

HENDRINA POWER STATION MONTHLY EMISSIONS REPORT

Atmospheric Emission License 17/4/AEL/MP313/11/16



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1 RAW MATERIALS AND PRODUCTS

Raw Materials and Products	Raw Material Type	Units	Max. Permitted Consumption Rate	Consumption Rate Sep-2021
	Coal	Tons	820 000	292 350.0
	Fuel Oil	Tons	3 200	176.24
Production Rates	Product / By-Product Name	Units	Max. Production Capacity Permitted	Production Rate Sep-2021
	Energy	GWh	1440	476.70
	Ash	Tons	290 000	74 345
	RE PM	kg/MWh	not specified	0.204

2 ENERGY SOURCE CHARACTERISTICS

Coal Characteristics	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	0.6 to < 1	1.06
Ash Content	%	31 to < 35	25.43

3 EMISSION LIMITS (mg/Nm³)

Associated Unit/Stack	PM	SO _x	NO _x
North	75	3200	1200
South	75	3200	1200

4 ABATEMENT TECHNOLOGY (%)

Associated Unit/Stack	Technology Type	Efficiency Sep-2021
Unit 1	<i>Fabric Filter Plant (FFP)</i>	<i>Unit Off-line</i>
Unit 2	<i>Fabric Filter Plant (FFP)</i>	<i>Unit Off-line</i>
Unit 3	<i>Fabric Filter Plant (FFP)</i>	<i>Unit Off-line</i>
Unit 4	<i>Fabric Filter Plant (FFP)</i>	<i>99.991%</i>
Unit 5	<i>Fabric Filter Plant (FFP)</i>	<i>99.978%</i>
Unit 6	<i>Fabric Filter Plant (FFP)</i>	<i>99.982%</i>
Unit 7	<i>Fabric Filter Plant (FFP)</i>	<i>99.981%</i>
Unit 8	<i>Fabric Filter Plant (FFP)</i>	<i>Unit Off-line</i>
Unit 9	<i>Fabric Filter Plant (FFP)</i>	<i>Unit Off-line</i>
Unit 10	<i>Fabric Filter Plant (FFP)</i>	<i>100.000%</i>

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

5 MONITOR RELIABILITY (%)

Associated Unit/Stack	PM	SO ₂	NO	O ₂	CO ₂
North	<i>94.0</i>	<i>57.2</i>	<i>93.1</i>	<i>65.4</i>	<i>89.4</i>
South	<i>99.9</i>	<i>100.0</i>	<i>100.0</i>	<i>89.9</i>	<i>99.4</i>

6 EMISSION PERFORMANCE

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

Associated Unit/Stack	PM (tons)	SO _x (tons)	NO _x (tons)	CO ₂ (tons)
North	3.8	869.2	558.2	144 419.9
South	93.5	4 083.4	2 449.2	315 850.2
SUM	97.2	4 952.6	3 007.4	460 270.1

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm³)
North	28	0	0	0	0	5.9
South	30	0	0	0	0	35.2
SUM	58	0	0	0	0	

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SOx (mg/Nm³)
North	30	0	0	0	0	1 146.6
South	30	0	0	0	0	1 533.6
SUM	60	0	0	0	0	

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm³)
North	30	0	0	0	0	714.9
South	30	0	0	0	0	919.2
SUM	60	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: Hendrina North Stack PM Emissions - September 2021

