NOVEMBER 2024

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 Nov-2024
	Coal	Tons	*820 000*	*258 120.0*
	Fuel Oil	Tons	*3 200*	*1155.93*
Production Rates	**Product / By-Product Name**	**Units**	**Max. Production Capacity Permitted**	**Production Rate Nov-2024**
	Energy	GWh	*1440*	*368.65*
	Ash	Tons	*290 000*	*44 957*
	RE PM	kg/MWh	*not specified*	*0.122*

2 ENERGY SOURCE CHARACTERISTICS

Coal Characteristics	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	*0.6 to < 1*	*0.61*
Ash Content	%	*20 to < 35*	*22.05*

3 EMISSION LIMITS (mg/Nm³)

Associated Unit/Stack	PM	SO_2	NOx
North	*50*	*3200*	*1100*
South	*50*	*3200*	*1100*

4 ABATEMENT TECHNOLOGY (%)

Associated Unit/Stack	Technology Type	Efficiency Nov-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	CO2
North	*100*				
South	*100*	*100*	*100*	*100*	100

Note: NOx emissions is measured as NO in PPM. Final NOx value is expressed as total NO_2

6 EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of November-2024

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

Associated Unit/Stack	PM (tons)	SOx (tons)	NOx (tons)
North	17.8		
South	27.1	1 365.1	707.4
SUM	45.0	1 365.1	707.4

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm³)
North	30	0	0	0	0	13.1
South	23	2	0	0	2	35.2
SUM	**53**	**2**	**0**	**0**	**2**	

-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 SO_2 AEL Limit - November 2024

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SO_2 (mg/Nm³)
North						
South	27	0	0	0	0	1 593.0
SUM	**27**	**0**	**0**	**0**	**0**	

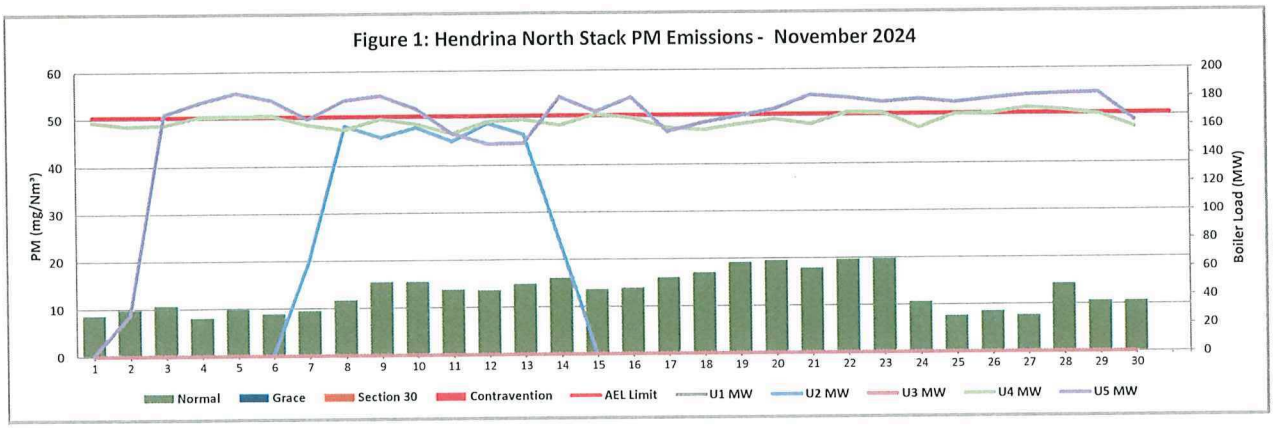
-North Stack SO2, and NO not available due to monitor defects. Mitigation measures outlined at section 9 of this report: General

Table 6.4: Operating days in compliance to NOx AEL Limit - November 2024

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm³)
North						
South	27	0	0	0	0	800.6
SUM	**27**	**0**	**0**	**0**	**0**	

