

Mr. Dan Hlanyane  
 Air Quality Officer  
 Gert Sibande District Municipality  
 c/o Joubert & Oosthuise Street  
 ERMELO  
 2350

Date:  
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Enquiries: Monica Mokgawa  
 (017) 749 9399

E-mail: [Dan.Hlanyane@gsibande.gov.za](mailto:Dan.Hlanyane@gsibande.gov.za)

E-mail: [records@sibande.gov.za](mailto:records@sibande.gov.za)

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 12<sup>th</sup> every month. The report shall indicate the emission performance for the previous month. This report contains the emission performance for the month of November 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 Nov-2020
	Coal	Tons	1 200 000	451 471
	Fuel Oil	Tons	10 000	15 601.73
Production Rates	Product / By-Product Name	Units	Max. Production Capacity Permitted	Production Rate Nov-2020
	Energy	MW	30 748	33097
	Ash	Tons	350 000	118 466
	RE Ash	kg/MWh	not specified	1.56

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

## 2. ENERGY SOURCE CHARACTERISTICS

Coal Characteristics	Units	Stipulated Range	Monthly Average Content
CV Content	MJ/kg	16-24	21.20
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 November 2020

## 3. ABATEMET TECHNOLOGY (%)

Associated Unit/Stack	Technology Type	*Minimum Control Efficiency (%)	Efficiency Nov-2020
Unit 1	<i>Electro Static Precipitators (ESP)</i>	95	0
Unit 2	<i>Electro Static Precipitators (ESP)</i>	95	98.8%
Unit 3	<i>Electro Static Precipitators (ESP)</i>	98	0
Unit 4	<i>Electro Static Precipitators (ESP)</i>	95	99.7%
Unit 5	<i>Electro Static Precipitators (ESP)</i>	95	99.1%
Unit 6	<i>Electro Static Precipitators (ESP)</i>	95	98.8%

**Table 3.1:** Abatement Equipment Control Technology for month of November 2020

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

### 3.2. MONITOR RELIABILITY (%)

Associated Unit/Stack	PM	SO <sub>2</sub>	NO
Unit 1	0	0	0
Unit 2	100.0	100.0	100.0
Unit 3	0	0	0
Unit 4	100.0	100.0	100.0
Unit 5	100.0	100.0	100.0
Unit 6	100.0	100.0	100.0

Table 3.2: Monitor reliability for the month of November 2020.

Note: Unit 1 and 3 was off in November 2020

### 4. EMISSION PERFORMANCE

Associated Unit/Stack	PM (tons)	SO <sub>2</sub> (tons)	NO <sub>x</sub> (tons)
Unit 1	0	0	0
Unit 2	398.9	3512	1 112
Unit 3	0.0	0	0
Unit 4	24.1	501	106
Unit 5	247.8	2 483	764
Unit 6	426.7	3 458	1 112
<b>SUM</b>	<b>1 097.5</b>	<b>9953.5</b>	<b>3 094</b>

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

#### 4.2: Legend Description



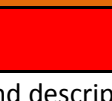

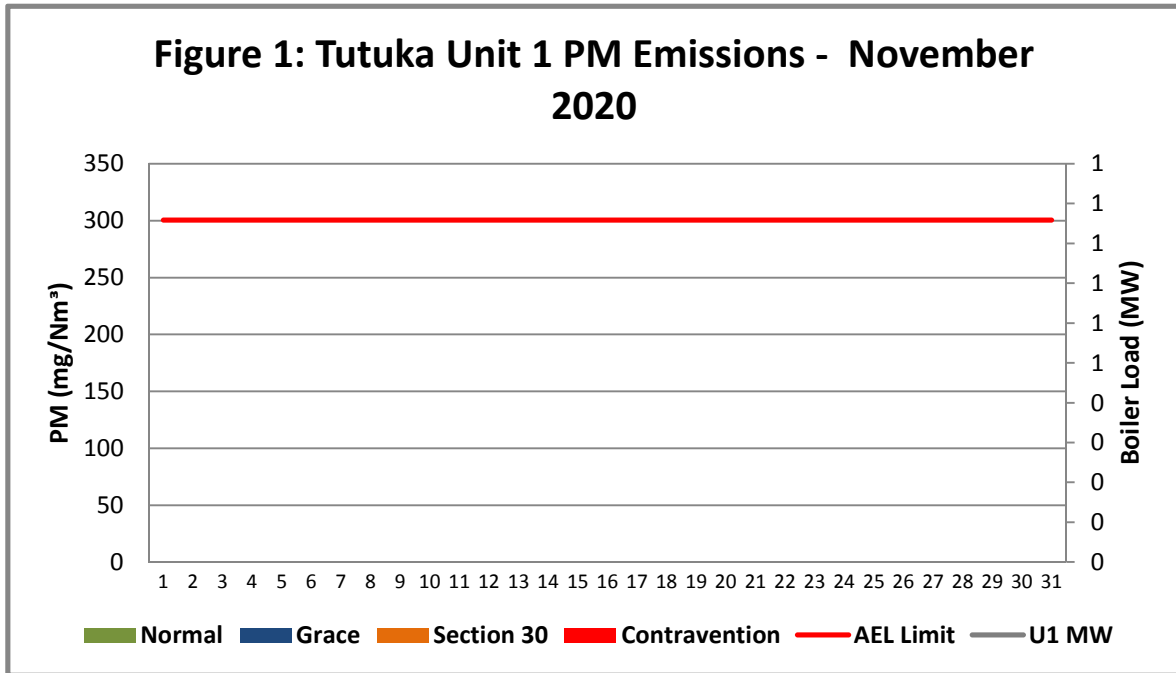
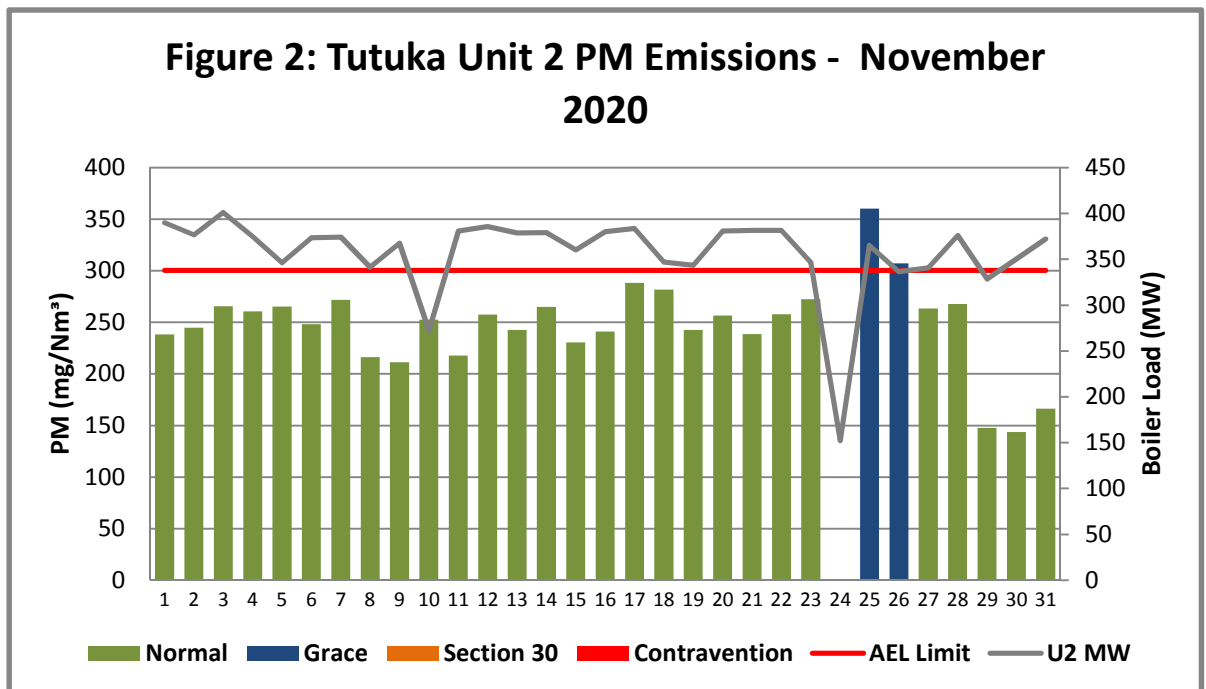
Condition	Colour	Description
Normal		Emissions below Emission Limit Value (ELV)
Grace		Emissions above the ELV during grace period
Section 30		Emissions above ELV during a NEMA S30 incident
Contravention		Emissions above ELV but outside grace or S30 incident conditions

