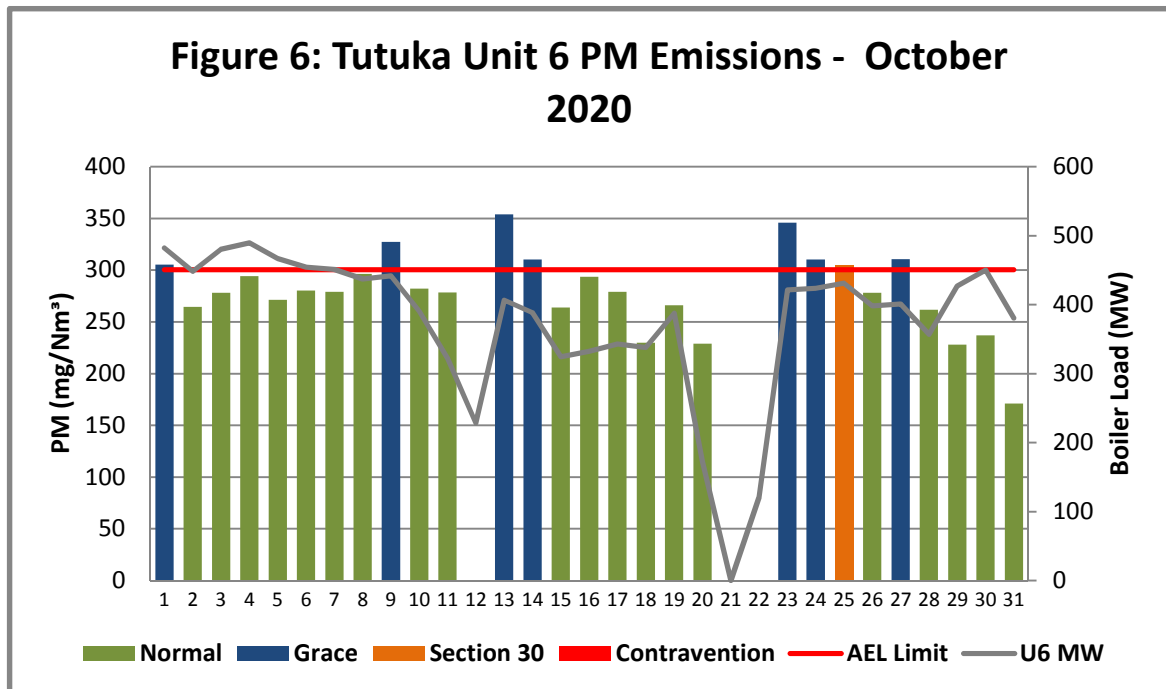


Figure 6: Unit 6 Daily Average PM emissions for the month of October 2020 (against the emission limits and load generated).

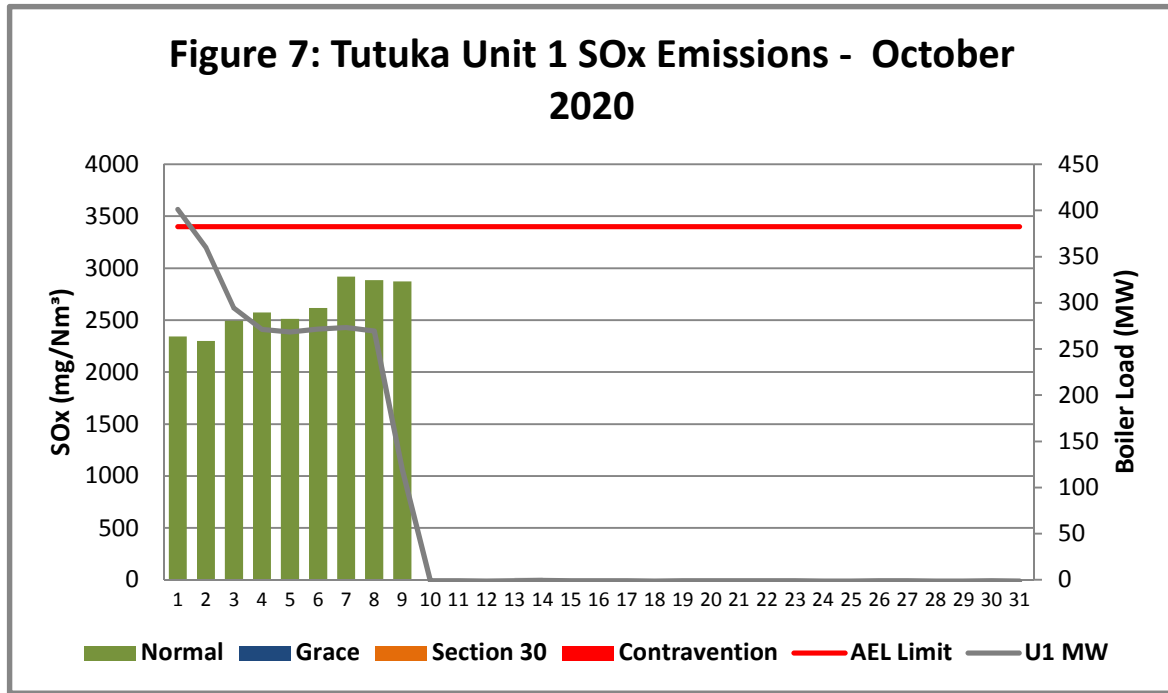


Figure 7: Unit 1 Daily Average SOx emissions for the month of October 2020 (against the emission limits and load generated).

