Eskom

Generation

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AND

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13

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MATLA POWER STATION

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

BOILER ENGINEERING MANAGER	20/12/2023 **DATE**
ENVIRONMENTAL MANAGER	2023/12/20 **DATE**
ENGINEERING MANAGER	20.12.2023 **DATE**

NOVEMBER 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 Nov-2023
	Coal	Tons	*1 475 000*	*749 629*
	Fuel Oil	Tons	*3 500*	*1 387*
Production Rates	**Product / By-Product Name**	**Units**	**Max Production Capacity Permitted**	**Indicative Production Rate Nov-2023**
	Energy	GWh	*2 657*	*1 665*
	Ash	Tons	*471 000*	*240 181*
	RE PM	kg/MWh	*not specified*	*0.870*

Note: Maximum energy rate is as per the maximum capacity stated in the AEL: [3 690 MW] x 24 hrs x days in Month/1000 to convert to GWh

2 ENERGY SOURCE CHARACTERISTICS

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	*0.8-1.1*	*1.00*
Ash Content	%	*21-40*	*32.04*

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 Nov-2023
South	*Electro Static Precipators (ESP)*	*99.329%*
Unit 4	*Electro Static Precipators (ESP)*	*98.830%*
Unit 5	*Electro Static Precipators (ESP)*	*99.098%*
Unit 6	*Electro Static Precipators (ESP)*	*99.764%*

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	*93.2*	*94.3*	*94.3*	*88.7*
Unit 4	*94.1*	*99.5*	*99.7*	*99.8*
Unit 5	*100.0*	*99.7*	*99.9*	*100.0*
Unit 6	*99.3*	*99.6*	*99.7*	*99.9*

6 EMISSION PERFORMANCE

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

Associated Unit/Stack	PM	SO_2	NOx
Unit 1	149.9	1 198.4	388.3
Unit 2	386.6	3 499.8	1 148.9
Unit 3	331.0	2 466.3	808.2
Unit 4	310.8	3 566.7	1 240.7
Unit 5	174.4	2 786.8	914.5
Unit 6	96.8	2 893.9	825.6
SUM	1 449.4	16 411.9	5 326.2

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm³)
South	14	8	0	8	16	240.3
Unit 4	17	7	0	2	9	202.0
Unit 5	17	8	1	4	13	119.8
Unit 6	26	4	0	0	4	65.9
SUM	**74**	**27**	**1**	**14**	**42**	

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SO_2 (mg/Nm³)
South	30	0	0	0	0	1 799.1
Unit 4	27	0	0	0	0	2 306.7
Unit 5	30	0	0	0	0	1 924.9
Unit 6	30	0	0	0	0	1 963.8
SUM	**117**	**0**	**0**	**0**	**0**	

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm³)
South	30	0	0	0	0	589.6
Unit 4	27	0	0	0	0	803.7
Unit 5	30	0	0	0	0	631.5
Unit 6	30	0	0	0	0	560.1
SUM	**117**	**0**	**0**	**0**	**0**	

