

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

Date:  
 24 February 2022

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'S MONTHLY STACK EMISSIONS REPORT FOR THE MONTH OF DECEMBER 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 December 2021. Verified emissions of particulates matter, SO<sub>2</sub> and NO<sub>x</sub> (as NO<sub>2</sub>) are also included.

#### Raw Materials and Products

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

Raw Materials and Products used	Raw Material Type	Units	Maximum Permitted Consumption / Rate (Quantity)	Consumption / Rate in Month of December 2021
	Coal	Tons/month	1 200 000	373 405
	Fuel Oil	Tons/month	10 000	3968.84
Production Rates	Product/ By-Product Name	Unit	Maximum Production Capacity Permitted (Quantity)	Production Rate in Month of December 2021
	Ash	Tons/month	not specified	96114
	RE PM	kg/MWh	not specified	1.79

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 December 2021**

Associated Unit/Stack	Technology Type	Minimum Control Efficiency (%)	Actual Efficiency (%)
			December 2021
Unit 1	ESP	95%	Unit off
Unit 2	ESP	95%	99.0%
Unit 3	ESP	95%	99.9%
Unit 4	ESP	95%	Unit off
Unit 5	ESP	95%	98.7%
Unit 6	ESP	95%	99.0%

**Energy Source Characteristics**

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




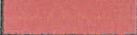
Characteristic	Stipulated Range (Unit)	Monthly Average Content
Sulphur Content	0.6 -.2.6	0.970
Ash Content	21 -33	25.740

**Table 4: Monitor Reliability**

Associated Unit/Stack	PM	SOx	NOx
Unit 1	Unit off	Unit off	Unit off
Unit 2	98.8	99.1	99.1
Unit 3	9.0	99.3	99.3
Unit 4	Unit off	Unit off	Unit off
Unit 5	93.0	99.6	99.6
Unit 6	94.2	99.7	99.7

**Emissions Reporting**

**Table 6.5: Graph 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

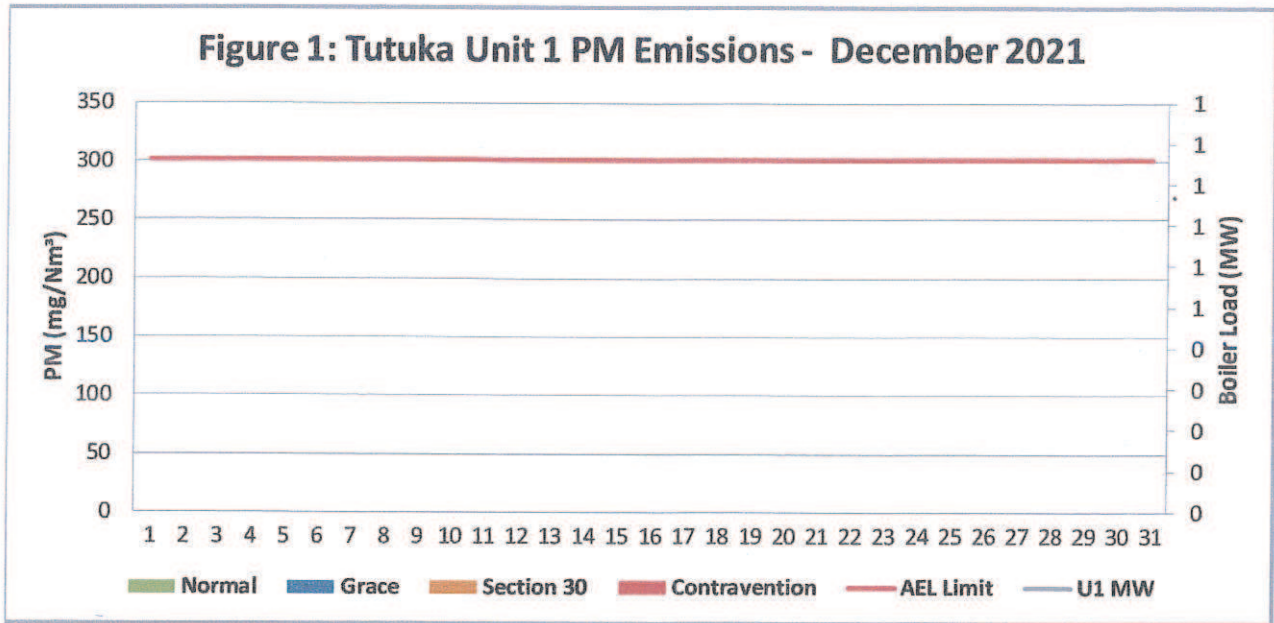


Figure 1: Unit 1 Daily Average PM emissions for the month December 2021 (against the emission limit and load Generated)

