Eskom

Generation

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AND

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16

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MATLA POWER STATION

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

BOILER ENGINEERING MANAGER	11/07/2022 **DATE**
ENVIRONMENTAL MANAGER	11 July 2022 **DATE**
ENGINEERING MANAGER	12 July 2022 **DATE**

Eskom

MAY 2022

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-2022
	Coal	Tons	*1 475 000*	*851 894*
	Fuel Oil	Tons	*3 500*	*1 322*
Production Rates	Product / By-Product Name	Units	Max Production Capacity Permitted	Production Rate May-2022
	Energy	GWh	*2 567*	*1 444*
	Ash	Tons	*471 000*	*255 653*
	RE PM	kg/MWh	*not specified*	*0,685*

2 ENERGY SOURCE CHARACTERISTICS

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	*0.8-1.1*	*1,00*
Ash Content	%	*21-40*	*30,01*

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-2022
South	*Electro Static Precipators (ESP)*	*99,570%*
Unit 4	*Electro Static Precipators (ESP)*	*99,258%*
Unit 5	*Electro Static Precipators (ESP)*	*99,826%*
Unit 6	*Electro Static Precipators (ESP)*	*99,731%*

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	*97,3*	*100,0*	*100,0*	*100,0*
Unit 4	*92,8*	*100,0*	*100,0*	*100,0*
Unit 5	*100,0*	*100,0*	*100,0*	*99,2*
Unit 6	*100,0*	*100,0*	*100,0*	*100,0*

6 EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of May-2022

Associated Unit/Stack	PM	SOx	NOx
Unit 1	123,0	2 316,4	555,4
Unit 2	243,3	4 406,8	1 056,6
Unit 3	225,5	4 218,8	1 011,5
Unit 4	250,0	2 366,4	886,5
Unit 5	18,8	280,1	114,7
Unit 6	129,0	2 911,6	1 380,3
SUM	989,6	16 500,1	5 005,0

Table 6.2: Operating days in compliance to PM AEL Limit - May 2022

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm³)
South	27	4	0	0	4	136,0
Unit 4	11	9	1	0	10	221,4
Unit 5	3	2	0	0	2	101,3
Unit 6	24	7	0	0	7	85,4
SUM	**65**	**22**	**1**	**0**	**23**	

Table 6.3: Operating days in compliance to SOx AEL Limit - May 2022

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SOx (mg/Nm³)
South	31	0	0	0	0	2 472,0
Unit 4	23	0	0	0	0	1 982,6
Unit 5	9	0	0	0	0	2 282,4
Unit 6	31	0	0	0	0	1 973,9
SUM	**94**	**0**	**0**	**0**	**0**	

Table 6.4: Operating days in compliance to NOx AEL Limit - May 2022

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm³)
South	31	0	0	0	0	592,7
Unit 4	23	0	0	0	0	742,7
Unit 5	8	0	0	1	1	904,1
Unit 6	31	0	0	0	0	935,8
SUM	**93**	**0**	**0**	**1**	**1**	

