Eskom	Technical and Generic Report	Matimba Power Station

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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 December 2024.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 twenty-two (122) exceedances of the daily particulate matter emission limit (50mg/Nm^3), ninety-nine (99) 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 twenty-three (23) 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, 3 and 6. Unit 2 SO3 plant was off in December 2024 due to defective process air flow transmitter, no spare available. Unit 3 operated at availability of 68%. Unit 6 operated at availability of 16%.

The consumption rates for fuel oil for the month of December 2024 exceeded the limit of 1200 tons by 3263.165 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	871 142
	Fuel Oil	Tons/month	1 200	3263.165
Production Rates	**Product/ By-Product Name**	**Unit**	**Maximum Production Capacity Permitted (Quantity)**	**Production Rate**
	Energy	MW	4000	1944.320
	Ash	Tons/month	547500	309870.818

The consumption rates for fuel oil for the month of December 2024 exceeded the permitted maximum limits due to multiple units light up trips, unit 6 cold start up from outage 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%	99.99%
Unit 2	Electrostatic Precipitator	100%	100.00%
Unit 3	Electrostatic Precipitator	100%	100.00%
Unit 4	Electrostatic Precipitator	100%	100.00%
Unit 5	Electrostatic Precipitator	100%	100.00%
Unit 6	Electrostatic Precipitator	100%	100.00%
Associated Unit	**Technology Type**	**Minimum utilisation (%)**	**Actual Utilisation (%)**
Unit 1	SO_3 Plant	100%	82%
Unit 2	SO_3 Plant	100%	0%
Unit 3	SO_3 Plant	100%	68%
Unit 4	SO_3 Plant	100%	98%
Unit 5	SO_3 Plant	100%	98%
Unit 6	SO_3 Plant	100%	13%

Flue gas conditioning plant availability was below 90% for unit 2, unit 3 and unit 6. Unit 2 and unit 3 SO3 plant not available due to defective process air flow transmitters, no spare available. Unit 6 SO_3 plant was off (permit to work) to repair sulphur leak. Unit 1 was taken out for general outage from the 9th of December 2024 hence the SO3 availability was at 82%. Unit 4 SO_3 plant availability was 98%. Unit 5 SO3 plant availability was 98% for the month of December 2024.

Table 3: Energy Source Material Characteristics.

	Characteristic	Stipulated Range (Unit)	Monthly Average Content
Coal burned	**Sulphur Content**	1.6%	1.372%
	Ash Content	40%	35.571%

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 August 2023 and the results were applied and used for gaseous emissions calculation for December 2024.The spot test results for PM emissions does not meet the minimum requirements outlined in the Eskom emission calculation Methodology and were not applied.

Unit 1 Particulate Emissions

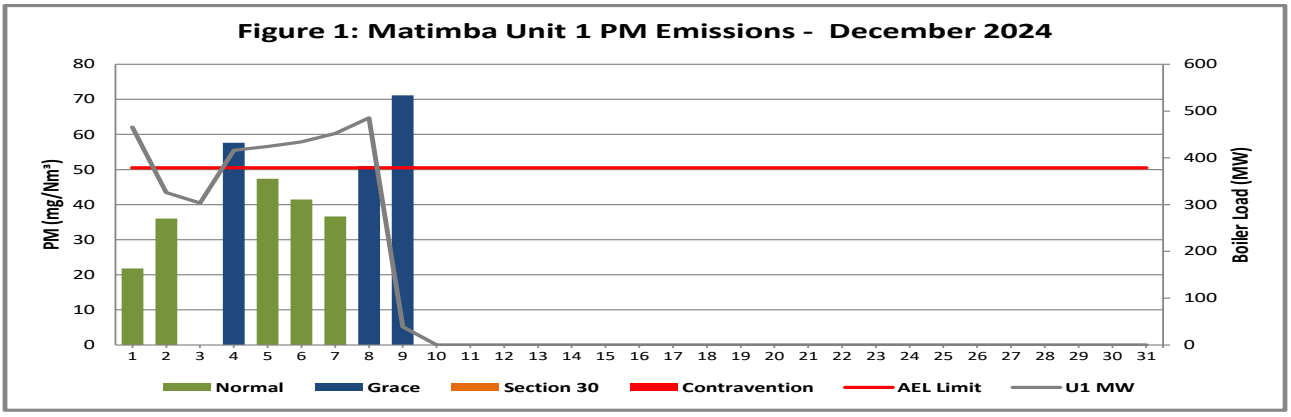

Figure 1: Particulate matter daily average emissions against emission limit for unit 1 for the month of December 2024

Interpretation: Unit 1 exceeded the daily particulate emission limit of 50mg/Nm^3 on 4, 8 and 9 December 2024. The exceedances occurred within the 48-hour grace period. The exceedances were due to high hopper levels causing electrostatic precipitators fields to trip and have low efficiency.

Unit 2 Particulate Emissions

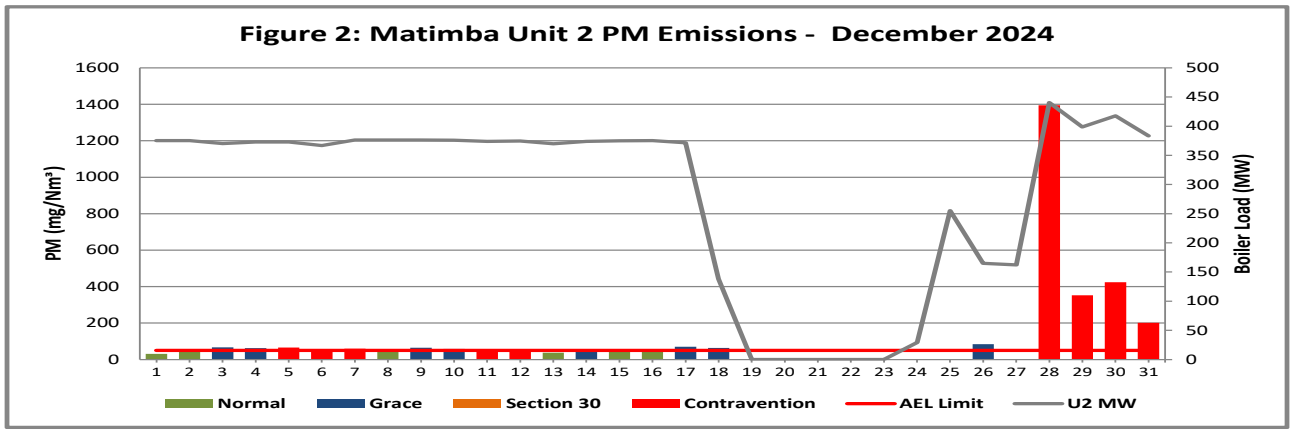

Figure 2: Particulate matter daily average emissions against emission limit for unit 2 for the month of December 2024

Interpretation: Unit 2 exceeded the daily particulate emission limit of 50mg/Nm3 on 3 to 7, 9 to 12, 17, 18 ,26 and 28 to 31 December 2024. The exceedances from 5 to 7, 11, 12 and 28 to 31 December 2024 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

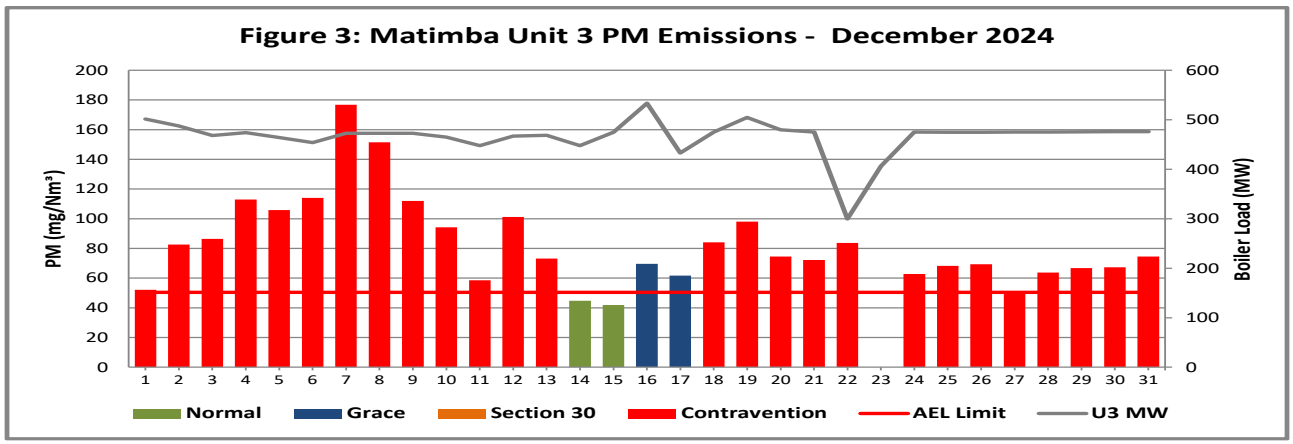

Figure 3: Particulate matter daily average emissions against emission limit for unit 3 for the month of December 2024

Interpretation: Unit 3 exceeded the daily particulate emission limit of 50mg/Nm3 on 1 to 13, 16 to 22 and 24 to 31 December 2024. The exceedances from 1 to 13, 18 to 22 and 24 to 31 December 2024 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

