Eskom

Generation

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Attention:
Mr V Mahlangu

AND

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Total number of pages:
16

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MATLA POWER STATION

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

pp Thobile Tyeke	30/12/2021
BOILER ENGINEERING MANAGER	**DATE**
Refilwe Mokobodi	30/12/2021
ENVIRONMENTAL MANAGER	**DATE**
Lindo Ngobese	31.12.2021
ENGINEERING MANAGER	**DATE**

NOVEMBER 2021

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 Nov-2021
	Coal	Tons	*1 475 000*	*858 316*
	Fuel Oil	Tons	*2 500*	*724*
Production Rates	**Product / By-Product Name**	**Units**	**Maximum Production Capacity Permitted**	**Production Rate Nov-2021**
	Energy	GWh	*2 484*	*1 508*
	Ash	Tons	*471 000*	*245 564*
	RE PM	kg/MWh	*not specified*	*0,421*

2 ENERGY SOURCE CHARACTERISTICS

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	*0.8-1.1*	*1,00*
Ash Content	%	*21-40*	*28,61*

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 Nov-2021
South	*Electro Static Precipators (ESP)*	*99,668%*
Unit 4	*Electro Static Precipators (ESP)*	*99,825%*
Unit 5	*Electro Static Precipators (ESP)*	*99,750%*
Unit 6	*Electro Static Precipators (ESP)*	*99,622%*

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	*96,4*	*94,1*	*94,1*	*100,0*
Unit 4	*41,6*	*99,7*	*99,9*	*100,0*
Unit 5	*78,5*	*99,7*	*99,7*	*99,7*
Unit 6	*96,3*	*99,6*	*99,3*	*99,9*

6 EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of November-2021

Associated Unit/Stack	PM	SOx	NOx
Unit 1	154,3	2 028,0	983,7
Unit 2	0,0	0,0	0,0
Unit 3	181,7	2 328,8	1 129,9
Unit 4	75,8	3 476,4	1 158,2
Unit 5	128,2	3 850,5	1 924,8
Unit 6	94,8	1 573,2	604,8
SUM	634,8	13 256,8	5 801,4

Table 6.2: Operating days in compliance to PM AEL Limit - November 2021

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm³)
South	27	3	0	0	3	110,4
Unit 4	30	0	0	0	0	42,5
Unit 5	29	1	0	0	1	66,1
Unit 6	11	5	1	0	6	138,9
SUM	**97**	**9**	**1**	**0**	**10**	

Table 6.3: Operating days in compliance to SOx AEL Limit - November 2021

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SOx (mg/Nm³)
South	30	0	0	0	0	1 365,4
Unit 4	30	0	0	0	0	2 071,9
Unit 5	30	0	0	0	0	1 991,0
Unit 6	19	0	0	0	0	2 302,4
SUM	**109**	**0**	**0**	**0**	**0**	

Table 6.4: Operating days in compliance to NOx AEL Limit - November 2021

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm³)
South	30	0	0	0	0	663,3
Unit 4	30	0	0	0	0	689,3
Unit 5	30	0	0	0	0	993,3
Unit 6	19	0	0	0	0	839,1
SUM	**109**	**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 - November 2021

