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Date:
 24-02-2022

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Dear Mr. Hlanyane

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

| Raw Materials and Products used | Raw Material Type | Units | Maximum Permitted Consumption / Rate (Quantity) | Consumption / Rate in Month of September 2021 |
|---------------------------------|--------------------------|------------|--|---|
| | Coal | Tons/month | 1 200 000 | 659 608 |
| | Fuel Oil | Tons/month | 10 000 | 10691.3 |
| Production Rates | Product/ By-Product Name | Unit | Maximum Production Capacity Permitted (Quantity) | Production Rate in Month of September 2021 |
| | Ash | Tons/month | not specified | 150 654 |
| | RE PM | kg/MWh | not specified | 2.01 |

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 September 2021

| Associated Unit/Stack | Technology Type | Minimum Control Efficiency (%) | Actual Efficiency (%) |
|-----------------------|-----------------|--------------------------------|-----------------------|
| | | | September 2021 |
| Unit 1 | ESP | 95% | 98.5% |
| Unit 2 | ESP | 95% | 99.0% |
| Unit 3 | ESP | 95% | 98.7% |
| Unit 4 | ESP | 95% | 98.7% |
| Unit 5 | ESP | 95% | 99.0% |
| Unit 6 | ESP | 95% | 98.5% |

Energy Source Characteristics

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





| Characteristic | Stipulated Range (Unit) | Monthly Average Content |
|-----------------|-------------------------|-------------------------|
| Sulphur Content | 0.6 -2.6 | 0.910 |
| Ash Content | 21 -33 | 22.840 |

Table 4: Monitor Reliability

| Associated Unit/Stack | PM | SOx | NOx |
|-----------------------|------|------|------|
| Unit 1 | 11.5 | 94.9 | 99.7 |
| Unit 2 | 94.9 | 99.5 | 99.5 |
| Unit 3 | 22.5 | 99.7 | 99.8 |
| Unit 4 | 99.0 | 99.2 | 96.9 |
| Unit 5 | 90.3 | 97.9 | 84.4 |
| Unit 6 | 96.3 | 99.4 | 99.4 |

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 |

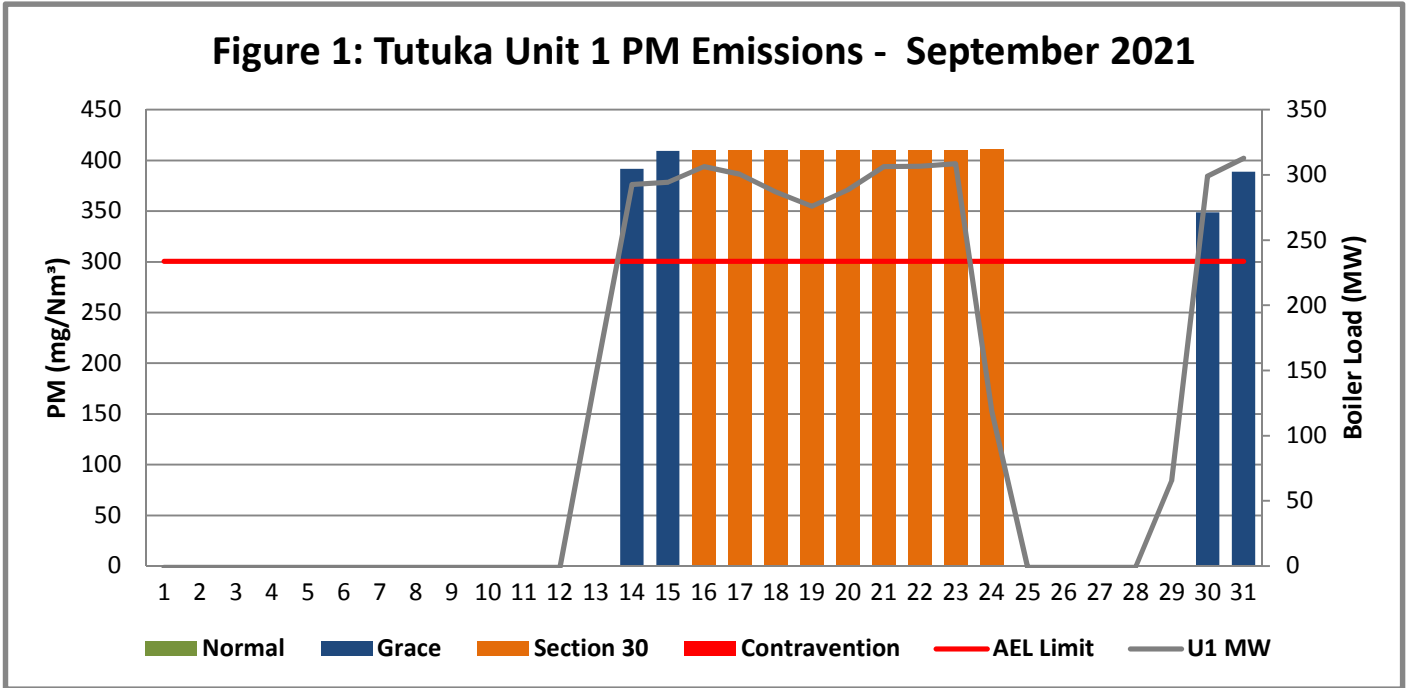


Figure 1: Unit 1 Daily Average PM emissions for the month of September 2021 (against the emission limit and load Generated)

