Eskom	Technical and Generic Report	Matimba Power Station

Title: **Matimba Power Station January 2025 emissions report**

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Date: 2025-02-19	Date: 2025-02-19	Date: 21.02.2025	Date: 2025/02/24

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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 contains the required information as specified in the license for January 2025.The information recorded in the report is obtained from Matimba Emission Reporting tool V10.2024.

During the period under review, Matimba experienced one-hundred and ten (110) exceedances of the daily particulate matter emission limit (50mg/Nm^3), one-hundred and six (106) 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 and four (4) exceedances occurred within the 48-hour grace period.

There were no exceedances of the monthly SOx limit (3500mg/Nm^3). The were no exceedances of the daily NOx emission limit (750mg/Nm^3).

Flue gas conditioning plant availability was above 80% for all units except unit 2, 4 and 6. Unit 2 SO3 plant was on hold due to low load and raising temperatures during units light ups from trips. Unit 3 operated at availability of 77%. Unit 6 SO_3 plant was off (permit to work) to repair gas leak on sulphur burner.

The consumption rates for fuel oil for the month of January 2025 exceeded the limit of 1200 tons by 2692.724 tons due to multiple units light up trips and unit 6 cold start up from outage.

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

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	693 645
	Fuel Oil	Tons/month	1 200	2692.724
Production Rates	**Product/ By-Product Name**	**Unit**	**Maximum Production Capacity Permitted (Quantity)**	**Production Rate**
	Energy	MW	4000	1478.679
	Ash	Tons/month	547500	246 957.860

The consumption rates for fuel oil for the month of January 2025 exceeded the permitted maximum limits due to multiple units light up trips and combustion support.

2.2 Abatement technology

Table 2: Abatement Equipment Control Technology Utilised

Associated Unit	Technology Type	Minimum utilisation (%)	Efficiency (%)
Unit 1	Electrostatic Precipitator	100%	Off
Unit 2	Electrostatic Precipitator	100%	100.000%
Unit 3	Electrostatic Precipitator	100%	100.000%
Unit 4	Electrostatic Precipitator	100%	100.000%
Unit 5	Electrostatic Precipitator	100%	100.000%
Unit 6	Electrostatic Precipitator	100%	100.000%
Associated Unit	**Technology Type**	**Minimum utilisation (%)**	**Actual Utilisation (%)**
Unit 1	SO_3 Plant	100%	Off
Unit 2	SO_3 Plant	100%	70%
Unit 3	SO_3 Plant	100%	99%
Unit 4	SO_3 Plant	100%	77%
Unit 5	SO_3 Plant	100%	92%
Unit 6	SO_3 Plant	100%	0%

Flue gas conditioning plant availability was below 90% for unit 2, unit 4 and unit 6. Unit 2 SO3 plant was on hold due to low load and raising temperatures during units light ups from trips. Unit 6 SO_3 plant was off (permit to work) to repair gas leak on sulphur burner. Unit 4 SO_3 plant was on permit to work(off) to replace heater number 2. Unit 5 SO3 plant availability was 98% for the month of January 2025. Unit 3 SO3 plant was 92% for January 2025.

Table 3: Energy Source Material Characteristics.

	Characteristic	Stipulated Range (Unit)	Monthly Average Content
Coal burned	**Sulphur Content**	1.6%	1.301%
	Ash Content	40%	35.603%

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 and parallel tests were performed on unit 2,3 and 4 in June 2024 and the curves were applied on emissions calculations for January 2025.Unit 1,5 and 6 emission calculations were done using the correlation/parallel tests curves from the spot test performed in August 2023.Unit 2 PM correlation curve applied is linear curve, Unit 3 and 4 PM correlation curve applied is polynomial curve.

Unit 1 Particulate Emissions

Unit 1 is on outage

Unit 2 Particulate Emissions

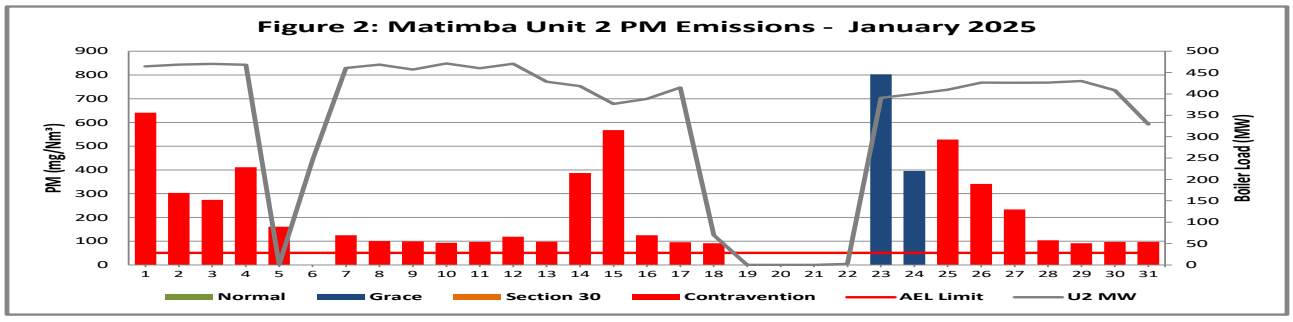

Figure 1: Particulate matter daily average emissions against emission limit for unit 2 for the month of January 2025

Interpretation: Unit 2 exceeded the daily particulate emission limit of 50mg/Nm3 on 1 to 5, 7 to 18 and 23 to 31 of January 2025. The exceedances from 1 to 5, 7 to 18 and 25 to 31 January 2025 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 high hopper levels causing electrostatic precipitators fields to trip and have low efficiency.

Unit 3 Particulate Emissions

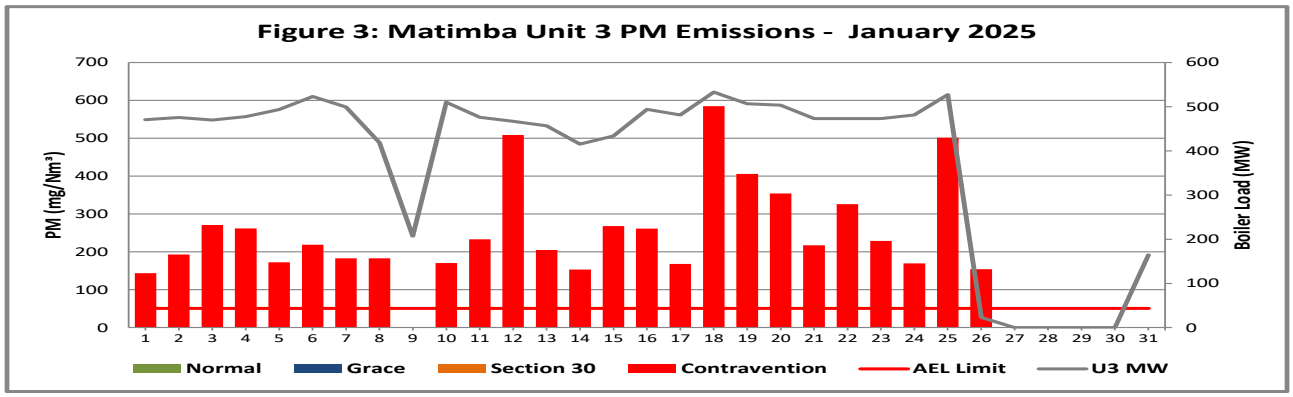

Figure 2: Particulate matter daily average emissions against emission limit for unit 3 for the month of January 2025

Interpretation: Unit 3 exceeded the daily particulate emission limit of 50mg/Nm3 on 1 to 8 and 10 to 26 January 2025. 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 high hopper levels causing electrostatic precipitators fields to trip and have low efficiency.

