Eskom

Generation

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MATLA POWER STATION

Atmospheric Emission License 17/4/AEL/MP312/11/14

BOILER ENGINEERING MANAGER	29/06/2023 DATE
ENVIRONMENTAL MANAGER	30/06/2023 DATE
ENGINEERING MANAGER	30.06.2023 DATE

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MAY 2023

MATLA POWER STATION MONTHLY EMISSIONS REPORT

Atmospheric Emission License 17/4/AEL/MP312/11/14

1 RAW MATERIALS AND PRODUCTS

Raw Materials and Products	Raw Material Type	Units	Max Permitted Consumption Rate	Consumption Rate May-2023
	Coal	Tons	*1 475 000*	*836 981*
	Fuel Oil	Tons	*3 500*	*3 487*
Production Rates	**Product / By-Product Name**	**Units**	**Max Production Capacity Permitted**	**Production Rate May-2023**
	Energy	GWh	*2 745*	*1 245*
	Ash	Tons	*471 000*	*273 023*

2 ENERGY SOURCE CHARACTERISTICS

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	*0.8-1.1*	*1.00*
Ash Content	%	*21-40*	*32.62*

3 EMISSION LIMITS (mg/Nm³)

Associated Unit/Stack	PM	SO_2	NO
South	*200*	*3500*	*1200*
Unit 4	*200*	*3500*	*1200*
Unit 5	*100*	*3500*	*1200*
Unit 6	*100*	*3500*	*1200*

Note: NOx emissions is measured as NO in PPM. Final NOx value is expressed as total NO_2

4 ABATEMENT TECHNOLOGY (%)

Associated Unit/Stack	Technology Type	Efficiency May-2023
South	*Electro Static Precipators (ESP)*	*97.282%*
Unit 4	*Electro Static Precipators (ESP)*	*98.609%*
Unit 5	*Electro Static Precipators (ESP)*	*98.789%*
Unit 6	*Electro Static Precipators (ESP)*	*97.723%*

Note: Abatement plant does not have bypass mode operation, hence plant 100% Utilised.

5 DATA RELIABILITY (%)

Associated Unit/Stack	PM	SO_2	NO	O_2
South	*3.5*	*96.7*	*96.7*	*96.7*
Unit 4	*73.9*	*99.6*	*100.0*	*99.6*
Unit 5	*84.8*	*99.6*	*99.6*	*100.0*
Unit 6	*50.5*	*100.0*	*100.0*	*100.0*

6 EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of May-2023

Associated Unit/Stack	PM	SOx	NOx
Unit 1	698.7	2 158.4	517.6
Unit 2	1 709.9	5 282.5	1 266.7
Unit 3	1 032.8	3 190.6	765.1
Unit 4	682.1	4 274.6	1 935.4
Unit 5	624.4	2 835.8	1 245.8
Unit 6	422.2	828.4	392.7
SUM	5 170.1	18 570.2	6 123.4

Table 6.2: Operating days in compliance to PM AEL Limit - May 2023

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm³)
South	0	0	0	31	31	800.0
Unit 4	14	4	0	13	17	384.1
Unit 5	5	7	0	18	25	441.4
Unit 6	0	3	0	12	15	1 006.3
SUM	**19**	**14**	**0**	**74**	**88**	

Table 6.3: Operating days in compliance to SO_2 AEL Limit - May 2023

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SO_2 (mg/Nm³)
South	31	0	0	0	0	2 471.5
Unit 4	31	0	0	0	0	2 337.3
Unit 5	31	0	0	0	0	2 070.0
Unit 6	18	0	0	0	0	2 225.6
SUM	**111**	**0**	**0**	**0**	**0**	

Table 6.4: Operating days in compliance to NOx AEL Limit - May 2023

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm³)
South	31	0	0	0	0	592.6
Unit 4	16	0	0	15	15	1 058.6
Unit 5	31	0	0	0	0	906.9
Unit 6	15	0	0	3	3	1 055.1
SUM	**93**	**0**	**0**	**18**	**18**	

Note: NOx emissions is measured as NO in PPM. Final NOx value is expressed as total NO_2

Table 6.5: Legend Description

Condition	Colour	Description
Normal		Emissions below Emission Limit Value (ELV)
Grace		Emissions above the ELV during grace period
Section 30		Emissions above ELV during a NEMA S30 incident
Contravention		Emissions above ELV but outside grace or S30 incident conditions

