

HENDRINA POWER STATION MONTHLY EMISSIONS REPORT

Atmospheric Emission License 17/4/AEL/MP312/11/16



1 RAW MATERIALS AND PRODUCTS

Raw Materials and Products	Raw Material Type	Units	Max. Permitted Consumption Rate	Consumption Rate Oct-2024
	Coal	Tons	820 000	248 177.0
	Fuel Oil	Tons	3 200	1142.8
Production Rates	Product / By-Product Name	Units	Max. Production Capacity Permitted	Production Rate Oct-2024
	Energy	GWh	1488	358.74
	Ash	Tons	290 000	52 325
	RE PM	kg/MWh	not specified	0.146

2 ENERGY SOURCE CHARACTERISTICS

Coal Characteristics	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	0.6 to < 1	0.58
Ash Content	%	20 to < 35	22.81

3 EMISSION LIMITS (mg/Nm³)

Associated Unit/Stack	PM	SO ₂	NO _x
North	50	3200	1100
South	50	3200	1100

4 ABATEMENT TECHNOLOGY (%)

Associated Unit/Stack	Technology Type	Efficiency Oct-2024
Unit 1	Fabric Filter Plant (FFP)	Unit Off-line
Unit 2	Fabric Filter Plant (FFP)	100%
Unit 3	Fabric Filter Plant (FFP)	Unit Off-line
Unit 4	Fabric Filter Plant (FFP)	Unit Off-line
Unit 5	Fabric Filter Plant (FFP)	100%
Unit 6	Fabric Filter Plant (FFP)	100%
Unit 7	Fabric Filter Plant (FFP)	100%
Unit 8	Fabric Filter Plant (FFP)	Unit Off-line
Unit 9	Fabric Filter Plant (FFP)	Unit Off-line
Unit 10	Fabric Filter Plant (FFP)	100%

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

5 MONITOR RELIABILITY (%)

-North Stack SO₂, and NO not available due to monitor defects.

Associated Unit/Stack	PM	SO ₂	NO	O ₂	CO ₂
North	92.4				
South	100	100	100	99.3	100

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 October-2024

Associated Unit/Stack	PM (tons)	SO _x (tons)	NO _x (tons)
North	5.5		
South	46.8	2 361.9	1 063.4
SUM	52.3	2 361.9	1 063.4

-North Stack SO₂, and NO not available due to monitor defects. Mitigation measures outlined at section 9 of this report: General

Table 6.2: Operating days in compliance to PM AEL Limit - October 2024

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm ³)
North	29	0	0	0	0	6.6
South	27	1	3	0	4	40.9
SUM	56	1	3	0	4	

-North Stack SO₂, and NO₂ not available due to monitor defects. Mitigation measures outlined at section 9 of this report: General

Table 6.3: Operating days in compliance to SO₂ AEL Limit - October 2024

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SO ₂ (mg/Nm ³)
North						
South	31	0	0	0	0	1 947.8
SUM	31	0	0	0	0	

-North Stack SO₂, and NO not available due to monitor defects. Mitigation measures outlined at section 9 of this report: General

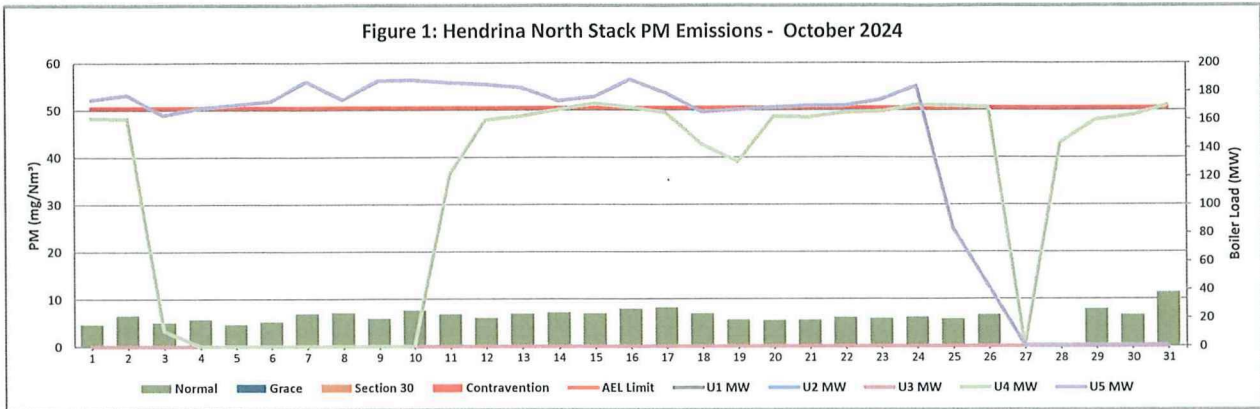
Table 6.4: Operating days in compliance to NO_x AEL Limit - October 2024