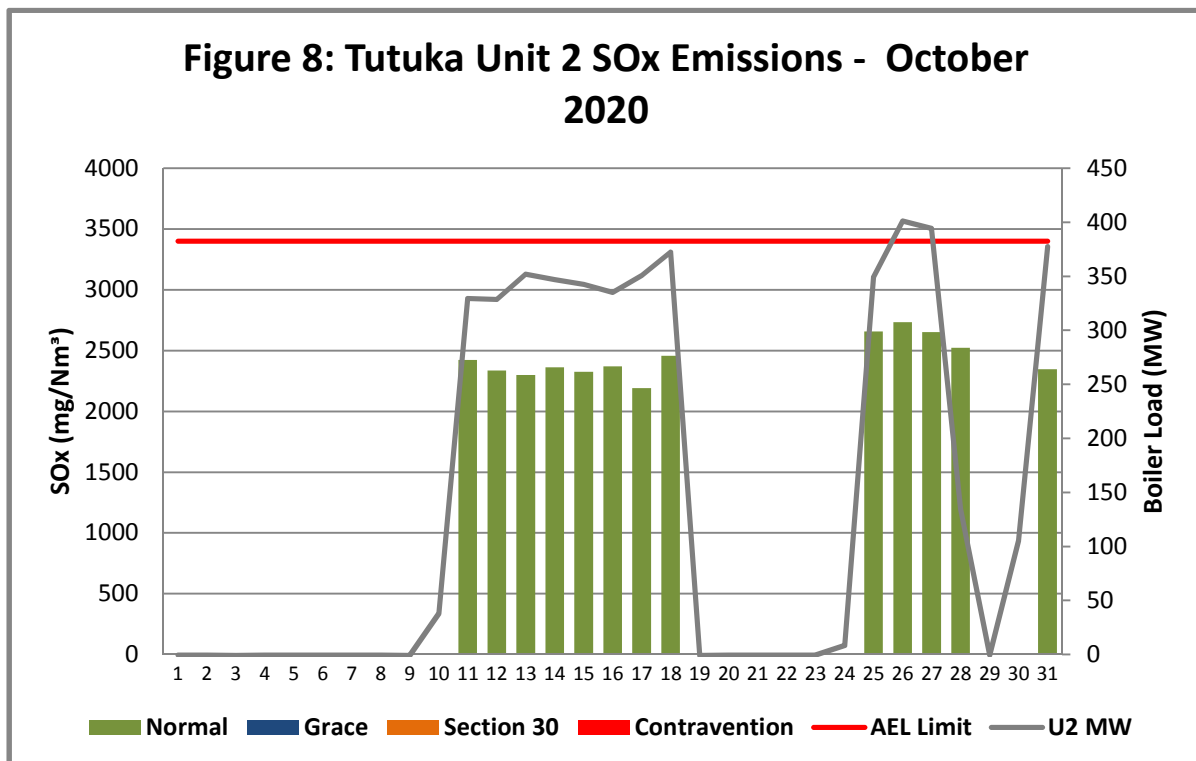


Figure 8: Unit 2 Daily Average SOx emissions for the month of October 2020 (against the emission limits and load generated).

