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Date:
20 February 2019

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Lephalale Local Municipality
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Ref: (12/4/12L-W4/A3)

Dear Mrs Thivhafuni

MATIMBA POWER STATION'S MONTHLY EMISSIONS REPORT FOR THE MONTH OF JANUARY 2019

This serves as the monthly report required in terms of Section 7.7.1 in Matimba Power Station's Atmospheric Emission License 12/4/12L-W4/A3.

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	1 145 870
	Fuel Oil	Tons/month	1 200	925.447
Production Rates	Product/ By-Product Name	Unit	Maximum Production Capacity Permitted (Quantity)	Production Rate
	Energy	GWh	4 212.6	2 223.042

Abatement Technology

Table 2: Abatement Equipment Control Technology utilise.

Associated Unit	Technology Type	Actual Utilisation (%)
Unit 1	Electrostatic Precipitator	99.9
Unit 2	Electrostatic Precipitator	99.9
Unit 3	Electrostatic Precipitator	99.9
Unit 4	Electrostatic Precipitator	99.9
Unit 5	Electrostatic Precipitator	99.9
Unit 6	Electrostatic Precipitator	99.9

Associated Unit	Technology Type	Actual Utilisation (%)
Unit 1	SO ₃ Plant	95
Unit 2	SO ₃ Plant	94
Unit 3	SO ₃ Plant	95
Unit 4	SO ₃ Plant	93
Unit 5	SO ₃ Plant	95
Unit 6	SO ₃ Plant	95

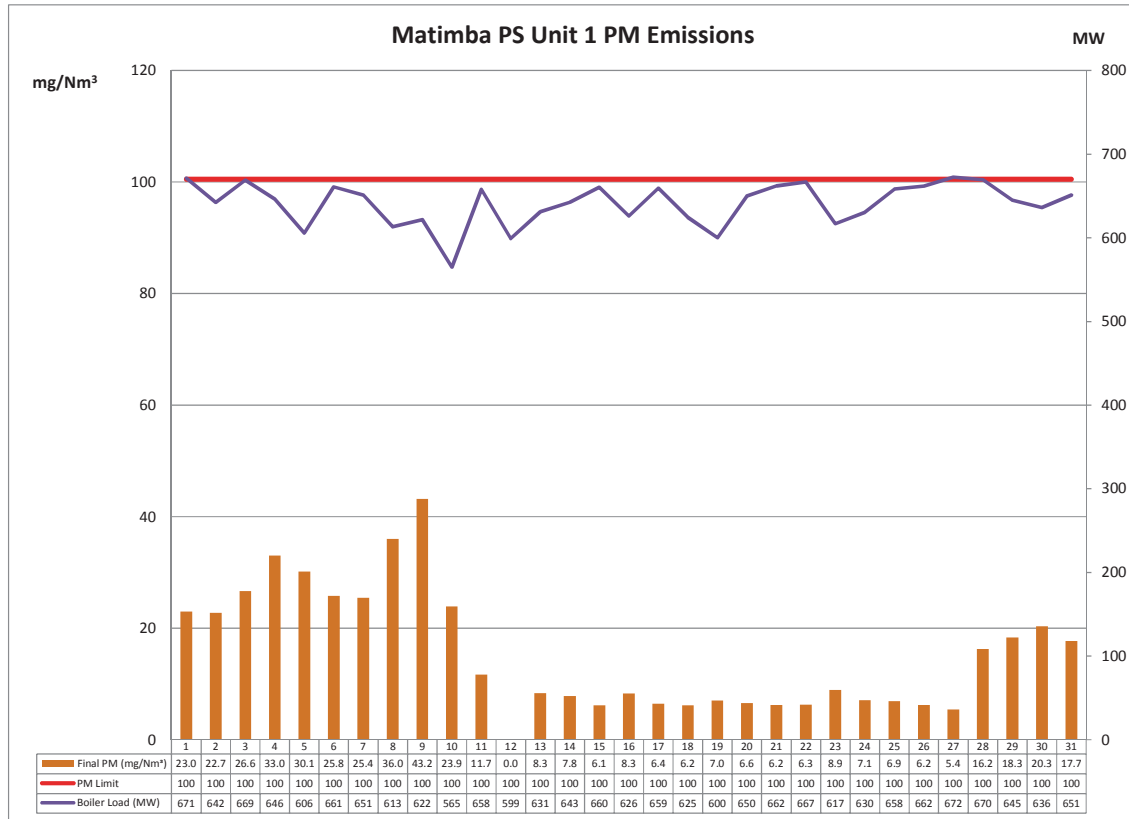
Energy Source Characteristics

Table 3: Energy Source Material Characteristics.

	Characteristic	Stipulated Range (Unit)	Monthly Average Content
Coal burned	Sulphur Content	0.8-1.6%	1.27
	Ash Content	30-40%	31.03

Emissions Reporting

Unit 1 particulate emissions

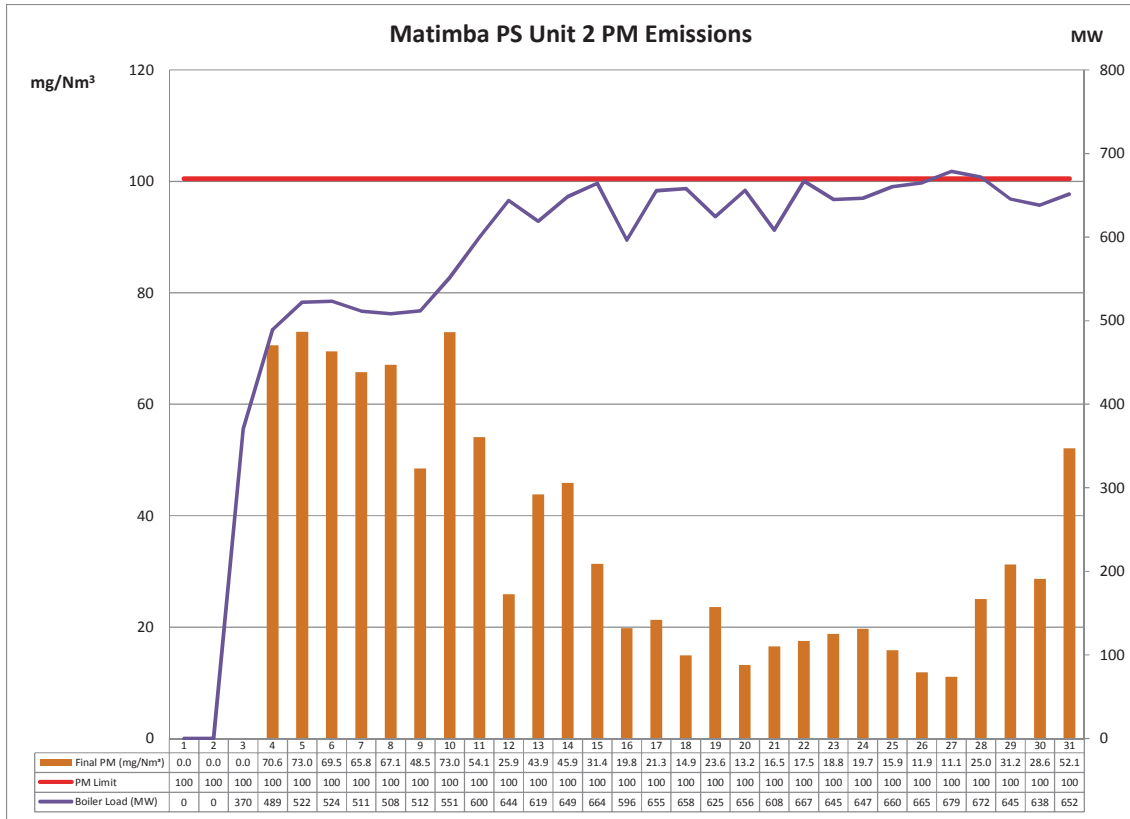


Graph 1: Particulate matter daily average emissions against emission limit for unit 1 for the month of January 2019

Interpretation:

All daily averages below particulate emission limit of 100 mg/Nm³.

Unit 2 particulate emissions

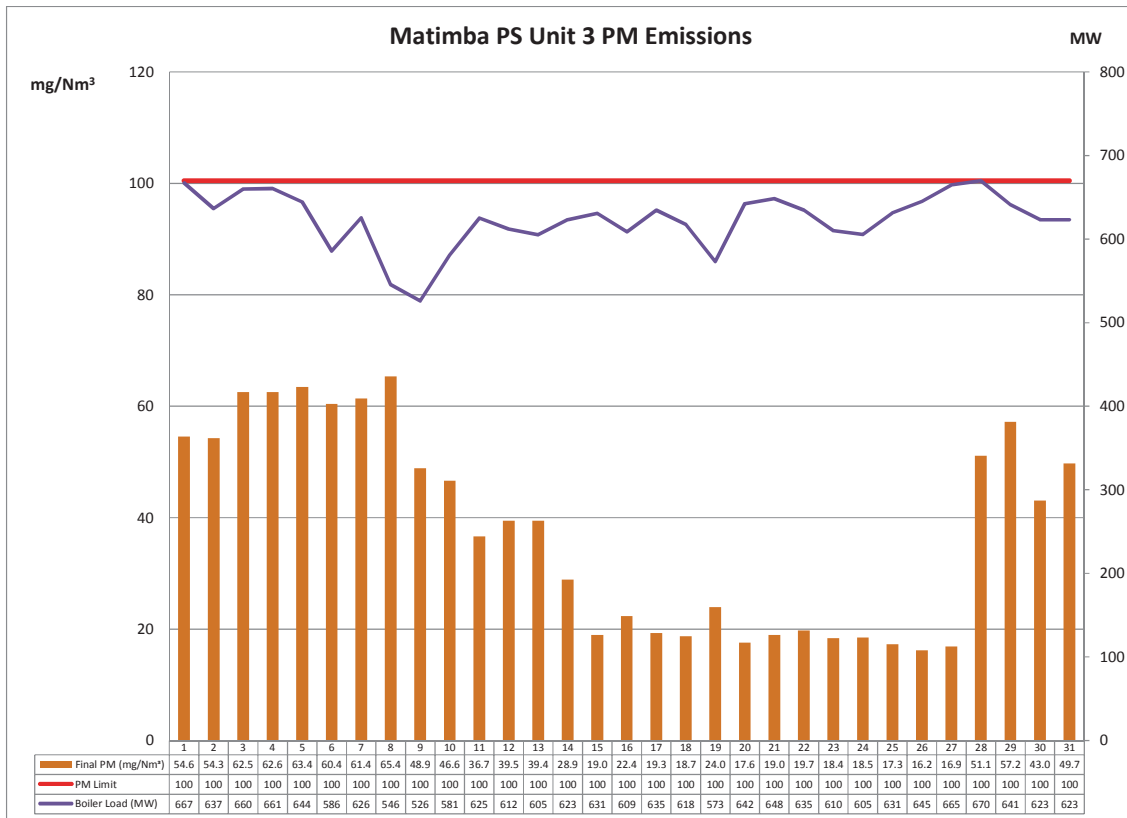


Graph 2: Particulate matter daily average emissions against emission limit for unit 2 for the month of January 2019

Interpretation:

All daily averages below particulate emission limit of 100 mg/Nm³.

