Eskom

JULY 2020

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	Maximum Permitted Consumption Rate	Consumption Rate Jul-2020
	Coal	Tons	*1 475 000*	*863 956*
	Fuel Oil	Tons	*2 500*	*109*
Production Rates	**Product / By-Product Name**	**Units**	**Maximum Production Capacity Permitted**	**Production Rate Jul-2020**
	Energy	GWh	*2 567*	*1 647*
	Ash	Tons	*471 000*	*242 944*
	RE PM	kg/MWh	*not specified*	*0,501*

2 ENERGY SOURCE CHARACTERISTICS

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	*0.8-1.1*	*1,00*
Ash Content	%	*21-40*	*28,12*

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

4 ABATEMENT TECHNOLOGY (%)

Associated Unit/Stack	Technology Type	Efficiency Jul-2020
South	Electro Static Precipators (ESP)	99,657%
Unit 4	Electro Static Precipators (ESP)	99,401%
Unit 5	Electro Static Precipators (ESP)	99,711%
Unit 6	Electro Static Precipators (ESP)	99,686%

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

5 ABATEMENT TECHNOLOGY (%)

Associated Unit/Stack	PM	SO_2	NO	CO	O_2
South	99,3	99,3	99,5		16,1
Unit 4	91,7	99,7	99,7		56,5
Unit 5	97,4	99,7	99,7		99,4
Unit 6	99,2	92,2	91,8		98,0

6 EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of July-2020

Associated Unit/Stack	PM	SOx	NOx	
Unit 1	153,9	2 920,5	1 011,0	
Unit 2	0,0	0,0	0,0	
Unit 3	155,3	2 709,7	968,1	
Unit 4	257,5	4 205,0	1 099,8	
Unit 5	115,1	3 318,3	1 125,5	
Unit 6	143,5	3 167,8	1 303,3	
SUM	825,4	16 321,4	5 507,7	

Table 6.2: Operating days in compliance to PM AEL Limit - July 2020

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm³)
South	27	3	1	0	4	98,0
Unit 4	22	6	3	0	9	138,3
Unit 5	24	4	1	0	5	66,0
Unit 6	24	5	2	0	7	87,9
SUM	**97**	**18**	**7**	**0**	**25**	

Table 6.3: Operating days in compliance to SOx AEL Limit - July 2020

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SOx (mg/Nm³)
South	31	0	0	0	0	1 910,9
Unit 4	31	0	0	0	0	2 252,7
Unit 5	30	0	0	0	0	1 915,3
Unit 6	31	0	0	0	0	1 946,7
SUM	**123**	**0**	**0**	**0**	**0**	

Table 6.4: Operating days in compliance to NOx AEL Limit - July 2020

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm³)
South	31	0	0	0	0	655,3
Unit 4	31	0	0	0	0	588,4
Unit 5	30	0	0	0	0	652,3
Unit 6	31	0	0	0	0	800,1
SUM	**123**	**0**	**0**	**0**	**0**	

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

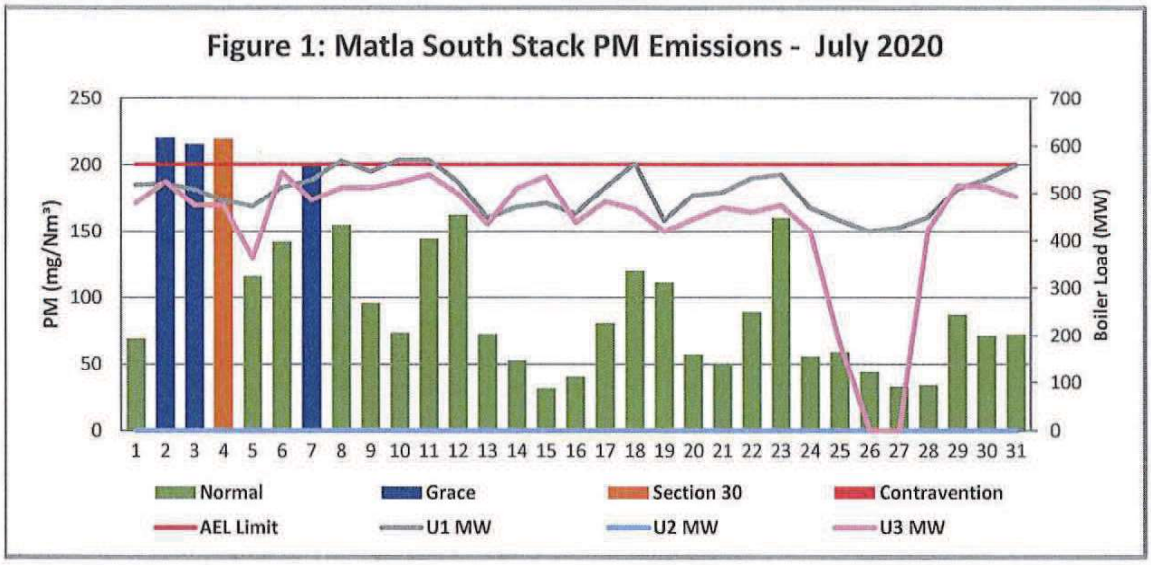
Figure 1: Matla South Stack PM Emissions - July 2020
PM (mg/Nm³)
Boiler Load (MW)
250
200
150
100
50
0
700
600
500
400
300
200
100
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U1 MW
U2 MW
U3 MW

