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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 August 2020.

1. RAW MATERIALS AND PRODUCTS

Raw Materials and Products	Raw Material Type	Units	Max. Permitted	Actual Consumption Aug-2020
	Coal	Tons	1 200 000	562 858
	Fuel Oil	Tons	10 000	12 438.37
Production Rates	Product / By-Product Name	Units	Max. Production Capacity Permitted	Production Rate Aug-2020
	Energy	MW	30 748	41 840
	Ash	Tons	350 000	146 456
	RE Ash	kg/MWh	not specified	1.45

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

2. ENERGY SOURCE CHARACTERISTICS

Coal Characteristics	Units	Stipulated Range	Monthly Average Content
CV Content	MJ/kg	16-24	21.200
Sulphur Content	%	0.6 TO >2.6	0.710
Ash Content	%	21 TO >33	26.020

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

3.1. ABATEMET TECHNOLOGY (%)

Associated Unit/Stack	Technology Type		
Unit 1	<i>Electro Static Precipitators (ESP)</i>	95	99.2%
Unit 2	<i>Electro Static Precipitators (ESP)</i>	95	99.0%
Unit 3	<i>Electro Static Precipitators (ESP)</i>	98	98.9%
Unit 4	<i>Electro Static Precipitators (ESP)</i>	95	98.9%
Unit 5	<i>Electro Static Precipitators (ESP)</i>	95	99.3%
Unit 6	<i>Electro Static Precipitators (ESP)</i>	95	99.1%

Table 3: Abatement Equipment Control Technology for month of August 2020

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

3.2. MONITOR RELIABILITY (%)

Associated Unit/Stack	PM	SO ₂	NO
Unit 1	100.0	100.0	100.0
Unit 2	100.0	100.0	100.0
Unit 3	99.7	100.0	100.0
Unit 4	100.0	100.0	100.0
Unit 5	100.0	100.0	100.0
Unit 6	96.7	96.8	96.8

Table 3.2: Monitor reliability for month of August 2020

EMISSION PERFORMANCE

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

Associated Unit/Stack	PM (tons)	SO ₂ (tons)	NO _x (tons)
Unit 1	204.6	2 005	791
Unit 2	144.9	1 115	366
Unit 3	301.7	3 089	1257
Unit 4	311.3	2 164	811
Unit 5	11.5	198	55
Unit 6	325.6	2 720	975
SUM	1 299.6	11 292	4255

Table 4 1: Monthly tonnages for the month of August 2020

Table 4.2: Legend 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	Yellow	Emissions above the ELV during a Section 30 incident
Contravention	Red	Emissions above ELV but outside grace or section 30 incident condition

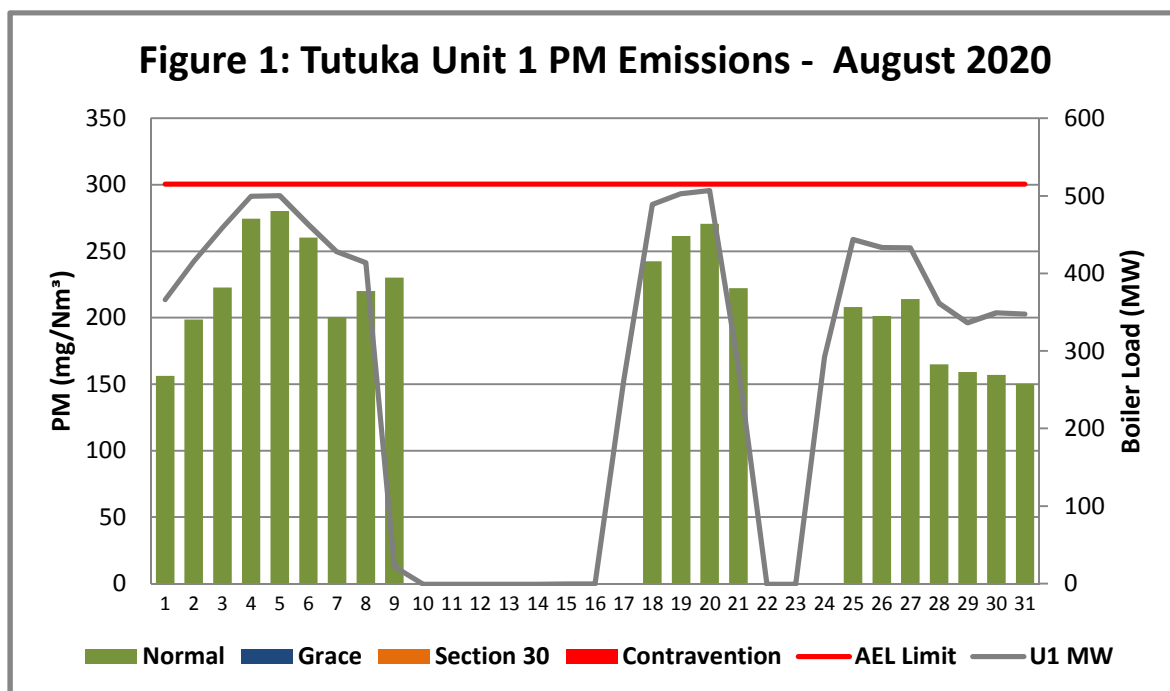


Figure 1: Unit 1 Daily Average PM emissions for the month of August 2020 (against the emission limits and load generated).

