

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

Date:
 23 March 2021

Enquiries: Monica Mokgawa
 (017) 749 9399

E-mail: Dan.Hlanyane@gsibande.gov.za

E-mail: 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 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 2020.

We apologise for the late submission of this report. We have revised our internal controls to ensure the timeous reporting going forward.

1. RAW MATERIALS AND PRODUCTS

Raw Materials and Products	Raw Material Type	Units	Max. Permitted	Actual Consumption May-2020
	Coal	Tons	1 200 000	501 570
	Fuel Oil	Tons	10 000	6 782.45
Production Rates	Product / By-Product Name	Units	Max. Production Capacity Permitted	Production Rate May-2020
	Energy	MW	30 748	37258
	Ash	Tons	350 000	127 349
	RE Ash	kg/MWh	not specified	1.29

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

2. ENERGY SOURCE CHARACTERISTICS

Coal Characteristics	Units	Stipulated Range	Monthly Average Content
CV Content	MJ/kg	16-24	21.530
Sulphur Content	%	0.6 TO >2.6	0.750
Ash Content	%	21 TO >33	25.390

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

3.1. ABATEMET TECHNOLOGY (%)

Associated Unit/Stack	Technology Type	*Minimum Control Efficiency (%)	
		Actual Utilisation (%)	
Unit 1	<i>Electro Static Precipitators (ESP)</i>	95	99.4%
Unit 2	<i>Electro Static Precipitators (ESP)</i>	95	98.9%
Unit 3	<i>Electro Static Precipitators (ESP)</i>	98	98.9%
Unit 4	<i>Electro Static Precipitators (ESP)</i>	95	99.1%
Unit 5	<i>Electro Static Precipitators (ESP)</i>	95	99.1%
Unit 6	<i>Electro Static Precipitators (ESP)</i>	95	0

Table 3.1: Abatement Equipment Control Technology for month of May 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	95.8
Unit 2	100.0	100.0	100.0
Unit 3	100.0	90.8	90.8
Unit 4	100.0	100.0	100.0
Unit 5	100.0	100.0	100.0
Unit 6			

Table 3.2: Monitor reliability for month of May 2020

Note: Unit 6 was off

4.EMISSION PERFORMANCE

Associated Unit/Stack	PM (tons)	SO ₂ (tons)	NO _x (tons)
Unit 1	176.3	1 498	598
Unit 2	285.7	2 025	803
Unit 3	122.4	915	417
Unit 4	265.2	1 777	697
Unit 5	185.7	1 921	763
Unit 6	0.0	0	0
SUM	1 035.3	8 136	3 278

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

Table 4.2: Legend Description

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

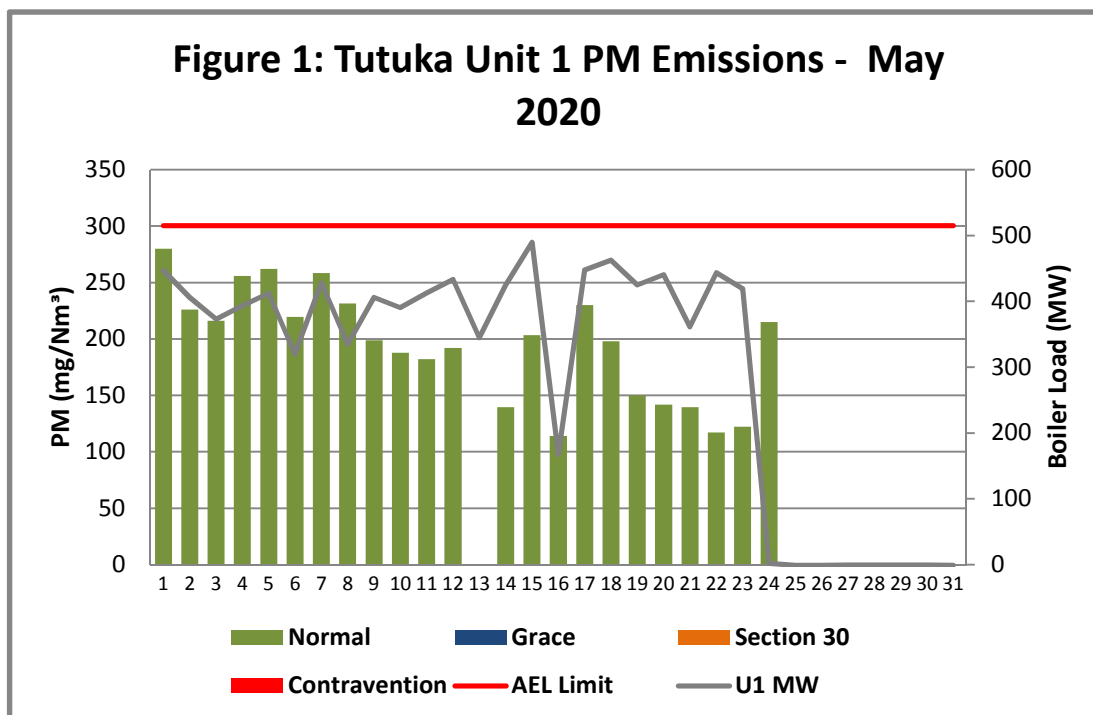


Figure 1: Unit 1 Daily Average PM emissions for the month of May 2020 (against the emission limits and load Generated)

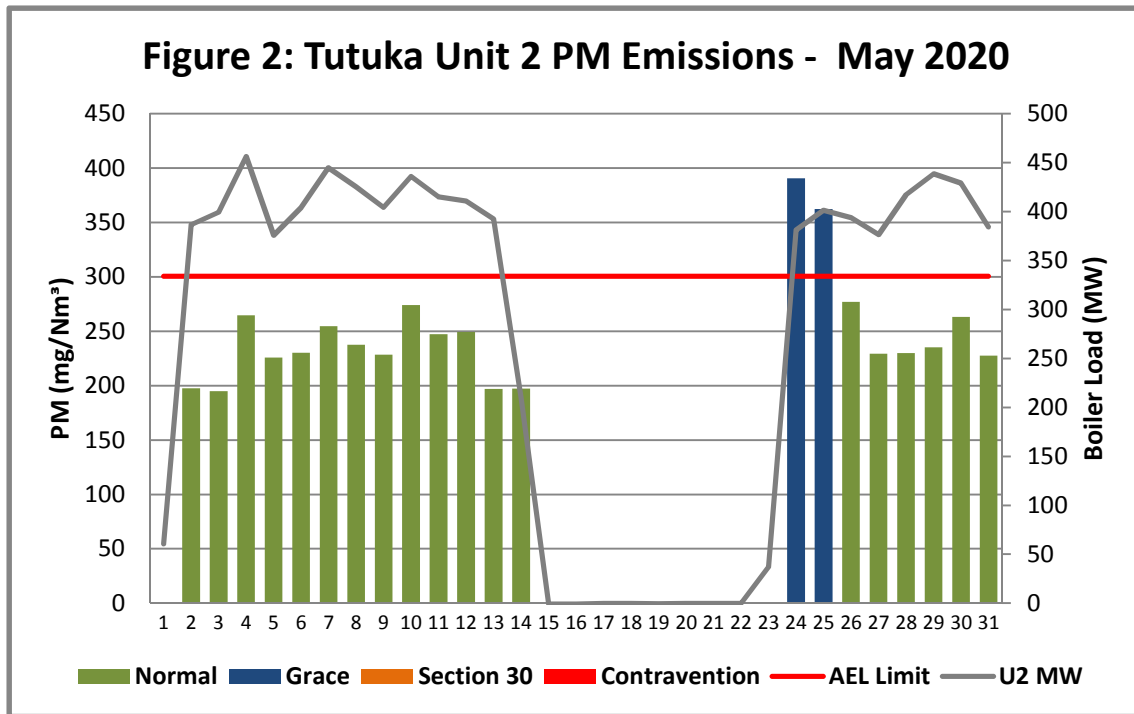


Figure 2: Unit 2 Daily Average PM emissions for the month of May 2020 (against the emission limits and load Generated)