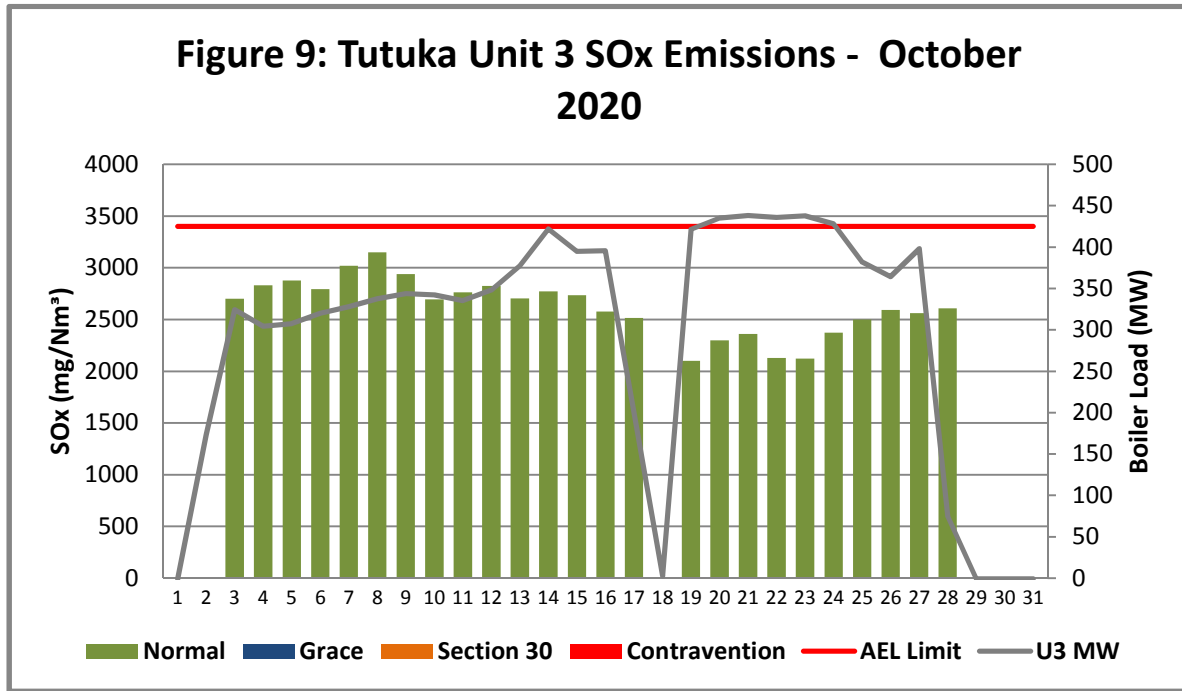


Figure 9: Unit 3 Daily Average SOx emissions for the month of October 2020 (against the emission limits and load generated).

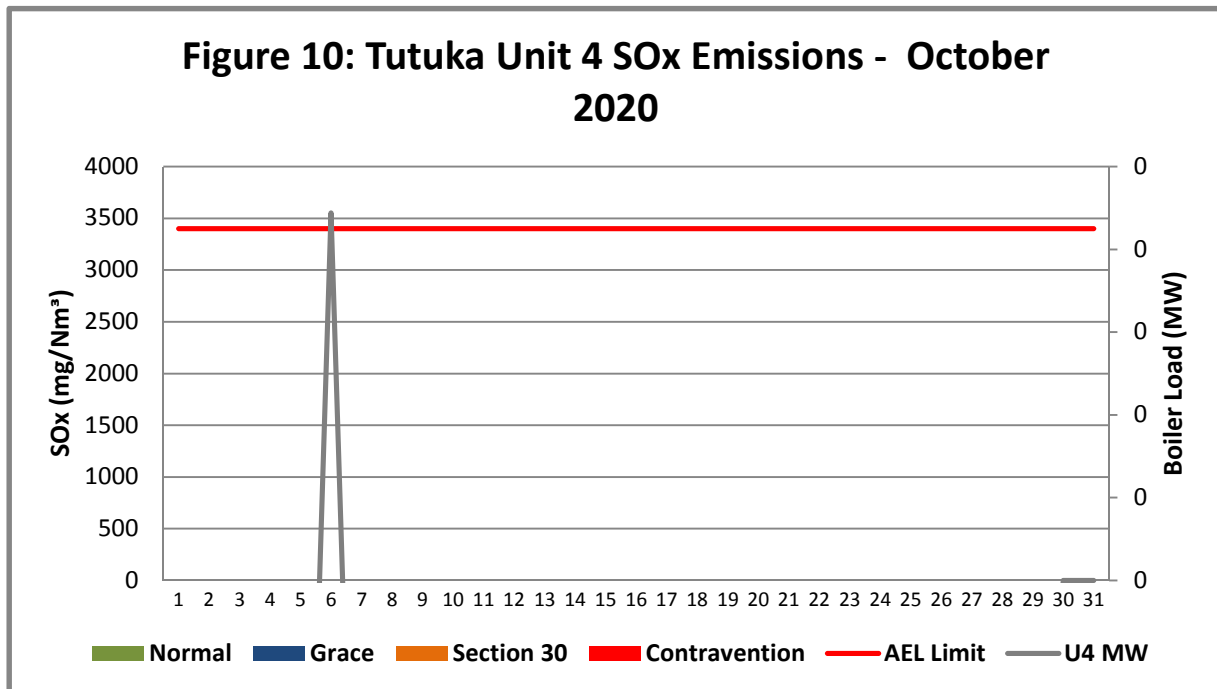


Figure 10: Unit 4 Daily Average SOx emissions for the month of October 2020 (against the emission limits and load generated).