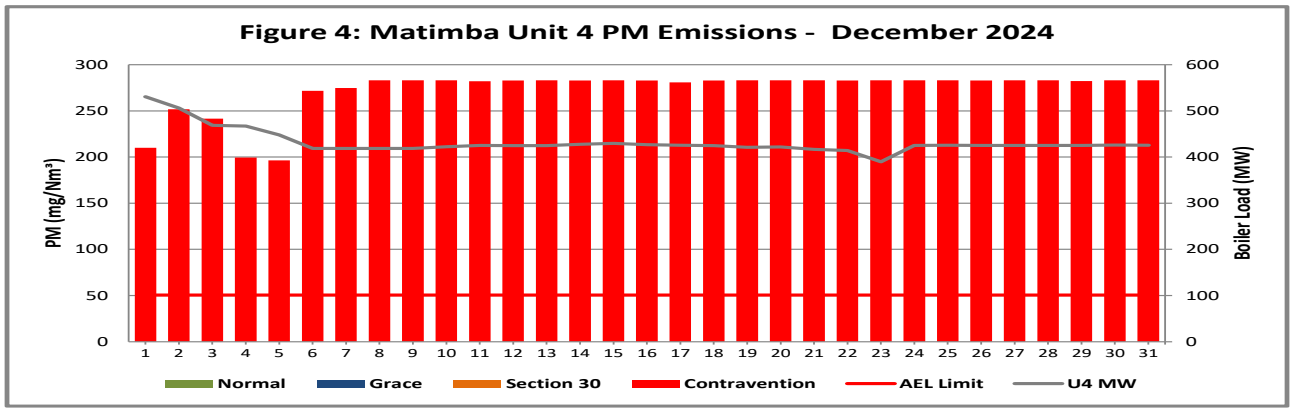

Figure 4: Particulate matter daily average emissions against emission limit for unit 4 for the month of December 2024

Interpretation: Unit 4 exceeded the daily particulate emission limit of 50mg/Nm3 on 1 to 31 December 2024. 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 from the 8th till 31st December 2024 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

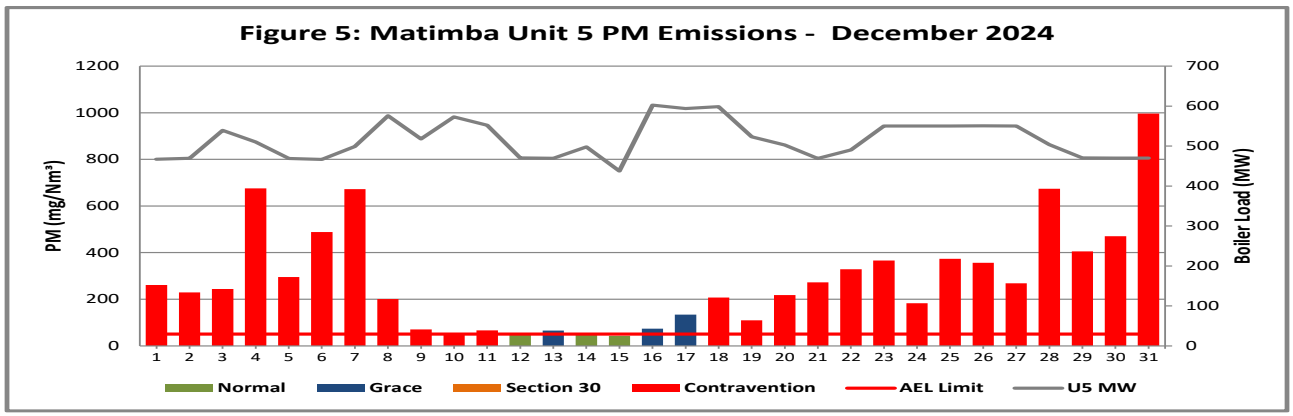

Figure 5: Particulate matter daily average emissions against emission limit for unit 5 for the month of December 2024

Interpretation: Unit 5 Particulate matter exceeded the daily limit of 50 mg/Nm^3 on 1 to 11, 13 and 16 to 31 December 2024. The exceedances on 1 to 11 and 18 to 31 December 2024 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

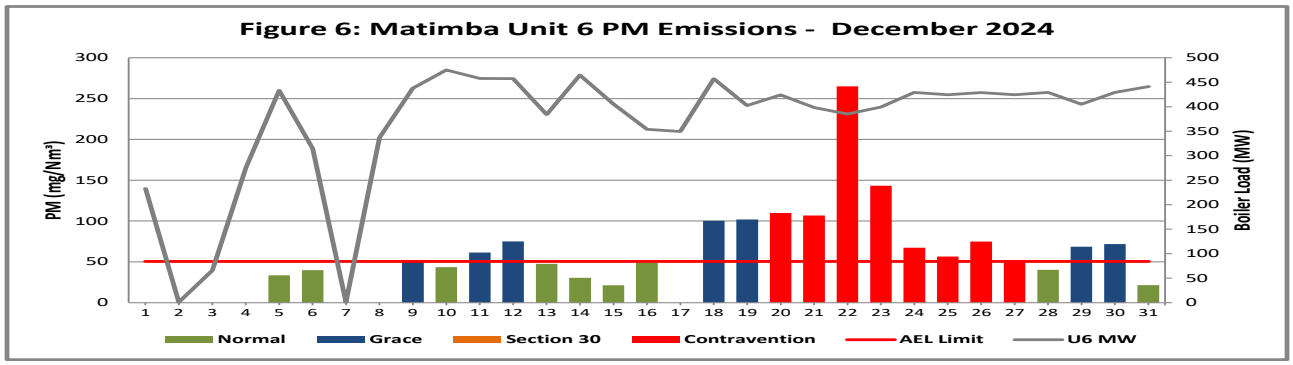

Figure 6: Particulate matter daily average emissions against emission limit for unit 6 for the month of December 2024

Interpretation: Unit 6 Particulate matter exceeded the daily limit of 50 mg/Nm^3 on 9, 11, 12, 18 to 27, 29 and 30 December 2024. The exceedances on 20 to 27 December 2024 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 December 2024 as per the Eskom emission standard requirement.

The quality assurance spot tests were performed on the monitors in August 2023 and the test results are used for the December 2024 emission calculation.

2.3.2.a SOx Emissions

Unit 1 SO_2 Emissions

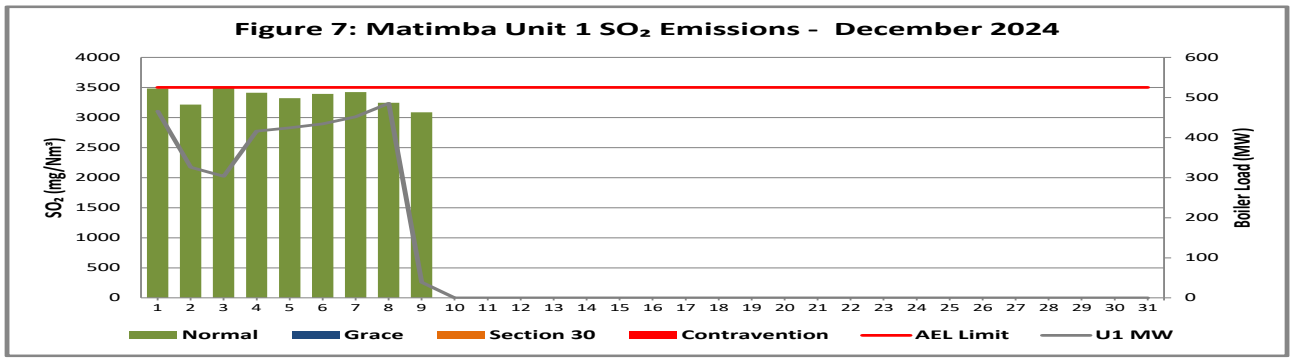

Figure 7: SO2 daily average emissions against emission limit for unit 1 for the month of December 2024

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

Unit 2 SO_2 Emissions

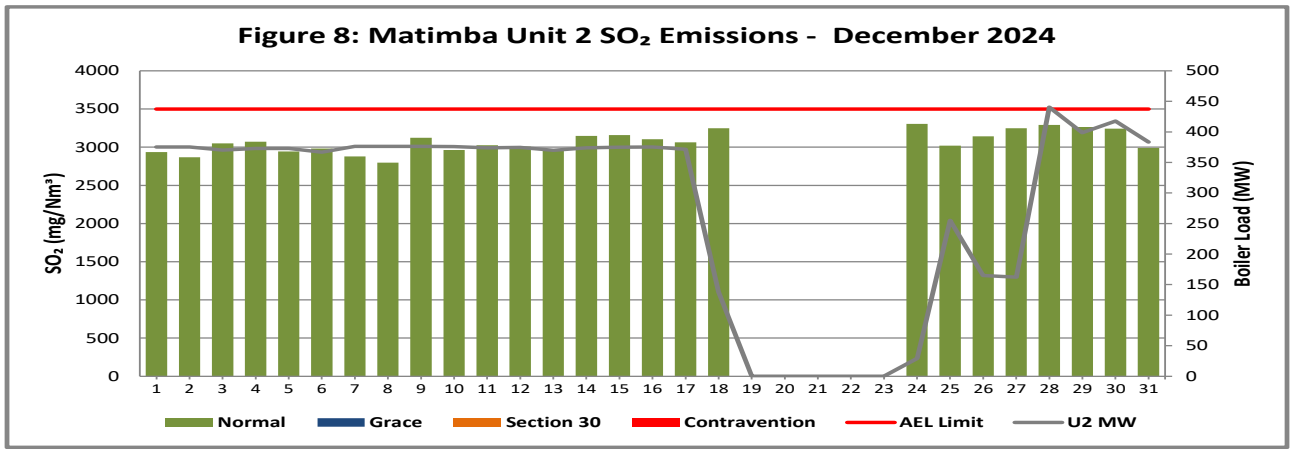

Figure 8: SO2 daily average emissions against emission limit for unit 2 for the month of December 2024