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

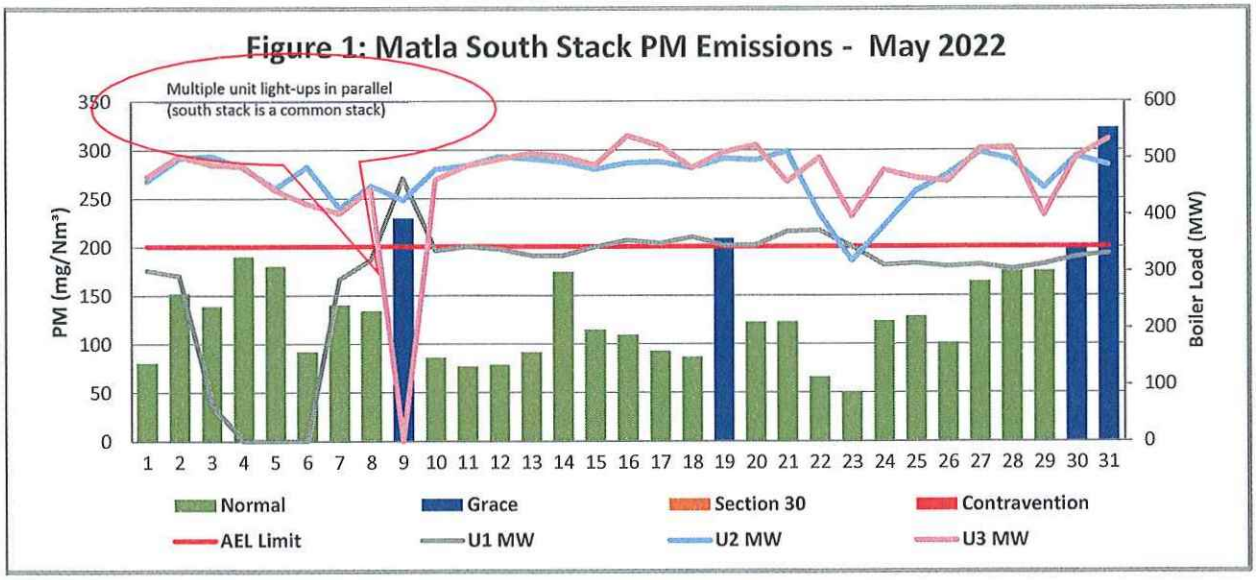


Figure 1: Matla South Stack PM Emissions - May 2022
Multiple unit light-ups in parallel
(south stack is a common stack)
PM (mg/Nm³)
Boiler Load (MW)
0
50
100
150
200
250
300
350
0
100
200
300
400
500
600
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U1 MW
U2 MW
U3 MW

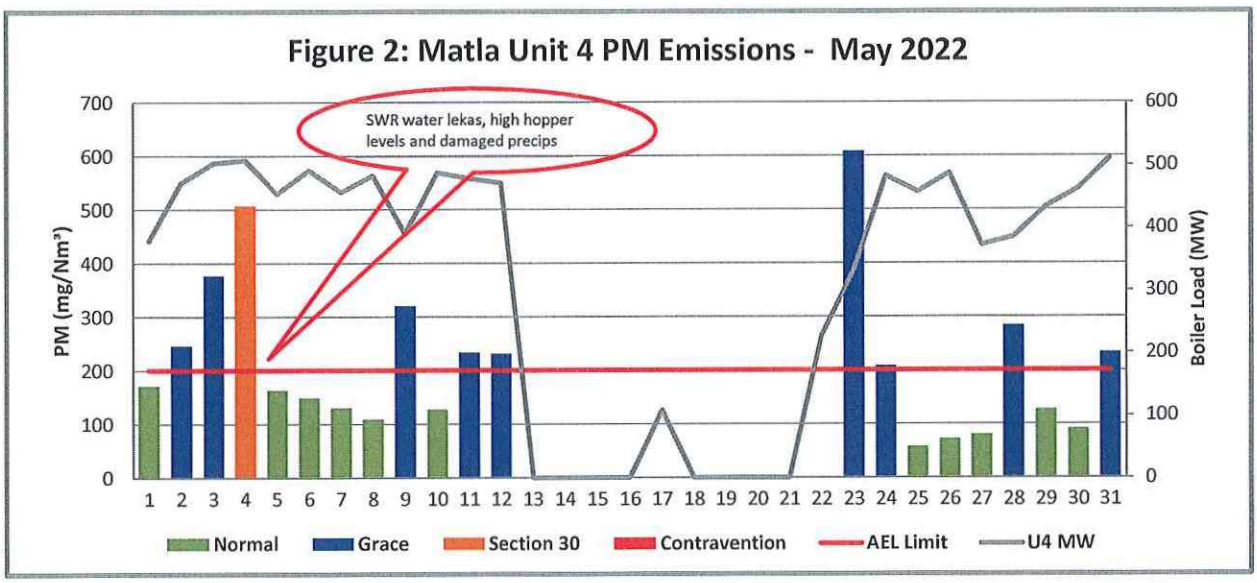


Figure 2: Matla Unit 4 PM Emissions - May 2022
SWR water lekas, high hopper
levels and damaged precips
PM (mg/Nm³)
Boiler Load (MW)
0
100
200
300
400
500
600
700
0
100
200
300
400
500
600
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U4 MW