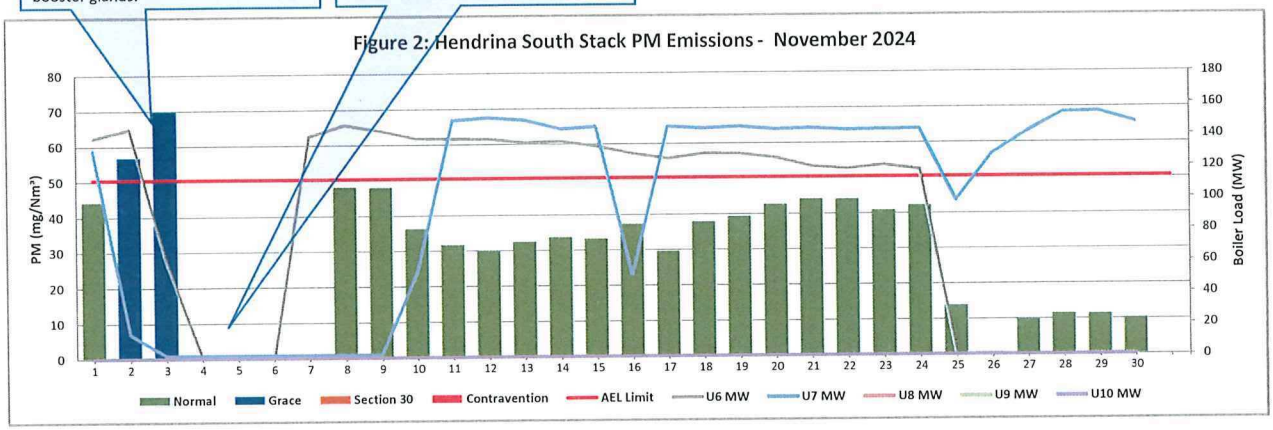
Table 6.5: Legend Description

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



-Upset conditions on the South Ash Plant due to unplanned failure of D booster glands.

-Data not available since there were no units on load between 4 and 7 November on the North Stack



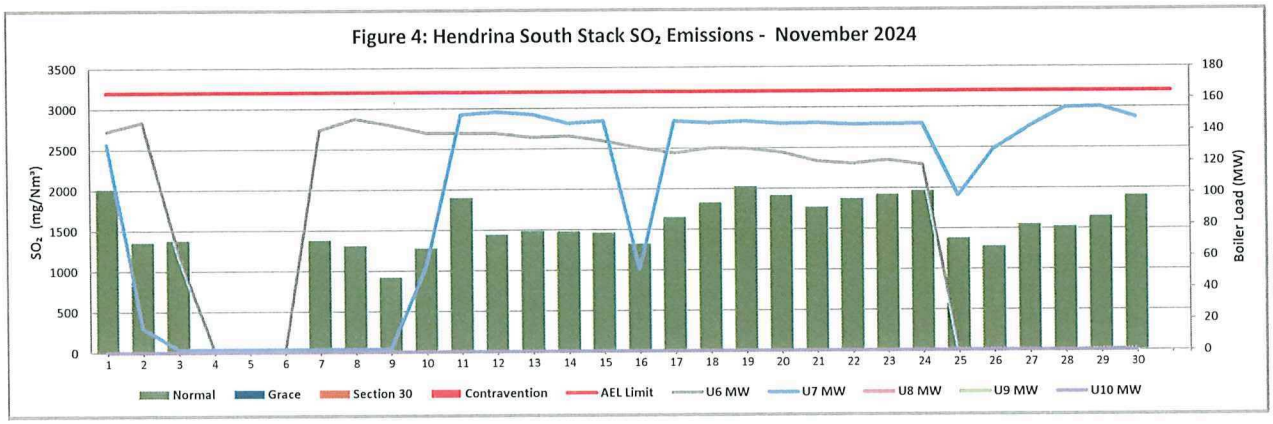
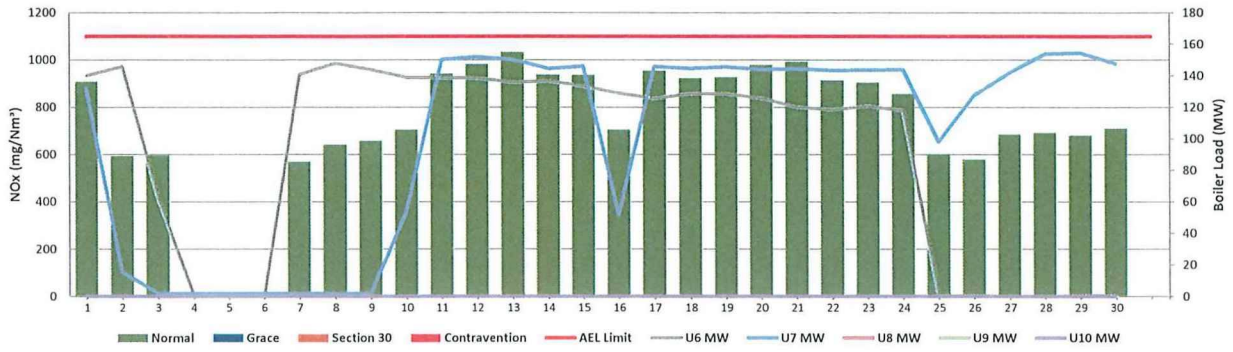


