

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 Dec-2023
	Coal	Tons/month	820,000	73,769.0
	Fuel Oil	Tons/month	3,200	673.56

Production Rates	Product / By-Product Name	Units	Max. Production Capacity Permitted	Production Rate Dec-2023
	Energy	GWh	1488	126.76
	Ash	Tons	290,000	17,970
	RE PM	kg/MWh	not specified	0.204

2 ENERGY SOURCE CHARACTERISTICS

Coal Characteristics	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	0.6 to < 1	0.66
Ash Content	%	20 to < 35	24.36

3 EMISSION LIMITS (mg/Nm³)

Associated Unit/Stack	PM	SO ₂	NO _x
North	75	3500	1200
South	75	3500	1200

4 ABATEMENT TECHNOLOGY (%)

Associated Unit/Stack	Technology Type	Efficiency Dec-2023
Unit 1	Fabric Filter Plant (FFP)	Unit Off-line
Unit 2	Fabric Filter Plant (FFP)	Unit Off-line
Unit 3	Fabric Filter Plant (FFP)	Unit Off-line
Unit 4	Fabric Filter Plant (FFP)	Unit Off-line
Unit 5	Fabric Filter Plant (FFP)	99.999%
Unit 6	Fabric Filter Plant (FFP)	100.000%
Unit 7	Fabric Filter Plant (FFP)	Unit Off-line
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	18.3	100.0	100.0	68.6	0
South	99.8	43.1	1.4	99.4	41.6

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

6 EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of December-2023

Associated Unit/Stack	PM (tons)	SOx (tons)	NOx (tons)
North	0.0	752.8	366.3
South	25.8	890.7	311.8
SUM	25.9	1,643.5	678.1

Table 6.2: Operating days in compliance to PM AEL Limit - December 2023

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm ³)
North	8	0	0	0	0	0.3
South	26	0	0	0	0	45.1
SUM	34	0	0	0	0	

Table 6.3: Operating days in compliance to SO₂ AEL Limit - December 2023

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SO ₂ (mg/Nm ³)
North	6	0	0	10	10	3,800.9
South	27	0	0	0	0	1,491.6
SUM	33	0	0	10	10	

Table 6.4: Operating days in compliance to NO_x AEL Limit - December 2023

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NO _x (mg/Nm ³)
North	4	0	0	12	12	1,907.3
South	27	0	0	0	0	526.1
SUM	31	0	0	12	12	