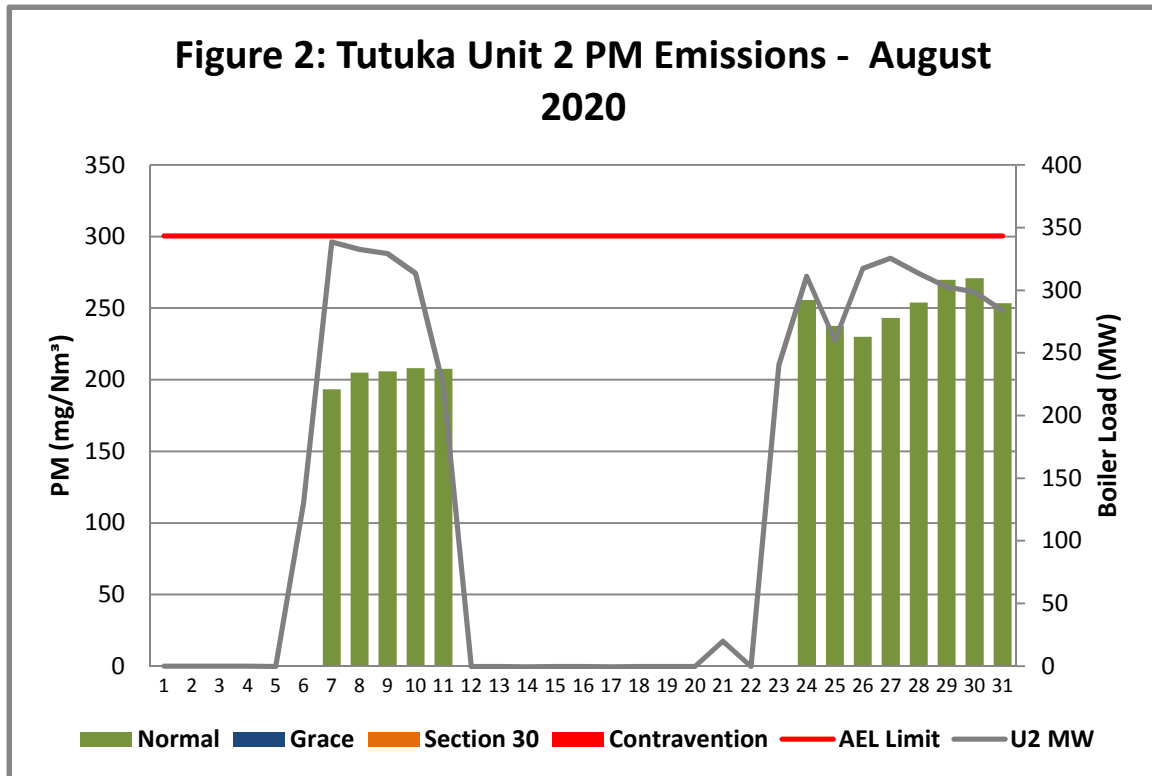


Figure 2: Unit 2 Daily Average PM emissions for the month of August 2020 (against the emission limits and load generated)

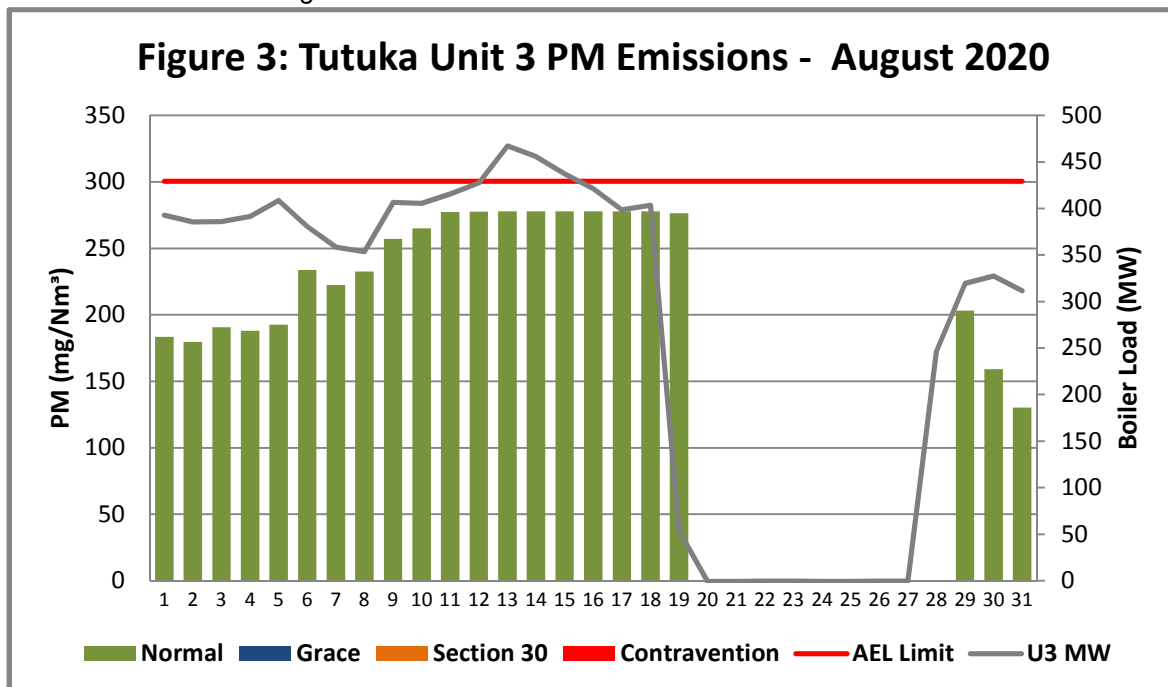


Figure 3: Unit 3 Daily Average PM emissions for the month of August 2020 (against the emission limits and load generated)

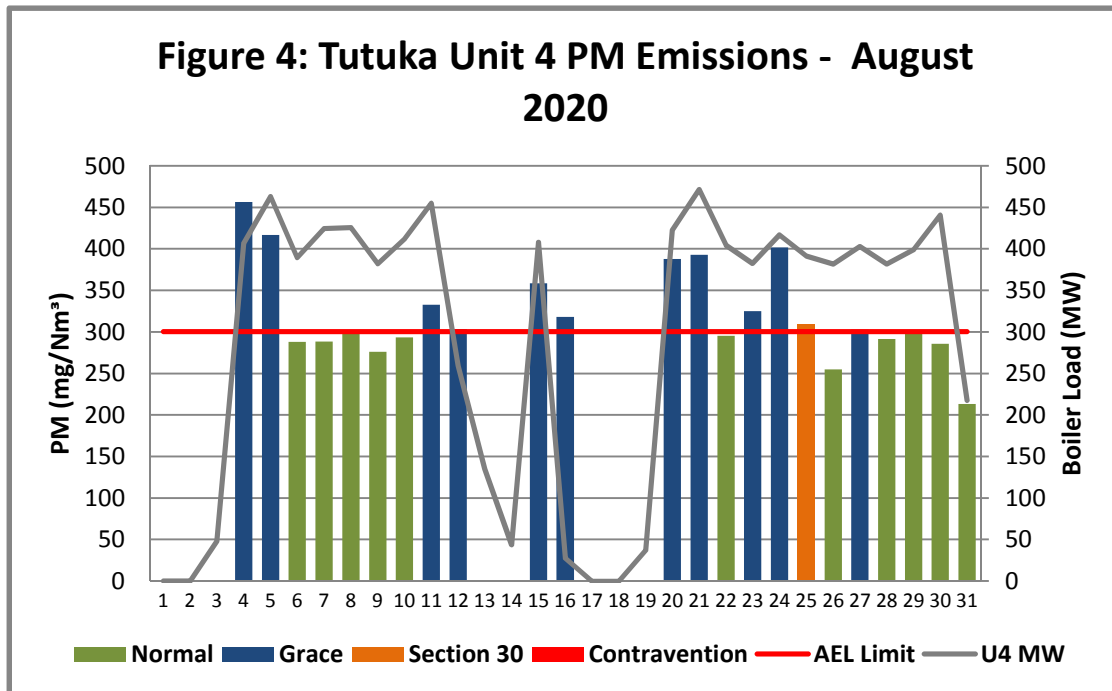


Figure 4: Unit 4 Daily Average PM emissions for the month of August 2020 (against the emission limits and load generated).