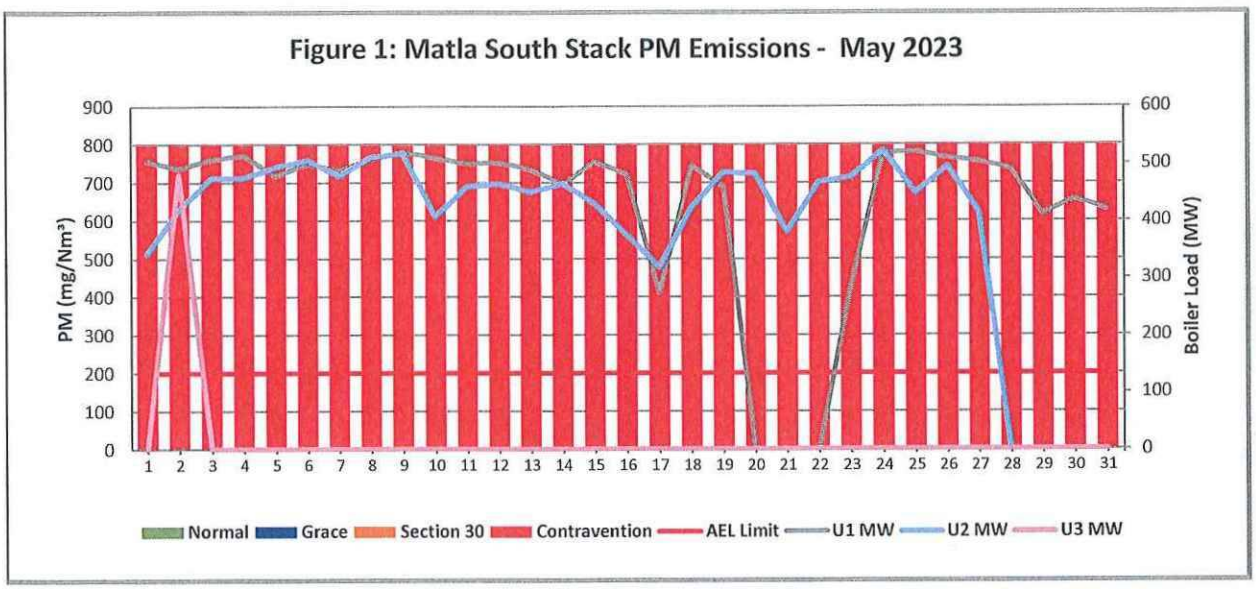


Figure 1: Matla South Stack PM Emissions - May 2023
PM (mg/Nm³)
Boiler Load (MW)
0
100
200
300
400
500
600
700
800
900
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U1 MW
U2 MW
U3 MW

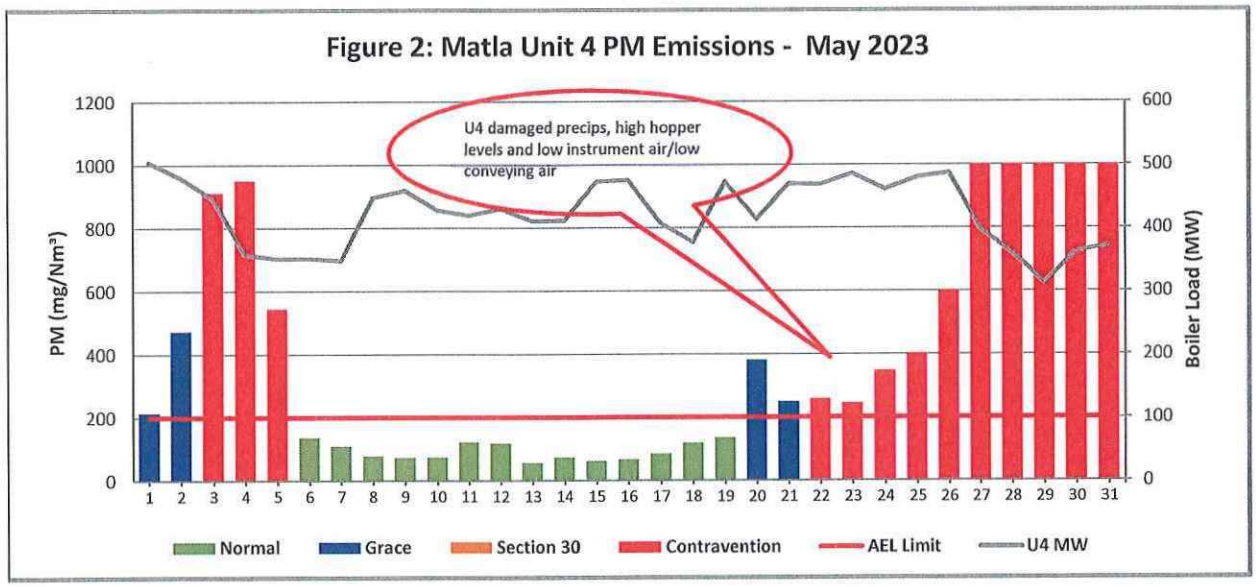


Figure 2: Matla Unit 4 PM Emissions - May 2023
U4 damaged precips, high hopper levels and low instrument air/low conveying air
PM (mg/Nm³)
Boiler Load (MW)
0
200
400
600
800
1000
1200
100
300
500
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U4 MW

