

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 Sep-2021
	Coal	Tons	460 000	26 077
	Fuel Oil	Tons	5 000	236
Production Rates	Product / By-Product Name	Units	Maximum Production Capacity Permitted	Production Rate Sep-2021
	Energy	GWh	684	50
	Ash	Tons	160 000	10
	RE PM	kg/MWh	0.29	0.20

2 ENERGY SOURCE CHARACTERISTICS

Coal Characteristic	Units	Stipulated Range	Monthly Average Content
CV Content	MJ/kg	16-24	22.958
Sulphur Content	%	<= 1.2	0.472
Ash Content	%	<= 33	21.374

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 Sep-2021	Technology Type	Utilisation Sep-2021
Unit 1	Electro Static Precipitators (ESP)	Unit Off-line	SO ₃ Plant Utilisation	Unit Off-line
Unit 2	Electro Static Precipitators (ESP)	Unit Off-line	SO ₃ Plant Utilisation	Unit Off-line
Unit 3	Electro Static Precipitators (ESP)	Unit Off-line	SO ₃ Plant Utilisation	Unit Off-line
Unit 4	Electro Static Precipitators (ESP)	Unit Off-line	SO ₃ Plant Utilisation	Unit Off-line
Unit 5	Electro Static Precipitators (ESP)	Unit Off-line	SO ₃ Plant Utilisation	Unit Off-line
Unit 6	Electro Static Precipitators (ESP)	Unit Off-line	SO ₃ Plant Utilisation	Unit Off-line
Unit 7	Electro Static Precipitators (ESP)	Unit Off-line	SO ₃ Plant Utilisation	Unit Off-line
Unit 8	Electro Static Precipitators (ESP)	Unit Off-line	SO ₃ Plant Utilisation	Unit Off-line
Unit 9	Electro Static Precipitators (ESP)	99.8%	SO ₃ Plant Utilisation	0.0

*Note: The ESP 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	100.0	98.3	97.3	90.8	90.5	100.0

6 EMISSION PERFORMANCE

Table 4: Monthly tonnages for the month of September-2021

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	10.2	405.8	463.6	82 964
SUM	10.2	405.8	463.6	82 964

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

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average PM (mg/Nm ³)
East	0	0	0	0	0	
West	22	0	0	0	0	31.3
SUM	22	0	0	0	0	

Table 6.3: Operating days in compliance to SO_x AEL Limit - September 2021

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average SO _x (mg/Nm ³)
East	0	0	0	0	0	
West	26	0	0	0	0	1 078.9
SUM	26	0	0	0	0	

Table 6.4: Operating days in compliance to NO_x AEL Limit - September 2021

Associated Unit/Stack	Normal	Grace	Section 30	Contra-vention	Total Exceedance	Average NO _x (mg/Nm ³)
East	0	0	0	0	0	
West	25	0	0	1	1	1 171.0
SUM	25	0	0	1	1	

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
Contra-vention		Emissions above ELV but outside grace or S30 incident conditions

