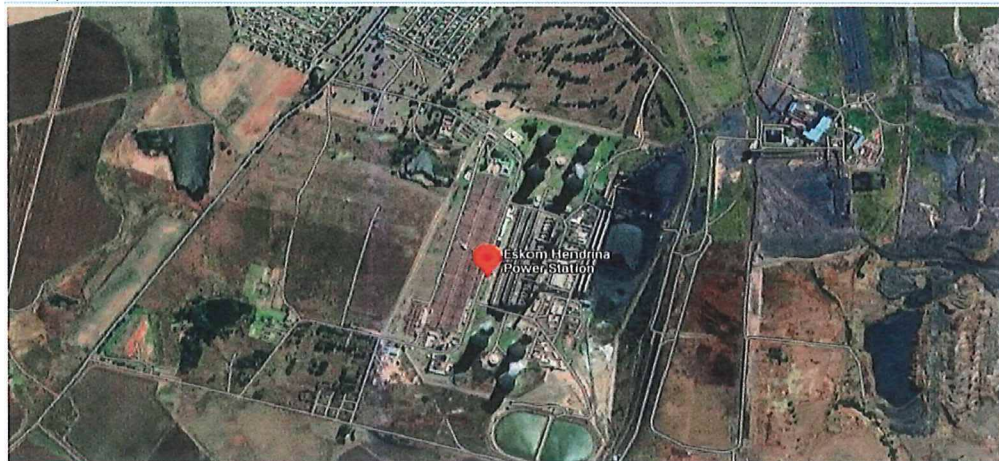


## HENDRINA POWER STATION MONTHLY EMISSIONS REPORT

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 Sep-2024
	Coal	Tons	820 000	170 724.0
	Fuel Oil	Tons	3 200	1404.76
Production Rates	Product / By-Product Name	Units	Max. Production Capacity Permitted	Production Rate Sep-2024
	Energy	GWh	1440	214.87
	Ash	Tons	290 000	24 994
	RE PM	kg/MWh	not specified	0.116

## 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	22.98

## 3 EMISSION LIMITS (mg/Nm³)

Associated Unit/Stack	PM	SO <sub>2</sub>	NO <sub>x</sub>
North	50	3200	1100
South	50	3200	1100

## 4 ABATEMENT TECHNOLOGY (%)

Associated Unit/Stack	Technology Type	Efficiency Sep-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 SO<sub>2</sub>, and NO not available due to monitor defects.

Associated Unit/Stack	PM	SO <sub>2</sub>	NO	O <sub>2</sub>	CO <sub>2</sub>
North	80				
South	100	100	98.7	100	98.6

Note: NO<sub>x</sub> emissions is measured as NO in PPM. Final NO<sub>x</sub> value is expressed as total NO<sub>x</sub>.

## 6 EMISSION PERFORMANCE

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

Associated Unit/Stack	PM (tons)	SO <sub>x</sub> (tons)	NO <sub>x</sub> (tons)
North	6.1		
South	18.9	1 078.5	470.3
SUM	25.0	1 078.5	470.3

-North Stack SO<sub>2</sub>, 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 - September 2024

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm <sup>3</sup> )
North	25	1	0	0	1	9.7
South	28	0	0	0	0	28.3
SUM	53	1	0	0	1	

-North Stack SO<sub>2</sub>, and NO 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<sub>2</sub> AEL Limit - September 2024

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SO <sub>2</sub> (mg/Nm <sup>3</sup> )
North						
South	28			0	0	1 567.3
SUM	28			0	0	

-North Stack SO<sub>2</sub>, 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<sub>x</sub> AEL Limit - September 2024

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NO <sub>x</sub> (mg/Nm <sup>3</sup> )
North						
South	28			0	0	642.8
SUM	28			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

Monitor defective from 30 August 2024 to 04 September 2024.  
Justifiable surrogate values from 25-28 August 2024 were used.