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

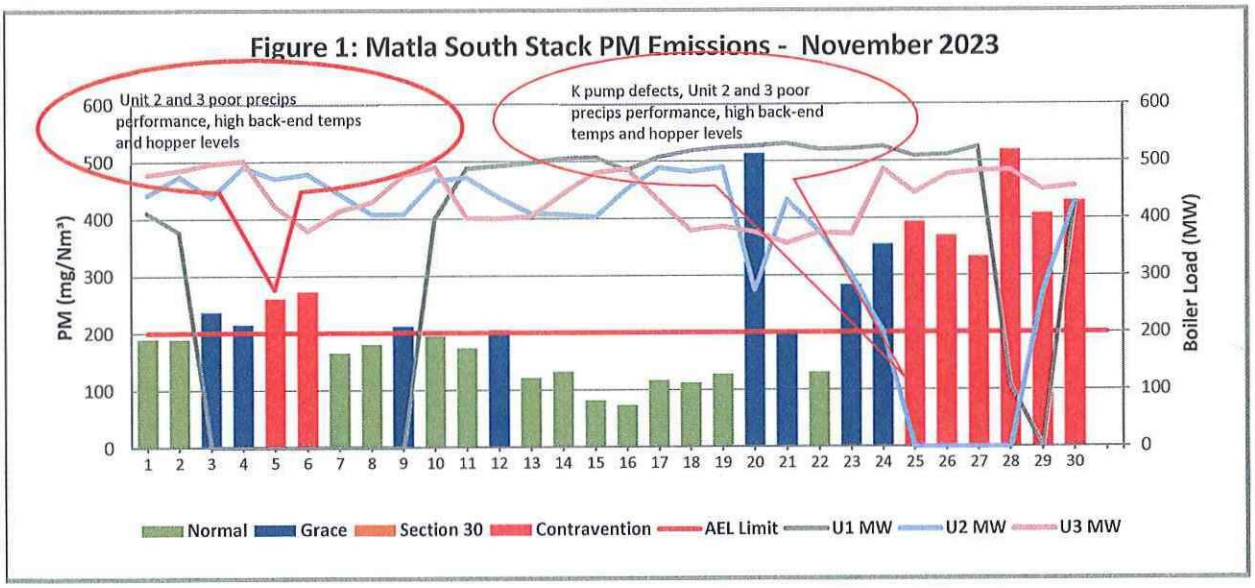


Figure 1: Matla South Stack PM Emissions - November 2023
Unit 2 and 3 poor precips performance, high back-end temps and hopper levels
K pump defects, Unit 2 and 3 poor precips performance, high back-end temps and hopper levels
PM (mg/Nm³)
Boiler Load (MW)
0
100
200
300
400
500
600
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Normal
Grace
Section 30
Contravention
AEL Limit
U1 MW
U2 MW
U3 MW

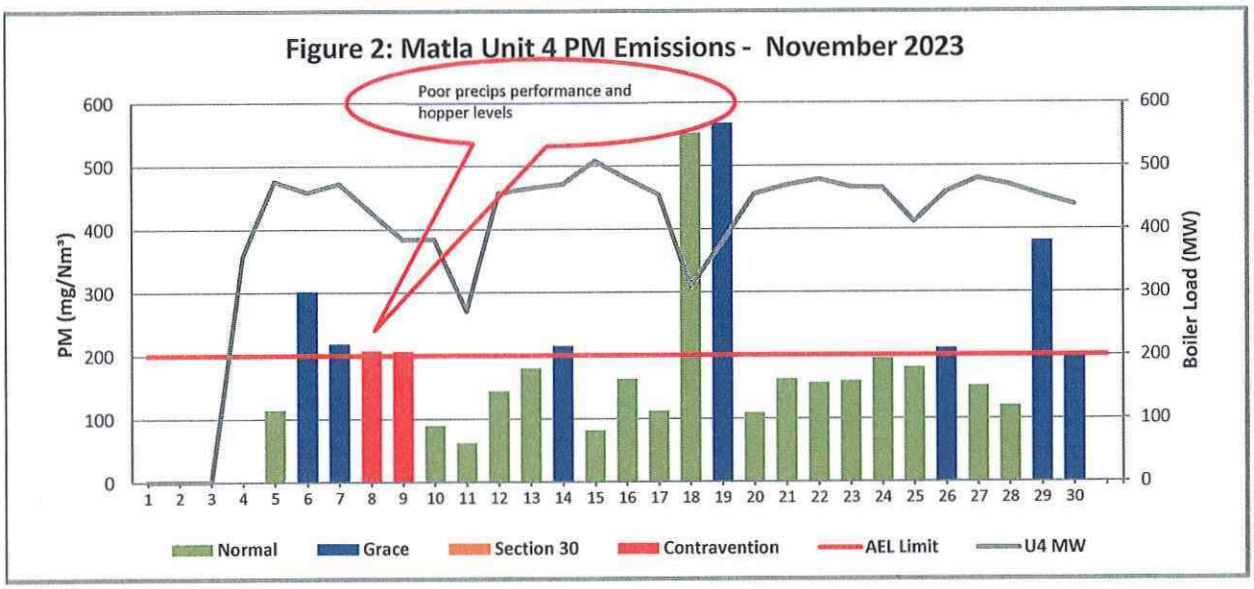


Figure 2: Matla Unit 4 PM Emissions - November 2023
Poor precips performance and hopper levels
PM (mg/Nm³)
Boiler Load (MW)
0
100
200
300
400
500
600
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Normal
Grace
Section 30
Contravention
AEL Limit
U4 MW