Unit 3 particulate emissions

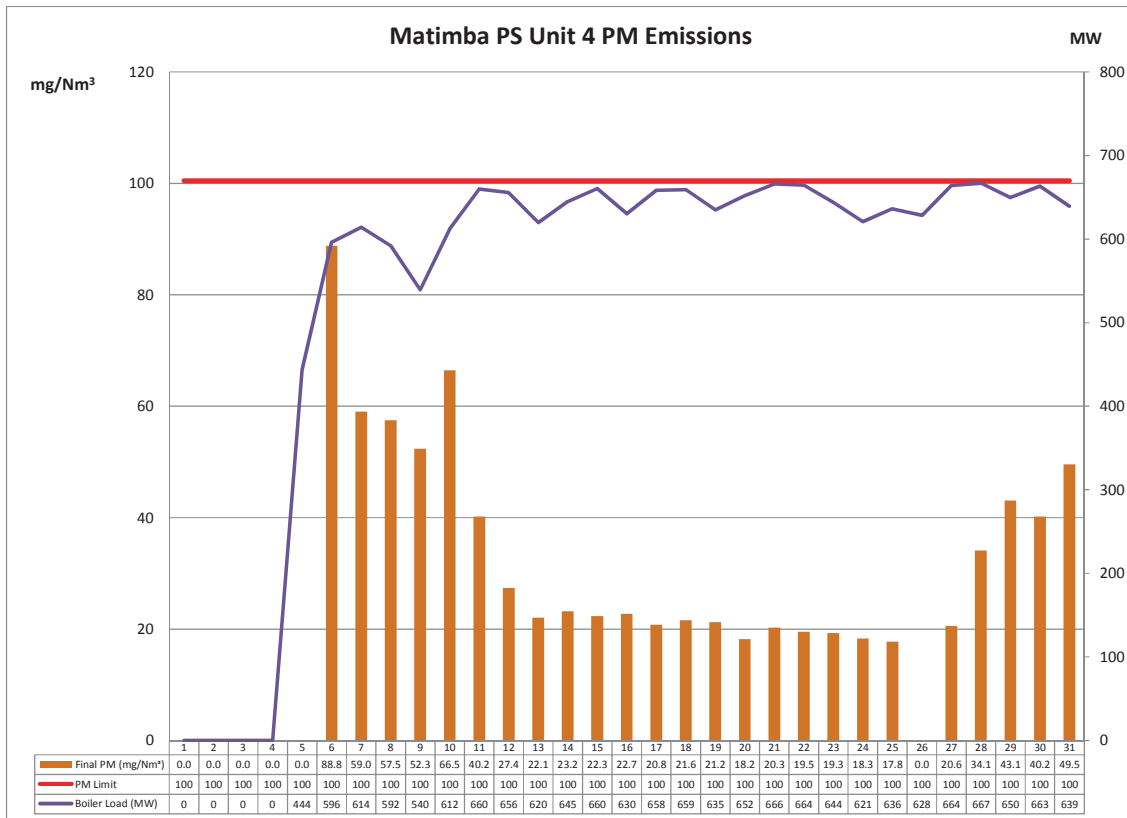


Graph 3: Particulate matter daily average emissions against emission limit for unit 3 for the month of January 2019

Interpretation:

All daily averages below particulate emission limit of 100 mg/Nm³.

Unit 4 particulate emissions

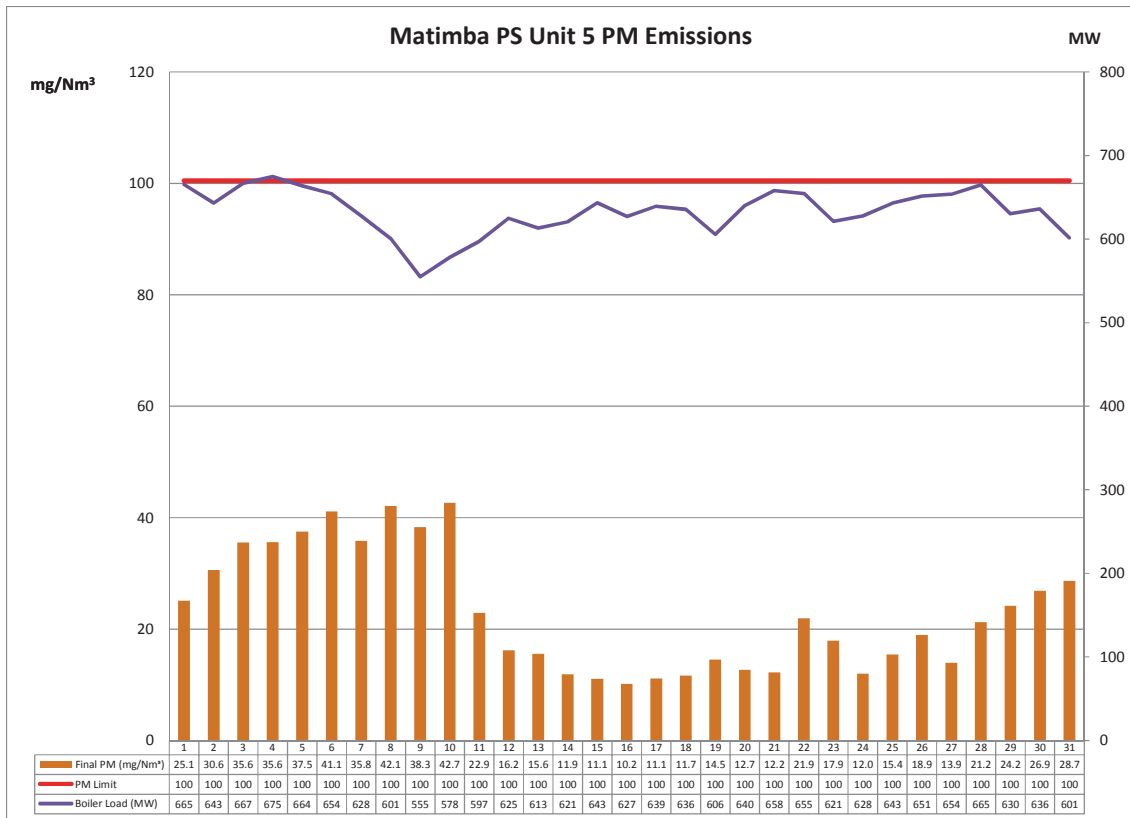


Graph 4: Particulate matter daily average emissions against emission limit for unit 4 for the month of January 2019

Interpretation:

All daily averages below particulate emission limit of 100 mg/Nm³.

Unit 5 particulate emissions

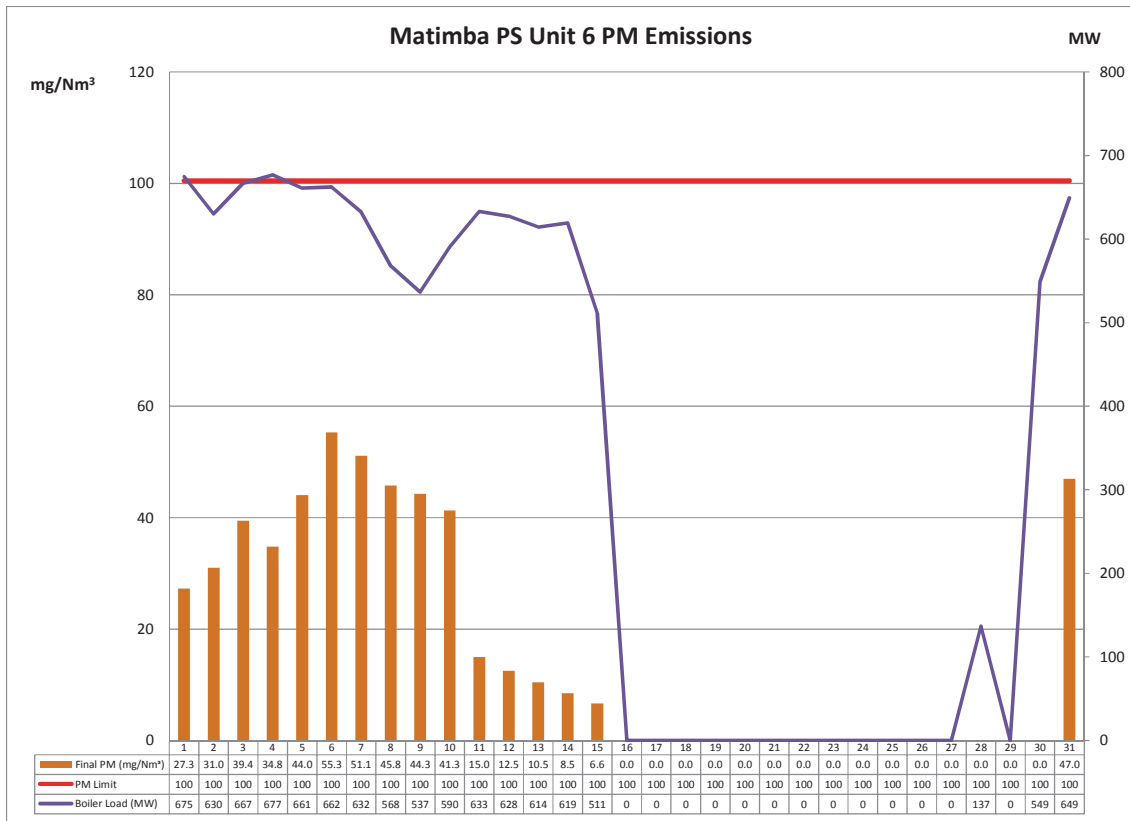


Graph 5: Particulate matter daily average emissions against emission limit for unit 5 for the month of January 2019

Interpretation:

All daily averages below particulate emission limit of 100 mg/Nm³.

