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Date:
21 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 July 2020.

1. RAW MATERIALS AND PRODUCTS

Raw Materials and Products	Raw Material Type	Units	Max. Permitted	Actual Consumption Jul-2020
	Coal	Tons	*1 200 000*	*639 698*
	Fuel Oil	Tons	*10 000*	*12264.7*
Production Rates	**Product / By-Product Name**	**Units**	**Max. Production Capacity Permitted**	**Production Rate Jul-2020**
	Energy	MW	*30 748*	*48593*
	Ash	Tons	*350 000*	*161 652*
	RE Ash	kg/MWh	*not specified*	*1.40*

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

2. ENERGY SOURCE CHARACTERISTICS

Coal Characteristics	Units	Stipulated Range	Monthly Average Content
CV Content	MJ/kg	*16-24*	*21.560*
Sulphur Content	%	*0.6 TO >2.6*	*0.740*
Ash Content	%	*21 TO >33*	*25.270*

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

3. ABATEMET TECHNOLOGY (%)

Associated Unit/Stack	Technology Type	*Minimum Control Efficiency (%)	Actual Utilisation (%)
Unit 1	*Electro Static Precipitators (ESP)*	*95*	*99.2%*
Unit 2	*Electro Static Precipitators (ESP)*	*95*	*98.8%*
Unit 3	*Electro Static Precipitators (ESP)*	*98*	*99.0%*
Unit 4	*Electro Static Precipitators (ESP)*	*95*	*98.9%*
Unit 5	*Electro Static Precipitators (ESP)*	*95*	*98.9%*
Unit 6	*Electro Static Precipitators (ESP)*	*95*	*99.0%*

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

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

3.2MONITOR RELIABILITY (%)

Associated Unit/Stack	PM	SO_2	NO
Unit 1	*99.4*	*100.0*	*100.0*
Unit 2	*100.0*	*100.0*	*100.0*
Unit 3	*100.0*	*100.0*	*100.0*
Unit 4	*100.0*	*100.0*	*100.0*
Unit 5	*94.7*	*95.0*	*95.0*
Unit 6	*100.0*	*100.0*	*100.0*

Table 3.2: Monitor reliability for month of July 2020

4. EMISSION PERFORMANCE

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

Associated Unit/Stack	PM (tons)	SO_2 (tons)	NO_x (tons)	CO_2 (tons)
Unit 1	251.9	2 764	1 002	275 489
Unit 2	137.9	976	322	113 481
Unit 3	311.5	2 798	1 221	284 558
Unit 4	421.4	4 042	1 355	309 338
Unit 5	215.6	2 124	676	178 837
Unit 6	140.4	968	350	103 781
SUM	1 478.6	13 671	4 926	1 265 483

Table 4.2: Legend for Figure 1-18 (below)		
Condition	**Colour**	**Description**
Normal		Emissions below Emission Limit value (ELV)
Grace		Emissions above the ELV during grace period
Section 30		Emissions above the ELV during a Section 30 incident
Contravention		Emissions above ELV but outside grace or section 30 incident condition

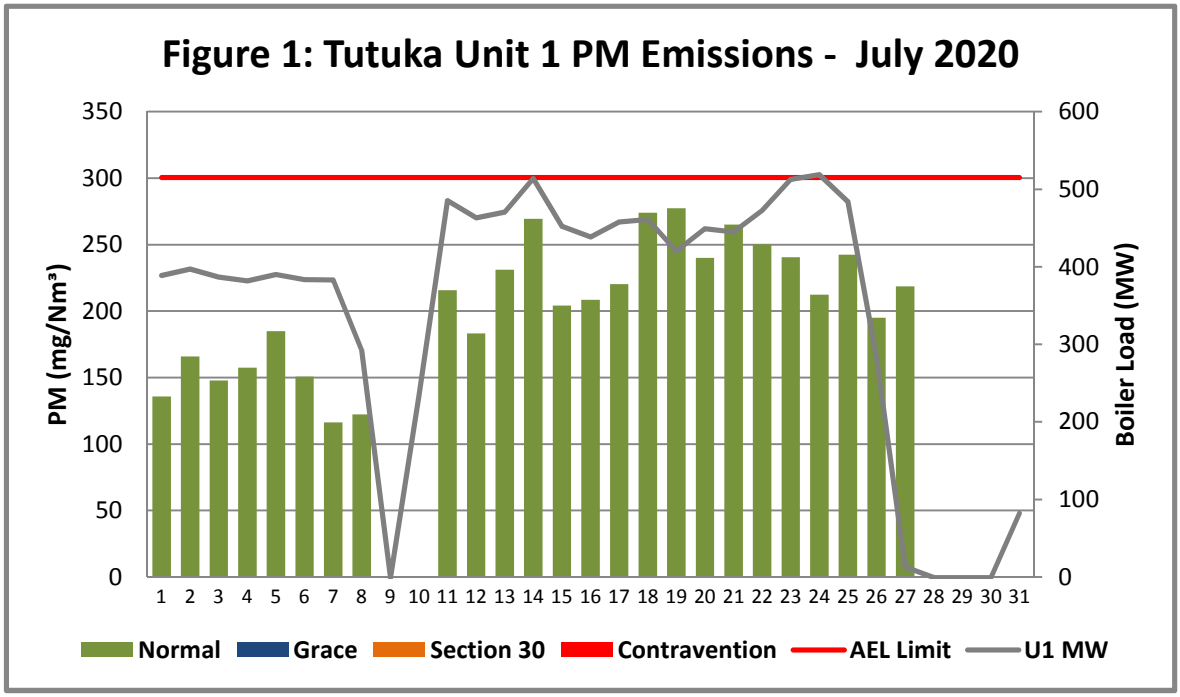

Figure 1: *Unit 1 Daily Average PM emissions for the month of July 2020(against the emission limits and load generated*