Figure 1: Komati East Stack PM Emissions - September 2021

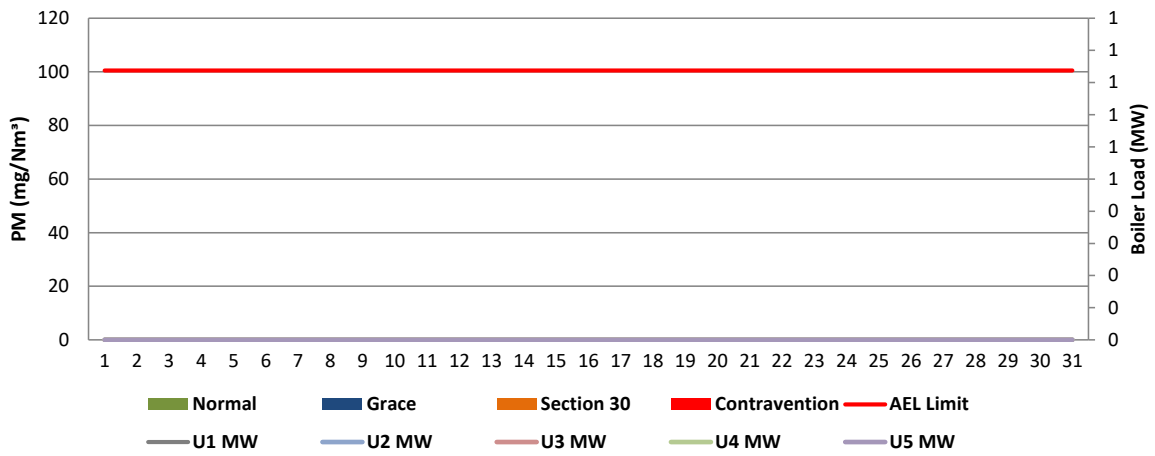


Figure 2: Komati West Stack PM Emissions - September 2021

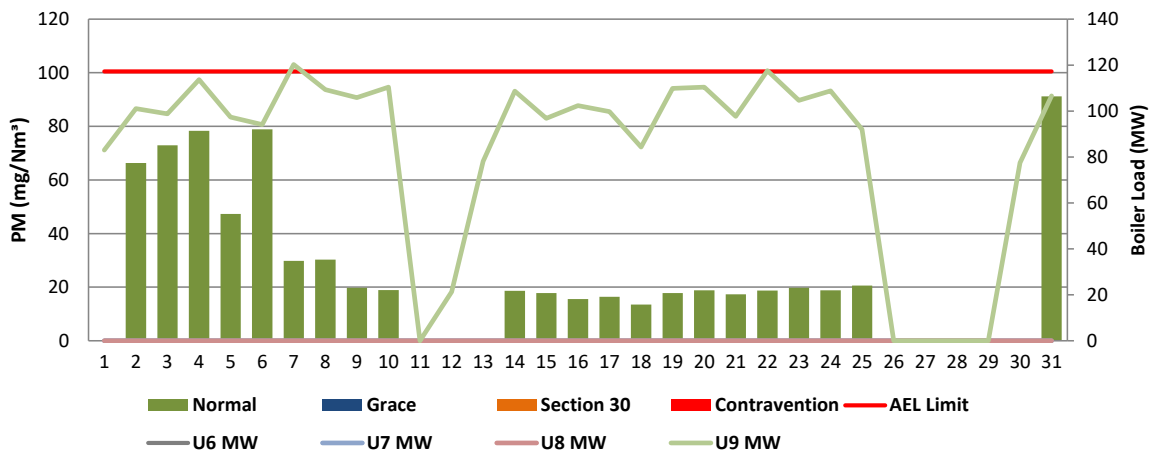


Figure 3: Komati East Stack SOx Emissions - September 2021