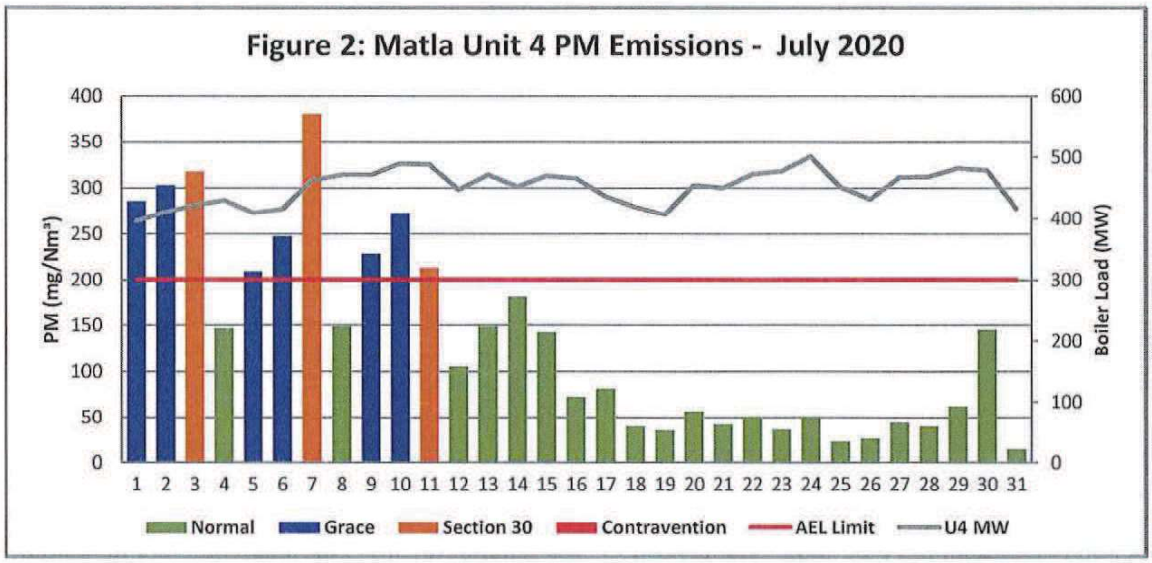
Figure 2: Matla Unit 4 PM Emissions - July 2020
PM (mg/Nm³)
Boiler Load (MW)
400
350
300
250
200
150
100
50
0
600
500
400
300
200
100
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U4 MW

