

	Technical and Generic Report	Matimba Power Station
---	-------------------------------------	------------------------------

Title: **Matimba Power Station August 2023 emissions report Rev 2**
 Document Identifier: **RP/247/038**

Plant Location: **Emission management**

Area of Applicability: **Matimba Power Station**

Functional Area Applicability: **Environment**

Revision: **2**

Total Pages: **32**

Report Date: **August 2023**

Disclosure Classification: **Controlled**

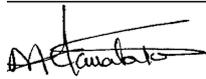
Compiled by



KH Ramahlare
Senior Advisor
Environment

Date: 2024-04-18

Functional Responsibility



MC Mamabolo
Environmental Manager

Date: 18/04/2024

Authorized by



Obakeng Mabotja
General Manager

Date: 2024-04-19

Content

	Page
1. Report Summary	4
2. Emission information	5
2.1 Raw materials and products.....	5
2.2 Abatement technology.....	5
2.3 Energy source characteristics	5
2.4 Emissions reporting.....	6
2.4.1 Particulate Matter Emissions	6
2.4.2 Gaseous Emissions	12
2.4.3 Total Volatile Organic Compounds	18
2.4.4 Greenhouse gas (CO ₂) emissions	19
2.5 Daily power generated	19
2.6 Pollutant Tonnages	23
2.7 Operating days in compliance to PM AEL Limit	23
2.8 Operating days in compliance to SO _x AEL Limit	23
2.9 Operating days in compliance to NO _x AEL Limit	24
2.10 Reference values	24
2.11 Continuous Emission Monitors.....	24
2.11.1 Reliability.....	24
2.11.2 Changes, downtime, and repairs	25
2.11.3 Sampling dates and times.....	26
2.12 Units Start-up information	27
2.13 Emergency generation	29
2.14 Complaints register	30
2.15 Air quality improvements and social responsibility conducted	30
2.15.1 Air quality improvements.....	30
2.15.2 Social responsibility conducted.....	30
2.16 Ambient air quality monitoring.....	31
2.17 Electrostatic precipitator and Sulphur plant status	31
2.18 General.....	32
3. Attachments.....	32
4. Report Conclusion	32
Table 1: Quantity of Raw Materials and Products used/produced for the month.....	5
Table 2: Abatement Equipment Control Technology Utilised.....	5
Table 3: Energy Source Material Characteristics.	6
Table 4: Total volatile compound estimates	18
Table 5: Daily power generated per unit in MWh for the month of August 2023.....	19
Table 6: Pollutant tonnages for the month of August 2023	23

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document July be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd.

Table 7: Operating days in compliance with PM AEL limit of August 2023.....	23
Table 8: Operating days in compliance with SOx AEL limit of August 2023	23
Table 9: Operating days in compliance with NOx AEL limit of August 2023.....	24
Table 10: Reference values for data provided, August 2023	24
Table 11: Average percentage (%) availability of monitors for the month of August 2023.	24
Table 12: Dates of last conducted CEMS verification tests for PM, SO ₂ and NOx	26
Table 13: Start-up information	27
Table 14: Emergency generation	29
Table 15: Complaints.....	30

Figures

Figure 1: Particulate matter daily average emissions against emission limit for unit 1 for the month of August 2023	6
Figure 2: Particulate matter daily average emissions against emission limit for unit 2 for the month of August 2023	7
Figure 3: Particulate matter daily average emissions against emission limit for unit 3 for the month of August 2023	8
Figure 4: Particulate matter daily average emissions against emission limit for unit 4 for the month of August 2023	9
Figure 5: Particulate matter daily average emissions against emission limit for unit 6 for the month of August 2023	11
Figure 6: SO ₂ daily average emissions against emission limit for unit 1 for the month of April 2023.....	12
Figure 7: SO ₂ daily average emissions against emission limit for unit 2 for the month of August 2023	12
Figure 8: SO ₂ daily average emissions against emission limit for unit 3 for the month of August 2023	13
Figure 9: SO ₂ daily average emissions against emission limit for unit 4 for the month of August 2023	13
Figure 10: SO ₂ daily average emissions against emission limit for unit 6 for the month of August 2023	14
Figure 11: NO _x daily average emissions against emission limit for unit 1 for the month of August 2023	15
Figure 12: NO _x daily average emissions against emission limit for unit 2 for the month of August 2023	15
Figure 13: NO _x daily average emissions against emission limit for unit 3 for the month of August 2023	16
Figure 14: NO _x daily average emissions against emission limit for unit 4 for the month of August 2023	16
Figure 15: NO _x daily average emissions against emission limit for unit 6 for the month of August 2023	17
Figure 16: Unit 1 daily generated power in MWh for the month of August 2023.....	20
Figure 17: Unit 2 daily generated power in MWh for the month of August 2023.....	20
Figure 18: Unit 3 daily generated power in MWh for the month of August 2023.....	21
Figure 19: Unit 4 daily generated power in MWh for the month of August 2023.....	21
Figure 20: Unit 6 daily generated power in MWh for the month of August 2023.....	22

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd.

1. Report Summary

Matimba Power Station was issued with an Atmospheric Emission License (H16/1/13-WDM05) in September 2022. The License requires the license holder to submit monthly reports to the Department. This report is the revision 2 of the initial report submitted to the licensing authority in August 2023. The revision of the report was necessitated by changes applied to the Matimba Emission Reporting tool (ERT V12.2021 to ERT V02.2024VF), which included the implementation of the spot test correlations and parallel tests (QAL 2) tests performed in July-August 2023 and the usage of surrogate particulate emissions values when monitors exceed their range due to high actual emissions using the Deutsch calculation.



During the period under review, Matimba experienced one-hundred and forty-three (143) exceedances of the daily particulate matter emission limit ($50\text{mg}/\text{Nm}^3$), one-hundred and thirty-five (135) of these exceedances occurred outside of the 48-hour grace period and were recorded on the Eskom incident management process as non-compliance to the Atmospheric Emissions Licence. Eight (8) of these exceedances occurred within the 48-hour grace period.

No exceedances of the monthly SO_x limit ($3500\text{mg}/\text{Nm}^3$) and the daily NO_x emission limit ($750\text{mg}/\text{Nm}^3$) occurred.

The flue gas conditioning plant (SO_3 Plant) for all the units did not achieve the required 100% availability due to the defects and breakdown experienced on the plants throughout the month. The SO_3 plants defects were repaired, and plants returned to operation.

For the month of August 2023 Matimba Power Station used a total of 1649,556 tons of fuel oil, exceeding the monthly limit of 1200 tons. The increased usage was due to multiple light-ups of units after outages.

More information regarding above mentioned issues is provided in the relevant sections within the report.

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document July be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd.

2. Emission information

2.1 Raw materials and products

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

Raw Materials and Products used	Raw Material Type	Unit	Maximum Permitted Consumption Rate (Quantity)	Consumption Rate
	Coal	Tons/month	1 500 000	968 519
	Fuel Oil	Tons/month	1 200	1649,556
Production Rates	Product/ By-Product Name	Unit	Maximum Production Capacity Permitted (Quantity)	Production Rate
	Energy	MW	4000	2418,19086

The fuel oil consumption for the month of August 2023 exceeded the maximum permitted limits of 1200 Tons due to the multiple unit light ups that happened for unit 2,3,4 and 5.

2.2 Abatement technology

Table 2: Abatement Equipment Control Technology Utilised

Associated Unit	Technology Type	Minimum utilisation (%)	Efficiency (%)
Unit 1	Electrostatic Precipitator	100%	99,82%
Unit 2	Electrostatic Precipitator	100%	99,83%
Unit 3	Electrostatic Precipitator	100%	99,92%
Unit 4	Electrostatic Precipitator	100%	99,86%
Unit 5	Electrostatic Precipitator	100%	99,83%
Unit 6	Electrostatic Precipitator	100%	99,83%
Associated Unit	Technology Type	Minimum utilisation (%)	Actual Utilisation (%)
Unit 1	SO ₃ Plant	100%	94,76%
Unit 2	SO ₃ Plant	100%	90,29%
Unit 3	SO ₃ Plant	100%	92,57%
Unit 4	SO ₃ Plant	100%	94,88%
Unit 5	SO ₃ Plant	100%	94,21%
Unit 6	SO ₃ Plant	100%	94,62%

Flue gas conditioning plant availability was below the required 100% for all six (06) units due to maintenance activities and unplanned breakdowns. Defects were addressed and plants returned. Energy source characteristics

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document July be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd.

Table 3: Energy Source Material Characteristics.

	Characteristic	Stipulated Range (Unit)	Monthly Average Content
Coal burned	Sulphur Content	1.6%	1,27%
	Ash Content	40%	35,40%

Energy source characteristics remained within the ranges stipulated in the license.

2.3 Emissions reporting

2.3.1 Particulate Matter Emissions

The emission monitors Correlation spot test were performed in July/August 2023 and the results were applied and used for gaseous emissions calculation for October 2023. The spot test results for PM emissions for Unit 4 and 6 have failed the minimum requirements outlined in the Eskom emission calculation Methodology and were not applied.

Unit 1 Particulate Emissions

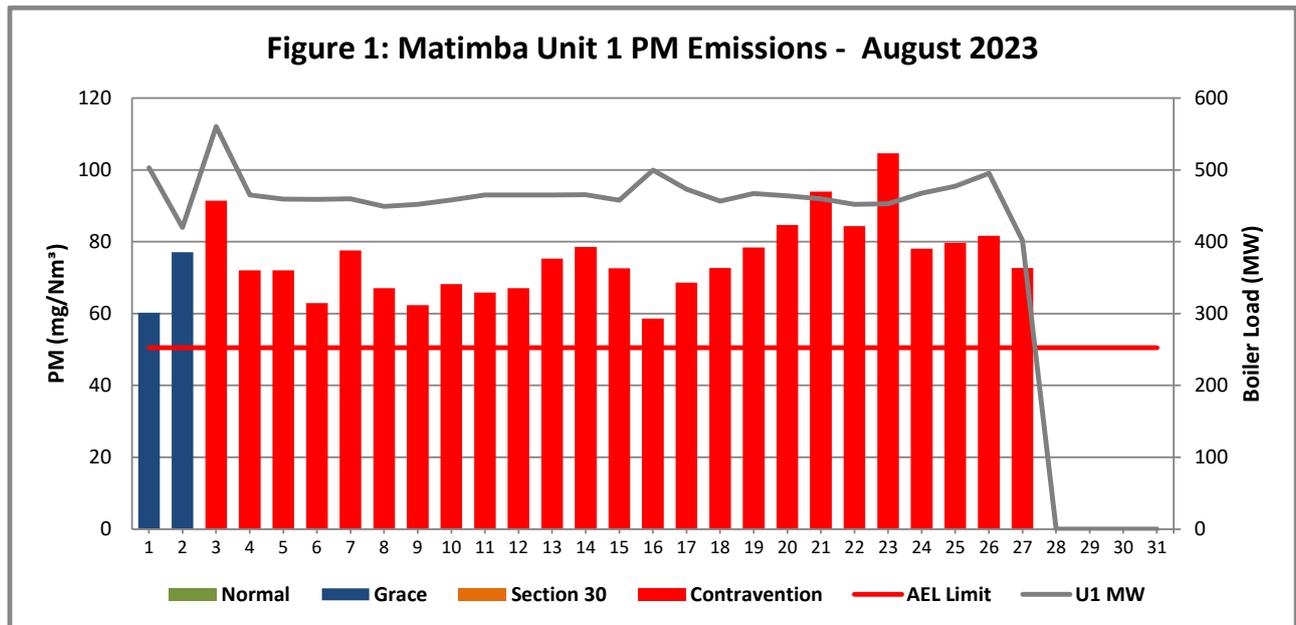


Figure 1: Particulate matter daily average emissions against emission limit for unit 1 for the month of August 2023

Interpretation:

Unit 1 exceeded the daily particulate emission limit of 50mg/Nm³ on 1 to 27 August 2023. The exceedances of the 3 to 27 August 2023 occurred outside of the 48-hour grace period and were recorded on the Eskom incident management process as non-compliance to the Atmospheric Emissions Licence. The exceedances were due unavailability of the ash conveyance plant that led to accumulation of ash at the dust handling plant leading to high hopper levels within the flue gas cleaning system and reducing the efficiency of the abatement technology (electrostatic precipitator fields). The investigation into the causes of the exceedances were done and corrective measure put in place to correct the root causes.