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NO _x (mg/Nm ³)
North						
South	31	0	0	0	0	874.7
SUM	31	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 - October 2024



Upset condition on the south ash plant. Section 30 incident reported on 23/10/2024

Figure 2: Hendrina South Stack PM Emissions - October 2024

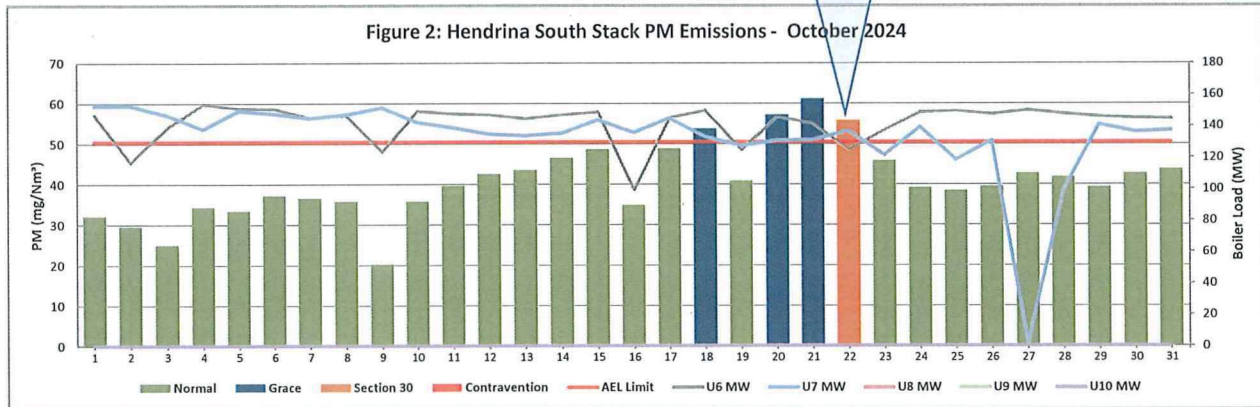


Figure 4: Hendrina South Stack SO₂ Emissions - October 2024

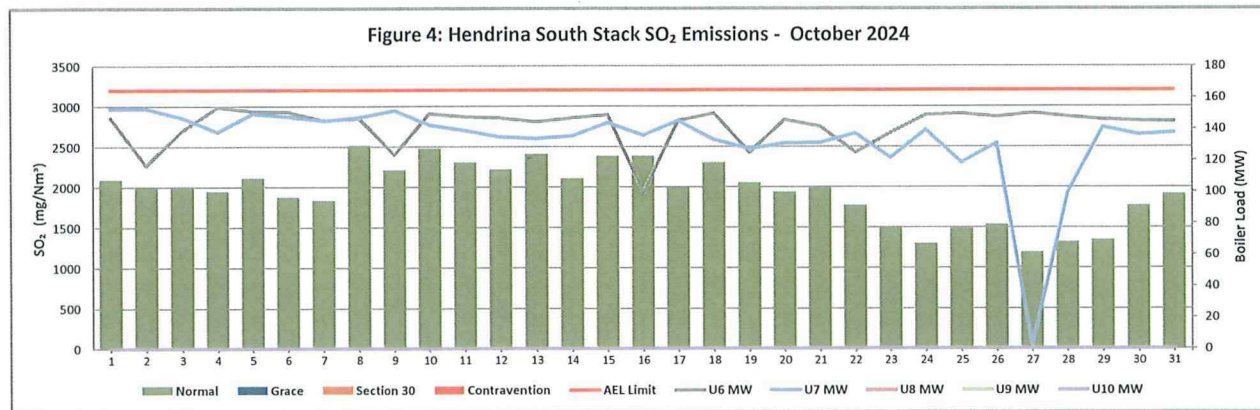
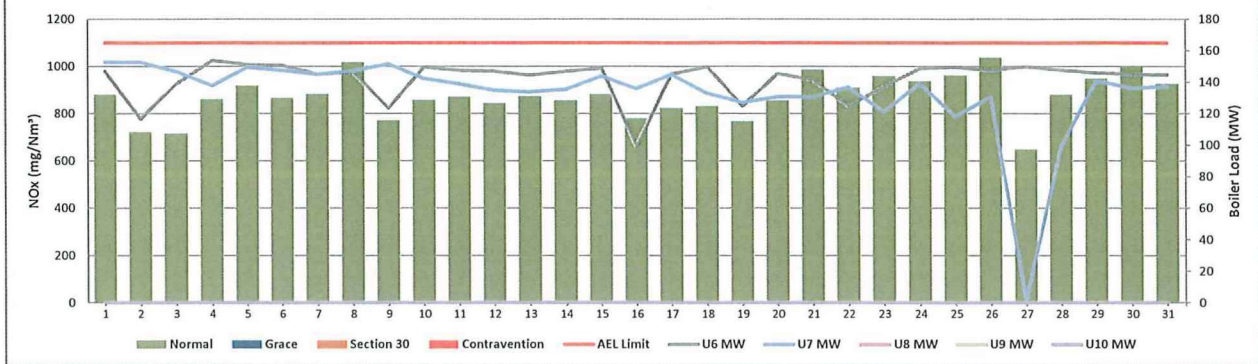


Figure 6: Hendrina South Stack NOx Emissions - October 2024



Gaseous Emission Trends (NOx and SOx) for the North Stack have been removed due to suspected erroneous data from the Continuous Emission Monitoring System (CEMS).