Table 4.2: Legend description for the graphs below (figure 1-18)

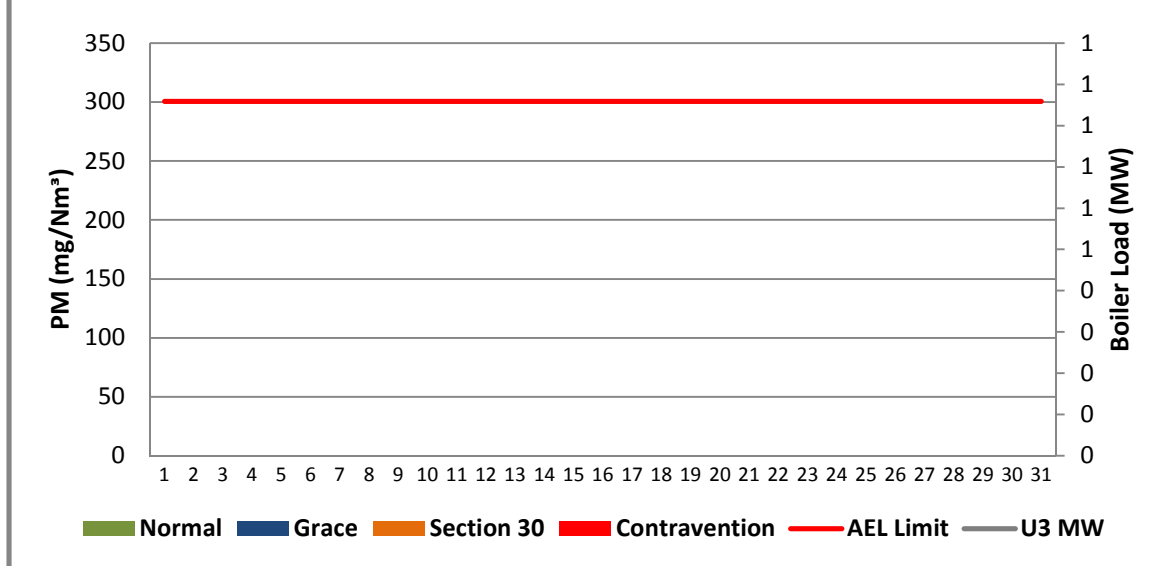


**Figure 1:** Unit 1 Daily Average PM emissions for the month of November 2020 (against the emission limits and load generated.)



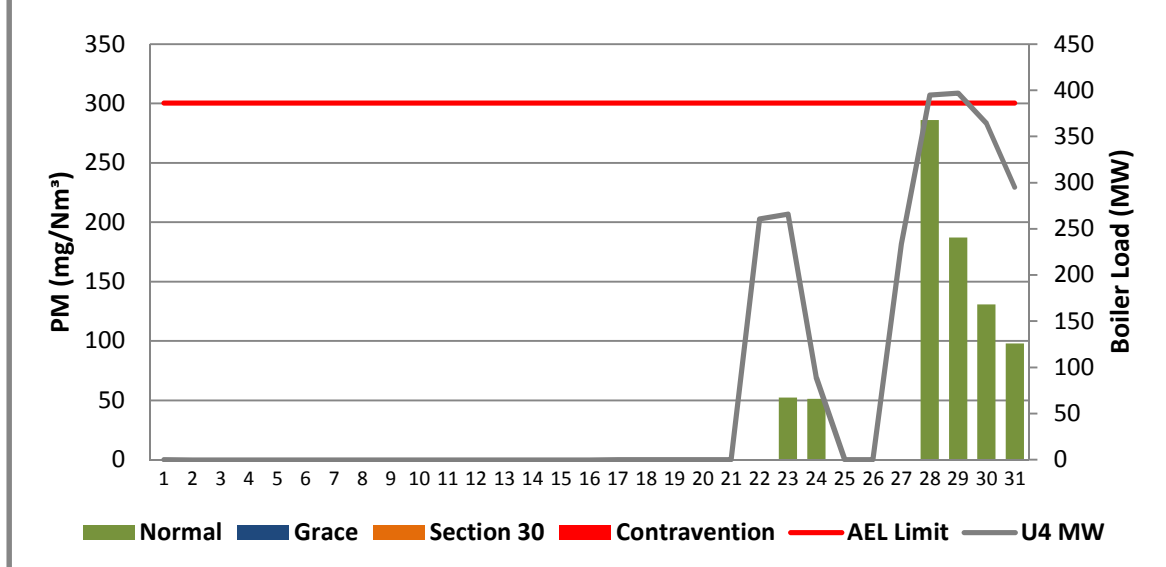
**Figure 2:** Unit 2 Daily Average PM emissions for the month of November 2020 (against the emission limits and load generated.)