Figure 1: Hendrina North Stack PM Emissions - September 2024

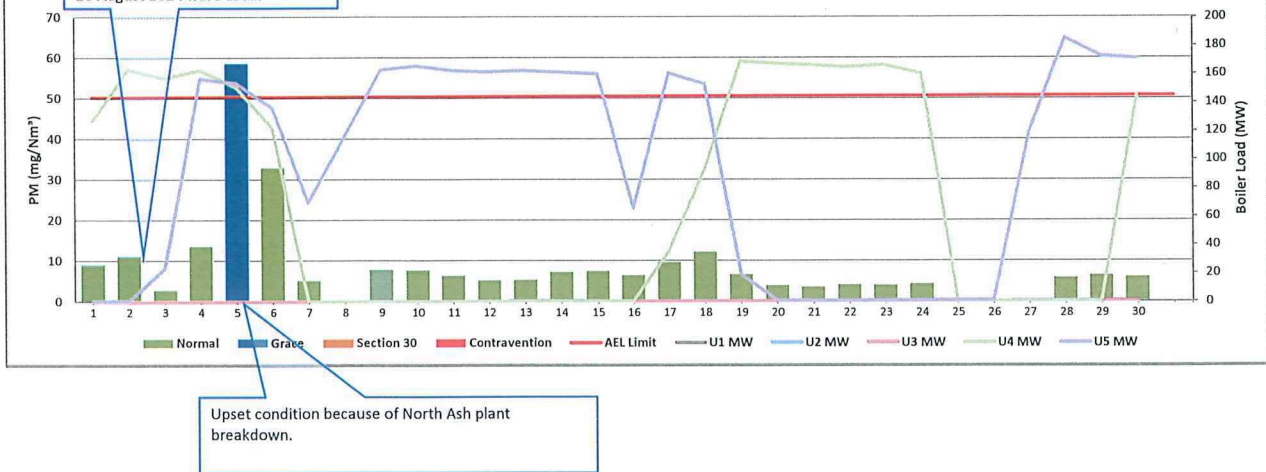


Figure 2: Hendrina South Stack PM Emissions - September 2024

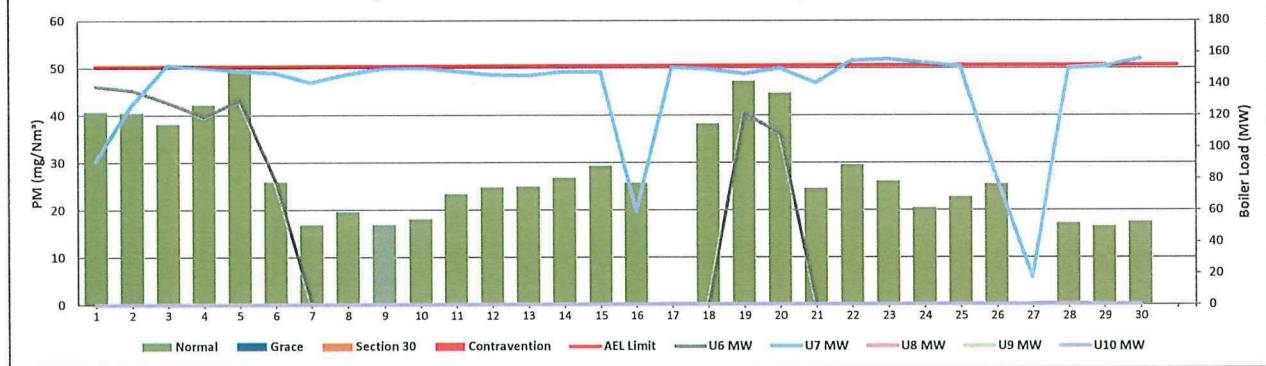
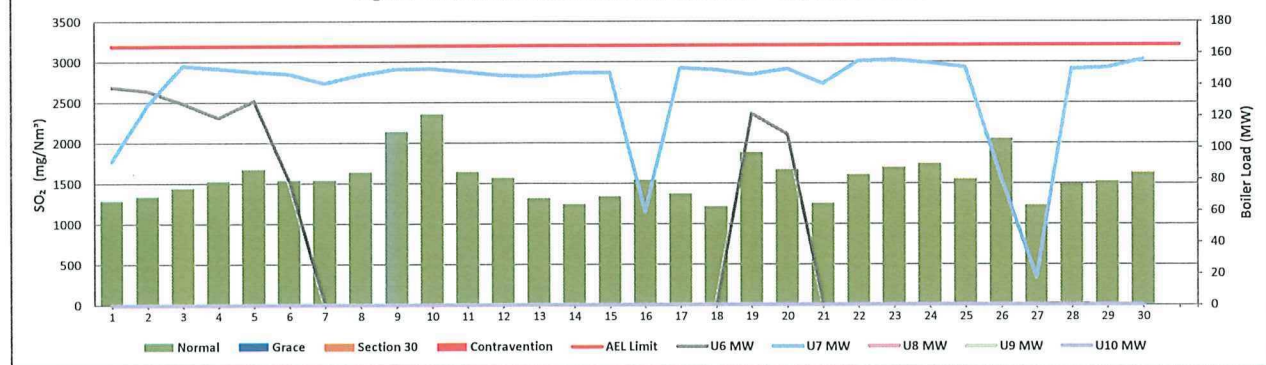
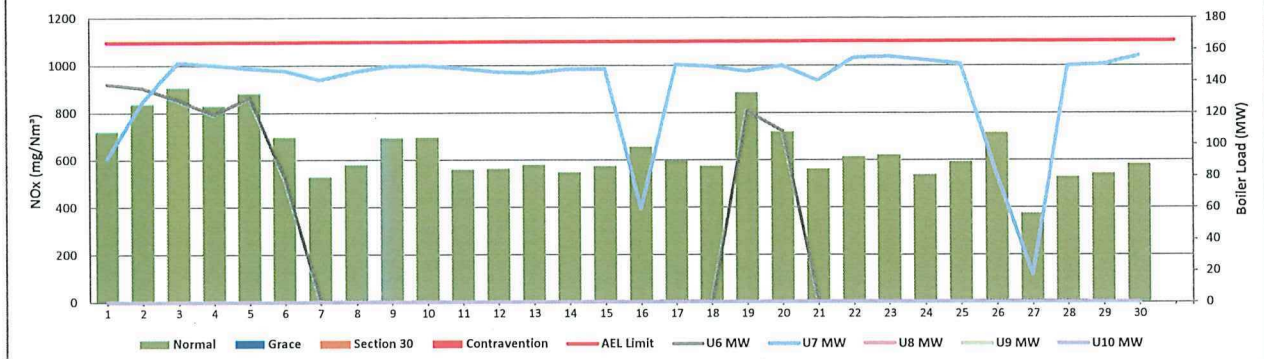
Figure 4: Hendrina South Stack SO<sub>2</sub> Emissions - September 2024