Unit 4 Particulate Emissions

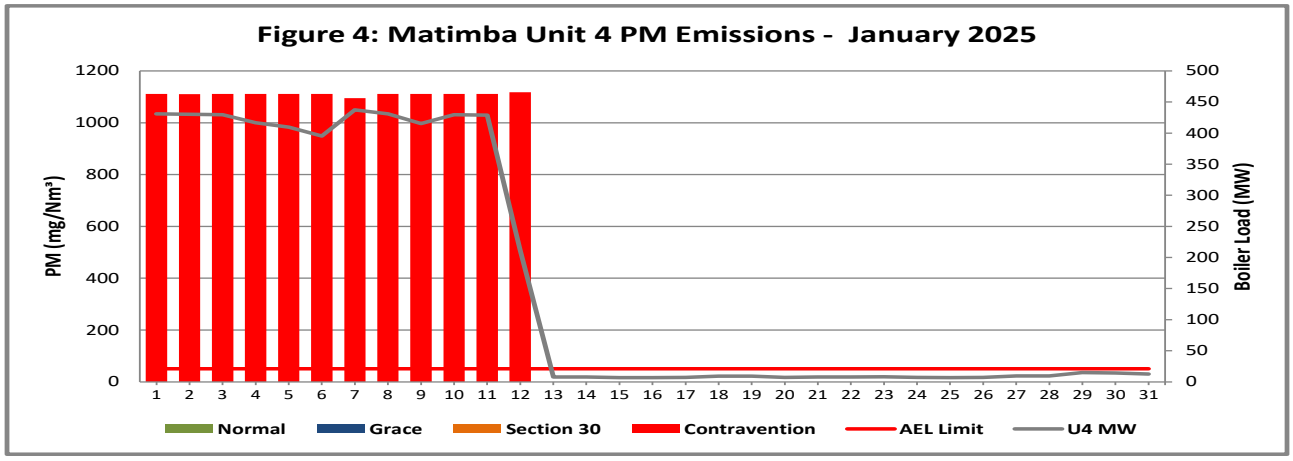

Figure 3: Particulate matter daily average emissions against emission limit for unit 4 for the month of January 2025

Interpretation: Unit 4 exceeded the daily particulate emission limit of 50mg/Nm3 on 1 to 12 January 2025. 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 high hopper levels causing electrostatic precipitators fields to trip and have low efficiency. Unit 4 dust monitor was reading almost one value in January 2025 due to the continuous blockages that were caused by the high amount of ash passing through the flue gas stack, the increase in tonnages emitted at unit 4 was due to the challenges experienced on the dust handling plant.

Unit 5 Particulate Emissions

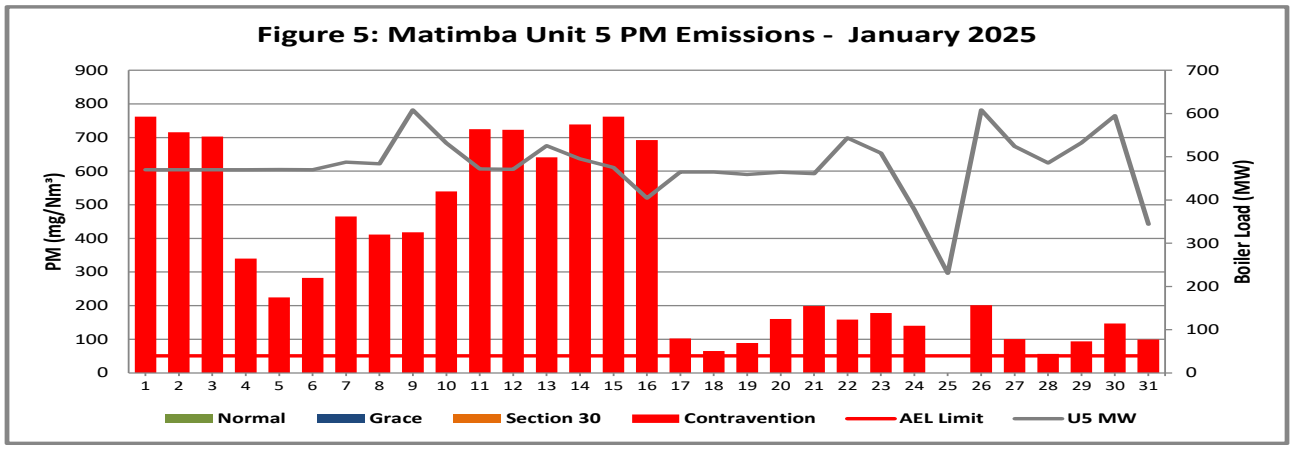

Figure 4: Particulate matter daily average emissions against emission limit for unit 5 for the month of January 2025

Interpretation: Unit 5 Particulate matter exceeded the daily limit of 50 mg/Nm^3 on 1 to 24 and 26 to 31 January 2025.All exceedances occurred outside of the 48-hour grace period and was recorded on the Eskom incident management process as non-compliance to the Atmospheric Emissions Licence. The exceedances were due to high hopper levels causing electrostatic precipitators fields to trip and have low efficiency.

Unit 6 Particulate Emissions

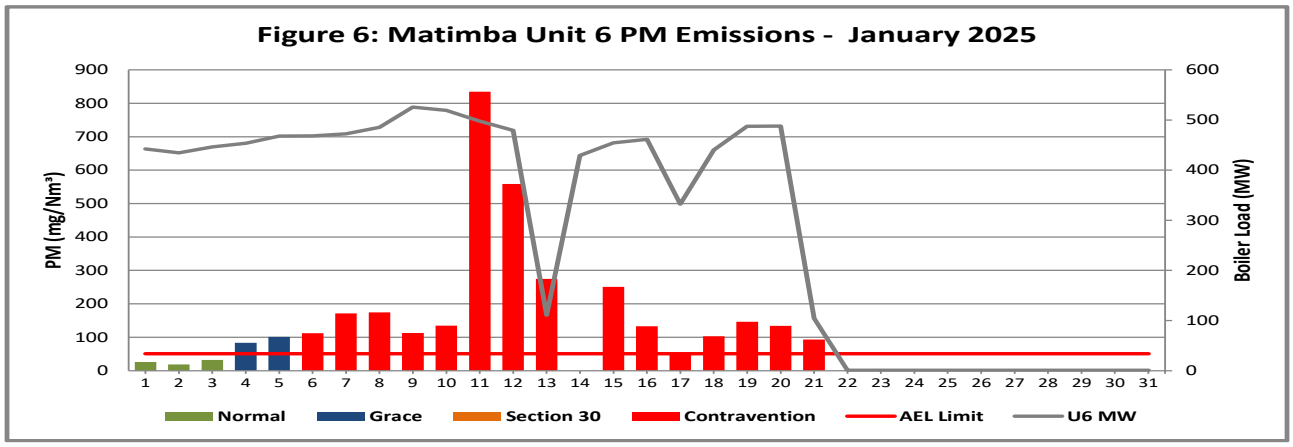

Figure 5: Particulate matter daily average emissions against emission limit for unit 6 for the month of January 2025

Interpretation: Unit 6 Particulate matter exceeded the daily limit of 50 mg/Nm^3 on 4 to 13 and 15 to 21 January 2025. The exceedances on 6 to 13 and 15 to 21 January 2025 occurred outside of the 48-hour grace period and was recorded on the Eskom incident management process as non-compliance to the Atmospheric Emissions Licence. The exceedances were due to high hopper levels causing electrostatic precipitators fields to trip and have low efficiency.

2.3.2 Gaseous Emissions

Gaseous emissions analyzers calibration for all 6 units were performed in January 2025 as per the Eskom emission standard requirement.

The quality assurance tests (QAL2) used for January 2025 emission calculations were performed in June 2024 for Unit 2,3 and 4. Unit 1,5 and 6 quality assurance curves utilized are spot tests performed in August 2023

2.3.2.a SOx Emissions

Unit 1 SO_2 Emissions

Unit 1 is on outage

Unit 2 SO_2 Emissions

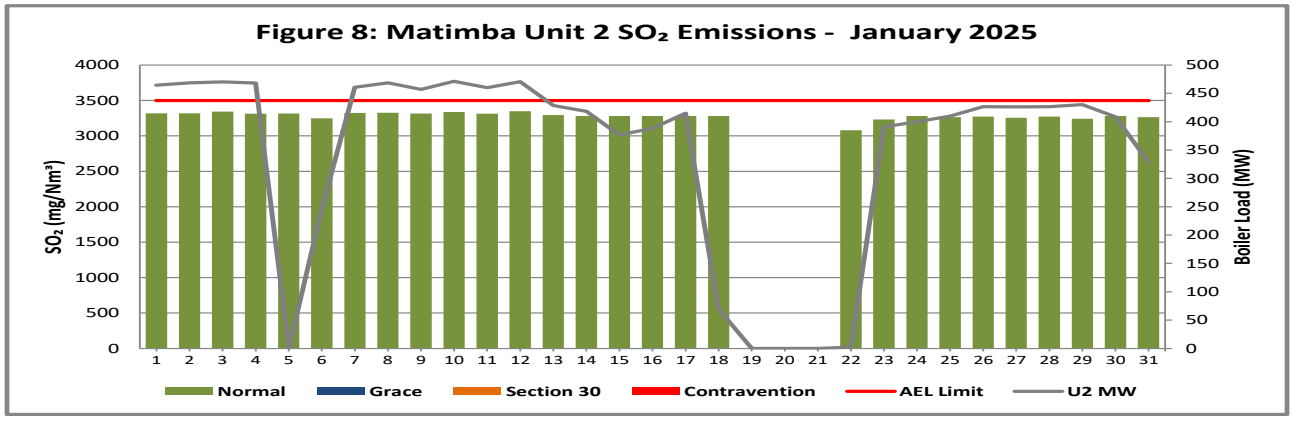

Figure 6: SO2 daily average emissions against emission limit for unit 2 for the month of January 2025

Interpretation: All daily averages below SO_2 emission monthly limit of 3500 mg/Nm^3.