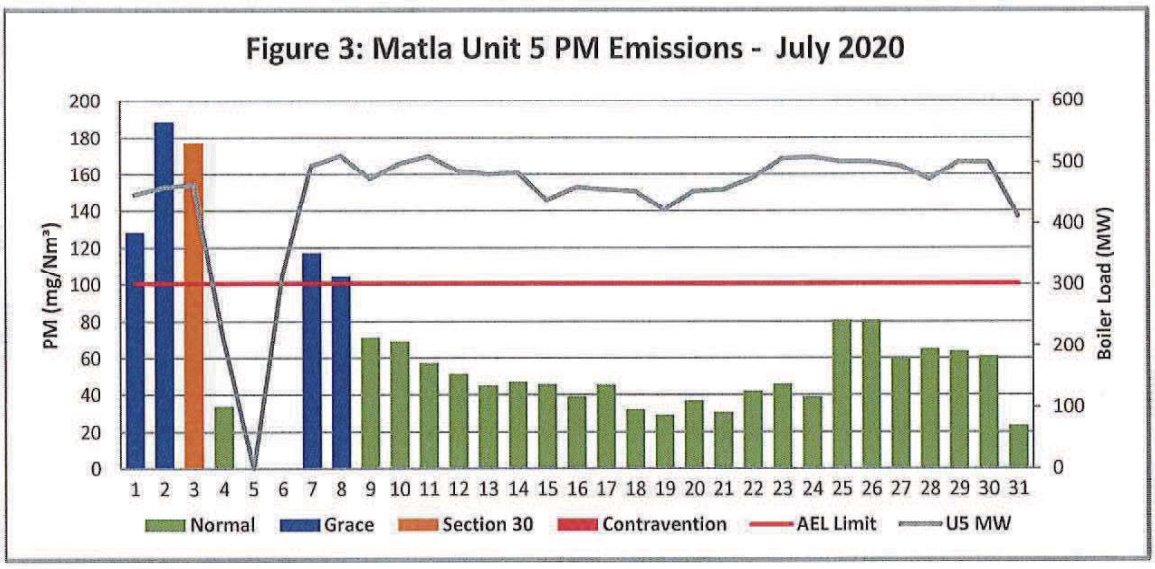
Figure 3: Matla Unit 5 PM Emissions - July 2020
PM (mg/Nm³)
Boiler Load (MW)
Normal
Grace
Section 30
Contravention
AEL Limit
U5 MW

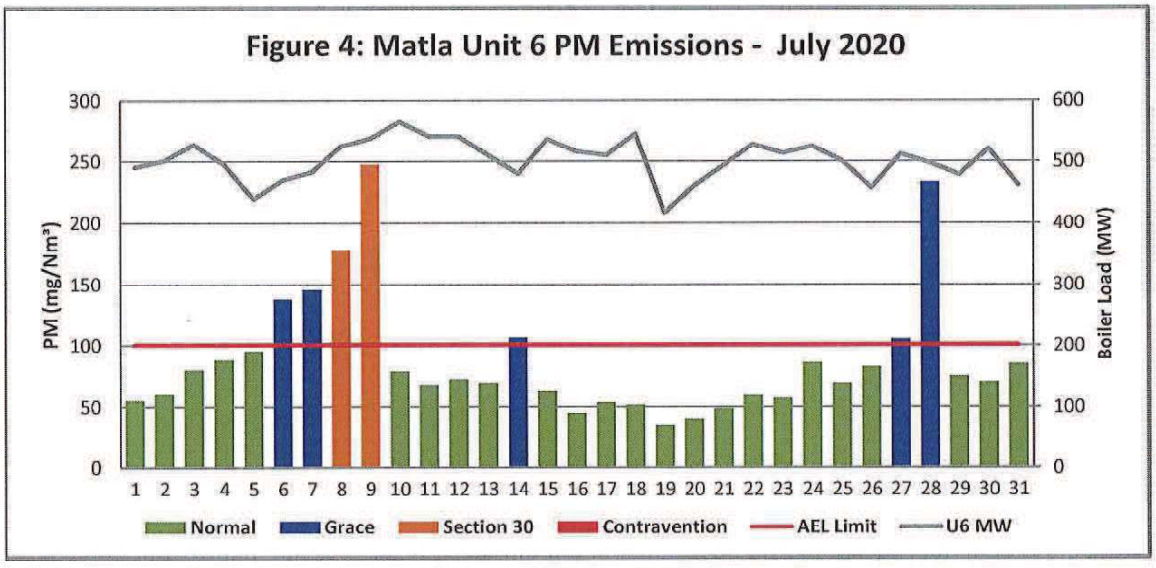
Figure 4: Matla Unit 6 PM Emissions - July 2020
PM (mg/Nm³)
Boiler Load (MW)
Normal
Grace
Section 30
Contravention
AEL Limit
U6 MW

