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Date:
 24 February 2022

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Dear Mr. Hlanyane

TUTUKA POWER STATION'S MONTHLY STACK EMISSIONS REPORT FOR THE MONTH OF OCTOBER 2021

This serves as the monthly report required in terms of Section 7.4 in Tutuka Power Station's Atmospheric Emission License (16/4/Lekwa/Eskom H SOC Ltd TPS/0013/2019/F03 Dated 25 April 2019). The emissions are for the month of October 2021. Verified emissions of particulates matter, SO₂ and NO_x (as NO₂) are also included.

Raw Materials and Products

Table 1: Quantity of Raw Materials and Products used/produced for the month of October 2021

Raw Materials and Products used	Raw Material Type	Units	Maximum Permitted Consumption / Rate (Quantity)	Consumption / Rate in Month of October 2021
	Coal	Tons/month	1 200 000	487 541
	Fuel Oil	Tons/month	10 000	10189.84
Production Rates	Product/ By-Product Name	Unit	Maximum Production Capacity Permitted (Quantity)	Production Rate in Month of October 2021
	Ash	Tons/month	not specified	108 917
	RE PM	kg/MWh	not specified	1.86

1/...

Generation Division

Tutuka Power Station
 Portion of Pretorius Vlei No.374/S Bethal Road
 Private Bag X 2016 Standerton 2430 SA
 Tel +27 17 749 9111 Fax +27 17 749 5736 www.eskom.co.za
 Eskom Holdings SOC Limited Reg No 2002/015527/30

Abatement Technology

Table 2: Abatement Equipment Control Technology for October 2021

Associated Unit/Stack	Technology Type	Minimum Control Efficiency (%)	Actual Efficiency (%)
			October 2021
Unit 1	ESP	95%	98.1%
Unit 2	ESP	95%	98.9%
Unit 3	ESP	95%	98.9%
Unit 4	ESP	95%	98.8%
Unit 5	ESP	95%	99.2%
Unit 6	ESP	95%	98.8%

Energy Source Characteristics

Table 3: Energy Source Material Characteristics for the month of October 2021

Characteristic	Stipulated Range (Unit)	Monthly Average Content
Sulphur Content	0.6 -2.6	0.860
Ash Content	21 -33	22.340

Table 4: Monitor Reliability

Associated Unit/Stack	PM	SOx	NOx
Unit 1	7.1	99.9	99.9
Unit 2	99.6	99.6	99.6
Unit 3	20.8	100.0	100.0
Unit 4	99.9	99.7	99.7
Unit 5	82.1	99.1	99.1
Unit 6	100.0	99.1	84.7

Emissions Reporting

Table 6.5: Graph 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

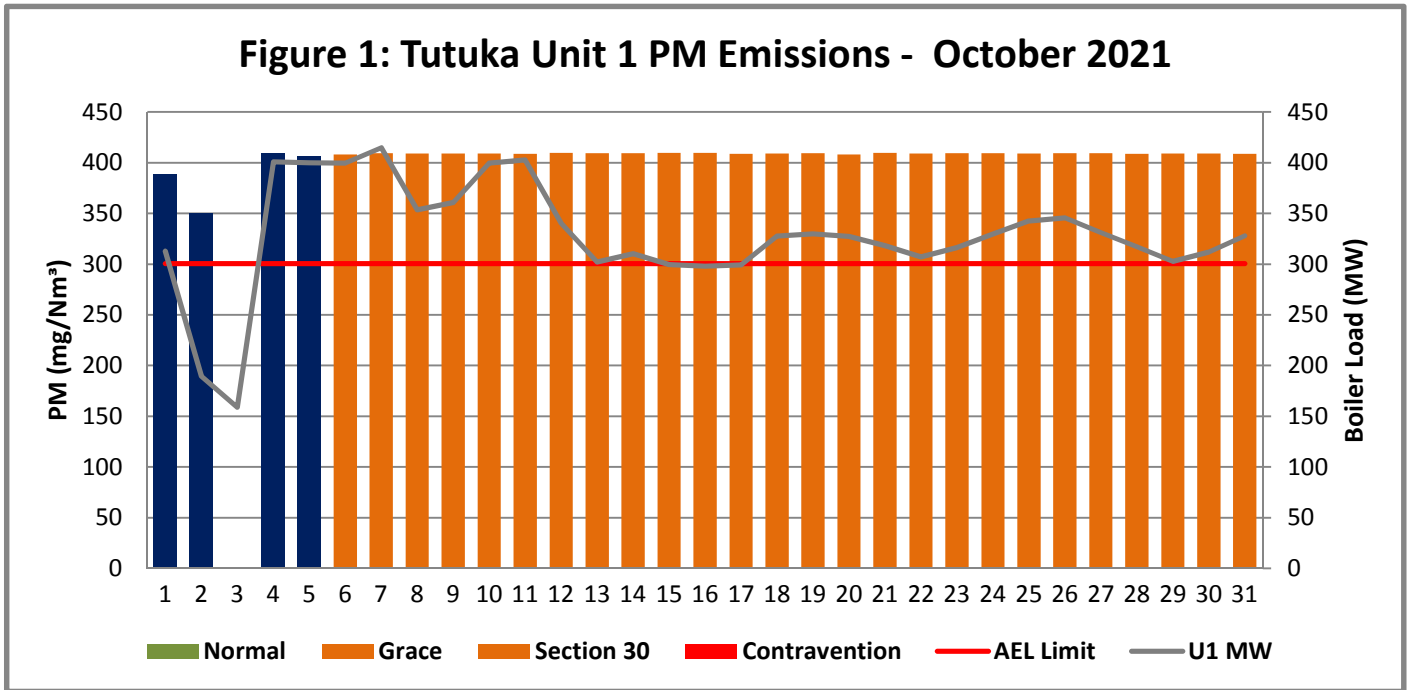


Figure 1: Unit 1 Daily Average PM emissions for the month of October 2021 (against the emission limit and load Generated)