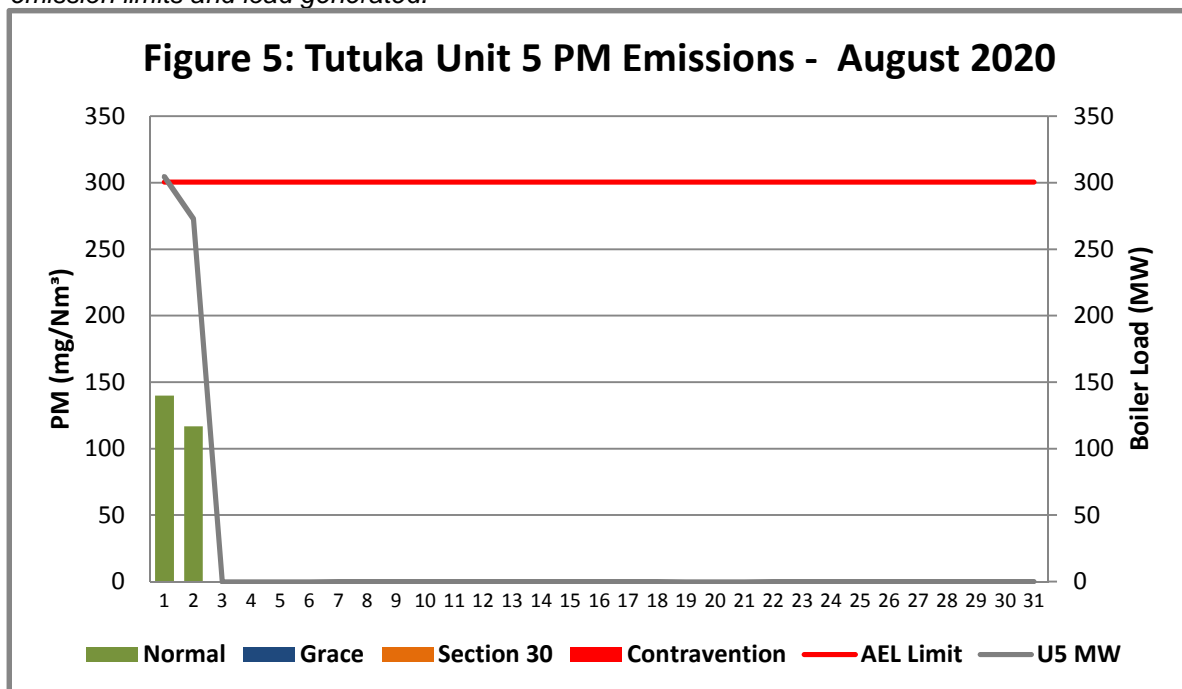


Figure 5: Unit 5 Daily Average PM emissions for the month of August 2020 (against the emission limits and load generated).

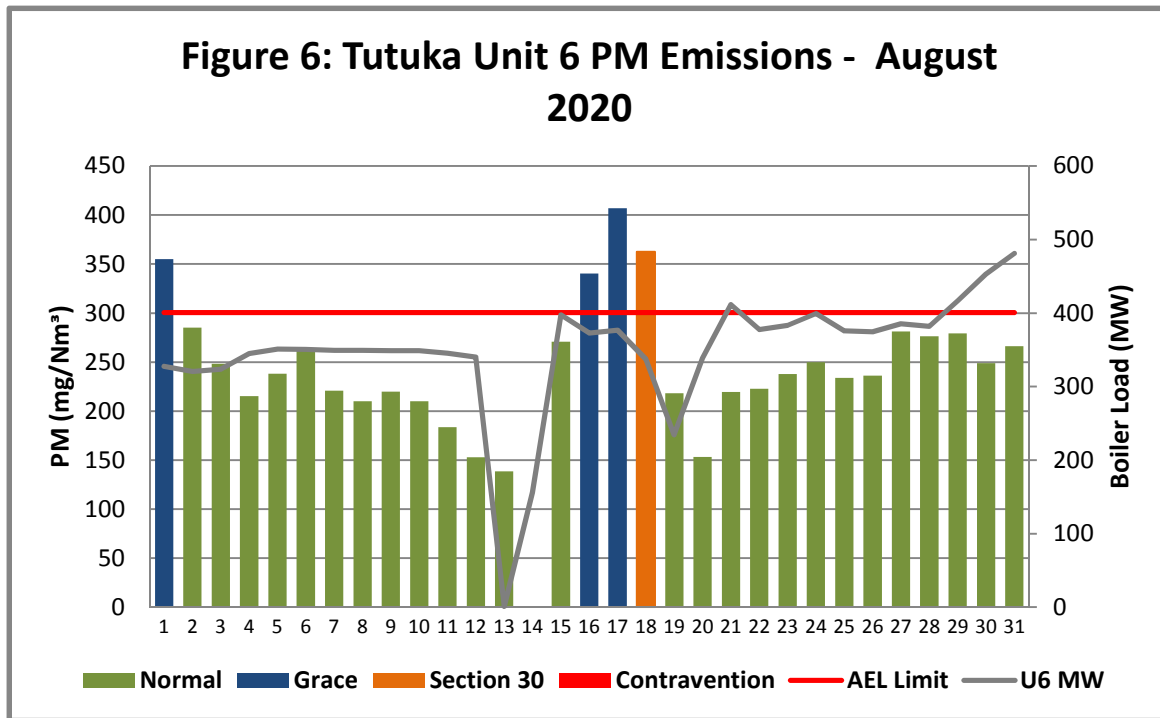


Figure 6: Unit 6 Daily Average PM emissions for the month of August 2020 (against the emission limits and load generated)

