Eskom

APRIL 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 Apr-2024
	Coal	Tons	*820,000*	*266,915.5*
	Fuel Oil	Tons	*3,200*	*1712.612*
Production Rates	Product / By-Product Name	Units	Max. Production Capacity Permitted	Production Rate Apr-2024
	Energy	GWh	*1440*	*432.25*
	Ash	Tons	*290,000*	*58,268*
	RE PM	kg/MWh	*not specified*	*0.150*

2 ENERGY SOURCE CHARACTERISTICS

Coal Characteristics	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	*0.6 to < 1*	*0.60*
Ash Content	%	*20 to < 35*	*21.83*

3 EMISSION LIMITS (mg/Nm³)

Associated Unit/Stack	PM	SO_2	NOx
North	*75*	*3500*	*1200*
South	*75*	*3500*	*1200*

4 ABATEMENT TECHNOLOGY (%)

Associated Unit/Stack	Technology Type	Efficiency Apr-2024
Unit 1	*Fabric Filter Plant (FFP)*	*Unit Off-line*
Unit 2	*Fabric Filter Plant (FFP)*	*99.95%*
Unit 3	*Fabric Filter Plant (FFP)*	*Unit Off-line*
Unit 4	*Fabric Filter Plant (FFP)*	*99.96%*
Unit 5	*Fabric Filter Plant (FFP)*	*99.95%*
Unit 6	*Fabric Filter Plant (FFP)*	*99.94%*
Unit 7	*Fabric Filter Plant (FFP)*	*99.95%*
Unit 8	*Fabric Filter Plant (FFP)*	*Unit Off-line*
Unit 9	*Fabric Filter Plant (FFP)*	*Unit Off-line*
Unit 10	*Fabric Filter Plant (FFP)*	*100.00%*

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	CO2
North	*100 0*	*100 0*	*100 0*	*100 0*	94
South	*100 0*	*100 0*	*94 0*	*100 0*	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 April-2024

Associated Unit/Stack	PM (tons)	SOx (tons)	NOx (tons)
North	12 0	4,429 1	3,413 9
South	52 9	2,152 1	677 2
SUM	64 8	6,581 1	4,091 1

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm³)
North	30	0	0	0	0	9.6
South	30	0	0	0	0	38.5
SUM	60	0	0	0	0	

North Stack SO2 exceedence due to monitor defects. Mitigation measure outline at section 9 of this report: General

Table 6.3: Operating days in compliance to SO_2 AEL Limit - April 2024

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SO_2 (mg/Nm³)
North	14	0	0	0	16	3,522.6
South	30	0	0	0	0	1,482.3
SUM	44	0	0	16	16	

North Stack SO2 exceedence due to monitor defects. Mitigation measure outline at section 9 of this report: General

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm³)
North	0	0	0	0	30	2,682.2
South	30	0	0	0	0	445.0
SUM	30	0	0	30	30	