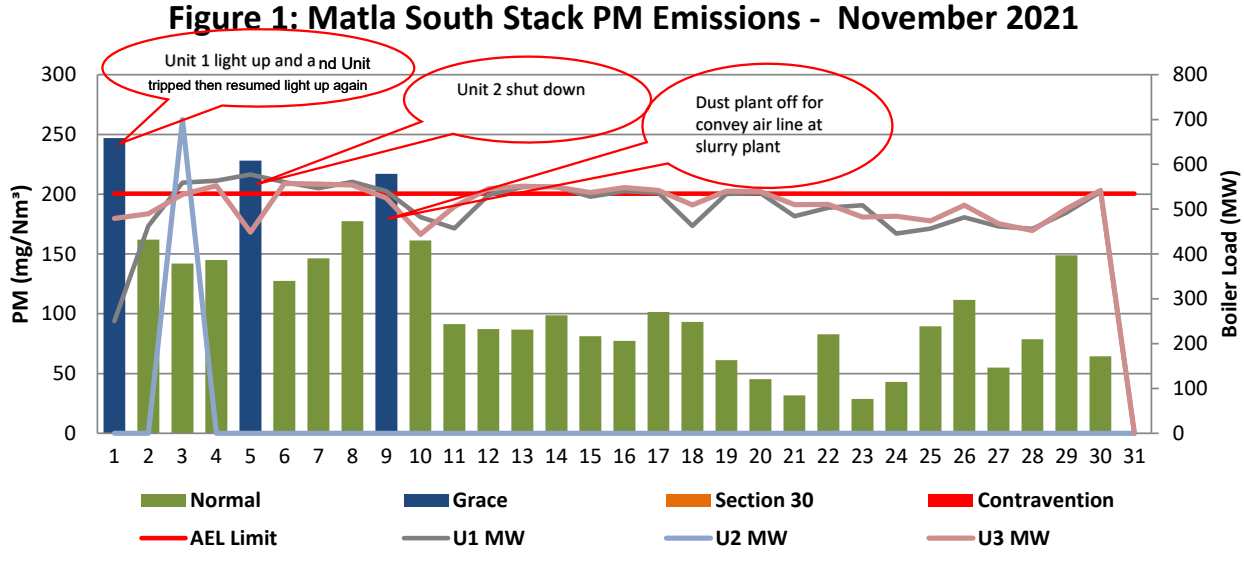
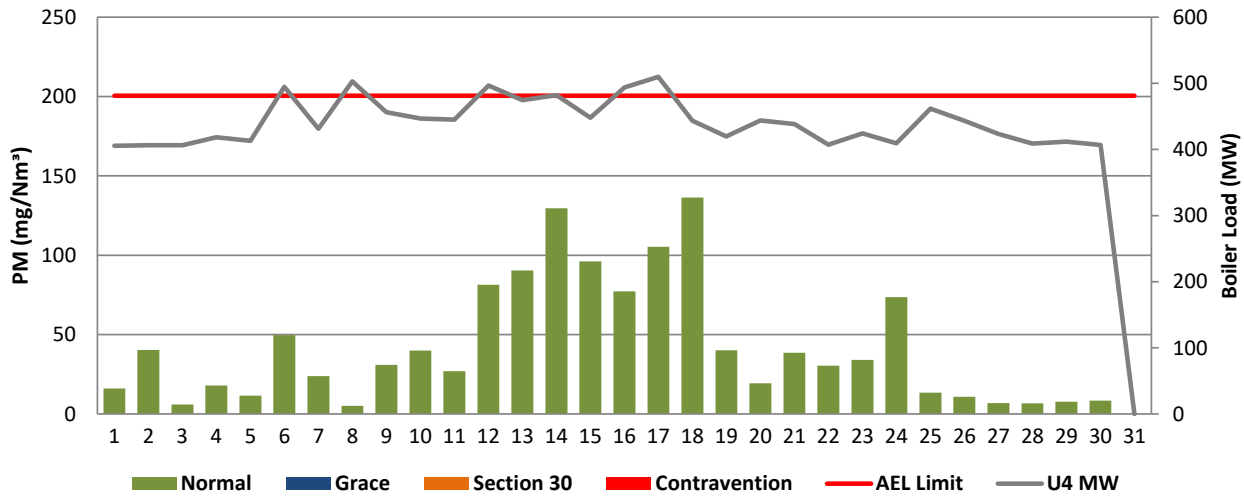