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

Unit 3 SO_2 Emissions

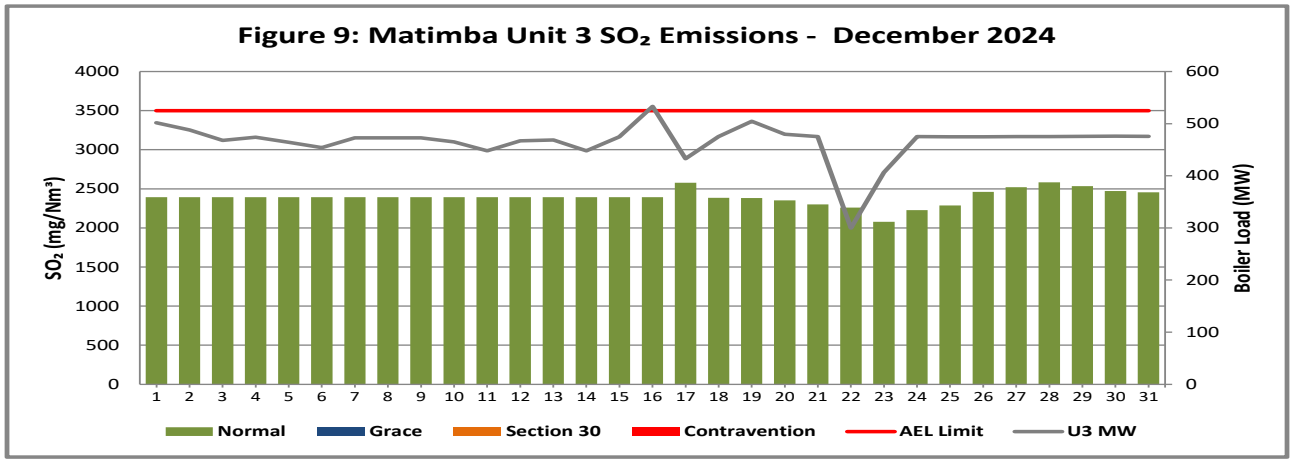

Figure 9: SO2 daily average emissions against emission limit for unit 3 for the month of December 2024

Interpretation: All daily averages below SO_2 emission monthly limit of 3500 mg/Nm^3. Unit 3 gaseous monitor stopped working from the 17th of November 2024 and ACU (Analyser Control Unit) was taken offsite to consult with the OEM (Original Equipment Manufacturer). Mean concentrations for the period 1 November to 16 November 2024 were used for period 17 November 2024 to 16 December 2024 because the monitor was off. The monitor was repaired and brought back on site on the 17th of December 2024.

Unit 4 SO_2 Emissions

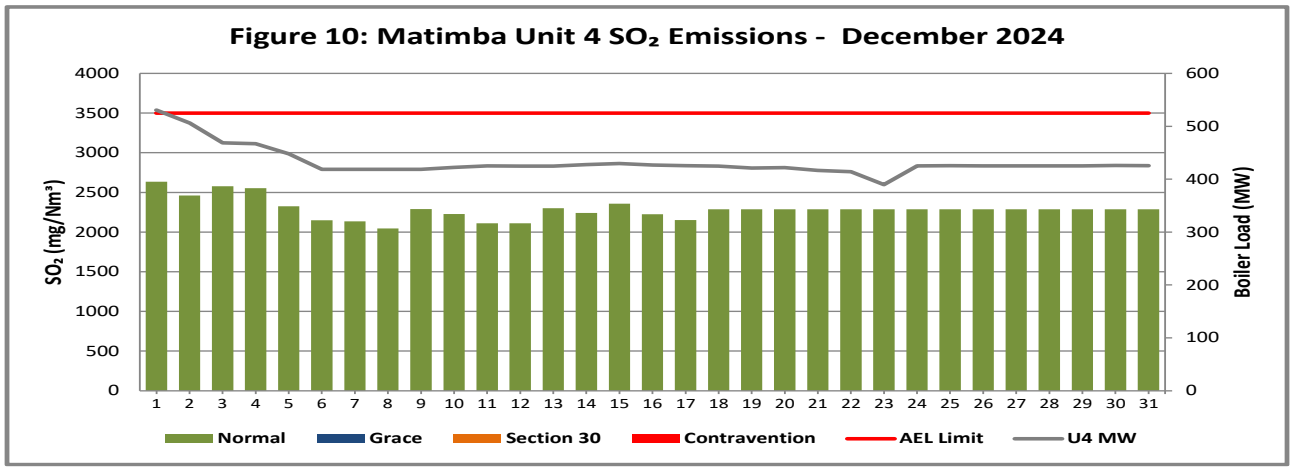

Figure 10: SO2 daily average emissions against emission limit for unit 4 for the month of December 2024

Interpretation: All daily averages below SO_2 emission monthly limit of 3500 mg/Nm^3. The monitor was reported to be unavailable on the 18$^{th\ of}$ December 2024 due to water ingress. Moisture in the control air affected the efficiency of the monitor. Mean concentrations for the period 1 December to 16 December 2024 were used for period 18 December to 31 December 2024.

Unit 5 SO_2 Emissions

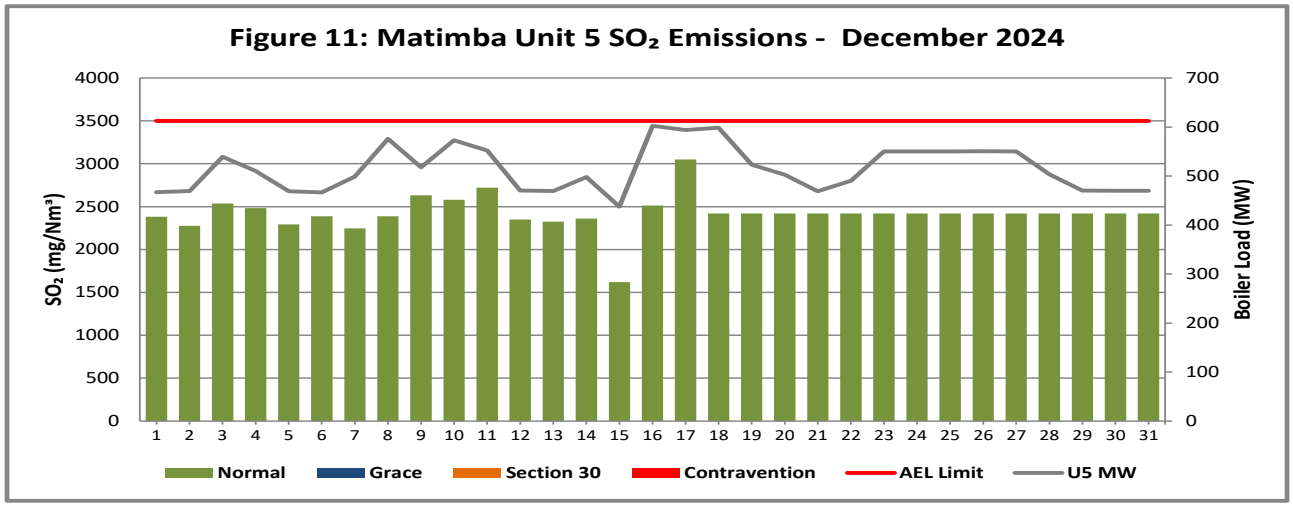

Figure 11: SO2 daily average emissions against emission limit for unit 5 for the month of December 2024

Interpretation: All daily averages below SO_2 emission monthly limit of 3500 mg/Nm^3. The monitor was reported to be unavailable on the 18$^{th\ of}$ December 2024 due to water ingress. Moisture in the control air affected the efficiency of the monitor. Mean concentrations for the period 1 December to 16 December 2024 were used for period 18 December to 31 December 2024.