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document July be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd.

Unit 2 Particulate Emissions

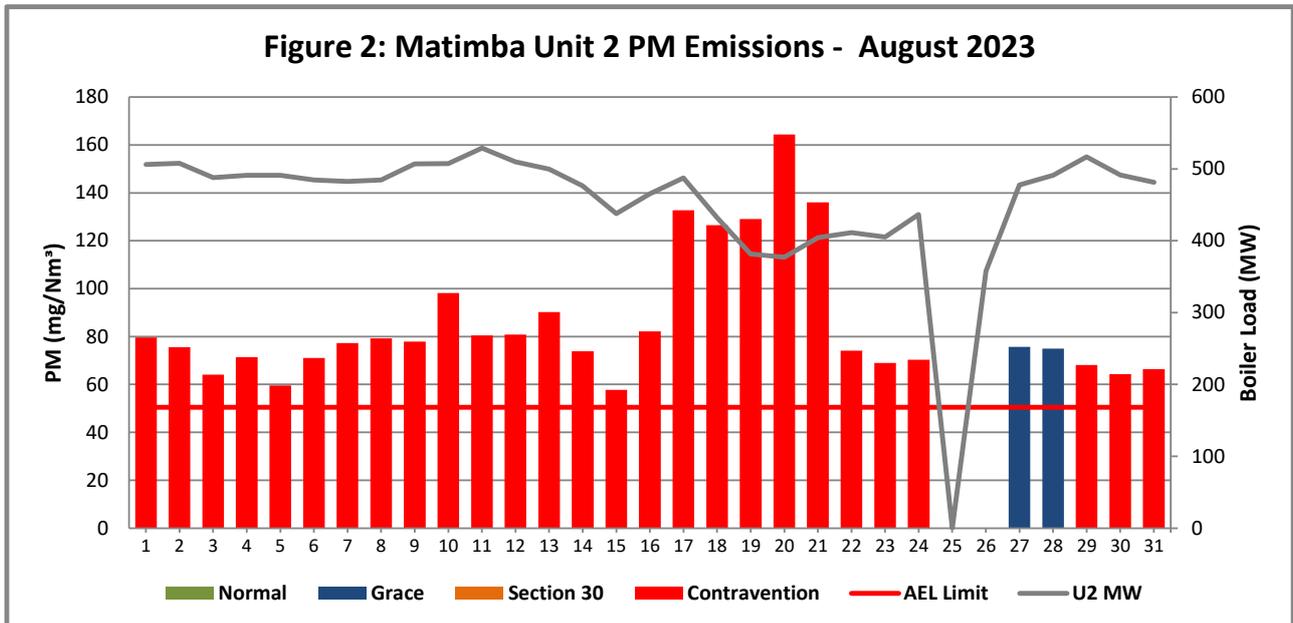


Figure 2: Particulate matter daily average emissions against emission limit for unit 2 for the month of August 2023

Interpretation:

Unit 2 exceeded the daily particulate emission limit of 50mg/Nm³ on 1 to 24 and 27 to 31 August 2023. The exceedances from the 1 to 24 and 30 to 31 August 2023 occurred outside of the 48-hour grace period and were recorded on the Eskom incident management process as non-compliance to the Atmospheric Emissions Licence. The exceedances were due unavailability of the ash conveyance plant that led to accumulation of ash at the dust handling plant leading to high hopper levels within the flue gas cleaning system and reducing the efficiency of the abatement technology (electrostatic precipitator fields). The investigation into the causes of the exceedances were done and corrective measure put in place to correct the root causes.

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd.

Unit 3 Particulate Emissions

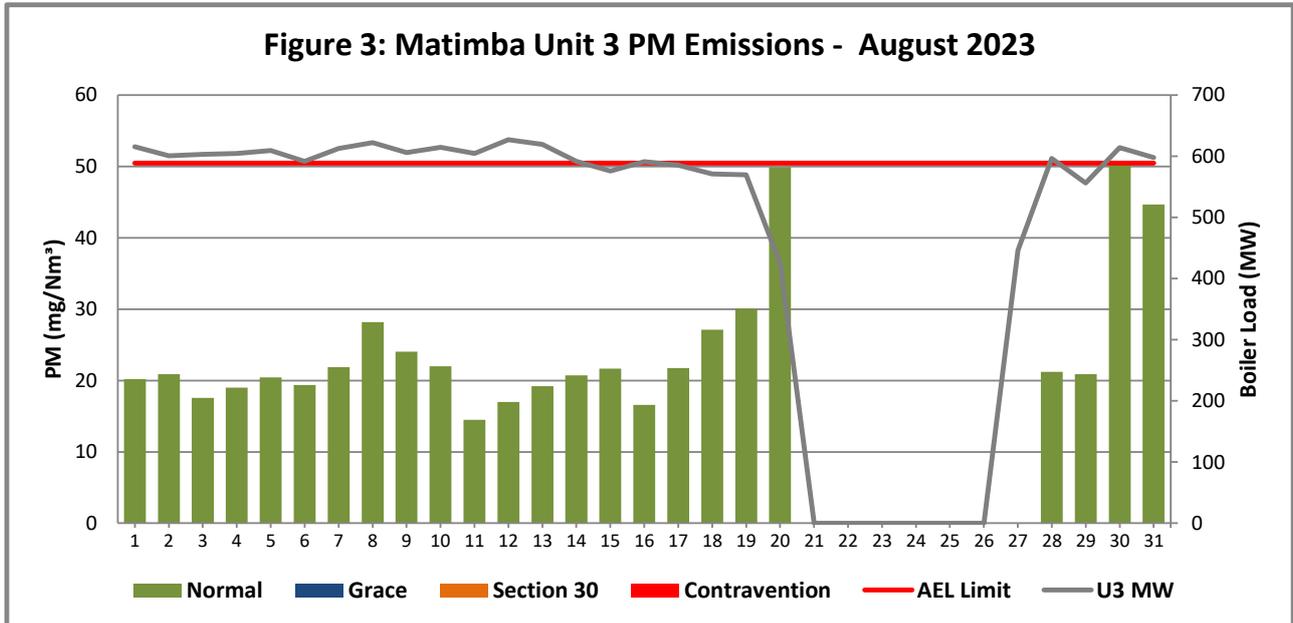


Figure 3: Particulate matter daily average emissions against emission limit for unit 3 for the month of August 2023

Interpretation:

Unit 3 Particulate matter did not exceeded the daily limit of 50 mg/Nm3 on August 2023.

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document July be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd.

Unit 4 Particulate Emissions

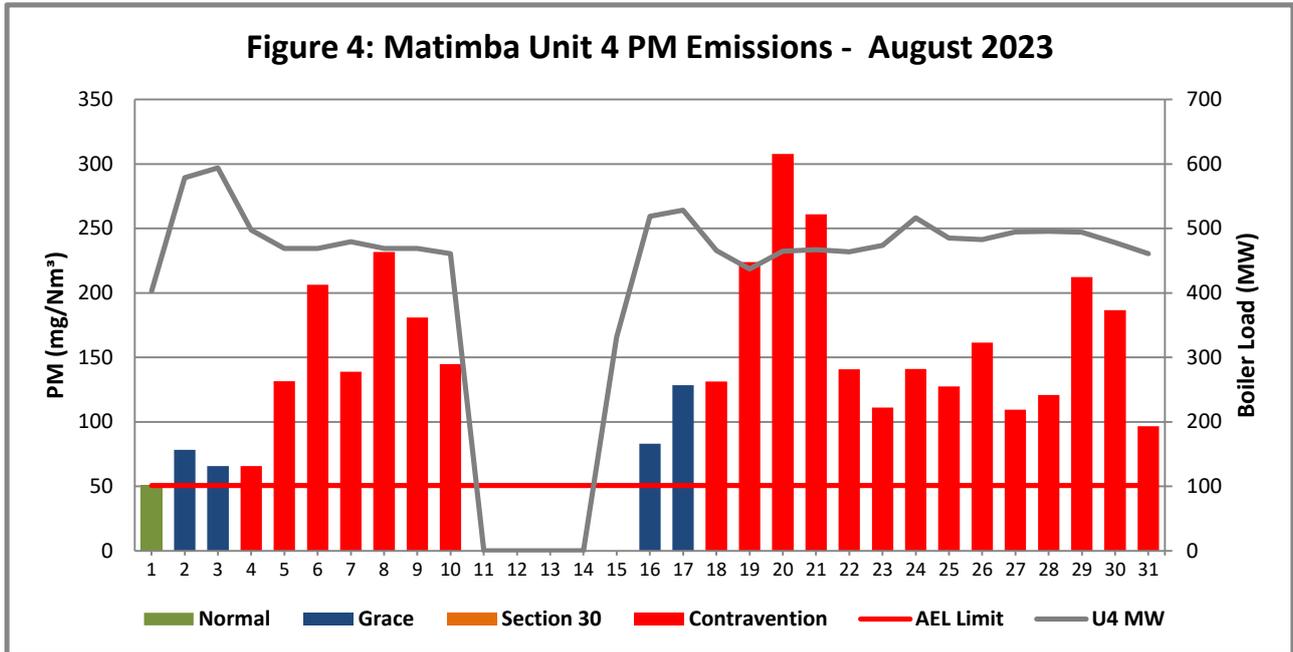


Figure 4: Particulate matter daily average emissions against emission limit for unit 4 for the month of August 2023

Interpretation:

Unit 4 Particulate matter exceeded the daily limit of 50 mg/Nm³ on 2 to 10 and 16 to 31 August 2023. Exceedances of 4 to 10 and 18 to 31 August 2023 occurred outside of the 48-hour grace period and were recorded on the Eskom incident management process as non-compliance to the Atmospheric Emissions Licence. The exceedances were due to defects on the dust handling plants leading to high hopper levels within the flue gas cleaning system and reducing the efficiency of the abatement technology (electrostatic precipitator fields). The investigation into the causes of the exceedances were done and corrective measure put in place to correct the root causes.

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document July be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd.