**Figure 3: Tutuka Unit 3 PM Emissions - November 2020**

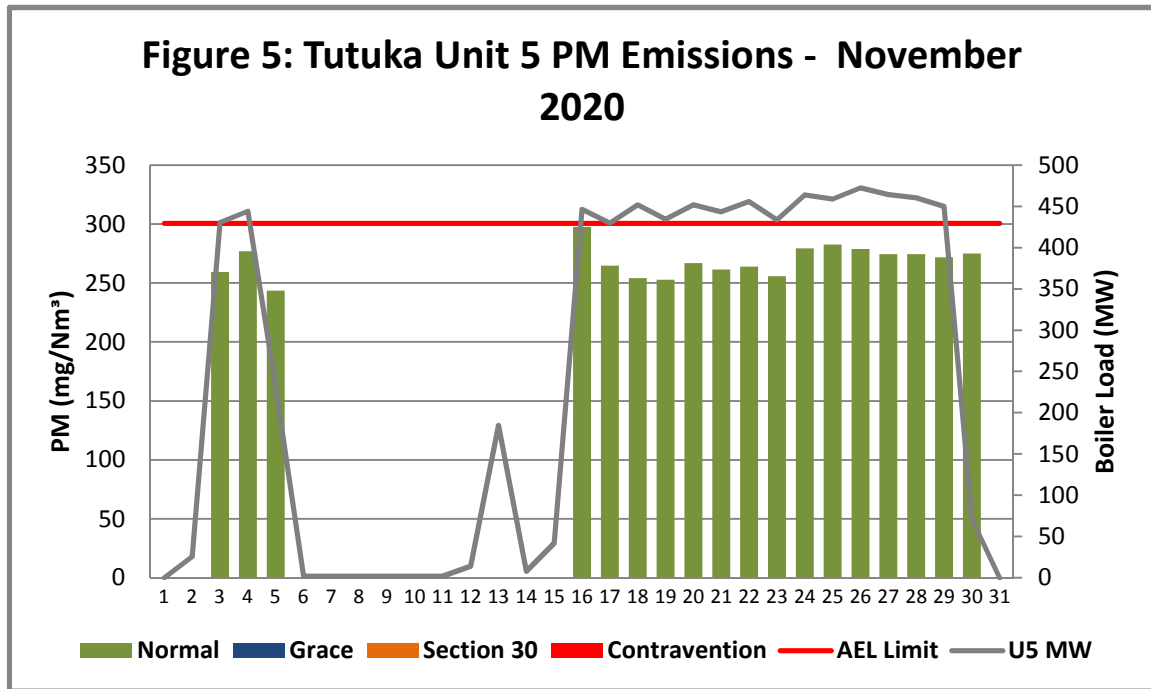


**Figure 3:** Unit 3 Daily Average PM emissions for the month of November 2020 (against the emission limits and load generated.)

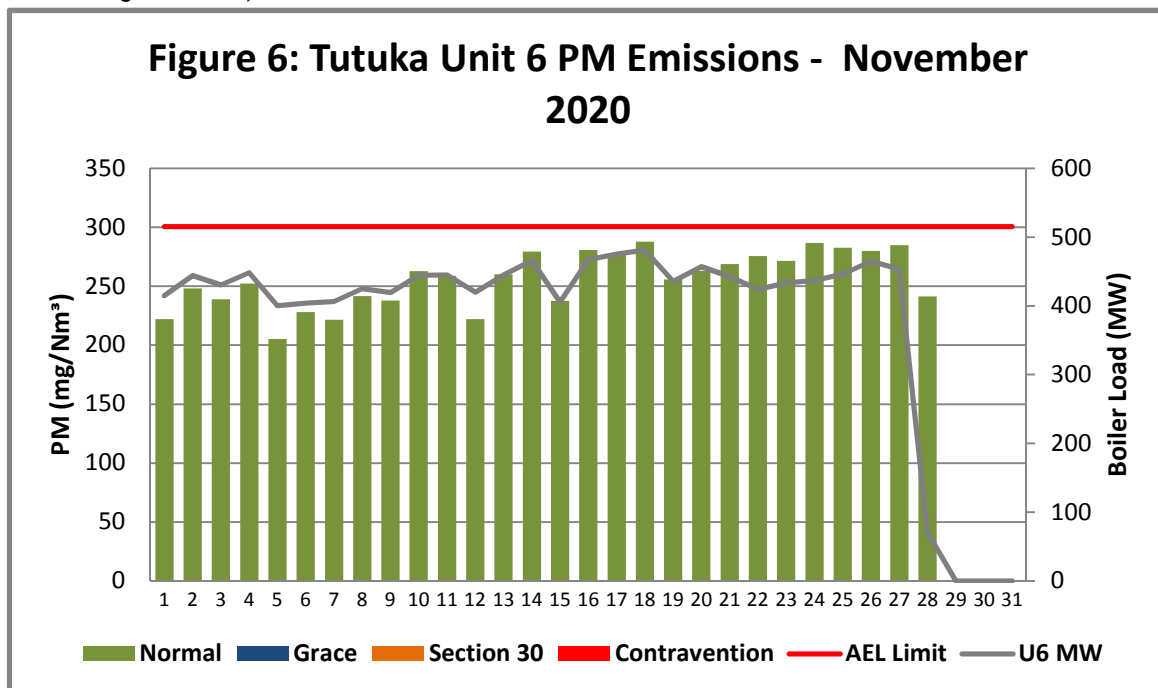
**Figure 4: Tutuka Unit 4 PM Emissions - November 2020**



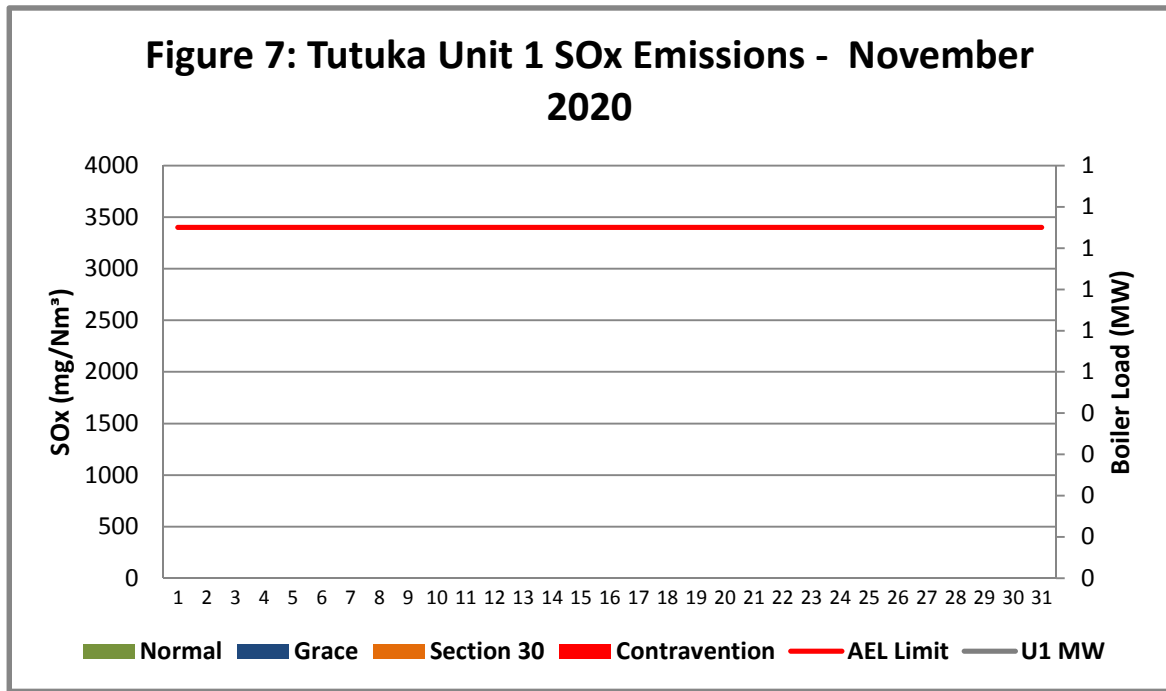
**Figure 4:** Unit 4 Daily Average PM emissions for the month of November 2020 (against the emission limits and load generated.)