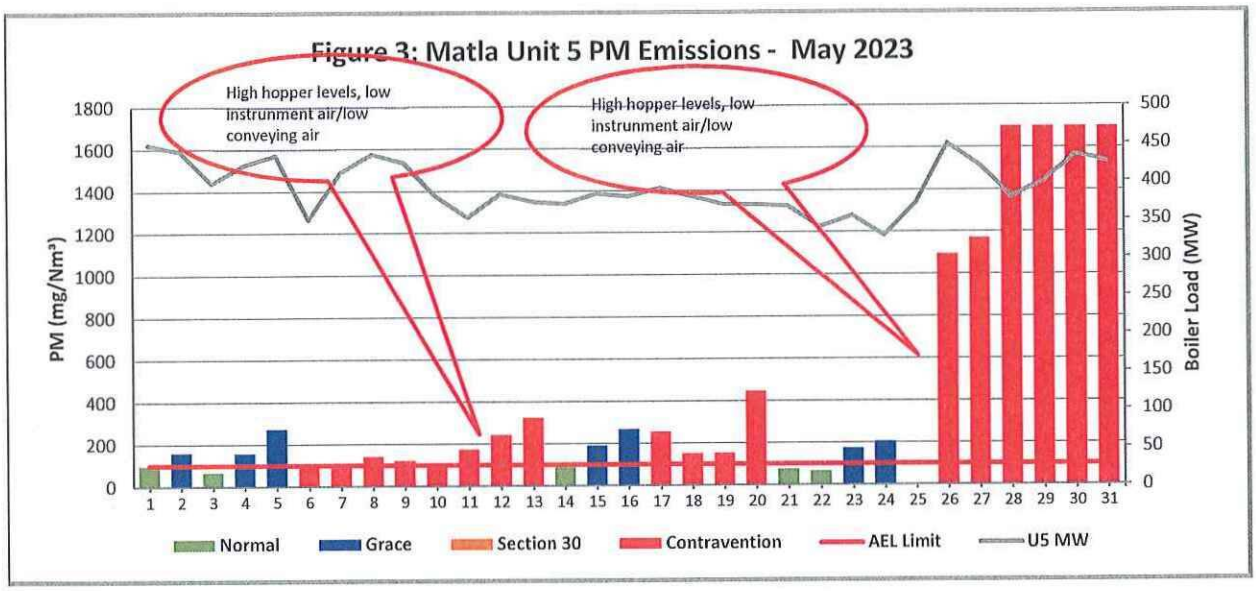


Figure 3: Matla Unit 5 PM Emissions - May 2023
High hopper levels, low instrunment air/low conveying air
High hopper levels, low instrunment air/low conveying air
PM (mg/Nm³)
Boiler Load (MW)
Normal
Grace
Section 30
Contravention
AEL Limit
U5 MW