Unit 5 Particulate Emissions

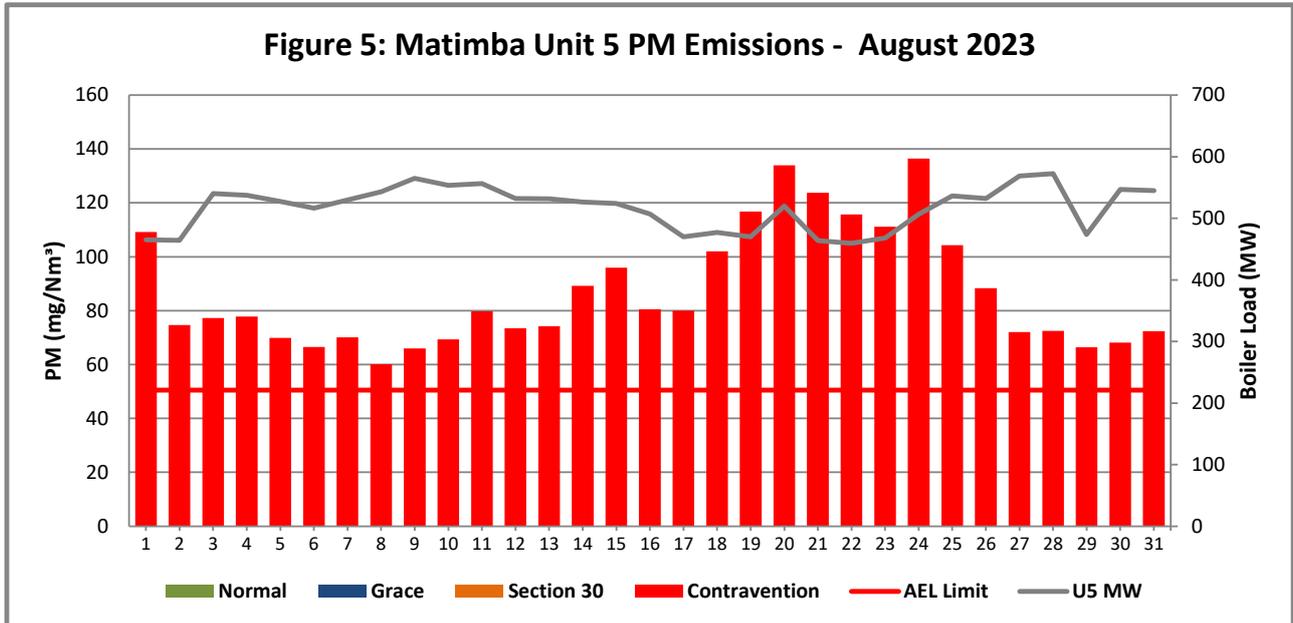


Figure 5: Particulate matter daily average emissions against emission limit for unit 5 for the month of August 2023

Interpretation:

Unit 5 Particulate matter exceeded the daily limit of 50 mg/Nm³ on 1 to 31 August 2023. All exceedances occurred outside of the 48-hour grace period and were recorded on the Eskom incident management process as non-compliance to the Atmospheric Emissions Licence. The exceedances were due to defects on the dust handling plants leading to high hopper levels within the flue gas cleaning system and reducing the efficiency of the abatement technology (electrostatic precipitator fields). The investigation into the causes of the exceedances were done and corrective measure put in place to correct the root causes.

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document July be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd.

Unit 6 Particulate Emissions

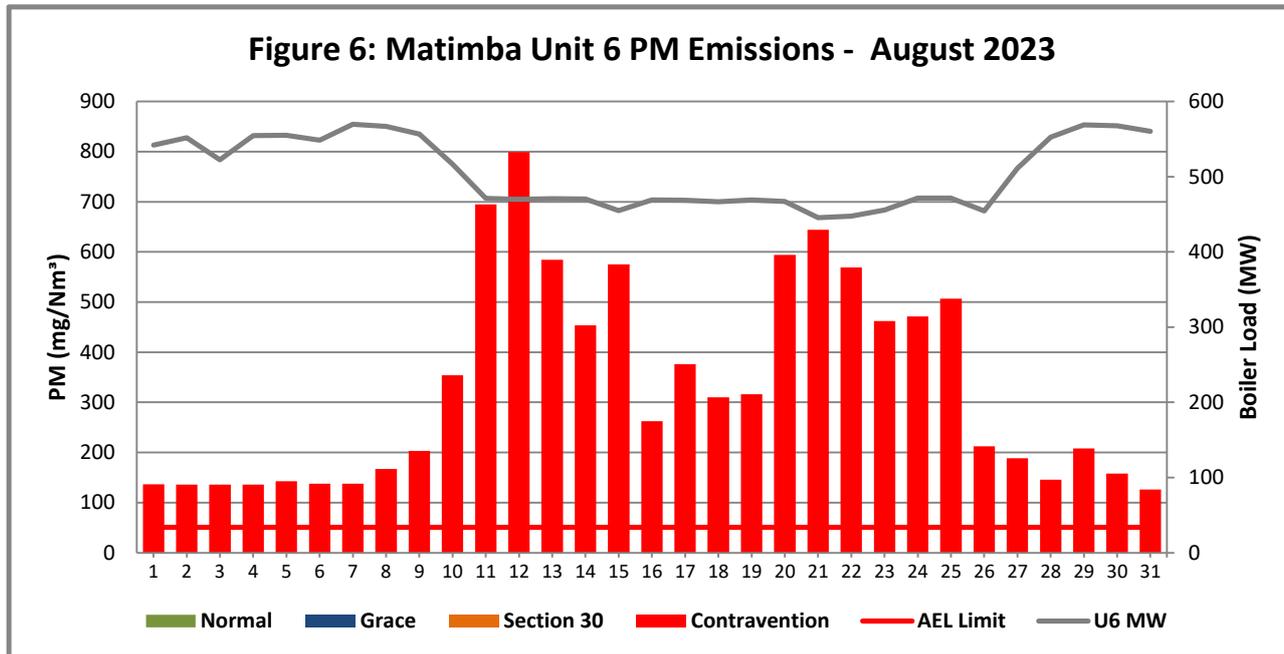


Figure 6: Particulate matter daily average emissions against emission limit for unit 6 for the month of August 2023

Interpretation:

Unit 6 Particulate matter exceeded the daily limit of 50 mg/Nm³ on 1 to 31 August 2023. All exceedances occurred outside of the 48-hour grace period and were recorded on the Eskom incident management process as non-compliance to the Atmospheric Emissions Licence. The exceedances were due to defects on the dust handling plants leading to high hopper levels within the flue gas cleaning system and reducing the efficiency of the abatement technology (electrostatic precipitator fields). The investigation into the causes of the exceedances were done and corrective measure put in place to correct the root causes.

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document July be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd.

2.3.2 Gaseous Emissions

Gaseous emissions analyzers calibration for all 6 units were performed in August 2023 as per the AEL requirements.

The quality assurance spot tests were performed on the monitors in July 2023.

Unit 1 SO₂ Emissions

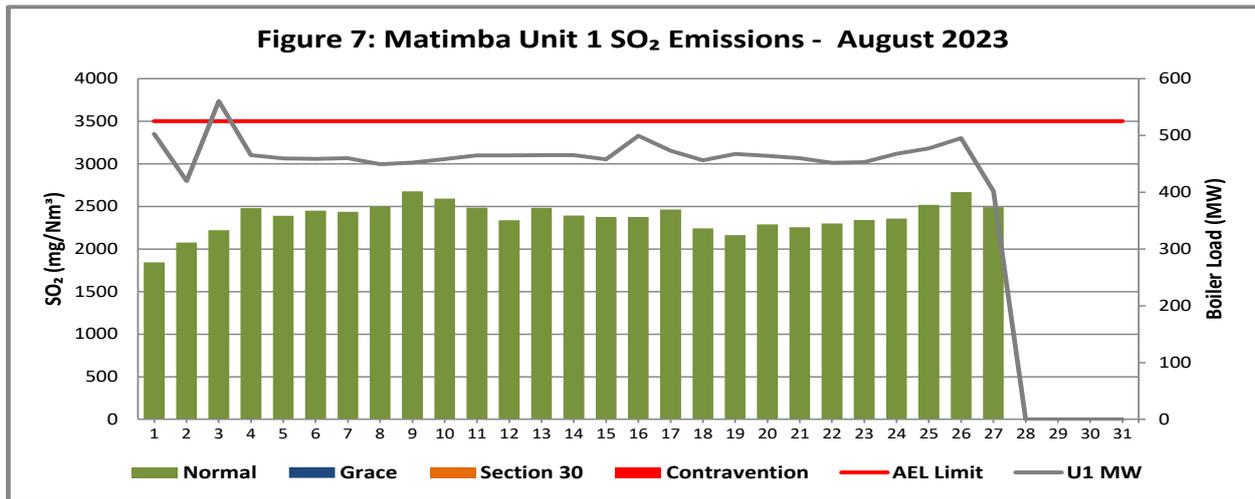


Figure 7: SO₂ daily average emissions against emission limit for unit 1 for the month of August 2023

Interpretation:

All daily averages below SO₂ emission monthly limit of 3500 mg/Nm³.

Unit 2 SO₂ Emissions

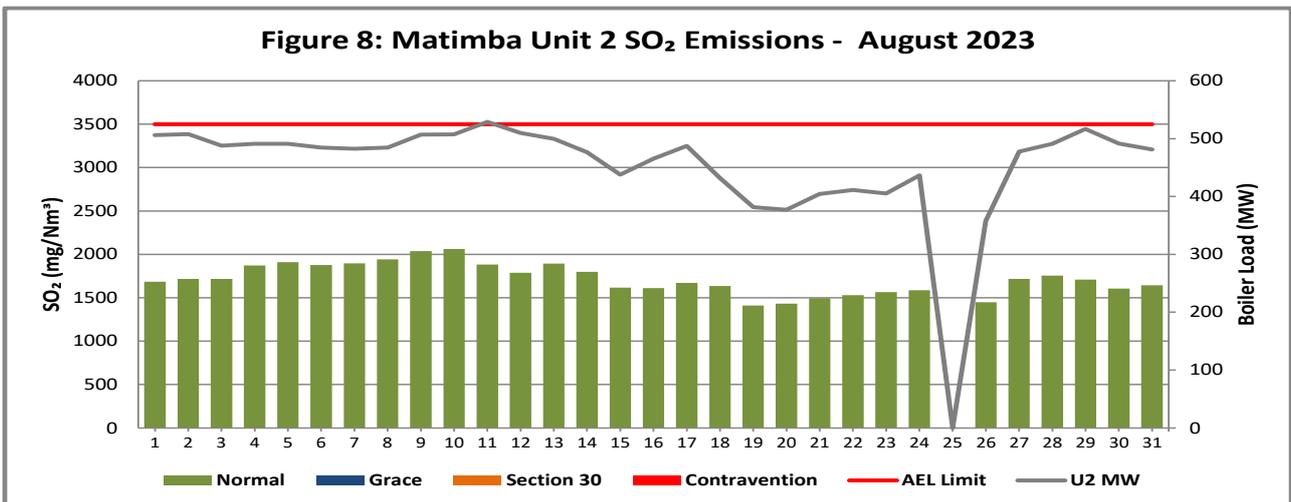


Figure 8: SO₂ daily average emissions against emission limit for unit 2 for the month of August 2023

Interpretation:

All daily averages below SO₂ emission monthly limit of 3500 mg/Nm³

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document July be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd.

Unit 3 SO₂ Emissions

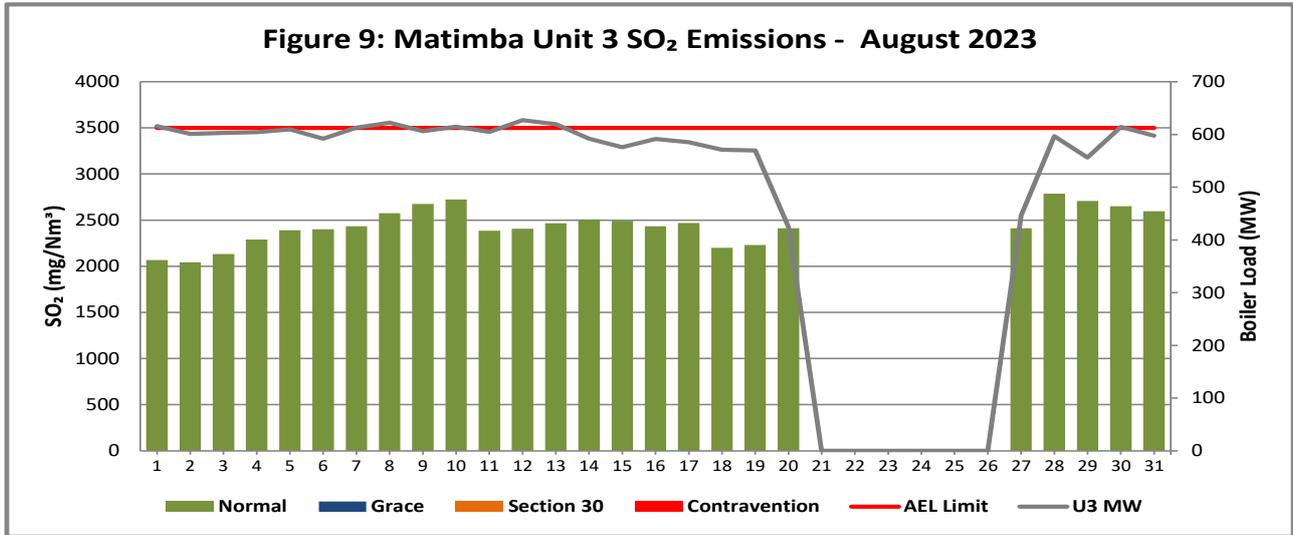


Figure 9: SO₂ daily average emissions against emission limit for unit 3 for the month of August 2023

Interpretation:

All daily averages below SO₂ emission monthly limit of 3500 mg/Nm³.