Figure 2: Matla Unit 4 PM Emissions - November 2021



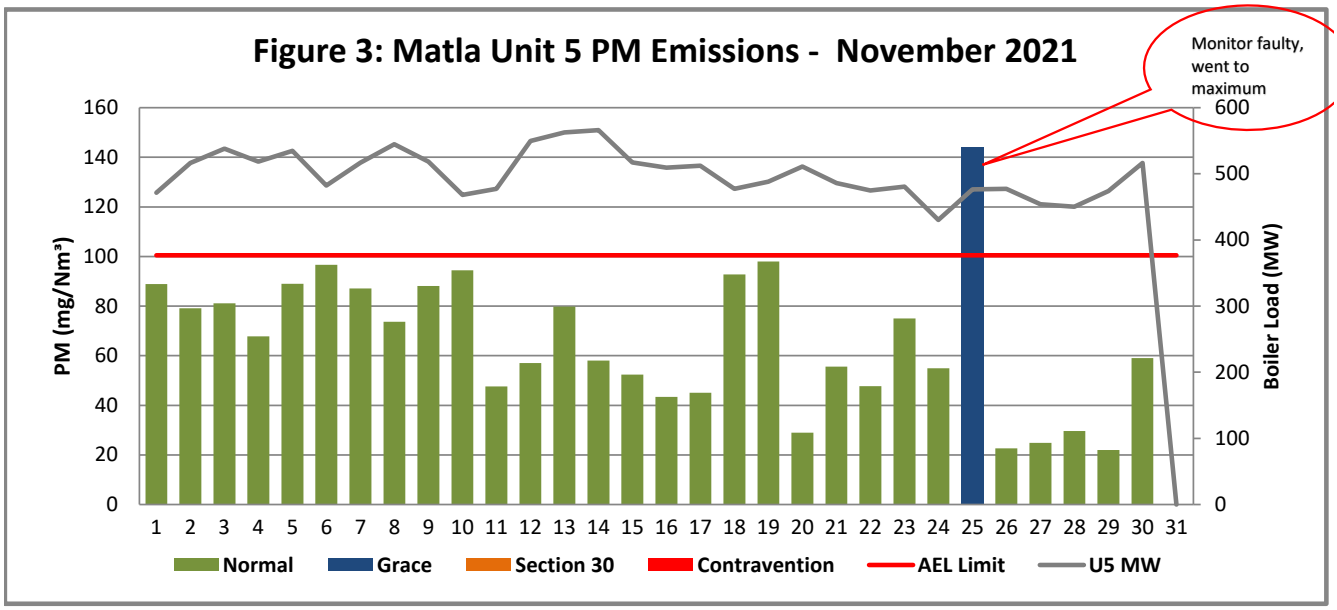


Figure 3: Matla Unit 5 PM Emissions - November 2021
Monitor faulty, went to maximum
PM (mg/Nm³)
Boiler Load (MW)
Normal
Grace
Section 30
Contravention
AEL Limit
U5 MW

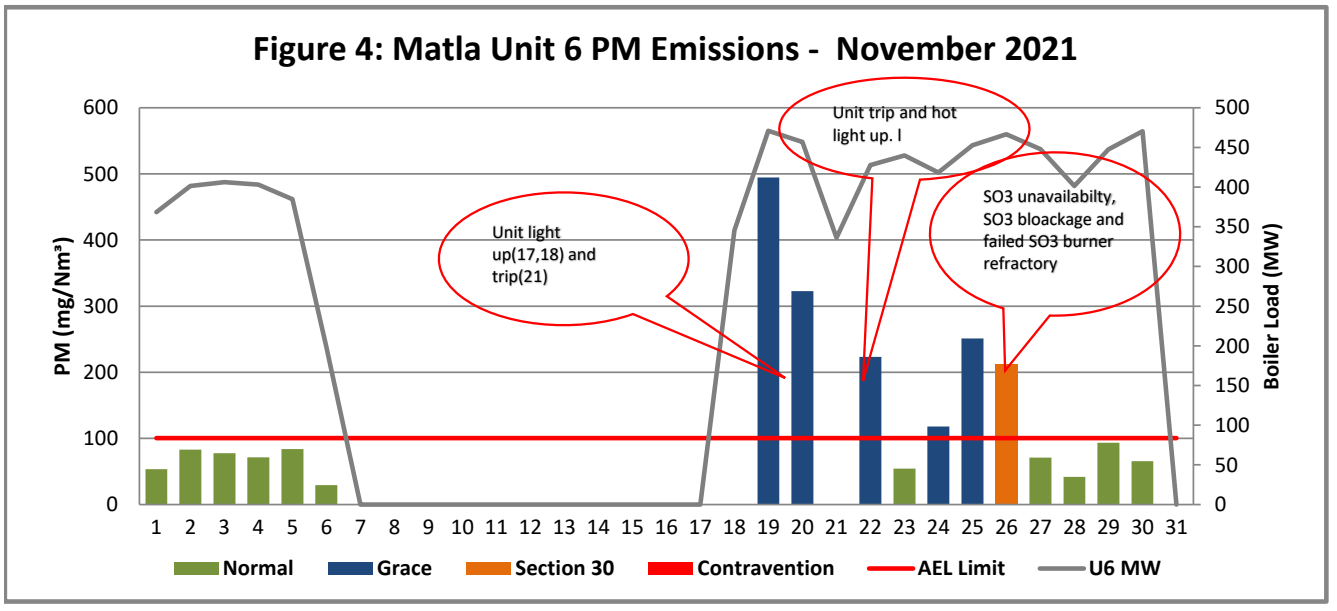


Figure 4: Matla Unit 6 PM Emissions - November 2021
Unit trip and hot light up. I
Unit light up(17,18) and trip(21)
SO3 unavailabilty, SO3 bloackage and failed SO3 burner refractory
PM (mg/Nm³)
Boiler Load (MW)
Normal
Grace
Section 30
Contravention
AEL Limit
U6 MW