Figure 3: Matla Unit 5 PM Emissions - May 2022

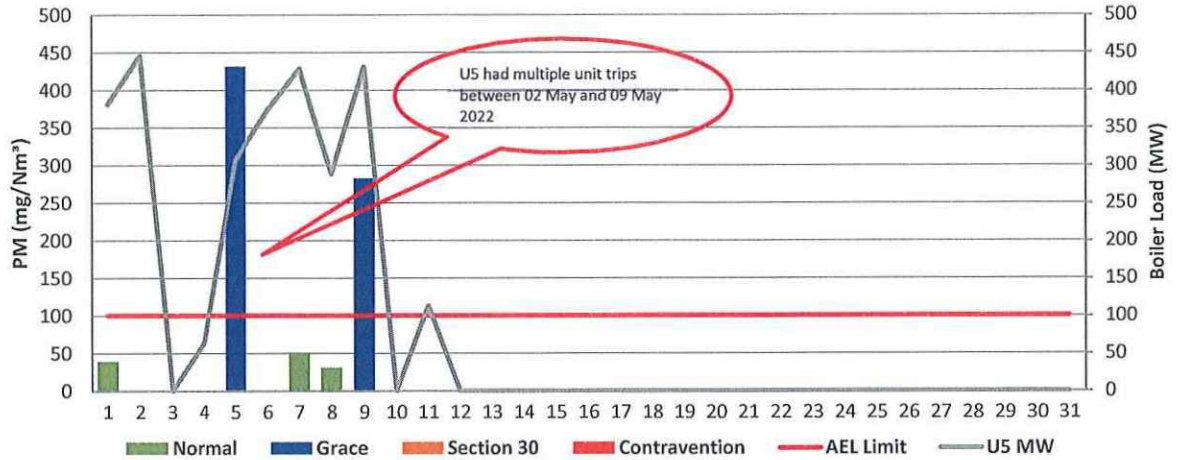
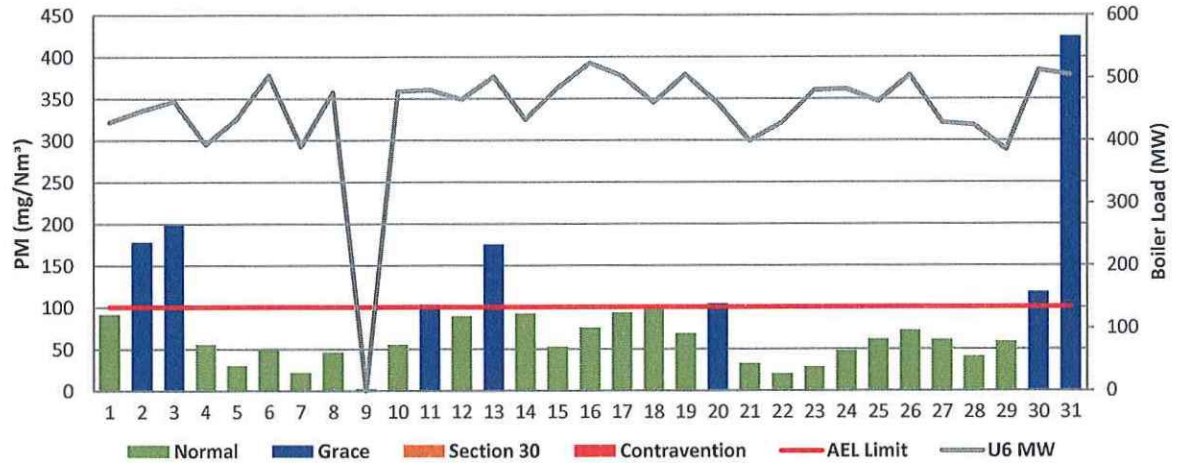


