MAY 2020

KOMATI POWER STATION MONTHLY EMISSIONS REPORT

Atmospheric Emission License 17/4/AEL/MP313/12/12

1 RAW MATERIALS AND PRODUCTS

Raw Materials and Products	Raw Material Type	Units	Maximum Permitted Consumption Rate	Consumption Rate May-2020
	Coal	Tons	*460 000*	*37 190*
	Fuel Oil	Tons	*5 000*	*276*
Production Rates	**Product / By-Product Name**	**Units**	**Maximum Production Capacity Permitted**	**Production Rate May-2020**
	Energy	GWh	*707*	*63*
	Ash	Tons	*160 000*	*19*
	RE PM	kg/MWh	*0.46*	*0.30*

2 ENERGY SOURCE CHARACTERISTICS

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
CV Content	MJ/kg	*16-24*	*22.940*
Sulphur Content	%	*<= 1.2*	*0.510*
Ash Content	%	*<= 33*	*21.400*

3 EMISSION LIMITS (mg/Nm³)

Associated Unit/Stack	PM	SOx	NOx
East	*100*	*3500*	*1300*
West	*100*	*3500*	*1300*

4 ABATEMENT TECHNOLOGY (%)

Associated Unit/Stack	Technology Type	Efficiency May-2020
Unit 1	*Electro Static Prepicipators (ESP)*	*Unit Off-line*
Unit 2	*Electro Static Prepicipators (ESP)*	*Unit Off-line*
Unit 3	*Electro Static Prepicipators (ESP)*	*Unit Off-line*
Unit 4	*Electro Static Prepicipators (ESP)*	*100.0%*
Unit 5	*Electro Static Prepicipators (ESP)*	*Unit Off-line*
Unit 6	*Electro Static Prepicipators (ESP)*	*Unit Off-line*
Unit 7	*Electro Static Prepicipators (ESP)*	*Unit Off-line*
Unit 8	*Electro Static Prepicipators (ESP)*	*Unit Off-line*
Unit 9	*Electro Static Prepicipators (ESP)*	*99.7%*

Operated for 6.1 hrs only

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

5 MONITOR RELIABILITY (%)

Associated Unit/Stack	PM	SO_2	NO	CO_2	O_2	Temp
East						
West	*96.6*	*78.5*	*95.3*	*95.1*	*95.3*	*96.6*

6 EMISSION PERFORMANCE

Table 4: Monthly tonnages for the month of May-2020

Associated Unit/Stack	PM (tons)	SO_2 (tons)	NO_2 (tons)	CO_2 (tons)
1	0.0	0.0	0.0	0
2	0.0	0.0	0.0	0
3	0.0	0.0	0.0	0
4	0.0	0.0	0.0	0
5	0.0	0.0	0.0	0
6	0.0	0.0	0.0	0
7	0.0	0.0	0.0	0
8	0.0	0.0	0.0	0
9	19.1	580.2	515.9	84 125
SUM	**19.1**	**580.2**	**515.9**	**84 125**

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm³)
East	0	1	0	0	1	108.9
West	31	0	0	0	0	42.7
SUM	**31**	**1**	**0**	**0**	**1**	

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SOx (mg/Nm³)
East	1	0	0	0	0	2 111.3
West	31	0	0	0	0	1 274.0
SUM	**32**	**0**	**0**	**0**	**0**	

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm³)
East	1	0	0	0	0	535.4
West	31	0	0	0	0	1 135.1
SUM	**32**	**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