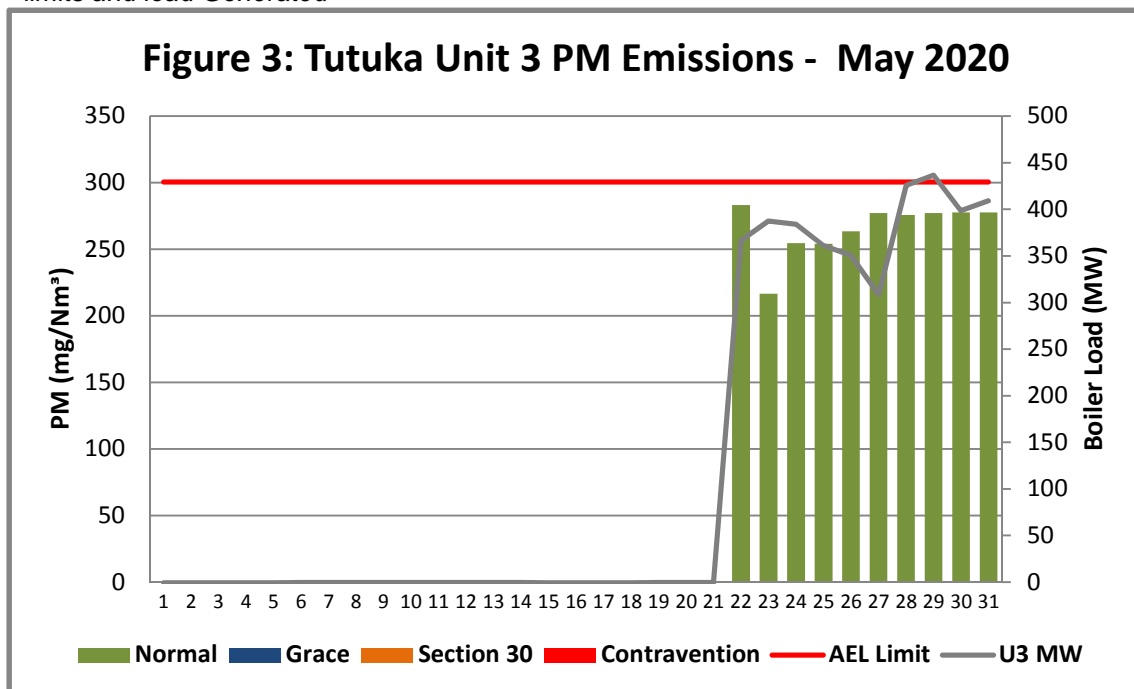


Figure 3: Unit 3 Daily Average PM emissions for the month of May 2020 (against the emission limits and load Generated)

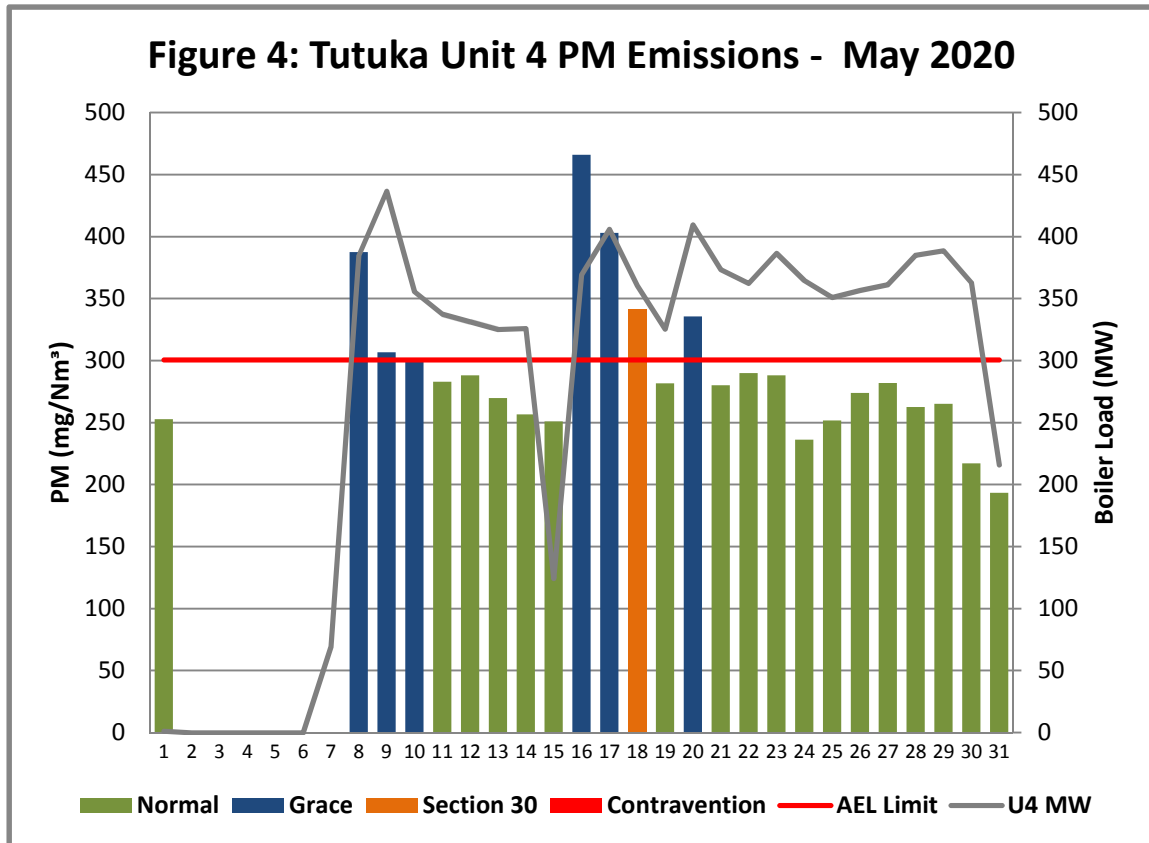


Figure 4: Unit 4 Daily Average PM emissions for the month of May 2020 (against the emission limits and load Generated)