Unit 6 particulate emissions

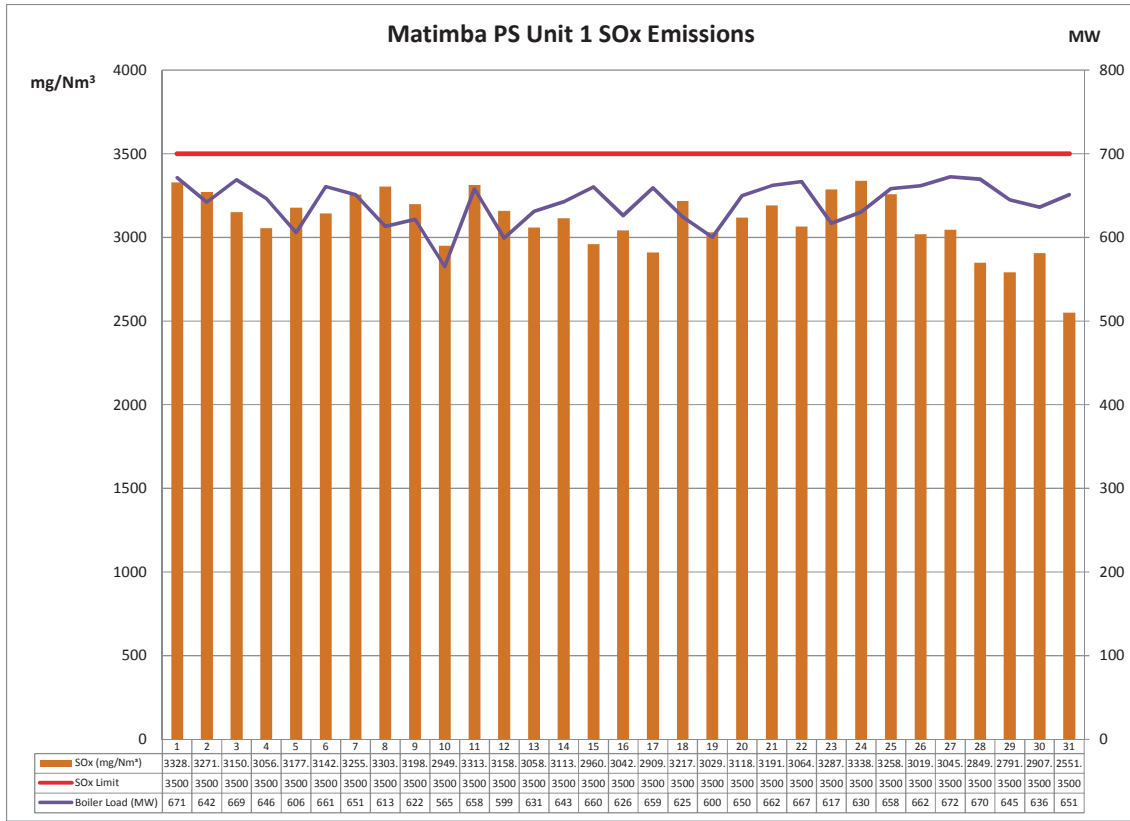


Graph 6: Particulate matter daily average emissions against emission limit for unit 6 for the month of January 2019

Interpretation:

All daily averages below particulate emission limit of 100 mg/Nm³.

Unit 1 SO₂ emissions

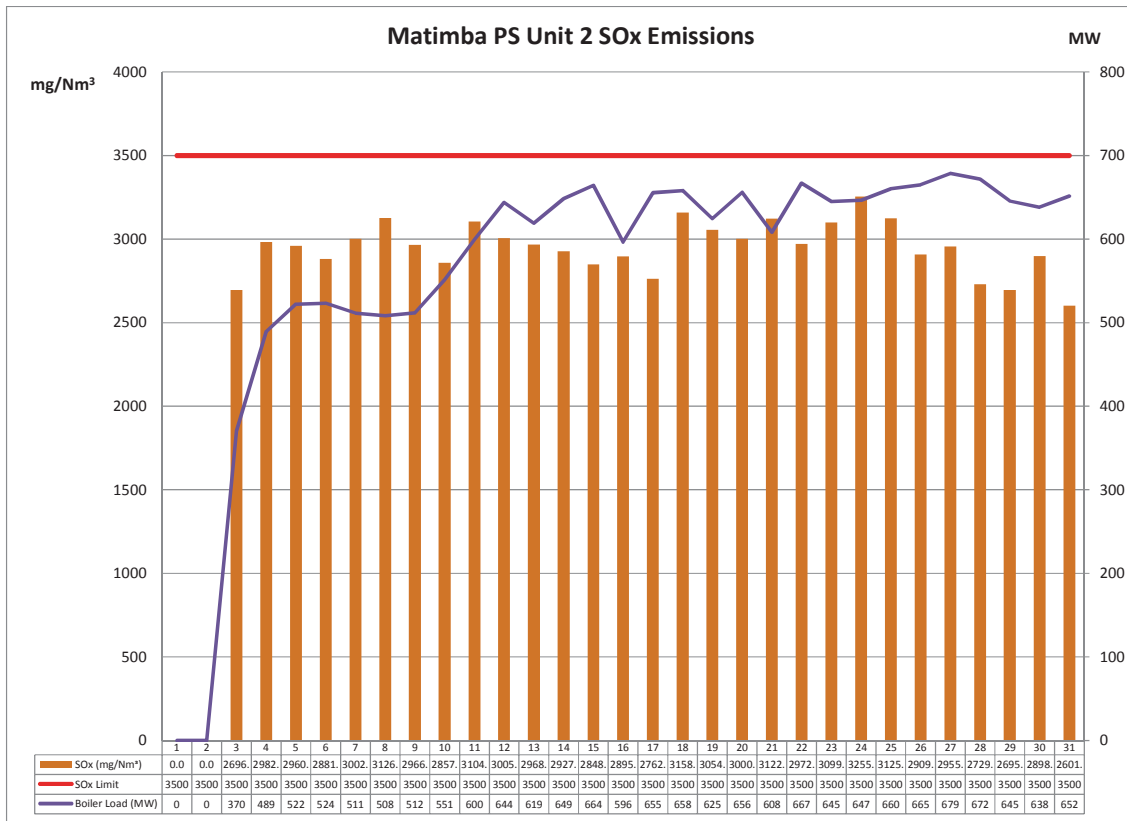


Graph 7: SO₂ daily average emissions against emission limit for unit 1 for the month of January 2019

Interpretation:

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

Unit 2 SO₂ emissions

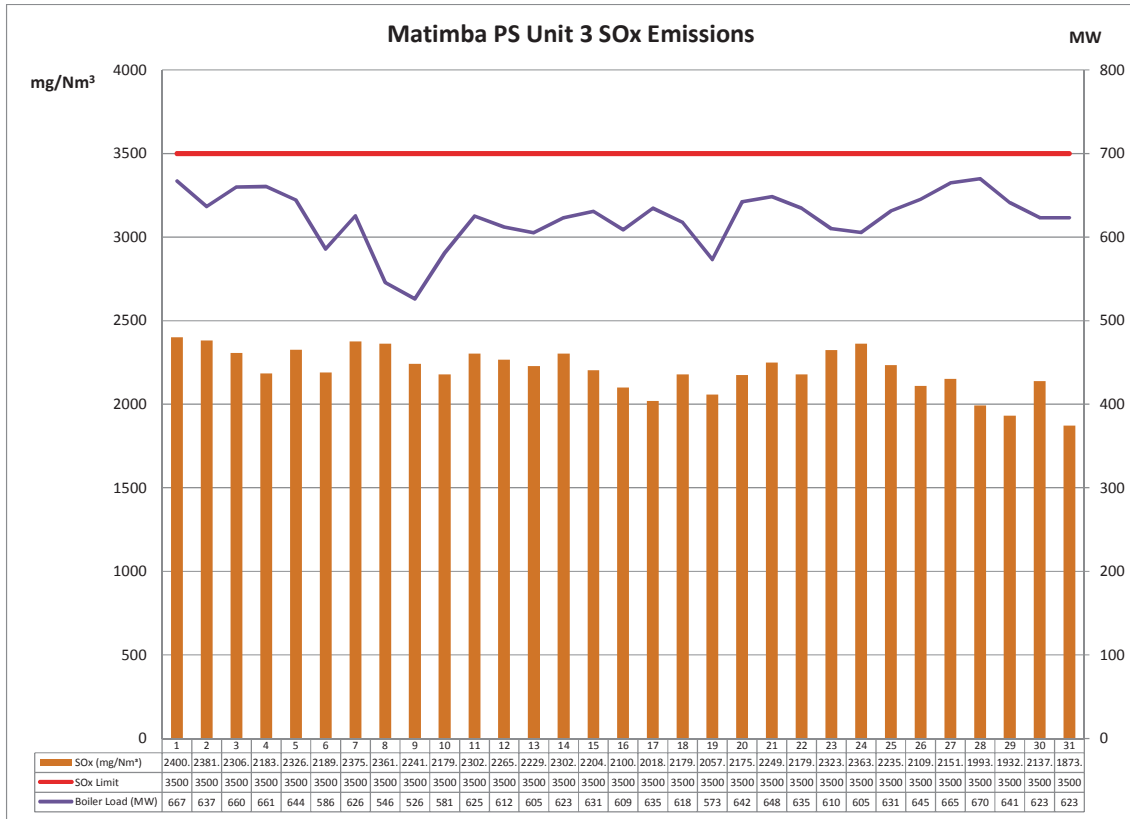


Graph 8: SO₂ daily average emissions against emission limit for unit 2 for the month of January 2019