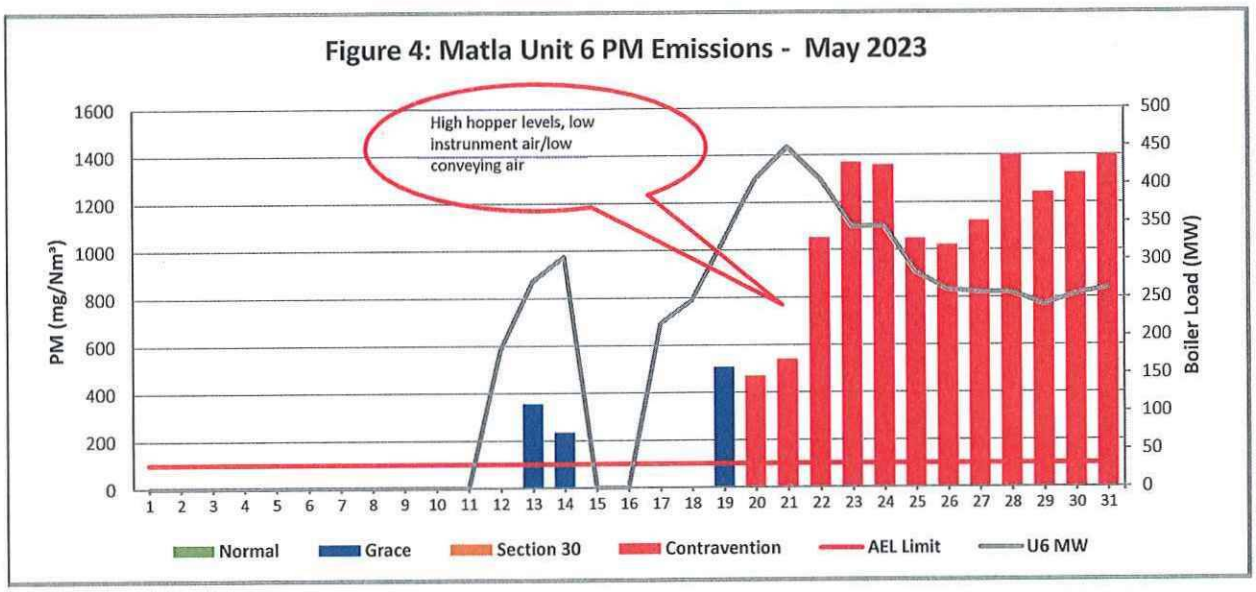


Figure 4: Matla Unit 6 PM Emissions - May 2023
High hopper levels, low instrunment air/low conveying air
PM (mg/Nm³)
Boiler Load (MW)
Normal
Grace
Section 30
Contravention
AEL Limit
U6 MW

Figure 5: Matla South Stack SO_2 Emissions - May 2023

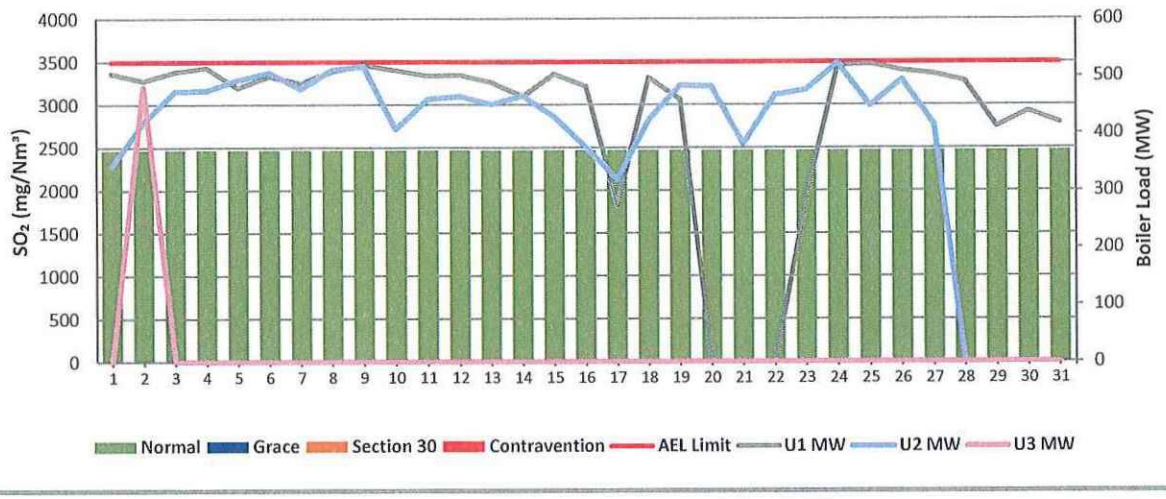
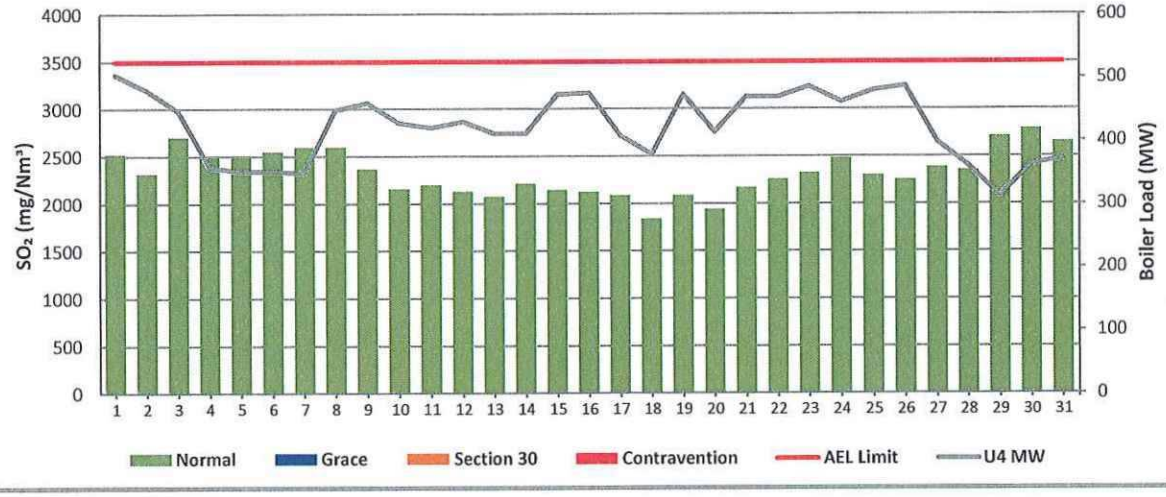