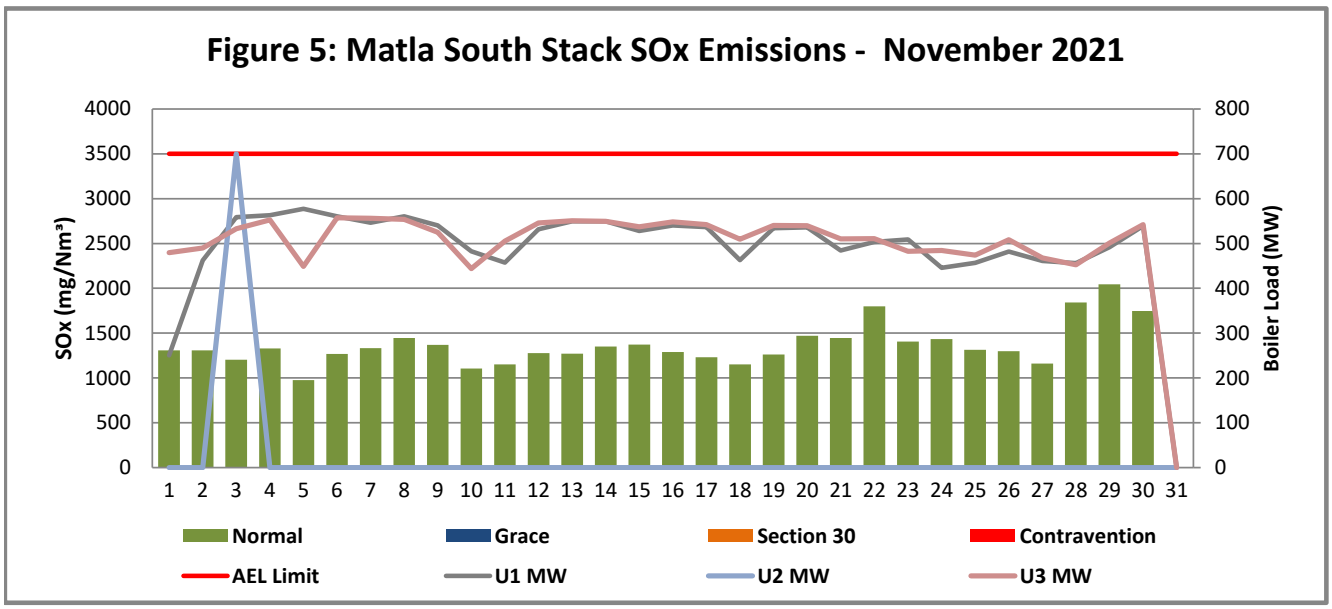


Figure 5: Matla South Stack SOx Emissions - November 2021
SOx (mg/Nm³)
Boiler Load (MW)
4000
3500
3000
2500
2000
1500
1000
500
0
800
700
600
500
400
300
200
100
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U1 MW
U2 MW
U3 MW

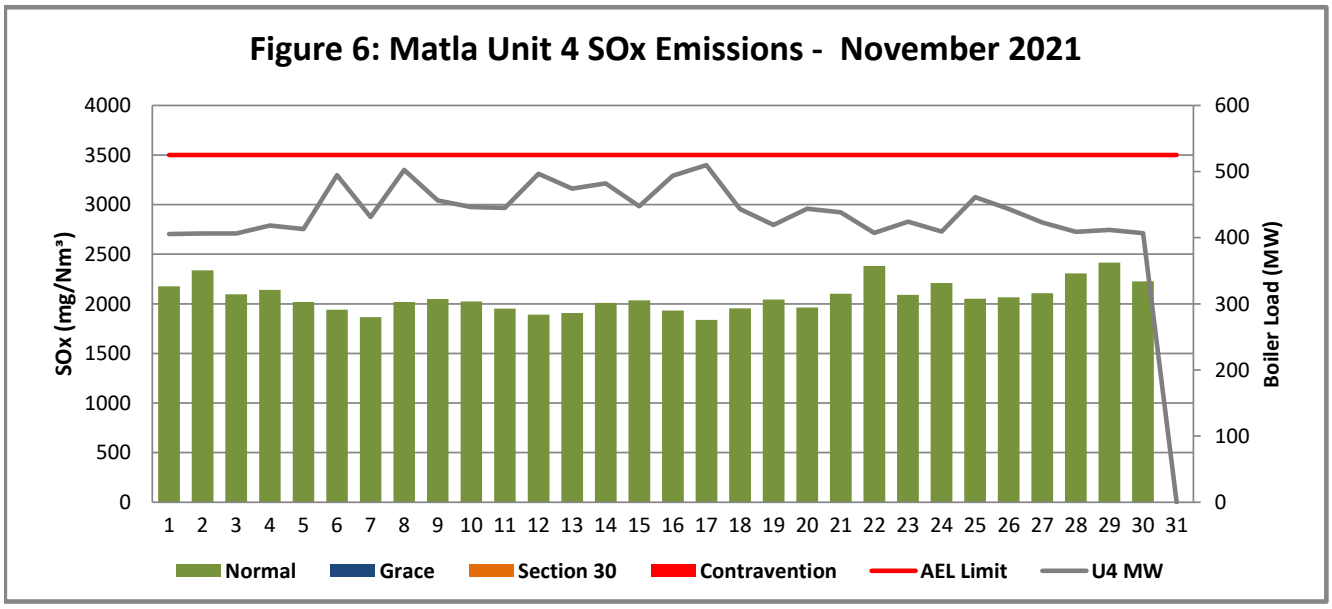


Figure 6: Matla Unit 4 SOx Emissions - November 2021
SOx (mg/Nm³)
Boiler Load (MW)
4000
3500
3000
2500
2000
1500
1000
500
0
600
500
400
300
200
100
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U4 MW