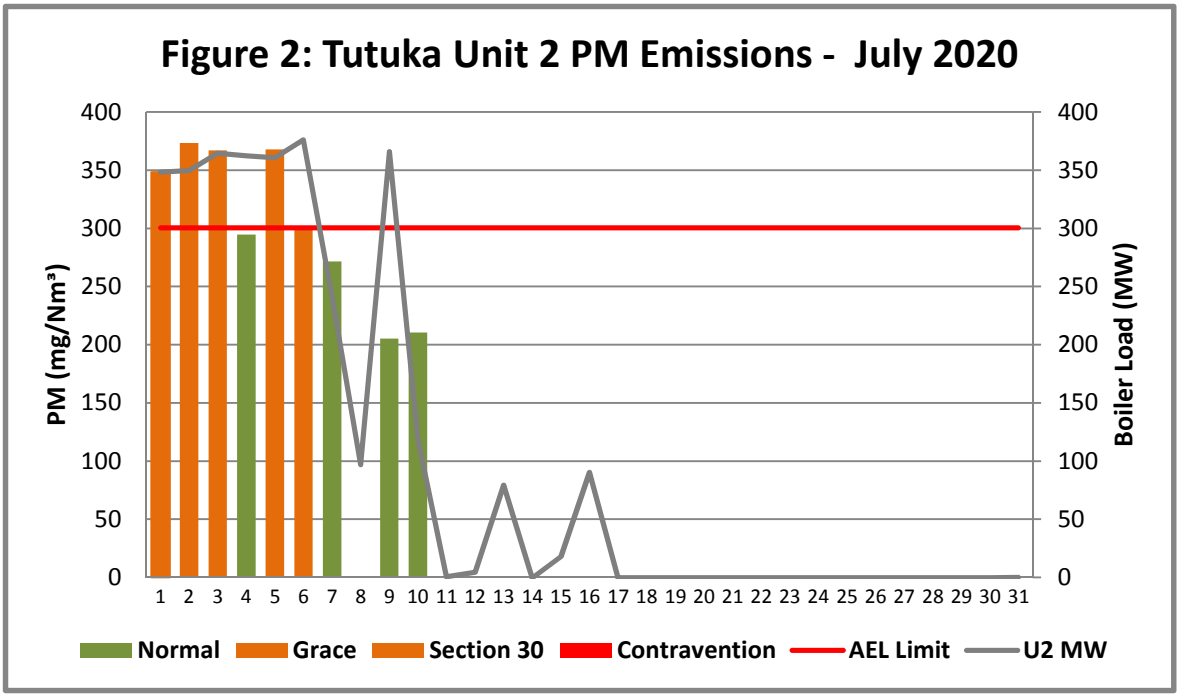

Figure 2: *Unit 2 Daily Average PM emissions for the month of July 2020(against the emission limits and load generated*
Note 1:Unit 2 had a continuous section 30 from the incident that took place on the 26 June 2020.

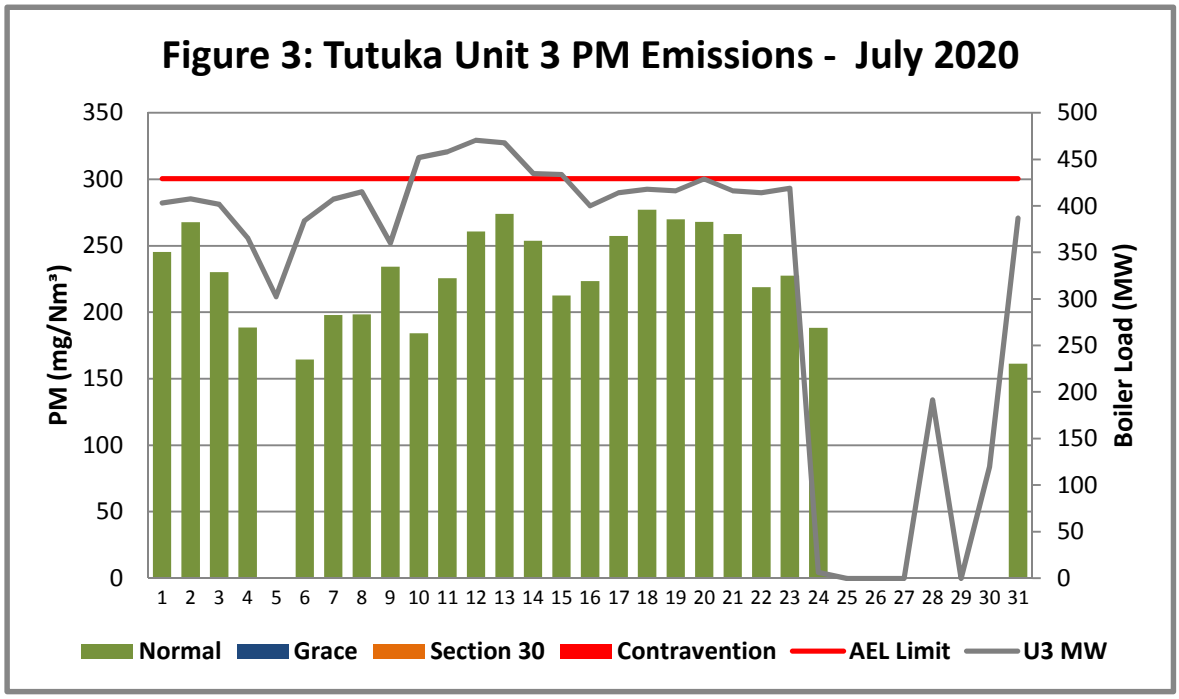

Figure 3: *Unit 3 Daily Average PM emissions for the month of July 2020(against the emission limits and load generated*

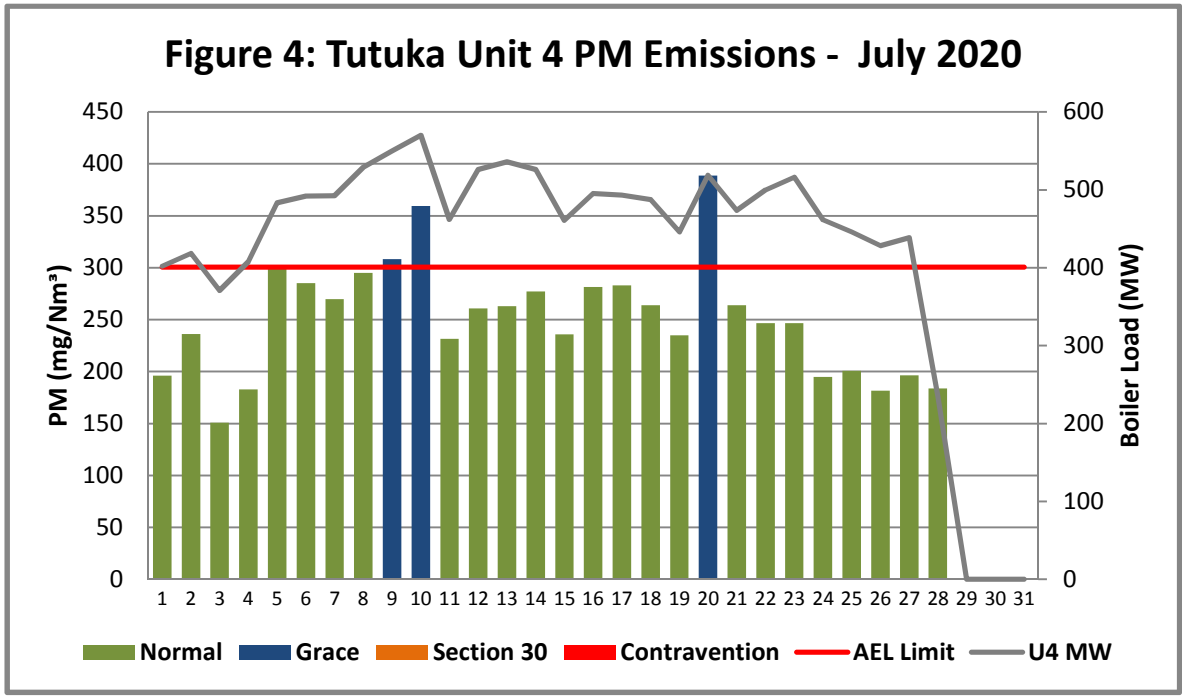

Figure 4: *Unit 4 Daily Average PM emissions for the month of July 2020(against the emission limits and load generated*