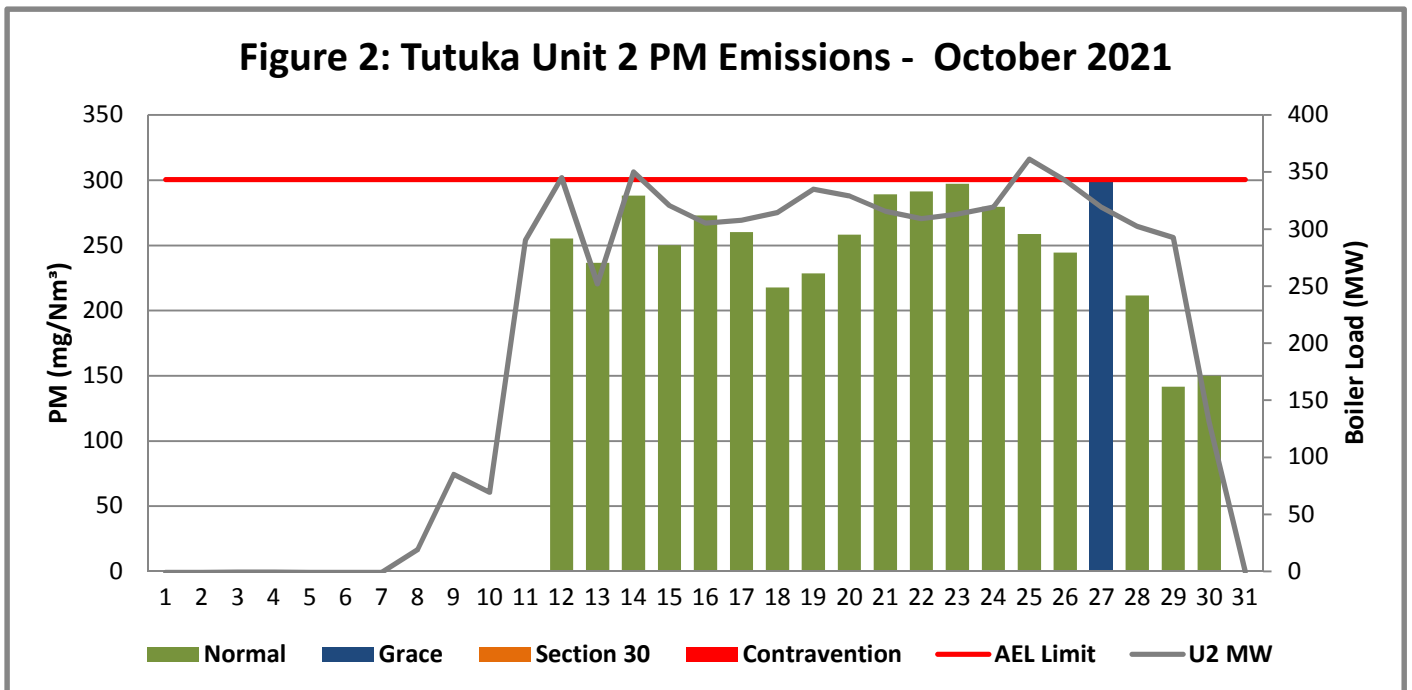


Figure 2: Unit 2 Daily Average PM emissions for the month of October 2021 (against the emission limit and load Generated)

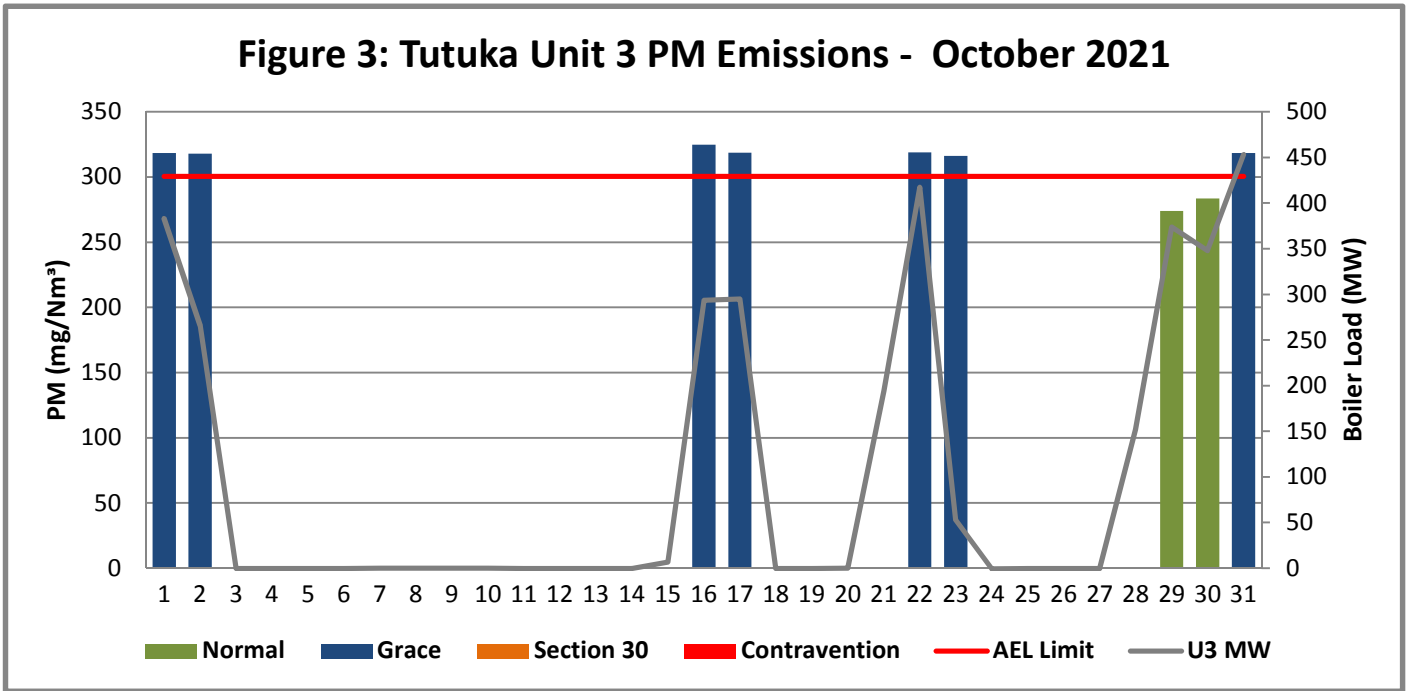


Figure 3: Unit 3 Daily Average PM emissions for the month of October 2021 (against the emission limit and load Generated)

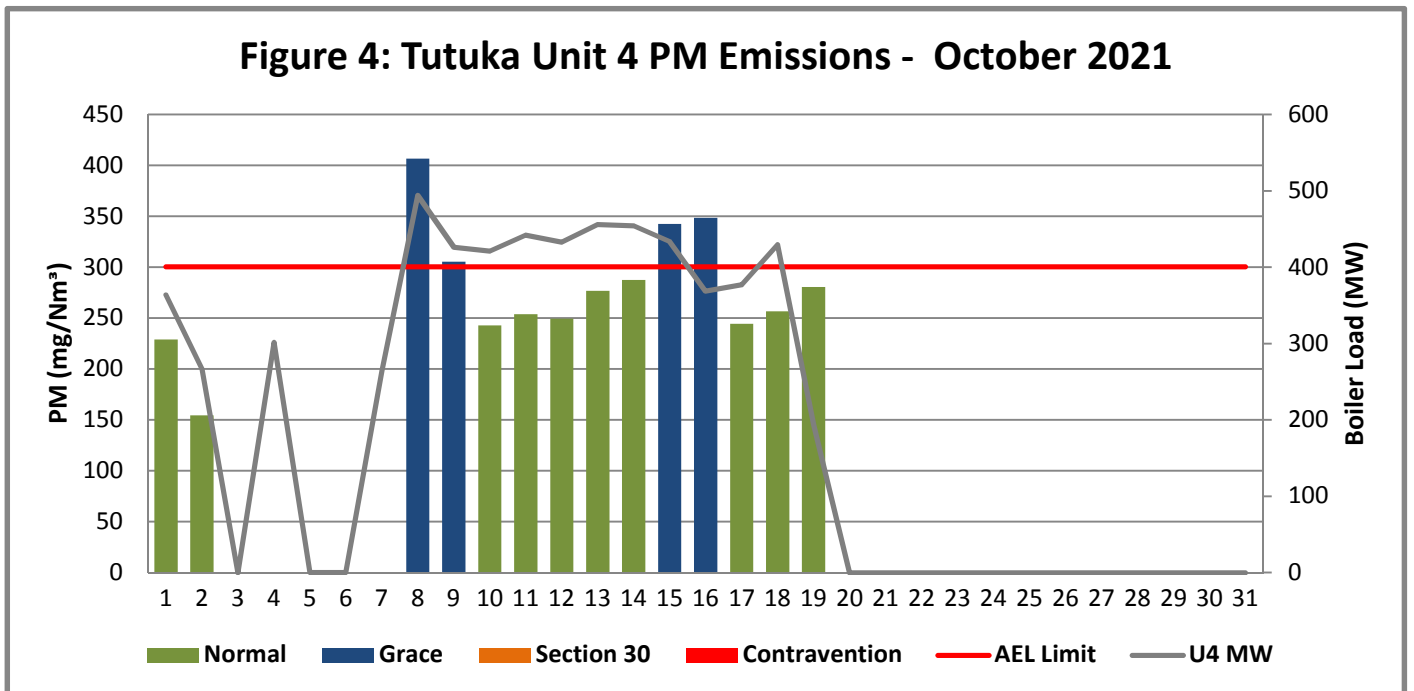


Figure 4: Unit 4 Daily Average PM emissions for the month of October 2021 (against the emission limit and load Generated)