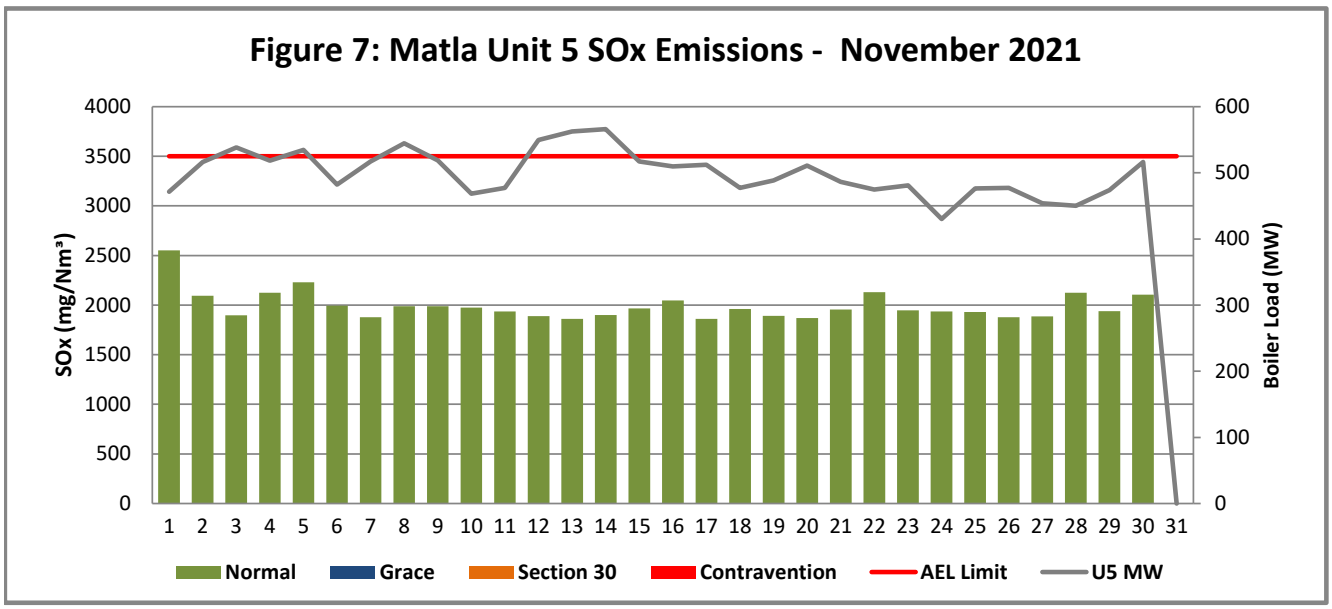


Figure 7: Matla Unit 5 SOx Emissions - November 2021
SOx (mg/Nm³)
Boiler Load (MW)
4000
3500
3000
2500
2000
1500
1000
500
0
600
500
400
300
200
100
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U5 MW