Unit 4 SO₂ Emissions

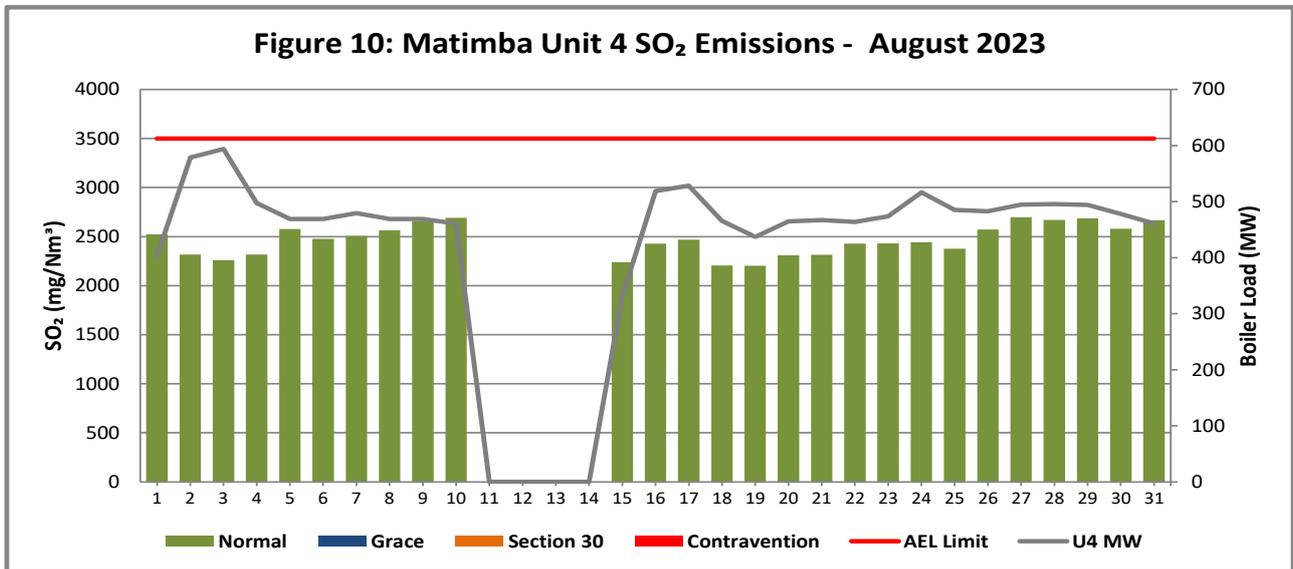


Figure 10: SO₂ daily average emissions against emission limit for unit 4 for the month of August 2023

Interpretation:

All daily averages below SO₂ emission monthly limit of 3500 mg/Nm³.

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document July be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd.

Unit 5 SO₂ Emissions

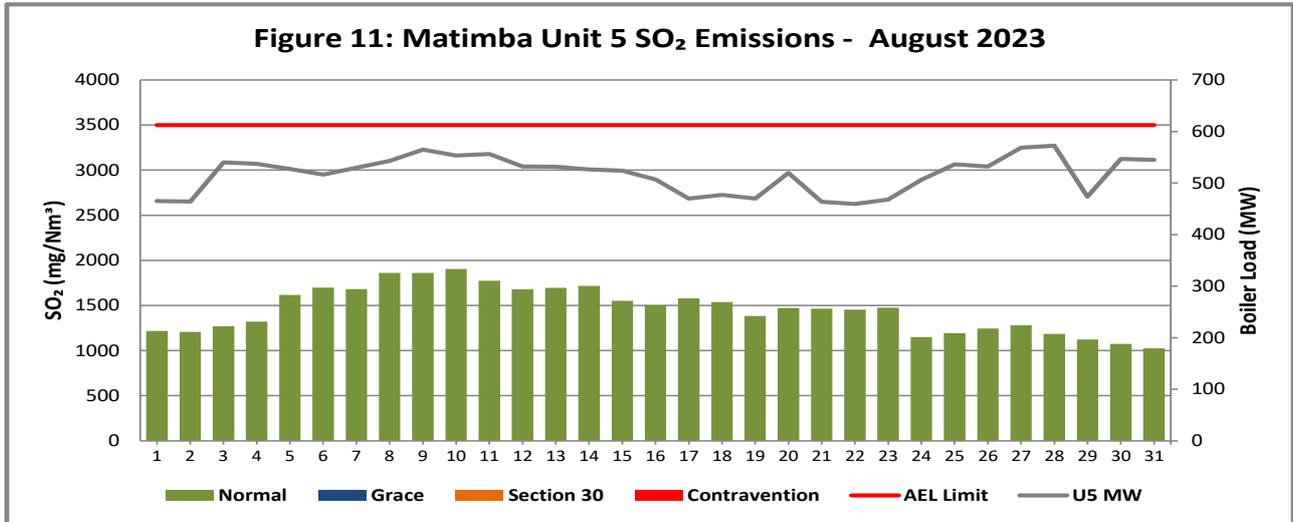


Figure 11: SO₂ daily average emissions against emission limit for unit 5 for the month of August 2023

Interpretation:

All daily averages below SO₂ emission monthly limit of 3500 mg/Nm³

Unit 6 SO₂ Emissions

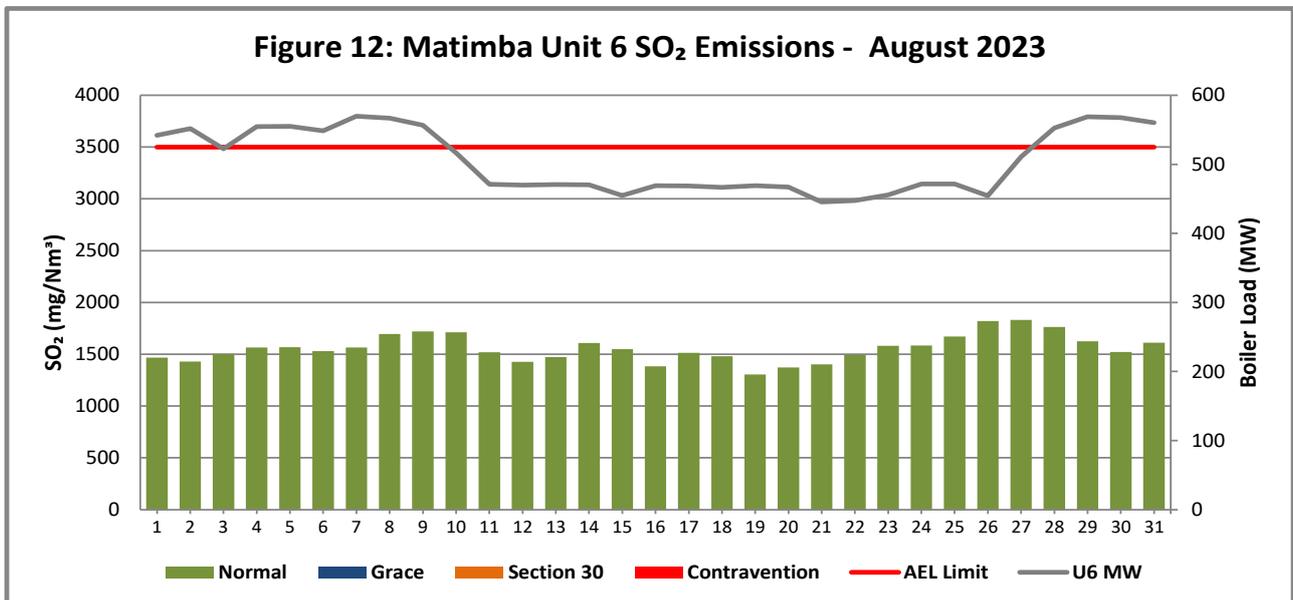


Figure 12: SO₂ daily average emissions against emission limit for unit 6 for the month of August 2023

Interpretation:

All daily averages remained below SO₂ emission monthly limit of 3500 mg/Nm³.

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document July be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd.

Unit 1 NO_x Emissions

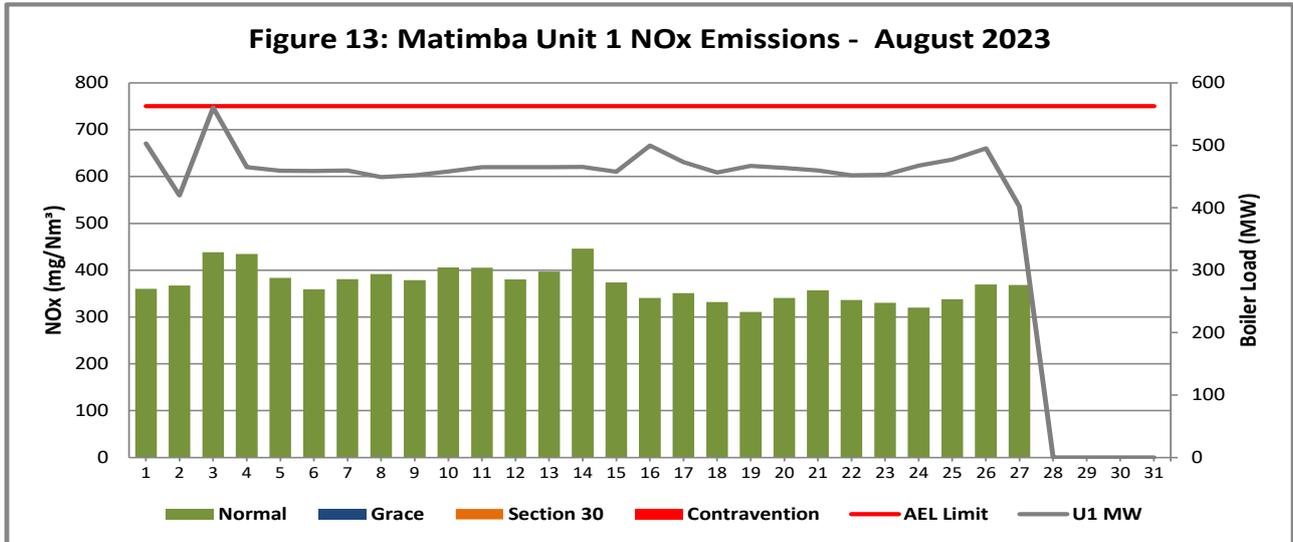


Figure 13: NO_x daily average emissions against emission limit for unit 1 for the month of August 2023

Interpretation:

All daily averages below NO_x emission limit of 750 mg/Nm³.