Unit 3 SO_2 Emissions

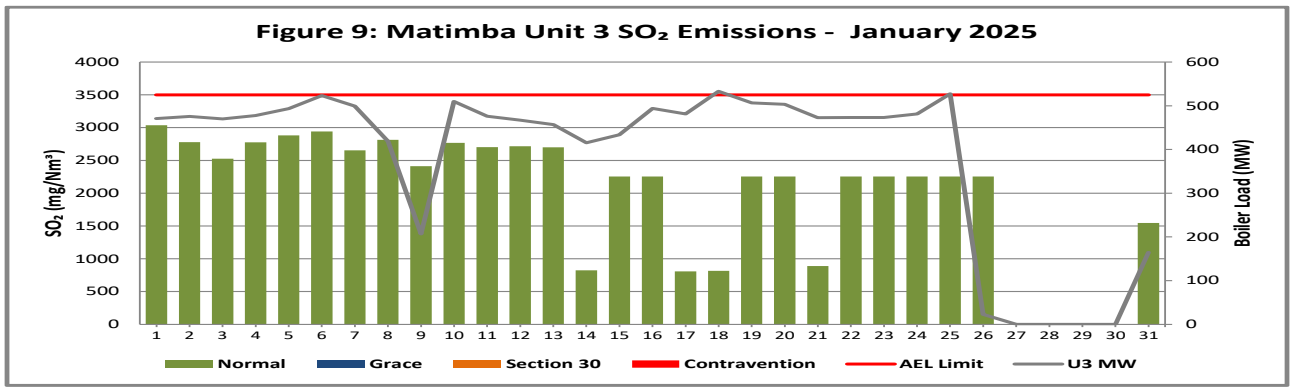

Figure 7: SO2 daily average emissions against emission limit for unit 3 for the month of January 2025

Interpretation: All daily averages below SO_2 emission monthly limit of 3500 mg/Nm^3

Unit 4 SO_2 Emissions

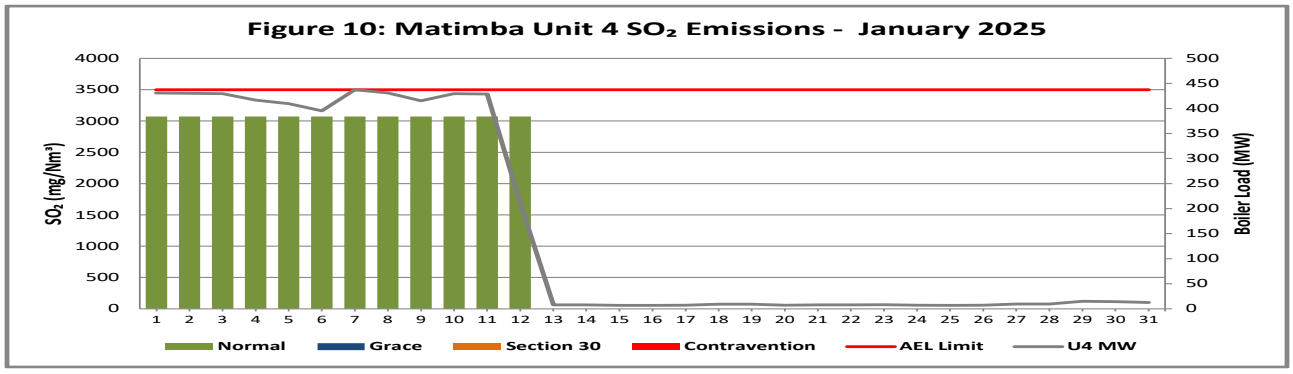

Figure 8: SO2 daily average emissions against emission limit for unit 4 for the month of January 2025

Interpretation: All daily averages below SO_2 emission monthly limit of 3500 mg/Nm^3. The monitor was reported to be unavailable on the 18th of December 2025 due to water ingress. Moisture in the control air affected the efficiency of the monitor. SRM (Standard Reference Material) values from the parallel test was used to calculate the gaseous emissions for unit 4.

Unit 5 SO_2 Emissions

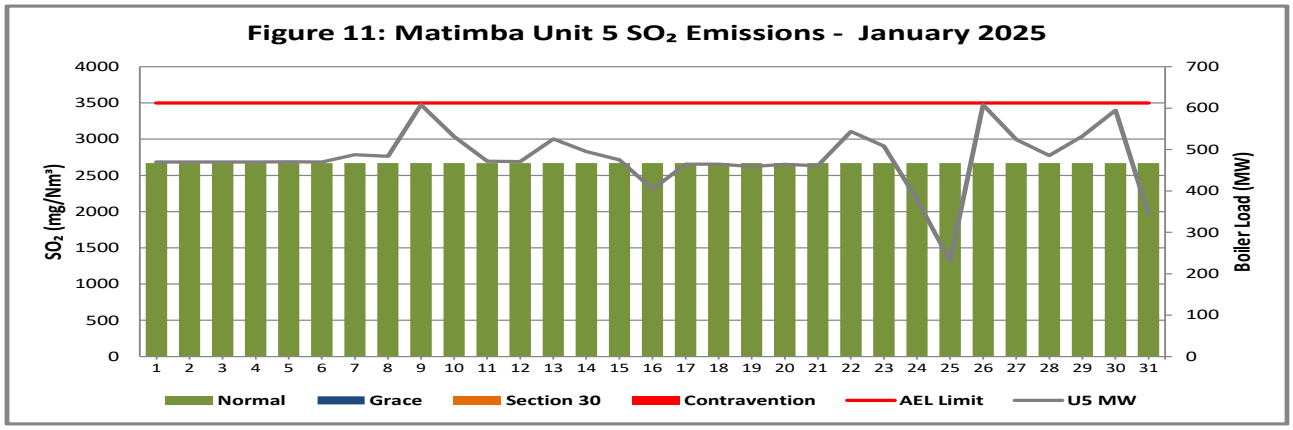

Figure 9: SO2 daily average emissions against emission limit for unit 5 for the month of January 2025

Interpretation: All daily averages below SO_2 emission monthly limit of 3500 mg/Nm^3. The monitor was reported to be unavailable on the 18th of December 2025 due to water ingress. Moisture in the control air affected the efficiency of the monitor. SRM (Standard Reference Material) values from the parallel test was used to calculate the gaseous emissions for unit 5.

Unit 6 SO_2 Emissions

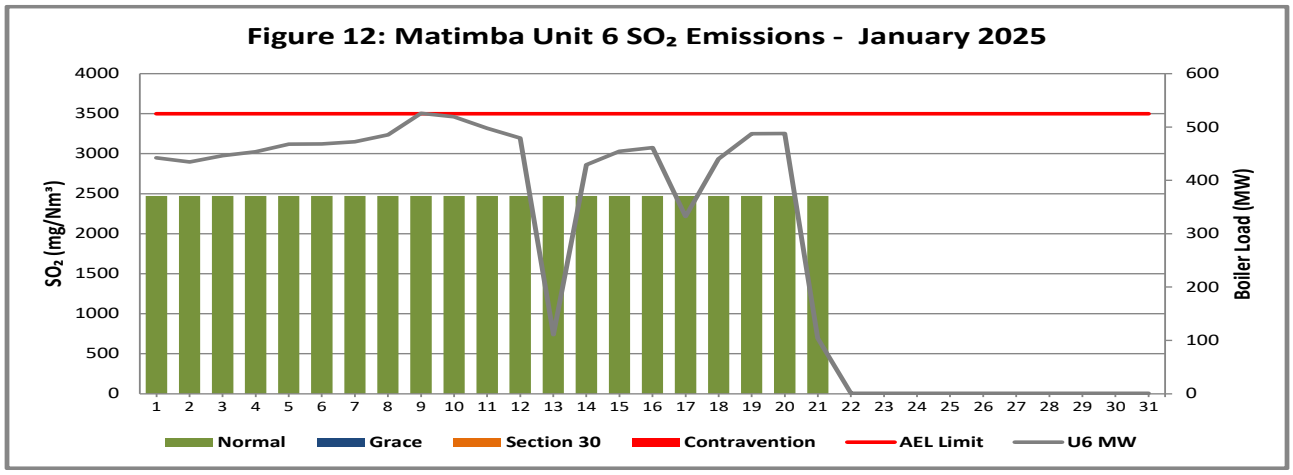

Figure 10: SO2 daily average emissions against emission limit for unit 5 for the month of January 2025

Interpretation: All daily averages below SO_2 emission monthly limit of 3500 mg/Nm^3. The monitor was reported to be unavailable on the 18th of December 2025 due to water ingress. Moisture in the control air affected the efficiency of the monitor. SRM (Standard Reference Material) values from the parallel test was used to calculate the gaseous emissions for unit 6.