Unit 6 SO_2 Emissions

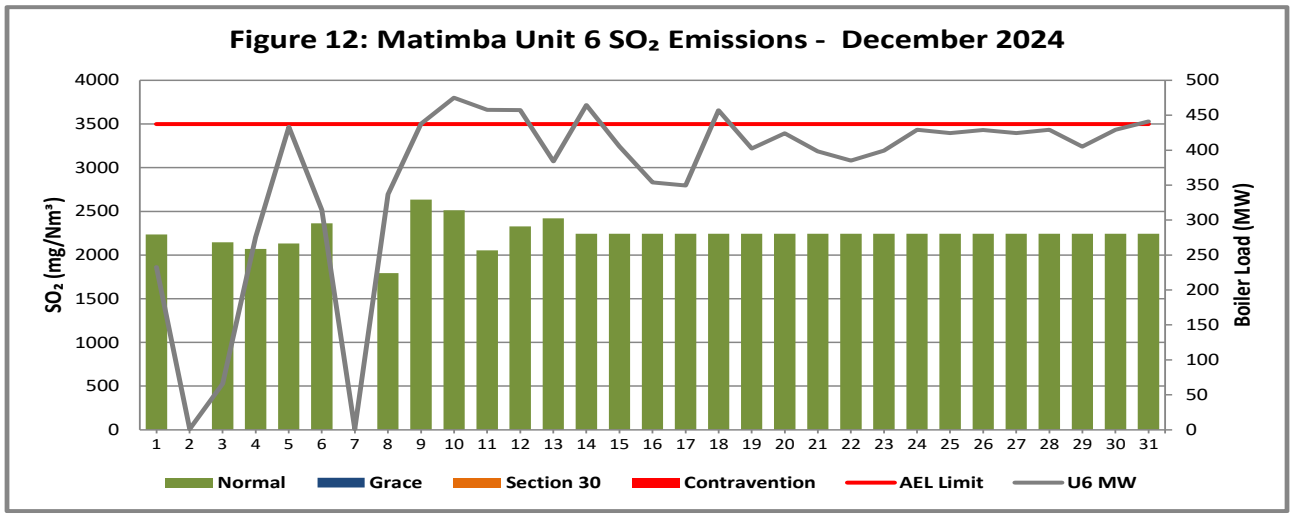

Figure 12: SO2 daily average emissions against emission limit for unit 5 for the month of December 2024

Interpretation: All daily averages below SO_2 emission monthly limit of 3500 mg/Nm^3. The monitor was reported to be unavailable on the 18$^{th\ of}$ December 2024 due to water ingress. Moisture in the control air affected the efficiency of the monitor. Mean concentrations for the period 1 December to 16 December 2024 were used for period 18 December to 31 December 2024.

2.3.2.b NOx Emissions

Unit 1 NO_x Emissions

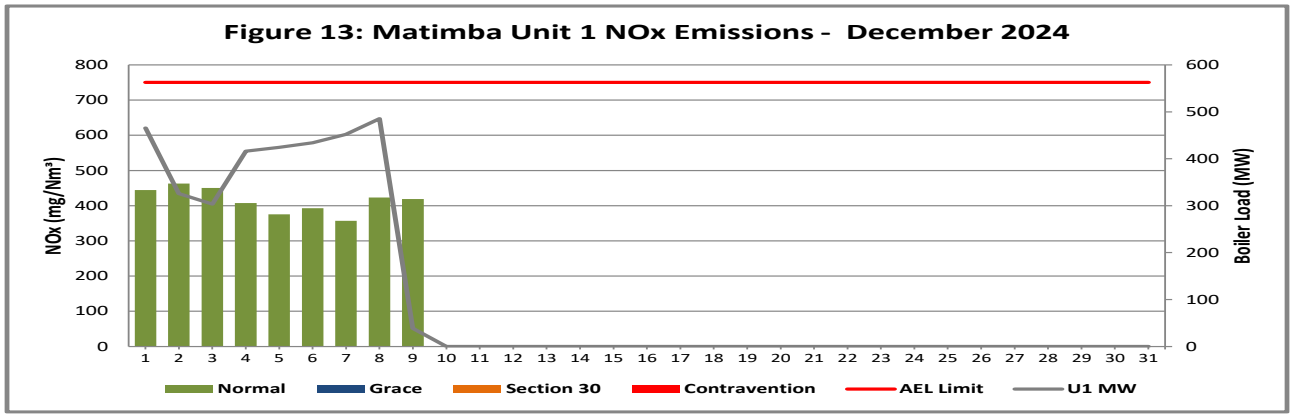

Figure 13: NOx daily average emissions against emission limit for unit 1 for the month of December 2024

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

Unit 2 NO_x Emissions

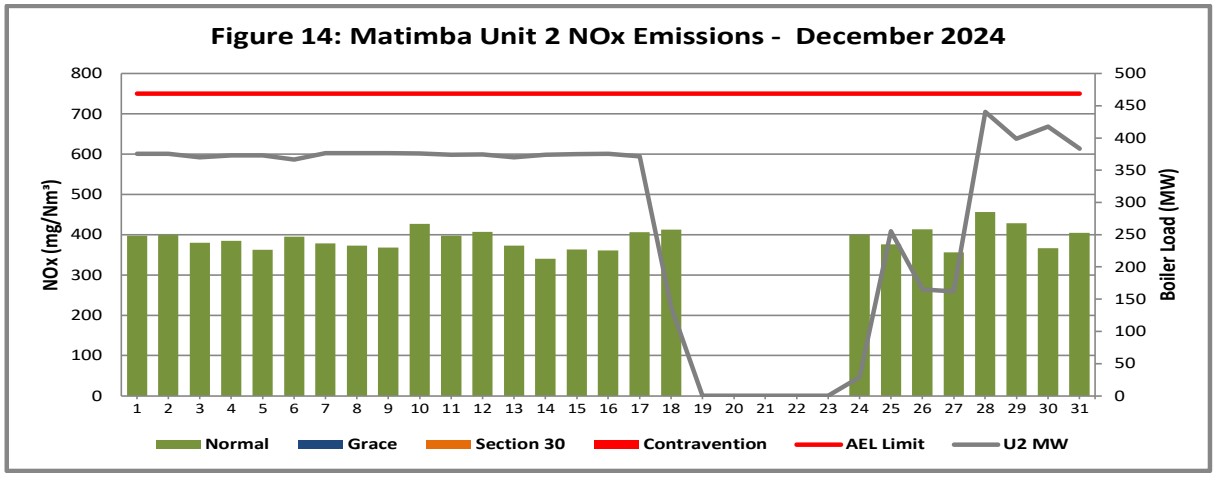

Figure 14: NOx daily average emissions against emission limit for unit 2 for the month of December 2024

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

Unit 3 NO_x Emissions

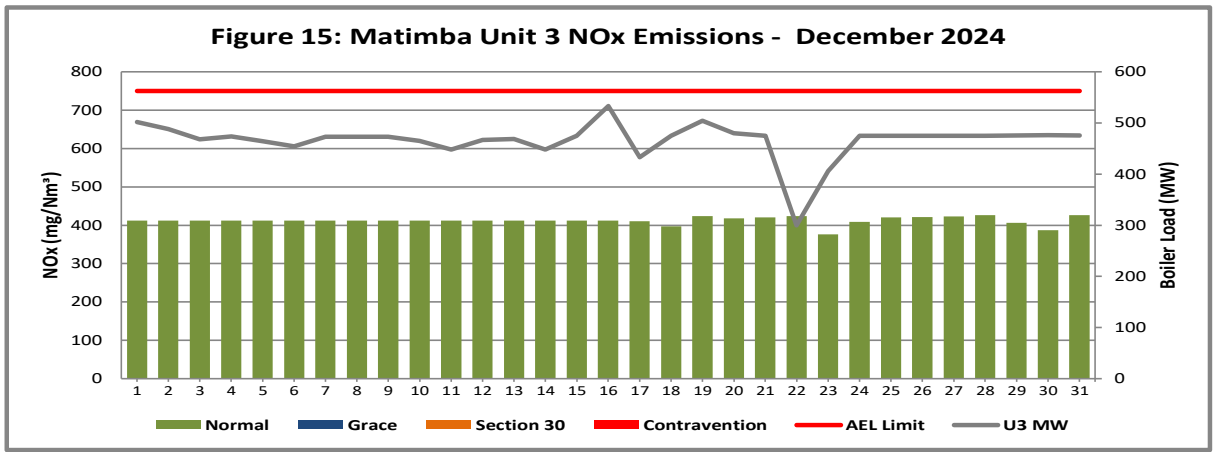

Figure 15: NOx daily average emissions against emission limit for unit 3 for the month of December 2024

Interpretation: All daily averages below SO_2 emission monthly limit of 3500 mg/Nm^3. Unit 3 gaseous monitor stopped working from the 17th of November 2024 and ACU (Analyser Control Unit) was taken offsite to consult with the OEM (Original Equipment Manufacturer). Mean concentrations for the period 1 November to 16 November 2024 were used for period 17 November 2024 to 16 December 2024 because the monitor was off. The monitor was repaired and brought back on site on the 17th of December 2024.