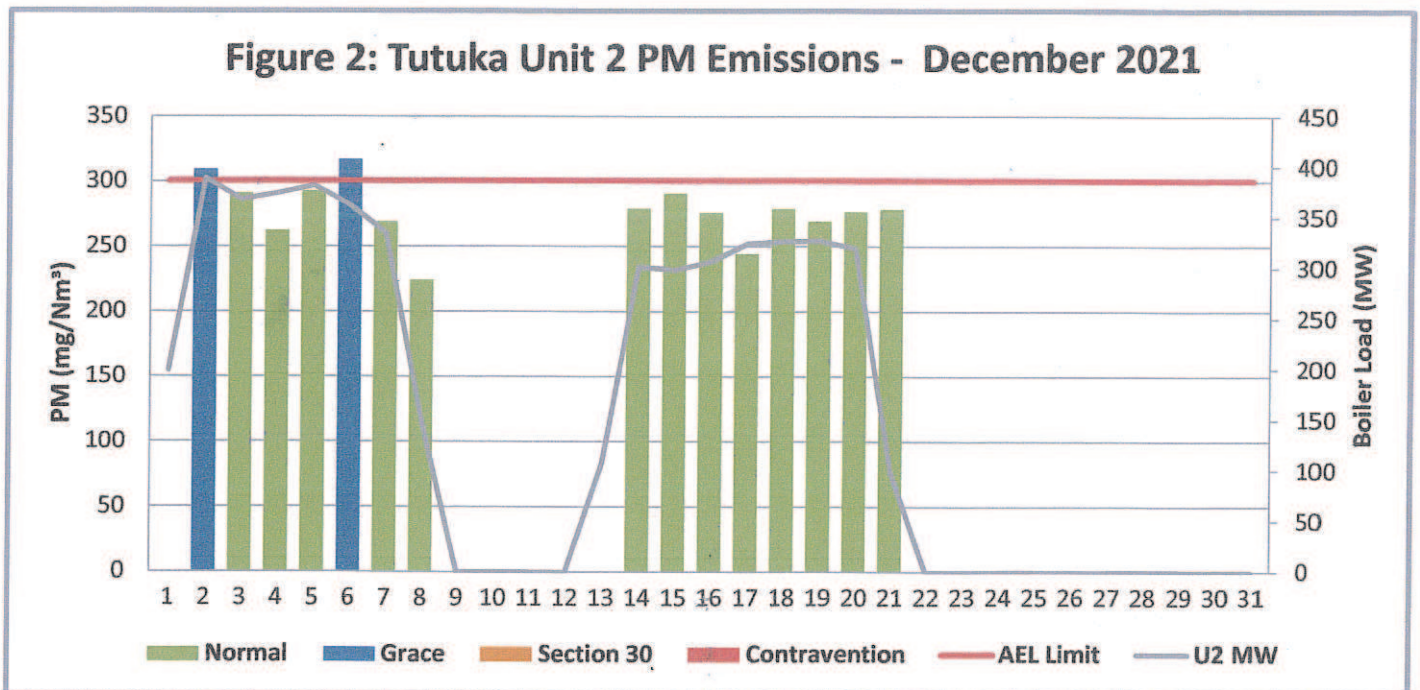
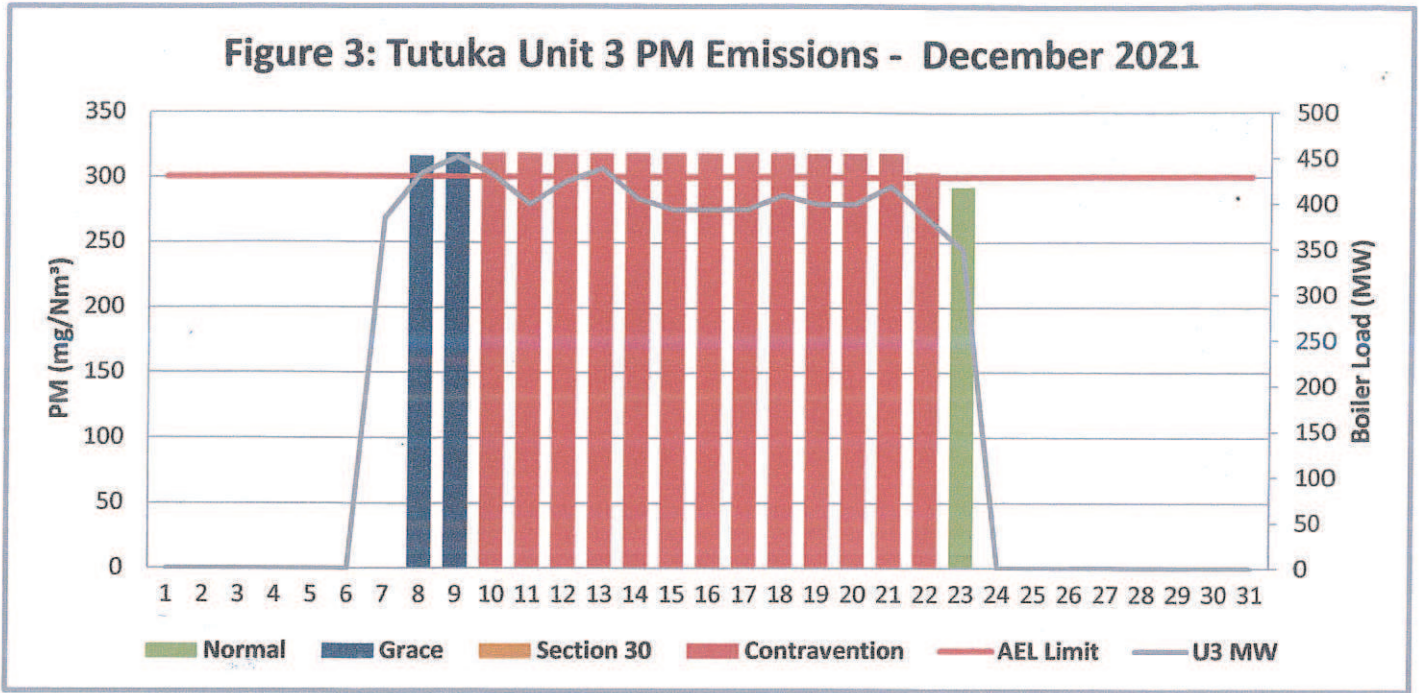
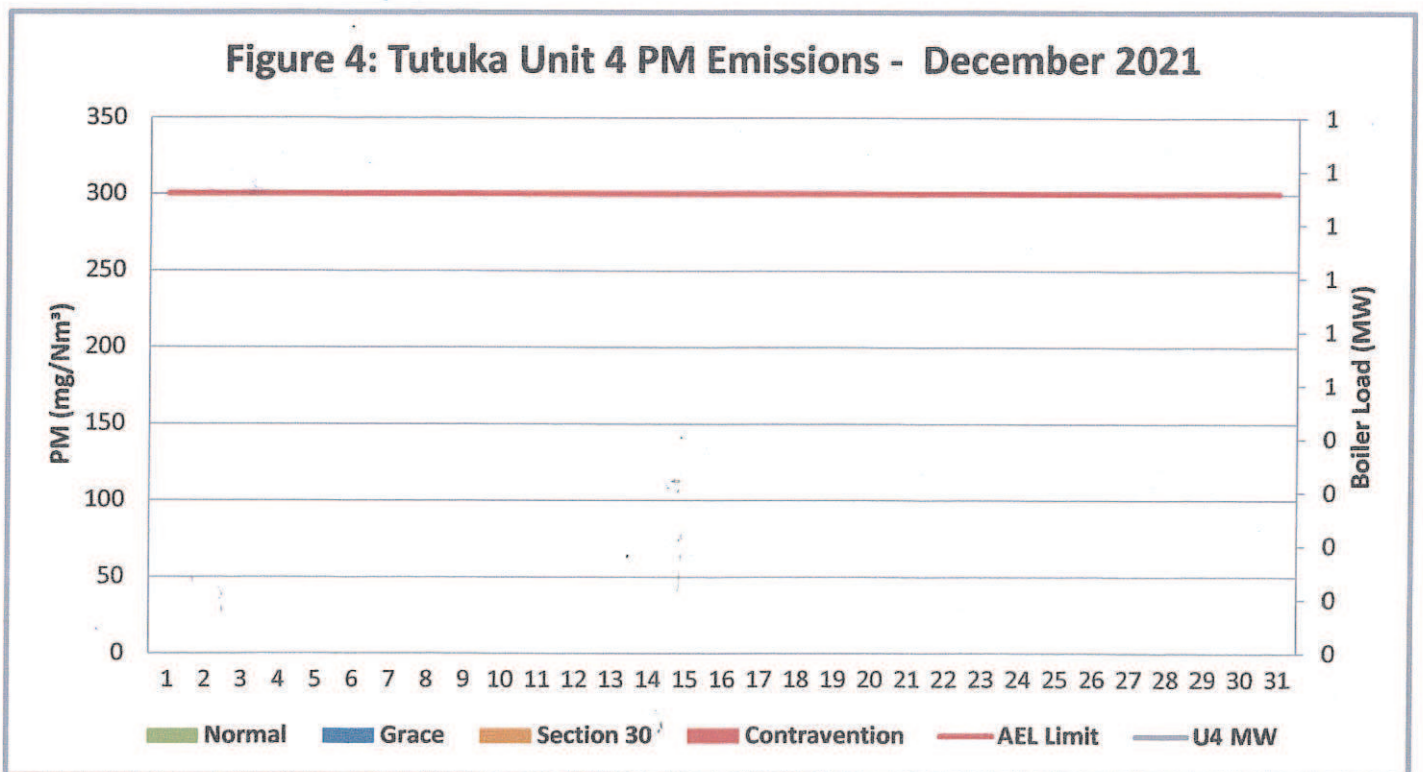