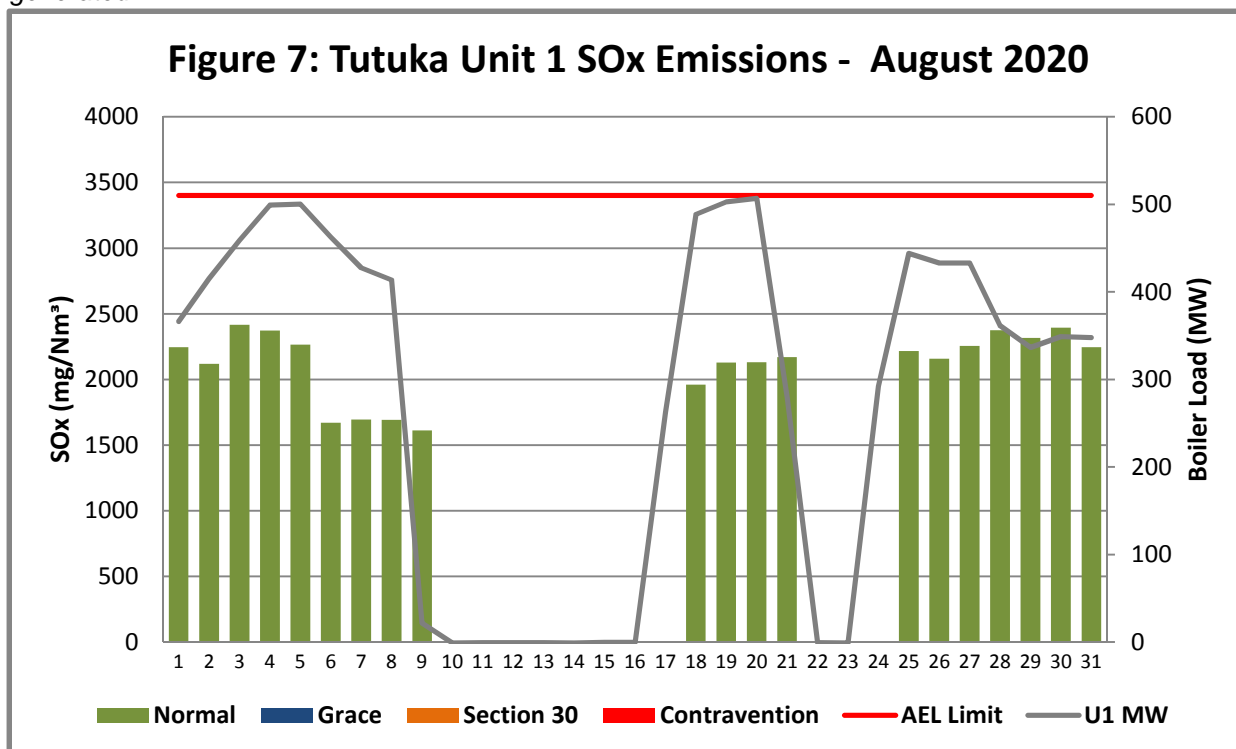


Figure 7: Unit 1 Daily Average SOx emissions for the month of August 2020 (against the emission limits and load generated).

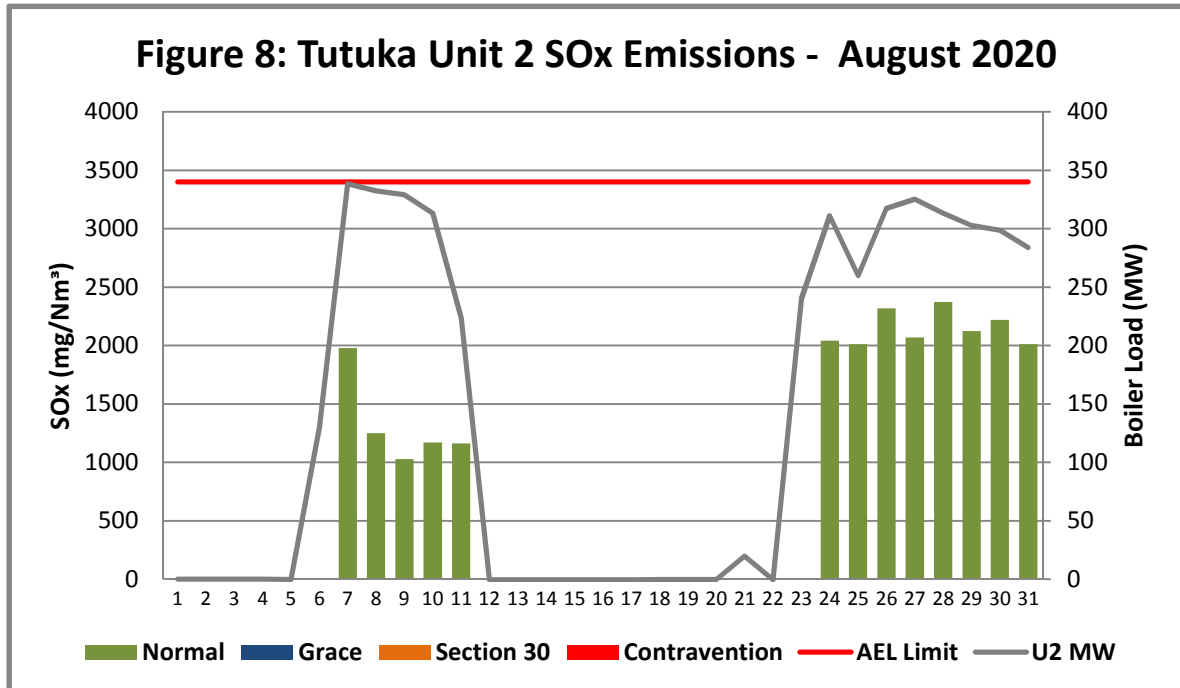


Figure 8: Unit 2 Daily Average SOx emissions for the month of August 2020 (against the emission limits and load generated).

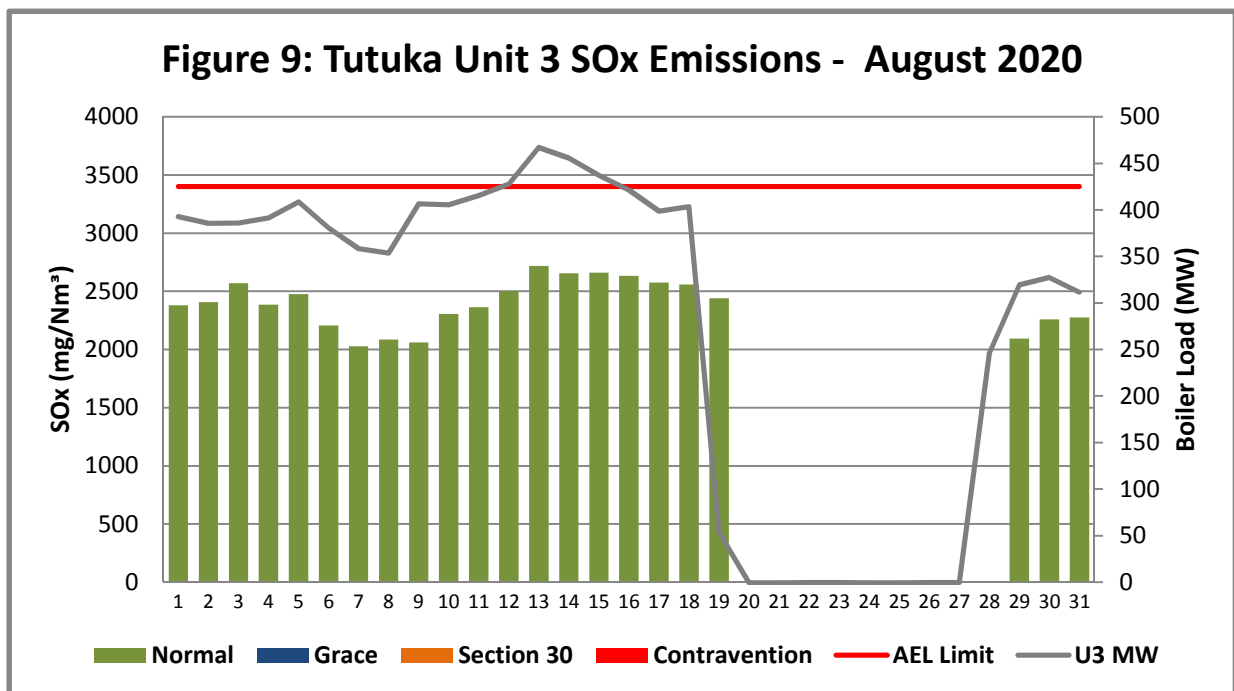


Figure 9: Unit 3 Daily Average SOx emissions for the month of August 2020 (against the emission limits and load generated).