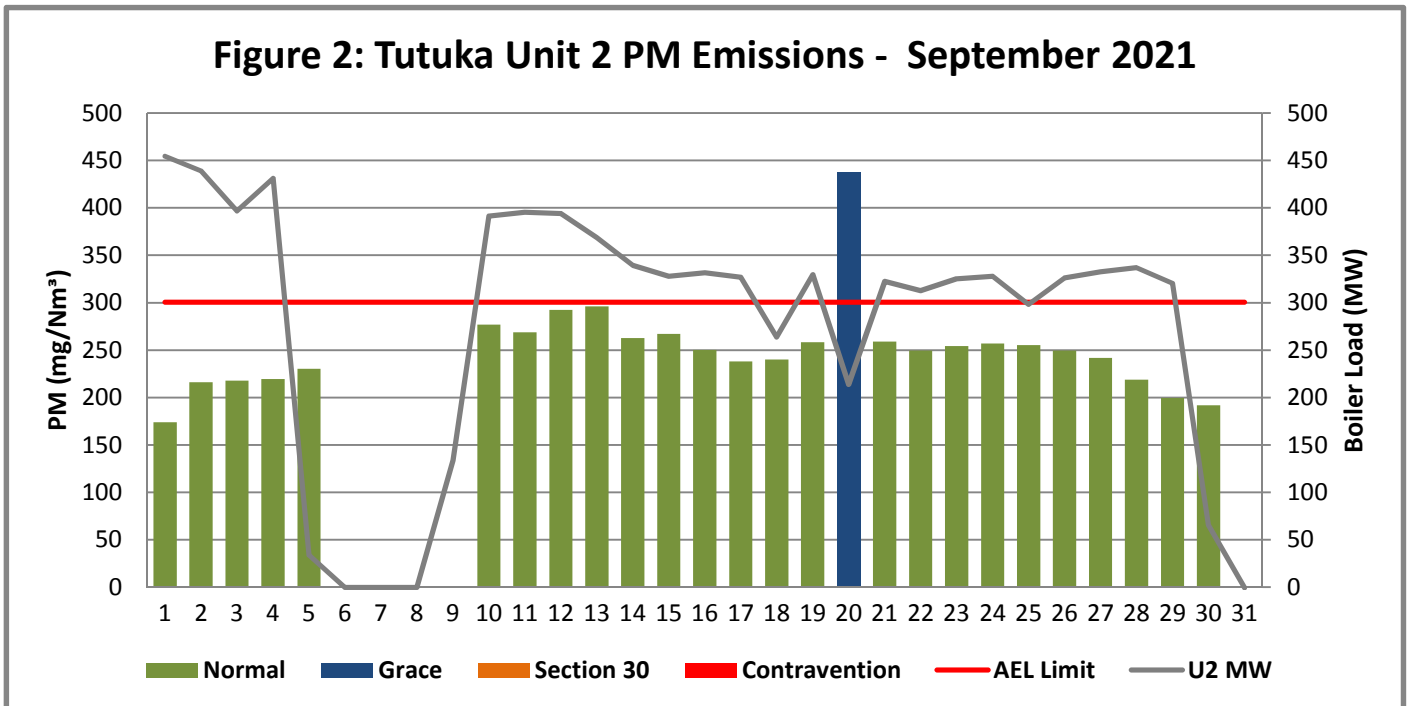


Figure 2: Unit 2 Daily Average PM emissions for the month of September 2021 (against the emission limit and load Generated)

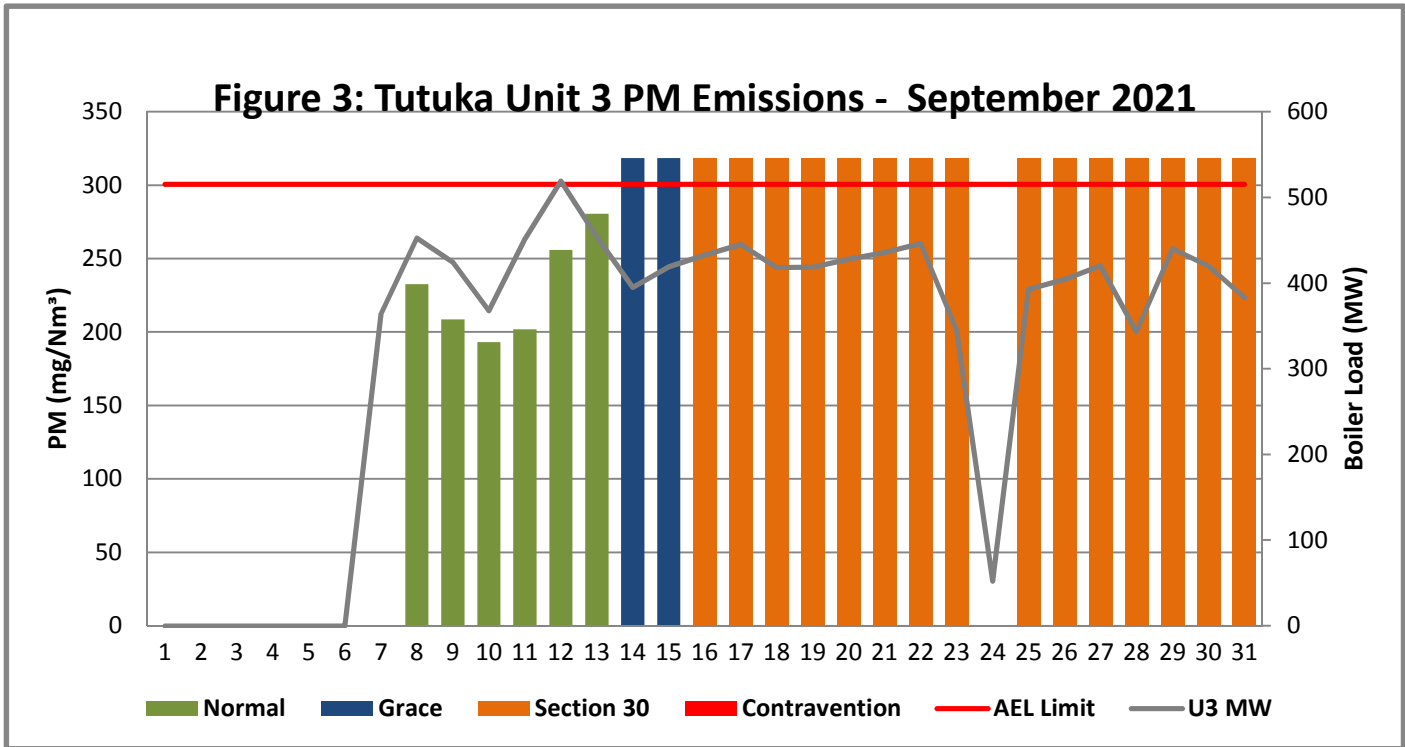


Figure 3: Unit 3 Daily Average PM emissions for the month of September 2021 (against the emission limit and load Generated)