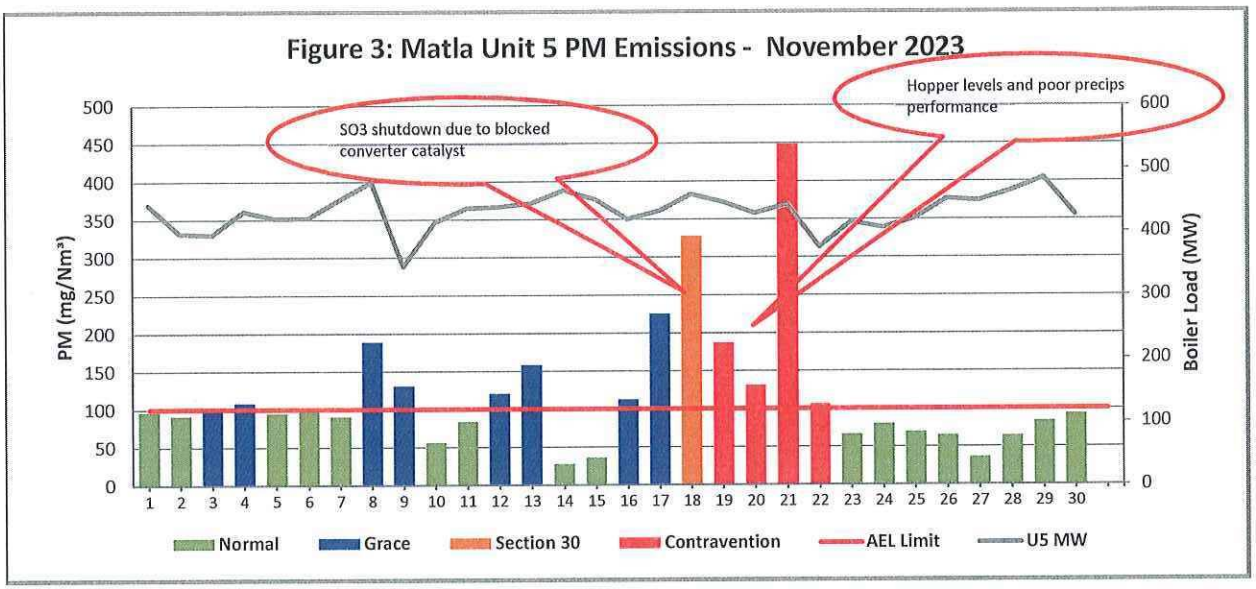


Figure 3: Matla Unit 5 PM Emissions - November 2023
SO3 shutdown due to blocked converter catalyst
Hopper levels and poor precips performance
PM (mg/Nm³)
Boiler Load (MW)
Normal
Grace
Section 30
Contravention
AEL Limit
U5 MW

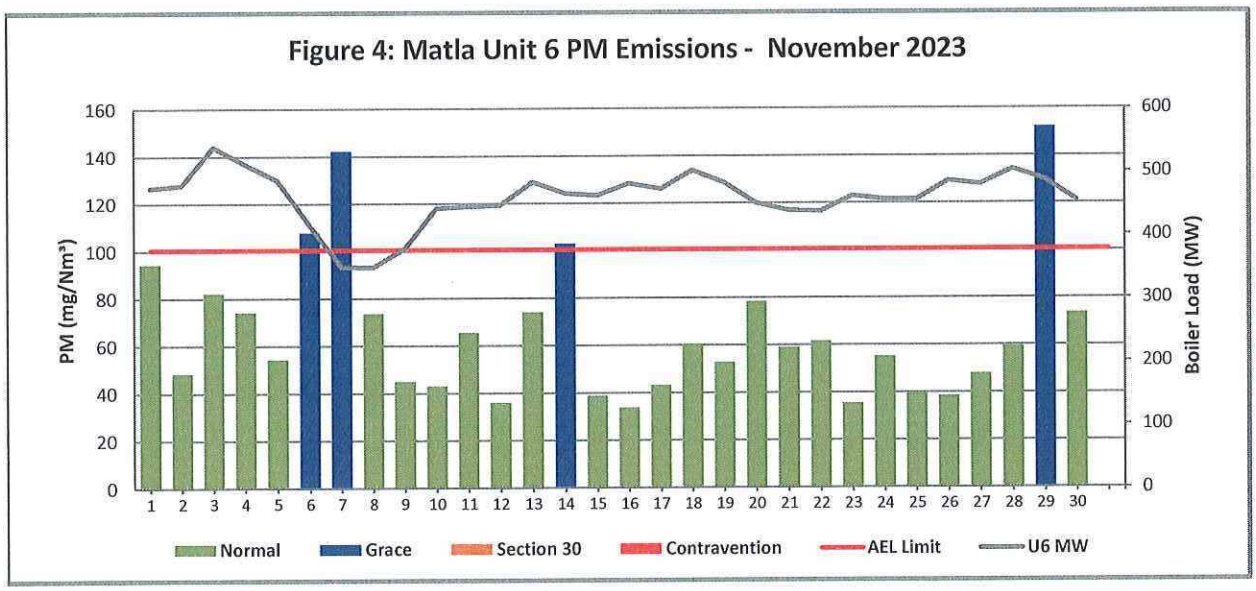


Figure 4: Matla Unit 6 PM Emissions - November 2023
PM (mg/Nm³)
Boiler Load (MW)
Normal
Grace
Section 30
Contravention
AEL Limit
U6 MW