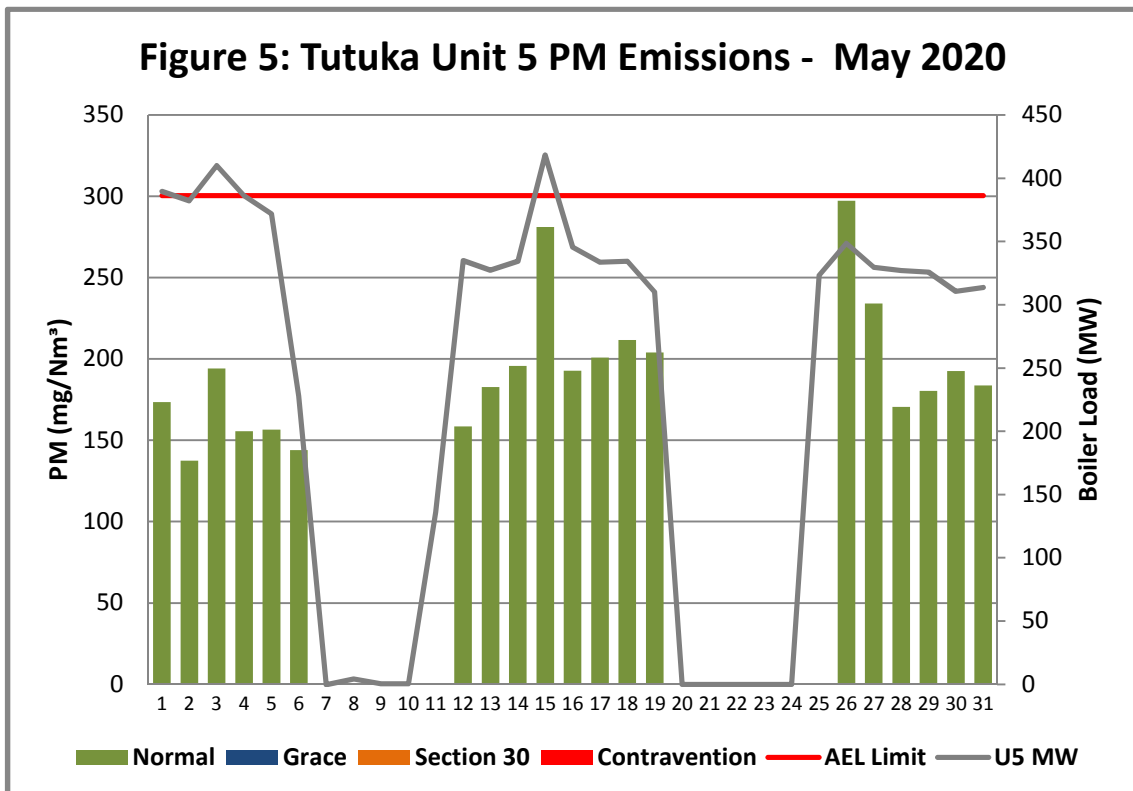


Figure 5: Unit 5 Daily Average PM emissions for the month of May 2020 (against the emission limits and load Generated)

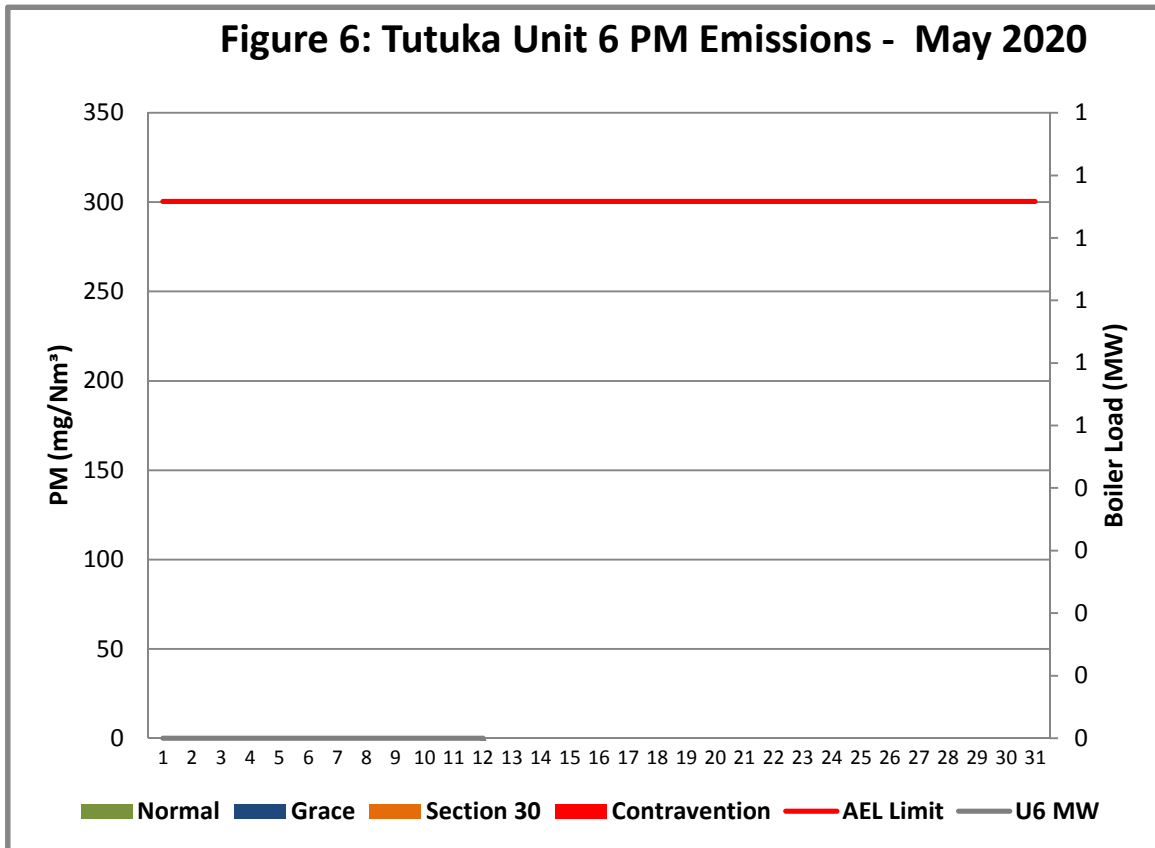


Figure 6: Unit 6 Daily Average PM emissions for the month of May 2020 (against the emission limits and load Generated)