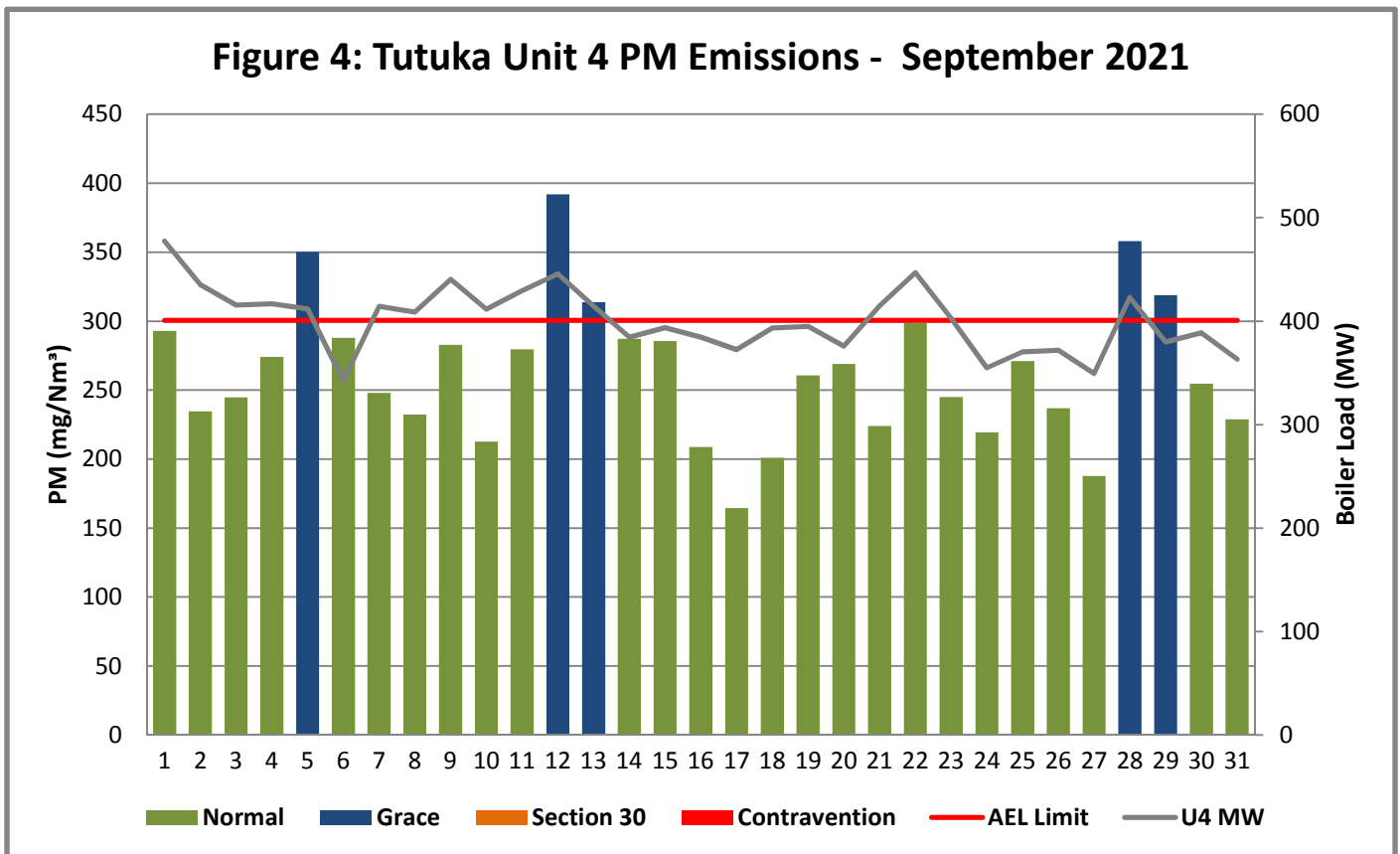


Figure 4: Unit 4 Daily Average PM emissions for the month of September 2021 (against the emission limit and load Generated)

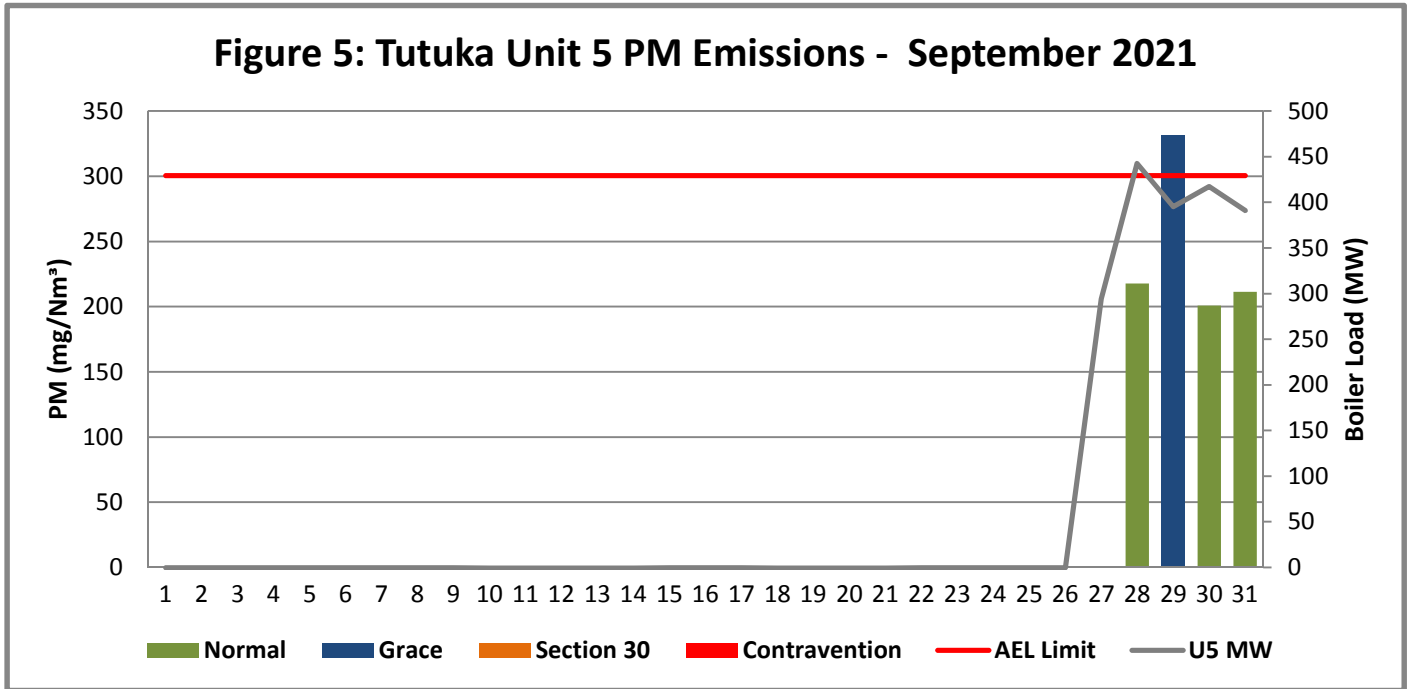


Figure 5: Unit 5 Daily Average PM emissions for the month of September 2021 (against the emission limit and load Generated)

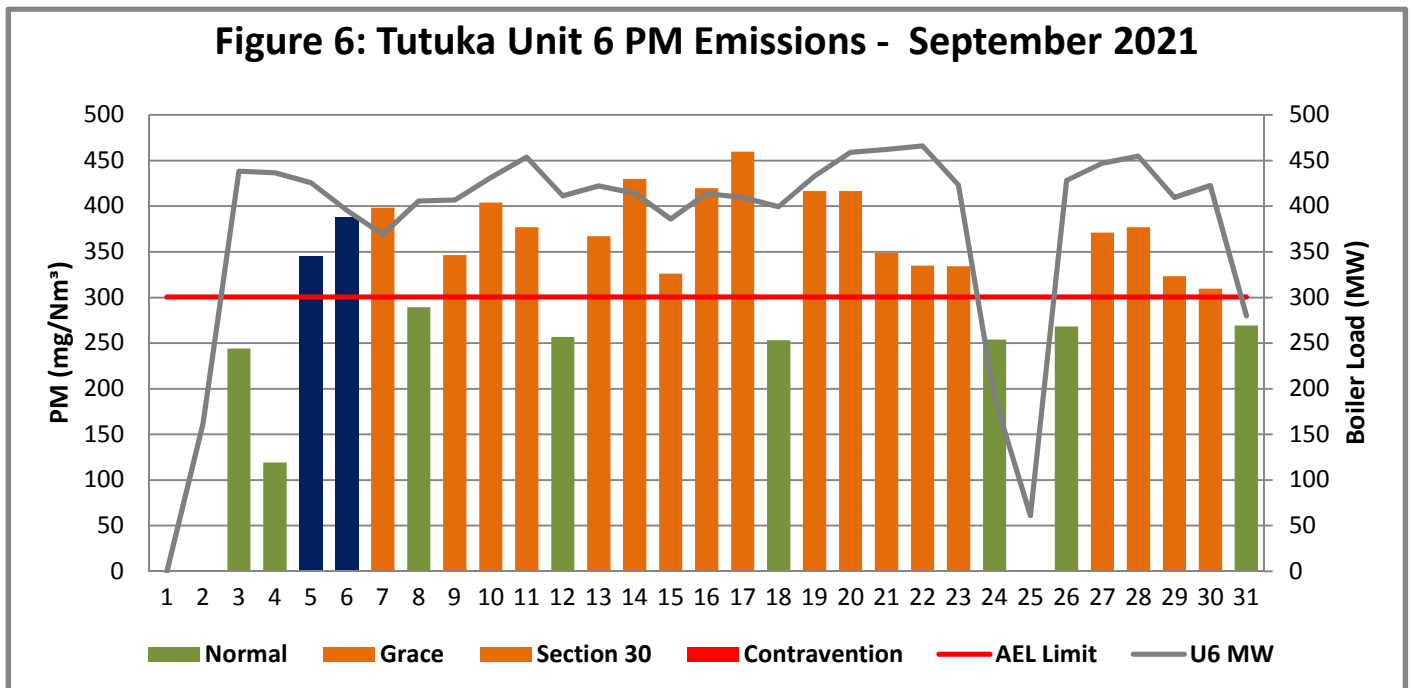


Figure 6: Unit 6 Daily Average PM emissions for the month of September 2021 (against the emission limit and load Generated)