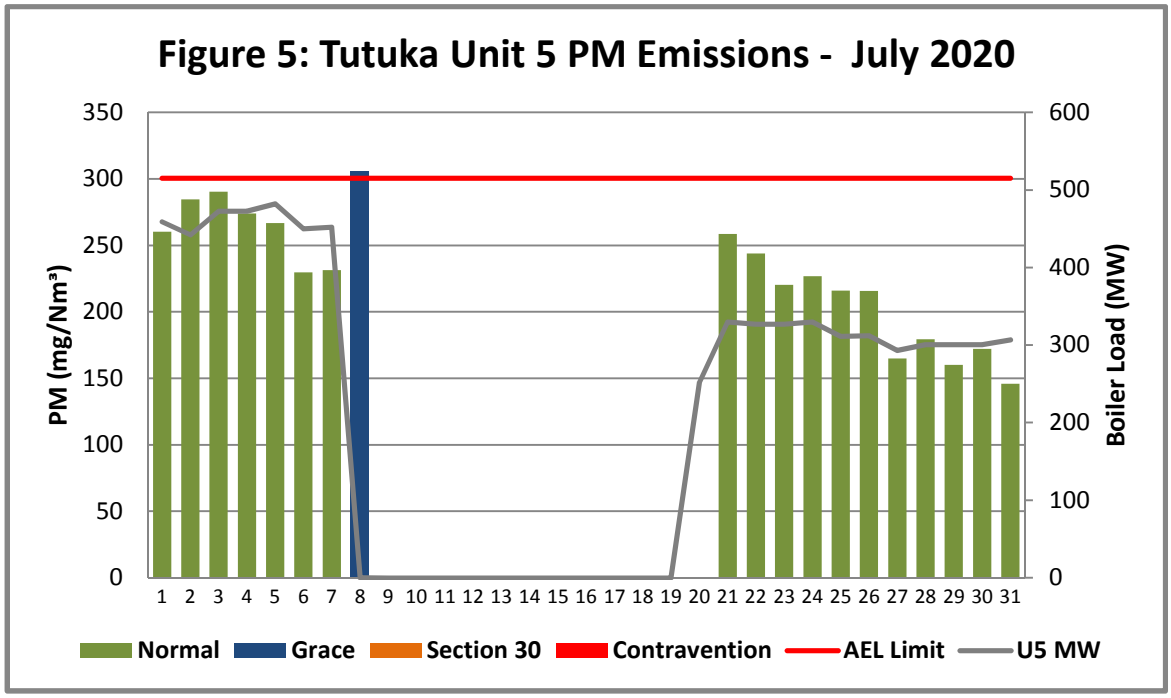

Figure 5: *Unit 5 Daily Average PM emissions for the month of July 2020(against the emission limits and load generated*

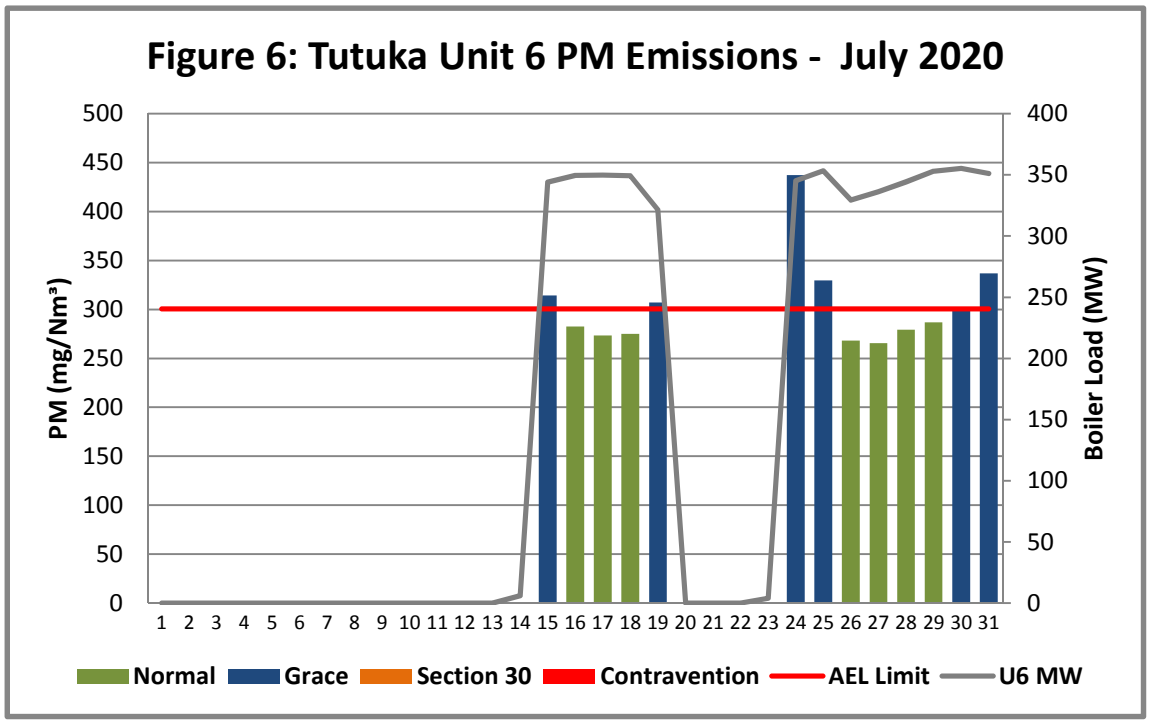

Figure 6: *Unit 6 Daily Average PM emissions for the month of July 2020(against the emission limits and load generated*