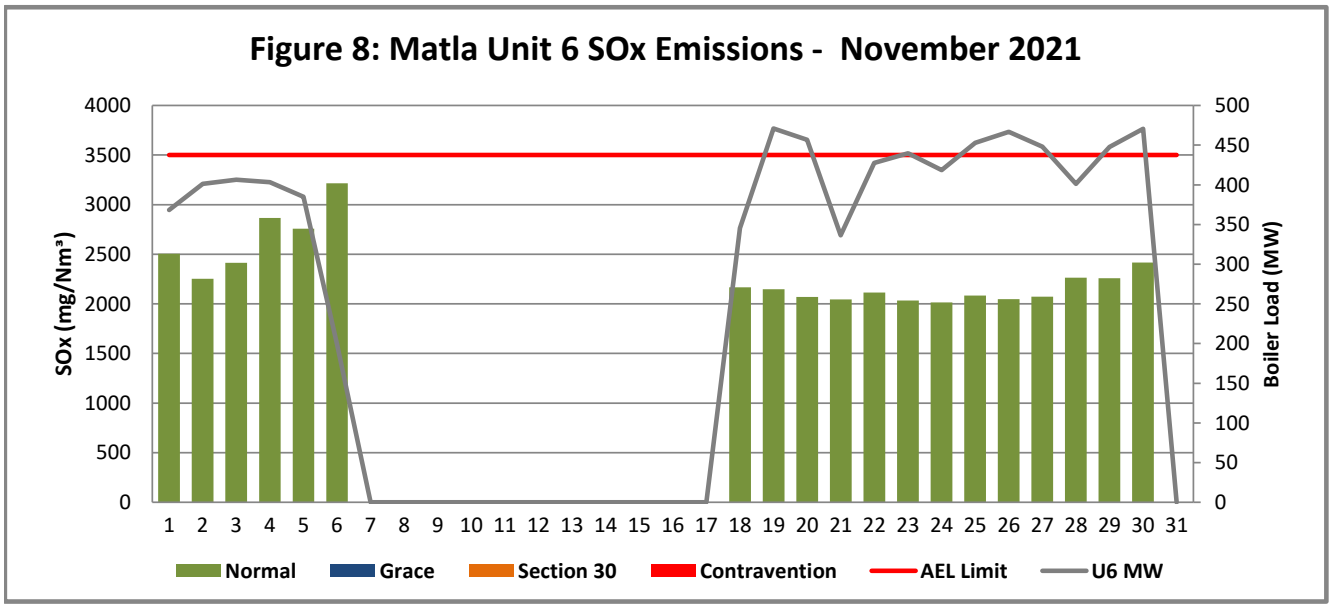


Figure 8: Matla Unit 6 SOx Emissions - November 2021
SOx (mg/Nm³)
Boiler Load (MW)
4000
3500
3000
2500
2000
1500
1000
500
0
500
450
400
350
300
250
200
150
100
50
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U6 MW

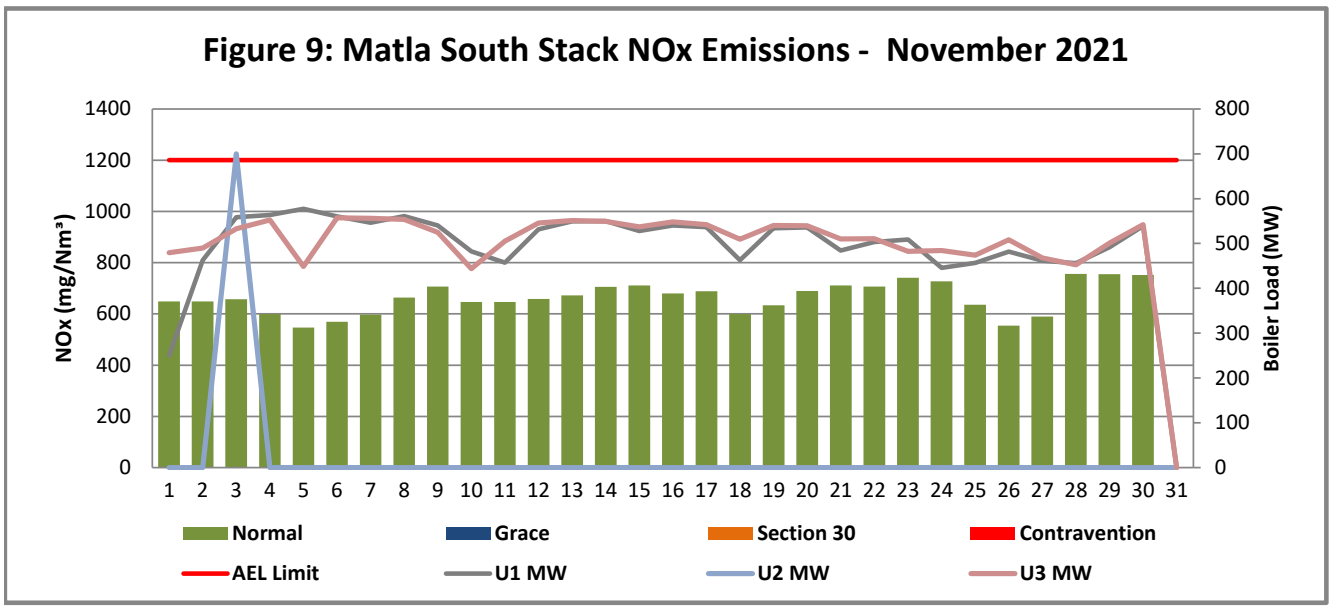


Figure 9: Matla South Stack NOx Emissions - November 2021
NOx (mg/Nm³)
Boiler Load (MW)
1400
1200
1000
800
600
400
200
0
800
700
600
500
400
300
200
100
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U1 MW
U2 MW
U3 MW