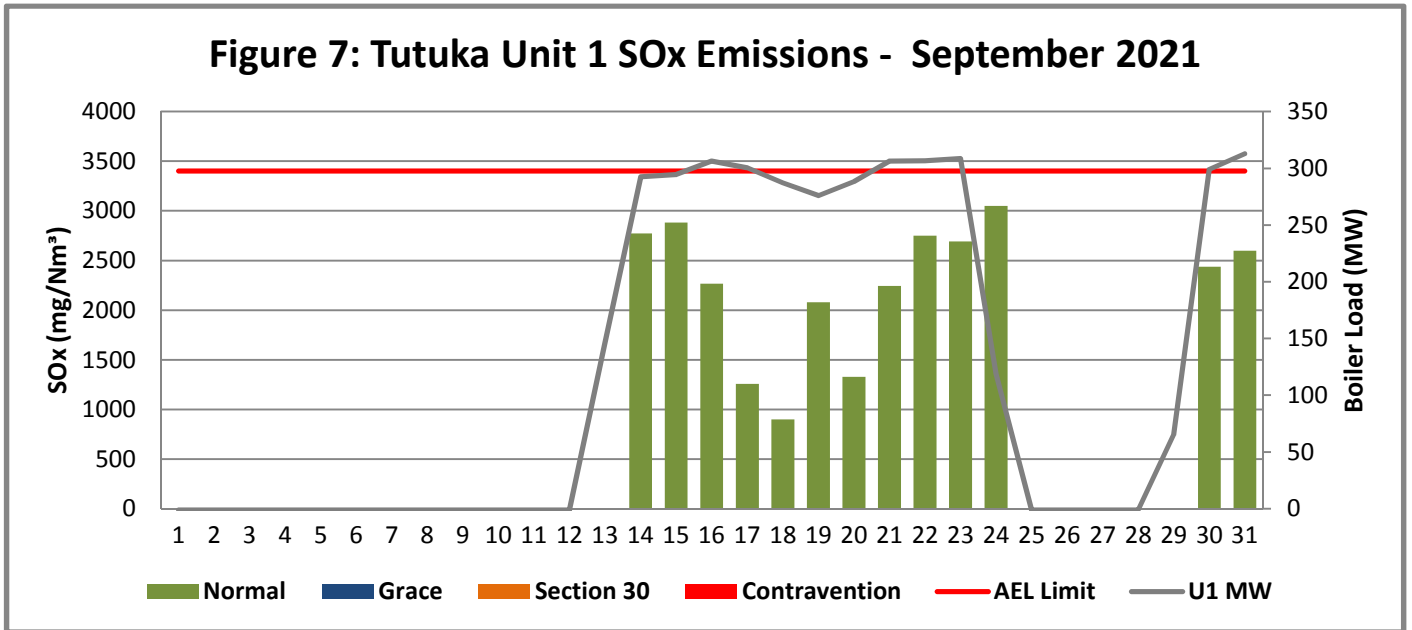


Figure 7: Unit 1 Daily Average SOx emissions for the month of September 2021 (against the emission limit and load Generated)

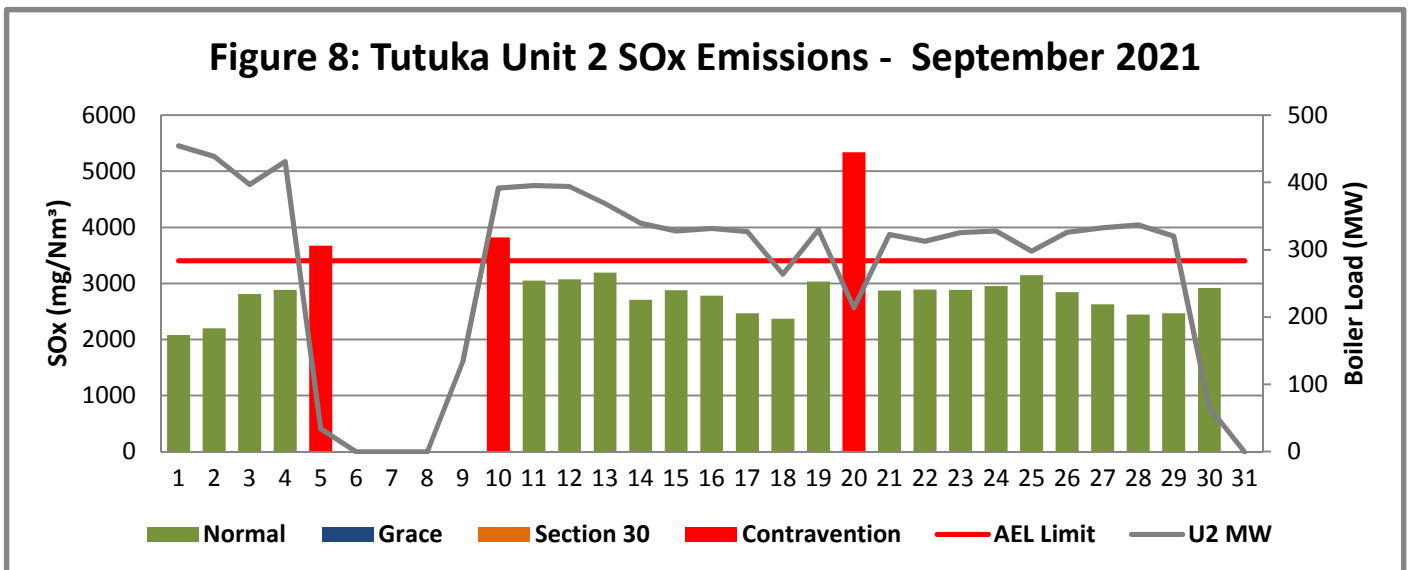


Figure 8: Unit 2 Daily Average SOx emissions for the month of September 2021 (against the emission limit and load Generated)