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

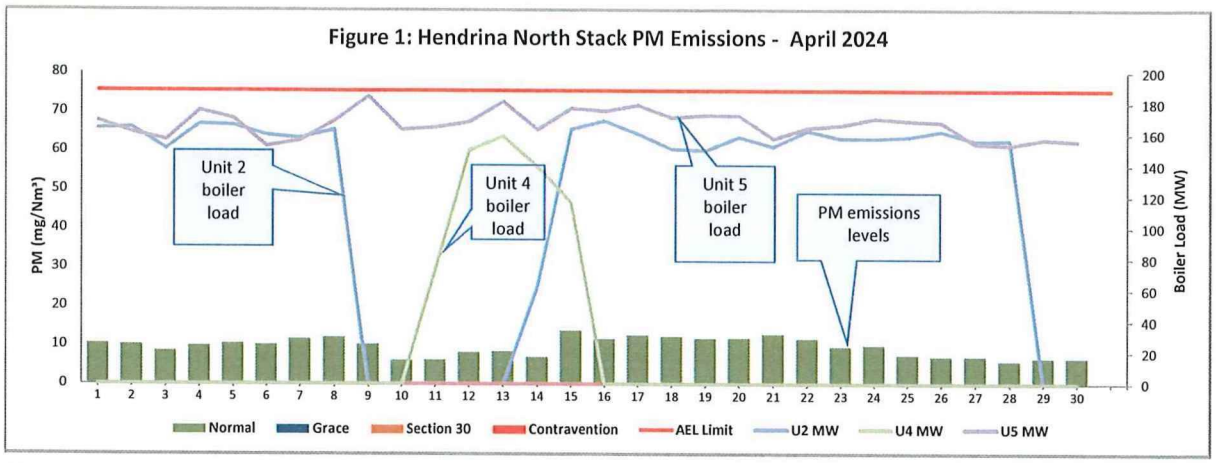

Figure 1: PM Emissions trends for North Stack- April 2024

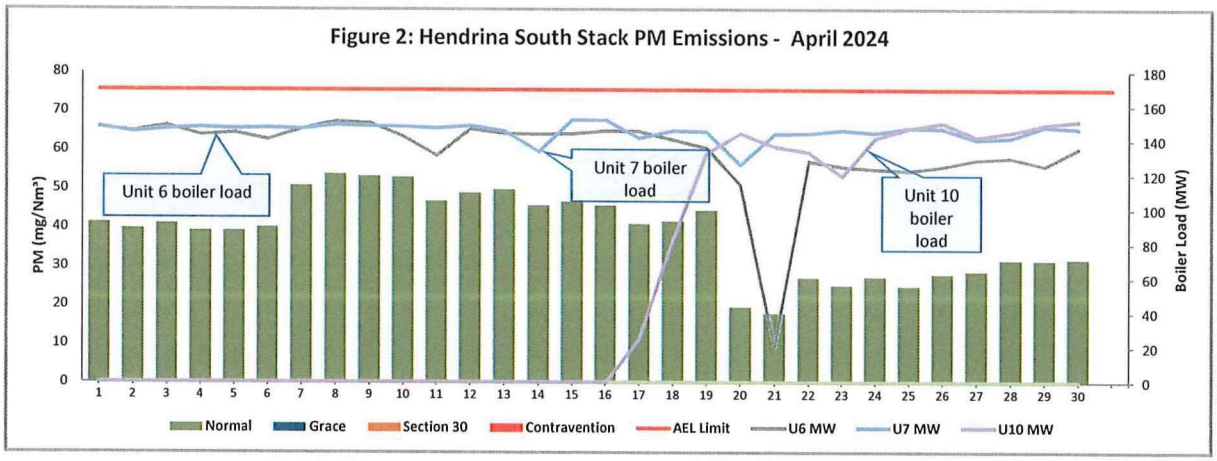

Figure 2: PM Emissions trends for South Stack- April 2024

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

Spot Checks 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 Acrredited service provider and the final report is awaited.
The station shall implement the correlation factors once the reports are received from the service provider and they shall be shared with the Licencing Authority.