Figure 6: Hendrina South Stack NOx Emissions - September 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 Licensing Authority.

## 7 SHUT DOWN AND LIGHT UP INFORMATION

Table 7 1 PM Start-up information for the month of September-2024

North Stack	Event 1		Event 2		Event 3		Event 4	
Unit No	Unit 4		Unit 4		Unit 4		Unit 5	
Breaker Open (BO)	BO previously	BO previously	9 55 am	2024/09/06	7 25 pm	2024/09/24	BO previously	BO previously
Draught Group (DG) Shut Down (SD)	n/a	n/a	11 15 pm	2024/09/06	12 25 pm	2024/09/25	n/a	n/a
BO to DG SD (duration)	n/a	DD HH MM	00 13 20	DD HH MM	00 17 00	DD HH MM	n/a	DD HH MM
Fires in time			2024/09/17	2024/09/17			2024/09/03	2024/09/03
Synch to Grd (or BC)			4 40 pm	2024/09/18			6 40 pm	2024/09/03
Fires in to BC (duration)		DD HH MM	01 15 35	DD HH MM		DD HH MM	00 13 55	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		DD HH MM	n/a	DD HH MM

North Stack Continued	Event 5		Event 2		Event 3		Event 4	
Unit No	Unit 5		Unit 5		no event		no event	
Breaker Open (BO)	10 55 am	2024/09/07	3 05 am	2024/09/19				
Draught Group (DG) Shut Down (SD)	DG did not trip or SD	DG did not trip or SD	7 55 pm	2024/09/19				
BO to DG SD (duration)	n/a	DD HH MM	00 16 50	DD HH MM		DD HH MM		DD HH MM
Fires in time			2024/09/26	2024/09/26				
Synch to Grd (or BC)			6 20 am	2024/09/27				
Fires in to BC (duration)		DD HH MM	00 09 45	DD HH MM		DD HH MM		DD HH MM
Emissions below limit from BC (end date)				#REF!				
Emissions below limit from BC (duration)		DD HH MM	n/a	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		no event		Unit 7	
Breaker Open (BO)	7 55 am	2024/09/06	8 25 pm	2024/09/20			9 40 am	2024/09/16
Draught Group (DG) Shut Down (SD)	9 55 am	2024/09/06	1 35 pm	2024/09/23			9 40 am	2024/09/16
BO to DG SD (duration)	00 02 00	DD HH MM	02 17 10	DD HH MM		DD HH MM		DD HH MM
Fires in time	4 15 pm	2024/09/18					2024/09/17	2024/09/17
Synch to Grid (or BC)	1 20 am	2024/09/19					11 55 pm	2024/09/16
Fires in to BC (duration)	00 09 05	DD HH MM		DD HH MM		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)	n/a	DD HH MM		DD HH MM		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)	8 35 am	2024/09/26						
Draught Group (DG) Shut Down (SD)	9 55 am	2024/09/26						
BO to DG SD (duration)	00 01 20	DD HH MM		DD HH MM		DD HH MM		DD HH MM
Fires in time	1 45 pm	2024/09/27						
Synch to Grid (or BC)	8 50 pm	2024/09/27						
Fires in to BC (duration)	00 07 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 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 September 2024					



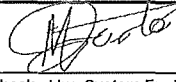
## 09 General

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.

 30 October 2024  
 Compiled by: Environmental Officer Date  
 A. Boja

 2024/11/04  
 Authorised by: GM Date  
 T. Lekalakala

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

 31/10/2024  
 Checked by: System Engineer Boiler/ FFP Date  
 Moyaisho Cethiff Maoto  
 Validated by Manager: Boiler Engineering Date 2024/10/31  
 G. Kgathle  
 Supported by Manager: Environmental Date 2024/10/31  
 L. Ntla

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