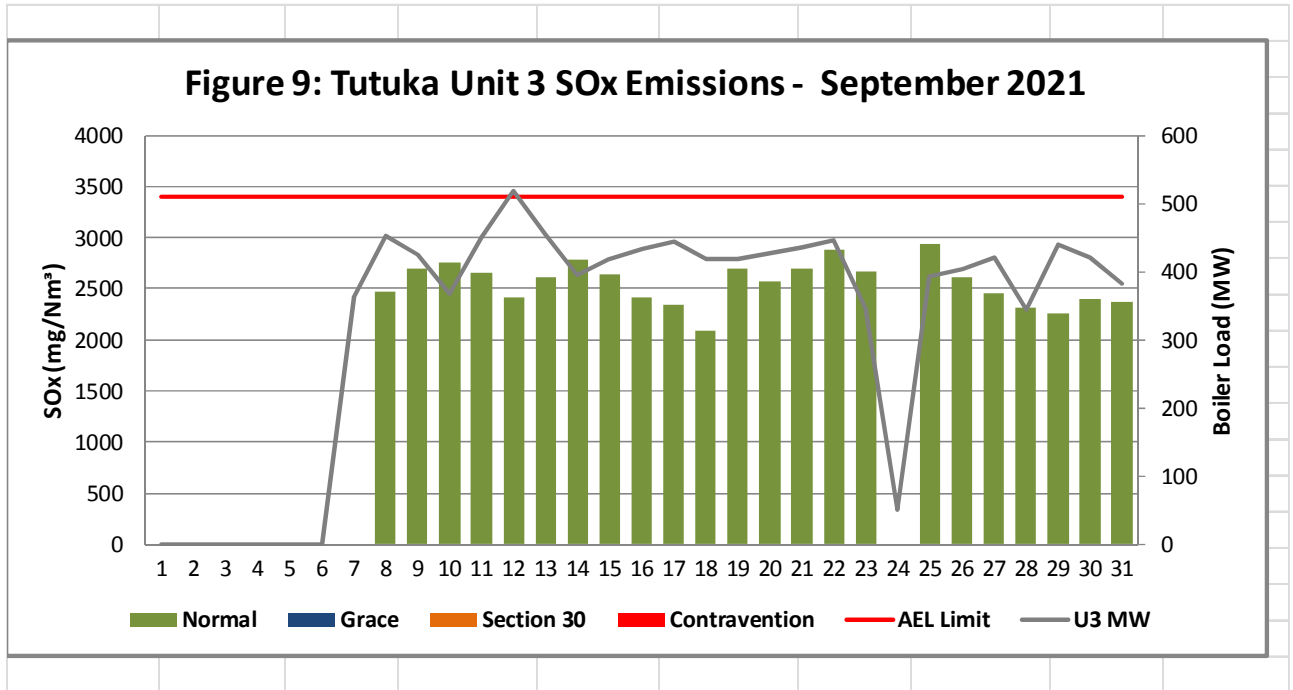


Figure 9: Unit 3 Daily Average SOx emissions for the month of September 2021 (against the emission limit and load Generated)

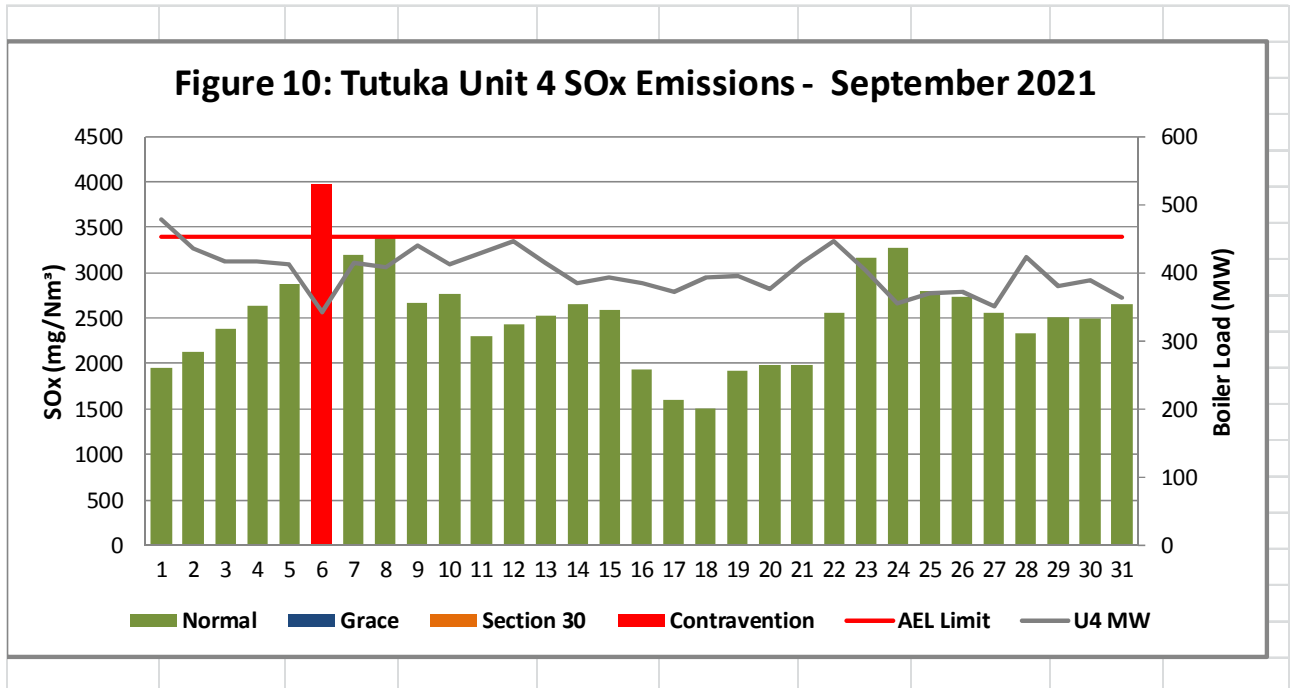


Figure 10: Unit 4 Daily Average SOx emissions for the month of September 2021 (against the emission limit and load Generated)

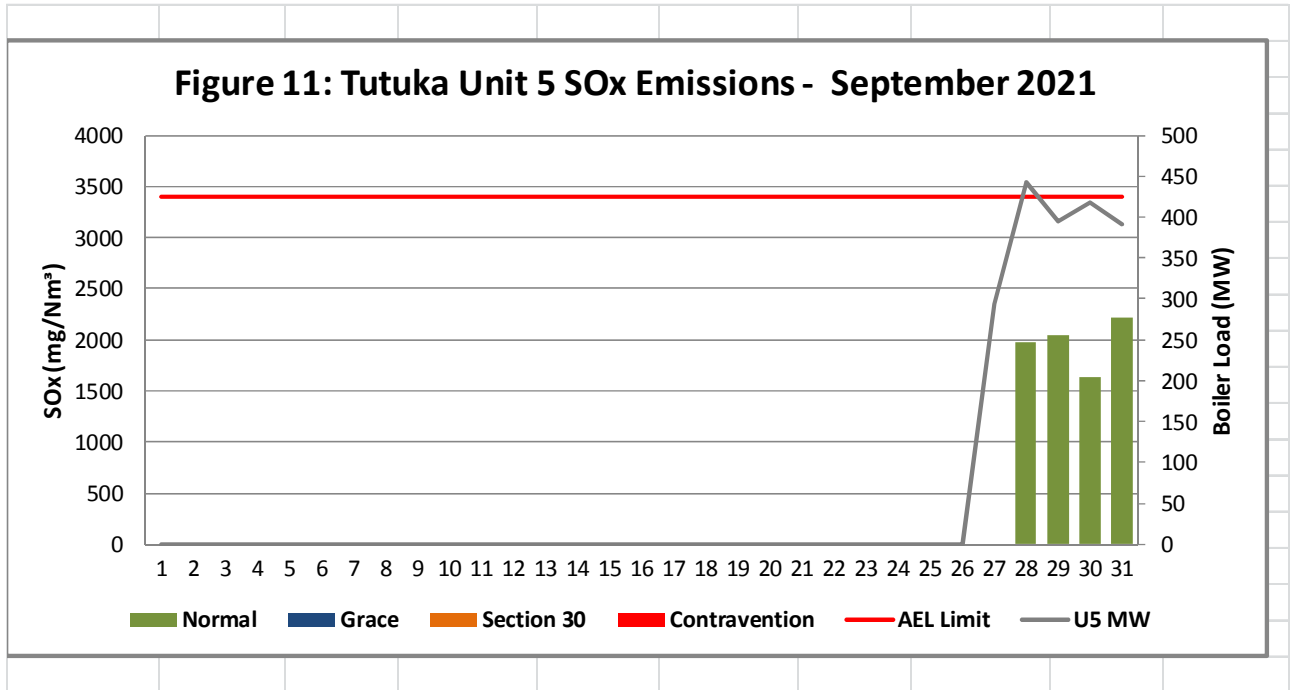


Figure 11: Unit 5 Daily Average SOx emissions for the month of September 2021 (against the emission limit and load Generated)