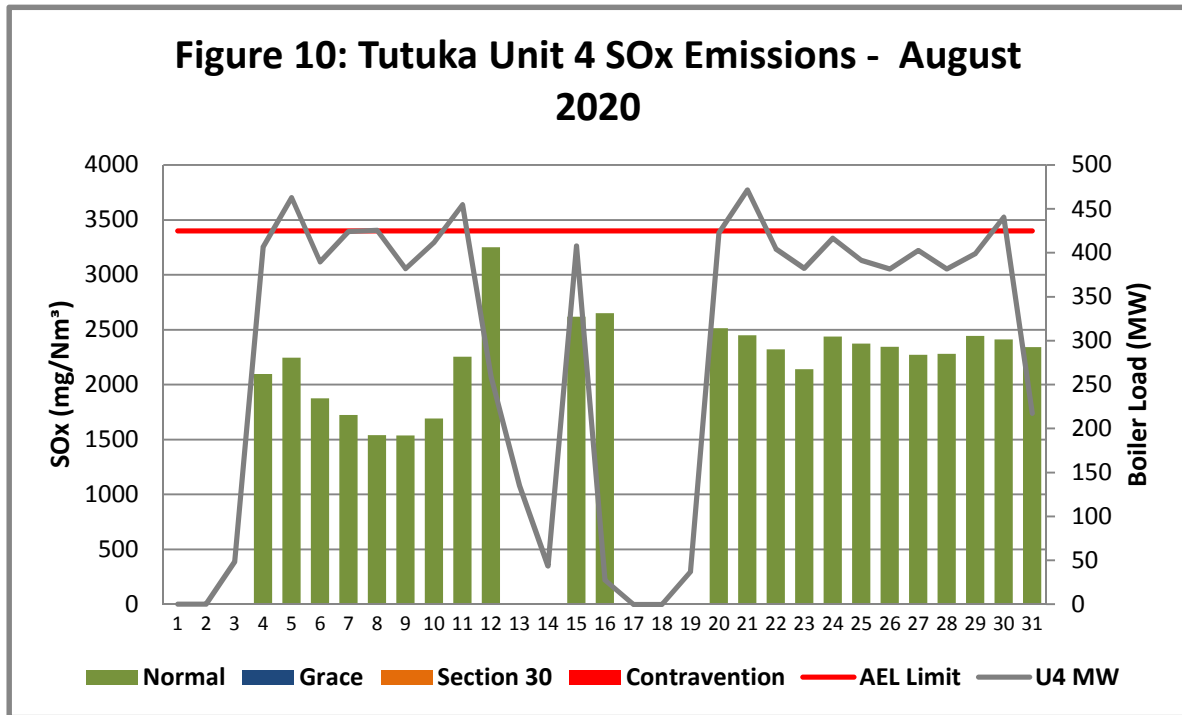


Figure 10: Unit 4 Daily Average SOx emissions for the month of August 2020 (against the emission limits and load generated).

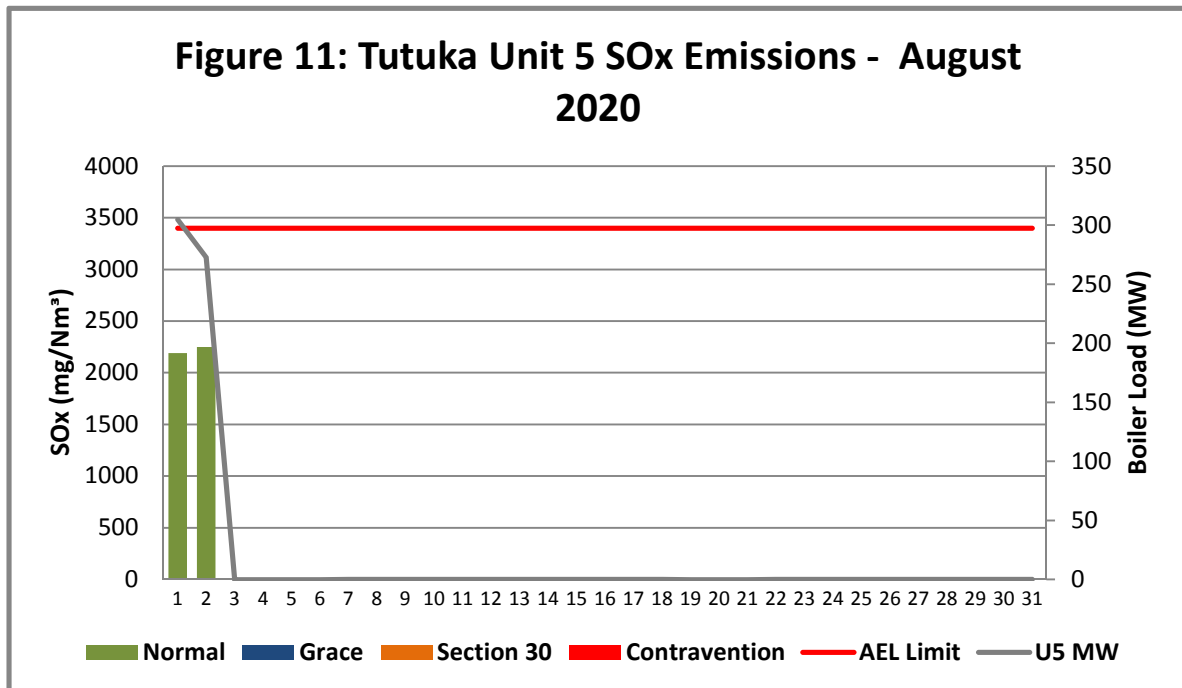


Figure 11: Unit 5 Daily Average SOx emissions for the month of August 2020 (against the emission limits and load generated).