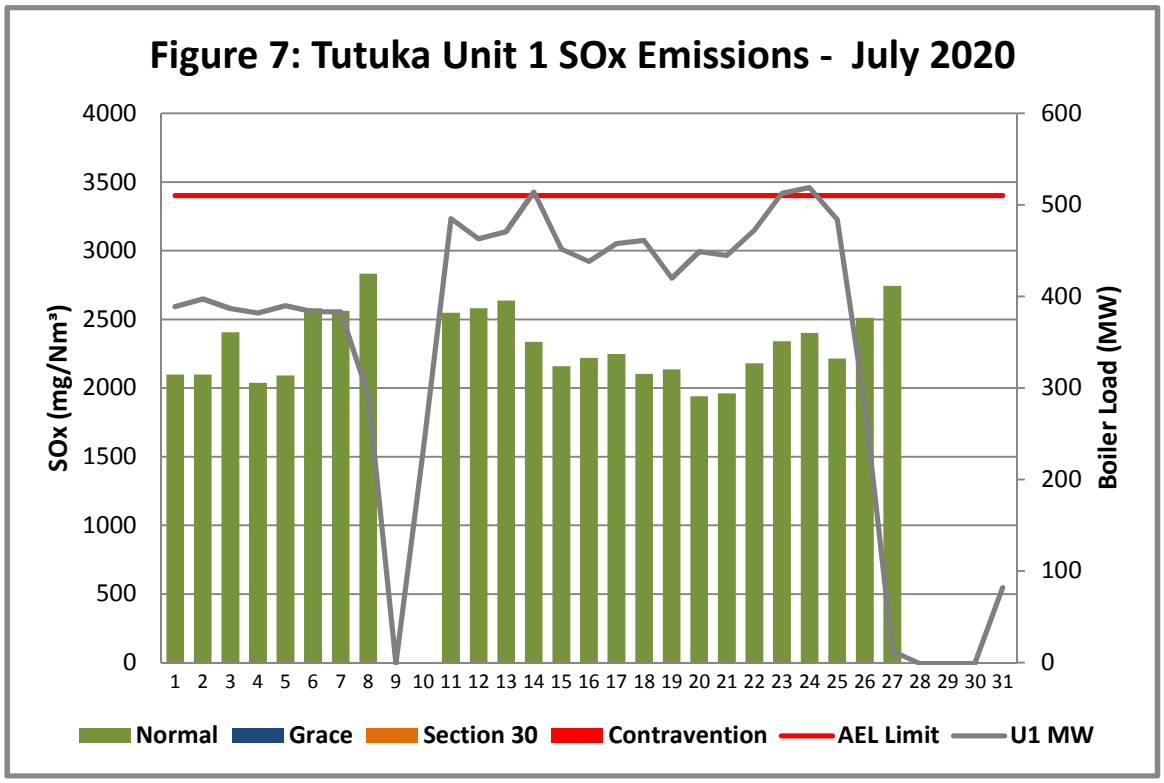

Figure 7: *Unit 1 Daily Average SOx emissions for the month of July 2020(against the emission limits and load generated*

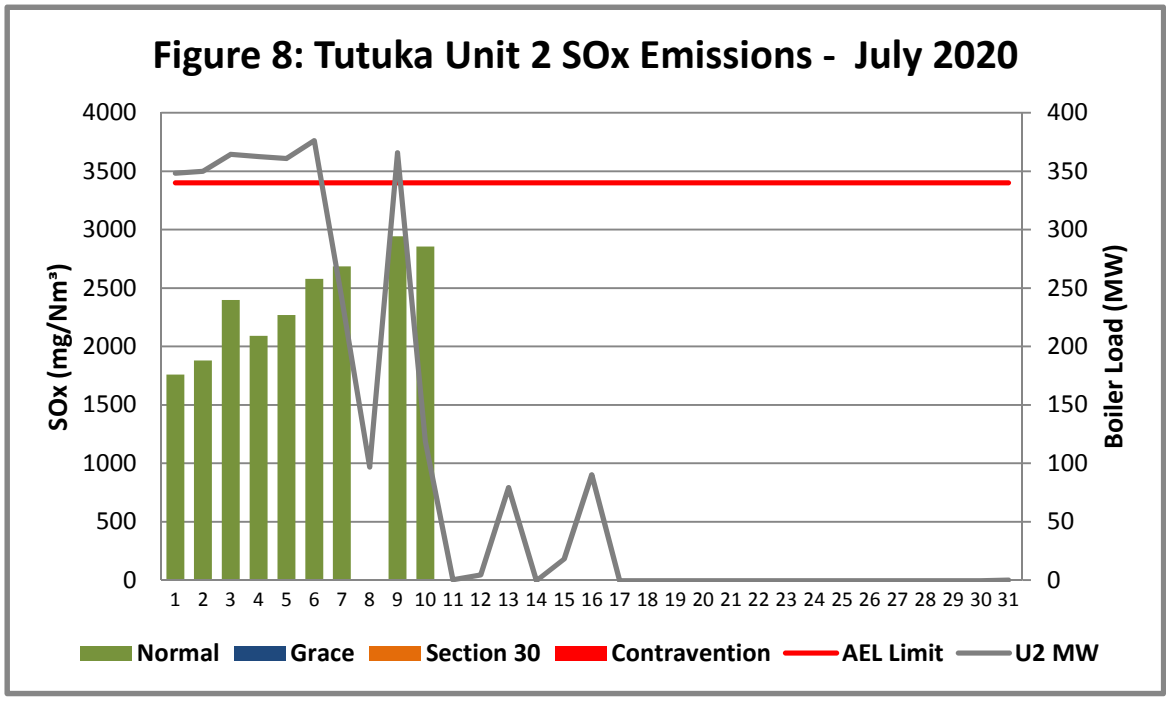

Figure 8: *Unit 2 Daily Average SOx emissions for the month of July 2020(against the emission limits and load generated*

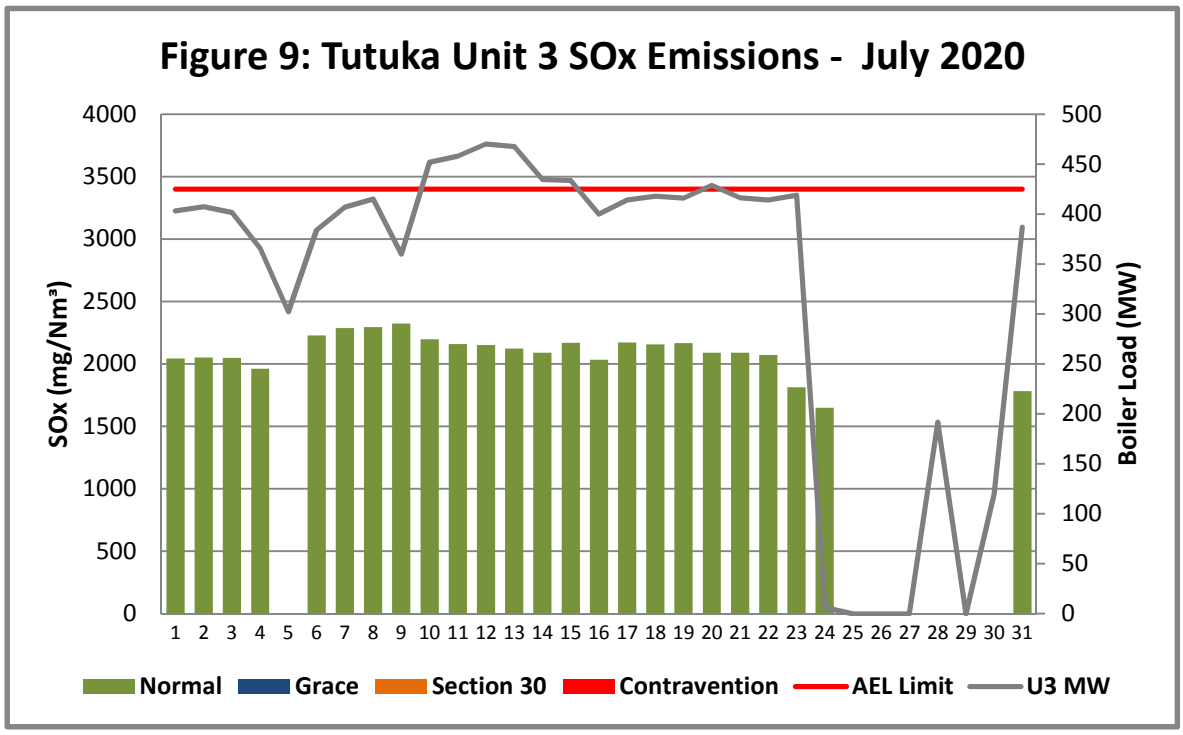

Figure 9: *Unit 3 Daily Average SOx emissions for the month of July 2020(against the emission limits and load generated*