Figure 4: Hendrina South Stack SO₂ Emissions - November 2024
SO₂ (mg/Nm³)
Boiler Load (MW)
3500
3000
2500
2000
1500
1000
500
0
180
160
140
120
100
80
60
40
20
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Normal
Grace
Section 30
Contravention
AEL Limit
U6 MW
U7 MW
U8 MW
U9 MW
U10 MW

Figure 6: Hendrina South Stack NOx Emissions - November 2024



Gaseous Emission Trends (NOx and SOx) for the North Stack have been removed due to erronous data from the Continuous Emission Monitoring System (CEMS) . Spot Check measurements have been performed internally and they confirm the error. The parrallel tests reports review has been completed, however it was discovered that during the testing period the monitors were faulty and therefore the tests for the North Stack must be conducted again.
The Station has conducted correlation tests for both stacks via services of a SANAS Accredited service provider and the reports are still 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 November-2024

North Stack	Event 1		Event 2		Event 3		Event 4	
Unit No.	Unit 2		Unit 2		Unit 5		Unit 5	
Breaker Open (BO)	*BO previously*	*BO previously*	*11:55 am*	*2024/11/14*	*BO previously*	*BO previously*	*8:55 pm*	*2024/11/12*
Draught Group (DG) Shut Down (SD)	*n/a*	*n/a*	*3:25 pm*	*2024/11/16*	*n/a*	*n/a*	*9:15 pm*	*2024/11/12*
BO to DG SD (duration)	*n/a*	DD:HH:MM	*02:03:30*	DD:HH:MM	*n/a*	DD:HH:MM	*00:00:20*	DD:HH:MM
Fires in time	*10:35 pm*	*2024/11/05*			*02:07:35*	*2024/11/02*	*2024/11/12*	*2024/11/12*
Synch. to Grid (or BC)	*3:20 pm*	*2024/11/07*			*6:00 pm*	*2024/11/02*	*3:10 am*	*2024/11/13*
Fires in to BC (duration)	*01:16:45*	DD:HH:MM		DD:HH:MM	*00:10:25*	DD:HH:MM	*00:04:55*	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)	*n/a*	DD:HH:MM		DD:HH:MM	*n/a*	DD:HH:MM	*n/a*	DD:HH:MM

South Stack	Event 1		Event 2		Event 3		Event 4	
Unit No	Unit 6		Unit 6		Unit 7		Unit 7	
Breaker Open (BO)	10 35 am	2024/11/03	11 15 pm	2024/11/24	1 35 am	2024/11/02	12 45 am	2024/11/16
Draught Group (DG) Shut Down (SD)	1 55 am	2024/11/04	12 35 pm	2024/11/25	1 35 pm	2024/11/02	2 55 am	2024/11/16
BO to DG SD (duration)	00 15 20	DD HH MM	00 13 20	DD HH MM	00 12 00	DD HH MM	00 02 10	DD HH MM
Fires in time	10 15 pm	2024/11/06			09 23 45	2024/11/09	2024/11/16	2024/11/16
Synch to Grid (or BC)	8 00 am	2024/11/07			5 20 pm	2024/11/10	5 40 pm	2024/11/16
Fires in to BC (duration)	00 09 45	DD HH MM		DD HH MM	00 17 35	DD HH MM	00 06 45	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)	n/a	DD HH MM		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	Unit 7		no event		no event		no event	
Breaker Open (BO)	11 45 am	2024/11/25						
Draught Group (DG) Shut Down (SD)	5 05 pm	2024/11/25						
BO to DG SD (duration)	00 05 20	DD HH MM		DD HH MM		DD HH MM		DD HH MM
Fires in time	10 35 pm	2024/11/25						
Synch to Grid (or BC)	4 40 am	2024/11/26						
Fires in to BC (duration)	00 06 05	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

8 Complaints register

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

20 12 2024

Compiled Environmental Officer — Date
A Boja

23/12/2024

Verified by System Engineer Boiler/ FFP — Date
Moyahabo Cetlyff Maoto

p p

Validated by Manager — Boiler Engineering Manager — 23/12/2024 Date
G Kgwatlhe

24/12/2024

Authorised by GM — Date
T Lekalakala

23/12/2024

Supported by — Environmental Manager — Date
L Ntila

Compiled by	Environmental Department/ Boiler Engineering Department	FFP SE/ Environmental Officer
For	Nkangala District Municipality	Air Quality Officer
Copies	Eskom Environmental Management	D Herbst B Mccourt
	Group Technology Engineering	R Rampiar E Patel
	Hendrina Power Station	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 PSGM