Figure 5: Matla South Stack SO_2 Emissions - November 2023

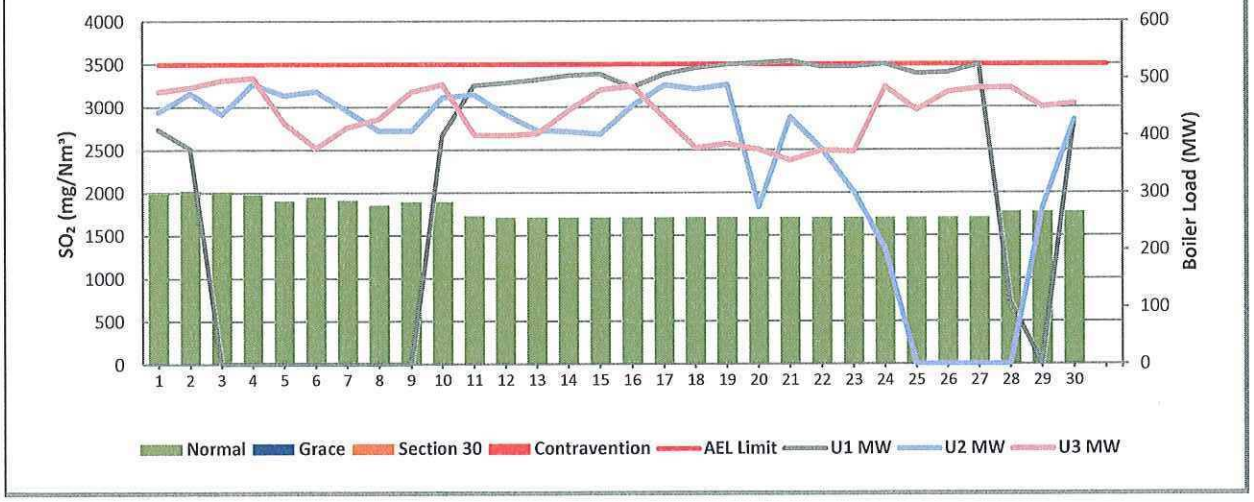
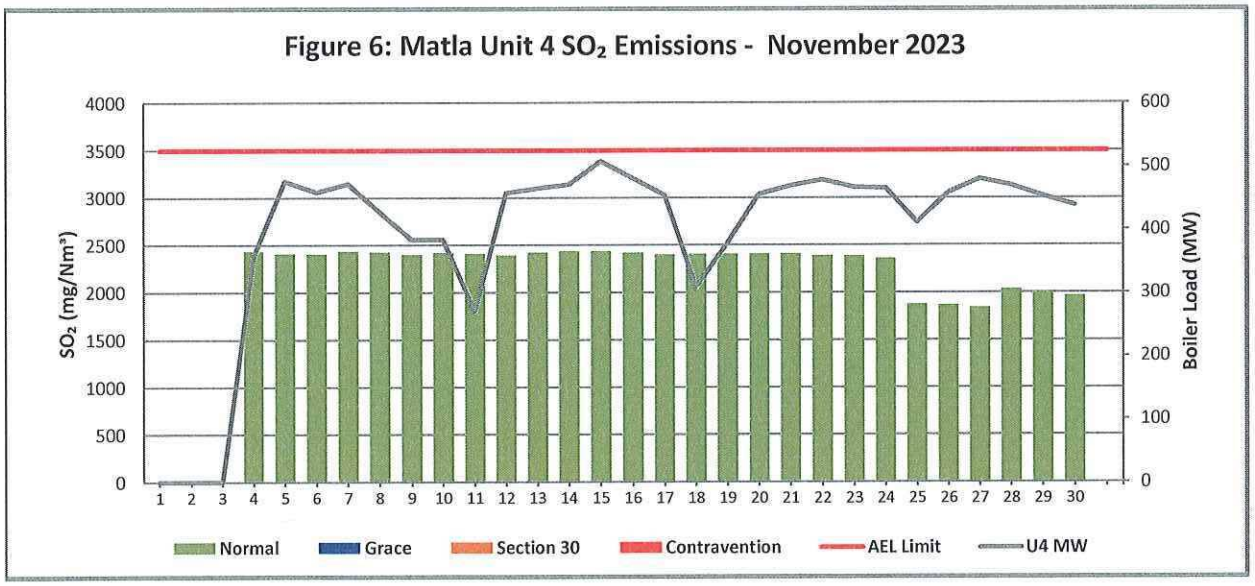