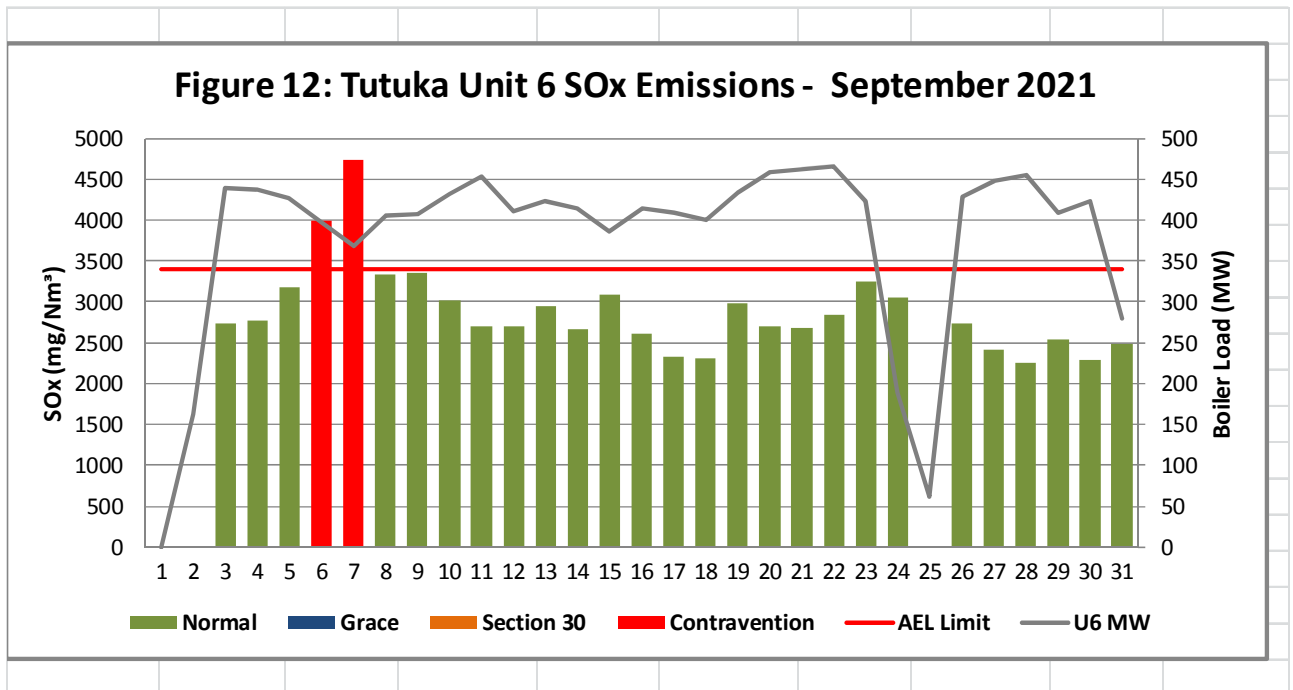


Figure 12: Unit 6 Daily Average SOx emissions for the month of September 2021 (against the emission limit and load Generated)

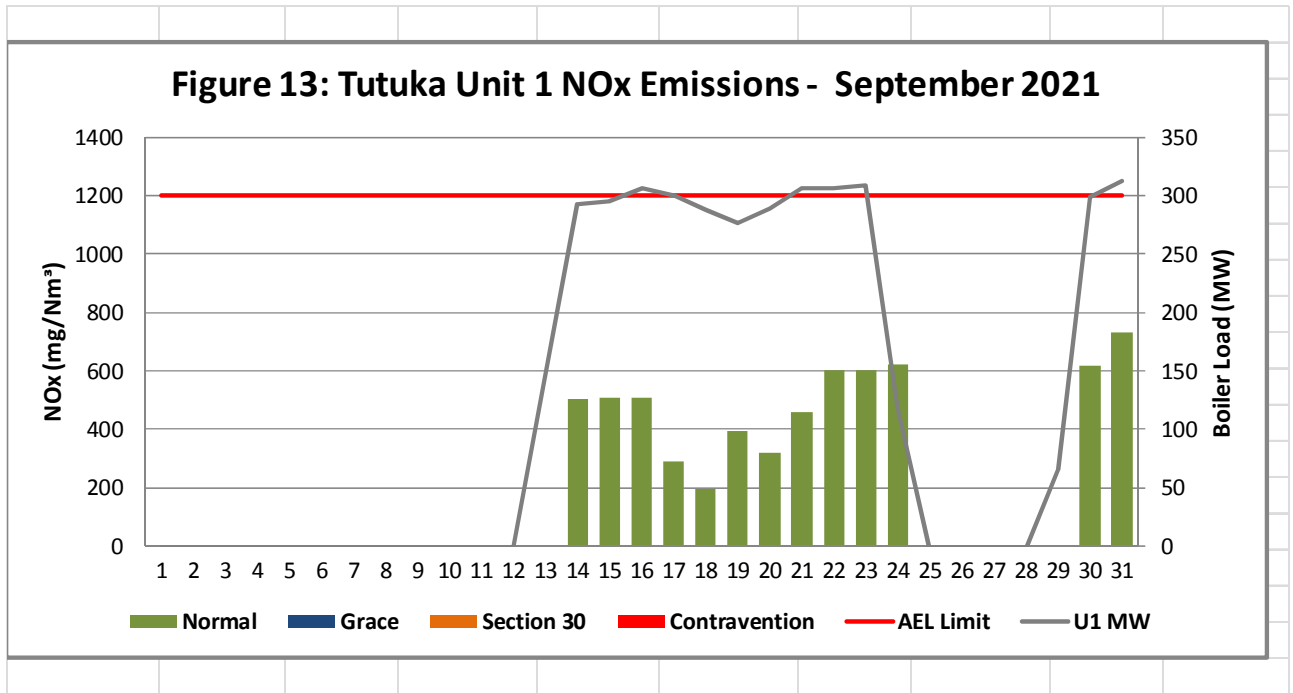


Figure 13: Unit 1 Daily Average NOx emissions for the month of September 2021 (against the emission limit and load Generated)