Figure 6: Matla Unit 4 SO_2 Emissions - May 2023



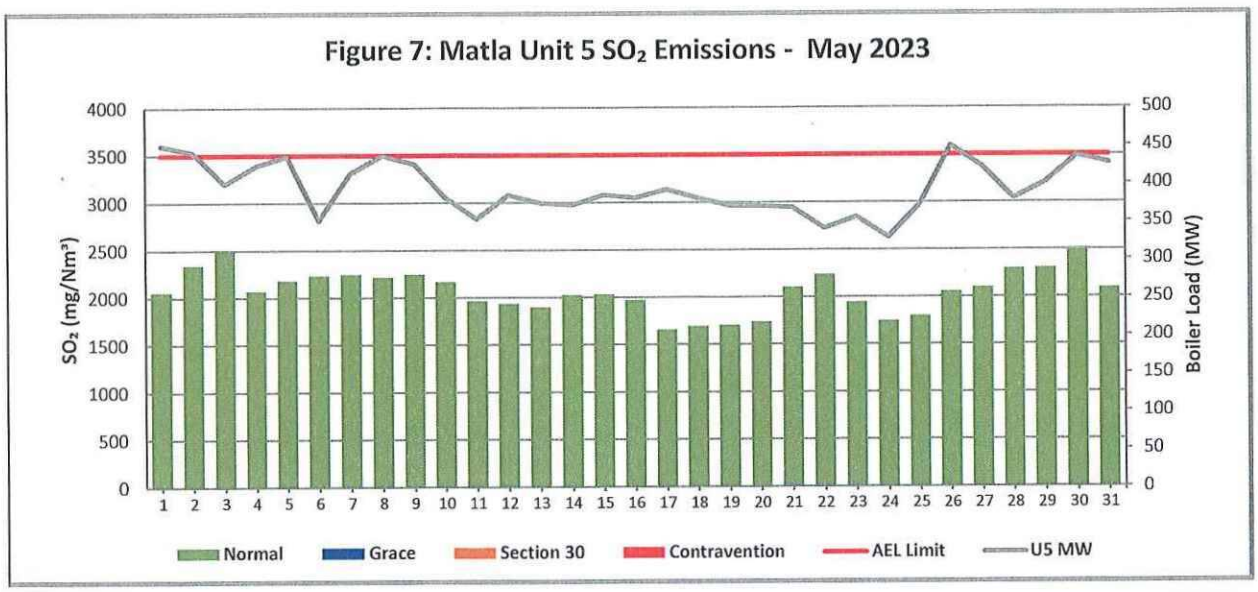


Figure 7: Matla Unit 5 SO_2 Emissions - May 2023
SO_2 (mg/Nm³)
Boiler Load (MW)
Normal
Grace
Section 30
Contravention
AEL Limit
U5 MW

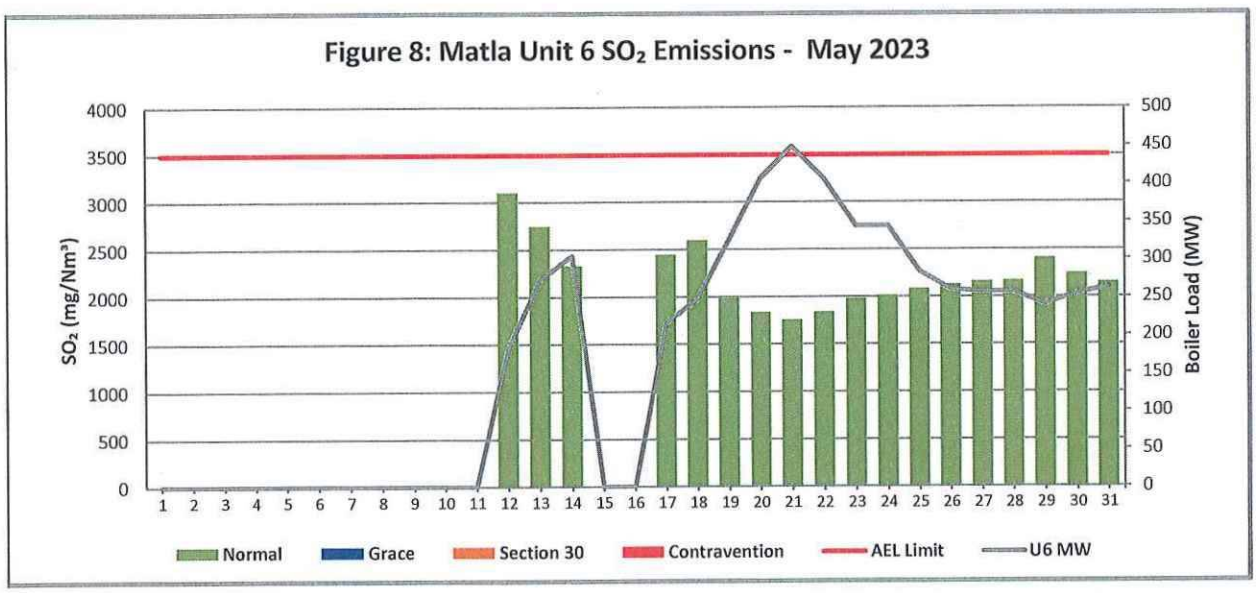


Figure 8: Matla Unit 6 SO_2 Emissions - May 2023
SO_2 (mg/Nm³)
Boiler Load (MW)
Normal
Grace
Section 30
Contravention
AEL Limit
U6 MW