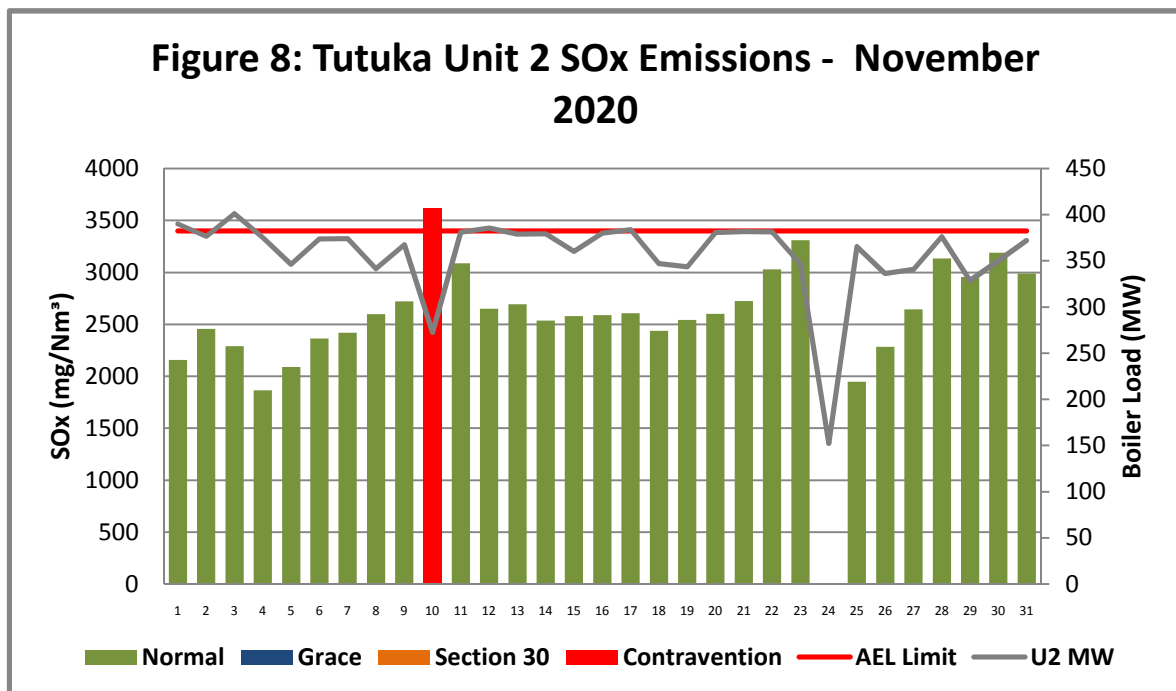
**Figure 5:** Unit 5 Daily Average PM emissions for the month of November 2020 (against the emission limits and load generated.)



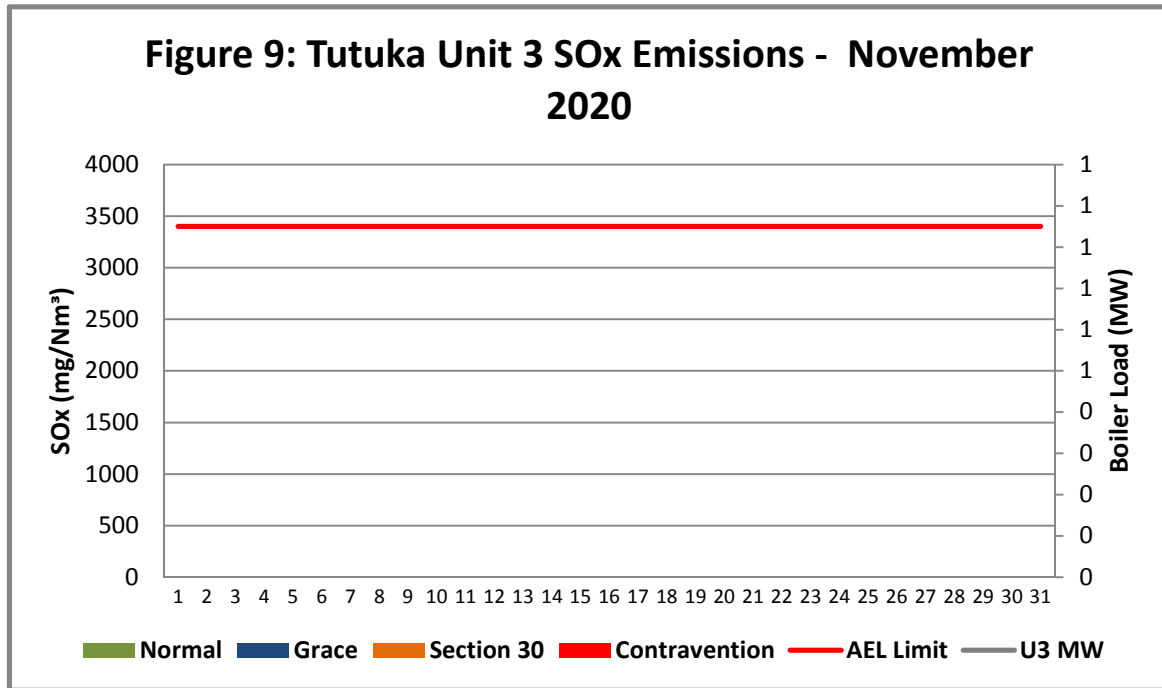
**Figure 6:** Unit 6 Daily Average PM emissions for the month of November 2020 (against the emission limits and load generated.)