Unit 2 NO_x Emissions

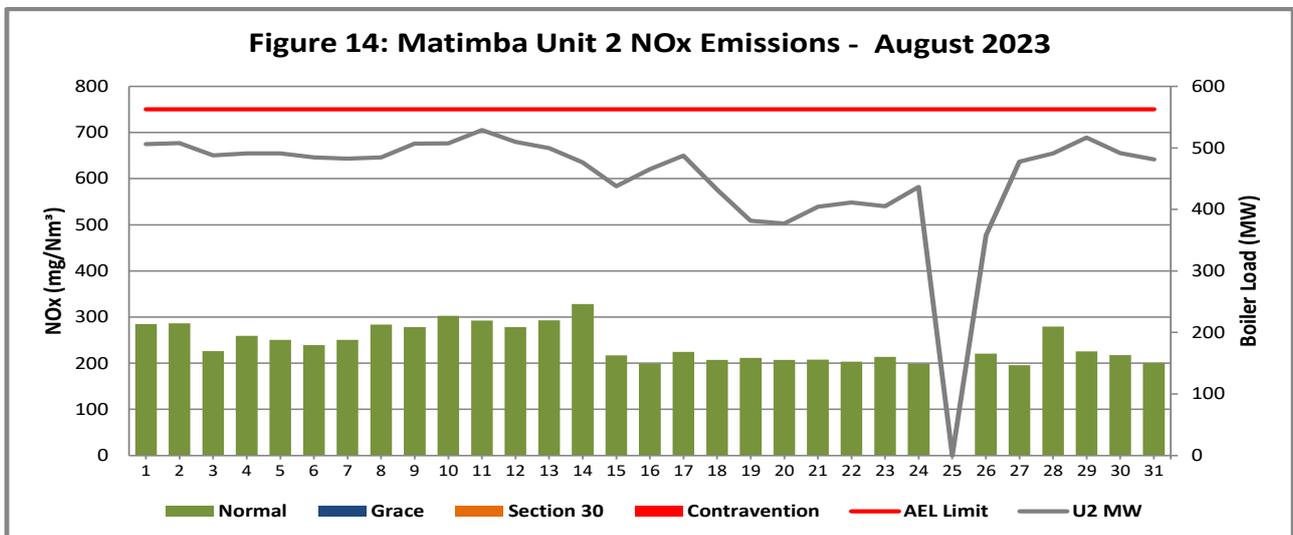


Figure 14: NO_x daily average emissions against emission limit for unit 2 for the month of August 2023

Interpretation:

All daily averages below NO_x emission limit of 750 mg/Nm³.

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document July be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd.

Unit 3 NO_x Emissions

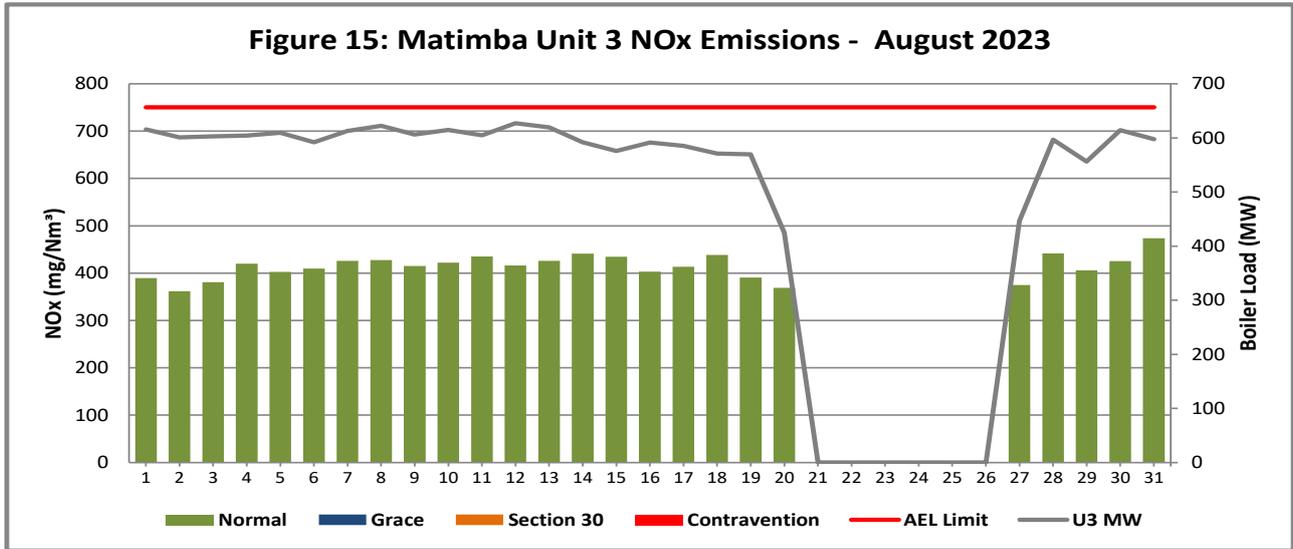


Figure 15: NO_x daily average emissions against emission limit for unit 3 for the month of August 2023

Interpretation:

All daily averages below NO_x emission limit of 750 mg/Nm³.

Unit 4 NO_x Emissions

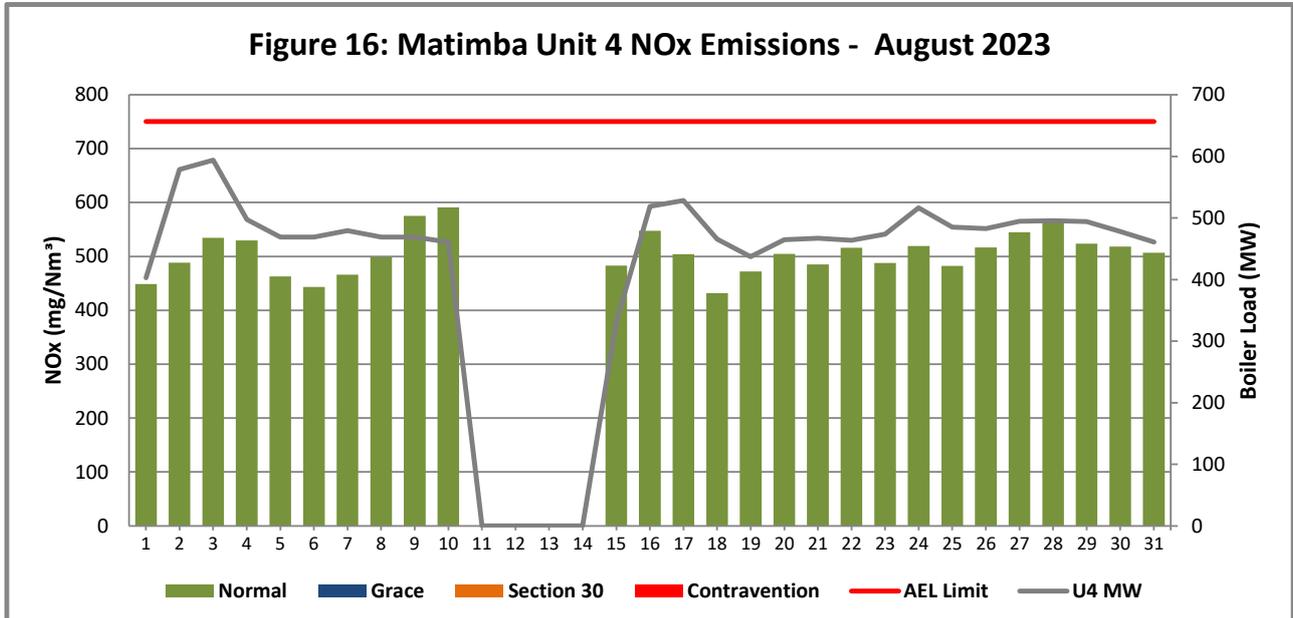


Figure 16: NO_x daily average emissions against emission limit for unit 4 for the month of August 2023

Interpretation:

All daily averages below NO_x emission limit of 750 mg/Nm³.

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document July be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd.

Unit 5 NO_x Emissions

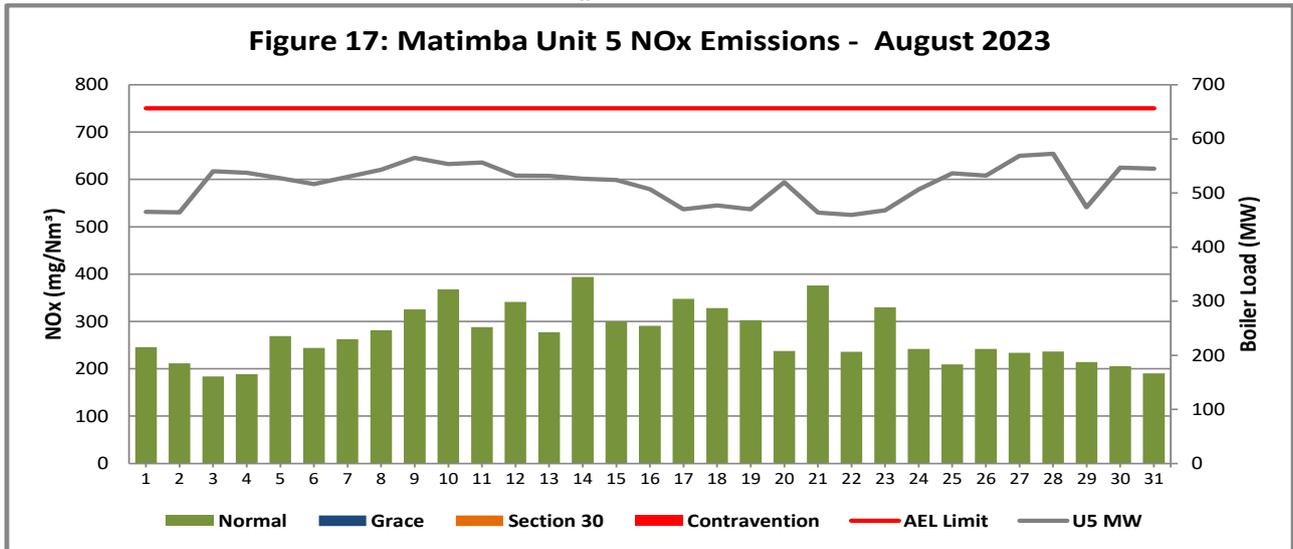


Figure 17: NO_x daily average emissions against emission limit for unit 5 for the month of August 2023

Interpretation:

All daily averages below NO_x emission limit of 750 mg/Nm³.

Unit 6 NO_x Emissions

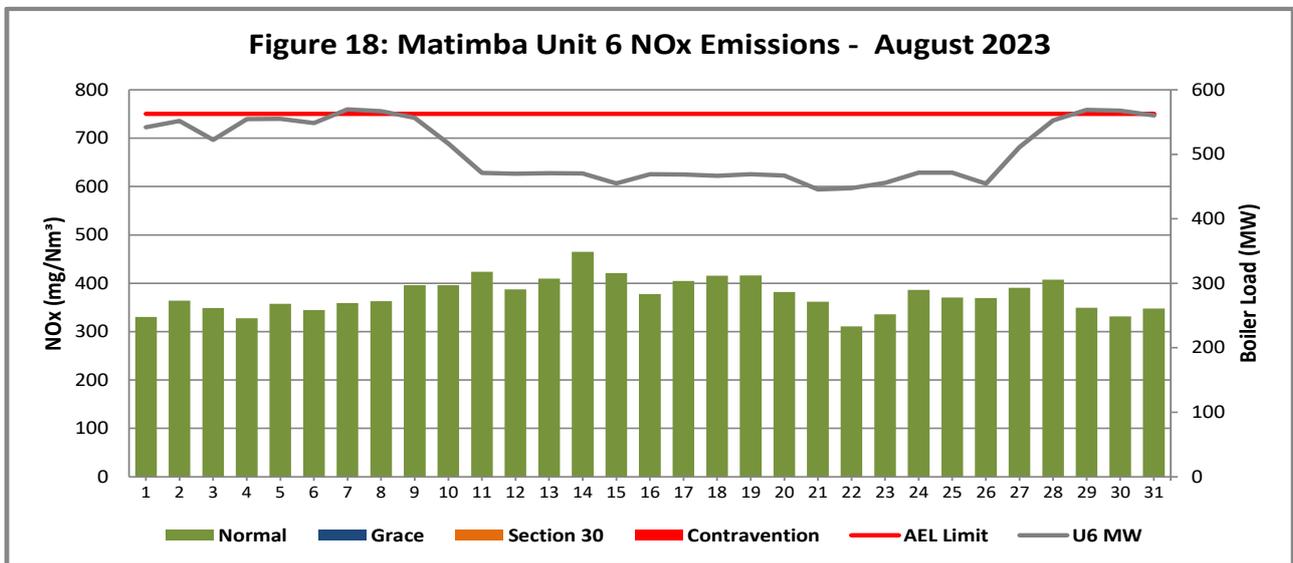


Figure 18 NO_x daily average emissions against emission limit for unit 6 for the month of August 2023

Interpretation:

All daily averages below NO_x emission limit of 750 mg/Nm³.