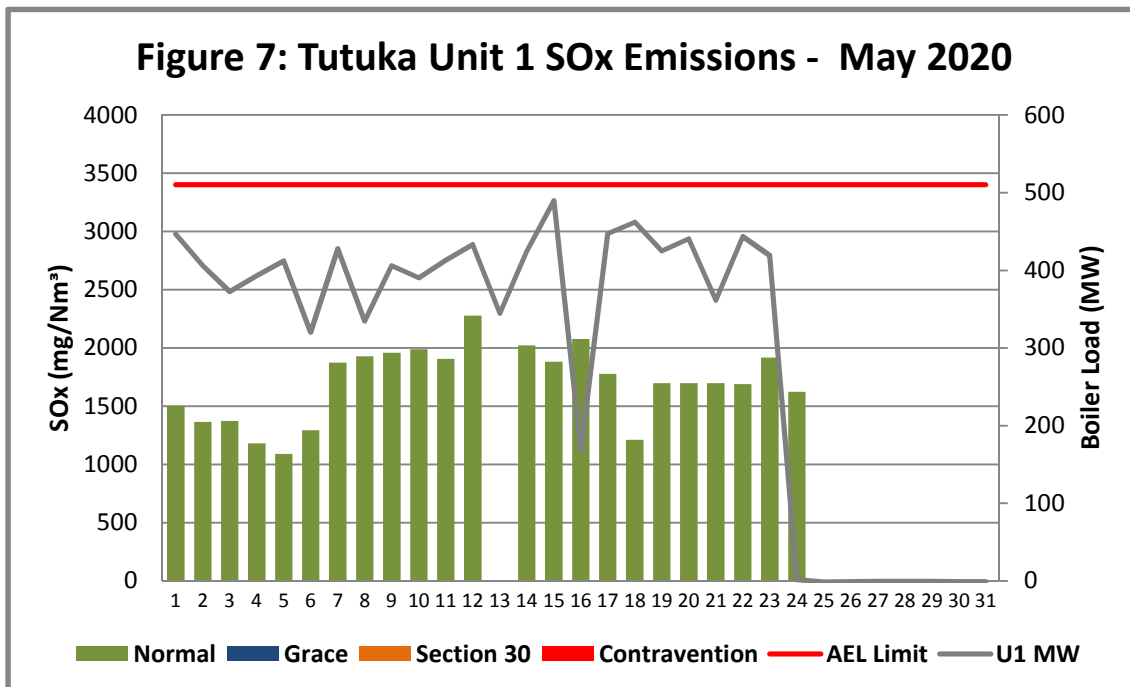


Figure 7: Unit 1 Daily Average SOx emissions for the month of May 2020 (against the emission limits and load Generated)

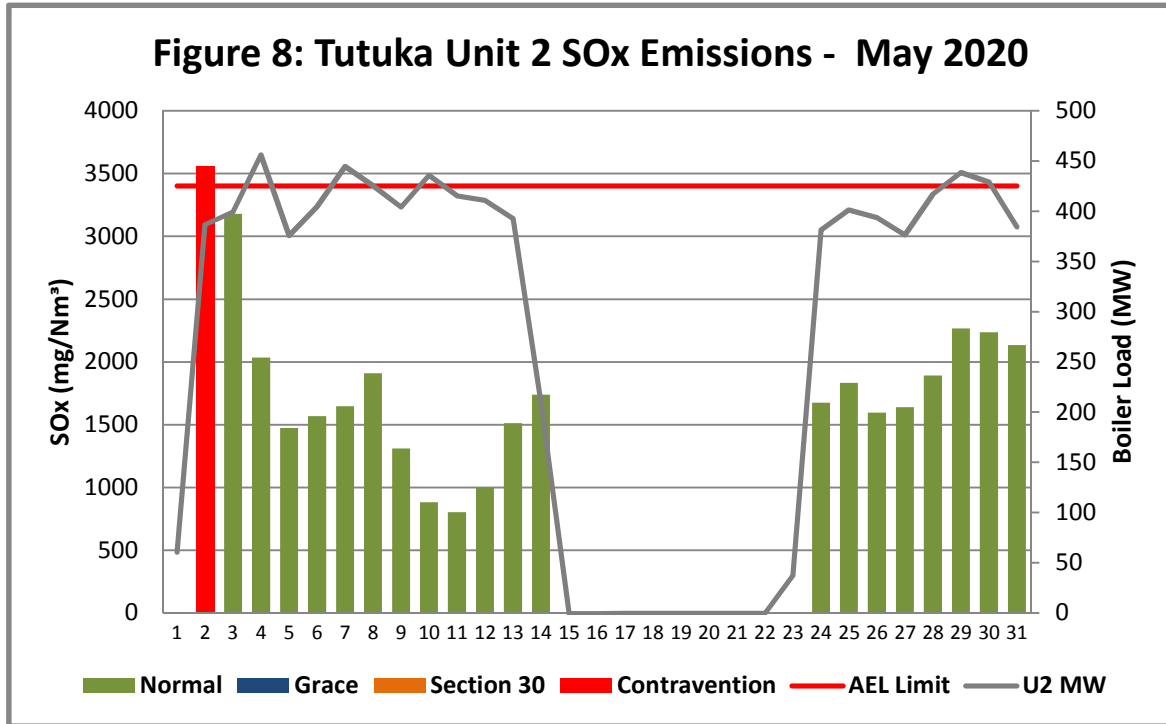


Figure 8: Unit 2 Daily Average SOx emissions for the month of May 2020 (against the emission limits and load Generated)

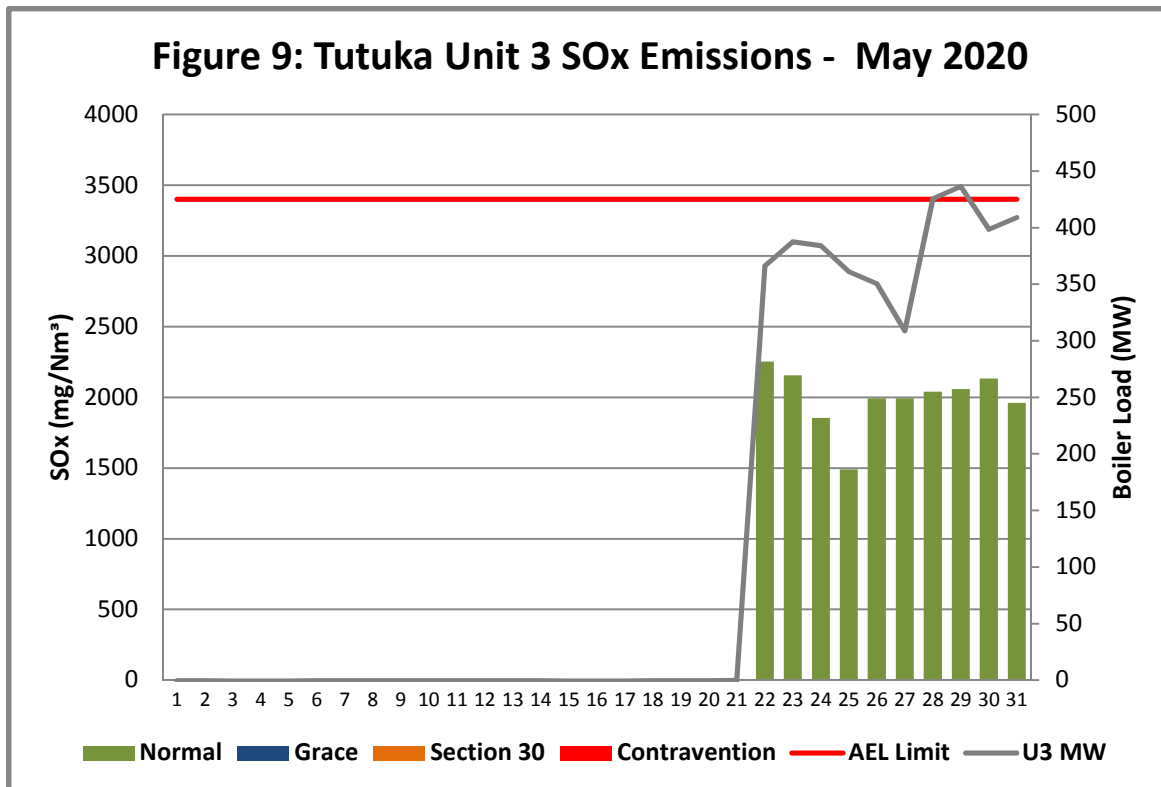


Figure 9: Unit 3 Daily Average SOx emissions for the month of May 2020 (against the emission limits and load Generated)