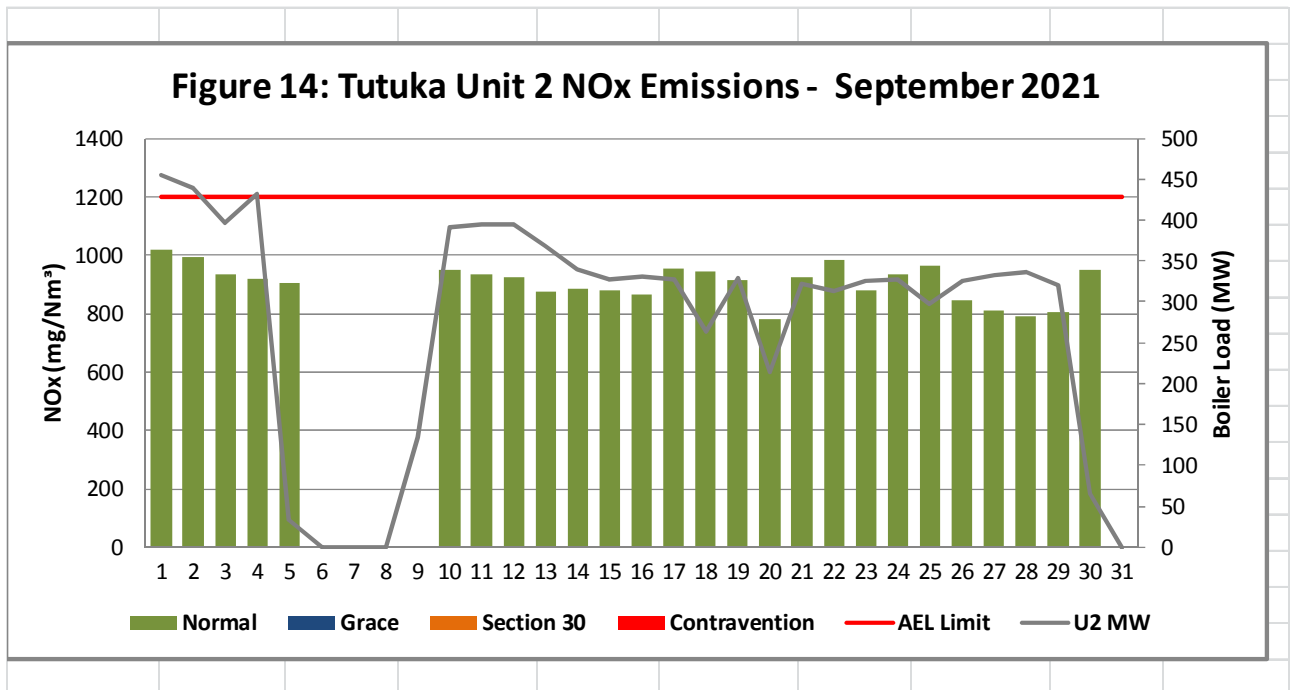


Figure 14: Unit 2 Daily Average NOx emissions for the month of September 2021 (against the emission limit and load Generated)

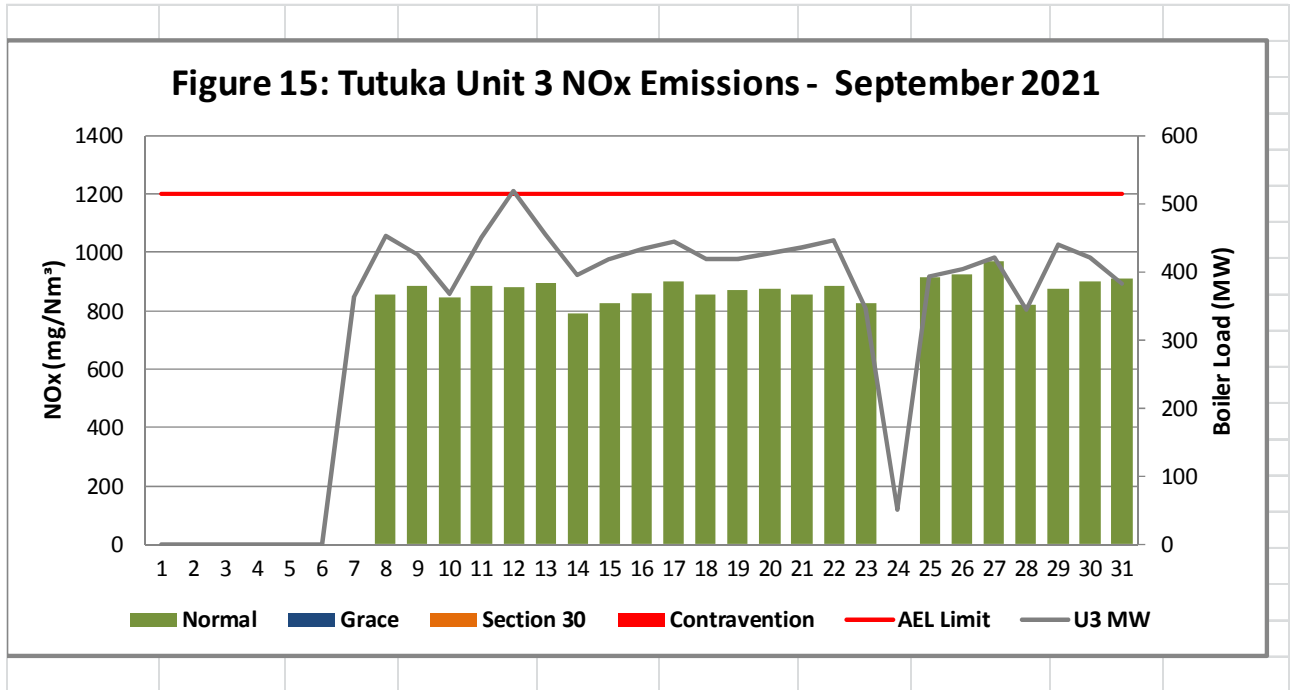


Figure 15: Unit 3 Daily Average NOx emissions for the month of September 2021 (against the emission limit and load Generated)

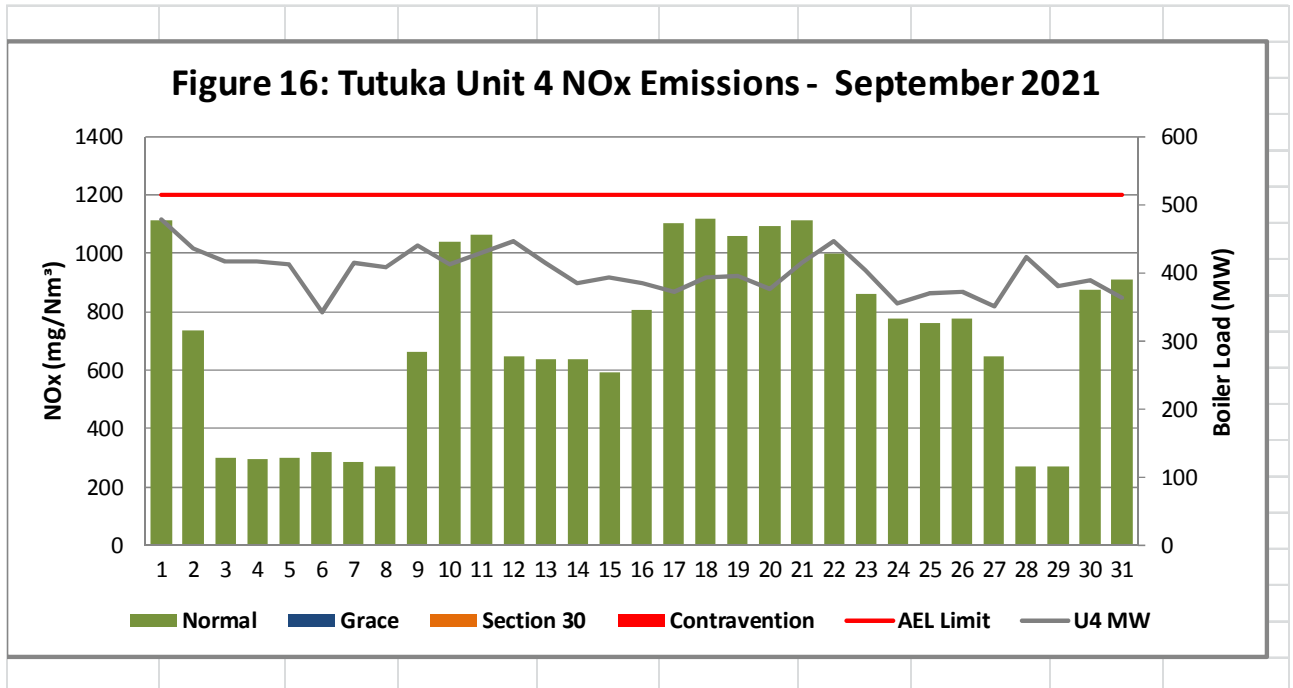


Figure 16: Unit 4 Daily Average NOx emissions for the month of September 2021 (against the emission limit and load Generated)