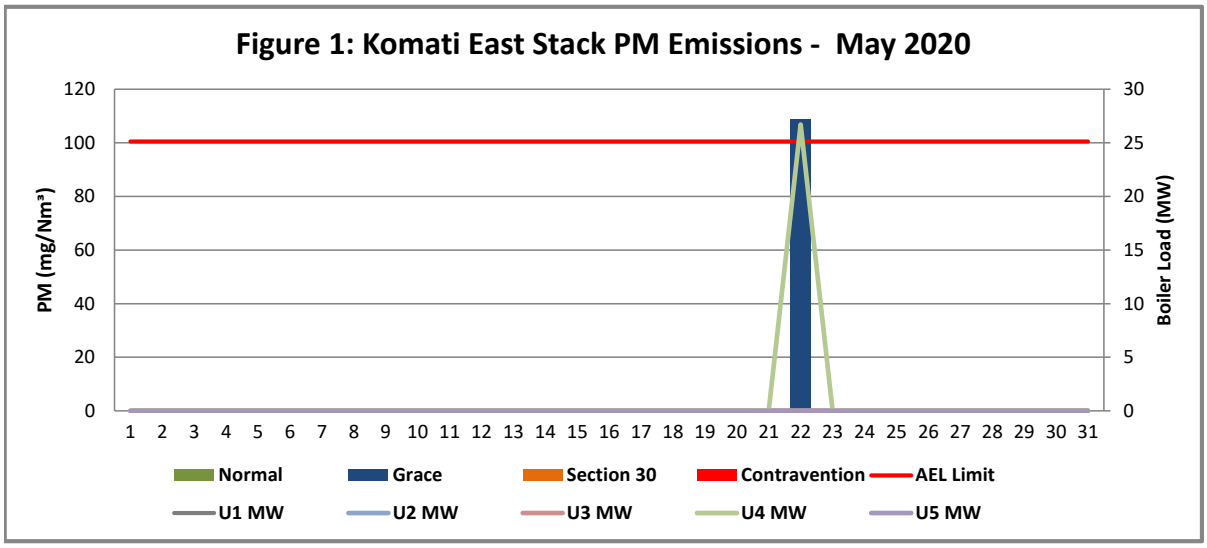
Figure 1: Komati East Stack PM Emissions - May 2020
PM (mg/Nm³)
Boiler Load (MW)
120
100
80
60
40
20
0
30
25
20
15
10
5
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U1 MW
U2 MW
U3 MW
U4 MW
U5 MW

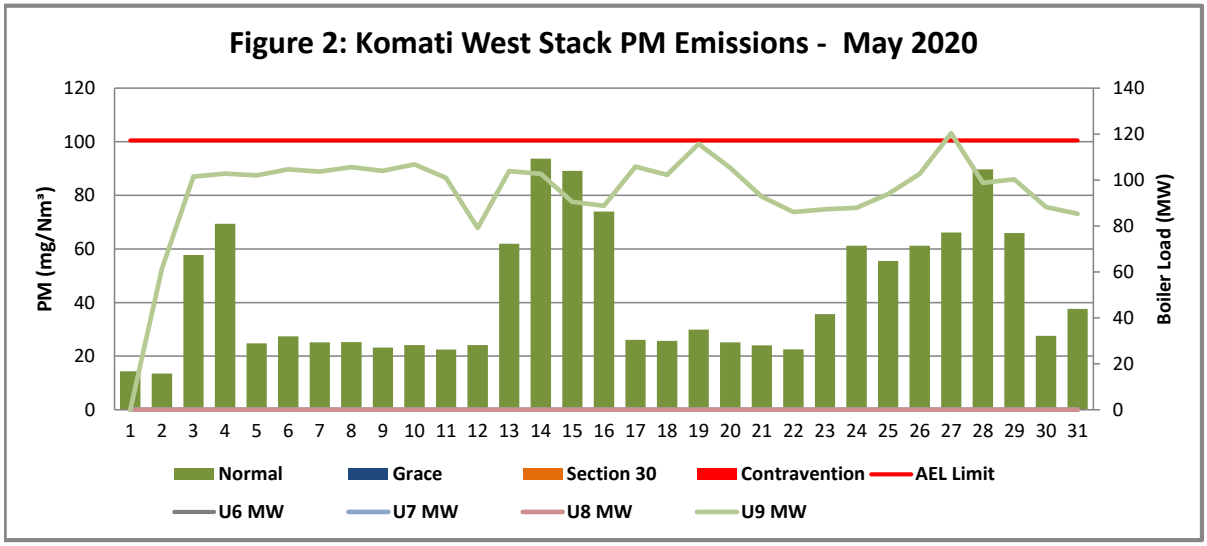
Figure 2: Komati West Stack PM Emissions - May 2020
PM (mg/Nm³)
Boiler Load (MW)
120
100
80
60
40
20
0
140
120
100
80
60
40
20
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U6 MW
U7 MW
U8 MW
U9 MW