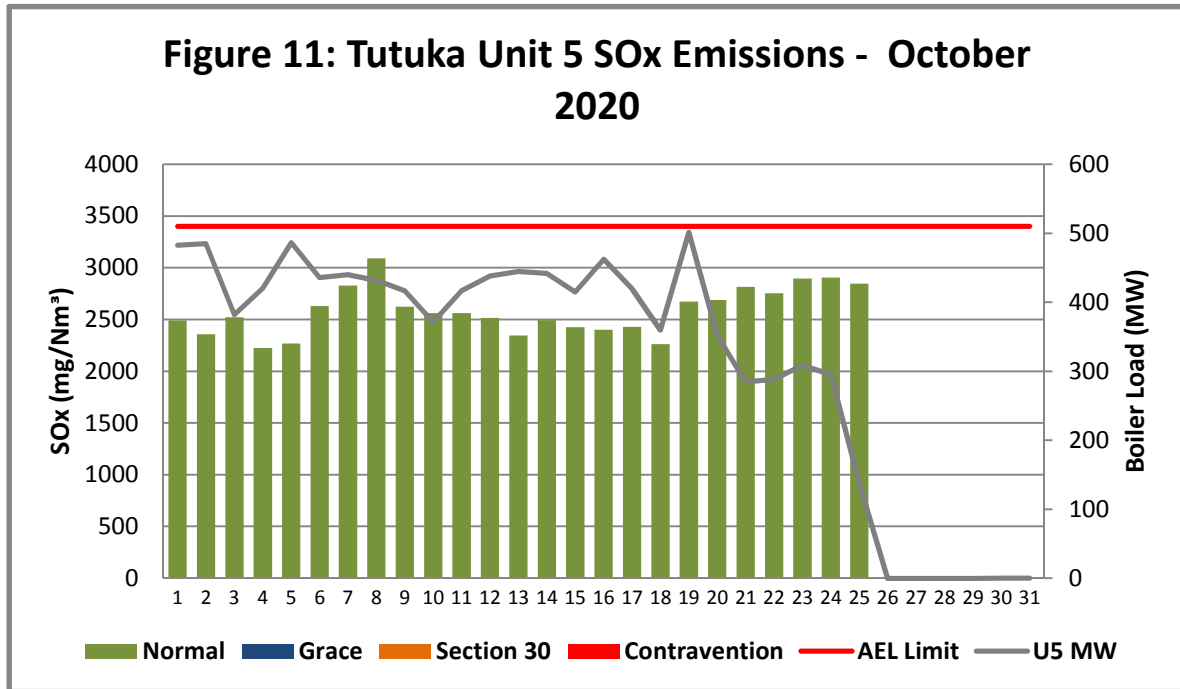


Figure 11: Unit 5 Daily Average SOx emissions for the month of October 2020 (against the emission limits and load generated).

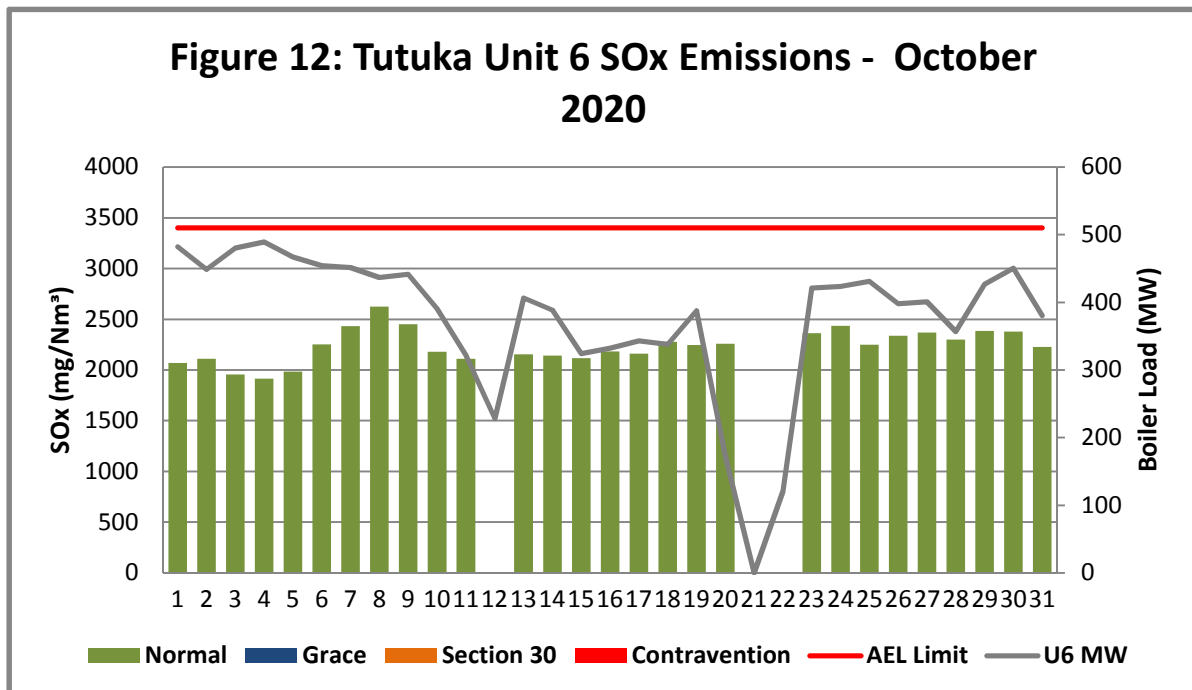


Figure 12: Unit 6 Daily Average SOx emissions for the month of October 2020 (against the emission limits and load generated).