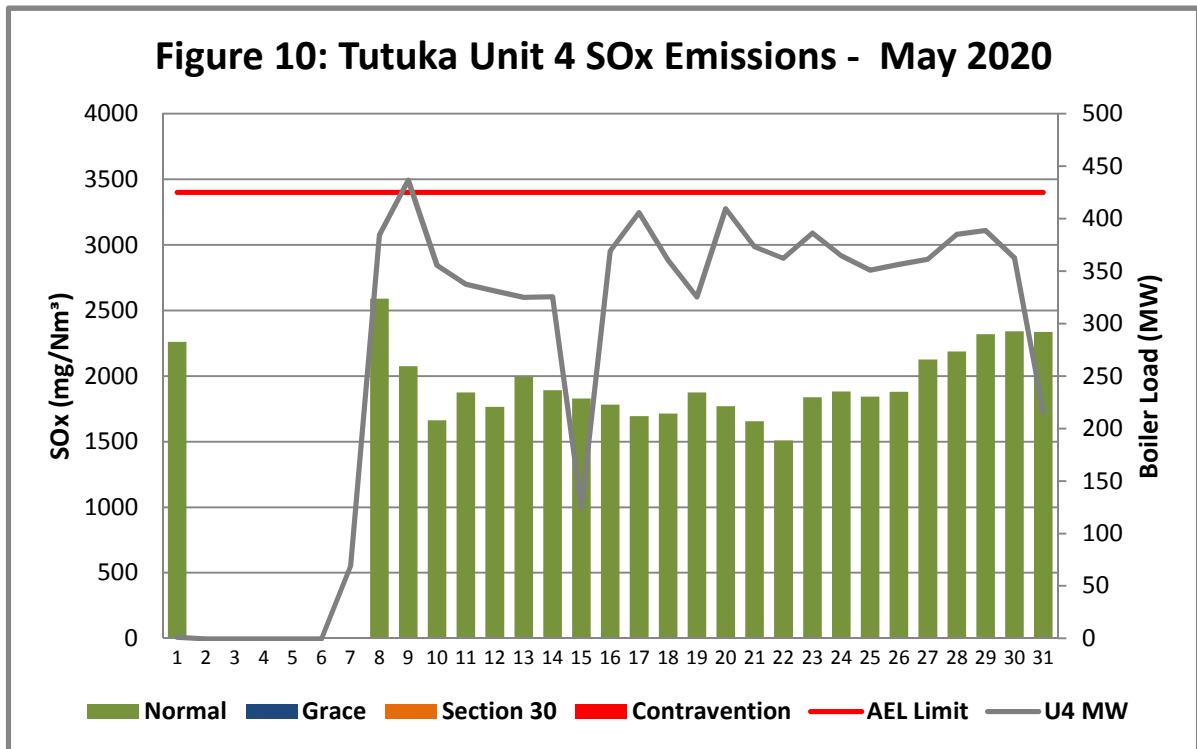


Figure 10: Unit 4 Daily Average SOx emissions for the month of May 2020 (against the emission limits and load Generated)

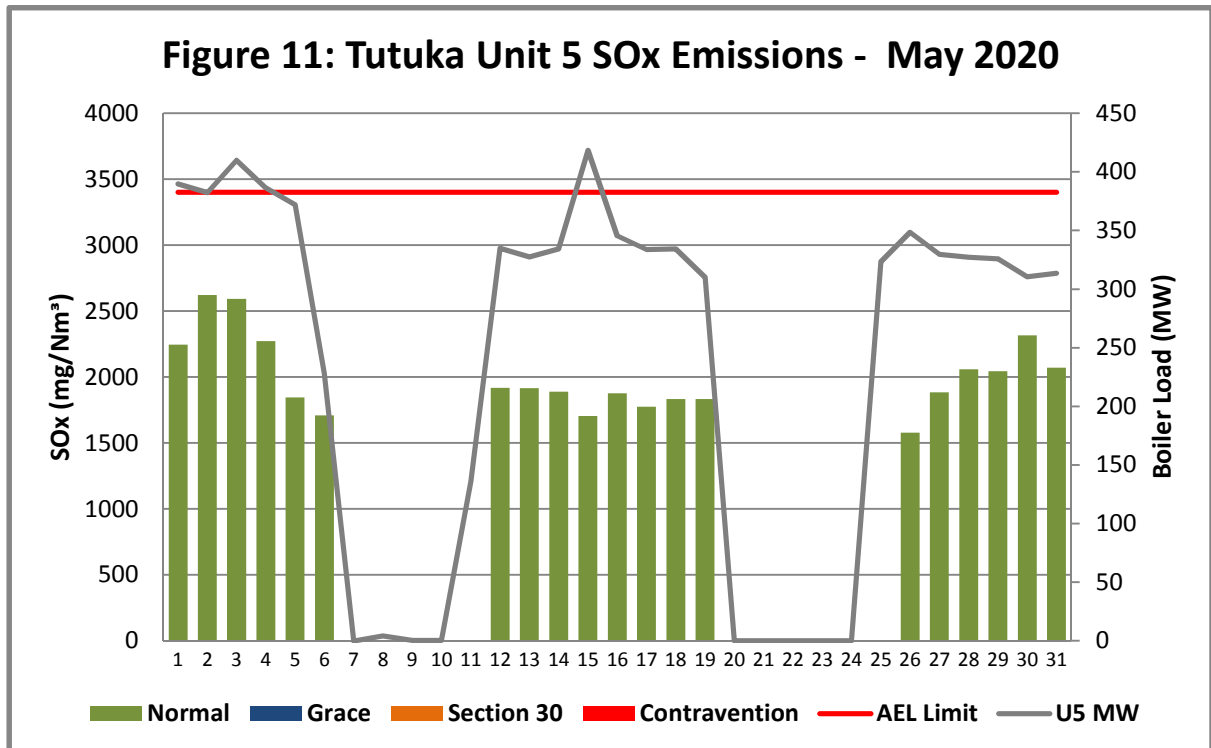


Figure 11: Unit 5 Daily Average SOx emissions for the month of May 2020 (against the emission limits and load Generated)