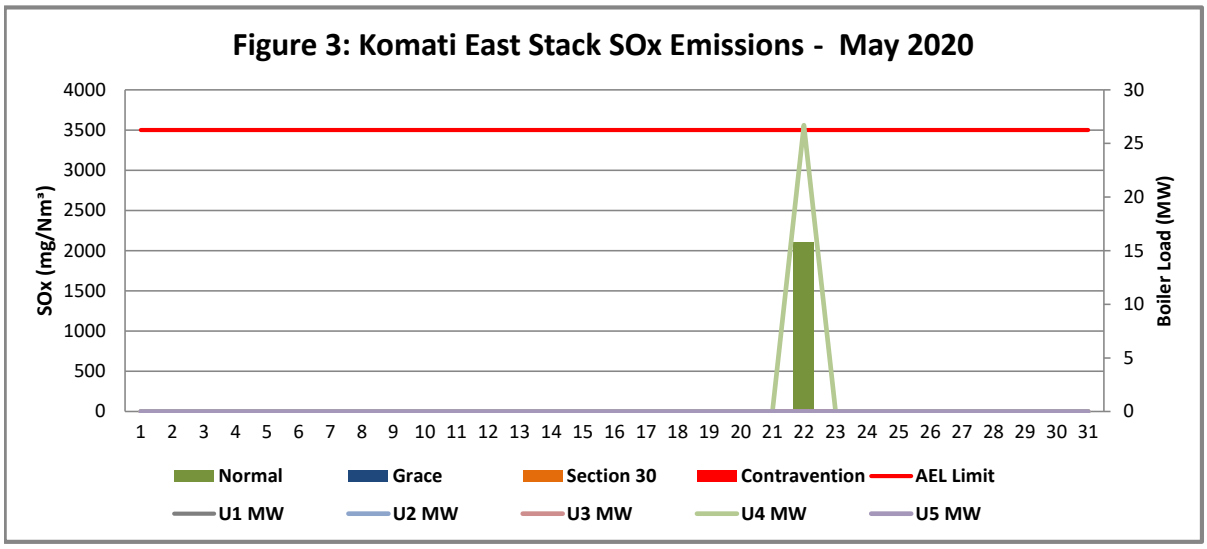
Figure 3: Komati East Stack SOx Emissions - May 2020
SOx (mg/Nm³)
Boiler Load (MW)
4000
3500
3000
2500
2000
1500
1000
500
0
30
25
20
15
10
5
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U1 MW
U2 MW
U3 MW
U4 MW
U5 MW

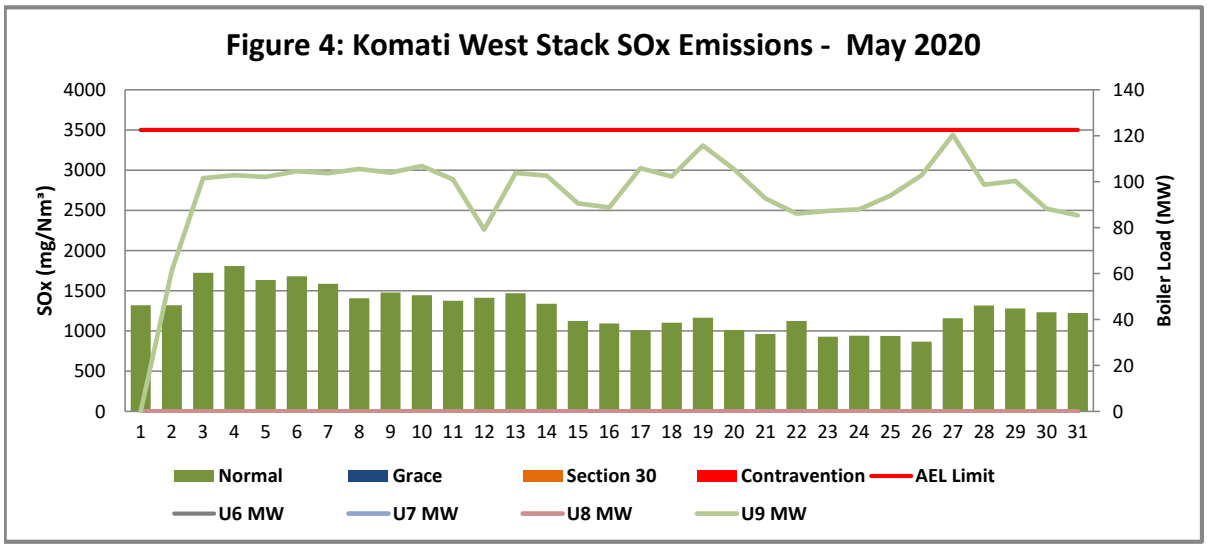
Figure 4: Komati West Stack SOx Emissions - May 2020
SOx (mg/Nm³)
Boiler Load (MW)
4000
3500
3000
2500
2000
1500
1000
500
0
140
120
100
80
60
40
20
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U6 MW
U7 MW
U8 MW
U9 MW