Figure 9: Matla South Stack NOx Emissions - May 2023

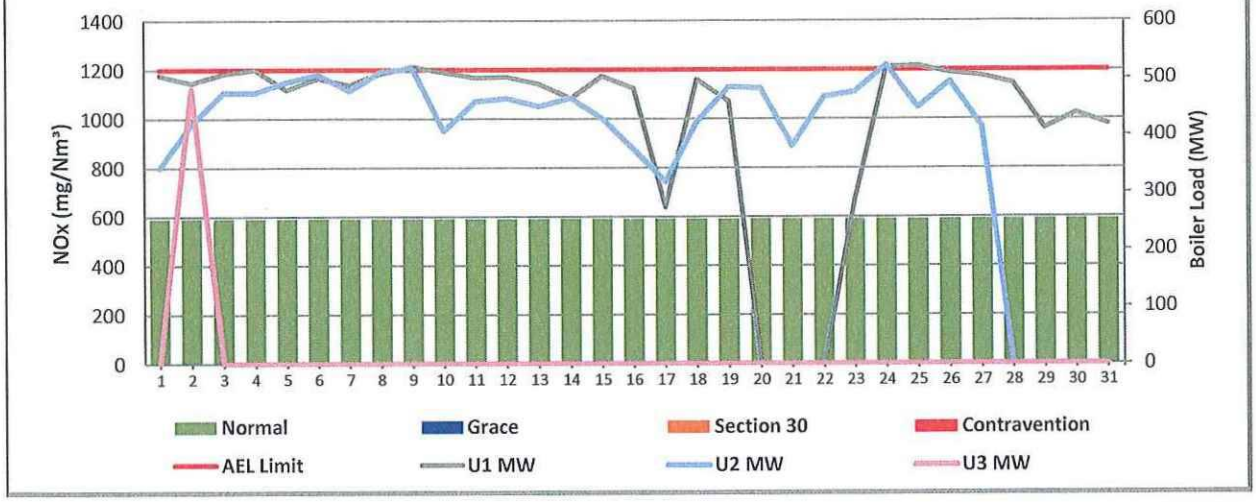


Figure 10: Matla Unit 4 NOx Emissions - May 2023