Interpretation:

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

Unit 3 SO₂ emissions

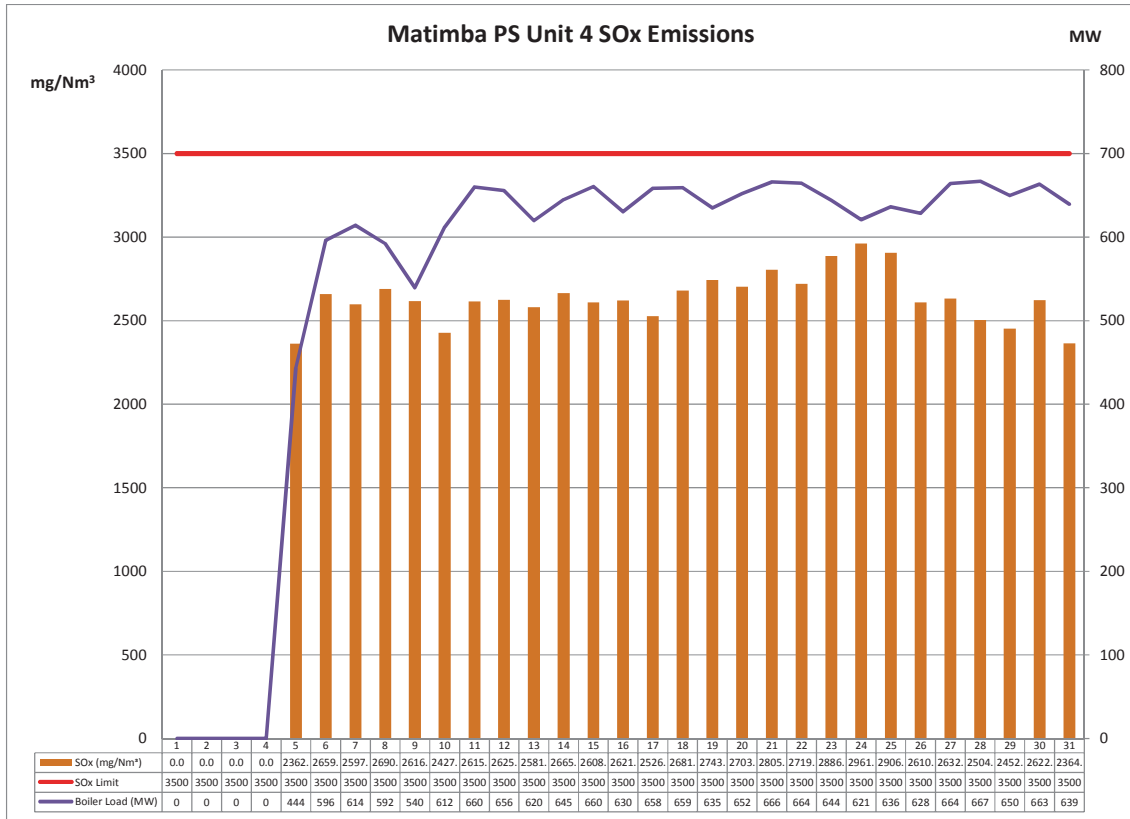


Graph 9: SO₂ daily average emissions against emission limit for unit 3 for the month of January 2019

Interpretation:

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

Unit 4 SO₂ emissions

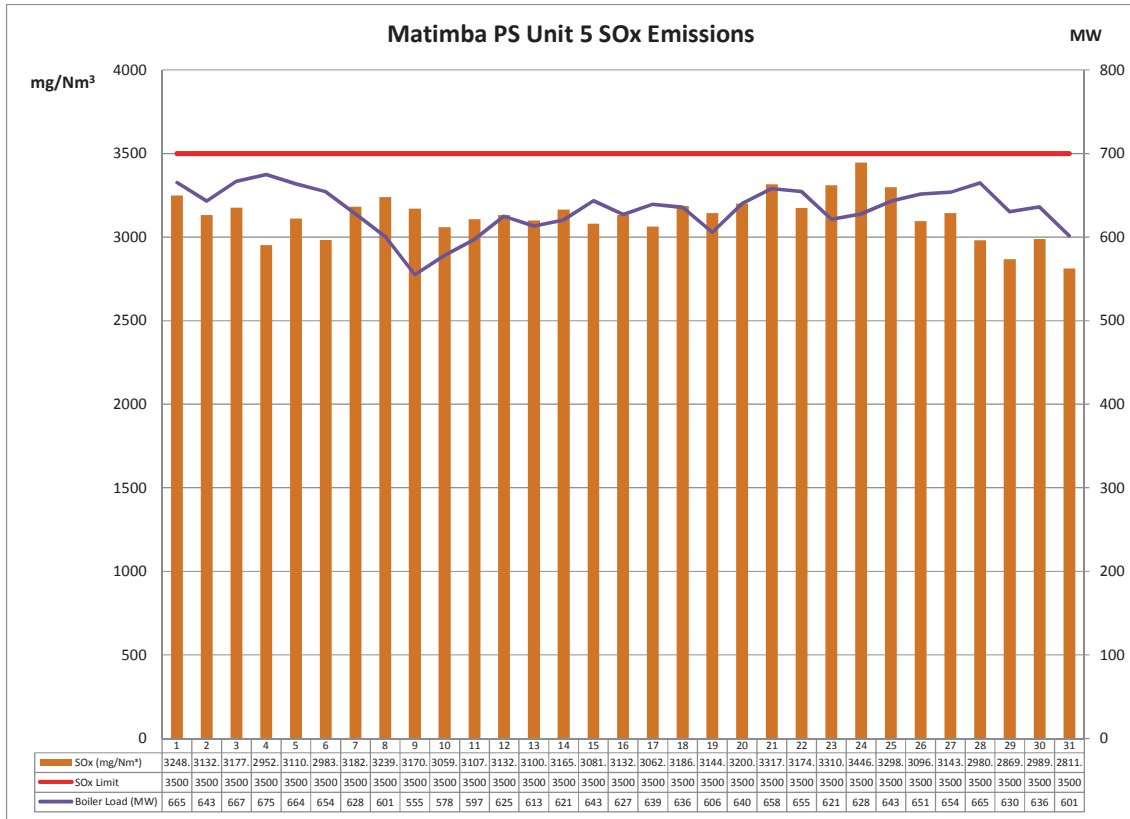


Graph 10: SO₂ daily average emissions against emission limit for unit 4 for the month of January 2019

Interpretation:

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

Unit 5 SO₂ emissions

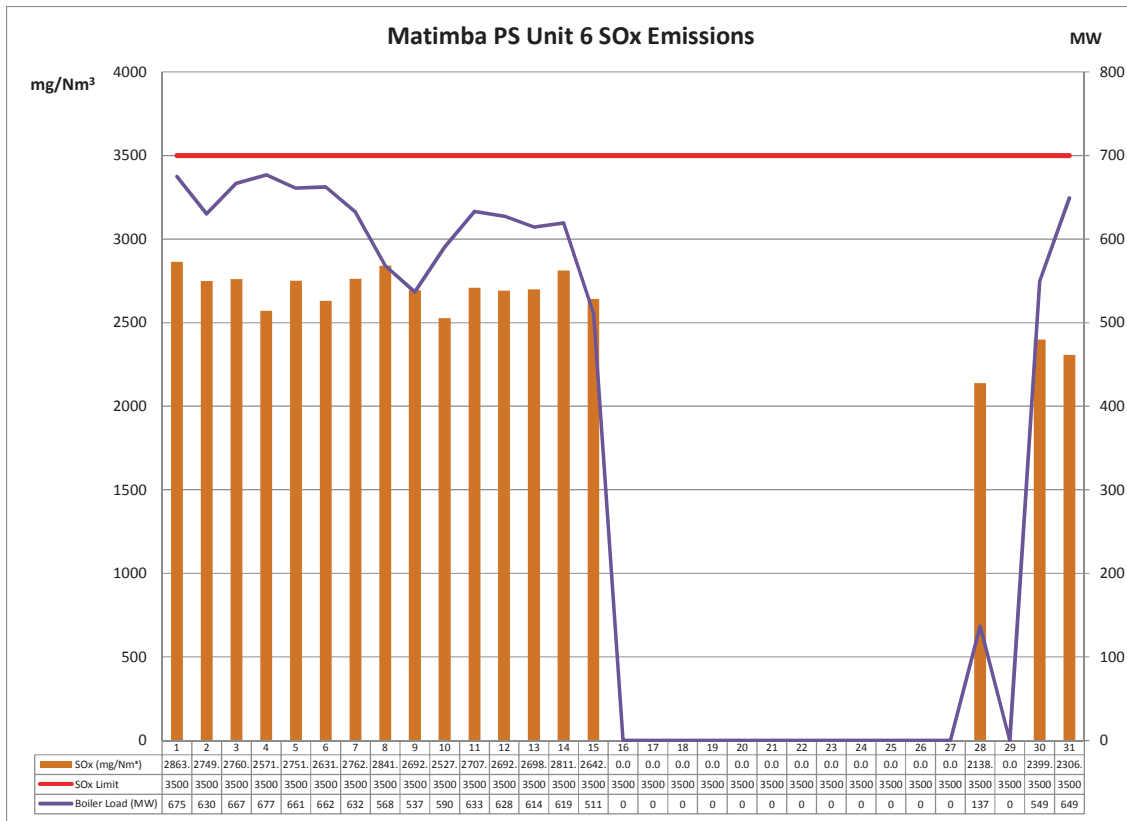


Graph 11: SO₂ daily average emissions against emission limit for unit 5 for the month of January 2019

Interpretation:

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

Unit 6 SO₂ emissions

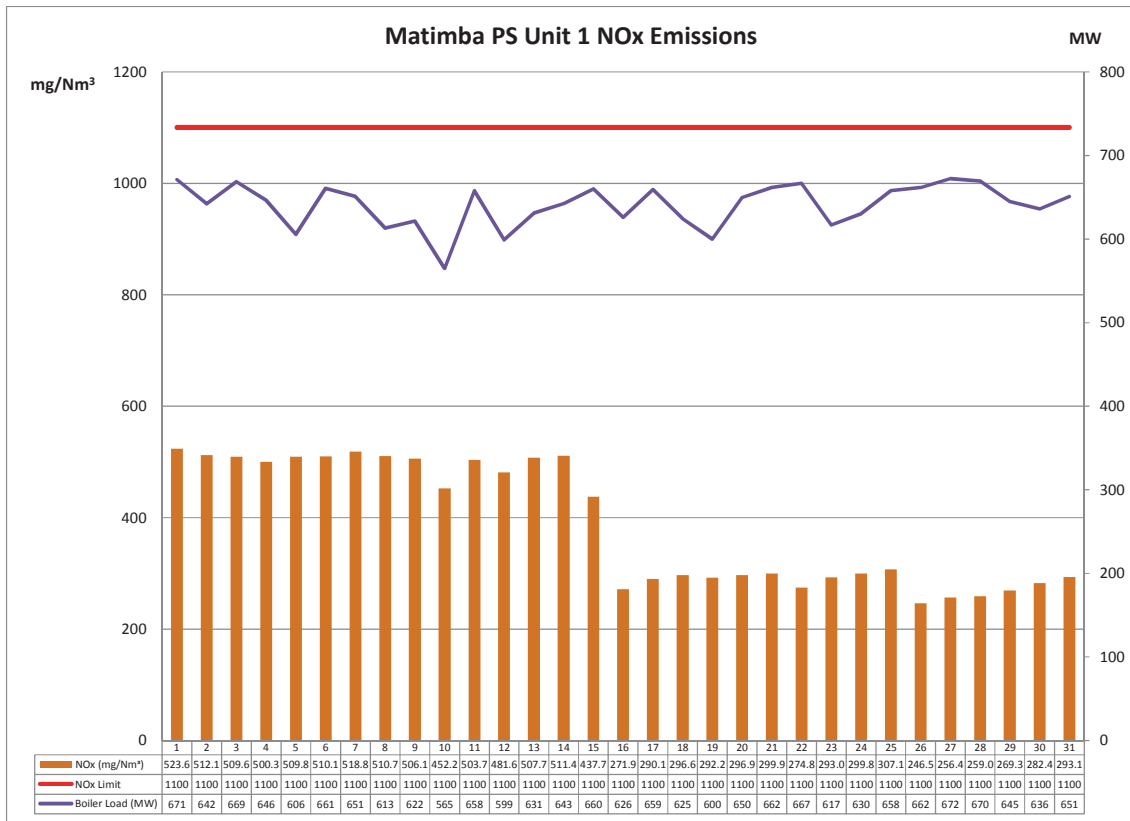


Graph 12: SO₂ daily average emissions against emission limit for unit 6 for the month of January 2019

Interpretation:

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

Unit 1 NO_x emissions

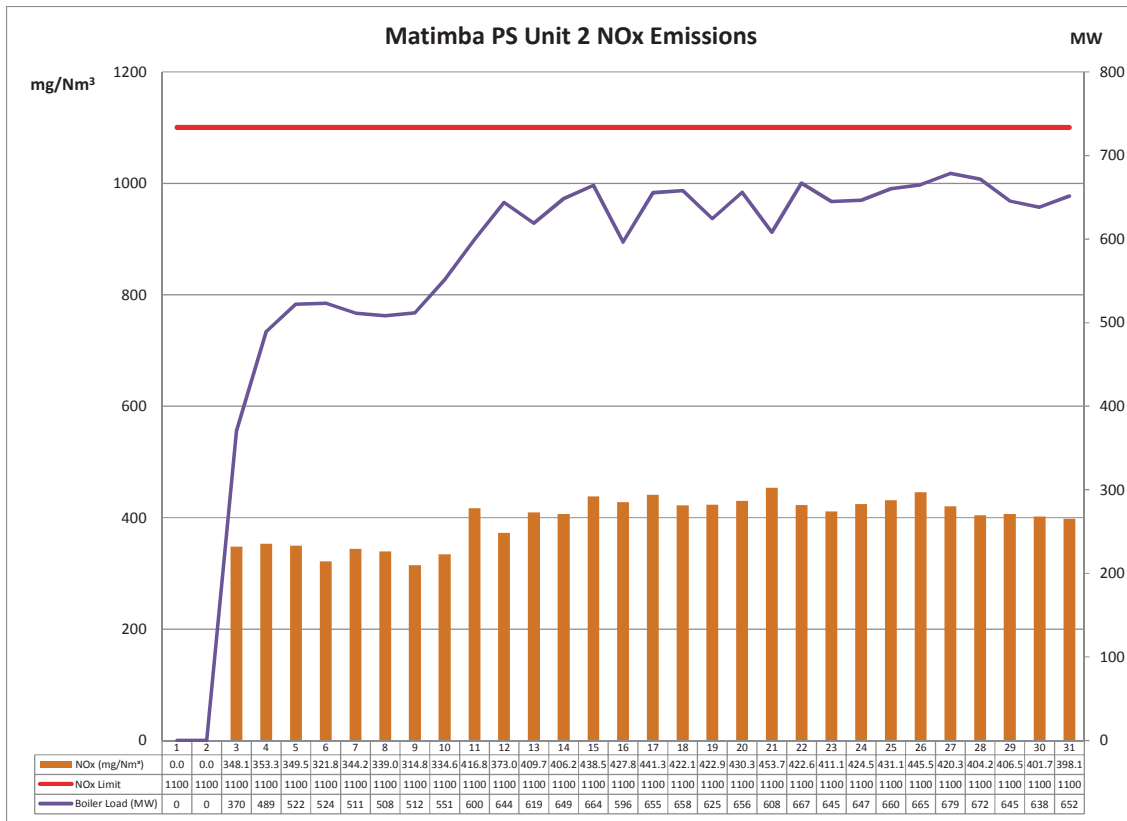


Graph 13: NO_x daily average emissions against emission limit for unit 1 for the month of January 2019

Interpretation:

All daily averages below NO_x emission limit of 1100 mg/Nm³.

Unit 2 NO_x emissions

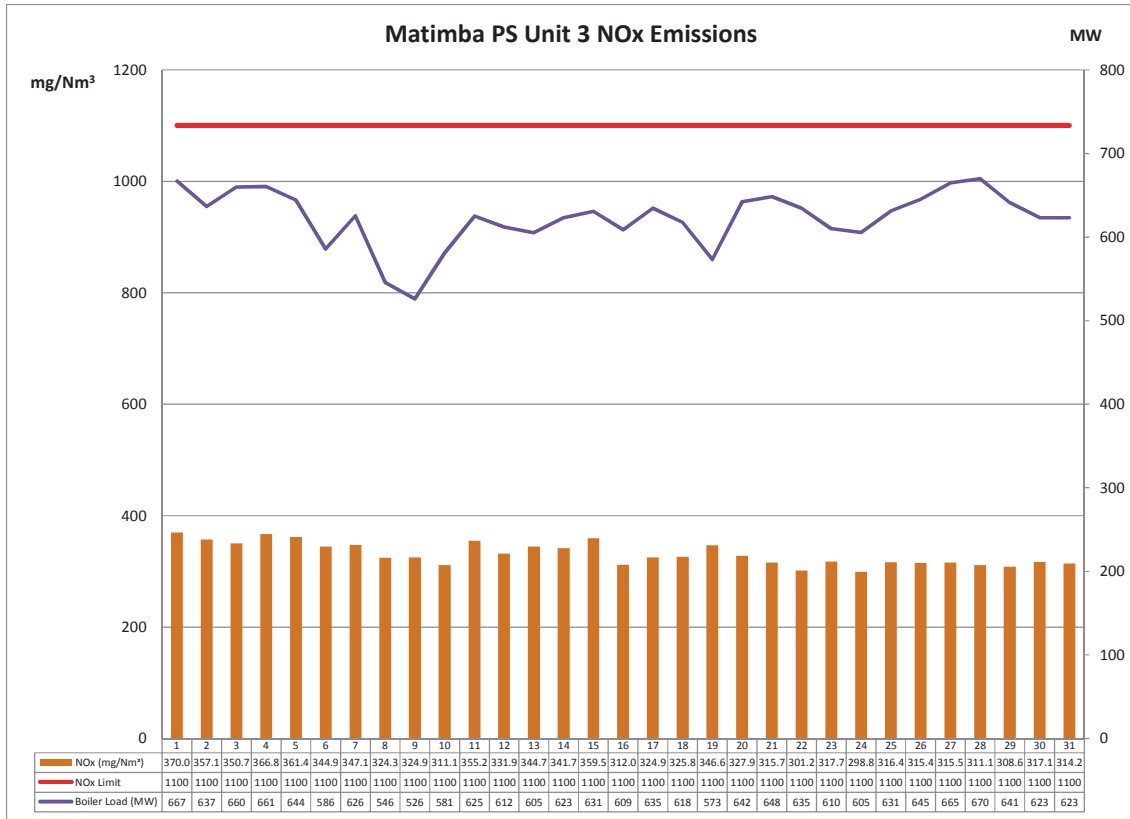


Graph 14: NO_x daily average emissions against emission limit for unit 2 for the month of January 2019

Interpretation:

All daily averages below NO_x emission limit of 1100 mg/Nm³.