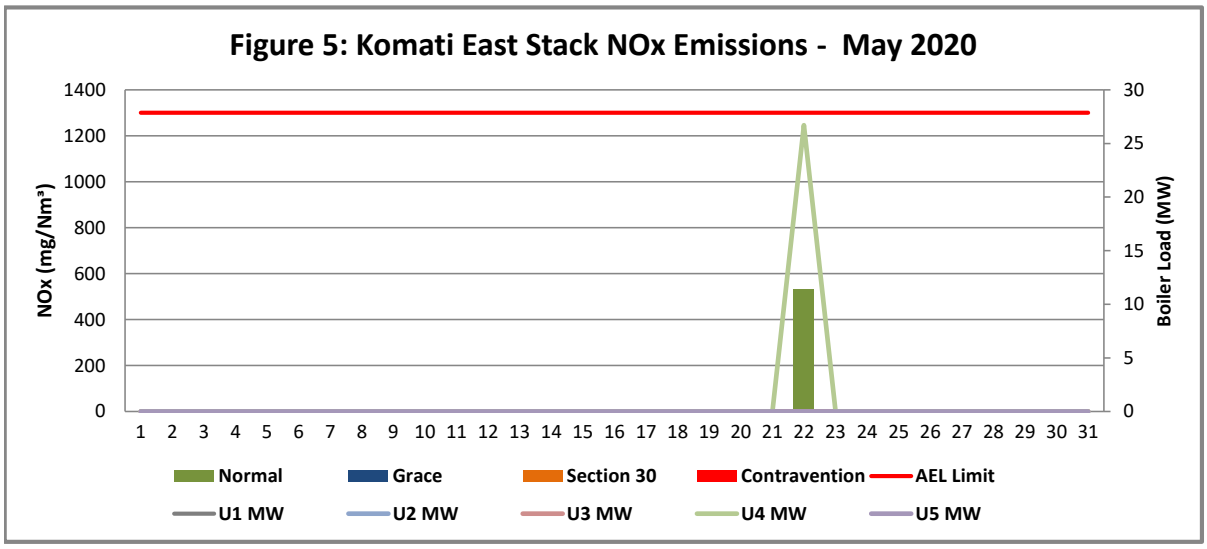
Figure 5: Komati East Stack NOx Emissions - May 2020
NOx (mg/Nm³)
Boiler Load (MW)
1400
1200
1000
800
600
400
200
0
30
25
20
15
10
5
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U1 MW
U2 MW
U3 MW
U4 MW
U5 MW