Figure 2: Unit 2 Daily Average PM emissions for the month December 2021 (against the emission limit and load Generated)

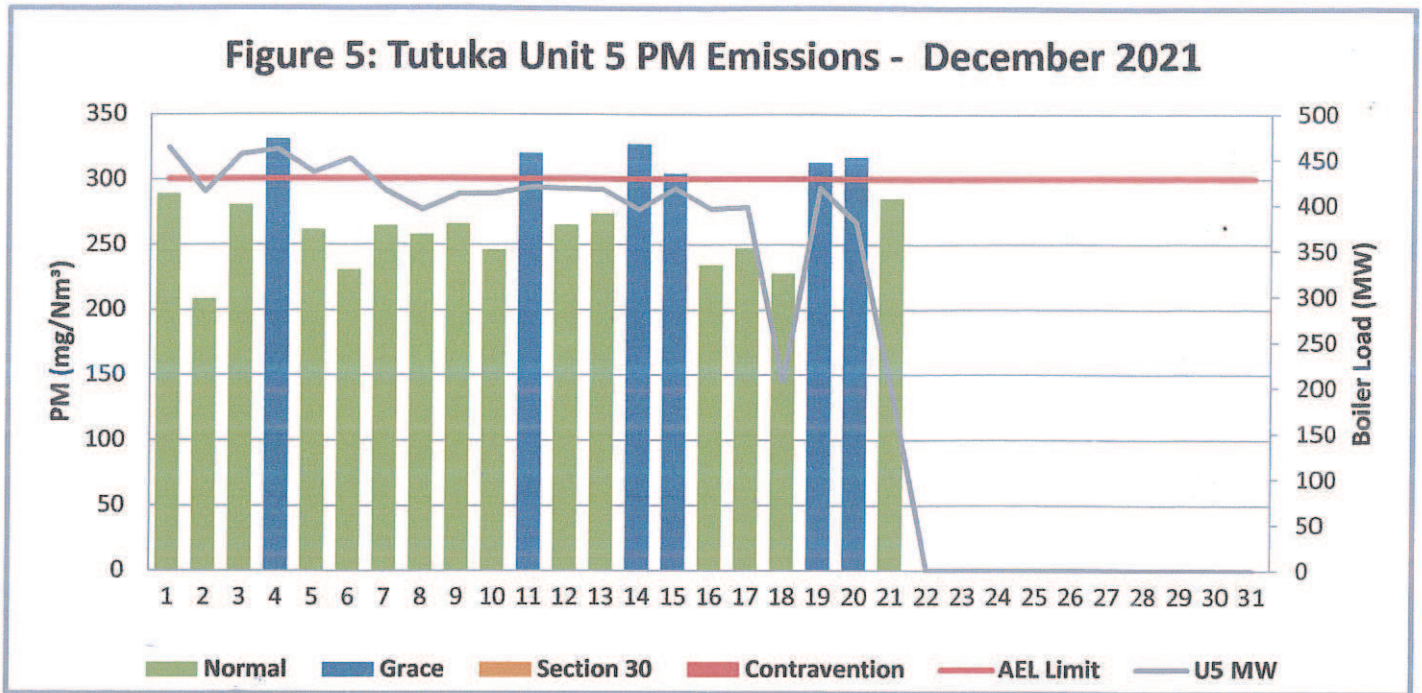




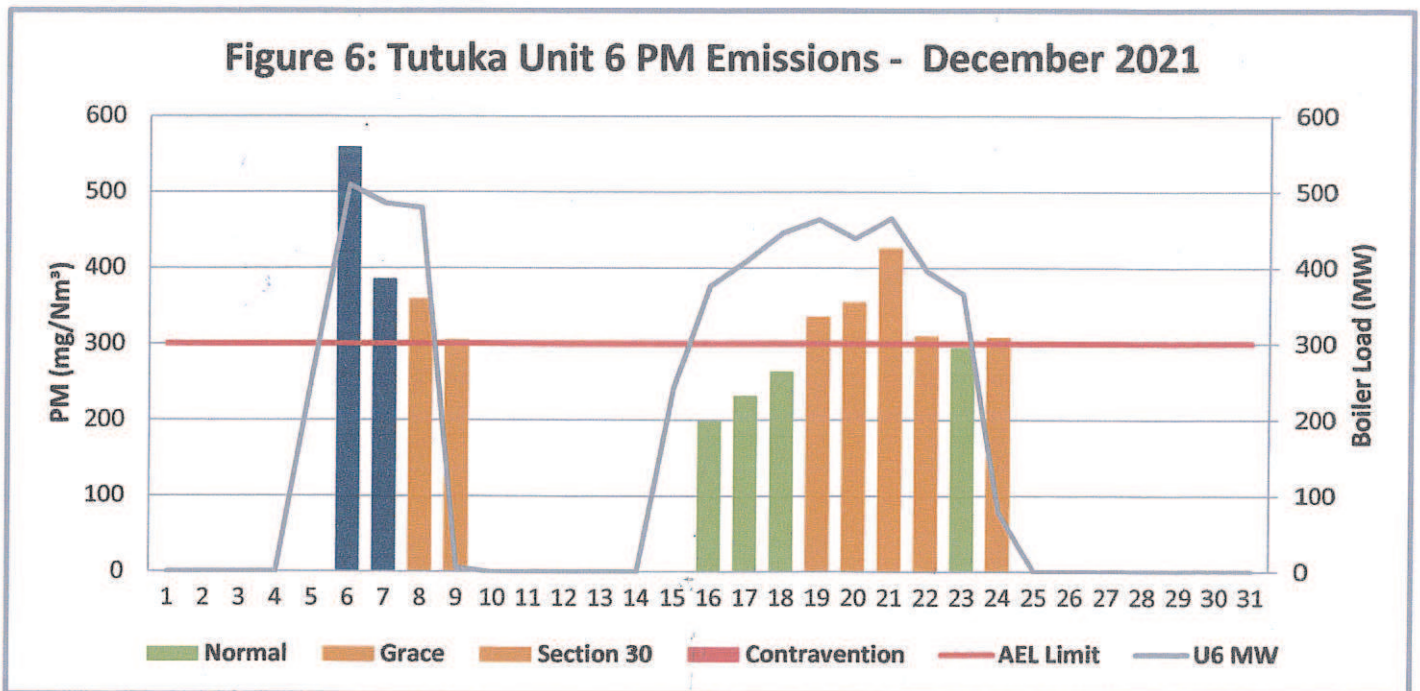
**Figure 3:** Unit 3 Daily Average PM emissions for the month December 2021 (against the emission limit and load Generated)