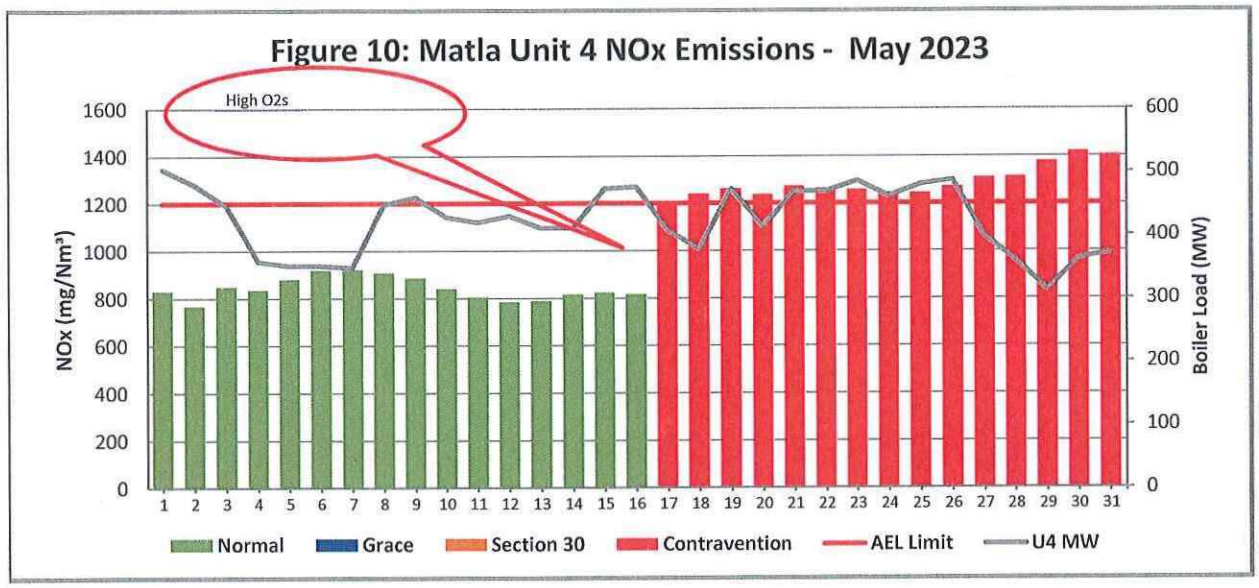


Figure 11: Matla Unit 5 NOx Emissions - May 2023

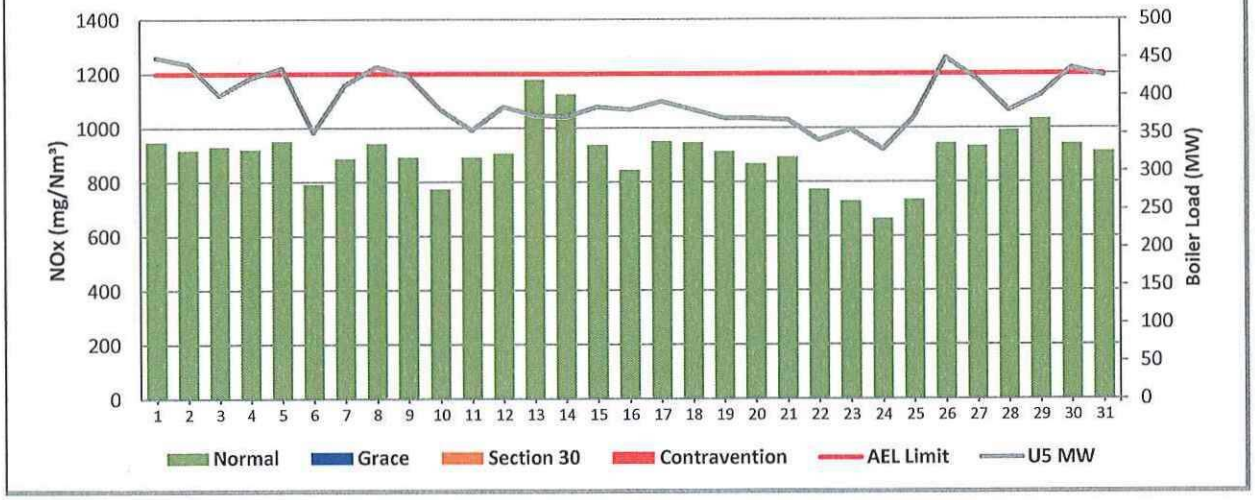
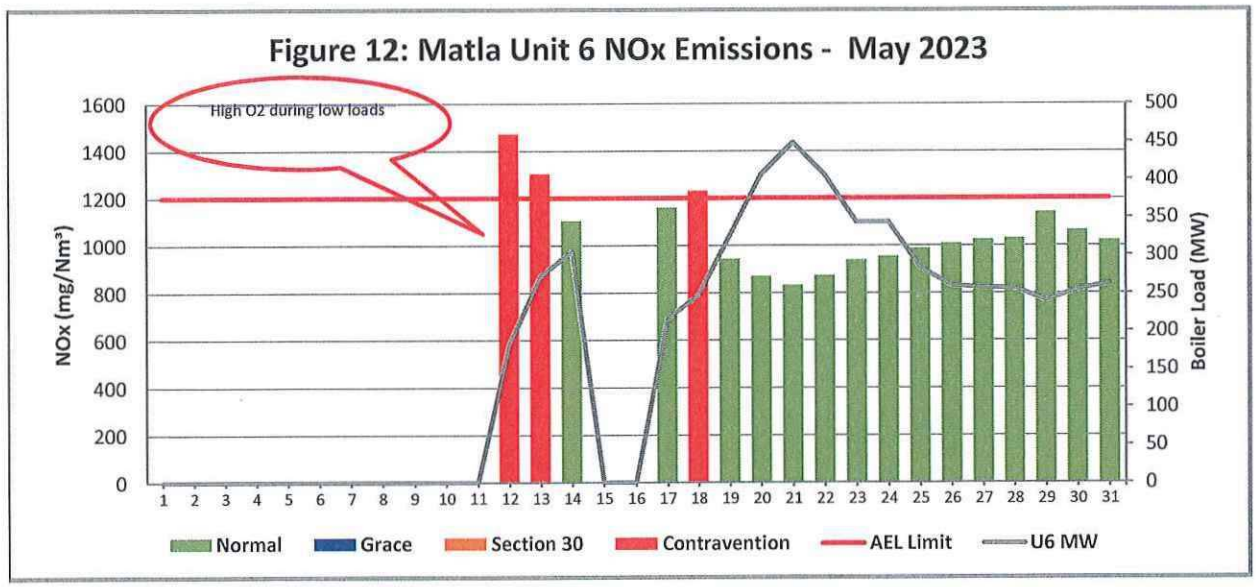