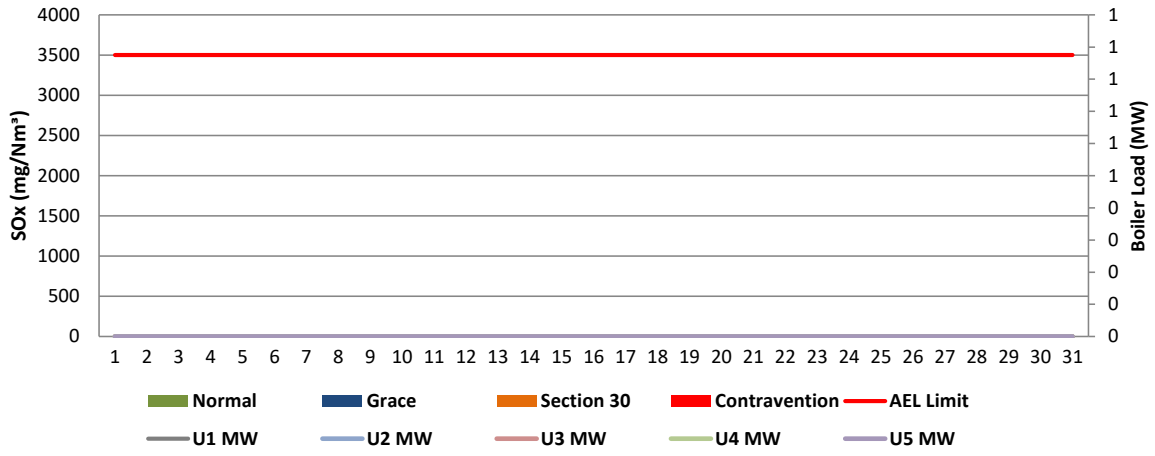


Figure 4: Komati West Stack SOx Emissions - September 2021

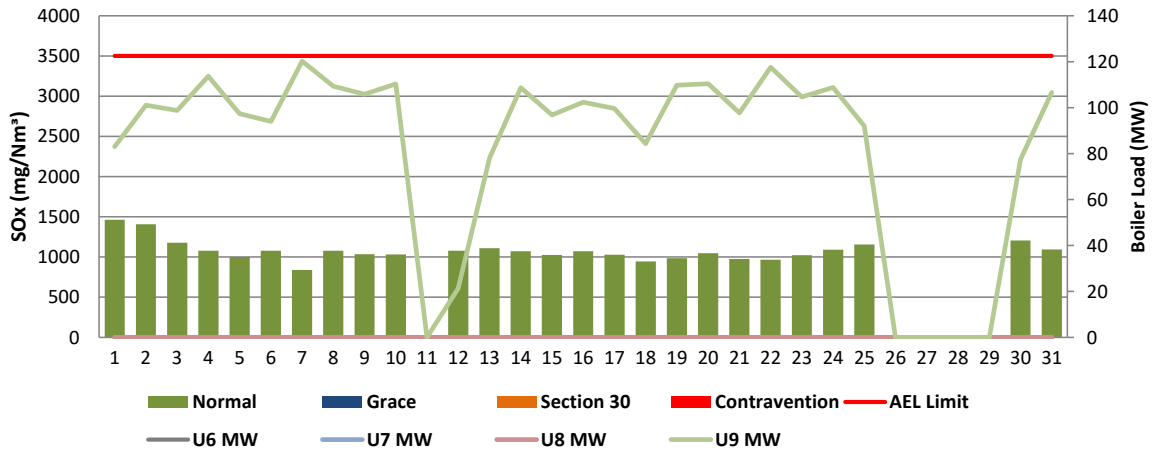


Figure 5: Komati East Stack NOx Emissions - September 2021

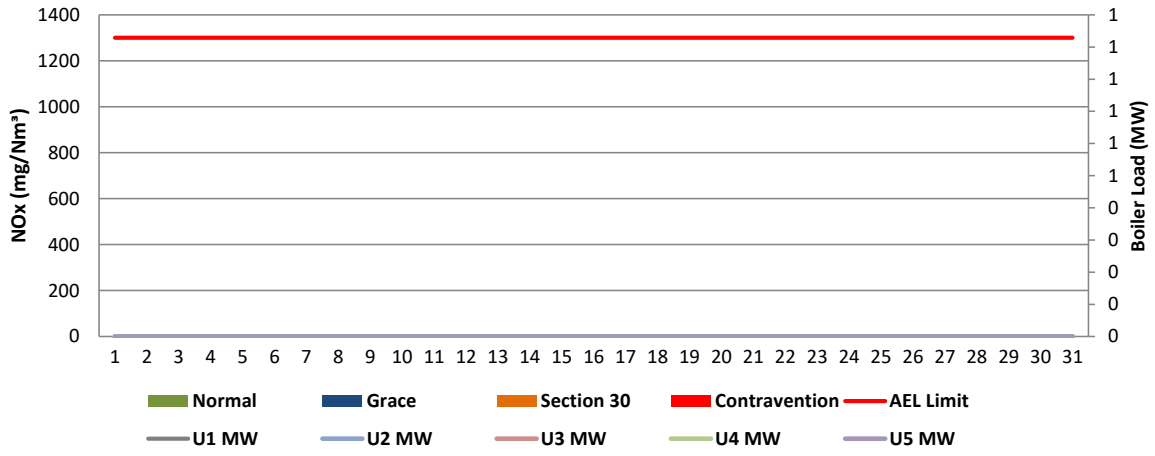
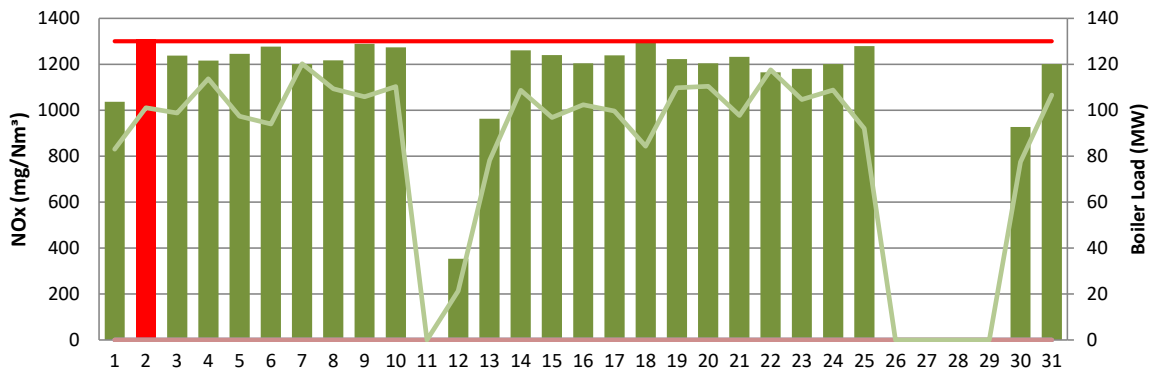