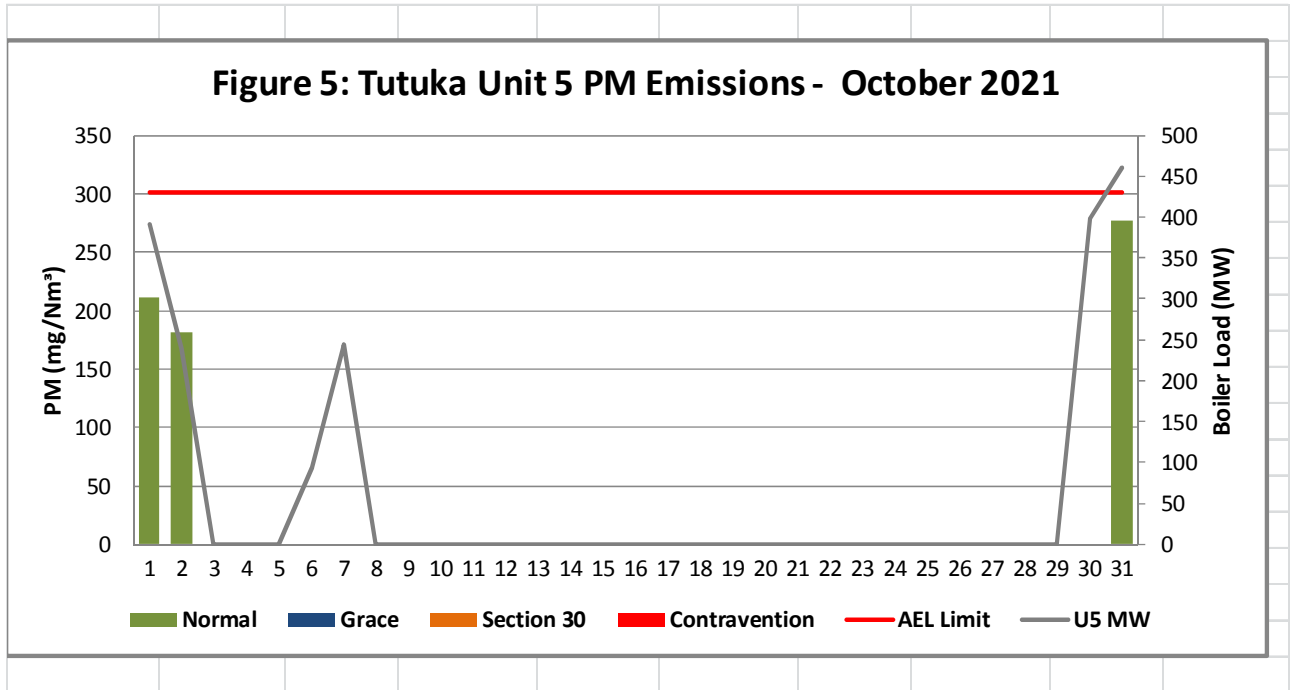


Figure 5: Unit 5 Daily Average PM emissions for the month of October 2021 (against the emission limit and load Generated)

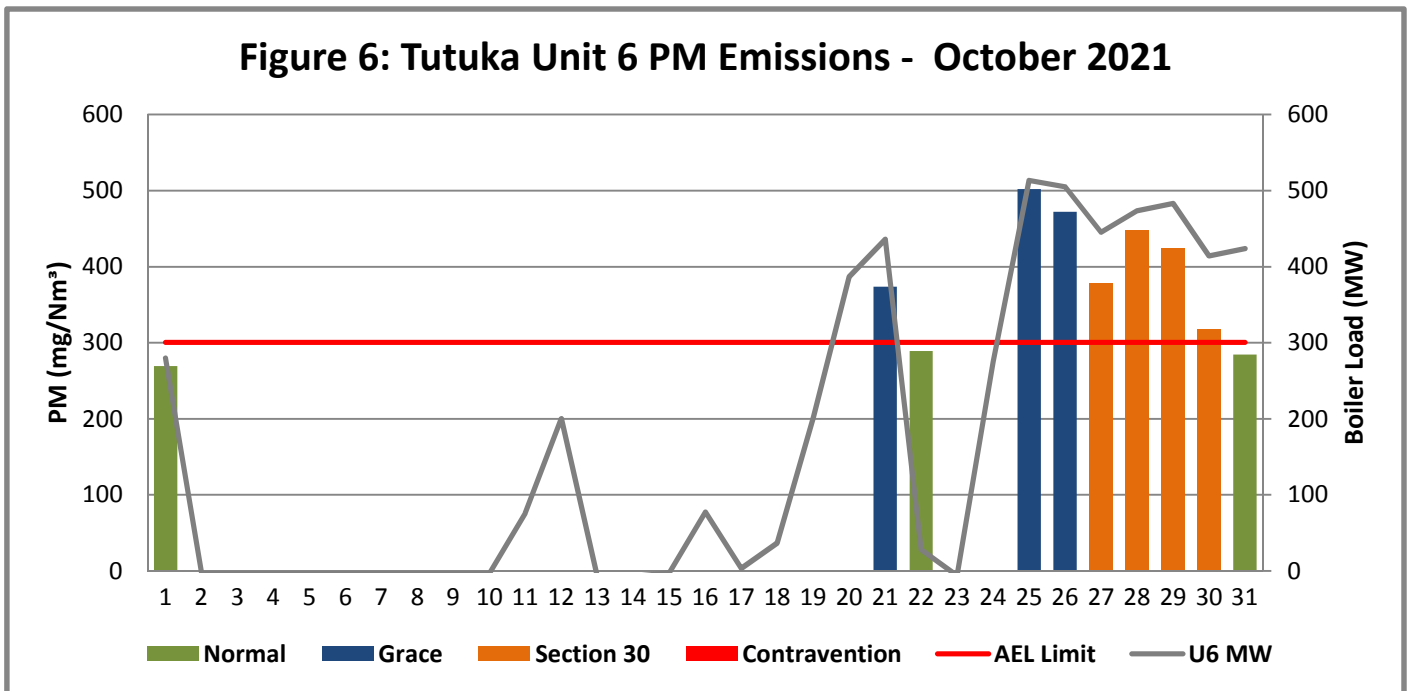


Figure 6: Unit 6 Daily Average PM emissions for the month of October 2021 (against the emission limit and load Generated)