2.3.2.b NOx Emissions

Unit 1 NO_x Emissions

Unit 1 is on outage

Unit 2 NO_x Emissions

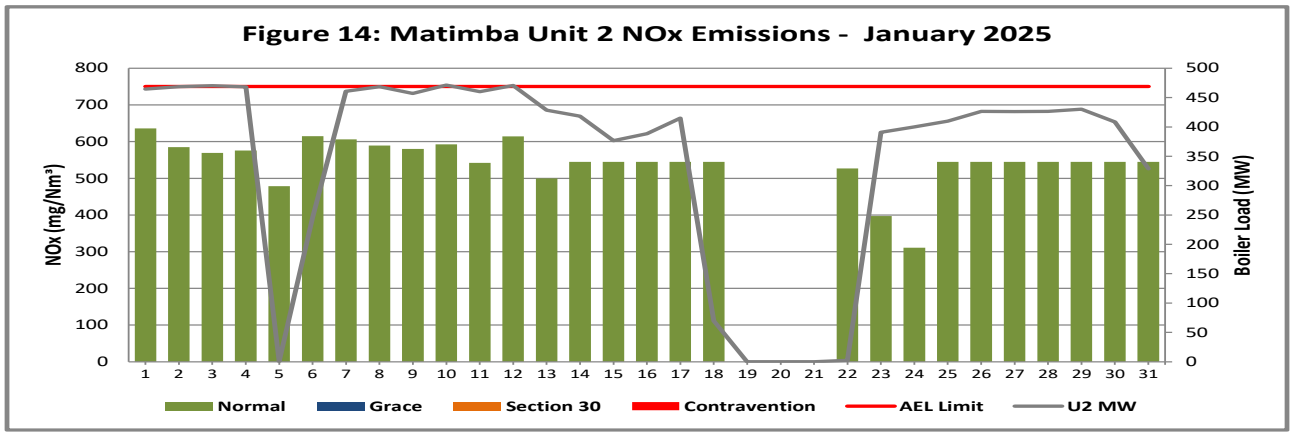

Figure 11: NOx daily average emissions against emission limit for unit 2 for the month of January 2025

Interpretation: All daily averages below NOx emission limit of 750 mg/Nm^3.

Unit 3 NO_x Emissions

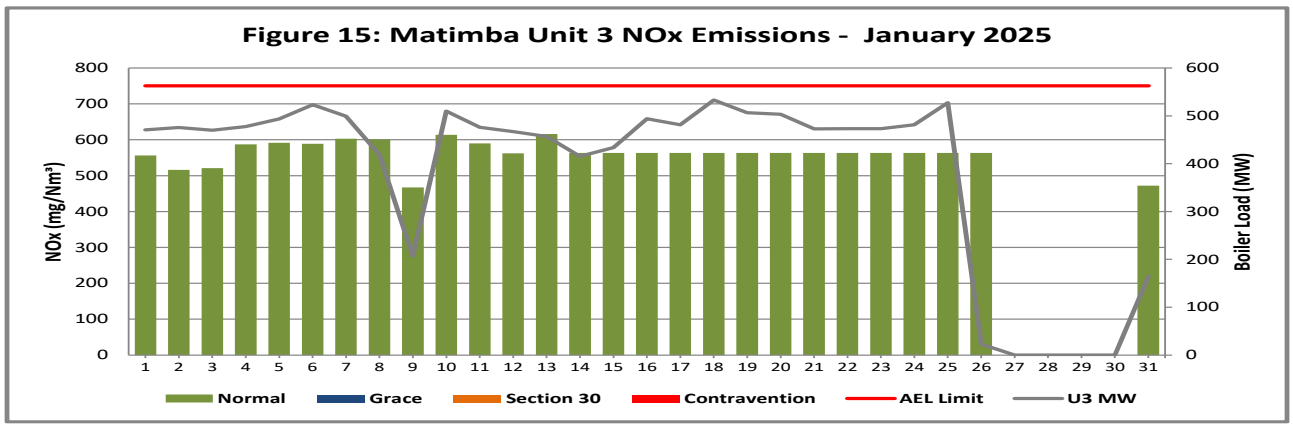

Figure 12: NOx daily average emissions against emission limit for unit 3 for the month of January 2025

Interpretation: All daily averages below NOx emission limit of 750 mg/Nm^3.

Unit 4 NO_x Emissions

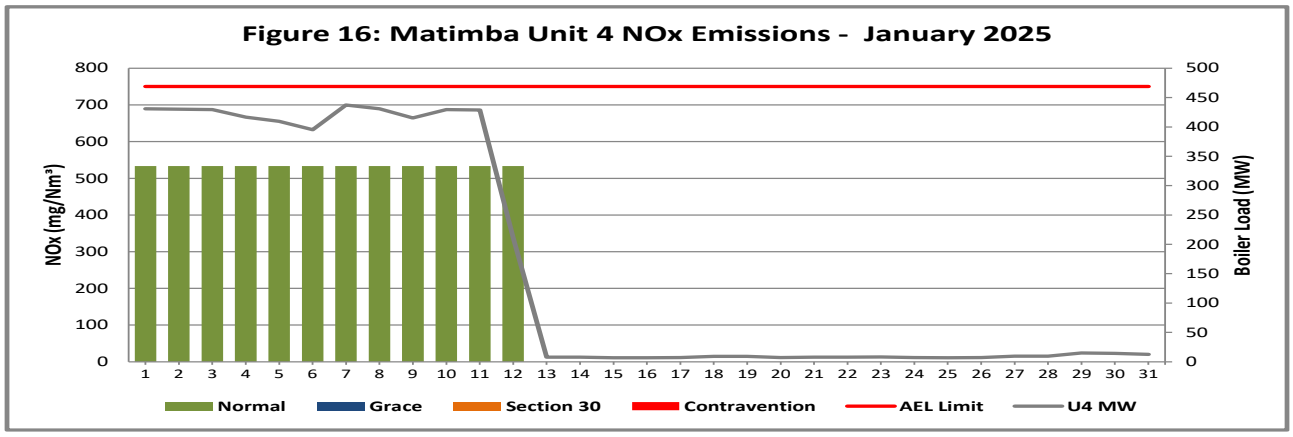

Figure 13: NOx daily average emissions against emission limit for unit 4 for the month of January 2025

Interpretation: All daily averages below SO_2 emission monthly limit of 3500 mg/Nm^3. The monitor was reported to be unavailable on the 18th of December 2025 due to water ingress. Moisture in the control air affected the efficiency of the monitor. SRM (Standard Reference Material) values from the parallel test was used to calculate the gaseous emissions for unit 4.

Unit 5 NO_x Emissions

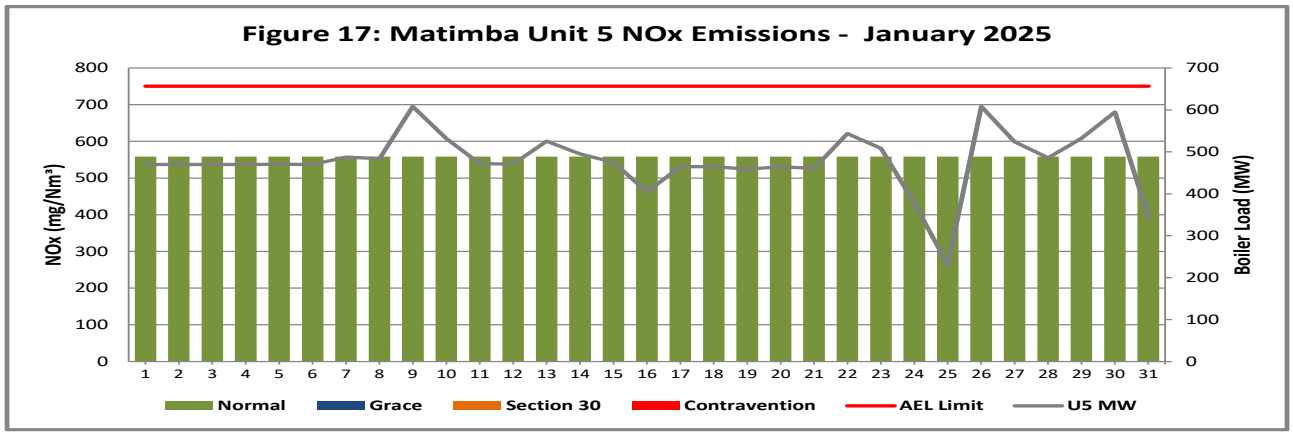

Figure 14: NOx daily average emissions against emission limit for unit 5 for the month of January 2025

Interpretation: All daily averages below SO_2 emission monthly limit of 3500 mg/Nm^3. The monitor was reported to be unavailable on the 18th of December 2025 due to water ingress. Moisture in the control air affected the efficiency of the monitor. SRM (Standard Reference Material) values from the parallel test was used to calculate the gaseous emissions for unit 5.