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document July be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd.

2.3.3 Total Volatile Organic Compounds

Table 4: Total volatile compound estimates

 CALCULATION OF EMISSIONS OF TOTAL VOLATILE COMPOUNDS FROM FUEL OIL STORAGE TANKS*		
Date:	Tuesday, 19 September 2023	
Station:	Matimba Power Station	
Province:	Limpopo Province	
Tank no.:	1-4	
Description:	Outdoor fuel oil storage tank	
Tank Type:	Vertical fixed roof (vented to atmosphere)	
Material stored:	Fuel Oil 150	
MONTHLY INPUT DATA FOR THE STATION Please only insert relevant monthly data inputs into the <i>blue cells</i> below Choose from a dropdown menu in the <i>green cells</i> The total VOC emissions for the month are in the <i>red cells</i> IMPORTANT: Do not change <i>any</i> other cells without consulting the AQ CoE		
MONTH:	August	
GENERAL INFORMATION:	Data	Unit
Total number of fuel oil tanks:	4	NA
Height of tank:	13,34	m
Diameter of tank:	9,53	m
Net fuel oil throughput for the month:	1649,556	
Molecular weight of the fuel oil:	166,00	Lb/lb-mole
METEOROLOGICAL DATA FOR THE MONTH	Data	Unit
Daily average ambient temperature	20,46	°C
Daily maximum ambient temperature	28,86	°C
Daily minimum ambient temperature	12,76	°C
Daily ambient temperature range	16,09	°C
Daily total insolation factor	4,23	kWh/m ² /day
Tank paint colour	Grey/medium	NA
Tank paint solar absorbance	0,68	NA
FINAL OUTPUT:	Result	Unit
Breathing losses:	0,56 kg/month	
Working losses:	0,05 kg/month	
TOTAL LOSSES (Total TVOC Emissions for the month):	0,61 kg/month	
*Calculations performed on this spreadsheet are taken from the USEPA AP-42- Section 7.1 Organic Liquid Storage Tanks - January 1996. This spreadsheet is derived from materials provided by Jimmy Peress, PE, Trittech Consulting Engineers, 85-93 Chew Chase Street, Jamaica, NY 11432 USA, Tel - 718-454-3920, Fax - 718-454-6330, e-mail - PeressJ@nyc.rr.com.		

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document July be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd.

2.3.4 Greenhouse gas (CO₂) emissions

CO₂ emissions are reported in terms of the Greenhouse gas reporting regulations (GN 43712, GNR. 994/2020) and are not included in the monthly AEL compliance report.

2.4 Daily power generated.

Table 5: Daily power generated per unit in MWh for the month of August 2023

Date	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
2023/08/01	10996,9	10750,5	13514	3115,6	10068,8	11690,1
2023/08/02	7055,15	10809,2	13148,1	12515,5	10077,3	11960,9
2023/08/03	12282,5	10405,3	13241	12924,1	11723	11259,4
2023/08/04	10174,6	10466,7	13204	10830,5	11686	11995,7
2023/08/05	10063,8	10442,2	13391,5	10249,5	11480,3	12057,6
2023/08/06	10044,3	10312,9	12937,6	10243,4	11217,7	11833,1
2023/08/07	10039,6	10280,8	13396,1	10418,3	11486,8	12326,5
2023/08/08	9836,96	10278,7	13598,3	10189,8	11791,7	12263,3
2023/08/09	9902,41	10727,7	13274,2	10190	12291,6	12054,7
2023/08/10	10002,7	10786,2	13480,2	5741,35	12016,3	11207,6
2023/08/11	10190	11232,6	13258,3	0	12096,9	10171,4
2023/08/12	10180,9	10850,2	13741	0	11552,9	10140,3
2023/08/13	10176,5	10612,4	13558,3	0	11542,3	10145,6
2023/08/14	10155,4	10110	12952	0	11437,8	10125,6
2023/08/15	9944,3	9281,32	12576,8	884,261	11355,6	9779,35
2023/08/16	10951	9881,82	12942,8	11228	11002,1	10101,4
2023/08/17	10382,2	10391,1	12772,4	11477,3	10202,8	10099,5
2023/08/18	9976,25	9170,55	12512,5	10091,6	10331,8	10045,3
2023/08/19	10229,4	8017,77	12390,4	9458,71	10162,8	10102,2
2023/08/20	10134,1	7928,1	737,875	10067,5	11268,8	10060,7
2023/08/21	10018,6	8514,38	0	10098,4	10021,7	9584,7
2023/08/22	9854,36	8688,68	0	9978,34	9918,62	9638,45
2023/08/23	9898,46	8565,55	0	10256,8	10099,3	9819,13
2023/08/24	10239	4475,94	0	11144,5	10951,2	10170,8
2023/08/25	10466,1	0	0	10486,7	11641,8	10174,6
2023/08/26	10810,6	2258,48	0	10388,2	11520,8	9779,6
2023/08/27	481,199	10192	4942,74	10693,4	12365,2	11060
2023/08/28	0	10449,4	12998,5	10740,3	12408,1	11993,3
2023/08/29	0	10972,7	7641,03	10732,1	3089,32	12358
2023/08/30	0	10402,3	13391,8	10338	11736,1	12304,7
2023/08/31	0	10188,1	13079,2	9965,18	11836,5	12111,2

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document July be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd.

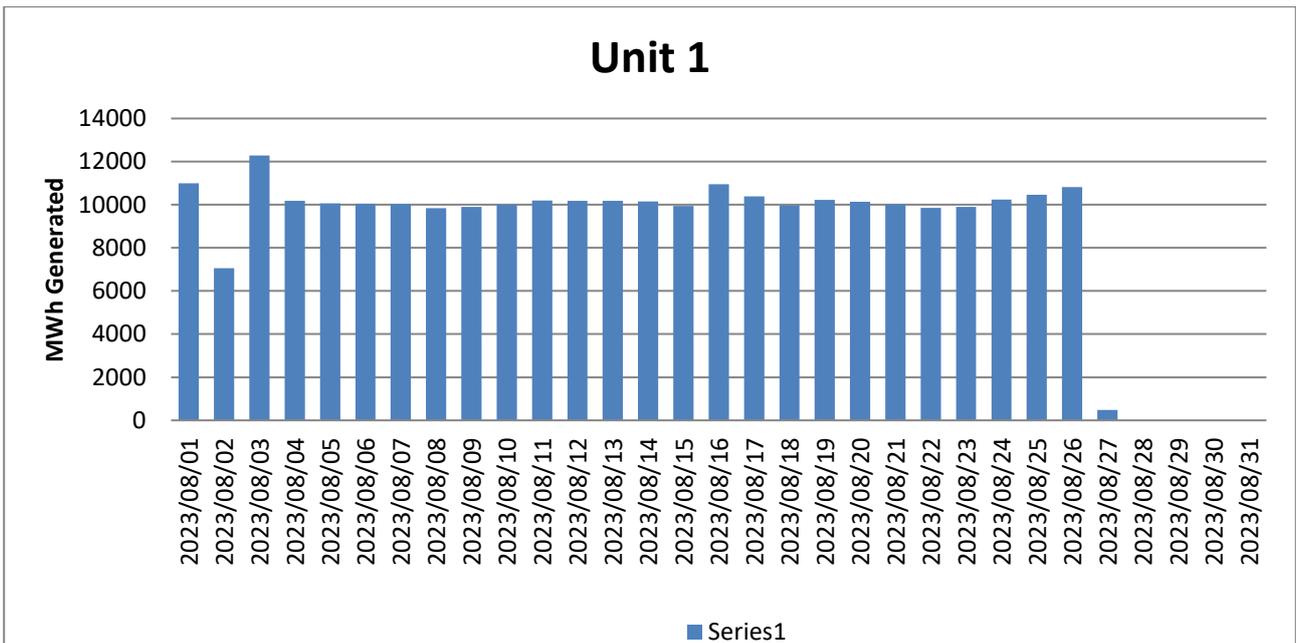


Figure 19: Unit 1 daily generated power in MWh for the month of August 2023

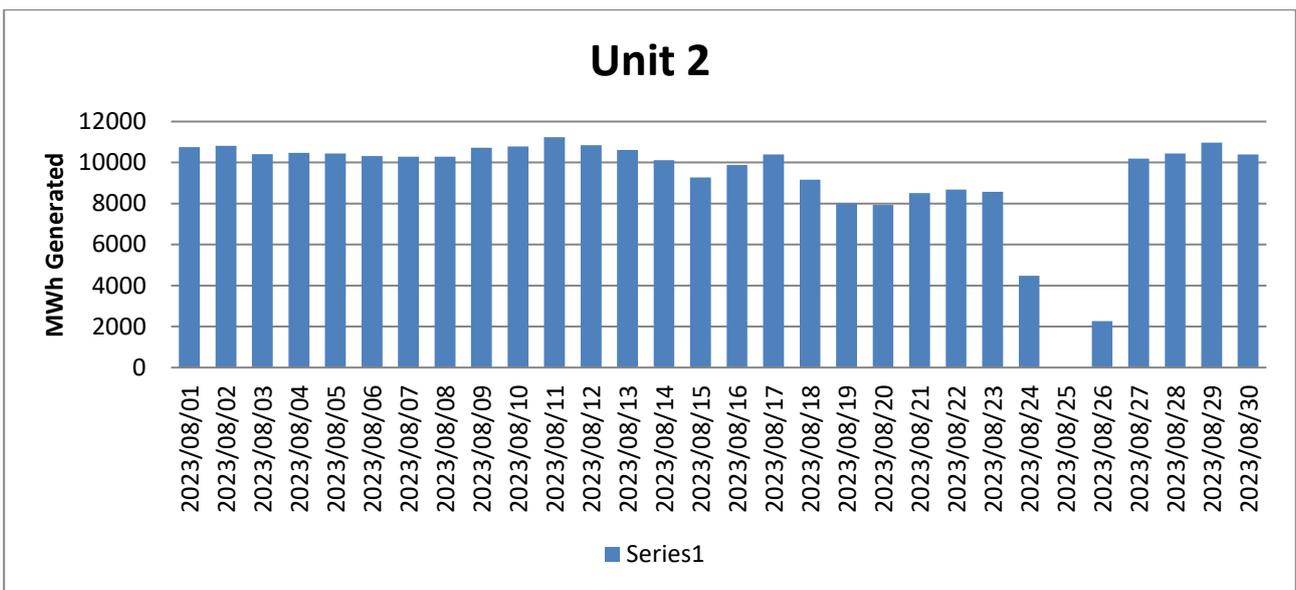


Figure 20: Unit 2 daily generated power in MWh for the month of August 2023

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document July be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd.