Figure 4: Matla Unit 6 PM Emissions - May 2022



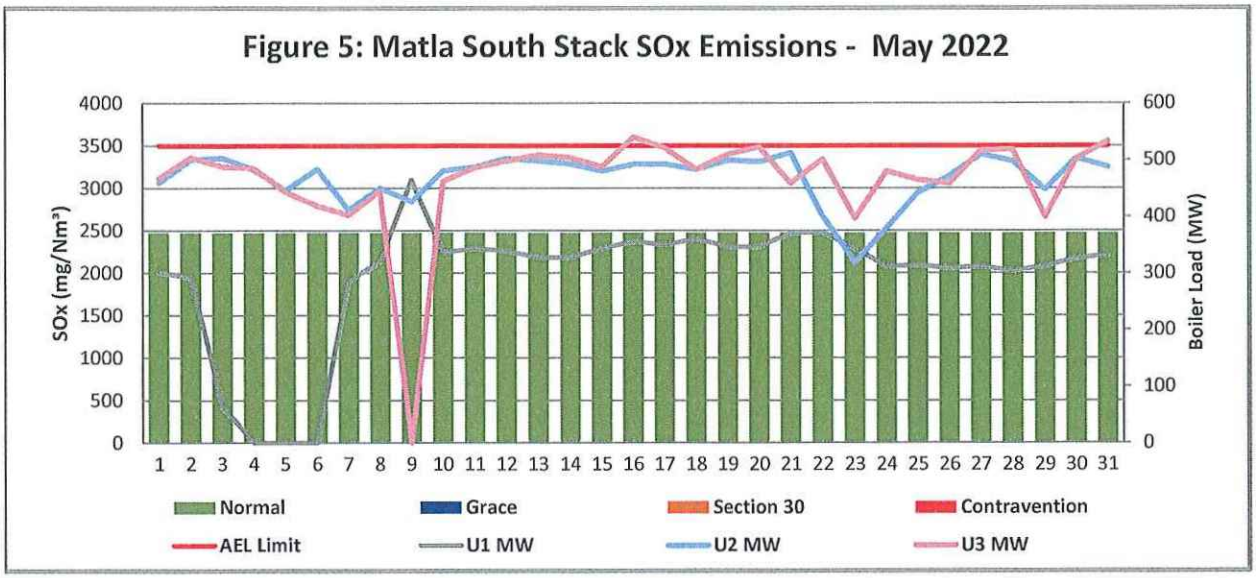


Figure 5: Matla South Stack SOx Emissions - May 2022
SOx (mg/Nm³)
Boiler Load (MW)
4000
3500
3000
2500
2000
1500
1000
500
0
600
500
400
300
200
100
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U1 MW
U2 MW
U3 MW

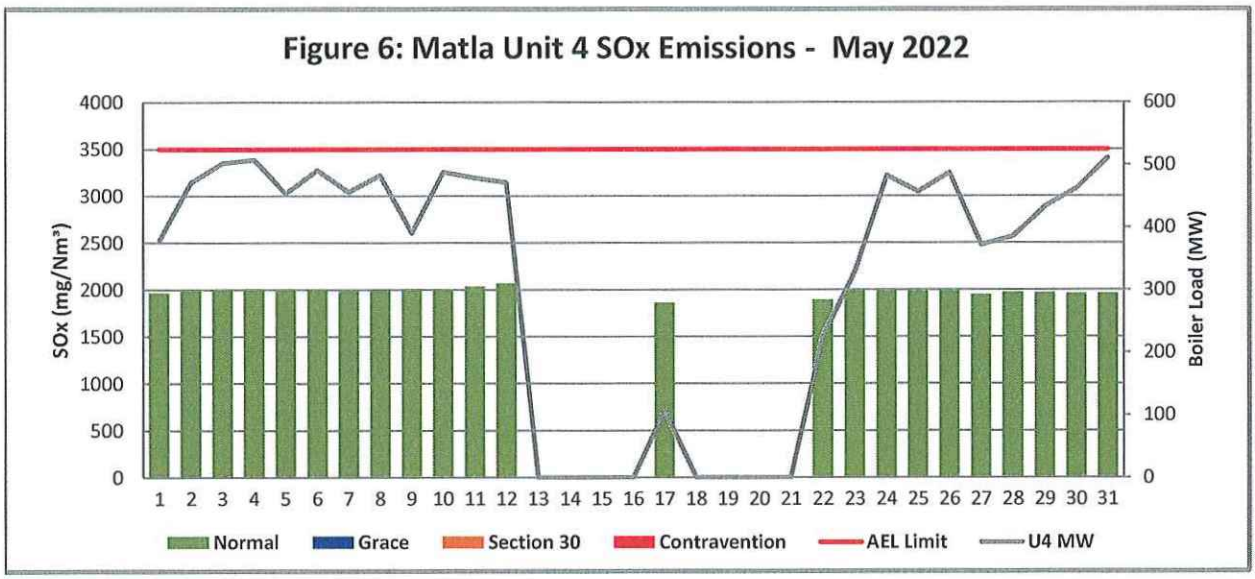


Figure 6: Matla Unit 4 SOx Emissions - May 2022
SOx (mg/Nm³)
Boiler Load (MW)
4000
3500
3000
2500
2000
1500
1000
500
0
600
500
400
300
200
100
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U4 MW