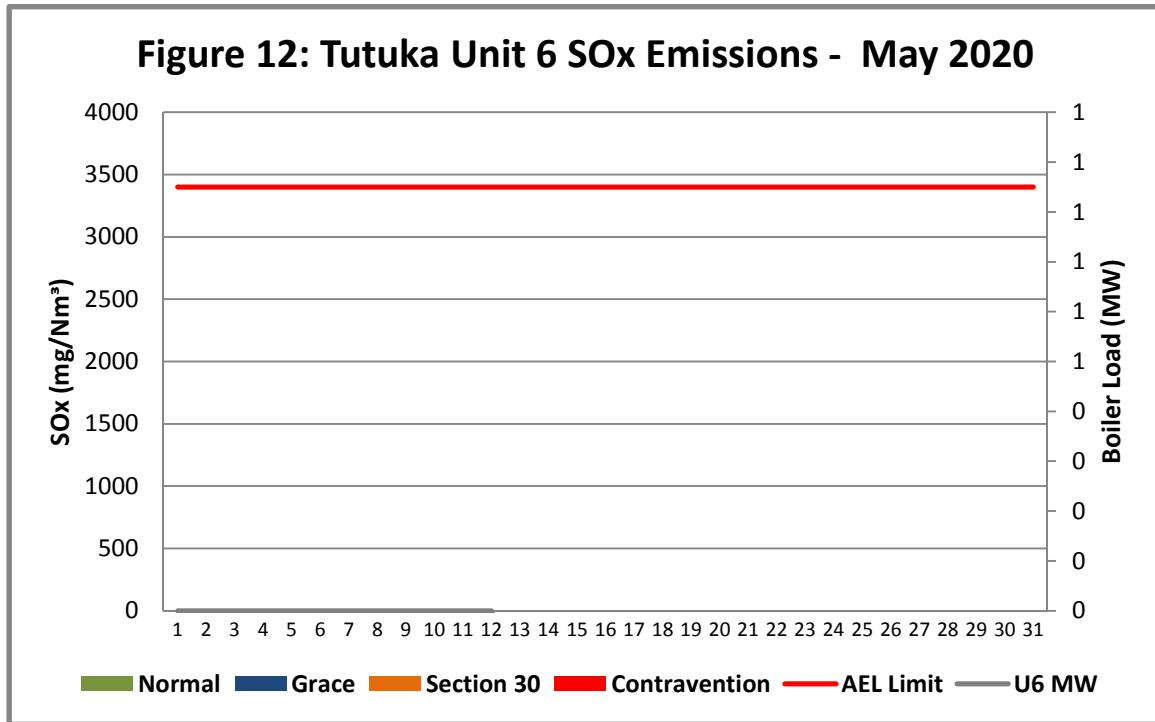


Figure 12: Unit 6 Daily Average SOx emissions for the month of May 2020 (against the emission limits and load Generated)

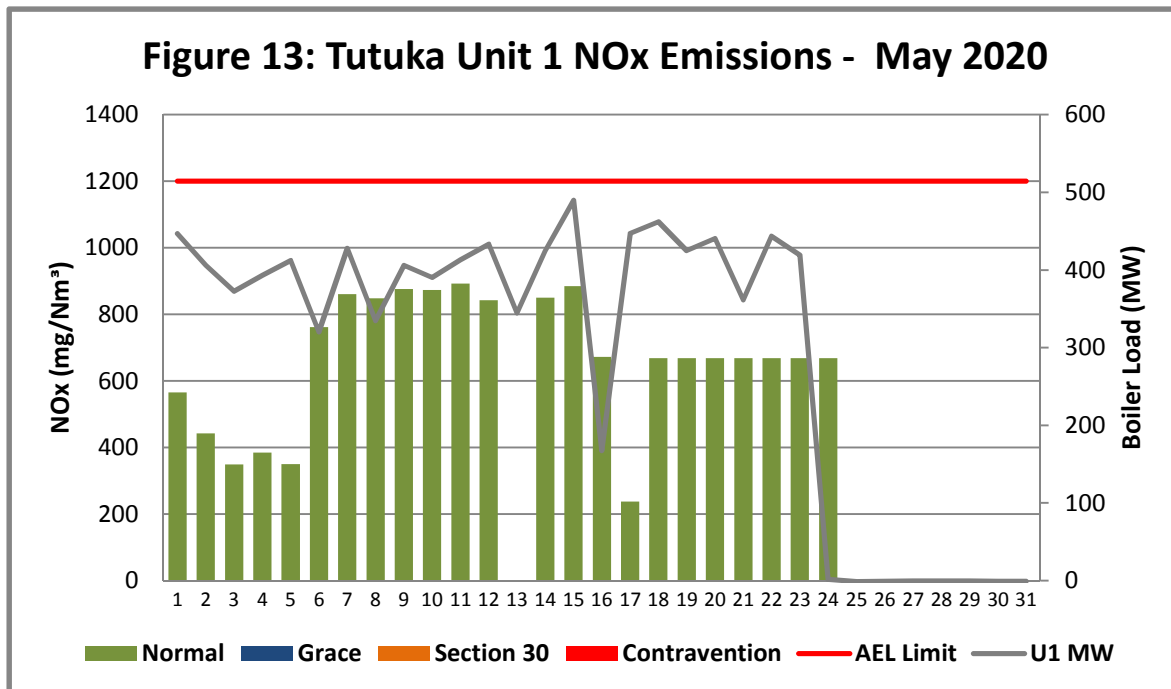


Figure 13: Unit 1 Daily Average NOx emissions for the month of May 2020 (against the emission limits and load Generated)

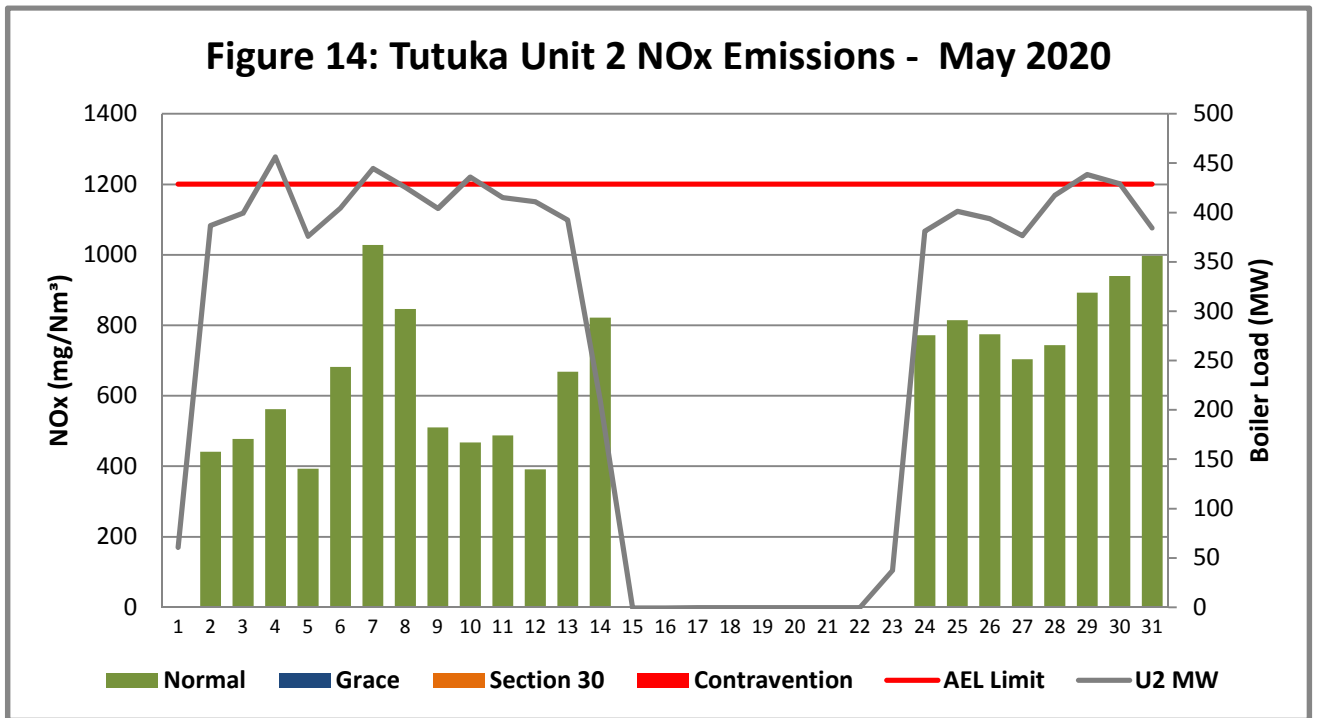


Figure 14: Unit 2 Daily Average NOx emissions for the month of May 2020 (against the emission limits and load Generated)