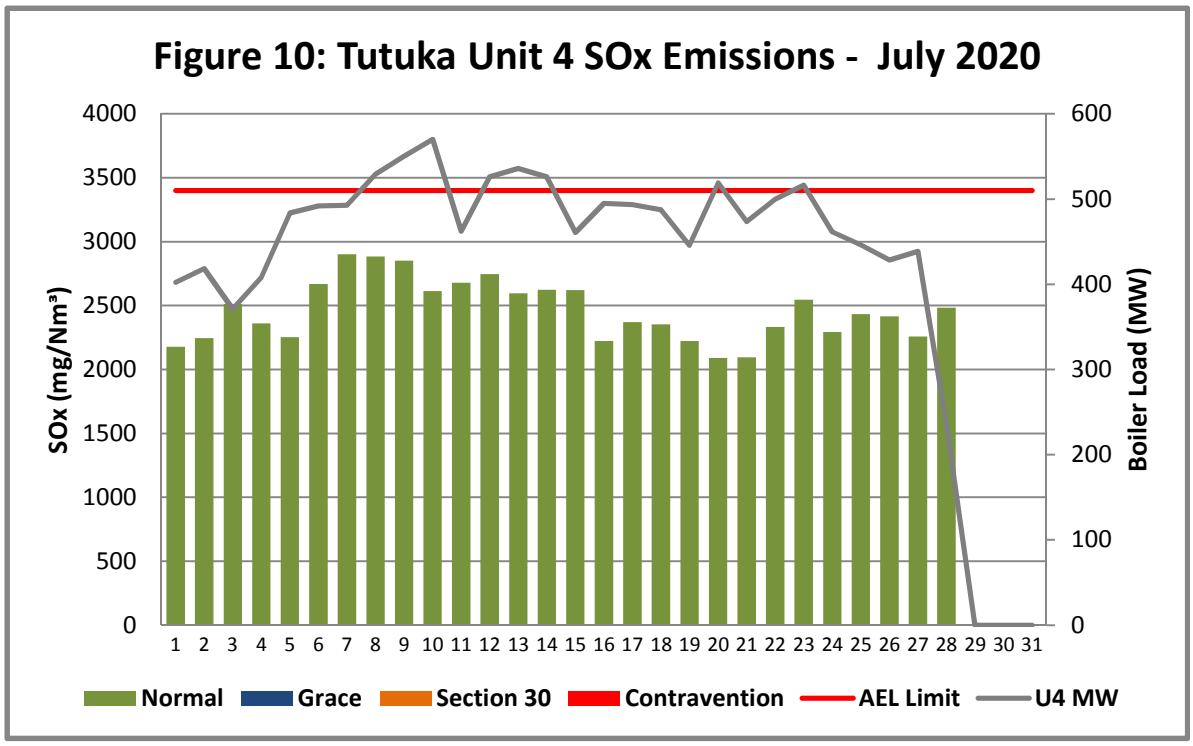

Figure 10: *Unit 4 Daily Average SOx emissions for the month of July 2020(against the emission limits and load generated*

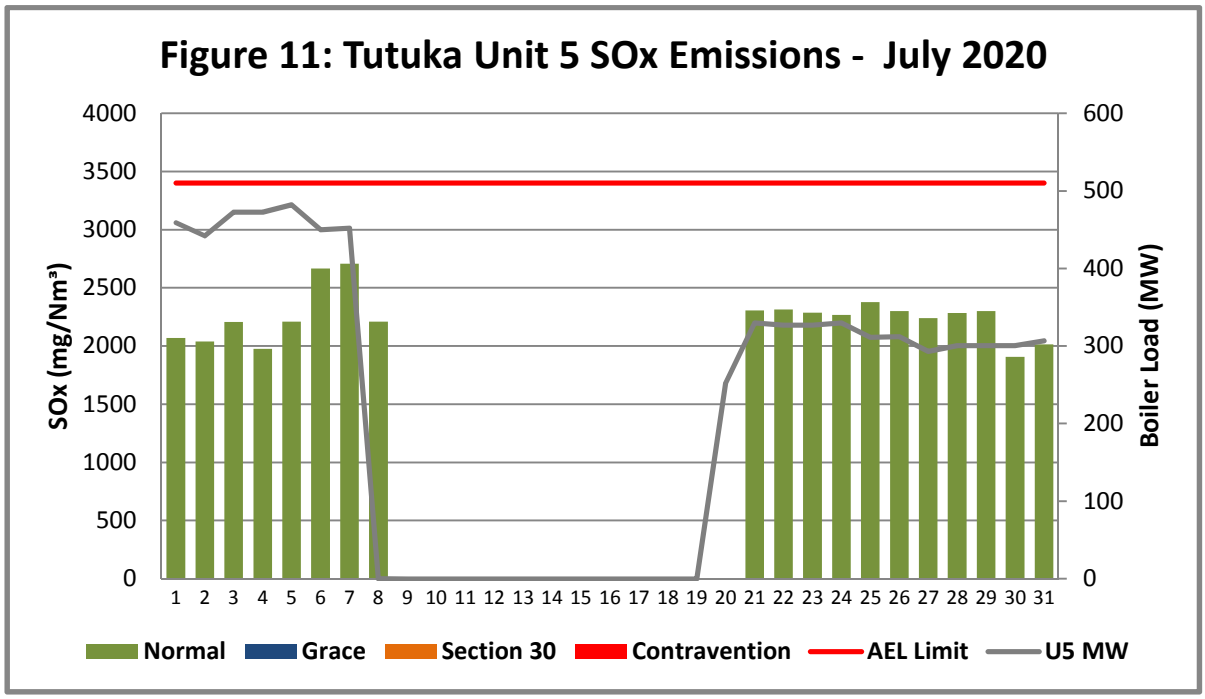

Figure 11: *Unit 5 Daily Average SOx emissions for the month of July 2020(against the emission limits and load generated*