Unit 4 NO_x Emissions

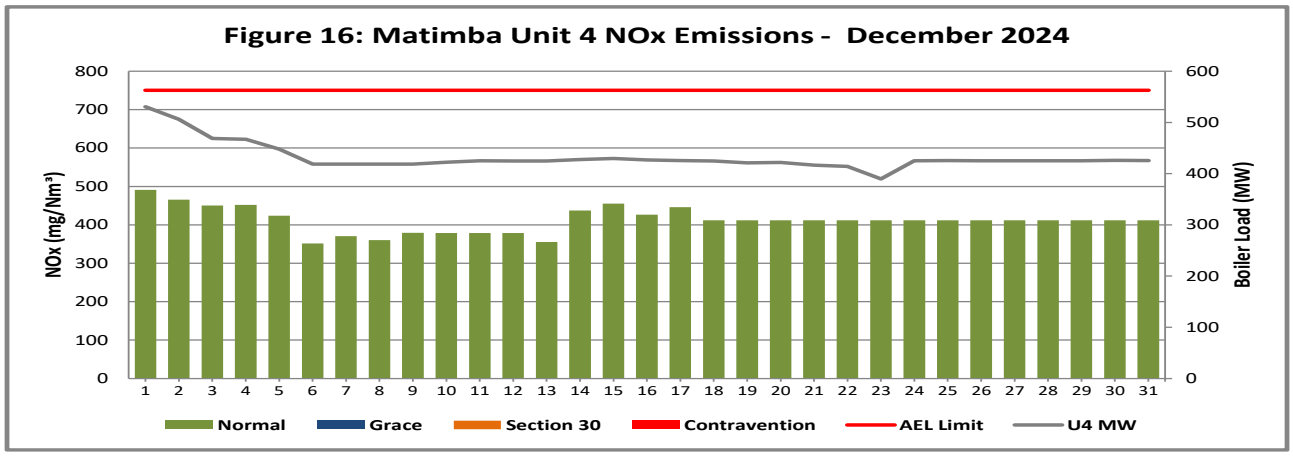

Figure 16: NOx daily average emissions against emission limit for unit 4 for the month of December 2024

Interpretation: All daily averages below SO_2 emission monthly limit of 3500 mg/Nm^3. The monitor was reported to be unavailable on the 18$^{th\ of}$ December 2024 due to water ingress. Moisture in the control air affected the efficiency of the monitor. Mean concentrations for the period 1 December to 16 December 2024 were used for period 18 December to 31 December 2024.

Unit 5 NO_x Emissions

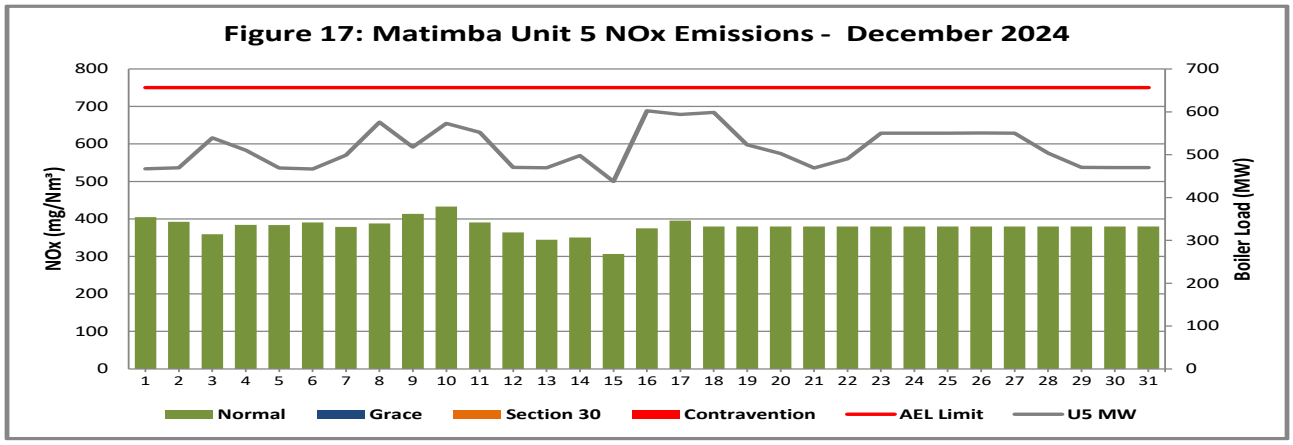

Figure 17: NOx daily average emissions against emission limit for unit 5 for the month of December 2024

Interpretation: All daily averages below SO_2 emission monthly limit of 3500 mg/Nm^3. The monitor was reported to be unavailable on the 18$^{th\ of}$ December 2024 due to water ingress. Moisture in the control air affected the efficiency of the monitor. Mean concentrations for the period 1 December to 16 December 2024 were used for period 18 December to 31 December 2024.

Unit 6 NO_x Emissions

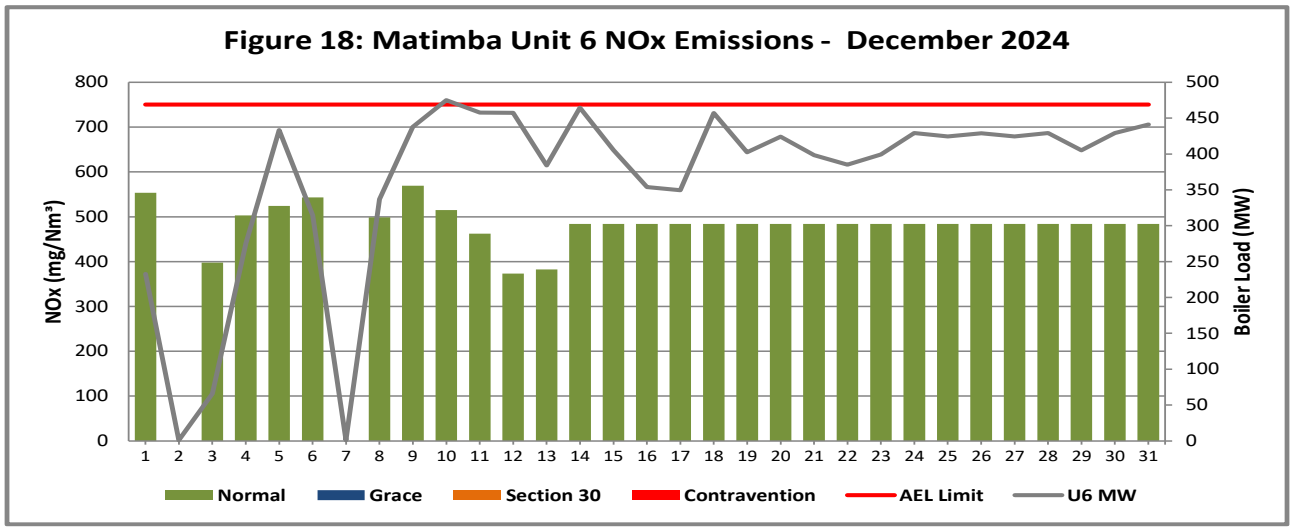

Figure 18: NOx daily average emissions against emission limit for unit 5 for the month of December 2024

Interpretation: All daily averages below SO_2 emission monthly limit of 3500 mg/Nm^3. The monitor was reported to be unavailable on the 18$^{th\ of}$ December 2024 due to water ingress. Moisture in the control air affected the efficiency of the monitor. Mean concentrations for the period 1 December to 16 December 2024 were used for period 18 December to 31 December 2024.

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:	Tuesday, 14 January 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:	**December**	
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:	***3263.165***	
Molecular weight of the fuel oil:	166.00	Lb/lb-mole
METEROLOGICAL DATA FOR THE MONTH	**Data**	**Unit**
Daily average ambient temperature	27.35	°C
Daily maximum ambient temperature	33.26	°C
Daily minimum ambient temperature	21.97	°C
Daily ambient temperature range	11.30	°C
Daily total insolation factor	6.12	kWh/m²/day
Tank paint colour	***Grey/medium***	NA
Tank paint solar absorbtance	0.68	NA
FINAL OUTPUT:	**Result**	**Unit**
Breathing losses:	0.57	kg/month
Working losses:	0.09	kg/month
TOTAL LOSSES (Total TVOC Emissions for the month):	**0.66**	**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 December 2024

Date	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
2024/12/01	10041.9	10014.9	8146.45	10874.9	11557.1	10067.6
2024/12/02	7022.03	7008.02	8151.09	10586.7	11017.5	10111.3
2024/12/03	6151.49	6120.89	8012.36	10109.4	10158.4	11614.9
2024/12/04	8879.27	8851.06	8037.49	10247.7	10122.7	11036.9
2024/12/05	9022.84	8991.27	8042.1	10025.6	9729.96	10084.2
2024/12/06	9292.41	9260.71	7893.03	9802.49	9069.72	10039.2
2024/12/07	9681.25	9651.29	8124.51	10214.9	9081.28	10726.5
2024/12/08	10454.1	10427.2	8129.98	10223.5	9113.99	12469.2
2024/12/09	425.341	422.568	8135.64	10216.1	9099.85	11207
2024/12/10	Unit off	Unit off	8116.24	10036.5	9165.42	12302.4
2024/12/11	Unit off	Unit off	8071.97	9689.03	9150.67	11987.9
2024/12/12	Unit off	Unit off	8067.92	10086.1	9066.35	10116.8
2024/12/13	Unit off	Unit off	7986.75	10134	9053.33	10114.5
2024/12/14	Unit off	Unit off	8099.41	9700.2	9130.64	10751.1
2024/12/15	Unit off	Unit off	8152.75	10331.8	9236.26	9491.79
2024/12/16	Unit off	Unit off	8124.28	11558.2	9094.27	12985.8
2024/12/17	Unit off	Unit off	8033.85	9358.1	9053.07	12885.2
2024/12/18	Unit off	Unit off	2849.62	10302.9	9087.91	13034.5
2024/12/19	Unit off	Unit off	Unit off	10938.3	8983.39	11296.2
2024/12/20	Unit off	Unit off	Unit off	10427.3	9013.85	10918
2024/12/21	Unit off	Unit off	Unit off	10326.6	8909.56	10155.5
2024/12/22	Unit off	Unit off	Unit off	6491.76	8855.14	10589.9
2024/12/23	Unit off	Unit off	Unit off	8531.33	8258.21	11911.1
2024/12/24	Unit off	Unit off	151.864	10285.2	9109.7	11901.2
2024/12/25	Unit off	Unit off	5235.78	10273.7	9126.97	11917.4
2024/12/26	Unit off	Unit off	3500.96	10274.3	9113.71	11920
2024/12/27	Unit off	Unit off	3118.52	10279.1	9091.58	11903.7
2024/12/28	Unit off	Unit off	9507.14	10281.1	9083.15	10898
2024/12/29	Unit off	Unit off	8595.52	10290.4	9079.7	10159
2024/12/30	Unit off	Unit off	9081.75	10295.1	9072.21	10154
2024/12/31	Unit off	Unit off	8258.37	10296.8	9062.34	10146