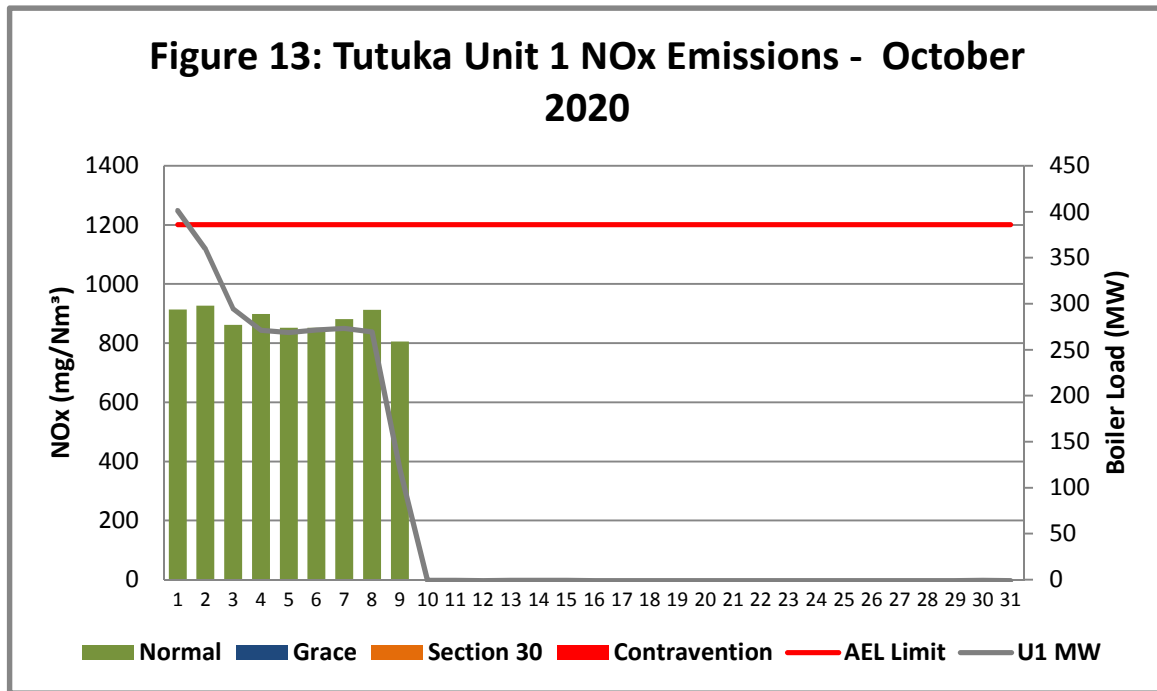


Figure 13: Unit 1 Daily Average NOx emissions for the month of October 2020 (against the emission limits and load generated).