Unit 6 NO_x Emissions

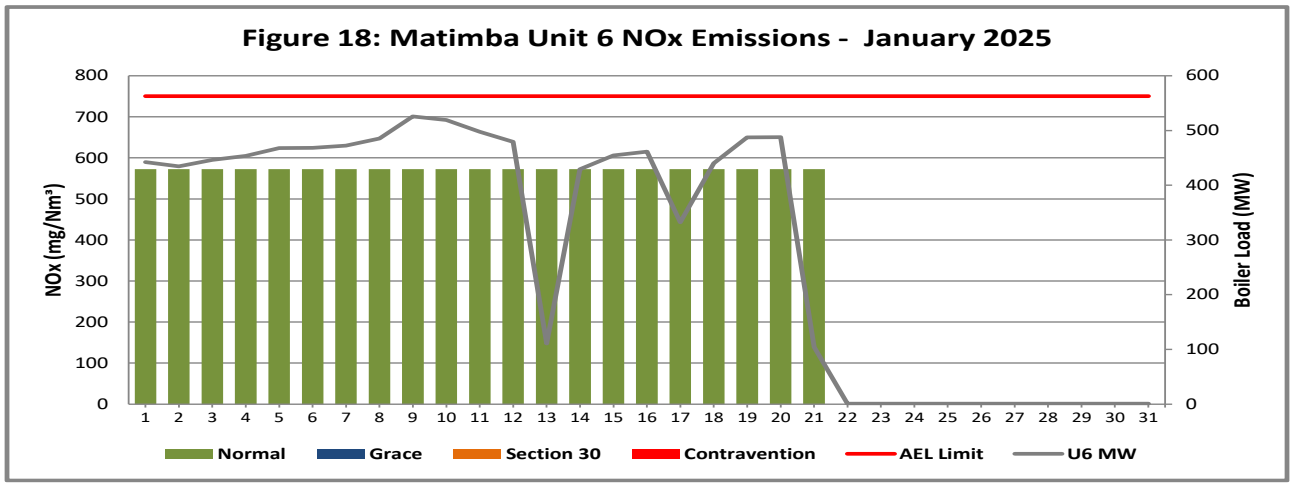

Figure 15: NOx daily average emissions against emission limit for unit 5 for the month of January 2025

Interpretation: All daily averages below SO_2 emission monthly limit of 3500 mg/Nm^3. The monitor was reported to be unavailable on the 18th of December 2025 due to water ingress. Moisture in the control air affected the efficiency of the monitor. SRM (Standard Reference Material) values from the parallel test was used to calculate the gaseous emissions for unit 6.

2.3.3 Total Volatile Organic Compounds

Table 4: Total volatile compound estimates

Eskom

CALCULATION OF EMISSIONS OF TOTAL VOLATILE COMPOUNDS FROM FUEL OIL STORAGE TANKS*

Date:	Thursday, 13 February 2025
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 *blue cells* below
Choose from a dropdown menu in the *green cells*
The total VOC emissions for the month are in the *red cells*

IMPORTANT: Do not change ***any*** other cells without consulting the AQ CoE

MONTH:	**January**	
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:	***2692.724***	
Molecular weight of the fuel oil:	166.00	Lb/lb-mole
METEROLOGICAL DATA FOR THE MONTH	**Data**	**Unit**
Daily average ambient temperature	25.11	°C
Daily maximum ambient temperature	31.57	°C
Daily minimum ambient temperature	17.48	°C
Daily ambient temperature range	14.10	°C
Daily total insolation factor	5.87	kWh/m²/day
Tank paint colour	***Grey/medium***	NA
Tank paint solar absorbtance	0.68	NA
FINAL OUTPUT:	**Result**	**Unit**
Breathing losses:	0.60	kg/month
Working losses:	0.08	kg/month
TOTAL LOSSES (Total TVOC Emissions for the month):	**0.67**	**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, Tritech Consulting Engineers, 85-93 Chevy Chase Street, Jamaica, NY 11432 USA, Tel - 718-454-3920, Fax - 718-454-6330, e-mail - PeressJ@nyc.rr.com.

2.3.4 Greenhouse gas (CO_2) emissions

CO_2 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 January 2025

Date	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
2025/01/01	Unit off	10010.4	10101.8	10236	9049.2	10190
2025/01/02	Unit off	10100.2	10194	10357	9044.7	10190.7
2025/01/03	Unit off	10127.2	10222.6	10195.5	9067.42	10196
2025/01/04	Unit off	10100.2	10196.1	10383.7	8774.35	10190.4
2025/01/05	Unit off	134.237	141.062	10706.7	8491.78	10195.6
2025/01/06	Unit off	4950.25	4984.46	11413.3	8219.08	10193.3
2025/01/07	Unit off	9892.03	9973.97	10856.5	9172.11	10588.2
2025/01/08	Unit off	10078	10158	9207.51	9046.72	10460.7
2025/01/09	Unit off	9843.5	9921.28	4000.54	8685.52	13171.2
2025/01/10	Unit off	10157.6	10237	11101.8	9050.46	11566.1
2025/01/11	Unit off	9921.04	9998.75	10331.3	9097.62	10200.2
2025/01/12	Unit off	10164.9	10246.3	10128.5	4231.02	10165.1
2025/01/13	Unit off	9270.05	9339.23	9897.34	Unit off	11387.3
2025/01/14	Unit off	9050.37	9118.72	9012.05	Unit off	10738
2025/01/15	Unit off	8101.48	8162.97	9381.22	Unit off	10261.3
2025/01/16	Unit off	8355.46	8416.73	10731.7	Unit off	8665.9
2025/01/17	Unit off	8961.04	9026.67	10475.4	Unit off	10158.1
2025/01/18	Unit off	1371.45	1381.94	11593	Unit off	10146.6
2025/01/19	Unit off	Unit off	Unit off	11019.9	Unit off	9999.47
2025/01/20	Unit off	Unit off	Unit off	10966.9	Unit off	10054.9
2025/01/21	Unit off	Unit off	Unit off	10267.7	Unit off	9986.32
2025/01/22	Unit off	Unit off	Unit off	10287.9	Unit off	11777.9
2025/01/23	Unit off	8260.8	8309.33	10285.9	Unit off	11047.2
2025/01/24	Unit off	8664.34	8726.82	10438.1	Unit off	8249.2
2025/01/25	Unit off	8857.01	8917.85	11506	Unit off	4528.91
2025/01/26	Unit off	9253.9	9319.98	240.33	Unit off	13215.8
2025/01/27	Unit off	9244.68	9311.32	Unit off	Unit off	11407.4
2025/01/28	Unit off	9231.89	9303.19	Unit off	Unit off	10493.1
2025/01/29	Unit off	9320.12	9388.44	Unit off	Unit off	11541.2
2025/01/30	Unit off	8846.3	8913.76	Unit off	Unit off	12888.9
2025/01/31	Unit off	7046.24	7100.98	2994.16	Unit off	7516.77