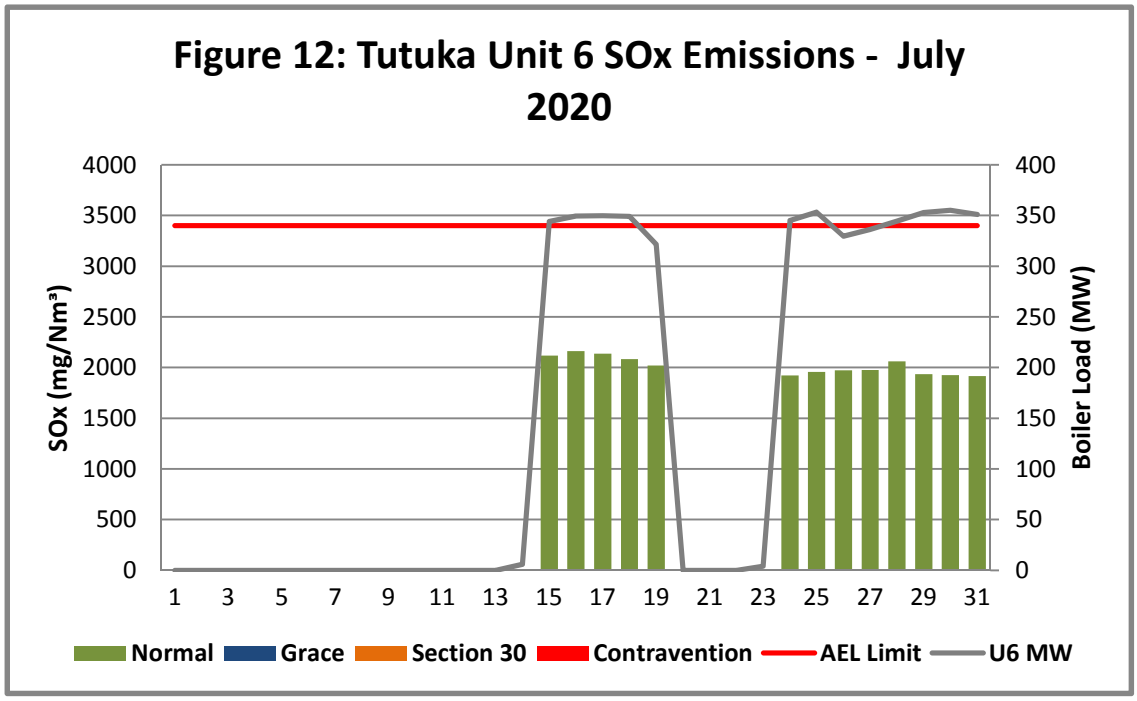

Figure 12: *Unit 6 Daily Average SOx emissions for the month of July 2020(against the emission limits and load generated*

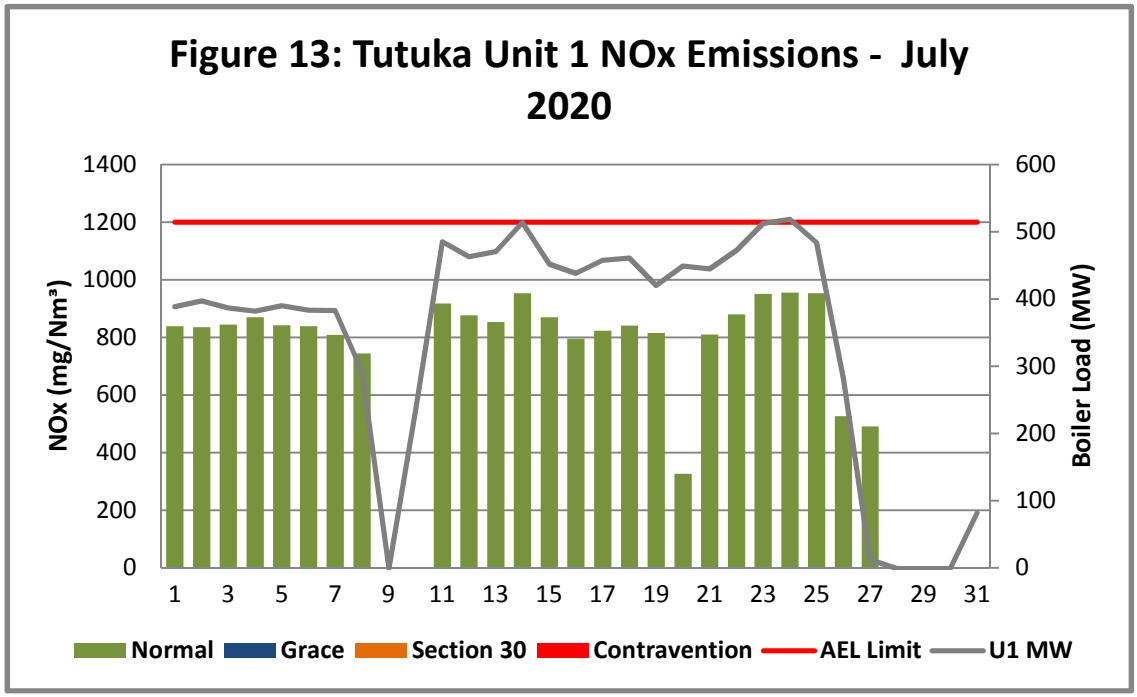

Figure 13: *Unit 1 Daily Average NOx emissions for the month of July 2020(against the emission limits and load generated*

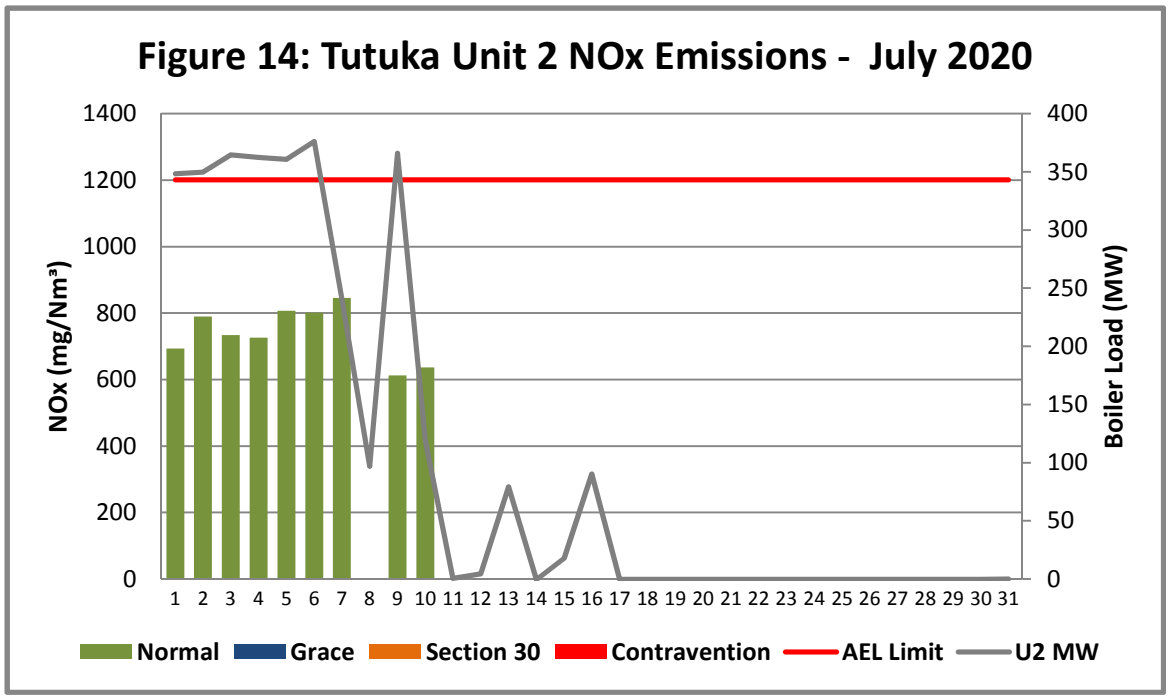

Figure 14: *Unit 2 Daily Average NOx emissions for the month of July 2020(against the emission limits and load generated*