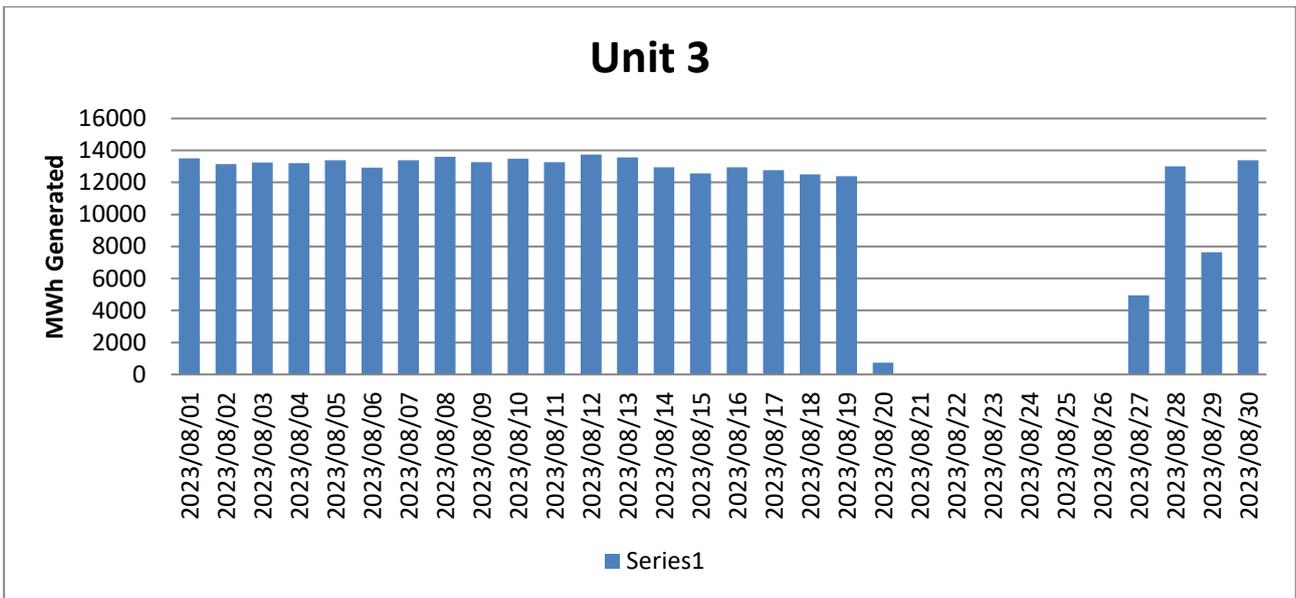


Figure 21: Unit 3 daily generated power in MWh for the month of August 2023

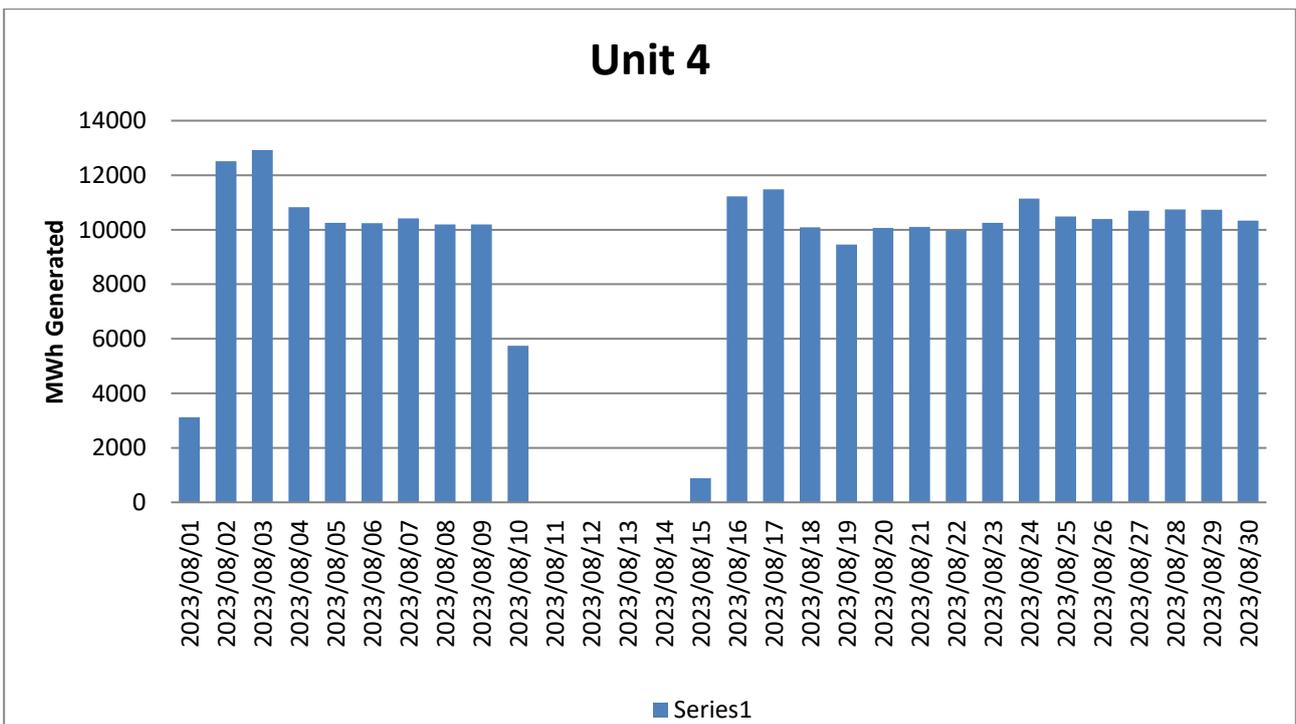


Figure 22: Unit 4 daily generated power in MWh for the month of August 2023

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document July be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd.

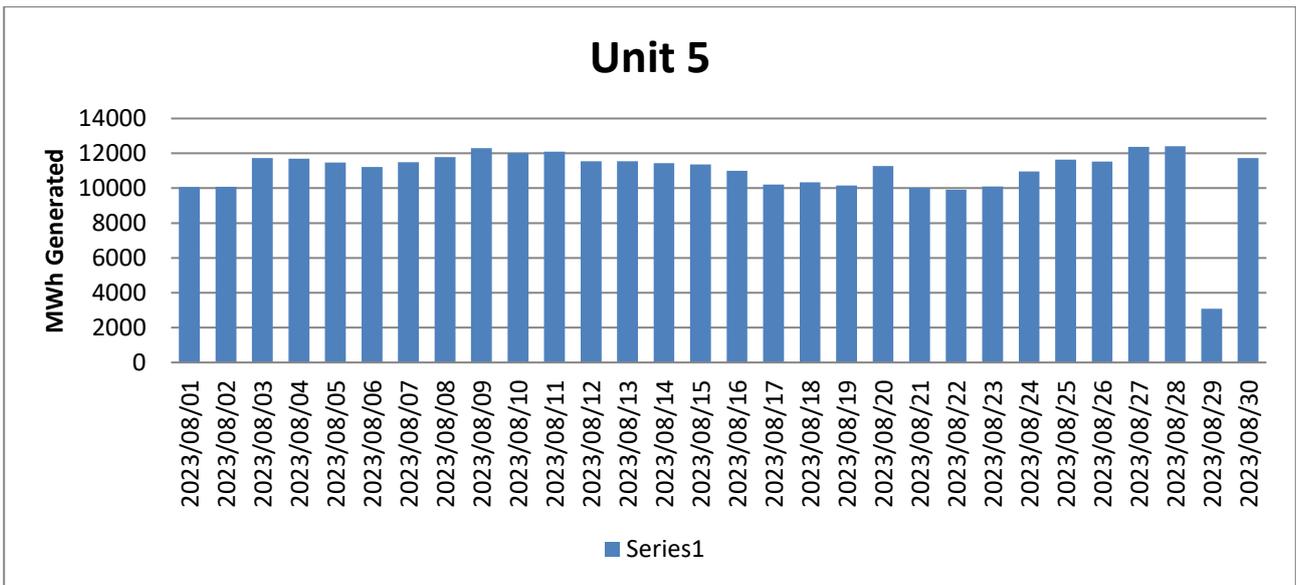


Figure 23: Unit 5 daily generated power in MWh for the month of August 2023

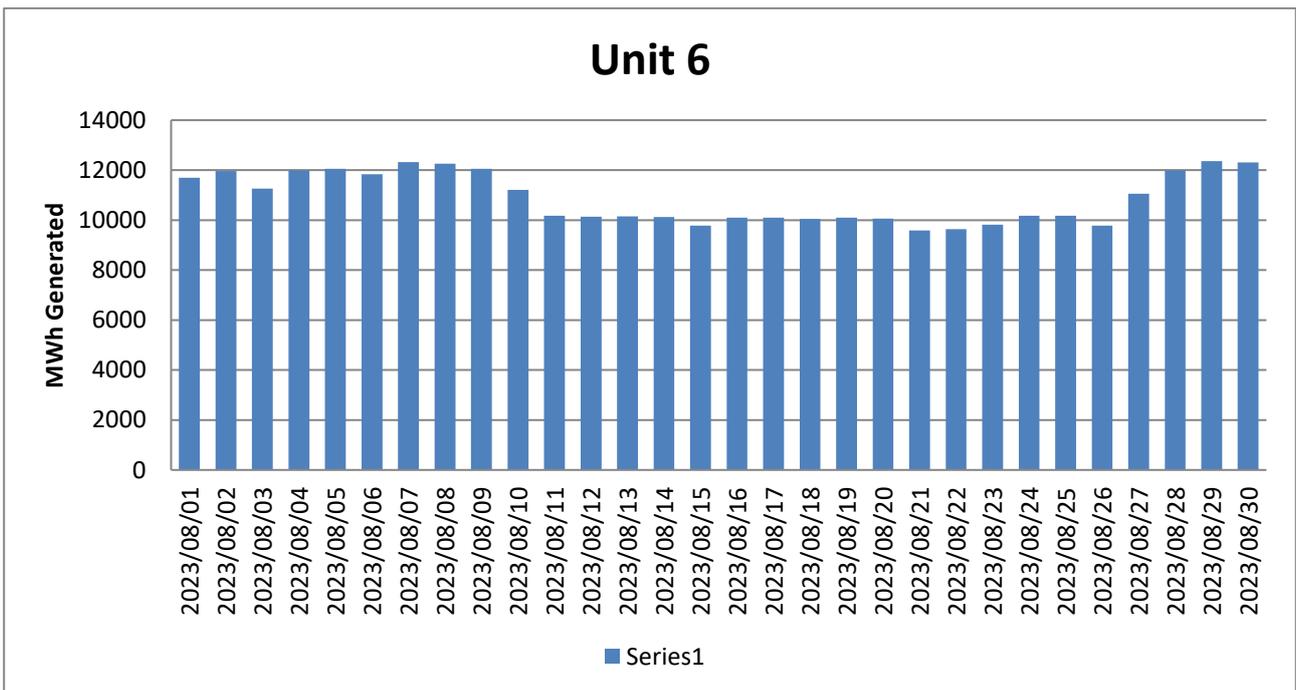


Figure 24: Unit 6 daily generated power in MWh for the month of August 2023

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document July be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd.

2.5 Pollutant Tonnages

The emitted pollutant tonnages for August 2023 are provided in table 6.