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



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



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



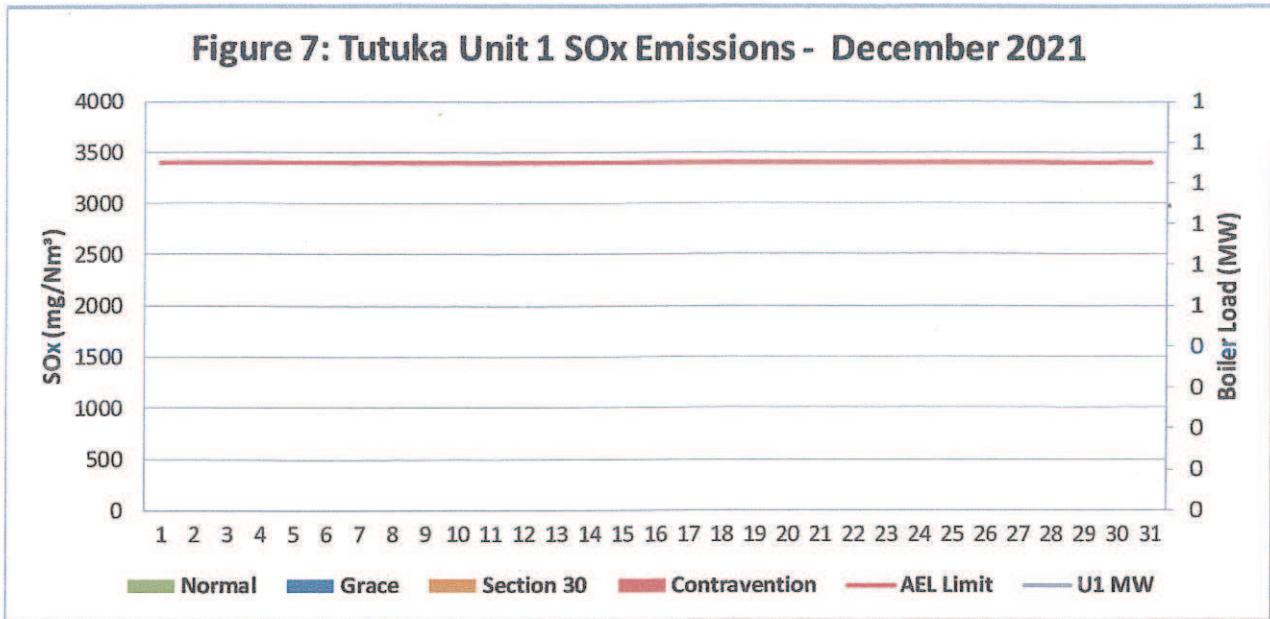


Figure 7: Unit 1 Daily Average SOx emissions for the month December 2021 (against the emission limit and load Generated)

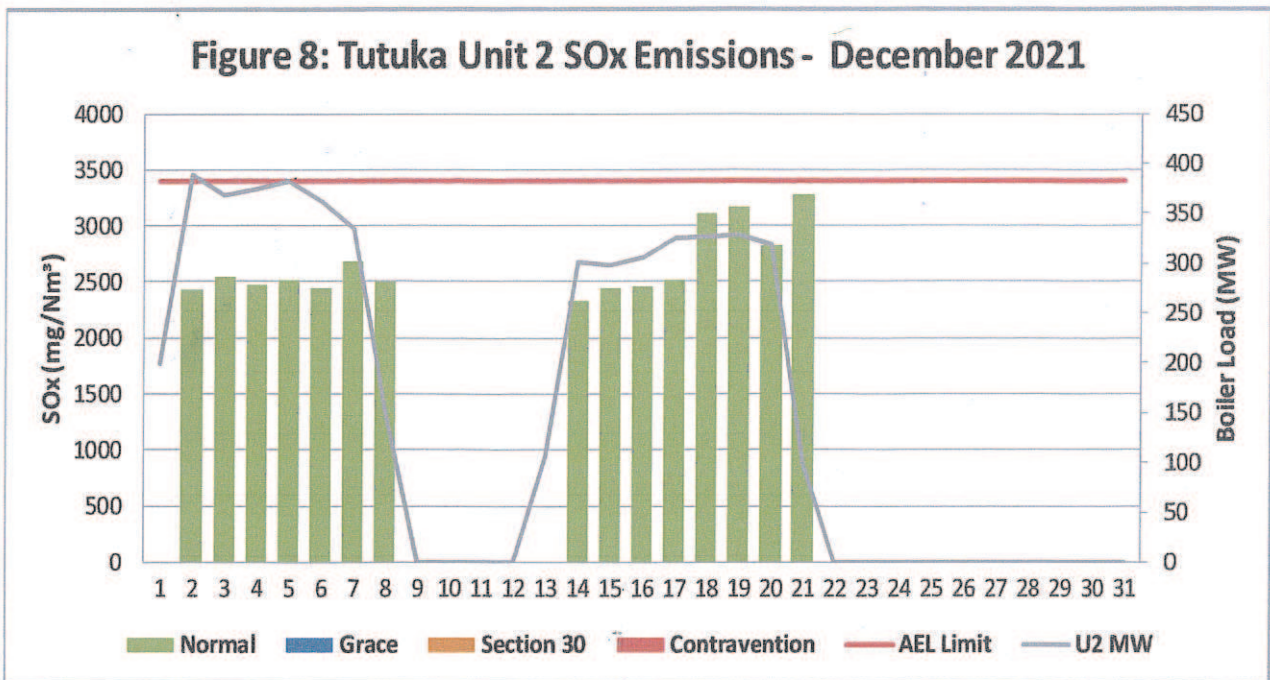


Figure 8: Unit 2 Daily Average SOx emissions for the month December 2021 (against the emission limit and load Generated)

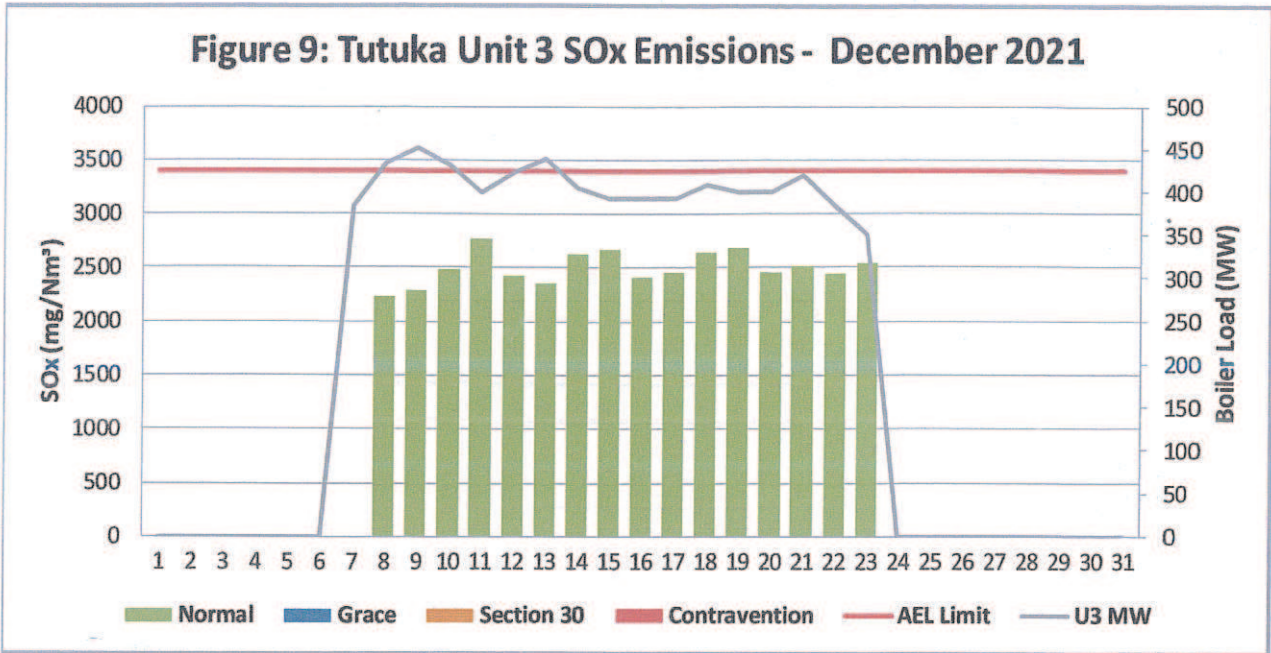


Figure 9: Unit 3 Daily Average SOx emissions for the month December 2021 (against the emission limit and load Generated)