Figure 6: Matla Unit 4 SO_2 Emissions - November 2023



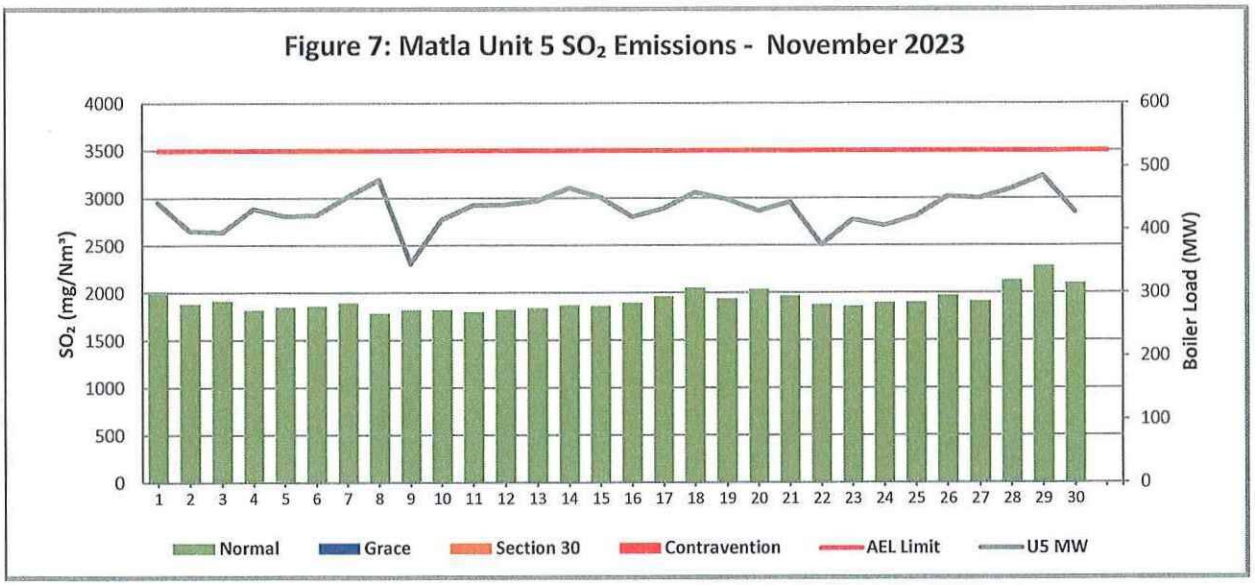


Figure 7: Matla Unit 5 SO_2 Emissions - November 2023
SO_2 (mg/Nm³)
Boiler Load (MW)
4000
3500
3000
2500
2000
1500
1000
500
0
600
500
400
300
200
100
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Normal
Grace
Section 30
Contravention
AEL Limit
U5 MW

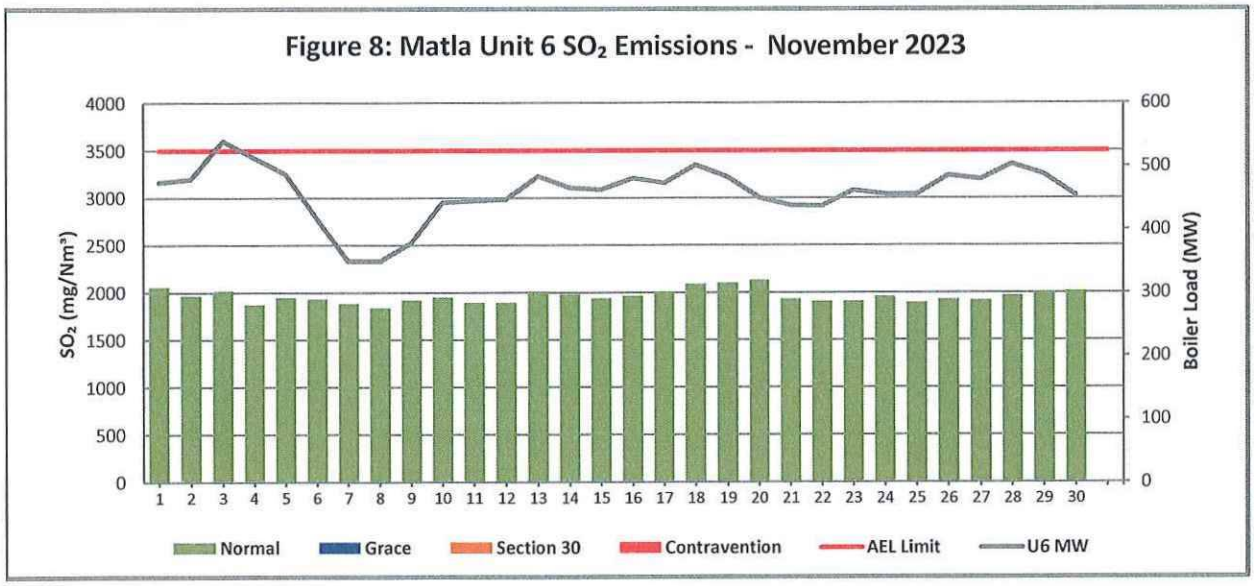


Figure 8: Matla Unit 6 SO_2 Emissions - November 2023
SO_2 (mg/Nm³)
Boiler Load (MW)
4000
3500
3000
2500
2000
1500
1000
500
0
600
500
400
300
200
100
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Normal
Grace
Section 30
Contravention
AEL Limit
U6 MW