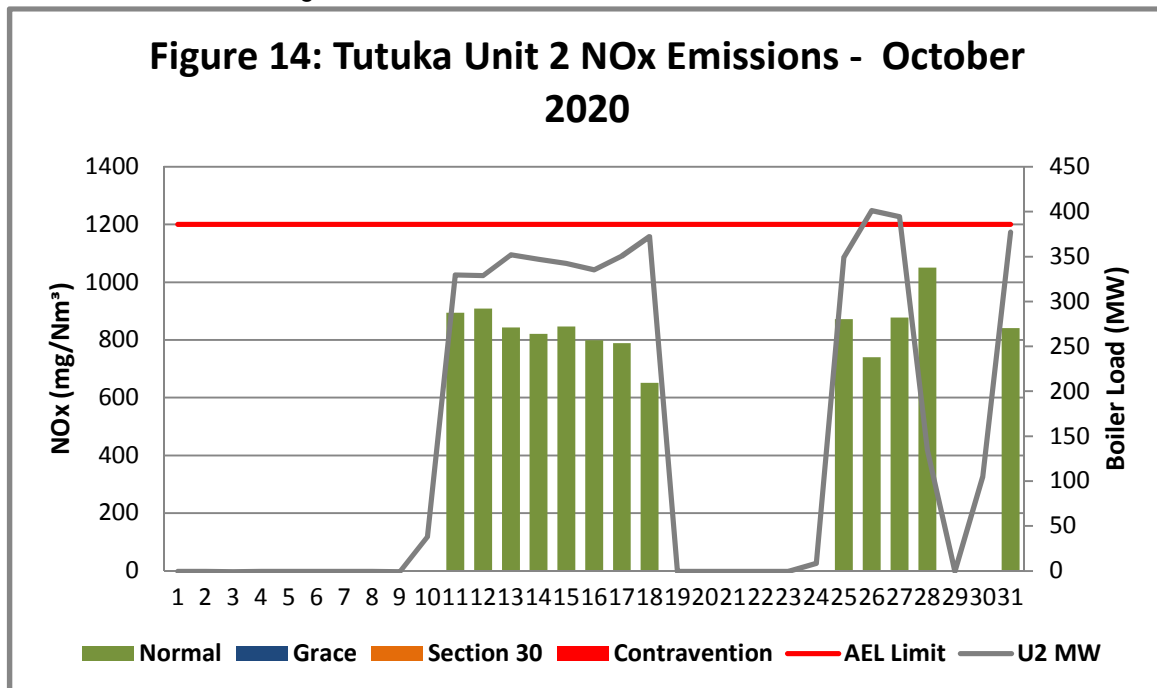


Figure 14: Unit 2 Daily Average NOx emissions for the month of October 2020 (against the emission limits and load generated).

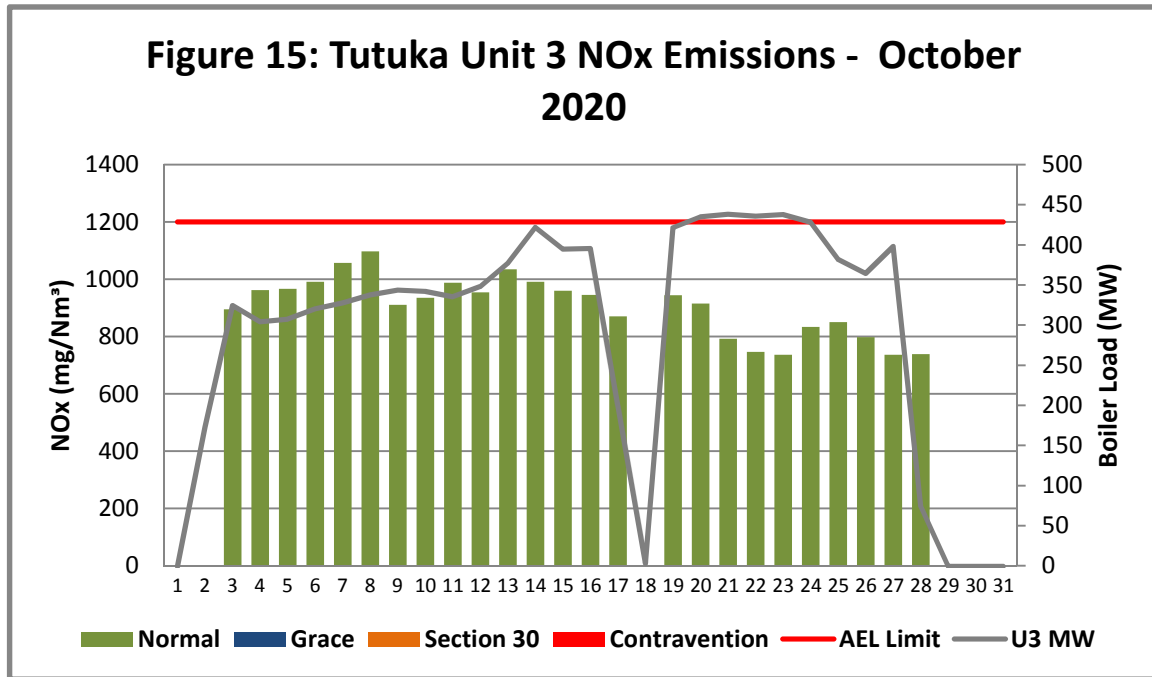


Figure 15: Unit 3 Daily Average NOx emissions for the month of October 2020 (against the emission limits and load generated).