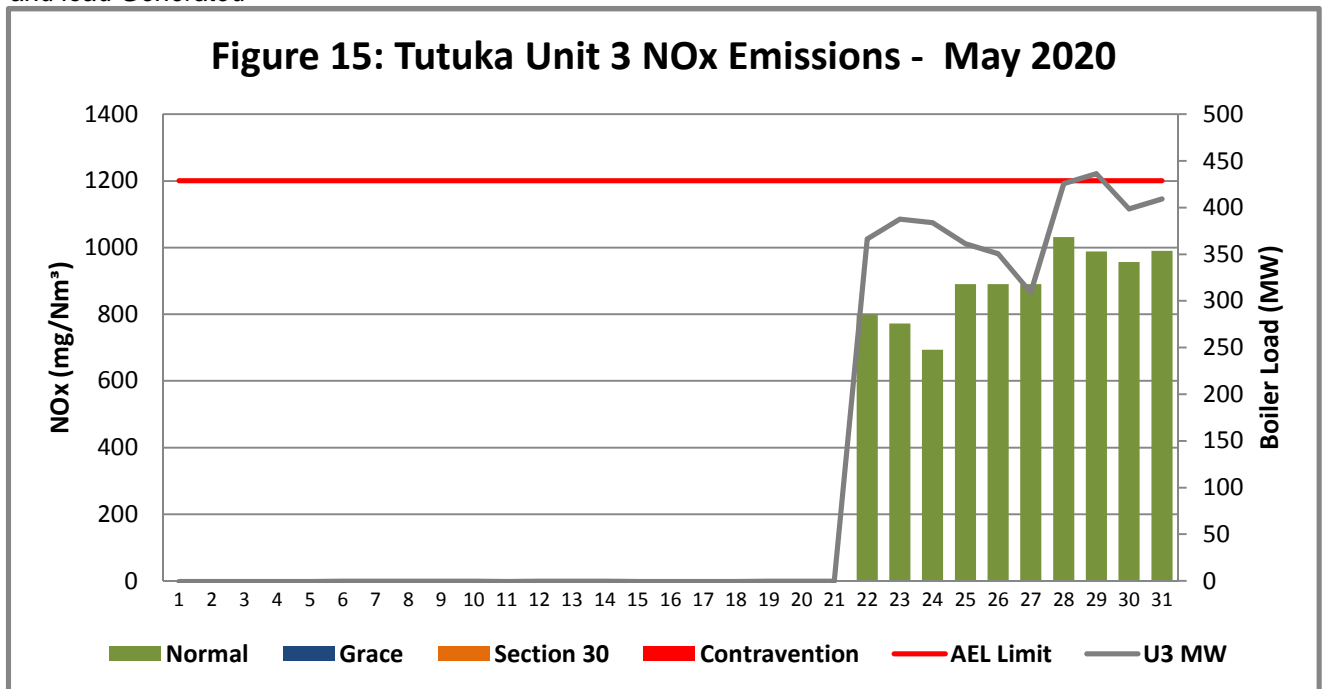


Figure 15: Unit 3 Daily Average NOx emissions for the month of May 2020 (against the emission limits and load Generated)

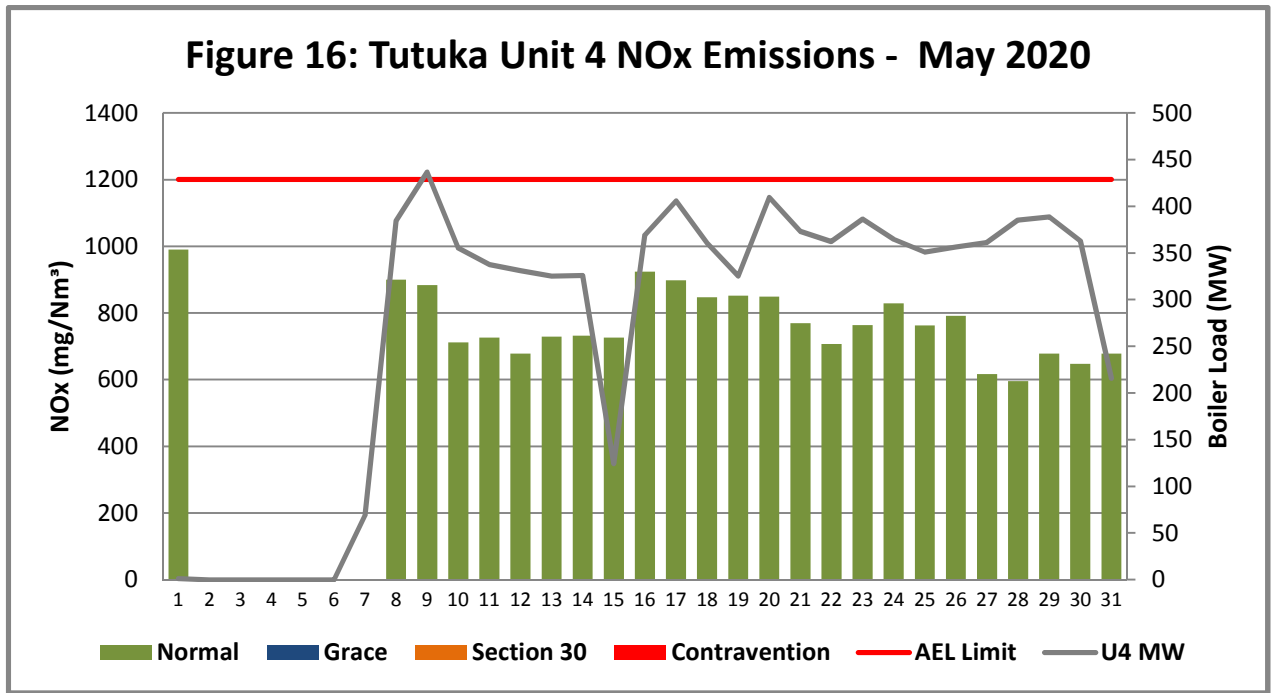


Figure 16: Unit 4 Daily Average NOx emissions for the month of May 2020 (against the emission limits and load Generated)