Figure 9: Matla South Stack NOx Emissions - November 2023

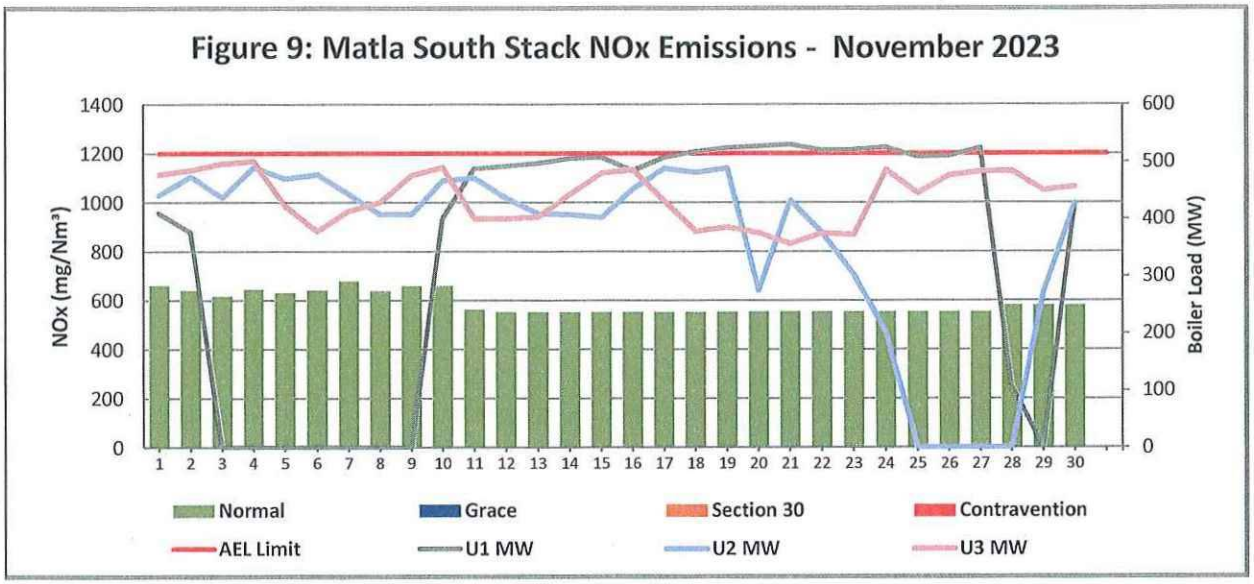
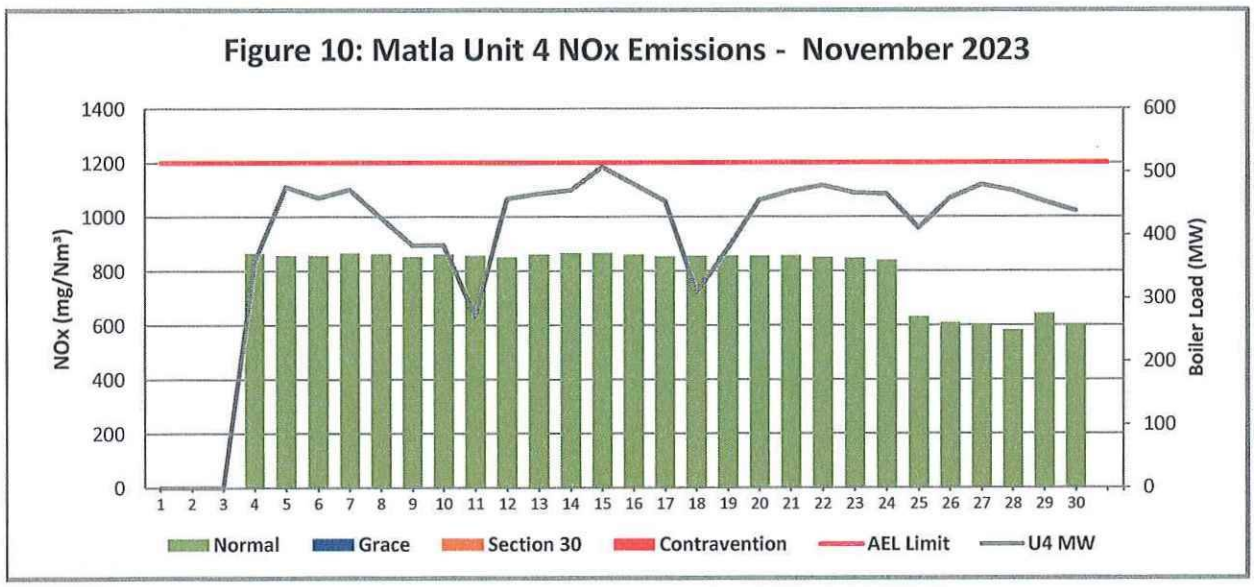


