

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 Feb-2022
	Coal	Tons	820 000	105 227.0
	Fuel Oil	Tons	3 200	1043.56
Production Rates	Product / By-Product Name	Units	Max. Production Capacity Permitted	Production Rate Feb-2022
	Energy	GWh	1344	232.86
	Ash	Tons	290 000	31 957
	RE PM	kg/MWh	not specified	0.216

2 ENERGY SOURCE CHARACTERISTICS

Coal Characteristics	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	0.6 to < 1	1.50
Ash Content	%	31 to < 35	30.37

3 EMISSION LIMITS (mg/Nm³)

Associated Unit/Stack	PM	SOx	NOx
North	75	3200	1200
South	75	3200	1200

4 ABATEMENT TECHNOLOGY (%)

Associated Unit/Stack	Technology Type	Efficiency Feb-2022
Unit 1	Fabric Filter Plant (FFP)	Unit Off-line
Unit 2	Fabric Filter Plant (FFP)	99.995%
Unit 3	Fabric Filter Plant (FFP)	Unit Off-line
Unit 4	Fabric Filter Plant (FFP)	100.000%
Unit 5	Fabric Filter Plant (FFP)	99.995%
Unit 6	Fabric Filter Plant (FFP)	99.998%
Unit 7	Fabric Filter Plant (FFP)	99.987%
Unit 8	Fabric Filter Plant (FFP)	Unit Off-line
Unit 9	Fabric Filter Plant (FFP)	Unit Off-line
Unit 10	Fabric Filter Plant (FFP)	Unit Off-line

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	99.9	97.7	92.3	97.2	96.4
South	100.0	100.0	100.0	100.0	83.9

Note: NO_x emissions is measured as NO in PPM. Final NO_x value is expressed as total NO₂

6 EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of February-2022

Associated Unit/Stack	PM (tons)	SO _x (tons)	NO _x (tons)	CO ₂ (tons)
North	0.6	508.5	195.9	0.0
South	49.6	1 856.6	946.3	0.0
SUM	50.2	2 365.1	1 142.1	0.0

Table 6.2: Operating days in compliance to PM AEL Limit - February 2022

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm ³)
North	12	0	0	0	0	2.7
South	27	1	0	0	1	47.8
SUM	39	1	0	0	1	

Comments: Normal days for PM determined according to section 7.3.5 of AEL (PM not reportable when units are off or during start-ups/shutdowns).

North Stack reported only 12 days because the units were offload for the other 16 days.

South Stack reported normal for only 27 days because on the 11th day PM emission was exceeded/grace period accounted, as seen below in figure 2.

Table 6.3: Operating days in compliance to SOx AEL Limit - February 2022

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SOx (mg/Nm ³)
North	16	0	0	0	0	1 903.9
South	28	0	0	0	0	1 651.8
SUM	44	0	0	0	0	

Comments: Normal days determined by when gaseous continued to be detected by monitor.

North Stack, gaseous emissions were not detected for a period of 12 days.

South Stack detected gaseous emissions throughout the month

Table 6.4: Operating days in compliance to NOx AEL Limit - February 2022

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm ³)
North	16	0	0	0	0	710.4
South	28	0	0	0	0	840.5
SUM	44	0	0	0	0	

Comments: Normal days determined by when gaseous continued to be detected by monitor.

North Stack, gaseous emissions were not detected for a period of 12 days.

South Stack detected gaseous emissions throughout the month.