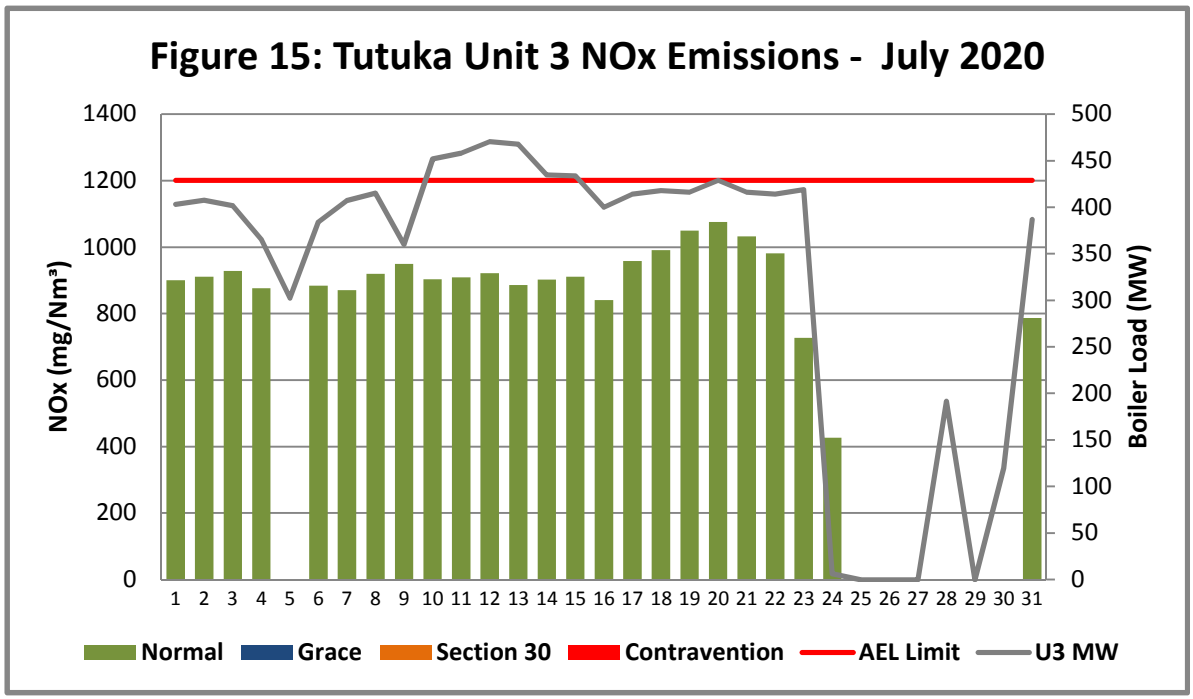

Figure 15: *Unit 3 Daily Average NOx emissions for the month of July 2020(against the emission limits and load generated*

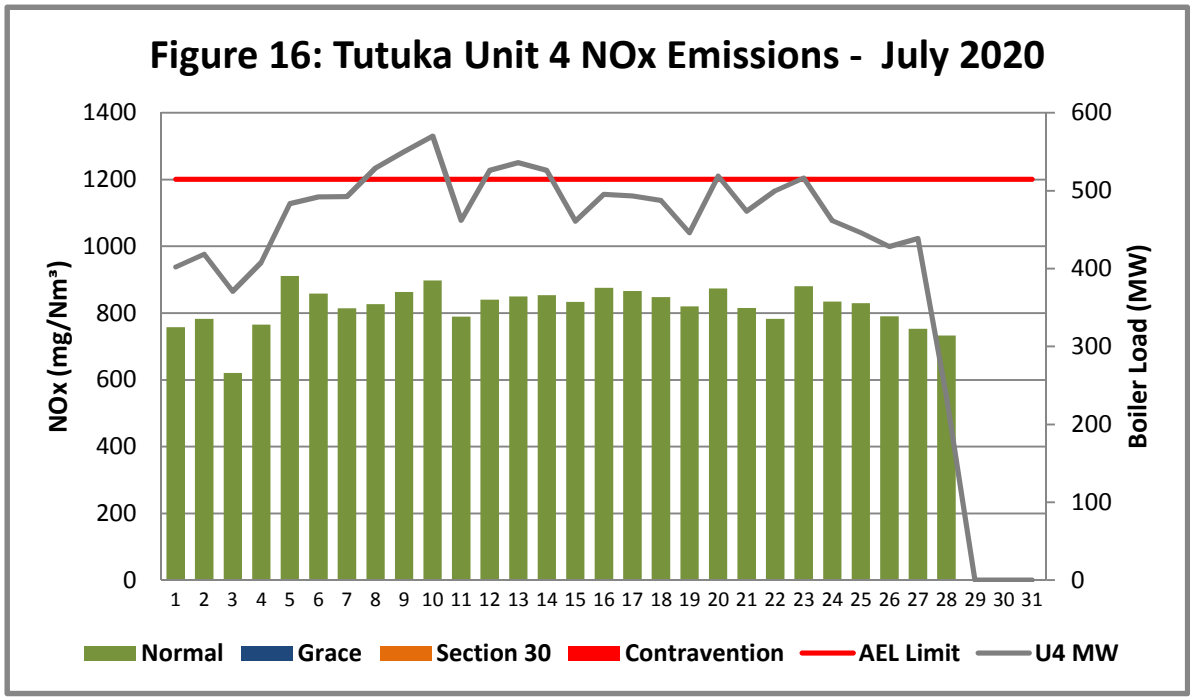

Figure 16: *Unit 4 Daily Average NOx emissions for the month of July 2020(against the emission limits and load generated*