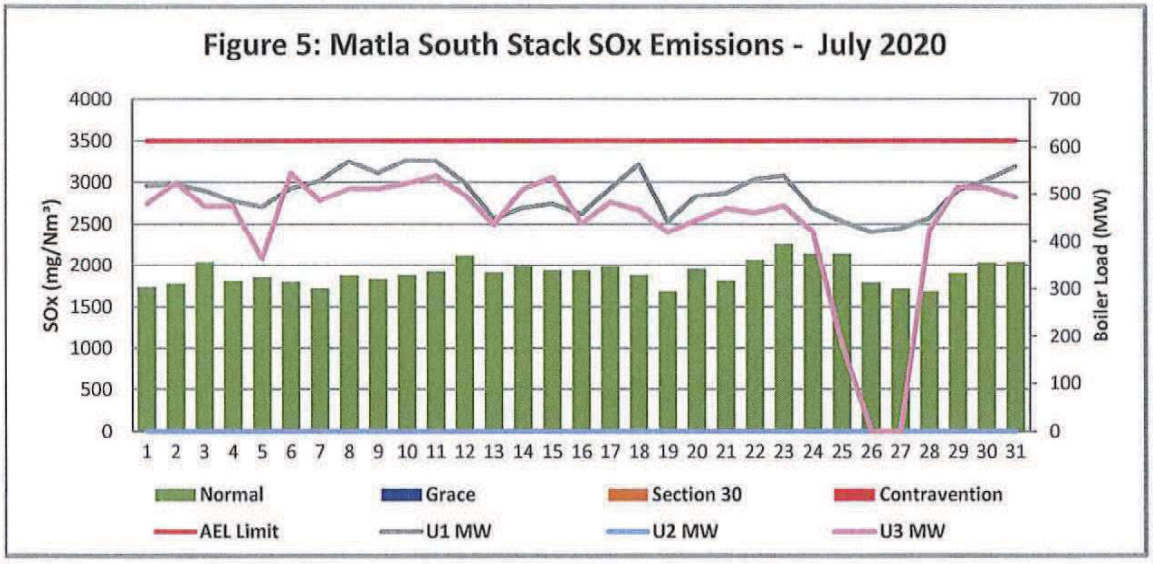
Figure 5: Matla South Stack SOx Emissions - July 2020
SOx (mg/Nm³)
Boiler Load (MW)
4000
3500
3000
2500
2000
1500
1000
500
0
700
600
500
400
300
200
100
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U1 MW
U2 MW
U3 MW

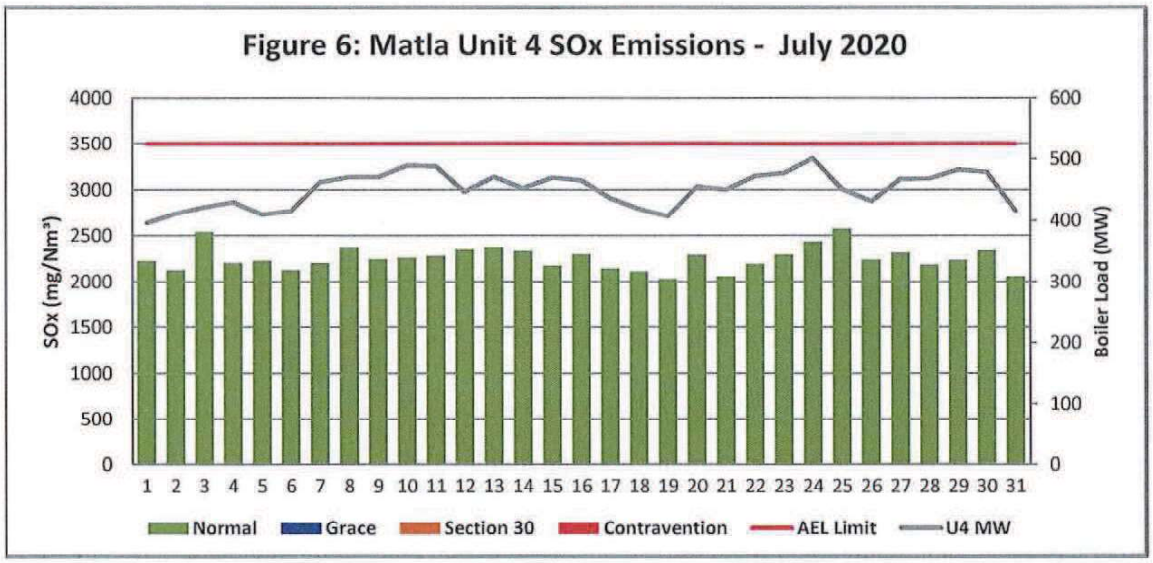
Figure 6: Matla Unit 4 SOx Emissions - July 2020
SOx (mg/Nm³)
Boiler Load (MW)
4000
3500
3000
2500
2000
1500
1000
500
0
600
500
400
300
200
100
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U4 MW