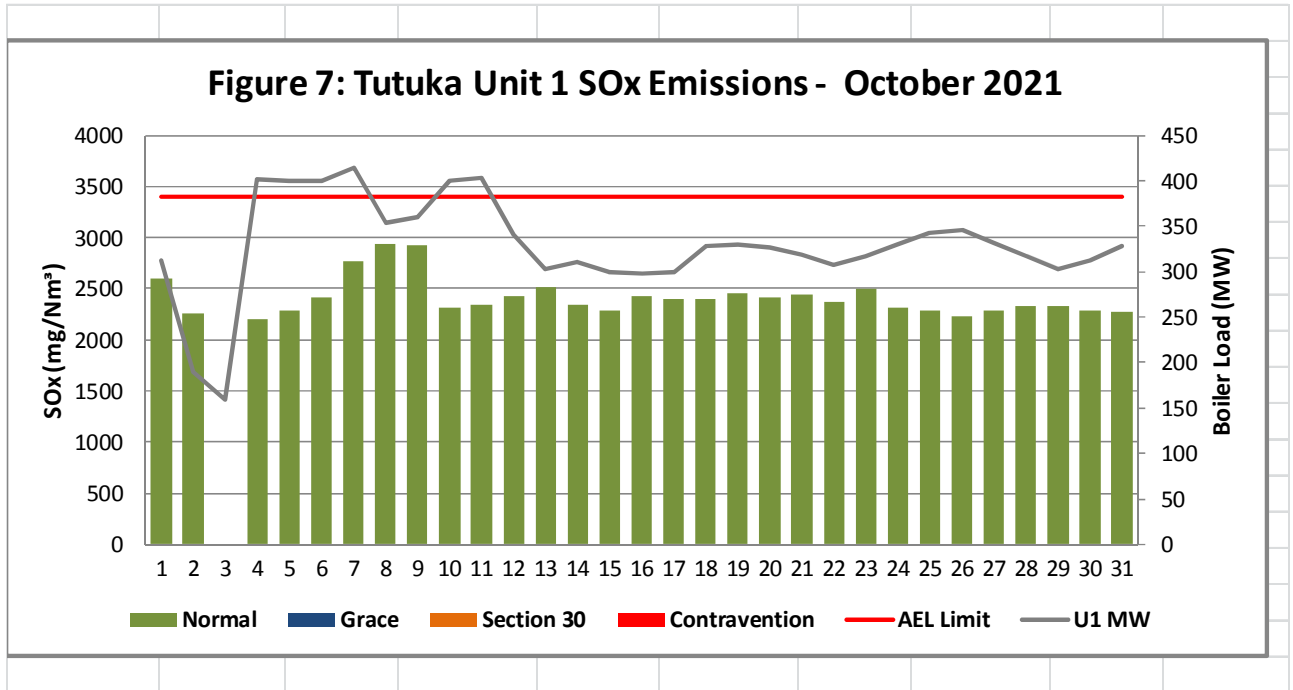


Figure 7: Unit 1 Daily Average SOx emissions for the month of October 2021 (against the emission limit and load Generated)

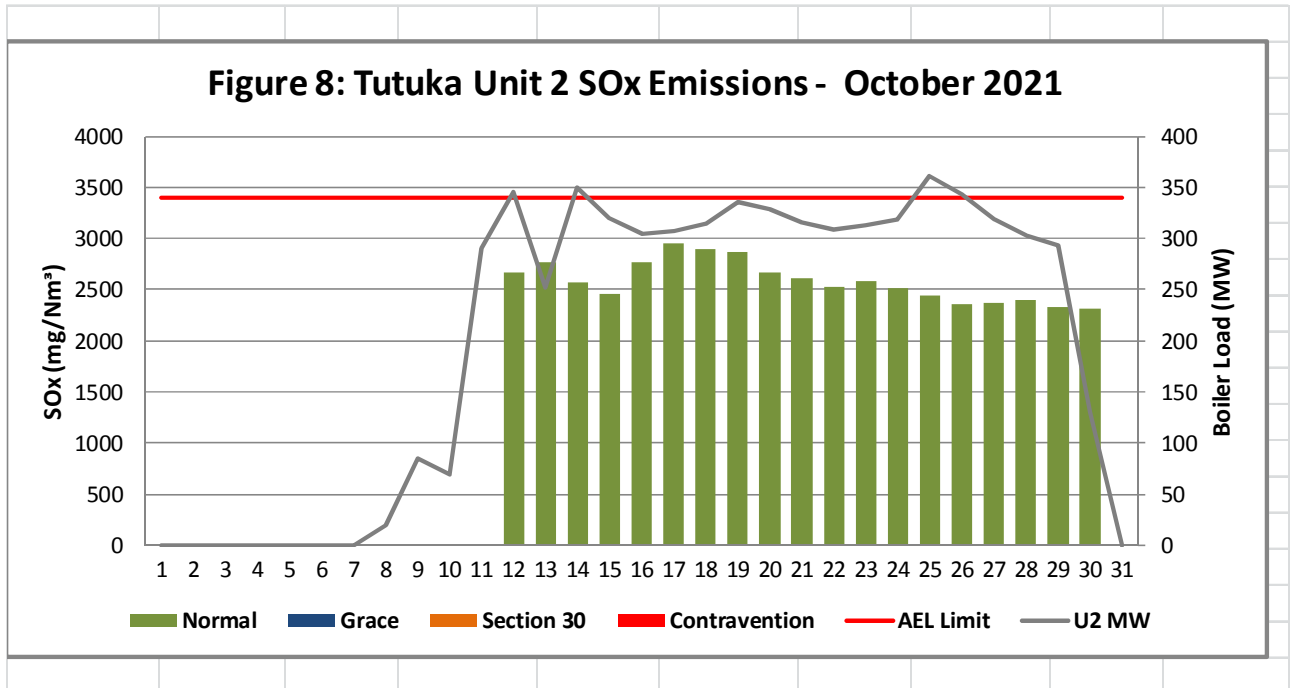


Figure 8: Unit 2 Daily Average SOx emissions for the month of October 2021 (against the emission limit and load Generated)

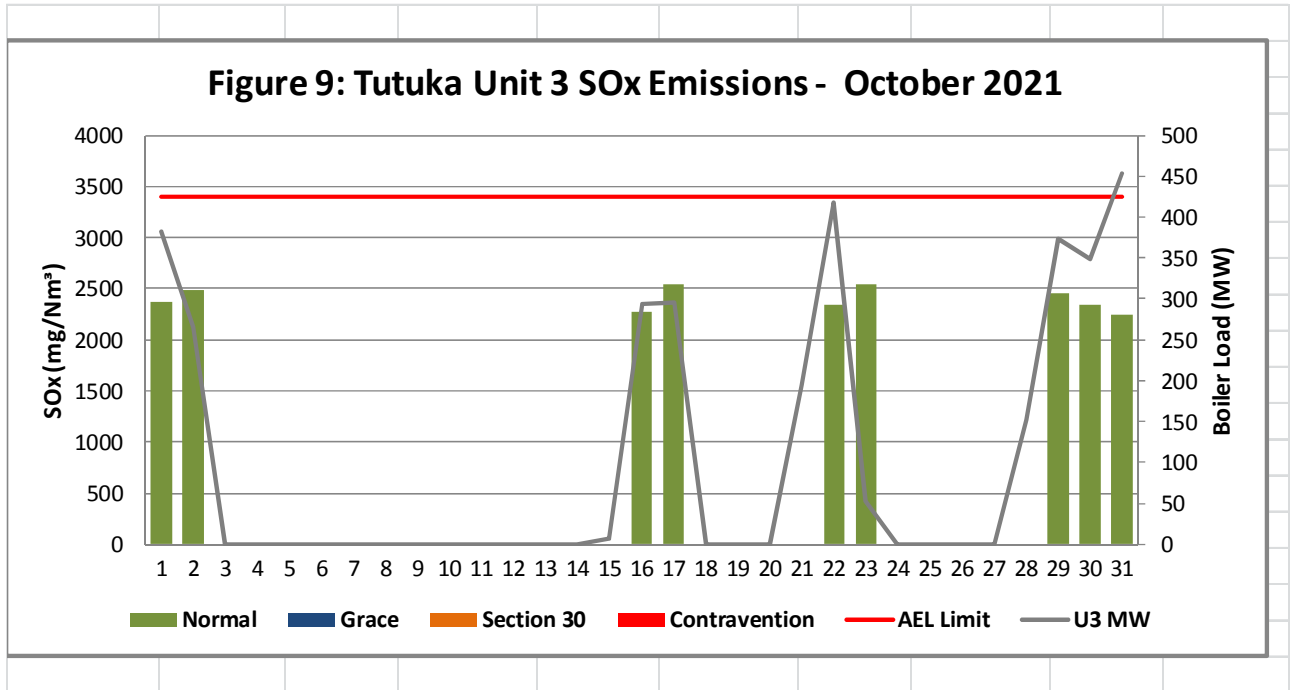


Figure 9: Unit 3 Daily Average SOx emissions for the month of October 2021 (against the emission limit and load Generated)