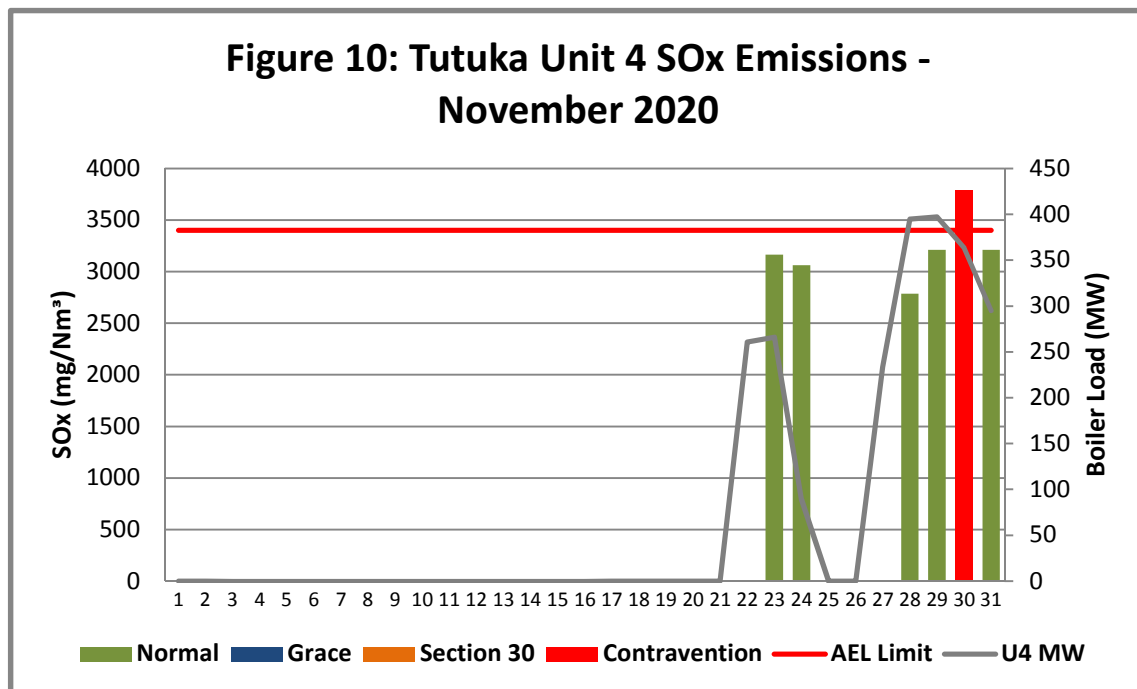
**Figure 7:** Unit 1 Daily Average SOx emissions for the month of November 2020 (against the emission limits and load generated.)



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

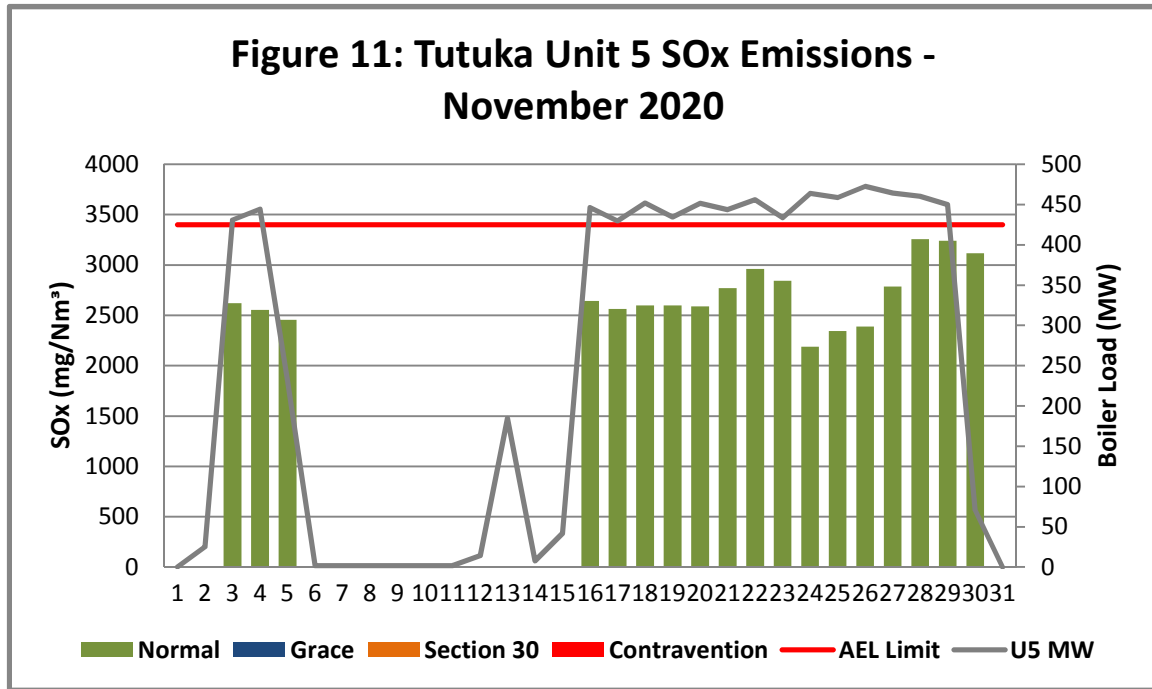


**Figure 9:** Unit 3 Daily Average SOx emissions for the month of November 2020 (against the emission limits and load generated.)