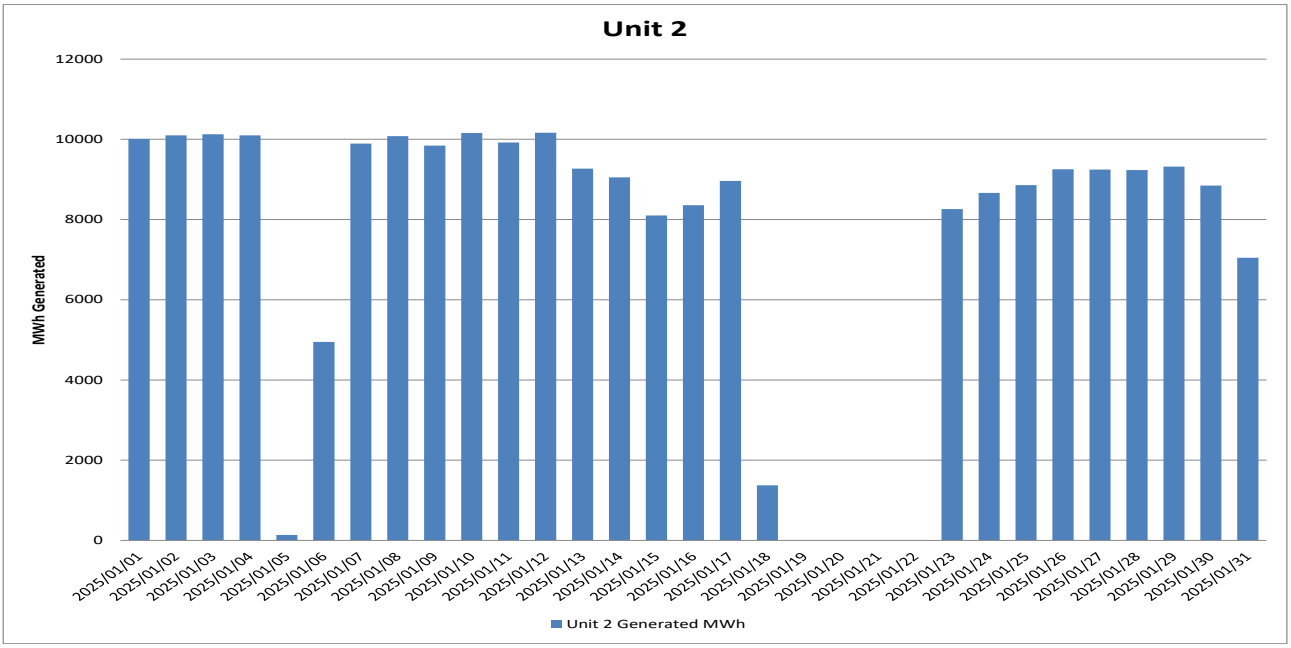

Figure 16: Unit 2 daily generated power in MWh for the month of January 2025

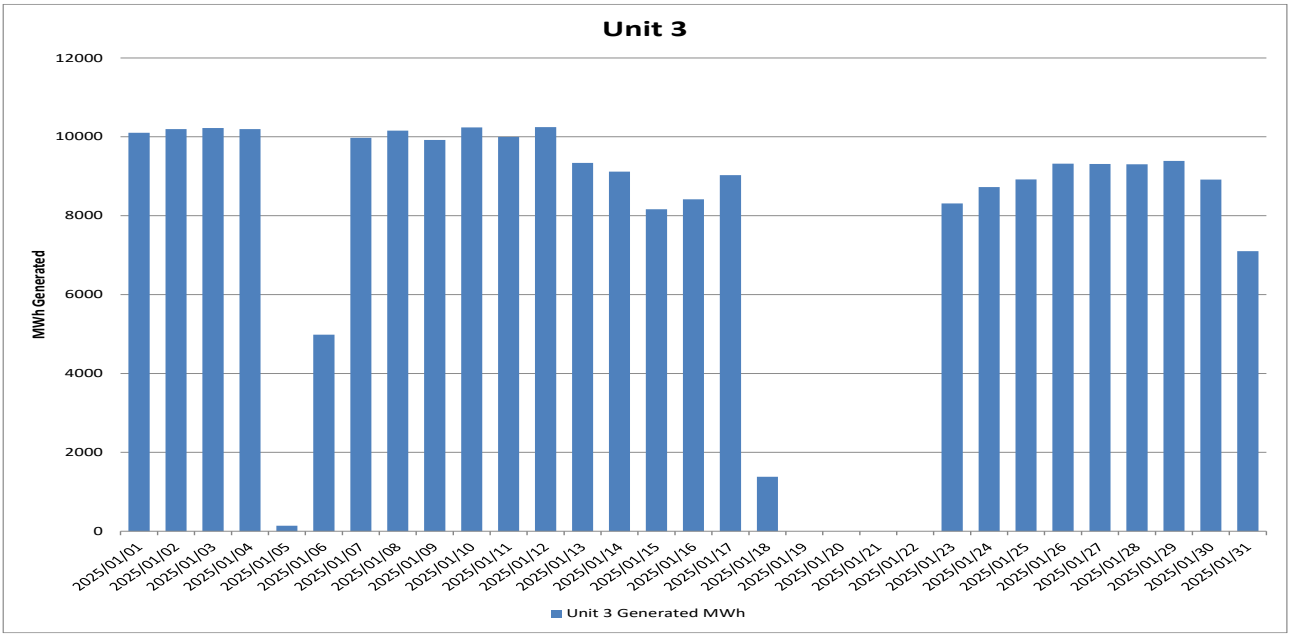

Figure 17: Unit 3 daily generated power in MWh for the month of January 2025

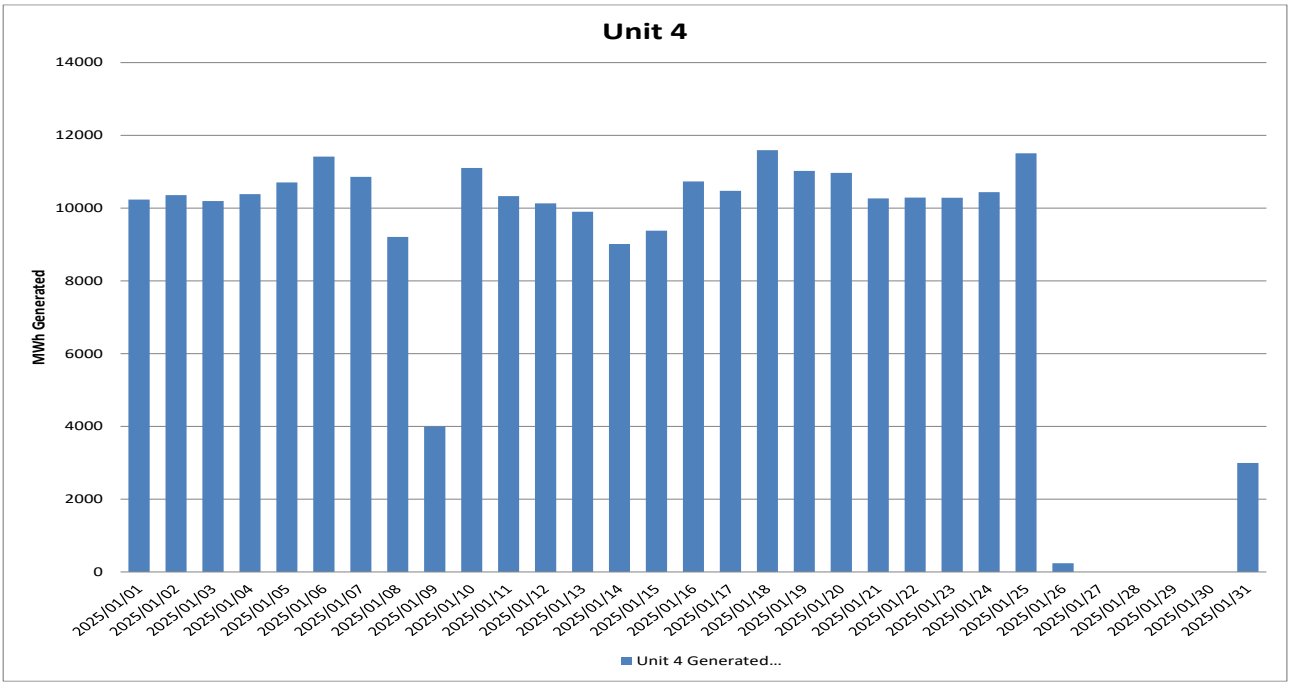

Figure 18: Unit 4 daily generated power in MWh for the month of January 2025

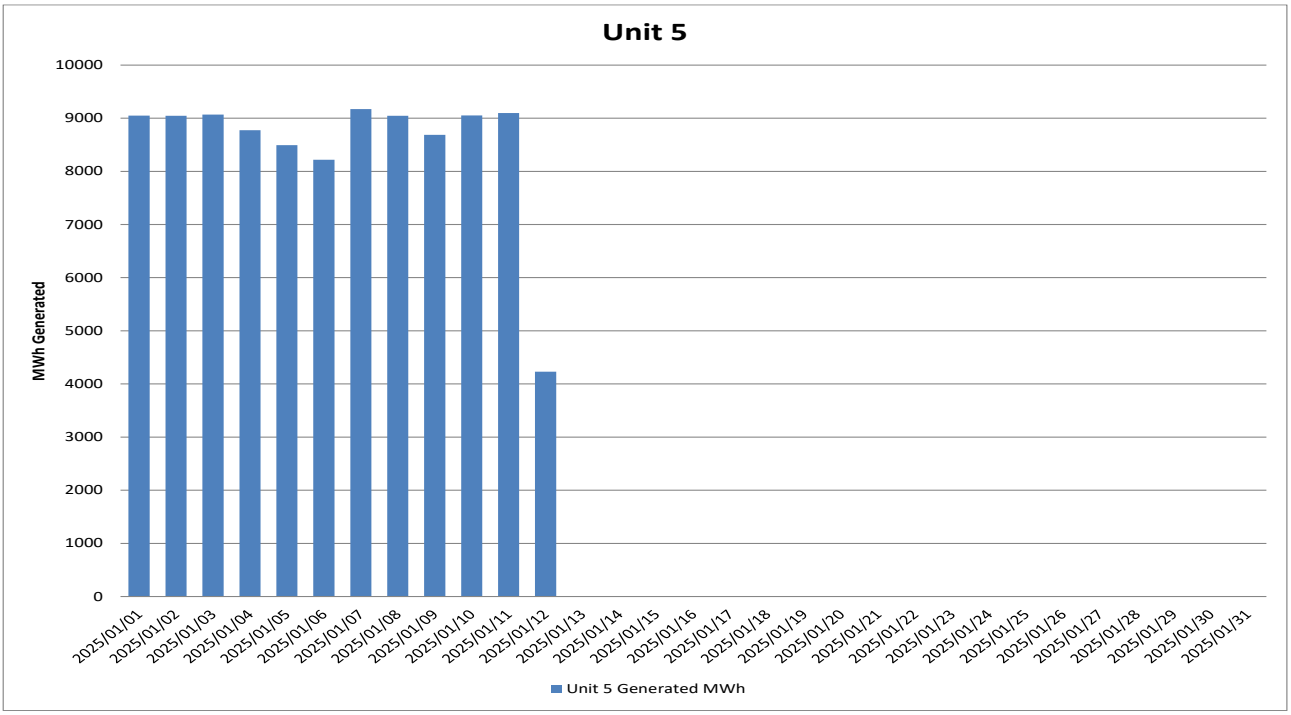

Figure 19: Unit 5 daily generated power in MWh for the month of January 2025

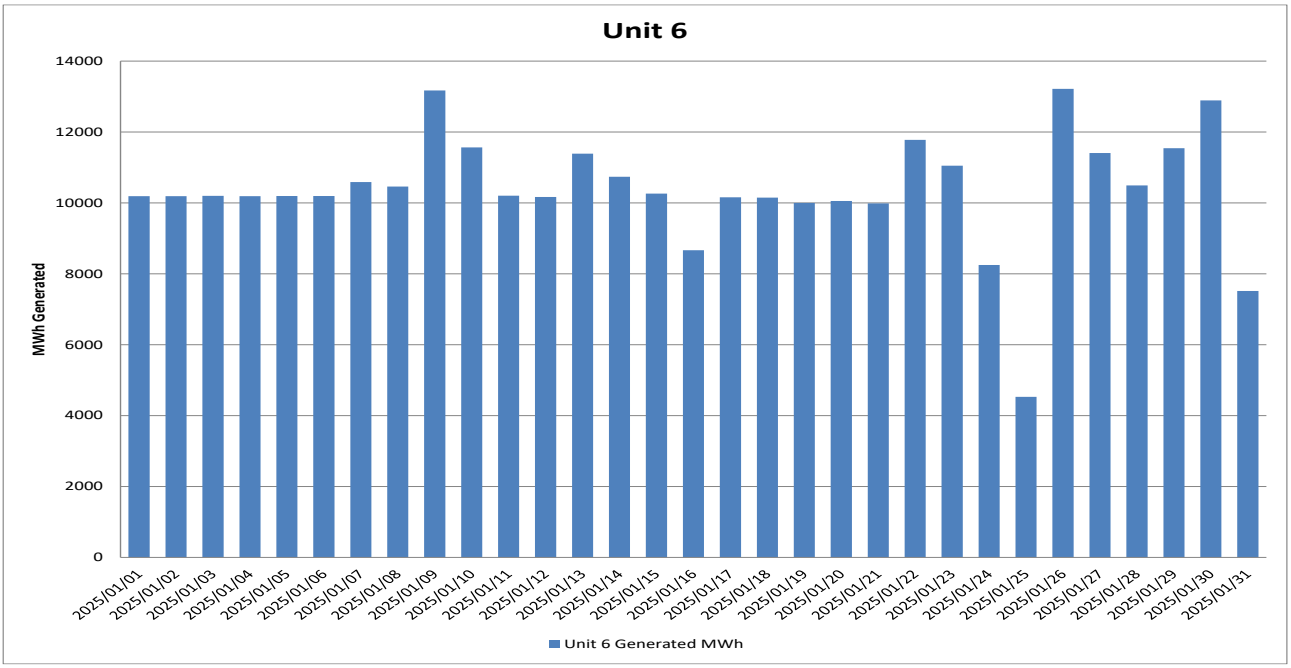

Figure 20: Unit 6 daily generated power in MWh for the month of January 2025

2.5 Pollutant Tonnages

The emitted pollutant tonnages for January 2025 are provided in table 6.

Table 6: Pollutant tonnages for the month of January 2025

Associated Unit/Stack	PM (tons)	SO_2 (tons)	NO_x (tons)
Unit 1	Off	Off	Off
Unit 2	456.2	6 895.5	1 146.4
Unit 3	326.8	2 927.4	733.2
Unit 4	57.9	160.3	27.8
Unit 5	1 077.8	5 020.3	1 049.7
Unit 6	530.9	3 193.4	740.4
SUM	2 449.7	18 196.9	3 697.5

2.6 Operating days in compliance to PM AEL Limit

Table 7: Operating days in compliance with PM AEL limit of January 2025

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm³)
Unit 1	Off	Off	Off	Off	Off	Off
Unit 2	0	2	0	24	26	249.1
Unit 3	0	0	0	25	25	261.5
Unit 4	0	0	0	12	12	1 110.6
Unit 5	0	0	0	30	30	597.7
Unit 6	3	2	0	15	17	442.9
SUM	**3**	**4**	**0**	**106**	**110**	

2.7 Operating days in compliance to SOx AEL Limit

Table 8: Operating days in compliance with SOx AEL limit of January 2025

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SO_2 (mg/Nm³)
Unit 1	Off	Off	Off	Off	Off	Off
Unit 2	28	0	0	0	0	3 284.8
Unit 3	27	0	0	0	0	2 254.8
Unit 4	12	0	0	0	0	3 072.7
Unit 5	31	0	0	0	0	2 670.7
Unit 6	21	0	0	0	0	2 470.5
SUM	**119**	**0**	**0**	**0**	**0**	

2.8 Operating days in compliance to NOx AEL Limit

Table 9: Operating days in compliance with NOx AEL limit of January 2025