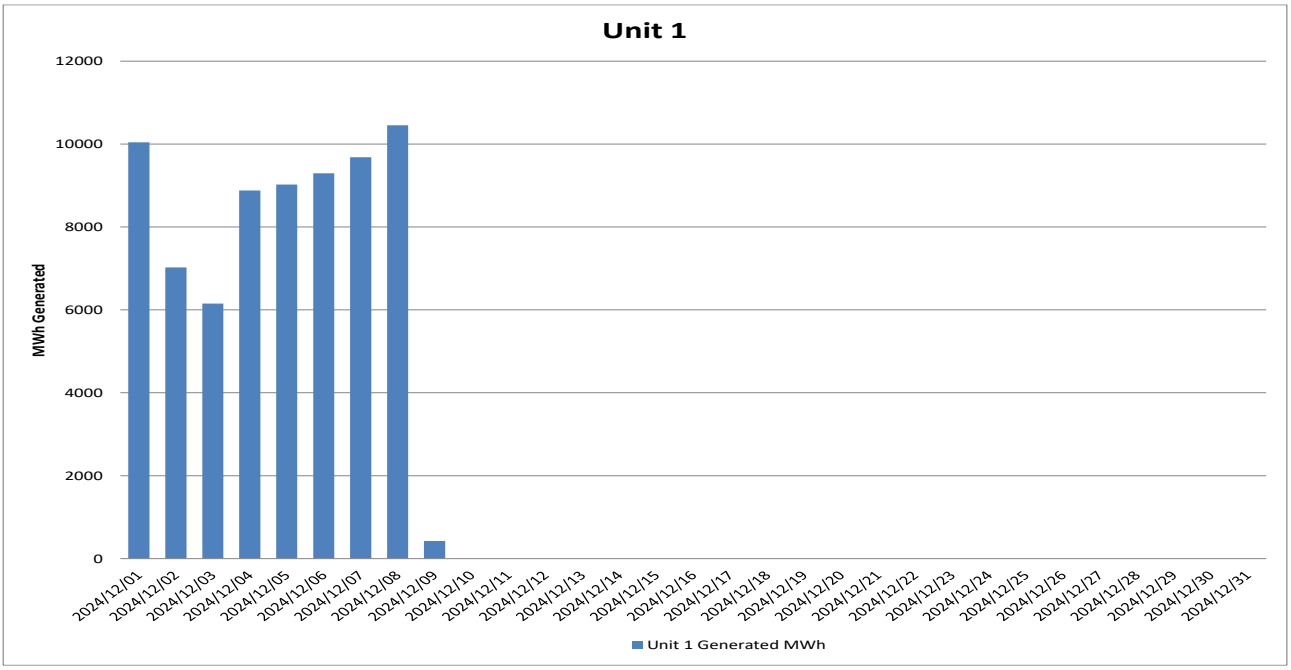

Figure 19: Unit 1 daily generated power in MWh for the month of December 2024

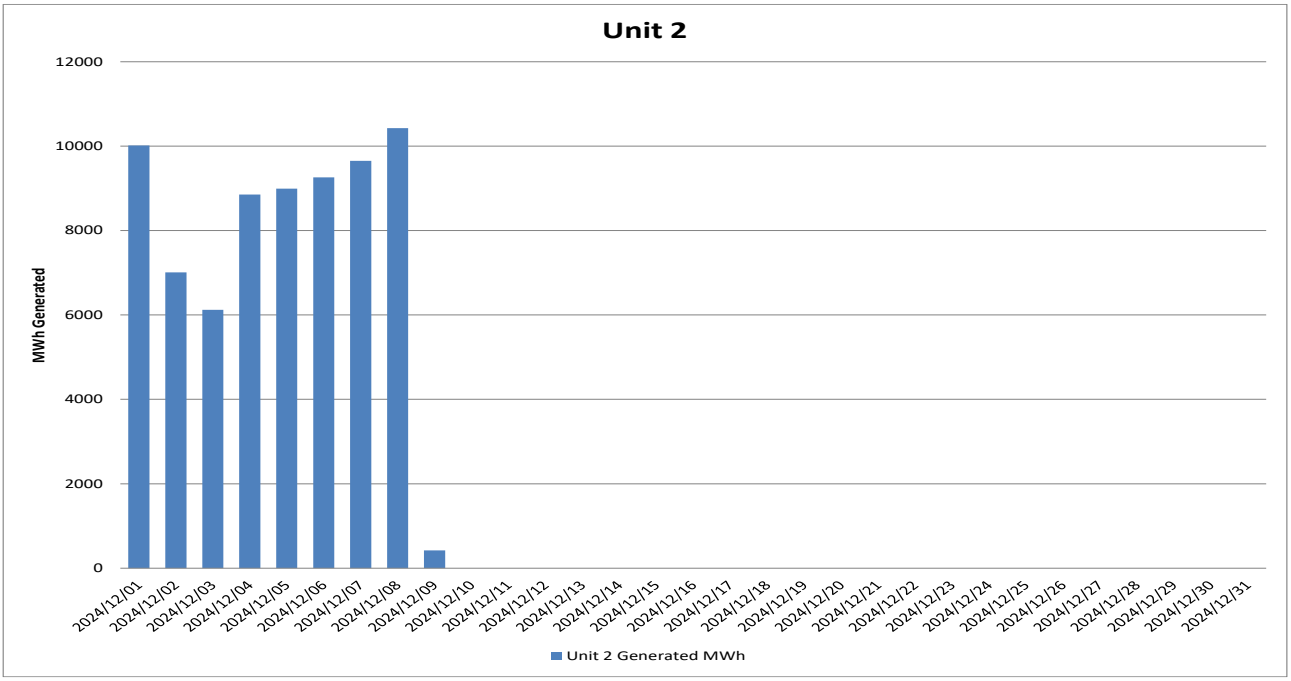

Figure 20: Unit 2 daily generated power in MWh for the month of December 2024

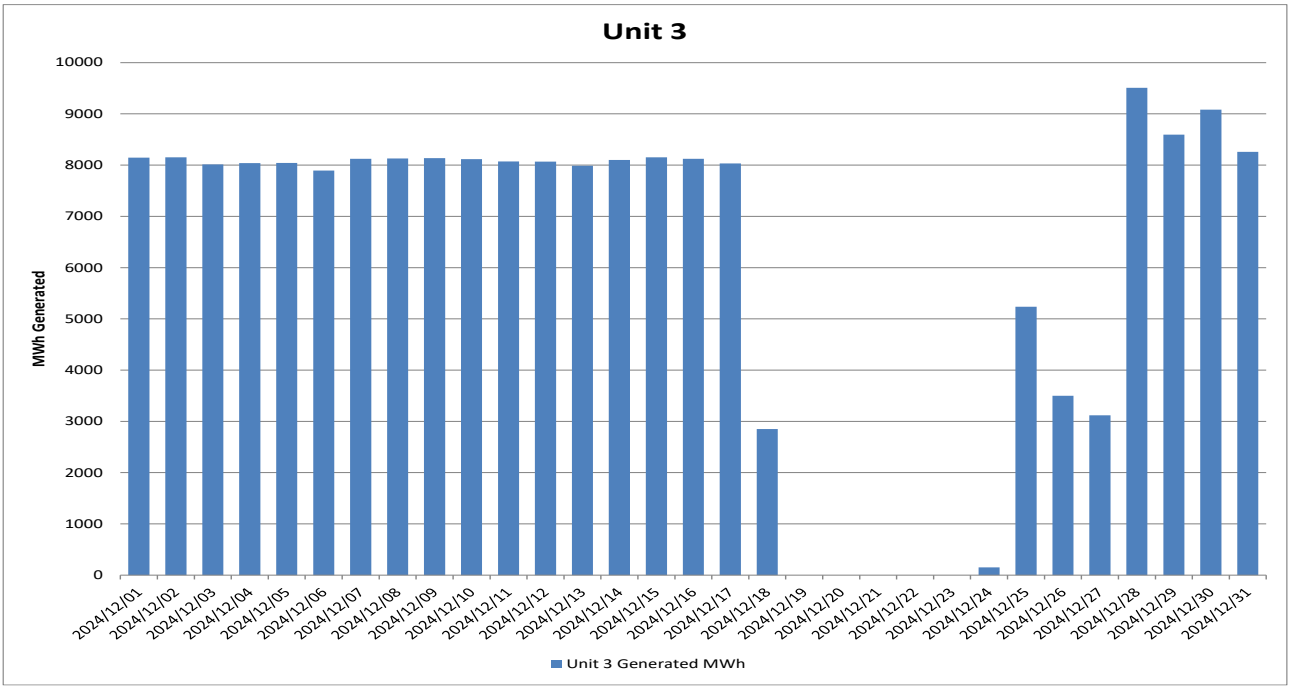

Figure 21: Unit 3 daily generated power in MWh for the month of December 2024

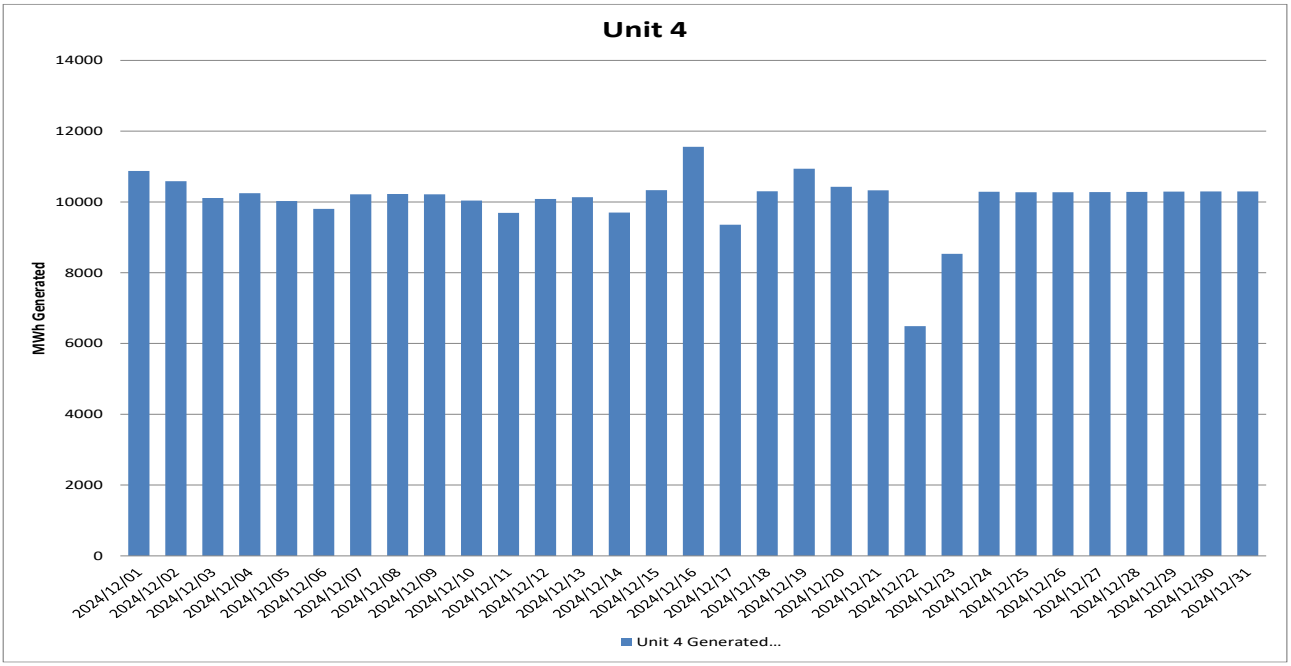