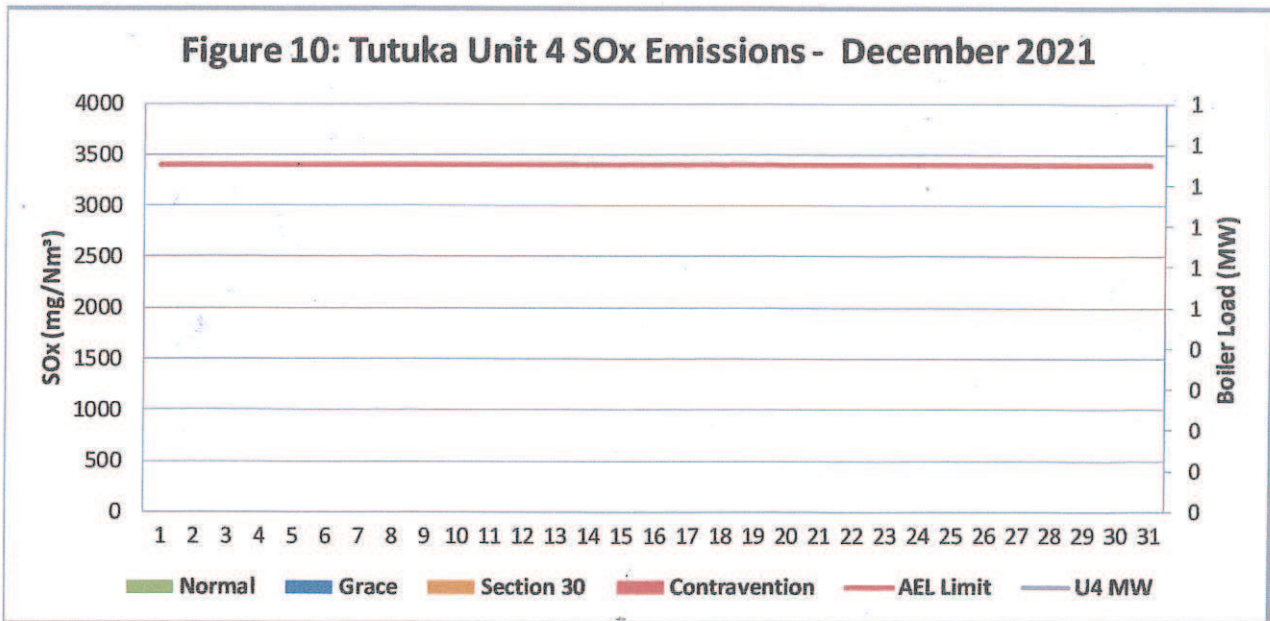


Figure 10: Unit 4 Daily Average SOx emissions for the month December 2021 (against the emission limit and load Generated)



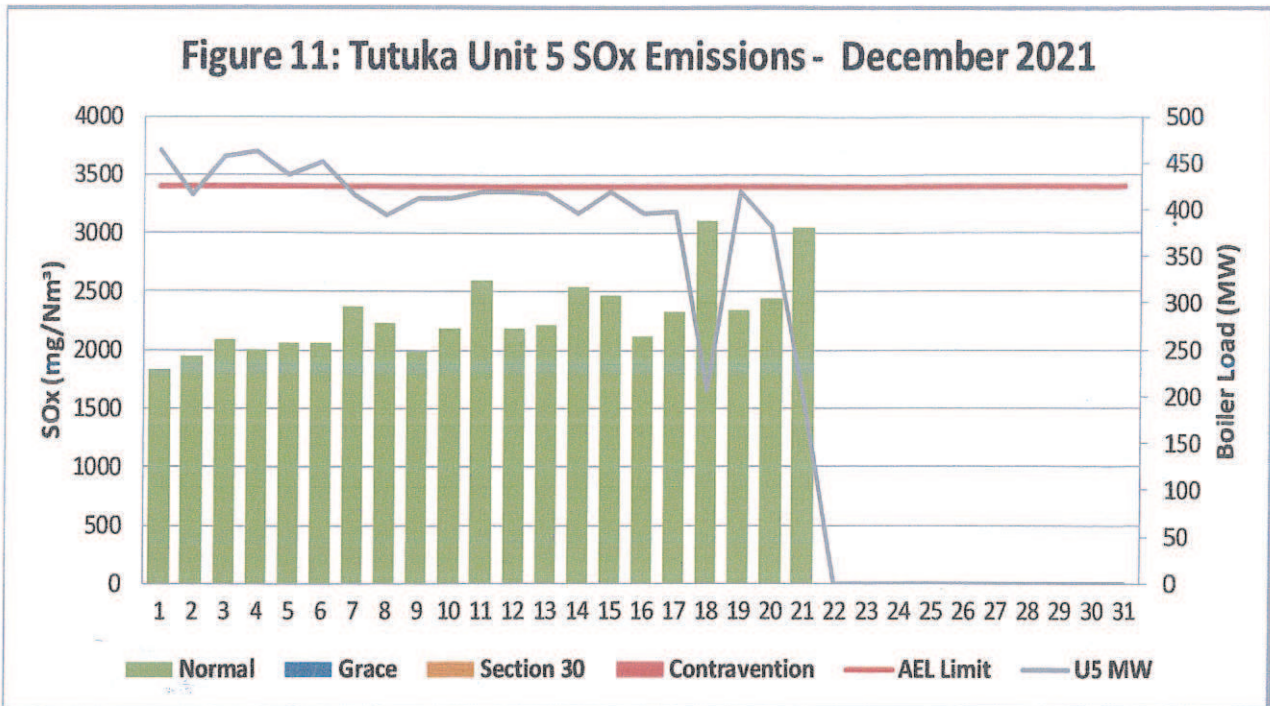


Figure 11: Unit 5 Daily Average SOx emissions for the month December 2021 (against the emission limit and load Generated)