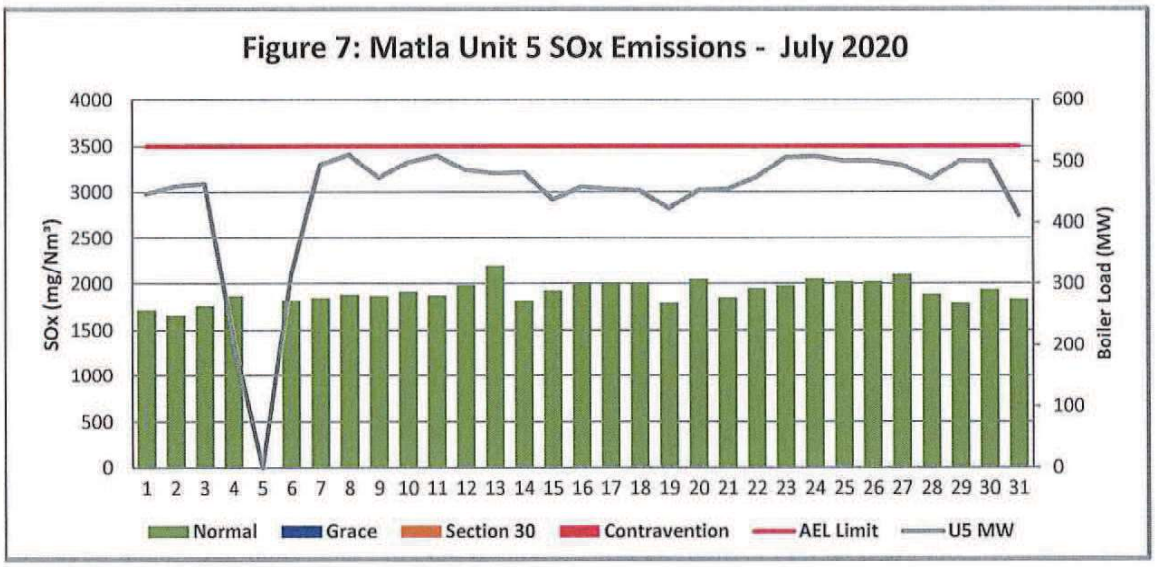
Figure 7: Matla Unit 5 SOx Emissions - July 2020
SOx (mg/Nm³)
Boiler Load (MW)
4000
3500
3000
2500
2000
1500
1000
500
0
600
500
400
300
200
100
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U5 MW

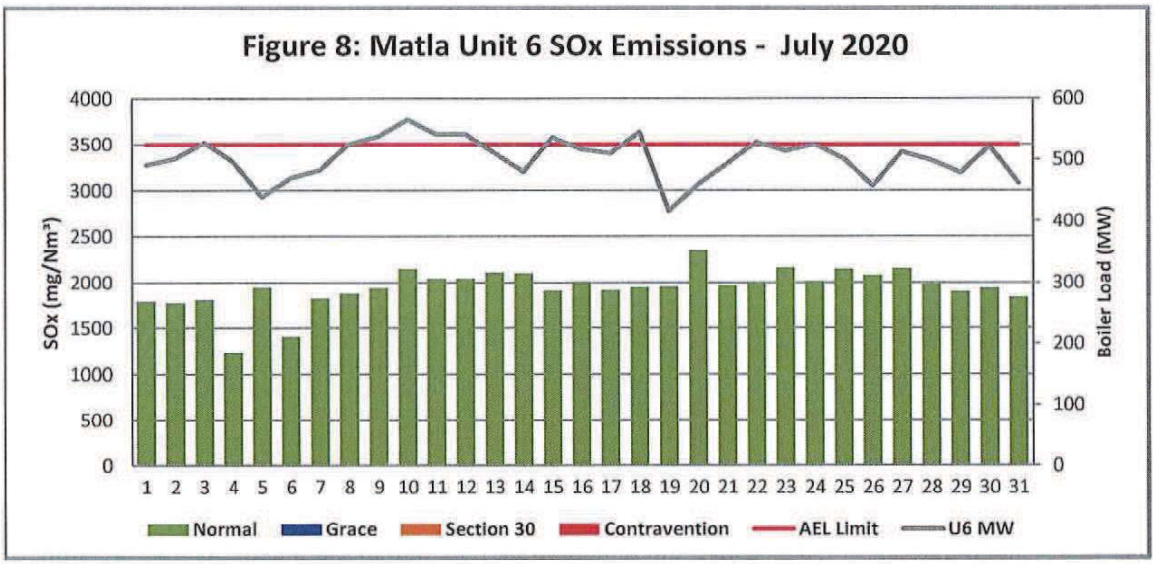
Figure 8: Matla Unit 6 SOx Emissions - July 2020
SOx (mg/Nm³)
Boiler Load (MW)
4000
3500
3000
2500
2000
1500
1000
500
0
600
500
400
300
200
100
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U6 MW