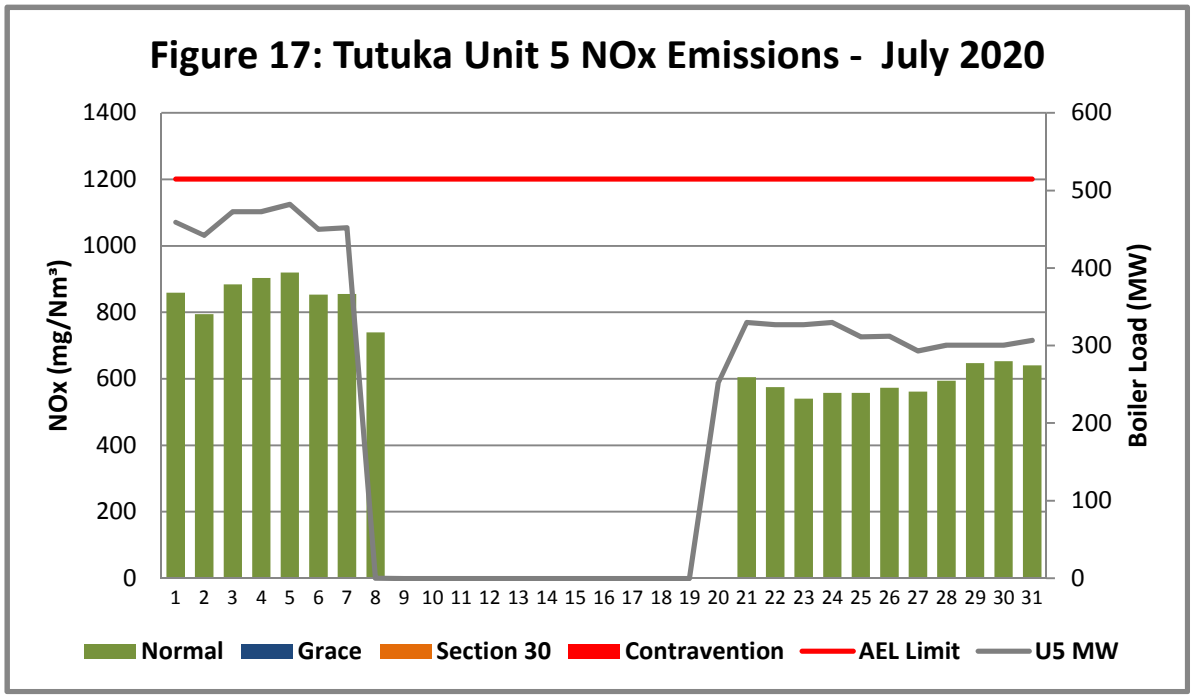

Figure 17: *Unit 5 Daily Average NOx emissions for the month of July 2020(against the emission limits and load generated*

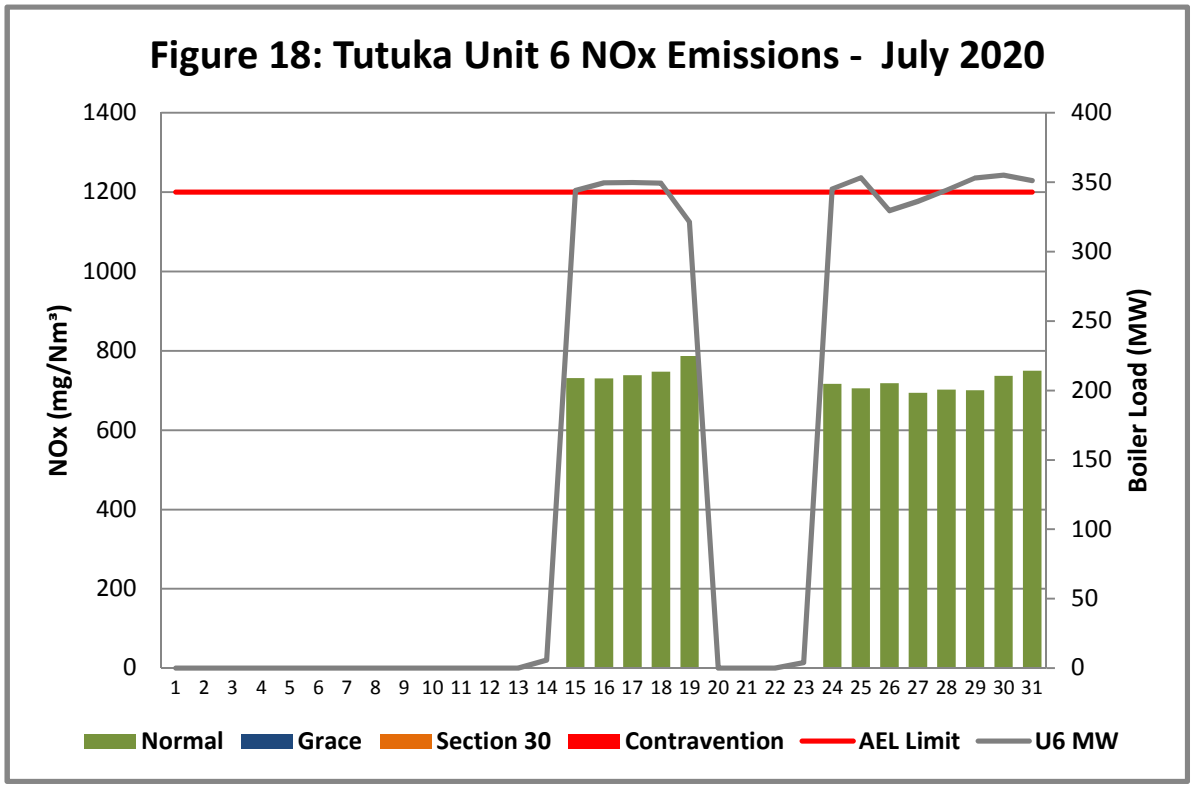

Figure 18: *Unit 6 Daily Average NOx emissions for the month of July 2020(against the emission limits and load generated*

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)	0	3	2	0	0	0
Number Of Cold Starts (Off-Load > 30 hrs)	2	1	2	0	1	2

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

6. Complaints

No complaints were received from the stakeholders in the month of July 2020.

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 July 2020

7. General

1 continuous Section 30(Unit 2) incidents was recorded in the month of July 2020.The incidents causes include precipitator fields tripping thus affecting ESP efficiency, poor performance of ESP fields due to full hoppers and Dust Handling Plant (DHP) motor failures. Unit 2,4, 5 & 6 had PM exceedances within the grace period. The exceedances were due to failed plate rapper motors, poor performance of ESP fields due to absence of rapping mechanism and lack of plate rapper spares availability (See table 7.1 below). There were no SOx & NOx exceedances (See tables 7.2 -7.3 below)

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm³)
Unit 1	25	0	0	0	0	205.2
Unit 2	4	0	5	0	5	304.4
Unit 3	24	0	0	0	0	228.7
Unit 4	25	3	0	0	3	250.7
Unit 5	18	1	0	0	1	228.7
Unit 6	7	6	0	0	6	304.4
SUM	**103**	**10**	**5**	**0**	**15**	

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SOx (mg/Nm³)
Unit 1	25	0	0	0	0	2 318.9
Unit 2	9	0	0	0	0	2 384.8
Unit 3	24	0	0	0	0	2 090.6
Unit 4	28	0	0	0	0	2 458.8
Unit 5	19	0	0	0	0	2 246.3
Unit 6	13	0	0	0	0	2 013.8
SUM	**118**	**0**	**0**	**0**	**0**	

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm³)
Unit 1	25	0	0	0	0	810.8
Unit 2	9	0	0	0	0	738.4
Unit 3	24	0	0	0	0	897.6
Unit 4	28	0	0	0	0	820.3
Unit 5	19	0	0	0	0	700.6
Unit 6	13	0	0	0	0	727.7
SUM	**118**	**0**	**0**	**0**	**0**	

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 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

Compile by:

Monica Mokgawa
ENVIRONMENTAL MANAGER: TUTUKA POWER STATION
Signature:……
Date:23 March 2021……

Verified By:

Mike Molepo

SENIOR ADVISOR CHEMISTRY: TUTUKA POWER STATION

Signature:……..

Date:24/03/2021

Approved by:

Sello Mametja

GENERAL MANAGER: TUTUKA POWER STATION

Signature:……

Date:2021/03/24