Unit 3 NO_x emissions

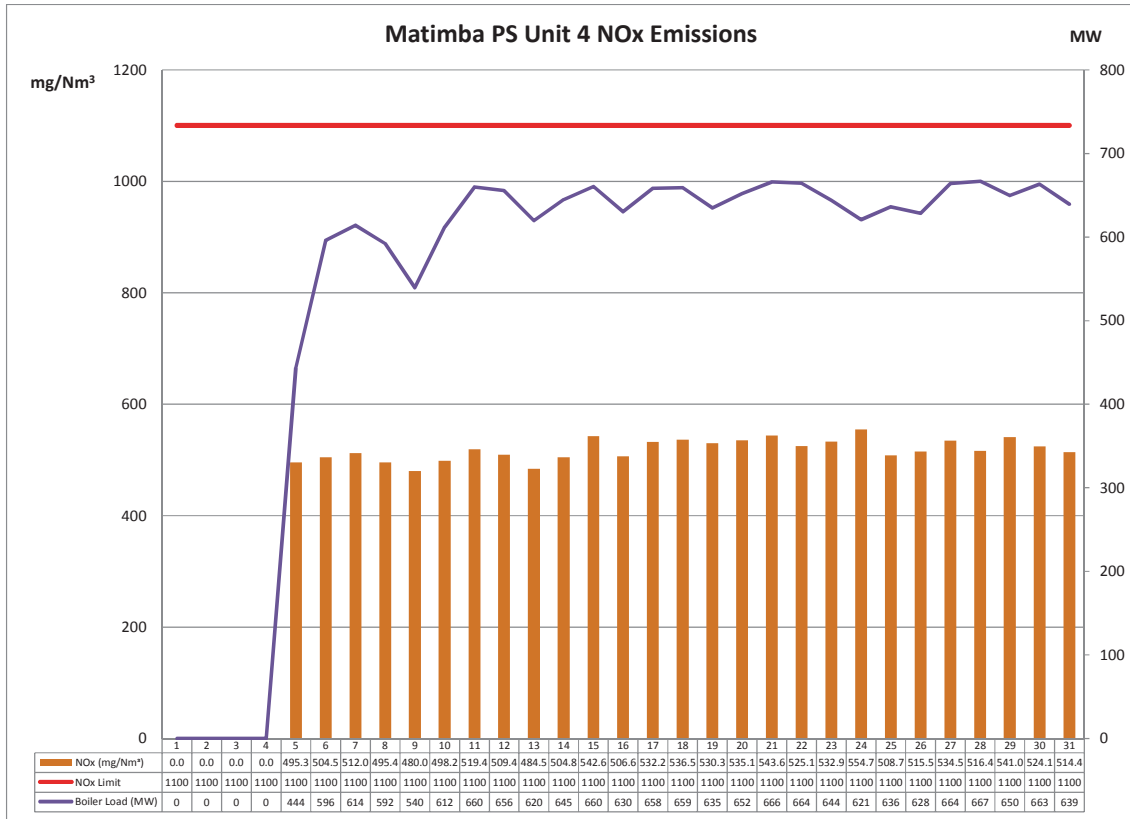


Graph 15: NO_x daily average emissions against emission limit for unit 3 for the month of January 2019

Interpretation:

All daily averages below NO_x emission limit of 1100 mg/Nm³.

Unit 4 NO_x emissions

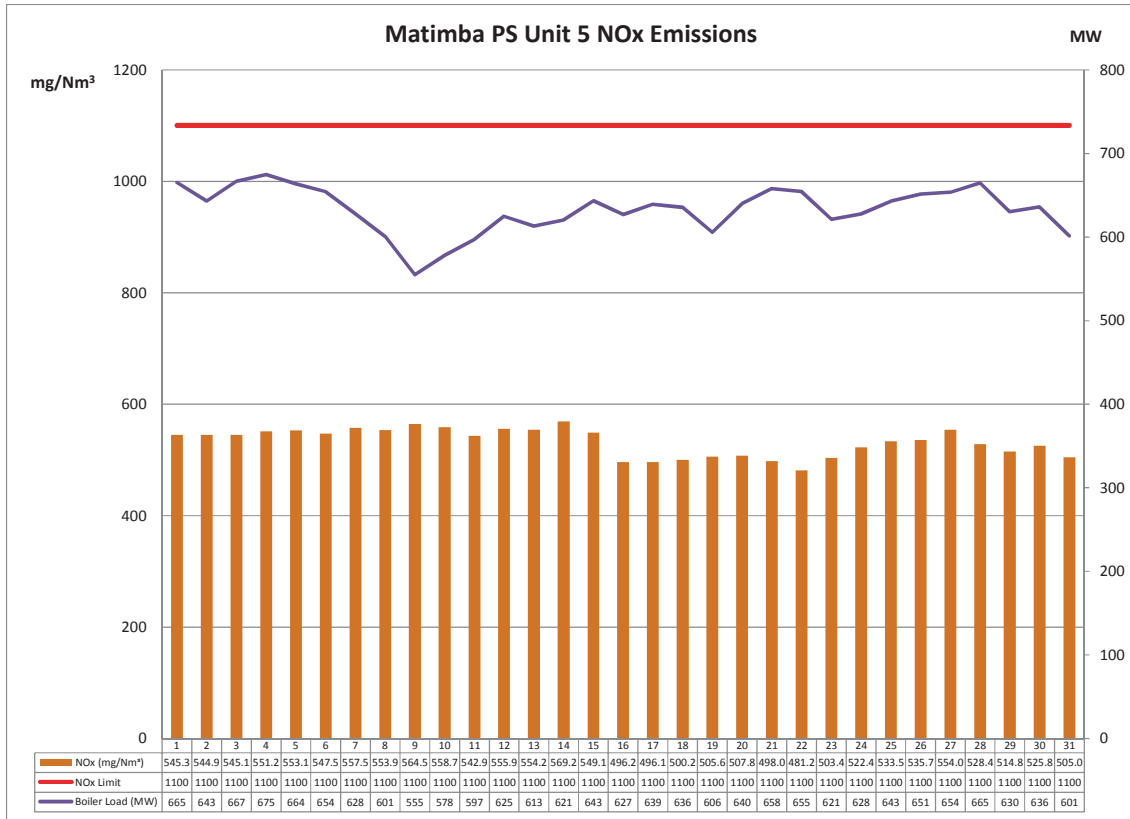


Graph 16: NO_x daily average emissions against emission limit for unit 4 for the month of January 2019

Interpretation:

All daily averages below NO_x emission limit of 1100 mg/Nm³.

Unit 5 NO_x emissions

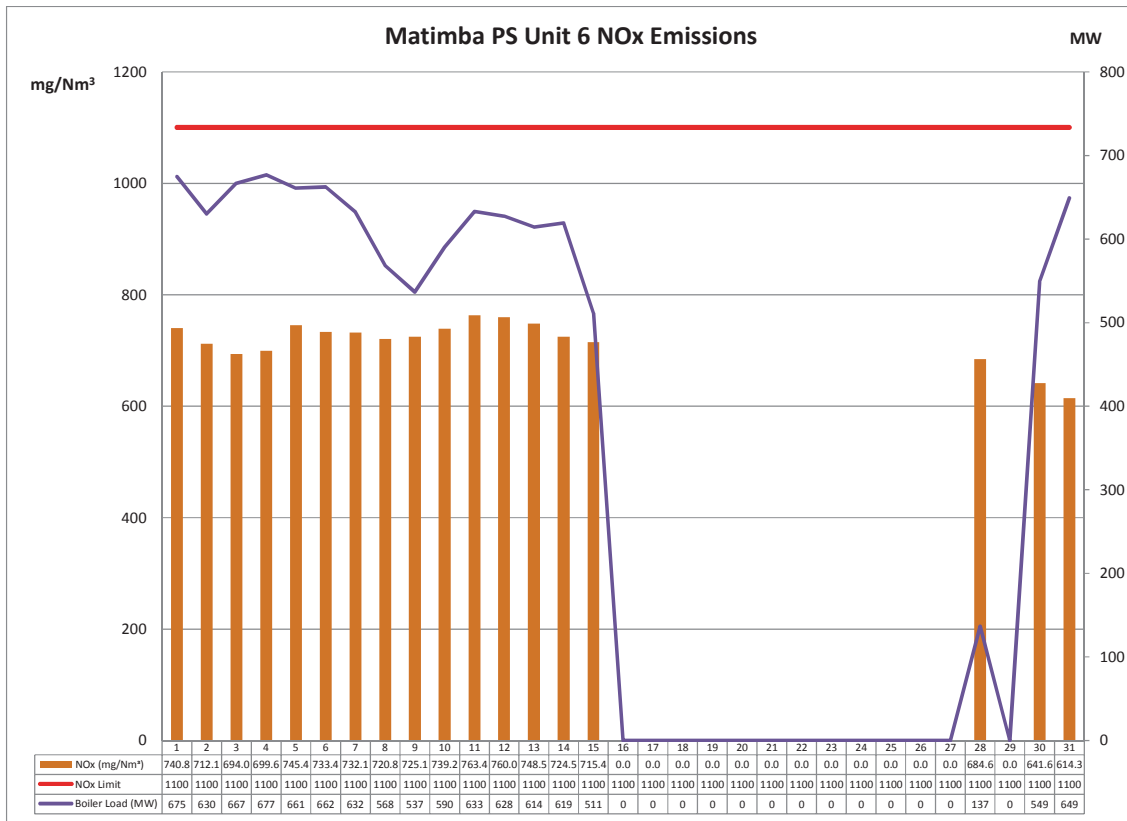


Graph 17: NO_x daily average emissions against emission limit for unit 5 for the month of January 2019

Interpretation:

All daily averages below NO_x emission limit of 1100 mg/Nm³.

Unit 6 NO_x emissions



Graph 18: NO_x daily average emissions against emission limit for unit 6 for the month of January 2019

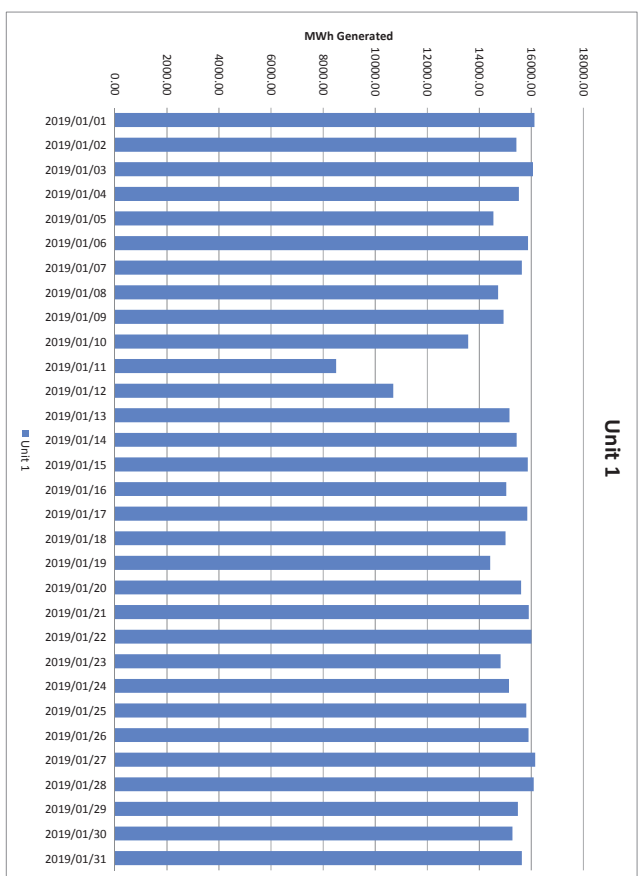
Interpretation:

All daily averages below NO_x emission limit of 1100 mg/Nm³.