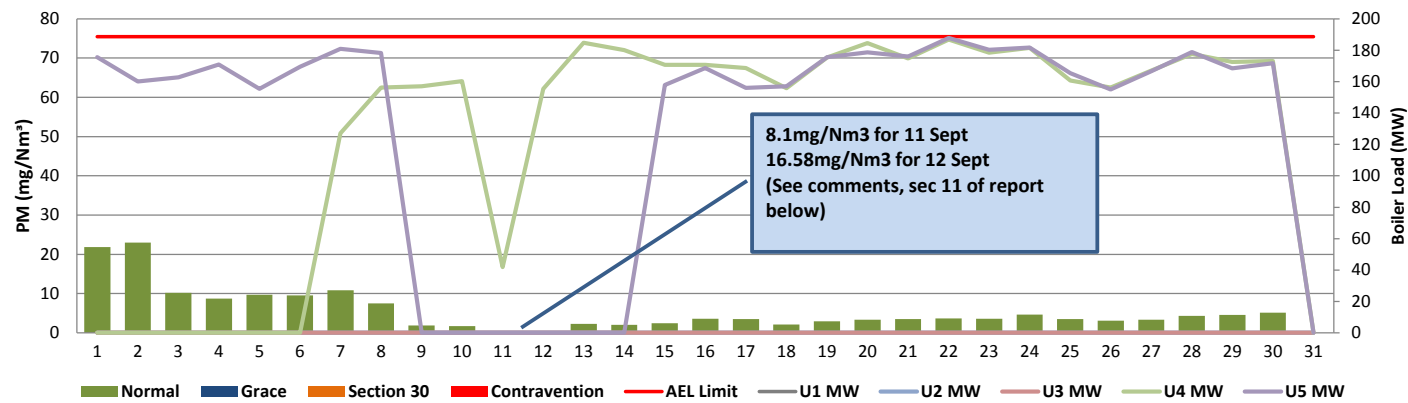


Figure 2: Hendrina South Stack PM Emissions - September 2021

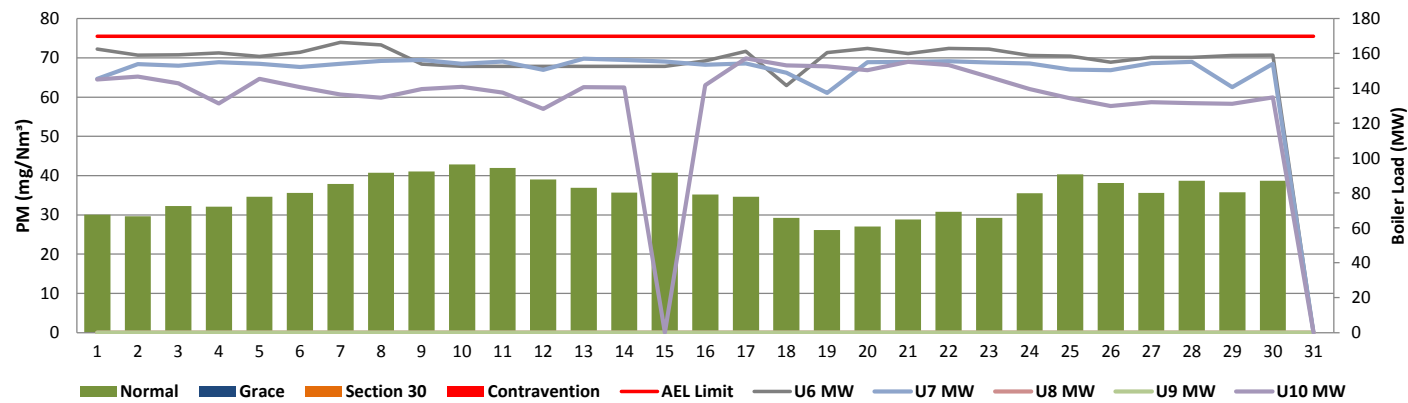


Figure 3: Hendrina North Stack SOx Emissions - September 2021

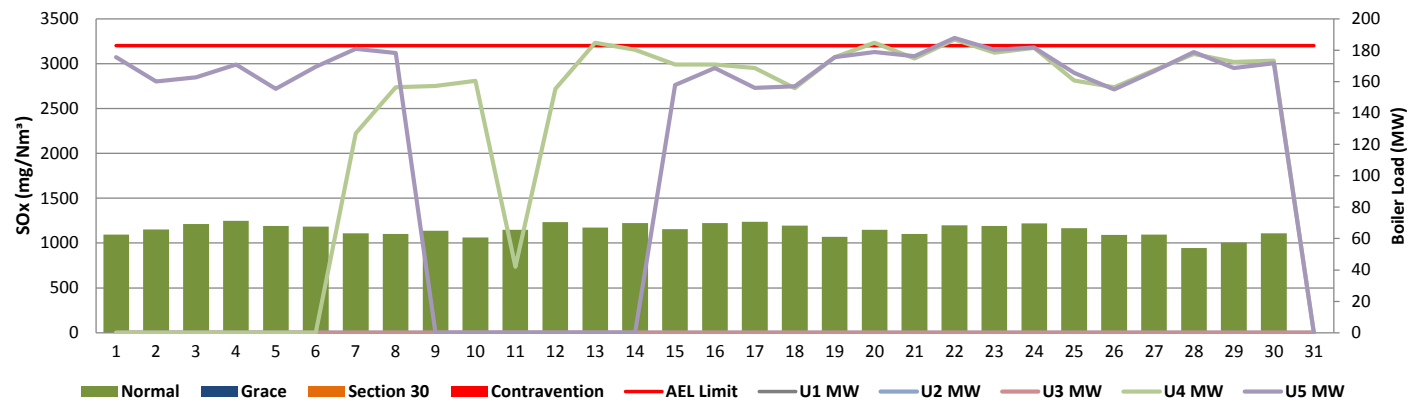