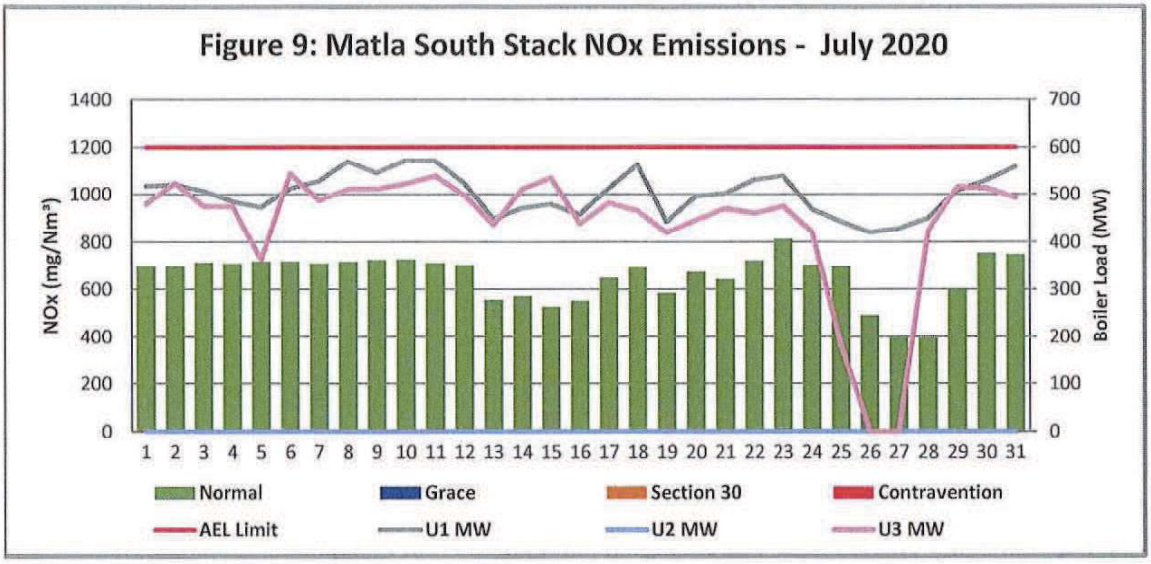
Figure 9: Matla South Stack NOx Emissions - July 2020
NOx (mg/Nm³)
Boiler Load (MW)
1400
1200
1000
800
600
400
200
0
700
600
500
400
300
200
100
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U1 MW
U2 MW
U3 MW

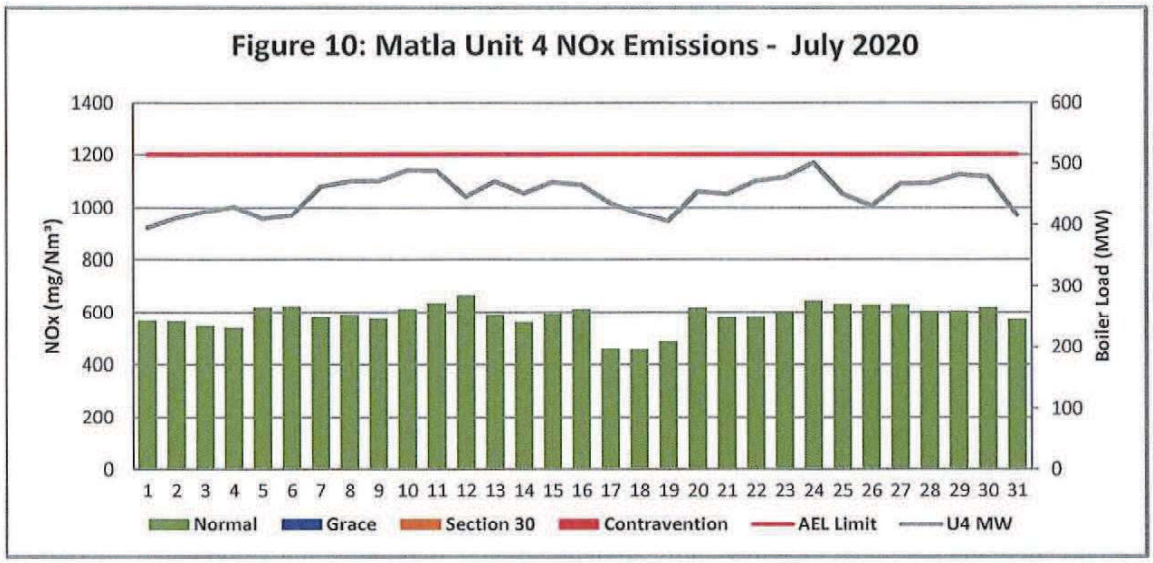
Figure 10: Matla Unit 4 NOx Emissions - July 2020
NOx (mg/Nm³)
Boiler Load (MW)
1400
1200
1000
800
600
400
200
0
600
500
400
300
200
100
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U4 MW