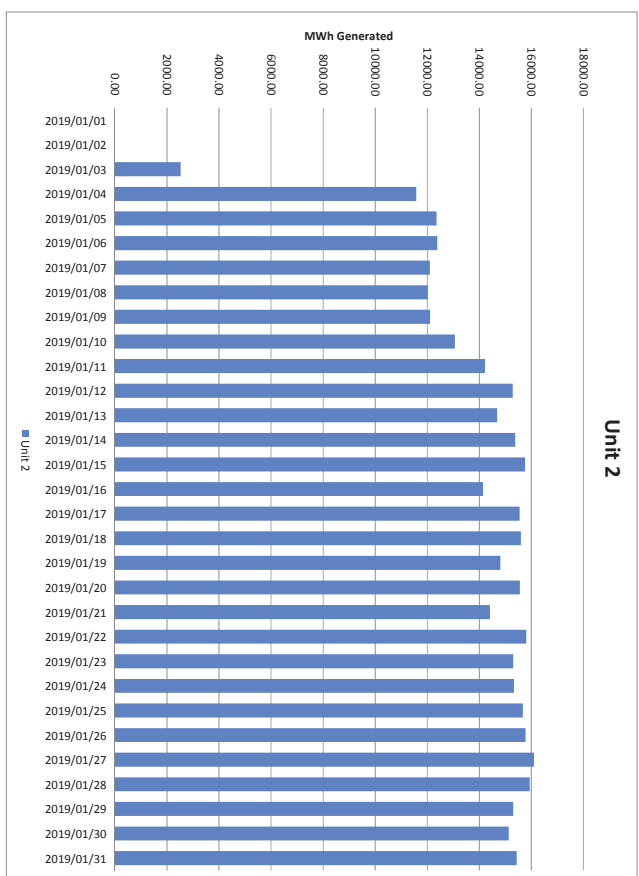
Table 4: Daily power generated per unit in MWh for the month of January 2019

Date	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
2019/01/01	16120.27	0.00	15969.80	0.00	15817.70	16054.60
2019/01/02	15426.20	0.00	15241.20	0.00	15297.00	14999.20
2019/01/03	16064.47	2522.87	15802.13	0.00	15857.00	15873.33
2019/01/04	15520.13	11578.07	15813.93	0.00	16048.00	16118.07
2019/01/05	14543.67	12355.27	15427.27	4010.07	15788.20	15745.00
2019/01/06	15867.20	12383.80	14026.67	14236.47	15560.70	15772.80
2019/01/07	15635.40	12102.67	14974.73	14667.53	14929.70	15105.20
2019/01/08	14724.53	12026.13	13061.27	14142.60	14287.70	13514.27
2019/01/09	14929.60	12104.07	12589.33	12885.67	13200.20	12761.73
2019/01/10	13567.47	13063.20	13916.47	14616.67	11079.70	14047.47
2019/01/11	8504.87	14218.93	14971.53	15761.47	14207.20	15059.53
2019/01/12	10695.47	15288.73	14662.20	15654.67	14860.00	14932.53
2019/01/13	15165.40	14684.60	14497.13	14800.93	14587.00	14619.13
2019/01/14	15437.20	15376.20	14925.67	15397.20	14760.50	14729.60
2019/01/15	15864.53	15761.53	15110.07	15772.27	15304.00	3456.73
2019/01/16	15040.40	14140.47	14581.47	15053.27	14914.10	0.00
2019/01/17	15844.00	15546.53	15201.87	15724.00	15207.30	0.00
2019/01/18	15006.53	15601.40	14790.80	15745.47	15120.10	0.00
2019/01/19	14418.67	14802.40	13731.73	15162.93	14406.80	0.00
2019/01/20	15612.00	15557.07	15390.13	15578.00	15223.00	0.00
2019/01/21	15899.40	14413.33	15535.87	15911.20	15655.30	0.00
2019/01/22	16010.13	15812.60	15200.80	15871.27	15566.30	0.00
2019/01/23	14816.93	15303.87	14611.53	15384.53	14775.70	0.00
2019/01/24	15138.87	15330.93	14502.47	14832.40	14928.50	0.00
2019/01/25	15807.13	15667.80	15123.67	15041.47	15294.00	0.00
2019/01/26	15893.80	15783.94	15456.27	14229.67	15492.70	0.00
2019/01/27	16150.60	16102.07	15923.53	15863.67	15543.20	0.00
2019/01/28	16086.53	15937.34	16045.07	15938.14	15808.60	136.07
2019/01/29	15489.87	15307.73	15362.87	15533.27	14990.10	0.00
2019/01/30	15275.07	15131.20	14930.40	15849.27	15128.10	6320.20
2019/01/31	15632.00	15442.87	14924.47	15270.33	14298.90	15453.60

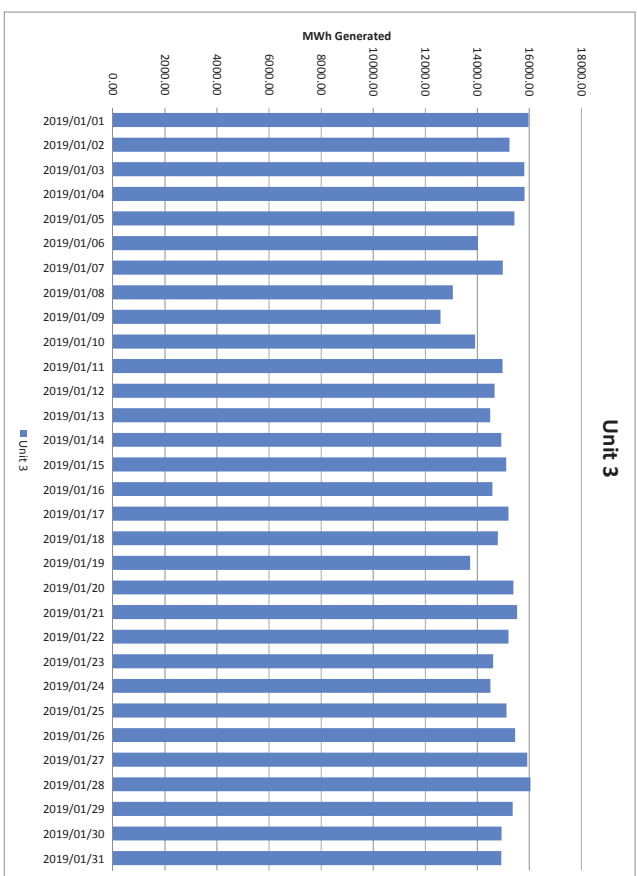
Graph 19: Unit 1 daily generated power in MWh for the month of January 2019



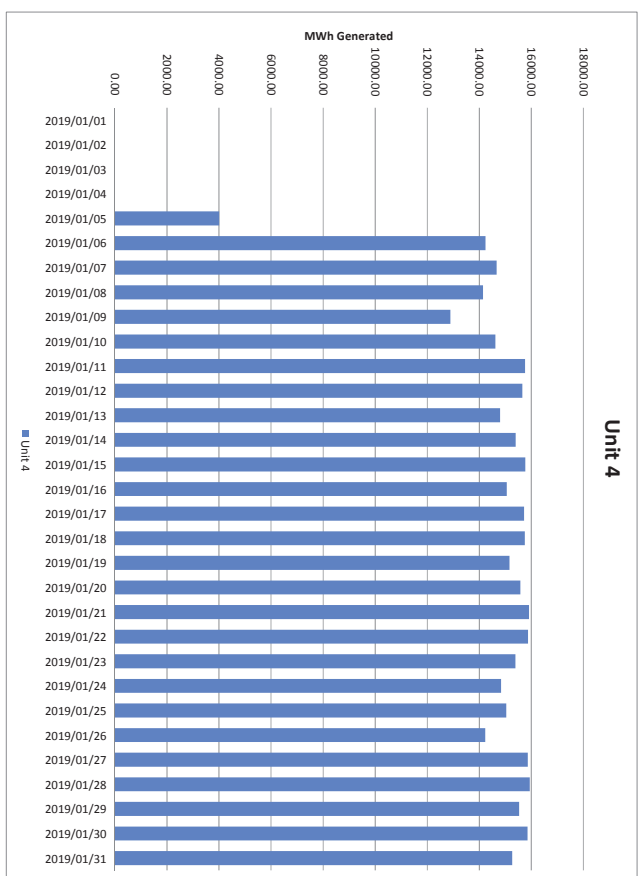
Graph 20: Unit 2 daily generated power in MWh for the month of January 2019



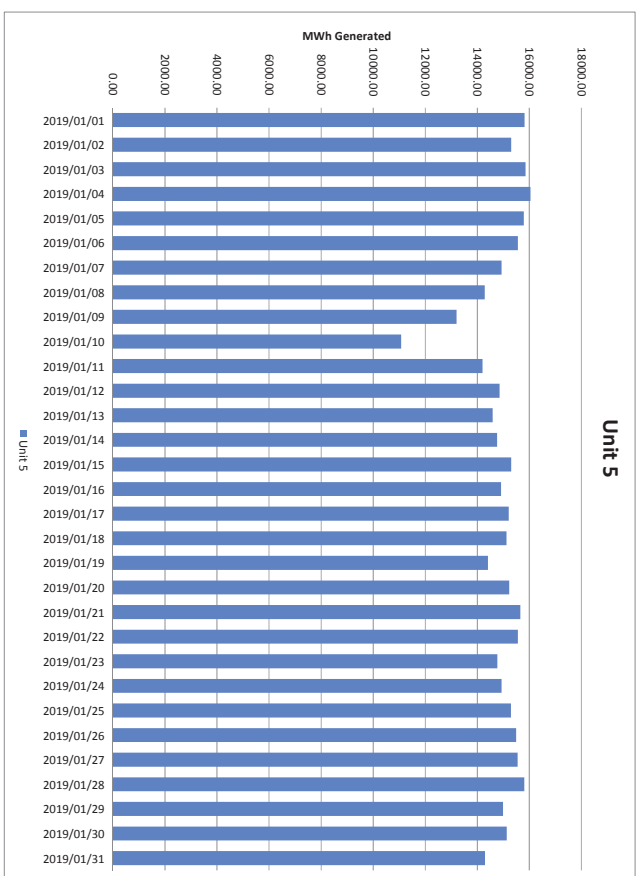
Graph 21 : Unit 3 daily generated power in MWh for the month of January 2019