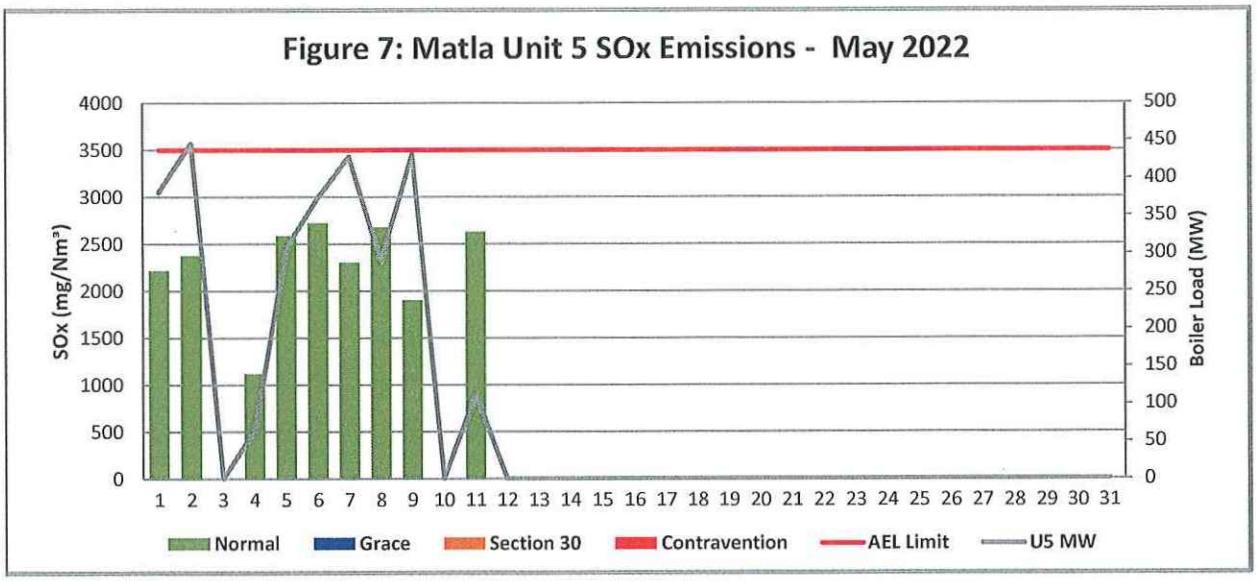


Figure 7: Matla Unit 5 SOx Emissions - May 2022
SOx (mg/Nm³)
Boiler Load (MW)
4000
3500
3000
2500
2000
1500
1000
500
0
500
450
400
350
300
250
200
150
100
50
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U5 MW

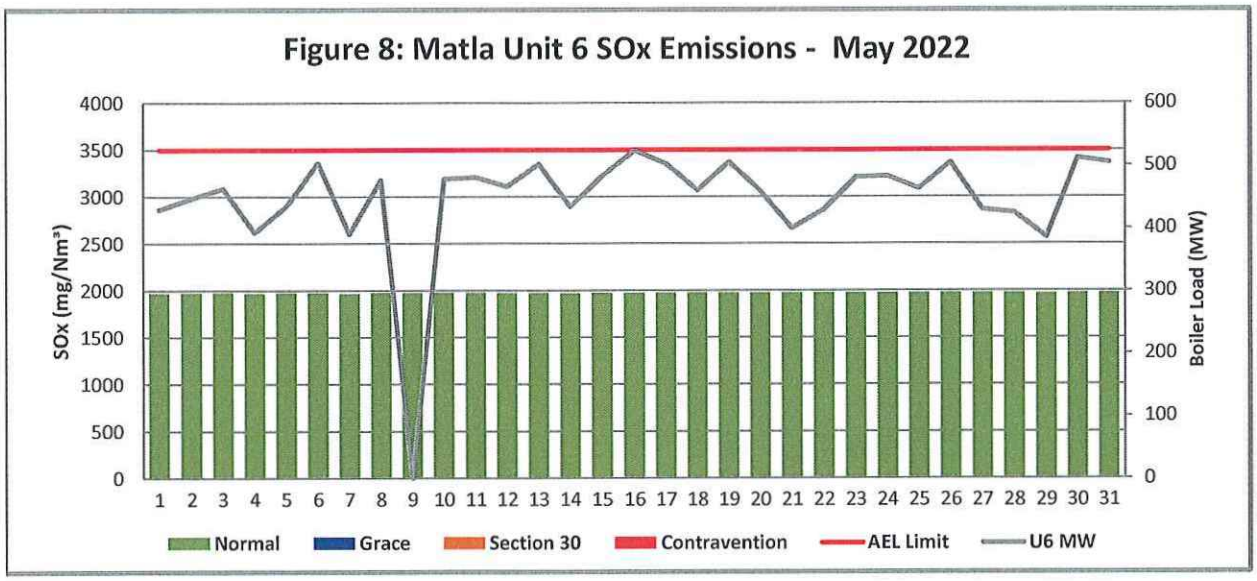


Figure 8: Matla Unit 6 SOx Emissions - May 2022
SOx (mg/Nm³)
Boiler Load (MW)
4000
3500
3000
2500
2000
1500
1000
500
0
600
500
400
300
200
100
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U6 MW