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 - February 2022

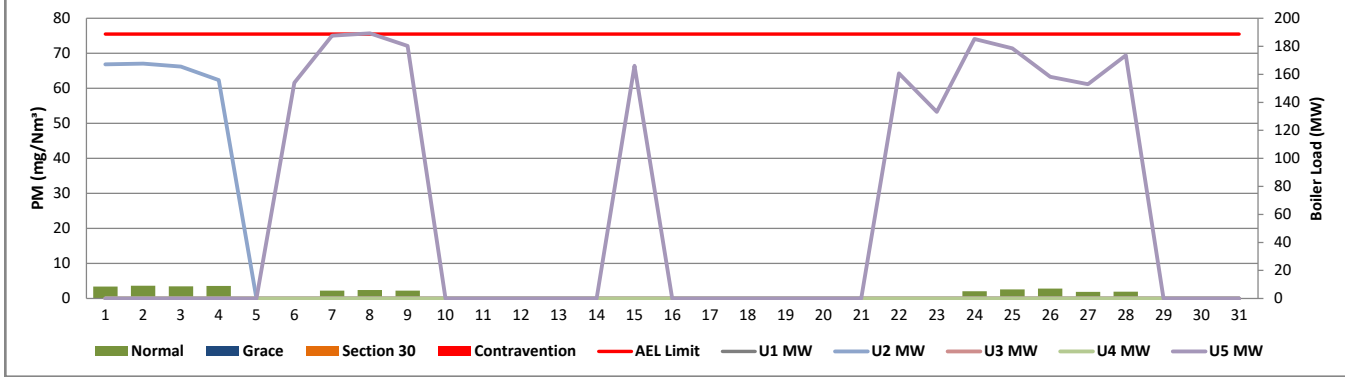


Figure 2: Hendrina South Stack PM Emissions - February 2022

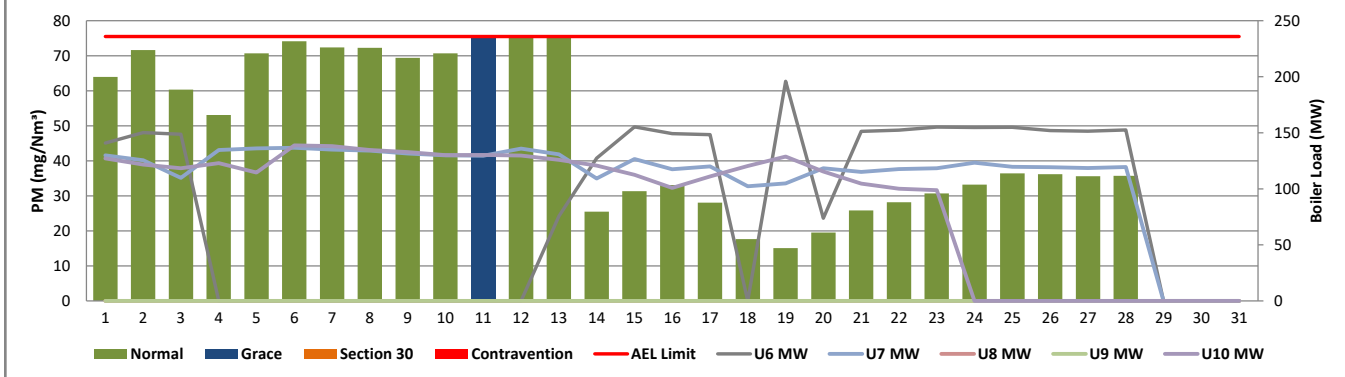


Figure 3: Hendrina North Stack SOx Emissions - February 2022