Graph 22: Unit 4 daily generated power in MWh for the month of January 2019



Graph 23: Unit 5 daily generated power in MWh for the month of January 2019



Graph 24: Unit 6 daily generated power in MWh for the month of January 2019

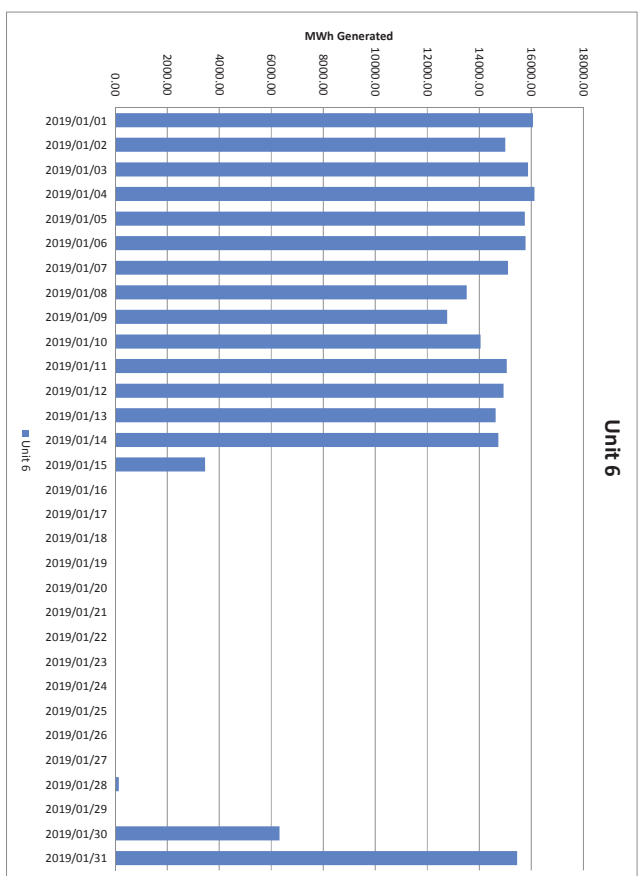


Table 5: Pollutant tonnages for the month of January 2019

Unit	PM (tons)	SO ₂ (tons)	NO ₂ (tons)	CO (tons)	CO ₂ (tons)
1	36.348	7 662.725	951.500		
2	67.004	9 403.172	1 284.563		
3	78.163	5 870.505	882.180		
4	52.266	5 879.065	1 155.193		
5	48.297	6 849.445	1 163.441		
6	35.003	3 011.035	809.850		
SUM	317.082	38 675.947	6 246.726		

Table 6: Reference values for data provided.

Reference value measured in stack.	Unit of measure	Monthly average values					
		Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Flue gas oxygen	%	7.122	6.315	4.682	4.921	8.064	6.327
Flue gas moisture	%	5.247	5.457	3.833	6.005	6.071	7.613
Flue gas velocity	m/s	31.043	38.686	26.555	26.656	28.307	24.279
Flue gas temperature	°C	146.747	131.882	132.713	124.321	127.558	123.926
Flue gas pressure	mBar	917.571	919.292	922.191	922.646	919.604	926.290

Start-up information.**Table 7:** Start-up information

Unit	2	
Fires in	02H59	2019-01-03
Synchronization with Grid	08H36	2019-01-03
Emissions below limit	09H39	2019-01-03
Fires in to synchronization	5.617	Hours
Synchronization to < limit	1.05	Hours

Unit	2	
Fires in	15H22	2019-01-03
Synchronization with Grid	17H26	2019-01-03
Emissions below limit	20H36	2019-01-03
Fires in to synchronization	2.066	Hours
Synchronization to < limit	3.167	Hours

Unit	4	
Fires in	10H22	2019-01-05
Synchronization with Grid	14H54	2019-01-05
Emissions below limit	17H23	2019-01-05
Fires in to synchronization	4.533	Hours
Synchronization to < limit	2.483	Hours

Unit	5	
Fires in	20H15	2019-01-10
Synchronization with Grid	23H10	2019-01-10
Emissions below limit	01H24	2019-01-11
Fires in to synchronization	2.917	Hours
Synchronization to < limit	2.233	Hours

Unit	1	
Fires in	04H30	2019-01-12
Synchronization with Grid	06H07	2019-01-12
Emissions below limit	07H15	2019-01-12
Fires in to synchronization	1.617	Hours
Synchronization to < limit	1.133	Hours

Unit	4	
Fires in	23H12	2019-01-25
Synchronization with Grid	01H14	2019-01-26
Emissions below limit	01H14	2019-01-26
Fires in to synchronization	2.033	Hours
Synchronization to < limit	0	Hours

Unit	6	
Fires in	09H42	2019-01-28
Synchronization with Grid	15H23	2019-01-28
Emissions below limit	16H26	2019-01-28
Fires in to synchronization	1.05	Hours
Synchronization to < limit	5.683	Hours

Unit	6	
Fires in	09H17	2019-01-30
Synchronization with Grid	12H24	2019-01-30
Emissions below limit	13H48	2019-01-30
Fires in to synchronization	3.117	Hours
Synchronization to < limit	1.4	Hours

Emergency Generation

Table 8: Emergency Generation.

	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Emergency Generation hours declared by national Control	352	338	379	318	364	103
Emergency Hours declared including hours after stand down	375	361	404	340	387	111
Days over the Limit during Emergency Generation	0	0	0	0	0	0

Complaints Register

Table 9: Complaints.

Source Code/ Name	Root Cause Analysis	Calculation of Impacts/ emissions associated with the incident	Dispersion modeling of pollutants where applicable	Measures implemented to prevent reoccurrence	Date by which measure will be implemented
None					

Table 10: Total volatile compound estimates.



CALCULATION OF EMISSIONS OF TOTAL VOLATILE COMPOUNDS FROM FUEL OIL STORAGE

Date	01 March	
Station	Matimba Power	
Province	Limpopo	
Tank	1-	
Description	Outdoor fuel oil storage	
Tank	Vertical fixed roof (vented to	
Material	Fuel Oil	
<p>MONTHLY INPUT DATA FOR THE</p> <p>Please only insert relevant monthly inputs into <u>blue</u></p> <p>Choose from a dropdown menu in <u>green</u></p> <p>The total VOC emissions for the month are in <u>red</u></p> <p>IMPORTANT: Do not <u>an</u> other cells without consulting the AQ</p>		
MONTH	Januar	
GENERAL	Dat	Uni
Total number of fuel oil	4	N
Height of	13.3	m
Diameter of	9.5	m
Net fuel oil throughput for the	925.44	tons/mont
Molecular weight of the fuel	166.0	Lb/lb-
METEROLOGICAL DATA FOR THE	Dat	Uni
Daily average ambient	25.1	°C
Daily maximum ambient	31.5	°
Daily minimum ambient	17.4	°
Daily ambient temperature	14.1	°
Daily total insolation	5.8	kWh/m ² /da
Tank paint	Grey/mediu	N
Tank paint solar	0.6	N
FINAL	Resul	Uni
Breathing	0.6 kg/mont	
Working	0.0 kg/mont	
TOTAL LOSSES (Total TVOC Emissions for the	0.6 kg/mont	
<p>*Calculations performed on this spreadsheet are taken from the USEPA AP-42- Section 7.1 Organic Storage Tanks - January 1996. This spreadsheet is derived from materials provided by Jimmy Peress, Trittech Consulting Engineers, 85-93 Chevy Chase Street, Jamaica, NY 11432 USA, Tel - 718-454-3920, 718-454-6330, e-mail -</p>		

Table 11: Average % availability of monitors for the month of January 2019.

Unit	SO ₂	NO _x	PM	CO ₂
1	100.0	99.7	100.0	
2	97.2	97.0	100.0	
3	100.0	100.0	100.0	
4	100.0	100.0	100.0	
5	100.0	100.0	99.9	
6	90.6	90.4	100.0	

General

Name and reference number of the monitoring method 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

Unit 1

1. One out of 32 precipitator fields is out of service. Repairs will be done during the next opportunity outage.
1. No abnormalities on the SO₃ plant. Preventative maintenance done during the month.

Unit 2

1. All precipitator fields are in service. Repairs were done during the outage.
2. No abnormalities on the SO₃ plant. Preventative maintenance done during the month.

Unit 3

1. Three out of 32 precipitator fields is out of service. Repairs will be done during the next opportunity outage.
2. No abnormalities on the SO₃ plant. Preventative maintenance done during the month.

Unit 4

1. All precipitator fields are in service. Repairs were done during the outage.
2. No abnormalities on the SO₃ plant. Preventative maintenance done during the month.

Unit 5

2. All precipitator fields in service.
3. No abnormalities on the SO₃ plant. Preventative maintenance done during the month.

Unit 6

1. All precipitator fields are in service. Repairs were done during the outage.
2. No abnormalities on the SO₃ plant. Preventative maintenance done during the month.

CEMs

1. No adjustments done on the CEMs. Calibration is done every second week.

Particulate monitors

1. No downtime, repairs or adjustments done on the particulate monitors.

Air quality improvements

1. None

Social responsibility conducted

No campaigns conducted in January 2019

Sampling dates and times

1. Continuous

Attachments

1. Matimba have not received the Marapong air quality monthly report for January 2019. As soon as the report is received it will be send separately.

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.

GENERAL MANAGER: MATIMBA POWER STATION