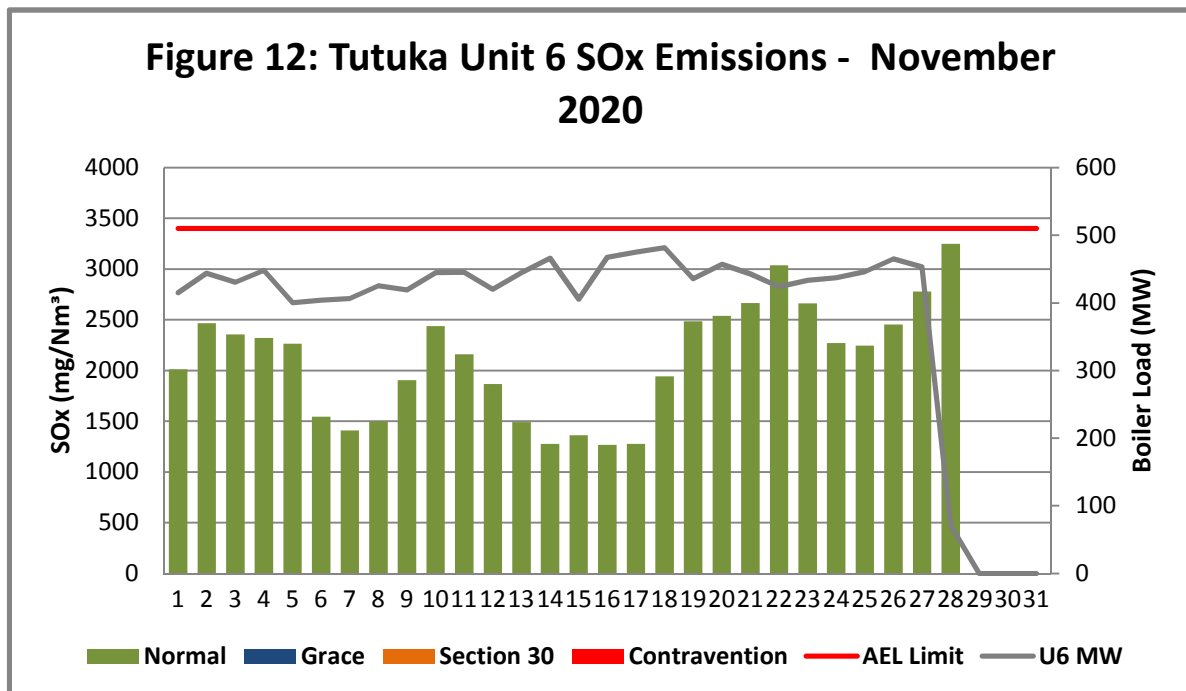


**Figure 10:** Unit 4 Daily Average SOx emissions for the month of November 2020 (against the emission limits and load generated.)

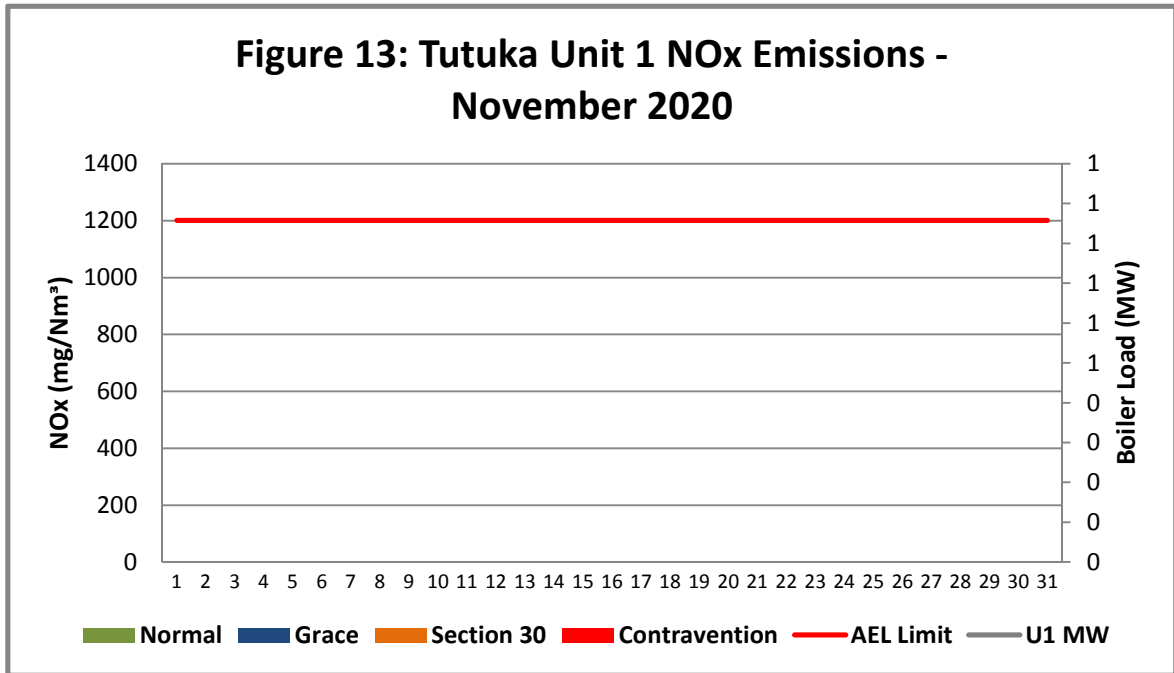




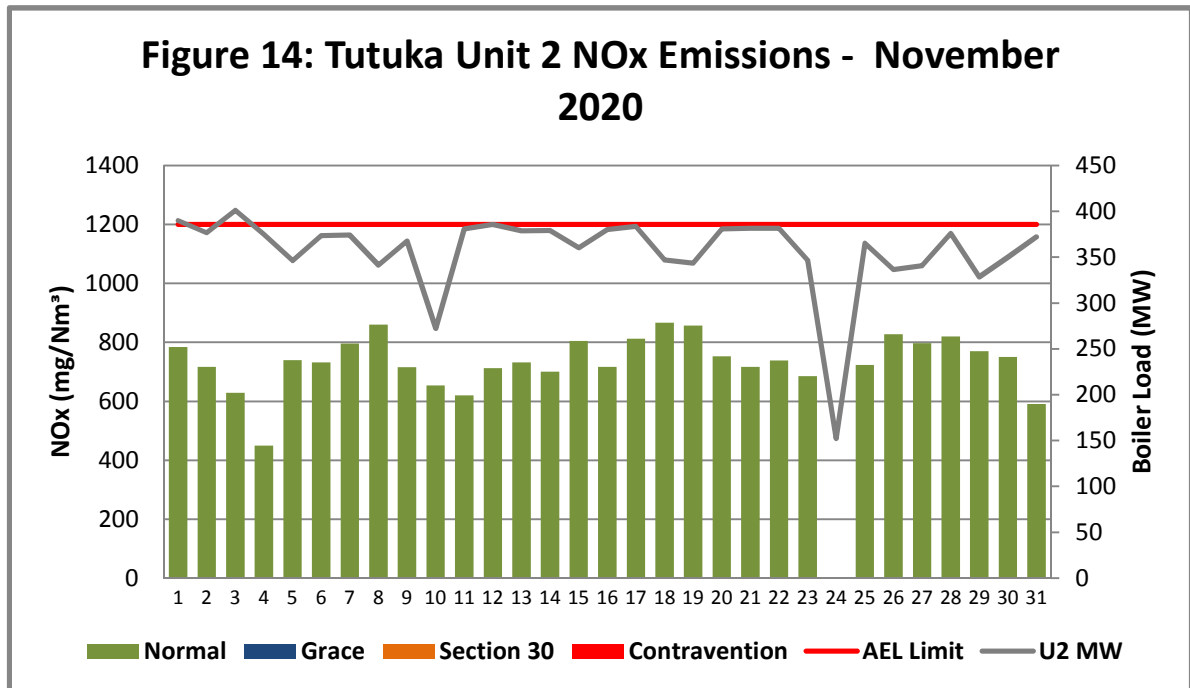
**Figure 11:** Unit 5 Daily Average SOx emissions for the month of November 2020 (against the emission limits and load generated.)