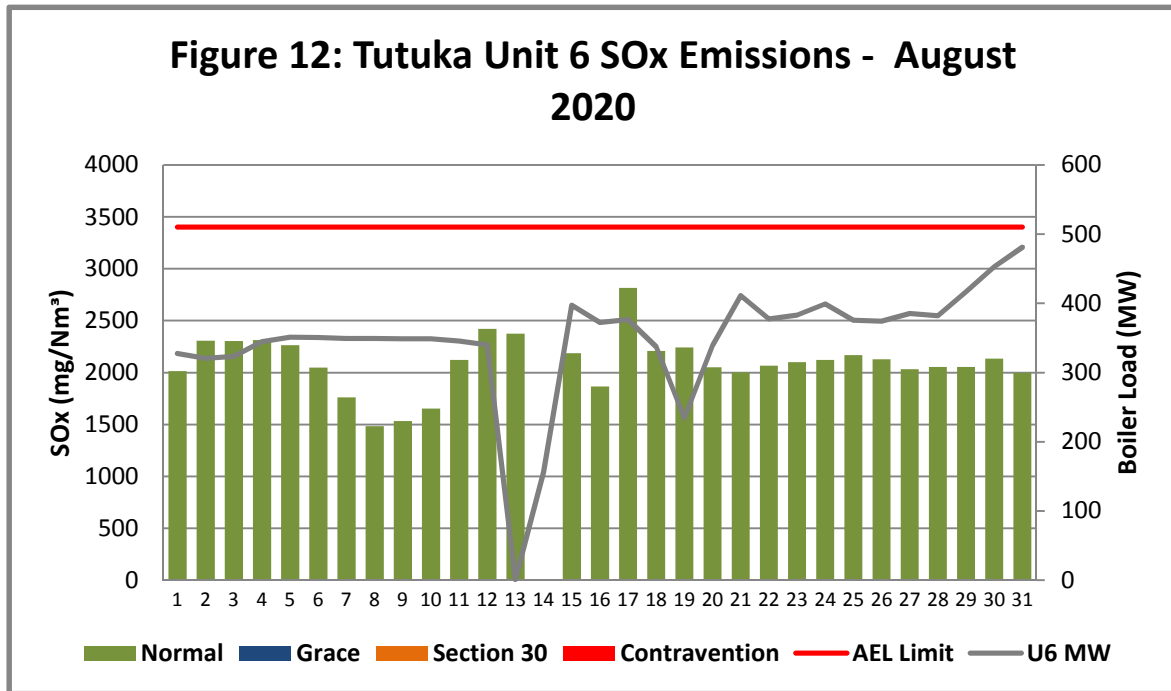


Figure 12: Unit 6 Daily Average SOx emissions for the month of August 2020 (against the emission limits and load generation)

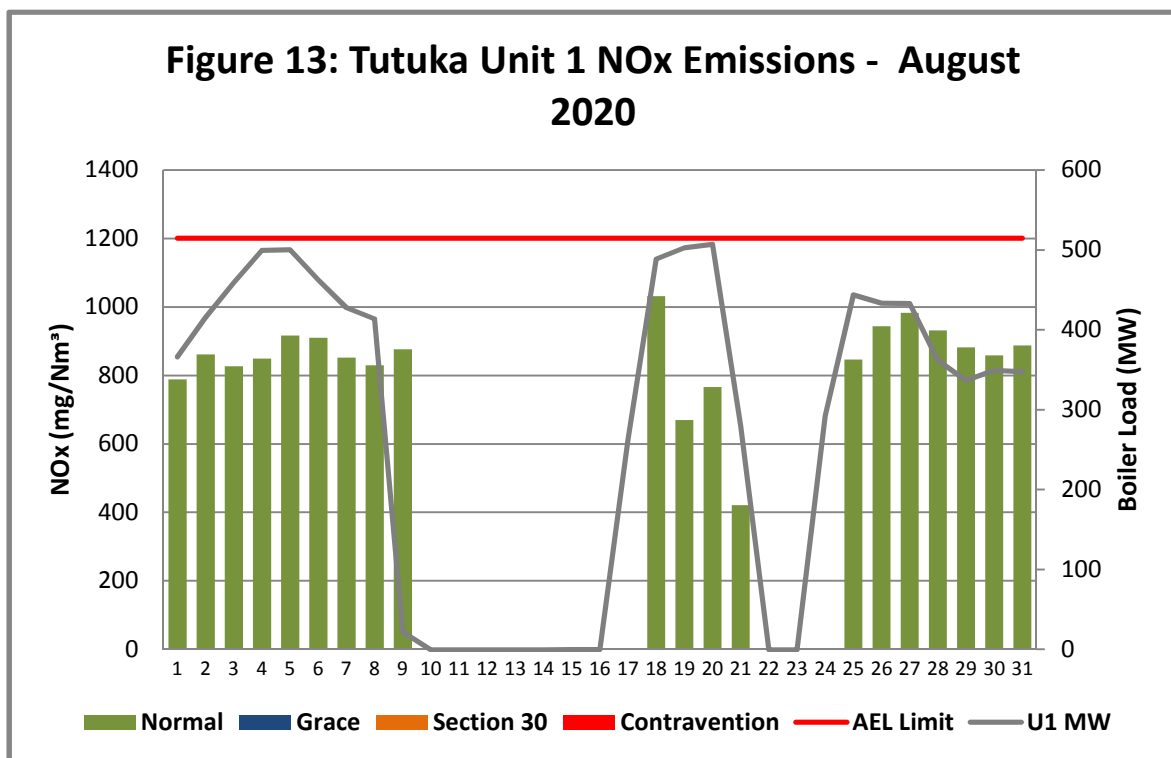


Figure 13: Unit 1 Daily Average NOx emissions for the month of August 2020 (against the emission limits and load generation)

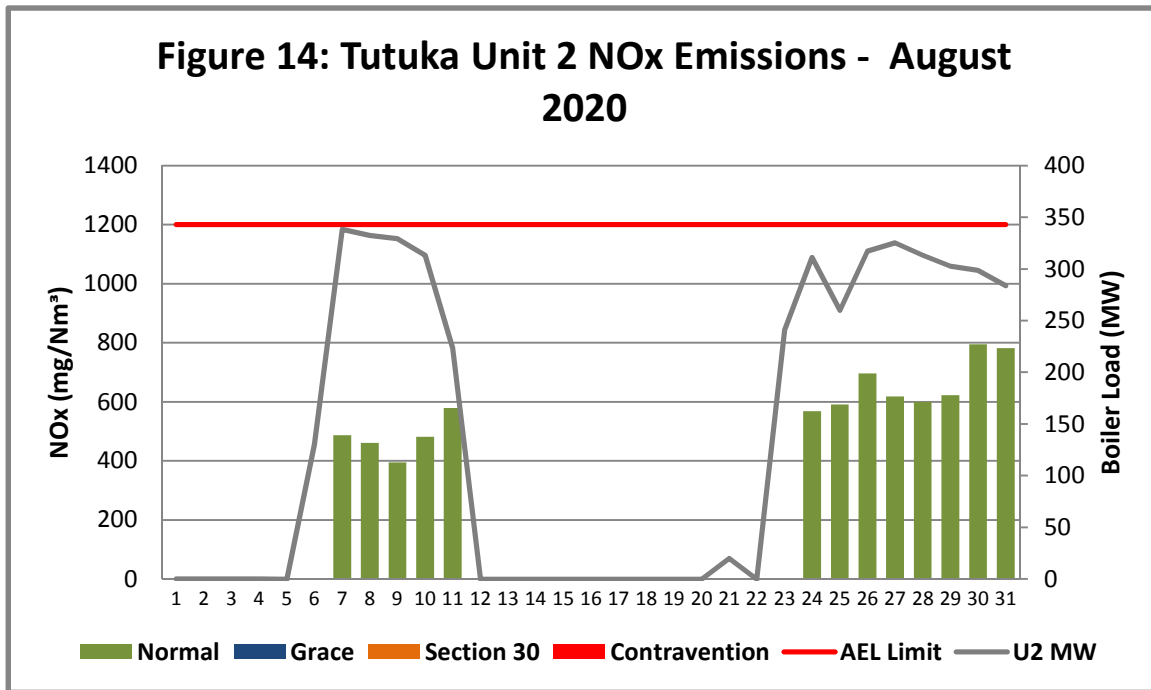


Figure 14: Unit 2 Daily Average NOx emissions for the month of August 2020 (against the emission limits and load generated).