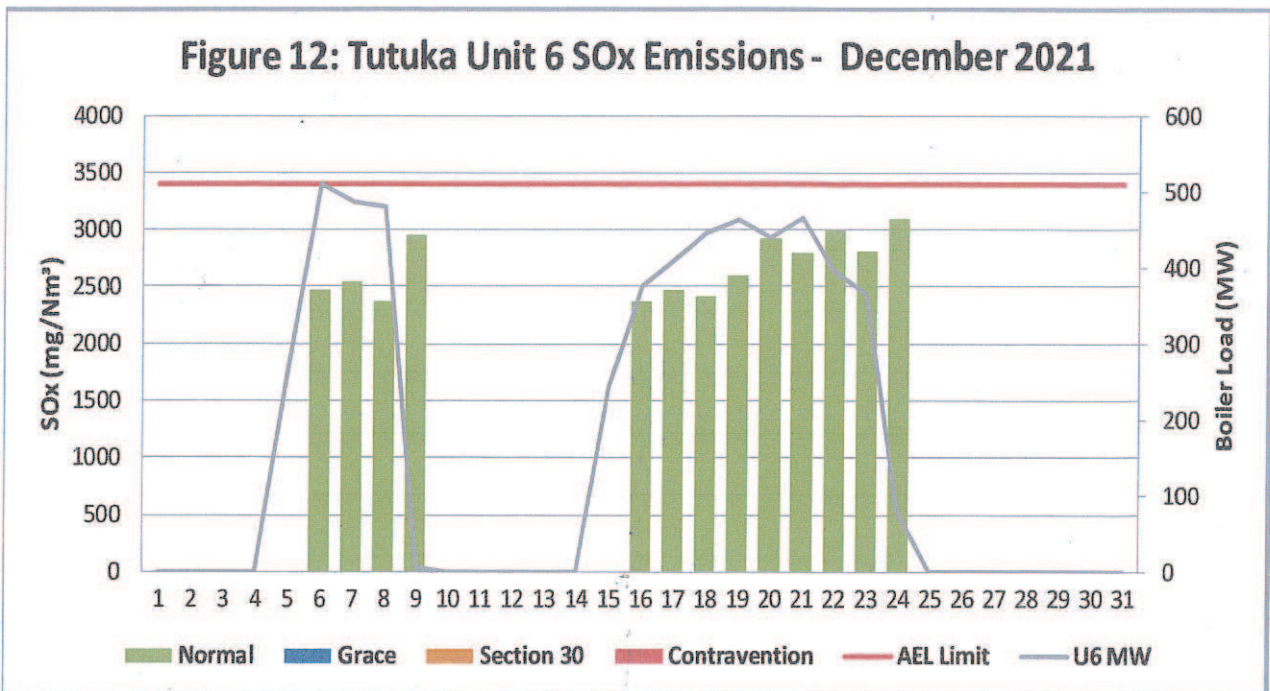
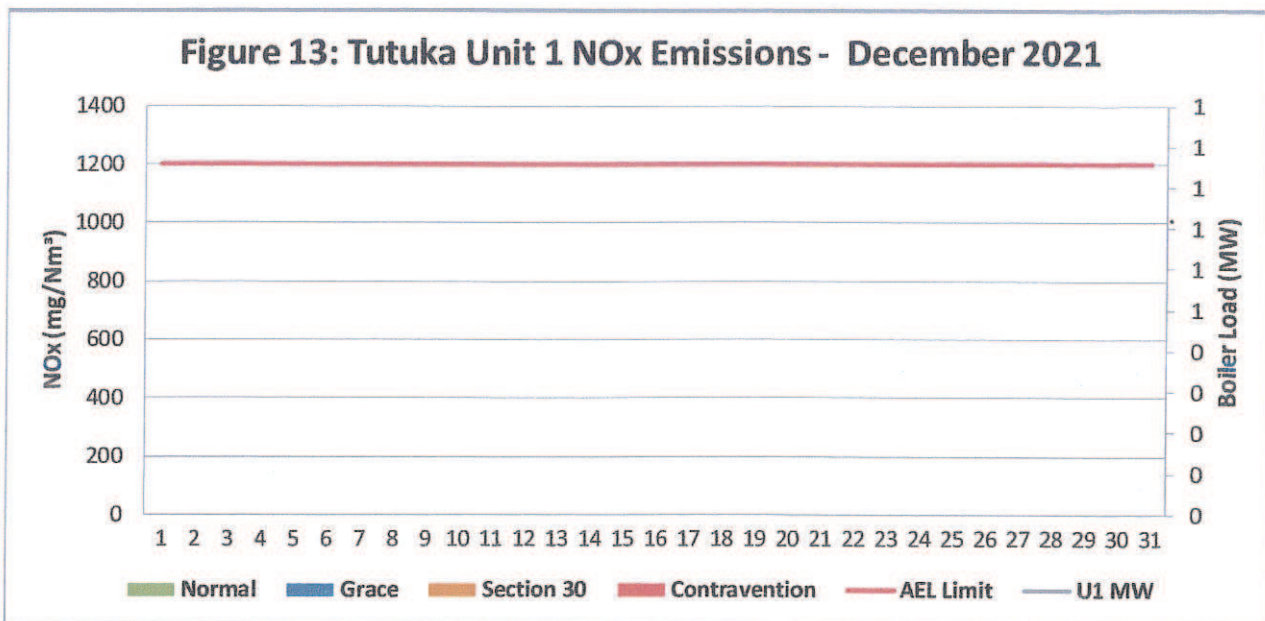
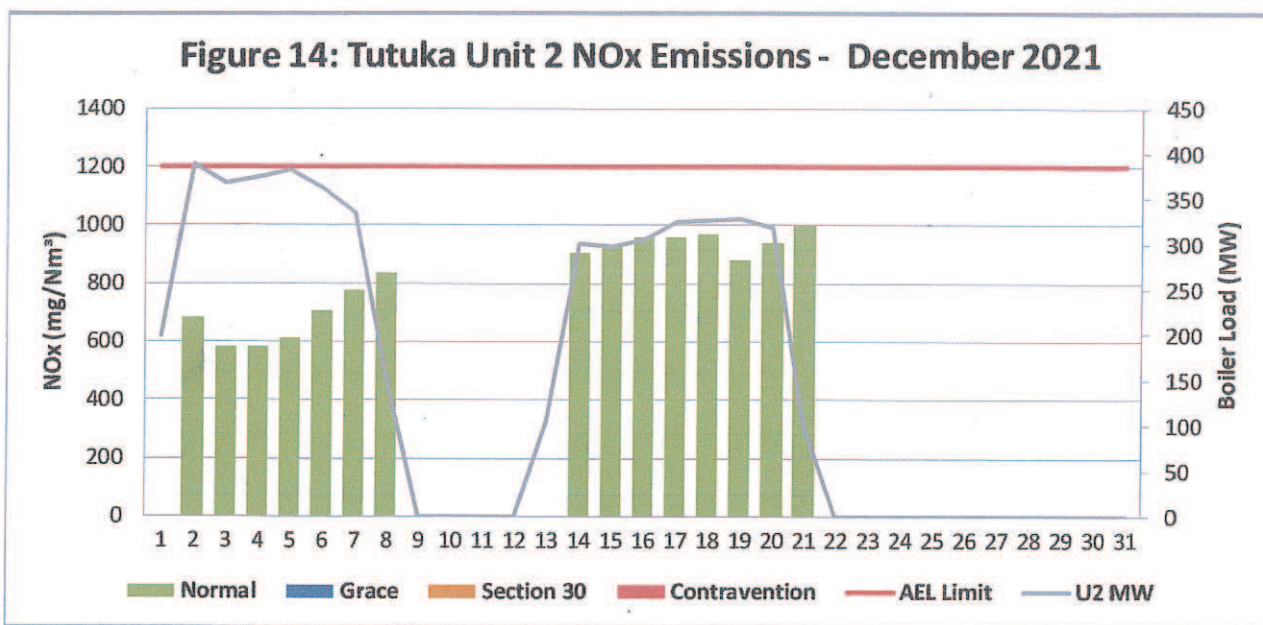