Figure 22: Unit 4 daily generated power in MWh for the month of December 2024

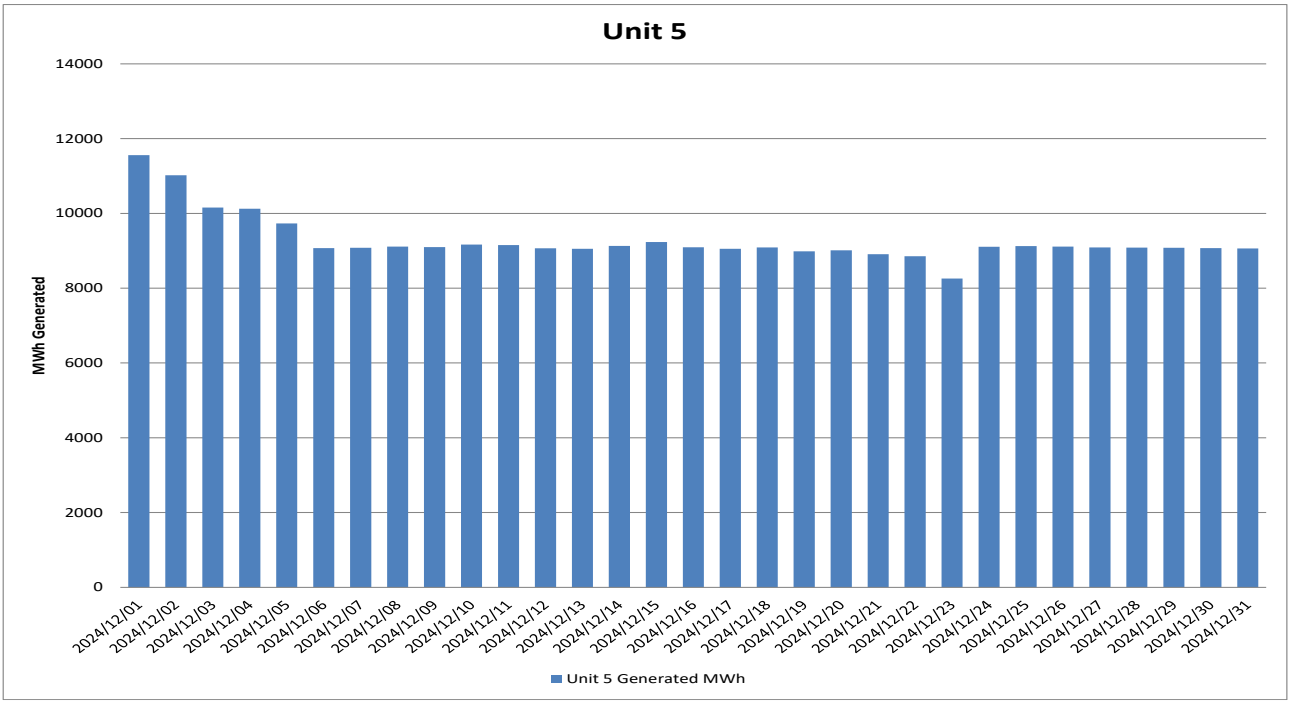

Figure 23: Unit 5 daily generated power in MWh for the month of December 2024

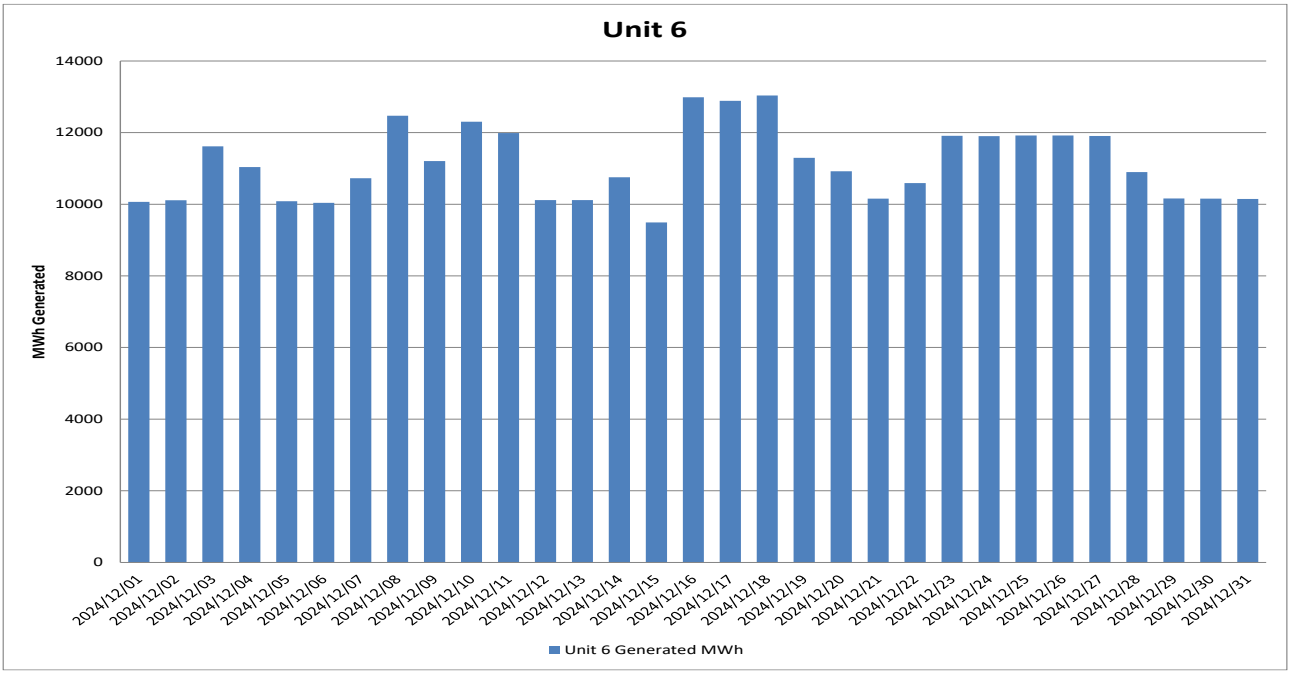

Figure 24: Unit 6 daily generated power in MWh for the month of December 2024

2.5 Pollutant Tonnages

The emitted pollutant tonnages for December 2024 are provided in table 6.