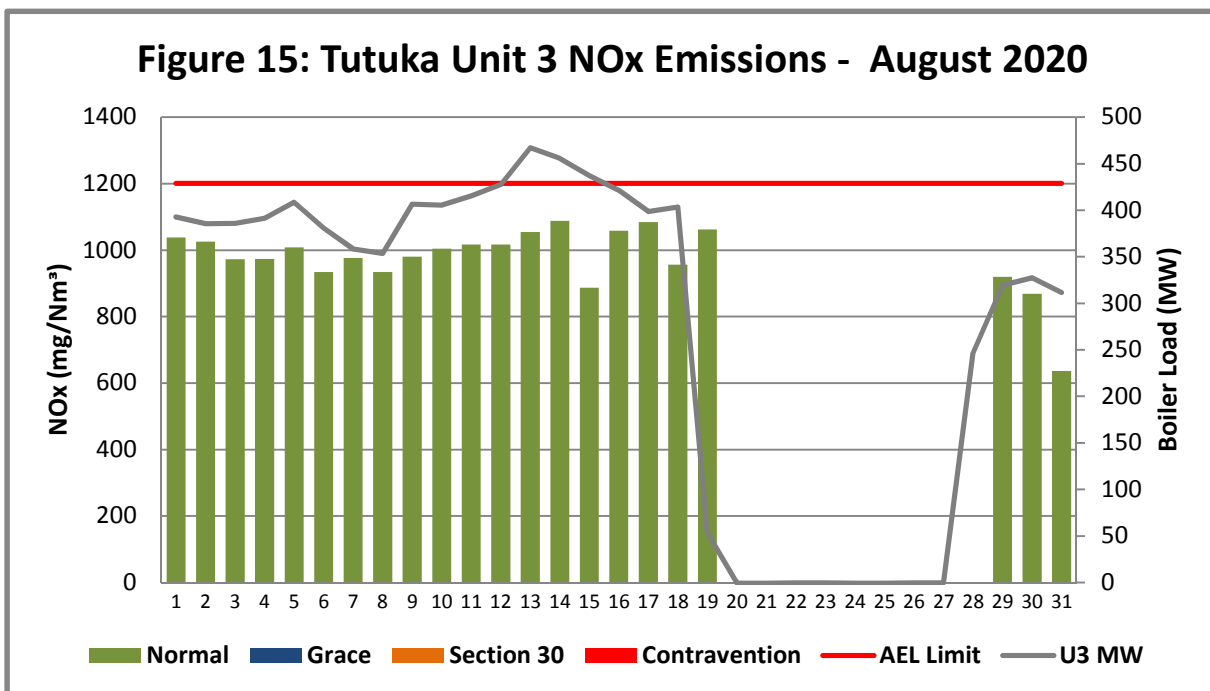


Figure 15: Unit 3 Daily Average NOx emissions for the month of August 2020 (against the emission limits and load generated).

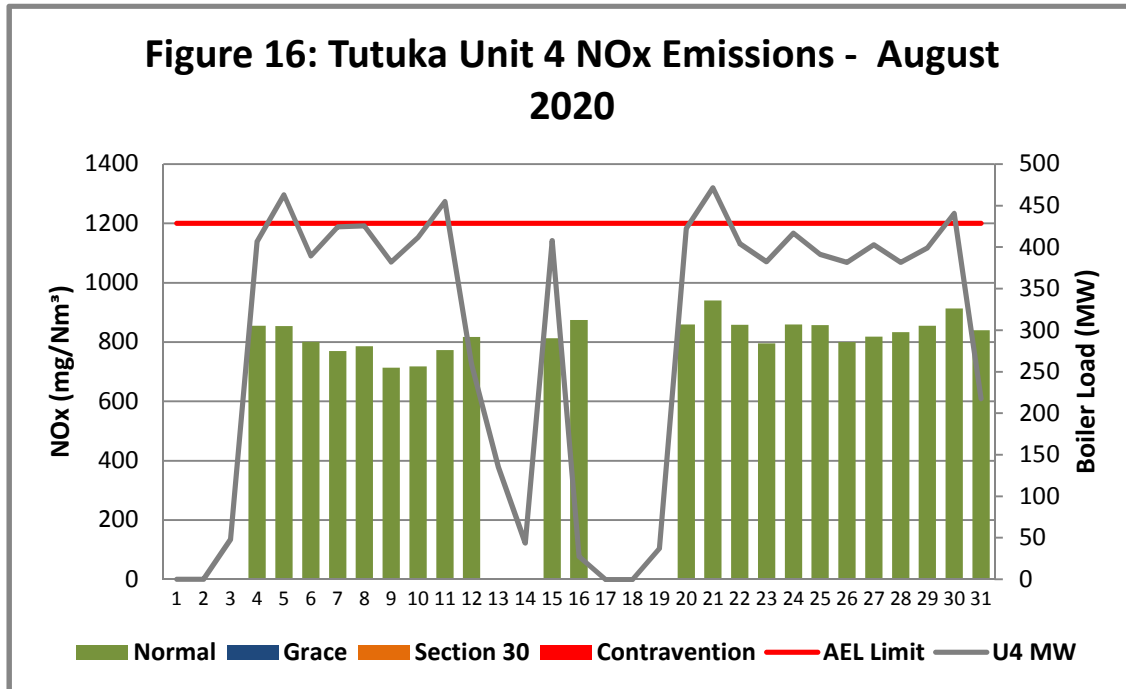


Figure 16: Unit 4 Daily Average NOx emissions for the month of August 2020 (against the emission limits and load generated).