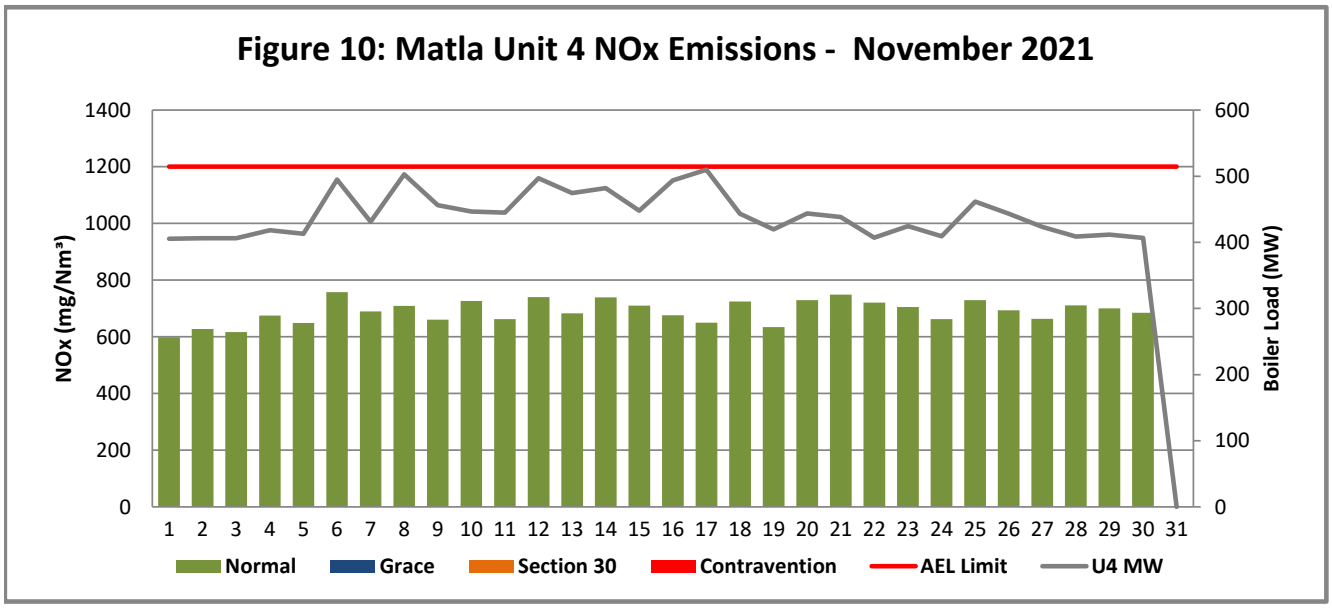


Figure 10: Matla Unit 4 NOx Emissions - November 2021
NOx (mg/Nm³)
Boiler Load (MW)
1400
1200
1000
800
600
400
200
0
600
500
400
300
200
100
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U4 MW

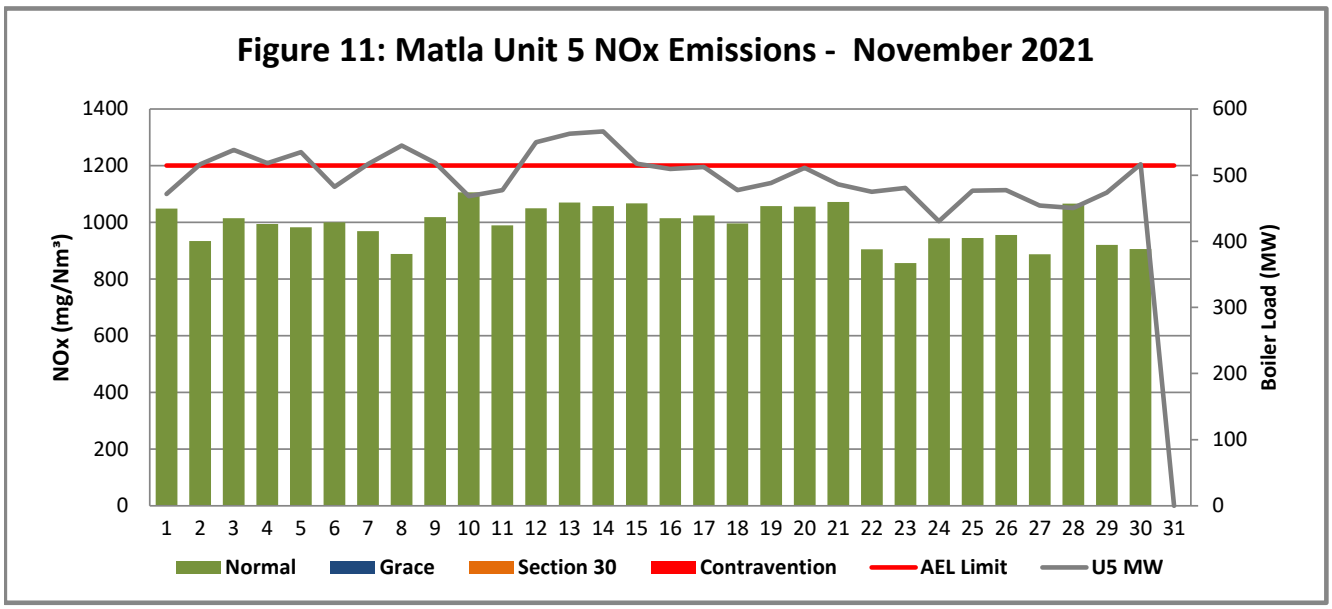


Figure 11: Matla Unit 5 NOx Emissions - November 2021
NOx (mg/Nm³)
Boiler Load (MW)
1400
1200
1000
800
600
400
200
0
600
500
400
300
200
100
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U5 MW