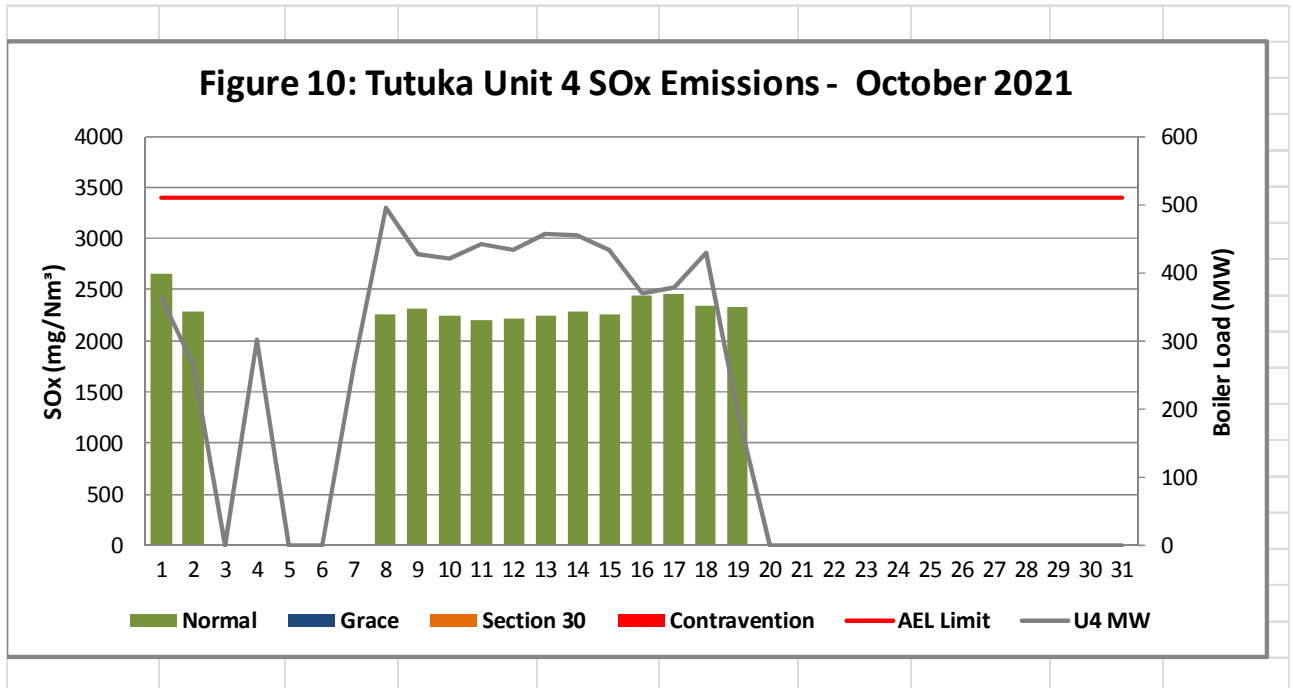


Figure 10: Unit 4 Daily Average SOx emissions for the month of October 2021 (against the emission limit and load Generated)

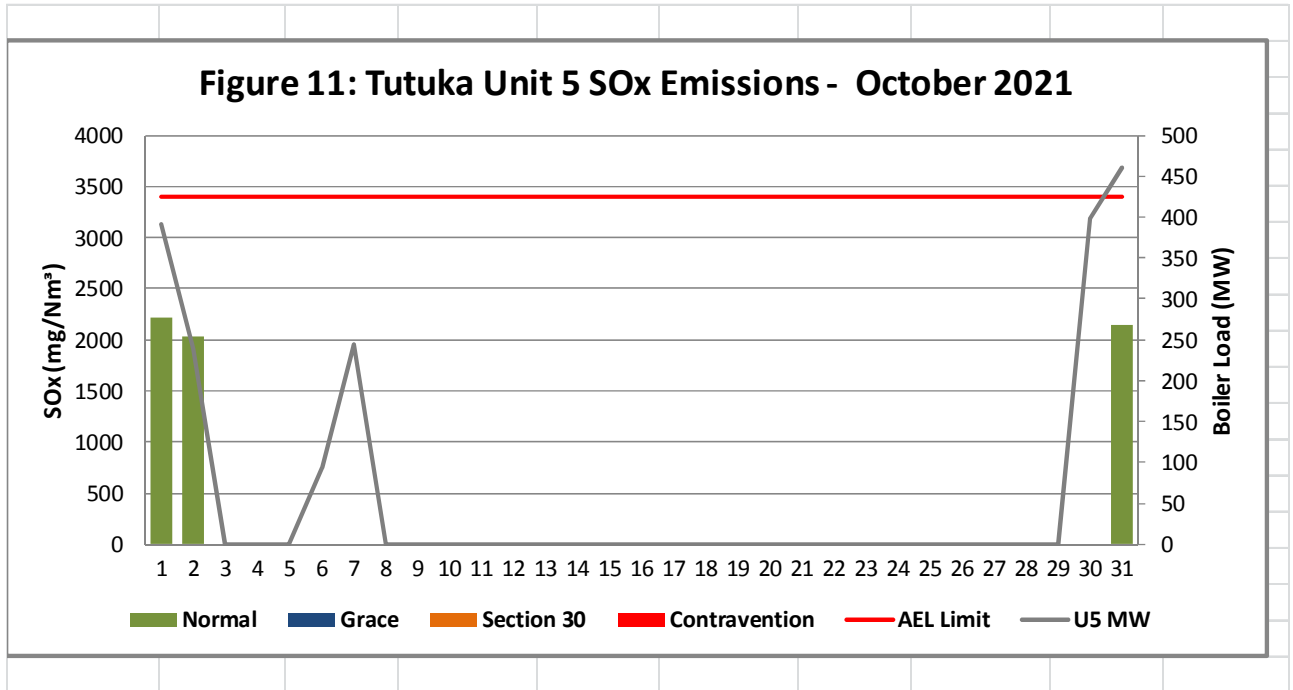


Figure 11: Unit 5 Daily Average SOx emissions for the month of October 2021 (against the emission limit and load Generated)