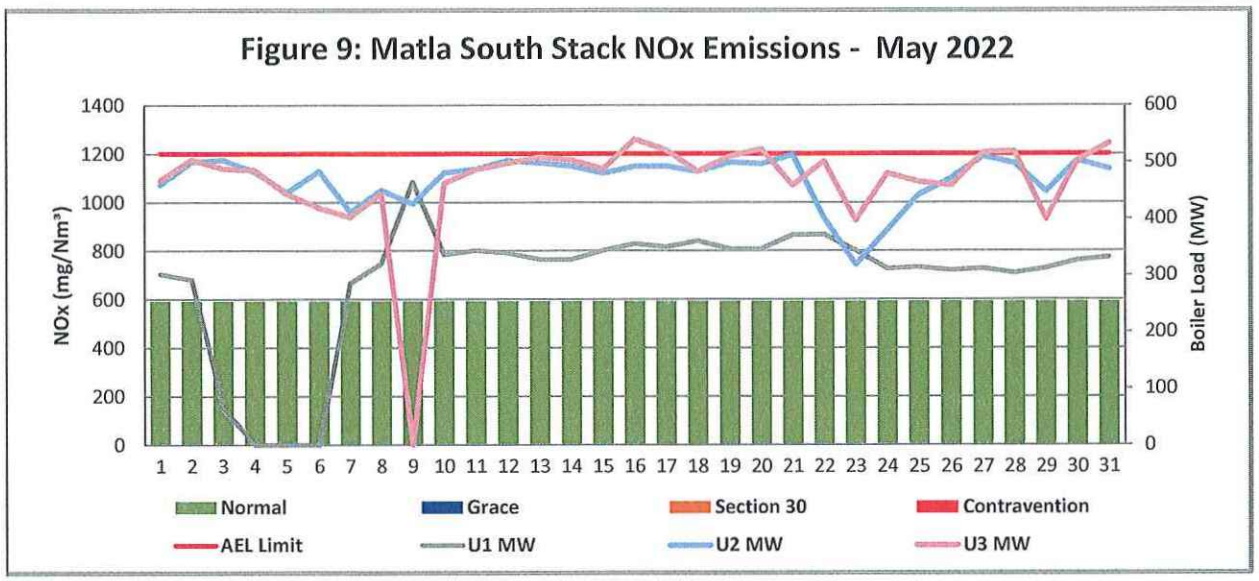


Figure 9: Matla South Stack NOx Emissions - May 2022
NOx (mg/Nm³)
Boiler Load (MW)
1400
1200
1000
800
600
400
200
0
600
500
400
300
200
100
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U1 MW
U2 MW
U3 MW

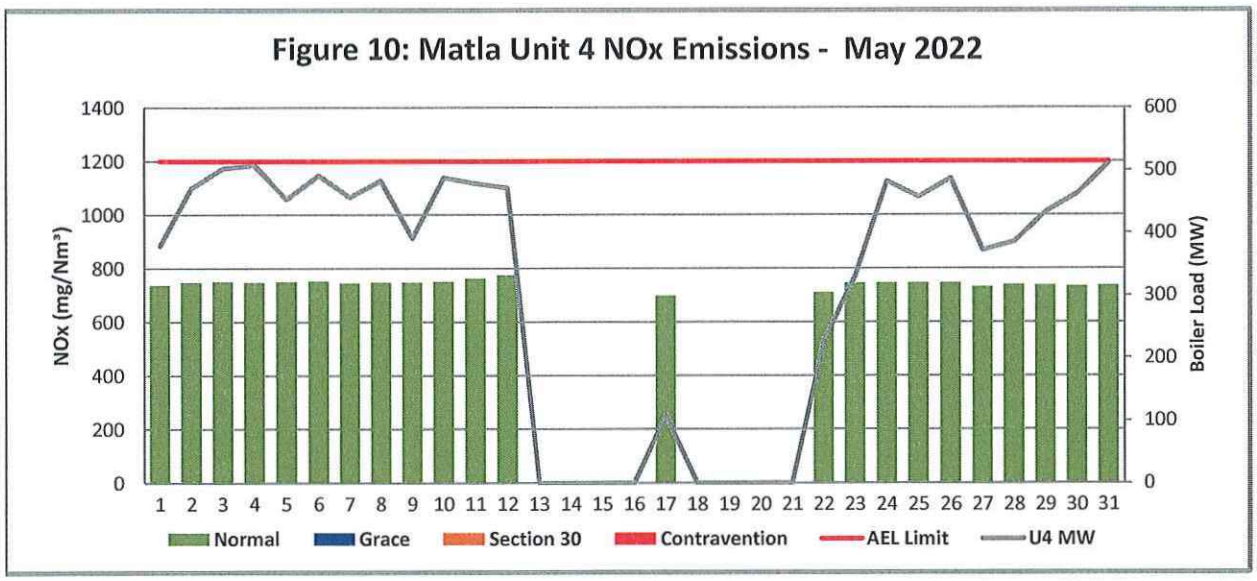


Figure 10: Matla Unit 4 NOx Emissions - May 2022
NOx (mg/Nm³)
Boiler Load (MW)
1400
1200
1000
800
600
400
200
0
600
500
400
300
200
100
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U4 MW