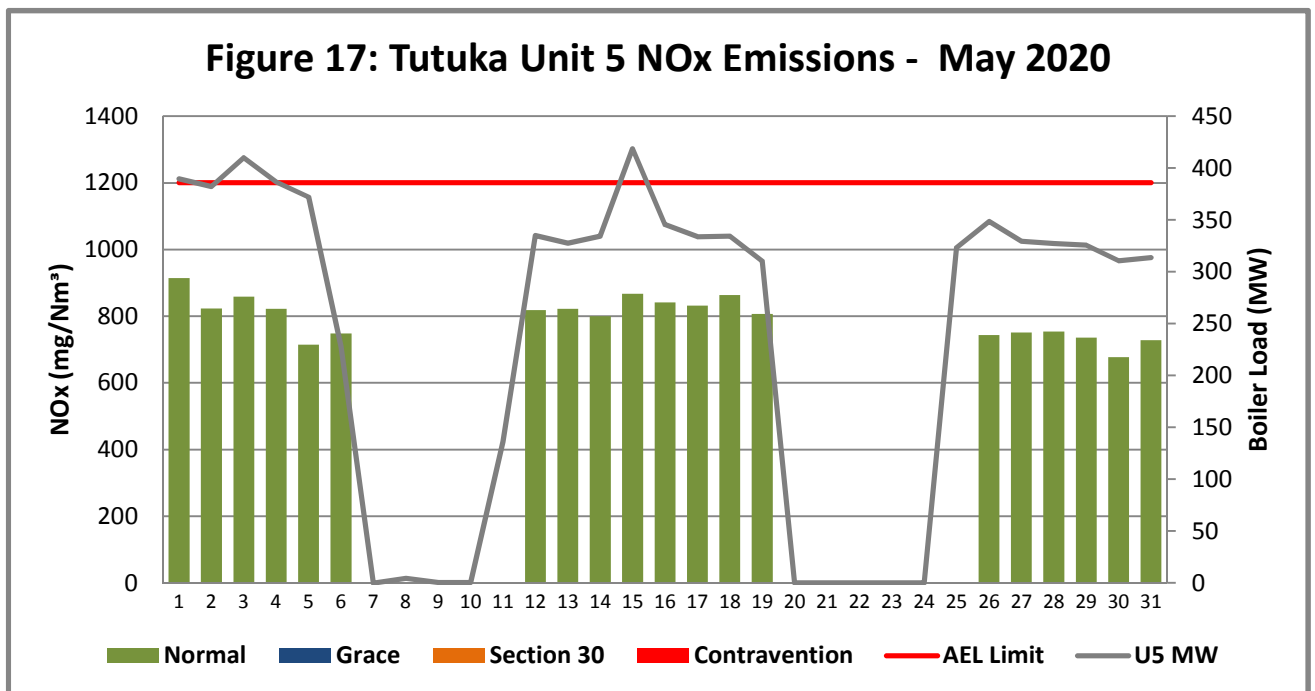


Figure 17: Unit 5 Daily Average NOx emissions for the month of May 2020 (against the emission limits and load Generated)

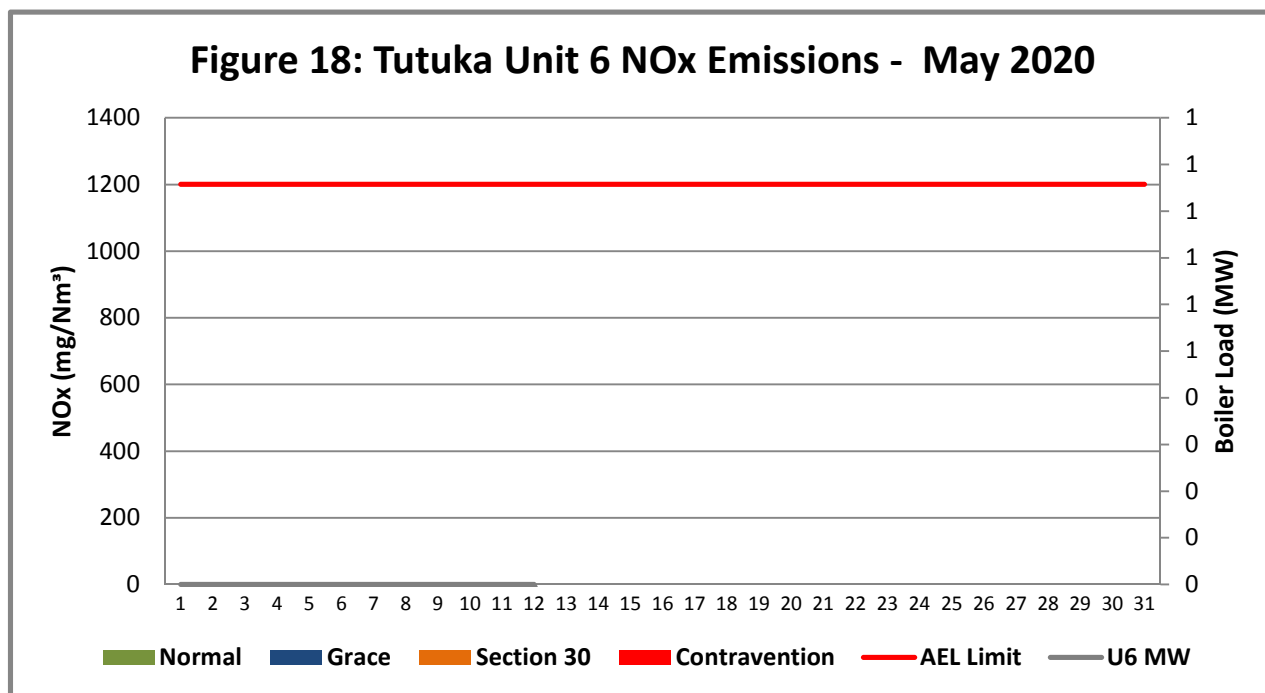


Figure 18: Unit 6 Daily Average NOx emissions for the month of May 2020 (against the emission limits and load Generated)

5. Number and Types of units start-ups

Number & Type of Starts	U1	U2	U3	U4	U5	U6
Number Of Hot Starts (Off-Load < 30 Hrs)	5	0	1	2	0	0
Number Of Cold Starts (Off-Load > 30 hrs)	0	2	0	1	2	0

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

6. Complaints

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

7. General

Note 1

1 Section 30 incidents was recorded in the month of May 2020. The incident was due to poor fuel oil atomization resulted in fuel oil being carried over to the precipitator fields thus affecting ESP efficiency; leaking or over-firing oil burner(s) and incorrect type of fuel oil used for the set trip values. 6 PM exceedances within the grace period were observed on unit 4 and 2 (See table 7.1 below). 1 SO_x contravention was observed on unit 2 due to monitor misalignment (See table 7.2 & 7.3 below).

Table 7.1: Operating days in compliance to PM AEL Limit – May 2020

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm ³)
Unit 1	23	0	0	0	0	194.8
Unit 2	22	2	0	0	2	248.3
Unit 3	10	0	0	0	0	265.8
Unit 4	25	6	1	0	7	290.6
Unit 5	20	0	0	0	0	192.4
Unit 6	0	0	0	0	0	
SUM	100	8	1	0	9	

Table 7.1: Monthly average Emissions Concentration (mg/Nm³) for the month of May 2020

Table 7.2: Operating days in compliance to SO_x AEL Limit – May 2020

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SO _x (mg/Nm ³)
Unit 1	23	0	0	0	0	1 694.3
Unit 2	22	1	0	0	1	1 812.3
Unit 3	10	0	0	0	0	2 023.9
Unit 4	25	0	0	0	0	1 948.0
Unit 5	20	0	0	0	0	1 999.1
Unit 6	0	0	0	0	0	
SUM	100	1	0	0	1	

Table 7.3: Operating days in compliance to NO_x AEL Limit – May 2020

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NO _x (mg/Nm ³)
Unit 1	23	0	0	0	0	749.7
Unit 2	22	0	0	0	0	687.9
Unit 3	10	0	0	0	0	902.5
Unit 4	25	0	0	0	0	771.4
Unit 5	20	0	0	0	0	796.2
Unit 6	100	0	0	0	0	



Note 2 Confirmation of applicable 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 has been 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 Mkgawa

ENVIRONMENTAL MANAGER: TUTUKA POWER STATION

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Date: 24 March 2021.....

Verified By:

Mike Molepo

SENIOR CHEMIST CHEMISTRY: TUTUKA POWER STATION

24/03/2021
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Approved by:

Sello Mametja

GENERAL MANAGER: TUTUKA POWER STATION

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Date: 2021/03/24