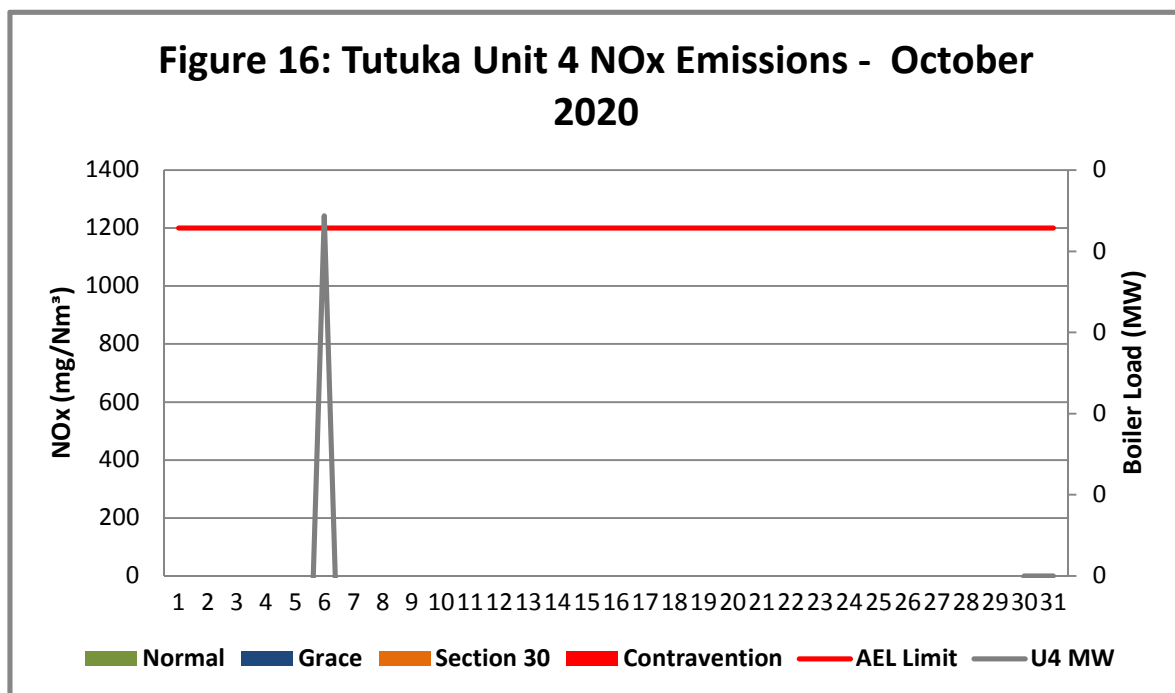


Figure 16: Unit 4 Daily Average NOx emissions for the month of October 2020 (against the emission limits and load generated).

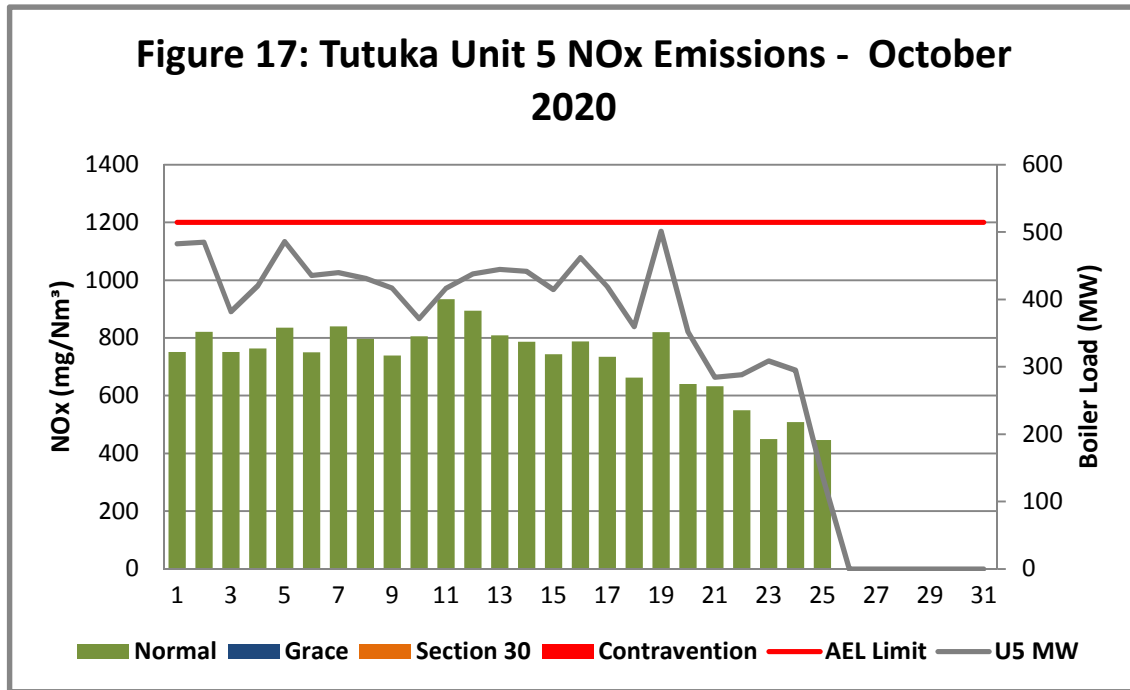


Figure 17: Unit 5 Daily Average NOx emissions for the month of October 2020 (against the emission limits and load generated)