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm³)
Unit 1	Off	Off	Off	Off	Off	Off
Unit 2	28	0	0	0	0	545.0
Unit 3	27	0	0	0	0	563.3
Unit 4	12	0	0	0	0	533.4
Unit 5	31	0	0	0	0	558.4
Unit 6	21	0	0	0	0	572.8
SUM	**119**	**0**	**0**	**0**	**0**	

2.9 Reference values

Table 10: Reference values for data provided, January 2025

Compound / Parameter	Units of Measure	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Oxygen	%	Off	7.55	9.29	7.98	7.34	9.84
Moisture	%	Off	7.18	5.58	5.92	5.12	3.66
Velocity	m/s	Off	31.9	22.9	1.9	23.7	29.1
Temperature	^{o}C	Off	121.8	133.3	136.7	122.2	110.0
Pressure	mBar	Off	924.0	917.5	904.4	902.3	902.1

2.10 Continuous Emission Monitors

2.10.1 Reliability

Table 11: Monitor reliability percentage (%)

Associated Unit/Stack	PM	SO_2	NO
Unit 1	*Off*	*Off*	*Off*
Unit 2	*73.4*	*100.0*	*49.1*
Unit 3	*100.0*	*49.8*	*49.3*
Unit 4	*1.0*	*100.0*	*100.0*
Unit 5	*72.4*	*100.0*	*100.0*
Unit 6	*67.3*	*100.0*	*100.0*

Note: NOx emissions are measured as NO in PPM. Final NOx value is expressed as total NO2.

Continuous emission monitors were reliable for less than 80% of the reporting period for unit 3 SO2 and NO, unit 4, 5 and 6 PM. Unit 3 gaseous monitor low reliability was caused by the monitor not being calibrated on the 20th January 2025 due to water ingress issue that passed to north stack from south stack. Unit 4, 5 and 6 gaseous monitor reliability is 100% due to the SRM (STANDARD REFERENCE MATERIAL)(Standard Reference Material) values from the parallel test was used to calculate the gaseous emissions for unit 6.Unit 4 dust monitor reliability was low due to the continuous blockages that were caused by the high amount of ash passing through the flue gas stack, the increase in tonnages emitted at unit 4 was due to the challenges experienced on the dust handling plant.