Figure 4: Hendrina South Stack SOx Emissions - September 2021

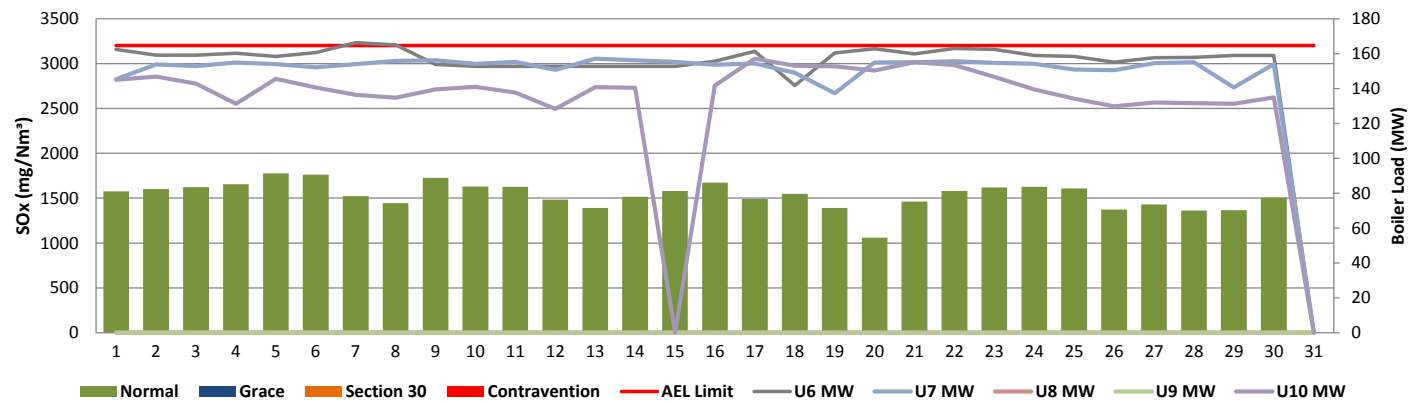


Figure 5: Hendrina North Stack NOx Emissions - September 2021

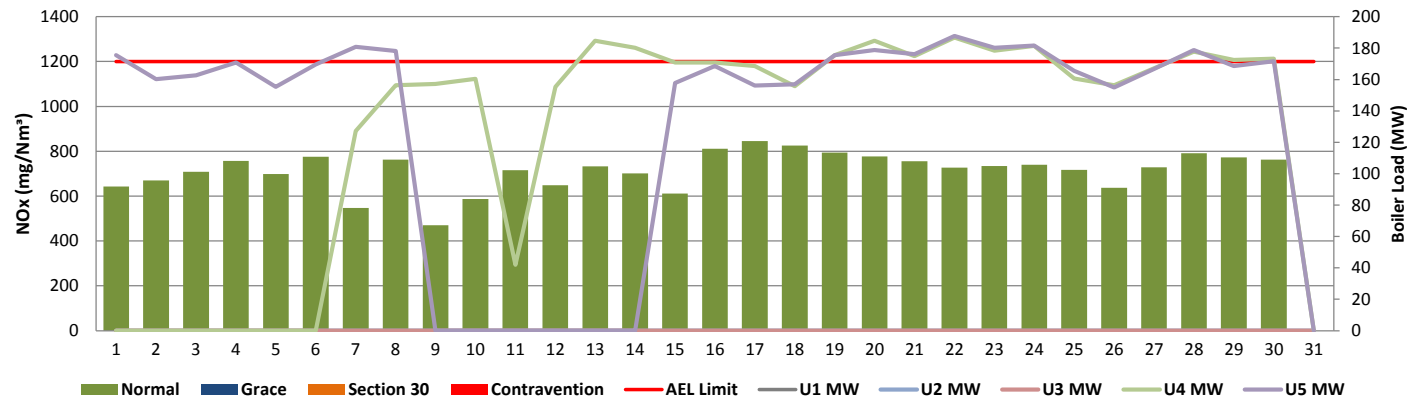
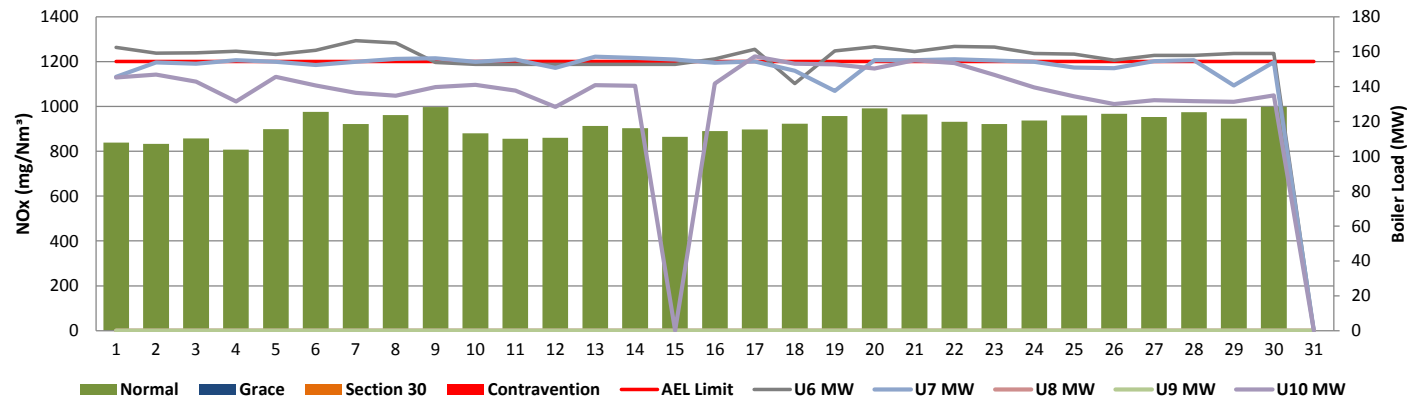