Table 6: Pollutant tonnages for the month of August 2023

Associated Unit/Stack	PM (tons)	SO ₂ (tons)	NO _x (tons)
Unit 1	114.0	3 770.6	587.3
Unit 2	175.3	3 734.0	527.9
Unit 3	41.8	4 839.6	829.7
Unit 4	85.5	3 815.4	784.3
Unit 5	174.7	3 042.1	562.7
Unit 6	111.2	3 110.6	746.0
SUM	702.5	22 312.4	4 038.0

2.6 Operating days in compliance to PM AEL Limit

Table 7: Operating days in compliance with PM AEL limit of August 2023

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average PM (mg/Nm ³)
Unit 1	0	2	0	25	27	75.1
Unit 2	0	2	0	27	29	85.2
Unit 3	24	0	0	0	0	24.5
Unit 4	1	4	0	21	25	151.5
Unit 5	0	0	0	31	31	87.0
Unit 6	0	0	0	31	31	333.6
SUM	25	8	0	135	143	

2.7 Operating days in compliance to SO_x AEL Limit

Table 8: Operating days in compliance with SO_x AEL limit of August 2023

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average SO ₂ (mg/Nm ³)
Unit 1	27	0	0	0	0	2 378.4
Unit 2	30	0	0	0	0	1 717.0
Unit 3	25	0	0	0	0	2 435.7
Unit 4	27	0	0	0	0	2 467.4
Unit 5	31	0	0	0	0	1 458.1
Unit 6	31	0	0	0	0	1 557.6
SUM	171	0	0	0	0	

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document July be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd.

2.8 Operating days in compliance to NOx AEL Limit

Table 9: Operating days in compliance with NOx AEL limit of August 2023

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm ³)
Unit 1	27	0	0	0	0	370.4
Unit 2	30	0	0	0	0	242.7
Unit 3	25	0	0	0	0	413.8
Unit 4	27	0	0	0	0	505.4
Unit 5	31	0	0	0	0	271.0
Unit 6	31	0	0	0	0	375.9
SUM	171	0	0	0	0	

2.9 Reference values

Table 10: Reference values for data provided, August 2023

Compound / Parameter	Units of Measure	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Oxygen	%	6.40	6.95	4.91	7.92	5.52	7.40
Moisture	%	3.68	3.02	4.93	2.86	3.68	1.99
Velocity	m/s	20.9	25.4	26.6	22.8	22.0	25.4
Temperature	°C	134.8	121.0	130.1	125.8	126.4	164.4
Pressure	mBar	929.5	936.0	920.9	931.4	922.2	918.7

2.10 Continuous Emission Monitors

2.10.1 Reliability

Continuous emission monitors were available for more than 80% of the reporting period. The emitted pollutant tonnages for August 2023 are provided in table 6.

Table 11: Average percentage (%) availability of monitors for the month of August 2023.

Associated Unit/Stack	PM	SO ₂	NO	CO ₂
Unit 1	100,0	99,8	99,8	99,8
Unit 2	99,6	100,0	89,6	99,7
Unit 3	100,0	100,0	99,8	99,7
Unit 4	100,0	100,0	100,0	98,4
Unit 5	100,0	99,3	88,3	58,5
Unit 6	98,1	99,7	99,7	99,5

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document July be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd.

2.10.2 Changes, downtime, and repairs

Unit 1

- No adjustments done on the CEMs.
- No downtime or repairs done on the particulate monitors

Unit 2

- No adjustments done on the CEMs.
- No downtime or repairs done on the particulate monitors

Unit 3

- No adjustments done on the CEMs.
- No downtime or repairs done on the particulate monitors

Unit 4

- No adjustments done on the CEMs.
- No downtime or repairs done on the particulate monitors

Unit 5

- No adjustments done on the CEMs.
- No downtime or repairs done on the particulate monitors

Unit 6

- No adjustments done on the CEMs.
- No downtime or repairs done on the particulate monitors

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd.

2.10.3 Sampling dates and times

Table 12: Dates of last full conducted CEMS verification tests for PM for unit 4 and 6 only

Name of service provider:		Stacklabs Environmental Services CC		
Address of service provider:		10 Chisel Street Boltonia Krugersdorp 1739		
Stack/ Unit	PM	SO ₂	NO _x	CO ₂
1	New sampling tests in table 13	New sampling tests in table 13	New sampling tests in table 13	New sampling tests in table 13
2	New sampling tests in table 13	New sampling tests in table 13	New sampling tests in table 13	New sampling tests in table 13
3	New sampling tests in table 13	New sampling tests in table 13	New sampling tests in table 13	New sampling tests in table 13
4	2021/07/13 14h31	New sampling tests in table 13	New sampling tests in table 13	New sampling tests in table 13
5	New sampling tests in table 13	New sampling tests in table 13	New sampling tests in table 13	New sampling tests in table 13
6	2020/09/09 06h41	New sampling tests in table 13	New sampling tests in table 13	New sampling tests in table 13

Note: The CEMS verification tests for PM, SO₂ and NO_x were performed in October 2022 and failed. The spot tests were done in August 2023.

Table 13: Dates of last conducted CEMS Spot verification tests for PM, SO₂ and NO_x (without unit 4 and 6 PMs)

Name of service provider:		Levego Environmental services		
Address of service provider:		Building R6 Pineland site Ardeer Road Modderfontein 1645		
Stack/ Unit	PM	SO ₂	NO _x	CO ₂
1	2023/08/01 19h33	2023/08/01 19:33	2023/08/01 19:33	2023/08/01 19:33
2	2023/07/29 21:17	2023/07/29 21:17	2023/07/29 21:17	2023/07/29 21:17
3	2023/08/06 03:00	2023/08/06 03:00	2023/08/06 03:00	2023/08/06 03:00
4	Dates in table 12 above	2023/08/04 19:39	2023/08/04 19:39	2023/08/04 19:39
5	2023/08/05 07:30	2023/08/05 07:30	2023/08/05 07:30	2023/08/05 07:30
6	Dates in table 12 above	2023/08/05 15:52	2023/08/05 15:52	2023/08/05 15:52

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document July be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd.

Note: The CEMS Spot verification tests for PM, SO₂ and NO_x were performed in August 2023. PM spot verification test results for units 4 and 6 failed and old curves are still in use.

2.11 Units Start-up information

Table 14: Start-up information

Unit	1	
Fires in	2023/08/02	13h17
Synchronization with Grid	2023/08/02	15h46
Emissions below limit	2023/08/03	00h01
Fires in, to synchronization	2,29	HOURS
Synchronization to < Emission limit	9,15	HOURS

Unit	2	
Fires in	2023/08/26	00h08
Synchronization with Grid	2023/08/26	12h36
Emissions below limit	2023/08/26	19h01
Fires in, to synchronization	12,28	HOURS
Synchronization to < Emission limit	6,25	HOURS

Unit	2	
Fires in	2023/08/26	18h26
Synchronization with Grid	2023/08/26	20h54
Emissions below limit	2023/08/26	20h54
Fires in, to synchronization	2,28	HOURS
Synchronization to < Emission limit	0	HOURS

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document July be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd.

Unit	3	
Fires in	2023/08/27	06h48
Synchronization with Grid	2023/08/27	11h16
Emissions below limit	2023/08/27	16h03
Fires in, to synchronization	4,28	HOURS
Synchronization to < Emission limit	4,47	HOURS

Unit	3	
Fires in	2023/08/29	12h22
Synchronization with Grid	2023/08/29	15h40
Emissions below limit	2023/08/29	16h06
Fires in, to synchronization	3,18	HOURS
Synchronization to < Emission limit	0,26	HOURS

Unit	4	
Fires in	2023/08/01	05h08
Synchronization with Grid	2023/08/01	14h29
Emissions below limit	2023/08/01	18h04
Fires in, to synchronization	9,21	HOURS
Synchronization to < Emission limit	3,35	HOURS

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document July be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd.

Unit	4	
Fires in	2023/08/15	04h07
Synchronization with Grid	2023/08/15	19h20
Emissions below limit	2023/08/16	01h05
Fires in, to synchronization	15,13	HOURS
Synchronization to < Emission limit	5,45	HOURS

Unit	5	
Fires in	2023/08/29	03h56
Synchronization with Grid	2023/08/29	22h19
Emissions below limit	2023/08/30	01h04
Fires in, to synchronization	18,23	HOURS
Synchronization to < Emission limit	2,45	HOURS

2.12 Emergency generation

Table 15: Emergency generation

	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Emergency Generation hours declared by national Control	744	744	744	744	744	744
Emergency Hours declared including hours after stand down						
Days over the Limit during Emergency Generation	24	8	1	16	17	15

During the period under review all Units were on emergency generation in force from 01 August 2023 until 31 August 2023.

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document July be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd.

2.13 Complaints register.

Table 16: Complaints

Source Code/ Name	Root Cause Analysis	Calculation of Impacts/ emissions associated with the incident	Dispersion modelling of pollutants where applicable	Measures implemented to prevent reoccurrence	Date by which measure will be implemented
Manketti lodge And neighbouring farms	Operational changes -The ashing philosophy was updated to piggybacking format (increasing height of the dump by ashing on top of rehabilitated old ash body);	Average fugitive dust fallout for August 2023 on the Ash dumping facility in all directions of communities where complaints originated from was 742,89 mg/m2/day	N/A	Acquire additional resources to extend the dust suppression with water at the ash dump to cover the piggybacking area.	Completed
Marapong Community members (social media)				Covering the exposed long- standing areas with topsoil.	November 2023
Onverwacht counsellor					

2.14 Air quality improvements and social responsibility conducted.

2.14.1 Air quality improvements

None

2.14.2 Social responsibility conducted.

None

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document July be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd.

2.15 Ambient air quality monitoring

Ambient air quality monitoring report was not available at the time of publishing this report.

2.16 Electrostatic precipitator and Sulphur plant status

Unit 1

- 8 fields out of service, will be inspected next opportunity.
- No abnormalities on the SO₃ plant. Preventative maintenance done during the month.

Unit 2

- 7 fields out of service, will be inspected next opportunity.
- No abnormalities on the SO₃ plant. Preventative maintenance done during the month.

Unit 3

- 2 fields out of service, will be inspected next opportunity. No abnormalities on the SO₃ plant. Preventative maintenance done during the month.

Unit 4

- 4 field out of service, will be inspected next opportunity.
- No abnormalities on the SO₃ plant. Preventative maintenance done during the month.

Unit 5

- 7 fields out of service, will be inspected next opportunity.
- Hole in burner casing and sulphur leak causing low availability. Preventative maintenance done during the month.

Unit 6

- 7 fields out of service, will be inspected next opportunity.
- Hole in burner casing and sulphur leak causing low availability. Preventative maintenance done during the month.

SO₃ common plant

- No abnormalities on the sulphur storage plant.

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document July be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd.

2.17 General

Name and reference number of the monitoring methods used:

1. Particulate and gas monitoring according to standards
 - a. BS EN 14181:2004 - Quality Assurance of Automated Measuring Systems
 - b. Eskom internal standard 240-56242363 Emissions Monitoring and Reporting Standard

Sampling locations:

1. Stack one
 - a. Particulates:
 - i. S23° 40' 2.8" E027° 36' 34.8" 175m from ground level and 75m from the top.
 - b. Gas:
 - i. S23° 40' 2.8" E027° 36' 34.8" 100m from ground level and 150m from the top.
 - c. Stack height
 - i. 250 meter consist of 3 flues
2. Stack two
 - a. Particulates:
 - i. S23° 40' 14.8" E027° 36' 47.5" 175m from ground level and 75m from the top.
 - b. Gas:
 - i. S23° 40' 14.8" E027° 36' 47.5" 100m from ground level and 150m from the top.
 - c. Stack height
 - i. 250 meter consist of 3 flues

3. Attachments

None

4. Report Conclusion

The rest of the information demonstrating compliance with the emission license conditions is supplied in the annual emission report sent to your office.

Hoping the above will meet your satisfaction.

I hereby declare that the information in this report is correct.

Yours sincerely

Wikus van Rensburg

GENERAL MANAGER: MATIMBA POWER STATION

CONTROLLED DISCLOSURE

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system.

No part of this document may be reproduced without the expressed consent of the copyright holder, Eskom Holdings SOC Ltd.