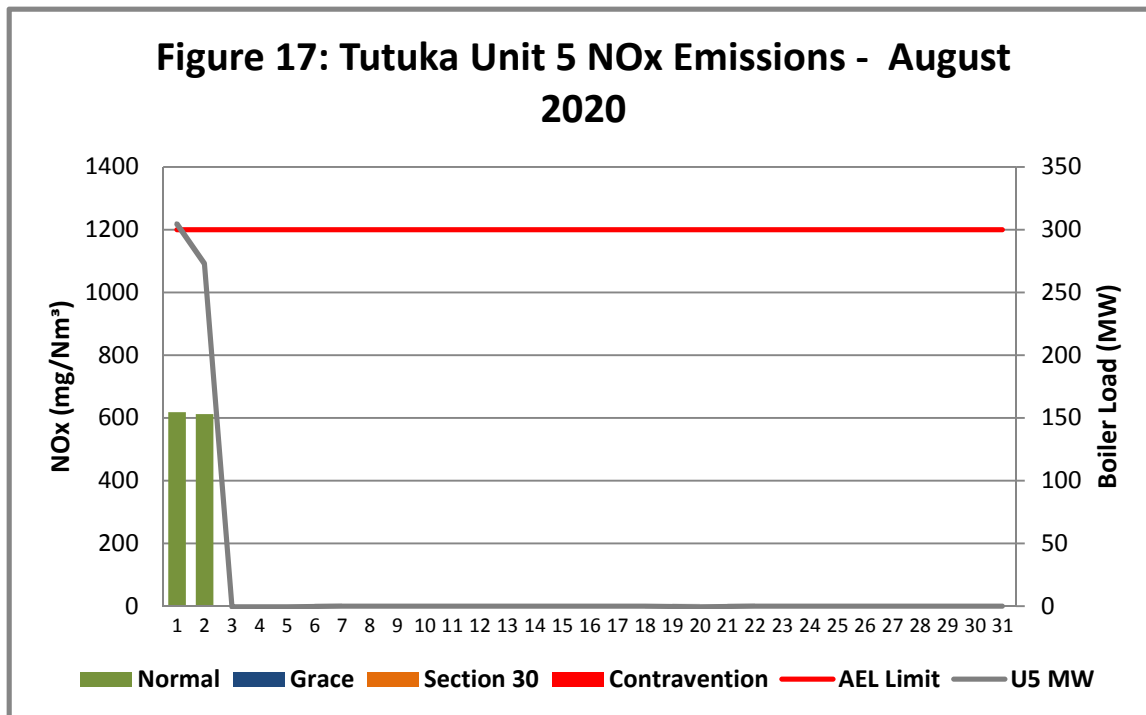


Figure 17: Unit 5 Daily Average NOx emissions for the month of August 2020 (against the emission limits and load generated).

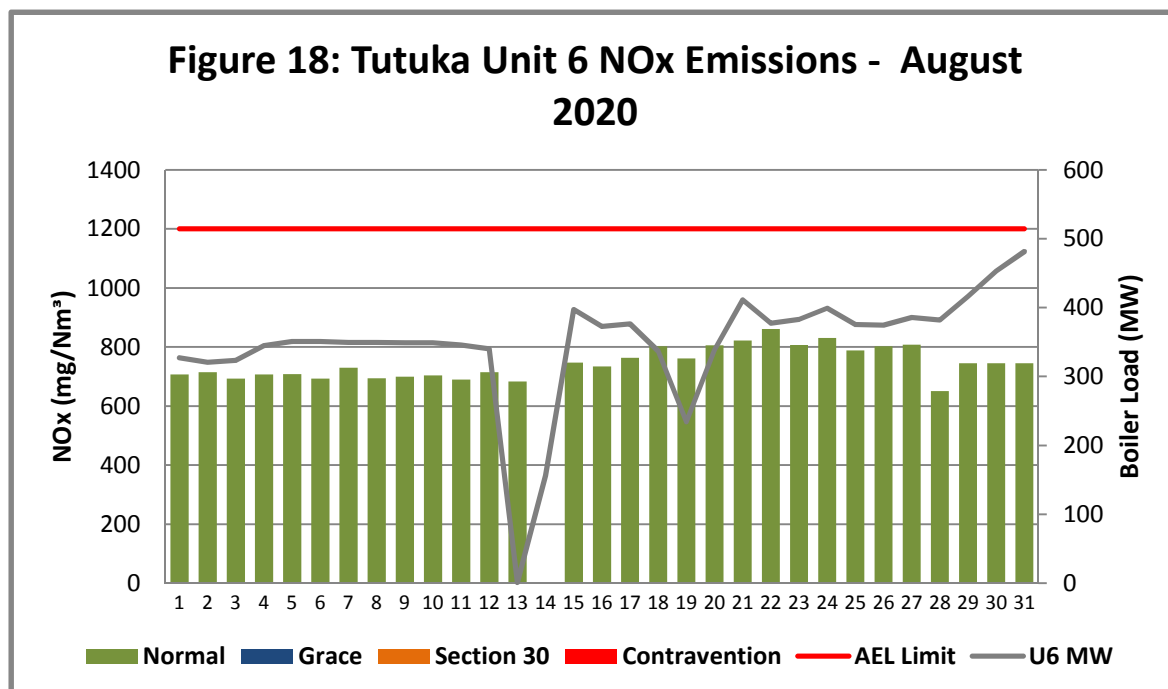


Figure 18: Unit 6 Daily Average NO_x emissions for the month of August 2020 (against the emission limits and load generated).

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

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

6. Complaints

No complaints were received from the stakeholders in the month of August 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 August 2020

7. General

2 Section 30 incidents were recorded in the month of August 2020. 9 PM exceedances within the grace period were incurred on unit 4 and unit 6 (See table 7.1 below). The PM exceedances were due to technical failure of the ash hopper conveying system; Poor performance of ESP fields due to full hoppers and - unavailability of ash hopper conveying routes and Unavailability of spares.. There were no SOx & NOx exceedances (See tables 7.2 -7.3 below)

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm ³)
Unit 1	20	0	0	0	0	214.7
Unit 2	13	0	0	0	0	233.4
Unit 3	22	0	0	0	0	233.5
Unit 4	11	12	0	0	12	321.2
Unit 5	2	0	0	0	0	128.3
Unit 6	26	4	0	0	4	248.2
SUM	94	16	0	0	16	

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SOx (mg/Nm ³)
Unit 1	20	0	0	0	0	2 122.1
Unit 2	13	0	0	0	0	1 827.5
Unit 3	22	0	0	0	0	2 392.8
Unit 4	23	0	0	0	0	2 252.6
Unit 5	2	0	0	0	0	2 219.5
Unit 6	30	0	0	0	0	2 094.6
SUM	110	0	0	0	0	

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm ³)
Unit 1	20	0	0	0	0	846.5
Unit 2	13	0	0	0	0	590.5
Unit 3	22	0	0	0	0	977.2
Unit 4	23	0	0	0	0	826.3
Unit 5	2	0	0	0	0	615.3
Unit 6	30	0	0	0	0	745.2
SUM	110	0	0	0	0	

Table 7.4:Section 30 details			Status
Date	Unit 4	Unit 6	Section 30 reports were submitted to the department on the 10 Sept 2020
16-Aug		340.2	
17-Aug		407.0	
18-Aug		362.4	
19-Aug		218.1	
20-Aug	387.8	153.1	
21-Aug	392.7	219.5	
22-Aug	295.2	222.9	
23-Aug	324.8	237.8	
24-Aug	401.8	249.8	
25-Aug	309.2	233.9	

Note 2:

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

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Date: 23. March 2021



Verified By:

Mike Molepo

SENIOR CHEMIST CHEMISTR: TUTUKA POWER STATION

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Date:..... 24/03/2021

Approved by:

Sello Mametja

GENERAL MANAGER: TUTUKA POWER STATION

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Date: 2021/03/24