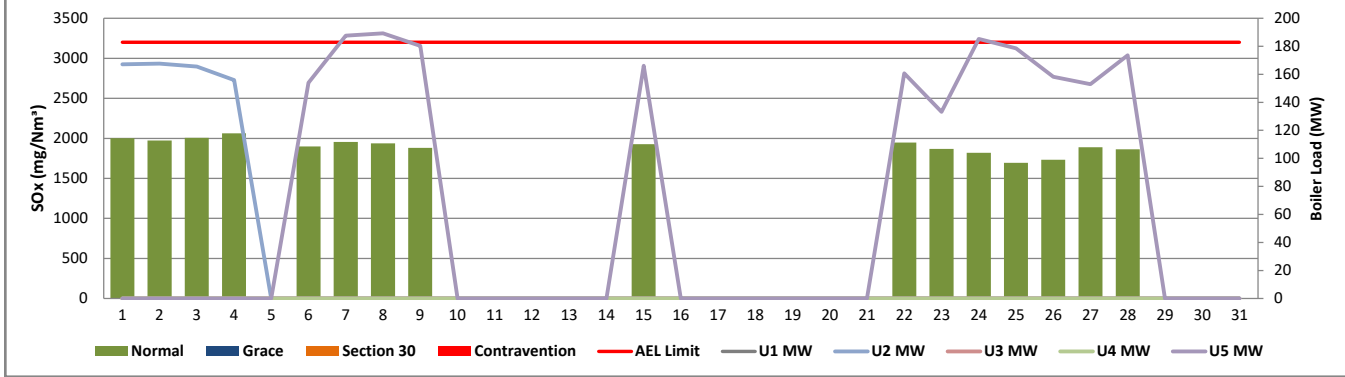


Figure 4: Hendrina South Stack SOx Emissions - February 2022

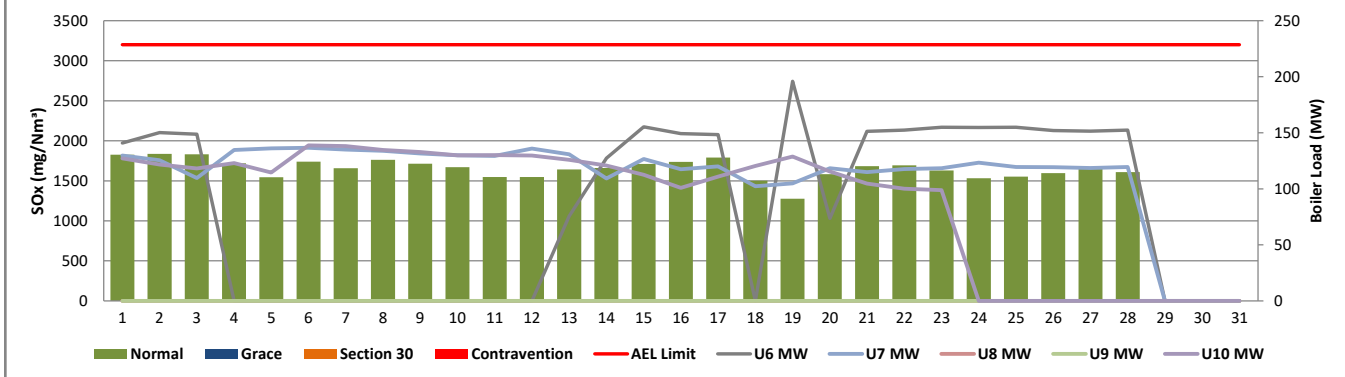


Figure 5: Hendrina North Stack NOx Emissions - February 2022

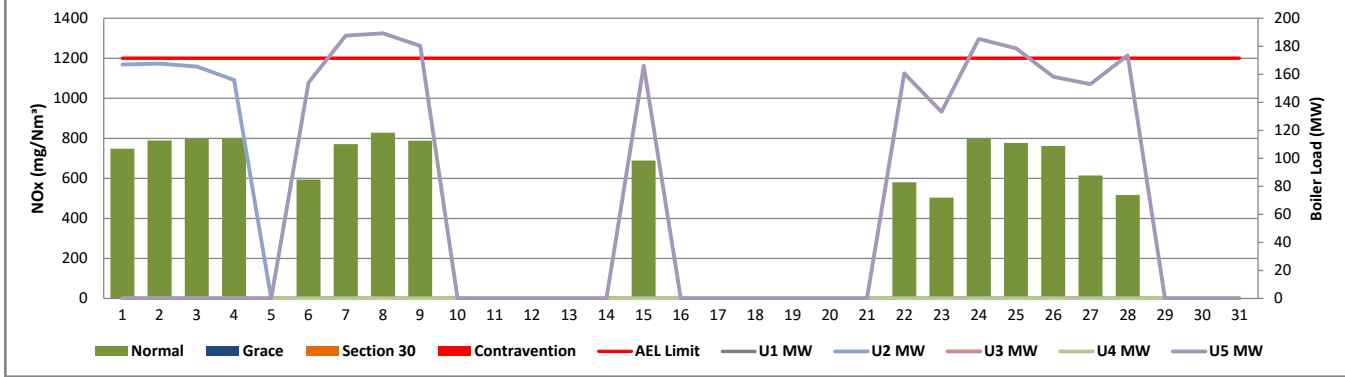
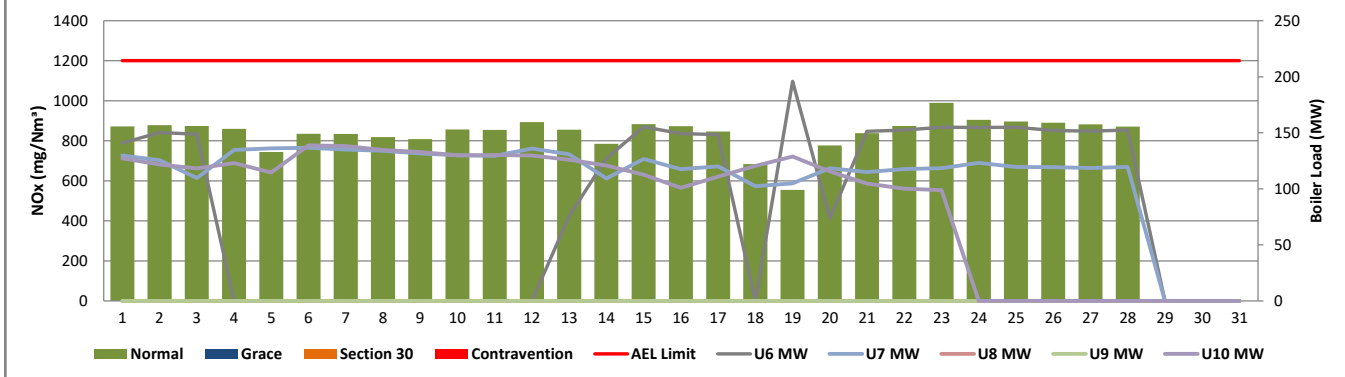