Spot Check measurements have been performed internally and they confirm the error.

The Station has conducted correlation and parallel tests for both stacks via services of a SANAS Accredited service provider and the final report is in review phase. The station shall implement the correlation factors once the review phase of the report is complete and identified comments addressed. The report will be shared with the Licencing Authority.

7 SHUT DOWN AND LIGHT UP INFORMATION

Table 7.1 PM Start-up information for the month of October-2024

North Stack	Event 1		Event 2		Event 3		Event 4	
Unit No.	Unit 4		Unit 4		Unit 4		Unit 4	
Breaker Open (BO)	BO previously	BO previously	1:15 am	2024/10/03	2:45 pm	2024/10/12	10:55 pm	2024/10/19
Draught Group (DG) Shut Down (SD)	n/a	n/a	2:40 pm	2024/10/04	3:05 pm	2024/10/12	DG did not trip or SD	DG did not trip or SD
BO to DG SD (duration)	n/a	DD:HH:MM	01:13:25	DD:HH:MM	00:00:20	DD:HH:MM	n/a	DD:HH:MM
Fires in time			2024/10/11	2024/10/11	12:15:25	2024/10/12		
Synch. to Grid (or BC)			1:30 pm	2024/10/11	1:40 am	2024/10/13		
Fires in to BC (duration)		DD:HH:MM	00:09:45	DD:HH:MM	00:10:15	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

North Stack ...Continued	Event 5		Event 2		Event 3		Event 4	
Unit No.	Unit 4		Unit 5		no event		no event	
Breaker Open (BO)	5:35 am	2024/10/26	11:35 am	2024/10/25				
Draught Group (DG) Shut Down (SD)	5:30 pm	2024/10/26	11:35 pm	2024/10/26				
BO to DG SD (duration)	00:11:55	DD:HH:MM	01:12:00	DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time	9:15 pm	2024/10/27						
Synch. to Grid (or BC)	9:50 am	2024/10/28						
Fires in to BC (duration)	00:12:35	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

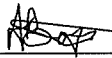
South Stack	Event 1		Event 2		Event 3		Event 4	
Unit No	Unit 6		Unit 6		Unit 6		Unit 7	
Breaker Open (BO)	BO previously	BO previously	2 45 pm	2024/10/02	12 05 am	2024/10/09	11 25 pm	2024/10/26
Draught Group (DG) Shut Down (SD)	n/a	n/a	4 15 pm	2024/10/02	12 05 am	2024/10/09	11 25 pm	2024/10/26
BO to DG SD (duration)	n/a	DD HH MM	00 01 30	DD HH MM		DD HH MM		DD HH MM
Fires in time			2024/10/03	2024/10/03	09 02 15	2024/10/09	2024/10/27	2024/10/27
Synch to Grid (or BC)			11 40 am	2024/10/03	3 10 pm	2024/10/09	1 30 am	2024/10/28
Fires in to BC (duration)		DD HH MM	00 05 35	DD HH MM	00 12 55	DD HH MM	01 01 05	DD HH MM
Emissions below limit from BC (end date)			not > limit	not > limit	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	n/a	DD HH MM

8 Complaints register

Source Code / Name	Root Cause Analysis	Calculation of Impacts / emissions associated with the incident	Dispersion modeling of pollutants where applicable	Date measure will be implemented	Measures implemented to prevent reoccurrence
The Station did not receive complaints related to air quality during the month of October 2024					

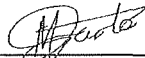
09 General

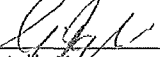
The station has taken to execute short term and long term mitigations to ensure reliability of the CEMS. The short term action include implementation of the parallel curves. For the long term, the station will engage the Licencing Authority regarding replacement of the CEMS as required by Paragraph b) of General Condition 4.1 of the AEL.

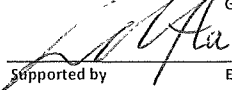

 Compiled Environmental Officer
 A. Boja
 28 November 2024
 Date


 Authorised by GM
 T. Lekalakala
 2024/12/03
 Date

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


 Checked by System Engineer Boiler/ FFP
 Moyahabo Cellyff Maoto
 02/12/2024
 Date


 Validated by Manager
 Boiler Engineering Manager
 G. Kgwathe
 2024/12/02
 Date


 Supported by
 Environmental Manager
 L. Ntla
 2024/12/02
 Date

FFP SE/ Environmental Officer

Air Quality 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