Figure 12: Unit 6 Daily Average SOx emissions for the month December 2021 (against the emission limit and load Generated)





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



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

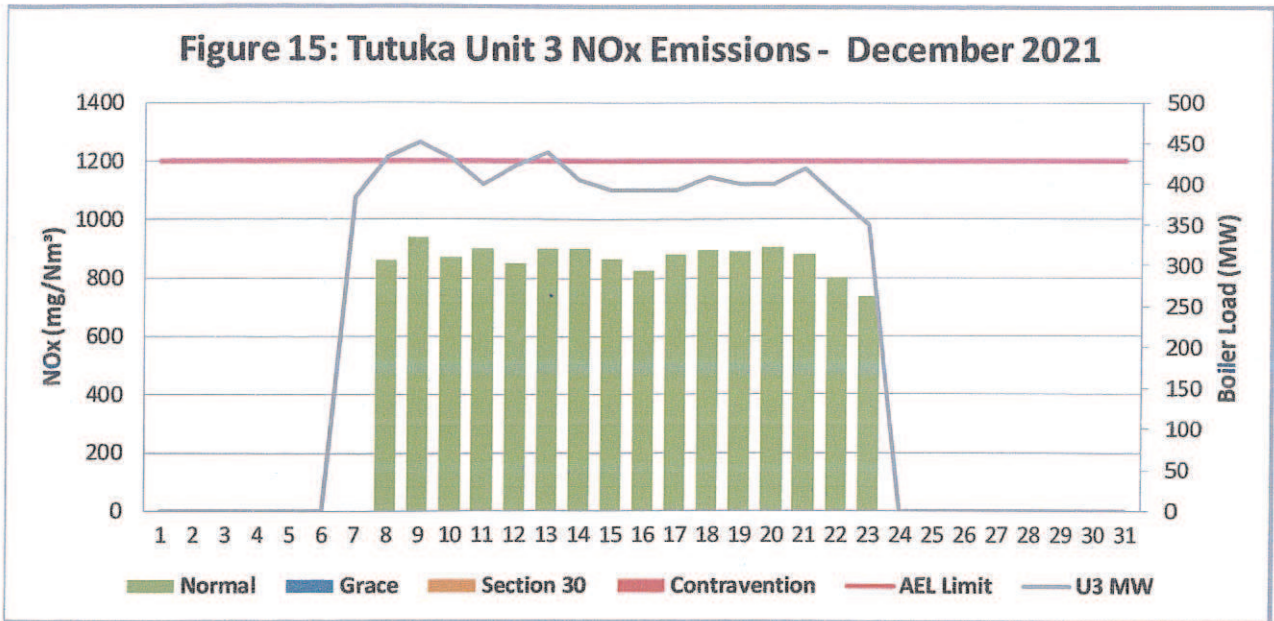


Figure 15: Unit 3 Daily Average NOx emissions for the month December 2021 (against the emission limit and load Generated)

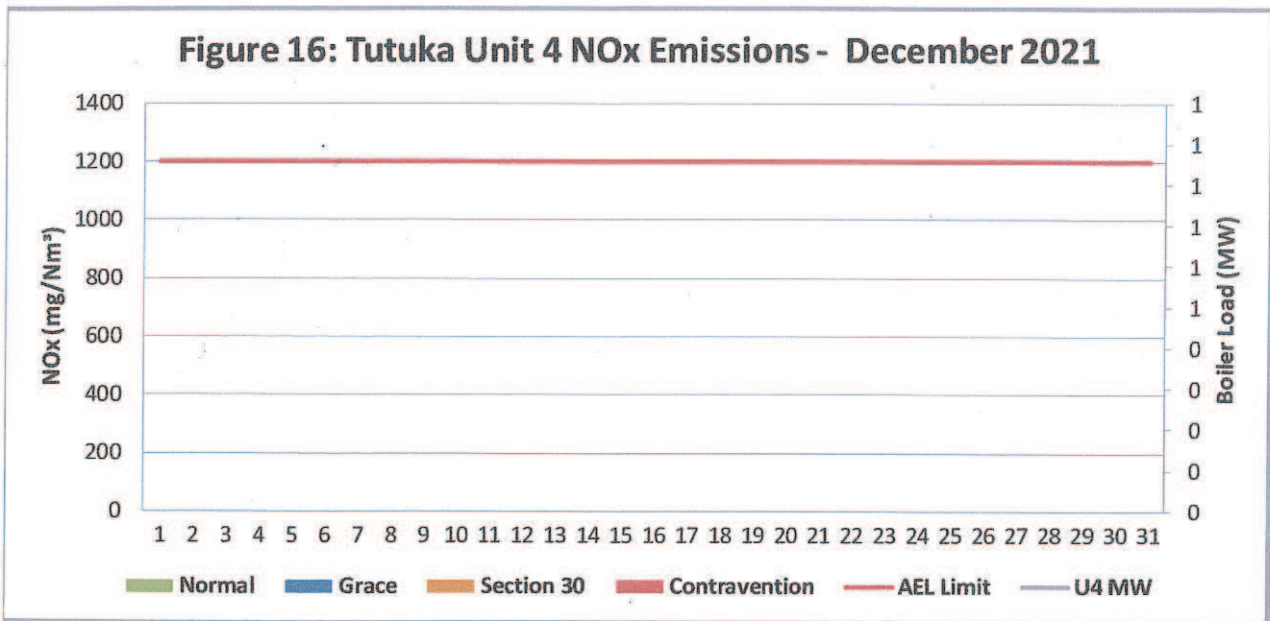


Figure 16: Unit 4 Daily Average NOx emissions for the month December 2021 (against the emission limit and load Generated)



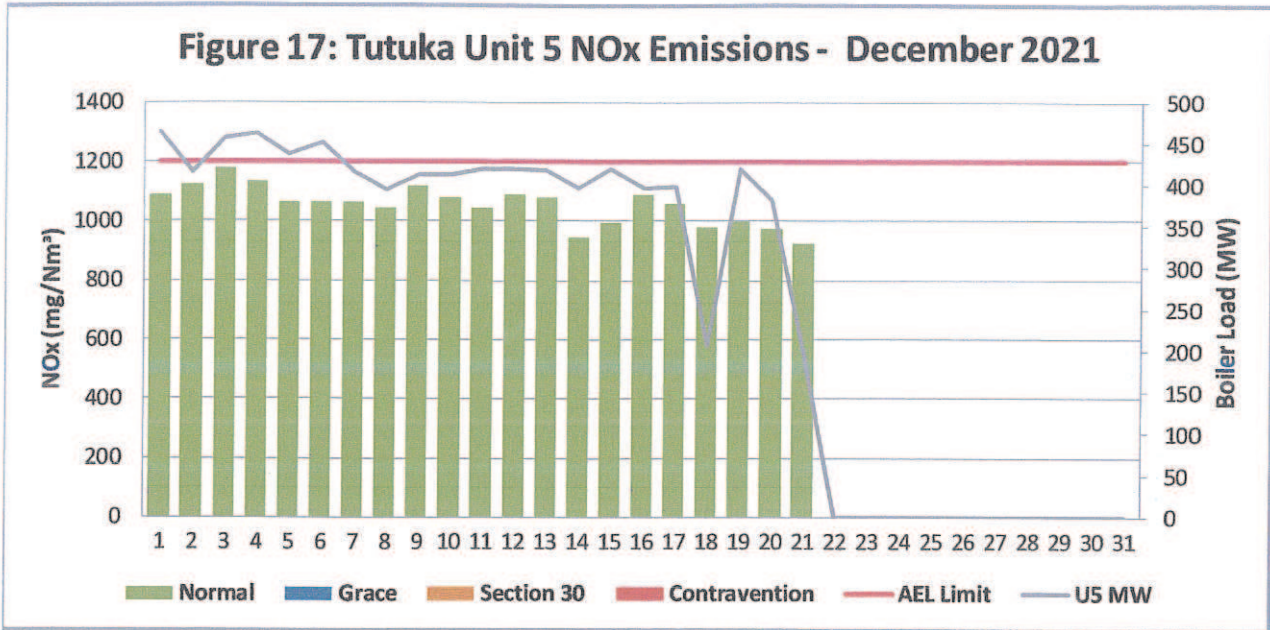


Figure 17: Unit 5 Daily Average NOx emissions for the month December 2021 (against the emission limit and load Generated)