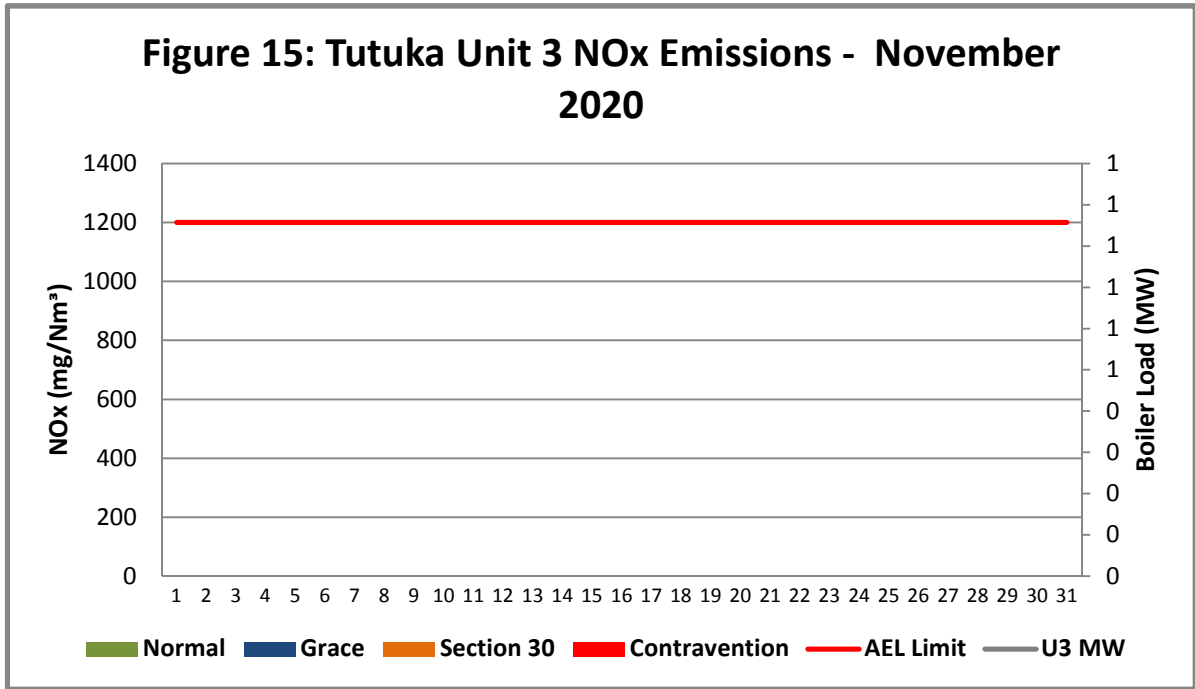
**Figure 12:** Unit 6 Daily Average SOx emissions for the month of November 2020 (against the emission limits and load generated.)



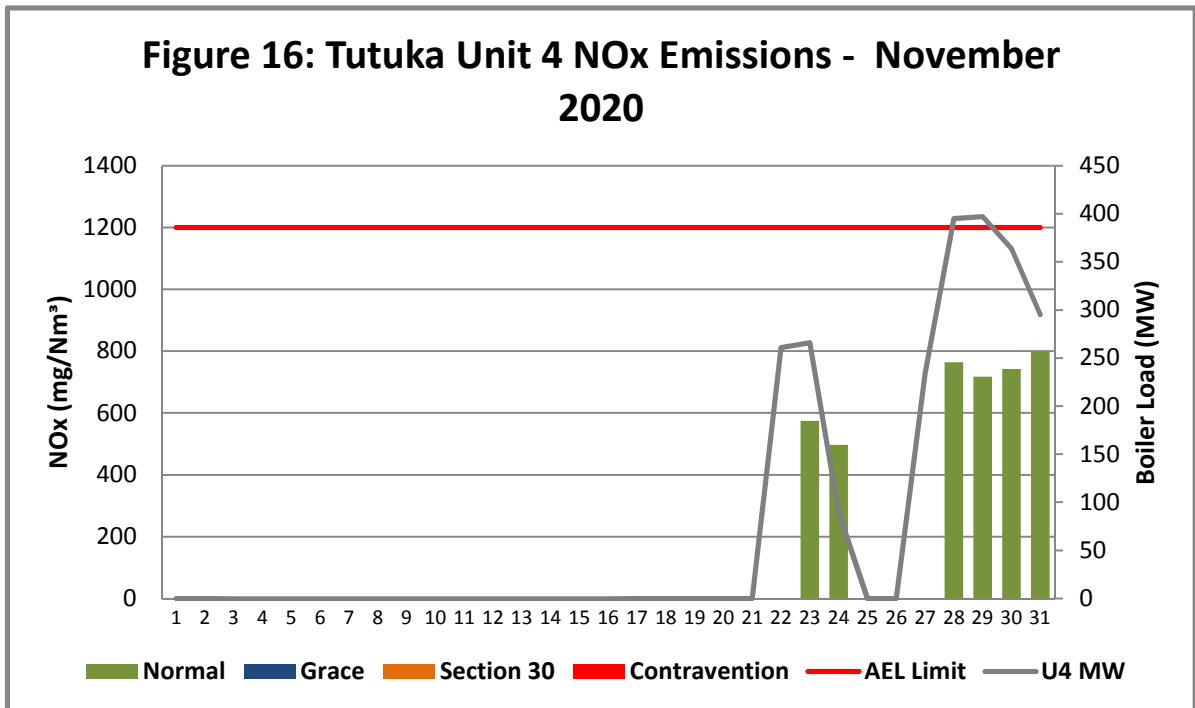
**Figure 13:** Unit 1 Daily Average NOx emissions for the month of November 2020 (against the emission limits and load generated.)