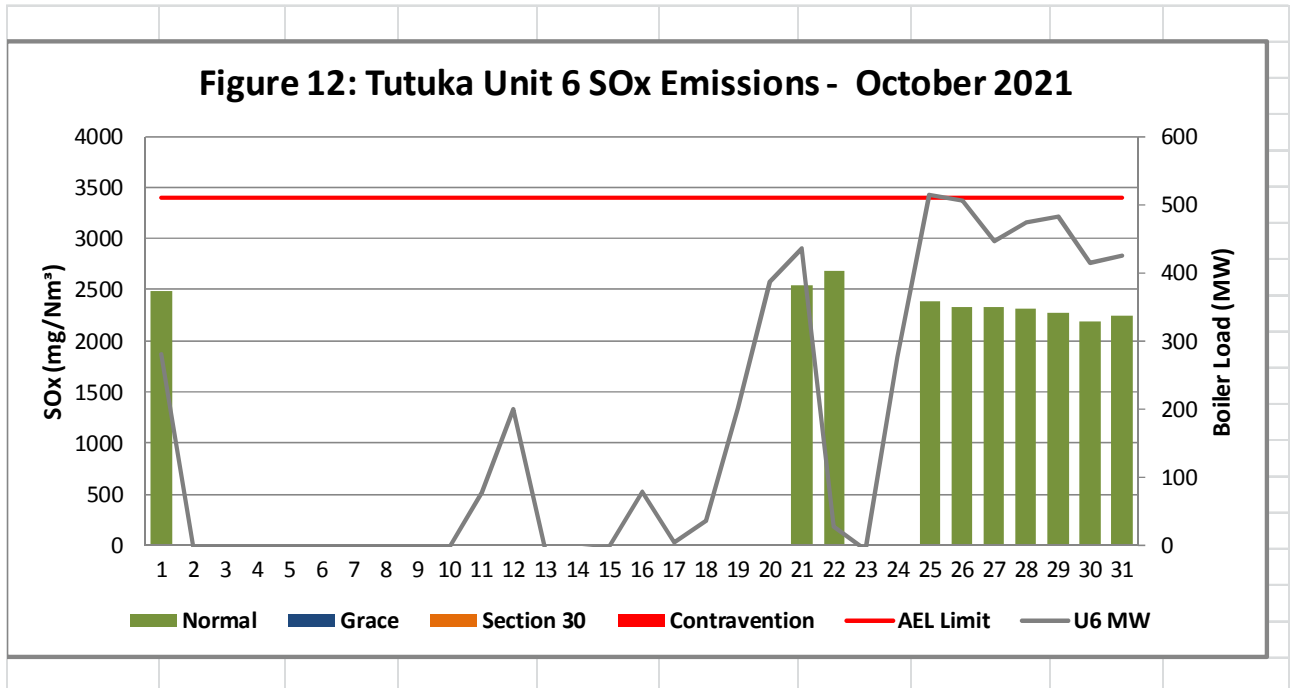


Figure 12: Unit 6 Daily Average SOx emissions for the month of October 2021 (against the emission limit and load Generated)

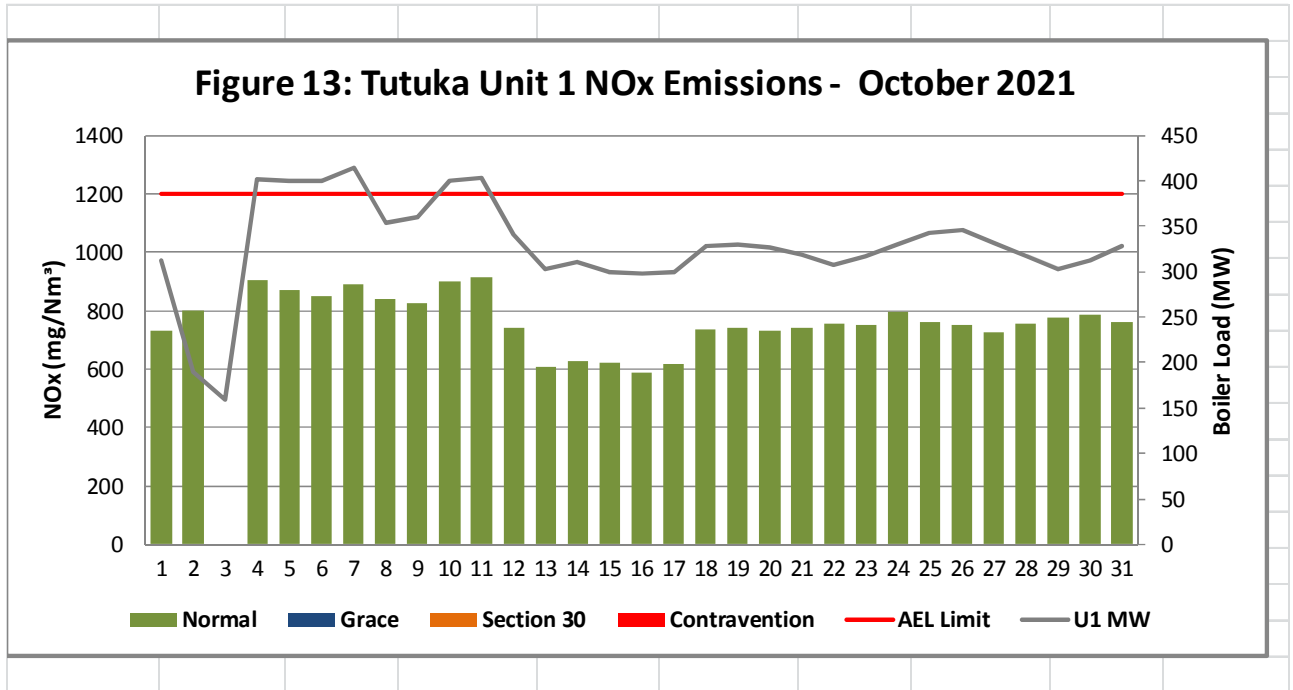


Figure 13: Unit 1 Daily Average NOx emissions for the month of October 2021 (against the emission limit and load Generated)

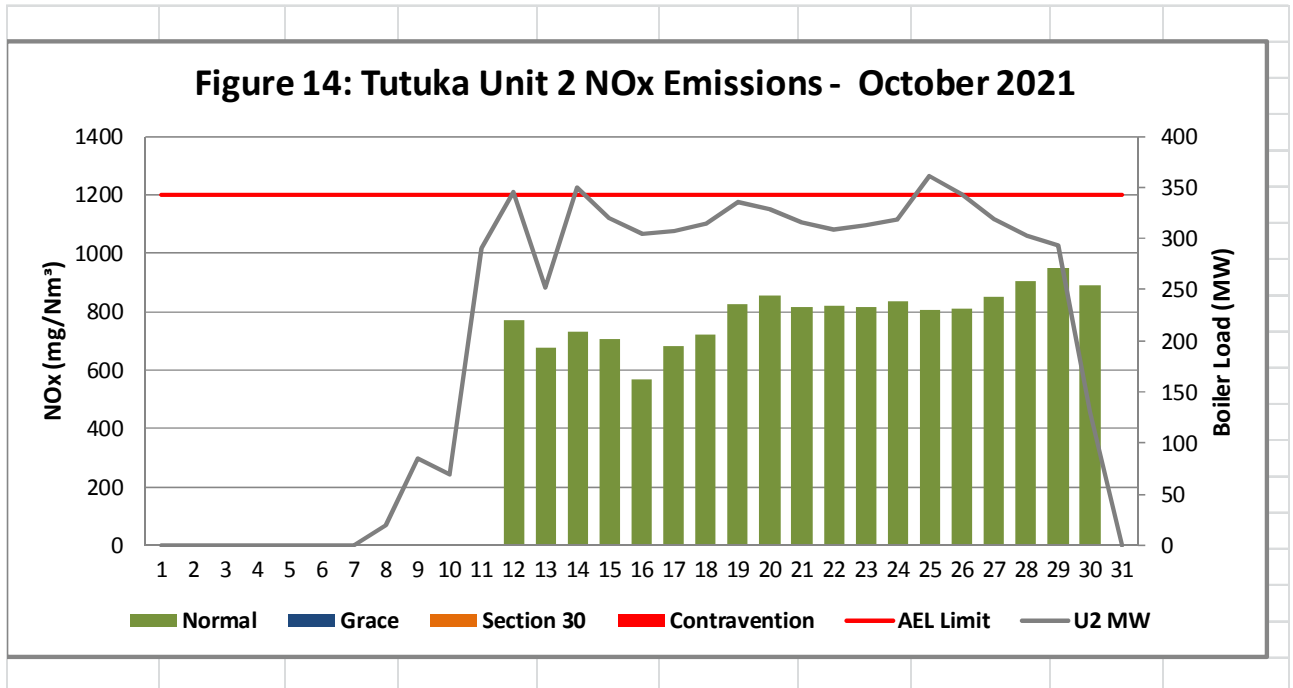


Figure 14: Unit 2 Daily Average NOx emissions for the month of October 2021 (against the emission limit and load Generated)