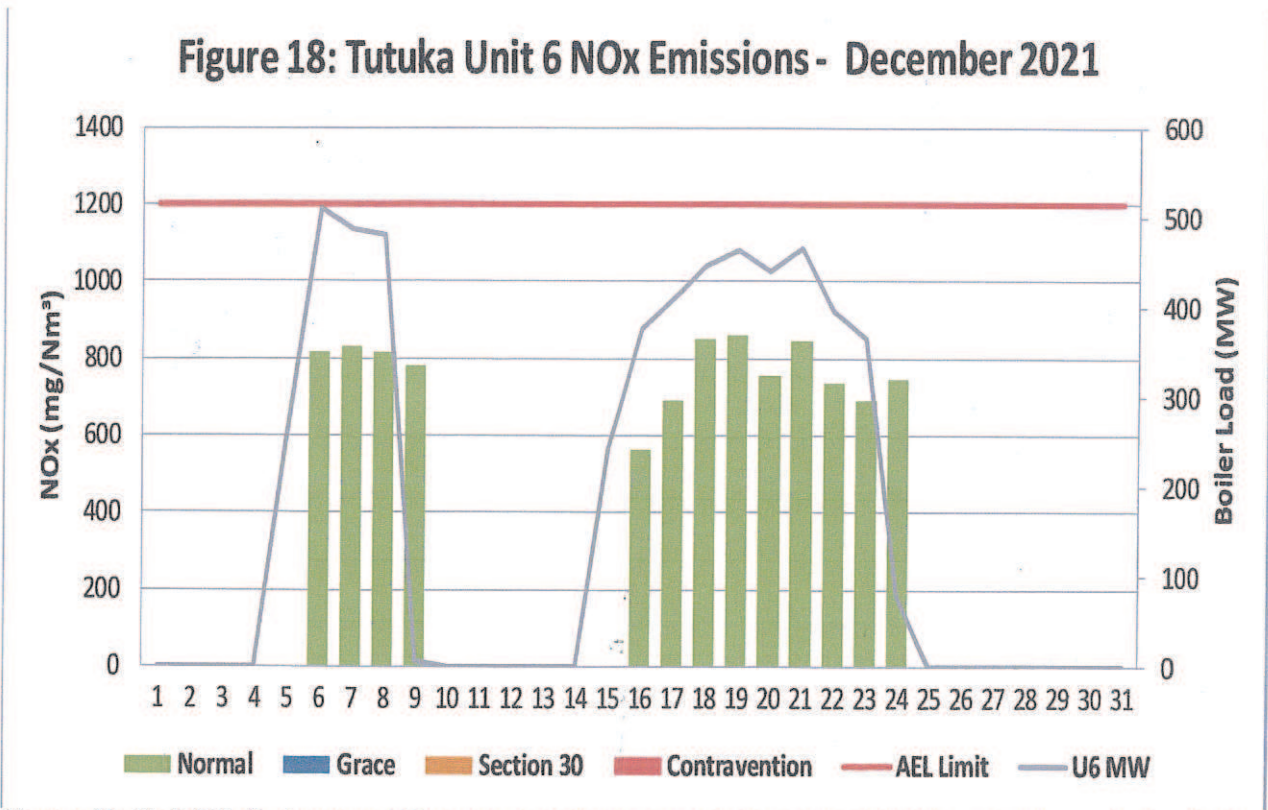


Figure 18: Unit 6 Daily Average NOx emissions for the month December 2021 (against the emission limit and load Generated)

**Table 4: Monthly tonnages for the month December 2021**

Associated Unit/Stack	PM (tons)	SO <sub>2</sub> (tons)	NO <sub>x</sub> (tons)
Unit 1	0.0	0	0
Unit 2	185.5	1 759	540
Unit 3	326.3	2 580	898
Unit 4	0.0	0	0
Unit 5	289.4	2 401	1 138
Unit 6	189.9	1 473	436
<b>SUM</b>	<b>991.1</b>	<b>8 214</b>	<b>3 012</b>

**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 - December 2021

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	13	2	0	0	2	277.2
Unit 3	1	2	0	13	15	315.7
Unit 4	0	0	0	0	0	
Unit 5	15	6	0	0	6	271.2
Unit 6	4	2	7	0	9	333.5
<b>SUM</b>	<b>14</b>	<b>12</b>	<b>20</b>	<b>0</b>	<b>32</b>	

Table 5.2: Operating days in compliance to SO<sub>x</sub> AEL Limit - December 2021

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	15	0	0	0	0	2 645.0
Unit 3	16	0	0	0	0	2 499.8
Unit 4	0	0	0	0	0	
Unit 5	21	0	0	0	0	2 294.4
Unit 6	13	0	0	0	0	2 678.0
<b>SUM</b>	<b>31</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	

Table 5.3: Operating days in compliance to NO<sub>x</sub> AEL Limit - December 2021

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	15	0	0	0	0	820.8
Unit 3	16	0	0	0	0	867.8
Unit 4	0	0	0	0	0	
Unit 5	21	0	0	0	0	1 053.0
Unit 6	13	0	0	0	0	767.9



SUM	31	0	0	0	0
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**Light up information**

**Table 6:** PM Start-up information for the month of fabricate December 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)	0.00	2.00	0.00	0.00	1.00	2.00
Number Of Cold Starts (Off-Load > 30 hrs)	0.00	1.00	1.00	0.00	0.00	2.00

**Complaints Register**

**Table 7:** Complaints for the month of December 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 December 2021.					

**General**

Particulate matter (PM10) emissions on unit 02 and 05 had exceedances that were within the grace period during the month of December 2021; Unit 01 and 04 were off during the whole month of December 2021. Unit 03 and unit 6 experienced an upset condition which persisted for more than 48 hours, resulting into a NEMA Section 30 incident being declared during the month of December 2021 and a non-compliance for unit 3. The gaseous (NOx & SOx) emissions on unit 02, 03,05, and 06 were within the daily limit during the month of December 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**

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 Date: 11-03-2022

Verified by   
 Mike Molepo  
**SENIOR CHEMIST CHEMISTRY: TUTUKA POWER STATION**

Approved by:   
 Sello Mamejja  
**GENERAL MANAGER: TUTUKA POWER STATION**

Date:11/03/2022