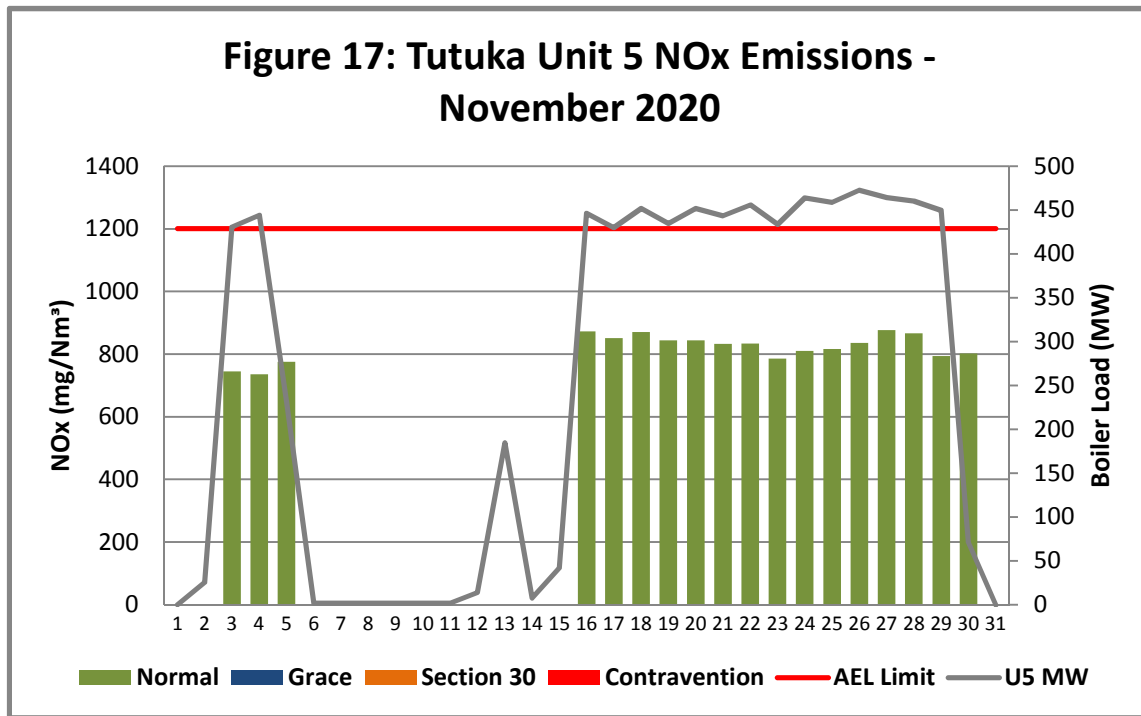
**Figure 14:** Unit 2 Daily Average NOx emissions for the month of November 2020 (against the emission limits and load generated.)



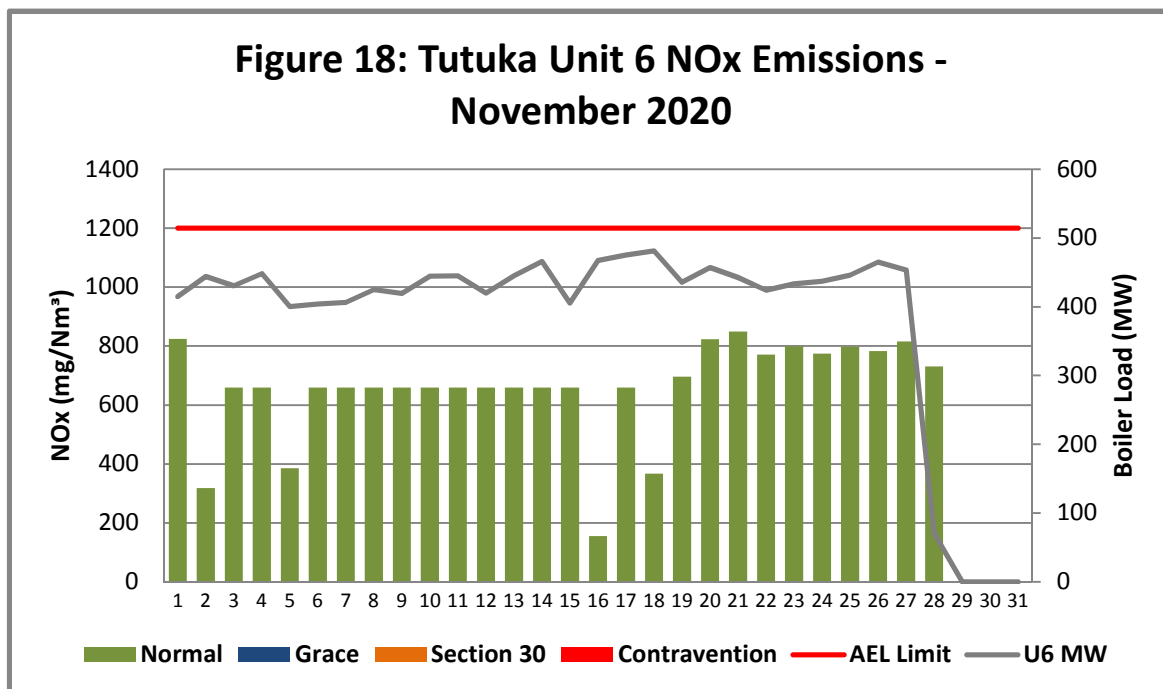
**Figure 15:** Unit 3 Daily Average NOx emissions for the month of November 2020 (against the emission limits and load generated.)



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



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



**Figure 18:** Unit 6 Daily Average NOx emissions for the month of November 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	0	0	0	0
Number Of Cold Starts (Off-Load > 30 hrs)	0	0	0	0	0	0

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

## 7. General

### Note 1 Performance issues

2 PM exceedances within the grace period were observed on unit 2 due to dust handling plant issues. 2 SO<sub>x</sub> exceedance were incurred on unit 2 and 4 due to monitor misalignment. No NO<sub>x</sub> exceedances were incurred for the month of November 2020(See table 7.2 & 7.3 below).

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm <sup>3</sup> )
Unit 1	0	0	0	0	0	
Unit 2	28	2	0	0	2	250.3
Unit 3	0	0	0	0	0	
Unit 4	6	0	0	0	0	141.5
Unit 5	18	0	0	0	0	268.6
Unit 6	28	0	0	0	0	256.2
<b>SUM</b>	<b>80</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>2</b>	

Table 7.2: Operating days in compliance to SO<sub>x</sub> AEL Limit - November 2020

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SO <sub>x</sub> (mg/Nm <sup>3</sup> )
Unit 1	0	0	0	0	0	
Unit 2	29	0	0	1	1	2 624.5
Unit 3	0	0	0	0	0	
Unit 4	5	0	0	1	1	3 203.8
Unit 5	18	0	0	0	0	2 695.2
Unit 6	28	0	0	0	0	2 116.1
<b>SUM</b>	<b>80</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>2</b>	

Table 7.3: Operating days in compliance to NO<sub>x</sub> AEL Limit - November 2020

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NO <sub>x</sub> (mg/Nm <sup>3</sup> )
Unit 1	0	0	0	0	0	
Unit 2	30	0	0	0	0	740.7
Unit 3	0	0	0	0	0	
Unit 4	6	0	0	0	0	659.3
Unit 5	18	0	0	0	0	821.7
Unit 6	28	0	0	0	0	659.5
<b>SUM</b>	<b>82</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	

#### 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/Nm<sup>3</sup> was requested (24 hour moving average). Tutuka PS's new PM emissions limit of 100 mg/Nm<sup>3</sup> (previously- 350 mg/Nm<sup>3</sup>), 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/Nm<sup>3</sup> 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**

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**Date: 24 March 2020**

**Verified By:**

**Mike Molepo**



**SENIOR CHEMIST CHEMISTRY: TUTUKA POWER STATION**

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24/03/2021

**Approved by:**

**Sello Mametja**

**GENERAL MANAGER: TUTUKA POWER STATION**

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**Date: 2021/03/24**