Figure 6: Hendrina South Stack NOx Emissions - February 2022



7 SHUT DOWN AND LIGHT UP INFORMATION

Table 7.1 PM Start-up information for the month of February-2022

North Stack	Event 1		Event 2		Event 3		Event 4	
Unit No.	Unit 2		Unit 5		Unit 5		no event	
Breaker Open (BO)	12:55 pm	2022/02/04	2:15 pm	2022/01/31	11:05 am	2022/02/09		
Draught Group (DG) Shut Down (SD)	1:25 am	2022/02/05	2:15 am	2022/02/01	10:35 pm	2022/02/09		
BO to DG SD (duration)	00:12:30	DD:HH:MM	00:12:00	DD:HH:MM	00:11:30	DD:HH:MM		DD:HH:MM
Fires in time			2022/02/06	2022/02/06	23:07:50	2022/02/23		
Synch. to Grid (or BC)			1:40 pm	2022/02/06	7:50 pm	2022/02/23		
Fires in to BC (duration)		DD:HH:MM	00:12:00	DD:HH:MM	00:12:00	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)		DD:HH:MM	n/a	DD:HH:MM	n/a	DD:HH:MM		DD:HH:MM

South Stack	Event 1		Event 2		Event 3		Event 4	
Unit No.	Unit 6		Unit 6		Unit 10		Unit 10	
Breaker Open (BO)	9:45 pm	2022/02/03	1:45 pm	2022/02/17	8:15 am	2022/02/05	10:55 am	2022/02/15
Draught Group (DG) Shut Down (SD)	7:15 am	2022/02/05	2:55 pm	2022/02/17	8:45 am	2022/02/05	10:55 am	2022/02/15
BO to DG SD (duration)	01:09:30	DD:HH:MM	00:01:10	DD:HH:MM	00:00:30	DD:HH:MM		DD:HH:MM
Fires in time	10:40 am	2022/02/14	2022/02/20	2022/02/20	05:12:30	2022/02/05	2022/02/16	2022/02/16
Synch. to Grid (or BC)	3:40 pm	2022/02/14	6:10 pm	2022/02/20	5:30 pm	2022/02/05	1:10 am	2022/02/16
Fires in to BC (duration)	00:05:00	DD:HH:MM	00:06:00	DD:HH:MM	00:05:00	DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	not > limit	not > limit	not > limit	not > limit	not > limit	not > limit	not > limit	not > limit
Emissions below limit from BC (duration)	n/a	DD:HH:MM	n/a	DD:HH:MM	n/a	DD:HH:MM	n/a	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)	9:35 pm	2022/02/23						
Draught Group (DG) Shut Down (SD)	10:45 pm	2022/02/23						
BO to DG SD (duration)	00:01:10	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 February-2022 in mg/Nm³

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8 EMERGENCY GENERATION

None

9 COMPLAINTS REGISTER


No complaints received

10 S30 INCIDENT OR LEGAL CONTRAVENTION REGISTER

The Station reported section 30 for the period 11, 12, and 13. see attached Sec 30 report.

11 General

The North Stack units (which comprises Boiler Unit 1 - 5) has experienced total shut down for some days of the month as seen in above graphs. South Stack exceeded PM emission levels on the 11th of February at a grace period as seen above graph figure 2, and the Station reported the subsequent days as section 30.

 11/03/2022

Compiled: Environmental Officer Date
B. Madiope

 15/03/2022

Authorised by: GM Date
A Van Greuning

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

 11/03/2022

Boiler/ FFP Date
Marco Cossa

Validated by Manager: Boiler or Environmental Date
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Maintenance Manager
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Boiler Engineering Manager
System Engineer: Boiler Engineering
Environmental Officer
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Production Manager
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