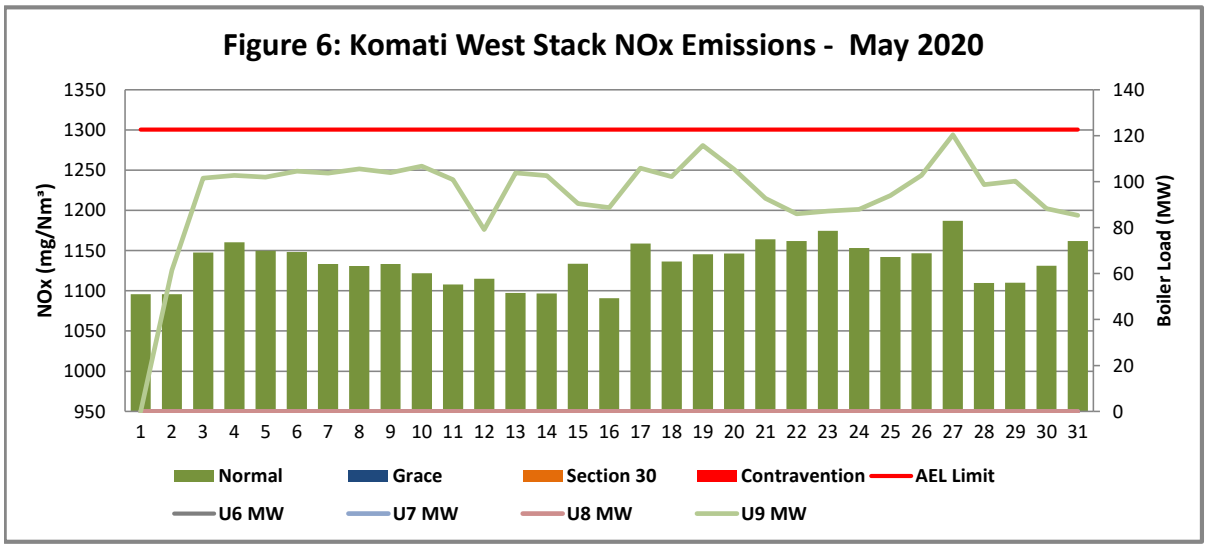
Figure 6: Komati West Stack NOx Emissions - May 2020
NOx (mg/Nm³)
Boiler Load (MW)
1350
1300
1250
1200
1150
1100
1050
1000
950
140
120
100
80
60
40
20
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Normal
Grace
Section 30
Contravention
AEL Limit
U6 MW
U7 MW
U8 MW
U9 MW

7 SHUT DOWN AND LIGHT UP INFORMATION

Table 6.1. PM Start-up information for the month of May-2020

East Stack	Event 1		Event 2		Event 3		Event 4	
Unit No.	no event		no event		no event		no event	
Breaker Open (BO)			3:25 PM	2020/05/14				
Draught Group (DG) Shut Down (SD)			9:35 PM	2020/05/14				
BO to DG SD (duration)		DD:HH:MM	00:06:10	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

East Stack …continued	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

West Stack	Event 1		Event 2		Event 3		Event 4	
Unit No.	Unit 9		Unit		no event		no event	
Breaker Open (BO)	4:25 PM	2020/05/11	BO previously	BO previously				
Draught Group (DG) Shut Down (SD)	4:45 PM	2020/05/11	n/a	n/a				
BO to DG SD (duration)	00:00:20	DD:HH:MM	n/a	DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time	2:00 AM	2020/05/02	4:50 PM	2020/05/11				
Synch. to Grid (or BC)	8:40 AM	2020/05/02	5:25 AM	2020/05/12				
Fires in to BC (duration)	00:06:40	DD:HH:MM	00:12:35	DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	not > limit	not > limit	12:00 AM	2020/05/13				
Emissions below limit from BC (duration)	n/a	DD:HH:MM	00:18:35	DD:HH:MM		DD:HH:MM		DD:HH:MM

West Stack …continued	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

7.2: Point Source emissions released during start-up (fires-in) and Shut-down (SD) for the month of May-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

2020/05/13-16 - Common Plant - Sulphur steam electrode boiler No. 2 was faulty and maintenance was done on it to recover the SO3 skid on Unit 9.
2020/05/22 - Unit 4 - Natural draught (Unit Shutdown)

	2021/04/29		2021/04/21
Boiler Plant Engineering	Date	Environmental Manager	Date
	2021.04.29		
General Manager	Date		

Compiled by:	Boiler Engineering Department	Adhir Debising	ESP & SO3 Engineer
For:	Department of Environmental Affairs and Tourism	Air Pollution Control Officer	
Copies:	Eskom Environmental Management	D Herbst	
		B. Mccourt	
	Group Technology Engineering	R Rampiar	
		E. Patel	
	Komati Power Station:	Bongani Mashimbye	Engineering Manager
		Marcus Nemadodzi	General Manager
		Goitsemang Nkomo	Boiler Engineering Manager
		Mokagdi Mvambo	Environmental Manager
		Falakhe Mdluli	Compliance Manager
		Jurie Pieterse	Production Manager