Table 12: Average percentage (%) availability of monitors for the month of January 2025.

Unit	SO_2	NO_x	PM	CO_2
1				
2	100.0	49.1	73.4	100.0
3	49.8	49.3	100.0	100.0
4	100.0	100.0	1.0	100.0
5	100.0	100.0	72.4	100.0
6	100.0	100.0	67.3	100.0

Continuous emission monitors were available for less than 80% of the reporting period for unit 3 SO2 and NO, unit 4, 5 and 6 PM. Unit 3 gaseous monitor low reliability was caused by the monitor not being calibrated on the 20th January 2025 due to water ingress issue that passed to north stack from South stack. Unit 4, 5 and 6 gaseous monitor reliability is 100% due to the SRM (STANDARD REFERENCE MATERIAL) values from the parallel test was used to calculate the gaseous emissions for unit 6.Unit 4 dust monitor reliability was low due to the continuous blockages that were caused by the high amount of ash passing through the flue gas stack, the increase in tonnages emitted at unit 4 was due to the challenges experienced on the dust handling plant.

2.10.2 Changes, downtime, and repairs

Unit 1

- No adjustments done on the CEMs.
- Replaced PM monitor on 23 January 2025. Correlation test to be done.

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.
- Replaced PM monitor on 23 January 2025. Correlation test to be done.

Unit 4

- No adjustments done on the CEMs.
- Unit 4 monitor was reported to be unavailable from the 18th of January 2025 due to water ingress in the gas analyser system.
- Replaced PM monitor on 23 January 2025. Correlation test to be done.

Unit 5

- No adjustments done on the CEMs.
- Unit 5 monitor was reported to be unavailable from the 18th of January 2025 due to water ingress in the gas analyser system.

- Replaced PM monitor on 23 January 2025. Correlation test to be done.

Unit 6

- No adjustments done on the CEMs.
- Unit 6 monitor was reported to be unavailable from the 18th of January 2025 due to water ingress in the gas analyser system.
- No downtime or repairs done on the particulate monitors. Correlation test to be done.

2.10.3 Sampling dates and times

Table 13: Dates of last full conducted CEMS verification tests for PM for unit 6.

Name of service provider:		Stacklabs Environmental Services CC		
Address of service provider:		10 Chisel Street Boltonia Krugersdorp 1739		
Stack/ Unit	**PM**	**SO_2**	**NOx**	**CO_2**
6	2020/09/09 06h41	New sampling tests in table 14	New sampling tests in table 14	New sampling tests in table 14

Table 14: Dates of last conducted CEMS Spot verification tests for PM, SO_2 and NOx for unit1, 5 and 6)

Name of service provider:		Levego Environmental services		
Address of service provider:		Building R6 Pineland site Ardeer Road Modderfontein 1645		
Stack/ Unit	**PM**	**SO_2**	**NOx**	**CO_2**
1	2023/08/01 19h33	2023/08/01 19:33	2023/08/01 19:33	2023/08/01 19:33
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 13 above	2023/08/05 15:52	2023/08/05 15:52	2023/08/05 15:52

Note: The CEMS Spot verification tests for PM, SO_2 and NOx were performed in August 2023. PM spot verification test results for unit 6 failed and old curves are still in use.

Table 15: Dates of last full conducted CEMS verification tests for PM for unit 2, unit 3 and 4 only

Name of service provider:		Levego Environmental services		
Address of service provider:		Building R6 Pineland site Ardeer Road Modderfontein 1645		
Stack/ Unit	**PM**	**SO_2**	**NOx**	**CO_2**
2	2024/07/02 08h50	2024/07/02 12h35	2024/07/02 12h35	2024/07/02 12h35
3	2024/06/23 16h34	2024/06/23 14h00	2024/06/23 14h00	2024/06/23 14h00
4	2024/06/29 16h05	2024/06/29 11h00	2024/06/29 11h00	2024/06/29 11h00

2.11 Units Start-up information

Table 16: Start-up information

Unit	2	
Fires in	2025/01/06	04h02
Synchronization with Grid	2025/01/06	09h55
Emissions below limit	2025/01/11	04h04
Fires in, to synchronization	5.53	HOURS
Synchronization to < Emission limit	114.9	HOURS

Unit	2	
Fires in	2025/01/22	17h53
Synchronization with Grid	2025/01/22	23h23
Emissions below limit	2025/01/30	07h01
Fires in, to synchronization	5.30	HOURS
Synchronization to < Emission limit	175.38	HOURS

Unit	3	
Fires in	2025/01/09	11h19
Synchronization with Grid	2025/01/09	13h37
Emissions below limit	2025/01/09	15h00
Fires in, to synchronization	2.18	HOURS
Synchronization to < Emission limit	1.23	HOURS

Unit	3	
Fires in	2025/01/30	22h04
Synchronization with Grid	2025/01/31	10h47
Emissions below limit	2025/01/31	13h00
Fires in, to synchronization	12.43	HOURS
Synchronization to < Emission limit	2.13	HOURS

Unit	3	
Fires in	2025/01/31	14h35
Synchronization with Grid	2025/01/31	17h31
Emissions below limit	2025/01/31	Unit did not go below the limit till it tripped again in February 2025
Fires in, to synchronization	2.56	HOURS
Synchronization to < Emission limit	N/A	HOURS

Unit	5	
Fires in	2025/01/16	10h03
Synchronization with Grid	2025/01/16	11h37
Emissions below limit	2025/01/17	12h00
Fires in, to synchronization	1.34	HOURS
Synchronization to < Emission limit	24.23	HOURS

Unit	5	
Fires in	2025/01/24	21h42
Synchronization with Grid	2025/01/25	13h16
Emissions below limit	2025/01/26	12h02
Fires in, to synchronization	15.34	HOURS
Synchronization to < Emission limit	22.46	HOURS

Unit	5	
Fires in	2025/01/31	22h26
Synchronization with Grid	2025/02/01	05h43
Emissions below limit	2025/02/01	09h00
Fires in, to synchronization	7.17	HOURS
Synchronization to < Emission limit	3.17	HOURS

Unit	6	
Fires in	2025/01/13	17h48
Synchronization with Grid	2025/01/14	01h00
Emissions below limit	2025/01/16	08h30
Fires in, to synchronization	7.12	HOURS
Synchronization to < Emission limit	55.30	HOURS

Unit	6	
Fires in	2025/01/21	00h56
Synchronization with Grid	2025/01/21	16h18
Emissions below limit	2025/01/22	06h00
Fires in, to synchronization	15.22	HOURS
Synchronization to < Emission limit	13.42	HOURS

2.12 Emergency generation

Table 17: 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 standing down	Off	602.620	615.780	276.980	718.410	492.200
Days over the Limit during Emergency Generation	0	26	25	12	30	17

During the period under review all Units were on emergency generation in force from 01 January 2025 until 31 January 2025.

2.13 Complaints register.

Table 18: 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
None					

2.14 Air quality improvements and social responsibility conducted.

Air quality improvements

None

Social responsibility conducted.

None

2.15 Ambient air quality monitoring

Marapong ambient air quality monitoring station was relocated from the previous location to Ditheku primary school and commissioned to service on 20 March 2024. The January 2025 ambient air quality monitoring report is attached to this report as an addendum.

2.16 Electrostatic precipitator and Sulphur plant status

Unit 1

- Unit on outage.

Unit 2

- 6 fields defective.
- Unit 2 SO3 plant not available for some time due to defective process air flow transmitters.

Unit 3

- 4 fields defective.
- Unit 3 SO3 plant running at low SO3 injection rate due to defective process air flow transmitters.

Unit 4

- 5 fields defective.
- No abnormalities on the SO3 plant.

Unit 5

- 4 fields defective.
- No abnormalities on the SO3 plant.

Unit 6

- 4 fields defective.
- Unit 6 SO3 plant not available for some time due to defective process air flow transmitters.

SO3 common plant

- Sulphur pump number 2 not available.

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. S23º 40' 2.8" E027º 36' 34.8" 175m from ground level and 75m from the top.
    b. Gas:
        i. S23º 40' 2.8" E027º 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. S23º 40' 14.8" E027º 36' 47.5" 175m from ground level and 75m from the top.
    b. Gas:
        i. S23º 40' 14.8" E027º 36' 47.5" 100m from ground level and 150m from the top.
    c. Stack height
        i. 250 meter consist of 3 flues

3. Attachments

- Fugitive dustfall out monitoring report and Ambient air quality report.
- Marapong ambient air quality report

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

GENERAL MANAGER: MATIMBA POWER STATION