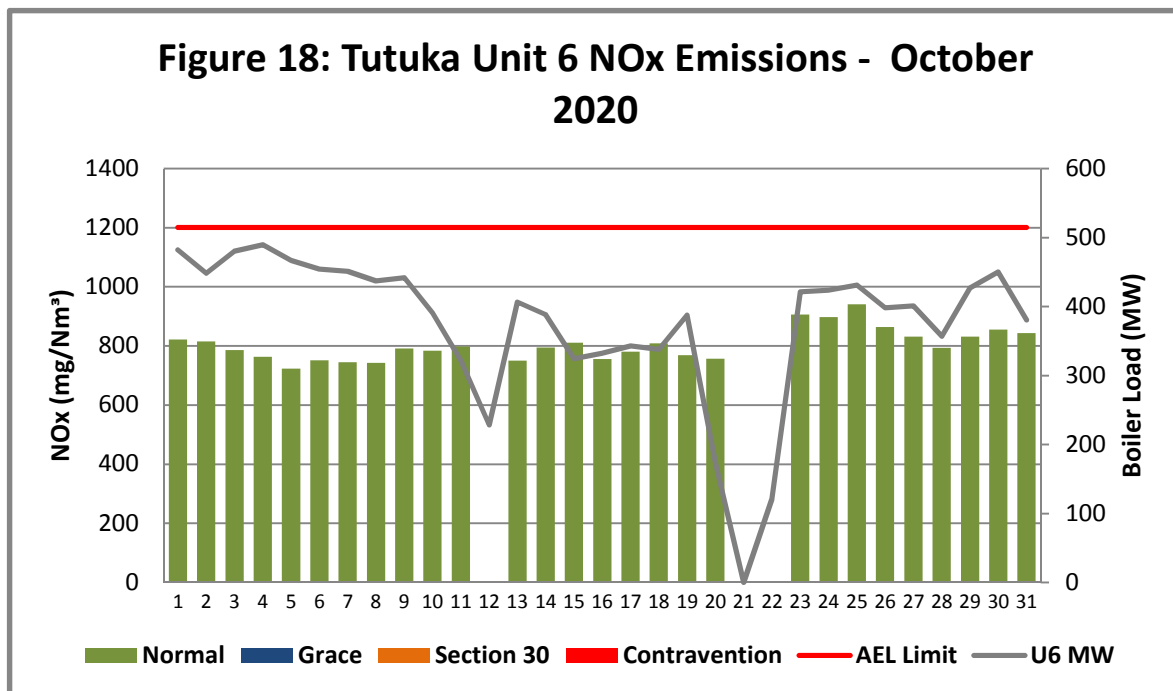


Figure 18: Unit 6 Daily Average NOx emissions for the month of October 2020 (against the emission limits and load generated).

5. Number of start-up per unit

Number & Type of Starts	U1	U2	U3	U4	U5	U6
Number Of Hot Starts (Off-Load < 30 Hrs)	0	0	1	0	1	1
Number Of Cold Starts (Off-Load > 30 hrs)	0	3	1	0	0	1

Table 5: Number and type of Unit start-ups for each unit respectively for the month of October 2020

6. Complaints

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
N/A	N/A	N/A	N/A	N/A	N/A

Table 6: Complaints for the month of October 2020

7. General

Note 1 Performance issues

1 Section 30 incidents for unit 6 was incurred in the month of October 2020(See table 7.4 below) due to precipitator fields underperforming thus affecting ESP efficiency, lack of support on the EEPROM chips that are used on controllers and failure of precep controllers on load and Unavailability of spares. 13 PM exceedances within the grace period were observed.

No SO_x and NO_x exceedances were incurred for the month of October 2020(See table 7.2 & 7.3 below).

Table 7.1: Operating days in compliance to PM AEL Limit - October 2020

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm ³)
Unit 1	9	0	0	0	0	204.5
Unit 2	8	5	0	0	5	286.8
Unit 3	25	0	0	0	0	221.2
Unit 4	6	0	0	0	0	45.0
Unit 5	24	1	0	0	1	228.1
Unit 6	20	7	1	0	8	279.7
SUM	92	13	1	0	14	

Table 7.2: Operating days in compliance to SOx AEL Limit - October 2020

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SOx (mg/Nm ³)
Unit 1	9	0	0	0	0	2 613.1
Unit 2	13	0	0	0	0	2 437.0
Unit 3	25	0	0	0	0	2 621.4
Unit 4	0	0	0	0	0	
Unit 5	25	0	0	0	0	2 583.9
Unit 6	28	0	0	0	0	2 238.3
SUM	100	0	0	0	0	

Table 7.3: Operating days in compliance to NOx AEL Limit - October 2020

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm ³)
Unit 1	9	0	0	0	0	878.6
Unit 2	13	0	0	0	0	841.2
Unit 3	25	0	0	0	0	906.2
Unit 4	0	0	0	0	0	
Unit 5	25	0	0	0	0	730.2
Unit 6	28	0	0	0	0	804.0
SUM	100	0	0	0	0	

Table 7.4: Section 30 Figures	
Date	Unit 6 PM emissions
22-Oct	Unit was off on the 21 st & 22 October 2020
23-Oct	346.0
24-Oct	310.4
25-Oct	305.1
26-Oct	278.0


Note 2: Clarification of emission limits

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

Compiled by:**Monica Mokgawa****ENVIRONMENTAL MANAGER: TUTUKA POWER STATION**
.....**Date:**.....24 March 2021.....**Verified By:****Mike Molepo****SENIOR CHEMIST CHEMISTRY: TUTUKA POWER STATION**
24/03/2021
.....**Approved by:****Sello Mametja****GENERAL MANAGER: TUTUKA POWER STATION**
2021/03/24
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