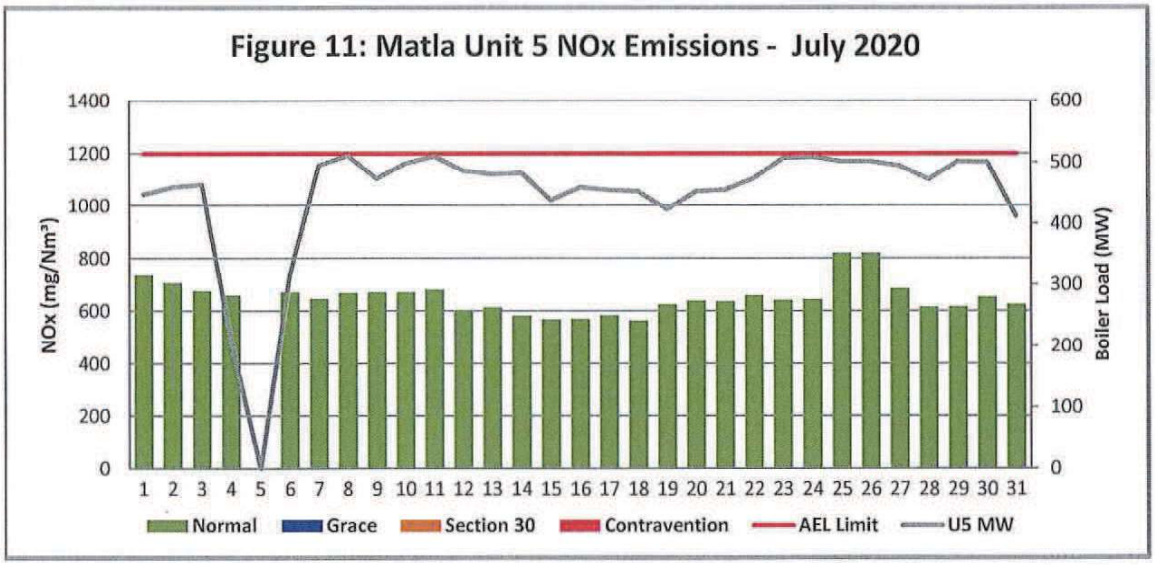
Figure 11: Matla Unit 5 NOx Emissions - July 2020
NOx (mg/Nm³)
Boiler Load (MW)
1400
1200
1000
800
600
400
200
0
600
500
400
300
200
100
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U5 MW

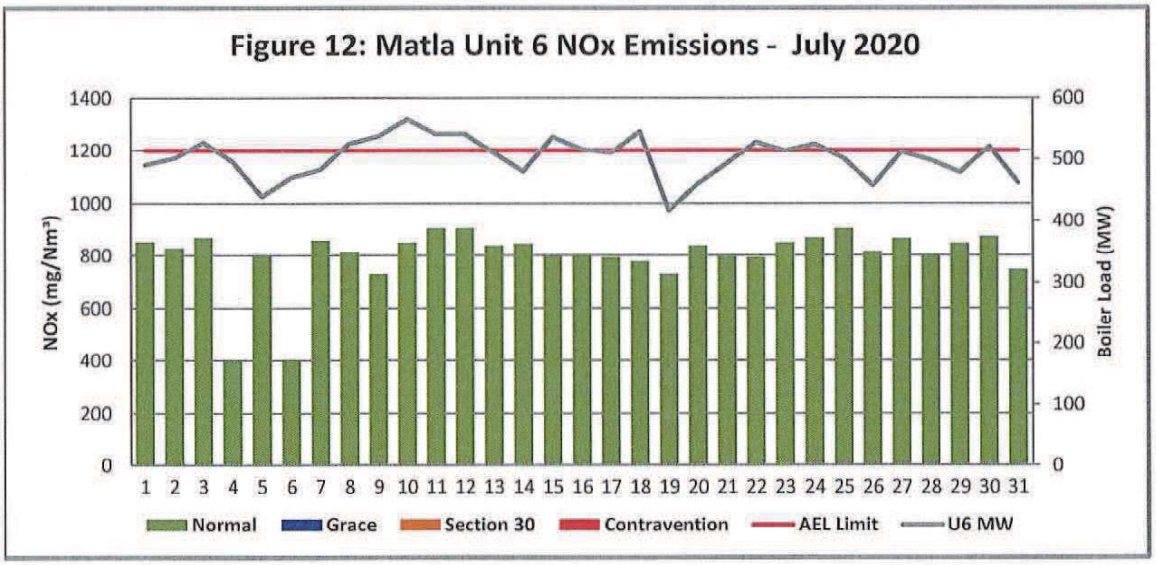
Figure 12: Matla Unit 6 NOx Emissions - July 2020
NOx (mg/Nm³)
Boiler Load (MW)
1400
1200
1000
800
600
400
200
0
600
500
400
300
200
100
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U6 MW