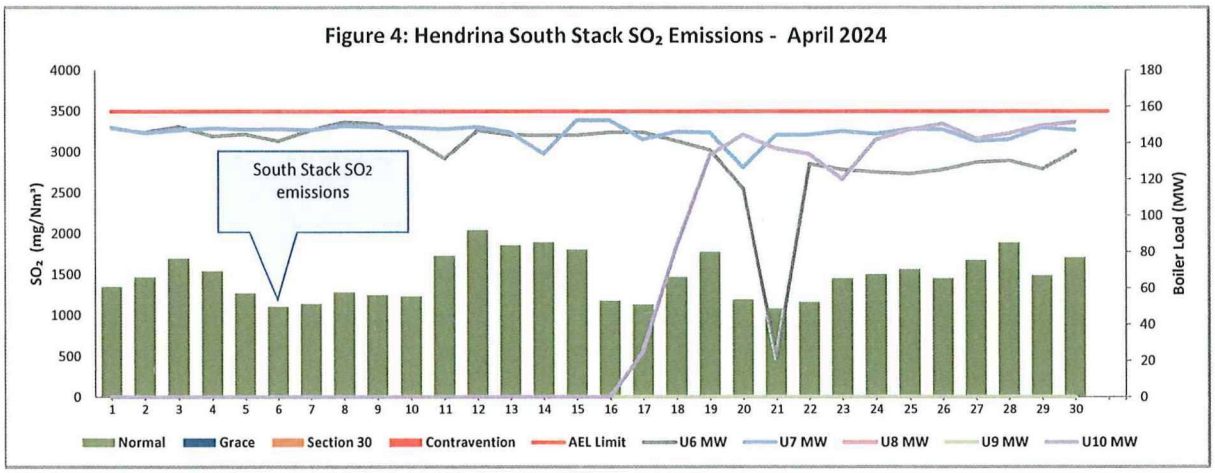

Figure 4: Sulphur dioxide Emissions trends for South Stack- April 2024

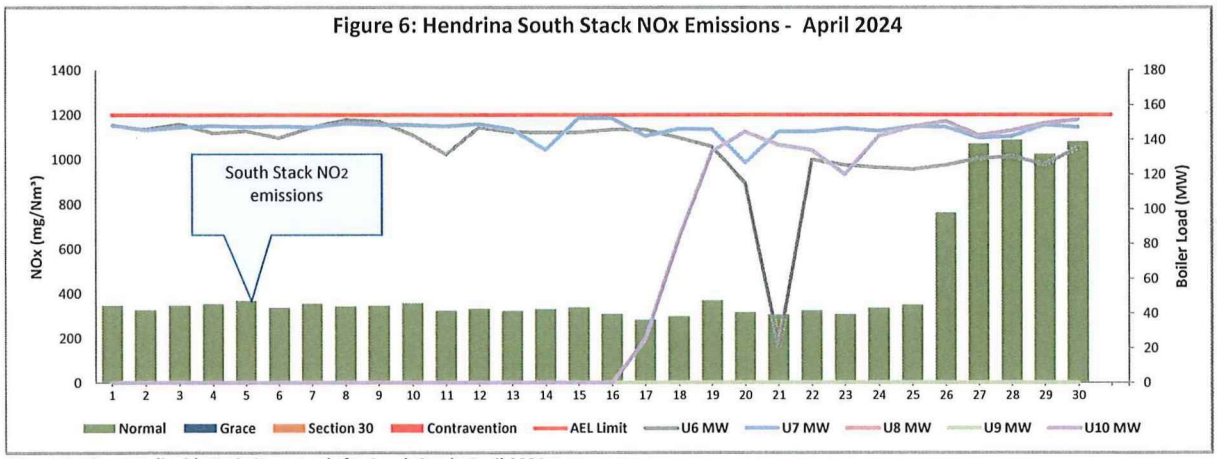

Figure 6: Nitrogen dioxide Emissions trends for South Stack- April 2024

7 SHUT DOWN AND LIGHT UP INFORMATION

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

North Stack	Event 1		Event 2		Event 3		Event 4	
Unit No	Unit 2		Unit 2		Unit 4		Unit 4	
Breaker Open (BO)	10 45 PM	08/04/2024	10 15 AM	28/04/2024			4 35 PM	15/04/2024
Draught Group (DG) Shut Down (SD)	7 25 PM	09/04/2024	11 05 PM	28/04/2024			3 45 PM	16/04/2024
BO to DG SD (duration)	00 20 40	DD HH MM	00 12 50	DD HH MM		DD HH MM	00 23 10	DD HH MM
Fires in time	10 10 AM	14/04/2024			11 01 00	11/04/2024		
Synch to Grid (or BC)	10 10 PM	14/04/2024			1 00 PM	11/04/2024		
Fires in to BC (duration)	00 12 00	DD HH MM		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)	n/a	DD HH MM		DD HH MM	n/a	DD HH MM		DD HH MM

South Stack	Event 1		Event 2		Event 3	
Unit No	Unit 6		Unit 10		Unit 10	
Breaker Open (BO)	5 15 AM	20/04/2024			11 15 PM	22/04/2024
Draught Group (DG) Shut Down (SD)	5 15 AM	20/04/2024			11 15 PM	22/04/2024
BO to DG SD (duration)		DD HH MM		DD HH MM		DD HH MM
Fires in time	8 00 AM	19/04/2024	17/04/2024	17/04/2024	22 23 40	22/04/2024
Synch to Gnd (or BC)	2 00 AM	21/04/2024	5 00 AM	18/04/2024	5 40 AM	23/04/2024
Fires in to BC (duration)	01 18 00	DD HH MM	00 06 00	DD HH MM	00 06 00	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	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 April 2024					

9 General

The station has taken to execute short term and long term mitigations to ensure reliability of the CEMS The short term actions include interim repairs and replacement of damaged components, which are now complete, by the Original Equipment Manufacturer
For the long term, the station will engage the Licencing Authority regarding a complete overhaul of the CEMS as required by Paragraph 2 of General Condition 4 1 of the AEL

11/06/2024	12/06/2024	12/06/2024
Compiler Date	Checked by Date	Checked by Date
B Madiope Office Environmental	Moyahabo Maoto System Engineer	S Kubheka C/I Engineer
2024.06.19		11/06/2024
Authorised by: GM Date		Validated by Manager Environmental Date
T Lekalakala		L Ntila

Compiled by	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 PSM