Figure 10: Matla Unit 4 NOx Emissions - November 2023



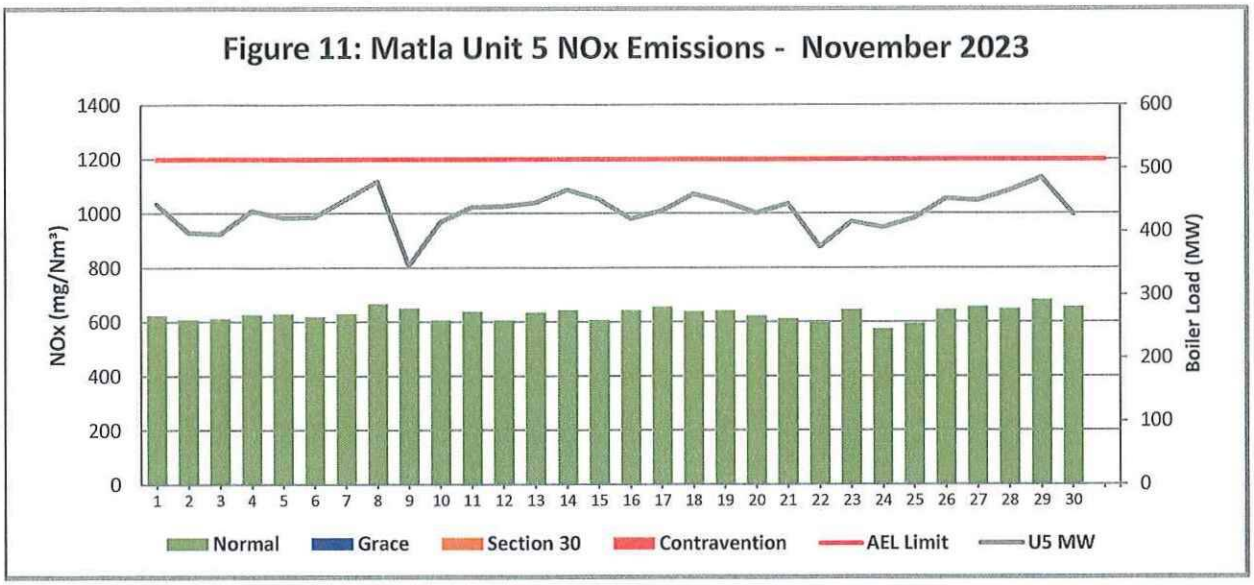


Figure 11: Matla Unit 5 NOx Emissions - November 2023
NOx (mg/Nm³)
Boiler Load (MW)
1400
1200
1000
800
600
400
200
0
600
500
400
300
200
100
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Normal
Grace
Section 30
Contravention
AEL Limit
U5 MW