Figure 6: Komati West Stack NOx Emissions - September 2021



■ Normal ■ Grace ■ Section 30 ■ Contravention — AEL Limit
— U6 MW — U7 MW — U8 MW — U9 MW

Table 6.1. PM Start-up information for the month of September-2021

East Stack	<i>Event 1</i>		<i>Event 2</i>		<i>Event 3</i>		<i>Event 4</i>	
Unit No.	<i>no event</i>		<i>no event</i>		<i>no event</i>		<i>no event</i>	
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

East Stack ...continued	<i>Event 5</i>		<i>Event 6</i>		<i>Event 7</i>		<i>Event 8</i>	
Unit No.	<i>no event</i>		<i>no event</i>		<i>no event</i>		<i>no event</i>	
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	<i>Event 1</i>		<i>Event 2</i>		<i>Event 3</i>		<i>Event 4</i>	
Unit No.	<i>Unit 9</i>		<i>Unit 9</i>		<i>Unit 9</i>		<i>no event</i>	
Breaker Open (BO)	<i>10:25 PM</i>	<i>2021/09/10</i>	<i>11:15 PM</i>	<i>2021/09/25</i>	<i>10:40 PM</i>	<i>2021/09/28</i>		
Draught Group (DG) Shut Down (SD)	<i>6:25 AM</i>	<i>2021/09/12</i>	<i>6:55 AM</i>	<i>2021/09/26</i>	<i>11:10 PM</i>	<i>2021/09/28</i>		
BO to DG SD (duration)	<i>01:08:00</i>	DD:HH:MM	<i>00:07:40</i>	DD:HH:MM	<i>00:00:30</i>	DD:HH:MM		DD:HH:MM
Fires in time	<i>2:35 AM</i>	<i>2021/09/01</i>	<i>10:15 AM</i>	<i>2021/09/12</i>	<i>1:05 AM</i>	<i>2021/09/30</i>		
Synch. to Grid (or BC)	<i>4:00 PM</i>	<i>2021/09/01</i>	<i>10:20 AM</i>	<i>2021/09/13</i>	<i>2:00 PM</i>	<i>2021/09/30</i>		
Fires in to BC (duration)	<i>00:13:25</i>	DD:HH:MM	<i>01:00:05</i>	DD:HH:MM	<i>00:12:55</i>	DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	<i>12:00 AM</i>	<i>2021/09/02</i>	<i>6:00 AM</i>	<i>2021/09/14</i>	<i>4:00 AM</i>	<i>2021/10/01</i>		
Emissions below limit from BC (duration)	<i>00:08:00</i>	DD:HH:MM	<i>00:19:40</i>	DD:HH:MM	<i>00:14:00</i>	DD:HH:MM		DD:HH:MM

West Stack ...continued	<i>Event 5</i>		<i>Event 6</i>		<i>Event 7</i>		<i>Event 8</i>	
Unit No.	<i>no event</i>		<i>no event</i>		<i>no event</i>		<i>no event</i>	
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 September-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

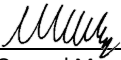
Reserved for Addendum XXXX

11 General

02/09/2021 - NOx exceedance on light-up. No abatement technology.

 2022/05/26
 Boiler Plant Engineering Date

 26/05/2022
 Environmental Manager Date

 27/05/2022
 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
 Goitsewang Nkomo Boiler Engineering Manager
 Mokgadi Mvambo Environmental Manager
 Falakhe Mdluli Performance and Test Manager
 Jurie Pieterse Production Manager