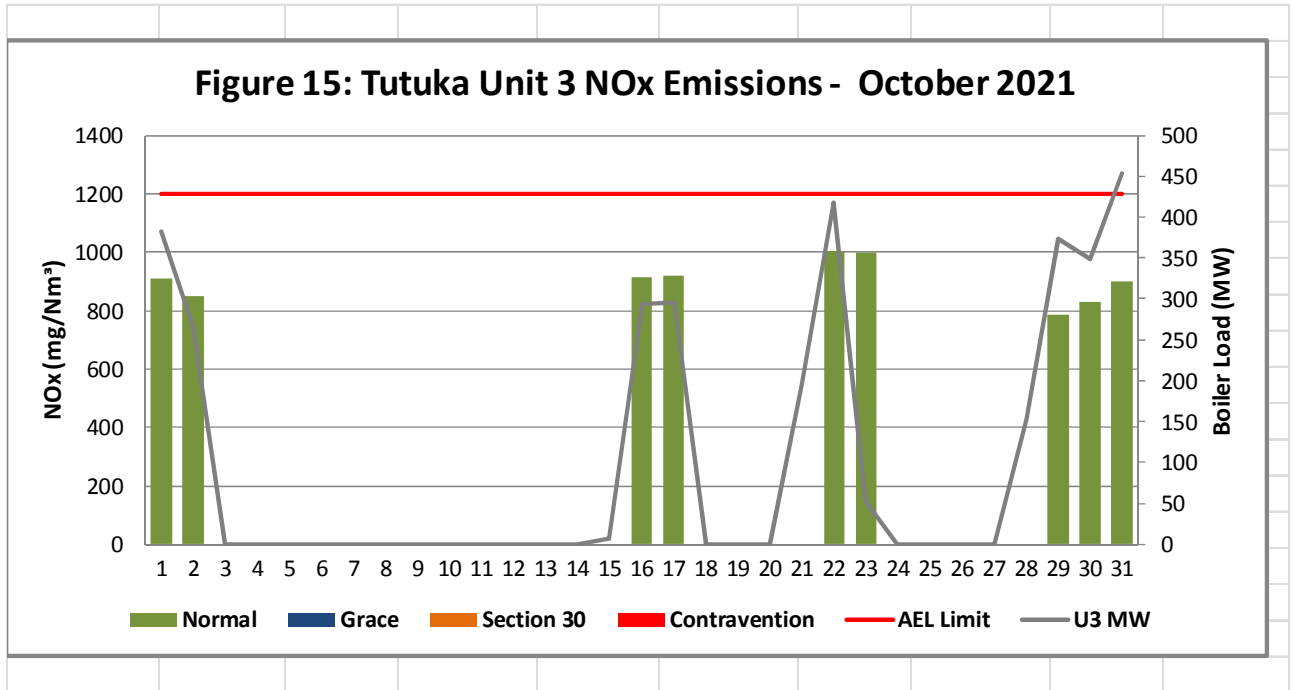


Figure 15: Unit 3 Daily Average NOx emissions for the month of October 2021 (against the emission limit and load Generated)

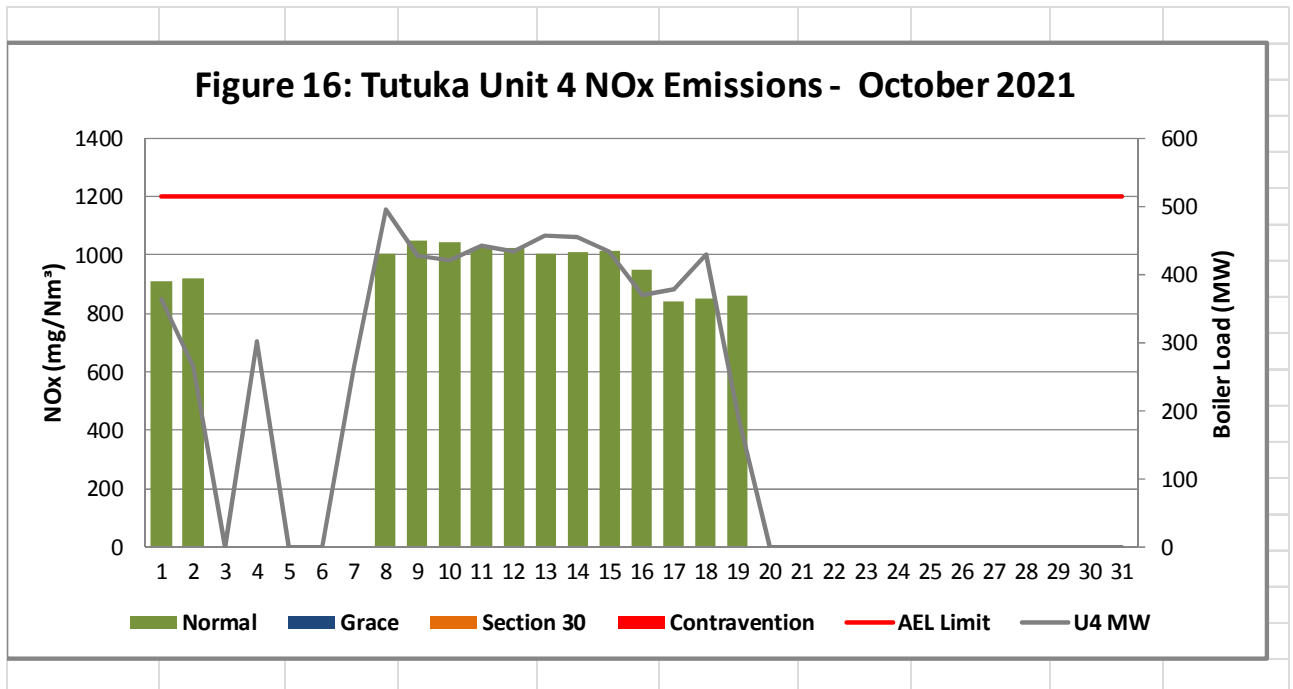


Figure 16: Unit 4 Daily Average NOx emissions for the month of October 2021 (against the emission limit and load Generated)