7 SHUT DOWN AND LIGHT UP INFORMATION

Table 7.1. PM Start-up information for the month of July-2020

South Stack	Event 1		Event 2		Event 3		Event 4	
Unit No.	Unit 3		Unit 3		no event		no event	
Breaker Open (BO)	9:25 PM	2020/07/15	1:05 AM	2020/07/25				
Draught Group (DG) Shut Down (SD)	DG did not trip or SD	DG did not trip or SD	7:35 AM	2020/07/26				
BO to DG SD (duration)	n/a	DD:HH:MM	01:06:30	DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time	9:25 PM	2020/07/15	10:25 PM	2020/07/27				
Synch. to Grid (or BC)	8:30 AM	2020/07/16	11:15 AM	2020/07/28				
Fires in to BC (duration)	00:11:05	DD:HH:MM	00:12:50	DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	12:00 AM	2020/07/17	12:00 AM	2020/07/30				
Emissions below limit from BC (duration)	00:15:30	DD:HH:MM	01:12:45	DD:HH:MM		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)	12:55 AM	2020/07/04						
Draught Group (DG) Shut Down (SD)	12:55 AM	2020/07/04						
BO to DG SD (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time	7:40 AM	2020/07/06						
Synch. to Grid (or BC)	2:25 PM	2020/07/06						
Fires in to BC (duration)	00:06:45	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	1:00 AM	2020/07/07						
Emissions below limit from BC (duration)	00:10:35	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 July-2020 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

11 General

29/01/2021

Boiler Engineering Date

2021-01-19

Environmental Department Date

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

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 July 2020

	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 July 2020

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 [illegible])	*(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.
South Stack	02-07-2020	04-07-2020	Unit 1 Left Hand (LH) precipitator field 1 tripped due on under-voltag due to full hoppers. At the same period, Unit 3 Right Hand (RH) precipitator fields 1&2 and LH precipitator fields were not perfoming optimally due to high hopper levels.	Dust plant defects adressed and hopper levels cleared.	yes	05-08-2020			
4	01-07-2020	11-07-2020	Unit 4 Right Hand (RH) precipitator fields 1,2,6 were tripping on undervoltage due to high hopper levels. RH 4,8 In-service but not performing due to hopper levels. Plate rappers on unit 4 Left Hand (LH) precipitator fields 2&3 kept tripping due to thermal overload.Dust plant was off due to K pump vent valve replacement.	Dust plant defects adressed and hopper levels cleared.	yes	05-08-2020			
5	01-07-2020	03-07-2020	Unit 5 Right Hand (RH) precipitator field number 5 was off due to internal fault, while Unit 5 RH precipitator field number 1 tripped due on under-voltage protection due to high hopper levels.In addition, RH precipitator field number 2 was not optimally performing during this period due to hopper levels.	Dust plant defects adressed and hopper l	yes	05-08-2020			
6	02-07-2020	04-07-2020	Unit 6 Left Hand (LH) precipitator fields 3&6 tripped on under-voltage for two consecutive days due to high hopper levels, while Unit 6 Right Hand (RH) precipitator field 1 was down due to internal fault. Dust plant was off due to K pump transfer dome replacement. Sulphur plant was off for blower planned repairs on the 09th July 2020.	Dust plant defects adressed and hopper l	yes	05-08-2020			