Figure 6: Hendrina South Stack NOx Emissions - September 2021



7 SHUT DOWN AND LIGHT UP INFORMATION

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

North Stack	<i>Event 1</i>		<i>Event 2</i>		<i>Event 3</i>		<i>Event 4</i>	
Unit No.	<i>Unit 5</i>		<i>no event</i>		<i>no event</i>		<i>no event</i>	
Breaker Open (BO)	<i>10:25 PM</i>	<i>2021/09/08</i>						
Draught Group (DG) Shut Down (SD)	<i>01:15 PM</i>	<i>2021/09/09</i>						
BO to DG SD (duration)	<i>00:14:50</i>	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time	<i>03:40 AM</i>	<i>2021/09/15</i>						
Synch. to Grid (or BC)	<i>01:40 PM</i>	<i>2021/09/15</i>						
Fires in to BC (duration)	<i>00:10:00</i>	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	<i>not > limit</i>	<i>not > limit</i>						
Emissions below limit from BC (duration)	<i>n/a</i>	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM

North Stack ...Continued	<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

South Stack	Event 1		Event 2		Event 3		Event 4	
Unit No.	Unit 10		no event		no event		no event	
Breaker Open (BO)	09:15 PM	2021/09/14						
Draught Group (DG) Shut Down (SD)	09:15 PM	2021/09/14						
BO to DG SD (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time	09:50 PM	2021/09/15						
Synch. to Grid (or BC)	03:50 AM	2021/09/16						
Fires in to BC (duration)	00:06:00	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 ...Continued	Event 1		Event 2		Event 3		Event 4	
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 September-2021 in mg/Nm³

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

8 EMERGENCY GENERATION

None

9 COMPLAINTS REGISTER*No complain received***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	Date S30 initial notification sent	Date S30 investigation report sent	Date DEA Acknowledg-ment	Date DEA Acceptabe	Comments / Reference No.
South Stack	23/09/2021	24/09/2021	Under investigation,Monitor failure due to units unavailability	Replacement with spare monitor	24/09/2021	24/09/2021	24/09/2021		Incident still under Investigation,Initial Sec30 Notification attached



11 General

Initial sec30 Report for the 23 of September is attached.

For 11 and 12 Sept, only Unit 4 was running for North Stack, and there was multiple hot start-ups for Unit 4, and emissions during unit hotstart-up are not reported as per the AEL sec 7.3.5 and as a result there was no emissions reported for 11 and 12 Septmber as that would be regarded as not-normal running days/over-reporting. The Station has inserted the actaul emissions manualy for 11 and 12 Spetember for the sake of clarity.

 28/10/2021
 Compiled: Environmental Officer Date
 B. Madiope
 2021/11/03
 Authorised by: GM (Acting) Date
 A Van Greuning

Compiled by: Boiler Engineering Department
 For: Nkangala District Municipality
 Copies: Eskom Environmental Management
 Group Technology Engineering
 Hendrina Power Station:

 03/11/2021
 Boiler/ FFP Date
 Marco Cossa
 J. Ramagoma: Environmental Manager
 03/11/2021
 Validated by Manager: Boiler or Environmental Date
 R. Nelwamondo J. Ramagoma

FFP SE/ Environmental Officer
 Air Qaulity Officer
 D Herbst
 B Mccourt
 R Rampiar
 E. Patel
 Engineering Manager
 Operating Manager
 Maintenance Manager
 Unit Production Manager
 Boiler Engineering Manager
 System Engineer: Boiler Engineering
 Environmental Officer
 C & I Engineering Manager
 Production Manager
 Environmental Manager
 PSM