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

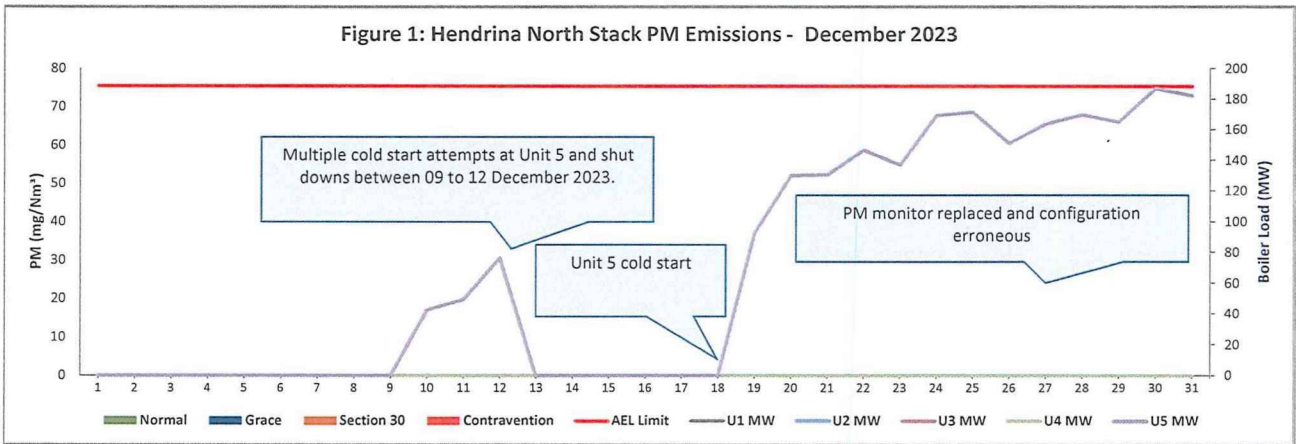


Figure 1: PM Emissions trends for North Stack- December 2023

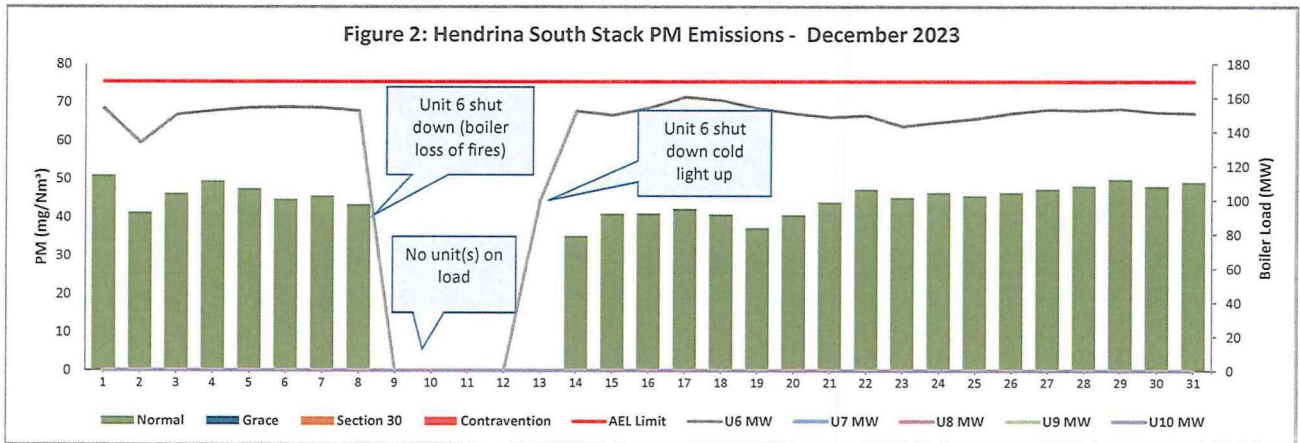


Figure 2: PM Emissions trends for South Stack- December 2023

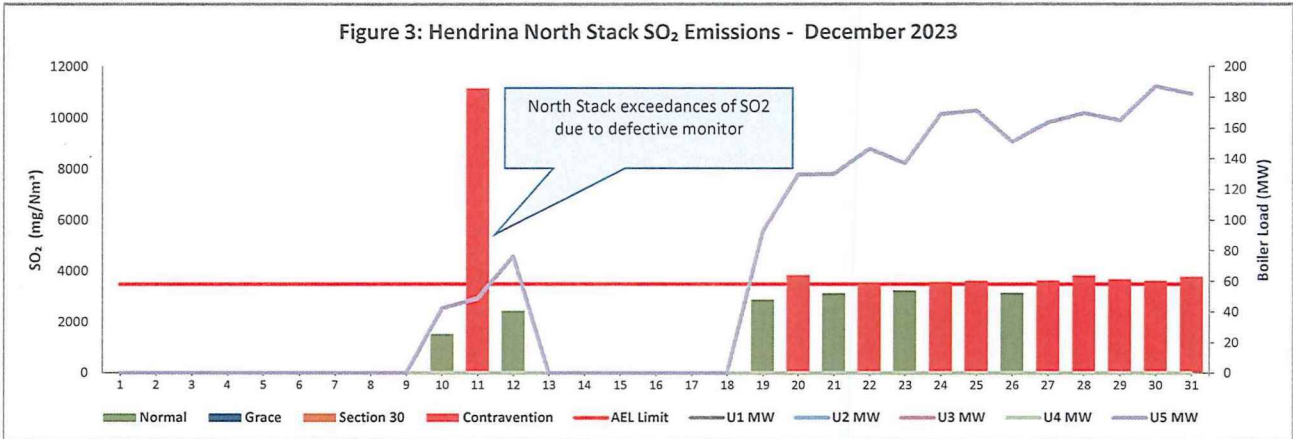


Figure 3: Sulphur dioxide Emissions trends for North Stack- December 2023

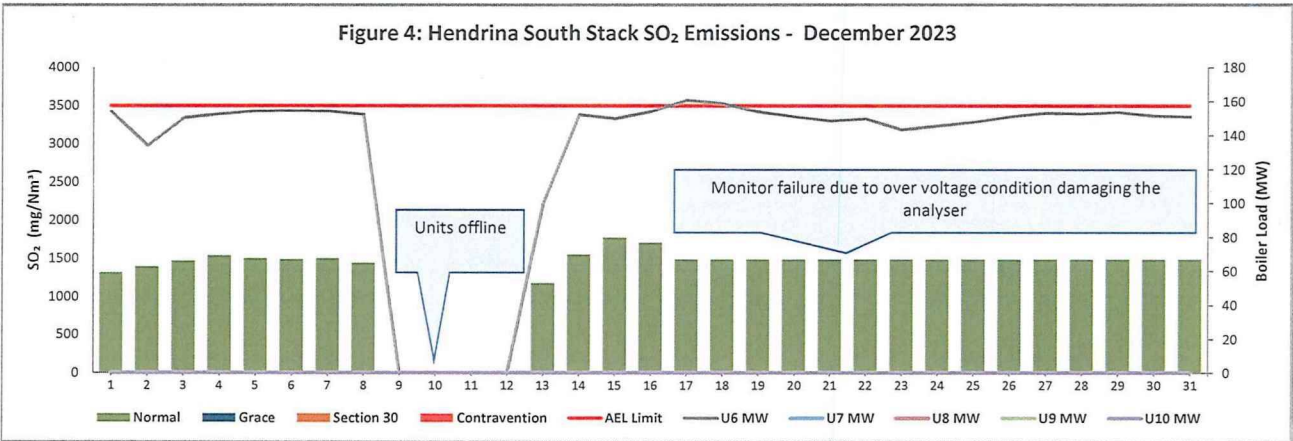


Figure 4: Sulphur dioxide Emissions trends for South Stack- December 2023

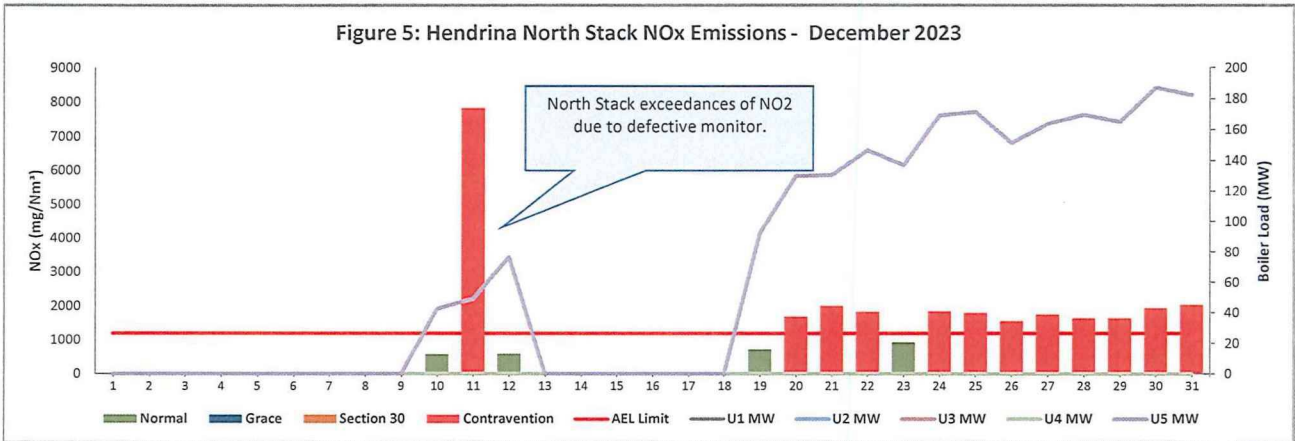


Figure 5: Nitrogen dioxide Emissions trends for North Stack- December 2023

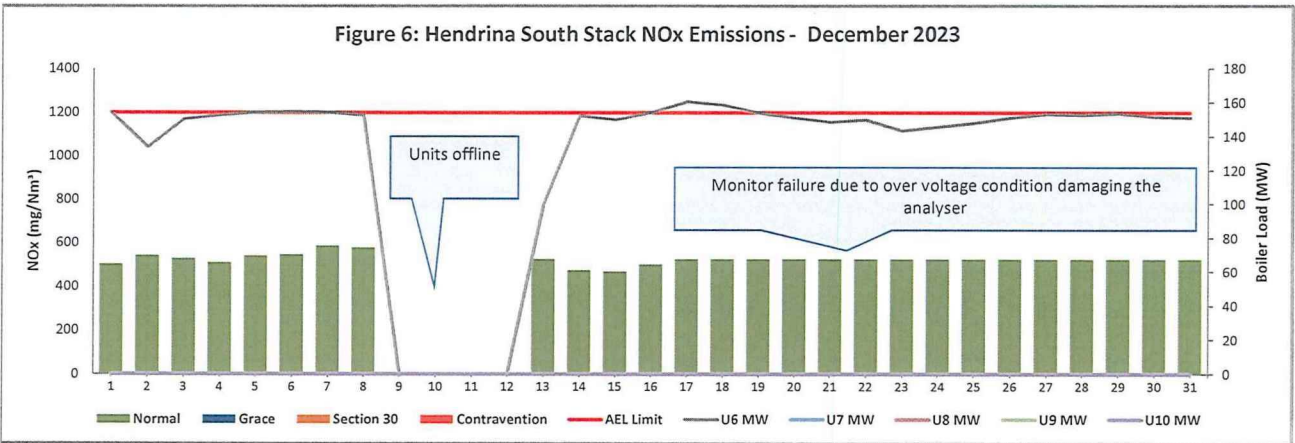


Figure 6: Nitrogen dioxide Emissions trends for South Stack- December 2023

7 SHUT DOWN AND LIGHT UP INFORMATION

Table 7.1 PM Start-up information for the month of December-2023

North Stack	Event 1		Event 2		Event 3	
Unit No.	Unit 5		Unit 5		Unit 5	
Breaker Open (BO)	5:25 PM	22/12/2023	10:55 PM	25/12/2023	3:25 PM	01/01/2024