Table 6: Pollutant tonnages for the month of December 2024

Associated Unit/Stack	PM (tons)	SO_2 (tons)	NO_x (tons)
Unit 1	16.5	1 600.1	194.4
Unit 2	183.8	4 461.5	568.8
Unit 3	187.0	5 612.4	966.7
Unit 4	556.1	4 671.7	840.8
Unit 5	658.1	5 507.6	863.9
Unit 6	82.0	2 920.6	626.7
SUM	1 683.5	24 773.8	4 061.3

2.6 Operating days in compliance to PM AEL Limit

Table 7: Operating days in compliance with PM AEL limit of December 2024

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm³)
Unit 1	5	3	0	0	3	45.4
Unit 2	6	8	0	9	17	149.8
Unit 3	2	2	0	26	28	82.5
Unit 4	0	0	0	31	31	272.1
Unit 5	3	3	0	25	28	287.1
Unit 6	9	7	0	8	15	72.2
SUM	**25**	**23**	**0**	**99**	**122**	

2.7 Operating days in compliance to SOx AEL Limit

Table 8: Operating days in compliance with SOx AEL limit of December 2024

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SO_2 (mg/Nm³)
Unit 1	9	0	0	0	0	3 342.0
Unit 2	26	0	0	0	0	3 070.8
Unit 3	31	0	0	0	0	2 392.0
Unit 4	31	0	0	0	0	2 288.0
Unit 5	31	0	0	0	0	2 420.0
Unit 6	29	0	0	0	0	2 244.7
SUM	**157**	**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 December 2024

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm³)
Unit 1	9	0	0	0	0	413.2
Unit 2	26	0	0	0	0	389.5
Unit 3	31	0	0	0	0	412.5
Unit 4	31	0	0	0	0	411.8
Unit 5	31	0	0	0	0	379.6
Unit 6	29	0	0	0	0	483.9
SUM	**157**	**0**	**0**	**0**	**0**	

2.9 Reference values

Table 10: Reference values for data provided, December 2024

Compound / Parameter	Units of Measure	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Oxygen	%	9.33	8.95	7.31	7.04	5.45	9.93
Moisture	%	3.07	3.86	4.31	2.32	3.38	3.23
Velocity	m/s	25.6	25.3	28.6	23.1	23.6	23.6
Temperature	ºC	138.7	119.4	132.8	122.3	125.8	153.9
Pressure	mBar	953.1	924.0	917.0	918.9	918.3	906.6

2.10 Continuous Emission Monitors

2.10.1 Reliability

Table 11: Monitor reliability percentage (%)

Associated Unit/Stack	PM	SO_2	NO
Unit 1	*100.0*	*100.0*	*100.0*
Unit 2	*93.3*	*99.7*	*99.6*
Unit 3	*100.0*	*47.0*	*46.9*
Unit 4	*16.5*	*53.4*	*53.4*
Unit 5	*86.2*	*53.4*	*53.4*
Unit 6	*97.4*	*37.6*	*35.5*

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

Continuous emission monitors were reliable for more than 80% of the reporting period except for unit 3, 4, 5 and 6. Unit 3 gaseous monitor stopped working from the 17th of November 2024 and ACU (Analyser control unit) was taken offsite to consult with the OEM (Original Equipment Manufacturer), the monitor was repaired and brought back to site on the 17th of December 2024. Unit 4, 5 and 6 monitor was reported to be unavailable from the 18th of December 2024 due to water ingress in the gas analyser system. 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 December 2024.

Unit	SO_2	NO_x	PM	CO_2
1	100.0	100.0	100.0	100.0
2	99.7	99.6	93.3	99.7
3	47.0	46.9	100.0	100.0
4	53.4	53.4	16.5	47.0
5	53.4	53.4	86.2	52.4
6	37.6	35.5	97.4	37.6

Continuous emission monitors were available for more than 80% of the reporting period except for unit 3 SO2, NOx and unit 4 CO2. Unit 3 gaseous monitor stopped working from the 17th of November 2024 and ACU (Analyser control unit) was taken offsite to consult with the OEM (Original Equipment Manufacturer), the monitor was repaired and brought back to site on the 17th of December 2024. Unit 4, 5 and 6 monitor was reported to be unavailable from the 18th of December 2024 due to water ingress in the gas analyser system. 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.
- 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.
- Unit 4 monitor was reported to be unavailable from the 18th of December 2024 due to water ingress in the gas analyser system.
- No downtime or repairs done on the particulate monitors.

Unit 5

- No adjustments done on the CEMs.
- Unit 5 monitor was reported to be unavailable from the 18th of December 2024 due to water ingress in the gas analyser system.
- No downtime or repairs done on the particulate monitors.

Unit 6

- No adjustments done on the CEMs.
- Unit 6 monitor was reported to be unavailable from the 18th of December 2024 due to water ingress in the gas analyser system.
- No downtime or repairs done on the particulate monitors.

2.10.3 Sampling dates and times

Table 13: Dates of last full conducted CEMS verification tests for PM for unit 2, 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**	**NOx**	**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	2024/07/02 08h50	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, SO_2 and NOx were performed in December 2022 and failed. The spot tests were done in August 2023.

Table 14: Dates of last conducted CEMS Spot verification tests for PM, SO_2 and NOx (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**	**NOx**	**CO_2**
1	2023/08/01 19h33	2023/08/01 19:33	2023/08/01 19:33	2023/08/01 19:33
2	Dates in table 12 above	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

Note: The CEMS Spot verification tests for PM, SO_2 and NOx 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 15: Start-up information

Unit	1	
Fires in	2024/12/03	01h49
Synchronization with Grid	2024/12/03	04h18
Emissions below limit	2024/12/03	06h04
Fires in, to synchronization	2.29	HOURS
Synchronization to < Emission limit	1.46	HOURS

Unit	2	
Fires in	2024/12/18	16h05
Synchronization with Grid	2024/12/18	19h01
Emissions below limit	2024/12/19	17h00
Fires in, to synchronization	2.56	HOURS
Synchronization to < Emission limit	21.59	HOURS

Unit	2	
Fires in	2024/12/24	13h57
Synchronization with Grid	2024/12/25	01h43
Emissions below limit	2024/12/25	15h01
Fires in, to synchronization	11.46	HOURS
Synchronization to < Emission limit	13.18	HOURS

Unit	2	
Fires in	2024/12/27	11h39
Synchronization with Grid	2024/12/27	14h02
Emissions below limit	2024/12/27	Unit did not go below the limit
Fires in, to synchronization	2.23	HOURS
Synchronization to < Emission limit	NA	HOURS

Unit	3	
Fires in	2024/12/22	20h35
Synchronization with Grid	2024/12/23	02h30
Emissions below limit	2024/12/23	09h00
Fires in, to synchronization	5.55	HOURS
Synchronization to < Emission limit	6.30	HOURS

Unit	6	
Fires in	2024/12/03	05h20
Synchronization with Grid	2024/12/03	10h24
Emissions below limit	2024/12/03	14h00
Fires in, to synchronization	5.4	HOURS
Synchronization to < Emission limit	3.36	HOURS

Unit	6	
Fires in	2024/12/04	01h33
Synchronization with Grid	2024/12/04	05h41
Emissions below limit	2024/12/04	07h00
Fires in, to synchronization	4.8	HOURS
Synchronization to < Emission limit	1.19	HOURS

Unit	6	
Fires in	2024/12/07	21h52
Synchronization with Grid	2024/12/08	03h09
Emissions below limit	2024/12/08	13h00
Fires in, to synchronization	5.17	HOURS
Synchronization to < Emission limit	9.51	HOURS

Unit	6	
Fires in	2024/12/17	00h55
Synchronization with Grid	2024/12/17	05h27
Emissions below limit	2024/12/17	09h21
Fires in, to synchronization	4.32	HOURS
Synchronization to < Emission limit	3.54	HOURS

2.12 Emergency generation

Table 16: 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	186.650	574.960	737.570	744.000	744.000	649.560
Days over the Limit during Emergency Generation	3	17	28	31	28	15

During the period under review all Units were on emergency generation in force from 01 December 2024 until 31 December 2024.

2.13 Complaints register.

Table 17: 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 December 2024 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

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

Unit 3

- 2 fields defective.
- Unit 3 to SO3 plant not available 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

- No defective fields.
- Unit 6 SO3 plant not available due to defective process air flow transmitters.

SO3 common plant

- No abnormalities on the sulphur storage plant.

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

Wikus J van Rensburg

GENERAL MANAGER: MATIMBA POWER STATION