Figure 12: Matla Unit 6 NOx Emissions - May 2023



7 SHUT DOWN AND LIGHT UP INFORMATION

Table 7.1. PM Start-up information for the month of May-2023

South Stack	*Event 1*		*Event 2*		*Event 3*		*Event 4*	
Unit No.	*no event*		*no event*		*no event*		*no event*	
Breaker Open (BO)								
Draught Group (DG) Shut Down (SD)								
BO to DG SD (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time								
Synch. to Grid (or BC)								
Fires in to BC (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)								
Emissions below limit from BC (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM

South Stack ...cont.	*Event 5*		*Event 6*		*Event 7*		*Event 8*	
Unit No.	*Unit 2*		*no event*		*no event*		*no event*	
Breaker Open (BO)	*11:35 AM*	*2023/05/27*						
Draught Group (DG) Shut Down (SD)	*6:45 AM*	*2023/05/28*						
BO to DG SD (duration)	*00:19:10*	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time	*10:05 AM*	*2023/06/01*						
Synch. to Grid (or BC)	*9:10 PM*	*2023/06/01*						
Fires in to BC (duration)	*00:11:05*	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	*not > limit*	*not > limit*						
Emissions below limit from BC (duration)	*n/a*	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM

Unit No. 4	Event 1		Event 2		Event 3		Event 4	
Breaker Open (BO)								
Draught Group (DG) Shut Down (SD)								
BO to DG SD (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time								
Synch. to Grid (or BC)								
Fires in to BC (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)								
Emissions below limit from BC (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM

Unit No. 5	Event 1		Event 2		Event 3		Event 4	
Breaker Open (BO)								
Draught Group (DG) Shut Down (SD)								
BO to DG SD (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time								
Synch. to Grid (or BC)								
Fires in to BC (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)								
Emissions below limit from BC (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM

Unit No. 6	Event 1		Event 2		Event 3		Event 4	
Breaker Open (BO)								
Draught Group (DG) Shut Down (SD)								
BO to DG SD (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time								
Synch. to Grid (or BC)								
Fires in to BC (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)								
Emissions below limit from BC (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM

7.2: Point Source emissions released during start-up (fires-in) and Shut-down (SD) for the month of May-2023 in mg/Nm^3

ADDENDUM TO MONTHLY EMISSIONS REPORT

8 EMERGENCY GENERATION

Emergency Generation *[This is only required for stations that are requested to report on this information]*

Table 8. Emergency Generation per unit for the month of May 2023

	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Emergency Generation hours declared by national Control						
Emergency Hours declared including hours after stand down						
Hours over the Limit during Emergency Generation						

9 COMPLAINTS REGISTER

Table 9. Complaints for the month of May 2023

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 measure will be implemented
(Insert name of affected	*(Insert root cause for incident)*	*(Insert emissions associated with incident)*	*(Insert dispersion model information where applicable)*	*(Insert mitigation measures taken)*	*(Insert date of implementation of*

10 S30 INCIDENT OR LEGAL CONTRAVENTION REGISTER

To be completed in the case of a S30 incident or a legal contravention:

Unit no	Incident Start Date	Incident End Date	Incident Cause	Remedial action	S30 initial notification sent	Date S30 investigation report sent	Date DEA Acknowledg-ment	Date DEA Acceptabe	Comments / Reference No.
SS	30/04/2023	31/05/2023	High hopper levels, low instrment and conveying air	Hired additional compressors	No				Legal contravention
4	22/05/2023	31/05/2023	High hopper levels, low instrment and conveying air	Hired additional compressors	No				Legal contravention
5	06/05/2023	31/05/2023	High hopper levels, low instrment and conveying air	Hired additional compressors	No				Legal contravention
6	20/05/2023	31/05/2023	High hopper levels, low instrment and conveying air	Hired additional compressors	No				Legal contravention
4(Nox)	17/05/2023	31/05/2023	High O2s	Calibrated the monitor	No				Legal contravention

11 General

Some gas emissions are reported using parallel tests averages.
Reliability of the PM monitor on south stack, unit 4 and unit 6 less than 80% due to stack maxing out.
Unit 4 and unit 6 correlation curves expired. Unit 4 testing completed and awaiting report and unit 6 scheduled for August 2023.
Unit 3 data unavailable and average value used to estimate unit 3 ash tonnages.

29-06-2023

Boiler Engineering Date

30/06/2023

Environmental Department Date

30/06/2023

General Manager Date

Compiled by: Boiler Engineering Department

For: Department of Environmental Affairs and Tourism

Copies: Eskom Environmental Management

Group Technology Engineering

Matla Power Station:

ESP & SO_3 System Engineer

Chief Air Pollution Control Officer

D Herbst
B Mccourt

R Rampiar
E. Patel

Engineering Manager
Operating Manager
Maintenance Manager
Unit Production Manager
Boiler Engineering Manager
System Engineer
Environmental Officer
Performance and Test
Production Manager