Draught Group (DG) Shut Down (SD)	DG did not trip or SD	DG did not trip or SD	DG did not trip or SD	DG did not trip or SD	1:00 PM	27/12/2023
BO to DG SD (duration)	n/a	DD:HH:MM	n/a	DD:HH:MM		DD:HH:MM
Fires in time					31:03:25	31/12/2023
Synch. to Grid (or BC)					11:50 PM	04/01/2024
Fires in to BC (duration)		DD:HH:MM		DD:HH:MM	04:20:25	DD:HH:MM
Emissions below limit from BC (end date)					not > limit	not > limit
Emissions below limit from BC (duration)		DD:HH:MM		DD:HH:MM	n/a	DD:HH:MM


South Stack	Event 1	
Unit No.	Unit 6	
Breaker Open (BO)	9:35 PM	08/12/2023
Draught Group (DG) Shut Down (SD)	11:50 PM	11/12/2023
BO to DG SD (duration)	03:02:15	DD:HH:MM
Fires in time	11:10 AM	13/12/2023
Synch. to Grid (or BC)	5:10 PM	13/12/2023
Fires in to BC (duration)	00:06:00	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

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 December 2023.					

9. General

Hendrina Power Station has noted the exceedances of SO2 and NO2 for North Stack due to monitor defects and the monitor failures on the South Stack. A major contributor of the monitor issues is the ageing of the equipment. The station has taken to execute short term and long term mitigations to ensure reliability of the Continuous Emissions Monitoring System. Short term actions include interim repairs and replacement for the damaged equipment. For the long term, the station has submitted a request for quote from the Original Equipment Manufacturer for a complete overhaul of the system which the station will provide progress on to the Licencing Authority on the monthly reports.



 24/01/2024

 Date
 Compiled: Environmental Officer
 B. Madiope



 25/01/2024

 Date
 Boiler/ FFP
 Moyahabo Cetlyff Maoto



 26/01/2024

 Date
 Authorised by: GM
 T. Lekalala



 26/01/2024

 Date
 Validated by Manager: Environmental
 L. Ntila

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 For: Nkangala District Municipality
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 Hendrina Power Station:

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 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