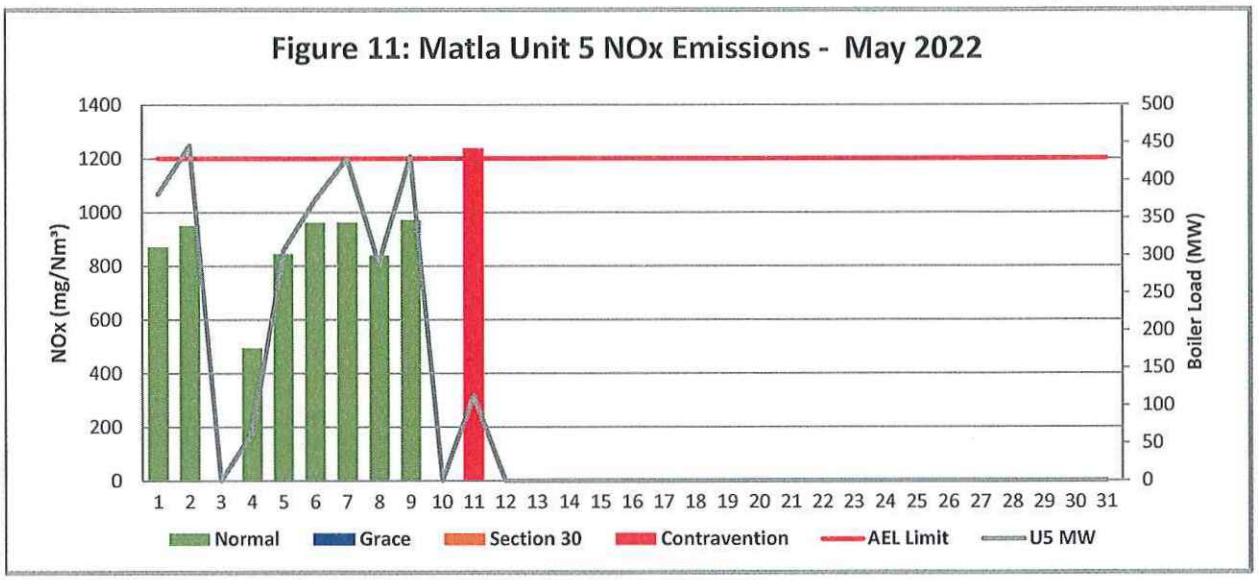


Figure 11: Matla Unit 5 NOx Emissions - May 2022
NOx (mg/Nm³)
Boiler Load (MW)
1400
1200
1000
800
600
400
200
0
500
450
400
350
300
250
200
150
100
50
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U5 MW