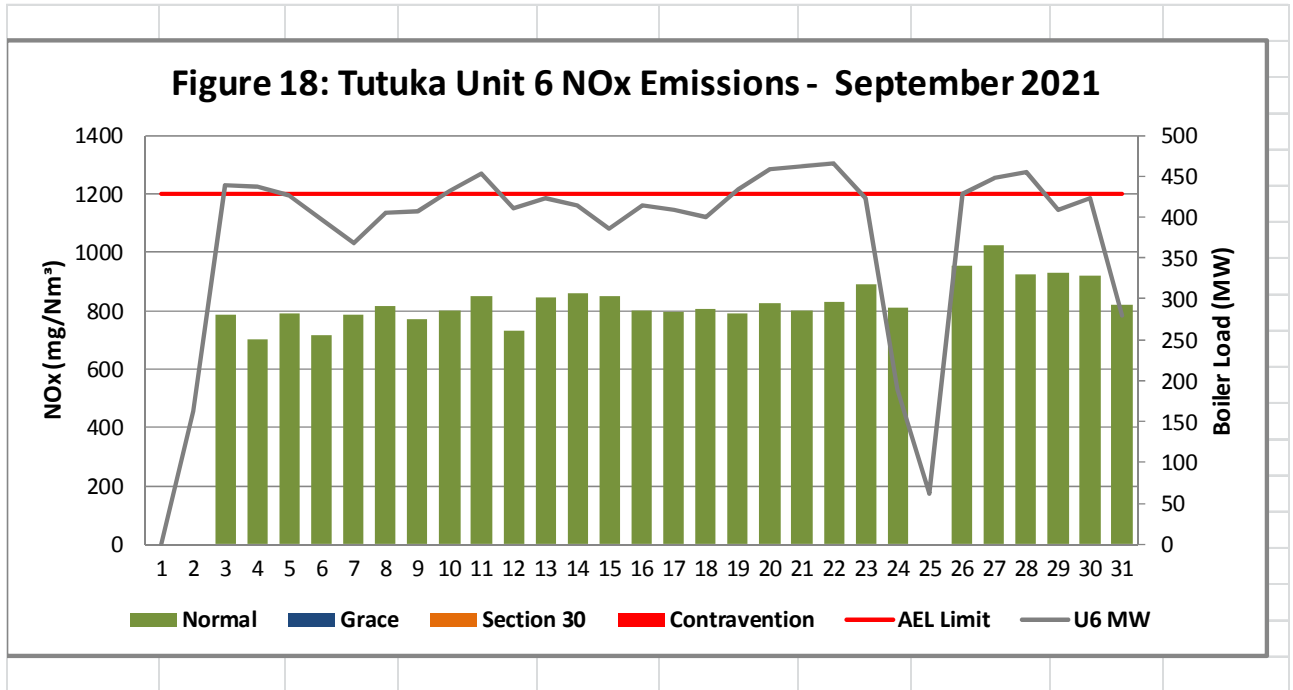


Figure 18: Unit 6 Daily Average NOx emissions for the month of September 2021 (against the emission limit and load Generated)

Table 4: Monthly tonnages for the month September 2021

| Associated Unit/Stack | PM (tons) | SO ₂ (tons) | NO _x (tons) |
|-----------------------|----------------|------------------------|------------------------|
| Unit 1 | 173.7 | 911 | 191 |
| Unit 2 | 278.3 | 3 174 | 1 035 |
| Unit 3 | 387.9 | 3 375 | 1 156 |
| Unit 4 | 433.7 | 4 105 | 1 161 |
| Unit 5 | 35.4 | 266 | 118 |
| Unit 6 | 470.8 | 3 920 | 1 125 |
| SUM | 1 779.9 | 15 751 | 4 787 |

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 - September 2021

| Associated Unit/Stack | Normal | Grace | Section 30 | Contravention | Total Exceedance | Average PM (mg/Nm ³) |
|-----------------------|-----------|-----------|------------|---------------|------------------|----------------------------------|
| Unit 1 | 0 | 4 | 9 | 0 | 13 | 403.0 |
| Unit 2 | 25 | 1 | 0 | 0 | 1 | 250.9 |
| Unit 3 | 6 | 2 | 15 | 0 | 17 | 294.0 |
| Unit 4 | 26 | 5 | 0 | 0 | 5 | 264.5 |
| Unit 5 | 3 | 1 | 0 | 0 | 1 | 250.0 |
| Unit 6 | 8 | 2 | 18 | 0 | 20 | 339.9 |
| SUM | 57 | 15 | 42 | 0 | 57 | |

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

| Associated Unit/Stack | Normal | Grace | Section 30 | Contravention | Total Exceedance | Average SOx (mg/Nm ³) |
|-----------------------|-----------|----------|------------|---------------|------------------|-----------------------------------|
| Unit 1 | 13 | 0 | 0 | 0 | 0 | 2 221.6 |
| Unit 2 | 23 | 0 | 0 | 3 | 3 | 2 938.3 |
| Unit 3 | 23 | 0 | 0 | 0 | 0 | 2 561.5 |
| Unit 4 | 30 | 0 | 0 | 1 | 1 | 2 526.7 |
| Unit 5 | 4 | 0 | 0 | 0 | 0 | 1 886.7 |
| Unit 6 | 26 | 0 | 0 | 2 | 2 | 2 896.2 |
| SUM | 89 | 0 | 0 | 6 | 6 | |

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

| Associated Unit/Stack | Normal | Grace | Section 30 | Contravention | Total Exceedance | Average NOx (mg/Nm ³) |
|-----------------------|-----------|----------|------------|---------------|------------------|-----------------------------------|
| Unit 1 | 13 | 0 | 0 | 0 | 0 | 468.4 |
| Unit 2 | 26 | 0 | 0 | 0 | 0 | 905.9 |
| Unit 3 | 23 | 0 | 0 | 0 | 0 | 872.2 |
| Unit 4 | 31 | 0 | 0 | 0 | 0 | 713.6 |
| Unit 5 | 4 | 0 | 0 | 0 | 0 | 836.4 |
| Unit 6 | 28 | 0 | 0 | 0 | 0 | 829.7 |
| SUM | 93 | 0 | 0 | 0 | 0 | |

Light up information

Table 6: PM Start-up information for the month of fabricate September 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 | 3.00 | 1.00 | 0.00 | 0.00 | 1.00 |
| Number Of Cold Starts (Off-Load > 30 hrs) | 2.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 |

Complaints Register

Table 7: Complaints for the month of September 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 September 2021. | | | | | |

General

Particulate matter (PM10) emissions on unit 02, 04, and 05 were within the daily limit during the month of September 2021; Unit 01,03 and 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 September 2021. The gaseous (NOx & SOx) emissions on unit 01, 03 and 05 were within the daily limit during the month of September 2021; refer to graphs above. Unit 02,04 and 06 experienced Sox non-compliances.

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: 24-02-2022

Verified by
Mike Molepo



SENIOR CHEMIST CHEMISTRY: TUTUKA POWER STATION

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Approved by:
Sello Mamejja



GENERAL MANAGER: TUTUKA POWER STATION

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Date: 2022/03/04