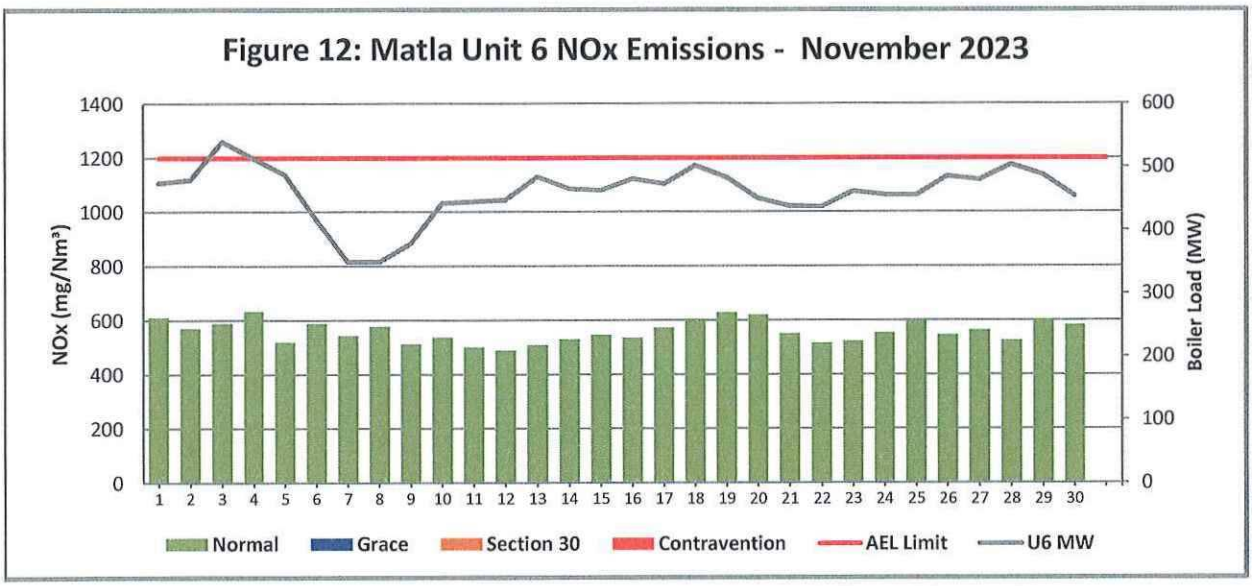


Figure 12: Matla Unit 6 NOx Emissions - November 2023
NOx (mg/Nm³)
Boiler Load (MW)
1400
1200
1000
800
600
400
200
0
600
500
400
300
200
100
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Normal
Grace
Section 30
Contravention
AEL Limit
U6 MW

7 SHUT DOWN AND LIGHT UP INFORMATION

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

South Stack	Event 1		Event 2		Event 3		Event 4	
Unit No.	Unit 1		Unit 1		Unit 2		no event	
Breaker Open (BO)	12:15 PM	2023/11/02	11:30 PM	2023/11/28	2:45 PM	2023/11/25		
Draught Group (DG) Shut Down (SD)	6:10 AM	2023/11/03	10:10 AM	2023/11/29	6:10 AM	2023/11/27		
BO to DG SD (duration)	00:17:55	DD:HH:MM	00:10:40	DD:HH:MM	01:15:25	DD:HH:MM		DD:HH:MM
Fires in time	9:35 PM	2023/11/08	4:45 PM	2023/11/30	7:40 PM	2023/11/29		
Synch. to Grid (or BC)	2:20 AM	2023/11/10	2:35 AM	2023/12/01	5:20 AM	2023/11/30		
Fires in to BC (duration)	01:04:45	DD:HH:MM	00:09:50	DD:HH:MM	00:09:40	DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	not > limit	not > limit	not > limit	not > limit	not > limit	not > limit		
Emissions below limit from BC (duration)	n/a	DD:HH:MM	n/a	DD:HH:MM	n/a	DD:HH:MM		DD:HH:MM

South Stack ...cont.	Event 5		Event 6		Event 7		Event 8	
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

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 November-2023 in mg/Nm³

[Include reference to once off test showing typical emissions rates during fires in and SD]

11 General

Unit 5 and 6 PM curve expired, target for new correlation testing is 02 February 2024.
QAL 2 averages used on gas emissions where monitor is faulty or inaccurate.

21/12/2023

Boiler Engineering Date

22/12/2023

General Manager Date

21/12/2023

Environmental Department Date

Compiled by:	Boiler Engineering Department	ESP & SO_3 System Engineer
For:	Department of Environmental Affairs and Tourism	Chief Air Pollution Control Officer
Copies:	Eskom Environmental Management	D Herbst B Mccourt
	Group Technology Engineering	R Rampiar E. Patel
	Matla Power Station:	Engineering Manager Operating Manager Maintenance Manager Unit Production Manager Boiler Engineering Manager System Engineer Environmental Officer Performance and Test Production Manager

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 November 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 November 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	*(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	04/11/2023	06/11/2023	Unit 2 and 3 poor precips performance due to high precips flue gas temperatures	Biased unit drought group, cleared hopper levels	No				Legal contravention
SS	25/11/2023	06/12/2023	High hopper levels, poor K-pump performance and defects.	Repaired K-pump and cleared hopper levels	No				Legal contravention
4	08/11/2023	09/11/2023	High hopper levels, poor precips performance and internally damaged precips.	Hired, compressors and repairing the defective compressors	No				Legal contravention
5	18/11/2023	18/11/2023	partially blocked SO3 catalyst.	Hired, compressors and repairing the defective compressors	Yes				Legal contravention
5	19/11/2023	21/11/2023	High hopper levels, poor precips performance, poor coal qualities and high precips flue gas temperatures.	Coal qualities improved and cleared hopper levels	No				Legal contravention