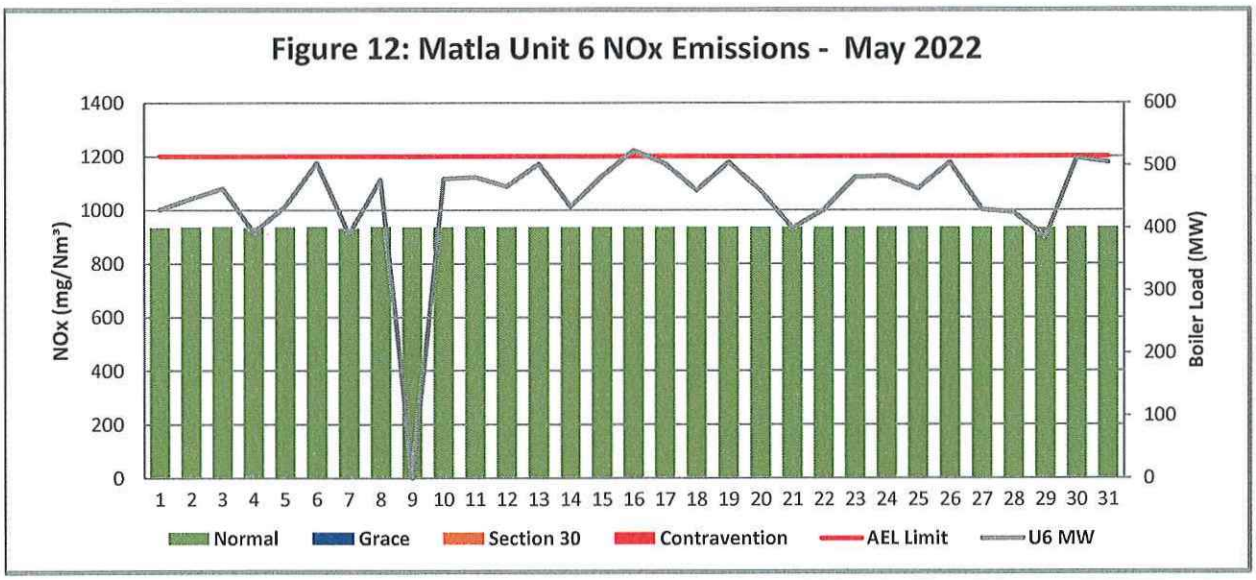


Figure 12: Matla Unit 6 NOx Emissions - May 2022
NOx (mg/Nm³)
Boiler Load (MW)
1400
1200
1000
800
600
400
200
0
600
500
400
300
200
100
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U6 MW

7 SHUT DOWN AND LIGHT UP INFORMATION

Table 7.1. PM Start-up information for the month of May-2022

South Stack	Event 1		Event 2		Event 3		Event 4	
Unit No.	Unit 1		Unit 1		Unit 3		no event	
Breaker Open (BO)	9:20 PM	2022/05/02	9:30 AM	2022/05/08	12:25 AM	2022/05/29		
Draught Group (DG) Shut Down (SD)	11:20 PM	2022/05/03	DG did not trip or SD	DG did not trip or SD	DG did not trip or SD	DG did not trip or SD		
BO to DG SD (duration)	01:02:00	DD:HH:MM	n/a	DD:HH:MM	n/a	DD:HH:MM		DD:HH:MM
Fires in time	7:10 PM	2022/05/06	9:30 AM	2022/05/08	12:25 AM	2022/05/29		
Synch. to Grid (or BC)	8:20 AM	2022/05/07	2:35 PM	2022/05/08	8:30 AM	2022/05/29		
Fires in to BC (duration)	00:13:10	DD:HH:MM	00:05:05	DD:HH:MM	00:08:05	DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	not > limit	not > limit	5:00 PM	2022/05/09	not > limit	not > limit		
Emissions below limit from BC (duration)	n/a	DD:HH:MM	01:02:25	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)	8:05 PM	2022/05/12						
Draught Group (DG) Shut Down (SD)	3:35 AM	2022/05/15						
BO to DG SD (duration)	02:07:30	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time	5:15 AM	2022/05/22						
Synch. to Grid (or BC)	3:00 PM	2022/05/22						
Fires in to BC (duration)	00:09:45	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	12:00 AM	2022/05/25						
Emissions below limit from BC (duration)	02:09:00	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)	12:25 AM	2022/05/01	12:00 AM	2022/05/10				
Draught Group (DG) Shut Down (SD)	5:35 PM	2022/05/02	9:30 AM	2022/05/13				
BO to DG SD (duration)	01:17:10	DD:HH:MM	03:09:30	DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time	8:25 AM	2022/05/06						
Synch. to Grid (or BC)	3:05 PM	2022/05/06						
Fires in to BC (duration)	00:06:40	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	12:00 AM	2022/05/08						
Emissions below limit from BC (duration)	01:08:55	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-2022 in mg/Nm³

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

Remember to add attachments here; see ReportAddendum Tab

Reserved for Addendum XXXX

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 2022

	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 2022

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.
4	25/03/2022	11/04/2022	SWR, Silo levels, damaged precips and hopper level backlog	unit shut down for precips repairs	Yes				Final report submitted
5	11/04/2022	17/04/2022	Unit board trip, compressors, sulphur fluctuations and high hopper levels	Alternative supply and recovered hopper levels	Yes				Final report submitted
6	24/04/2022	28/04/2022	Unavailability of SWR resulting on high hopper levels	recovered hopper levels	Yes				Final report submitted
South stack	14/04/2022	15/05/2022	Unit 2 and unit 3 light-ups	Unit stabilized after light-up	Yes				Final report submitted

11 General

On cases where gases are inaccurate QAL2 averages areused for reporting. South stack, unit 4 and Unit 6 curves expired and station is a process to do stack measurement.

11-07-2022
Boiler Engineering Date

11.07.2022
Environmental Department Date

13/07/2022
General Manager 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