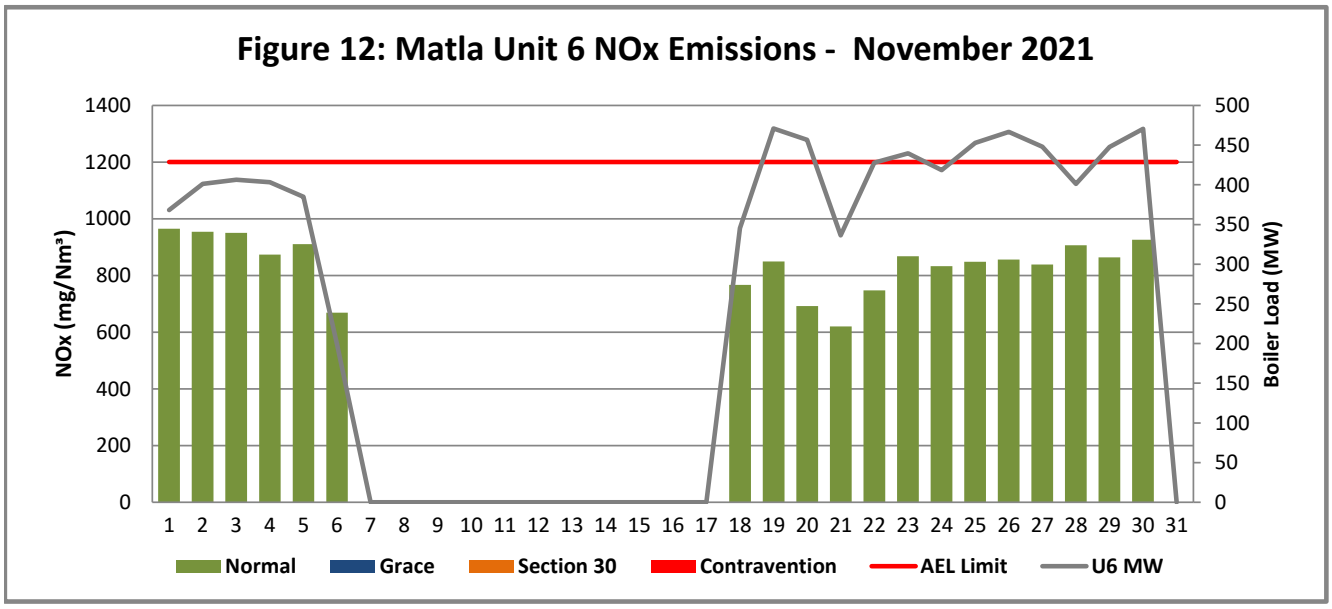


Figure 12: Matla Unit 6 NOx Emissions - November 2021
NOx (mg/Nm³)
Boiler Load (MW)
1400
1200
1000
800
600
400
200
0
500
450
400
350
300
250
200
150
100
50
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U6 MW

7 SHUT DOWN AND LIGHT UP INFORMATION

Table 7.1. PM Start-up information for the month of November-2021

South Stack	Event 1		Event 2		Event 3		Event 4	
Unit No.	Unit 1		no event		no event		no event	
Breaker Open (BO)			BO previously	BO previously				
Draught Group (DG) Shut Down (SD)			n/a	n/a				
BO to DG SD (duration)		DD:HH:MM	n/a	DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time	9:15 PM	2021/11/01						
Synch. to Grid (or BC)	5:35 AM	2021/11/02						
Fires in to BC (duration)	00:08:20	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

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)	11:40 AM	2021/11/07						
Draught Group (DG) Shut Down (SD)	11:40 AM	2021/11/07						
BO to DG SD (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time	11:40 AM	2021/11/07						
Synch. to Grid (or BC)	6:50 PM	2021/11/07						
Fires in to BC (duration)	00:07:10	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. 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)	12:55 AM	2021/11/06	11:15 AM	2021/11/20				
Draught Group (DG) Shut Down (SD)	12:55 AM	2021/11/06	11:15 AM	2021/11/20				
BO to DG SD (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time	2:45 PM	2021/11/17	5:30 PM	2021/11/20				
Synch. to Grid (or BC)	6:50 AM	2021/11/18	3:00 AM	2021/11/21				
Fires in to BC (duration)	00:16:05	DD:HH:MM	00:09:30	DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	not > limit	not > limit	not > limit	not > limit				
Emissions below limit from BC (duration)	n/a	DD:HH:MM	n/a	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-2021 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

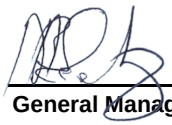
11 General

Unit 4 reliability 41%, this is due to low emissions running close to zero while on reduced load. Unit 4 had a standing vacuum load loss.
Unit 5 on minimum load, emissions low close to zero.
Gases emissions used QAL 2 averages, South stack not reading accurately

~~29/12/29~~ 29/12/21

Boiler Engineering Date

Environmental Department Date : 29/2/2021



31/12/2021

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 November 2021

	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 2021

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.
6	26-11-2021	26-11-2021	SO3 burner refractory failure, SO3 flactuation and blockage.	Taken load loss and cleared hopper levels	Yes	01/12/2021	N/A	N/A	Investigation completed submitte