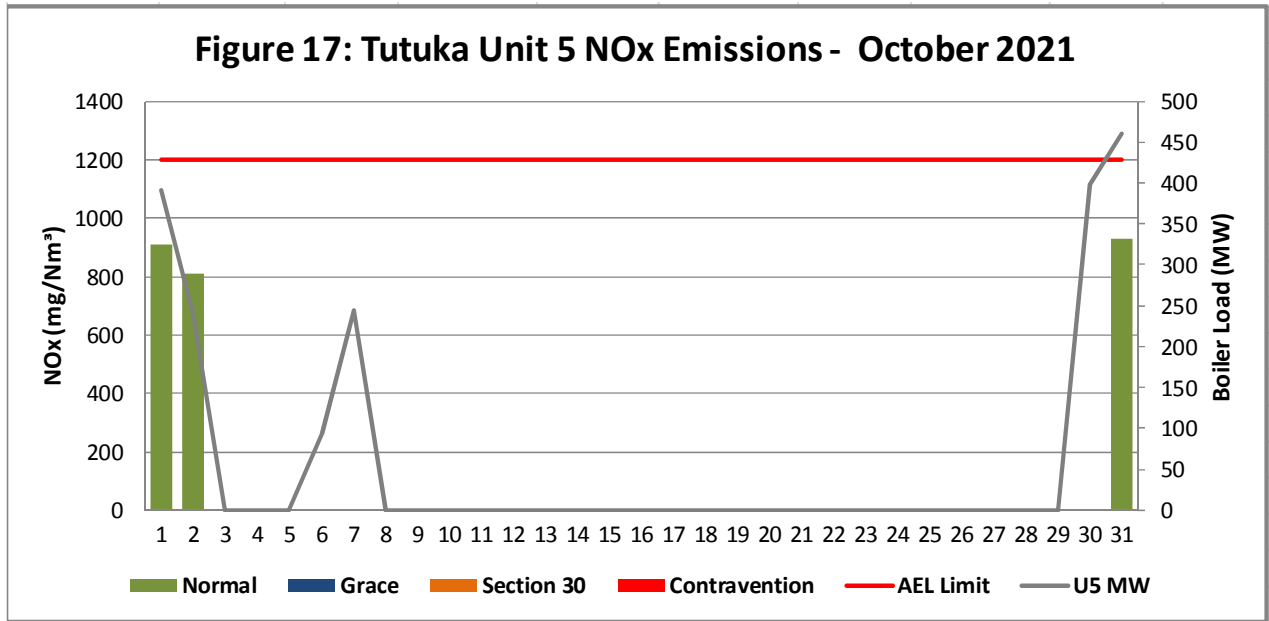


Figure 17: Unit 5 Daily Average NOx emissions for the month of October 2021 (against the emission limit and load Generated)

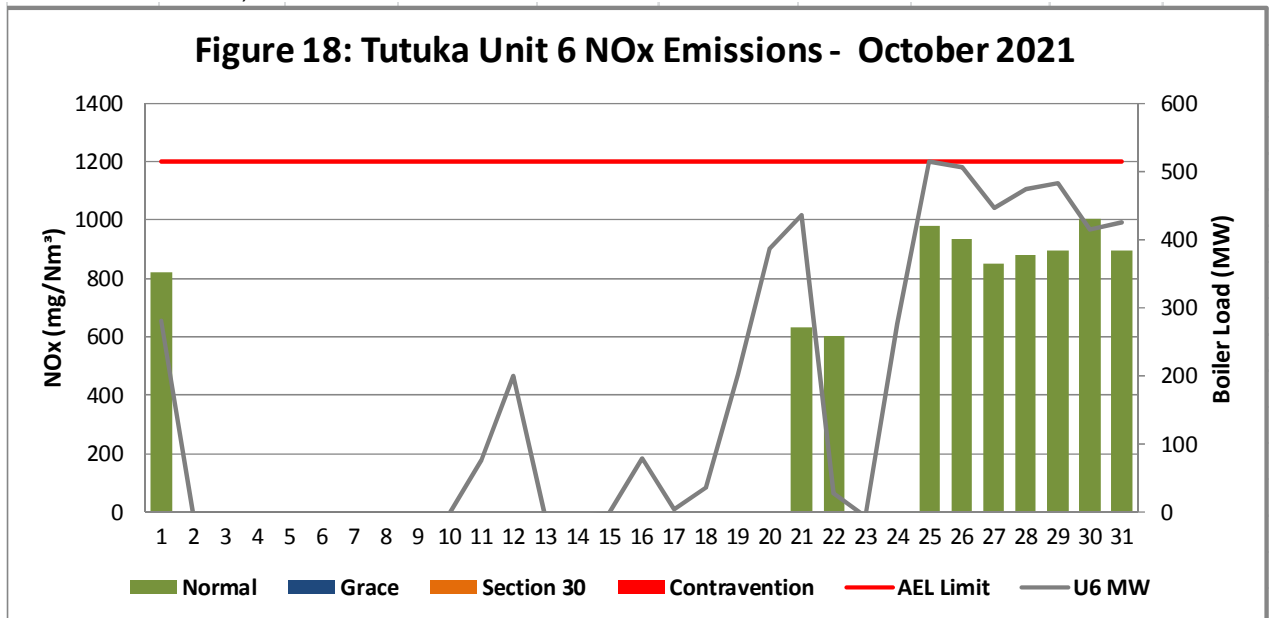


Figure 18: Unit 6 Daily Average NOx emissions for the month of October 2021 (against the emission limit and load Generated)

Table 4: Monthly tonnages for the month October 2021

Associated Unit/Stack	PM (tons)	SO ₂ (tons)	NO _x (tons)
Unit 1	565.7	3 364	1 064
Unit 2	218.6	2 260	691
Unit 3	109.5	844	315
Unit 4	210.9	1 759	736
Unit 5	30.3	292	122
Unit 6	186.9	1 121	422
SUM	1 321.8	9 639	3 349

Table 5: Each unit and respective days operating under normal operation and section 30 days respectively

Table 5.1: Operating days in compliance to PM AEL Limit - October 2021

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm ³)
Unit 1	0	4	26	0	30	406.4
Unit 2	18	1	0	0	1	249.2
Unit 3	2	7	0	0	7	310.1
Unit 4	10	4	0	0	4	277.0
Unit 5	3	0	0	0	0	223.3
Unit 6	3	3	4	0	7	375.8
SUM	36	19	30	0	49	

Table 5.2: Operating days in compliance to SOx AEL Limit - October 2021

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SOx (mg/Nm ³)
Unit 1	30	0	0	0	0	2 412.1
Unit 2	19	0	0	0	0	2 581.7
Unit 3	9	0	0	0	0	2 397.0
Unit 4	14	0	0	0	0	2 326.2
Unit 5	3	0	0	0	0	2 132.1
Unit 6	10	0	0	0	0	2 375.1
SUM	72	0	0	0	0	

Table 5.3: Operating days in compliance to NOx AEL Limit - October 2021

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm ³)
Unit 1	30	0	0	0	0	762.9
Unit 2	19	0	0	0	0	790.3
Unit 3	9	0	0	0	0	900.5
Unit 4	14	0	0	0	0	963.8
Unit 5	3	0	0	0	0	884.4
Unit 6	10	0	0	0	0	848.7
SUM	72	0	0	0	0	

Light up information

Table 6: PM Start-up information for the month of fabricate October 2021

Number & Type of Starts	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Number Of Hot Starts (Off-Load < 30 Hrs)	1.00	3.00	0.00	1.00	0.00	5.00
Number Of Cold Starts (Off-Load > 30 hrs)	0.00	1.00	3.00	1.00	2.00	3.00

Complaints Register

Table 7: Complaints for the month of October 2021.

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
There was no complaint related to air quality received during the month of October 2021.					

General

Particulate matter (PM10) emissions on unit 02, 03, 04 and 05 were within the daily limit during the month of October 2021. Unit 01 & Unit 06 experienced an upset condition which persisted for more than 48 hours, resulting into a NEMA Section 30 incident being declared during the month of October 2021. The gaseous (NOx & SOx) emissions on unit 01, 02, 03, 04,05 and 06 were within the daily limit during the month of October 2021; refer to graphs above.


NB: The rest of the information demonstrating compliance with the emission license conditions.

For more information contact the Tutuka Environmental team

Regards

Compiled by
Monica Mokgawa
AIR QUALITY OFFICER:TUTUKA POWER STATION

Date: 24-02-2022

Verified by 
Mike Molepo
SENIOR CHEMIST CHEMISTRY: TUTUKA POWER STATION
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Approved by: 
Sello Mametja
GENERAL MANAGER: TUTUKA POWER STATION
.....
Date: 2022/03/04